



Lake Lynn Generation, LLC

c/o Eagle Creek Renewable Energy, LLC
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April 9, 2024

VIA E-FILING

Debbie-Anne A. Reese, Acting Secretary
Federal Energy Regulatory Commission
888 First Street, N.E.
Washington, D.C. 20426

Subject: Lake Lynn Hydroelectric Project (FERC No. P-2459)
Final License Application –Additional Information Request #3 Response

Dear Secretary Reese:

Lake Lynn Generation, LLC (Lake Lynn or Licensee) filed its response to Additional Information Request #3 on April 8, 2024 for the Lake Lynn Hydroelectric Project (FERC No. 2459). The response was inadvertently filed without Attachment A: AIR Response Table. Lake Lynn herein files Attachment A: AIR Response Table.

If you have any questions or require any additional information, please contact me at (804) 338-5110 or via e-mail at joyce.foster@eaglecreekre.com.

Sincerely,

Joyce Foster
Director, Licensing and Compliance

Attachment: AIR Response Table

cc: Distribution List

ATTACHMENT

AIR RESPONSE TABLE

AIR #	Action	Response to AIR
1. Project Boundary	<p>Many of the cells in this column lack descriptions of the original project purpose(s) for each area.¹ Moreover, there are some areas that are proposed for removal (e.g., an undeveloped riparian polygon on the east side of Cheat Lake, south of Area E; and another undeveloped riparian polygon on the west side of Cheat Lake between Areas D and F) that were not labeled with an Area ID and are not included in table 3.1.²</p> <p>To facilitate Commission staff’s review of the existing and proposed project boundary, please revise table 3.1 and the related map set to list and label all of the polygons of land proposed for removal, including the two unlabeled polygons identified above. The revised table 3.1 must include a detailed description of the original and current project purpose(s) for each polygon of land proposed for removal. The original project purpose(s) for each polygon may include: operation and maintenance; flowage; existing recreation and public access; shoreline control; protection and enhancement of environmental resources (e.g., water quality, botanical, fish and</p>	<p>Lake Lynn has updated its existing and proposed Project boundary maps as shown in revised Exhibit E, Figure 3-1 to Figure 3-3. Lake Lynn will provide the Commission with a revised Exhibit G reflecting the updated existing and proposed Project boundary within 60 days of this filing. The existing Lake Lynn Project boundary provided in the original FLA was found to be in error as it was based on a 1991 version of Exhibit G. Lake Lynn has since found a later 1996 version of Exhibit G that has a more accurate (and more readable) depiction of the existing Project boundary, and has now updated the existing Project boundary in a revised Project boundary map as shown in Exhibit E. Lake Lynn has also updated the proposed Project boundary. The revised proposed Project boundary is also depicted in Exhibit E. The proposed Project boundary now reflects Lake Lynn’s current proposal to remove 243.8 acres of Project lands that are no longer needed for Project purposes. As shown in Figures 3-4 to Figure 3-8, in revised Exhibit E, Lake Lynn is proposing to remove multiple areas (Areas A-H) of excess lands that are not needed for Project purposes. These areas do NOT include any of the previously designated nature viewing/wildlife habitat areas, all four of which will remain within the Project</p>

¹ The project purposes identified in Article 418 of the current license include: operation and maintenance; flowage; recreation; public access; protection of environmental resources; and shoreline control, including shoreline aesthetic values.

² The unlabeled polygon for land south of Area E that is proposed for removal is visible on figure 3.3 of the revised Exhibit E. The other polygon is not featured in the figures in the revised Exhibit E. However, it can be viewed by comparing the existing and proposed project boundary data (i.e., geographic information system (GIS) layers) filed on November 30, 2022.

AIR #	Action	Response to AIR
	wildlife and their habitats, scenic (aesthetics), and recreation), and other values of the project.	boundary. In addition to the areas shown on the map, Lake Lynn is also proposing adjustments to the Project boundary where currently the existing Project boundary is to a contour elevation that varies between the normal full pool elevation of the reservoir of 870' up to 885' in some locations (Figure 3-9 in Exhibit E). Lake Lynn is proposing to modify the Project boundary in these areas, so that where the Project boundary is to a contour elevation it will be consistently to the normal full pool elevation contour of 870' NGVD 29; consistent with FERC's 2014 <i>Managing Hydropower Project Exhibits Guidance Document</i> . Any lands located between the 885' and 870' contour elevation that do not encompass a Project recreation site or one of the four designated nature viewing/wildlife habitat areas are not needed for Project purposes. In total, Lake Lynn is proposing to remove 243.8 acres of land from the Project boundary. Lake Lynn is providing FERC with the GIS shapefiles for both the existing and proposed Project boundary. Table 3.1 of revised Exhibit E has been updated to include a detailed description of the existing and proposed Project boundary and each of the major parcels (Areas A-H) proposed for removal from the Project boundary.
2. Project Boundary	Please file an updated proposed project boundary GIS data layer. Also, please file a separate layer of the polygons of land proposed for removal, including Areas A, B, C, D, E, F, G, H, and the two missing	As part of this filing, Lake Lynn is filing GIS layers of the existing Project boundary, proposed Project boundary, and areas to be removed with labels in Attachment C.

AIR #	Action	Response to AIR
	polygons described in item 1 above. Please ensure that the original project purpose and the reason for proposing removal (i.e., why it is no longer serving a project purpose) are included as fields in the attribute table of the separate layer showing just the polygons of land proposed for removal.	
3. Project Boundary	To facilitate Commission staff's review of the existing recreation facilities and the overall licensing proposal, please submit a separate layer of polygons showing the geographic extent of the project recreation areas.	As part of this filing, Lake Lynn is filing GIS layers with the polygons, lines, and points showing the geographic extent of the Lake Lynn Project recreation areas in Attachment C.
4. Project Boundary	Lake Lynn Generation mentioned during the scoping meetings that it proposes to retain two of the four nature viewing areas required by the current license in the project boundary and two would be removed. This proposal, however, appears to be inconsistent in the text ³ and figure 2 ⁴ of the current license, and is not made clear in the GIS map layers filed. The nature viewing area polygons filed on September 11, 2023, appear to be inconsistent with those filed on November 30, 2022. Specifically, both datasets have three nature viewing areas in common. ⁵ However, there is a different,	There are four Nature Viewing/Wildlife Habitat areas within the existing Project boundary. A GIS layer is being provided of all four Nature Viewing/Wildlife Habitat areas in Attachment C. None of the existing Nature Viewing/Wildlife Habitat areas are currently being proposed for removal from the Lake Lynn Project boundary.

³ The current (1994) license for the project designated four nature viewing areas. These are: Cheat Haven Peninsula (140 acres); Area 12 (12 acres); Area 26 (25 acres); and Area 18 (40 acres between the Morgan and Manning Run embayments).

⁴ Figure 2 in the 1994 license for the project shows five polygons labeled as proposed recreation areas (West Penn Beach Peninsula; Area 18; Tower Run/Area 26; Cheat Haven; and Area 12), some of which are currently identified by Lake Lynn Generation as nature viewing areas.

⁵ Both the Nature Viewing Area GIS data layers filed on November 30, 2022, and on September 11, 2023, include polygons for the Tower Run (25 acres) and Cheat Haven Peninsula (140 acres) Nature Viewing Areas, as well as a nature viewing area across from Cheat Haven (12 acres).

AIR #	Action	Response to AIR
	<p>fourth, nature viewing area identified in each dataset.⁶ To facilitate Commission staff's review of Lake Lynn Generation's proposed changes to the Lake Lynn Project boundary, please clarify if there are four or five nature viewing areas. If there are four nature viewing areas, please clarify the current purpose/designation of the other polygons shown on figure 2 of the 1994 license, and on the November 30, 2022, and September 11, 2023, GIS data layers. Also, please file a new GIS data layer clearly showing which nature viewing areas are proposed for removal from the project boundary and which nature viewing areas would remain in the project boundary. In addition, please include the acreage for each of the nature viewing areas in both the narrative response and the attribute table.</p>	
5. Aquatic Resources	<p>On January 24, 2023, Commission staff requested information on the distribution of aquatic (and terrestrial) invasive species within the project boundary, including: (a) a description, and map depicting the location(s), of aquatic and terrestrial invasive species within the project area; and (b) a description of the presence of aquatic and</p>	<p>Additional details regarding invasive aquatic species were added to Section 4.5.1.10 of Exhibit E, including details on hydrilla, zebra mussels, rusty cray fish, virile crayfish, and silver carp in relation to the Lake Lynn Project. Location of hydrilla was mapped by WVDNR in September 2023 and a map displaying the location of hydrilla in Cheat Lake was added to Exhibit E. None of the other invasive</p>

⁶ The GIS data layer filed on November 30, 2022, displays a polygon labeled "40 Acres Morgan and Manning Run Embayments" which overlaps with Cheat Lake Park and "Area B" proposed for removal (as shown in figure 3.1 of the revised Exhibit E) that was not included in the GIS data layer filed on September 11, 2023. Also, the GIS data layer filed on September 11, 2023, includes a 40-acre polygon labeled "Area 18 Nature Viewing Area" which is within "Area E" (shown in figure 3.3 of the revised Exhibit E) proposed for removal that was not included in the GIS data layer filed on November 30, 2022.

AIR #	Action	Response to AIR
	<p>terrestrial invasive species at the recreation sites, public access sites, and maintained areas throughout the project boundary. Staff also requested that Exhibit E of the license application be revised, as appropriate, to include this information. Section 4.5.1.10, Invasive Species, of the revised Exhibit E filed September 11, 2023, lists only the most common aquatic invasive species that occur in West Virginia, including hydrilla, zebra mussels, rusty crayfish, virile crayfish, and silver carp.</p> <p>Section 4.7.1, Botanical Resources – Affected Environment, describes the riparian habitat within Cheat Lake and the 2015 biomonitoring report (Smith and Welsh, 2015)⁷ shows the areas of highest aquatic vegetation abundance as embayment habitats (e.g., Morgans and Rubles Runs). Figure 4.27 in the revised Exhibit E appears to depict the most recently filed GIS data for aquatic vegetation (November 30, 2022). The map title is “NWI⁸ Wetlands,” the figure label is “Wetlands in the Existing and Proposed Lake Lynn Project Boundary, and the legend includes wetland types, as well as the location and relative density of aquatic vegetation within Cheat Lake. However, the</p>	<p>aquatic species listed have been found in Lake Lynn, but maps of where these species are found are provided in Exhibit E, along with an added discussion on the proximity of known occurrences.</p> <p>In Section 4.7.1, five figures have replaced the original Figure 4-27. These maps include wetland types using the National Wetlands Inventory data and field surveyed data displaying hydrilla data from WVDNR and the density of vegetation. The density of aquatic vegetation data does not specify the type of vegetation found during the surveys.</p> <p>The attribute table was updated to differentiate the NWI data from the data collected by Lake Lynn and WVDNR. An updated GIS layer is provided in Attachment C.</p> <p>Invasive aquatic vegetation is discussed under Section 4.5.1.10 and considers management plans and impacts to recreation (dangers to boating and swimming). Currently, there is a sign posted at the winter boat launch at Cheat Lake Park informing the public of risk of hydrilla based on WVDNR guidance. Signs will be posted at Sunset Beach Marina and Edgewater Marina prior to recreation season. Lake Lynn is working to obtain permission for posting signs at the two privately owned</p>

⁷ Smith, D. and S. Welsh. 2015. Biological Monitoring of Aquatic Communities of Cheat Lake, and Cheat River Downstream of the Lake Lynn Hydro Station, 2011 – 2015. Division of Forestry and Natural Resources West Virginia University.

⁸ “NWI” refers to the U.S. Fish and Wildlife’s National Wetlands Inventory (NWI).

AIR #	Action	Response to AIR
	<p>NWI database does not contain information about the relative density of aquatic vegetation, so the figure label and title are unclear, as it seems to include both NWI information and additional data collected by Lake Lynn Generation.</p> <p>The attribute table of the aquatic vegetation GIS data layer collected by Lake Lynn Generation has wetland classification codes used in the U.S. Fish and Wildlife's (FWS) NWI in a column labeled "Attribute"⁹ and common names of wetland types and relative densities of aquatic vegetation combined in a column labeled "Wetland_TY." Therefore, the NWI data and aquatic vegetation data collected by Lake Lynn Generation appear to be combined in two columns in the GIS layer that was submitted. Please differentiate the NWI data from the data collected by Lake Lynn Generation by placing them in separate columns of the attribute table, with descriptive names for each attribute, so Commission staff and others can have a clear understanding of the data. Also, there is no differentiation between non-native, invasive species (e.g., hydrilla) and native plant species in the attribute table for the aquatic vegetation GIS data collected by Lake Lynn Generation. If</p>	<p>marinas. Additionally, Lake Lynn has been discussing hydrilla management with the WVDNR and are considering herbicide treatment, but further discussion with WVDNR needs to continue before a full plan is developed.</p>

⁹ "Attribute" is a general/default label for columns in an attribute table associated with a GIS data layer.

AIR #	Action	Response to AIR
	<p>possible, please add this information to the attribute table. Finally, to facilitate Commission staff's review of potential effects associated with project operation and maintenance, as well as project-related recreation on native and non-native invasive aquatic and terrestrial vegetation, please also provide a description of any measures used to manage invasive species, including hydrilla, at the project.</p>	
<p>6. Terrestrial Resources</p>	<p>In scoping comments, Katie Fallon, Executive Director of the Avian Conservation Center of Appalachia, states that the avian center partners with the Cheat Lake Animal Hospital to rehabilitate over 500 injured or displaced birds annually from throughout the region. Among these birds was an Arctic peregrine falcon that showed signs of electrocution, possibly through a collision with power lines. To facilitate Commission staff's analysis of the effects of project operation and maintenance on avian species, please consult with the Avian Conservation Center of Appalachia, FWS, and the West Virginia Department of Natural Resources regarding project-specific information on: (1) observed interactions between birds or other wildlife and the project transmission facilities (e.g., use of transmission line poles for hunting perches or nesting sites, and/or electrocutions or collisions with the project power lines in the</p>	<p>The Lake Lynn Project has two transformers and dual 800-foot-long, 138 kV transmission lines, that lead from the powerhouse to the interconnection point with the grid at the substation owned and operated by FirstEnergy. These two short sections of transmission line are unlikely to cause any significant adverse impacts to birds. Lake Lynn is not aware of any interaction of peregrine falcons or other raptors with their short transmission line sections. Lake Lynn staff contacted Avian Conservation Center regarding their concerns and also have not yet received a response. Lake Lynn staff also contacted the USFWS and WVDNR about interactions between birds or other wildlife and the project transmission lines and other project effects on birds and wildlife.</p> <p>Copies of consultation are provided in revised Exhibit E, Appendix A. To date, no responses have been received. Any responses received as a result of this consultation will be provided to the Commission in a supplemental filing.</p>

AIR #	Action	Response to AIR
	project boundary); and (2) other potential project-related effects to birds, other wildlife, and their habitats. Your response should include documentation of consultation with the consulted entities.	
7. Threatened and Endangered Species	As described in the official list of threatened and endangered species for the Lake Lynn Project issued on August 21, 2023, the proposed threatened tri-colored bat may occur in the project boundary or be affected by the relicensing of the project. It has recently come to our attention that FWS is in the process of developing tricolored bat protection recommendations based on seasonal habitat use, which varies geographically. As the Commission's authorized non-federal representative for carrying out informal consultation pursuant to section 7 of the Endangered Species Act, please consult with the FWS to determine which seasonal habitat tricolored bat zones occur within the existing and proposed project boundaries. ¹⁰ As part of your response, you should file the documentation of consultation with the FWS.	<p>At this time, the licensee is protecting Tri-colored bats with seasonal tree trimming restrictions from April to September. Lake Lynn would consult with the USFWS regarding removal needs. As a general rule, Lake Lynn only removes trees where removal is necessary for public safety, protection of human life, or protection of property.</p> <p>Lake Lynn has provided an updated IPAC in the consultation record as part of the Revised Exhibit E, Appendix A. Lake Lynn staff also contacted the USFWS regarding the tricolored bat protection recommendations based on seasonal habitat use. To date, no responses have been received. Any responses received as a result of this consultation will be provided to the Commission in a supplemental filing.</p>
8. Recreation and Land Use	The revised Exhibit E filed on September 11, 2023, contains a brief description of Lake Lynn's proposal to develop a Shoreline	In response to this request, Lake Lynn has developed an outline of the proposed Lake Lynn SMP (SMP Outline, Attachment D). Because Lake

¹⁰ Examples of tricolored bat seasonal habitat zones include the true hibernation zone, year-round active zone 1 where tricolored bats may be present on the forested landscape at any time of year but may enter short bouts of torpor in extended cold periods, and year-round active zone 2 where tricolored bats are likely active all year without extended torpor or hibernation.

AIR #	Action	Response to AIR
	<p>Management Plan (SMP) within 1 year of license issuance. In order for Commission staff to address the shoreline management issues raised during the scoping process for the project, and because there is no current SMP, please provide a detailed description of all elements of shoreline protection proposed for inclusion in the SMP, including: (a) a description of the proposed shoreline/land use classifications (e.g., project facilities, recreation, natural/undeveloped, commercial, etc.); (b) a description of the types of activities and facilities that would be permitted, and under what conditions, in each shoreline/land use type; and (c) a map, and GIS data, if available, showing any available existing, as well as the proposed, shoreline/land use classifications for each area within the project boundary, in accordance with the Standard Land Use Article of the license.¹¹ Additionally, please provide a detailed description of the proposed provisions, including timing, to remove the moratorium on private boat docks and piers on Cheat Lake. Finally, the revised Exhibit E described how shoreline classification data was collected in 2021.¹² Please submit these</p>	<p>Lynn has committed to developing the SMP in consultation with interested stakeholders after a new license is issued for the Lake Lynn Project, Lake Lynn has not yet developed and cannot yet provide many of the details regarding shoreline classification and what activities would be permitted, that FERC is asking for. However, the SMP Outline provides a general description of the goal of the SMP which is to serve as a guide for future management of the Lake Lynn shoreline within the FERC Project boundary, consistent with the Licensee’s responsibility to protect the Project’s natural, environmental, recreational, and cultural resources and consistent with FERC’s requirements under the Standard Land Use Article. The SMP Outline also describes Lake Lynn’s expectation that the SMP will identify the types of shoreline activities and uses that will be permitted within the Project boundary, designate where they are allowable within the Project boundary, and provide the policies, procedures, and requirements for permitting such activities consistent with the Standard Land Use Article. Finally, as part of the SMP Outline, Lake Lynn has prepared land use maps (Appendix A) as well as maps depicting sensitive and natural areas in and around Lake Lynn (Appendix B). These maps are provided in Appendix A and B of the SMP Outline. These maps</p>

¹¹ As Lake Lynn Generation develops its resource plans, please consult with the Monongalia County Comprehensive Plan entitled, “The Future of Monongalia County: Creating Meaningful Connections.”

¹² See also the “Shoreline Classification and Aquatic Habitat Mapping” sections of Lake Lynn Generation’s Study Plan Meeting notes and Revised Study Plan dated May 2020 in volume 2 of Lake Lynn Generation’s April 25, 2023, additional information response.

AIR #	Action	Response to AIR
	spatially referenced shapefiles, along with the metadata.	will form the basis for the delineation and establishment of shoreline management zones around Lake Lynn. It is also anticipated that the resulting shoreline management zones will include areas within the Project boundary designated for "conservation" and requiring special protection because these areas contain, or are adjacent to, important natural, environmental, or cultural resources. Other shoreline management zones will allow certain types of development and use, consistent with the Standard Land Use Article. Lake Lynn is providing FERC with GIS shapefiles for both the land use maps and the sensitive and natural areas maps included in the SMP Outline (Attachment C). Finally, regarding FERC's question about the current moratorium on new boat docks, it has been and continues to be Lake Lynn's intent to complete the SMP within 1 year of new license issuance, and then to use the FERC-approved SMP to consider, review, and where appropriate allow new uses of Project lands and waters, including potential new boat dock construction, consistent with the SMP and Standard Land Use Article.
9. Cultural Resources	In prior issuances, ¹³ Commission staff requested the record of consultation with the West Virginia State Historic Preservation Office (West Virginia SHPO) and Pennsylvania State Historic Preservation Office (Pennsylvania SHPO) regarding	Lake Lynn reached out to the West Virginia and Pennsylvania SHPO on March 8 and April 3, 2024 regarding concurrence on the APE and effects of the potential removal of land (see Exhibit E, Appendix A). To this date, neither SHPO have responded to the letters. No effect would be

¹³ Commission staff's November 3, 2022 letter at 10 (AIR #24); Staff's January 24, 2023 letter at B-6 (AIRs # 17 and #19); and Staff's July 23, 2023 letter at A-4 (AIRs #10 and #12).

AIR #	Action	Response to AIR
	<p>concurrence on the Area of Potential Effects (APE), as well as the effects of the potential removal of lands from the project boundary on known historic properties. The response provided as part of the September 11, 2023, filing does not include documentation of concurrence on the APE, nor does it discuss potential effects of removing land from the project boundary on historic properties. Please follow up with the West Virginia and Pennsylvania SHPOs for concurrence letters on the APE and effects on historic resources within the APE.</p>	<p>expected from the proposed Project Boundary changes, which is further discussed in AIR 10 and 11 responses.</p>
<p>10. Cultural Resources</p>	<p>Section 4.11.1.2, Prior Cultural Resource Investigations, of the revised Exhibit E, filed on September 11, 2023, mentions that the Pennsylvania SHPO identified a potential National Register-eligible above ground resource that may require surveying prior to developing final plans. However, no survey work is being proposed as part of the final license application. Please provide a description of this resource (please file as Privileged if appropriate), and any survey work proposed for it.</p>	<p>Attachment E of this AIR contains maps of the historical and cultural properties documented which shows the existing Project Boundary and proposed Project Boundary. All historical and cultural properties that were originally in the existing Project Boundary would remain in the proposed Project Boundary, with exception of the unevaluated archaeological site (36FA0073). However, while this site would no longer be within the proposed Project Boundary it would remain within Lake Lynn ownership. A portion of the APE's for the Catawba Path (210394), and the Penn Hill Housing property (101383) extends into the existing Project Boundary and would be excluded under the proposed Project Boundary. However, the actual properties of these resources appear to be located outside of the existing and proposed Project Boundaries. Any lands excluded from the proposed Project Boundary would still remain</p>

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		<p>under Lake Lynn ownership. It is not expected any effect on these properties would occur from this proposed Project Boundary change. Lake Lynn reached out to the West Virginia and Pennsylvania SHPO with distribution of the Final License application as well via email directly on March 8 and April 3, 2024 about this proposed action and have not received a response (Appendix A of Exhibit E).</p> <p>With exception of the unevaluated archaeological site (36FA0073), and APE's of the Catawba Path and Penn Hill Housing, all other existing historic and cultural resources found within the existing Project Boundary would remain within the proposed Project Boundary. No surveys are being proposed at this time due to no plans for groundbreaking disturbances and Lake Lynn retaining ownership on the lands these resources are located.</p> <p>Under the current license, any proposed changes to structures prior to new license issuance would undergo Section 106 consulting with the Pennsylvania and West Virginia SHPO and pursuant to Article 414. Any proposed changes to these structures after a new license would be issued, would be consistent with a FERC-approved Historic Properties Management Plan (HPMP).</p> <p>Any proposed changes to these structures that might occur after new license issuance but before</p>

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		<p>an HPMP has been approved by FERC would be subject to the provisions of a Programmatic Agreement (PA) which Lake Lynn anticipates will be established between FERC, the SHPOs, and any affected Tribes.</p>
<p>11. Cultural Resources</p>	<p>Section 4.11.1.2, Prior Cultural Resource Investigations, of the revised Exhibit E filed on September 11, 2023, states that there are two known, potentially eligible, cultural resources within the Lake Lynn Project boundary: the former Baltimore & Ohio railroad right-of-way and the Lake Lynn Powerhouse. The letters included in the final license application to the West Virginia SHPO and the Pennsylvania SHPO list the cultural resources that were documented within the APE, but does not describe potential effects to the sites associated with the proposed project or measures to address such effects.¹⁴ For Commission staff to understand the potential effects to these known cultural resources, please: (a) discuss how the proposed removal of the lands from the project boundary, and, thus, from federal protection, could affect these resources; and (b) describe any mitigation measures for such potential effects, if applicable. Also, please include any correspondence</p>	<p>The proposed Project Boundary change would have no effect on these resources. The historic archaeological site identified as the former Baltimore and Ohio Railroad right-of-way (Cheat Lake Trail) and will be contained within the proposed Project Boundary which will include a 10-ft buffer from the center of the Lake Cheat Trail. This keeps the trail within the proposed Project Boundary and all existing historical and archaeological resources identified along the trail. The Lake Lynn powerhouse and dam are necessary for Project operations, and therefore will stay within the proposed Project Boundary. No changes to the powerhouse, dam, or the Cheat Lake Trail are currently proposed and under the current license any proposed changes to these structures would undergo Section 106 consulting with the Pennsylvania and/or West Virginia SHPO and pursuant to Article 414, a Cultural Resource Management Plan would be prepared before any groundbreaking activities. Any proposed changes to these structures that might occur after new license issuance but before an HPMP has been</p>

¹⁴ See TRC's letter dated October 26, 2020, in Appendix A of the final license application at pdf page 515.

AIR #	Action	Response to AIR
	<p>regarding mitigation measures received from the West Virginia SHPO and Pennsylvania SHPO.</p>	<p>approved by FERC would be subject to the provisions of a Programmatic Agreement (PA) which Lake Lynn anticipates will be established between FERC, the SHPOs, and any affected Tribes. Any proposed changes to these structures after FERC approval of the Historic Properties Management Plan (HPMP) would be consistent with a FERC-approved HPMP. There are no potential effects to any of these sites from the proposed Project Boundary and therefore no mitigation measures are necessary. The Pennsylvania and West Virginia SHPO were contacted on March 8 and April 3, 2024 (Appendix A of Exhibit E) regarding the proposed Project Boundary change, to this date they have not responded or provided mitigation measures.</p>
<p>12. Environmental Justice</p>	<p>In section 4.14, Environmental Justice, of the revised Exhibit E, filed on September 11, 2023, Lake Lynn Generation identifies environmental justice communities within 1 mile of the Lake Lynn Project. However, the analysis did not use the most recent American Community Survey 5-year estimate data. The most recent available 5-year estimate data is 2022 5-year estimate data. Further, EPA recommends implementing a community outreach strategy for identified environmental justice communities.¹⁵ Therefore, to facilitate Commission staff's review of environmental</p>	<p>Section 4.14 of Exhibit E has been updated to include the 2022 American Community Survey 5-year estimate data.</p> <p>Pursuant to 18 CFR §16 Lake Lynn published notice of the NOI and PAD filings in the <i>Herald Standard</i> and <i>The Dominion Post</i>, two daily newspapers of general circulation in Monongalia County, West Virginia, and Fayette County, Pennsylvania. Lake Lynn also published notice of the Joint Meeting and site visit in the same newspapers, and held the Joint Meeting and site visit, open to the public, on December 12, 2019. Lake Lynn believes the notices published in newspapers, and the Joint Meeting</p>

¹⁵ See EPA's October 19, 2023, letter.

AIR #	Action	Response to AIR
	<p>justice issues at the project, please describe Lake Lynn Generation's community outreach strategy, and use the 2022 5-year estimates to update section 2.11, Environmental Justice, of Exhibit E.</p>	<p>and site visit open to the public, satisfied the public outreach requirements of the regulations, and provided notification and instructions for accessing information related to relicensing to the public, including environmental justice communities. Lake Lynn provided copies of the Final License Application (FLA) for the public to view at two public libraries within the vicinity of the Project, as well as instructions for viewing the FLA electronically. Access was provided equally to all members of the public, including EJ communities and non-EJ communities. No comments were received related to environmental justice concerns.</p>



Lake Lynn Generation, LLC
c/o Eagle Creek Renewable Energy, LLC
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April 8, 2024

VIA E-FILING

Debbie-Anne A. Reese, Acting Secretary
Federal Energy Regulatory Commission
888 First Street, N.E.
Washington, D.C. 20426

Subject: Lake Lynn Hydroelectric Project (FERC No. P-2459)
Final License Application –Additional Information Request #3 Response

Dear Secretary Reese:

Lake Lynn Generation, LLC (Lake Lynn or Licensee) is the licensee and operator of the Lake Lynn Hydroelectric Project (Lake Lynn Project). The Lake Lynn Project is located on the Cheat River, in Monongalia County, West Virginia, near the city of Morgantown, and in Fayette County, Pennsylvania, near the borough of Point Marion. The existing Federal Energy Regulatory Commission (FERC or Commission) license for the Lake Lynn Project expires on November 30, 2024. Lake Lynn is pursuing a new license for the Lake Lynn Project and filed its Final License Application on November 30, 2022.

On February 23, 2024, FERC issued Additional Information Request #3 (AIR) for the Final License Application. Lake Lynn's responses to FERC's requests are filed herein and include revised Exhibit E and electronic files as requested by FERC. Specific shapefiles being submitted include:

- Existing Project boundary
- Proposed Project boundary
- Lands proposed for removal
- Project Recreation Areas
- Nature viewing/wildlife habitat areas
- Aquatic habitat
- 2021 shoreline classification

Of particular note, this AIR response includes important changes to the existing and proposed Lake Lynn Project boundary, about which FERC had questions.

Regarding the Lake Lynn Project boundary changes, in response to FERC's most recent questions about the Licensee's proposed Project boundary, which proposed the removal of certain lands that are not needed for Lake Lynn Project purposes, Lake Lynn renewed its research regarding the existing Lake Lynn Project boundary and, the nature viewing/wildlife habitat areas. Based on this research, Lake Lynn determined that the existing Lake Lynn Project boundary previously depicted in the FLA in both Exhibit G and Exhibit E was in error. The Licensee found that there was a newer and far more legible, 1996 version, of Exhibit G than the 1991 Exhibit G maps that had been used initially to convert the paper map version of the old Exhibit G to a GIS-based depiction of the existing Lake Lynn Project boundary. The newer Exhibit G map was far more legible than the 1991 version, and led to a far clearer understanding of the contour elevations where the existing Lake Lynn Project boundary along the reservoir shoreline was to a contour elevation. What the Licensee found was that there was not a single contour elevation that was used to depict the existing Lake Lynn Project boundary, but instead the contour elevation varied around the reservoir between the normal full pool elevation of the 870' contour elevation to up to an elevation of 885' in some locations. In any case, the Licensee has now used the 1996 Exhibit G to develop a new, more accurate GIS-based delineation of the existing Lake Lynn Project boundary (as shown in the modified Exhibit E [Attachment B]). The Licensee is in the process of updating Exhibit G to reflect this more accurate existing Lake Lynn Project boundary delineation and will provide the Commission with the revised Exhibit G within 60 days of this filing. In the meantime, the Licensee is submitting the requested shapefiles for the existing Lake Lynn Project boundary (Attachment C).

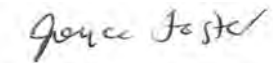
As a result of this revision to the existing Lake Lynn Project boundary, the Licensee also revisited its proposed changes to the lake Lynn Project boundary. As described in the AIR response (Attachment A), Lake Lynn is proposing to remove certain upland parcels of lands from the Lake Lynn Project boundary that are not needed for Lake Lynn Project purposes. The Licensee has no plans to sell or develop these parcels, they are simply not needed for Lake Lynn Project purposes and therefore should appropriately be removed from the FERC Project boundary. These parcels do not include any of the four nature viewing/wildlife habitat areas that were established during the previous relicensing. Lake Lynn is also proposing to modify the Lake Lynn Project boundary in areas where the existing Lake Lynn Project boundary is to various contour elevations to consistently be to the contour elevation of 870', which is the full pool elevation of the impoundment. This is consistent with FERC's guidance regarding the project boundary being to the full pool elevation of the impoundment, unless additional lands are needed for project purposes. In this case, the proposed Lake Lynn Project boundary will still encompass all of the FERC-approved Lake Lynn Project recreation sites, as well as all of the existing nature viewing/wildlife habitat areas. Revised maps and acreage tables depicting the Licensee's proposed modifications to the existing Lake Lynn Project boundary are provided in the revised Exhibit E. This proposal and the accompanying maps and tables are intended to supplant any previous depictions or descriptions of the existing and proposed Lake Lynn Project boundary.

Also included with this AIR response is an outline of a Shoreline Management Plan (SMP Outline) for the Lake Lynn Project (Attachment D). This SMP Outline is intended to provide Commission staff with as much information about the intended purpose and scope of the proposed SMP as can be provided at this time. Included in the SMP Outline are land use classification maps and natural areas maps showing the location of both wildlife and aquatic habitats that have been previously identified through the relicensing process. These maps are expected to be the foundation of the development of shoreline management zones around Lake Lynn, which in turn will be the basis for determining the types of shoreline development that will be permitted, consistent with FERC's standard land-use article. Lake Lynn's intention is to develop the SMP in close consultation with the numerous stakeholders who have a strong interest in the future of Cheat Lake. Lake Lynn is still committed to developing the Lake Lynn SMP within one year of new license issuance.

Finally, Lake Lynn notes that certain information requested by FERC staff in the AIR regarding cultural resources is considered Privileged, and is being filed as such under separate cover (Attachment E)

If you have any questions or require any additional information, please contact me at (804) 338-5110 or via e-mail at joyce.foster@eaglecreekre.com.

Sincerely,



Joyce Foster
Director, Licensing and Compliance

Attachment A: AIR Responses

Attachment B: Revised Exhibit E with Revised Appendix A (Filed separately)

Attachment C: Electronic Files (Filed separately)

Attachment D: Shoreline Management Plan Outline

Attachment E: Cultural Resources, Filed as Privileged

cc: Distribution List

ATTACHMENT A

AIR RESPONSES

ATTACHMENT B

REVISED EXHIBIT E WITH REVISED APPENDIX A

(FILED SEPARATELY)

ATTACHMENT C
ELECTRONIC FILES
(FILED SEPARATELY)

ATTACHMENT D
SHORELINE MANAGEMENT PLAN OUTLINE

Preliminary Outline

Draft Shoreline Management Plan

Lake Lynn Project (P-2549)

Prepared by
Kleinschmidt Associates

Prepared for
Lake Lynn Generation, LLC

April 2024

TABLE OF CONTENTS

1.0	INTRODUCTION AND BACKGROUND.....	1-1
1.1	Introduction.....	1-1
1.2	Use of Shoreline Management Plan.....	1-2
1.3	Need for Shoreline Management Plan.....	1-2
1.4	FERC’s Policies Regarding Public Recreation and Use of Project Lands and Waters.....	1-3
1.5	Shoreline Management Plan Goals.....	1-3
2.0	LAKE LYNN PROJECT DESCRIPTION.....	2-1
2.1	Project Setting.....	2-1
2.2	Hydropower Development.....	2-1
2.2.1	Hydropower Project Description.....	2-1
2.2.2	Hydropower Project Operation.....	2-1
3.0	USE OF PROJECT LANDS AND WATERS.....	3-1
3.1	Existing Land Use.....	3-1
3.2	Zoning and Development Regulations.....	3-2
3.3	Watershed Protection.....	3-2
3.4	Water Users.....	3-2
4.0	RECREATION RESOURCES.....	4-1
4.1	Recreation Facilities.....	4-1
4.2	Recreational Use.....	4-1
5.0	ENVIRONMENTAL AND NATURAL RESOURCES.....	5-1
5.1	Wildlife Habitats.....	5-1
5.2	Wetlands.....	5-1
5.3	Sensitive Areas/Habitat.....	5-1
6.0	CULTURAL RESOURCES.....	6-1
7.0	SHORELINE MANAGEMENT.....	7-1
7.1	Reservoir Management Priorities.....	7-1
7.2	Shoreline Management Zones.....	7-1
7.3	Shoreline Development Permitting Process.....	7-1
7.4	Shoreline Activities.....	7-2
8.0	SHORELINE STEWARDSHIP.....	8-1
8.1	Shoreline Buffers.....	8-1
8.2	Voluntary Forest Management Practices.....	8-1
8.3	Voluntary Shoreline Stewardship Practices.....	8-1

Table of Contents (Cont'd)

9.0 SHORELINE MANAGEMENT FROM A REGIONAL PERSPECTIVE 9-1
10.0 REFERENCES 10-1

LIST OF APPENDICES

- Appendix A Lake Lynn Project Land Use Maps
- Appendix B Lake Lynn Project Natural Areas Maps

DRAFT

1.0 INTRODUCTION AND BACKGROUND

1.1 Introduction

The Lake Lynn Project (Project) is a hydroelectric project located on the Cheat River in Monongalia County, West Virginia and Fayette County, Pennsylvania, approximately 10 miles northeast of Morgantown, West Virginia. The Lake Lynn Project is located about 3.7 miles upstream of the confluence with the Monongahela River. The Lake Lynn Project does not use any federal facilities and occupies no federal lands. The Lake Lynn Project is operated as a dispatchable peaking hydroelectric facility with storage capability. The Lake Lynn Project generating capacity is 51.2 megawatts (MW).

The Lake Lynn Project is owned and operated by Lake Lynn Generation, LLC (Licensee) and is licensed by the Federal Energy Regulatory Commission (FERC) as Project Number 2549. The current license for the Project expires November 30, 2024. The Final License Application (FLA) for a subsequent license was filed with FERC by the Licensee on November 29, 2022. As part of the FLA, the Licensee proposed developing a shoreline management plan (SMP) for the Project as a condition of the new license. In February 2024, FERC issued an additional information request (AIR) to the Licensee asking them to provide the Commission with certain information that it expects to include in the proposed SMP, including:

- a) description of the proposed shoreline/land use classifications (e.g., project facilities, recreation, natural/undeveloped, commercial, etc.);
- b) a description of the types of activities and facilities that would be permitted, and under what conditions, in each shoreline/land use type; and
- c) a map, and GIS data, if available, showing any available existing, as well as the proposed, shoreline/land use classifications for each area within the project boundary, in accordance with the Standard Land Use Article of the license; and
- d) a description of the proposed provisions, including timing, to remove the moratorium on private boat docks and piers on Cheat Lake.

This preliminary outline of a shoreline management plan for the Lake Lynn Project provides some information, where available, regarding the questions asked by FERC in the February AIR. Some of the information requested by FERC in the AIR is provided herein, including the attached GIS-based maps showing existing land use types, and

sensitive and natural areas (based on resource studies conducted as part of the FERC relicensing process).

The proposed shoreline classification categories about which FERC asked in the AIR have not yet been developed, but ultimately will consider both the existing land use maps (Appendix A) and the sensitive and natural areas maps (Appendix B), along with input from stakeholders. Thus, the Licensee cannot yet provide specifics regarding exactly how the SMP will categorize various shoreline areas, or what future uses and activities will be allowed with each shoreline category. However, it is the Licensee's intent that future shoreline classifications and the activities allowed within each, will be consistent with the Licensee's obligations to preserve and protect the Project's natural, environmental, recreational, and cultural resources and be consistent with FERC's Standard Land Use Article which is anticipated to be included in any new license from FERC. The Licensee fully anticipates developing the details of the proposed SMP in consultation with the numerous relicensing stakeholders, including agencies, tribes, local governments, NGO's and adjacent landowners who have repeatedly expressed an interest in shoreline management at the Lake Lynn Project throughout the FERC relicensing process.

This preliminary outline is intended only to respond as best as possible to the FERC AIR. It is in no way intended to usurp the long-promised and much-anticipated SMP consultation and development process that will begin following the Commission's issuance of a subsequent license for the Lake Lynn Project.

1.2 Use of Shoreline Management Plan

The proposed Lake Lynn SMP is intended to be used by the Licensee as a long-term planning and decision-making tool for the effective and sustainable management of the Lake Lynn shoreline, consistent with the FERC license and the Standard Land Use Article contained therein. It is intended to be operative through the term of the FERC license.

1.3 Need for Shoreline Management Plan

As development pressure around Lake Lynn continues to increase, the Licensee has found it increasingly difficult to strike an appropriate balance between shoreline development and fulfilling its responsibility to protect the Project's natural, environmental, recreational, and cultural resources. The proposed SMP is intended to serve as a guide for future management of the Lake Lynn shoreline in the face of increasing development pressures and recreational use.

1.4 FERC's Policies Regarding Public Recreation and Use of Project Lands and Waters

The Standard Land Use Article that currently applies to the Lake Lynn Project may change a bit in any subsequent license issued by FERC; however, there is every expectation that the fundamental requirements of the Standard Land Use Article will remain the same. Under the Standard Land Use Article, the Licensee may permit certain uses and occupancies of Project lands and waters, and/or to convey certain interests. In some instances, the Licensee must give FERC prior notice of the proposed permission or activity, while in other cases FERC's prior approval is required. Any uses of Project lands and waters granted by the Licensee under authority of its license must be consistent with the Standard Land Use Article and consistent with the purposes of protecting and enhancing the natural, environmental, recreational, and cultural values of the Project.

1.5 Shoreline Management Plan Goals

The specific goals of the proposed SMP will be developed in consultation with stakeholders. However, generally, the Licensee envisions that the primary goal of the proposed SMP will be to serve as a guide for future management of the Lake Lynn shoreline within the FERC Project Boundary, consistent with the Licensee's responsibility to protect the Project's natural, environmental, recreational, and cultural resources and with FERC's requirements under the Standard Land Use Article.

2.0 LAKE LYNN PROJECT DESCRIPTION

2.1 Project Setting

Information regarding the Project setting, and resources will be provided in the proposed SMP (to be developed in consultation with the stakeholders). This same information can be found in Exhibit E of the Final License Application.

2.2 Hydropower Development

Information regarding the Project and its operation will be provided in the proposed SMP. A description of the Project, its history, and its current operation can be found in Exhibits A, B, and E of the Final License Application.

2.2.1 Hydropower Project Description

The principal features of the Lake Lynn Project are the dam, powerhouse, impoundment and appurtenant facilities. The Lake Lynn Dam consists of a 125-foot-high by 1,000-foot-long concrete gravity type dam with a 624-foot-long spillway controlled by 26 Tainter gates. The powerhouse is located adjacent to the dam on the eastern bank of the river. The powerhouse contains four generating units. Exhibit A provides a detailed description of the Lake Lynn Project facilities.

2.2.2 Hydropower Project Operation

The Licensee typically operates the Lake Lynn Project as a dispatchable peaking hydroelectric facility with storage capability. The Project's ponding capability varies by season and allows for peaking. Exhibit B provides a detailed description of the Lake Lynn Project operations.

3.0 USE OF PROJECT LANDS AND WATERS

3.1 Existing Land Use

Existing land use information is provided in Exhibit E of the Final License Application. Maps showing existing land uses around the Lake Lynn shoreline are also provided in Appendix A. Existing land use information was obtained from ECRE, from shoreline mapping/surveys completed by Strager Consulting, Inc. (Strager Consulting 2020). As shown in Appendix A, the Lake Lynn shoreline within the FERC Project boundary is a combination of commercial recreation, public recreation, industrial or private property, and forest. A description of each of the land use categories included on the maps follows:

- Commercial recreation – commercially owned property operated for recreation, mostly identified at Cheat Lake as the marinas and associated complexes such as Cheat Lake Marina, Edgewater Marina, and Sunset Beach Marina.
- Public recreation – these areas include state or private company owned land that is open and available for recreational activities under the guidelines of the site. Areas on Cheat Lake include the Cheat Lake Park and Trail, Ices Ferry car top boat launch area, Sunset Beach public boat launch, Mon Chateau Geologic and Economic Survey, Coopers Rock State Forest, and Snake Hill Wildlife Management Area.
- Industrial – areas include those industrial uses such as hydropower operation and use at Cheat Lake.
- Private – personal owned private property as defined by the Monongalia County Parcel maps.
- Forest – Areas characterized by tree cover (natural or semi-natural woody vegetation, generally greater than 6 meters tall); tree canopy accounts for 25-100 percent of the cover. This forest class includes Deciduous Forest - Areas dominated by trees where 75 percent or more of the tree species shed foliage simultaneously in response to seasonal change, Evergreen Forest - Areas dominated by trees where 75 percent or more of the tree species maintain their leaves all year. Canopy is never without green foliage, and Mixed Forest - Areas dominated by trees where neither deciduous nor evergreen species represent more than 75 percent of the cover present.
- Other – this designation was for land that is not being used for recreation or industrial purposes but is owned by the power company.

3.2 Zoning and Development Regulations

Information on any applicable state, county or municipal zoning regulations that apply to the Lake Lynn shoreline will be provided in the proposed SMP.

3.3 Watershed Protection

Information on any applicable state or county watershed protection requirements for the lower Cheat River or Lake Lynn will be provided in the proposed SMP.

3.4 Water Users

Information on existing water uses including water withdrawals and discharges will be included in the proposed SMP, and is currently available in Exhibit E of the FLA.

4.0 RECREATION RESOURCES

Information regarding Lake Lynn Project recreation resources is provided in Exhibit E of the FLA. Relevant information on public and private recreation resources will be included in the proposed SMP (to be developed in consultation with the stakeholders).

4.1 Recreation Facilities

Lake Lynn Project recreation sites provide fishing, boating, nature viewing, picnicking, and hiking/biking opportunities. Existing Lake Lynn Project FERC-approved recreation sites are described in Appendix E and will be described in the proposed SMP. Additional recreational information will be provided in the proposed SMP, as appropriate.

4.2 Recreational Use

Recreational use is described in Appendix E and as appropriate will be included in the proposed SMP.

5.0 ENVIRONMENTAL AND NATURAL RESOURCES

Information regarding environmental and natural resources can be found in Exhibit E of the FLA. Similar information is expected to be included in the proposed SMP. Maps showing environmental and natural resources are provided in Appendix B. These maps were developed from information collected at Project as part of the relicensing effort, or through environmental monitoring conducted by the Licensee under the terms of its current FERC license. The following sources of information were used to create the natural areas maps included in Appendix B.

5.1 Wildlife Habitats

Four areas within the FERC Project boundary for the Lake Lynn Project have been designated as nature viewing areas/wildlife habitats. These areas are shown on the natural areas maps in Appendix B.

5.2 Wetlands

There are no emergent, forested, or scrub/shrub wetlands along the shoreline within the project boundary.

5.3 Sensitive Areas/Habitat

There are no critical habitats in the vicinity of the project.

6.0 CULTURAL RESOURCES

Information regarding cultural resources at the Lake Lynn Project can be found in Exhibit E of the FLA. Similar information will be provided in the proposed SMP (to be developed in consultation with the stakeholders).

7.0 SHORELINE MANAGEMENT

7.1 Reservoir Management Priorities

The Lake Lynn Project reservoir (Lake Lynn) supports many environmental and natural resources and provides an array of recreational use opportunities. The management priorities for Lake Lynn will include protecting natural, environmental, recreational, and cultural resources, and will be developed in consultation with stakeholders. The management priorities will be provided in the proposed SMP.

7.2 Shoreline Management Zones

It is anticipated that the Land Use Maps (Appendix A) and Natural Areas Maps (Appendix B) will be used to develop shoreline management zones through collaboration with stakeholders during development of the proposed SMP. It is anticipated that the resulting shoreline management zones will include areas within the Project boundary designated for “conservation” and requiring special protection because they contain, or are adjacent to, important natural, environmental, or cultural resources. This information will be developed in consultation with the stakeholders and will be provided in the proposed SMP.

7.3 Shoreline Development Permitting Process

The Licensee fully anticipates developing the details of the proposed SMP in consultation with the numerous relicensing stakeholders, including adjacent land owners, local governments, agencies, tribes and NGOs who have repeatedly expressed an interest in shoreline management at the Lake Lynn Project throughout the relicensing process. The proposed SMP is intended to be used by the Licensee as a long-term planning and decision-making tool for the effective and sustainable management of the Lake Lynn shoreline, consistent with the FERC license and the Standard Land Use Article contained therein.

Under the Standard Land Use Article, the Licensee may permit certain uses and occupancies of Project lands and waters, and/or to convey certain interests. In some instances, the Licensee must give FERC prior notice of the proposed permission or activity, while in other cases FERC’s prior approval is required. Any uses of Project lands and waters granted by the Licensee under authority of its license must be consistent with the

Standard Land Use Article and consistent with the purposes of protecting and enhancing the natural, cultural, recreational, and other environmental values of the Project.

The Licensee anticipates the proposed SMP will provide details on the shoreline permitting process that will be codified in the SMP and will be used to ensure consistent management of Lake Lynn shoreline activities in the future.

7.4 Shoreline Activities

The proposed SMP will identify the types of shoreline activities and uses that will be permitted within the Project boundary, designate where they are allowable within the Project boundary, and provide the policies, procedures, and requirements for permitting such activities consistent with the Standard Land Use Article. The details regarding permitted shoreline activities will be developed in consultation with stakeholders during development of the proposed SMP. Some of the activities that are anticipated to be covered in the proposed SMP include the following:

- Private Boat Docks and Piers
- Boat Launches
- Multi-use Facilities (e.g., Marinas)
- Shoreline Stabilization
- Shoreline and Reservoir Alteration (Excavation, Dredge and Fill)
- Aquatic Vegetation Protection
- Discharges/Dumping

8.0 SHORELINE STEWARDSHIP

As a FERC licensee, Lake Lynn Generation, LLC operates and manages the Project reservoir (Lake Lynn) and shoreline in accordance with the terms of the Project license, the Standard Land Use Article, and the applicable rules and regulations of FERC. This responsibility includes providing adequate public access and public recreation facilities, and protecting important natural, environmental, and cultural resources. To guide stewardship of the reservoir shoreline, the Licensee, in consultation with stakeholders, will develop policies, procedures, and requirements consistent with the Standard Land Use Article regarding use of the Project reservoir and shoreline.

8.1 Shoreline Buffers

As described above, it is anticipated that during the development of the proposed SMP the land use classification maps (Appendix A) and natural areas maps (Appendix B) will be used to identify and delineate shoreline management zones. It is anticipated that different shoreline uses will be allowed within the different management zones, and that in some management zones conservation buffers will be identified. The proposed SMP will provide further details about shoreline buffers around Lake Lynn.

8.2 Voluntary Forest Management Practices

To help reduce the potential impacts of forest management on the reservoir and shoreline, the Licensee anticipates that the proposed SMP will establish a set of guidelines for voluntary forest management practices for adjoining property owners. These will be provided in the proposed SMP.

8.3 Voluntary Shoreline Stewardship Practices

Adjoining property owners can take voluntary measures to help protect reservoir water quality. Designing and planning natural shoreline landscapes, as well as strategies to manage them, can help protect the Project reservoir. The Licensee anticipates that the proposed SMP will include voluntary measures that adjoining property owners can take to help protect lake water quality.

9.0 SHORELINE MANAGEMENT FROM A REGIONAL PERSPECTIVE

The Licensee plans to develop the proposed SMP in consultation with a wide variety of stakeholders, including agencies, tribes, NGOs, state, county, and local governments, and other local and regional organizations. In so doing, the Licensee desires to develop an SMP that is consistent with applicable state, regional and local management plans. Some of the applicable management plans are included in Exhibit H of the FLA. Others may be added to the list of applicable management plans and fully considered during the development of the proposed SMP, in consultation with stakeholders.

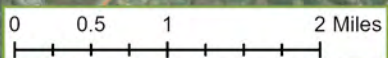
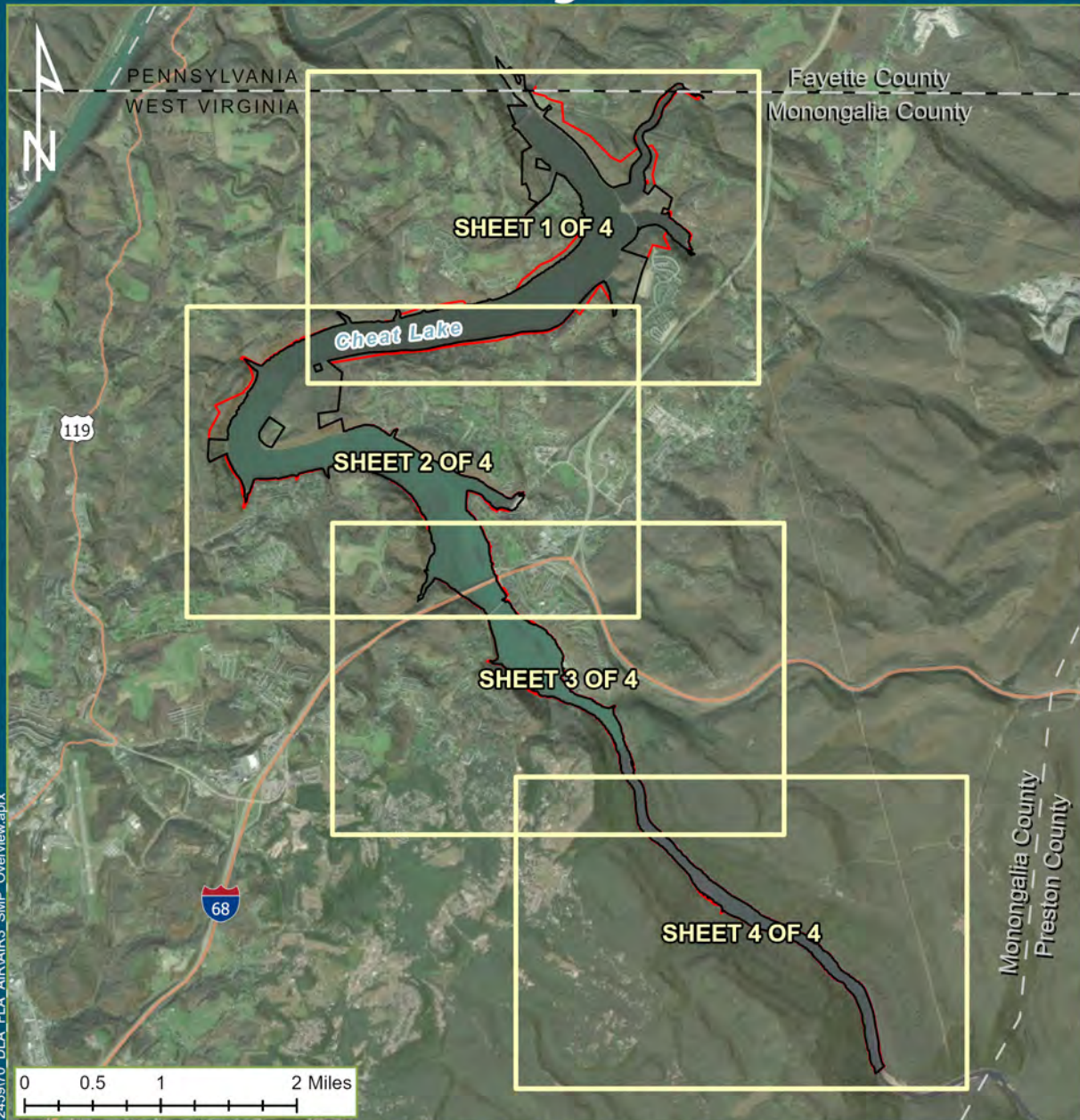
10.0 REFERENCES

Strager Consulting. 2022. Shoreline Classification and Aquatic Habitat Mapping of Cheat Lake, WV.

APPENDIX A

LAKE LYNN PROJECT LAND USE MAPS

Shoreline Management Plan - Overview



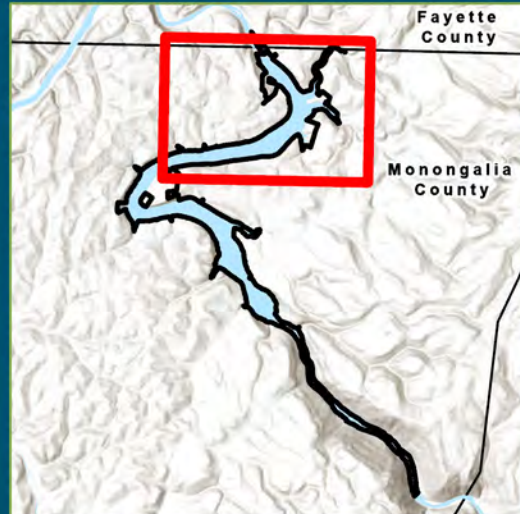
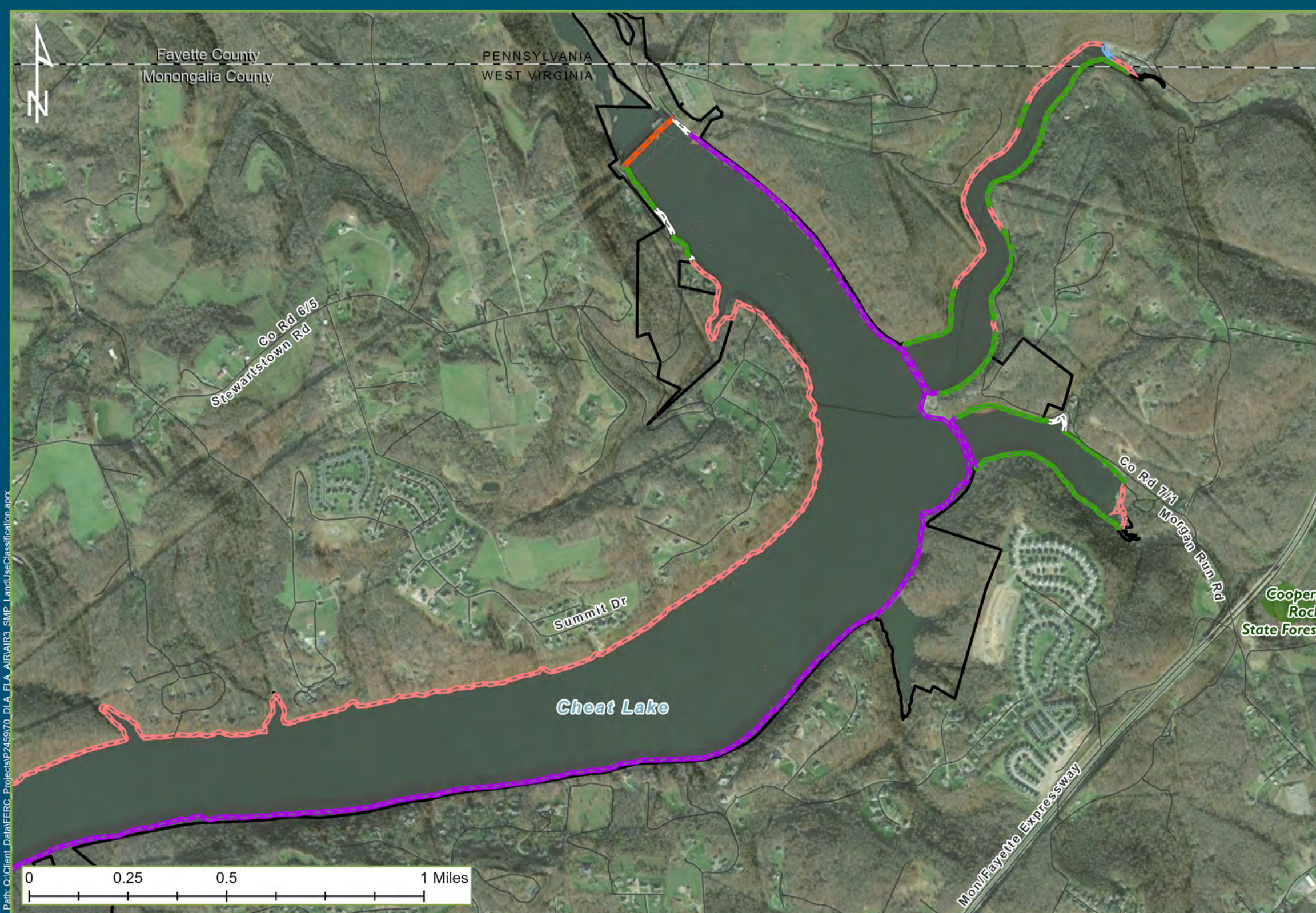
- Legend**
- Project Boundary (Proposed)
 - Project Boundary (Existing)
 - Map Extent

Lake Lynn Generation, LLC
Morgantown, WV

Drawn By: HNG	Date Drawn: 04-02-2024	Checked By: KPN	Date Checked: 04-05-2024
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Shoreline Management Plan Land Use Sheet 1 of 4

- Legend**
- Road
 - Land Use Classifications**
 - Commercial recreation
 - Forest
 - Industrial
 - - - Other
 - Private
 - Public recreation
 - Project Boundary (Proposed)
 - County
 - State
 - State Forest

Lake Lynn Generation, LLC
Morgantown, WV

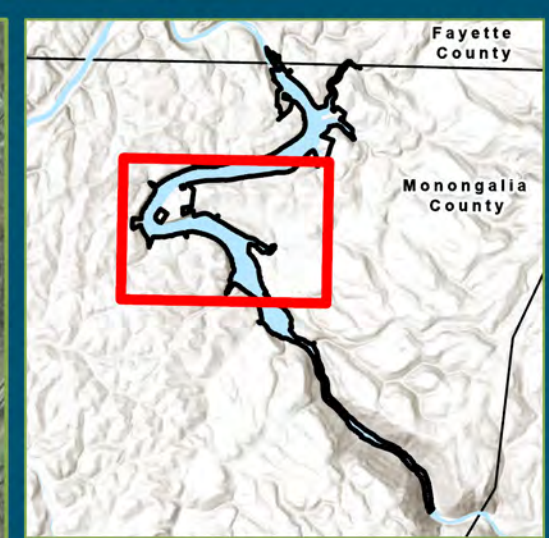
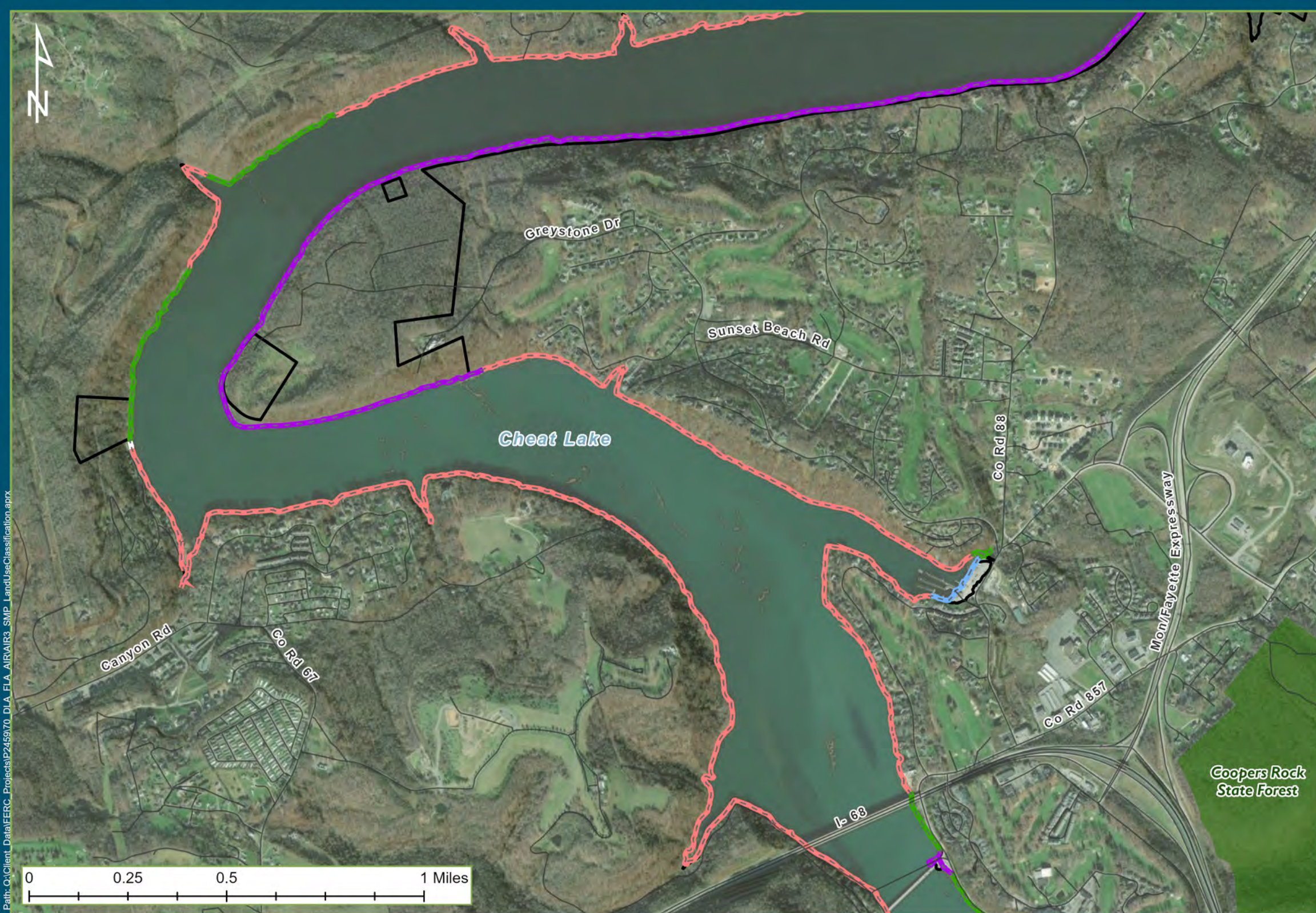
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Date Printed: 4/5/2024



Shoreline Management Plan Land Use Sheet 2 of 4

- Legend**
- Road
 - Land Use Classifications**
 - Commercial recreation
 - Forest
 - - - Other
 - Private
 - Public recreation
 - ▭ Project Boundary (Proposed)
 - ▭ County
 - ▭ State
 - ▭ State Forest

Lake Lynn Generation, LLC
Morgantown, WV

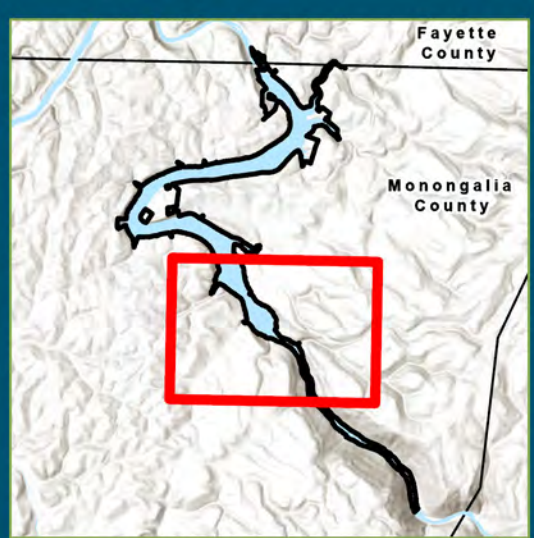
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Shoreline Management Plan Land Use Sheet 3 of 4

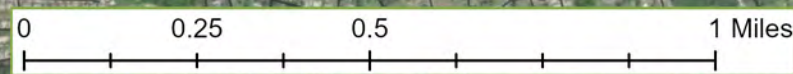
- Legend**
- Road
 - Land Use Classifications**
 - Commercial recreation
 - Forest
 - - - Private
 - Public recreation
 - Project Boundary (Proposed)
 - County
 - State
 - State Forest

Lake Lynn Generation, LLC
Morgantown, WV

Drawn By: HNG	Date Drawn: 04-03-2024	Checked By: KPN	Date Checked: 04-05-2024
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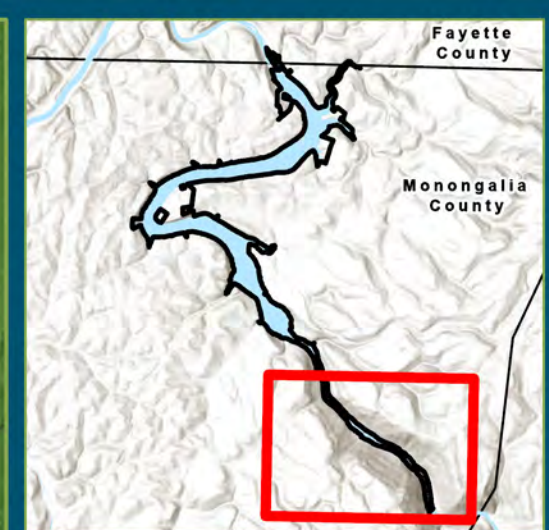
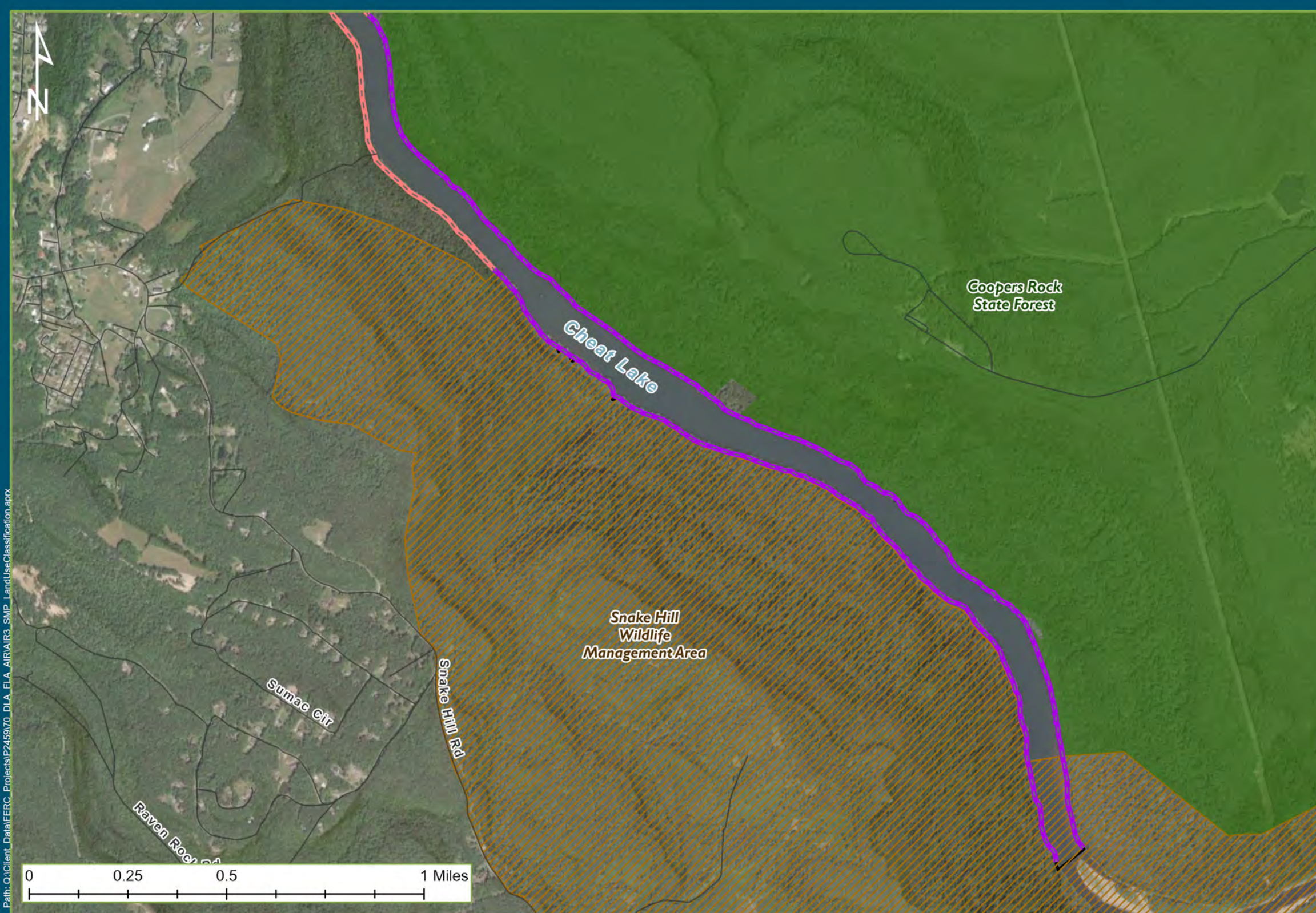
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Date Printed: 4/5/2024



Shoreline Management Plan Land Use Sheet 4 of 4

- Legend**
- Road
 - Land Use Classifications**
 - Private
 - Public recreation
 - Project Boundary (Proposed)
 - County
 - State
 - State Forest
 - Wildlife Management Area

Lake Lynn Generation, LLC
Morgantown, WV

Drawn By: HNG	Date Drawn: 04-03-2024	Checked By: KPN	Date Checked: 04-05-2024
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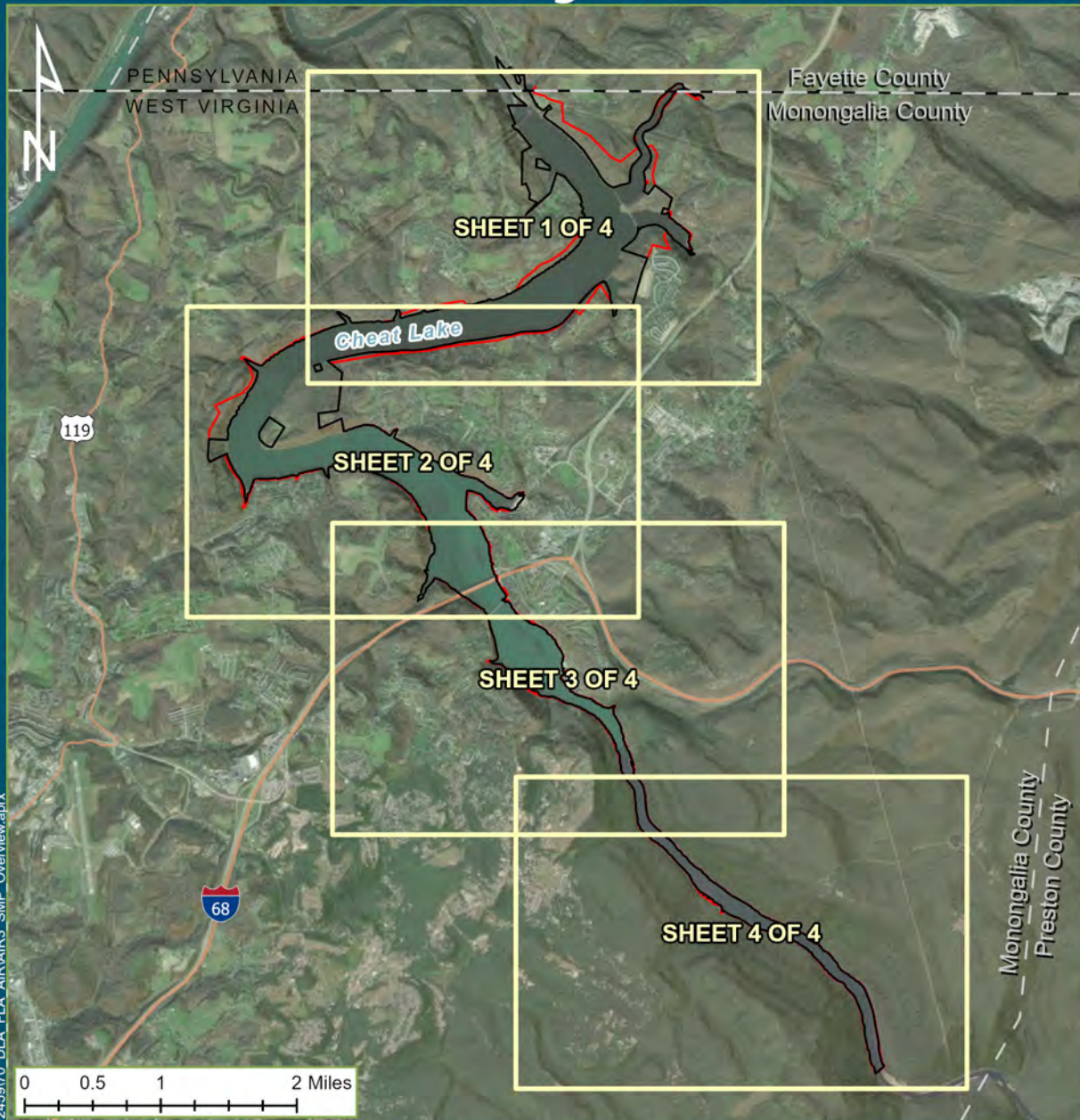
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Date Printed: 4/5/2024

APPENDIX B

LAKE LYNN PROJECT NATURAL AREAS MAPS

Shoreline Management Plan - Overview



Legend

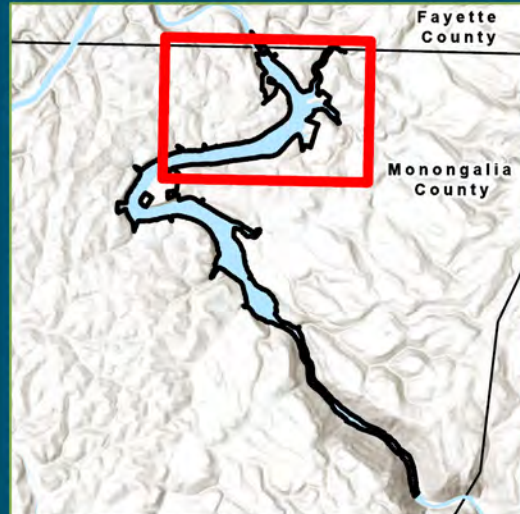
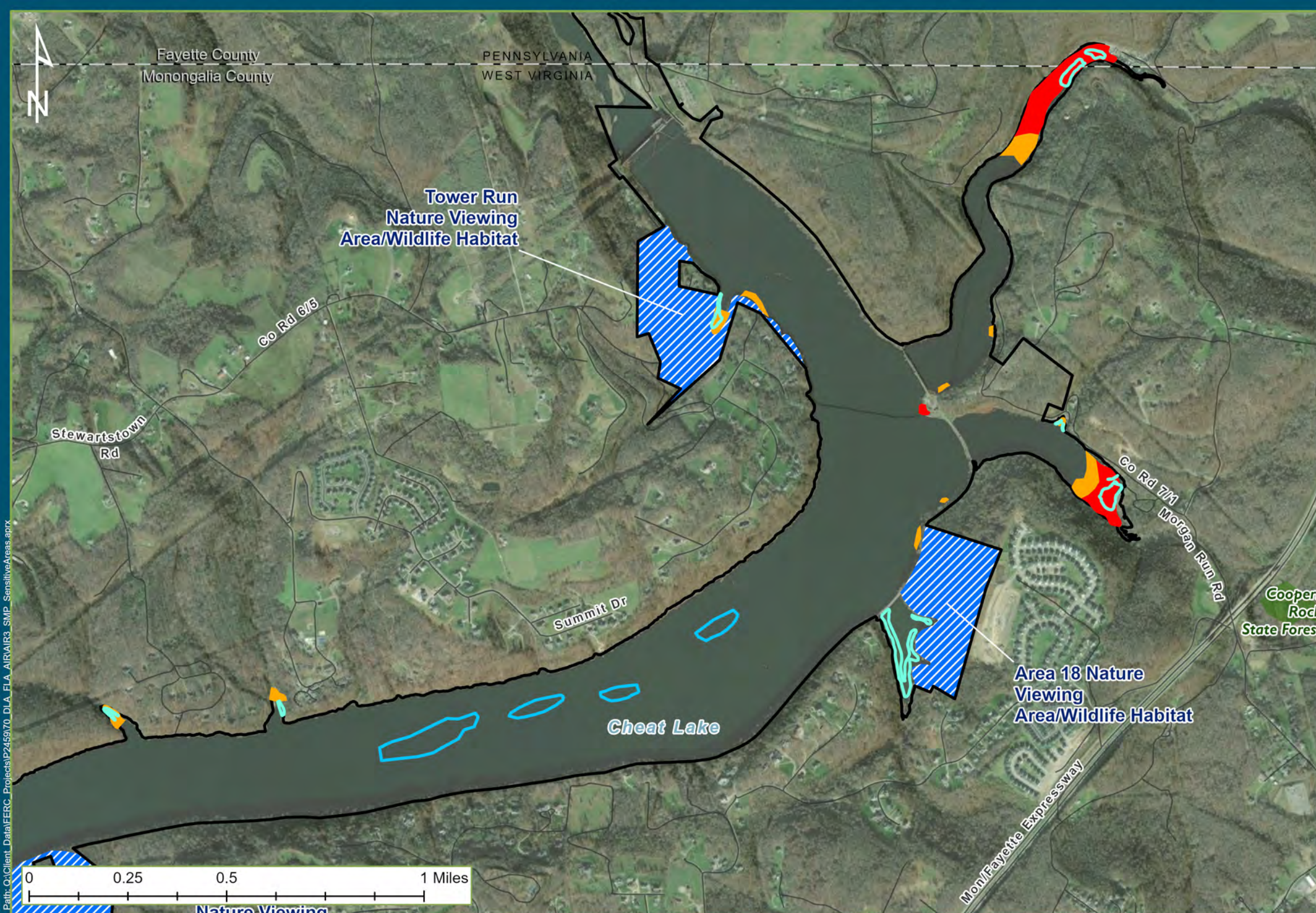
- Project Boundary (Proposed)
- Project Boundary (Existing)
- Map Extent

Lake Lynn Generation, LLC
Morgantown, WV

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**Shoreline Management Plan
Sensitive and Natural Areas
Sheet 1 of 4**

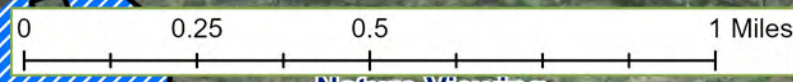
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▭ County	Moderate
▭ State	Dense
▭ State Forest	Nature Viewing Area/Wildlife Habitat
	Habitat
	Aquatic Vegetation
	Historical River Channel

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Morgantown, WV

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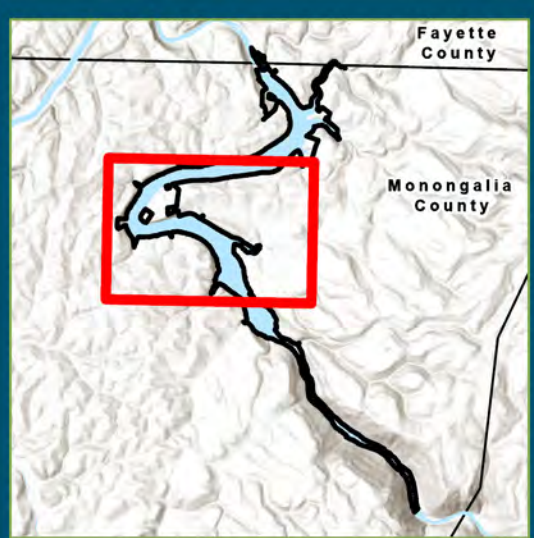
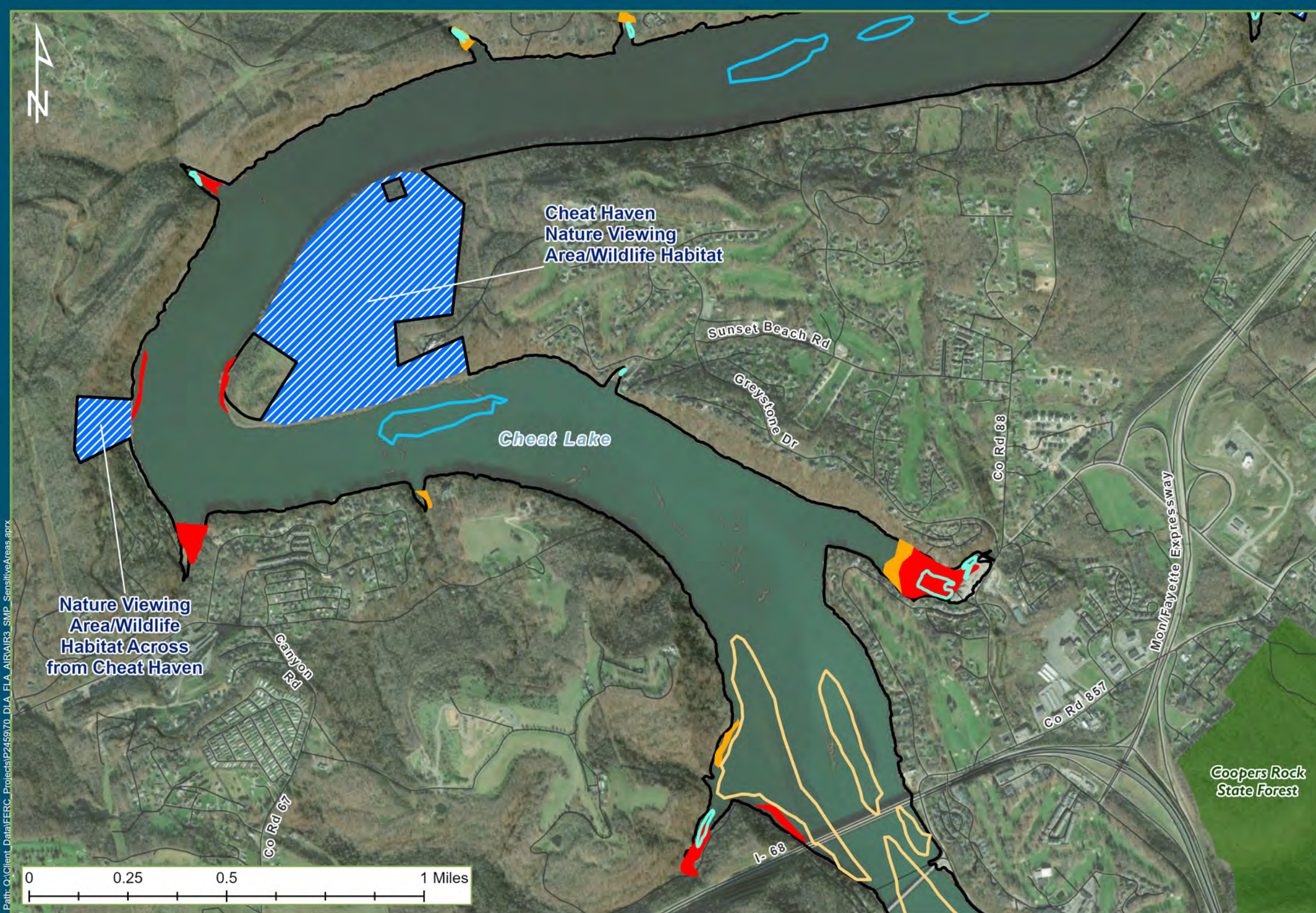
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Shoreline Management Plan Sensitive and Natural Areas Sheet 2 of 4

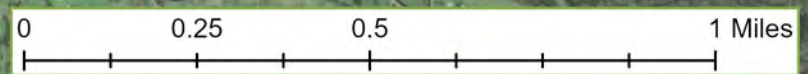
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	Project Boundary (Proposed)
	County
	State
	State Forest
Field-Surveyed Data	
	Aquatic Vegetation Cover
	Moderate
	Dense
	Nature Viewing Area/Wildlife Habitat
Habitat	
	Aquatic Vegetation
	Fluvial Silt Deposit
	Historical River Channel

Lake Lynn Generation, LLC
Morgantown, WV

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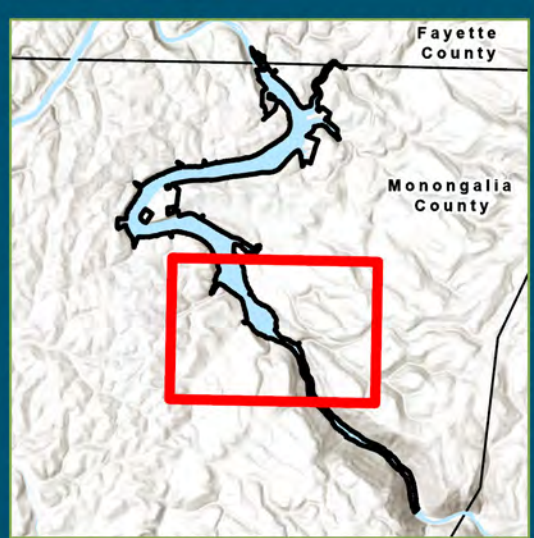
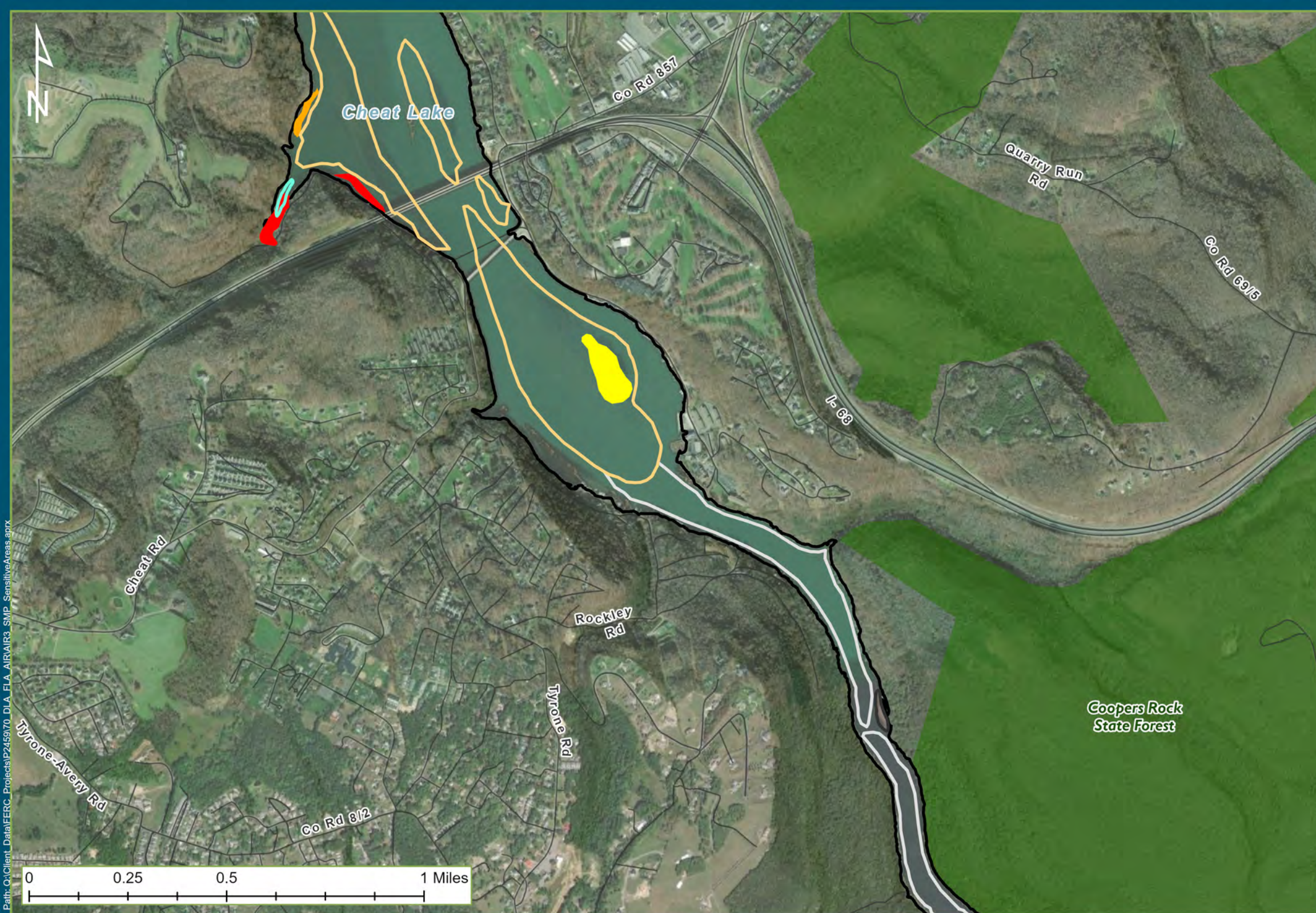
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Shoreline Management Plan
Sensitive and Natural Areas
Sheet 3 of 4

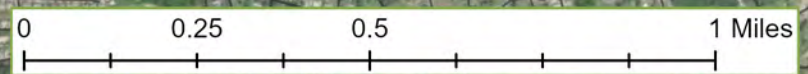
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	Road
	Project Boundary (Proposed)
	County
	State
	State Forest
Field-Surveyed Data	
Aquatic Vegetation Cover	
	Intermittent
	Moderate
	Dense
Habitat	
	Aquatic Vegetation
	Cobble and Boulder Substrate
	Fluvial Silt Deposit
	Silt Substrate

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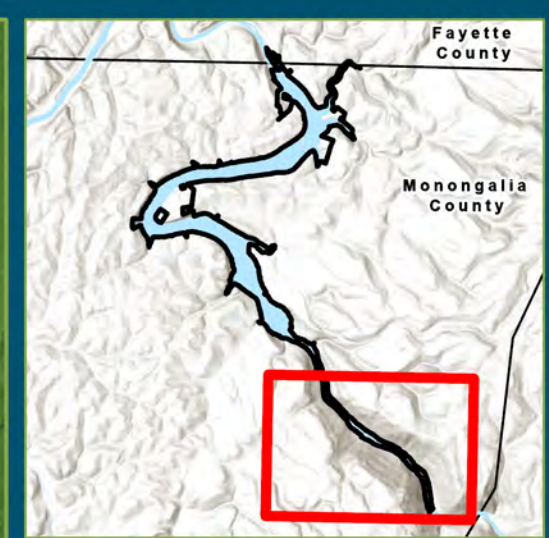
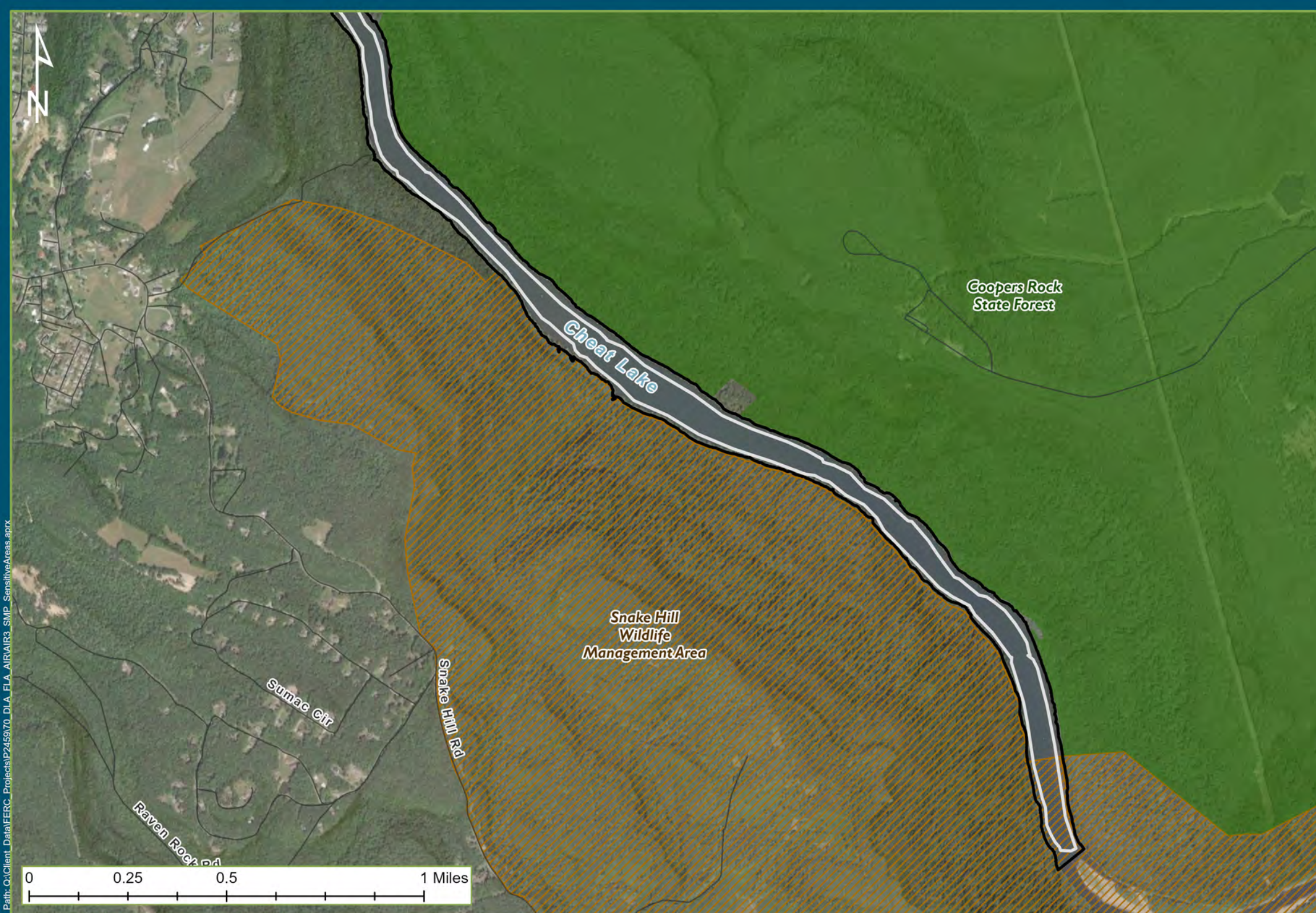
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Aquatic Habitat Sheet 4 of 4

- Legend**
- Road
 - ▭ Project Boundary (Proposed)
 - - - County
 - ▭ State
 - ▭ State Forest
 - ▨ Wildlife Management Area
- Field-Surveyed Data**
- Habitat
- ▭ Coble and Boulder Substrate

Lake Lynn Generation, LLC
Morgantown, WV

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ATTACHMENT E

CULTURAL RESOURCES, FILED AS PRIVILEGED

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LAKE LYNN HYDROELECTRIC PROJECT

FERC No. 2459

EXHIBIT E

ENVIRONMENTAL EXHIBIT

FILED WITH FINAL LICENSE APPLICATION IN NOVEMBER 2022

REVISED APRIL 2024

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TABLE OF CONTENTS

TABLE OF CONTENTS..... E-i

1.0 INTRODUCTION 1-1

1.1 Project Overview 1-1

1.2 Pre-Filing Consultation Summary 1-3

1.2.1 Stage 1 Consultation 1-3

1.2.2 Stage 2 Consultation 1-3

1.2.3 Comments on the Draft License Application..... 1-5

1.2.4 Purpose of Draft License Application 1-5

2.0 STATUTORY AND REGULATORY REQUIREMENTS 2-1

2.1 Federal Power Act..... 2-1

2.1.1 Section 18 Fishway Prescriptions..... 2-1

2.1.2 Section 4(e) Conditions 2-1

2.1.3 Section 10(j) Recommendations..... 2-1

2.2 Section 401 of the Clean Water Act..... 2-2

2.3 Endangered Species Act 2-2

2.4 Magnuson-Stevens Fishery Conservation and Management Act..... 2-2

2.5 Coastal Zone Management Act 2-3

2.6 National Historic Preservation Act..... 2-3

2.7 Wild and Scenic Rivers and Wilderness Acts 2-4

3.0 PROPOSED ACTIONS AND ALTERNATIVES 3-1

3.1 No-Action Alternative 3-1

3.1.1 Existing Project Facilities 3-1

3.1.2 Existing Project Operations..... 3-1

3.1.3 Existing Environmental Measures 3-1

3.2 Applicant’s Proposed Action 3-2

3.2.1 Proposed Project Facilities and Operations 3-2

3.2.2 Proposed Environmental Measures..... 3-6

4.0 ENVIRONMENTAL ANALYSIS..... 4-1

4.1 Analysis of Proposed Action 4-1

4.1.1 Geographic Scope 4-1

4.1.2 Temporal Scope..... 4-1

4.1.3 Cumulative Effects 4-1

4.2 General Description of the River Basin 4-2

4.2.1 General Description of Watershed 4-2

4.2.2 Topography..... 4-4

4.2.3 Climate 4-4

4.2.4	Land and Water Use	4-5
4.2.5	References	4-6
4.3	Geological and Soil Resources	4-8
4.3.1	Affected Environment	4-8
4.3.2	Environmental Effects.....	4-9
4.3.3	Unavoidable Adverse Effects.....	4-11
4.3.4	References	4-11
4.4	Water Resources	4-12
4.4.1	Affected Environment	4-12
4.4.2	Environmental Effects.....	4-32
4.4.3	Unavoidable Adverse Effects.....	4-33
4.4.4	References	4-33
4.5	Fish and Aquatic Resources.....	4-36
4.5.1	Affected Environment	4-36
4.5.2	Environmental Effects.....	4-71
4.5.3	Unavoidable Adverse Effects.....	4-73
4.5.4	References	4-73
4.6	Wildlife Resources	4-76
4.6.1	Affected Environment	4-76
4.6.2	Environmental Effects.....	4-78
4.6.3	Unavoidable Adverse Effects.....	4-78
4.6.4	References	4-78
4.7	Botanical Resources.....	4-80
4.7.1	Affected Environment	4-80
4.7.2	Environmental Effects.....	4-101
4.7.3	Unavoidable Adverse Effects.....	4-102
4.7.4	References	4-102
4.8	Rare, Threatened, and Endangered Species	4-104
4.8.1	Affected Environment	4-104
4.8.2	Environmental Effects.....	4-106
4.8.3	Unavoidable Adverse Effects.....	4-108
4.8.4	References	4-108
4.9	Recreation and Land Use Resources.....	4-110
4.9.1	Affected Environment	4-110
4.9.2	Environmental Effects.....	4-125
4.9.3	Unavoidable Adverse Effects.....	4-128
4.9.4	References	4-128
4.10	Aesthetic Resources.....	4-129
4.10.1	Affected Environment	4-129
4.10.2	Environmental Effects.....	4-132
4.10.3	Unavoidable Adverse Effects.....	4-132

4.10.4	References	4-133
4.11	Historical and Cultural Resources	4-134
4.11.1	Affected Environment	4-134
4.11.2	Environmental Effects.....	4-140
4.11.3	Unavoidable Adverse Effects.....	4-141
4.11.4	References	4-141
4.12	Tribal Resources	4-142
4.12.1	Affected Environment	4-142
4.12.2	Environmental Effects.....	4-143
4.12.3	Unavoidable Adverse Effects.....	4-143
4.12.4	References	4-144
4.13	Socioeconomics.....	4-145
4.13.1	Affected Environment	4-145
4.13.2	Environmental Effects.....	4-147
4.13.3	Unavoidable Adverse Effects.....	4-148
4.13.4	References	4-148
4.14	Environmental Justice	4-152
4.14.1	Affected Environment	4-153
4.14.2	Environmental Effects.....	4-159
4.14.3	Unavoidable Adverse Effects.....	4-160
4.14.4	References	4-161
5.0	CONSISTENCY WITH COMPREHENSIVE PLANS.....	5-1
5.1	Consistency with Comprehensive Plans	5-1
5.1.1	FERC-Approved Federal and State Comprehensive Plans	5-1

LIST OF TABLES

Table 1.1	Summary of Studies Completed.....	1-5
Table 3.1	Summary of Areas Proposed for Removal from the Lake Lynn Project Boundary.....	3-4
Table 3.2	Estimated Proposed PME Capital and O&M Costs.....	3-8
Table 4.1	Monthly average, minimum, and maximum inflow to the Lake Lynn Project (January 1, 2011, to December 31, 2021).....	4-13
Table 4.2	NPDES discharges into Cheat Lake	4-13
Table 4.3	Selected West Virginia Water Quality Standards Applicable to Cheat Lake	4-14
Table 4.4	Maximum Temperatures for Category B2 Trout Waters	4-14

Table 4.5	Pennsylvania Water Quality Standards Applicable to the Cheat River downstream of the Lake Lynn dam.....	4-15
Table 4.6	Range (Mean) of water quality data by year collected from April 1 to October 31 of 2013 to 2017 at the Lake Lynn Project.....	4-17
Table 4.7	Average (minimum-maximum) daily average water temperature and conductivity, range of daily minimum DO, and daily minimum and maximum pH from April 1 to October 31, 2018, 2019, and 2020 at the Lake Lynn Project.	4-19
Table 4.8	Water quality data statistics from the Lake Lynn Reservoir monitoring site, April 1 to October 31, 2021.....	4-22
Table 4.9	Water quality data statistics from the Lake Lynn Tailrace monitoring site, April 1 to October 31, 2021.....	4-22
Table 4.10	Water quality data statistics from the Lake Lynn Downstream monitoring site, April 1 to October 31, 2021.....	4-22
Table 4.11	WVDEP water quality data collected downstream of the Lake Lynn dam, 2009 to 2021.....	4-31
Table 4.12	Cheat River Substrate Summary during 2020 Mussel Survey.....	4-38
Table 4.13	Summary of Cheat River and Cheat Lake Biomonitoring Activities from 1997 to 2020.....	4-42
Table 4.14	Temporal Trends in Fish Catch Per Unit Effort of Boat Electrofishing in the Lake Lynn Impoundment.....	4-47
Table 4.15	Fish Species Richness for Cheat Lake Tailwater and Cheat River Summarized by Gear Type.....	4-50
Table 4.16	Mussels Known Historically from the Cheat River.....	4-54
Table 4.17	Botanical Communities within 1 Mile of Lake Lynn Project Boundary....	4-80
Table 4.18	Botanical Communities within the Existing and Proposed Lake Lynn Project Boundary.....	4-82
Table 4.19	Wetlands within the Existing and Proposed Lake Lynn Project Boundary	4-94
Table 4.20	Potentially Occurring Rare, Threatened, Endangered, Candidate and Proposed Species in the Project Area	4-104
Table 4.21	Habitat Information of Federally Listed, Candidate and Proposed Species Potentially Occurring in Lake Lynn Project Boundary.....	4-105
Table 4.22	Potentially Occurring Migratory Bird Species	4-106
Table 4.23	FERC-Approved Recreation Facilities at the Lake Lynn Project.....	4-111
Table 4.24	Estimated Annual Use of Primary Sites in 2020.....	4-121
Table 4.25	Proportion of the Population Living in Urban and Rural Areas, 2010* ..	4-145

Table 4.26	Population Statistics for the Lake Lynn Project Vicinity	4-146
Table 4.27	Economic Characteristics of the Lake Lynn Project Region (2020 Estimates)	4-146
Table 4.28	Employment by Industry in the Lake Lynn Project Vicinity.....	4-147
Table 4.29	Current Community Data within one mile of the Lake Lynn Project Boundary	4-157

LIST OF FIGURES

Figure 1.1	Location of the Lake Lynn Project.....	1-2
Figure 3.1	Areas Proposed for Removal from the Lake Lynn Project Boundary.....	3-8
Figure 3.2	Areas Proposed for Removal from the Lake Lynn Project Boundary.....	3-3
Figure 3.3	Areas Proposed for Removal from the Lake Lynn Project Boundary.....	3-3
Figure 3.4	Areas Proposed for Removal from the Lake Lynn Project Boundary.....	3-4
Figure 3.5	Areas Proposed for Removal from the Lake Lynn Project Boundary.....	3-5
Figure 4.1	Overview of the Cheat River Watershed	4-3
Figure 4.2	Water quality monitoring stations at the Lake Lynn Project.....	4-21
Figure 4.3	Daily minimum DO and daily average water temperature at the reservoir monitoring site, April 1 to October 31, 2021.....	4-23
Figure 4.4	Daily average pH at the reservoir monitoring site, April 1 to October 31, 2021.....	4-23
Figure 4.5	Daily average conductivity at reservoir monitoring site, April 1 to October 31, 2021.	4-24
Figure 4.6	Daily minimum DO and daily average water temperature at the tailwater monitoring site, April 1 to October 31, 2021.....	4-24
Figure 4.7	Daily average pH at the tailwater monitoring site, April 1 to October 31, 2021.....	4-25
Figure 4.8	Daily minimum DO at the downstream monitoring site, April 1 to October 31, 2021.	4-25
Figure 4.9	Daily average pH at the downstream monitoring site, from April 1 to October 31, 2021.	4-26
Figure 4.10	Lake Lynn Reservoir Inflow and DO, April 1-October 31, 2022.	4-27
Figure 4.11	Lake Lynn Reservoir Temperature and DO, April 1-October 31, 2022.....	4-28
Figure 4.12	Lake Lynn Reservoir Inflow and Project Generation, April 1-October 31, 2022.....	4-29

Figure 4.13 Lake Lynn Project Tailrace DO and Generation, June 1-October 31, 2022. 4-29

Figure 4.14 Lake Lynn Aquatic Habitat 4-37

Figure 4.15 Fish Sampling Locations in Lake Lynn (2005, 2008, 2011, 2014, and 2015) (1 of 2). 4-45

Figure 4.16 Fish Sampling Locations in Lake Lynn (2005, 2008, 2011, 2014, and 2015) (2 of 2). 4-46

Figure 4.17 Tailwater and Cheat River fish sampling locations, 2005 and 2008; WVU fish sampling locations 2011 and 2014..... 4-51

Figure 4.18 2019 American Eel eDNA Study Sites..... 4-52

Figure 4.19 2020 Cheat River Mussel Survey Locations..... 4-56

Figure 4.20 Botanical Communities within 1 Mile of Lake Lynn Project 4-83

Figure 4.21 Botanical Communities within the Proposed and Existing Project Boundaries 4-85

Figure 4.22 Botanical Communities within the Proposed and Existing Project Boundaries 4-86

Figure 4.23 Botanical Communities within the Proposed and Existing Project Boundaries 4-87

Figure 4.24 Botanical Communities within the Proposed and Existing Project Boundaries 4-88

Figure 4.25 Botanical Communities within the Proposed and Existing Project Boundaries 4-89

Figure 4.26 Botanical Communities within the Proposed and Existing Project Boundaries 4-90

Figure 4.27 Wetlands in the Existing and Proposed Lake Lynn Project Boundary..... 4-96

Figure 4.28 Lake Lynn Project Recreation Sites.....4-115

Figure 4.29 Land Use in the Lake Lynn Project Boundary.....4-124

Figure 4.30 Environmental Justice Communities within one mile of the Lake Lynn Project.4-156

LIST OF PHOTOS

Photo 4.1 Cheat River Habitat Directly Downstream of the Lake Lynn Dam during the 2020 Mussel Survey (TRC 2020)..... 4-39

Photo 4.2 Cheat River Pool Habitat Downstream of the Lake Lynn Dam during the 2020 Mussel Survey (TRC 2020)..... 4-40

Photo 4.3	Acid Mine Drainage in the Cheat River Downstream of the Lake Lynn Dam during 2020 Mussel Survey (TRC 2022).....	4-41
Photo 4.5	Public Hydrilla Warning Sign at the Cheat Lake Park Boat Ramp.....	4-66
Photo 4.6	Tailrace Fishing Platform.....	4-116
Photo 4.7	Cheat Lake Trail – Over Northern Causeway from Cheat Lake Park.....	4-117
Photo 4.8	Cheat Lake Trail – Terminus.....	4-118
Photo 4.9	Cheat Lake Park – Playground Area.....	4-119
Photo 4.10	Cheat Lake Park – Boat Launch.....	4-119
Photo 4.11	View of Lower Cheat Lake from the Cheat Lake Trail	4-130
Photo 4.12	View of Upper Cheat Lake from the Cheat Lake Trail South.....	4-130
Photo 4.13	View of Lower Cheat Lake from Cheat Lake Park	4-131
Photo 4.14	View of Lower Cheat Lake from the beach at Cheat Lake Park	4-131
Photo 4.15	View of Project Dam from Tailwater Fishing Pier	4-132

LIST OF APPENDICES

Appendix A:	Consultation Summary
Appendix B:	Response to Comments on the Draft License Application
Appendix C:	Flow Duration Curves
Appendix D:	Lake Lynn Dissolved Oxygen Standard Operating Procedures Examples Data
Appendix E:	Species Lists
Appendix F:	Study Reports

ACRONYM LIST

A

ADA	Americans with Disabilities Act
AMD	acid mine drainage
APE	Area of Potential Effect
Applicant	Lake Lynn Generation, LLC

B

BCC	Birds of Conservation Concern
-----	-------------------------------

C

°C	degrees Celsius
cfs	cubic feet per second
CLEAR	Cheat Lake Environment and Recreation Association
COVID-19	Coronavirus Disease 2019
CPUE	catch per unit effort
CSRV	Cumberland and Southern Ridge Valley
CWA	Clean Water Act
CZMA	Coastal Zone Management Act

D

DLA	Draft License Application
DO	dissolved oxygen

E

Eagle Creek	Eagle Creek Renewable Energy, LLC
eDNA	environmental DNA
EFH	Fish Habitat
EPRI	Electric Power Research Institution
ESA	Endangered Species Act

F

°F	degrees Fahrenheit
FERC / Commission	Federal Energy Regulatory Commission
FLA	Final License Application
FOC	Friends of the Cheat
FPA	Federal Power Act

G

GIS	geographic information system
-----	-------------------------------

H

HUC Hydrologic Unit Code

I

IPaC Information for Planning and Consultation

L

Lake Lynn Lake Lynn Generation, LLC
Lake Lynn Project Lake Lynn Hydroelectric Project

M

Mg/l milligrams per liter
MRTC Monongahela River Trails Conservancy
MW megawatts
 μ S/cm microsiemens per centimeter

N

NEPA National Environmental Policy Act
NGVD National Geodetic Vertical Datum
NHPA National Historic Preservation Act
NLEB northern long-eared bat
NMFS National Marine Fisheries Service
NOAA National Oceanic and Atmospheric Administration
NOI Notification of Intent
NPDES National Pollution Discharge Elimination System
NRCS Natural Resources Conservation Service
NRHP National Register of Historic Places
NV ~~WAHA~~ nature viewing wildlife habitat areas
NWI National Wetland Inventory

O

O&M operations and maintenance

P

PAD Pre-application Document
PADCNR Pennsylvania Department of Conservation and Natural Resources
PADEP Pennsylvania Department of Environmental Protection
PA-SHARE Pennsylvania's State Historic & Archaeological Resource Exchange
PASHPO Pennsylvania State Historic Preservation Office
PFBC Pennsylvania Fish and Boat Commission

PHMC	Pennsylvania Historical and Museum Commission
PME	protection, mitigation, and enhancement
PNHP	Pennsylvania Natural Heritage Program
R	
REA	Ready for Environmental Analysis
RM	river miles
RTE	rare, threatened, and endangered
S	
SMP	Shoreline Management Plan
T	
TBSA	Turbine Blade Strike Analysis
TCP	Traditional Cultural Properties
TLP	Traditional Licensing Process
U	
USACE	United States Army Corps of Engineers
U.S.C.	United States Code
USEPA	U.S. Environmental Protection Agency
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
W	
WVDEP	West Virginia Department of Environmental Protection
WVDNR	West Virginia Division of Natural Resources
WVSHPO	West Virginia State Historic Preservation Office
WVU	West Virginia University
WWF	Warm Water Fishes

1.0 INTRODUCTION

1.1 Project Overview

Lake Lynn Generation, LLC (Lake Lynn, Licensee, or Applicant), a subsidiary of Eagle Creek Renewable Energy, LLC (Eagle Creek), is the owner and operator of the Lake Lynn Hydroelectric Project (FERC No. 2459) (Lake Lynn Project). The current Federal Energy Regulatory Commission (FERC or Commission) license for the Lake Lynn Project was issued on December 27, 1994 and expires on November 30, 2024. Lake Lynn must file its final license application (FLA) for a new license with FERC no later than November 30, 2022.

The Lake Lynn Project is located on the Cheat River in Monongalia County, West Virginia and Fayette County, Pennsylvania, approximately 10 miles northeast of Morgantown, West Virginia. The Lake Lynn Project is located about 3.7 miles upstream of the confluence with the Monongahela River. Figure 1.1 provides the general location of the Lake Lynn Project. The Lake Lynn Project does not use any federal facilities and occupies no federal lands. The Lake Lynn Project is not located within any town or city.

The Lake Lynn Project is operated as a dispatchable peaking hydroelectric facility with storage capability. The Lake Lynn Project combined maximum generating capacity is 51.2 megawatts (MW).

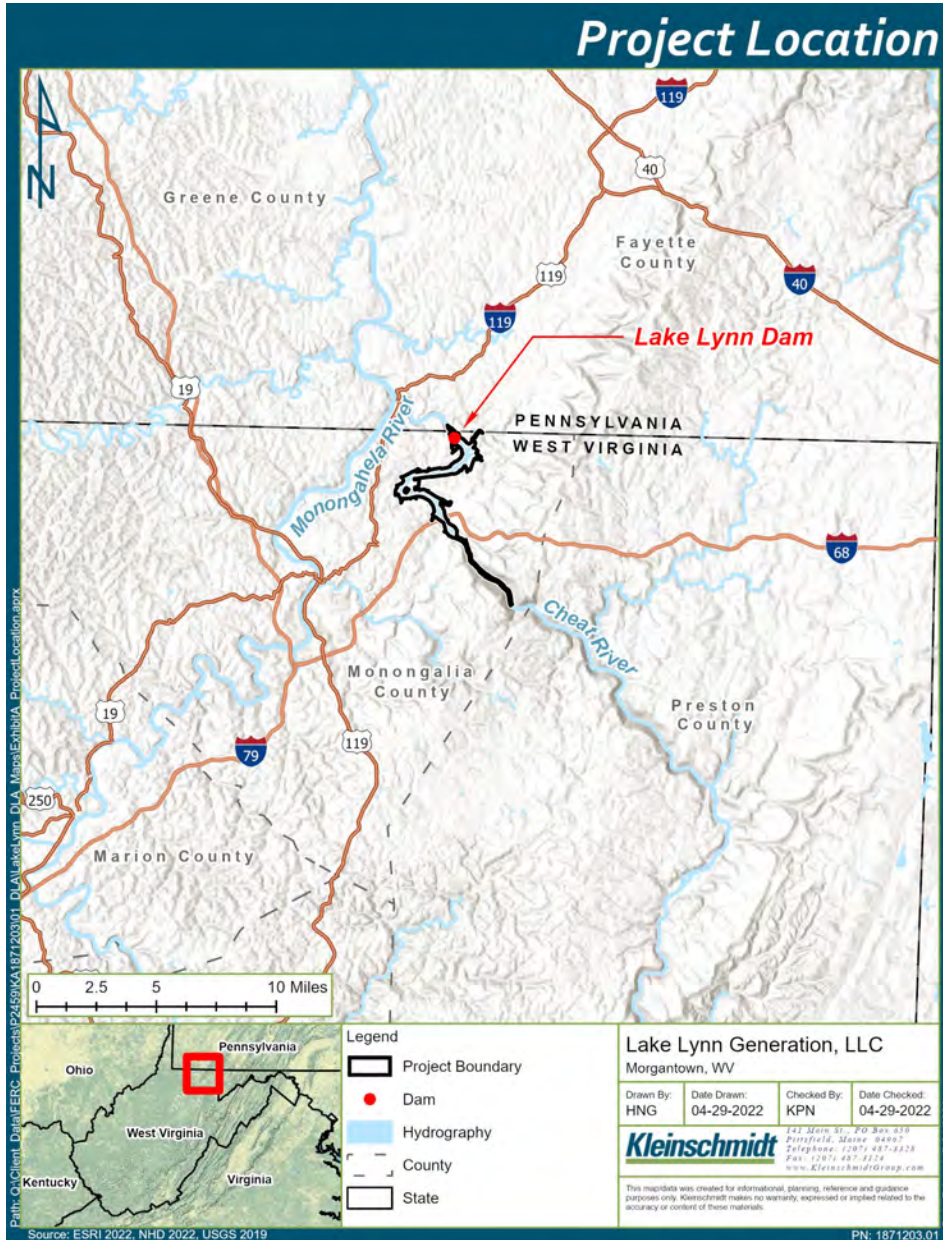


Figure 1-14.1 Location of the Lake Lynn Project

1.2 Pre-Filing Consultation Summary

1.2.1 Stage 1 Consultation

On August 29, 2019, Lake Lynn filed a Notification of Intent (NOI), a Pre-application Document (PAD), and requested to use the Traditional Licensing Process (TLP) and designation as the non-federal representative for purposes of consultation under Section 7 of the Endangered Species Act (ESA) and Section 106 of the National Historic Preservation Act (NHPA). Prior to filing the NOI and PAD, Lake Lynn initiated consultation with resource agencies, Tribes, and other interested parties to inform them of the Lake Lynn Project relicensing and development of the PAD and to solicit their input. On October 17, 2019, FERC granted approval for Lake Lynn to use the TLP, and authorization for Lake Lynn to act as non-federal representative for ESA and Section 106 NHPA consultation.

Lake Lynn published notice of the NOI and PAD in the *Herald Standard* and *The Dominion Post*, two daily newspapers of general circulation in Monongalia County, West Virginia and Fayette County, Pennsylvania. On November 21, 2019, pursuant to 18 Code of Federal Regulation (CFR) § 16.8(b)(3), Lake Lynn provided written notice to FERC and the Lake Lynn Project Distribution List of its Joint Meeting and Site Visit for the relicensing of the Lake Lynn Project. In accordance with the requirements of 18 CFR § 16.8(i), Lake Lynn published notice of the Joint Meeting and Site Visit in the *Herald-Standard* (a daily newspaper of general circulation in Fayette County, Pennsylvania) and *The Dominion Post* (a daily newspaper of general circulation in Monongalia County, West Virginia).

Lake Lynn held a Joint Meeting and site visit for the Lake Lynn Project on December 12, 2019. The purpose of the meeting was to: (1) provide information about the Lake Lynn Project and licensing process; (2) solicit information regarding the existing environmental resources associated with the Lake Lynn Project and data that may need to be obtained; and (3) obtain agency and stakeholder opinions regarding the Lake Lynn Project and its potential effect on existing resources.

1.2.2 Stage 2 Consultation

Appendix A provides copies of consultation and comments received from agencies and stakeholders.

Lake Lynn initiated the relicensing process in August 2019 by filing a NOI and PAD. At the same time, Lake Lynn requested FERC approval to use the TLP. FERC approved the use of the TLP in October 2019, and in accordance with FERC regulations, Lake Lynn held a Joint Meeting and Site Visit in December 2019. Following the Joint Meeting and Site Visit, resource agencies and other stakeholders were afforded the opportunity to comment on the PAD and to request resource studies that they deemed were needed to evaluate Lake Lynn Project impacts on natural, cultural, and recreational resources.

In response to the NOI/PAD filing and the Joint Meeting and Site Visit, Lake Lynn received written comments and study requests from the U.S. Fish and Wildlife Service (USFWS), West Virginia Division of Natural Resources (WVDNR), Cheat Lake Environment and Recreation Association (CLEAR), Friends of the Cheat (FOC), Monongahela River Trails Conservancy (MRTC), and individual residents in the local community.

Based on the comments received, Lake Lynn developed and distributed a draft Study Plan to the resource agencies and stakeholders on April 15, 2020, for review. Lake Lynn held a conference call/meeting on April 24, 2020, to review and discuss the draft Study Plan. The draft Study Plan was revised based on the discussions and a revised Study Plan was distributed to resource agencies and stakeholders and then finalized and distributed in September 2020 to include changes to the mussel survey as a result of the development for a survey plan for the mussel survey.

The draft study reports for the Desktop Fish Entrainment Assessment, Tailwater Mussel Survey, and Recreation Site Enhancement Feasibility and Assessment were provided to the relicensing stakeholders in January 2021, January 2021, and July 2021, respectively. In addition, the annual shoreline erosion surveys, annual water quality monitoring reports, the Aquatic Habitat Enhancement and Monitoring under the Aquatic Biomonitoring Plan (submitted as part of the Aquatic Biomonitoring Plan annual report) and the American Eel Environmental DNA Sampling (submitted as part of the Aquatic Biomonitoring Plan annual report) were provided to the relicensing stakeholders upon filing with FERC. A summary of all studies completed are included in Table 1.1.

Table 1.1 Summary of Studies Completed

Study Name	Date Completed
Desktop Fish Entrainment Assessment	January 2021
Tailwater Mussel Survey	December 2020
Recreation Site Enhancement Feasibility and Assessment	June 2021
American Eel Environmental DNA Sampling	September 2021
Streamflow Data Collaboration	Collaboration completed September 2020
Aquatic Biomonitoring Plan: Aquatic Habitat Enhancement and Monitoring	December 2020
Aquatic Biomonitoring Plan: Angler Creel Survey	Ongoing (to be completed December 2022)
Shoreline Classification and Aquatic Habitat Mapping	2021 (results will be used for development of Shoreline Management Plan)

1.2.3 Comments on the Draft License Application

The Draft License Application (DLA) was filed with FERC and sent via email to interested stakeholders for review and comment on August 5, 2022 with stakeholder comments due by November 7, 2022. Lake Lynn received comments from FERC (letter dated November 3, 2022), the United States Department of the Interior Bureau of Indian Affairs (letter dated September 8, 2022), WVDNR (letter dated November 7, 2022), and CLEAR (email dated November 8, 2022). Appendix B provides Lake Lynn’s responses to comments and how comments have been addressed in the FLA, as appropriate.

1.2.4 Purpose of Draft License Application

The purpose of this Environmental Exhibit is to describe: (1) the existing and proposed project facilities, project lands, and waters; (2) existing and proposed project operations and maintenance, including protection, mitigation, and enhancement (PME) measures for each resource area potentially affected by the relicensing; and (3) to provide a draft analysis of the effects of the proposed relicensing on each environmental resource. Lake Lynn proposes to continue to operate the Lake Lynn Project under existing conditions, no new facility construction is proposed, and proposed PME measures are provided in Section 3.2.2, *Proposed Environmental Measures*.

2.0 STATUTORY AND REGULATORY REQUIREMENTS

2.1 Federal Power Act

Issuance of a new license for the Lake Lynn Project is subject to requirements under the Federal Power Act (FPA) and other federal statutes. Requirements applicable to this DLA are summarized in the following sections.

2.1.1 Section 18 Fishway Prescriptions

Under Section 18 of the FPA, USFWS and the National Marine Fisheries Service (NMFS) have the authority to prescribe fishways at federally regulated hydropower projects. Currently there are no fish passage facilities or prescriptions at Lake Lynn Project. No preliminary prescriptions have been filed by either agency. Following the filing of the FLA, fishway prescriptions, if any, would be filed within 60 days after FERC's Notice for Acceptance and Ready for Environmental Analysis (REA) Notice in accordance with 18 CFR §4.34(b).

2.1.2 Section 4(e) Conditions

Section 4(e) of the FPA requires that any license issued by FERC for a project within a federal reservation shall be subject to and contain such conditions as the Secretary of the responsible federal land management agency deems necessary for the adequate protection and use of the reservation. The Lake Lynn Project does not encompass any federal lands; therefore, these conditions do not apply.

2.1.3 Section 10(j) Recommendations

Under Section 10(j) of the FPA, FERC must consider recommendations provided by federal and state fish and wildlife agencies for the protection, mitigation, and enhancement of fish and wildlife resources affected by the Lake Lynn Project prior to issuing the new license. FERC would include these conditions unless it determines that they are inconsistent with the purposes and requirements of the FPA or other applicable law. No preliminary Section 10(j) recommendations have been provided by state fish and wildlife agencies to date.

2.2 Section 401 of the Clean Water Act

Section 401 of the Federal Clean Water Act (CWA), 33 United States Code (U.S.C.) § 1341, et. seq requires that any applicant for a federal license or permit to conduct an activity that will or may discharge into waters of the United States (as defined in the CWA) must present the federal authority with a certification from the appropriate state agency. Pursuant to W. Va. Code § 22-11-7a the West Virginia Department of Environmental Protection (WVDEP) is the appropriate permitting agency designated to carry out the certification requirements prescribed in Section 401 of the CWA for waters of West Virginia under delegated authority from the U.S. Environmental Protection Agency (USEPA). The Pennsylvania Department of Environmental Protection (PADEP) is the appropriate permitting agency designated to carry out the certification requirements prescribed in Section 401 of the CWA for waters of Pennsylvania under delegated authority from the USEPA. Lake Lynn would request Water Quality Certification (WQC) from the WVDEP, as appropriate, in accordance with 18 CFR §4.34(b) within or before 60 days of FERC's issuance of notice of acceptance of the FLA and REA notice.

2.3 Endangered Species Act

The ESA (19 U.S.C. § 1536(c)), as amended, provides a program for the conservation of threatened and endangered plants and animals and their habitats in which they are found. The lead federal agencies for implementing ESA are the USFWS and the National Oceanic and Atmospheric Administration (NOAA) Fisheries Service. Section 7 of the ESA requires federal agencies, in consultation with the USFWS and/or NOAA to ensure that actions they authorize, fund, or carry out are not likely to jeopardize the continued existence of any listed species or result in the destruction or adverse modification of designated critical habitat of such species. On October 17, 2019, FERC granted Lake Lynn designation as the FERC's non-federal representative for carrying out information consultation pursuant to Section 7 of the ESA. The endangered Indiana bat (*Myotis sodalis*), the threatened northern long-eared bat (*Myotis septentrionalis*), the threatened flat-spined three-toothed snail (*Triodopsis platysayoides*), and the candidate monarch butterfly (*Danaus plexippus*) have potential to occur within the Lake Lynn Project area. See additional discussion in Section 4.8, *Rare, Threatened, and Endangered Species*.

2.4 Magnuson-Stevens Fishery Conservation and Management Act

The Magnuson-Stevens Fishery Conservation and Management Act requires federal agencies to consult with NOAA Fisheries on actions that may adversely affect Essential

Fish Habitat (EFH). EFH is only applicable to federally managed commercial fish species that live at least one component of their lifecycle in marine waters. All fish in the Cheat River are freshwater species that are not managed commercially; therefore, there is no designated EFH in the Lake Lynn Project area.

2.5 Coastal Zone Management Act

Under Section 307 (c)(3)(A) of the Coastal Zone Management Act (CZMA), FERC cannot issue a license for a project within or affecting a states' coastal zone unless the state CZMA agency concurs with the license applicant's certification of consistency with the state's CZMA program, or the agency's concurrence is conclusively presumed by its failure to act within 180 days of its receipt of the applicant's certification¹.

The Lake Lynn Project is not located within a Coastal Zone and, therefore, is not subject to the CZMA. West Virginia does not have any Coastal Zones. Pennsylvania has two coastal areas: Lake Erie Coastal Zone located within Erie County and Delaware Estuary Coastal Zone within Bucks, Philadelphia, and Delaware counties².

2.6 National Historic Preservation Act

Section 106 of the NHPA, as amended, requires FERC to consider the effect of its undertakings on historic properties. Historic properties are any prehistoric or historic districts, sites, buildings, structures, Traditional Cultural Properties (TCP), and objects significant in American history, architecture, engineering, and culture that are eligible for inclusion in the NRHP. FERC initiated consultation under Section 106 with federally recognized Indian tribes, including the Osage Nation, the Delaware Nation, and the Delaware Tribe of Indians, by letters dated June 27, 2019. On October 17, 2019, FERC granted Lake Lynn designation as its non-federal representative for executing information consultation pursuant to Section 106 of the NHPA. Lake Lynn consulted with the West

¹ Lake Lynn has reached out to the Pennsylvania coastal zone management program via email on February 24, 2023 and April 20, 2023 to request this statement. [The Pennsylvania Coastal Zone Management Program office provided a response via email dated April 25, 2023 \(see Appendix A\) that the Lake Lynn Project is located outside of Pennsylvania's designated coastal zones and will not impact upon them.](#) As of the date of this filing, a response has not been received. Once a written response is received, Lake Lynn will file the documentation with FERC.

² West Virginia Department of Environmental Protection Coastal Resources Management Program. <https://www.dep.pa.gov/Business/Water/Compacts%20and%20Commissions/Coastal%20Resources%20Management%20Program/Pages/About-the-Program.aspx>. Accessed: November 23, 2022.

Virginia State Historic Preservation Office (WVSHPO), the Pennsylvania State Historic Preservation Office (PASHPO) and the tribes that may have an interest in the Lake Lynn Project regarding the relicensing via an initial letter on May 20, 2019 and the distribution of the NOI and PAD on August 29, 2019. The PASHPO indicated that a preliminary review of the Lake Lynn Project indicates that there may be National Register-eligible aboveground resources in the Lake Lynn Project area and that if changes are proposed surveys must be conducted. On June 19, 2019, the Cherokee Nation stated that the Lake Lynn Project is outside their Area of Interest and deferred to federally recognized tribes that may have an interest in the area. On July 10, 2019, the Delaware Nation stated that the location of the proposed Lake Lynn Project does not endanger cultural or religious sites of interest and requested to be contacted within 24 hours if any artifacts are discovered. No other tribes have responded to the information request. Lake Lynn consulted with the WVSHPO, PASHPO and the tribes that may have an interest in the Lake Lynn Project on a draft Study Plan. No study requests or comments related to cultural resources or historic structures were received. Lake Lynn submitted a formal Lake Lynn Project review request to the WVSHPO and PASHPO on October 26, 2020. The DLA was distributed to the WVSHPO, PASHPO and the tribes that may have an interest in the Lake Lynn Project relicensing concurrent with filing the DLA. On September 9, 2022, the Bureau of Indian Affairs submitted comments on the DLA indicating that the Catawba Indian Nation was not listed as one of the American Indian tribes contacted in the application. Lake Lynn has included the Catawba Indian Nation on the distribution list of the FLA to include them as part of tribal consultation as required under 36 CFR Part 800.2(c)(2)(ii). On August 12, 2022, the Oneida Nation noted that it did not have comments on the DLA.

2.7 Wild and Scenic Rivers and Wilderness Acts

Section (7) of the Wild and Scenic Rivers Act requires federal agencies to decide as to whether the operation of a hydropower project under a new license would unreasonably diminish the scenic, recreational, and fish and wildlife values present in the designated area. The Wilderness Act of 1964 established a National Wilderness Preservation System. There are no nationally designated wild and scenic rivers or wilderness areas within the Lake Lynn boundary or in the vicinity of the Lake Lynn Project.

3.0 PROPOSED ACTIONS AND ALTERNATIVES

3.1 No-Action Alternative

The no-action alternative means that the Lake Lynn Project would continue to operate as authorized by the current license. Existing facilities would remain in place and existing PME measures would continue, but there would be no additional protection or enhancement of resources as described below. If the Lake Lynn Project were to operate as in the past, Lake Lynn would continue to produce energy in the present manner. The no-action alternative represents the baseline Lake Lynn Project energy production and environmental conditions for comparison with the applicant's proposed action.

3.1.1 Existing Project Facilities

The principle features of the Lake Lynn Project are the dam, powerhouse, impoundment and appurtenant facilities. The Lake Lynn Dam consists of a 125-foot-high by 1,000-foot-long concrete gravity type dam with a 624-foot-long spillway controlled by 26 Tainter gates. The powerhouse is located adjacent to the dam on the eastern bank of the river. The powerhouse contains four generating units. Exhibit A provides a detailed description of the Lake Lynn Project facilities.

3.1.2 Existing Project Operations

Lake Lynn typically operates the Lake Lynn Project as a dispatchable peaking hydroelectric facility with storage capability. The facility's ponding capability varies by season and allows for peaking.

3.1.3 Existing Environmental Measures

The Lake Lynn Project is operated in accordance with the FERC License and the provisions of Water Quality Certification, including any required environmental protection, mitigation, and enhancement measures. Key environmental measures currently undertaken at the Lake Lynn Project are as follows:

Minimum Flows: The current FERC License requires Lake Lynn release a minimum flow of 212 cubic feet per second (cfs) from the dam with an absolute minimum flow of 100 cfs regardless of inflow.

Reservoir Levels: The current FERC license requires that the Lake Lynn Project is operated to maintain Cheat Lake water levels between 868 feet and 870 feet NGVD0F3 from May 1 through October 31, between 857 feet and 870 feet from November 1 through March 31, and between 863 feet and 870 feet from April 1 through April 30.

Aquatic Biomonitoring Plan: License Article 411 of the current FERC license requires that Lake Lynn was to file a biological monitoring plan within one year of License issuance and to then update the plan every three years. In accordance with FERC's January 3, 2022 Order Modifying and Approving 2021 Biological Monitoring Plan, Lake Lynn must file annual status reports on the Lake Lynn Project Aquatic Biomonitoring Plan 2021-2023 (2021 Biomonitoring Plan) by March 1 in the years 2022, 2023 and 2024 after providing the report to the United States Fish and Wildlife Service (USFWS), West Virginia Division of Natural Resources (WVDNR), and Pennsylvania Fish and Boat Commission (PFBC) for review and comment.

Water Quality Monitoring Plan: Article 405 of the Lake Lynn Project license and the FERC-approved Water Quality Monitoring Plan dated October 1995 require the licensee to file an annual summary report of the water quality monitoring data with FERC within 150 days, or March 29, following the end of the monitoring season. The FERC-approved Water Quality Monitoring Plan requires the licensee share the annual summary with the United States Fish and Wildlife Service (USFWS), West Virginia Division of Natural Resources (WVDNR), Pennsylvania Fish and Boat Commission (PFBC), and West Virginia Department of Environmental Protection (WVDEP) (Resource Agencies) within 90 days, or January 29, of the end of the monitoring season.

Project Recreation Facilities – To enhance public recreation at the Lake Lynn Project, the Licensee operates and maintains several public recreation facilities that provide recreational access to Lake Lynn Project lands and waters.

3.2 Applicant's Proposed Action

3.2.1 Proposed Project Facilities and Operations

The Licensee is proposing no modifications to the existing Lake Lynn Project facilities. The existing dam, powerhouse, and generating equipment are all well maintained, in good

³ National Geodetic Vertical Datum of 1929.

working order, and no changes are required or proposed to these facilities that are outside the normal maintenance practices or ongoing FERC safety requirements.

As described in Exhibit B, Lake Lynn proposes to operate the Lake Lynn Project as a dispatchable peaking hydroelectric facility with storage capability. The facility's ponding capability varies by season and allows for peaking. The Lake Lynn Project has four Francis generating units with a total combined maximum output capacity of 51.2 MW. The Licensee is proposing no changes to the way in which the Lake Lynn Project is currently operated.

Lake Lynn is proposing to remove approximately ~~307.17~~ 243.8 acres of land that are not required for Lake Lynn Project purposes. The current Project Boundary contains approximately 2,291 acres of lands, and the proposed Project Boundary would have approximately 2,047 acres of land (Figure 3-1, Figure 3-2, and Figure 3-3). The following is a list of areas proposed for removal (Table 3.1). Additionally, the areas proposed for removal are depicted on ~~Figure 3-4, Figure 3-5, Figure 3-6, Figure 3-7, and Figure 3-8~~ Figure 3-1, Figure 3-2, Figure 3-3, Figure 3-4, and Figure 3-5. In addition to specific areas proposed for removal, some areas were previously bounded by a contour elevation above the normal full pool elevation (870' NGVD 29); these areas are owned by Licensee but the proposed Project boundary has been aligned with contour data at elevation 870 as these lands are not needed for Lake Lynn Project purposes (Figure 3-9). The Licensee proposes to maintain ownership of the lands identified for removal from the Project Boundary.

Table 3.1 Summary of Areas Proposed for Removal from the Lake Lynn Project Boundary

Area ID	Proposed Acres Removed	Previous Project Purpose	Reason for Removal
Area A	76.634	<u>Non-Project substation; lands above normal full pool elevation (870' NGVD 29) owned by Licensee not included as mitigation lands</u>	Project boundary aligned with contour data (870' NGVD 29). Land to be removed will be retained as Lake Lynn Generation LLC ownership. <u>No existing structures on this portion of land proposed for removal.</u>
Area B	11.373.1	<u>Lands above normal full pool elevation (870' NGVD 29) owned by Licensee not included as mitigation lands</u>	Project boundary aligned with contour data. Land to be removed will be retained as Lake Lynn Generation LLC ownership. No existing structures on this portion of land proposed for removal.
Area C	1.0611.4	<u>Licensee owned land leased to private individuals, not included as mitigation lands</u> <u>Lands above normal full pool elevation (870' NGVD 29) owned by Licensee not included as mitigation lands</u>	<u>Project boundary aligned with contour data. Land to be removed will be retained as Lake Lynn Generation LLC ownership. No existing structures on this portion of land proposed for removal.</u> <u>The Licensee owns the property and there are private leases granted to individuals. The area does not provide public recreation and is not needed for project purposes.</u>

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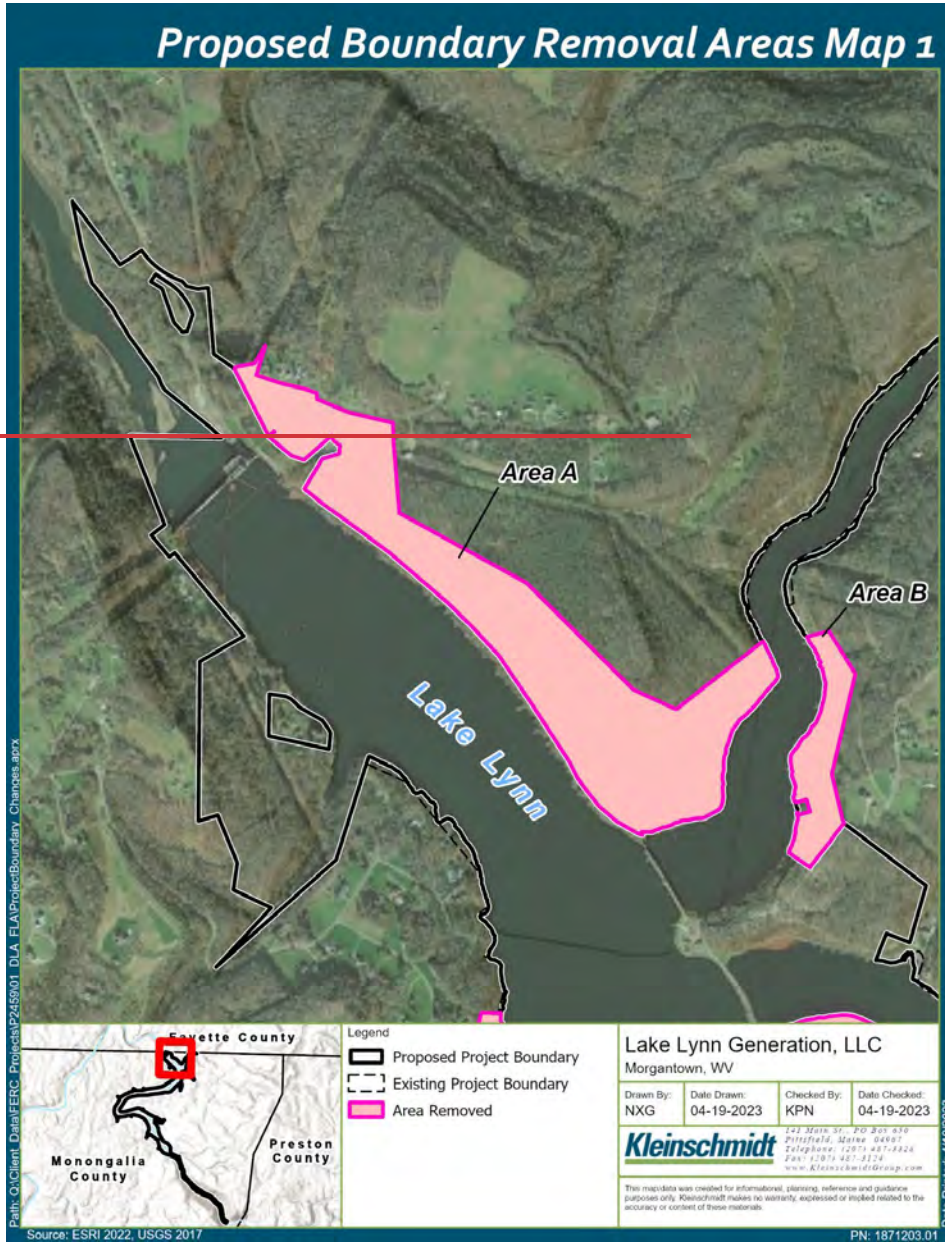
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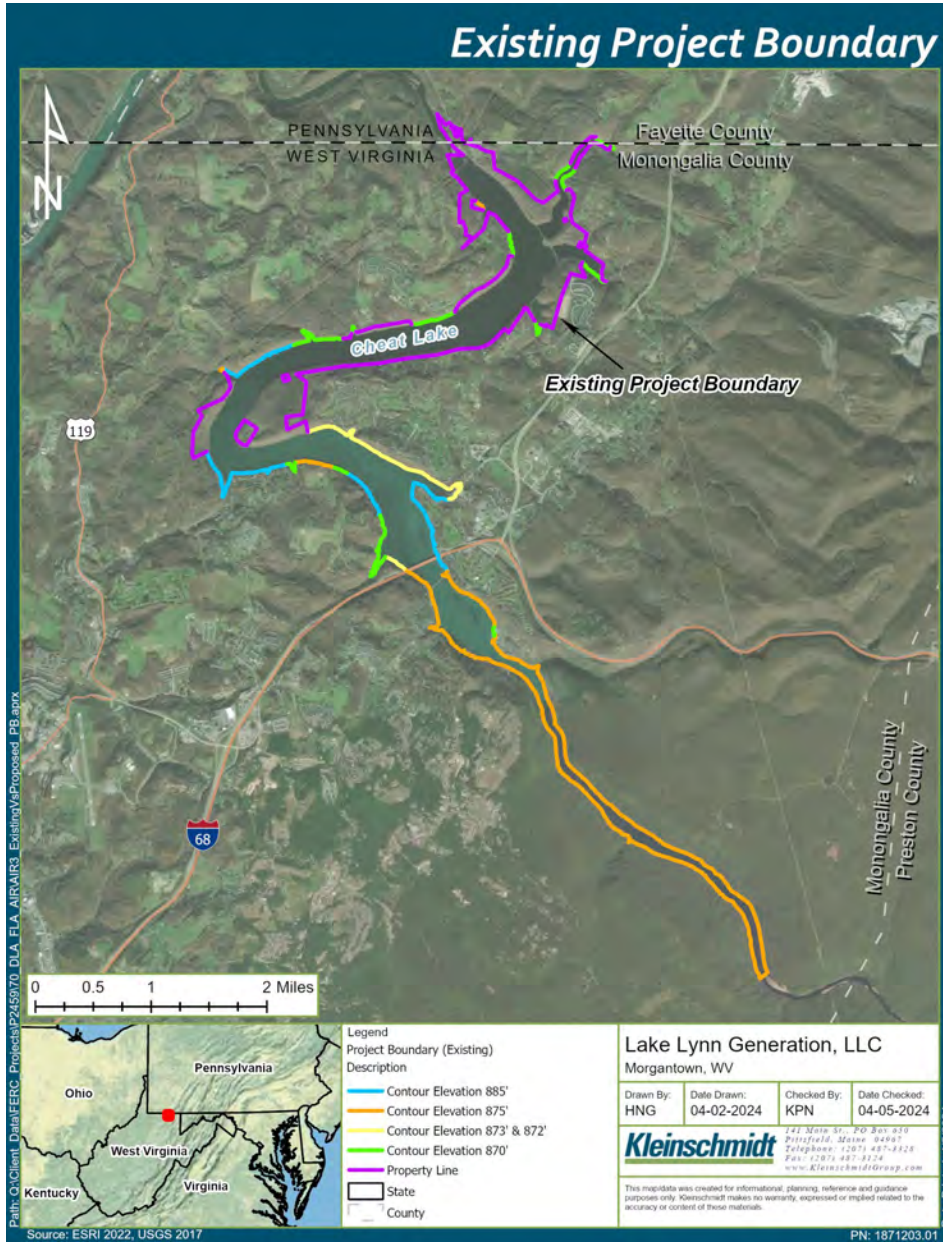
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Area ID	Proposed Acres Removed	Previous Project Purpose	Reason for Removal
Area D	18.45 <u>31.2</u>	<u>Lands above normal full pool elevation (870' NGVD 29) owned by Licensee not included as mitigation lands</u>	Project boundary aligned with contour data. Land to be removed will be retained as Lake Lynn Generation LLC ownership
Area E	69.42 <u>18.6</u>	<u>Lands above normal full pool elevation (870' NGVD 29) owned by Licensee not included as mitigation lands Nature Viewing Area 18 and lands above normal full pool elevation (870' NGVD 29) owned by Licensee not included as mitigation lands</u>	Project boundary aligned with contour data. Land to be removed will be retained as Lake Lynn Generation LLC ownership
Area F	35.66 <u>29.5</u>	<u>Lands above the Cheat Lake Trail normal full pool elevation (870' NGVD 29) owned by Licensee not included as mitigation lands Lands above normal full pool elevation (870' NGVD 29) owned by Licensee not included as mitigation lands</u>	<u>Project boundary offset from the Cheat Lake Trail to conduct maintenance activities and aligned with contour data. Land to be removed will be retained as Lake Lynn Generation LLC ownership. Project boundary aligned with contour data. Land to be removed will be retained as Lake Lynn Generation LLC ownership</u>
Area G	<u>10.1</u>	<u>Lands above normal full pool elevation (870'</u>	<u>Project boundary aligned with contour data. Land to be</u>

Lake Lynn Hydroelectric Project (P-2459)
 Final License Application - Exhibit E

Area ID	Proposed Acres Removed	Previous Project Purpose	Reason for Removal
		<u>NGVD 29) owned by Licensee not included as mitigation lands</u>	<u>removed will be retained as Lake Lynn Generation LLC ownership</u>
Area HG	44.28 <u>32.2</u>	<u>Lands above normal full pool elevation (870' NGVD 29) owned by Licensee not included as mitigation lands</u>	Project boundary aligned with contour data. Removal of Nature Viewing Area that can only be accessed by water, no existing structures on this site. <u>Land to be removed will be retained</u> Remaining land to be retained as Lake Lynn Generation LLC ownership
Contour adjustments	48.49 <u>31.3</u>	<u>Lands previously bounded by a contour elevation above the normal full pool elevation (870' NGVD 29) owned by Licensee not included as mitigation lands.</u>	<u>Project boundary aligned with contour data.</u> Land not needed for Lake Lynn Project purposes





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Figure 3-1 Existing Project Boundary at Lake Lynn

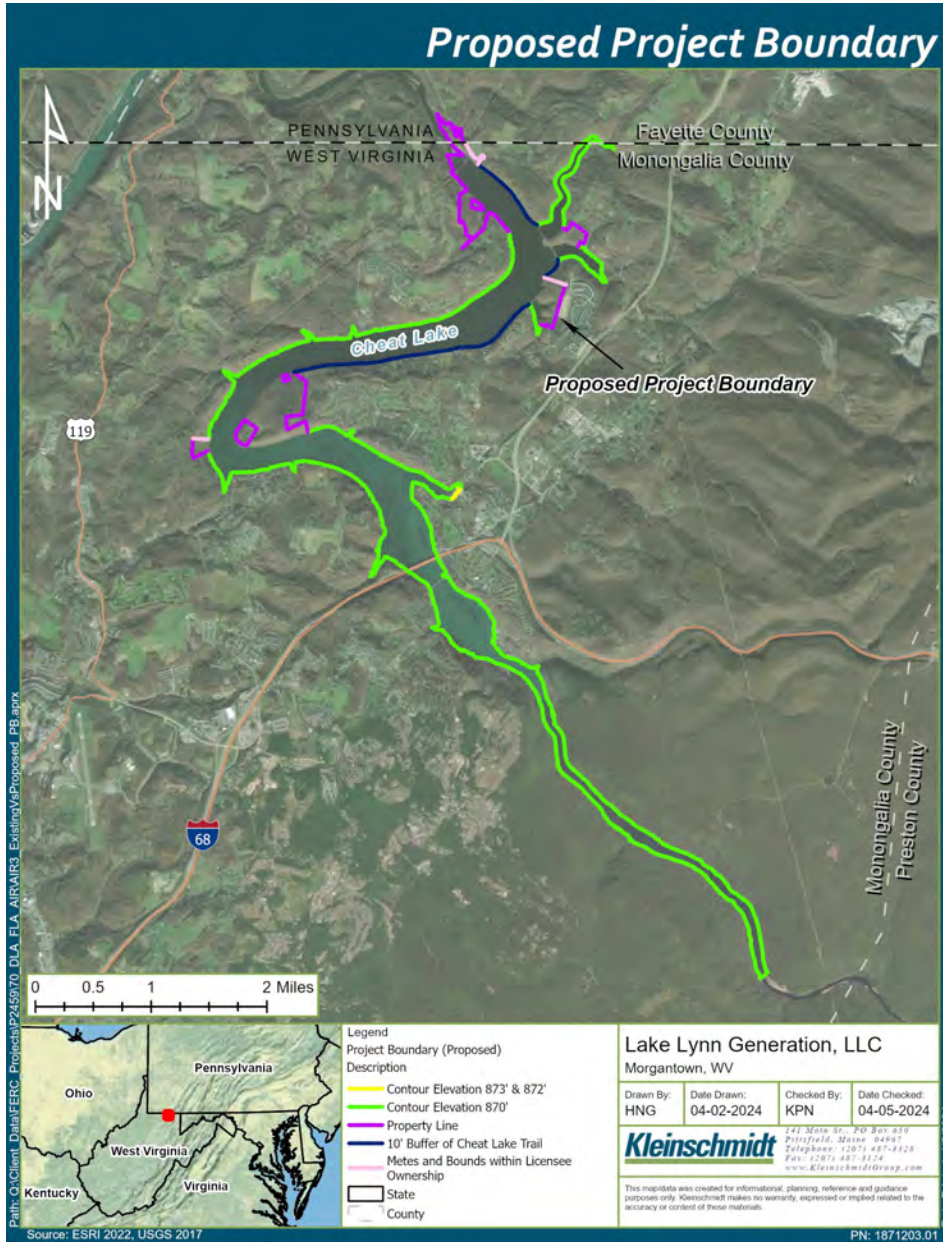


Figure 3-24 Proposed Project Boundary at Lake Lynn

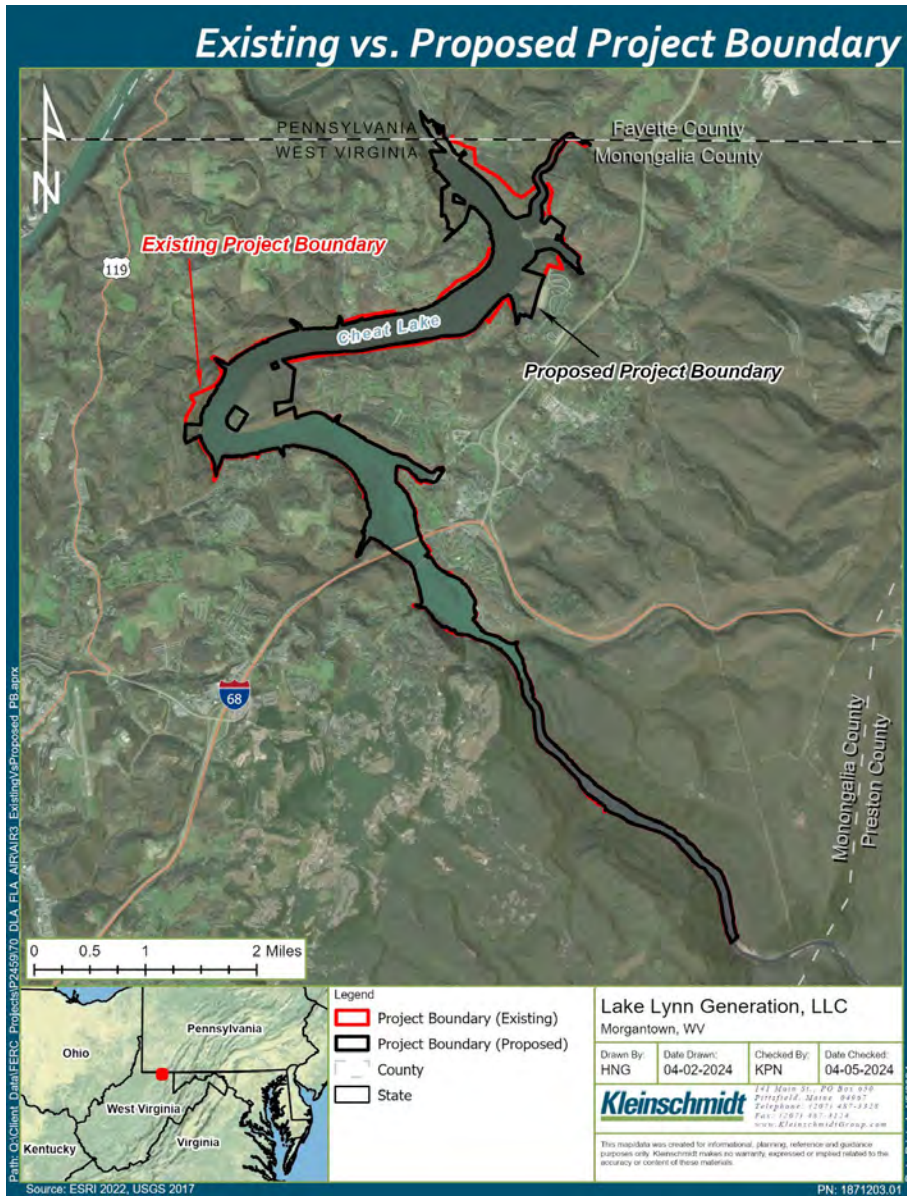
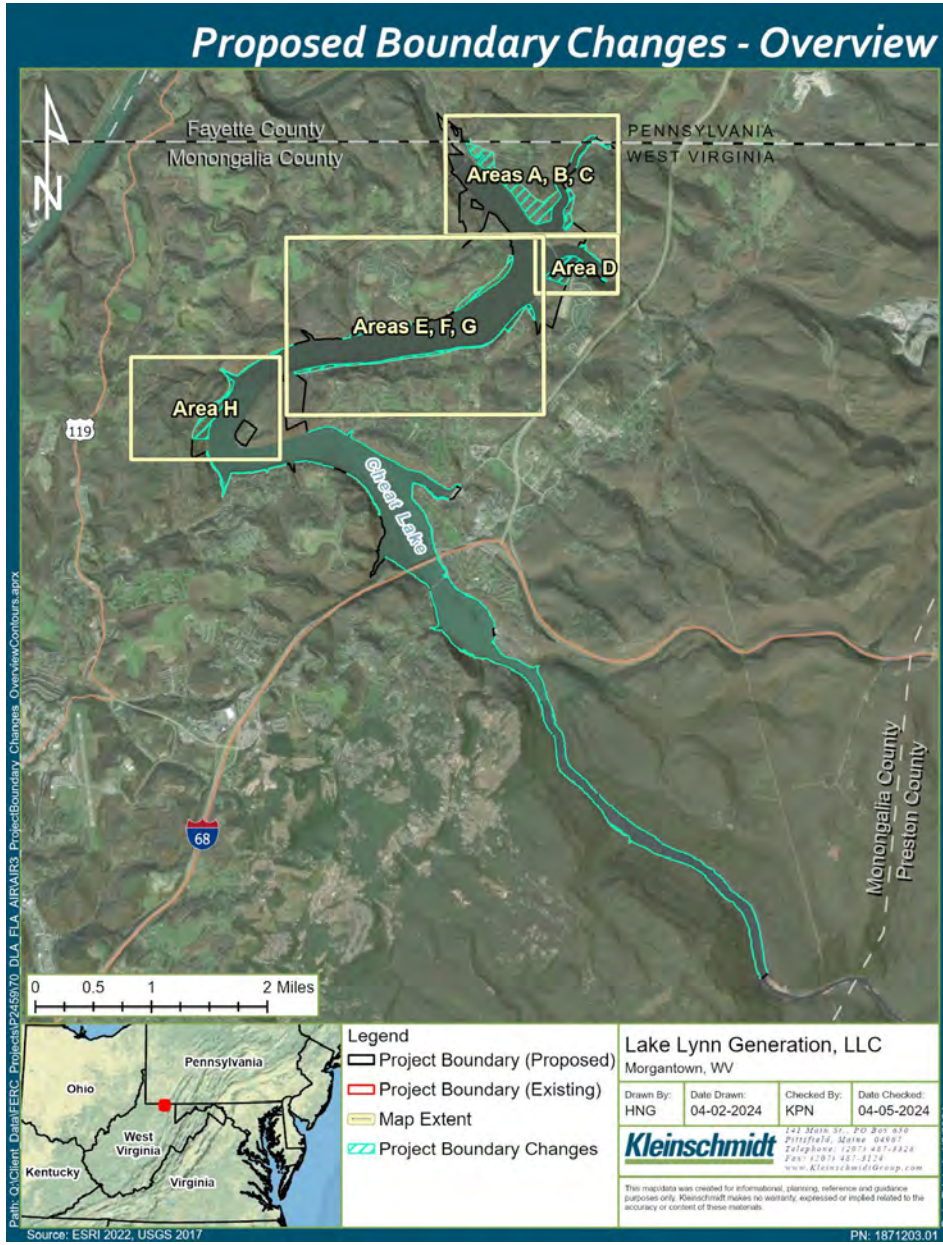


Figure 3-33-23.1 Areas Proposed for Removal from the Lake Lynn Project Boundary Comparison of the existing Project Boundary and Proposed Project Boundary

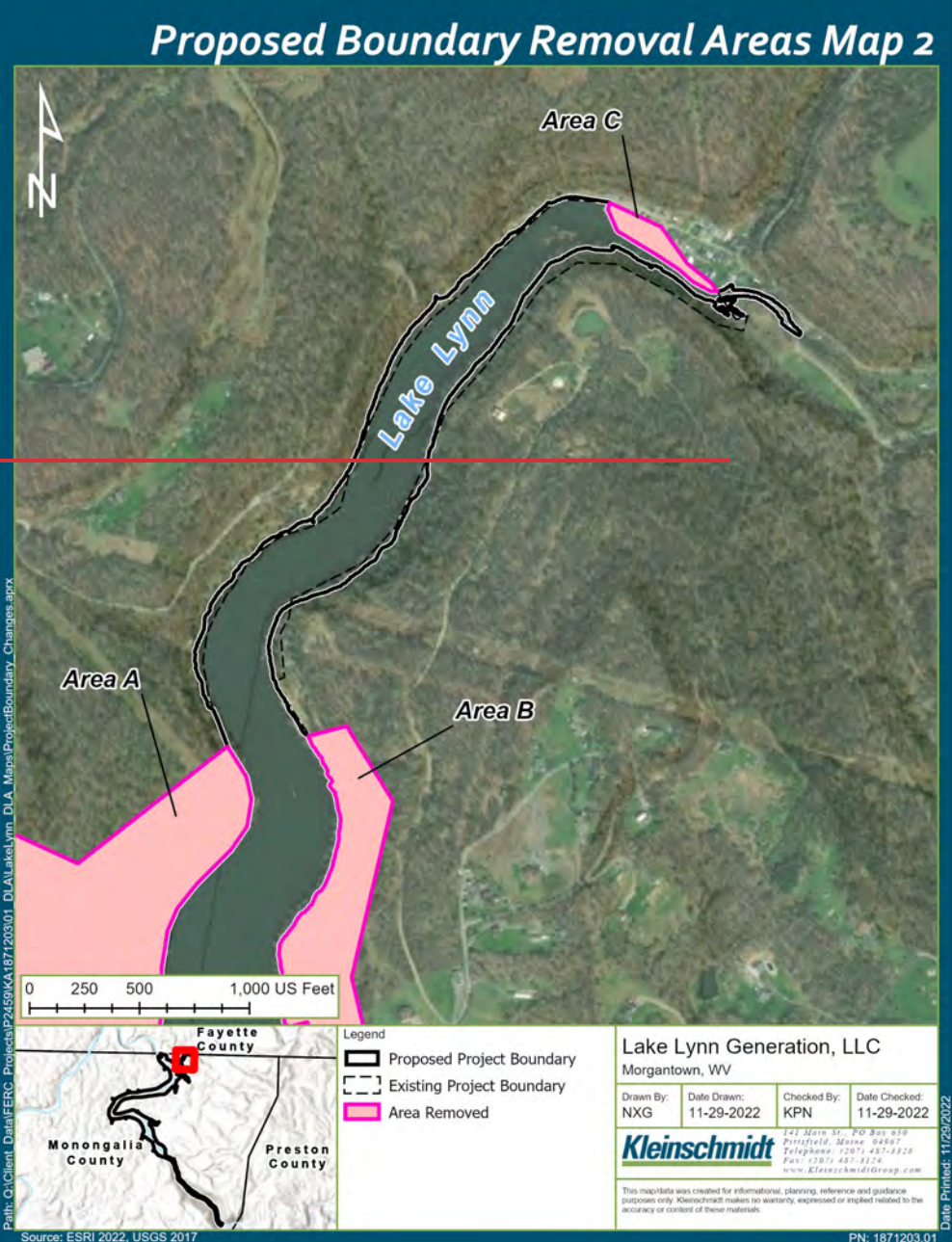


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Figure 3-43 Proposed Project Boundary Changes Overview

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Final License Application - Exhibit E

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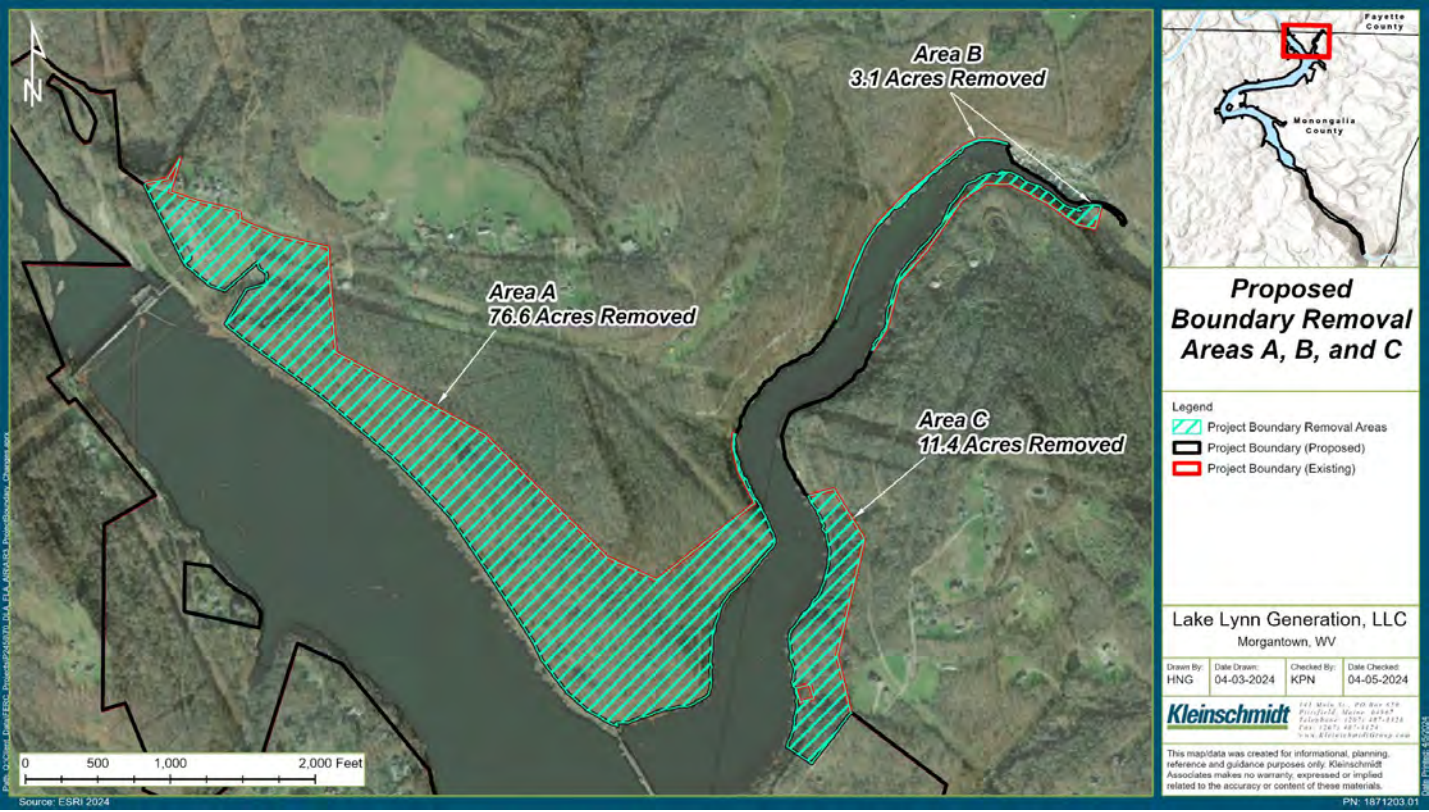


Figure 3-53-43.2 Areas A, B, and C Proposed for Removal from the Lake Lynn Project Boundary

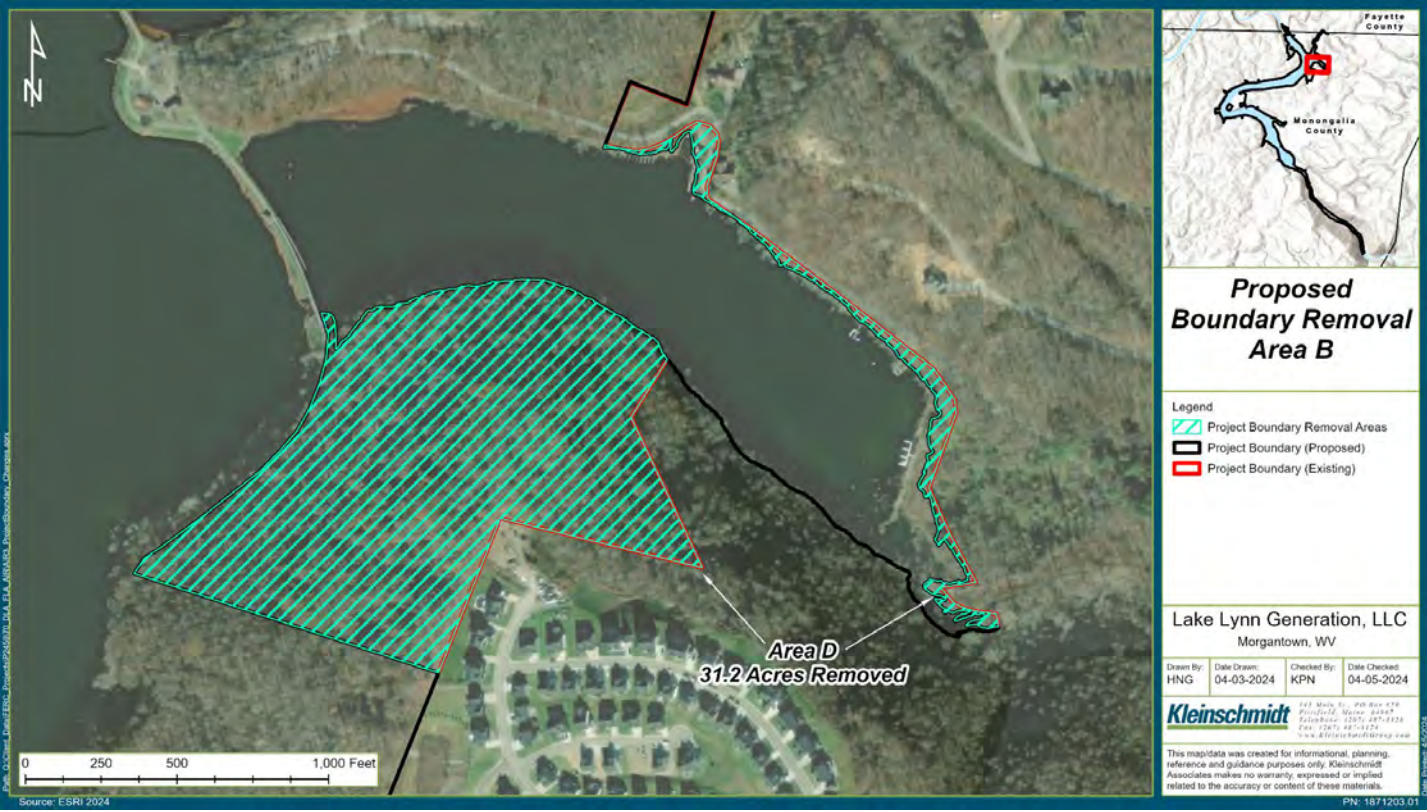


Figure 3-63-4 Area D Proposed for Removal from the Lake Lynn Project Boundary

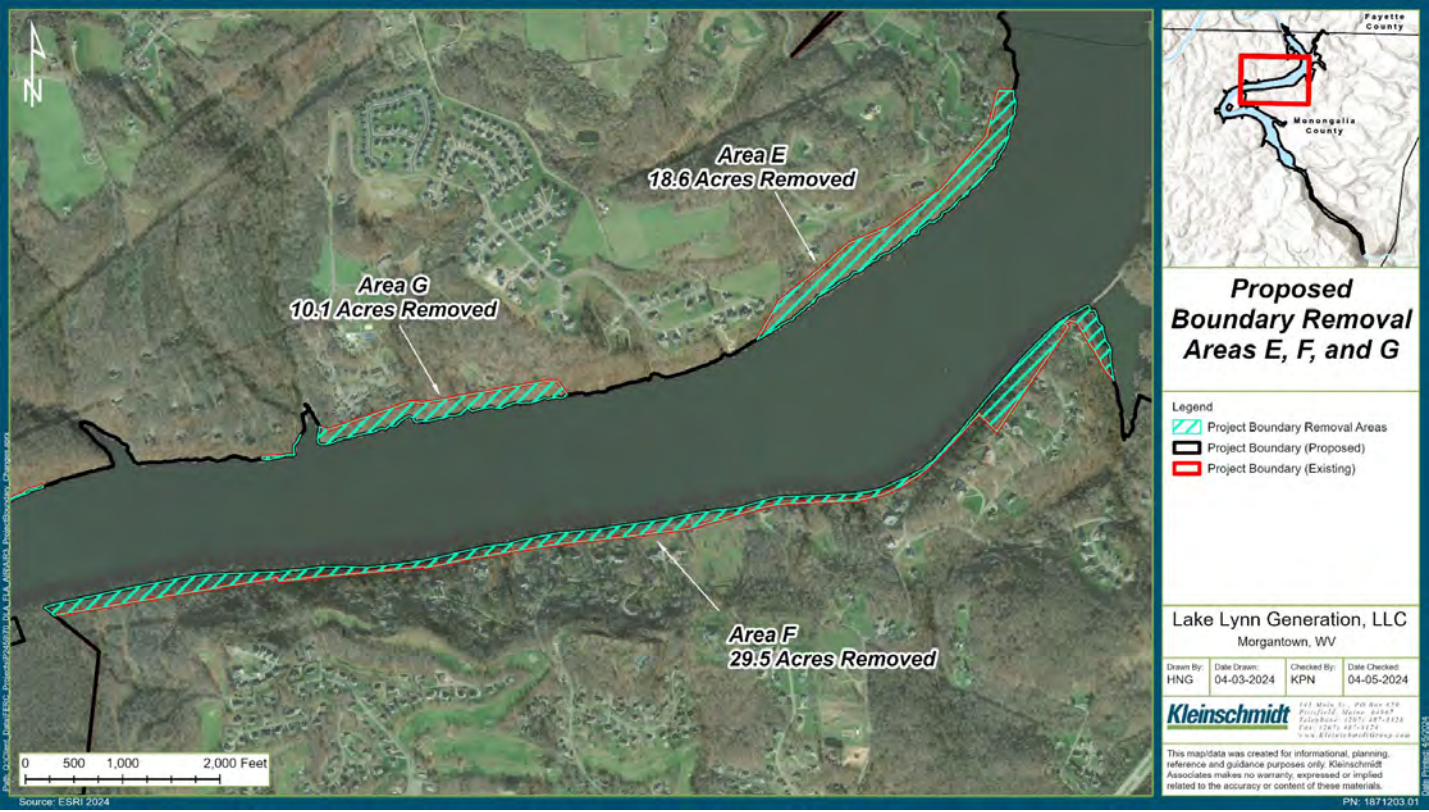


Figure 3-73-5 Areas E, F, and G Proposed for Removal from the Lake Lynn Project Boundary

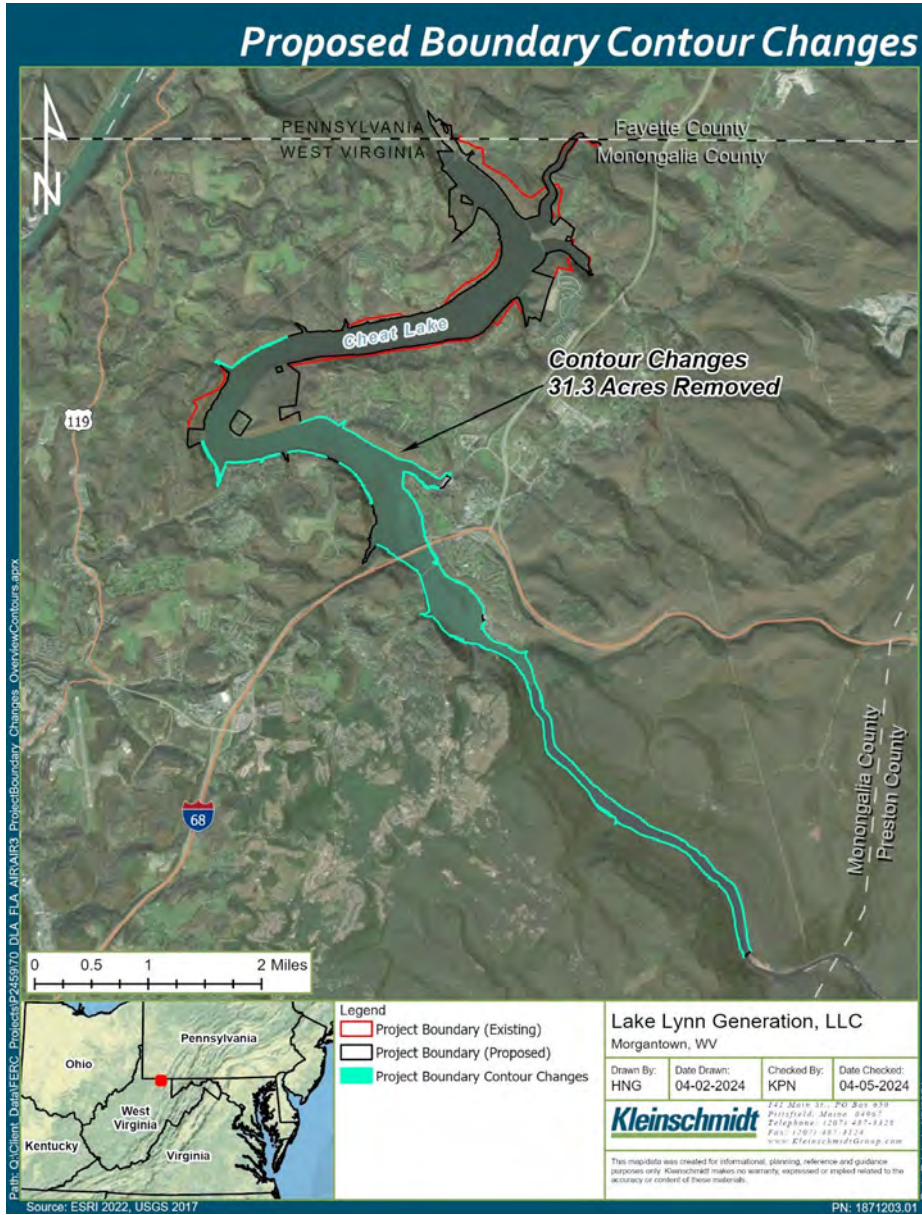


Figure 3-86 Area H Proposed for Removal from the Lake Lynn Project Boundary

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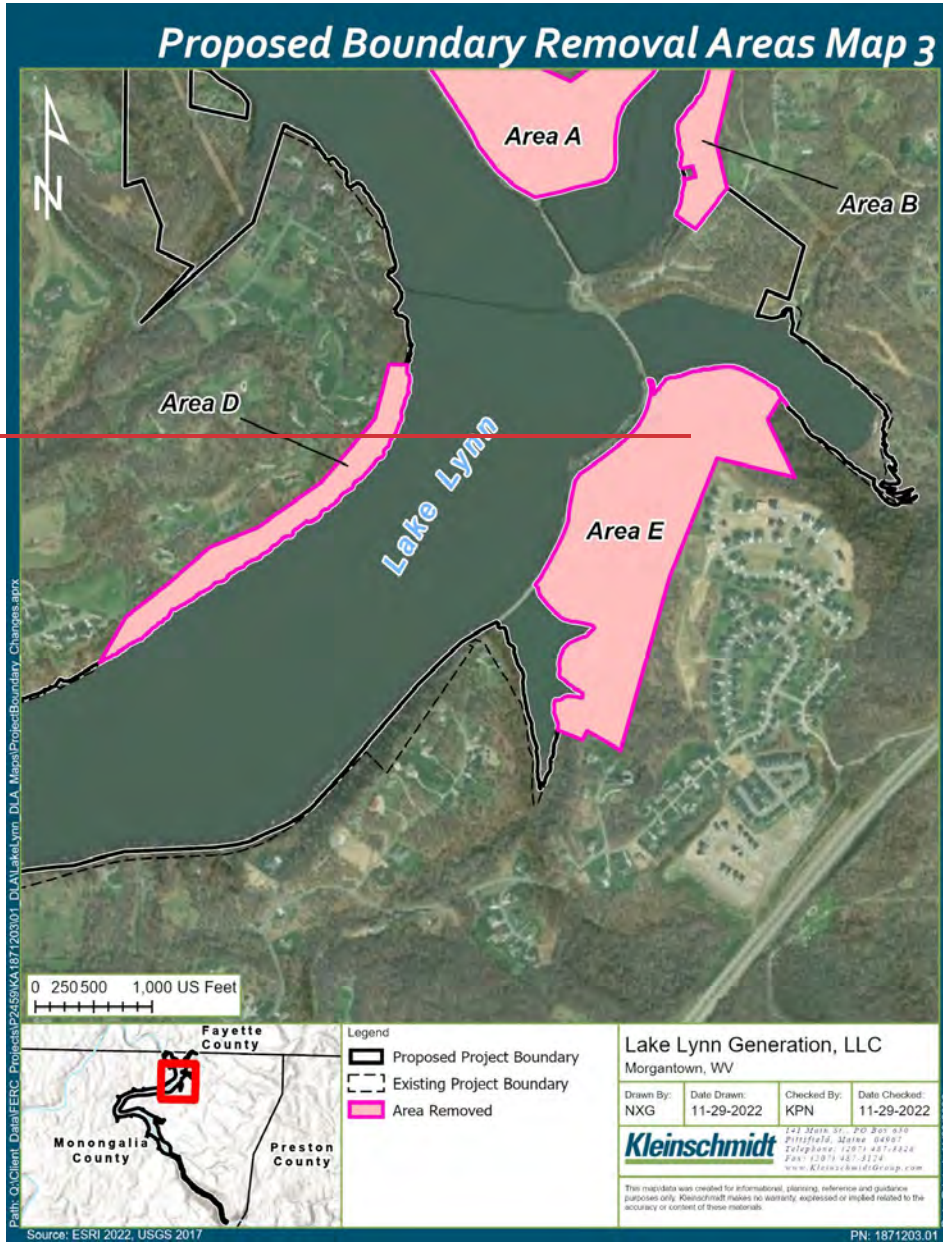


Figure 3.3 — Areas Proposed for Removal from the Lake Lynn Project Boundary

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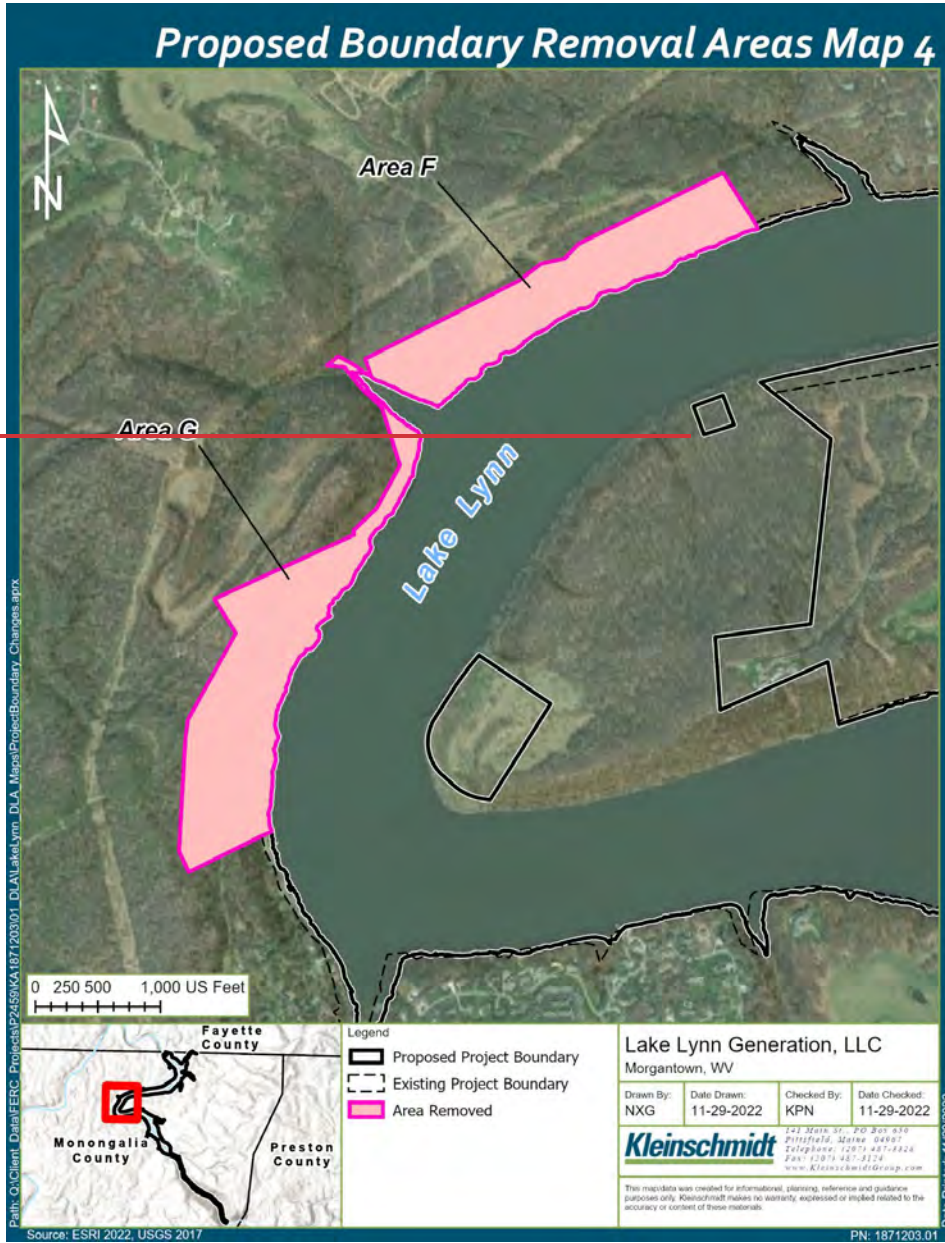


Figure 3.4 — Areas Proposed for Removal from the Lake Lynn Project Boundary

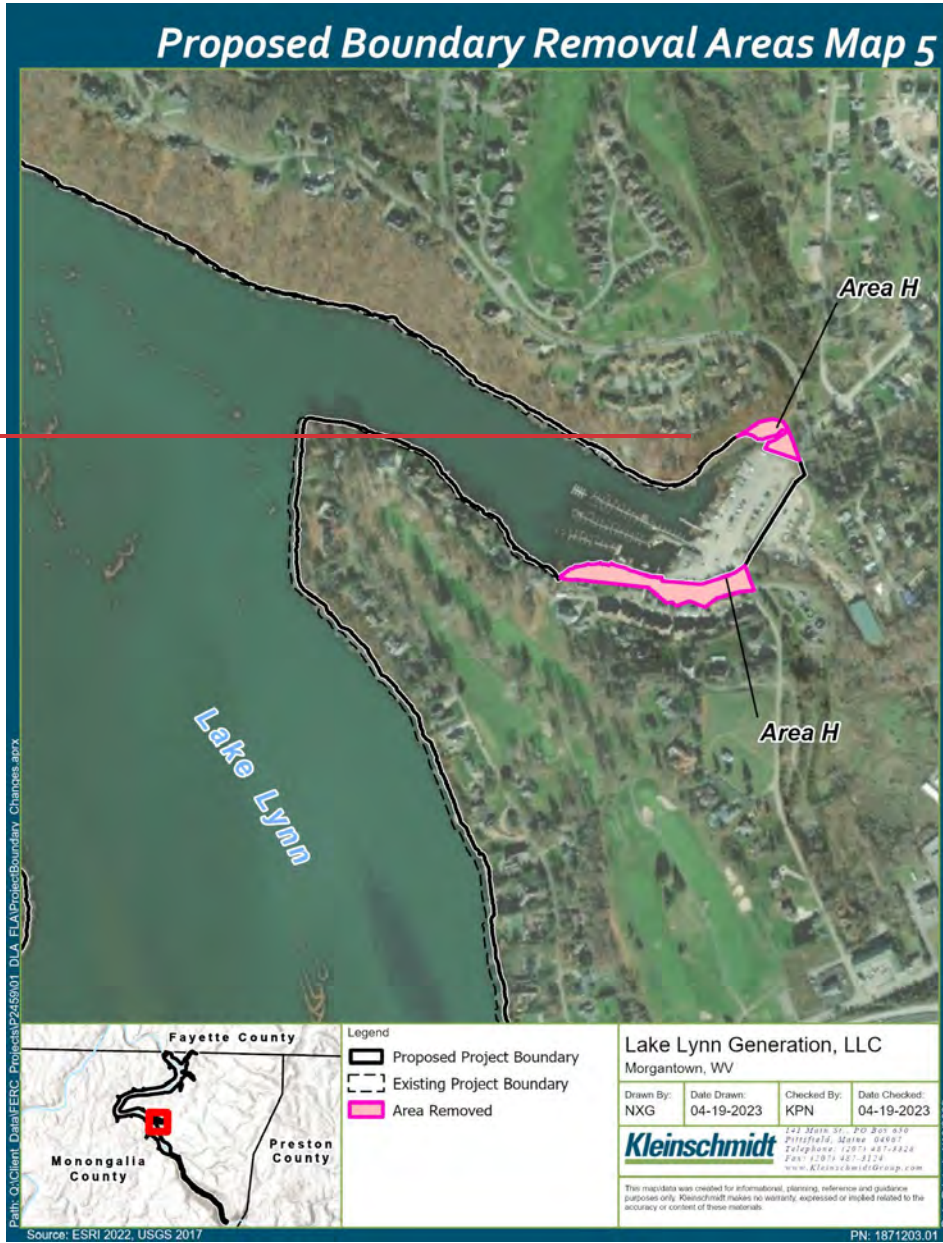


Figure 3_973.5 Areas Proposed for ~~Removal Contour Adjustment from at~~ the Lake Lynn Project Boundary

3.2.2 Proposed Environmental Measures

Lake Lynn proposes to continue implementing the following existing PME measures:

- **Minimum Flows:** The current FERC License requires Lake Lynn release a minimum flow of 212 cubic feet per second (cfs) from the dam with an absolute minimum flow of 100 cfs regardless of inflow.
- **Reservoir Levels:** The current FERC license requires that the Lake Lynn Project is operated to maintain Cheat Lake water levels between 868 feet and 870 feet NGVD29⁴ from May 1 through October 31, between 857 feet and 870 feet from November 1 through March 31, and between 863 feet and 870 feet from April 1 through April 30.
- **Project Recreation Facilities –** To enhance public recreation at the Lake Lynn Project, the Licensee operates and maintains several public recreation facilities that provide recreational access to Lake Lynn Project lands and waters.

Lake Lynn proposes the following new PME measures:

- **Develop an Operation Plan** within one year of license issuance in consultation with USFWS, WVDNR, WVDEP, PADEP, and PFBC that will include standard operating procedures to be implemented during periods of low dissolved oxygen (DO) levels that will allow the reservoir to be drawn down to 865 feet (ft), and document how Lake Lynn will comply with the operational requirements of the license. Key elements of the plan will include: provisions to monitor compliance with the operational requirements of the license; standard operating procedures to be implemented during periods of low DO levels that will allow the reservoir to be drawn down to 865 ft; standard operating procedures to be implemented outside of normal operating conditions, including during: (a) scheduled facility shutdowns and maintenance; and (b) emergency conditions such as unscheduled facility shutdowns and maintenance; and a description of all gages or measuring devices that will be used to monitor operation compliance.
- **Develop a Water Quality Monitoring Plan** for the new license term within one year of license issuance in consultation with USFWS, WVDNR, WVDEP, PADEP, and PFBC. Key elements of the plan will include monitoring DO and water temperature from June 1 through October 31 each year at the existing reservoir water quality monitoring station and the tailwater monitoring site.

⁴ National Geodetic Vertical Datum of 1929.

- Provide bat protection measures with seasonal tree trimming restrictions. Bats hibernate in the winter (October to April) and the proposed dates pertain to roosting and breeding seasons:
 - April to August for NLEB;
 - August to September for Indiana bat;
 - April to September for tricolored bat.
- Develop a new Recreation Management Plan (RMP) for the new license term within one year of license issuance in consultation with USFWS, WVDNR, PFBC, WVDEP, PADEP, Monongalia County, Fayette County, CLEAR, FOC, and MRTC. Key elements of the RMP would be informed by the results of the Recreation Site Enhancement Feasibility and Assessment and include: a description of Project recreation facilities; a review and update of the RMP every 10 years in consultation with USFWS, WVDNR, PFBC, WVDEP, PADEP, Monongalia County, Fayette County, CLEAR, FOC, and MRTC. The RMP would also include water depth monitoring on an annual basis prior to the recreation season at the Sunset Beach Marina Public Boat Ramp. The RMP would include a measure for, if warranted, conducting a bathymetric survey in the vicinity of the Sunset Beach Marina Public Boat Ramp every 10 years and excavation to maintain the boat ramp usability.
- Develop a Shoreline Management Plan (SMP) within one year of license issuance in consultation with USFWS, WVDNR, WVDEP, PADEP, PFBC, Monongalia County, Fayette County, WVSHPO, Pennsylvania SHPO, CLEAR, and FOC. Key elements of the SMP would include: a list of allowed activities and facilities and procedures for granting permission for activities and facilities along the shoreline and within the Project boundary in accordance with the Standard Land Use Article of the FERC license. Additionally, the SMP would outline provisions to remove the moratorium on private boat docks and piers on Cheat Lake.
- Develop a Historic Properties Management Plan (HPMP) within two years of license issuance in consultation with WVSHPO, Pennsylvania SHPO, and Tribes. Key elements of the HPMP would include: treatment of historic properties threatened by Project-related activities, consideration and implementation of appropriate treatment that would minimize or mitigate unavoidable adverse effects on historic properties, a list of activities (i.e., routine repair, maintenance, and replacement in kind at the Project) not requiring consultation because these activities would have little or no potential effect on historic properties. And discovery of previously unidentified properties during Project operations.

Table 3.2 below identifies the anticipated capital and annual operations and maintenance (O&M) costs associated with implementing the proposed PME measures.

Table 3.2 Estimated Proposed PME Capital and O&M Costs

Proposed Protection, Mitigation, and Enhancement Measure	Capital Cost (\$2022)	Annual O&M Cost (\$2022)
Minimum Flows	\$0	\$0
Reservoir Elevations	\$0	\$0
Continue to provide public recreation access at the existing Lake Lynn Project recreation facilities	\$0	\$143,000
Develop and implement an Operation Plan	\$10,000	\$35,000
Develop and implement an updated Water Quality Monitoring Plan	\$7,500	\$15,000
Provide bat protection measures with seasonal tree trimming restrictions	\$0	\$0
Develop and implement updated Recreation Management Plan, including Sunset Beach Marina Public Boat Launch Water Depth Monitoring	\$25,000	\$155,000
Develop and implement a Shoreline Management Plan	\$25,000	\$10,000
Develop and implement a Historic Properties Management Plan	\$30,000	\$5,000

4.0 ENVIRONMENTAL ANALYSIS

4.1 Analysis of Proposed Action

Exhibit E includes a review of existing resource information as well as an analysis of anticipated effects of Lake Lynn Project operations relative to current conditions (e.g., No-Action Alternative) and Lake Lynn's proposed action. This analysis considers geographic, temporal, and cumulative scopes, as appropriate.

4.1.1 Geographic Scope

The geographic scope of the analysis defines the physical limits or boundaries of the proposed action's effect on the resources. Because the proposed action has the potential to affect the resources differently, the geographic scope for each resource varies. Generally, for upland based resources such as wildlife and land use, the geographic scope is limited to those lands within the Lake Lynn Project boundary. For aquatic resources and those affected by flow discharges and water levels, the geographic scope generally includes the impoundment and tailwater for a distance downstream to a point where flow effects are attenuated.

4.1.2 Temporal Scope

Based on the potential term of a new license, the temporal scope analyzed is up to 40 years into the future, with focus on how reasonably foreseeable future actions affect resources. The discussion of historical information is limited to available information for the resource areas.

4.1.3 Cumulative Effects

According to the Council on Environmental Quality's regulations for implementing the National Environmental Policy Act (NEPA) (Section 1508.7), a cumulative effect is the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions, regardless of what agency or person undertakes such other actions. Lake Lynn has not identified any resource which has the potential to be cumulatively affected by the operations and maintenance of the Lake Lynn Project.

4.2 General Description of the River Basin

4.2.1 General Description of Watershed

The Lake Lynn Project is located on the Cheat River in Monongalia County, West Virginia, and Fayette County, Pennsylvania (Figure 4.1). The Cheat River is an 84-mile-long tributary of the Monongahela River. The Monongahela River is approximately 128 miles long, flows from south to north, and is located in northcentral West Virginia and southwestern Pennsylvania. The Monongahela River watershed (HUC 050200) is approximately 7,340 square miles (USACE 2012). The Lake Lynn Project is approximately 3.7 miles upstream of the confluence of the Cheat River with the Monongahela River in Point Marion, West Virginia.

The Cheat River originates within the Monongahela National Forest in Parsons, West Virginia, at the confluence of Shavers Fork and Black Fork (Figure 4.1). Shavers Fork is an 88.5-mile-long river which begins in northcentral Pocahontas County at Thorny Flat, the highest peak of Cheat Mountain, and generally flows north-northwest through Randolph and Tucker counties. Black Fork is a short stream about 4 miles in length formed by the confluence of the Dry Fork and the Blackwater River in the town of Hendricks. Black Fork then flows northwest through the towns of Hambleton and Parsons, West Virginia, where it joins with Shavers Fork to create the Cheat River. The Cheat River flows north until it joins the Monongahela River in Point Marion, Pennsylvania. The Cheat River watershed (Hydrologic Unit Code [HUC] 05020004) is approximately 100 miles long with an average width of approximately 15 miles and a drainage area of 1,426 square miles. The average elevation of the watershed is approximately 2,270 feet above mean sea level (WVDEP 2013).

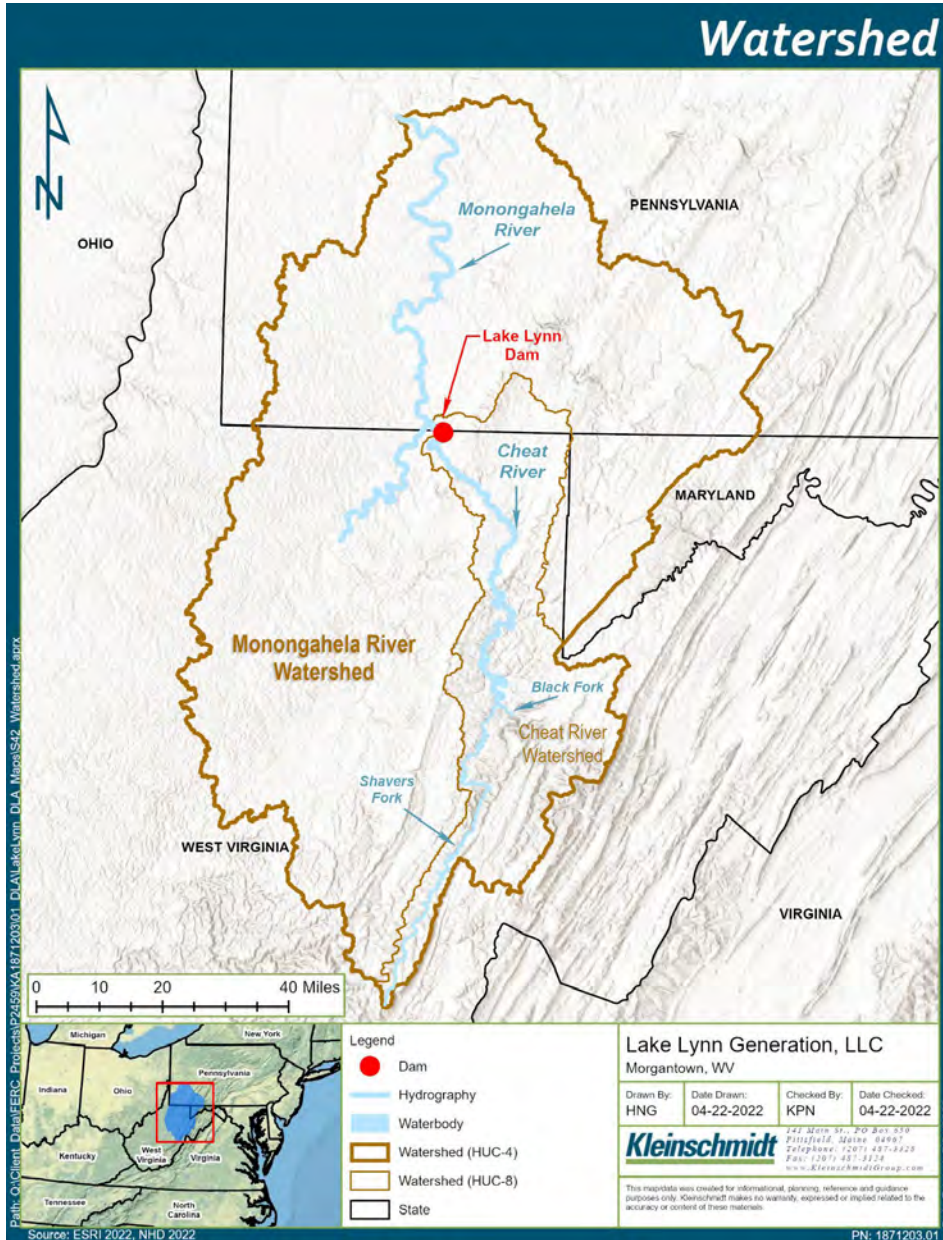


Figure 4-14.1 Overview of the Cheat River Watershed

4.2.2 Topography

The Cheat River basin topography is characterized by mountainous ridges and deep, wide valleys. The Cheat River basin spans across three geographic ecoregions, the Central Appalachian Forest, the Cumberland and Southern Ridge Valley, and the Western Allegheny Plateau. The majority of the Cheat River basin (54 percent) is within the Central Appalachian ecoregion, which is known for its mountainous terrain, cooler climate, and biologically diverse habitat (WVDEP 2013). In the Central Appalachian Forest ecoregion, the Cheat River basin meanders through the Western Allegheny Mountains, the Northern High Allegheny Mountains, and the Southern High Allegheny Mountains. The elevation of the basin ranges from 1,800 feet in Preston County, West Virginia, to 4,800 feet in Pocahontas County, West Virginia, deep within the Monongahela National Forest (LSA 2022a).

Nearly 45 percent of the river basin is within the Cumberland and Southern Ridge Valley (CSRV) ecoregion, characterized by its parallel mountain ridgelines and lowland valleys (WVDEP 2013). The Cheat River basin lies within the Cumberland Mountains, a subregion of the CSRV, which stretches from the southern part of West Virginia to Tennessee. The area is characterized as extremely rugged, mountainous terrain ranging from 570 feet to over 4,400 feet in elevation (LSA 2022b). Approximately 1 percent of the basin lies within the Western Allegheny Plateau ecoregion, which is characterized by rounded hills and wide fertile valleys of mixed oak forests and agricultural lands (WVDEP 2013). This ecoregion spans from east to west and includes areas of New York, northwestern West Virginia, western Pennsylvania, and eastern Ohio (LSA 2022c).

4.2.3 Climate

The Monongahela River watershed has a humid continental climate which is characteristic of mid-latitude temperate regions. This climate is characterized by variable weather patterns and four seasons with large temperature variations due to the position between polar and tropical air masses. Dominant airflow patterns are from the west most of the year. During the summer, low pressure cyclonic systems dominate with southern winds and heavy precipitation. From June through November, northeasterly moving hurricanes and tropical storms occasionally produce heavy rains and winds in the region (USACE 2012).

The climate of the Cheat River watershed is characterized by relatively cold winters and moderately hot, showery summers. The average annual temperature at the Morgantown Municipal Airport (approximately 6 miles southwest of the Lake Lynn dam) from 2012 to 2021 was 55 degrees Fahrenheit (°F) with a range of 53°F to 56°F (NRCC 2022). The monthly mean temperature ranged from 32°F in January to 75°F in July. The average annual total precipitation was 44 inches and ranged from 35 inches to 55 inches. The monthly mean precipitation ranged from 2.2 inches in November to 5.5 inches in July (NRCC 2022).

4.2.4 Land and Water Use

The Monongahela River is controlled and maintained for navigation by the United States Army Corps of Engineers (USACE) via a series of nine locks and dams (FERC 2016). Four of these dams (Opekiska, Hildebrand, Morgantown in West Virginia, and Point Marion in Pennsylvania) are located upstream of the Cheat River confluence with the Monongahela River. The other five dams (Grays Landing, Maxwell, Charleroi, Locks and Dam 3, and Braddock) are located downstream of the confluence in Pennsylvania (USACE 2012).

Rivers in the Monongahela River basin, including the Cheat River, were historically used for wastewater assimilation from mining and gas extraction, treated industrial and municipal wastewater, and storm water discharge (PFBC 2011). Due to historical mining activities, these rivers have displayed severe water pollution issues. However, with the introduction of water pollution controls over the past fifty years, these rivers have experienced improved water quality (PFBC 2011).

Today, the Cheat River is primarily used for hydroelectric power generation, wildlife and aquatic habitat, public water supply, and recreation, such as fishing and whitewater kayaking. The Cheat River is the drinking water source for the towns of Parsons, Rowlesburg, Kingwood, and Albright in West Virginia (FOC 2022a).

The only other dam on the Cheat River is at the Albright Power Station dam, approximately 24 river miles (RM) upstream of the Lake Lynn dam. The dam provided the cooling water supply for the power station. The Albright Power Station was decommissioned in 2012, and the dam is under consideration for removal (FOC 2022b).

Land use in the Cheat River basin is dominated by forested area (86 percent), while 8 percent of the land cover is classified as developed, 5 percent is planted/cultivated area, and less than 1 percent is defined as impervious surface area (WVDEP 2013). The

watershed is sparsely populated and very rural. The tributaries that form Black Fork, the principal tributary to the Cheat River, rise in sparsely settled mountainous terrain, much of which is part of the Monongahela National Forest. Additionally, the watershed encompasses portions of the following state and federal public lands:

- *Wildlife Management Areas*: Beaver Dam (37,674 acres), Blackwater (58,978 acres), Cheat (80,771 acres), Little Indian Creek (1,036 acres), Otter Creek (68,782 acres), Potomac (139,786 acres), and Snake Hill (3,092 acres);
- *State Parks*: Blackwater Falls (446 acres), Canaan Valley (6,014 acres), and Cass Scenic Railroad (11 miles long);
- *State Forest*: Coopers Rock (12,747 acres);
- *National Forest*: Monongahela (900,000 acres); and
- *National Wildlife Refuge*: Canaan Valley.

4.2.5 References

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Friends of the Cheat (FOC). 2022b. Albright Power Dam Removal Project. Available online: <https://www.cheat.org/our-work/watershed-restoration/albright-power-dam-removal-project/>. Accessed April 20, 2022.

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West Virginia Department of Environmental Protection (WVDEP). 2013. West Virginia Watersheds: A Closer Look. Available online: <https://dep.wv.gov/WWE/wateruse/WVWaterPlan/Documents/WatershedACloserLookNovember2013.pdf>. Accessed: April 20, 2022.

4.3 Geological and Soil Resources

4.3.1 Affected Environment

The Lake Lynn Project is within the Paleozoic – Pennsylvanian geological region, which formed 299-318 million years ago. Specifically, the Lake Lynn Project vicinity is a mix of Conemaugh Group, Quaternary Alluvium, Pottsville Group, Allegheny Formation, Monongahela Group, and Greenbrier Group. These geological features vary among types but are predominantly cyclical sequences of red and grey shale (mostly non-marine), siltstone, and sandstone, with thin limestones, and coal (SGMC 2017). Thin limestone, shales, and a variety of coals are widely distributed within the Lake Lynn Project vicinity.

The existing topography around the Cheat Lake shoreline is relatively steep with areas of bedrock and large cobbles. The local bedrock consists primarily of sandstone and shale. Much of the bedrock is covered with alluvium composed of sand, gravel, silt, and clay. Several outcrops are located along shoreline, including very high cliffs. Relief in the area is on the order of 300 to 400 feet, with the Cheat River flowing between relatively steep slopes on either side, rising from 870 feet to about 1,200 feet (Lake Lynn 2021). Level land in the Lake Lynn Project boundary is limited to Cheat Lake Park and along a terraced area near the Sunset Beach Marina (Lake Lynn 2021).

Based on a review of the United States Department of Agriculture Natural Resources Conservation Service's (NRCS) Web Soil Survey, the predominant soil types within the Lake Lynn Project area are loamy with mixed stony and silty components (NRCS 2022). Within the Lake Lynn Project boundary, most of the area is water (approximately 85.6 percent) with the remaining soils comprising the remaining 14.4 percent. Specifically, the most common soil types within the Lake Lynn Project area include Dekalb very stony loams, 15-35 percent and 35-65 percent slopes (DdE and DdF); Culleoka-Westmoreland silt loams, 35-65 percent slopes (CwD); Gilpin silt loam, 35-65 percent slopes (GaF); and Dekalb channery loams (DaC, DaD, and DaE). Although some variation exists between these soil types, they are typically found along steep slopes, ridgetops, hillsides, and stream terraces. Water capacity varies from low to moderate, and permeability varies from rapid (i.e., DdE and DdF) to moderate (i.e., CwD and GaF). However, all these soil types have medium to rapid runoff potential and are high-erosion hazard soils. These soil types are at high risk of runoff and severe erosion, particularly in bare earth or unprotected areas. The establishment of vegetative cover for soil protection along the shoreline of the

Cheat Lake is difficult because of the soils' low fertility, reservoir elevation fluctuation, and wave action along the shoreline from wind or watercraft.

In accordance with Article 402 of the existing FERC license, the Licensee has conducted shoreline erosion surveys of the entire Cheat Lake Shoreline every 3 years since 1995 to identify new areas of erosion along the Cheat Lake shoreline. Since 1995, the Licensee has also conducted annual erosion surveys of the Cheat Lake Park shoreline extending from the Cheat Lake dam to the Cheat Haven Peninsula. A total of 19 shoreline erosion monitoring stations where historical erosion has been observed were visually inspected during the most recent annual shoreline erosion survey conducted in 2021. Since 2018, active annual erosion has been minimal as discussed in the 2018, 2019, 2020, and 2021 annual shoreline erosion survey reports. In 2021, three of the 19 survey stations exhibited moderate erosion and one additional station was added during the survey.

4.3.2 Environmental Effects

4.3.2.1 Effects of the Proposed Action

The current FERC license requires that the Licensee release a minimum flow of 212 cubic feet per second (cfs) from the dam with an absolute minimum flow of 100 cfs regardless of inflow. The Lake Lynn Project is operated as a dispatchable peaking hydroelectric facility with storage capability. The facility's ponding capability varies by season and allows for peaking. During the recreation season, fluctuations in lake level are maintained from 868 ft to 870 feet which help alleviate extreme wave action. There are no proposed changes to the existing operation of the hydroelectric facility. As such, geological conditions, soils, and shoreline erosion are expected to remain on current trends as identified in the annual shoreline erosion reports. The most recent shoreline erosion survey report (2021) concluded that the three stations that exhibited moderate erosion as compared to 2020 were in an area of low wind fetch along a narrow portion of the reservoir and that the change was likely due to boat traffic. Wave action from wind and watercraft are anticipated to continue to be a contributing factor to the shoreline erosion within the Lake Lynn Project boundary.

During the pre-filing consultation, WVDNR requested the Licensee conduct a reservoir sedimentation study at areas that have demonstrated an affinity for a build-up of sediment (i.e., Sunset Beach Marina) and develop a plan to monitor and address any sedimentation issues. In addition, CLEAR requested that the Licensee continue

monitoring and remediation of the ongoing shoreline erosion. Rather than conducting a new study, Lake Lynn proposed in its Study Plan to continue conducting the shoreline erosion surveys during relicensing rather than conducting a new study which was not warranted due to the results of recent shoreline erosion surveys. In addition, in 2019, Lake Lynn conducted a bathymetric survey in the vicinity of the Sunset Beach Marina public boat launch and excavated the area in 2020 to maintain the functionality of the public boat launch.

In its comments on the DLA, WVDNR recommended monitoring sedimentation at the Sunset Beach Marina public boat launch on a yearly basis so that any sedimentation issues can be addressed as they occur. WVDNR also recommended that a dredging plan be developed in consultation with WVDNR.

Lake Lynn does not anticipate soil or geologic resources to be adversely affected by the proposed action. Lake Lynn will maintain the Sunset Beach Marina public boat launch during the new license term and proposes to consult with WVDNR on the details for monitoring sedimentation and periodic excavation that would be included in the new Recreation Management Plan proposed to be developed within one year of license implementation. Water depths at the Sunset Beach Marina public boat launch would be taken on an annual basis prior to the recreation season at the Sunset Beach Marina Public Boat Ramp. If warranted, a bathymetric survey in the vicinity of the Sunset Beach Marina Public Boat Ramp would be conducted every 10 years along with excavation to maintain the boat ramp usability. Lake Lynn is also proposing to develop a Shoreline Management Plan (as discussed in Section 4.9.2.1) that would manage shoreline activities within the Lake Lynn Project boundary. Although Lake Lynn cannot control upland activities outside the Lake Lynn Project boundary, the development of a Shoreline Management Plan that clearly outlines allowed activities and procedures for granting permission for shoreline activities will help manage shoreline activities that could cause shoreline erosion. The Licensee proposes to discontinue the shoreline erosion surveys required under the existing FERC license.

4.3.2.2 Effects of the No-Action Alternative

Under the no-action alternative, Lake Lynn would continue to operate the Lake Lynn Project under the terms and conditions of the current license. Thus, the no-action alternative would include the existing facilities and current operation as described in Section 3.0. Under the no-action alternative, the licensee would not receive a new FERC

license and would continue to operate the Lake Lynn Project under the existing license requirements. The effects of the proposed action on soil and geological resources would be minimal under the no-action alternative.

4.3.3 Unavoidable Adverse Effects

Minor amounts of sedimentation and erosion may occur after implementation of PME measures related to shoreline and erosion management. However, PME measures are intended to reduce the effects of operations and any necessary on-site maintenance activities on erosion and sedimentation.

4.3.4 References

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4.4 Water Resources

4.4.1 Affected Environment

Water Quantity, Storage, and Use

The Cheat River watershed has a drainage area of approximately 1,426 square miles. The drainage area at the Lake Lynn dam is approximately 1,411 square miles (FERC 1995). The Cheat River is the second largest tributary to the Monongahela River (Allegheny 1991). Inflow data to the Lake Lynn Project was estimated using flow data from a combination of the active U.S. Geological Survey (USGS) gages located upstream, including USGS Gage No. 03070260 Cheat River at Albright, West Virginia, and USGS Gage No. 03070500 Big Sandy Creek at Rockville, West Virginia (USGS 2022a,b). USGS Gage 03070260 is approximately 27 RMs upstream of the Lake Lynn dam with a drainage area of 1,046 square miles. Big Sandy Creek is a tributary that joins the Cheat River approximately 15 RMs upstream of the Lake Lynn dam. USGS gage 03070500 is approximately 5 RMs upstream of the confluence of Big Sandy Creek and the Cheat River with a drainage area of 200 square miles. To estimate inflow, the Licensee prorated daily average flow data from USGS Gage 03070260 (factor of 1.078) to where Big Sandy Creek joins the Cheat River. The prorated flow data for Big Sandy Creek (proration factor=1.04) was then added to this. The resulting flow data was then prorated (factor of 1.053) from Big Sandy Creek to the Lake Lynn dam. The period of record for the inflow analysis was January 1, 2011, to December 31, 2021. Flow duration curves are provided in Appendix C.

The annual mean inflow from 2011 to 2021 to the Lake Lynn Project was 3,511 cfs with the monthly mean inflow ranging from 1,457 cfs in August to 5,845 cfs in February (Table 4.1). The daily average minimum flows observed during this time period occurred in late September to early October 2019. The daily average maximum flow of 55,858 cfs occurred on March 1, 2021.

Table 4.1 Monthly average, minimum, and maximum inflow to the Lake Lynn Project (January 1, 2011, to December 31, 2021)

Month	Average (cfs)	Minimum (cfs)	Maximum (cfs)
January	4,282	728	31,958
February	5,845	565	30,934
March	5,556	802	55,858
April	5,190	792	31,567
May	4,457	514	31,100
June	2,520	202	23,742
July	2,079	151	41,994
August	1,457	139	33,546
September	1,511	81	33,051
October	1,758	83	11,705
November	2,830	403	30,655
December	4,790	711	36,917
Annual	3,511	81	55,858

Source: USGS 2022a,b

The Cheat River in the Lake Lynn Project area is used for hydroelectric power generation, recreation, wastewater assimilation, and aquatic and wildlife habitat. There are no active water withdrawals located within the Lake Lynn Project boundary. The Cheat River at the Lake Lynn Project is not used for irrigation or domestic water supply, and there are no other known entities with water rights within the Lake Lynn Project boundary.

The WVDEP issues individual National Pollution Discharge Elimination System (NPDES) permits to both publicly and privately-owned wastewater treatment facilities. The licensee has a general NPDES permit that covers sewerage systems at the Lake Lynn Recreational Facility, Cheat Lake Park (Information System ID WVG551086) (USEPA 2022). Other NPDES discharges into Lake Lynn Project waters are listed in Table 4.2.

Table 4.2 NPDES discharges into Cheat Lake

Permit Holder	Information System ID Number
SCL, PSD, LLC Summit at Cheat Lake	WV0105945
Emma Kaufman Camp	WVG550032
Morgantown Utility Board Cheat Lake (POTW)p	WV0083071

Source: USEPA 2022

4.4.1.1 Water Quality

4.4.1.1.1 Water Quality Standards

The Cheat River upstream of Cheat Lake and Cheat Lake are classified by the state of West Virginia as Category A (Water Supply, Public), Category B (Aquatic Life, Trout Waters), and Category C (Water Contact, Recreation). Trout waters are defined as “waters which sustain year-round trout populations” (WVDEP 2022a). In West Virginia, Cheat Lake is managed as a cool water lake. WVDEP defines cool water lakes as “lentic water bodies that have a summer hydraulic residence time greater than 14 days and are managed by WVDNR for the support of cool water fish species, such as walleye and trout” (WVDEP 2022a). Water quality standards applicable to these West Virginia classifications are summarized in Table 4.3 and Table 4.4

Table 4.3 Selected West Virginia Water Quality Standards Applicable to Cheat Lake

Parameter	Human Health		Aquatic Life
	Category A: Water Supply, Public	Category C: Water Contact, Recreation	Category B2: Trout Waters
Dissolved Oxygen	No less than 5 milligrams per liter (mg/l) at any time	No less than 5 mg/l at any time	No less than 7 mg/L in spawning areas, and no less than 6 mg/L at any time
Temperature	N/A	N/A	No heated effluents will be discharged in the vicinity of spawning areas. Maximum temperatures for cold waters are expressed in Table 4.4.
pH	No values below 6.0 nor above 9.0. Higher values due to photosynthetic activity may be tolerated.	No values below 6.0 nor above 9.0. Higher values due to photosynthetic activity may be tolerated.	No values below 6.0 nor above 9.0. Higher values due to photosynthetic activity may be tolerated.

Source: WVDEP 2022a

Table 4.4 Maximum Temperatures for Category B2 Trout Waters

	Daily Mean (°F)	Hourly Maximum (°F)
October-April	50	55
September and May	58	62
June-August	66	70

Source: WVDEP 2022a

The Cheat River in Pennsylvania, which includes the reach of river from the West Virginia-Pennsylvania border immediately downstream of the Lake Lynn tailrace to the confluence with the Monongahela River, is designated and protected as Warm Water Fishes (WWF) aquatic life habitat. This designation focuses on the maintenance and propagation of fish species and additional flora and fauna which are indigenous to a warm water habitat (PA Code 2022). Water quality standards applicable to the Cheat River downstream of the Lake Lynn dam are summarized in Table 4.5.

Table 4.5 Pennsylvania Water Quality Standards Applicable to the Cheat River downstream of the Lake Lynn dam

Parameter	WWF Designation
Dissolved Oxygen (mg/l)	7-day average 5.5 mg/l; minimum 5.0 mg/l.
Temperature	Maximum temperatures in the receiving water body January 1-31: 40 °F February 1-29: 40 °F March 1-31: 46 °F April 1-15: 52 °F April 16-30: 58 °F May 1-15: 64 °F May 16-31: 72°F June 1-15: 80 °F June 16-30: 84 °F July 1-31: 87 °F August 1-15: 87 °F August 16-30: 87 °F September 1-15: 84 °F September 16-30: 78 °F October 1-15: 72 °F October 16-31: 66 °F November 1-15: 58 °F November 16-30: 50 °F December 1-31: 42 °F
pH	From 6.0 to 9.0 inclusive

Source: PA Code (2022)

4.4.1.1.2 Water Quality Data

Licensee Monitoring Data

In accordance with License Article 405, the Licensee developed and implements a plan to continuously monitor dissolved oxygen, pH, water temperature, and conductivity in the reservoir, in the Lake Lynn Project tailrace, and downstream of Grassy Run and other tributaries from April 1 through October 31 annually and submits an annual report to FERC and the resource agencies (Figure 4.2).

In accordance with License Article 406, as amended, the Licensee must report any deviations of DO below the 5 mg/L standard in the tailrace to FERC and the resource agencies within 5 days of the deviation and must file an annual monitoring report. The Licensee has developed a standard operating procedure for low DO conditions that describes the steps to be taken to mitigate low DO levels in the tailrace.

The standard operating procedure to maintain the tailrace DO above the water quality standard of 5.0 mg/L is based on the DO continuously recorded every 10 minutes in the reservoir upstream of the powerhouse intake. When the DO is 7.0 mg/L or greater, normal operation occurs. When DO decreases to 6.0 mg/L, generation range is limited and a spillway Tainter gate is prepared for opening. Unit 2 is operated preferentially when DO concentration is less than 6.0 mg/L and generation load is less than 5 MW since it has an air entrainment feature. When DO decreases to 5.5 mg/L, generation ramping rate range is limited to a maximum of 15 MW, (1-31 MW), and a spillway Tainter gate is opened. When DO reaches 5.0 mg/L, generation ramping rate range is limited to 12 MW, (1-25 MW), and a spillway Tainter gate is opened to a six-lift position. When DO is 4.0 mg/L or less, generation load dictates the amount, i.e., lift position, of the open spillway Tainter gate(s). These measures are expected to increase the DO concentration to an amount greater than 5.0 mg/L. The target DO concentration is 6.0 mg/L or greater as this allows the greatest flexibility for generation. The Licensee has provided Lake Lynn dissolved oxygen standard operating procedures examples data in Appendix D which provides examples of before, during, and after the standard operating procedures have been initiated to illustrate how DO in the Lake Lynn Project tailrace responds.

Water quality data from 2013 to 2017 are summarized in Table 4.6, and data for 2018 to 2020 are summarized in Table 4.7. Periods of low DO levels were generally found in the

late summer and early fall for most years, particularly at the reservoir site. pH was in attainment with the standard except for a few points in April 2014 and April 2015.

Table 4.6 Range (Mean) of water quality data by year collected from April 1 to October 31 of 2013 to 2017 at the Lake Lynn Project.

Monitor/Gage	Year	Water Temperature (°C)	pH	DO (mg/L)	Specific Conductance (µS/m at 25°C)
Reservoir (USGS Gage No. 03071590 Stewartstown Gage)	2013	3.8-26.0 (18.2)	6.4-7.2 (6.9)	4.5-12.8 (7.8)	98-115 (105)
	2014	4.9-26.6 (18.5)	6.5-7.3 (6.8)	1.9-12.7 (7.3)	53-201 (117)
	2015	6.1-25.6 (19.3)	6.4-7.2 (6.8)	1.1-11.8 (7.1)	62-159 (115)
	2016	5.8-26.7 (19.6)	6.4-7.2 (6.8)	1.0-12.1 (6.8)	52-205 (116)
	2017	7.4-25.1 (18.5)	6.4-7.2 (6.8)	1.0-11.8 (7.4)	48-160 (106)
Tailrace (USGS Gage No. 03071605 Davidson Gage)	2013 ^a	14.5-24.1 (20.3)	6.7-7.2 (7.1)	5.1-9.9 (8.4)	64-151 (110)
	2014	5.6-26.4 (19.1)	6.6-7.4 (7.1)	4.3-12.6 (8.7)	56-177 (121)
	2015	12.0-26.4 (21.4)	6.3-7.2 (7.0) ^b	3.4-12.5 (8.7) ^b	68-163 (121)
	2016	7.2-27.4 (20.2)	6.4-7.4 (6.9)	3.8-12.6 (8.4)	62-178 (115)
	2017	8.6-24.5 (19.1)	6.3-7.2 (6.9)	5.1-12.0 (8.6)	52-157 (109)
Downstream (USGS Gage No. 03071690 Nilan Gage)	2013	14.0-24.9 (20.0) ^c	6.6-7.0 (6.8) ^d	4.3-13.1 (8.3) ^d	124-167 (148)
	2014	6.0-26.6 (18.9)	5.3-7.3 (6.8)	3.4-12.3 (8.0)	54-217 (128)
	2015	6.6-27.1 (19.4)	5.7-7.3 (6.9)	4.1-12.4 (8.3)	69-209 (122)
	2016	7.0-27.2 (19.7)	6.4-7.4 (7.0)	3.1-12.2 (8.0) ^e	69-209 (127)
	2017	8.4-24.5 (19.0)	6.3-7.4 (6.8)	4.3-10.8 (7.7)	58-208 (122)

Source: USGS 2022c, d, e

*Range is based on the daily minimum and maximum.

^a August 1-October 31, 2013 only

^b May 5-October 31, 2014 only

^c July 31-October 31, 2013 only

^d September 30-October 31, 2013 only

^e Missing data July 4-September 10, 2016

In 2018 in the reservoir, the daily minimum DO concentration was below 5 mg/L in mid to late May, early June, several days in July and August, and in late October (Table 4.7) (LLG 2019). In the tailrace, DO was below the 5 mg/L standard on August 2 and 3 for three 10-minute periods and on September 10 for approximately 45 minutes. Following these short-term deviations, operations were adjusted and DO returned to concentrations above 5 mg/L. As required by License Article 406, the Licensee reported these deviations to FERC and the resource agencies.

In 2019, the daily minimum DO concentration in the reservoir was below 5 mg/L from late July to late October (Table 4.7). In the tailrace, the DO concentration was below 5 mg/L on August 28, September 9 to 19, September 22 to October 2, and several days in October (October 4-6, 9, 16, 18, 21, 22). The Licensee reported these excursions and consulted with the resource agencies to identify options to mitigate the low DO. The Licensee ceased generation and obtained a temporary variance from FERC to reduce the headpond elevation to increase flows downstream (FERC 2019, LLG 2020a). The excursions below the standard in 2019 were attributed to low inflow conditions because of a lack of precipitation. At the downstream site, the daily minimum DO concentration was below 5 mg/L in late June, several days throughout July and August, and most days in September and October. pH was in attainment with standard at all three sites in 2019.

In 2020, the daily minimum DO in the reservoir was below the standard from mid-July to early September (excluding August 9), in late September, and several days in October (Table 4.7). There were two short-term (less than two hours) deviations of DO below the standard in the tailrace (July 30 and August 29). In accordance with the standard operating procedures for low DO conditions, changes made to operations quickly resulted in DO concentrations in the tailrace increasing to over the 5 mg/L standard (LLG 2020b,c, LLG 2021a). At the downstream site, the daily minimum DO concentration was below 5 mg/L on several days from July to mid-September. pH was in attainment with standard at all three sites in 2020.

Table 4.7 Average (minimum-maximum) daily average water temperature and conductivity, range of daily minimum DO, and daily minimum and maximum pH from April 1 to October 31, 2018, 2019, and 2020 at the Lake Lynn Project.

Monitor/Gage	Year	Daily Average Water Temperature (°C)	Min-Max pH	Daily Minimum DO (mg/L)	Daily Average Specific Conductance (µS/m at 25°C)
Reservoir (USGS Gage No. 03071590 Stewartstown Gage)	2018	20.4 (6.9-29.4)	6.0-7.8	0.1 – 11.3	110 (69-180)
	2019	21.1 (7.7-29.1)	6.5-7.3	0.0-10.9	133 (78-180)
	2020	19.2 (8.1-29.0)	6.2-8.2	0.3-11.2	81 (43-128)
Tailrace (USGS Gage No. 03071605 Davidson Gage)	2018	18.4 (6.7-25.2)	6.0-7.0 ^a	4.5-10.7	141 (80-309) ^b
	2019	17.4 (7.6-24.0)	6.5-7.6	3.5-11.1	125 (80-388)
	2020	19.0 (8.2-27.5)	7.0-7.9	4.8-11.8	455 (180-1,018)
Downstream (USGS Gage No. 03071690 Nilan Gage)	2018	NA	NA	5.1-12.2	NA
	2019	NA	NA	2.9-8.2	NA
	2020	13.2 (1.9-24.3)	6.6-7.5 ^c	2.4-10.9	376 (134-795)

^a Missing April 6-May 3, May 18-August 12, 2018

^b Through July 18, 2018 only

^c Data for April 5-May 21 2020 only

In 2021, at the reservoir site, the daily average water temperatures ranged from 6.4°C to 25.3°C with an average of 18.4°C (Table 4.8, Figure 4.3). The daily minimum DO ranged from 0.8 mg/L to 11.6 mg/L, with an average of 6 mg/L. The DO concentration was below 5 mg/L from July 20 through the end of August, from September 27 to October 6 and occasionally from October 19 through the end of October (Figure 4.3). The reservoir pH ranged from 8.1 to 9.6 with an average of 8.8; daily maximum pH levels were above the standard from late August through September (Figure 4.4). The daily average conductivity ranged from 47 to 138.1 microsiemes per centimeter (µS/cm) (Table 4.8, Figure 4.5.)

At the tailwater monitoring station, the daily average water temperature ranged from 7.4 degrees Celsius (°C) to 25.6°C, with an average of 17°C (Table 4.9, Figure 4.6). Daily minimum DO levels in the tailwater ranged from 4 mg/L to 13.1 mg/L with an average of 8.4 mg/L. The daily minimum DO concentration was below the 5 mg/L standard on August 11 to 14 and August 16, which was likely due to an equipment malfunction, on August 20 and 30, and on September 1 (LLG 2021b, LLG 2022) (Figure 4.6). The daily average pH level ranged from 6.0 to 7.4 with an average of 6.4 and was in attainment with the standard throughout the study (Figure 4.7).

The downstream monitoring station had daily minimum DO levels ranging from 1.9 mg/L and 10.4 mg/L (Table 4.10). The daily minimum DO was below 5 mg/L on several days from late June through October (Figure 4.8). The pH ranged from 5.9 to 7, with an average of 6.4 (Figure 4.9).

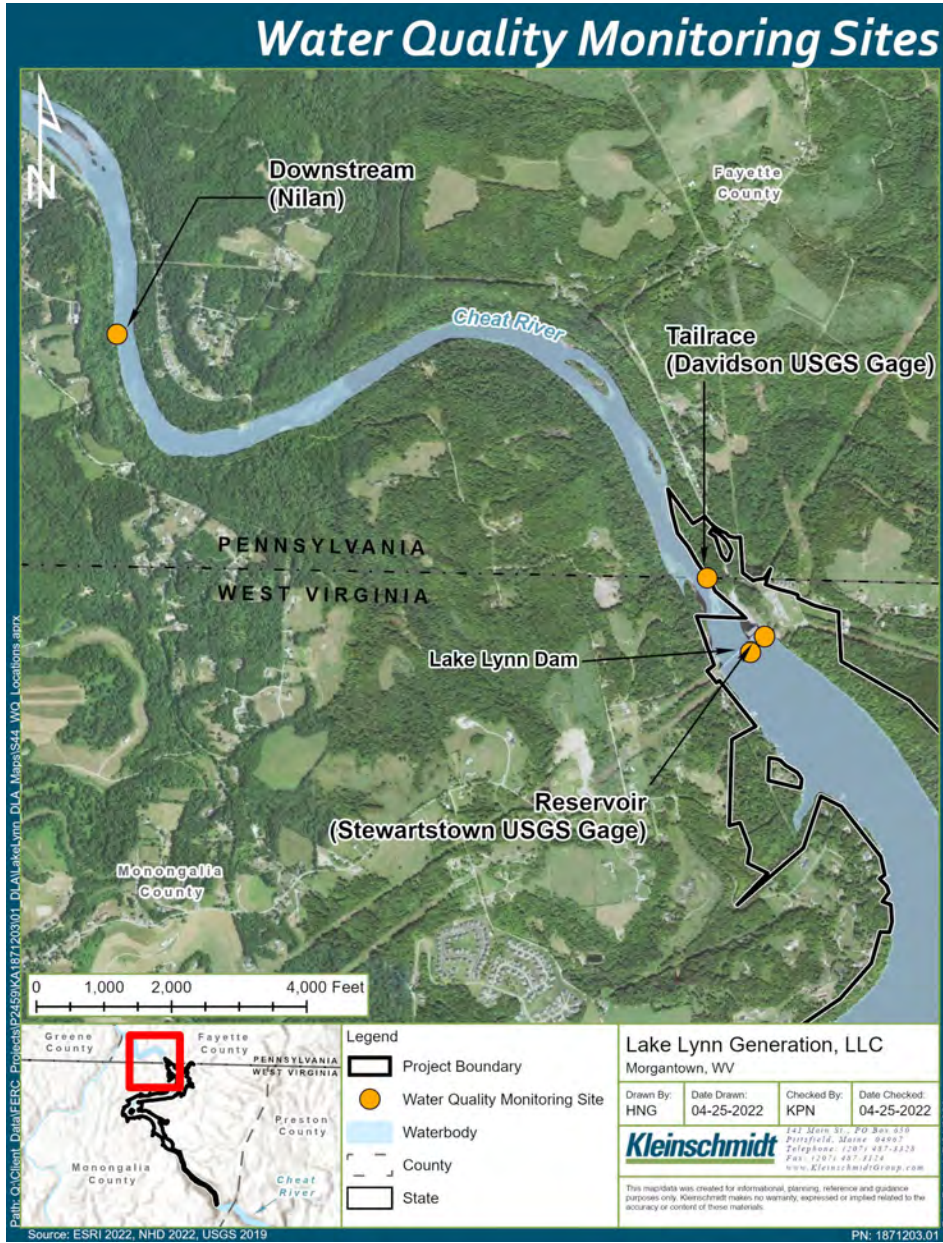


Figure 4-24.2 Water quality monitoring stations at the Lake Lynn Project

Table 4.8 Water quality data statistics from the Lake Lynn Reservoir monitoring site, April 1 to October 31, 2021

Statistic	Daily average pH	Daily Minimum DO (mg/L)	Daily Average Water Temperature (°C)	Daily Average Conductivity (µS/cm)
Minimum	8.1	0.8	6.4	47
Maximum	9.6	11.6	25.3	138.1
Mean	8.8	6.2	18.4	90.1

Table 4.9 Water quality data statistics from the Lake Lynn Tailrace monitoring site, April 1 to October 31, 2021

Statistic	Daily Average pH	Daily Minimum DO (mg/L)	Daily Average Water Temperature (°C)
Minimum	6.0	4.0	7.4
Maximum	7.0	13.1	25.6
Mean	6.4	8.4	17.0

*Data for conductivity was erroneous and not included in the annual report.

Table 4.10 Water quality data statistics from the Lake Lynn Downstream monitoring site, April 1 to October 31, 2021.

Statistic	Daily Average pH	Daily Minimum DO (mg/L)
Minimum	5.9	1.9
Maximum	7.0	10.4
Mean	6.4	5.9

*Data for temperature and conductivity was erroneous and not included in the annual report.

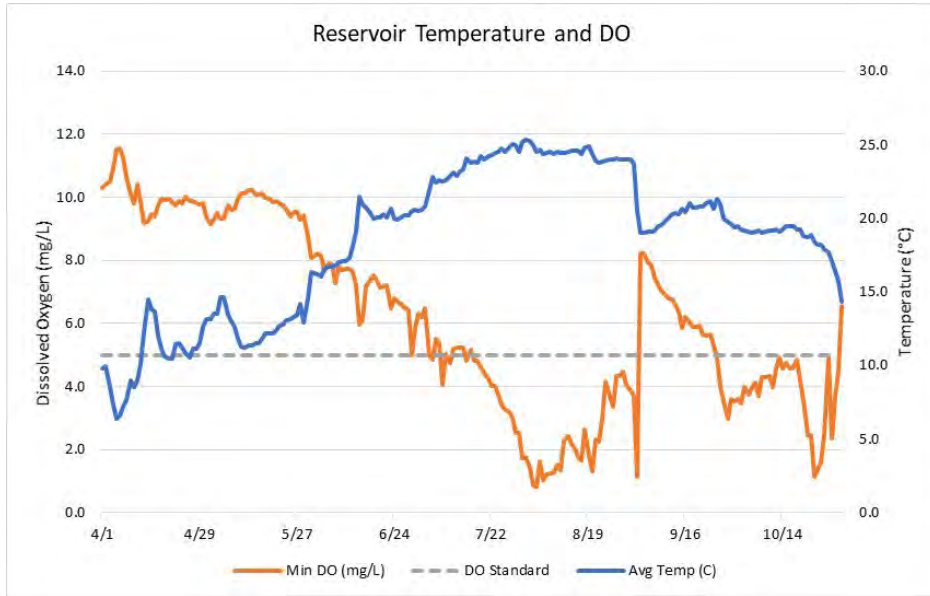


Figure 4-34.3 Daily minimum DO and daily average water temperature at the reservoir monitoring site, April 1 to October 31, 2021.



Figure 4-44.4 Daily average pH at the reservoir monitoring site, April 1 to October 31, 2021.



Figure 4-54.5 Daily average conductivity at reservoir monitoring site, April 1 to October 31, 2021.

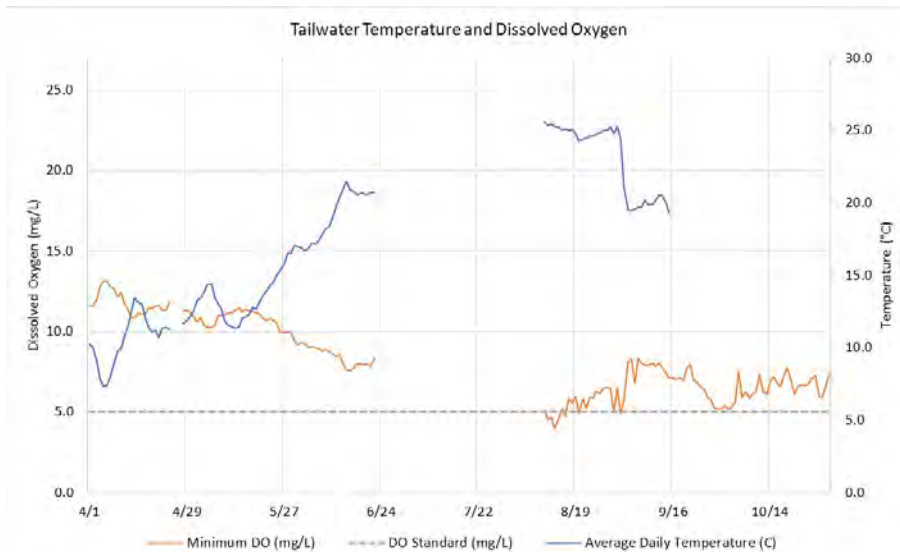


Figure 4-64.6 Daily minimum DO and daily average water temperature at the tailwater monitoring site, April 1 to October 31, 2021.



Figure 4-74.7 Daily average pH at the tailwater monitoring site, April 1 to October 31, 2021.

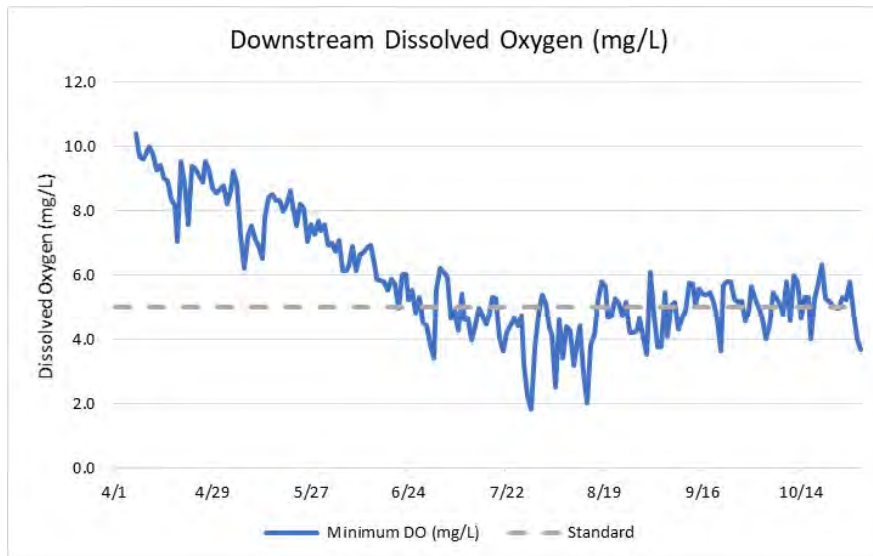


Figure 4-84.8 Daily minimum DO at the downstream monitoring site, April 1 to October 31, 2021.

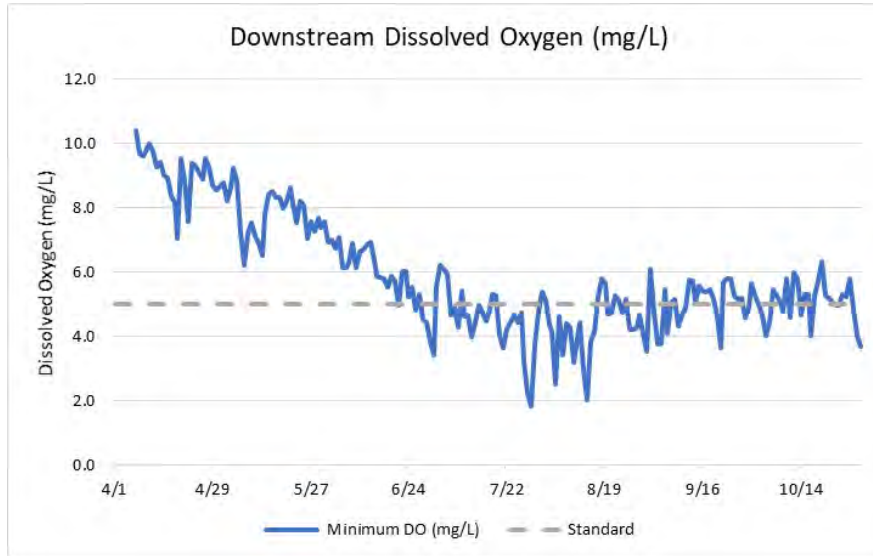


Figure 4-94.9 Daily average pH at the downstream monitoring site, from April 1 to October 31, 2021.

The conditions that lead to low DO concentrations in the tailrace are discussed below using the data collected during the 2022 monitoring season. The environmental conditions that lead to low DO in the Lake Lynn Project tailrace are a combination of low reservoir inflow and elevated water temperature. Low reservoir inflow typically occurs in mid to late Summer (Figure 4.10). Water temperature also peaks during the Summer (Figure 4.11). A reduction of generation discharge coincides with these conditions which yields decreased DO in the tailrace.

Low inflow to the reservoir is the limiting factor to dissolved oxygen in the tailrace. Generation occurs when inflow allows reservoir volume to be maintained by increasing discharge (Figure 4.12). When generation is limited by low reservoir inflow during peak summer temperature, tailrace DO can decline below the standard (Figure 4.13). Reservoir surface spill is the effective method to mitigate low DO in the tailrace when low reservoir inflow restricts project generation.

The 33 ft vertical opening of the turbine intake lies between elevation 828 and 861 feet. Since the intake opening spans a large portion of the reservoir water column, the likelihood of limnetic stratification impacting dissolved oxygen conditions in the tailrace

is low. The reservoir samples are taken at an elevation of 861 feet. The tailrace samples are taken at an elevation of 789 ft. The downstream samples are taken at an elevation of 779 ft. All of the monitoring station instruments are installed at a depth that is two feet below the minimum surface elevations at each location. Since the surface elevation varies continuously, it is uncertain as to what depth the historical samples were collected, however, the samples were collected at a minimum depth of two feet.

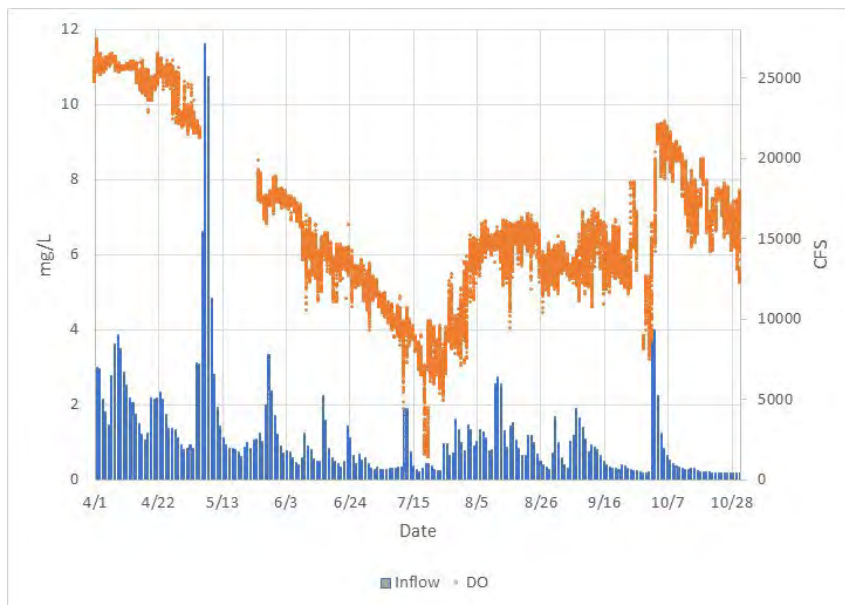


Figure 4_104.10 Lake Lynn Reservoir Inflow and DO, April 1-October 31, 2022.

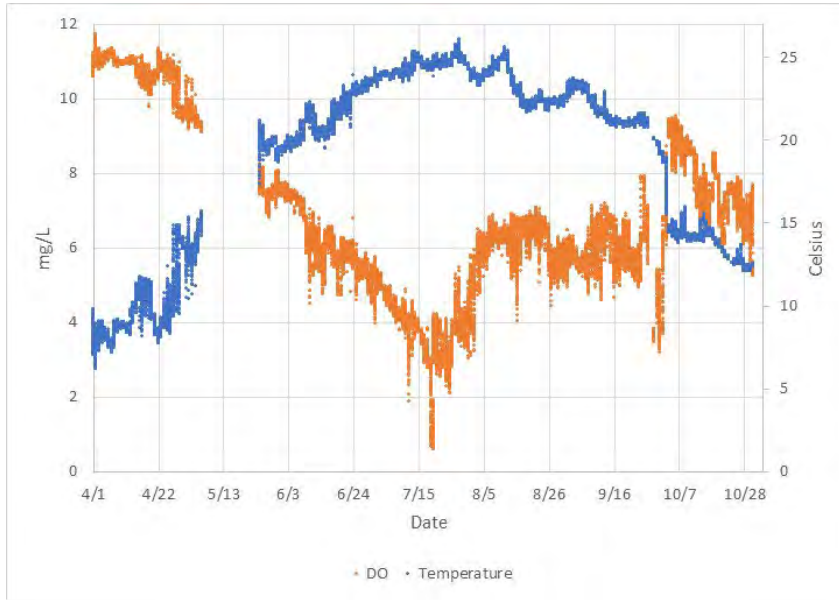


Figure 4-114.11 Lake Lynn Reservoir Temperature and DO, April 1-October 31, 2022.

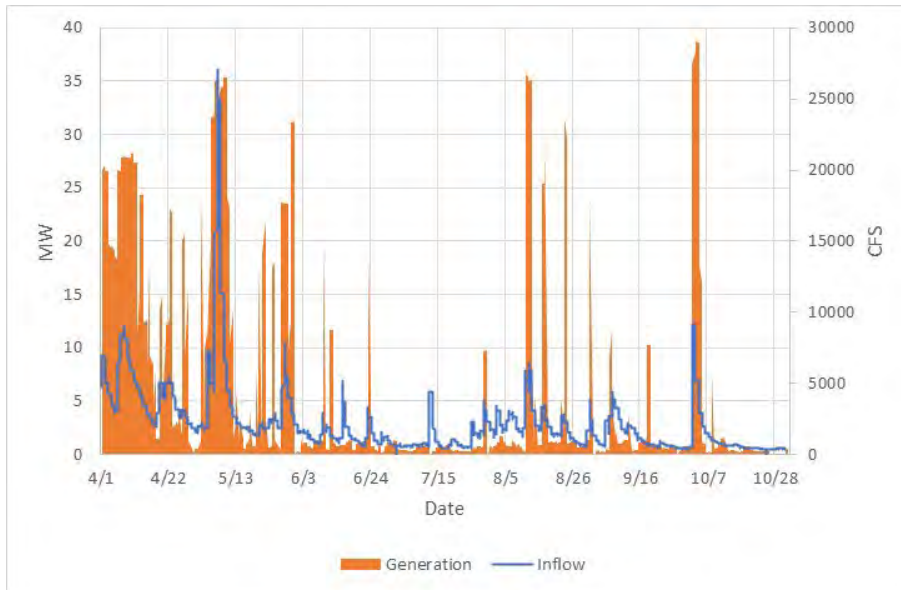


Figure 4-124.12 Lake Lynn Reservoir Inflow and Project Generation, April 1-October 31, 2022.

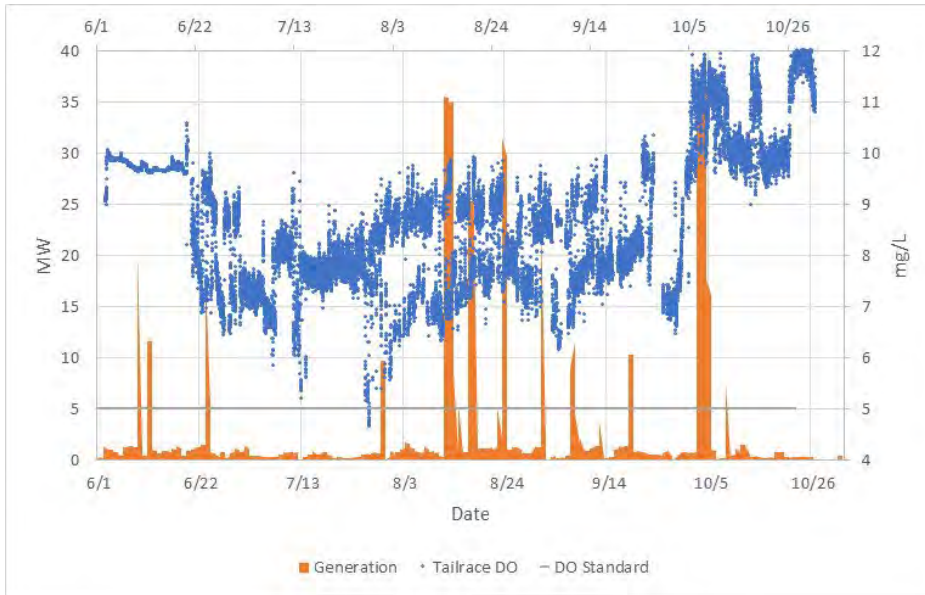


Figure 4-134.13 Lake Lynn Project Tailrace DO and Generation, June 1-October 31, 2022.

Water quality is proposed to be continuously sampled every ten minutes from June 1 to October 31. The proposed depth of the impoundment and tailrace monitoring locations is 861 ft and 789 ft, respectively, or the equivalent of two feet below the minimum surface elevation. Lake Lynn proposes to include deviations from the water temperature and dissolved oxygen concentration West Virginia state standard for warmwater fisheries in an annual report that includes the results of a monitoring season from June 1 to October 31. The annual report would be submitted to the agencies for a 30-day review prior to submitting to the Commission by April 30 of each year. Lake Lynn proposes to discontinue monitoring for pH and conductivity because sufficient historical information has been collected by Lake Lynn and other entities to demonstrate that efforts to improve water quality have had beneficial effects to the mainstem Cheat River (<https://www.epa.gov/wv/rebirth-cheat-river>).

The historic influence of coal mining is significant in the Cheat River watershed. Water draining from these mines is acidic. The acid drainage impacts aquatic life negatively.

Considerable effort has been made in the past three decades to improve water quality in the Cheat River watershed (<https://cheat.org/acid-mine-drainage-remediation/>). This effort is upstream of the Lake Lynn Project reservoir. Improvements in water quality in the mainstem Cheat River have resulted from the reduction of the impact from acid mine drainage (<https://www.epa.gov/wv/rebirth-cheat-river>). The minimum flow released from the Project dilutes the acid mine drainage from downstream tributaries. The pH of mine drainage can be as low as 2.5 (<https://www.usgs.gov/mission-areas/water-resources/science/mine-drainage>). Average pH at the monitoring station downstream of the Project is a neutral 6.8 (Table 4.6). Continuing to release the absolute minimum flow amount of 100 cfs would beneficially serve the purpose of mitigating the impact of acid coal mine drainage.

WVDEP Monitoring Data

The WVDEP conducts spot measurements during several months each year (ranges from 6 to 12 months depending on year) downstream of the Lake Lynn dam (Station Code MC-0001-3.5) (WVDEP 2022b). DO, temperature, pH, and conductivity data for 2009 to 2021, including minimum, maximum and averages, are summarized in Table 4.11. The DO concentration ranged from 5.3 to 15.4 mg/L and was above the 5 mg/L standard. pH ranged from 5.5 to 8.1, though maintained an average from 6.4 to 7.0 and was in attainment with the standard in 2012 to 2021. Conductivity ranged from 1.0 to 168.0 $\mu\text{S}/\text{cm}$, with yearly averages ranging from 54.7 to 110.7 $\mu\text{S}/\text{cm}$. Temperature ranged from 0.4 °C to 27.8 °C, with yearly average ranging from 12.5 to 15.4 °C.

Table 4.11 WVDEP water quality data collected downstream of the Lake Lynn dam, 2009 to 2021.

	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
DO													
Average (mg/L)	10.2	10.8	10.9	9.3	9.4	10.2	10.0	11.1	10.5	10.2	8.8	9.3	9.6
Min	6.7	6.9	7.9	5.3	5.4	5.7	7.8	7.5	6.6	7.9	5.6	6.1	5.6
Max	13.6	15.4	14.2	12.1	12.4	13.6	13.3	14.0	13.0	13.2	14.0	13.6	13.3
Temperature													
Average (°C)	13.3	14.1	10.2	15.4	12.5	12.8	14.7	13.9	13.7	13.8	15.3	13.6	12.8
Min	2.2	0.4	0.4	2.5	1.6	0.2	0.7	0.8	5.6	2.0	2.5	4.2	1.6
Max	24.1	26.6	24.1	24.9	23.2	22.5	26.0	27.0	23.2	25.1	26.0	27.8	25.3
pH													
Average	6.9	6.9	6.4	7.0	6.7	6.9	7.0	6.9	6.9	6.7	6.8	6.9	6.7
Min	6.2	5.5	5.8	6.7	6.3	6.2	6.3	6.6	6.4	6.3	6.0	6.7	6.3
Max	7.5	7.8	7.1	7.3	7.3	7.5	8.1	7.4	7.4	7.1	7.1	7.2	7.1
Conductivity													
Average (µS/cm)	99.6	94.3	77.3	94.9	108.0	107.4	74.9	100.9	91.4	54.7	108.2	103.1	110.7
Min	75.0	11.0	8.0	7.0	76.0	11.0	14.0	11.0	9.0	1.0	82.9	72.5	74.0
Max	136.0	166.0	125.0	136.0	152.0	151.0	129.0	133.0	131.0	101.0	168.0	119.0	144.0

Source: WVDEP 2022b

4.4.2 Environmental Effects

4.4.2.1 Effects of the Proposed Action

The Licensee is proposing to continue to operate the Lake Lynn Project as currently licensed with no changes to Lake Lynn Project facilities and will continue to provide the existing seasonal elevations and minimum flows downstream of the dam. As such, the proposed action is not expected to adversely affect water quantity in the Lake Lynn Project area as compared to existing conditions. The removal of lands from the existing Lake Lynn Project boundary is not expected to adversely affect water quantity or water quality. Peaking operations typically occur in the winter for five hours in the morning and for five hours in the afternoon. In the summer peaking operations typically occur for five hours in the evening. The typical drawdown rate is 0.2-0.4 feet per day. Due to the limited drawdown rate, the continuation of peaking operations are not expected to impact water quantity or water quality within the Lake Lynn Project Area.

The Licensee proposes to prepare a new water quality monitoring plan for the new license term that includes the stations and parameters that can be affected by Lake Lynn Project operations. The Licensee proposes that the new water quality monitoring plan would include monitoring of DO and water temperature from June 1 through October 31 each year at the reservoir water quality monitoring station and the tailwater monitoring site only. The downstream monitoring site is at USGS Gage No. 03071690 Nilan, approximately 2.6 RM downstream of the Lake Lynn dam, and downstream of Grassy Run. Since this station is downstream of Grassy Run, water quality monitoring at this station is impacted by Grassy Run and other factors outside the control of the Licensee. The Licensee also proposes to discontinue pH and conductivity monitoring.

The Licensee closely monitors tailrace DO levels and has developed standard operating procedures to adjust operations to mitigate low DO concentrations. These procedures include limiting or reducing generation and opening additional spill gates to increase flow downstream. Lake Lynn is proposing to continue to follow those procedures. In 2019, Lake Lynn consulted with the resource agencies and received a temporary variance from FERC to draw down the reservoir to 865 ft during a period of low DO levels in an effort to mitigate the low tailrace DO conditions. In 2020, when DO levels started to decrease, Lake Lynn consulted with the agencies again and received support for pursuing a similar variance. In 2022, when DO levels started to decrease, Lake Lynn consulted with the agencies again and received support for pursuing a similar temporary variance from FERC.

Lake Lynn is proposing to develop an Operation Plan under the new license that will include standard operating procedures to be implemented during period of low DO levels in an effort to mitigate low tailrace DO levels that will also allow the reservoir to be drawn down to 865 ft, consistent with the consultation with resource agencies in 2019, 2020, and 2022. The Operation Plan will also document how Lake Lynn will comply with the operational requirements of the license.

Existing water quality conditions at the Lake Lynn Project are anticipated to continue under the proposed action. Periods of low DO concentrations (e.g., less than the 5 mg/L standard) are expected to be minimal because the operational changes implemented (e.g., reducing generation, opening spill gates) have been consistently shown to quickly improve DO concentrations in the tailrace (e.g., LLG 2020b, c; LLG 2021b). Lake Lynn's proposal to implement the procedures (draw the reservoir down to 865 ft) obtained via a temporary variance in 2019 would provide flexibility to further mitigate low tailrace DO conditions.

4.4.2.2 Effects of the No-Action Alternative

The effects of the no-action alternative mimic the anticipated effects of the proposed action because the Licensee is proposing no changes to existing facilities or operations.

4.4.3 Unavoidable Adverse Effects

The proposed action and PME measures (i.e., continued operation and relicensing of the Lake Lynn Project and standard operating procedures to mitigate low DO values) are not expected to result in unavoidable adverse effects to water quantity and water quality resources in the Lake Lynn Project area.

4.4.4 References

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4.5 Fish and Aquatic Resources

4.5.1 Affected Environment

Aquatic Habitat – Cheat Lake

Cheat Lake is approximately 13-miles-long with a surface area of 1,729 acres and a volume of about 72,000 acre-feet at a full pool elevation of 870 feet National Geodetic Vertical Datum (NGVD). The Lake Lynn impoundment is approximately 950-feet-wide immediately upstream of the Lake Lynn dam, narrowing to 300 feet at the upstream end, with a maximum width of approximately 2,500 feet. The Licensee operates the Lake Lynn Project as a dispatchable peaking facility which allows for storage capability. Impoundment elevations are maintained between 868 to 870 feet NGVD from May 1 to March 31, between 857 to 870 feet from November 1 through March 31, and between 863 to 870 feet from April 1 to April 30. Additionally, the Licensee is required to release a minimum flow of 212 cfs from the dam, with an absolute minimum of 100 cfs regardless of inflow.

The licensee worked with WVDNR and West Virginia University (WVU) to document the distribution and relative abundance of aquatic habitat in Cheat Lake as part of the 2018-2020 Aquatic Biomonitoring Plan. Aquatic vegetation provides habitat for fish and aquatic organisms, yet historically Cheat Lake has had limited aquatic vegetation (Smith and Welsh 2015) The study identified 22 areas of significant aquatic vegetation in Cheat Lake. Overall, aquatic vegetation was found to be limited in Cheat Lake. (Figure 4.14).

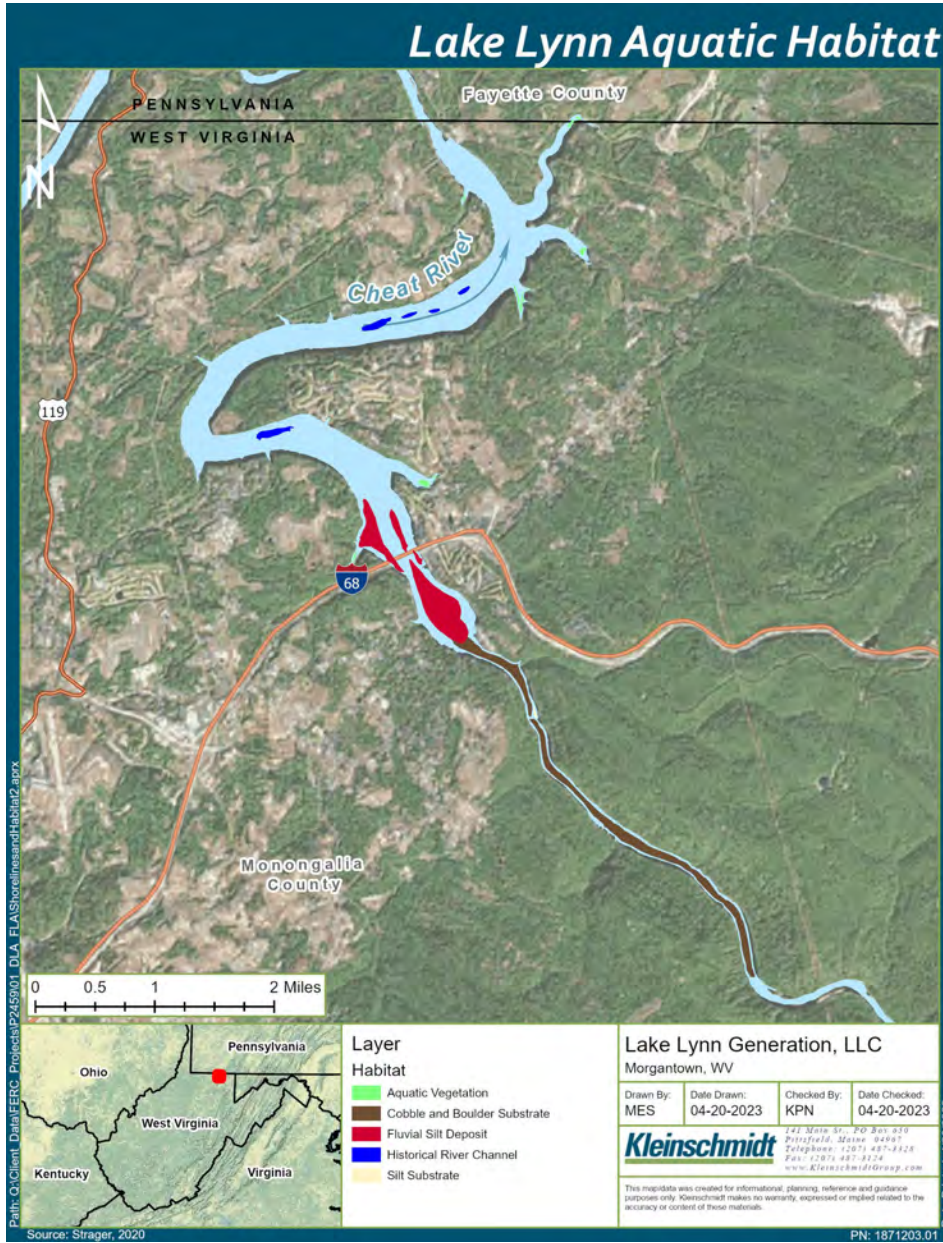


Figure 4-144.14 Lake Lynn Aquatic Habitat

WVDNR and WVU conducted studies in 2019 and 2020 to evaluate aquatic habitat in Cheat Lake with an emphasis on yellow perch spawning and water level fluctuation. During the study, 40 artificial habitat structures were deployed at two sites on Cheat Lake in 2019 and 2020. The structures were monitored for egg masses during the spring spawning period. Habitat variables and water quality were recorded at the sites during the study. A complete report was developed by Welsch et al. (2020) and provided to FERC and the stakeholders as part of the 2020 Annual Biomonitoring Report. Researchers found that yellow perch in Cheat Lake spawn in nearshore habitat, in a variety of depths or distances from the shore. Deepwater spawning reduces the effects of lake level drawdowns on egg dewatering, yet less available habitat was noted in deeper water. Yellow perch spawning periods were identified as March 21 to April 16 in 2019 and March 21 to April 11 in 2020. The lake level typically does not reach the minimum lake elevations permitted during March or April, therefore, although the potential for egg dewatering is high, the actual percent of eggs dewatered is lower than the rates documented with artificial habitat during the study (Welsh and Matt 2020).

4.5.1.1 Cheat River (Downstream of Cheat Lake)

The Lake Lynn Project boundary extends downstream approximately 656 feet from the Lake Lynn dam. The Cheat River flows approximately 3.6 RMs from the Lake Lynn dam until joining the Monongahela River near Point Marion, Pennsylvania. The Cheat River downstream of the Lake Lynn dam is comprised of two distinct aquatic habitat reaches. From the Lake Lynn dam to approximately 1.2 miles downstream, the Cheat River is a riffle-run complex, composed of a heterogenous mixture of cobble, gravel, boulder, bedrock, and sand (Table 4.12, Photo 4.1). Downstream of the riffle-run complex, the Cheat River transitions into pool habitat until its confluence with the Monongahela River (Photo 4.2). Pool habitat substrate is composed mostly of cobble and gravel, with the most downstream reaches of the Cheat River transitioning to sand and silt (TRC 2020).

Table 4.12 Cheat River Substrate Summary during 2020 Mussel Survey

Site	State	% Substrate Composition								Total
		Br	Bo	Co	Gr	Sd	St	LWD	Vegetation	
1	WV	10	30	45	10	5	-	-	-	100
2	WV	5	-	40	20	10	-	-	-	100
3	PA	-	-	70	-	-	-	-	30	100
4	PA	-	-	45	30	25	-	-	-	100
5	PA	-	-	60	30	-	-	-	10	100
6	PA	-	5	55	25	-	-	-	15	100

Site	State	% Substrate Composition								Total
		Br	Bo	Co	Gr	Sd	St	LWD	Vegetation	
7	PA	-	-	60	40	-	-	-	-	100
8	PA	-	-	40	35	-	-	5	20	100
9	PA	-	-	65	15	-	-	-	20	100
10	PA	-	-	75	15	-	-	-	10	100
11	PA	-	-	60	15	25	-	-	-	100
12	PA	-	-	-	-	55	35	10	-	100

Br=Bedrock, Bo=Boulder, Cb=Cobble, GR=Gravel, Sd=Sand, St= Silt, LWD= Large Woody Debris

Source: TRC 2020



Photo 4.1 Cheat River Habitat Directly Downstream of the Lake Lynn Dam during the 2020 Mussel Survey (TRC 2020)



Photo 4.2 Cheat River Pool Habitat Downstream of the Lake Lynn Dam during the 2020 Mussel Survey (TRC 2020)

During the 1970s water quality degradation was documented in the Cheat River due to acid mine drainage (AMD) discharged from abandoned or active coal mine operations. In 1994, an illegally sealed underground mine failed and discharged contaminated water directly into Muddy Creek (TRC 2020). AMD entered the Cheat River directly above Cheat Canyon and polluted the watershed. Effects of AMD were noted at multiple sites during the 2020 mussel survey completed as part of the relicensing (Photo 4.3) (TRC 2020).



Photo 4.3 Acid Mine Drainage in the Cheat River Downstream of the Lake Lynn Dam during 2020 Mussel Survey (TRC 2022)

4.5.1.2 Fish and Aquatic Assemblages

The Cheat River watershed supports warm water and cool water fisheries. Important recreational fishery species include largemouth bass, smallmouth bass, trout, crappie, walleye, and channel catfish. The licensee has conducted biological monitoring in Cheat Lake and in the tailwater since 1997, in accordance with the current FERC License. Biological surveys were also conducted by WVDNR in 2005 and 2008 and by WVU in 2011, 2014, and 2015. Researchers assessed water quality, aquatic habitat, and aquatic communities (fish and benthic macroinvertebrates). Freshwater mussel, American eel eDNA, water quality monitoring and aquatic habitat studies have also been conducted in the Lake Lynn Project area by the Licensee and other researchers. Table 4.13 summarizes the research efforts that have taken place in the Lake Lynn Project area since 1997. Aquatic resource quality has generally improved over the sampling period (Wellman et al. 2008).

Table 4.13 Summary of Cheat River and Cheat Lake Biomonitoring Activities from 1997 to 2020

Activity	'97	'98	'99	'00	'01	'02	'03	'04	'05	'06	'07	'08	'09	'10	'11	'12	'13	'14	'15	'16	'17	'18	'19	'20
Water quality monitoring (Cheat Lake)	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Water quality monitoring (downstream of Cheat Lake)	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Fish community (Cheat Lake and embayments)	X	X			X		X		X			X			X		X	X						
Benthic macroinvertebrates (downstream of Cheat Lake)	X	X			X				X					X			X	X						
Walleye population monitoring and stock assessment	X	X			X				X			X			X		X	X						
Adult walleye movement									X	X	X	X	X		X	X	X	X	X					
Aquatic vegetation mapping									X	X	X		X		X	X	X		X					
Bathymetric mapping (Cheat Lake)															X	X	X		X					

Lake Lynn Hydroelectric Project (P-2459)
 Final License Application - Exhibit E

Activity	'97	'98	'99	'00	'01	'02	'03	'04	'05	'06	'07	'08	'09	'10	'11	'12	'13	'14	'15	'16	'17	'18	'19	'20
Artificial habitat enhancement and monitoring																						X	X	X
American Eel eDNA (downstream of Cheat Lake)																						X	X	X
Angler creel survey																								1
Freshwater mussel survey (Cheat River downstream of Cheat Lake)																								X

1 – the angler creel survey is taking place in 2022.

Lake Lynn Fisheries - WVDNR's 2005 and 2008 surveys were conducted in May and October and included nighttime boat electrofishing and gill netting. Sampling locations are shown in Figure 4.15 and Figure 4.16. WVU sampled the fish community in 2011, 2014, and 2015 with nighttime boat electrofishing and gill netting during the spring and fall seasons. In total, WVU collected 35 fish species and 8,338 individual fish. Most fish (7,499 individuals) were collected during nighttime boat electrofishing as compared to gill netting (839 individuals). Overall, species richness increased in the riverine zone of Cheat Lake, compared to previous studies. In prior studies in the riverine zone, species richness was as low as 8 species (1990), whereas an average of 23 species were collected during WVU's the 2011 to 2015 samples (Table 4.14). In addition to species richness, species abundance increased between 2011 and 2015 for sportfish and non-game species as compared to prior studies. The most abundant sportfish in Lake Lynn during the 2011 and 2014 sampling included bluegill, smallmouth bass, largemouth bass, yellow perch, and channel catfish. The most abundant non-game species included the emerald shiner, mimic shiner, logperch, brook silverside, and gizzard shad (Smith and Welsh 2015).

In accordance with the 2021-2023 Biomonitoring Plan, the Licensee is conducting a creel survey (a sampling survey that targets recreational anglers) in 2022 to document recreational fishing effort and success. The initial study was planned for 2020, but was postponed due to the Coronavirus Disease 2019 (COVID-19) pandemic. The survey includes survey boxes and in-person creel surveys at six locations on Cheat Lake. Areas surveyed include Ices Ferry Bridge access, Edgewater Marina, Lakeside Marina, Sunset Beach Marina, Cheat Lake Park, and the Lake Lynn Project Tailwater Fishing Pier. The survey is collecting information through December 2022 including angler effort, fish harvest data for game fish species, and size distribution of game fish species.

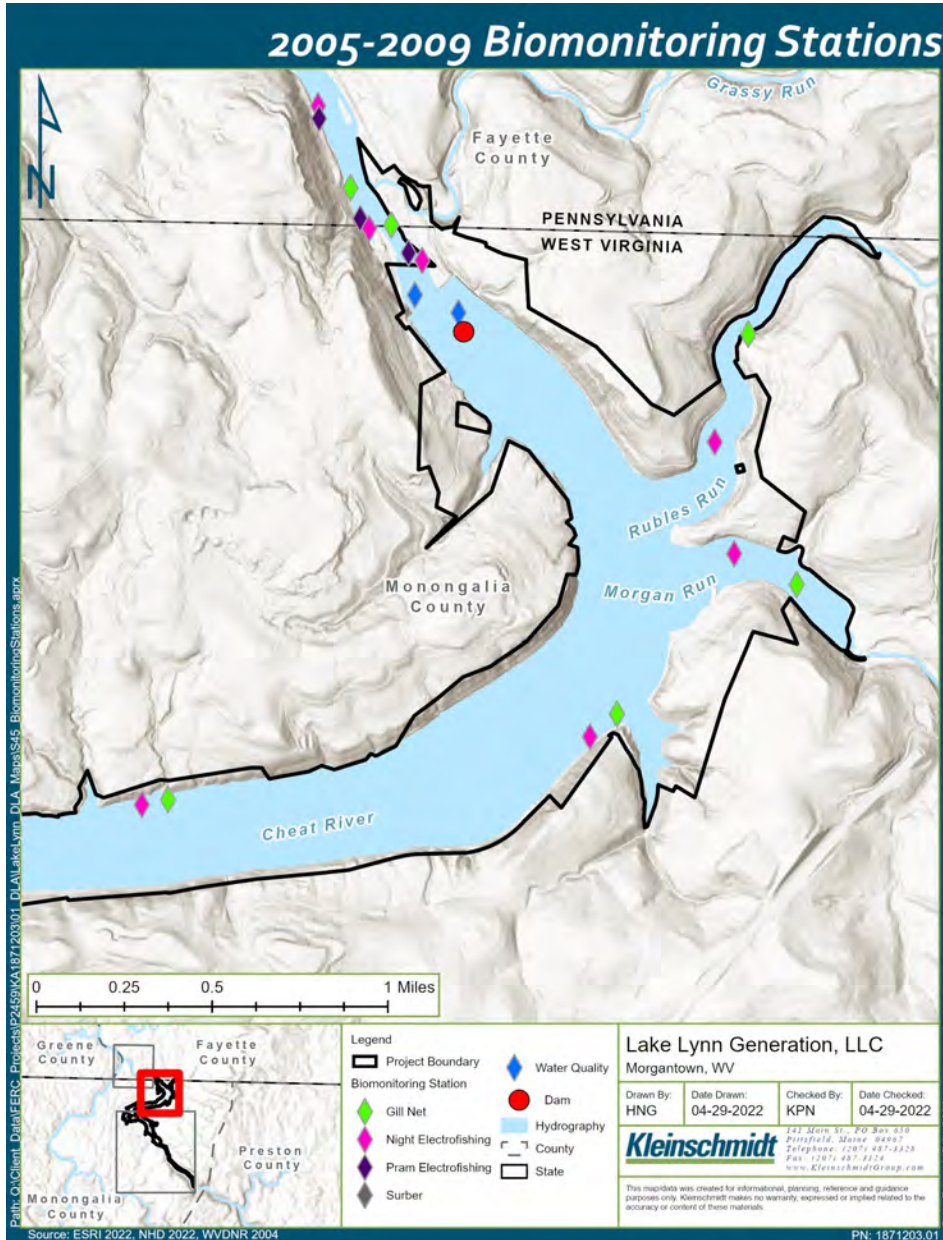


Figure 4-154.15 Fish Sampling Locations in Lake Lynn (2005, 2008, 2011, 2014, and 2015) (1 of 2).

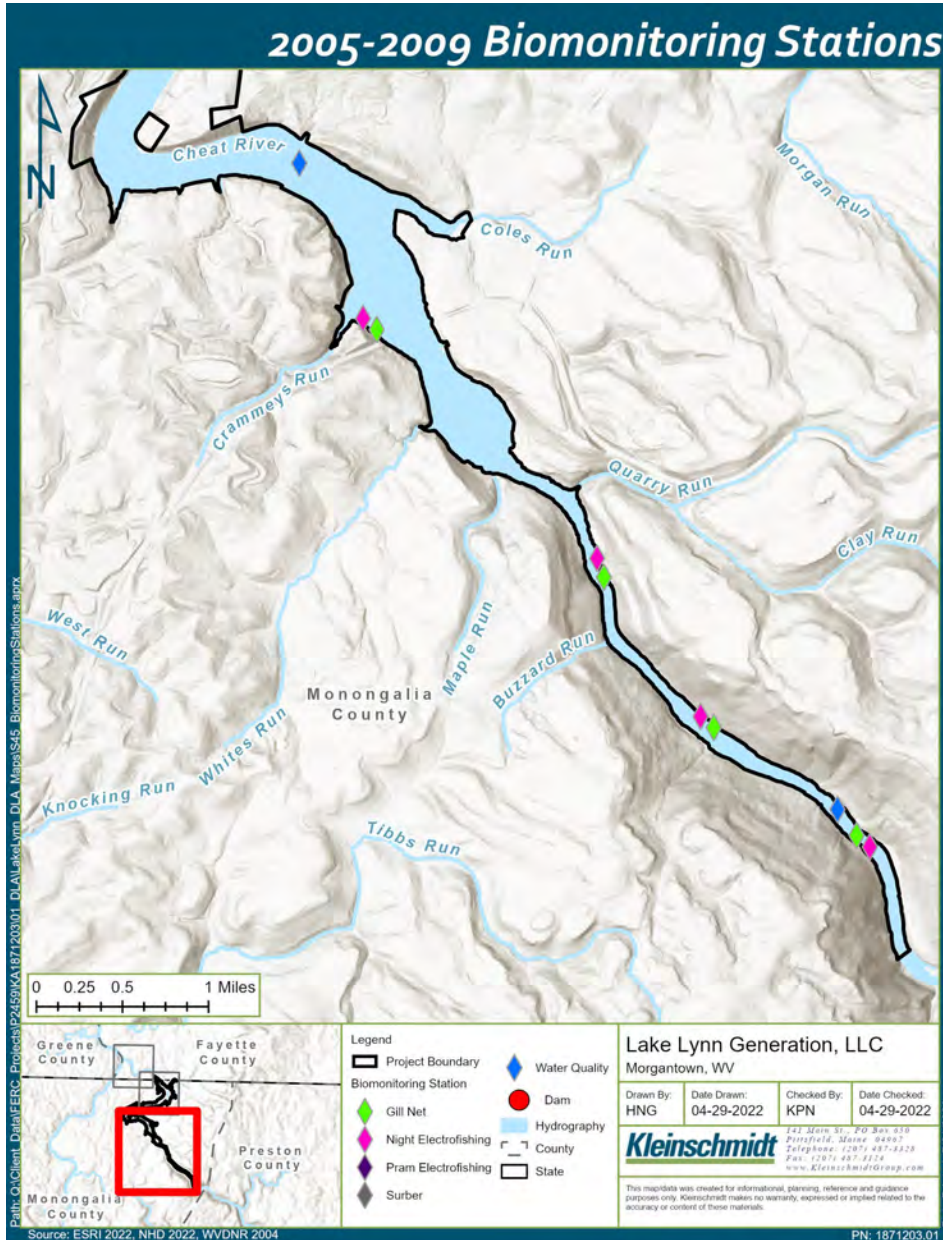


Figure 4-164.16 Fish Sampling Locations in Lake Lynn (2005, 2008, 2011, 2014, and 2015) (2 of 2).

Table 4.14 Temporal Trends in Fish Catch Per Unit Effort of Boat Electrofishing in the Lake Lynn Impoundment

Boat Electrofishing									
Species	1990	1997	1998	2001	2005	2008	2011	2014	Grand Total
Banded Darter	0.00	0.00	0.00	0.00	0.00	0.50	0.00	0.50	0.11
Black Crappie	0.22	0.00	0.11	0.00	0.00	0.50	2.50	3.75	0.81
Bluegill	8.44	15.08	11.56	30.11	12.50	186.00	10.50	27.25	36.59
Bluntnose Minnow	0.22	0.00	0.00	9.11	10.50	14.25	7.75	0.75	5.38
Brook Silverside	4.00	5.00	4.89	11.33	6.00	37.25	11.25	5.75	10.58
Brown Bullhead	5.11	0.00	0.56	0.00	0.00	0.00	0.50	0.00	0.59
Common Carp	0.89	2.67	2.56	2.33	3.50	1.25	0.25	0.75	1.88
Emerald Shiner	7.11	21.67	20.56	25.67	5.00	7.25	125.50	22.25	29.30
Chain Pickerel	0.00	0.00	0.00	0.00	0.00	0.00	0.25	3.00	0.37
Channel Catfish	0.22	0.42	0.22	1.00	0.75	3.00	1.00	2.00	1.05
Channel Darter	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.50	0.06
Gizzard Shad	0.00	0.00	0.22	2.44	1.00	0.75	5.75	0.00	1.31
Golden Redhorse	0.00	0.92	1.67	1.33	4.25	4.25	19.50	40.00	8.39
Golden Shiner	0.00	0.00	0.11	0.11	0.00	0.50	0.00	0.00	0.10
Greenside Darter	0.00	0.00	0.00	0.33	0.00	0.00	0.00	1.25	0.20
Green sunfish	0.22	0.00	0.33	2.11	1.75	19.50	1.25	10.50	4.21
Flathead Catfish	0.00	0.25	0.33	0.00	0.25	0.00	0.00	0.25	0.14
Freshwater Drum	0.44	0.58	0.56	0.78	0.75	1.00	0.50	3.00	0.93
Hybrid Striped Bass	0.00	0.00	0.00	0.00	0.00	0.00	0.25	0.00	0.03
Hybrid Sunfish	1.56	0.00	0.00	0.00	0.00	0.00	0.25	0.25	0.19
Johnny Darter	0.00	0.00	0.11	0.44	0.00	3.25	0.00	1.75	0.67
Largemouth Bass	2.44	2.75	3.89	3.67	8.50	4.50	9.50	7.50	6.39
Logperch	0.00	1.42	3.33	3.11	10.75	1.50	2.25	14.00	4.52
Longnose Gar	0.00	0.00	0.00	0.22	0.00	0.50	0.25	1.25	0.27
Mimic Shiner	0.89	0.00	0.00	33.78	5.50	54.50	12.75	29.50	17.55
Northern Hogsucker	0.00	0.00	0.33	0.00	0.50	0.25	0.00	0.25	0.17

Boat Electrofishing									
Species	1990	1997	1998	2001	2005	2008	2011	2014	Grand Total
Northern Pike	0.22	0.08	0.22	0.11	0.75	0.00	0.00	0.00	0.17
Popeye Shiner	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.25	0.03
Pumpkinseed	4.67	1.75	2.33	1.22	0.50	3.75	0.50	0.50	1.81
Quillback	0.00	0.33	0.00	0.00	0.00	0.00	0.75	0.25	0.15
Rainbow Darter	0.00	0.00	0.22	0.00	0.00	0.00	0.00	2.50	0.32
River Carpsucker	0.00	0.00	0.22	0.00	0.00	0.00	0.00	0.00	0.04
Rock Bass	0.67	0.42	3.33	2.11	0.25	6.50	2.00	11.25	3.32
Rosyface Shiner	0.00	0.00	0.00	0.00	30.25	3.50	0.00	0.00	3.86
Sauger	0.00	0.67	2.44	1.78	1.75	1.50	4.25	4.50	2.17
Smallmouth Redhorse	0.00	0.00	0.00	0.00	0.00	0.00	0.50	0.00	0.06
Silver Redhorse	1.56	0.25	0.78	0.00	0.00	0.25	0.00	11.25	1.61
Silver Shiner	0.00	0.00	0.00	0.00	0.00	5.00	0.00	6.25	1.29
Smallmouth Bass	0.44	6.42	5.78	4.78	5.00	18.50	27.00	35.50	12.41
Spottail Shiner	0.22	1.67	1.00	0.00	0.00	0.00	0.00	0.25	0.41
Spotted Bass	0.22	0.75	0.00	1.00	2.25	4.75	3.25	8.75	2.45
Spotfin Shiner	0.22	0.00	0.00	0.67	7.25	9.00	0.50	0.25	2.08
Walleye	0.00	0.00	0.00	1.00	0.00	0.50	6.25	2.00	1.17
Warmouth	0.22	0.00	0.00	0.00	0.00	0.25	0.00	0.00	0.05
White Bass	0.00	0.00	0.00	0.00	0.00	0.00	3.50	0.00	0.40
White Sucker	0.00	0.00	0.00	0.00	0.25	0.00	0.00	0.00	0.03
White Crappie	0.00	0.33	0.00	0.67	0.00	0.00	0.00	0.00	0.15
Yellow Bullhead	0.44	0.08	0.11	0.33	0.00	0.00	0.00	0.50	0.18
Yellow Perch	9.56	7.92	24.22	14.00	1.75	0.25	1.25	22.75	11.25

Source: WVDNR 2004

Cheat River Fisheries - WVDNR conducted fisheries surveys in the Cheat Lake tailwater and in the Cheat River downstream of the dam in 2005 and 2008. The surveys consisted of nighttime boat electrofishing, tote barge electrofishing, and gill netting. Surveys took place during low water conditions in May and October. Eight tailwater survey stations and three river survey locations were established (Figure 4.17). Catch per unit effort (CPUE) was calculated as fish captured per hour of fishing effort. Tote barge electrofishing at tailwater stations targeted juvenile fish collection (Smith and Welsh 2015). In addition to the 2005 to 2009 samples, WVU sampled the Cheat Lake tailwater and in the Cheat River downstream of the dam in 2011 and 2014. The survey locations and methods were consistent with WVDNR's 2005 and 2008 surveys. Boat electrofishing and gill netting was conducted twice a year, whereas tote barge electrofishing was conducted three times a year.

During the 2011 and 2014 surveys in the Cheat River downstream of the Lake Lynn dam, WVU collected 3,352 fish consisting of 51 species. Fish abundance, which ranged from 1,825 in 2011 to 1,527 in 2014, was the highest since the biomonitoring program began. Species richness was also the highest in 2011 and 2014 since the biomonitoring program began (Table 4.15). Most fish were captured via boat electrofishing and tote barge electrofishing as compared to gill netting. WVU researchers captured six species during the 2011 and 2014 surveys for the first time since the biomonitoring program began (channel darter, variegate darter, chain pickerel, popeye shiner, muskellunge, and striped shiner). The most abundant species sampled in the Cheat River included the emerald shiner, smallmouth bass, golden redhorse, mimic shiner, and channel catfish (Smith and Welsh 2015).

**Table 4.15 Fish Species Richness for Cheat Lake Tailwater and Cheat River
 Summarized by Gear Type**

Species Richness									
Region	Gear	1990	1997	1998	2001	2005	2008	2011	2014
Cheat Tailwater	Night Boat Electrofishing	-	15	19	24	18	25	14	20
	Biomonitoring Gill Nets	-	8	15	13	14	14	9	5
	PRAM electrofishing	-	18	14	25	16	17	16	30
Cheat River	Night Boat Electrofishing	23	20	24	26	22	25	29	31
	Biomonitoring Gill Nets	17	7	14	10	16	17	16	11
TW & River	Night Boat Electrofishing	24	22	28	28	25	31	30	37
	Biomonitoring Gill Nets	17	11	19	16	19	20	19	12
	All gears	28	32	35	37	36	39	35	44

Source: WVDNR 2004

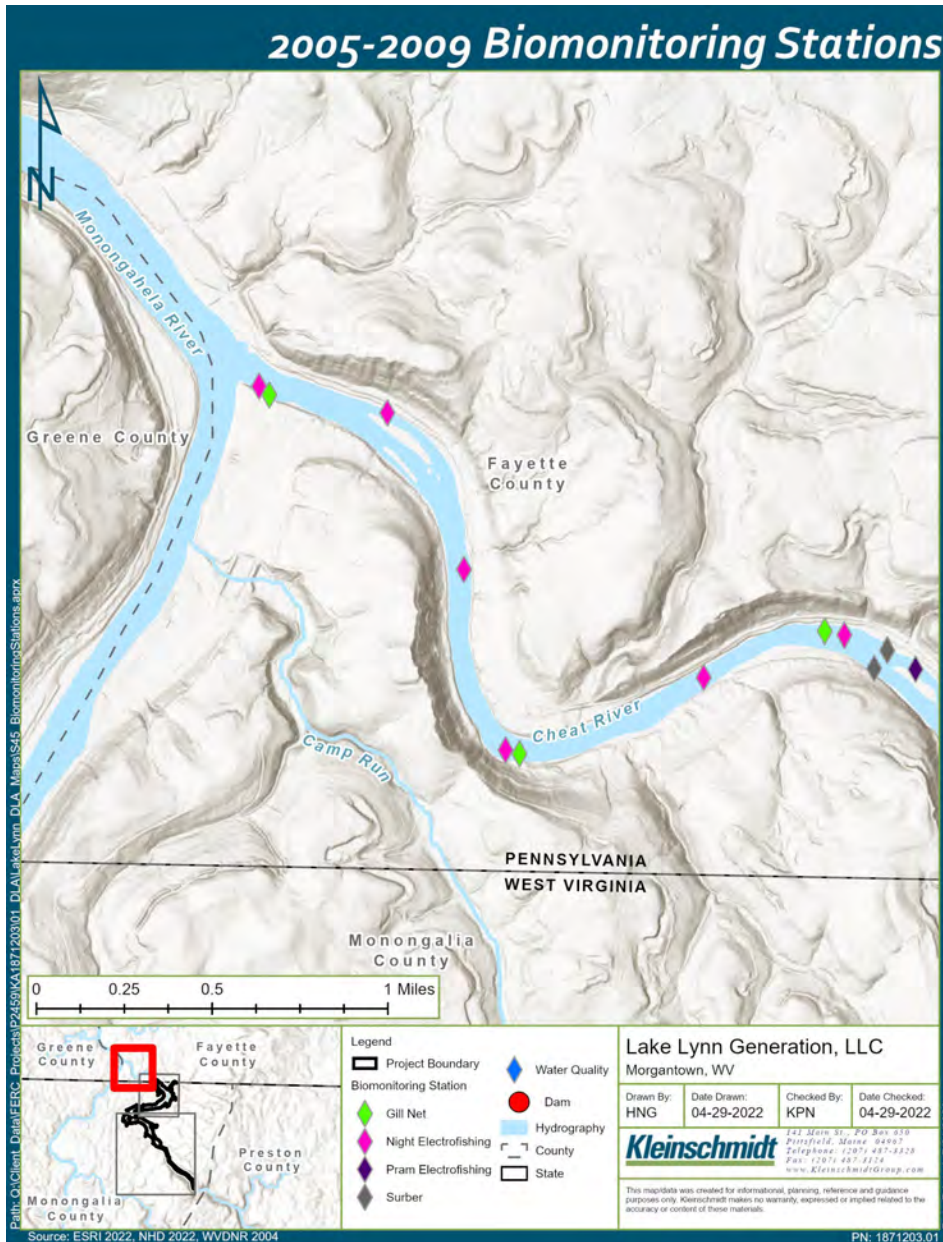


Figure 4-174.17 Tailwater and Cheat River fish sampling locations, 2005 and 2008; WVU fish sampling locations 2011 and 2014.

4.5.1.3 Essential Fish Habitat

There is no EFH in the vicinity of the Lake Lynn Project (NOAA 2022).

4.5.1.4 Diadromous Fish Species

No migratory fish species are reported from the Cheat River. As part of annual biomonitoring activities, the Licensee used environmental DNA (eDNA) techniques to monitor for the presence of American eel in the Lake Lynn Project tailwater area beginning in 2018. The Licensee collected 5 water samples from the tailwater area in August of 2018. American eel DNA was not detected in 2018 (TRC 2021). In 2019, the Licensee collected a total of 16 eDNA samples seasonally (March, June, August, and October) from the tailwater area (Figure 4.18). American eel DNA was not detected in 2019 (TRC 2021).



Figure 4_184.18 2019 American Eel eDNA Study Sites

The Licensee conducted a third phase of the American eel eDNA study in 2020 to detect yellow eels moving upriver. The objective of the third phase was to collect samples during

April, May, June and July, August, September of 2020 during daytime and nighttime hours. The Licensee collected samples at five sites in 2020: on July 29 (daytime), July 30 (nighttime), September 29 (nighttime), and October 29 (daytime), and in December. American eel DNA was not detected in 2020.

In 2021, the Licensee completed the fourth phase of the American eel eDNA study which included sampling from five study sites below the dam during the day and night on May 27, June 10, August 10, and September 8. Samples were processed using the modified filter extraction protocol identified by USFWS (USFWS 2022). All eDNA samples were negative for the presence of American eel markers from the May, June, and September sampling events (USFWS 2022). American eel eDNA was detected in a sample collected during the daylight hours on August 10, 2021. Detection reflected a low quantity of American eel eDNA present due to amplification of limited number of replicates and lack of detection at the same sites less than four hours earlier during the night sampling event (USFWS 2022).

4.5.1.5 Benthic Macroinvertebrates

Benthic macroinvertebrate data were collected below the Lake Lynn dam on a regular basis between 1998 and 2015. During recent surveys (e.g., 2011 and 2014) samples were collected at three stations as established during the 2005 and 2008 biomonitoring program (see Figure 4.15 and Figure 4.16). These sites were sampled twice during each study year. The location of the samples was consistent with previous biomonitoring studies and relied on a standard Surber stream bottom sampler. Researchers collected 6,338 benthic macroinvertebrates during the 2011 and 2014 sampling. The caddisfly family *Hydropsychiidae* was the most abundant taxa documented in 2011 and 2014. Samples during 2011 and 2014 demonstrated greater taxa richness (29 taxa total) and taxa abundance than years prior. Additionally, several sensitive mayfly and stonefly taxa were collected during 2011 and 2014 (Smith and Welsh 2015). The studies demonstrated that macroinvertebrate abundance has increased and pollution-sensitive species that indicate good water quality (caddisfly, mayfly and stonefly taxa) were prevalent during the most recent surveys.

4.5.1.6 Freshwater Mussels

Freshwater mussels are sedentary organisms that use benthic habitats through their life cycle. They require areas with high oxygen content and a rich food source of organic

particles and micro-organisms (WVDNR 2003). The Cheat River historically supported 17 species of freshwater mussels (Ortmann 1919) (Table 4.16).

Table 4.16 Mussels Known Historically from the Cheat River

Common Name	Scientific Name	Regulatory Status
Mucket	<i>Actinonaias ligamentina</i>	--
Elktoe	<i>Alasmidonta marginata</i>	--
Threeridge	<i>Amblema plicata</i>	--
Cylindrical Papershell	<i>Anodontooides ferussacianus</i>	--
Purple Wartyback	<i>Cyclonaias tuberculata</i>	--
Spike	<i>Eurynia dilatata</i>	--
Longsolid	<i>Fusconaia subrotunda</i>	--
Plain Pocketbook	<i>Lampsilis cardium</i>	--
Wavyrayed Lampmussel	<i>Lampsilis fasciola</i>	--
Flutedshell	<i>Lasmigona costata</i>	--
Black Sandshell	<i>Ligumia recta</i>	--
Clubshell	<i>Pleurobema clava</i>	SE ¹ & FE ²
Round Pigtoe	<i>Pleurobema sintoxia</i>	--
Kidneyshell	<i>Ptychobranthus fasciolaris</i>	--
Pimpleback	<i>Cyclonaias pustulosa</i>	--
Creeper	<i>Strophitus undulatus</i>	--
Rainbow	<i>Villosa iris</i>	--

¹ Federally Endangered

² State Endangered

Source: PFBC 2018

In 2020, the Licensee conducted a study to identify what freshwater mussel species, if any, occur within the Cheat River from the Lake Lynn dam downstream to the confluence with the Monongahela River. The Licensee developed the freshwater mussel study plan in consultation with WVDNR and PFBC. A draft freshwater mussel report was provided to the stakeholders on November 25, 2020 (Attachment D).

The study area included 12 discrete sites downstream of the Lake Lynn downstream to the confluence with the Monongahela River (Figure 4.19). The study survey techniques consisted of a qualitative timed search which were consistent with West Virginia protocol (WVDNR 2020). Survey sites were located in areas where suitable mussel habitat was identified. Survey methods included visually and tactilely searching for mussels while snorkeling. No live mussels were found during the survey, yet eight live Pink heelsplitters (native species) were observed at the confluence of the Cheat River and Monongahela River immediately downstream of the survey area limits. These mussels were assumed to be part of a mussel bed located within the Monongahela River. The Pink heelsplitter is not

a federal or state listed mussel species. Mussel habitat in the mussel survey area may be limited due to water quality degradation caused by AMD. Evidence of AMD was observed at multiple sites during the mussel survey (TRC 2020). Freshwater mussels are sensitive to poor water quality due to their lack of mobility. Substrate in the survey area was suitable for mussels, yet the water quality degradation, may prevent mussels from colonizing these areas (TRC 2020).

4.5.1.7 Fish Passage

There are no fish passage measures or facilities at the Lake Lynn Project.

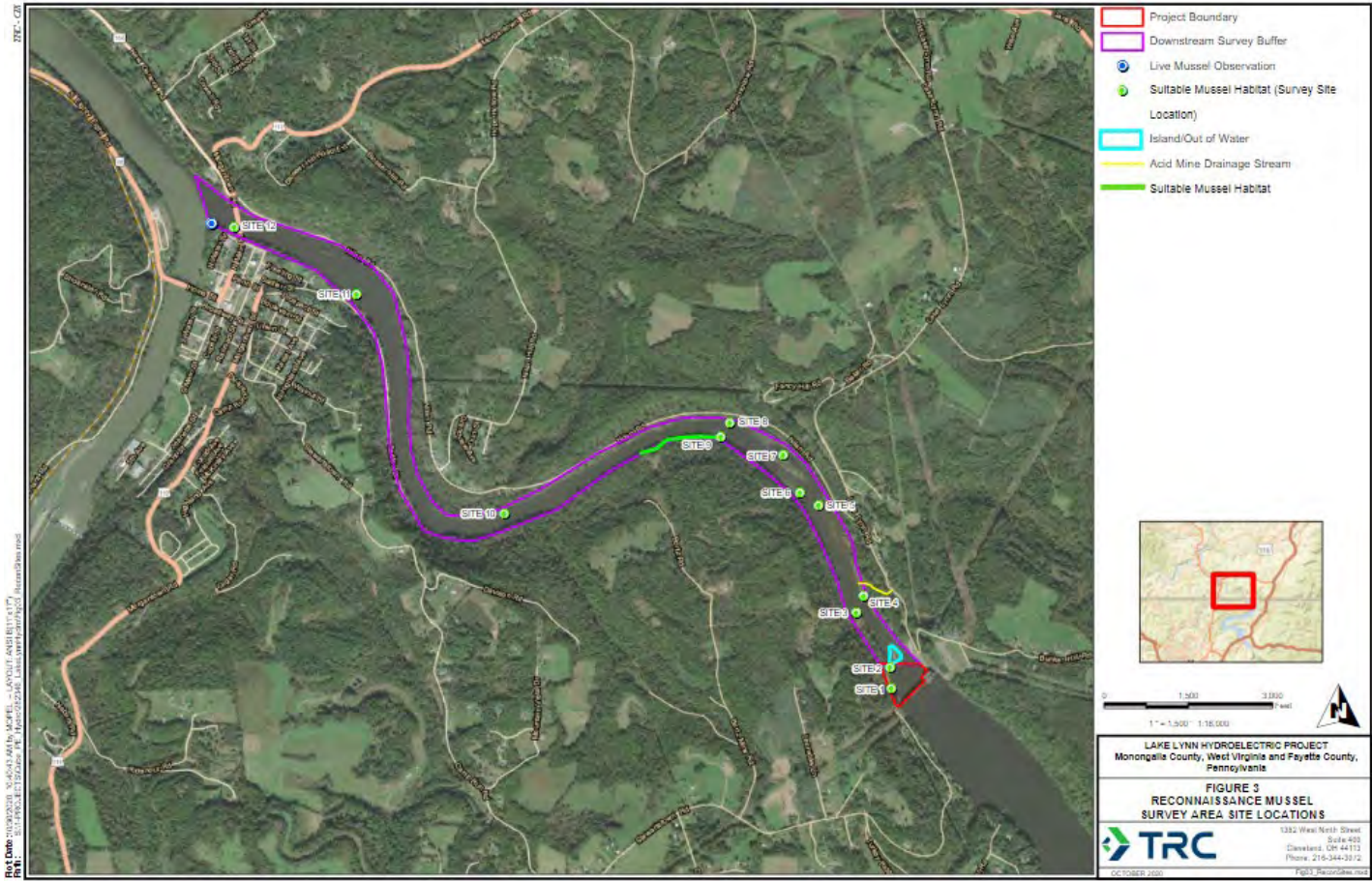


Figure 4_194.19 2020 Cheat River Mussel Survey Locations

4.5.1.8 Entrainment

Lake Lynn conducted a desktop Fish Entrainment Assessment at the Lake Lynn Project (Normandeau Associates 2022). Community data for biological sampling conducted upstream of Lake Lynn in Cheat Lake documented 35 fish species between 2011 and 2015. Seven species were identified as representative of that community and were included in the desktop assessment of fish entrainment at the Lake Lynn Project (bluegill, channel catfish, smallmouth bass, walleye, emerald shiner, golden redhorse, and gizzard shad). Life history information for the target fish species was reviewed and based on the available habitat requirements and behavioral responses to environmental conditions it was determined that gizzard shad are the target species most susceptible to entrainment at the Lake Lynn Project. These fish may be present in the vicinity of the Lake Lynn Project intakes and could be entrained. Entrainment of shad tends to peak in the fall and winter in reservoirs where they are abundant. The entrainment potential for the remaining target fish species is expected to be low given the lack of high-quality aquatic habitat in the immediate vicinity of the intake structure coupled with the fact that none of the additional fish species are considered obligatory migrants. In general, entrainment for most of the target fish species considered during the evaluation is not anticipated to be high at Lake Lynn. Gizzard shad are the target species most likely to be seasonally entrained during periods of low water temperatures. However, due to their high burst speed swimming capability at all sizes, they are expected to have relatively low entrainment susceptibility during the warmer months of the year.

In the event individuals are entrained, the USFWS Turbine Blade Strike Analysis (TBSA) Tool was used to conduct assessments for fish lengths representative of the size range of target species with potential to fit through the existing rack spacing at Lake Lynn. The TBSA analysis produced a range of survival estimates for turbine survival through the four Francis units at the Lake Lynn Project and were slightly higher for Units 1, 3, and 4 than for the recently modified Unit 2. Survival rates calculated for size classes representative of juvenile life stages (i.e., those less than or equal to six inches) ranged from 82-95 percent.

In addition to the qualitative evaluation for the seven target fish species, quantitative estimates of entrainment and entrainment survival were calculated. Density data available from the Electric Power Research Institution (EPRI) (1997) database was combined with estimated monthly generation volumes to calculate estimates of monthly entrainment for the seven target species. Annual entrainment estimates for species other than gizzard shad ranged from a low of 115 individuals (redhorse) to a high of 7,167 individuals

(channel catfish). Three different sets of monthly entrainment density data were pulled from the EPRI (1997) database to calculate estimates for gizzard shad entrainment at the Lake Lynn Project and produced a wide range of estimates with the highest estimate over 14 million individuals entrained annually and a lowest estimate of 265 individuals entrained annually. Entrainment estimates for each target species were adjusted to reflect the predicted survival rates generated during the TBSA analysis for the Lake Lynn turbine units. The percentage of the annual entrainment expected to experience mortality was generally low, ranging from 12 percent of entrained individuals for bluegill to 37 percent of entrained individuals for redhorse. Similar to the observations for overall abundance, the estimates for the rate of entrainment mortality for gizzard shad varied from a low of 8 percent of entrained individuals to 345 percent of entrained individuals.

4.5.1.9 Fisheries Management

Several fisheries in the Cheat River watershed are managed for recreational opportunities, including the walleye and yellow perch fishery in Cheat Lake. Walleye were reintroduced to Cheat Lake from 1999 – 2002. Natural reproduction was not assessed until the 2005 biomonitoring surveys. From 2005 through 2009, walleye stocking assessments and walleye surveys were conducted by the Licensee in Cheat Lake as part of the biomonitoring program. WVDNR marked walleye with oxytetracycline for otolith identification prior to stocking. These marked fingerlings were stocked during the spring of 2005.

During the walleye assessment, otoliths were removed from appropriate-sized fish to determine if marks were present. Walleye collected from the Lake Lynn tailwater, and the Monongahela River were also assessed for marking (Smith and Welsh 2015). The studies suggest an occurrence and potential increase in natural reproduction during this time (Smith 2018). Age, growth, and diet metrics were also collected during WVNDNR's stocking assessment surveys as was a separate channel catfish survey. WVDNR collected 764 fish from 2012 through 2015. Of these fish, 118 walleye were collected. The most abundant species included the channel catfish, white bass, walleye, and black crappie. Age analysis conducted on walleye suggested that female walleye reach maturity quickly and reach large maximum sizes. Diet analysis found that yellow perch were present in 67 percent of Cheat Lake walleyes, suggesting that yellow perch are an important forage species for the walleye fishery (Smith and Welsh 2015).

Walleye movement and distribution data were collected by WVU from 2012 through 2015 in Cheat Lake using acoustic telemetry. Data was analyzed to understand trends associated with spawning timing and locations, as well as non-spawning movement. Movement varied seasonally and was associated with environmental conditions. Elevated water temperatures in the spring were associated with pre-spawning movements. Spawning timing was determined to occur from mid-March through early April in Cheat Lake. Most spawning occurred in the uppermost part of Cheat Lake below the first riffle/run complex. Female walleye made post-spawn migrations during April, while males made post-spawn migrations during the following fall. Additionally, elevated river discharge and fluctuations in water temperatures were also associated with large non-spawning movements of walleye in Cheat Lake (Smith and Welsh 2015).

4.5.1.10 Invasive Species

Aquatic invasive species include both invasive plants and animals. Invasive species are species intentionally or accidentally introduced by human activity into a region in which they did not evolve and cause harm to natural resources, economic activity, or humans. Aquatic invasive species displace native aquatic species and threaten overall value of aquatic ecosystem.

The most common [aquatic invasive](#) species of concern in West Virginia include [Hydrilla](#) (*Hydrilla verticillata*), [Zebra mussels](#) (*Dreissena polymorpha*), [Rusty crayfish](#) (*Orconectes rusticus*), [Virile crayfish](#) (*Orconectes virilis*) and [Silver Carp](#) (*Hypophthalmichthys molitrix*) [which are discussed below](#). (WVDNR, 2014).

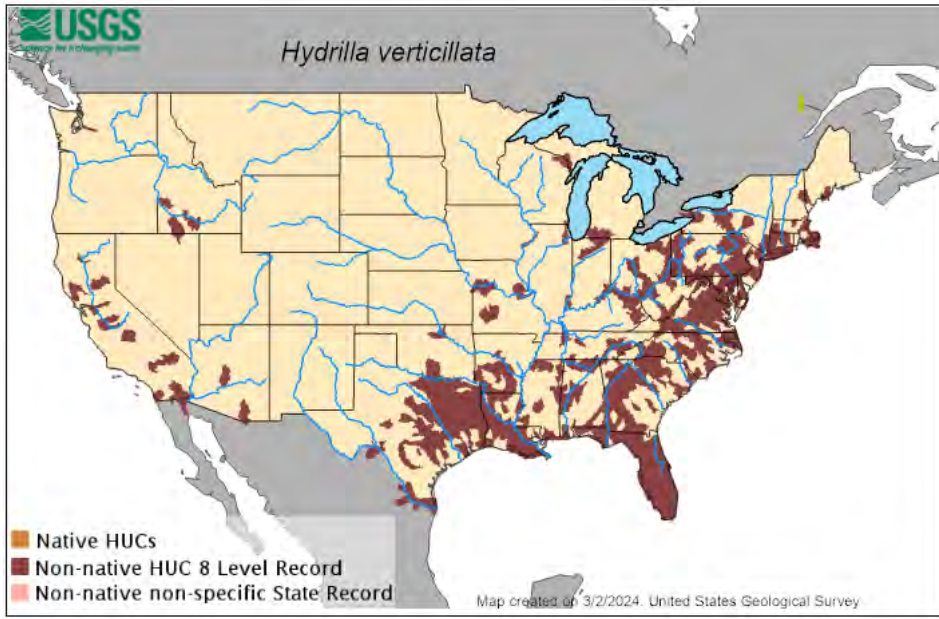
[Hydrilla – Hydrilla is common freshwater aquarium plant native to Asia, Australia, and part of Africa \(USFWS 2020\). This plant is considered highly invasive and can be introduced into waterways from accidental introductions by boaters and anglers transferring the plants from contaminated waterways into unestablished one. Currently, hydrilla can be found in 28 states in the United States, including West Virginia and Pennsylvania \(Figure 4-20\)\(Jacono et. al. 2024\). Stem pieces of the hydrilla plant can root in the substrate and develop into new colonies. Introduction to new waters often occurs from fragments of hydrilla on boats, motors, trailers, and live wells. Often colonies of hydrilla begin near boat ramps, which can be seen at the Lake Lynn Project \(Figure 4-20\). Impacts from hydrilla introductions into waterways include outcompeting native plants, altering zooplankton communities which can disrupt fish prey availability, and a decrease in dissolved oxygen caused by thick mats blocking sunlight and decaying below \(USFWS](#)

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2020). Hydrilla can also have negative impacts on recreation, recreationalist could be restricted from swimming, fishing, and boating in the areas of dense mats, the hydrilla can even entangle and clog boat props (Sea Grant 2023).

WVDNR conducted spatial mapping of hydrilla in Lake Lynn in early September of 2023. Based on the data collected the highest density of hydrilla was found in the upper portions of Rubbles Run and Morgan Runs embayment's, Sunset Cove around the boat docks, and shallower areas upstream from 1-68 of Mont Chateau, notably a large area about the private marina docks as well on the opposite shorelines from Maple Run upstream (Dustin Smith, personal communication, October 5, 2023) (Figure 4-20). There was estimated to be approximately 97 acres of dense hydrilla stands in Lake Lynn, with 50 of those acres in the Maple Run shoreline and private marina areas. At the private marina, a moderately deep channel runs through the marina which limits hydrilla propagation (Figure 4-20 and Figure 4-23). Overall, hydrilla stands are limited by lake depth, and no thick stand of hydrilla was found deeper than approximately 7 to 9 ft (2.1 to 2.7 m) of water depth. On steep shorelines, the hydrilla tapers off quickly, while shallower waters with gradual slopes the hydrilla tapers off slowly. Hydrilla was also found on the two shallow mudflats around I-68 bridge located upstream and downstream of the bridge (Figure 4-23). This Hydrilla was not included in the acreage estimates due the Hydrilla only forming low lying carpet that does not extend far into the water column. No boating is impeded by these mudflats from hydrilla since it does not reach to surface waters. It is likely that the exposure of wave action from boats and wind is reducing the hydrilla growth and preventing thick mats from forming in this location (Dustin Smith, personal communication, October 5, 2023).

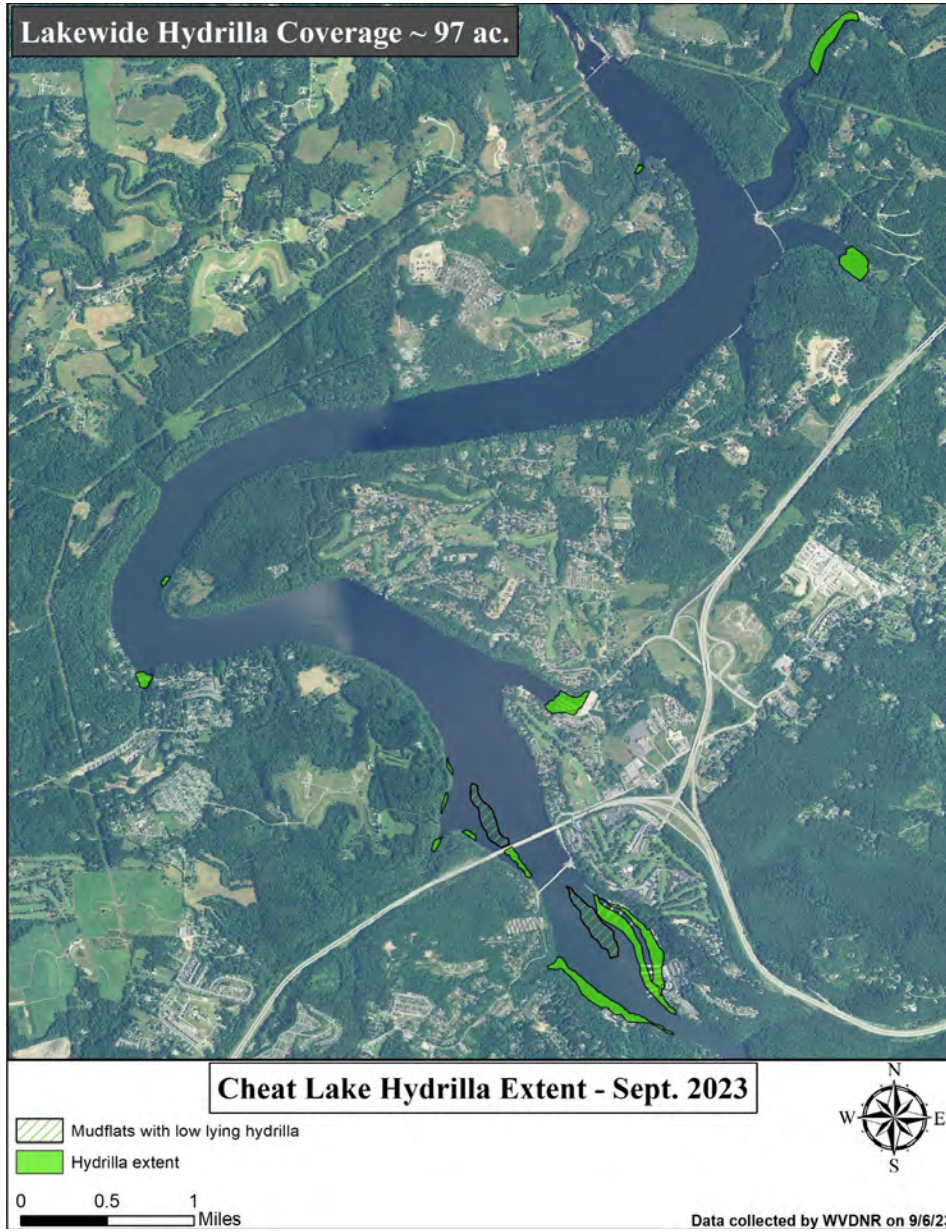
Lake Lynn has consulted with WVDNR concerning hydrilla in Cheat Lake and are in the preliminary stages for managing the hydrilla. At this time, herbicide application to reduce impacts of hydrilla is being considered, but further discussions with WVDNR will continue. Additionally, signs were installed over the winter of 2023/2024 at the Cheat Lake Park boat ramp (Photo 4.5) to educate boaters under the guidance of WVDNR. Additional signs will be placed prior to the start of the recreation season at Sunset Beach Marina, Edgewater Marina, and two private marinas once approval is given from the owners.



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Figure 4-20 Map of Hydrilla Distribution in the Lower 48 States of United States of America (Jacono et. al 2024)

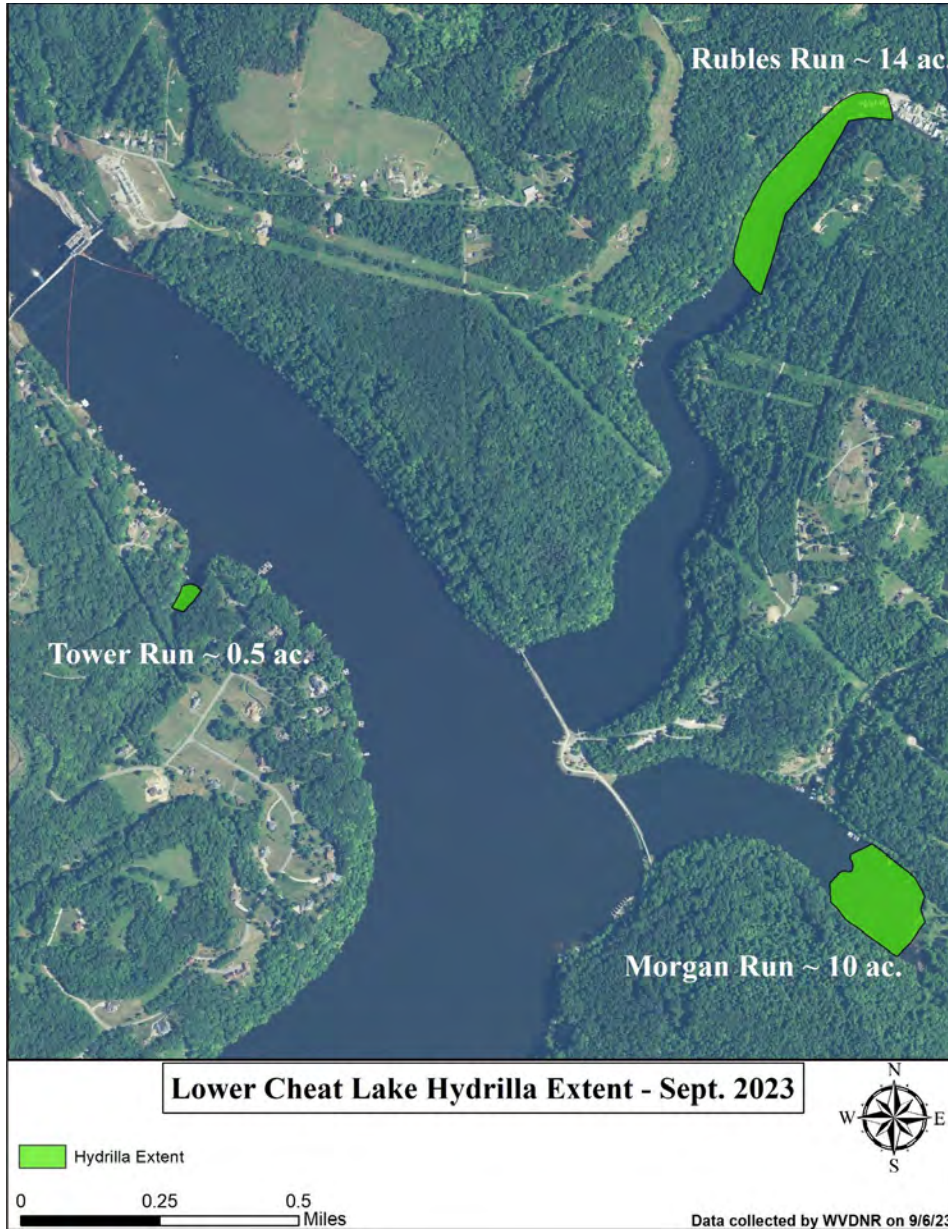
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Figure 4-21 Hydrilla density in the entire Cheat Lake Extent

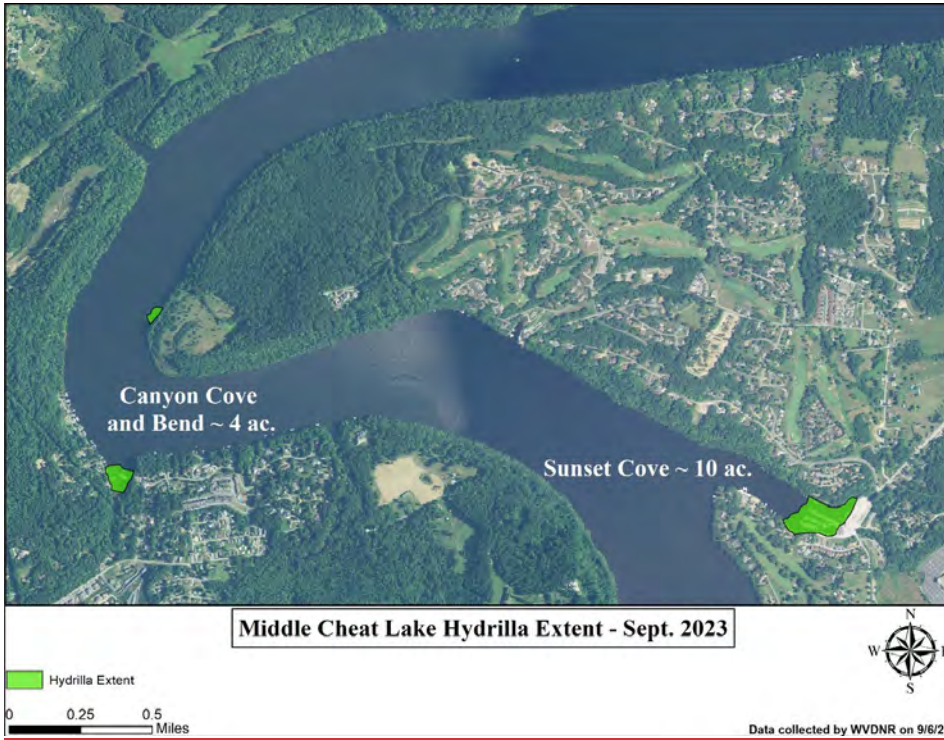
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Figure 4-22 Hydrilla Density in the Lower portion of Cheat Lake

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Figure 4-23 Hydrilla Density in the Middle Portion of Cheat Lake

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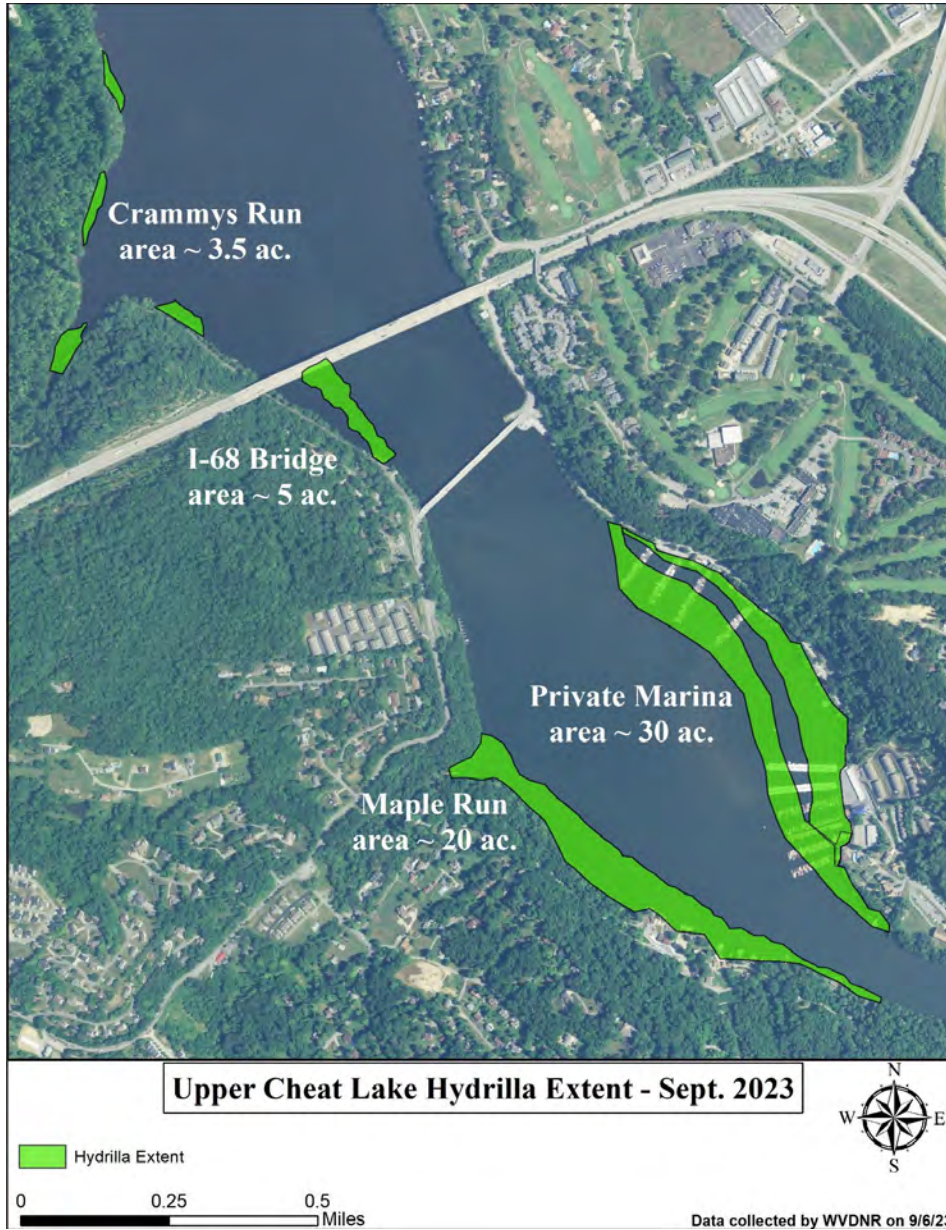


Figure 4-24 Hydrilla Density in the Upper Portion of Cheat Lake



Photo 4.4 Public Hydrilla Warning Sign at the Cheat Lake Park Boat Ramp

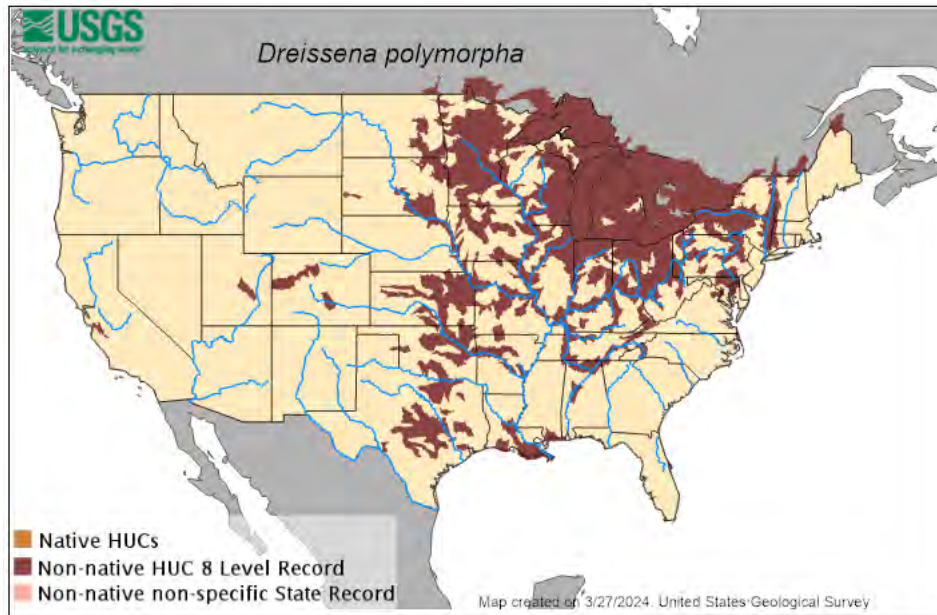
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Zebra Mussels – The zebra mussel is a small shellfish native to the Black, Caspian, and Azov Seas. The zebra mussel attaches itself to surfaces, does not require a fish host to reproduce, and can disperse during all life stages. These factors provide excellent conditions for spreading in North American waters. Zebra mussels often attach to hulls of boats and floating objects, which allows for easy transfer to other inland lakes or waterways by recreational boats (Benson et. al. 2024).

According to the USGS Nonindigenous Aquatic Species Database and the WVDNR, there are no zebra mussels located in Lake Lynn (Benson et. al 2024, WVDNR 2023). There are records of zebra mussels southeast of the Project in the Monongahela River near the Hildebrand Lock and Dam, Opekiska Lock and Dam, and the Morgantown Lock and Dam (Figure 4-24). Additionally, there are records of zebra mussels north of the Project in the Monongahela River at the Maxwell Lock and Dam (Benson et. al 2024). Currently, there are no impacts to the recreational sites, public access sites, or maintained areas throughout the Project Area as Zebra Mussels have not been found in the Project Boundary.

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Figure 4-25 Map of Zebra Mussel Distribution in the Lower 48 States of United States of America (Benson et. al 2024)

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Rusty Crayfish – The rusty crayfish inhabits lakes, ponds, and streams sheltering in rocks, logs, or other debris. Its native range is within the Ohio River Valley but has since spread outside its natural range, most likely through the release of crayfish from angler bait buckets or other uninformed releases into the wild. Once released into a new body of water, this crayfish colonizes the entire littoral zone up to 39 ft (12 m) deep. Introduction of one viable female crayfish carrying sperm could start a new population. Currently, there are no known populations of the rusty crayfish in the Project Area, or waterbodies near the Project Area. There are however established populations northeast of the Project areas in Pennsylvania and a few occurrences southwest of the Project Area (Figure 4-25) (Durland et. al. 2024).

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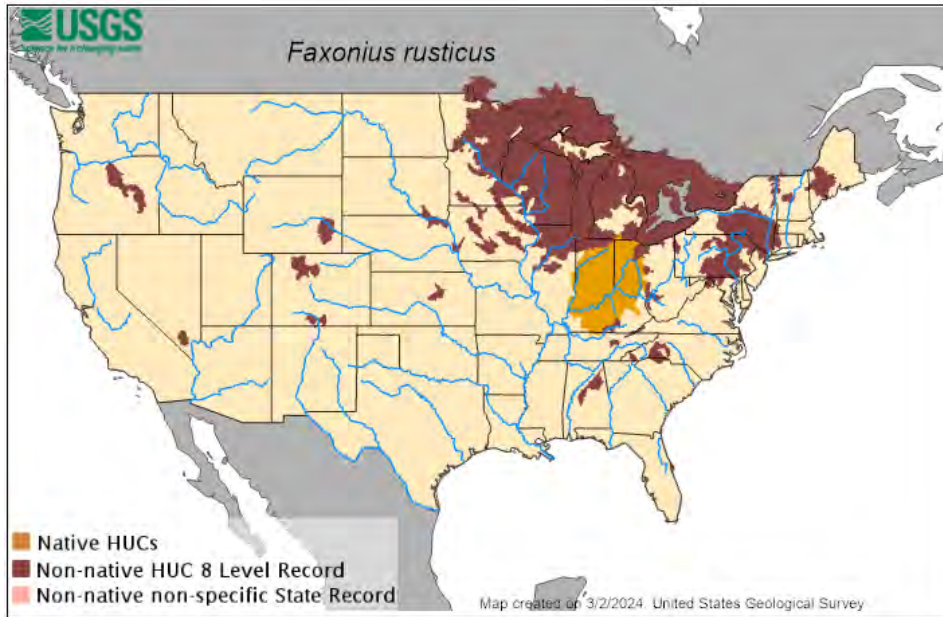


Figure 4-26 Map of Rusty Crayfish Distribution in the Lower 48 States of United States of America (Durland et. al. 2024)

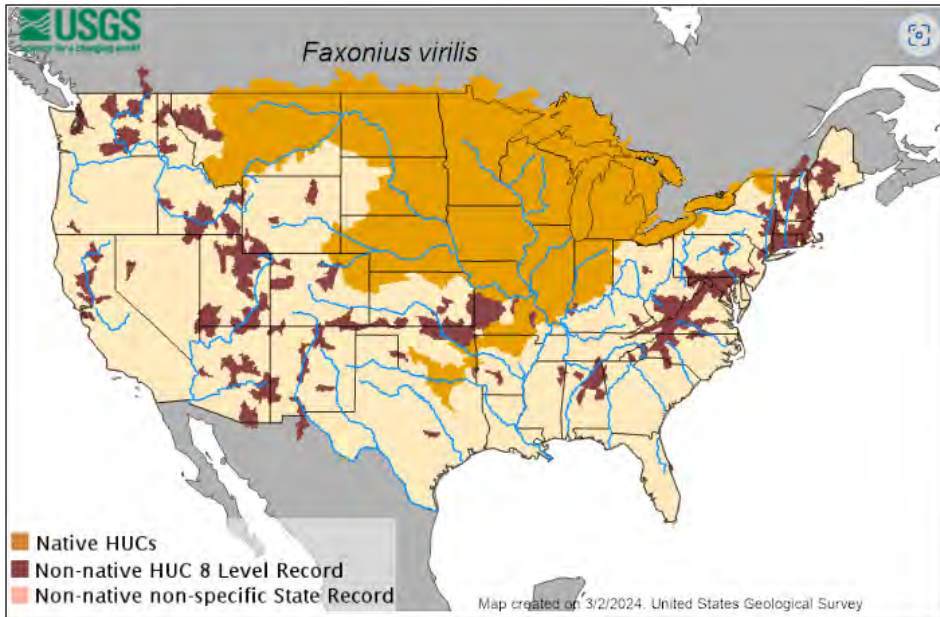
Virile Crayfish – The virile crayfish is native to the Missouri River, Upper Mississippi River, and lower Ohio River up to the State of Montana and into Canada, as well as a northern portion of Texas, and the Great Lakes Region (Figure 4-26). These crayfish can be found in streams with moderate flow and turbidity, abundant cover, sandy, muddy, or rocky substrate with stable water levels. The virile crayfish was likely introduced to non-native ranges through bait bucket introductions and intentional stocking for forage in Montana and Utah. This crayfish is now established in 24 states, including Pennsylvania and West Virginia. When in non-native waters, this cray fish can cause decline or local extirpation of native crayfish and disrupt freshwater biodiversity and macroinvertebrate communities. Currently, the Virile Crayfish is not found within Lake Lynn, however there are some close established populations in Maryland to the east of the project in the Youghiogheny and North Branch Potomac Drainages (Durland 2024).

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Figure 4-27 Map of Virile Crayfish Distribution in the Lower 48 States of United States of America (Durland 2024)

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Silver Carp – The silver carp is native to Asia, Russia, Eastern China, and northern Vietnam.

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This species was introduced to North America by importation and stocking to control phytoplankton in eutrophic waters and as a source of food. The silver carp was raised in six state, federal, and private facilities in the 1970's and by 1980 it was found in natural waters, likely escaping from aquacultural facilities. Impacts from introduction of silver carp in non-native waters includes impacts to zooplankton communities, which can cause tropic levels of fish community changes as it out competes native fishes. This species is also known for jumping out of the water when startled by boats, which can present a hazard to boaters and cause injury. Currently, the silver carp is found in 12 states (Figure 4-27). The closest locations to Lake Lynn where these fish are found is the Raccoon-Symmes and the Upper Ohio-Shade River Drainages. There are no reports of Silver Carp being found within Lake Lynn or waters nearby (Nico et. al 2024).

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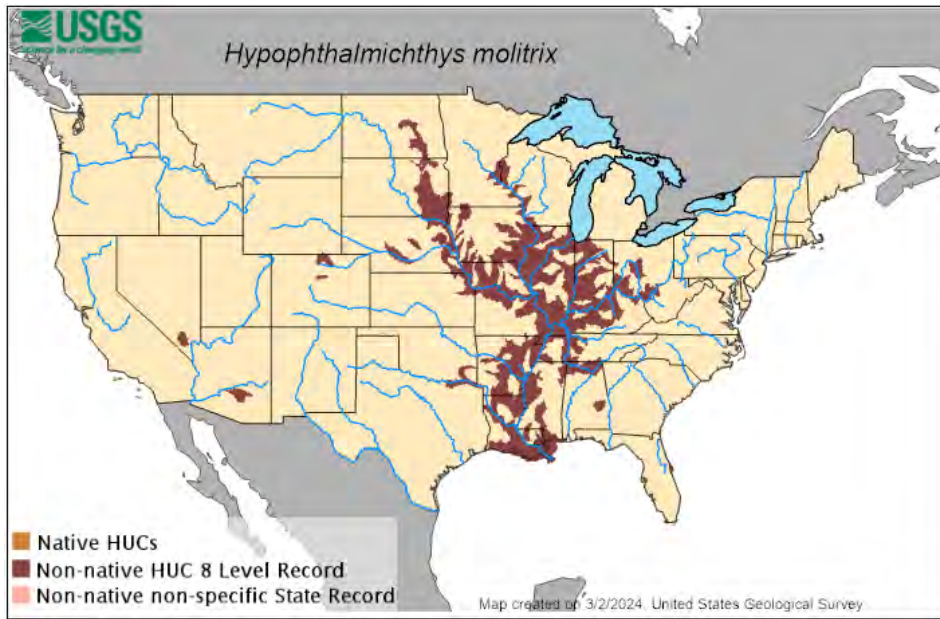


Figure 4-28 Map of Silver Carp Distribution in the Lower 48 States of United States of America (Nico et. al 2024)

4.5.2 Environmental Effects

4.5.2.1 Effects of the Proposed Action

The proposed action (i.e., continued operation of the Lake Lynn Project as a dispatchable peaking facility with storage capability with existing minimum flow requirements) is not expected to adversely affect fish and aquatic resources in the Cheat River or in Cheat Lake. The Licensee is proposing no changes to operations and will maintain existing seasonal elevations and minimum flow requirements to maintain aquatic habitat in the impoundment and in the Cheat River downstream of the Lake Lynn Project. The removal of lands from the existing Lake Lynn Project boundary is not expected to adversely affect aquatic resources or habitats. Peaking operations typically occur in the winter for five hours in the morning and for five hours in the afternoon. In the summer peaking operations typically occur for five hours in the evening. The typical drawdown rate is 0.2-

0.4 feet per day. Due to the limited drawdown rate, the continuation of peaking operations are not expected to impact fish or aquatic resources within the Lake Lynn Project Area.

The licensee follows best practices for drawdown and refill regimes when maintenance drawdowns are required. The licensee consults with pertinent resource agencies regarding the timing and duration of periodic maintenance drawdowns. In the case of a drawdown, the licensee would continue to pass required minimum flows to protect downstream reaches.

The fisheries assemblage in Cheat Lake and the Cheat River has improved in species abundance and richness over recent years. Managed recreational fisheries such as the walleye fishery, have demonstrated an increase in natural reproduction. There is no EFH identified in the vicinity of the Lake Lynn Project, therefore continued operation will not adversely affect EFH. Additionally, due to the lack of historical and limited contemporary evidence of diadromous fish in the Lake Lynn Project area, the proposed action is not expected to adversely affect diadromous fish populations.

Water quality in the Lake Lynn Project area is adversely affected by AMD, which may affect aquatic organisms that lack mobility, such as freshwater mussels. AMD effects and overall water quality may be improving, as demonstrated by an improvement in macroinvertebrate communities. Overall macroinvertebrate abundance has increased, and sensitive species (Mayfly and Stonefly taxa) were identified during the most recent surveys, which are indicators of good water quality.

The Licensee will continue to provide access for recreational fishing via a tailrace fishing area, Cheat Lake Park, and the public boat launch. These angling opportunities within the Lake Lynn Project area will be maintained by the Licensee as part of the proposed action.

The licensee has conducted a number of biological monitoring studies in Cheat Lake and in the tailwater since 1997, in accordance with the current FERC License. Biological surveys were also conducted by WVDNR in 2005 and 2008 and by WVU in 2011, 2014, and 2015. Researchers assessed water quality, aquatic habitat, and aquatic communities (fish and benthic macroinvertebrates). Freshwater mussel, American eel eDNA, water quality monitoring and aquatic habitat studies have also been conducted in the Lake Lynn Project area by the Licensee and other researchers. Lake Lynn is not proposing to discontinue the triennial update to the biological monitoring plan for conducting biological monitoring studies.

4.5.2.2 Effects of the No-Action Alternative

The effects of the No Action Alternative mimic the anticipated effects of the proposed action because the licensee is proposing no changes to existing facilities or operations.

4.5.3 Unavoidable Adverse Effects

The proposed operation and relicensing of the Lake Lynn Project with operational PME measures (i.e., pond elevation restrictions, angling access, seasonal minimum flow requirements) is not expected to result in any unavoidable adverse effects to fish or aquatic resources.

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4.6 Wildlife Resources

4.6.1 Affected Environment

The Cheat River watershed occupies three geographic ecoregions including the Central Appalachian Forest, the CSRV, and the Western Allegheny Plateau. Approximately 54 percent of the Cheat River basin is contained within the Central Appalachian ecoregion, which is characterized by rugged, mountainous terrain, cooler temperatures, and biologically diverse natural communities (WVDEP 2013). The Ridge and Valley ecoregion encompasses nearly 45 percent of the Cheat River watershed and is marked by a series of mountain ridgelines and valleys. Only about 1 percent of the watershed occurs within the Western Allegheny Plateau ecoregion. This ecoregion is comprised of rolling hills with wide valleys dominated by mixed oak forest and agricultural (WVDEP 2013). The Cheat River watershed is dominated by forested area (86 percent); the remaining land cover is classified as developed (8 percent), planted/cultivated (6 percent), and impervious surface area (<1 percent) (WVDEP 2013).

4.6.1.1 Wildlife Habitats

The natural communities (see section 4.7, *Botanical Resources*) within the Lake Lynn Project vicinity provides habitat for a variety of wildlife species, including over 200 resident and transient bird species, 50 mammal species, and 37 amphibian species with the potential to occur in the Lake Lynn Project area (WVDNR 2001, WVDNR 2003, PGC 2019, Marshall 2019, BBC 2014, and Sibley 2014). Additionally, there are four Nature Viewing/Wildlife Habitat areas located within the Project Boundary (see Figure 4-41 Figure 4-37 in Section 4.9, Recreation, for a map of these areas). These areas are not developed, have no plans for development and are reserved for natural habitat for the local wildlife.

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4.6.1.2 Wildlife

4.6.1.2.1 Mammals

The Cheat River corridor potentially provides habitat to over 50 mammal species (WVDNR 2001, WVDNR 2003, and PGC 2019). Habitat within the Lake Lynn Project boundary is mostly aquatic with limited terrestrial habitat. Many of the mammalian wildlife species are likely to use the riparian corridor for movement and foraging. While some mammals such as red fox, raccoon, Virginia opossum, gray squirrel, and striped skunk are likely common along the riparian corridors associated with the Lake Lynn Project boundary, larger mammal species such as black bear may be transient within the Lake Lynn Project

boundary. Grasslands and agricultural areas are generally uncommon within the Lake Lynn Project boundary; however, several areas of open grassland and agriculture occur within the Lake Lynn Project vicinity. Mammals typically found in open areas or grassland habitats include eastern cottontail rabbits and rodents such as the meadow-jumping mouse. Several bat species may also use terrestrial habitat and manmade structures in and adjacent to the Lake Lynn Project boundary. Beaver, fisher, and river otter were eradicated in the past, but were reintroduced in the 1930s, 1969, and 1985, respectively (WVDNR 2001). Appendix E lists mammal species which may occur within a 5-mile radius of the Lake Lynn Project dam (WVDNR 2001, WVDNR 2003, and PGC 2019).

4.6.1.2.2 Amphibians and Reptiles

Reptiles and amphibian species may use different habitat types including riparian, woodlands, scrub-shrub, or grasslands and early successional areas. These species have different habitat requirements depending on life stage or time of year. Amphibians and reptiles that may be found in wetland or aquatic habitat such as the open water impoundment or tributaries during one or more life stage include frogs, salamanders, and turtle species, as well as the northern water snake. These species use wetland and aquatic habitat for breeding, foraging, and protection. Species such as black ratsnake, spotted salamander, red spotted newt (eft form), and grey tree frog use forested areas, including riparian areas, for foraging, shelter, and feeding. Grasslands and agricultural areas may be used by the northern black racer, eastern American toad, and eastern garter snake (Alden et al., 1999, Marshall 2019). Appendix E lists resident amphibian species that could occur in Cheat River habitats within a 5-mile radius of the Lake Lynn Project dam.

4.6.1.3 Birds

There are over 200 resident and transient bird species found in the Cheat River corridor (BBC 2014, Sibley 2014). Habitats associated with the Lake Lynn Project, including the impoundment, tributaries, wetlands, and riparian areas, may provide breeding habitat, migratory stopovers, and wintering habitat for a variety of bird species. Bird species typically found along the shoreline of the impoundment may include belted kingfisher, song sparrow, bank swallow, and waterfowl such as the mallard duck and wood duck. Birds of prey such as bald eagle, osprey, red-tailed hawk, and barred owl may use many different habitat types on a seasonal basis including forests, scrub-shrub or early successional areas, wetlands, and open water (Stokes 1996). Appendix E lists bird species that may occur or use the habitat within a 5-mile radius of the Lake Lynn Project dam.

4.6.2 Environmental Effects

4.6.2.1 Effects of the Proposed Action

Lake Lynn is not proposing any changes to operations or to the Lake Lynn Project facilities (e.g., dam or powerhouse). The proposed action does not include any ground-disturbing activities; therefore, no adverse effects on wildlife resources are anticipated. The removal of lands from the existing Lake Lynn Project boundary is not expected to adversely affect terrestrial resources or habitats. [All nature viewing/wildlife habitat areas will remain within the proposed Project boundary.](#) Peaking operations typically occur in the winter for five hours in the morning and for five hours in the afternoon. In the summer peaking operations typically occur for five hours in the evening. The typical drawdown rate is 0.2-0.4 feet per day. Due to the limited drawdown rate, the continuation of peaking operations are not expected to impact terrestrial resources or habitats within the Lake Lynn Project Area.

4.6.2.2 Effects of the No-Action Alternative

The effects of the no-action alternative mimic the anticipated effects of the proposed action because the Licensee is proposing no changes to existing facilities or operations.

4.6.3 Unavoidable Adverse Effects

Continued operation and relicensing of the Lake Lynn Project along with PME measures are not expected to have unavoidable adverse effects on wildlife resources.

4.6.4 References

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4.7 Botanical Resources

4.7.1 Affected Environment

4.7.1.1 Upland Botanical Resources

Geographic information system (GIS) analysis of NatureServe land cover data revealed that a majority of the landcover within 1 mile of the Lake Lynn Project boundary is forested habitat (Table 4.17, [Figure 4.20](#)). In addition to forested communities, other upland communities in the Lake Lynn Project vicinity include agricultural fields, developed-open space (e.g., golf course), and some residential areas (NatureServe 2009).

The most prominent forested botanical communities within a mile of the Lake Lynn Project boundary include the southern and central Appalachian cove forest and the south-central interior mesophytic forest accounting for over 41 percent of the overall area within 1 mile of the Lake Lynn Project boundary (over 46 percent of the terrestrial area). Other forested communities include northeastern interior dry-mesic oak forest, Allegheny-Cumberland dry oak forest and woodland, and Appalachian (hemlock)-northern hardwood forest. Appendix E lists botanical species that may occur within a 1-mile radius of the Lake Lynn Project boundary.

Table 4.17 Botanical Communities within 1 Mile of Lake Lynn Project Boundary

Botanical Community	% of Project Area
Southern and Central Appalachian Cove Forest Southern and Central Appalachian Cove Forest	27.2 27.3
South-Central Interior Mesophytic Forest South-Central Interior Mesophytic Forest	14.3 14.1
Open Water Open Water	10.4 10.4
Developed-Open Space Developed-Open Space	9.5 9.4
Agriculture - Pasture/Hay Agriculture - Pasture/Hay	9.4 9.3
Northeastern Interior Dry-Mesic Oak Forest Northeastern Interior Dry-Mesic Oak Forest	8.6 8.9
Allegheny-Cumberland Dry Oak Forest and Woodland Allegheny-Cumberland Dry-Oak Forest and Woodland	6.6 6.5
Appalachian (Hemlock)-Northern Hardwood Forest Appalachian (Hemlock)-Northern Hardwood Forest	6.1 6.1

Botanical Community	% of Project Area
Developed-Low Intensity Developed-Low Intensity	3.0 2.9
Ruderal Forest Ruderal Forest	1.6 1.5
Managed Tree Plantation Agriculture - Cultivated Crops and Irrigated Agriculture	0.9 1.0
Agriculture - Cultivated Crops and Irrigated Agriculture	0.9
Developed-Medium Intensity	0.8
Appalachian Shale Barrens	0.3
Non-Specific Disturbed	0.1
Central Appalachian Dry Oak-Pine Forest	0.1
Total of "Other" Communities with less than 1% coverage	2.5
Total	100.0

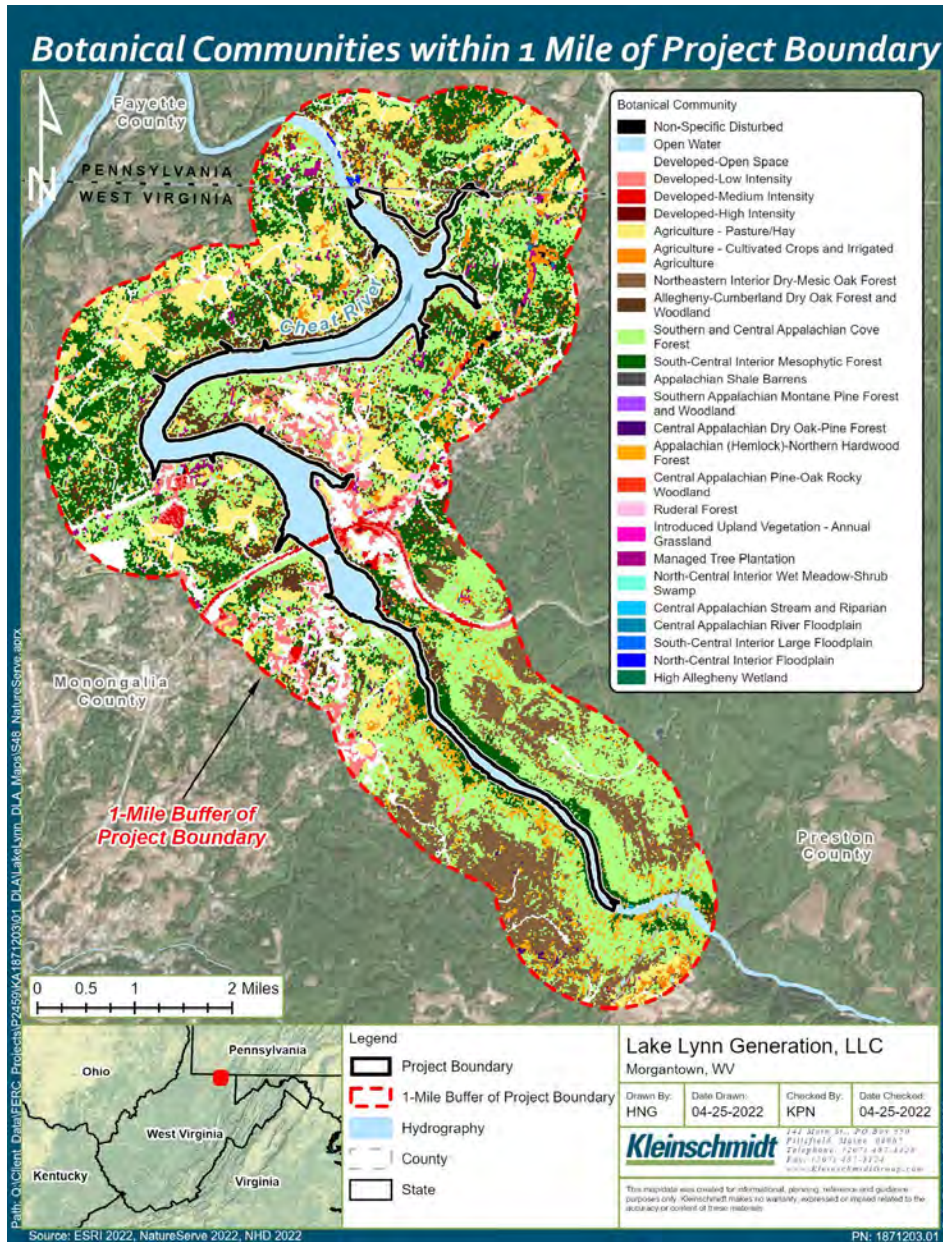
Source: NatureServe 2009

Within the existing Lake Lynn Project boundary, over 77 percent of the area is open water (lacustrine and riverine wetlands associated with Cheat Lake and Cheat River) (Table 4.18, ~~Figure 4.21~~ through ~~Figure 4.26~~). See Section ~~4.7.10~~ for additional information about wetlands. Upland communities are predominantly forested with southern and central Appalachian and Allegheny-for almost 67 percent (350 acres) of the upland area. These communities also represent the greatest change in acreage between the existing Lake Lynn Project boundary and the proposed Lake Lynn Project boundary with a combined reduction of almost 170 acres. Other forested communities include Appalachian (hemlock)- northern hardwood forest, south-central interior mesophytic forest, ruderal forest, and northeastern interior dry-mesic oak forest. Other non-forested upland communities found within the Lake Lynn Project boundary include Appalachian shale barrens, developed areas, floodplains, and agricultural areas (e.g., pastures, cultivated crops, and tree plantations) (~~Figure 4.30~~ through ~~Figure 4.35~~). Table 4.18 gives an overview of the botanical communities found within the existing and proposed Lake Lynn Project boundary along with the area change among these communities.

Table 4.18 Botanical Communities within the Existing and Proposed Lake Lynn Project Boundary

Botanical Community	Area - Existing Project Boundary (Acres)	Area - Existing Project Boundary (%)	Area - Proposed Project Boundary (Acres)	Area - Proposed Project Boundary (%)	Area Change Between Existing and Proposed Project Boundary (Acres)
Open Water (Lacustrine and Riverine Wetlands)	1802.91	78.777	1739.11	85.00	-63.8
Southern and Central Appalachian Cove Forest	189.71	8.38	128.61	6.30	-61.2
Allegheny-Cumberland Dry Oak Forest and Woodland	139.51	6.16	77.56	3.80	-62.0
Developed-Open Space	54.05	2.42	28.52	1.40	-25.5
Appalachian (Hemlock)-Northern Hardwood Forest	33.93	1.51	17.91	0.90	-16.1
South-Central Interior Mesophytic Forest	27.33	1.21	21.65	1.10	-5.7
Developed-Medium Intensity	11.81	0.50	10.81	0.50	-1.0
Agriculture - Pasture/Hay	9.29	0.40	3.43	0.20	-5.8
Ruderal Forest	5.15	0.20	3.73	0.20	-1.4
North-Central Interior Floodplain	3.73	0.20	3.71	0.20	0.0
Developed-Low Intensity	3.33	0.10	2.43	0.10	-0.90
Managed Tree Plantation	2.93	0.10	2.71	0.10	-0.2
Northeastern Interior Dry-Mesic Oak Forest	2.82	0.10	2.52	0.10	-0.3
South-Central Interior Large Floodplain	1.71	0.10	1.70	0.10	0.0
Developed-High Intensity	0.91	0.00	0.92	0.00	0.00
Appalachian Shale Barrens	0.91	0.00	0.70	0.00	-0.2
Non-Specific Disturbed	0.90	0.00	0.90	0.00	0.00
Total	2290.52	100%	2046.61	100%	-243.80

Source: NatureServe 2009



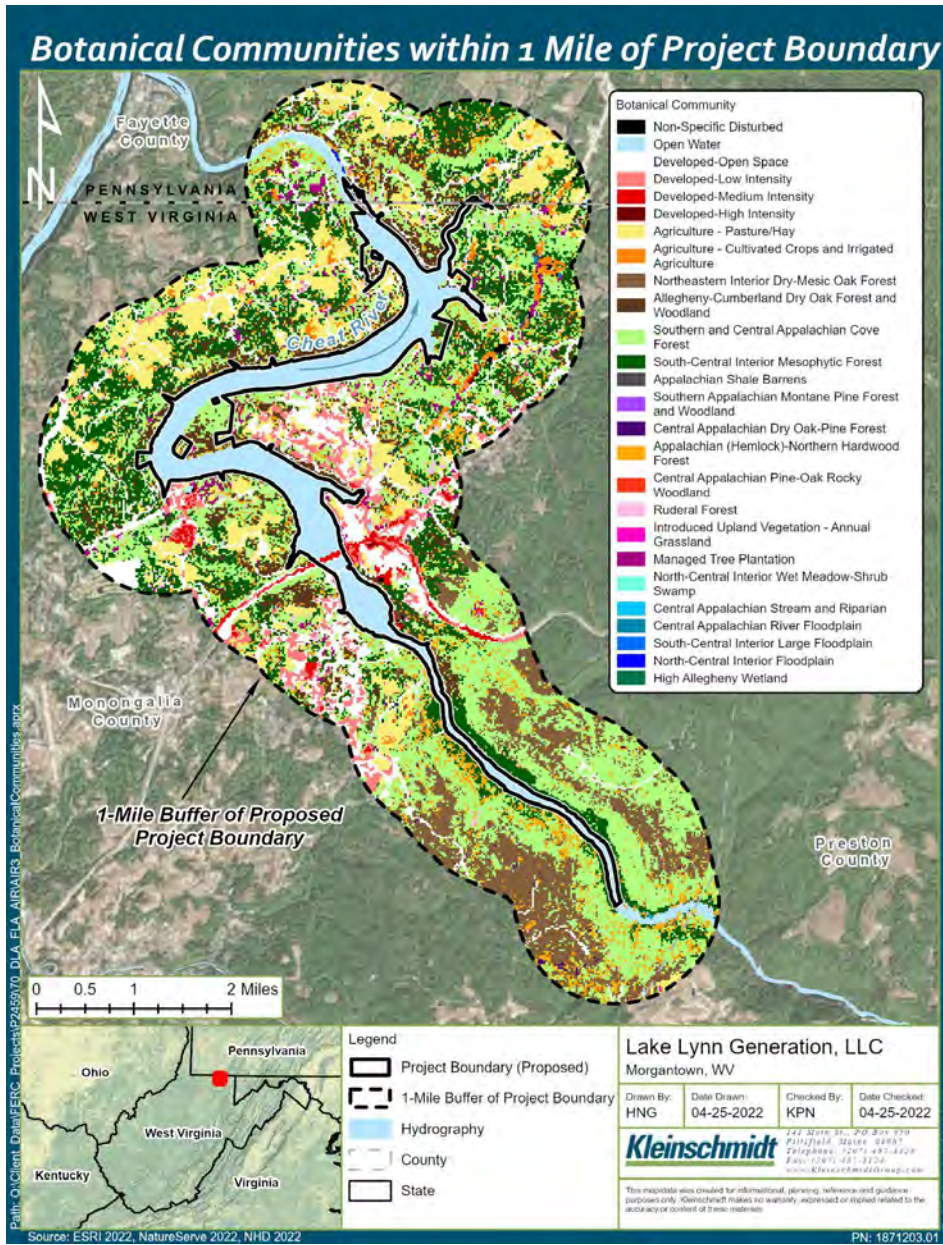


Figure 4-294.20 Botanical Communities within 1 Mile of Lake Lynn Project

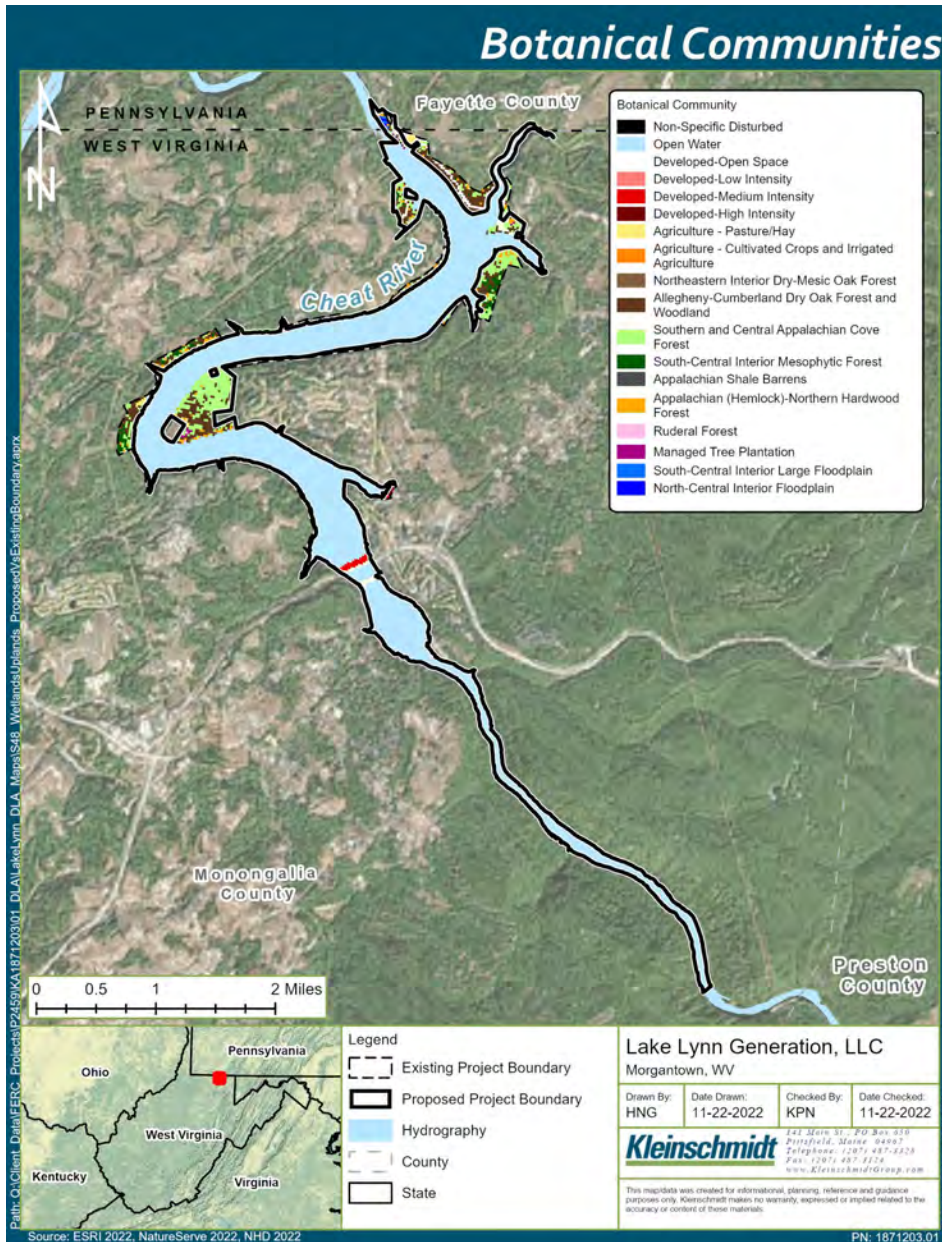


Figure 4-304.21 Botanical Communities within the Proposed and Existing Project Boundaries

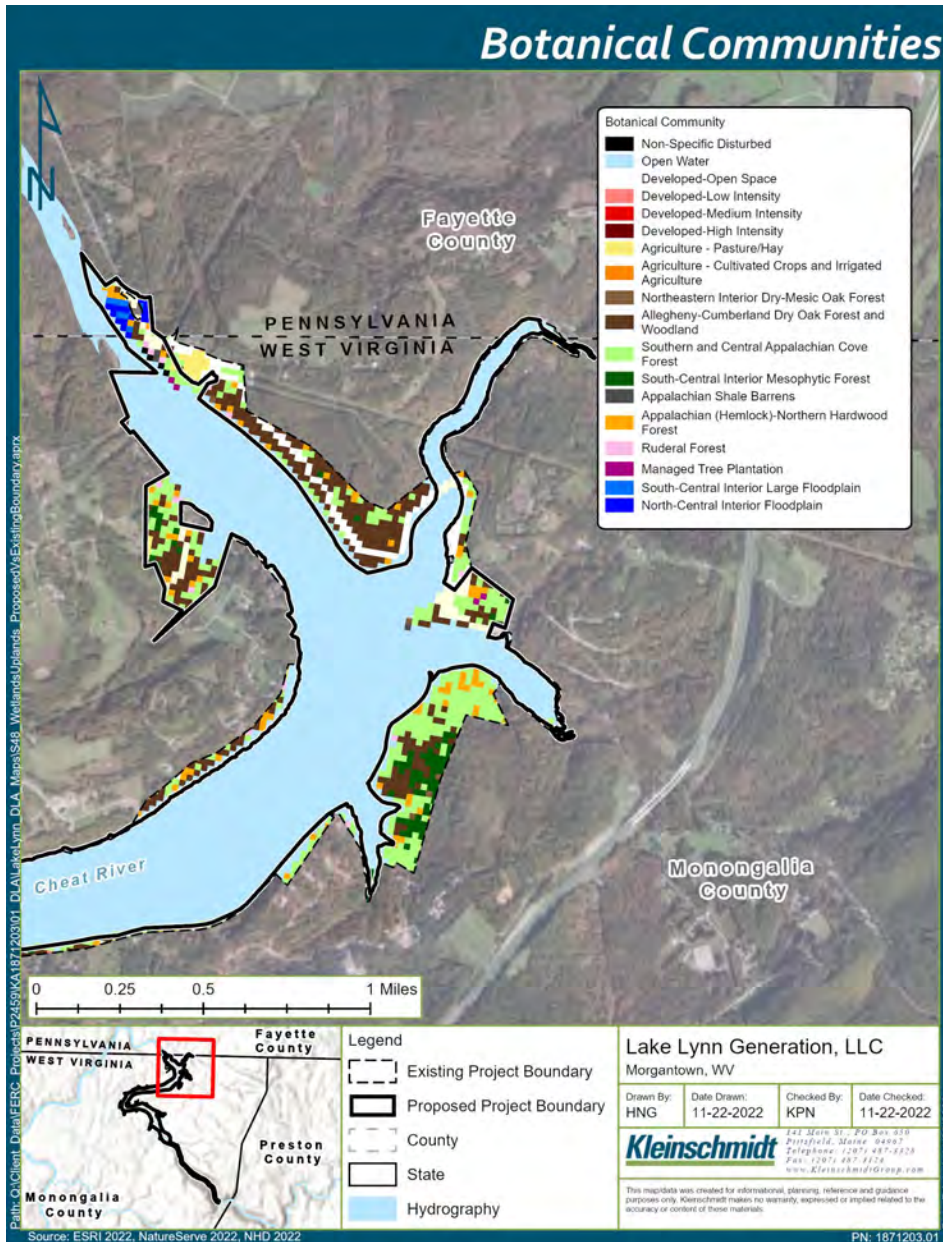


Figure 4-314.22 Botanical Communities within the Proposed and Existing Project Boundaries

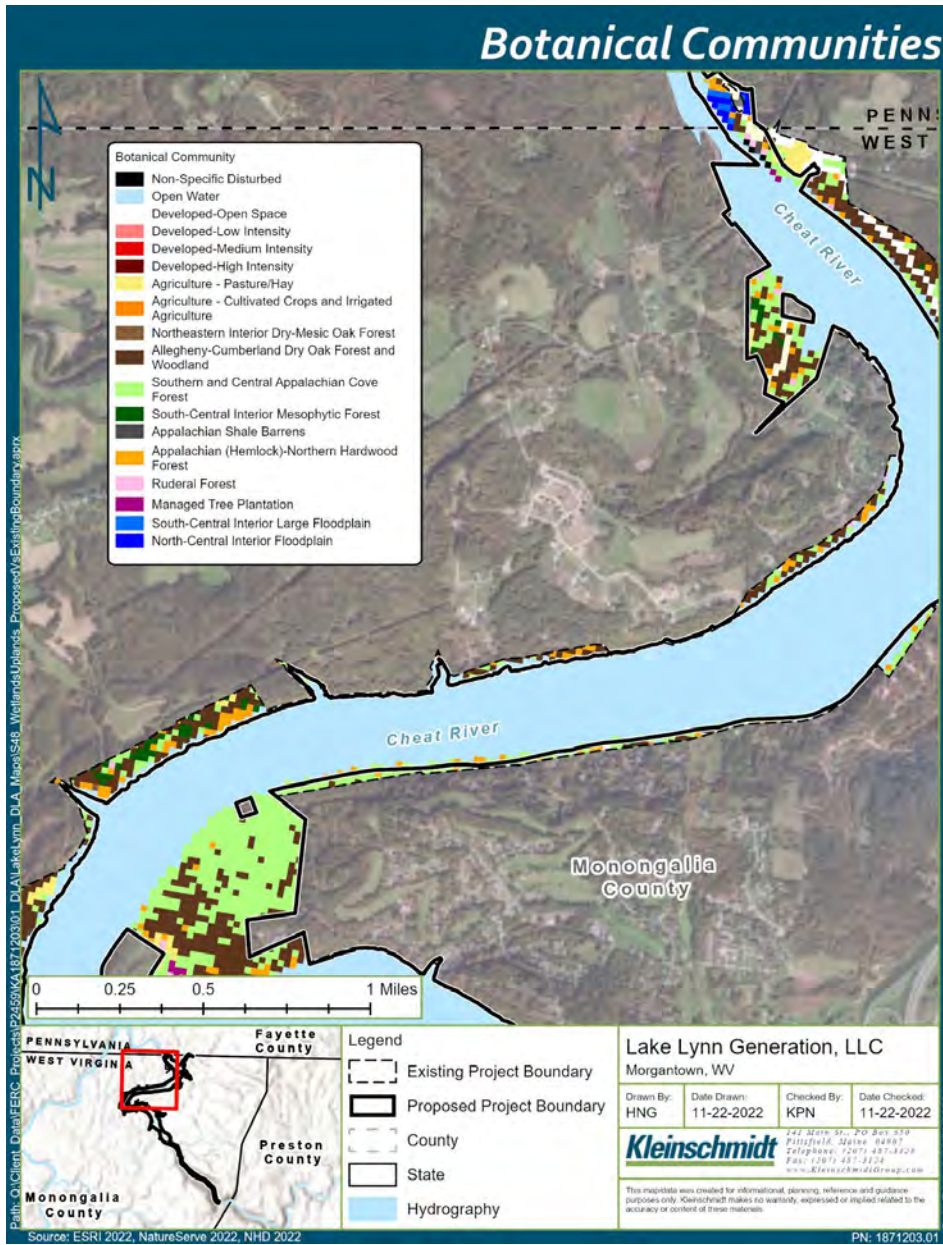


Figure 4-324.23 Botanical Communities within the Proposed and Existing Project Boundaries

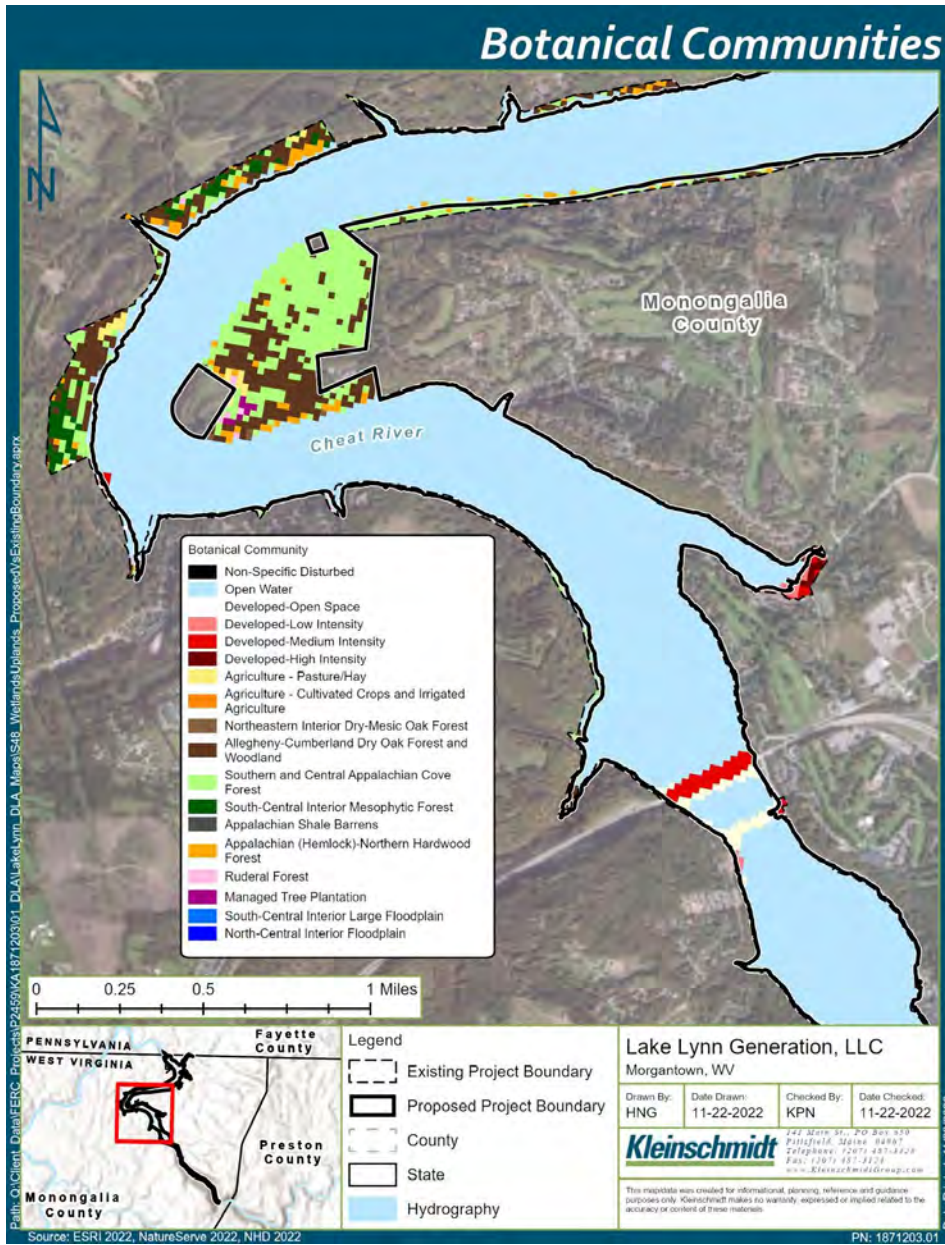


Figure 4-334.24 Botanical Communities within the Proposed and Existing Project Boundaries

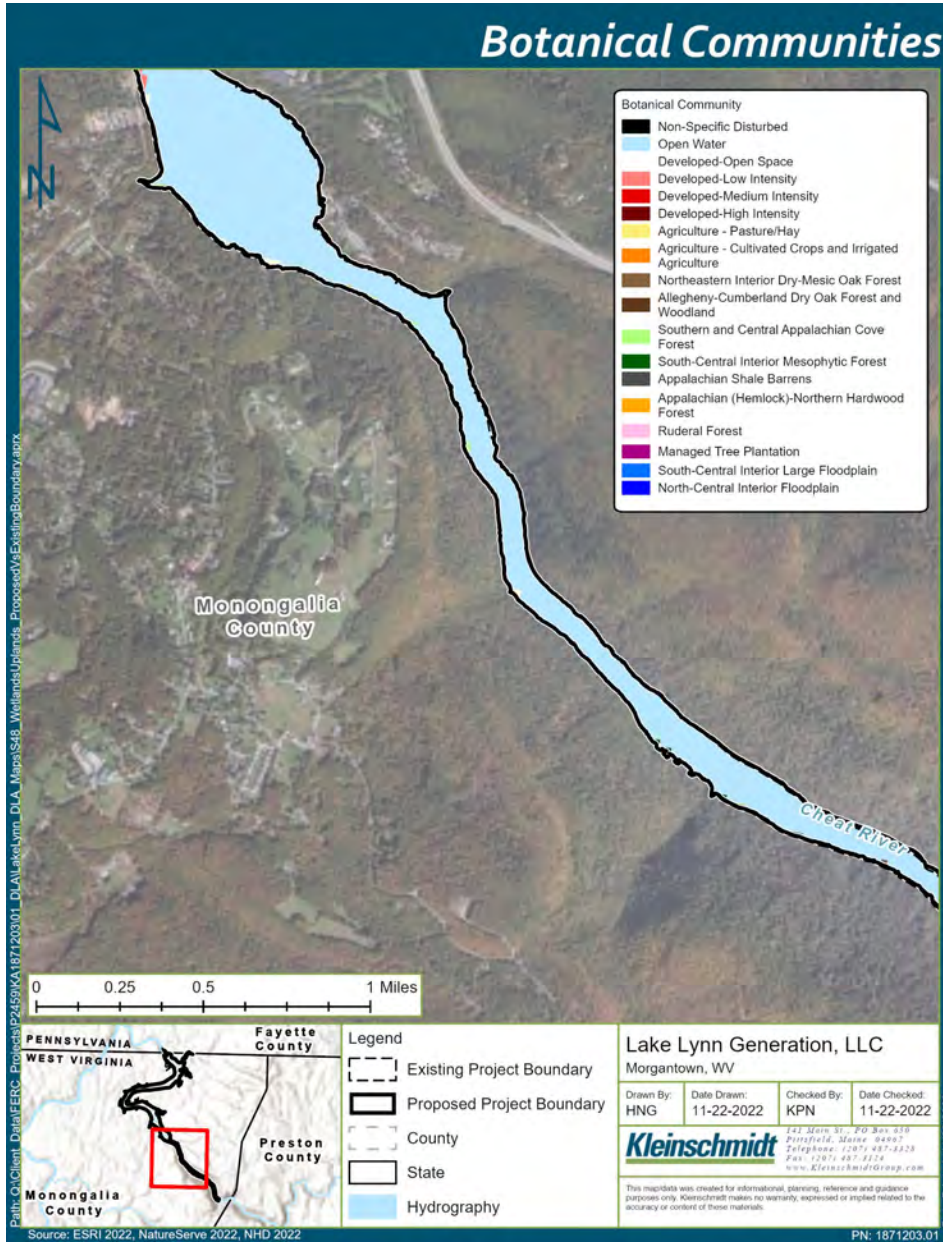


Figure 4-344.25 Botanical Communities within the Proposed and Existing Project Boundaries

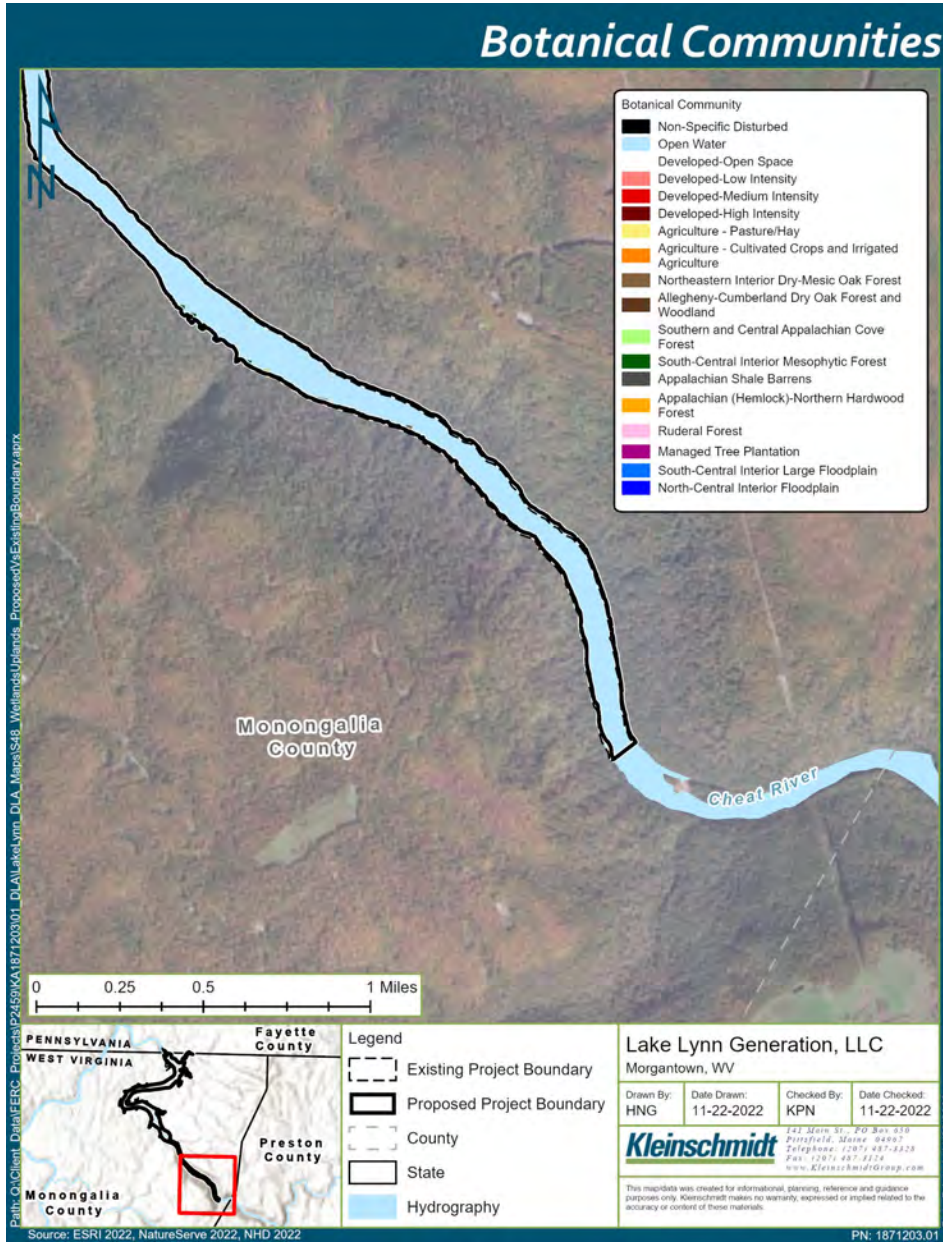


Figure 4-354.26 Botanical Communities within the Proposed and Existing Project Boundaries

Southern and Central Appalachian Cove Forest

The southern and central Appalachian cove forest is the most abundant vegetative community within 1 mile of the Lake Lynn Project boundary accounting for over 27 percent of the overall study area (Table 4.17, ~~Figure 4-29~~~~Figure 4.20~~~~Figure 4.20~~). This forest is generally found in protected geographic positions with concave slopes that support moist conditions. This community may include a mosaic of acidic and "rich" coves, which are distinguished by differences in the herbaceous plant communities. The acidic cove is typically found on low slope positions, but can may be positioned farther up on north-facing, sheltered slopes. The soils of the acidic cove are less fertile, and the herbaceous layer is not as diverse. The rich cove is usually found on the lowest slope positions on high-fertility soils and have a higher diversity and density of herbaceous species. Dominant tree species include yellow poplar, American basswood, white ash, yellow buckeye, sweet birch, mountain magnolia, cucumber tree, mountain silverbell, black cherry, and eastern hemlock. Herbaceous species may include blue cohosh, Clayton's sweetroot, Canadian woodnettle, bloodroot, black cohosh, and Canadian white violet (NatureServe 2009).

South-Central Interior Mesophytic Forest

This forest community is similar to the southern and central Appalachian cove forest and is typically found on deep, enriched soils in sheltered landscape positions such as coves or lower topographic positions along slopes. The forest type is variable but is generally characterized by deciduous tree canopy and a rich herb layer with abundant spring ephemerals. Small streams often bisect this community. Common tree species include sugar maple, American beech, yellow poplar, American basswood, northern red oak, cucumber tree, black walnut, and eastern hemlock (NatureServe 2009).

Northeastern Interior Dry-Mesic Oak Forest

This oak dominated forest is typically found a low to mid elevations on flat to gently rolling landscapes. Soils are not strongly xeric but are generally acidic and comparatively nutrient poor. This forest community is typically characterized by a closed canopy; however, this community may also include patchy-canopy woodlands. Common canopy trees include northern red oak, white oak, black oak, scarlet oak, and hickory species (NatureServe 2009).

Allegheny-Cumberland Dry Oak Forest and Woodland

This forest type is generally characterized by a closed canopy of deciduous trees and occurs on infertile or acidic soils. Dominant overstory trees include white oak, southern red oak, swamp chestnut oak, and scarlet oak. Other species may include red maple, pignut hickory, and mockernut hickory (NatureServe 2009).

4.7.1.1.1 Invasive Plants and Noxious Weeds

Invasive plants are species intentionally or accidentally introduced by human activity into a region in which they did not evolve and cause harm to natural resources, economic activity, or humans. Invasive plants proliferate and displace native plant species, reduce wildlife habitat, and alter natural processes. According to the WVDNR, there are 633 non-native species located within the State of West Virginia. The WVDNR has developed an extensive list of invasive species inclusive of invasiveness ranking. This comprehensive list is included in Appendix E (WVDNR, 2021). Similarly, the Pennsylvania Department of Conservation and Natural Resources (PADCNR) also maintains a list of invasive species with different threat rankings. This list is also available in Appendix E (PADCNR, 2018).

Invasive species that are commonly ~~present~~ [documented](#) in the [area-vicinity](#) of the Lake Lynn Project area include Japanese Knotweed (*Fallopia japonica*), ~~G~~garlic ~~M~~ustard (*Alliaria petiolata*), the Tree of Heaven (*Ailanthus altissima*), and Oriental ~~B~~ittersweet (*Celastrus orbiculatus*), [which were most frequently encountered along the Monongahela River corridor in Pennsylvania](#) (FOC, 2019; Studio for Creative Inquiry, Carnegie Mellon, 2002). [Other invasive species observed near the Lake Lynn Project area include Common Purslane \(*Portulaca oleracea*\), Ground Ivy \(*Glechoma hederacea*\), Wine Raspberry \(*Rubus phoenicolasius*\), Smooth Bedstraw \(*Galium mollugo*\), Purple Crownvetch \(*Securigera varia*\), Multiflora Rose \(*Rosa multiflora*\), Japanese Honeysuckle \(*Lonicera japonica*\), and Morrow's Honeysuckle \(*Lonicera morrowii*\) \(EDDMapS, 2023\). Although these species were documented near Cheat Lake, none of these occurrences were within the Lake Lynn Project Boundary and were primarily restricted to roadsides.](#)

[No targeted invasive plant surveys have taken place within the Lake Lynn Project boundary; however, two invasive species have been documented. Garlic Mustard and Common Chickweed \(*Stellaria media*\) were documented in 2018 \(EDDMapsS, 2023\) along the Cheat Lake Trail, which is within the Lake Lynn Project boundary. Records of these occurrences were from iNaturalist, and the number of individuals and their approximate coverage were](#)

[not documented. Garlic mustard was recorded in 2018 at Cheat Lake \(EDDMapsS, 2023\), while Tree of Heaven, Autumn Olive \(Elaeagnus umbellata\) and Joint-head Arthraxon were \(Arthraxon hispidus\) recorded at Cheat Lake in 2006 \(iMapInvasives, 2023\)](#)

Wetlands, Riparian, and Littoral Habitat

Wetlands

Wetlands within the Lake Lynn Project boundary are primarily deep-water habitats ([Figure 4-36](#)~~Figure 4.27~~~~Figure 4.22~~, Table 4.19). The most common wetland types within the Lake Lynn Project boundary are lacustrine (L1UBHh) and riverine wetlands (R3UBH, R3USC, R5UBH) associated with Cheat Lake and Cheat River (USFWS 2022). The riverine and the lacustrine wetlands are classified by the National Wetland Inventory (NWI) as having unconsolidated bottoms (L1UBHh, R3UBH, R5UBH) and unconsolidated shores (R3USC). Unconsolidated bottoms are characterized by the *"lack of large stable surfaces for plant and animal attachment"* while unconsolidated shores are characterized by *"substrates lacking vegetation except for pioneer plants that become established during brief periods when growing conditions are favorable"* (USGS 1992). Substrate of the riverine and lacustrine wetlands likely consist of cobble, gravel, sand, mud, or organic material.

According to the NWI map, there are no palustrine wetlands within the existing or the proposed Lake Lynn Project boundary ([Figure 4-36](#)~~Figure 4.27~~~~Figure 4.22~~, Table 4.19). Palustrine wetlands are limited in size and quantity in this area due to the steep banks and sloping topography surrounding Cheat Lake and Cheat River.).

Riparian Habitat

Riparian habitat within the Lake Lynn Project area is a mix of wetlands, deciduous and mixed forest, and commercial and residential development as discussed in Section 4.7.1.1, *Upland Botanical Resources*. Dominant forest community types include southern and central Appalachian cove forest and the south-central interior mesophytic forest. Ruderal forests are also common riparian habitat. These early succession forests are often found in areas that have been disturbed by human activity such as the construction or maintenance of roads, trails, and buildings. Early successional tree species may include red cedar, pines, yellow poplar, or aspens.

Within the Lake Lynn Project area much of the riparian zone is intact, with some areas of residential development. These areas are commonly dominated by weedy or manicured

herbaceous species and an underdeveloped shrub and tree canopy due to vegetation management.

Littoral Zone

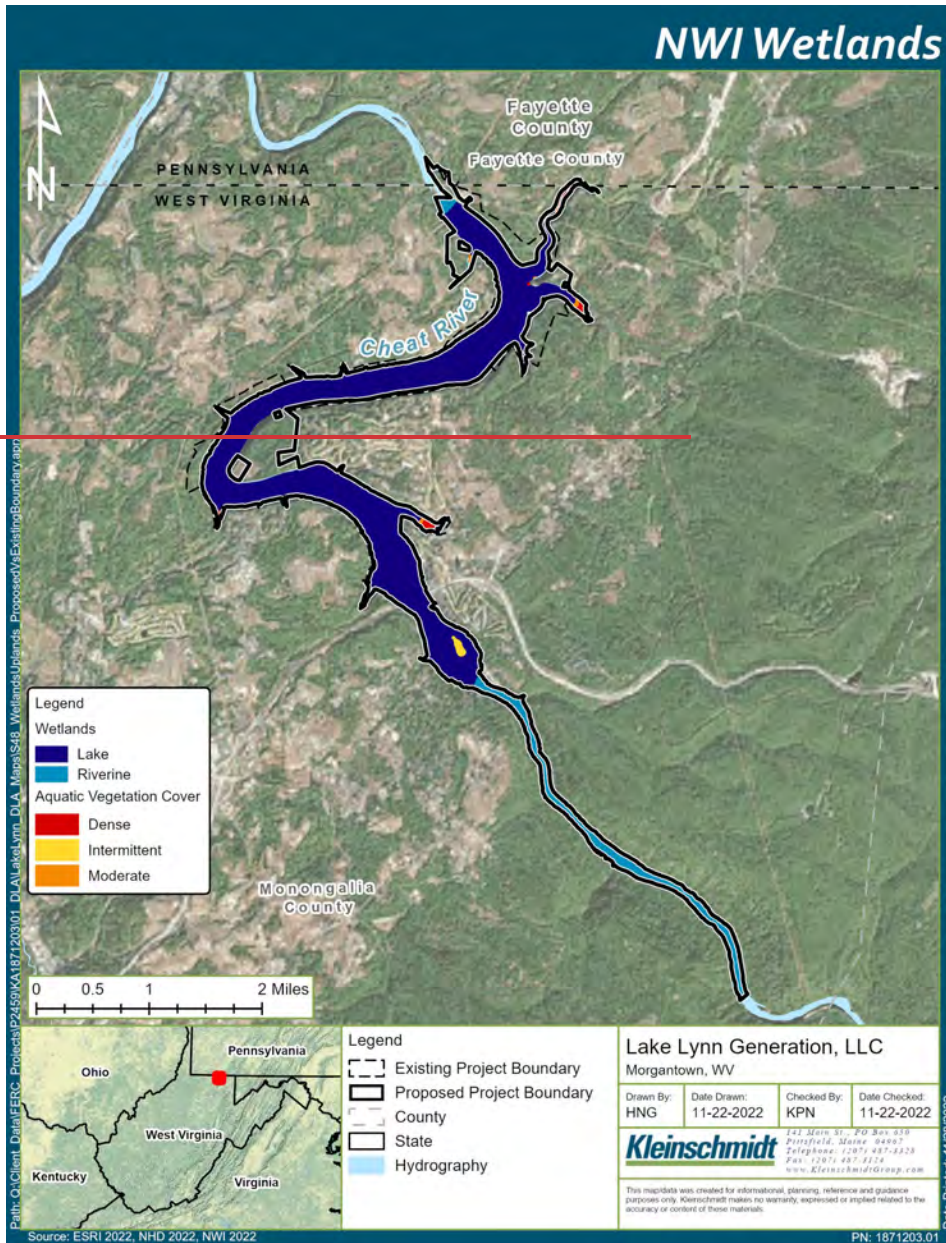
The littoral zone is the transitional area between deep-water, aquatic habitat and terrestrial wetlands or uplands. Littoral habitats include those areas of a water body through which light penetrates resulting in primary productivity (Cowardian 1979). Within the Lake Lynn Project boundary, this zone is often unvegetated with a cobble-gravel, sand, mud, or organic bottom. The Licensee worked cooperatively with WVDNR and WVU to document the distribution and relative abundance of aquatic vegetation and to map aquatic vegetation in Cheat Lake. Twenty-two separate areas of aquatic vegetation were documented within the impoundment. These areas occur throughout the impoundment along shores and in coves or other areas with slower moving water (Figure 4-27, Figure 4-27, Figure 4-36, Figure 4-37, Figure 4-38, Figure 4-39, and Figure 4-40) (Smith and Welsh, 2015). Aquatic vegetation was mostly found in depths ranging from 0.6 – 2.4 meters (2-8 feet), but some moderate patches did extend into 10 feet of water. Ten species from five genera of aquatic vegetation were in Cheat Lake. The most common species found in dense abundance during the surveys included: brittle naiad (*Najas minor*), wild celery (*Vallisneria americana*), and curly-leaf pondweed (*Potamogeton crispus*). Although several areas of substantial aquatic vegetation growth were found in Cheat Lake, overall Cheat Lake has limited coverage of aquatic vegetation.

Table 4.19 Wetlands within the Existing and Proposed Lake Lynn Project Boundary

Wetland Type	Area - Existing Project Boundary (Acres)	Area - Proposed Project Boundary (Acres)	Area Change Between Existing and Proposed Project Boundary (Acres)
Lake	1464.32898.64	1457.42916.04	-6.917.37
Riverine	214.1380.54	210.3398.26	-3.747.72
Total	1667.83279.17	1678.43314.27	-10.635.10

Source: NWI 2022

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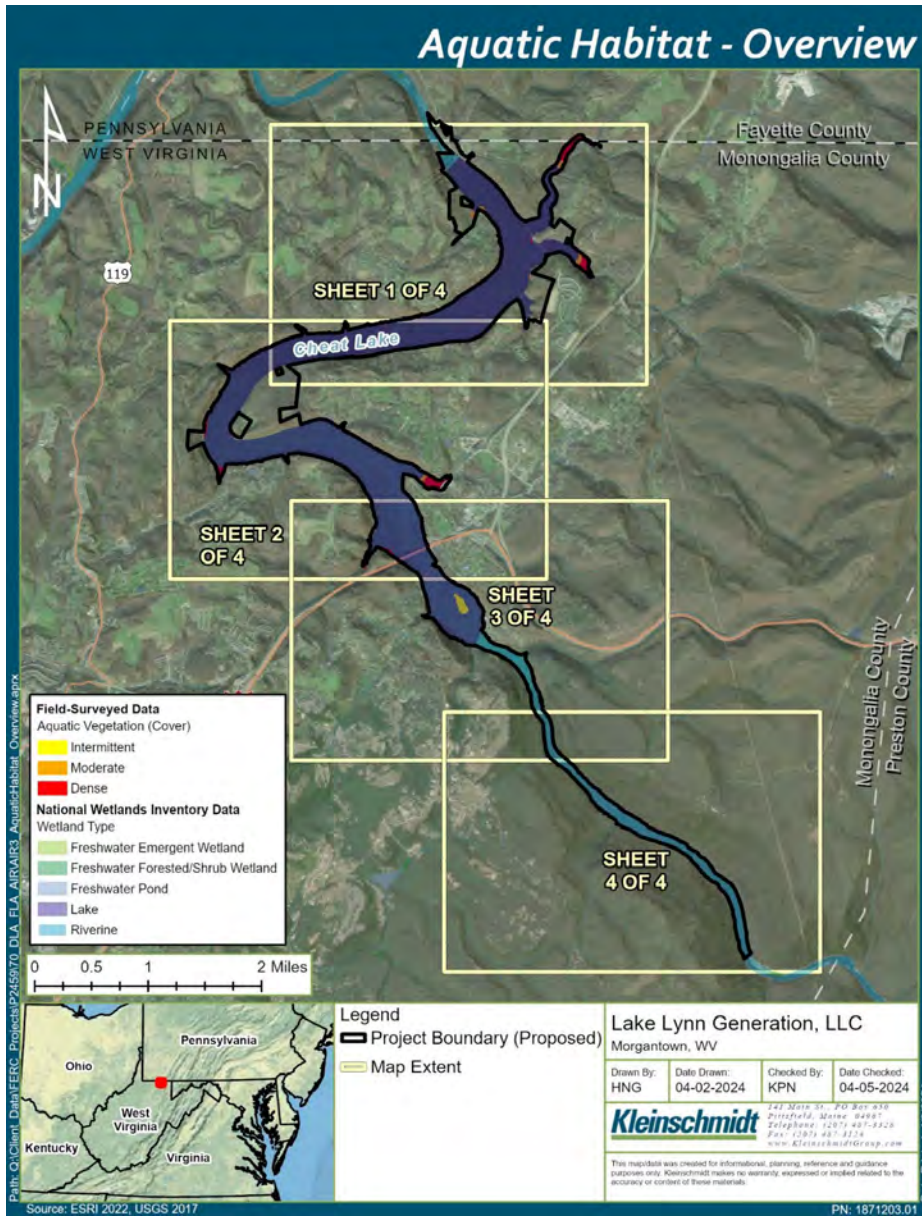
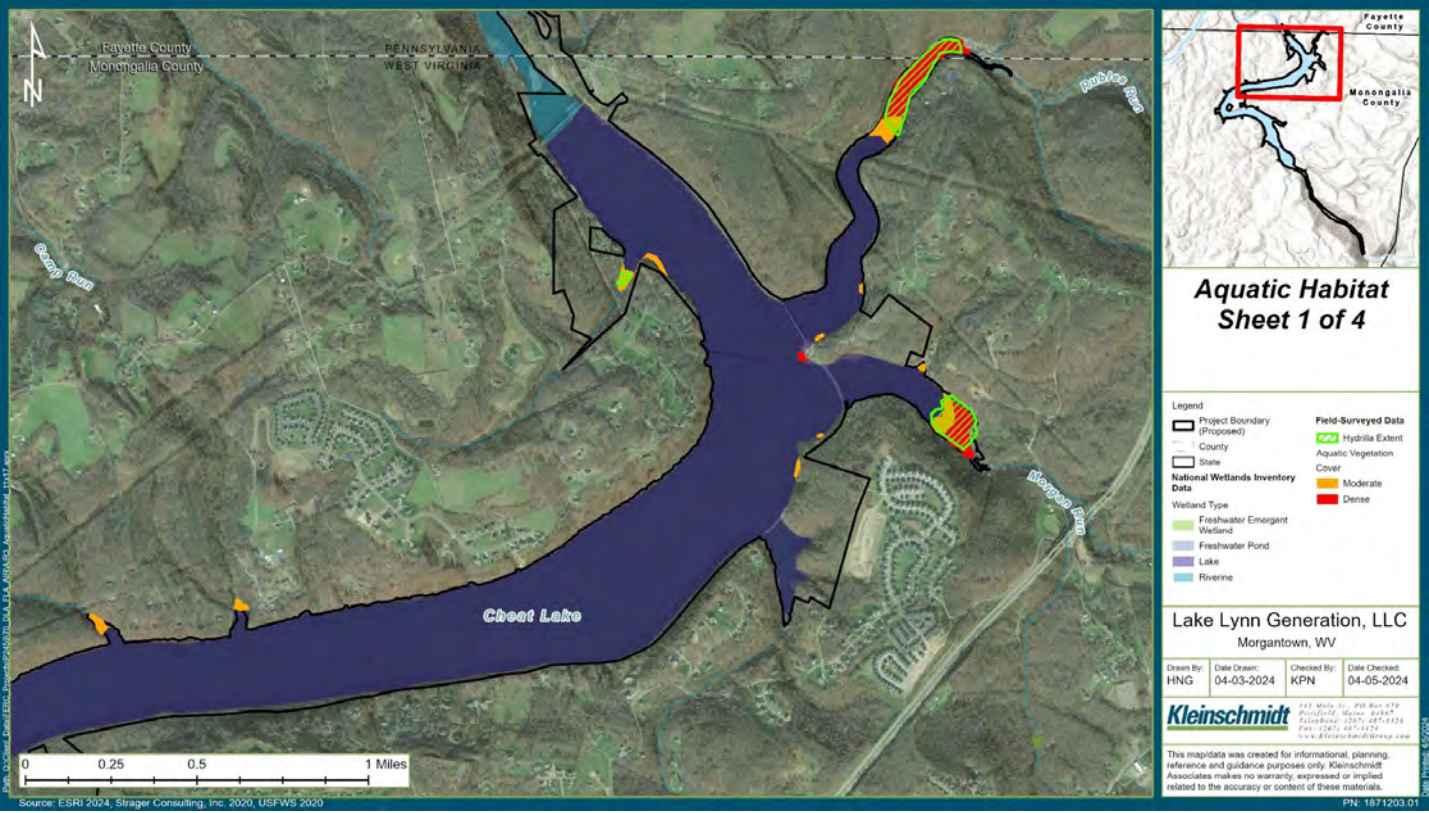


Figure 4_364-364.27 Wetlands and Aquatic Habitat in the Existing and at the Proposed Lake Lynn Project Boundary



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Figure 4-37 Wetlands and Aquatic Habitat in the Northern Portion of Lake Lynn

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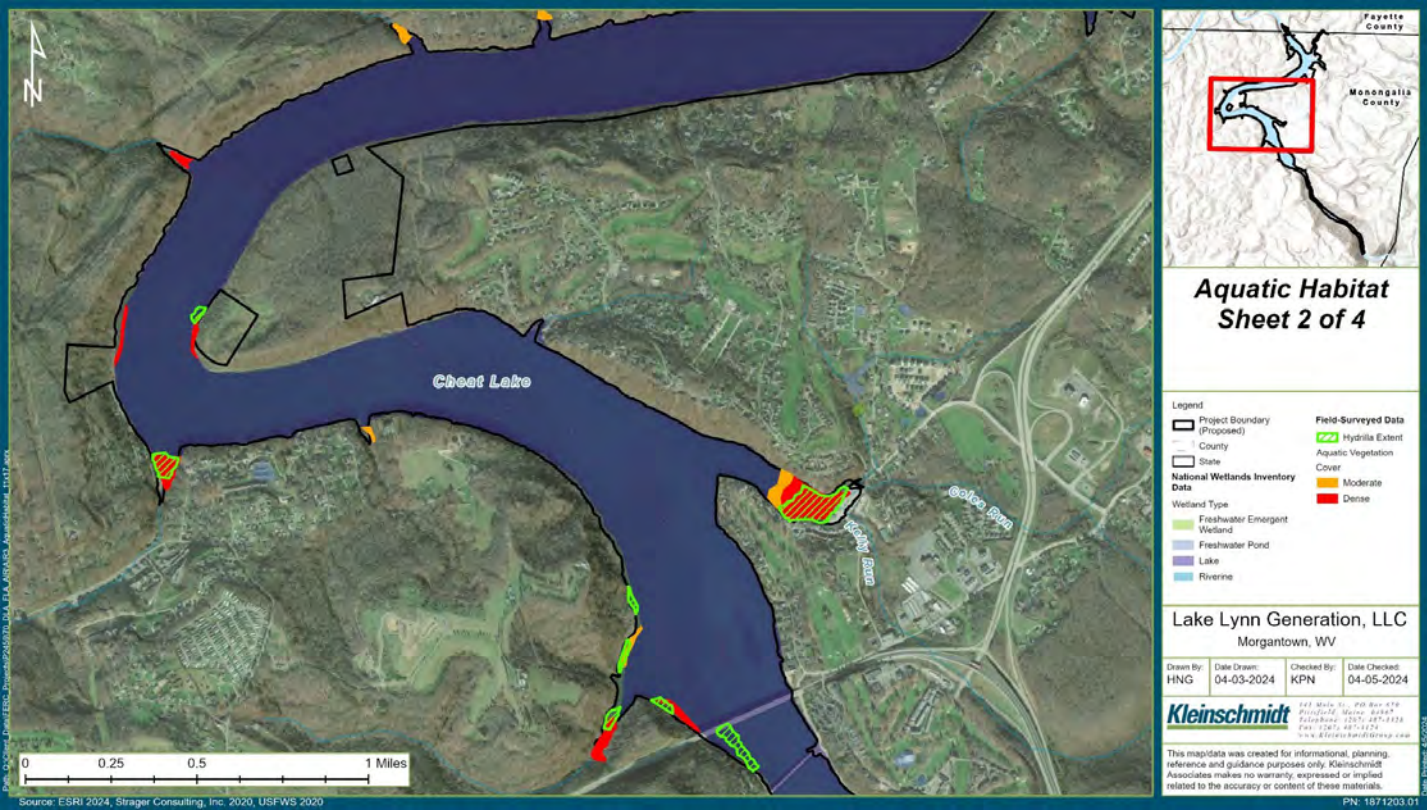
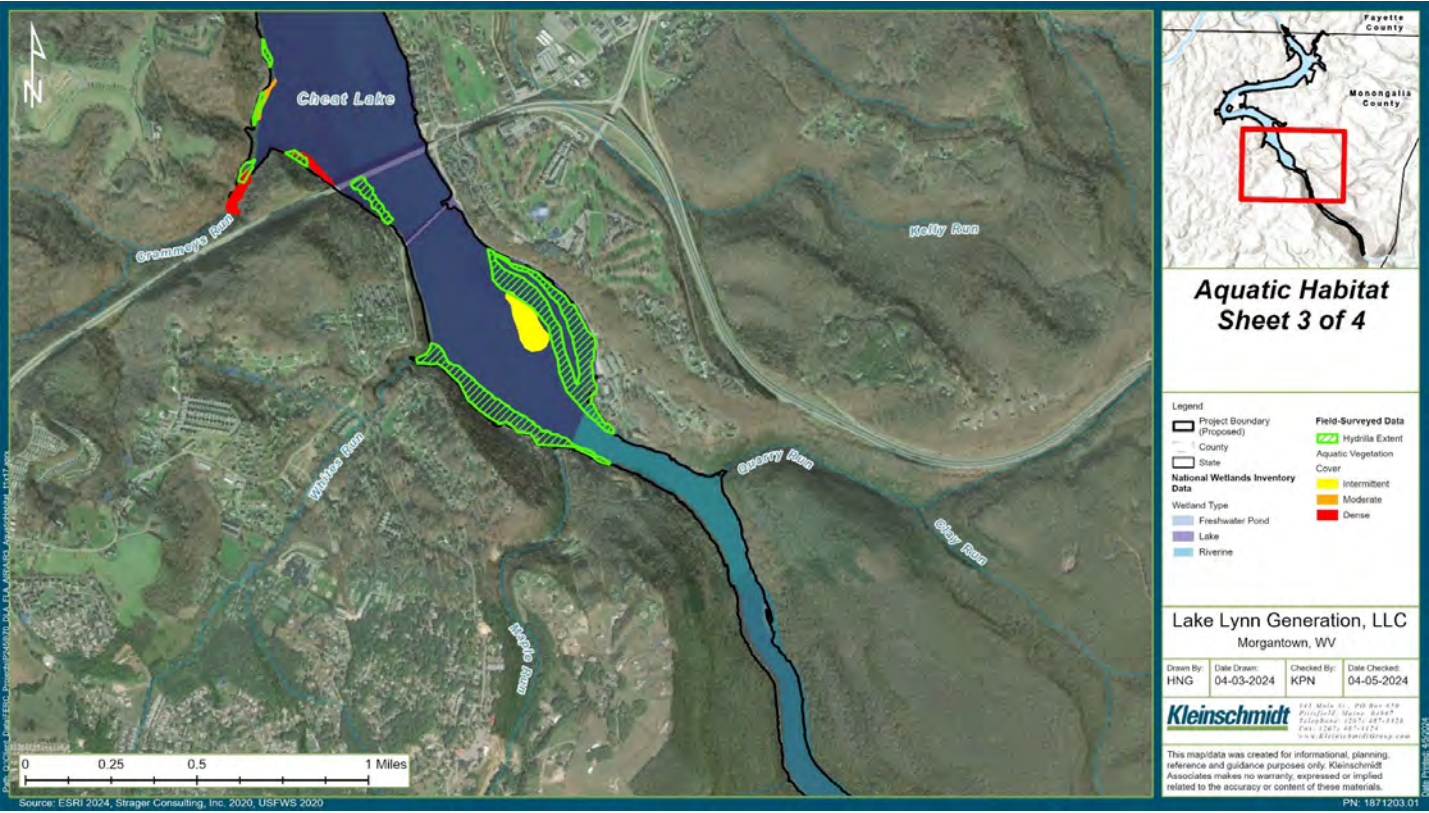


Figure 4-3837 Wetlands and Aquatic Habitat in the Upper-Middle Portion of Lake Lynn



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Figure 4-39 Wetlands and Aquatic Habitat in the Lower-Middle Portion of Lake Lynn



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Figure 4-40 Wetlands and Aquatic Habitat in the Southern Portion of Lake Lynn

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4.7.2 Environmental Effects

4.7.2.1 Effects of the Proposed Action

The Licensee is not proposing any changes to the Lake Lynn Project operations or to the Lake Lynn Project facilities (e.g., dam or powerhouse). Peaking operations typically occur in the winter for five hours in the morning and for five hours in the afternoon. In the summer peaking operations typically occur for five hours in the evening. The typical drawdown rate is 0.2-0.4 feet per day. The steep banks adjacent to Cheat River and Cheat Lake protect the botanical communities from reservoir fluctuations associated with seasonal peaking operation of the Lake Lynn Project. The proposed action does not include any ground-disturbing activities. Lake Lynn performs limited vegetation management at most of the public recreation facilities and the Lake Lynn Project powerhouse. The transmission line corridor includes shrubs, small trees, and grass. The transmission line corridor is cut every five years in accordance with North American Electric Reliability Corporation requirements. The dam abutments are trimmed manually by hand annually. The tailrace fishing platform area and parking area and the substation parking area for the Cheat Lake Trail are sprayed with herbicide every 2 years. Lake Lynn also sprays herbicide every 2 years immediately around the public safety signage and poles for the downriver warning system (measures included in the Public Safety Plan) to ensure that these measures are visible and maintained for public safety. The Cheat Lake Trail is a maintained biking and hiking trail along an old railroad bed. The shoulders of the trail are trimmed with a weed-eater as needed. Trees and shrubs at Cheat Lake Park, including the beach, and the Upper Picnic Area are trimmed as needed and the lawn areas area mowed and trimmed as needed. The Sunset Beach Marina public boat ramp is maintained as needed by weed eating. The Cheat Lake Park nature viewing area is managed as part of the Cheat Lake Park. The other three nature viewing areas are generally not actively managed for vegetation.

As such, the proposed action is not expected to adversely affect botanical communities or wetlands in the Lake Lynn Project area. The removal of lands from the existing Lake Lynn Project boundary is not expected to adversely affect botanical communities or wetlands.

Lake Lynn is proposing to develop a SMP for the Lake Lynn Project in consultation with USFWS, WVDNR, WVDEP, PADEP, PFBC, CLEAR, FOC, Monongalia County, Fayette County,

West Virginia SHPO, and Pennsylvania SHPO that would be consistent with the Standard Land Use Article of any new FERC license. The SMP would clearly outline allowed activities and procedures for Lake Lynn to grant permission for shoreline activities within the Lake Lynn Project boundary, which would balance shoreline uses with shoreline resources.

4.7.2.2 Effects of the No-Action Alternative

The effects of the no-action alternative mimic the anticipated effects of the proposed action because the Licensee is proposing no changes to existing facilities or operations.

4.7.3 Unavoidable Adverse Effects

Continued operation and relicensing of the Lake Lynn Project as proposed are not expected to have unavoidable adverse effects on botanical or wetland resources.

4.7.4 References

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4.8 Rare, Threatened, and Endangered Species

4.8.1 Affected Environment

Federal and applicable state databases were used to identify rare, threatened, and endangered (RTE) species that potentially occur at the Lake Lynn Project. The Pennsylvania Natural Heritage Program (PNHP) identified 17 RTE state listed species in the entire Cheat watershed on the environmental review list (PNHP 2019). A site-specific search on the publicly available PNHP database did not identify any state-listed species within the Lake Lynn Project boundary (PNHP 2022). West Virginia does not have state threatened and endangered species legislation (WVDNR 2022). The USFWS's Information for Planning and Consultation (IPaC) identified the following federally listed species potentially occurring within the Lake Lynn Project boundary: the endangered Indiana bat (*Myotis sodalis*), the threatened⁵ northern long-eared bat (NLEB; *Myotis septentrionalis*), the threatened flat-spined three-toothed snail (*Triodopsis platysayoides*), and the candidate monarch butterfly (*Danaus plexippus*) (USFWS 2024~~2a~~) (Table 4.20). Also included in Table 4.20 is the tricolored bat (*Perimyotis subflavus*) which is proposed to be listed as endangered.

Table 4.20 Potentially Occurring Rare, Threatened, Endangered, Candidate and Proposed Species in the Project Area

Common Name	Scientific Name	Status
Mammals		
Indiana bat	<i>Myotis sodalis</i>	Federally endangered
Northern long-eared bat	<i>Myotis septentrionalis</i>	Federally endangered
Tricolored bat	<i>Perimyotis subflavus</i>	Proposed for listing as endangered ¹
Snails		
Flat-spined three-toothed snail	<i>Triodopsis platysayoides</i>	Federally threatened
Insects		
Monarch butterfly	<i>Danaus plexippus</i>	Candidate

¹ On September 13, 2022 the USFWS announced a proposal to list the tricolored bat as endangered under the ESA. Source: USFWS 2024~~2a~~, [USFWS 2022a](#) through USFWS 2022~~fe~~.

There are no critical habitats located within the Lake Lynn Project boundary (USFWS 2024~~2a~~). General habitat information for these species is provided in Table 4.21

⁵ On November 29, 2022, the USFWS reclassified the NLEB as endangered under the ESA (USFWS 2022~~fe~~).

Table 4.21 Habitat Information of Federally Listed, Candidate and Proposed Species Potentially Occurring in Lake Lynn Project Boundary

Family	Common Name	Scientific Name	Habitat
Vespertilionidae	Indiana bat	<i>Myotis sodalis</i>	Hibernates in caves and mines in winter, mostly in tight clusters. In summer, females form small maternity colonies in tree hollows and behind loose bark (USFWS 2022 ^{ab}).
Vespertilionidae	Northern long-eared bat	<i>Myotis septentrionalis</i>	Forested ridges appear favored over riparian woodlands. Hibernacula include caves and mines in winter, but may use crevices in walls or ceilings. Summer roosts include tree holes, birdhouses, or behind loose bark or shutters of buildings (USFWS 2022 ^{eb}).
Vespertilionidae	Tricolored bat	<i>Perimyotis subflavus</i>	Primarily roost among live and dead leaf clusters of live or recently dead deciduous hardwood trees. Will also roost in Spanish moss, lichen and among pine needles. Hibernates in caves, mines, culverts, tree cavities and abandoned water wells (USFWS 2022 ^{ed}).
Polygyridae	Flat-spined three-toothed snail	<i>Triodopsis platysayoides</i>	Only found in West Virginia, along Cheat River gorge. Lives in cracks and crevices in rocks in wooded areas. Prefers cool, moist, deep fissures and rock talus in spring to early summer (iNaturalist 2022).
Nymphalidae	Monarch butterfly	<i>Danaus plexippus</i>	For eastern North American populations, monarchs overwinter in oyamel fir tree roosts. Require milkweeds to lay eggs (USFWS 2022 ^{dc}).

The IPaC lists 15 migratory bird species that are of concern with the potential to occur within the Lake Lynn Project area (Table 4.22). USFWS uses the following status designations: BCC Rangewide (CON) are Birds of Conservation Concern (BCC) that are of

concern throughout their range anywhere within the continental United States; BCC – BCR are BCCs that are of concern only in particular Bird Conservation Regions (BCRs) in the continental United States; and Non-BCC Vulnerable are not BCC species in the Lake Lynn Project area but appear on the list because of the Eagle Act requirements (USFWS 2024²).

Table 4.22 Potentially Occurring Migratory Bird Species

Common Name	Scientific Name	Status
Bald eagle	<i>Haliaeetus leucocephalus</i>	Non-BCC Vulnerable
Black-billed Cuckoo	<i>Coccyzus erythrophthalmus</i>	BCC Rangewide (CON)
Black-capped chickadee	<i>Poecile atricapillus praticus</i>	BCC - BCR
Bobolink	<i>Dolichonyx oryzivorus</i>	BCC Rangewide (CON)
Canada warbler	<i>Cardellina canadensis</i>	BCC Rangewide (CON)
Cerulean warbler	<i>Dendroica cerulea</i>	BCC Rangewide (CON)
Eastern whip-poor-will	<i>Antrostomus vociferous</i>	BCC Rangewide (CON)
Golden eagle	<i>Aquila chrysaetos</i>	Non-BCC Vulnerable
Henslow's sparrow	<i>Ammodramus henslowii</i>	BCC Rangewide (CON)
Kentucky warbler	<i>Oporornis formosus</i>	BCC Rangewide (CON)
Northern saw-whet owl	<i>Aegolius acadicus</i>	BCC - BCR
Prairie warbler	<i>Dendroica discolor</i>	BCC Rangewide (CON)
Red-headed woodpecker	<i>Melanerpes erythrocephalus</i>	BCC Rangewide (CON)
Rusty blackbird	<i>Euphagus carolinus</i>	BCC - BCR
Wood thrush	<i>Hylocichla mustelina</i>	BCC Rangewide (CON)

In the PAD, Lake Lynn proposed to conduct presence/absence surveys for RTE species within the Lake Lynn Project area. USFWS provided comments regarding the federally listed species discussed in the PAD⁶ and noted that no other federally proposed or listed species are known to exist in the Lake Lynn Project area. Lake Lynn did not perform the proposed presence/absence surveys because the USFWS noted the surveys were not warranted.

4.8.2 Environmental Effects

4.8.2.1 Effects of the Proposed Action

Lake Lynn is not proposing any changes to Lake Lynn Project operations and therefore, the proposed action is not expected to adversely affect RTE, proposed or candidate

⁶ Four federally listed species were identified with the potential to occur in the Lake Lynn Project area in the PAD filed August 2019: Indiana bat, northern-long eared bat, flat-spined three-toothed snail, and running buffalo clover. USFWS delisted running buffalo clover in September 2021.

species. The removal of land from the existing Lake Lynn Project boundary is not expected to adversely affect RTE, proposed or candidate species because those lands are being removed because they are not necessary for Lake Lynn Project operations. Peaking operations typically occur in the winter for five hours in the morning and for five hours in the afternoon. In the summer peaking operations typically occur for five hours in the evening. The typical drawdown rate is 0.2-0.4 feet per day. Due to the limited drawdown rate, the continuation of peaking operations ~~are is~~ not expected to impact rare, threatened and endangered resources within the Lake Lynn Project Area.

Lake Lynn is proposing to develop an SMP for the Lake Lynn Project in consultation with USFWS, WVDNR, WVDEP, PADEP, PFBC, CLEAR, FOC, Monongalia County, Fayette County, West Virginia SHPO, and Pennsylvania SHPO that would be consistent with the Standard Land Use Article of any new FERC license. The SMP would clearly outline allowed activities and procedures for Lake Lynn to grant permission for shoreline activities within the Lake Lynn Project boundary, including any tree cutting.

4.8.2.1.1 Bats

No studies were requested by the stakeholders, however Lake Lynn has proposed to provide bat protection measures with seasonal tree management restrictions. For any activities requiring clearing of trees, Lake Lynn would follow seasonal tree clearing timelines for bat species and conduct planned tree clearing between November 1st – April 14th. Should tree clearing be required outside this time period (April 15th – October 31st), Lake Lynn would consult with the USFWS regarding removal needs. As a general rule, Lake Lynn only removes trees where their removal is necessary for public safety, protection of human life, or protection of property.

4.8.2.1.2 Flat-spined three-toothed snail

No studies were requested by the stakeholders and there are no specific proposed PME measures for RTE species. Lake Lynn is not proposing any changes to Lake Lynn Project operations, hence the proposed action and the removal of land from the existing Lake Lynn Project boundary is not expected to adversely affect the flat-spined three toothed snail.

4.8.2.1.3 Monarch butterfly

Host species have not been observed in the maintained areas within the Lake Lynn Project boundary. Lake Lynn is not proposing any changes to Lake Lynn Project operations, hence the proposed action and the removal of land from the existing Lake Lynn Boundary is not expected to adversely affect the monarch butterfly habitat.

4.8.2.2 Effects of the No-Action Alternative

The effects of the no-action alternative mimic the anticipated effects of the proposed action because the Licensee is proposing no changes to existing facilities or operations.

4.8.3 Unavoidable Adverse Effects

Construction activities and timber management practices may cause short-term unavoidable adverse effects to the potentially occurring Indiana, NLEB and tricolor bats and the flat-spined three-toothed snail. Following the USFWS guidance for timber management and implementing construction BMPs would minimize any potential effect on these listed species.

4.8.4 References

iNaturalist. 2022. Flat-spined Threetooth. Available online at: <https://www.inaturalist.org/taxa/114430-Triodopsis-platysayoides#Habitat>. Accessed April 14, 2022.

Pennsylvania Natural Heritage Program (PNHP). 2022. Conservation Explorer. Available online at: <https://conservationexplorer.dcnr.pa.gov/content/map>. Accessed April 14, 2022.

PNHP. 2019. Environmental Review List. Available online at: <https://www.naturalheritage.state.pa.us/Species.aspx?msclkid=2d05c6e6c23e11ec851bb8f133e0f01e>. Accessed April 14, 2022.

United States Fish and Wildlife Service (USFWS). ~~2022a~~2024. Information for Planning and Consultation (iPaC). Available online at: <https://ipac.ecosphere.fws.gov/project/JAMJM424JZAKJBMM7CM3GW5POQ/index.html> ~~https://ipac.ecosphere.fws.gov/location/RWZ3354YJFFRXHNP547E4HL3YE/resources~~. Accessed April ~~5~~12, 202~~2~~4.

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USFWS. 2022^{be}. *Myotis septentrionalis*. Available online at: <https://www.fws.gov/species/northern-long-eared-bat-myotis-septentrionalis>. Accessed April 14, 2022.

USFWS. 2022^{cd}. *Danaus plexippus*. Available online at: <https://www.fws.gov/species/monarch-danaus-plexippus>. Accessed April 14, 2022.

USFWS. 2022^{ed}. Tricolor bat (*Perimyotis subflavus*). Available online at: <https://fws.gov/species/tricolored-bat-perimyotis-subflavus>. Accessed November 18, 2022.

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West Virginia Division of Natural Resources (WVDNR). 2022. Rare, Threatened, and Endangered Species. Available online at: <http://www.wvdnr.net/wildlife/endangered.shtm?msclkid=09124104b4e211eca71631d90cce2ad3>. Accessed April 5, 2022.

4.9 Recreation and Land Use Resources

4.9.1 Affected Environment

4.9.1.1 Existing Recreation Facilities and Opportunities in the Project Boundary

As part of the previous relicensing Lake Lynn developed⁷ a Recreation Plan for Lake Lynn Project, and in accordance with Article 417 of the existing FERC license, Lake Lynn is required to file a Recreation Plan update every 3 years. Lake Lynn filed the most recent update on March 31, 2021, which included: (1) a description of annual recreational use numbers collected in 2020; (2) a discussion of the adequacy of the Lake Lynn Project recreation facilities to meet recreation demand; (3) a description of the methodology used to collect all recreational use data; (4) a discussion of how the recreation needs are addressed if there is demonstrated need for additional facilities; and (5) documentation of agency consultation and agency comments on the update.

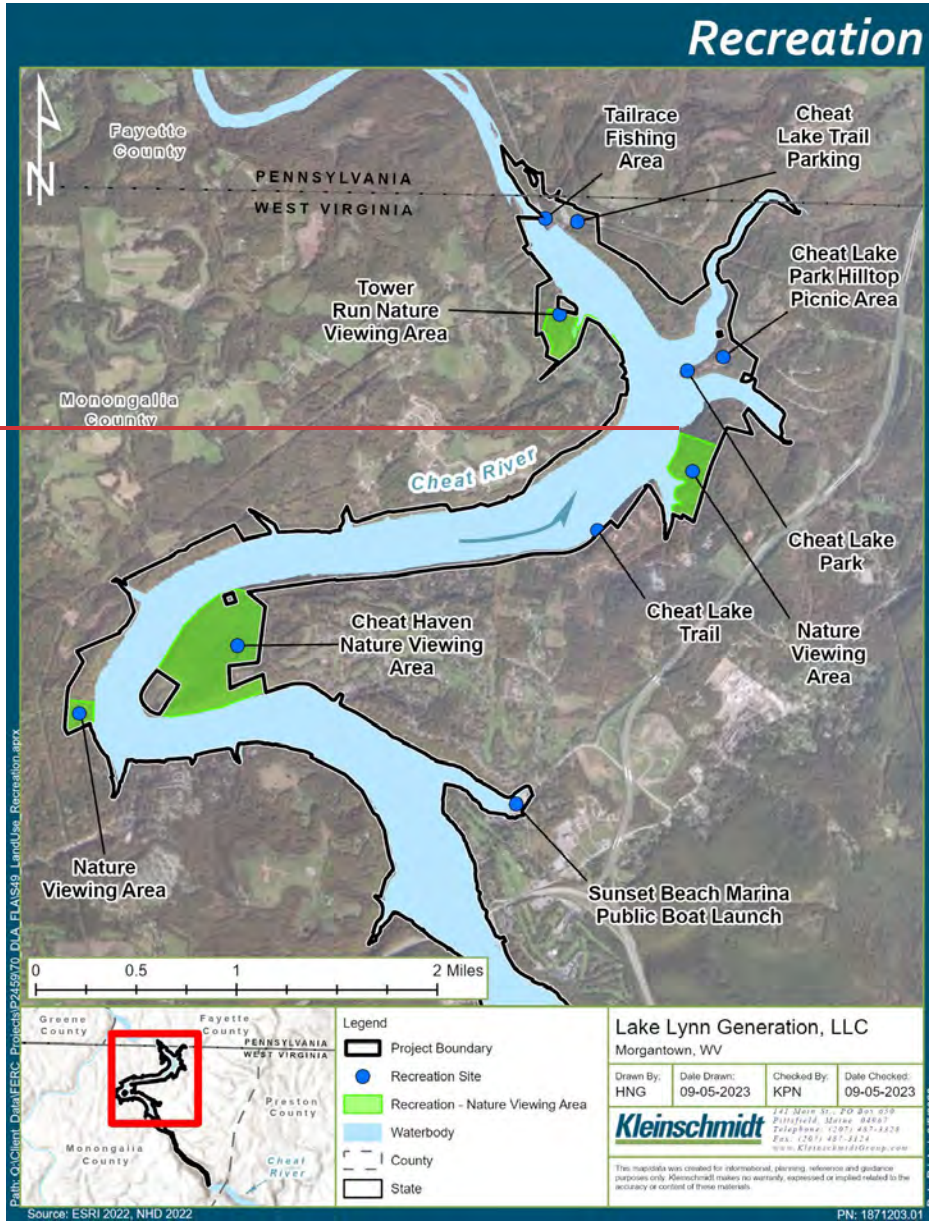
Lake Lynn Project recreation sites provide fishing, boating, nature viewing, picnicking, and hiking/biking opportunities. Existing Lake Lynn Project FERC-approved recreation sites are described in the following subsections and summarized in Table 4.23. ~~Figure 4-374.28~~~~Figure 4-374.28~~~~Figure 4.28~~~~Figure 4-41~~~~Figure 4-37~~ depicts the locations of the Lake Lynn Project recreation sites.

⁷ Approved by FERC on April 11, 1997 - Order Modifying and Approving Recreation and Land Management Plan (79 FERC ¶ 62,017).

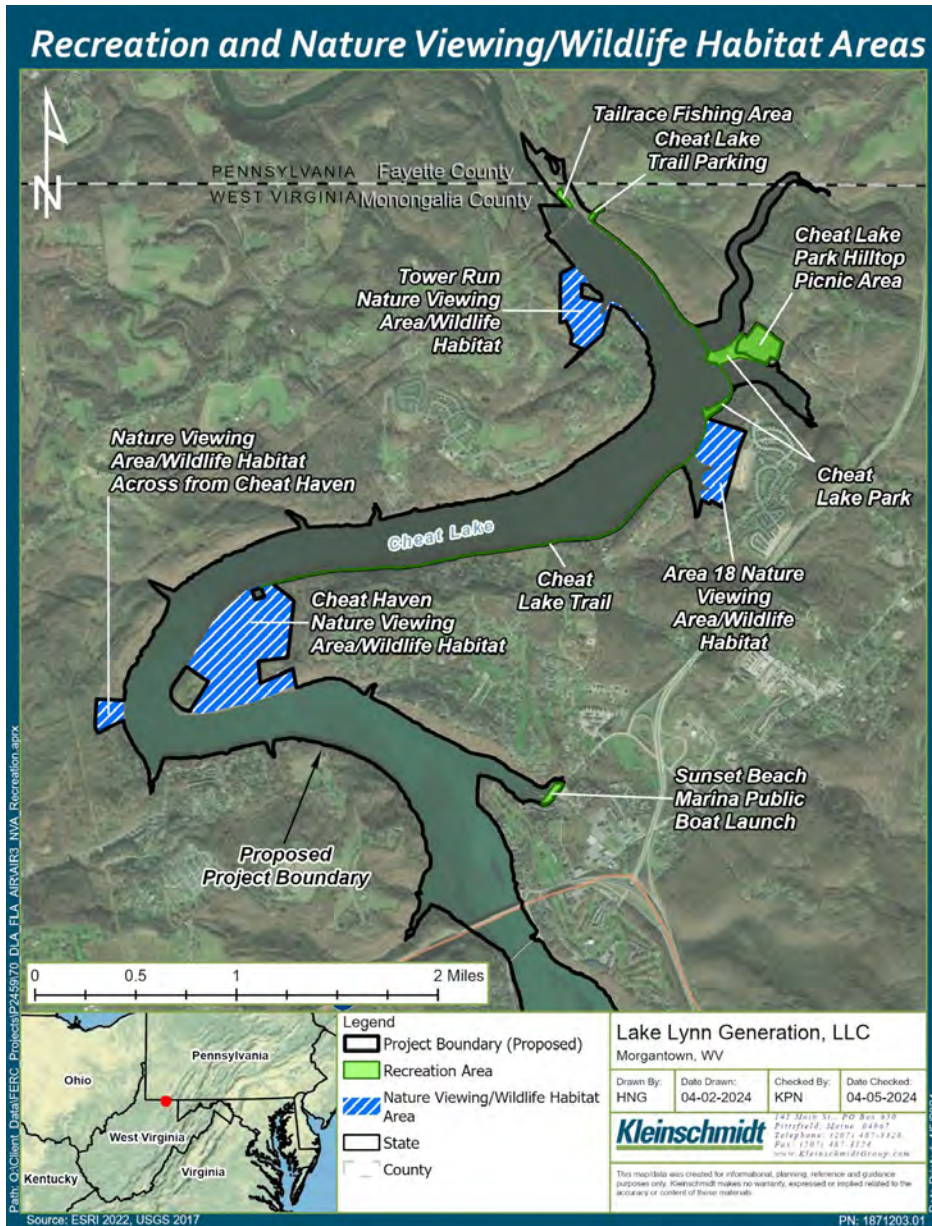
Table 4.23 FERC-Approved Recreation Facilities at the Lake Lynn Project

Recreation Site Name	Recreation Amenities
Tailrace Fishing Area	100-foot-long concrete handicap accessible fishing platform, bank fishing opportunities, gravel parking area for approximately 22 vehicles, portable toilet, trash receptables
Cheat Lake Trail	4.5-mile-long hiking/biking trail (handicap accessible) consisting of northern and southern sections, parking at Substation Parking Area or Cheat Lake Park, bike rack, storm shelter, benches, interpretive historical signs, trash receptacle Substation Parking Area: gravel parking area for approximately 20 vehicles, steps to the trail
Cheat Lake Park	Winter/car-top boat ramp with courtesy dock, 2 courtesy docks, swimming beach, 14 picnic tables including 4 in picnic area next to the beach, 8 day-use boat docks, playground area, 2 restroom facilities, 9 benches, security/maintenance station, 2,200 foot-long fishing platforms, 6 water fountains, access to the Cheat Lake Trail, interpretive historical signs, nature viewing area Upper Picnic Area: picnic loop with 29 drive-in picnic sites (each with parking for up to 2 vehicles) one of which includes handicapped accessible parking, 23 grills, 20 picnic tables, restroom building, 2 water fountains, 9 trash receptables, parking lot with 11 parking spaces (of which 2 are ADA accessible) Upper Parking Area: gravel parking area for approximately 50 vehicles, trash receptacle Overflow Parking Area: gravel parking is for approximately 30 vehicles Lower Parking Area: 6 Americans with Disabilities Act (ADA) parking spaces
Sunset Beach Marina Public Boat Launch	Public boat ramp, parking area for up to 85 vehicles with trailers, 2 portable toilets
Cheat Haven Peninsula Nature Viewing Area	Nature viewing area and wildlife habitat area with informal rail Nature area, approximately 1.4-mile-long trail. No formal development of facilities or amenities proposed for the future recreational sites developed or planned. The primary use of these lands is for wildlife habitat but allows informal public access for nature viewing.
Nature Viewing Area	Nature viewing area and wildlife habitat area. Nature area

Recreation Site Name	Recreation Amenities
Across from Cheat Haven	accessible by boat only. No formal recreational sites development within this area existing and none is proposed for the future or planned. The primary use of these lands is for wildlife habitat but allows informal public access for nature viewing.
Tower Run Nature Viewing Area	Pull-off parking for approximately 3 vehicles, nature area. No formal development recreational sites developed or planned of facilities or amenities proposed for the future. The primary use of these lands is for wildlife habitat but allows informal public access for nature viewing.



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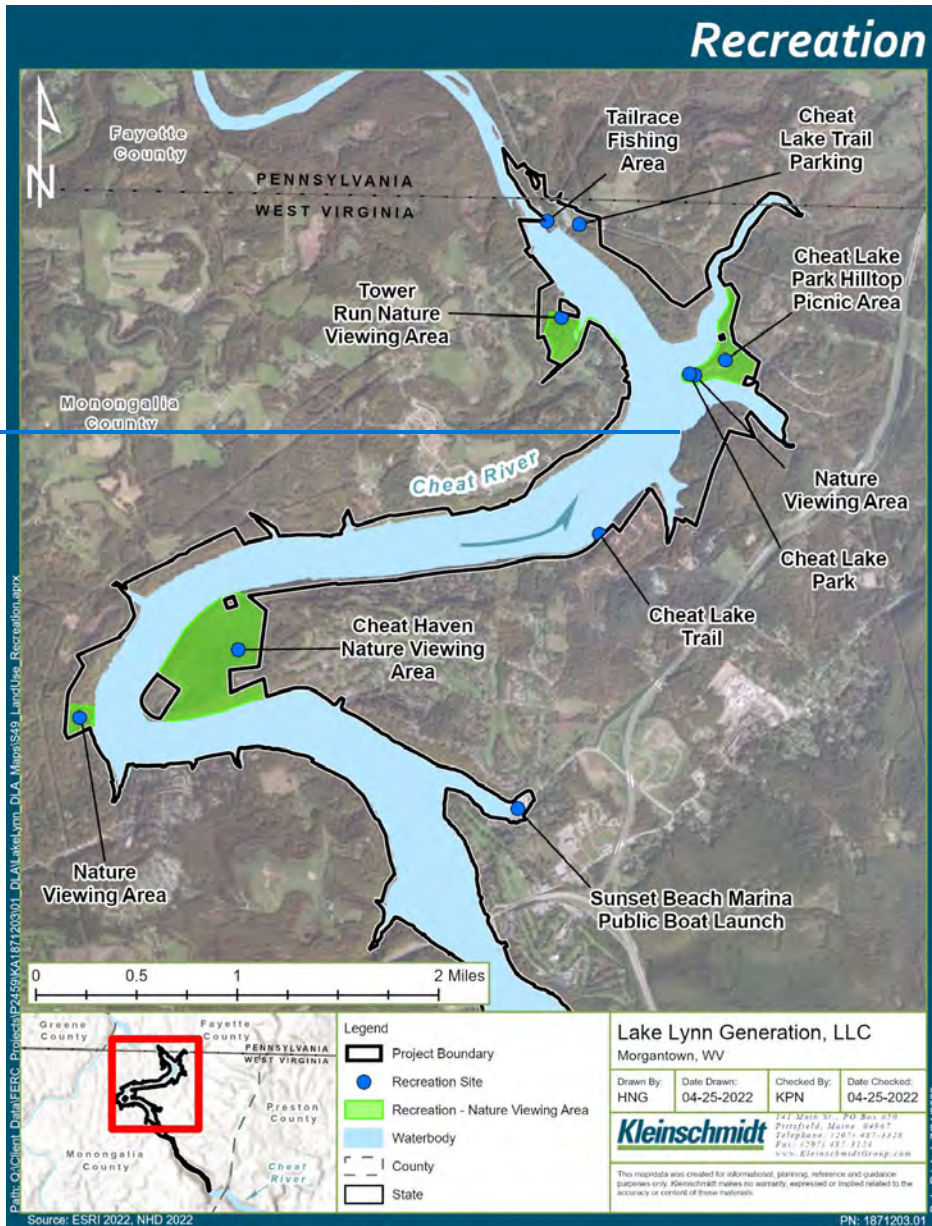


Figure 4-414.28 Lake Lynn Project Recreation Sites

4.9.1.1.1 Tailrace Fishing Area

The Tailrace Fishing Area (Photo 4.4) provides public access to the Lower Cheat River below the Lake Lynn Project dam for fishing. The site consists of a fishing platform as well as bank fishing opportunities. Access to the fishing platform is provided from Lake Lynn Road along the river. A gravel parking area at the Tailrace Fishing Area can accommodate approximately 22 vehicles and includes two Americans with Disabilities Act (ADA) accessible spaces. Nighttime lighting is provided at both the fishing platform and parking area. An ADA compliant pedestrian ramp connects the parking area with the fishing platform. The fishing platform can accommodate approximately 20 anglers and has handrails constructed with barrier free cutouts to provide accessibility for persons with disabilities. An existing roadway provides easy foot access from the parking lot to the riverbank and a portable ADA accessible toilet is available at the site. To enhance public safety, visual and audible alarms are present to provide notification of increased flow releases from the hydroelectric facility and warn the public to exit the water. In addition to the fishing platform, in September 2000 Lake Lynn installed eight rock pile structures to provide enhanced fish habitat in the first river mile downstream of the tailrace.



Photo 4.5 Tailrace Fishing Platform

4.9.1.1.2 Cheat Lake Trail

The Cheat Lake Trail (~~Photo 4.7~~ and ~~Photo 4.8~~) is a 4.5-mile hiking/biking trail that extends from a parking area near the Lake Lynn Project powerhouse to its southern terminus at the Cheat Haven Nature Viewing Area. The trail is 10-feet-wide, constructed of compacted limestone fines, and ADA accessible. The trail can be accessed from the Substation Parking Area or from Cheat Lake Park (the Upper or Lower Parking Areas). The trail consists of a northern portion and southern portion. The northern portion of the Cheat Lake Trail is approximately 1.4-miles-long and extends from the Substation Parking Area to Cheat Lake Park. The trail passes through Cheat Lake Park. The southern portion of the trail, which is 3.1-miles-long, starts at Cheat Lake Park and is accessed through a gate at Mannings Run. The gate allows Lake Lynn to close the southern portion of the trail at dusk during the recreation season and the winter months. Interpretive signs are installed at several historical sites along the Cheat Lake Trail. Additionally, there are mile-markers, every half-mile, along the length of the trail. Because of safety concerns, the trail may be temporarily closed if snow and/or ice are present or other hazardous conditions exist. Signs are posted on the Morgan Run Bridge to inform hikers of any trail closures.



Photo 4.6 Cheat Lake Trail – Over Northern Causeway from Cheat Lake Park



Photo 4.7 Cheat Lake Trail – Terminus

4.9.1.1.3 Cheat Lake Park

Cheat Lake Park (~~Photo 4.9~~~~Photo 4.7~~ and ~~Photo 4.10~~~~Photo 4.8~~) is approximately 46 acres situated on a peninsula between the Rubles Run embayment and the Morgan Run embayment on Cheat Lake. Cheat Lake Park offers an abundance of recreation amenities including a winter/car-top boat ramp with courtesy dock, 2 courtesy docks, swimming beach, picnic tables, day-use boat docks, playground area, restroom facilities, benches, security/maintenance station, 2,200 ft long fishing platforms, water fountains, access to the Cheat Lake Trail, interpretive historical signs, and [an adjacent, 40-acre nature viewing and wildlife habitat area between Morgan and Manning Run](#). Within the park there are multiple parking areas to accommodate approximately 155 vehicles. Of those 155 parking spaces, 10 are ADA accessible.



Photo 4.8 Cheat Lake Park – Playground Area



Photo 4.9 Cheat Lake Park – Boat Launch

4.9.1.1.4 Sunset Beach Marina Public Boat Launch

Sunset Beach Marina is a free public boat launch and associated parking area located at on Cheat Lake. The parking area can accommodate approximately 60 boat trailers. This

public boat launch is available year-round when the lake level is above 865-feet NGVD. Lake Lynn maintains the surface elevation of Cheat Lake at certain levels throughout the year.

4.9.1.1.5 ~~Wildlife and Nature Viewing~~/Wildlife Habitat Areas

In addition to the developed Lake Lynn Project recreation sites, four parcels of Lake Lynn Project lands have been designated as ~~wildlife/nature viewing areas~~nature viewing/wildlife habitat areas (NV/WHA) (NVAs) by the Licensee. These areas are open for ~~certain informal~~ public recreation uses and there are no plans to develop these areas in the future. The first ~~NV/WHA NVA~~ is a 40-acre parcel ~~at the adjacent to~~ Cheat Lake Park between Morgan and Manning Run embayments. The second is the 140-acre Cheat Haven Peninsula, located at the end of the southern portion of the Cheat Lake Trail. There is ~~an informal 1.4-mile~~ trail through the Cheat Haven Peninsula ~~NV/WHA NVA that was developed to reduce habitat destruction. This trail was developed to proactively manage users walking through the NV/WH NVA since this area is located off of the popular Cheat Lake Trail.~~ There is also a 12-acre parcel of land across from the Cheat Haven Peninsula ~~NV/WH-A~~ that is only accessible by boat that has been designated as an ~~NV/NV/WHA~~. The final ~~NV/WHA NVA~~ is located at Tower Run. This ~~NV/WHA NVA~~ is a parcel greater than 25-acre~~s parcel~~ that has a pull off with space for three vehicles to park.

4.9.1.2 Project Recreation Use and Capacities

In accordance with Article 417 of the current FERC License, the Licensee collected recreation data at the Lake Lynn Project from 2000 through 2020 and filed Recreation Plan updates summarizing recreation use every 3 years from 2003 through 2021. Generally, recreation use remained about the same over this 20-year monitoring period (LLG 2015, 2018, 2021).

Lake Lynn collected recreation use data during 2020 as part of the Recreation Plan update. Data collection included spot counts on 40 days at each of the recreation sites for a total of 560 spot counts, as well as obtaining data from the Sunset Beach marina. Spot counts were conducted on random weekday, weekend days, and holiday weekends during each season (spring, summer, fall, and winter) (for more details see 2021 Recreation Plan Update, LLG 2021).

Based on data collected, Lake Lynn estimated a total of 143,981 recreation days were spent at the Lake Lynn Project recreation sites in 2020 (LLG 2021). Overall, at all sites,

recreation use was highest in the summer (53 percent), followed by spring (25 percent), and fall (14 percent) and lowest during the winter period (7 percent). Table 4.24 provides a summary of estimated use at the primary recreation access sites (those with designated and/or on-site parking).

Table 4.24 Estimated Annual Use of Primary Sites in 2020

Recreation Site	Estimated Annual Use (2020)
Tailrace Fishing Area	5,156
Substation Parking Area	3,974
Cheat Lake Park Upper Picnic Area	723
Cheat Lake Park Upper Parking Area	89,748
Cheat Lake Park Lower Parking Area	13,524
Sunset Beach Marina	30,856
Total Annual Use	143,981

Source: LLG 2021

As part of the 2021 Recreation Plan update, Lake Lynn assessed the activities that recreationists participated in most frequently. It was noted that there were multiple activities in which recreationists participated in at the Lake Lynn Project. The most popular activities included walking, hiking, and jogging as they were observed at many of the Lake Lynn Project recreation sites. Other activities were popular at specific sites, such as:

Platform fishing

- Tailrace Fishing Area (83%)
- Day Use Boat Dock (33%)

Passive recreation (sightseeing, shoreline relaxation, bird watching, and photography)

- Beach (59%)
- Day Use Boat Dock (36%)
- Lower Picnic Area (35%)
- Lower Parking Area (26%)

Motor boating

- Sunset Beach Marina (87%)

Spending time at the playground

- Playground (85%)

Non-motor boating

- Winter Boat Launch (51%)

Picnicking

- Lower Picnic Area (50%)

Swimming

- Beach (30%)

As part of the 2021 Recreation Plan update, Lake Lynn also assessed the capacity of the existing recreation facilities based on assessment of utilization of the available amount of parking at each site versus the average number of parking spaces that were occupied during surveys during weekends during each site's peak recreation season. Most of the Lake Lynn Project recreation facilities continue to be utilized at less than 50 percent of capacity. The Cheat Lake Park Lower Parking Area (76 percent) and Sunset Beach Marina (65 percent) were both over 50 percent of capacity. Based on the recreation site inventory, review of available facilities, annual use numbers generated in 2020 and the estimated capacity utilization rates, Lake Lynn determined that the existing recreation facilities, as operated, were adequate to meet the current demonstrated demand for recreation use at the Lake Lynn Project (LLG 2021).

4.9.1.3 Land Use and Management of Project Lands

Land use and land cover inside the Lake Lynn Project boundary and acreages for each are shown in Figure 4.29. The Lake Lynn Project boundary generally follows the normal full pool elevation of the impoundment, except for several nature viewing/[wildlife habitat](#) areas, and includes certain lands immediately surrounding the Lake Lynn Project facilities including the dam, powerhouse, access roads, and appurtenant facilities.

The Licensee historically granted leases and permits ("privilege permits") for private recreation access to Lake Lynn Project lands and waters in accordance with the standard land use article in the FERC License. There are approximately 200 privilege permits around the Cheat Lake shoreline that allow permittees to install and maintain boat docks within

their shoreline property. Each permit holder is responsible for the installation and maintenance of any boat docks and the property; however, permits must be approved by the Licensee prior to any improvements being conducted at a privilege permit site. Currently, the Licensee is not issuing any new permits for private piers or boat docks and will not issue any new permits until after relicensing.

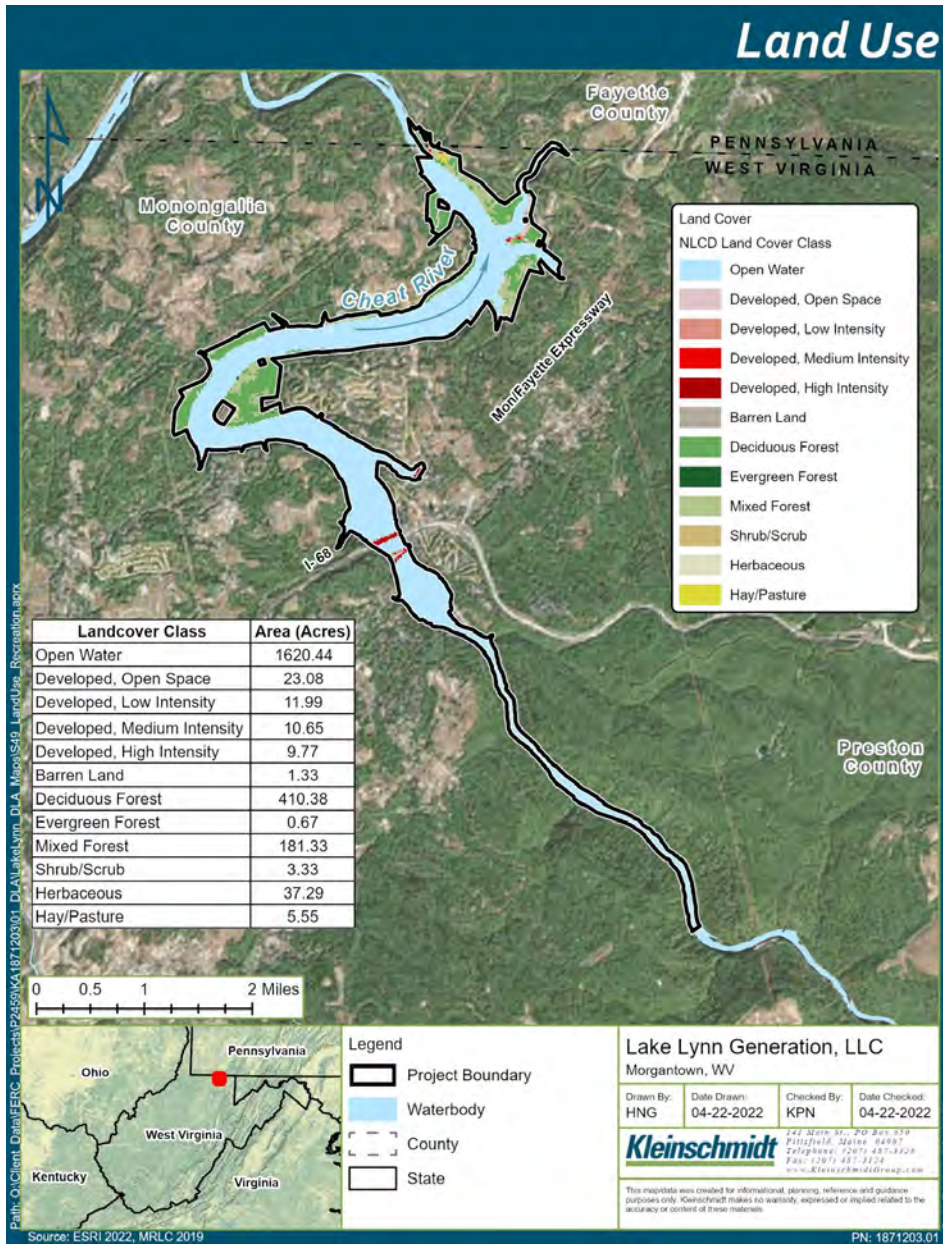


Figure 4-42.29 Land Use in the Lake Lynn Project Boundary

4.9.2 Environmental Effects

4.9.2.1 Effects of the Proposed Action

Recreation

During the pre-filing consultation, WVDNR and other stakeholders provided comments with respect to recreation. WVDNR commented on boating on Cheat Lake and indicated that law enforcement records do not show any significant increase in boating incidents. WVDNR also commented that it was not opposed to the temporary (or to a continued) moratorium on new private piers/boat docks. WVDNR commented that it was opposed to creating public access to the upper reaches of Cheat Lake through a road in the Snake Hill Wildlife Management Area (WMA). Other stakeholder comments were more specific to recreation PMEs including: extending Cheat Lake Trail to the south; connecting Cheat Lake Trail to the Sheepskin Trail; creating public access to the upper reaches of Cheat Lake through the Snake Hill WMA; creating a dog beach; establishing boating guidelines and limits consistent with WVDNR regulations; improving guidance on boating guidelines, public dock maintenance, dredging, and parking lot criteria; improved and clear procedures for trail maintenance and repair; improved guidelines and procedures for Sunset Beach Marina and other marinas; supporting lake cleanup activities; making swimming beach season consistent with boating season; improved debris management at beach; improved guidelines for the fishing pier; reiterate the recreation season dates and open the Trail year-round; description of the functions of recreation personnel, security personnel, park maintenance personnel and guidelines for the interaction of these people with public; and hiring on-site recreation staff.

Based on the comments received, Lake Lynn developed a Study Plan in consultation with stakeholders and conducted a Recreation Site Enhancement Feasibility and Assessment that examined the feasibility of making recreation site/facility enhancements at the Lake Lynn Project, as requested during the pre-filing consultation. The assessment results will inform the development of a new Recreation Plan.

Lake Lynn is proposing no changes to Lake Lynn Project facilities or operations. As such, the proposed action is not expected to adversely affect recreational resources at the Lake Lynn Project. The proposed action will result in the continued provision of recreational facilities that adequately meets demonstrated use in the Lake Lynn Project area. The Recreation Plan was most recently updated in 2021 and Lake Lynn requested in the

Recreation Plan Update that the 2021 update would be the last update under the existing license. Lake Lynn is proposing to develop a new Recreation Plan for the new license term in consultation with USFWS, WVDNR, PFBC, WVDEP, PADEP, Monongalia County, Fayette County, CLEAR, FOC, and MRTC that would include a review and update of the Recreation Plan every 10 years. At this time, Lake Lynn does not anticipate any new recreation facilities under the new Recreation Plan developed. The Recreation Plan would include measures to measure water depths at the Sunset Beach Marina public boat launch on an annual basis prior to the recreation season. If warranted, a bathymetric survey in the vicinity of the Sunset Beach Marina Public Boat Ramp would be conducted every 10 years along with excavation to maintain the boat ramp usability.

~~Lake Lynn is proposing to formally remove the 12-acre water-accessible-only NVA NV/WH across from the Cheat Haven Peninsula NV/WH NVA from the Lake Lynn Project boundary and to no longer designate this area as a NV/WH NVA. Lake Lynn is proposing to remove the NV/WH NVA due to the fact that the area is accessible only by boat. The shoreline is forested and steep in this area making safe access difficult. Lake Lynn reached out to WVDNR in regards to the proposed removal on November 4, 2022 but no response has been received as of the filing of this FLA. Please see Photo 4.9 below for an image of the viewing area from the water. Due to the inaccessible nature of the NV/WH NVA, visitor usage has not been collected by Lake Lynn. There is no existing infrastructure for boaters to access the NV/WH NVA. This area was designated as a NV/WH NVA with the intent to preserve it as a natural area (with no infrastructure) as described in FERC's EA during the previous relicensing, which Lake Lynn intends to continue. However, the area is not necessary for Lake Lynn Project purposes. Lake Lynn would inform the public that the site has been removed from the Lake Lynn Project via its website and outreach.~~

Field Code Changed

~~Additionally,~~ Lake Lynn is proposing to remove 11.437 acres of land adjacent to the Cheat Lake Park parcel. This land is located along ~~both sides of~~ Morgans Run Road (which is used by private residents) and is not part of the park or available for public recreation use. The area proposed for removal is aligning the proposed Lake Lynn Project boundary with the current contour data available.

~~The final area of recreation site land proposed to be removed is 2.1 acres from the Sunset Beach Marina site. The Lake Lynn Project boundary is being aligned with the current contour data available as well as adhering to the existing site boundary of the Sunset Beach Marina.~~



Photo 4.9 — Water Accessible NV/NV/WHA

Land Use

During the pre-filing consultation, no agencies or stakeholders expressed concern, provided comments, or requested studies with respect to land use. Lands surrounding the Lake Lynn Project are residential, commercial and recreational. Lake Lynn is proposing no changes in operations at the Lake Lynn Project and does not anticipate that continued operation of the Lake Lynn Project will adversely affect land use in the vicinity of the Lake Lynn Project.

Lake Lynn is proposing to develop a SMP in consultation with USFWS, WVDNR, WVDEP, PADEP, PFBC, CLEAR, FOC, Monongalia County, Fayette County, West Virginia SHPO, and Pennsylvania SHPO that would be consistent with the Standard Land Use Article of any new FERC license. The SMP would manage shoreline activities within the Lake Lynn Project boundary. The SMP would clearly outline allowed activities and procedures for granting permission for shoreline activities.

4.9.2.2 Effects of the No-Action Alternative

The effects of the no-action alternative mimic the anticipated effects of the proposed action because the Licensee is proposing no changes to existing facilities or operations.

4.9.3 Unavoidable Adverse Effects

Continued operation of the Lake Lynn Project is not expected to have any unavoidable adverse effects on recreation or land use resources.

4.9.4 References

Lake Lynn Generation, LLC (LLG). 2015. Lake Lynn Hydroelectric Project 2018 Recreation Plan Update. March 2015.

Lake Lynn Generation, LLC (LLG). 2018. Lake Lynn Hydroelectric Project 2018 Recreation Plan Update. April 2018.

Lake Lynn Generation, LLC (LLG). 2021. Lake Lynn Hydroelectric Project 2021 Recreation Plan Update. March 2021.

4.10 Aesthetic Resources

4.10.1 Affected Environment

Cheat Lake and the Cheat River are popular destinations for water recreation activities. The 1,730-acre picturesque Cheat Lake attracts thousands of users each year (WVDNR 2011). Most views of the Lake Lynn Project are aesthetically pleasing and provide views of Cheat Lake ([Photo 4.11](#)~~Photo 4.10~~ and [Photo 4.12](#)~~Photo 4.11~~). None of the Lake Lynn Project waters are designated as Wild and Scenic Rivers (NWSRS 2019). There are no scenic highways or byways within the Lake Lynn Project boundary.

There are several roads that provide limited views of the Lake Lynn Project waters. Lake Lynn Road runs along the northeast side of the Lake Lynn Project boundary near the powerhouse and the tailrace of the dam. This road provides a view of the Lake Lynn dam and tailrace area in addition to a parking area for the Tailrace Fishing Area. Several other roads provide limited views of Cheat Lake that change with the seasons. Most notably, the I-68 bridge and Ices Ferry Bridge (SR 857) provide views of upper Cheat Lake. As the deciduous trees lose their leaves, the views become less obstructed, and areas with no view in summer may offer limited or clear views of the Lake Lynn Project in winter.

In addition to views from local roads, the recreation facilities offer aesthetic views of the Lake Lynn Project. Cheat Lake Trail offers aesthetics views of Cheat Lake (the Lake Lynn Project reservoir) Lake Lynn Project in multiple locations ([Photo 4.11](#)~~Photo 4.10~~ and [Photo 4.12](#)~~Photo 4.11~~). Cheat Lake Park ([Photo 4.13](#)~~Photo 4.12~~) and the beach at Cheat Lake Park (Photo 4.13). The Tailrace Fishing Pier provides a view of the Lake Lynn Project dam and tailwater area ([Photo 4.15](#)~~Photo 4.14~~).



Photo 4.10 View of Lower Cheat Lake from the Cheat Lake Trail

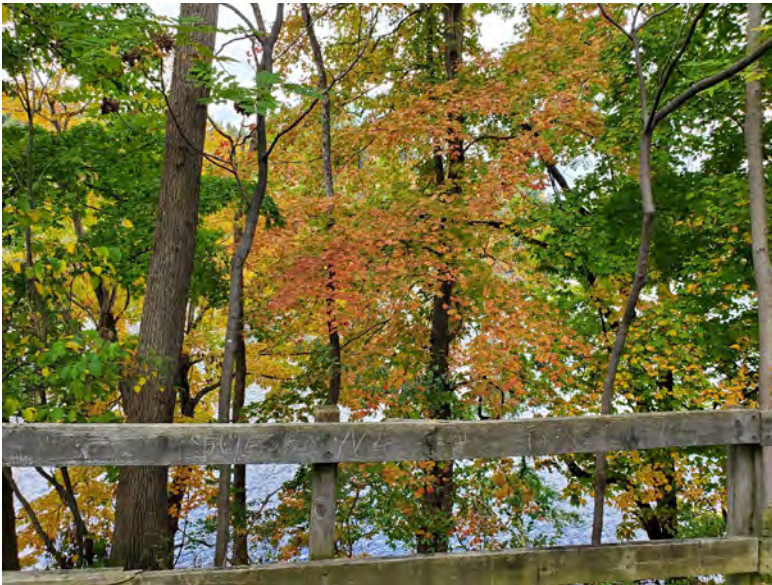


Photo 4.11 View of Upper Cheat Lake from the Cheat Lake Trail South



Photo 4.12 View of Lower Cheat Lake from Cheat Lake Park



Photo 4.13 View of Lower Cheat Lake from the beach at Cheat Lake Park



Photo 4.14 View of Project Dam from Tailwater Fishing Pier

4.10.2 Environmental Effects

During pre-filing consultation, agencies and stakeholders raised no issues or study requests related to aesthetic resources.

4.10.2.1 Effects of the Proposed Action

Lake Lynn is proposing no changes to Lake Lynn Project facilities or operations which would affect the viewshed. As such, the proposed action is not expected to adversely affect aesthetic resources at the Lake Lynn Project.

4.10.2.2 Effects of the No-Action Alternative

The effects of the no-action alternative mimic the anticipated effects of the proposed action because the Licensee is proposing no changes to existing facilities or operations.

4.10.3 Unavoidable Adverse Effects

No unavoidable adverse impacts to aesthetic resources are expected to occur as a result of the continued operation of the Lake Lynn Project.

4.10.4 References

National Wild and Scenic Rivers System (NWSRS). 2019. West Virginia Rivers. Available Online: <https://www.rivers.gov/west-virginia.php>. Accessed: April 5, 2019.

West Virginia Division of Natural Resources (WVDNR). 2011. The Recovery of Cheat Lake: A Success Story. Available Online: https://docs.wixstatic.com/ugd/ec6de6_e68c97639dd0442b863f6a6d9a2c051d.pdf. Accessed: March 29, 2019.

4.11 Historical and Cultural Resources

4.11.1 Affected Environment

4.11.1.1 Historical Overview

During the Middle Archaic period (6,500 – 3,000 B.C.), some archaeologists suggest that a major economic shift toward increased specialization in hunting and gathering resources occurred perhaps in response to continued Early Holocene environmental changes. Middle Archaic populations are poorly understood in the upper Ohia Valley with the typology based, for the most part, on stratified sites in West Virginia where the full range of tool types may have not been identified. The adaptive responses in place during the Middle Archaic period seem coupled with some increase in population and may correlate with the trend towards territoriality and more sedentary lifeways observed in Late Archaic (Phase I Cultural Resource Survey, 1996).

The Lake Archaic period include an emerging widespread interaction sphere in which objects such as copper, marine shell and chert were traded with long distance networks. Woodworking, weaving, and hide working tools are evident on larger base and settlement camps where ceremonial and domestic activities may have occurred. Base camps were located on major rivers and may have at least partially functioned to take advantage of riverine links with cultures outside of the Ohia Valley for the purpose of trade, group hunting activities, ceremonies and/or the exchange of ritual and marriage partners (Phase I Cultural Resource Survey, 1996).

Corresponding with the Lake Archaic period is the xerothermic climactic interval accompanied by an increased potential for oak-hickory forest development. Such specialized subsistence practices as the collection of mussel shell and hickory nuts as well as an increased use of fish and avian resources seem to have been intensified during the Late Archaic, although data for increase in subsistence diversity is difficult to assess because of the lack of archaeological date for this period. (Phase I Cultural Resource Survey, 1996)

The Early woodland period (1,000 B.C. - 100 B.C.) is characterized by a shift to ceramic production, the introduction of cultivated plants, and a more sedentary settlement system. However, some early Woodland sites suggest a persistence of the Archaic hunting, gather and fishing lifeway. One significant Early Woodland component with an important influence in the Lake Lynn Project area is the Adena culture. Numerous Adena

points have been identified in the Lake Lynn Project area as have Half-Moon ceramics. Major ceremonial complexes were present throughout core Adena territory in the central Ohio Valley from eastern Indiana to Western Pennsylvania (Phase I Cultural Resource Survey, 1996).

A continuation of the Late Archaic subsistence and procurement patterns may be indicated by the presence of both Early Woodland and Late Archaic artifacts on the same sites. However, ceramics tend to occur only on base camps or habitation sites. In southern West Virginia, Early Woodland pottery is characterized by the thin ceramics with quartz, siltstone and claystone tempering (Phase I Cultural Resource Survey, 1996).

Although there may have been a major shift in subsistence and settlement system during Middle Woodland times in Illinois, Draggio (1963) suspected that the Adena and Hopewell preferred similar environmental zones on major floodplains and terraces where high yields of seed plants and riverine resources could be supplemented by upland natural resources. Gradually, cultigens such as squash, pumpkin, gourd and corn were introduced from the south and west, although the evidence for cultivated plants in both local Adena and hopewell sites is unimpressive. This gap in the archaeological record relates as much to the problem of preservation of microflora and faunal artifacts as to the lack of controlled excavation on key sites.

Based on the archaeological record, Middle Woodland populations relied on a broad spectrum of subsistence pattern including the harvesting of wild or quasi-domesticated crops near rich hunting and gathering sites. Evidence for domesticated plants is not impressive. Of particular importance in the subsistence strategies during this period was the use of aquatic resources. Although deer provided the most significant food sources, fish, birds, turtles, and amphibians were components of the subsistence system (Phase I Cultural Resource Survey, 1996).

The Hopewell cultures of the Middle Woodland Period, 100 B.C. to A.D. 400, continued to occupy sites associated with major riverine systems throughout the northeast. Seeman (1979) defined eight major regional traditions which seem to be correlated with ecological and physiographical features. Interregional trade in raw materials was significant but may have been on a more limited bases that previously suggested.

The decline of the Hopewell culture occurred during the period of climatic deterioration. The terminal Middle Woodland period reflects a decrease in long distance interaction and an increase in a more provincial cultural expression.

Topographic settings utilized by Middle Woodland cultures include floodplains, terraces, upland flats and hilltops, and promontories bracketing drainage heads. Habitation sites are present on both high and low order streams. Middle Woodland artifacts including ceramics and diagnostic Cheers, Maker, Snyders, Jack's Reef, Fox Creek, Garver's Ferry, and Kiski notched points have been recovered from sites in the general Lake Lynn Project area.

During the Late Woodland period, subsistence strategies (A.D.) 900 – 1,650) shifted to a reliance on domesticated plants including corn, beans and squash cultivated primarily on the large floodplains and terraces of major rivers. Many sites occur in similar areas as the earlier Middle Woodland villages. Continued occupation of upland sites including rock shelters as hunting and gathering stations, winter campsites, or small farmsteads can be demonstrated by the late Woodland period, a climatic episode known as the NeoBoreal brought cool, moist conditions to the general region. The effect of such climatic changes on the growing season for Late Woodland crops is difficult to assess without additional studies particularly data relating to the significance of cultigens during this period. Late Woodland pottery in southern West Virginia is a characteristically thick ware with cord marking and incising, and siltstone and claystone temper. Other Late Woodland traits include folded rims, Jacks Reef points, and small triangulars (Phase I Cultural Resource Survey, 1996).

Native American culture in northern West Virginia changed dramatically around A.D. 1,200. Large horticultural villages appeared in the large river valley while upland areas were used infrequently. Social and economic elements of the culture relate to some of the drastic changes that occurred. The Cheat River scarcely resembles the stream where native Americans once fished, netted mussels, and crossed on foot. Canoes navigated the river except where bars, shoals, and shallow rapids (known as ripples) formed in the channel. Shoals were shallow places in the stream created when sand or gravel bars became submerged. Bars, created by the river current deposited sand and silt below tributary stream junctures, were once common along the river. In places, back channels formed and the bars emerged as islands. These were places of fordings, of collecting many species of mussels, and of creating fish weirs (Phase I Cultural Resource Survey, 1996).

Historical documentation of the Lake Lynn Project area is significant in understanding past land use patterns and cultural events relating with the regional cultural history. The recorded history of the Lake Lynn Project area begins with French and English fur traders and explorers who penetrated the Cheat River region in the late 17th century during a prolonged period of internecine warfare among native Americans. The conflict continued until the first half of the 18th century when the Iroquis held the balance of power between the French and English in American (Wallace 1965). During this period, indigenous prehistoric populations dispersed from the region. Contemporaneously, Native Americans from the eastern seaboard became refugees as they were uprooted by European colonization. These native American refugees established villages, cabins, farmsteads and trading stations associated with major rivers and trading paths throughout the region.

An examination of the state sites files, located at the West Virginia Division of Culture and History in Charleston, was conducted on March 28, 1996. This research indicated that there are no previously recorded archaeological sites and no properties listed on the National Register of Historical Places located within or adjacent to the Lake Lynn Project area.

Stream terraces were the preferred site situation during all periods of prehistory although hilltops, benches, hill bases, and hillslopes were occupied throughout the entire cultural sequence. Upland village sites were situated on either salles or benches with southern exposures located east of the hilltop. Archaeological potential was enhanced whenever a known Indian path paralleled the stream or terrace particularly at crossings or portages (Phase I Cultural Resource Survey, 1996).

Predicting prehistoric site locations in the region presents significant issues because the region was not densely occupied considering the 17,000 year time span in which human populations exploited the area. Since all high probability sites were not utilized in the prehistoric past, predicting site locations involves problems that are difficult to address within the scope of our current predictive models (Phase I Cultural Resource Survey, 1996).

The Lake Lynn Project area was considered a high probability area for archaeological sites based on the following factors;

1. The Lake Lynn Project area is bisected by tributaries of the Cheat River
2. Slopes of less than 8% are present in some segments

3. Previously recorded archaeological sites occur in similar topographic situations in the general region
4. Rubles Run and Morgan Run provided waterpower for early industries

4.11.1.2 Prior Cultural Resource Investigations

The general Lake Lynn Project area was significantly modified when the level of the Cheat River was raised and the floodplain/terrace system inundated. Heavy equipment impacts were noted along the west portion of the proposed recreation area. Other disturbance factors that affect the probability of archeological sites included the construction of a railroad and the clear cutting of woodland environments resulting in land surface modifications (Phase I Cultural Resource Survey, 1996).

The Phase I field methodology conforms to the approach developed by the West Virginia Division of Cultural and History, Historic Preservation Unit's Guidelines for Phase I Surveys, Phase II Testing, Phase III Mitigation and Cultural Resources Reports. The Phase I study was divided into three segments for the initial pedestrian survey: 1) The Recreation Area, where no artifactual materials or other evidence of archaeological resources were found during subsurface testing procedures in the proposed recreation area, 2) The Woodland campground sites with no indications of rock shelters or other unusual conditions were identified during the surface survey of this area, and 3) The hiking/biking trail where four historic archaeological resources were identified during the surface surveillance of the Lake Lynn Project area, two associated 19th/20th century foundations, six millstones, coal tipple and former Baltimore and Ohio Railroad right-of-way.

Article 414 of the current license requires Lake Lynn to consult with the appropriate SHPO and file a cultural resource management plan for FERC approval prior to any ground-disturbing activities. Prior to the construction of Cheat Lake Park and the Cheat Lake Trail, Lake Lynn conducted a Phase 1 Cultural Resources Survey in 1996 and an addendum in 1998 to survey the additional 3.1-mile section of the Cheat Lake Trail. The 1996 survey identified two associated 19th and 20th century foundations, six millstones, a coal tipple, and a railroad right-of-way (Christine Davis Consultants 1996). The 1998 addendum revealed no additional cultural resources (Christine Davis Consultants 1998). In letters filed June 12, 1996, and June 11, 1998, the WVSHPO stated the proposed trail would have no effect on any historic properties at the Lake Lynn Project (WVSHPO 1996, WVSHPO 1998).

Prior to filing the PAD, Lake Lynn submitted the Lake Lynn Project information to the Pennsylvania State Historic Preservation Office (PASHPO), or Pennsylvania Historical and Museum Commission (PHMC), and the West Virginia SHPO for review. In its June 2019 preliminary review, the PASHPO identified potential NRHP-eligible above ground resources within the Lake Lynn Project area that may require surveying prior to developing final plans. Review of the PASHPO's Pennsylvania's State Historic and Archaeological Resource Exchange (PA-SHARE) identified four known potentially significant cultural resources within the Lake Lynn Project boundary: the Fairmont, Morgantown, and Pittsburgh Rail Corridor (a historic archaeological site identified above as the former Baltimore and Ohio Railroad right-of-way); the Lake Lynn Historic District (which includes the Lake Lynn powerhouse and dam which are potentially eligible for listing on the National Register of Historic Places (NRHP); the Lake Lynn Dam Penn Hill Housing (a single street north of the Lake Lynn Dam that provided housing for workers constructing the dam); and the Catawba Path. The NRHP Interactive Map and WVSHPO Interactive Map were searched, and no NRHP-eligible or potentially eligible cultural resources were identified within the Lake Lynn project boundary (NPS 2020, WVSHPO 2022).

Lake Lynn is also submitting Lake Lynn Project-specific information related to relicensing to WVSHPO and the PASHPO for a formal review.

4.11.1.3 Area of Potential Effects

The Lake Lynn Project relicensing is subject to Section 106 review under the NHPA (36 CFR Part 800) since any new license for the Lake Lynn Project would be issued by the FERC. Lake Lynn initiated consultation with the West Virginia SHPO and the Pennsylvania SHPO with an initial letter on May 20, 2019 and the distribution of the NOI and PAD for the Lake Lynn Project on August 29, 2019. The PASHPO indicated that a preliminary review of the Lake Lynn Project indicates that there may be National Register-eligible aboveground resources in the Lake Lynn Project area (identified above) and that if changes are proposed surveys must be conducted. Lake Lynn consulted with the WVSHPO and PASHPO on a draft Study Plan. No study requests or comments related to cultural resources or historic structures were received. Lake Lynn submitted a formal Lake Lynn Project review request to the WVSHPO and PASHPO on October 26, 2020. The DLA and FLA were distributed to the WVSHPO and PASHPO concurrent with filing with FERC. To date, neither the WVSHPO nor the PASHPO have provided comments on the [Area of Potential Effects \(APE\)](#) for the Lake Lynn Project relicensing.

4.11.2 Environmental Effects

4.11.2.1 Effects of the Proposed Action

Lake Lynn is not proposing any changes to the Lake Lynn Project operations or to the potentially NRHP-eligible Lake Lynn dam or powerhouse. Lake Lynn is proposing to remove approximately ~~307.17~~243.8 acres of land that are not required for Lake Lynn Project purposes. Existing historical and cultural resources near or in Area A of the proposed removal include a coal tipple (46MG211), an unevaluated archaeological site (36FA0073), the railroad right-of-way (46MG2123), a portion of the Catawba Path (210394), and the unevaluated Penn Hill Housing property (101383). ~~near or in Area A of the proposed removal~~. The mapped boundary of the Penn Hill Housing property extends into the APE, although all of the resources appear to be located outside the APE to the north. The 19th/20th century foundations (46MG214) and ~~six~~cheat millstones (46MG212) are located along the Cheat Lake Trail within the APE adjacent to Area D~~E~~ of the proposed removal but will remain inside the Lake Lynn proposed Project boundary. The lands to be removed ~~will~~would remain in Lake Lynn ownership and no ground-disturbing activities are proposed. ~~With exception of the unevaluated archaeological site (36FA0073), and APE's of the Catawba Path and Penn Hill Housing, all other existing historic and cultural resources found within the existing Lake Lynn Project Boundary would remain within the proposed Lake Lynn Project Boundary.~~ Therefore, the proposed action is not expected to adversely affect historical or cultural~~or historical~~ resources.

Since there are known potentially significant cultural resources within the Lake Lynn Project boundary, Lake Lynn is proposing to develop a Historic Properties Management Plan in consultation with the WVSHPO, PASHPO, and Tribes to further review and manage these cultural resources.

4.11.2.2 Effects of the No-Action Alternative

The effects of the no-action alternative mimic the anticipated effects of the proposed action because the Licensee is proposing no changes to existing facilities or operations.

4.11.3 Unavoidable Adverse Effects

Undiscovered cultural resources could be adversely affected by future activities related to the Lake Lynn Project; however, Lake Lynn would continue to consult with appropriate SHPOs prior to any ground-disturbing construction activities to minimize these effects.

4.11.4 References

Christine Davis Consultants, Inc. 1996. Phase I Cultural Resource Survey: Cheat Lake Recreational Project, Monongalia County, West Virginia. Prepared for Allegheny Power System. April 1996.

Christine Davis Consultants, Inc. 1998. Addendum Report: Phase I Cultural Resource Survey Cheat Lake Recreational Project, Monongalia County, West Virginia. Prepared for Allegheny Power. March 1998.

Dragoo, Don W. 1963. Mounds of the Dead. *Annals of Carnegie Museum* 37: 1-315.

National Park Service. 2020. National Register of Historic Places. Available online at: <https://www.nps.gov/maps/full.html?mapId=7ad17cc9-b808-4ff8-a2f9-a99909164466>. Accessed April 18, 2022.

Seeman, Mark F. 1979. The Hopewell Interaction Sphere: The Evidence for Inter-regional Trade and Structural Complexity. Indiana Historical Society

Wallace, Paul. (1965). Indian Paths of Pennsylvania. Pennsylvania Historical Museum Commission, Harrisburg.

West Virginia State Historic Preservation Office (WVSHPO). 1996. Letter Responding to Phase I Cultural Resources Survey. March 11, 1996.

West Virginia State Historic Preservation Office (WVSHPO). 1998. Letter Responding to Phase I Cultural Resources Survey Addendum. May 26, 1998.

West Virginia State Historic Preservation Office (WVSHPO). 2022. Interactive Map. Available online at: <https://mapwv.gov/shpo/viewer/index.html>. Accessed April 18, 2022.

4.12 Tribal Resources

4.12.1 Affected Environment

On June 27, 2019, FERC sent letters to the tribal leaders inviting the Delaware Nation, the Delaware Tribe of Indians, and the Osage Nation to participate in the relicensing process of the Lake Lynn Project (FERC 2019 a,b,c). As of the filing date of this FLA, Lake Lynn is not aware of FERC receiving responses from the Native American tribes regarding the Lake Lynn Project. In addition, Lake Lynn included the following Native American tribes on the Lake Lynn Project distribution list and sent an information request for the PAD on May 20, 2019:

- Absentee-Shawnee Tribe of Oklahoma
- Cayuga Nation
- Cherokee Nation
- Delaware Nation, Oklahoma
- Delaware Tribe of Indians
- Eastern Band of Cherokee Indians
- Eastern Shawnee Tribe of Oklahoma
- Oneida Indian Nation
- Oneida Indian Nation of Wisconsin
- Onondaga Nation
- Osage Nation
- Seneca-Cayuga Tribe of Oklahoma
- Seneca Nation of Indians
- Shawnee Tribe
- Stockbridge-Munsee Band of the Mohican Nation of Wisconsin
- St. Regis Mohawk Tribe
- Tonawanda Band of Seneca
- Tuscarora Nation
- United Keetoowah Band of Cherokee Indians in Oklahoma

On June 19, 2019, the Cherokee Nation stated that the Lake Lynn Project is outside their Area of Interest and deferred to federally recognized tribes that may have an interest in the area. On July 10, 2019, the Delaware Nation stated that the location of the proposed Lake Lynn Project does not endanger cultural or religious sites of interest and requested to be contacted within 24 hours if any artifacts are discovered. No other tribes have responded to the information request. On October 24, 2019, the Stockbridge-Munsee Community indicated that it did not wish to participate in the Lake Lynn Project relicensing and stated that the Lake Lynn Project is outside their area of cultural interest.

On September 9, 2022, the Bureau of Indian Affairs submitted comments on the DLA indicating that the Catawba Indian Nation was not listed as one of the American Indian tribes contacted in the application. Lake Lynn has included the Catawba Indian Nation on the distribution list of the FLA to include them as part of tribal consultation as required under 36 CFR Part 800.2(c)(2)(ii). On August 12, 2022, the Oneida Nation noted that it did not have comments on the DLA.

4.12.2 Environmental Effects

4.12.2.1 Effects of the Proposed Action

Lake Lynn is not proposing any changes to Lake Lynn Project operations and no tribal interests or issues have been identified. No groundbreaking activities are proposed. As such, the proposed action is not expected to adversely affect tribal resources. There are no specific proposed PME measures for tribal resources, however, Lake Lynn would continue to inform the tribes throughout the relicensing process.

4.12.2.2 Effects of the No-Action Alternative

The effects of the no-action alternative mimic the anticipated effects of the proposed action because the Licensee is proposing no changes to existing facilities or operations.

4.12.3 Unavoidable Adverse Effects

There are no unavoidable adverse effects identified for tribal resources.

4.12.4 References

Federal Energy Regulatory Commission (FERC). 2019a. Delaware Nation. Consultation with Tribes for the Lake Lynn Hydroelectric Project No. 2459. June 27, 2019.

FERC. 2019b. Delaware Tribe of Indians. Consultation with Tribes for the Lake Lynn Hydroelectric Project No. 2459. June 27, 2019.

FERC. 2019c. Osage Nation. Consultation with Tribes for the Lake Lynn Hydroelectric Project No. 2459. June 27, 2019.

4.13 Socioeconomics

4.13.1 Affected Environment

The Lake Lynn Project is located on the Cheat River in Monongalia County, West Virginia near the city of Morgantown, and along the Fayette County, Pennsylvania border, near the borough of Point Marion. Monongalia County is in north-central West Virginia while Fayette County is in southwestern Pennsylvania. The following sections provide a summary of socioeconomic characteristics for Morgantown, West Virginia, and for Point Marion, Pennsylvania, as they are available. The socioeconomic characteristics of the region discussed include land use patterns, population patterns, and sources of employment.

4.13.1.1 General Land Use Patterns

Land use near the Lake Lynn Project is primarily urban in West Virginia and rural in Pennsylvania. Table 4.25 summarizes the rural and urban nature in Morgantown and Point Marion, Monongalia County, Fayette County, West Virginia, and Pennsylvania for comparative purposes.

Table 4.25 Proportion of the Population Living in Urban and Rural Areas, 2010*

Land Use	Morgantown	Point Marion	Monongalia Co.	Fayette Co.	West Virginia	Pennsylvania
Urban	99%	0%	74%	52%	48%	77%
Rural	1%	100%	26%	48%	52%	23%

Source: U.S Census Bureau 2010a,b,c,d,e,f

*The most recent population pattern analysis for urban and rural areas was done in 2010.

4.13.1.2 Population Patterns

Data provided by the US Census Bureau shows that over a ten-year period the population of Morgantown increased by 2.2 percent while Point Marion decreased marginally by 0.3 percent. The population of Monongalia County, West Virginia, increased by 10.0 percent while the growth rate of West Virginia decreased by 3.2 percent. The growth rate in Fayette County, Pennsylvania, decreased by 6.3 percent while the growth rate of Pennsylvania increased marginally by 2.4 percent. The land area of Fayette County is larger than the area of Monongalia County. The population density is highest in the City of Morgantown, West Virginia. Table 4.26 summarizes population statistics in the Lake Lynn Project vicinity in 2010 and 2020, as well as recent population patterns.

Table 4.26 Population Statistics for the Lake Lynn Project Vicinity

Population Statistics	Morgantown	Point Marion	Monongalia Co.	Fayette Co.	West Virginia	Pennsylvania
Population (2010)	29,660	1,159	96,189	136,606	1,852,994	12,702,379
Population (2020)	30,347	1,156	105,822	128,073	1,793,716	13,002,700
% Change 2010 to 2020	2.3%	-0.3%	10.0%	-6.3%	-3.2%	2.4%
Land Area in sq. mi., 2010	10.2	0.4	360.1	790.3	24,038.2	44,742.7
Population per sq. mi., 2020	2,984.0	2,752.4	293.9	162.0	74.6	290.6

Source: City Data 2022, U.S. Census Bureau 2010a, 2010b, 2010c, 2010d, 2010e, 2010f, 2010g, 2022a, 2022b, 2022c, 2022d, 2022e, 2022f.

4.13.1.3 Economic Indicators and Employment

Income, poverty, and employment data from the American Community Survey (based on estimates from 2020 U.S. Census Bureau data) are provided in Table 4.27.

Table 4.27 Economic Characteristics of the Lake Lynn Project Region (2020 Estimates)

Economic Class	Morgantown	Point Marion	Monongalia Co.	Fayette Co.
Median Household Income	\$42,474	\$57,125	\$54,198	\$49,075
Mean Household Income	\$66,377	\$63,752	\$82,948	\$64,658
Per Capita Income	\$25,248	\$23,716	\$33,527	\$27,778
Persons Below the Poverty Level	34.7%	20.0%	20.4%	16.5%
Population in Labor Force	57.8%	69.8%	62.5%	54.7%
Unemployment Rate	10.9%	7.4%	6.6%	7.3%

Source: U.S. Census Bureau 2022g-2022u

Table 4.28 summarizes employment by industry in the Lake Lynn Project vicinity. Educational services, and health care and social assistance has the highest employment rate surrounding the in the area.

Table 4.28 Employment by Industry in the Lake Lynn Project Vicinity

Employment Type	Morgantown	Point Marion	Monongalia Co.	Fayette Co.
Agriculture, forestry, fishing and hunting, and mining	0.6%	2.5%	2.6%	3.5%
Construction	2.2%	5.1%	3.6%	8.1%
Manufacturing	3.6%	6.5%	5.1%	10.3%
Wholesale trade	0.5%	0.0%	1.1%	2.1%
Retail trade	11.2%	16.0%	10.1%	12.9%
Transportation and warehousing, and utilities	1.5%	3.2%	2.9%	7.2%
Information	0.6%	0.8%	1.2%	1.1%
Finance and insurance, real estate, rental, leasing	4.7%	1.0%	4.6%	2.9%
Professional, scientific, and management, administrative and waste management services	12.5%	10.5%	11.2%	6.8%
Educational services, and health care and social assistance	37.4%	28.1%	37.6%	28.4%
Arts, entertainment, and recreation, and accommodation and food services	19.2%	18.0%	12.0%	9.0%
Other services, except public administration	2.5%	2.8%	3.1%	4.2%
Public administration	3.6%	5.5%	5.0%	3.5%

Source: U.S. Census Bureau, 2022]

4.13.2 Environmental Effects

4.13.2.1 Effects of the Proposed Action

The Licensee is not proposing any changes to the Lake Lynn Project facilities or operations. The Licensee will continue to employ staff to operate the facilities as well as contract work for service and maintenance at the Lake Lynn Project. Because no changes are proposed,

socioeconomic resources are not expected to be adversely affected. Continued operations of the Lake Lynn Project will continue to provide clean and reliable renewable energy for consumers in the area for the term of any new license.

4.13.2.2 Effects of the No-Action Alternative

The effects of the no-action alternative mimic the anticipated effects of the proposed action because the Licensee is proposing no changes to existing facilities or operations.

4.13.3 Unavoidable Adverse Effects

Continued operation and relicensing of the Lake Lynn Project and associated PME measures as proposed is not expected to result in unavoidable adverse effects on socioeconomic resources.

4.13.4 References

City Data. 2022. Point Marion, PA Available online: <http://www.city-data.com/city/Point-Marion-Pennsylvania.html>. Accessed: April 12, 2022.

U.S. Census Bureau. 2010a. DEC Summary File 1, P2 Urban and Rural Total Population, Morgantown City, West Virginia. Available online: <https://data.census.gov/cedsci/table?q=morgantown%20city%20west%20virginia%20urban&y=2010&tid=DECENNIALS12010.P2>. Accessed: April 12, 2022.

U.S. Census Bureau. 2010b. DEC Summary File 1, P2 Urban and Rural Total Population, Point Marion borough, Pennsylvania. Available online: <https://data.census.gov/cedsci/table?q=Point%20Marion%20borough,%20Pennsylvania%20urban&tid=DECENNIALS12010.P2>. Accessed: April 12, 2022.

U.S. Census Bureau. 2010c. DEC Summary File 1, P2 Urban and Rural Total Population, Monongalia County, West Virginia. Available online: <https://data.census.gov/cedsci/table?q=monongalia%20county%20west%20virginia%20urban&y=2010&tid=DECENNIALS12010.P2>. Accessed: April 12, 2022.

U.S. Census Bureau. 2010d. DEC 113th Congressional District Summary File, P2 Urban and Rural Total Population, West Virginia. Available online: <https://data.census.gov/cedsci/table?q=fayette%20county%20pa%20urban&tid=DECENNIALS12010.P2>. Accessed: April 12, 2022.

U.S. Census Bureau. 2010e. DEC 113th Congressional District Summary File, P2 Urban and Rural Total Population, West Virginia. Available online: <https://data.census.gov/cedsci/table?q=west%20virginia%20urban&y=2010&tid=DECENNIALCD1132010.P2>. Accessed: April 12, 2022.

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U.S. Census Bureau. 2022c. DEC Redistricting Data (PL 94-171), P1 Race. Available online: <https://data.census.gov/cedsci/table?q=monongalia%20county%20population>. Accessed: April 12, 2022.

U.S. Census Bureau. 2022d. DEC Redistricting Data (PL 94-171), P1 Race. Available online: <https://data.census.gov/cedsci/table?q=fayette%20county,%20PA%20population>. Accessed: April 12, 2022.

U.S. Census Bureau. 2022e. DEC Redistricting Data (PL 94-171), P1 Race. Available online: <https://data.census.gov/cedsci/table?q=west%20virginia%20population>. Accessed: April 12, 2022.

U.S. Census Bureau. 2022f. DEC Redistricting Data (PL 94-171), P1 Race. Available online: <https://data.census.gov/cedsci/table?q=pennsylvania%20population>. Accessed: April 12, 2022.

U.S. Census Bureau. 2022g. ACS 5-Year Estimates Subject Tables. S1901 Income in the Past 12 Months (in 2020 Inflation-Adjusted Dollars). Available online: <https://data.census.gov/cedsci/table?q=%20morgantown%20west%20virginia%20incom>. Accessed: April 12, 2022.

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U.S. Census Bureau. 2022m. ACS 5-Year Estimates Detailed Tables. S1701 Poverty Status in the Past 12 Months. Available online: <https://data.census.gov/cedsci/table?q=point%20marion%20poverty>. Accessed: April 12, 2022.

U.S. Census Bureau. 2022n. ACS 5-Year Estimates Subject Tables. S1901 Income in the Past 12 Months (in 2020 Inflation-Adjusted Dollars). Available online:

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Accessed: April 12, 2022.

U.S. Census Bureau. 2022o. ACS 5-Year Estimates Detailed Tables. B19301 Per Capita Income in the Past 12 Months (in 2020 Inflation-Adjusted Dollars). Available online: <https://data.census.gov/cedsci/table?q=monongalia%20county%20per%20capita%20income&tid=ACSDT5Y2020.B19301>. Accessed: April 12, 2022.

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U.S. Census Bureau. 2022q. ACS 5-Year Estimates Detailed Tables. DP03 Selected Economic Characteristics. Available online: <https://data.census.gov/cedsci/table?q=monongalia%20county%20selected%20economic&tid=ACSDP5Y2020.DP03>. Accessed: April 12, 2022.

U.S. Census Bureau. 2022r. ACS 5-Year Estimates Subject Tables. S1901 Income in the Past 12 Months (in 2020 Inflation-Adjusted Dollars). Available online: <https://data.census.gov/cedsci/table?q=%20Fayette%20County,%20Pennsylvania%20income&tid=ACSST5Y2020.S1901>. Accessed: April 12, 2022.

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U.S. Census Bureau. 2022t. ACS 5-Year Estimates Detailed Tables. S1701 Poverty Status in the Past 12 Months. Available online: <https://data.census.gov/cedsci/table?q=%20Fayette%20County,%20Pennsylvania%20poverty>. Accessed: April 12, 2022.

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4.14 Environmental Justice

Consistent with Executive Orders 12898⁸ and 14008⁹, the licensee provides the following Environmental Justice (EJ) information for the Lake Lynn Project. This overview is meant to provide an understanding of the number of EJ communities present within the Lake Lynn Project area, and the population of non-English-speaking residents within the Lake Lynn Project area, to identify the need for any targeted public engagement efforts related to relicensing the Lake Lynn Project.

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Pursuant to Executive Orders 12898¹⁰ and 14008¹¹, the FERC is required to complete an analysis of potential impacts from Lake Lynn Project operations on the local community in the vicinity of the Lake Lynn Project to understand the impacts to human health and the environment as they relate to environmental justice communities, or communities that stand to be disproportionately impacted by construction of a new facility or the continued operation of an existing facility, including socioeconomic and/or sociocultural impacts.

Additionally, the FERC understands that it plays an integral role in regulating large parts of the United States energy industry, having far-reaching impacts to the nation, especially regarding the move toward cleaner energy (FERC 2022). Although the FERC is not required to comply with Executive Order 13985¹², the Commission has voluntarily elected to participate in the process, in an effort to ensure everyone can benefit from the clean energy transition (FERC 2022). Pursuant to Executive Order 13985, the FERC has developed an Equity Action Plan based on five focus areas, discussing barriers traditionally experienced by underserved and environmental justice communities regarding FERC

⁸ Exec. Order No. 12898, 59 Fed. Reg. 7629 (Feb. 16, 1994). Federal Actions to Address Environmental Justice in Minority and Low-Income Populations.

⁹ Exec. Order No. 14008, 86 Fed. Reg. 7619-7633 (Jan. 27, 2021) Tackling the Climate Change Crisis at Home and Abroad.

¹⁰ Exec. Order No. 12898, 59 Fed. Reg. 7629 (Feb. 16, 1994). Federal Actions to Address Environmental Justice in Minority and Low-Income Populations.

¹¹ Exec. Order No. 14008, 86 Fed. Reg. 7619-7633 (Jan. 27, 2021) Tackling the Climate Change Crisis at Home and Abroad.

¹² Exec. Order No. 13985 (June 2021). Advancing Racial Equity and Support for Underserved Communities Through the Federal Government.

~~practices, and outlines actions to remove those barriers and foster a commitment to equity (FERC 2022).~~

~~The FERC recognizes that many of the licensed hydropower projects were constructed prior to implementation of the NEPA, or the issuance of executive orders related to equity or environmental justice (FERC 2022). The steps taken by FERC related to the three executive orders will include equity considerations when making decisions regarding hydropower relicensing and consider environmental justice communities as they relate to the relicensing process.~~

Identification of Environmental Justice Communities

The thresholds used for populations meeting environmental justice status are as follows:

- The “meaningfully greater analysis” and the “50 percent” methods were used to determine EJ status based on race:
 - To meet EJ criteria using the “meaningfully greater analysis,” a block group qualifies as having EJ communities if the total minority population for a block group is at least 10 percent greater than that of the county population:
 - $(\text{County minority population}) \times (1.10) = \text{threshold above which a block group minority population must be for inclusion as an environmental justice community.}$
 - To meet EJ criteria using the “50 percent” method, the total minority population must be greater than 50 percent to qualify as an EJ community.
- The “low-income threshold criteria” was used to identify environmental justice communities based on income level, where the block group must have a higher percentage of low-income households than the county.

4.14.1 Affected Environment

The Lake Lynn Project is located on the Cheat River in the City of Morgantown, Monongalia County, West Virginia. The Lake Lynn Project tailrace crosses the state border into Fayette County, Pennsylvania, near the borough of Point Marion. Within a one-mile zone around the Lake Lynn Project boundary there are seventeen census block groups that could potentially be affected by relicensing, ~~including two block groups in Preston County, West Virginia.~~ ~~Four~~Sixteen of the seventeen census block groups within the Lake Lynn Project area include minority populations, three of which meet requirements for status as environmental justice communities ~~for minority populations alone.~~

In addition to race, environmental justice communities include groups of individuals with income levels below poverty level, measured by household. Within the Lake Lynn Project area there are five communities meeting environmental justice status related to household income level alone (Table 4.29).

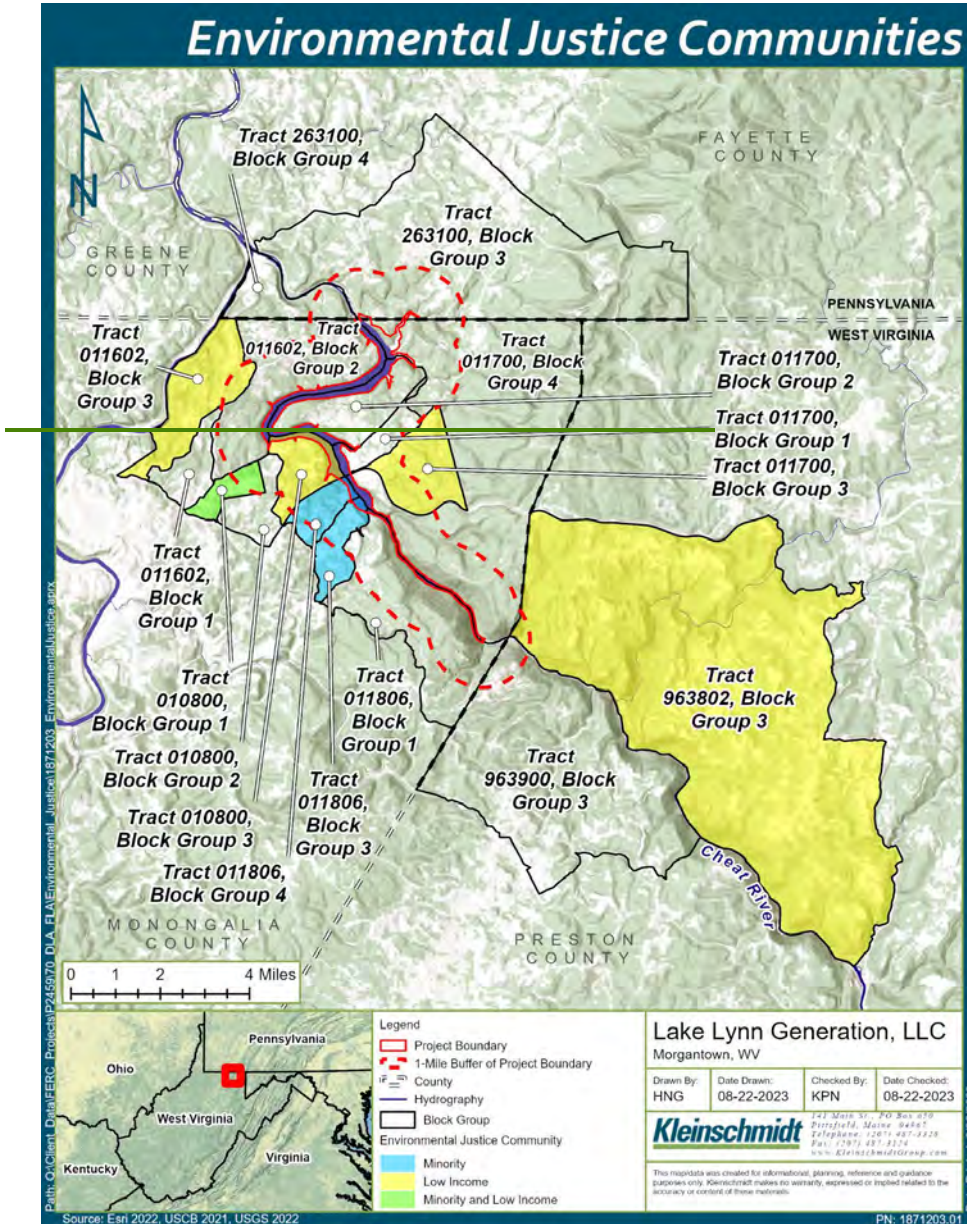
One block group meets EJ status for both minority and low-income populations.

~~The final community analyzed for environmental justice includes individuals that are unable to speak English. Within the Lake Lynn Project there are no such individuals in any block groups (US Census 2021a, 2021b, 2021c).~~

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Of the seventeen block groups considered for this analysis, ~~ten of them~~ ten directly border Lake Lynn Project lands; within those ten groups, two block groups have ~~a~~ environmental justice EJ communities, and one block group has a low-income environmental justice EJ community. (Table 4.29) (Figure 4.30).

Finally, English-speaking ability has been evaluated within the Lake Lynn Project area for all block groups to identify where there may be a language barrier to participation in the licensing process, and a need for more targeted outreach using different languages. Within the one-mile zone around the Lake Lynn Project boundary there are no non-English-speaking groups (Table 4.29).



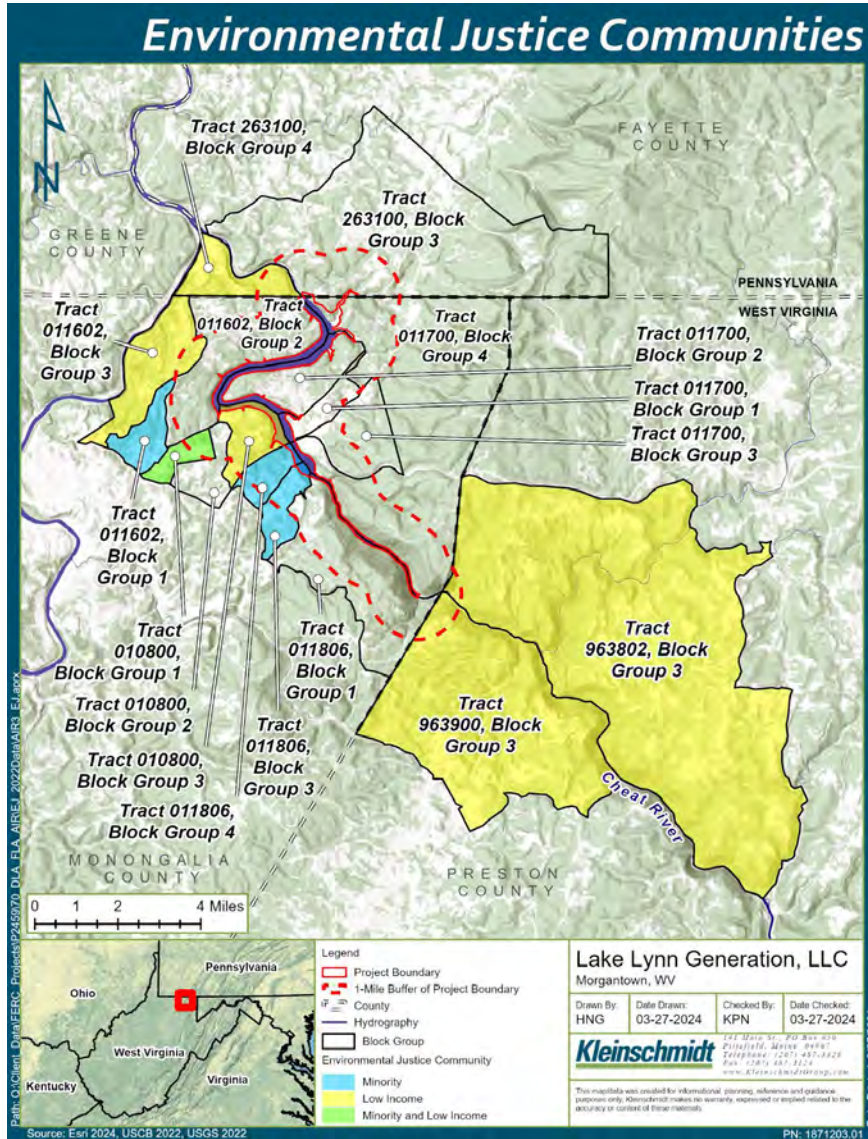


Figure 4-434.30 Environmental Justice Communities within one mile of the Lake Lynn Project.

4.14.2 Environmental Effects

For this relicensing application, the USEPA's 2016 guidance document for assessing environmental justice within a regulatory context has been used to analyze potential impacts to environmental justice communities from relicensing. The following three questions posed by the USEPA document are considered below:

- Are there potential environmental justice concerns associated with environmental stressors affected by the regulatory action for the population groups of concern in the baseline (USEPA 2016)?
- For the regulatory option(s) under consideration, are potential environmental justice concerns created or mitigated compared to the baseline (USEPA 2016)?
- Are there potential environmental justice concerns associated with environmental stressors affected by the regulatory action for population groups of concern for the regulatory option(s) under consideration (USEPA 2016)?

Baseline Conditions

The Lake Lynn Project has been in place since 1926, providing safe and renewable power to the region, as well as recreational opportunities to the public. Primary water uses in the Lake Lynn Project area (both consumptive and non-consumptive) include hydropower production, wastewater assimilation, aquatic and wildlife habitat, and recreation. Please see section 4.0 of this exhibit for additional baseline conditions for the region. There are no environmental justice concerns for population groups of concern in the baseline.

4.14.2.1 Effects of the Proposed Action

The Licensee is not proposing changes to Lake Lynn Project operations or facilities as part of this relicensing process, and there are no known entities in possession of water rights within the Lake Lynn Project boundary. Additionally, water within the Lake Lynn Project boundary is not used for domestic water supply or irrigation, and there are no active water withdrawals. Therefore, new impacts to shoreline property or archaeological or tribal sites within the Lake Lynn Project area are not anticipated, nor are impacts to recreation, aesthetics, or wildlife habitat potentially impacting environmental justice communities.

4.14.2.2 Effects of the No-Action Alternative

The no-action alternative represents the baseline conditions at the Lake Lynn Project. There would be no changes to Lake Lynn Project operation or facilities, and therefore no change in effect to environmental justice communities.

4.14.3 Unavoidable Adverse Effects

No infrastructure or operational changes are proposed as part of this relicensing; therefore, relicensing, and continued operation of the Lake Lynn Project is not expected to have any new unavoidable adverse effects on environmental justice communities.

4.14.4 — References

Federal Energy Regulatory Commission (FERC). 2022. Equity Action Plan. Retrieved from <file:///J:/012/217/Docs/FLA/Exhibit%20E/Environmental%20Justice/Equity%20Action%20Plan%20for%20FERC%20EO13985.pdf> on November 22, 2022.

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United States Census Bureau (U.S. Census). 2022. American Community survey 5-year data (2022). Retrieved from https://www2.census.gov/programs-surveys/acs/summary_file/2022/table-based-SF/data/5YRData/ on March 1, 2024.

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United States Census Bureau (US Census). 2021b. B16004 | Age by Language Spoken at Home by Ability to Speak English for the Population 5 Years and Over. Retrieved from

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<https://data.census.gov/table?g=1500000US420512631003,420512631004,540610108001,540610108002,540610108003,540610116021,540610116022,540610116023,540610117001,540610117002,540610117003,540610117004,540610118063,540610118064,540779638023,540779639003&tid=ACSDT5Y2021.B16004&moe=false> on August 25, 2023.

United States Census Bureau (US Census). 2021c. B17017 | Poverty Status in the Past 12 Months by Household Type by Age of Householder. Retrieved from

<https://data.census.gov/table?t=Income+and+Poverty&g=1500000US420512631003,420512631004,540610108001,540610108002,540610108003,540610116021,540610116022,540610116023,540610117001,540610117002,540610117003,540610117004,540610118063,540610118064,540779638023,540779639003&tid=ACSDT5Y2021.B17017> on August 25, 2023.

United States Environmental Protection Agency (USEPA). 2016. Technical Guidance for Assessing Environmental Justice in Regulatory Analysis. Retrieved from https://www.epa.gov/sites/default/files/2016-06/documents/ejtg_5_6_16_v5.1.pdf on November 22, 2022.

5.0 CONSISTENCY WITH COMPREHENSIVE PLANS

5.1 Consistency with Comprehensive Plans

Section 10(a)(2)(A) of the FPA, 16 U.S.C. section 803 (a)(2)(A), requires FERC to consider the extent to which a project is consistent with federal or state comprehensive plans for improving, developing, or conserving a waterway or waterways affected by a hydropower project. On April 27, 1988, the Commission issued Order No. 481-A, revising Order No. 481, issued October 26, 1987, establishing that the Commission will accord FPA section 10(a)(2)(A) comprehensive plan status to any federal or state plan that: (1) is a comprehensive study of one or more of the beneficial uses of a waterway or waterways; (2) specifies the standards, the data, and the methodology used; and (3) is filed with the Secretary of the Commission.

5.1.1 FERC-Approved Federal and State Comprehensive Plans

FERC currently lists 66 federal and state comprehensive plans and of those, the following 8 comprehensive plans are identified as pertaining to waters in the vicinity of the Lake Lynn Project:

- National Park Service. The Nationwide Rivers Inventory. Department of the Interior, Washington, D.C. 1993.
- Pennsylvania Department of Environmental Resources. 1983. Pennsylvania State water plan. Harrisburg, Pennsylvania. January 1983. 20 volumes.
- Pennsylvania Department of Environmental Resources. 1986. Pennsylvania's recreation plan, 1986-1990. Harrisburg, Pennsylvania.
- Pennsylvania Department of Environmental Resources. 1988. Pennsylvania 1988 water quality assessment. Harrisburg, Pennsylvania. April 1988.
- West Virginia Division of Natural Resources. 1982. Monongahela River Basin plan. Charleston, West Virginia.
- West Virginia Division of Natural Resources. 2015 West Virginia State Wildlife Action Plan. Charleston, West Virginia. September 1, 2015
- West Virginia Governor's Office of Community and Industrial Development. West Virginia State Comprehensive Outdoor Recreation Plan: 1988-1992. Charleston, West Virginia.

- U.S. Fish and Wildlife Service. n.d. Fisheries USA: the recreational fisheries policy of the U.S. Fish and Wildlife Service. Washington, D.C.

Based on a review of these plans, Lake Lynn has determined that current and proposed operations of the Lake Lynn Project facilities are consistent with these plans.

APPENDIX A

CONSULTATION SUMMARY

APPENDIX B

RESPONSE TO COMMENTS ON THE DRAFT LICENSE APPLICATION

APPENDIX C
FLOW DURATION CURVES

APPENDIX D

**LAKE LYNN DISSOLVED OXYGEN STANDARD OPERATING PROCEDURES EXAMPLES
DATA**

APPENDIX E
SPECIES LISTS

Mammal Species that Potentially Occur in the Lake Lynn Project Vicinity

Order	Family	Common Name	Scientific Name
Didelphimorphia	Didelphidae	Virginia opossum	<i>Didelphis virginiana</i>
Insectivora	Soricidae	long-tailed shrew	<i>Sorex dispar</i>
		masked shrew	<i>Sorex cinereus</i>
		northern short-tailed shrew	<i>Blarina brevicauda</i>
		pygmy shrew	<i>Sorex hoyi</i>
		smoky shrew	<i>Sorex fumeus</i>
		southeastern shrew	<i>Sorex longirostris</i>
Insectivora	Talpidae	eastern mole	<i>Scalopus aquaticus</i>
		hairy-tailed mole	<i>Parascalops breweri</i>
		star-nosed mole	<i>Condylura cristata</i>
Chiroptera	Vespertilionidae	big brown bat	<i>Eptesicus fuscus</i>
		eastern pipistrelle	<i>Pipistrellus subflavus</i>
		eastern red bat	<i>Lasiurus borealis</i>
		hoary bat	<i>Lasiurus cinereus</i>
		Indiana bat ¹	<i>Myotis sodalist</i>
		northern long-eared bat ²	<i>Myotis septentrionalis</i>
		silver-haired bat	<i>Lasionycteris noctivagans</i>
		Virginia big-eared bat ¹	<i>Corynorhinus townsendii</i>
Rodentia	Castoridae	American beaver	<i>Castor canadensis</i>
	Dipodidae	meadow jumping mouse	<i>Zapus hudsonius</i>
		woodland jumping mouse	<i>Napaeozapus insignis</i>
	Erethizontidae	common porcupine	<i>Erethizon dorsatum</i>
	Muridae	Allegheny wood rat	<i>Neotoma magister</i>
		black rat	<i>Rattus</i>
		deer mouse	<i>Peromyscus maniculatus</i>
		golden mouse	<i>Ochrotomys nuttalli</i>
		house mouse	<i>Mus musculus</i>
		meadow vole	<i>Microtus pennsylvanicus</i>
		muskrat	<i>Ondatra zibethicus</i>
		Norway rat	<i>Rattus norvegicus</i>
		rock vole	<i>Microtus chrotorrhinus</i>
		southern bog lemming	<i>Synaptomys cooperi</i>
		southern red-backed vole	<i>Clethrionomys gapperi</i>
white-footed mouse		<i>Peromyscus leucopus</i>	

Order	Family	Common Name	Scientific Name
		woodland vole	<i>Microtus pinetorum</i>
Lagomorpha	Leporidae	Appalachian cottontail	<i>Sylvilagus obscurus</i>
		eastern cottontail	<i>Sylvilagus floridana</i>
		snowshoe hare	<i>Lepus americanus</i>
Carnivora	Canidae	coyote	<i>Canis latrans</i>
		gray fox	<i>Urocyon cinereoargenteus</i>
		red fox	<i>Vulpes</i>
	Felidae	bobcat	<i>Lynx rufus</i>
	Mephitidae	eastern spotted skunk	<i>Spilogale putorius</i>
		striped skunk	<i>Mephitis</i>
	Mustelidae	fisher	<i>Martes pennant</i>
		least weasel	<i>Mustela nivalis</i>
		long-tailed weasel	<i>Mustela frenata</i>
		mink	<i>Mustela vison</i>
		fisher	<i>Martes pennant</i>
		river otter	<i>Lutra canadensis</i>
Artiodactyla	Cervidae	white-tailed deer	<i>Odocoileus virginianus</i>

Source: WVDNR 2001; WVDNR 2003; PGC 2019

¹Federally Endangered

²Federally Threatened

Amphibians and Reptiles that Potentially Occur in the Lake Lynn Project Vicinity

Family	Common Name	Scientific Name
Salamandridae	newt, red spotted	<i>Notophthalmus viridescens</i>
Ambystomatidae	salamander, Jefferson	<i>Ambystoma jeffersonianum</i>
	salamander, spotted	<i>Ambystoma maculatum</i>
	salamander, sarbled	<i>Ambystoma opacum</i>
Plethodontidae	salamander, green	<i>Aneides aeneus</i>
	salamander, northern dusky	<i>Desmognathus fuscus</i>
	salamander, seal	<i>Desmognathus monticola</i>
	salamander, Allegheny Mountain dusky	<i>Desmognathus ochrophaeus</i>
	salamander, northern spring	<i>Gyrinophilus porphyriticus</i>
	salamander, four-toed	<i>Hemidactylium scutatum</i>
	salamander, northern two-lined	<i>Eurycea bislineata</i>
	salamander, long-tailed	<i>Eurycea longicauda</i>
	salamander, eastern red-backed	<i>Plethodon cinereus</i>
	salamander, northern slimy	<i>Plethodon glutinosus</i>
	salamander, northern ravine	<i>Plethodon richmondi</i>
	salamander, Cheat Mountain ¹	<i>Plethodon nettingi</i>
	salamander, Wehrle's	<i>Plethodon wehrlei</i>
	salamander, northern red	<i>Pseudotriton r. ruber</i>
Bufonidae	toad, eastern american	<i>Bufo americanus</i>
	toad, fowler's	<i>Bufo fowleri</i>
Hylidae	peeper, northern spring	<i>Pseudacris crucifer</i>
	frog, mountain chorus	<i>Pseudacris brachyphona</i>
	treefrog, gray	<i>Hyla chrysoscelis</i>
Ranidae	bullfrog, American	<i>Rana catesbeiana</i>
	frog, northern green	<i>Rana clamitans melanota</i>
	frog, northern leopard	<i>Lithobates pipiens</i>
	frog, pickerel	<i>Rana palustris</i>
	frog, wood	<i>Rana sylvatica</i>
Chelydridae	turtle, common snapping	<i>Chelydra serpentine serpentina</i>
	turtle, eastern painted	<i>Chrysemys picta</i>
	turtle, northern map	<i>Graptemys geographica</i>
	turtle, eastern box	<i>Terrapene carolina</i>
Kinosternidae	turtle, common musk	<i>Kinosternon odoratus</i>
Phrynosomatidae	lizard, northern fence	<i>Sceloporus undulatus</i>

Family	Common Name	Scientific Name
Scincidae	skink, common five-lined	<i>Eumeces fasciatus</i>
Colubridae	racer, northern black	<i>Coluber constrictor</i>
	snake, northern ringneck	<i>Diadophis punctatus edwardsii</i>
	ratsnake, black	<i>Elaphe obsoleta</i>
	snake, eastern hognose	<i>Heterodon platirhinos</i>
	snake, eastern milk	<i>Lampropeltis Triangulum</i>
	snake, northern water	<i>Nerodia sipedon</i>
	snake, smooth green	<i>Opheodrys vernalis</i>
	snake, queen	<i>Regina septemvittata</i>
	snake, northern red-bellied	<i>Storeria o. occipitamaculata</i>
	gartersnake, eastern	<i>Thamnophis sirtalis</i>
Viperidae	copperhead, northern	<i>Agkistrodon contortrix</i>
	rattlesnake, timber	<i>Crotalus horridus</i>

Source: Marshall 2019

¹Federally Threatened

Bird Species that Potentially Occur in the Lake Lynn Project Vicinity

Family	Common Name	Scientific Name
Gaviidae	loon, common	<i>Gavia immer</i>
	loon, red-throated	<i>Gavia stellata</i>
Podicipedidae	grebe, horned	<i>Podiceps auritus</i>
	grebe, pied-billed	<i>Podilymbus podiceps</i>
Pelecanidae	pelican, American white	<i>Pelecanus erythrorhynchos</i>
Phalacrocoracidae	cormorant, double-crested	<i>Phalacrocorax auritus</i>
Ardeidae	heron, great blue	<i>Ardea herodias</i>
	heron, green	<i>Butorides virescens</i>
	egret, cattle	<i>Bubulcus ibis</i>
	egret, great	<i>Ardea alba egretta</i>
	bittern, American	<i>Botaurus lentiginosus</i>
	bittern, least	<i>Ixobrychus exilis</i>
	swan, mute	<i>Cygnus olor</i>
	night-heron, black-crowned	<i>Nycticorax hoactii</i>
Anatidae	goose, Canada	<i>Branta canadensis</i>
	mallard	<i>Anas platyrhynchos</i>
	gadwall	<i>Anas strepera</i>
	pintail, northern	<i>Anas acuta</i>
	teal, green-winged	<i>Anas crecca carolinensis</i>
	teal, blue-winged	<i>Anas discors orphna</i>
	wigeon, American	<i>Anas americana</i>
	shoveler, northern	<i>Anas clypeata</i>
	duck, American black	<i>Anas rubripes</i>
	duck, wood	<i>Aix sponsa</i>
	canvasback	<i>Aythya valisineria</i>
	redhead	<i>Aythya americana</i>
	duck, ring-necked	<i>Aythya collaris</i>
	scaup, lesser	<i>Aythya affinis</i>
	goldeneye, common	<i>Bucephala clangula</i>
	bufflehead	<i>Bucephala albeola</i>
	merganser, common	<i>Mergus merganser</i>
merganser, hooded	<i>Lophodytes cucullatus</i>	
duck, ruddy	<i>Oxyura jamaicensis</i>	
Cathartidae	vulture, turkey	<i>Cathartes aura</i>
	vulture, black	<i>Coragyps atratus</i>

Family	Common Name	Scientific Name
	osprey	<i>Pandion haliaetus</i>
Accipitridae	harrier, northern	<i>Circus cyaneus</i>
	hawk, sharp-shinned	<i>Accipiter striatus velox</i>
	hawk, Cooper's	<i>Accipiter cooperii</i>
	goshawk, northern	<i>Accipiter gentilis</i>
	hawk, red-tailed	<i>Buteo jamaicensis</i>
	hawk, red-shouldered	<i>Buteo lineatus</i>
	hawk, broad-winged	<i>Buteo platypterus</i>
	hawk, rough-legged	<i>Buteo lagopus johannis</i>
	eagle, bald	<i>Haliaeetus leucocephalus</i>
	eagle, golden	<i>Aquila chrysaetos</i>
Falconidae	falcon, peregrine	<i>Falco peregrinus</i>
	kestrel, American	<i>Falco sparverius</i>
	merlin	<i>Falco columbarius</i>
Phasianidae	grouse, ruffed	<i>Bonasa umbellus</i>
	pheasant, ring-necked	<i>Phasianus colchicus</i>
	turkey, wild	<i>Meleagris gallopavo silvestris</i>
Odontophoridae	bobwhite, northern	<i>Colinus virginianus</i>
Rallidae	gallinule, common	<i>Gallinula galeata</i>
	coot, American	<i>Fulica americana</i>
	rail, Virginia	<i>Rallus limicola</i>
	sora	<i>Porzana carolina</i>
	moorhen, common	<i>Gallinula chloropus cachinnans</i>
Charadriidae	plover, semipalmated	<i>Charadrius semipalmatus</i>
	killdeer	<i>Charadrius vociferus</i>
Scolopacidae	yellowlegs, greater	<i>Tringa melanoleuca</i>
	yellowlegs, lesser	<i>Tringa flavipes</i>
	sandpiper, upland	<i>Bartramia longicauda</i>
	sandpiper, solitary	<i>Tringa solitaria</i>
	sandpiper, spotted	<i>Actitis macularia</i>
	sandpiper, semipalmated	<i>Calidris pusilla</i>
	sandpiper, least	<i>Calidris minutilla</i>
	sandpiper, pectoral	<i>Calidris melanotos</i>
	sandpiper, white-rumped	<i>Calidris fuscicollis</i>
	dunlin	<i>Calidris alpina</i>
snipe, Wilson's	<i>Gallinago delicata</i>	

Family	Common Name	Scientific Name
	woodcock, American	<i>Scalopax minor</i>
Laridae	gull, Bonaparte's	<i>Chroicocephalus philidelphia</i>
	gull, ring-billed	<i>Larus delawarensis</i>
	gull, Herrington	<i>Larus argentatus</i>
Columbidae	pigeon, rock	<i>Columba livia</i>
	dove, mourning	<i>Zenaida macroura</i>
Cuculidae	cuckoo, yellow-billed	<i>Coccyzus americanus</i>
	cuckoo, black-billed	<i>Coccyzus erythrophthalmus</i>
Tytonidae	owl, barn	<i>Tyto alba</i>
Strigidae	owl, long-eared	<i>Asio otus</i>
	owl, short-eared	<i>Asio flammeus</i>
	owl, great Horned	<i>Bubo virginianus</i>
	owl, barred	<i>Strix varia</i>
	owl, northern saw-whet	<i>Aegolius acadicus</i>
	screech-owl, eastern	<i>Megascops asio</i>
Caprimulgidae	whip-poor-will, eastern	<i>Antrostomus vociferus</i>
	nighthawk, common	<i>Chordeiles minor</i>
Apodidae	swift, chimney	<i>Chaetura pelagica</i>
Trochilidae	hummingbird, ruby-throated	<i>Archilochus colubris</i>
Alcedinidae	kingfisher, belted	<i>Megaceryle alcyon</i>
Picidae	woodpecker, red-headed	<i>Melanerpes erythrocephalus</i>
	woodpecker, red-bellied	<i>Melanerpes carolinus</i>
	sapsucker, yellow-bellied	<i>Sphyrapicus varius</i>
	woodpecker, downy	<i>Picoides pubescens</i>
	woodpecker, hairy	<i>Picoides villosus</i>
	flicker, northern	<i>Colaptes auratus</i>
	woodpecker, pileated	<i>Dryocopus pileatus</i>
Tyrannidae	flycatcher, olive-sided	<i>Contopus cooperi</i>
	wood-pewee, eastern	<i>Contopus virens</i>
	flycatcher, yellow-bellied	<i>Empidonax flaviventris</i>
	flycatcher, Acadian	<i>Empidonax virescens</i>
	flycatcher, willow	<i>Empidonax traillii</i>
	flycatcher, alder	<i>Empidonax alnorum</i>
	flycatcher, least	<i>Empidonax minimus</i>
	phoebe, eastern	<i>Sayornis phoebe</i>
flycatcher, great crested	<i>Myiarchus crinitus</i>	

Family	Common Name	Scientific Name
	kingbird, eastern	<i>Tyrannus</i>
Laniidae	shrike, loggerhead	<i>Lanius ludovicianus</i>
	shrike, northern	<i>Lanius excubitor</i>
Vireonidae	vireo, white-eyed	<i>Vireo griseus</i>
	vireo, blue-headed	<i>Vireo solitarius</i>
	vireo, yellow-throated	<i>Vireo flavifrons</i>
	vireo, warbling	<i>Vireo gilvus</i>
	vireo, Philadelphia	<i>Vireo philadelphicus</i>
	vireo, red-eyed	<i>Vireo olivaceus</i>
Corvidae	jay, blue	<i>Cyanocitta cristata</i>
	raven, common	<i>Corvus corax</i>
	crow, American	<i>Corvus brachyrhynchos</i>
	crow, fish	<i>Corvus ossifragus</i>
Alaudidae	lark, horned	<i>Eremophilla alpestris</i>
Hirundinidae	martin, purple	<i>Progne subis</i>
	swallow, tree	<i>Tachycineta bicolor</i>
	swallow, bank	<i>Tachycineta thalassina</i>
	swallow, rough-winged	<i>Stelgidopteryx serripennis</i>
	swallow, cliff	<i>Petrochelidon pyrrhonota</i>
	swallow, barn	<i>Hirundo rustica</i>
Paridae	chickadee, Carolina	<i>Poecile carolinensis</i>
	chickadee, black-capped	<i>Poecile atricapillus</i>
	titmouse, tufted	<i>Baeolophus bicolor</i>
Sittidae	nuthatch, red-breasted	<i>Sitta canadensis</i>
	nuthatch, white-breasted	<i>Sitta carolinensis</i>
Certhiidae	creeper, brown	<i>Certhia americana</i>
Troglodytidae	wren, Carolina	<i>Thryothorus ludovicianus</i>
	wren, house	<i>Troglodytes aedon</i>
	wren, winter	<i>Troglodytes hiemalis</i>
	wren, marsh	<i>Cistothorus palustris</i>
Regulidae	kinglet, golden-crowned	<i>Regulus satrapa</i>
	kinglet, ruby-crowned	<i>Regulus calendula</i>
Sylviidae	gnatcatcher, blue-gray	<i>Polioptila caerulea</i>
Turdidae	bluebird, eastern	<i>Sialia sialis</i>
	veery	<i>Catharus fuscescens</i>
	thrush, gray-cheeked	<i>Catharus minimus</i>

Family	Common Name	Scientific Name
	thrush, Swainson's	<i>Catharus ustulatus</i>
	thrush, hermit	<i>Catharus guttatus</i>
	thrush, wood	<i>Hylocichla mustelina</i>
	robin, American	<i>Turdus migratorius</i>
Mimidae	catbird, gray	<i>Dumetella carolinensis</i>
	mockingbird, northern	<i>Mimus polyglottos</i>
	thrasher, brown	<i>Toxostoma rufum</i>
Sturnidae	starling, european	<i>Sturnus vulgaris</i>
Motacillidae	pipit, American	<i>Anthus rubescens</i>
Bombycillidae	waxwing, Bohemian	<i>Bombycilla garrulus</i>
	waxwing, cedar	<i>Bombycilla cedrorum</i>
Calcariidae	longspur, lapland	<i>Calcarius lapponicus</i>
	bunting, snow	<i>Plectrophenax nivalis</i>
Parulidae	ovenbird	<i>Seiurus aurocapilla</i>
	warbler, worm-eating	<i>Helmitheros vermivorum</i>
	waterthrush, Louisiana	<i>Parkesia motacilla</i>
	waterthrush, northern	<i>Parkesia noveboracensis</i>
	warbler, black-and-white	<i>Mniotilta varia</i>
	warbler, golden-winged	<i>Vermivora chrysoptera</i>
	warbler, blue-winged	<i>Vermivora cyanoptera</i>
	warbler, orange-crowned	<i>Oreothlypis celata</i>
	warbler, Tennessee	<i>Oreothlypis peregrina</i>
	warbler, Nashville	<i>Oreothlypis ruficapilla</i>
	warbler, Connecticut	<i>Oporornis agilis</i>
	warbler, Kentucky	<i>Geothlypis, Formosa</i>
	warbler, mourning	<i>Geothlypis philadelphia</i>
	yellowthroat, common	<i>Geothlypis trichas</i>
	warbler, hooded	<i>Setophaga citrina</i>
	redstart, American	<i>Seophaga ruticilla</i>
	warbler, Cape May	<i>Setophaha tigrina</i>
	warbler, cerulean	<i>Setophaga cerulea</i>
	parula, northern	<i>Setophaga americana</i>
	warbler, magnolia	<i>Setophaga magnolia</i>
warbler, blackburnian	<i>Setophaga fusca</i>	
warbler, yellow	<i>Setophaga petechia</i>	
warbler, chestnut-sided	<i>Setophaga pensylvanica</i>	

Family	Common Name	Scientific Name
	warbler, black-throated blue	<i>Setophaga caeruleascens</i>
	warbler, blackpoll	<i>Setophaga striata</i>
	warbler, bay-breasted	<i>Setophaga castanea</i>
	warbler, pine	<i>Setophaga pinus</i>
	warbler, prairie	<i>Setophaga discolor</i>
	warbler, palm	<i>Setophaga palmarum</i>
	warbler, yellow-throated	<i>Setophaga dominica</i>
	warbler, yellow-rumped	<i>Setophaga coronata</i>
	warbler, black-throated green	<i>Setophaga virens</i>
	warbler, Wilson's	<i>Cardellina pusilla</i>
	warbler, Canada	<i>Cardellina canadensis</i>
	chat, yellow-breasted	<i>Icteria virens</i>
Emberizidae	towhee, eastern	<i>Pipilo erythrophthalmus</i>
	sparrow, American tree	<i>Spizella arborea</i>
	sparrow, field	<i>Spizella pusilla</i>
	sparrow, chipping	<i>Spizella passerina</i>
	sparrow, Savannah	<i>Passerculus sandwichensis</i>
	sparrow, vesper	<i>Pooecetes gramineus</i>
	sparrow, grasshopper	<i>Ammodramus savannarum</i>
	sparrow, Henslow's	<i>Ammodramus henslowii</i>
	sparrow, fox	<i>Passerella iliaca</i>
	sparrow, song	<i>Melospiza melodia</i>
	sparrow, Lincoln's	<i>Melospiza lincolni</i>
	sparrow, swamp	<i>Melospiza georgiana</i>
	junco, dark-eyed	<i>Junco hyemalis</i>
	sparrow, white-crowned	<i>Zonotrichia leucophrys</i>
	sparrow, white-throated	<i>Zonotrichia albicollis</i>
Cardinalidae	tanager, summer	<i>Piranga rubra</i>
	tanager, scarlet	<i>Piranga olivacea</i>
	cardinal, northern	<i>Cardinalis</i>
	grobeak, rose-breasted	<i>Pheucticus ludovicianus</i>
	bunting, indigo	<i>Passerina cyanea</i>
Icteridae	blackbird, rusty	<i>Euphagus carolinus</i>
	grackle, common	<i>Quiscalus quiscula</i>
	blackbird, red-winged	<i>Agelaius phoeniceus</i>
	cowbird, brown-headed	<i>Molothrus ater</i>

Family	Common Name	Scientific Name
	bobolink	<i>Dolichonyx oryzivorus</i>
	meadowlark, eastern	<i>Sturnella magna</i>
	oriole, orchard	<i>Icterus spurius</i>
	oriole, Baltimore	<i>Icterus galbula</i>
Fringillidae	finch, purple	<i>Haemorhous purpureus</i>
	finch, house	<i>Haemorhous mexicanus</i>
	crossbill, red	<i>Loxia curvirostra</i>
	redpoll, common	<i>Acanthis flammea</i>
	siskin, pine	<i>Spinus pinus</i>
	goldfinch, American	<i>Spinus tristis</i>
Passeridae	sparrow, house	<i>Passer domesticus</i>

Source: BBC 2014, Sibley 2014

Botanical Species that Potentially Occur in the Lake Lynn Project Vicinity

Common Name	Scientific Name	Common Name	Scientific Name
sugar maple	<i>Acer saccharum</i>	Clayton's sweetroot	<i>Osmorhiza claytonii</i>
black cohosh	<i>Actaea racemosa</i>	shortleaf pine	<i>Pinus echinata</i>
yellow buckeye	<i>Aesculus flava</i>	eastern white pine	<i>Pinus strobus</i>
yellow birch	<i>Betula alleghaniensis</i>	Virginia pine	<i>Pinus virginiana</i>
sweet birch	<i>Betula lenta</i>	black cherry	<i>Prunus serotina</i>
mockernut hickory	<i>Carya alba</i>	white oak	<i>Quercus alba</i>
bitternut hickory	<i>Carya cordiformis</i>	swamp white oak	<i>Quercus bicolor</i>
pignut hickory	<i>Carya glabra</i>	scarlet oak	<i>Quercus coccinea</i>
blue cohosh	<i>Caulophyllum thalictroides</i>	southern red oak	<i>Quercus falcata</i>
American beech	<i>Fagus grandifolia</i>	swamp chestnut oak	<i>Quercus prinus</i>
white ash	<i>Fraxinus americana</i>	northern red oak	<i>Quercus rubra</i>
mountain silverbell	<i>Halesia tetraptera</i>	northern red oak	<i>Quercus rubra</i>
black walnut	<i>Juglans nigra</i>	black oak	<i>Quercus velutina</i>
Canadian woodnettle	<i>Laportea canadensis</i>	bloodroot	<i>Sanguinaria canadensis</i>
yellow poplar	<i>Liriodendron tulipifera</i>	American basswood	<i>Tilia americana</i>
cucumber tree	<i>Magnolia acuminata</i>	eastern hemlock	<i>Tsuga canadensis</i>
mountain magnolia	<i>Magnolia fraseri</i>	Canadian white violet	<i>Viola canadensis</i>
blackgum	<i>Nyssa sylvatica</i>		

Source: NatureServe, 2009

APPENDIX F
STUDY REPORTS

LAKE LYNN HYDROELECTRIC PROJECT

FERC No. 2459

EXHIBIT E

ENVIRONMENTAL EXHIBIT

FILED WITH FINAL LICENSE APPLICATION IN NOVEMBER 2022

REVISED APRIL 2024

TABLE OF CONTENTS

TABLE OF CONTENTS	I
1.0 INTRODUCTION	1-1
1.1 Project Overview	1-1
1.2 Pre-Filing Consultation Summary	1-3
1.2.1 Stage 1 Consultation.....	1-3
1.2.2 Stage 2 Consultation.....	1-3
1.2.3 Comments on the Draft License Application	1-5
1.2.4 Purpose of Draft License Application.....	1-5
2.0 STATUTORY AND REGULATORY REQUIREMENTS	2-1
2.1 Federal Power Act.....	2-1
2.1.1 Section 18 Fishway Prescriptions.....	2-1
2.1.2 Section 4(e) Conditions.....	2-1
2.1.3 Section 10(j) Recommendations.....	2-1
2.2 Section 401 of the Clean Water Act.....	2-2
2.3 Endangered Species Act.....	2-2
2.4 Magnuson-Stevens Fishery Conservation and Management Act.....	2-2
2.5 Coastal Zone Management Act.....	2-3
2.6 National Historic Preservation Act.....	2-3
2.7 Wild and Scenic Rivers and Wilderness Acts	2-4
3.0 PROPOSED ACTIONS AND ALTERNATIVES	3-1
3.1 No-Action Alternative	3-1
3.1.1 Existing Project Facilities.....	3-1
3.1.2 Existing Project Operations	3-1
3.1.3 Existing Environmental Measures.....	3-1
3.2 Applicant’s Proposed Action.....	3-2
3.2.1 Proposed Project Facilities and Operations.....	3-2
3.2.2 Proposed Environmental Measures.....	3-15
4.0 ENVIRONMENTAL ANALYSIS.....	4-1
4.1 Analysis of Proposed Action	4-1
4.1.1 Geographic Scope.....	4-1
4.1.2 Temporal Scope.....	4-1
4.1.3 Cumulative Effects.....	4-1
4.2 General Description of the River Basin	4-2
4.2.1 General Description of Watershed.....	4-2
4.2.2 Topography.....	4-4
4.2.3 Climate	4-4

4.2.4	Land and Water Use.....	4-5
4.2.5	References.....	4-6
4.3	Geological and Soil Resources.....	4-8
4.3.1	Affected Environment.....	4-8
4.3.2	Environmental Effects.....	4-9
4.3.3	Unavoidable Adverse Effects.....	4-11
4.3.4	References.....	4-11
4.4	Water Resources.....	4-12
4.4.1	Affected Environment.....	4-12
4.4.2	Environmental Effects.....	4-32
4.4.3	Unavoidable Adverse Effects.....	4-33
4.4.4	References.....	4-33
4.5	Fish and Aquatic Resources.....	4-36
4.5.1	Affected Environment.....	4-36
4.5.2	Environmental Effects.....	4-71
4.5.3	Unavoidable Adverse Effects.....	4-73
4.5.4	References.....	4-73
4.6	Wildlife Resources.....	4-76
4.6.1	Affected Environment.....	4-76
4.6.2	Environmental Effects.....	4-78
4.6.3	Unavoidable Adverse Effects.....	4-78
4.6.4	References.....	4-78
4.7	Botanical Resources.....	4-80
4.7.1	Affected Environment.....	4-80
4.7.2	Environmental Effects.....	4-99
4.7.3	Unavoidable Adverse Effects.....	4-100
4.7.4	References.....	4-100
4.8	Rare, Threatened, and Endangered Species.....	4-102
4.8.1	Affected Environment.....	4-102
4.8.2	Environmental Effects.....	4-104
4.8.3	Unavoidable Adverse Effects.....	4-106
4.8.4	References.....	4-106
4.9	Recreation and Land Use Resources.....	4-108
4.9.1	Affected Environment.....	4-108
4.9.2	Environmental Effects.....	4-121
4.9.3	Unavoidable Adverse Effects.....	4-123
4.9.4	References.....	4-123
4.10	Aesthetic Resources.....	4-124
4.10.1	Affected Environment.....	4-124
4.10.2	Environmental Effects.....	4-127
4.10.3	Unavoidable Adverse Effects.....	4-127

	4.10.4	References.....	4-128
4.11		Historical and Cultural Resources	4-129
	4.11.1	Affected Environment.....	4-129
	4.11.2	Environmental Effects	4-135
	4.11.3	Unavoidable Adverse Effects.....	4-135
	4.11.4	References.....	4-136
4.12		Tribal Resources	4-137
	4.12.1	Affected Environment.....	4-137
	4.12.2	Environmental Effects	4-138
	4.12.3	Unavoidable Adverse Effects.....	4-138
	4.12.4	References.....	4-139
4.13		Socioeconomics.....	4-140
	4.13.1	Affected Environment.....	4-140
	4.13.2	Environmental Effects	4-142
	4.13.3	Unavoidable Adverse Effects.....	4-143
	4.13.4	References.....	4-143
4.14		Environmental Justice.....	4-147
	4.14.1	Affected Environment.....	4-147
	4.14.2	Environmental Effects	4-151
	4.14.3	Unavoidable Adverse Effects.....	4-152
	4.14.4	References.....	4-152
5.0		CONSISTENCY WITH COMPREHENSIVE PLANS.....	5-1
5.1		Consistency with Comprehensive Plans	5-1
	5.1.1	FERC-Approved Federal and State Comprehensive Plans.....	5-1

LIST OF TABLES

Table 1-1	Summary of Studies Completed	1-5
Table 3-1	Summary of Areas Proposed for Removal from the Lake Lynn Project Boundary.....	3-4
Table 3-2	Estimated Proposed PME Capital and O&M Costs	3-17
Table 4-1	Monthly average, minimum, and maximum inflow to the Lake Lynn Project (January 1, 2011, to December 31, 2021).....	4-13
Table 4-2	NPDES discharges into Cheat Lake	4-13
Table 4-3	Selected West Virginia Water Quality Standards Applicable to Cheat Lake	4-14
Table 4-4	Maximum Temperatures for Category B2 Trout Waters	4-14

Table 4-5	Pennsylvania Water Quality Standards Applicable to the Cheat River downstream of the Lake Lynn dam.....	4-15
Table 4-6	Range (Mean) of water quality data by year collected from April 1 to October 31 of 2013 to 2017 at the Lake Lynn Project.	4-17
Table 4-7	Average (minimum-maximum) daily average water temperature and conductivity, range of daily minimum DO, and daily minimum and maximum pH from April 1 to October 31, 2018, 2019, and 2020 at the Lake Lynn Project.	4-19
Table 4-8	Water quality data statistics from the Lake Lynn Reservoir monitoring site, April 1 to October 31, 2021.....	4-22
Table 4-9	Water quality data statistics from the Lake Lynn Tailrace monitoring site, April 1 to October 31, 2021.....	4-22
Table 4-10	Water quality data statistics from the Lake Lynn Downstream monitoring site, April 1 to October 31, 2021.	4-22
Table 4-11	WVDEP water quality data collected downstream of the Lake Lynn dam, 2009 to 2021.....	4-31
Table 4-12	Cheat River Substrate Summary during 2020 Mussel Survey.....	4-38
Table 4-13	Summary of Cheat River and Cheat Lake Biomonitoring Activities from 1997 to 2020.....	4-42
Table 4-14	Temporal Trends in Fish Catch Per Unit Effort of Boat Electrofishing in the Lake Lynn Impoundment.....	4-47
Table 4-15	Fish Species Richness for Cheat Lake Tailwater and Cheat River Summarized by Gear Type.....	4-50
Table 4-16	Mussels Known Historically from the Cheat River	4-54
Table 4-17	Botanical Communities within 1 Mile of Lake Lynn Project Boundary.....	4-80
Table 4-18	Botanical Communities within the Existing and Proposed Lake Lynn Project Boundary.....	4-82
Table 4-19	Wetlands within the Existing and Proposed Lake Lynn Project Boundary.....	4-93
Table 4-20	Potentially Occurring Rare, Threatened, Endangered, Candidate and Proposed Species in the Project Area	4-102
Table 4-21	Habitat Information of Federally Listed, Candidate and Proposed Species Potentially Occurring in Lake Lynn Project Boundary	4-103
Table 4-22	Potentially Occurring Migratory Bird Species.....	4-104
Table 4-23	FERC-Approved Recreation Facilities at the Lake Lynn Project.....	4-109
Table 4-24	Estimated Annual Use of Primary Sites in 2020.....	4-117
Table 4-25	Proportion of the Population Living in Urban and Rural Areas, 2010* .	4-140

Table 4-26 Population Statistics for the Lake Lynn Project Vicinity..... 4-141

Table 4-27 Economic Characteristics of the Lake Lynn Project Region (2020 Estimates)
 4-141

Table 4-28 Employment by Industry in the Lake Lynn Project Vicinity 4-142

Table 4-29 Current Community Data within one mile of the Lake Lynn Project Boundary
 4-150

LIST OF FIGURES

Figure 1-1 Location of the Lake Lynn Project..... 1-2

Figure 3-1 Existing Project Boundary at Lake Lynn..... 3-6

Figure 3-2 Proposed Project Boundary at Lake Lynn 3-7

Figure 3-3 Comparison of the existing Project Boundary and Proposed Project
 Boundary..... 3-8

Figure 3-4 Proposed Project Boundary Changes Overview..... 3-9

Figure 3-5 Areas A, B, and C Proposed for Removal from the Lake Lynn Project
 Boundary..... 3-10

Figure 3-6 Area D Proposed for Removal from the Lake Lynn Project Boundary 3-11

Figure 3-7 Areas E, F, and G Proposed for Removal from the Lake Lynn Project
 Boundary..... 3-12

Figure 3-8 Area H Proposed for Removal from the Lake Lynn Project Boundary 3-13

Figure 3-9 Areas Proposed for Contour Adjustment at the Lake Lynn Project Boundary
 3-14

Figure 4-1 Overview of the Cheat River Watershed 4-3

Figure 4-2 Water quality monitoring stations at the Lake Lynn Project..... 4-21

Figure 4-3 Daily minimum DO and daily average water temperature at the reservoir
 monitoring site, April 1 to October 31, 2021..... 4-23

Figure 4-4 Daily average pH at the reservoir monitoring site, April 1 to October 31,
 2021..... 4-23

Figure 4-5 Daily average conductivity at reservoir monitoring site, April 1 to October
 31, 2021..... 4-24

Figure 4-6 Daily minimum DO and daily average water temperature at the tailwater
 monitoring site, April 1 to October 31, 2021..... 4-24

Figure 4-7 Daily average pH at the tailwater monitoring site, April 1 to October 31,
 2021..... 4-25

Figure 4-8 Daily minimum DO at the downstream monitoring site, April 1 to October 31, 2021.....4-25

Figure 4-9 Daily average pH at the downstream monitoring site, from April 1 to October 31, 2021.4-26

Figure 4-10 Lake Lynn Reservoir Inflow and DO, April 1-October 31, 2022.....4-27

Figure 4-11 Lake Lynn Reservoir Temperature and DO, April 1-October 31, 2022.4-28

Figure 4-12 Lake Lynn Reservoir Inflow and Project Generation, April 1-October 31, 2022.4-28

Figure 4-13 Lake Lynn Project Tailrace DO and Generation, June 1-October 31, 2022.....4-29

Figure 4-14 Lake Lynn Aquatic Habitat.....4-37

Figure 4-15 Fish Sampling Locations in Lake Lynn (2005, 2008, 2011, 2014, and 2015) (1 of 2).....4-45

Figure 4-16 Fish Sampling Locations in Lake Lynn (2005, 2008, 2011, 2014, and 2015) (2 of 2).....4-46

Figure 4-17 Tailwater and Cheat River fish sampling locations, 2005 and 2008; WVU fish sampling locations 2011 and 2014.....4-51

Figure 4-18 2019 American Eel eDNA Study Sites.....4-52

Figure 4-19 2020 Cheat River Mussel Survey Locations4-56

Figure 4-20 Map of Hydrilla Distribution in the Lower 48 States of United States of America (Jacono et. al 2024).....4-61

Figure 4-21 Hydrilla density in the entire Cheat Lake Extent.....4-62

Figure 4-22 Hydrilla Density in the Lower portion of Cheat Lake4-63

Figure 4-23 Hydrilla Density in the Middle Portion of Cheat Lake4-64

Figure 4-24 Hydrilla Density in the Upper Portion of Cheat Lake.....4-65

Figure 4-25 Map of Zebra Mussel Distribution in the Lower 48 States of United States of America (Benson et. al 2024)4-68

Figure 4-26 Map of Rusty Crayfish Distribution in the Lower 48 States of United States of America (Durland et. al. 2024).....4-69

Figure 4-27 Map of Virile Crayfish Distribution in the Lower 48 States of United States of America (Durland 2024).....4-70

Figure 4-28 Map of Silver Carp Distribution in the Lower 48 States of United States of America (Nico et. al 2024).....4-71

Figure 4-29 Botanical Communities within 1 Mile of Lake Lynn Project4-83

Figure 4-30 Botanical Communities within the Proposed and Existing Project Boundaries4-84

Figure 4-31 Botanical Communities within the Proposed and Existing Project Boundaries4-85

Figure 4-32 Botanical Communities within the Proposed and Existing Project Boundaries4-86

Figure 4-33 Botanical Communities within the Proposed and Existing Project Boundaries4-87

Figure 4-34 Botanical Communities within the Proposed and Existing Project Boundaries4-88

Figure 4-35 Botanical Communities within the Proposed and Existing Project Boundaries4-89

Figure 4-36 Wetlands and Aquatic Habitat at the Lake Lynn Project.....4-94

Figure 4-37 Wetlands and Aquatic Habitat in the Northern Portion of Lake Lynn.....4-95

Figure 4-38 Wetlands and Aquatic Habitat in the Upper-Middle Portion of Lake Lynn.....4-96

Figure 4-39 Wetlands and Aquatic Habitat in the Lower-Middle Portion of Lake Lynn.....4-97

Figure 4-40 Wetlands and Aquatic Habitat in the Southern Portion of Lake Lynn.....4-98

Figure 4-41 Lake Lynn Project Recreation Sites..... 4-111

Figure 4-42 Land Use in the Lake Lynn Project Boundary 4-120

Figure 4-43 Environmental Justice Communities within one mile of the Lake Lynn Project..... 4-149

LIST OF PHOTOS

Photo 4.1 Cheat River Habitat Directly Downstream of the Lake Lynn Dam during the 2020 Mussel Survey (TRC 2020)4-39

Photo 4.2 Cheat River Pool Habitat Downstream of the Lake Lynn Dam during the 2020 Mussel Survey (TRC 2020)4-40

Photo 4.3 Acid Mine Drainage in the Cheat River Downstream of the Lake Lynn Dam during 2020 Mussel Survey (TRC 2022)4-41

Photo 4.4 Public Hydrilla Warning Sign at the Cheat Lake Park Boat Ramp.....4-66

Photo 4.5 Tailrace Fishing Platform..... 4-112

Photo 4.6 Cheat Lake Trail – Over Northern Causeway from Cheat Lake Park 4-113

Photo 4.7 Cheat Lake Trail – Terminus 4-114

Photo 4.8 Cheat Lake Park – Playground Area..... 4-115

Photo 4.9 Cheat Lake Park – Boat Launch..... 4-115

Photo 4.10 View of Lower Cheat Lake from the Cheat Lake Trail 4-125
Photo 4.11 View of Upper Cheat Lake from the Cheat Lake Trail South..... 4-125
Photo 4.12 View of Lower Cheat Lake from Cheat Lake Park..... 4-126
Photo 4.13 View of Lower Cheat Lake from the beach at Cheat Lake Park 4-126
Photo 4.14 View of Project Dam from Tailwater Fishing Pier..... 4-127

LIST OF APPENDICES

Appendix A: Consultation Summary
Appendix B: Response to Comments on the Draft License Application
Appendix C: Flow Duration Curves
Appendix D: Lake Lynn Dissolved Oxygen Standard Operating Procedures
Examples Data
Appendix E: Species Lists
Appendix F: Study Reports

ACRONYM LIST

A

ADA	Americans with Disabilities Act
AMD	acid mine drainage
APE	Area of Potential Effect
Applicant	Lake Lynn Generation, LLC

B

BCC	Birds of Conservation Concern
-----	-------------------------------

C

°C	degrees Celsius
cfs	cubic feet per second
CLEAR	Cheat Lake Environment and Recreation Association
COVID-19	Coronavirus Disease 2019
CPUE	catch per unit effort
CSRV	Cumberland and Southern Ridge Valley
CWA	Clean Water Act
CZMA	Coastal Zone Management Act

D

DLA	Draft License Application
DO	dissolved oxygen

E

Eagle Creek	Eagle Creek Renewable Energy, LLC
eDNA	environmental DNA
EFH	Fish Habitat
EPRI	Electric Power Research Institution
ESA	Endangered Species Act

F

°F	degrees Fahrenheit
FERC / Commission	Federal Energy Regulatory Commission
FLA	Final License Application
FOC	Friends of the Cheat
FPA	Federal Power Act

G

GIS	geographic information system
-----	-------------------------------

H

HUC Hydrologic Unit Code

I

IPaC Information for Planning and Consultation

L

Lake Lynn Lake Lynn Generation, LLC
Lake Lynn Project Lake Lynn Hydroelectric Project

M

Mg/l milligrams per liter
MRTC Monongahela River Trails Conservancy
MW megawatts
 μ S/cm microsiemens per centimeter

N

NEPA National Environmental Policy Act
NGVD National Geodetic Vertical Datum
NHPA National Historic Preservation Act
NLEB northern long-eared bat
NMFS National Marine Fisheries Service
NOAA National Oceanic and Atmospheric Administration
NOI Notification of Intent
NPDES National Pollution Discharge Elimination System
NRCS Natural Resources Conservation Service
NRHP National Register of Historic Places
NV/WHA nature viewing/wildlife habitat areas
NWI National Wetland Inventory

O

O&M operations and maintenance

P

PAD Pre-application Document
PADCNR Pennsylvania Department of Conservation and Natural Resources
PADEP Pennsylvania Department of Environmental Protection
PA-SHARE Pennsylvania's State Historic & Archaeological Resource Exchange
PASHPO Pennsylvania State Historic Preservation Office
PFBC Pennsylvania Fish and Boat Commission

PHMC Pennsylvania Historical and Museum Commission
PME protection, mitigation, and enhancement
PNHP Pennsylvania Natural Heritage Program

R

REA Ready for Environmental Analysis
RM river miles
RTE rare, threatened, and endangered

S

SMP Shoreline Management Plan

T

TBSA Turbine Blade Strike Analysis
TCP Traditional Cultural Properties
TLP Traditional Licensing Process

U

USACE United States Army Corps of Engineers
U.S.C. United States Code
USEPA U.S. Environmental Protection Agency
USFWS U.S. Fish and Wildlife Service
USGS U.S. Geological Survey

W

WVDEP West Virginia Department of Environmental Protection
WVDNR West Virginia Division of Natural Resources
WVSHPO West Virginia State Historic Preservation Office
WVU West Virginia University
WWF Warm Water Fishes

1.0 INTRODUCTION

1.1 Project Overview

Lake Lynn Generation, LLC (Lake Lynn, Licensee, or Applicant), a subsidiary of Eagle Creek Renewable Energy, LLC (Eagle Creek), is the owner and operator of the Lake Lynn Hydroelectric Project (FERC No. 2459) (Lake Lynn Project). The current Federal Energy Regulatory Commission (FERC or Commission) license for the Lake Lynn Project was issued on December 27, 1994 and expires on November 30, 2024. Lake Lynn must file its final license application (FLA) for a new license with FERC no later than November 30, 2022.

The Lake Lynn Project is located on the Cheat River in Monongalia County, West Virginia and Fayette County, Pennsylvania, approximately 10 miles northeast of Morgantown, West Virginia. The Lake Lynn Project is located about 3.7 miles upstream of the confluence with the Monongahela River. Figure 1-1 provides the general location of the Lake Lynn Project. The Lake Lynn Project does not use any federal facilities and occupies no federal lands. The Lake Lynn Project is not located within any town or city.

The Lake Lynn Project is operated as a dispatchable peaking hydroelectric facility with storage capability. The Lake Lynn Project combined maximum generating capacity is 51.2 megawatts (MW).

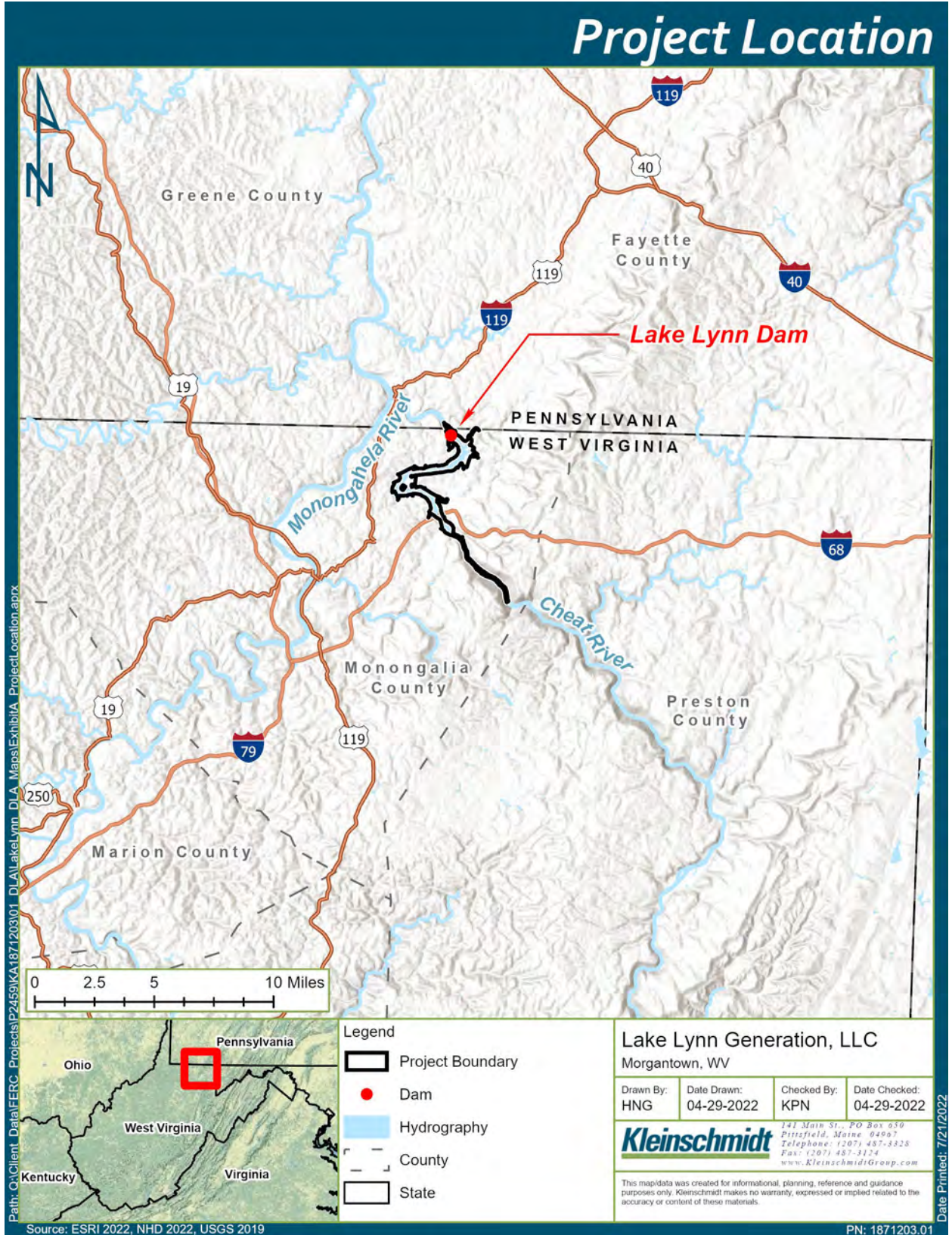


Figure 1-1 Location of the Lake Lynn Project

1.2 Pre-Filing Consultation Summary

1.2.1 Stage 1 Consultation

On August 29, 2019, Lake Lynn filed a Notification of Intent (NOI), a Pre-application Document (PAD), and requested to use the Traditional Licensing Process (TLP) and designation as the non-federal representative for purposes of consultation under Section 7 of the Endangered Species Act (ESA) and Section 106 of the National Historic Preservation Act (NHPA). Prior to filing the NOI and PAD, Lake Lynn initiated consultation with resource agencies, Tribes, and other interested parties to inform them of the Lake Lynn Project relicensing and development of the PAD and to solicit their input. On October 17, 2019, FERC granted approval for Lake Lynn to use the TLP, and authorization for Lake Lynn to act as non-federal representative for ESA and Section 106 NHPA consultation.

Lake Lynn published notice of the NOI and PAD in the *Herald Standard* and *The Dominion Post*, two daily newspapers of general circulation in Monongalia County, West Virginia and Fayette County, Pennsylvania. On November 21, 2019, pursuant to 18 Code of Federal Regulation (CFR) § 16.8(b)(3), Lake Lynn provided written notice to FERC and the Lake Lynn Project Distribution List of its Joint Meeting and Site Visit for the relicensing of the Lake Lynn Project. In accordance with the requirements of 18 CFR § 16.8(i), Lake Lynn published notice of the Joint Meeting and Site Visit in the *Herald-Standard* (a daily newspaper of general circulation in Fayette County, Pennsylvania) and *The Dominion Post* (a daily newspaper of general circulation in Monongalia County, West Virginia).

Lake Lynn held a Joint Meeting and site visit for the Lake Lynn Project on December 12, 2019. The purpose of the meeting was to: (1) provide information about the Lake Lynn Project and licensing process; (2) solicit information regarding the existing environmental resources associated with the Lake Lynn Project and data that may need to be obtained; and (3) obtain agency and stakeholder opinions regarding the Lake Lynn Project and its potential effect on existing resources.

1.2.2 Stage 2 Consultation

Appendix A provides copies of consultation and comments received from agencies and stakeholders.

Lake Lynn initiated the relicensing process in August 2019 by filing a NOI and PAD. At the same time, Lake Lynn requested FERC approval to use the TLP. FERC approved the use of the TLP in October 2019, and in accordance with FERC regulations, Lake Lynn held a Joint Meeting and Site Visit in December 2019. Following the Joint Meeting and Site Visit, resource agencies and other stakeholders were afforded the opportunity to comment on the PAD and to request resource studies that they deemed were needed to evaluate Lake Lynn Project impacts on natural, cultural, and recreational resources.

In response to the NOI/PAD filing and the Joint Meeting and Site Visit, Lake Lynn received written comments and study requests from the U.S. Fish and Wildlife Service (USFWS), West Virginia Division of Natural Resources (WVDNR), Cheat Lake Environment and Recreation Association (CLEAR), Friends of the Cheat (FOC), Monongahela River Trails Conservancy (MRTC), and individual residents in the local community.

Based on the comments received, Lake Lynn developed and distributed a draft Study Plan to the resource agencies and stakeholders on April 15, 2020, for review. Lake Lynn held a conference call/meeting on April 24, 2020, to review and discuss the draft Study Plan. The draft Study Plan was revised based on the discussions and a revised Study Plan was distributed to resource agencies and stakeholders and then finalized and distributed in September 2020 to include changes to the mussel survey as a result of the development for a survey plan for the mussel survey.

The draft study reports for the Desktop Fish Entrainment Assessment, Tailwater Mussel Survey, and Recreation Site Enhancement Feasibility and Assessment were provided to the relicensing stakeholders in January 2021, January 2021, and July 2021, respectively. In addition, the annual shoreline erosion surveys, annual water quality monitoring reports, the Aquatic Habitat Enhancement and Monitoring under the Aquatic Biomonitoring Plan (submitted as part of the Aquatic Biomonitoring Plan annual report) and the American Eel Environmental DNA Sampling (submitted as part of the Aquatic Biomonitoring Plan annual report) were provided to the relicensing stakeholders upon filing with FERC. A summary of all studies completed are included in Table 1-1.

Table 1-1 Summary of Studies Completed

Study Name	Date Completed
Desktop Fish Entrainment Assessment	January 2021
Tailwater Mussel Survey	December 2020
Recreation Site Enhancement Feasibility and Assessment	June 2021
American Eel Environmental DNA Sampling	September 2021
Streamflow Data Collaboration	Collaboration completed September 2020
Aquatic Biomonitoring Plan: Aquatic Habitat Enhancement and Monitoring	December 2020
Aquatic Biomonitoring Plan: Angler Creel Survey	Ongoing (to be completed December 2022)
Shoreline Classification and Aquatic Habitat Mapping	2021 (results will be used for development of Shoreline Management Plan)

1.2.3 Comments on the Draft License Application

The Draft License Application (DLA) was filed with FERC and sent via email to interested stakeholders for review and comment on August 5, 2022 with stakeholder comments due by November 7, 2022. Lake Lynn received comments from FERC (letter dated November 3, 2022), the United States Department of the Interior Bureau of Indian Affairs (letter dated September 8, 2022), WVDNR (letter dated November 7, 2022), and CLEAR (email dated November 8, 2022). Appendix B provides Lake Lynn’s responses to comments and how comments have been addressed in the FLA, as appropriate.

1.2.4 Purpose of Draft License Application

The purpose of this Environmental Exhibit is to describe: (1) the existing and proposed project facilities, project lands, and waters; (2) existing and proposed project operations and maintenance, including protection, mitigation, and enhancement (PME) measures for each resource area potentially affected by the relicensing; and (3) to provide a draft analysis of the effects of the proposed relicensing on each environmental resource. Lake Lynn proposes to continue to operate the Lake Lynn Project under existing conditions, no new facility construction is proposed, and proposed PME measures are provided in Section 3.2.2, *Proposed Environmental Measures*.

2.0 STATUTORY AND REGULATORY REQUIREMENTS

2.1 Federal Power Act

Issuance of a new license for the Lake Lynn Project is subject to requirements under the Federal Power Act (FPA) and other federal statutes. Requirements applicable to this DLA are summarized in the following sections.

2.1.1 Section 18 Fishway Prescriptions

Under Section 18 of the FPA, USFWS and the National Marine Fisheries Service (NMFS) have the authority to prescribe fishways at federally regulated hydropower projects. Currently there are no fish passage facilities or prescriptions at Lake Lynn Project. No preliminary prescriptions have been filed by either agency. Following the filing of the FLA, fishway prescriptions, if any, would be filed within 60 days after FERC's Notice for Acceptance and Ready for Environmental Analysis (REA) Notice in accordance with 18 CFR §4.34(b).

2.1.2 Section 4(e) Conditions

Section 4(e) of the FPA requires that any license issued by FERC for a project within a federal reservation shall be subject to and contain such conditions as the Secretary of the responsible federal land management agency deems necessary for the adequate protection and use of the reservation. The Lake Lynn Project does not encompass any federal lands; therefore, these conditions do not apply.

2.1.3 Section 10(j) Recommendations

Under Section 10(j) of the FPA, FERC must consider recommendations provided by federal and state fish and wildlife agencies for the protection, mitigation, and enhancement of fish and wildlife resources affected by the Lake Lynn Project prior to issuing the new license. FERC would include these conditions unless it determines that they are inconsistent with the purposes and requirements of the FPA or other applicable law. No preliminary Section 10(j) recommendations have been provided by state fish and wildlife agencies to date.

2.2 Section 401 of the Clean Water Act

Section 401 of the Federal Clean Water Act (CWA), 33 United States Code (U.S.C.) § 1341, et. seq requires that any applicant for a federal license or permit to conduct an activity that will or may discharge into waters of the United States (as defined in the CWA) must present the federal authority with a certification from the appropriate state agency. Pursuant to W. Va. Code § 22-11-7a the West Virginia Department of Environmental Protection (WVDEP) is the appropriate permitting agency designated to carry out the certification requirements prescribed in Section 401 of the CWA for waters of West Virginia under delegated authority from the U.S. Environmental Protection Agency (USEPA). The Pennsylvania Department of Environmental Protection (PADEP) is the appropriate permitting agency designated to carry out the certification requirements prescribed in Section 401 of the CWA for waters of Pennsylvania under delegated authority from the USEPA. Lake Lynn would request Water Quality Certification (WQC) from the WVDEP, as appropriate, in accordance with 18 CFR §4.34(b) within or before 60 days of FERC's issuance of notice of acceptance of the FLA and REA notice.

2.3 Endangered Species Act

The ESA (19 U.S.C. § 1536(c)), as amended, provides a program for the conservation of threatened and endangered plants and animals and their habitats in which they are found. The lead federal agencies for implementing ESA are the USFWS and the National Oceanic and Atmospheric Administration (NOAA) Fisheries Service. Section 7 of the ESA requires federal agencies, in consultation with the USFWS and/or NOAA to ensure that actions they authorize, fund, or carry out are not likely to jeopardize the continued existence of any listed species or result in the destruction or adverse modification of designated critical habitat of such species. On October 17, 2019, FERC granted Lake Lynn designation as the FERC's non-federal representative for carrying out information consultation pursuant to Section 7 of the ESA. The endangered Indiana bat (*Myotis sodalis*), the threatened northern long-eared bat (*Myotis septentrionalis*), the threatened flat-spined three-toothed snail (*Triodopsis platysayoides*), and the candidate monarch butterfly (*Danaus plexippus*) have potential to occur within the Lake Lynn Project area. See additional discussion in Section 4.8, *Rare, Threatened, and Endangered Species*.

2.4 Magnuson-Stevens Fishery Conservation and Management Act

The Magnuson-Stevens Fishery Conservation and Management Act requires federal agencies to consult with NOAA Fisheries on actions that may adversely affect Essential

Fish Habitat (EFH). EFH is only applicable to federally managed commercial fish species that live at least one component of their lifecycle in marine waters. All fish in the Cheat River are freshwater species that are not managed commercially; therefore, there is no designated EFH in the Lake Lynn Project area.

2.5 Coastal Zone Management Act

Under Section 307 (c)(3)(A) of the Coastal Zone Management Act (CZMA), FERC cannot issue a license for a project within or affecting a states' coastal zone unless the state CZMA agency concurs with the license applicant's certification of consistency with the state's CZMA program, or the agency's concurrence is conclusively presumed by its failure to act within 180 days of its receipt of the applicant's certification¹.

The Lake Lynn Project is not located within a Coastal Zone and, therefore, is not subject to the CZMA. West Virginia does not have any Coastal Zones. Pennsylvania has two coastal areas: Lake Erie Coastal Zone located within Erie County and Delaware Estuary Coastal Zone within Bucks, Philadelphia, and Delaware counties².

2.6 National Historic Preservation Act

Section 106 of the NHPA, as amended, requires FERC to consider the effect of its undertakings on historic properties. Historic properties are any prehistoric or historic districts, sites, buildings, structures, Traditional Cultural Properties (TCP), and objects significant in American history, architecture, engineering, and culture that are eligible for inclusion in the NRHP. FERC initiated consultation under Section 106 with federally recognized Indian tribes, including the Osage Nation, the Delaware Nation, and the Delaware Tribe of Indians, by letters dated June 27, 2019. On October 17, 2019, FERC granted Lake Lynn designation as its non-federal representative for executing information consultation pursuant to Section 106 of the NHPA. Lake Lynn consulted with the West Virginia State Historic Preservation Office (WVSHPO), the Pennsylvania State Historic

¹ Lake Lynn has reached out to the Pennsylvania coastal zone management program via email on February 24, 2023 and April 20, 2023 to request this statement. The Pennsylvania Coastal Zone Management Program office provided a response via email dated April 25, 2023 (see Appendix A) that the Lake Lynn Project is located outside of Pennsylvania's designated coastal zones and will not impact upon them.

² West Virginia Department of Environmental Protection Coastal Resources Management Program.
<https://www.dep.pa.gov/Business/Water/Compacts%20and%20Commissions/Coastal%20Resources%20Management%20Program/Pages/About-the-Program.aspx>. Accessed: November 23, 2022.

Preservation Office (PASHPO) and the tribes that may have an interest in the Lake Lynn Project regarding the relicensing via an initial letter on May 20, 2019 and the distribution of the NOI and PAD on August 29, 2019. The PASHPO indicated that a preliminary review of the Lake Lynn Project indicates that there may be National Register-eligible aboveground resources in the Lake Lynn Project area and that if changes are proposed surveys must be conducted. On June 19, 2019, the Cherokee Nation stated that the Lake Lynn Project is outside their Area of Interest and deferred to federally recognized tribes that may have an interest in the area. On July 10, 2019, the Delaware Nation stated that the location of the proposed Lake Lynn Project does not endanger cultural or religious sites of interest and requested to be contacted within 24 hours if any artifacts are discovered. No other tribes have responded to the information request. Lake Lynn consulted with the WVSHPO, PASHPO and the tribes that may have an interest in the Lake Lynn Project on a draft Study Plan. No study requests or comments related to cultural resources or historic structures were received. Lake Lynn submitted a formal Lake Lynn Project review request to the WVSHPO and PASHPO on October 26, 2020. The DLA was distributed to the WVSHPO, PASHPO and the tribes that may have an interest in the Lake Lynn Project relicensing concurrent with filing the DLA. On September 9, 2022, the Bureau of Indian Affairs submitted comments on the DLA indicating that the Catawba Indian Nation was not listed as one of the American Indian tribes contacted in the application. Lake Lynn has included the Catawba Indian Nation on the distribution list of the FLA to include them as part of tribal consultation as required under 36 CFR Part 800.2(c)(2)(ii). On August 12, 2022, the Oneida Nation noted that it did not have comments on the DLA.

2.7 Wild and Scenic Rivers and Wilderness Acts

Section (7) of the Wild and Scenic Rivers Act requires federal agencies to decide as to whether the operation of a hydropower project under a new license would unreasonably diminish the scenic, recreational, and fish and wildlife values present in the designated area. The Wilderness Act of 1964 established a National Wilderness Preservation System. There are no nationally designated wild and scenic rivers or wilderness areas within the Lake Lynn boundary or in the vicinity of the Lake Lynn Project.

3.0 PROPOSED ACTIONS AND ALTERNATIVES

3.1 No-Action Alternative

The no-action alternative means that the Lake Lynn Project would continue to operate as authorized by the current license. Existing facilities would remain in place and existing PME measures would continue, but there would be no additional protection or enhancement of resources as described below. If the Lake Lynn Project were to operate as in the past, Lake Lynn would continue to produce energy in the present manner. The no-action alternative represents the baseline Lake Lynn Project energy production and environmental conditions for comparison with the applicant's proposed action.

3.1.1 Existing Project Facilities

The principle features of the Lake Lynn Project are the dam, powerhouse, impoundment and appurtenant facilities. The Lake Lynn Dam consists of a 125-foot-high by 1,000-foot-long concrete gravity type dam with a 624-foot-long spillway controlled by 26 Tainter gates. The powerhouse is located adjacent to the dam on the eastern bank of the river. The powerhouse contains four generating units. Exhibit A provides a detailed description of the Lake Lynn Project facilities.

3.1.2 Existing Project Operations

Lake Lynn typically operates the Lake Lynn Project as a dispatchable peaking hydroelectric facility with storage capability. The facility's ponding capability varies by season and allows for peaking.

3.1.3 Existing Environmental Measures

The Lake Lynn Project is operated in accordance with the FERC License and the provisions of Water Quality Certification, including any required environmental protection, mitigation, and enhancement measures. Key environmental measures currently undertaken at the Lake Lynn Project are as follows:

Minimum Flows: The current FERC License requires Lake Lynn release a minimum flow of 212 cubic feet per second (cfs) from the dam with an absolute minimum flow of 100 cfs regardless of inflow.

Reservoir Levels: The current FERC license requires that the Lake Lynn Project is operated to maintain Cheat Lake water levels between 868 feet and 870 feet NGVD0F3 from May 1 through October 31, between 857 feet and 870 feet from November 1 through March 31, and between 863 feet and 870 feet from April 1 through April 30.

Aquatic Biomonitoring Plan: License Article 411 of the current FERC license requires that Lake Lynn was to file a biological monitoring plan within one year of License issuance and to then update the plan every three years. In accordance with FERC's January 3, 2022 Order Modifying and Approving 2021 Biological Monitoring Plan, Lake Lynn must file annual status reports on the Lake Lynn Project Aquatic Biomonitoring Plan 2021-2023 (2021 Biomonitoring Plan) by March 1 in the years 2022, 2023 and 2024 after providing the report to the United States Fish and Wildlife Service (USFWS), West Virginia Division of Natural Resources (WVDNR), and Pennsylvania Fish and Boat Commission (PFBC) for review and comment.

Water Quality Monitoring Plan: Article 405 of the Lake Lynn Project license and the FERC-approved Water Quality Monitoring Plan dated October 1995 require the licensee to file an annual summary report of the water quality monitoring data with FERC within 150 days, or March 29, following the end of the monitoring season. The FERC-approved Water Quality Monitoring Plan requires the licensee share the annual summary with the United States Fish and Wildlife Service (USFWS), West Virginia Division of Natural Resources (WVDNR), Pennsylvania Fish and Boat Commission (PFBC), and West Virginia Department of Environmental Protection (WVDEP) (Resource Agencies) within 90 days, or January 29, of the end of the monitoring season.

Project Recreation Facilities – To enhance public recreation at the Lake Lynn Project, the Licensee operates and maintains several public recreation facilities that provide recreational access to Lake Lynn Project lands and waters.

3.2 Applicant's Proposed Action

3.2.1 Proposed Project Facilities and Operations

The Licensee is proposing no modifications to the existing Lake Lynn Project facilities. The existing dam, powerhouse, and generating equipment are all well maintained, in good

³ National Geodetic Vertical Datum of 1929.

working order, and no changes are required or proposed to these facilities that are outside the normal maintenance practices or ongoing FERC safety requirements.

As described in Exhibit B, Lake Lynn proposes to operate the Lake Lynn Project as a dispatchable peaking hydroelectric facility with storage capability. The facility's ponding capability varies by season and allows for peaking. The Lake Lynn Project has four Francis generating units with a total combined maximum output capacity of 51.2 MW. The Licensee is proposing no changes to the way in which the Lake Lynn Project is currently operated.

Lake Lynn is proposing to remove approximately 243.8 acres of land that are not required for Lake Lynn Project purposes. The current Project Boundary contains approximately 2,291 acres of lands, and the proposed Project Boundary would have approximately 2,047 acres of land (Figure 3-1, Figure 3-2, and Figure 3-3). The following is a list of areas proposed for removal (Table 3-1). Additionally, the areas proposed for removal are depicted on Figure 3-4, Figure 3-5, Figure 3-6, Figure 3-7, and Figure 3-8. In addition to specific areas proposed for removal, some areas were previously bounded by a contour elevation above the normal full pool elevation (870' NGVD 29); these areas are owned by Licensee but the proposed Project boundary has been aligned with contour data at elevation 870 as these lands are not needed for Lake Lynn Project purposes (Figure 3-9). The Licensee proposes to maintain ownership of the lands identified for removal from the Project Boundary.

Table 3-1 Summary of Areas Proposed for Removal from the Lake Lynn Project Boundary

Area ID	Proposed Acres Removed	Previous Project Purpose	Reason for Removal
Area A	76.6	Non-Project substation; lands above normal full pool elevation (870' NGVD 29) owned by Licensee not included as mitigation lands	Project boundary aligned with contour data (870' NGVD 29). Land to be removed will be retained as Lake Lynn Generation LLC ownership. No existing structures on this portion of land proposed for removal.
Area B	3.1	Lands above normal full pool elevation (870' NGVD 29) owned by Licensee not included as mitigation lands	Project boundary aligned with contour data. Land to be removed will be retained as Lake Lynn Generation LLC ownership. No existing structures on this portion of land proposed for removal.
Area C	11.4	Lands above normal full pool elevation (870' NGVD 29) owned by Licensee not included as mitigation lands	Project boundary aligned with contour data. Land to be removed will be retained as Lake Lynn Generation LLC ownership. No existing structures on this portion of land proposed for removal.
Area D	31.2	Lands above normal full pool elevation (870' NGVD 29) owned by Licensee not included as mitigation lands	Project boundary aligned with contour data. Land to be removed will be retained as Lake Lynn Generation LLC ownership
Area E	18.6	Lands above normal full pool elevation (870'	Project boundary aligned with contour data. Land to be

Area ID	Proposed Acres Removed	Previous Project Purpose	Reason for Removal
		NGVD 29) owned by Licensee not included as mitigation lands	removed will be retained as Lake Lynn Generation LLC ownership
Area F	29.5	Lands above the Cheat Lake Trail owned by Licensee not included as mitigation lands	Project boundary offset from the Cheat Lake Trail to conduct maintenance activities and aligned with contour data. Land to be removed will be retained as Lake Lynn Generation LLC ownership
Area G	10.1	Lands above normal full pool elevation (870' NGVD 29) owned by Licensee not included as mitigation lands	Project boundary aligned with contour data. Land to be removed will be retained as Lake Lynn Generation LLC ownership
Area H	32.2	Lands above normal full pool elevation (870' NGVD 29) owned by Licensee not included as mitigation lands	Project boundary aligned with contour data. Land to be removed will be retained as Lake Lynn Generation LLC ownership
Contour adjustments	31.3	Lands previously bounded by a contour elevation above the normal full pool elevation (870' NGVD 29) owned by Licensee not included as mitigation lands.	Project boundary aligned with contour data. Land not needed for Lake Lynn Project purposes

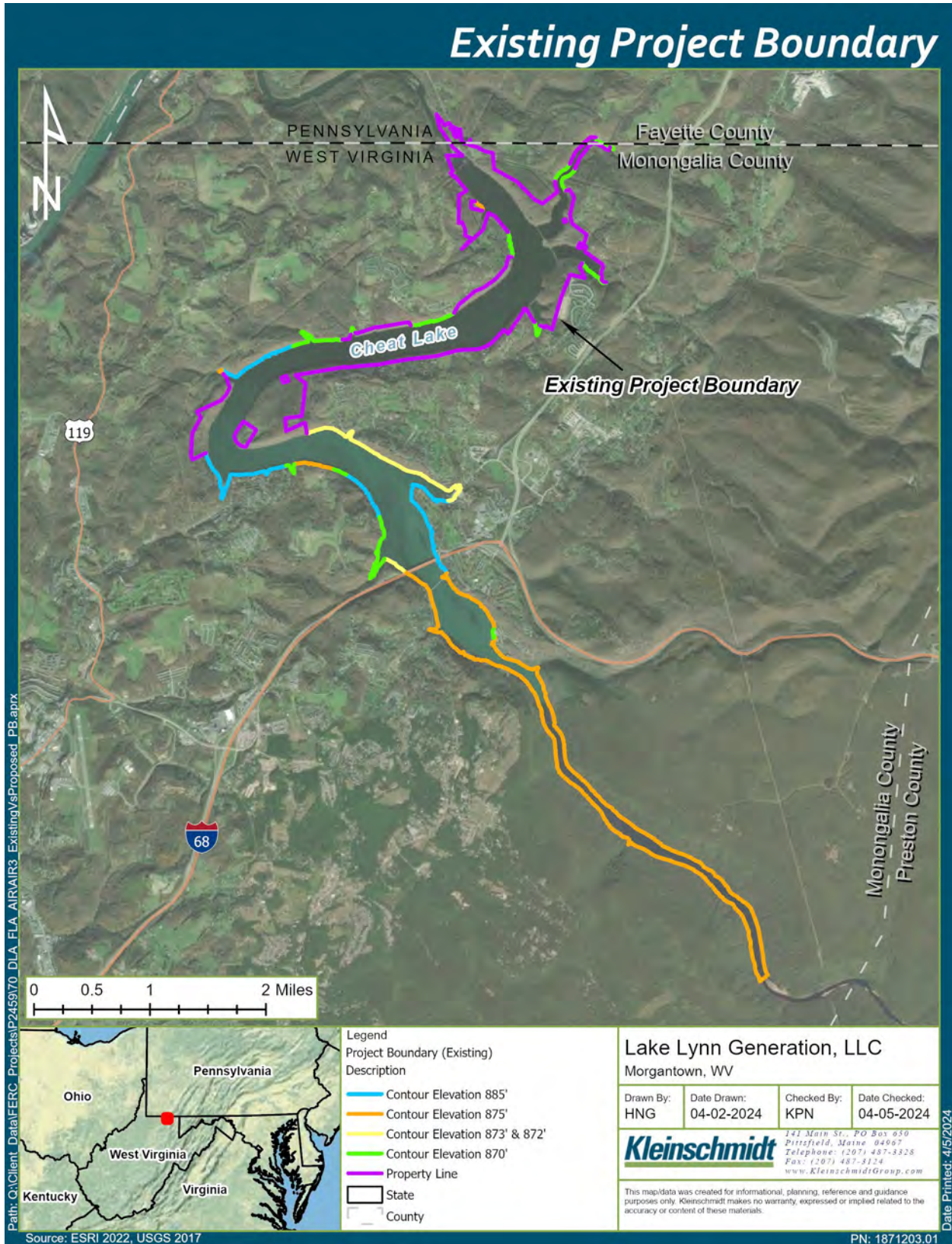


Figure 3-1 Existing Project Boundary at Lake Lynn

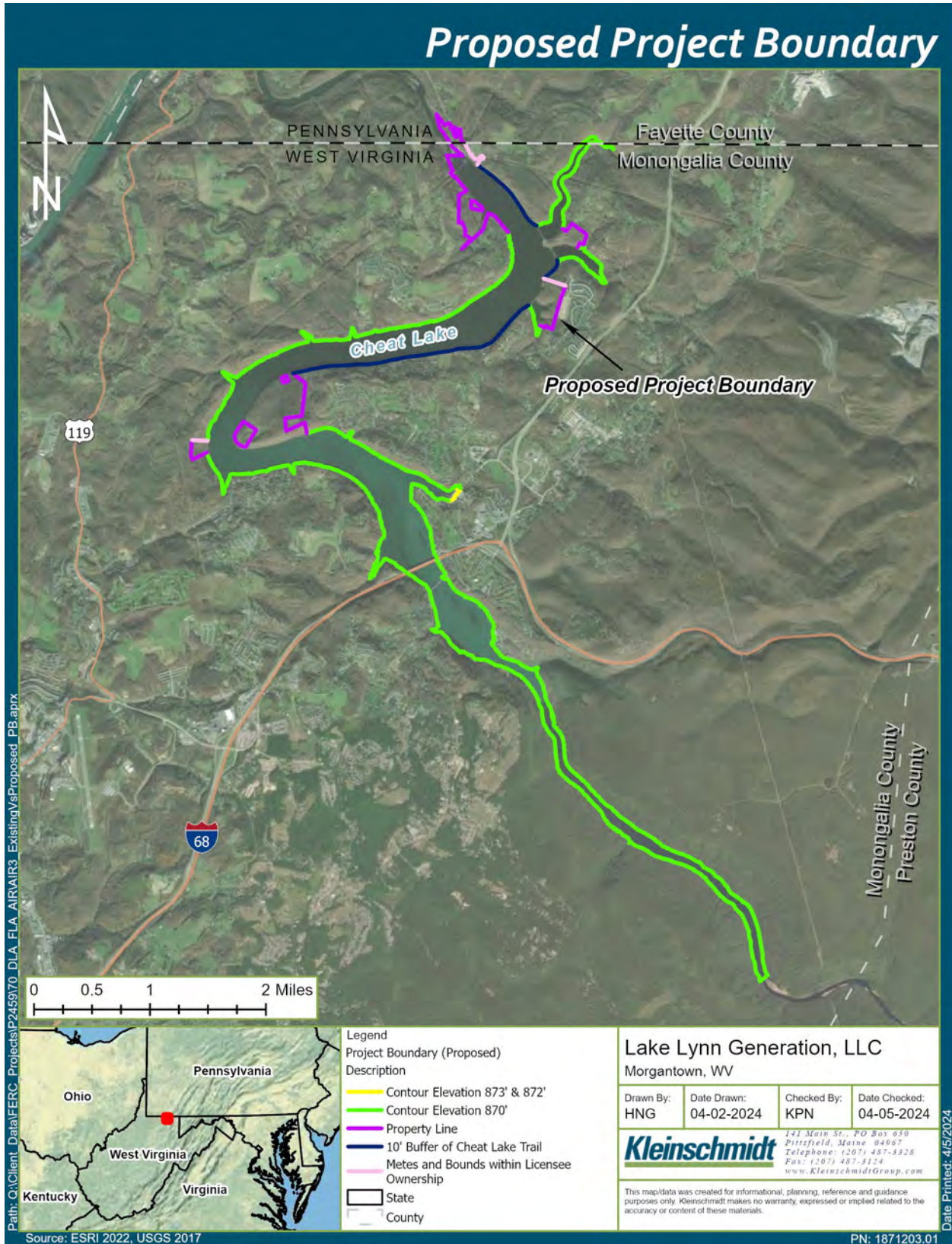


Figure 3-2 Proposed Project Boundary at Lake Lynn

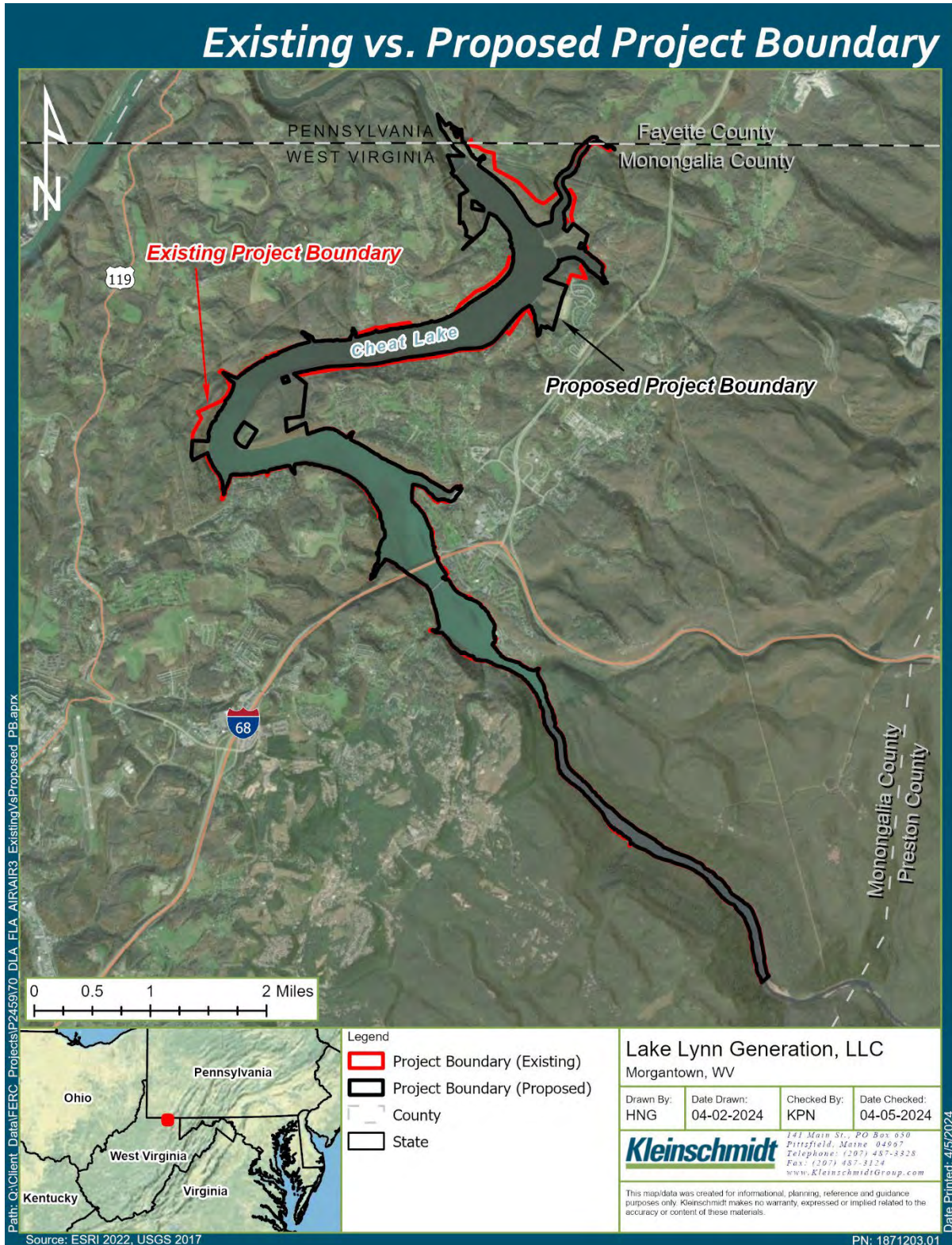


Figure 3-3 Comparison of the existing Project Boundary and Proposed Project Boundary

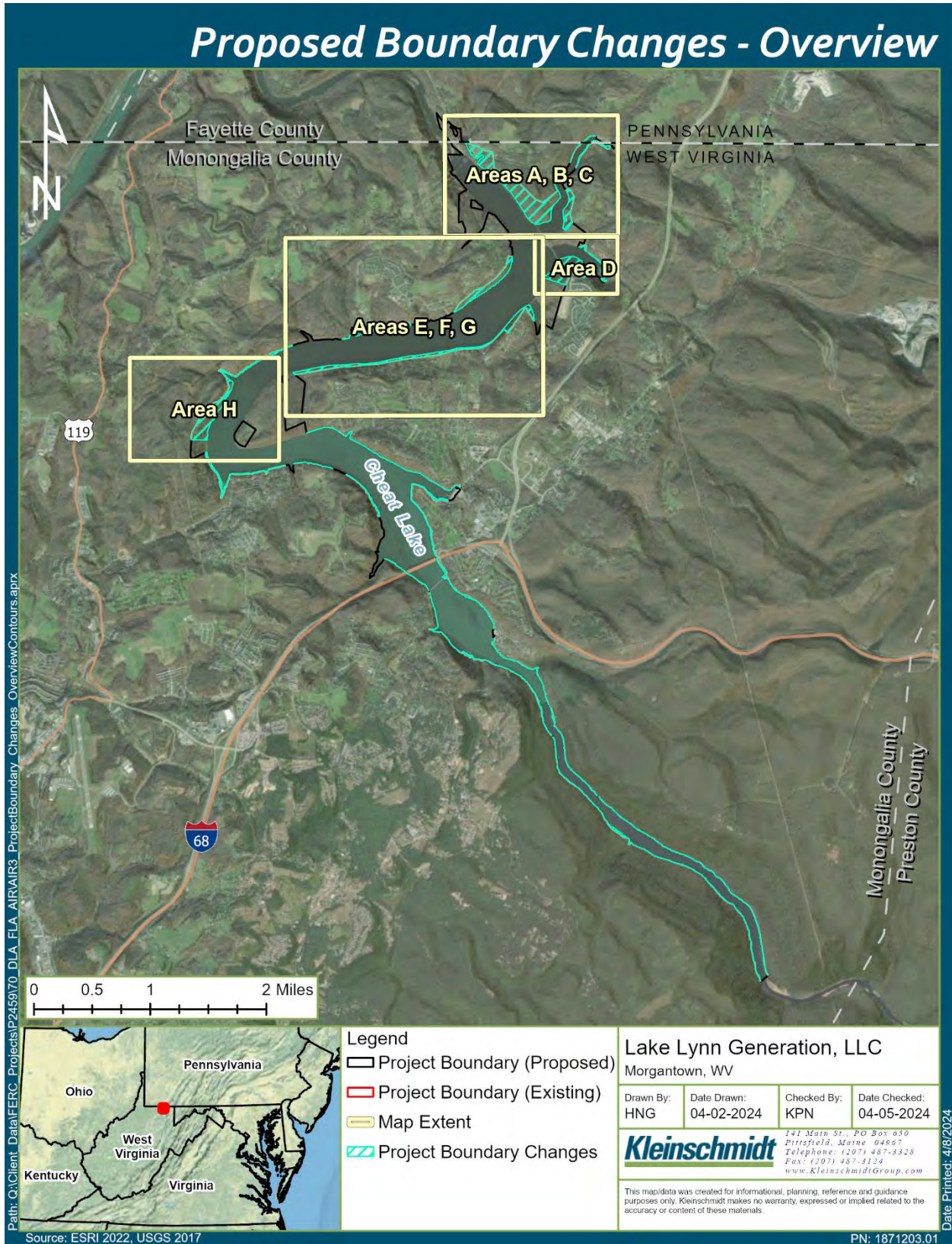


Figure 3-4 Proposed Project Boundary Changes Overview

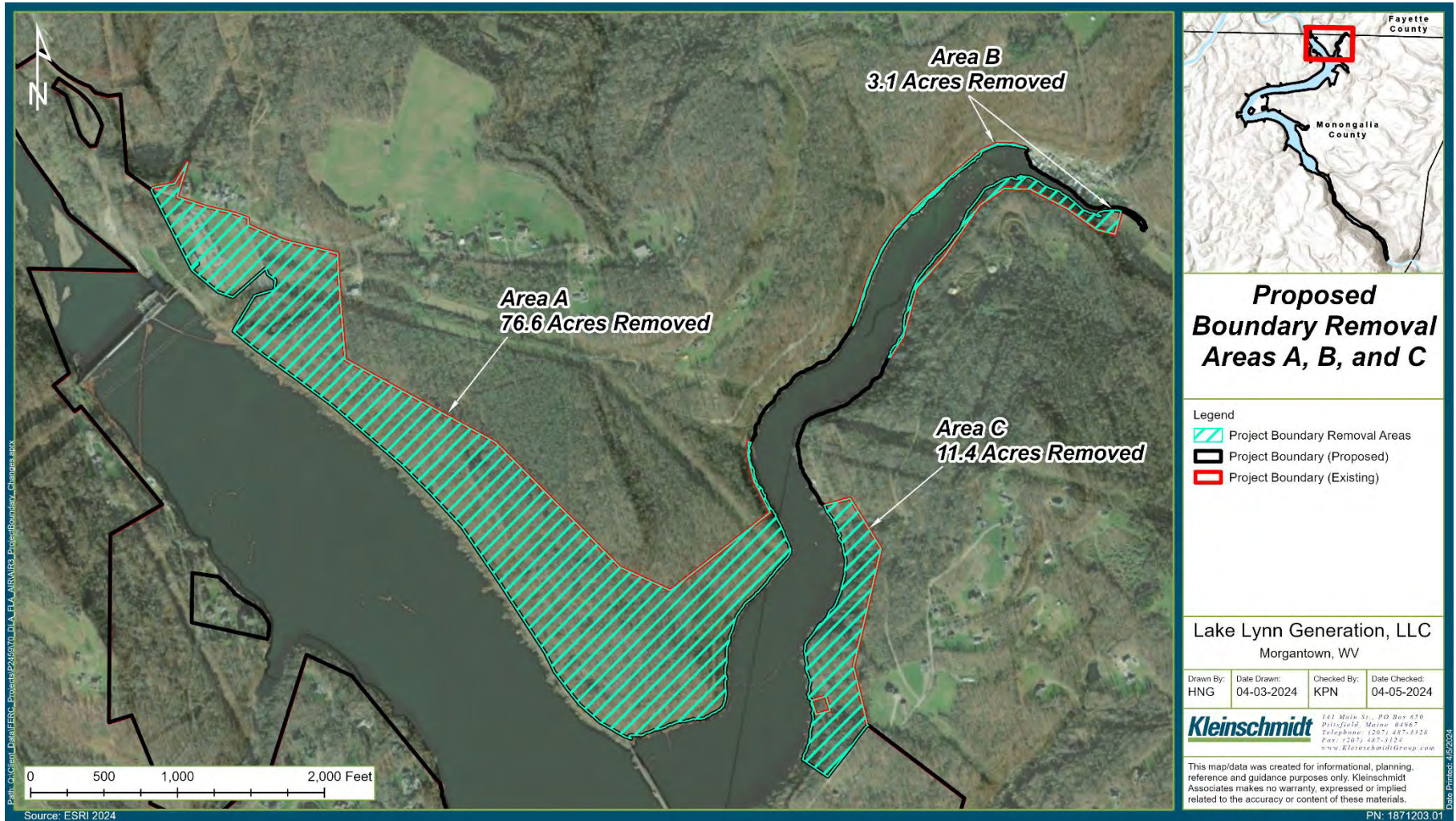


Figure 3-5 Areas A, B, and C Proposed for Removal from the Lake Lynn Project Boundary

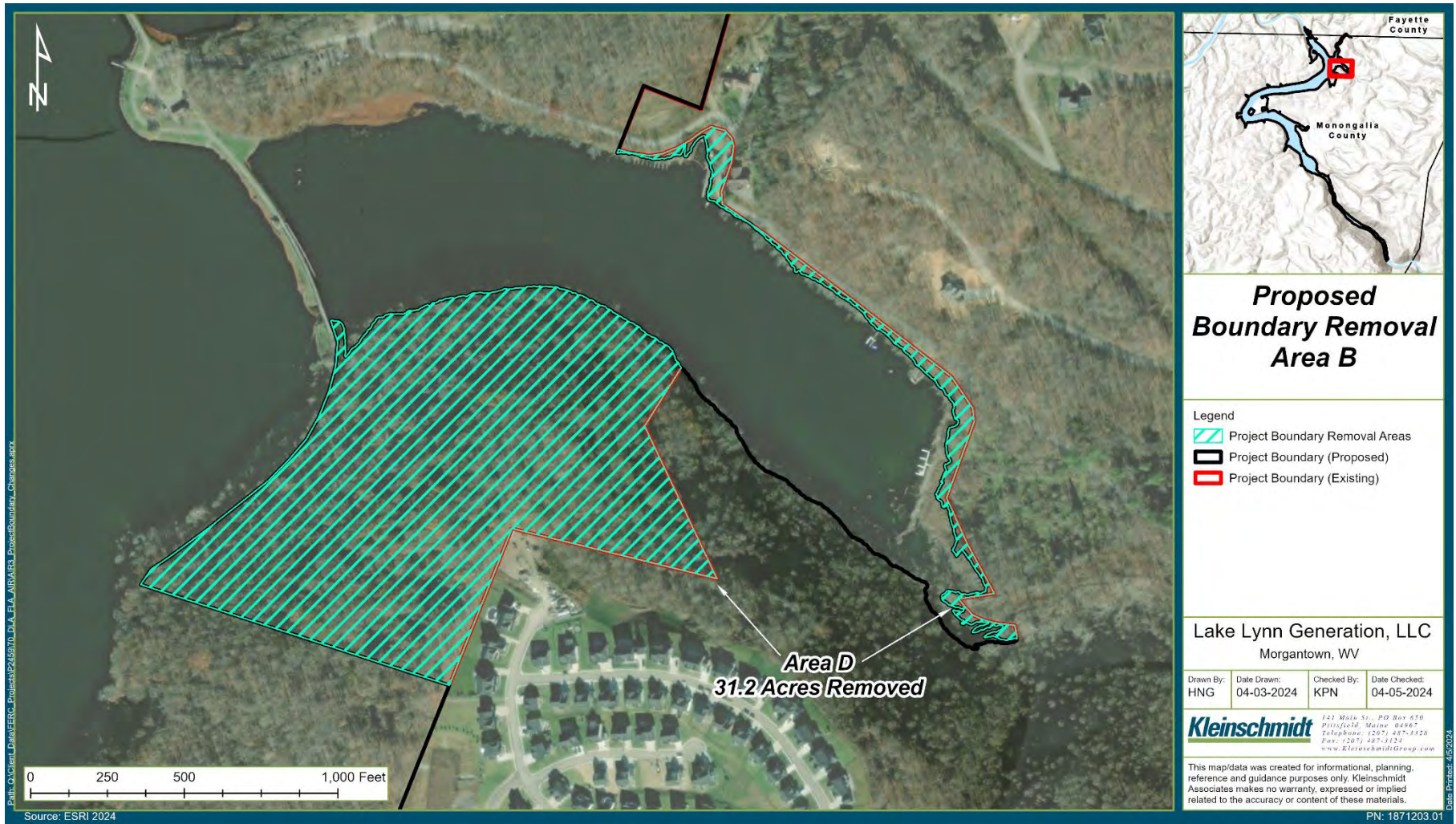


Figure 3-6 Area D Proposed for Removal from the Lake Lynn Project Boundary

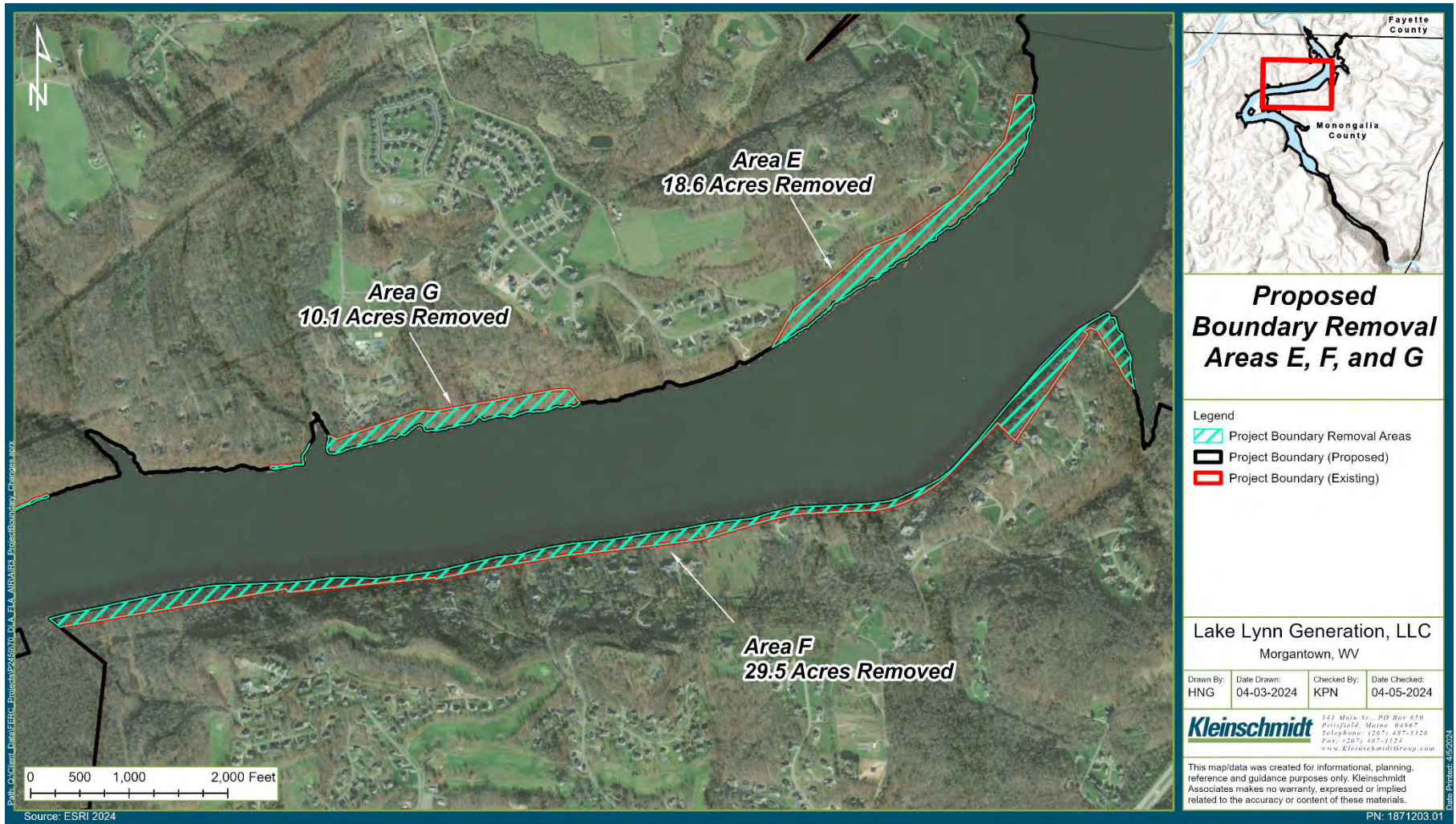


Figure 3-7 Areas E, F, and G Proposed for Removal from the Lake Lynn Project Boundary

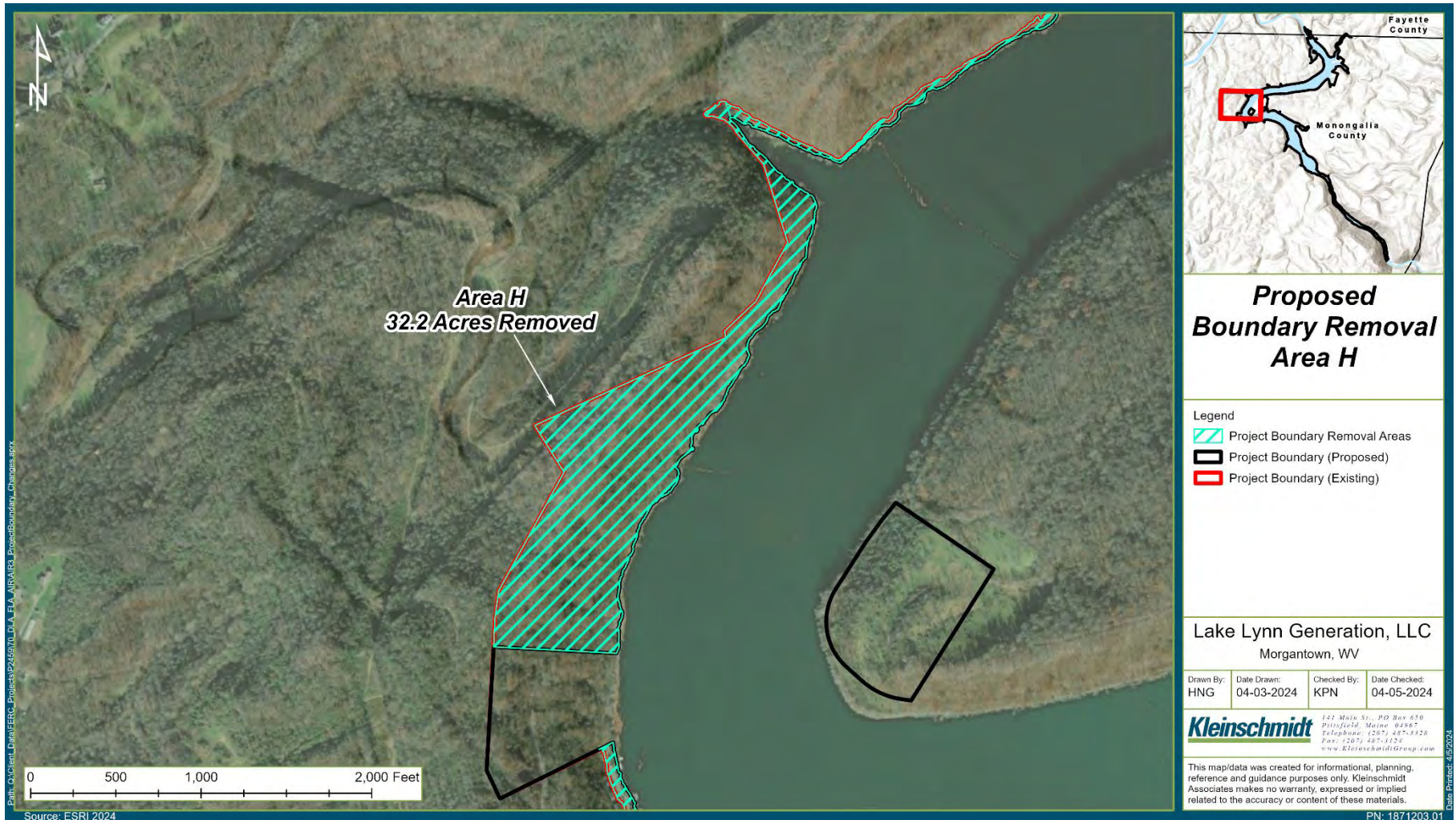


Figure 3-8 Area H Proposed for Removal from the Lake Lynn Project Boundary

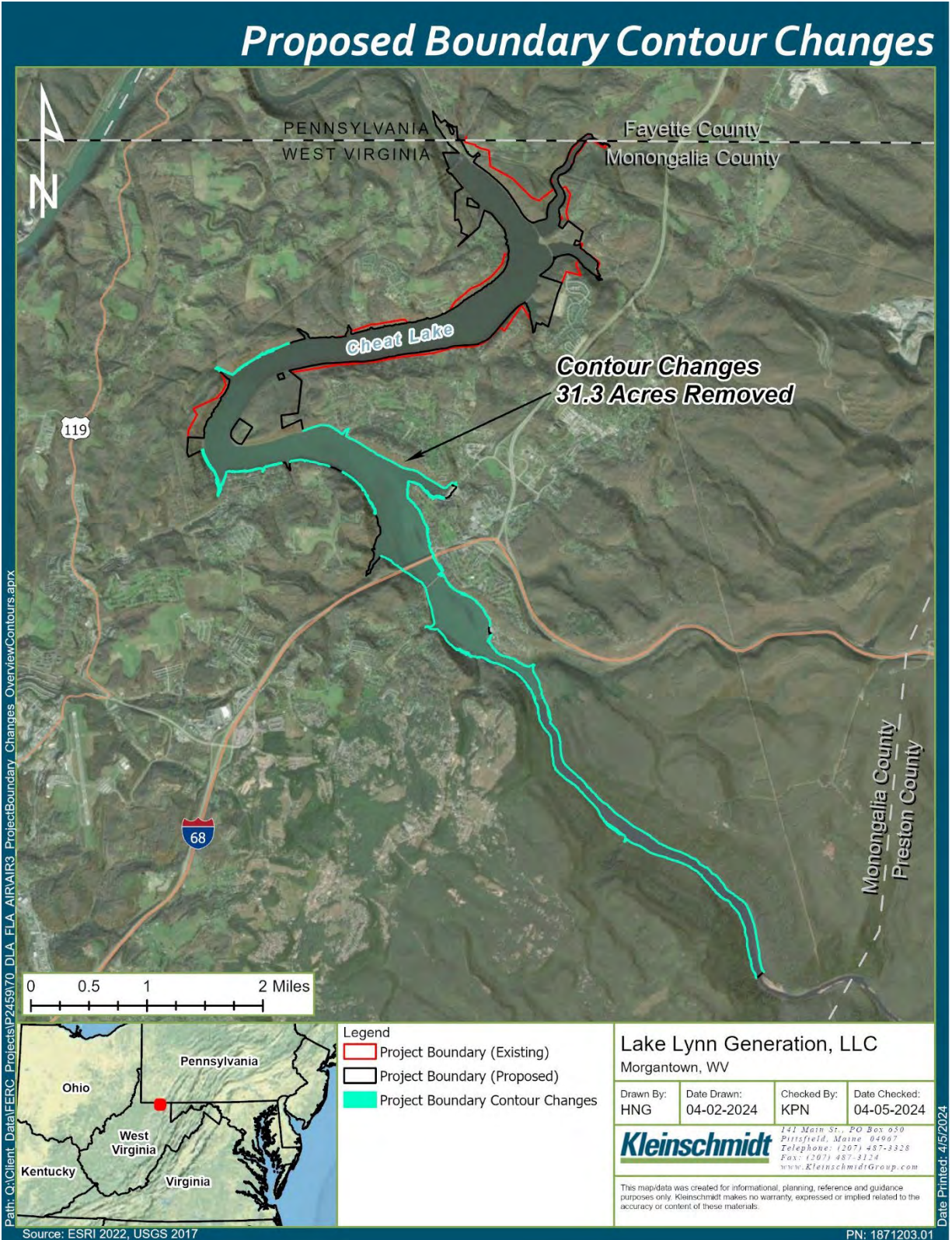


Figure 3-9 Areas Proposed for Contour Adjustment at the Lake Lynn Project Boundary

3.2.2 Proposed Environmental Measures

Lake Lynn proposes to continue implementing the following existing PME measures:

- **Minimum Flows:** The current FERC License requires Lake Lynn release a minimum flow of 212 cubic feet per second (cfs) from the dam with an absolute minimum flow of 100 cfs regardless of inflow.
- **Reservoir Levels:** The current FERC license requires that the Lake Lynn Project is operated to maintain Cheat Lake water levels between 868 feet and 870 feet NGVD29⁴ from May 1 through October 31, between 857 feet and 870 feet from November 1 through March 31, and between 863 feet and 870 feet from April 1 through April 30.
- **Project Recreation Facilities –** To enhance public recreation at the Lake Lynn Project, the Licensee operates and maintains several public recreation facilities that provide recreational access to Lake Lynn Project lands and waters.

Lake Lynn proposes the following new PME measures:

- **Develop an Operation Plan** within one year of license issuance in consultation with USFWS, WVDNR, WVDEP, PADEP, and PFBC that will include standard operating procedures to be implemented during periods of low dissolved oxygen (DO) levels that will allow the reservoir to be drawn down to 865 feet (ft), and document how Lake Lynn will comply with the operational requirements of the license. Key elements of the plan will include: provisions to monitor compliance with the operational requirements of the license; standard operating procedures to be implemented during periods of low DO levels that will allow the reservoir to be drawn down to 865 ft; standard operating procedures to be implemented outside of normal operating conditions, including during: (a) scheduled facility shutdowns and maintenance; and (b) emergency conditions such as unscheduled facility shutdowns and maintenance; and a description of all gages or measuring devices that will be used to monitor operation compliance.
- **Develop a Water Quality Monitoring Plan** for the new license term within one year of license issuance in consultation with USFWS, WVDNR, WVDEP, PADEP, and PFBC. Key elements of the plan will include monitoring DO and water temperature from June 1 through October 31 each year at the existing reservoir water quality monitoring station and the tailwater monitoring site.

⁴ National Geodetic Vertical Datum of 1929.

- Provide bat protection measures with seasonal tree trimming restrictions. Bats hibernate in the winter (October to April) and the proposed dates pertain to roosting and breeding seasons:
 - April to August for NLEB;
 - August to September for Indiana bat;
 - April to September for tricolored bat.
- Develop a new Recreation Management Plan (RMP) for the new license term within one year of license issuance in consultation with USFWS, WVDNR, PFBC, WVDEP, PADEP, Monongalia County, Fayette County, CLEAR, FOC, and MRTC. Key elements of the RMP would be informed by the results of the Recreation Site Enhancement Feasibility and Assessment and include: a description of Project recreation facilities; a review and update of the RMP every 10 years in consultation with USFWS, WVDNR, PFBC, WVDEP, PADEP, Monongalia County, Fayette County, CLEAR, FOC, and MRTC. The RMP would also include water depth monitoring on an annual basis prior to the recreation season at the Sunset Beach Marina Public Boat Ramp. The RMP would include a measure for, if warranted, conducting a bathymetric survey in the vicinity of the Sunset Beach Marina Public Boat Ramp every 10 years and excavation to maintain the boat ramp usability.
- Develop a Shoreline Management Plan (SMP) within one year of license issuance in consultation with USFWS, WVDNR, WVDEP, PADEP, PFBC, Monongalia County, Fayette County, WVSHPO, Pennsylvania SHPO, CLEAR, and FOC. Key elements of the SMP would include: a list of allowed activities and facilities and procedures for granting permission for activities and facilities along the shoreline and within the Project boundary in accordance with the Standard Land Use Article of the FERC license. Additionally, the SMP would outline provisions to remove the moratorium on private boat docks and piers on Cheat Lake.
- Develop a Historic Properties Management Plan (HPMP) within two years of license issuance in consultation with WVSHPO, Pennsylvania SHPO, and Tribes. Key elements of the HPMP would include: treatment of historic properties threatened by Project-related activities, consideration and implementation of appropriate treatment that would minimize or mitigate unavoidable adverse effects on historic properties, a list of activities (i.e., routine repair, maintenance, and replacement in kind at the Project) not requiring consultation because these activities would have little or no potential effect on historic properties. And discovery of previously unidentified properties during Project operations.

Table 3-2 below identifies the anticipated capital and annual operations and maintenance (O&M) costs associated with implementing the proposed PME measures.

Table 3-2 Estimated Proposed PME Capital and O&M Costs

Proposed Protection, Mitigation, and Enhancement Measure	Capital Cost (\$2022)	Annual O&M Cost (\$2022)
Minimum Flows	\$0	\$0
Reservoir Elevations	\$0	\$0
Continue to provide public recreation access at the existing Lake Lynn Project recreation facilities	\$0	\$143,000
Develop and implement an Operation Plan	\$10,000	\$35,000
Develop and implement an updated Water Quality Monitoring Plan	\$7,500	\$15,000
Provide bat protection measures with seasonal tree trimming restrictions	\$0	\$0
Develop and implement updated Recreation Management Plan, including Sunset Beach Marina Public Boat Launch Water Depth Monitoring	\$25,000	\$155,000
Develop and implement a Shoreline Management Plan	\$25,000	\$10,000
Develop and implement a Historic Properties Management Plan	\$30,000	\$5,000

4.0 ENVIRONMENTAL ANALYSIS

4.1 Analysis of Proposed Action

Exhibit E includes a review of existing resource information as well as an analysis of anticipated effects of Lake Lynn Project operations relative to current conditions (e.g., No-Action Alternative) and Lake Lynn's proposed action. This analysis considers geographic, temporal, and cumulative scopes, as appropriate.

4.1.1 Geographic Scope

The geographic scope of the analysis defines the physical limits or boundaries of the proposed action's effect on the resources. Because the proposed action has the potential to affect the resources differently, the geographic scope for each resource varies. Generally, for upland based resources such as wildlife and land use, the geographic scope is limited to those lands within the Lake Lynn Project boundary. For aquatic resources and those affected by flow discharges and water levels, the geographic scope generally includes the impoundment and tailwater for a distance downstream to a point where flow effects are attenuated.

4.1.2 Temporal Scope

Based on the potential term of a new license, the temporal scope analyzed is up to 40 years into the future, with focus on how reasonably foreseeable future actions affect resources. The discussion of historical information is limited to available information for the resource areas.

4.1.3 Cumulative Effects

According to the Council on Environmental Quality's regulations for implementing the National Environmental Policy Act (NEPA) (Section 1508.7), a cumulative effect is the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions, regardless of what agency or person undertakes such other actions. Lake Lynn has not identified any resource which has the potential to be cumulatively affected by the operations and maintenance of the Lake Lynn Project.

4.2 General Description of the River Basin

4.2.1 General Description of Watershed

The Lake Lynn Project is located on the Cheat River in Monongalia County, West Virginia, and Fayette County, Pennsylvania (Figure 4-1). The Cheat River is an 84-mile-long tributary of the Monongahela River. The Monongahela River is approximately 128 miles long, flows from south to north, and is located in northcentral West Virginia and southwestern Pennsylvania. The Monongahela River watershed (HUC 050200) is approximately 7,340 square miles (USACE 2012). The Lake Lynn Project is approximately 3.7 miles upstream of the confluence of the Cheat River with the Monongahela River in Point Marion, West Virginia.

The Cheat River originates within the Monongahela National Forest in Parsons, West Virginia, at the confluence of Shavers Fork and Black Fork (Figure 4-1). Shavers Fork is an 88.5-mile-long river which begins in northcentral Pocahontas County at Thorny Flat, the highest peak of Cheat Mountain, and generally flows north-northwest through Randolph and Tucker counties. Black Fork is a short stream about 4 miles in length formed by the confluence of the Dry Fork and the Blackwater River in the town of Hendricks. Black Fork then flows northwest through the towns of Hambleton and Parsons, West Virginia, where it joins with Shavers Fork to create the Cheat River. The Cheat River flows north until it joins the Monongahela River in Point Marion, Pennsylvania. The Cheat River watershed (Hydrologic Unit Code [HUC] 05020004) is approximately 100 miles long with an average width of approximately 15 miles and a drainage area of 1,426 square miles. The average elevation of the watershed is approximately 2,270 feet above mean sea level (WVDEP 2013).

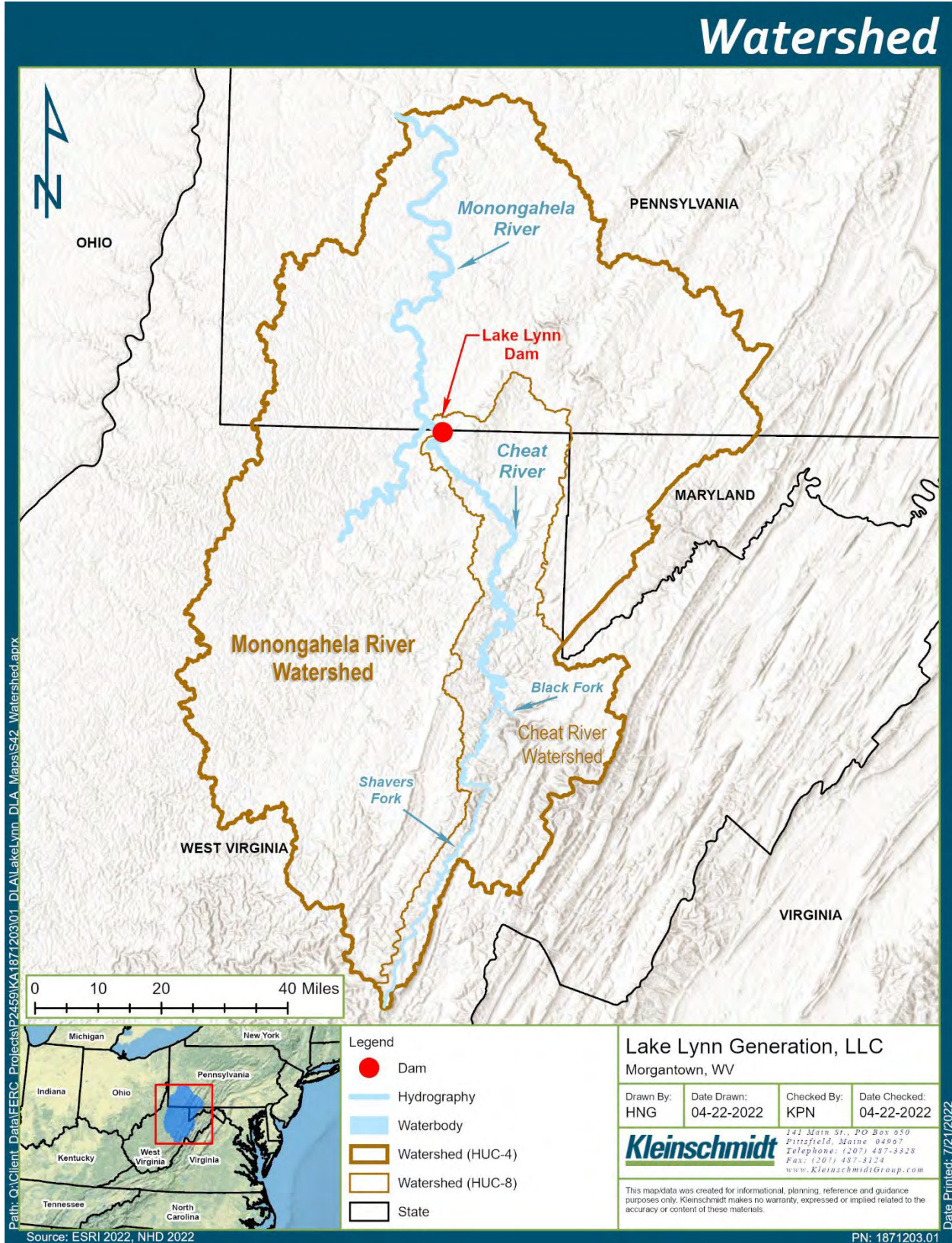


Figure 4-1 Overview of the Cheat River Watershed

4.2.2 Topography

The Cheat River basin topography is characterized by mountainous ridges and deep, wide valleys. The Cheat River basin spans across three geographic ecoregions, the Central Appalachian Forest, the Cumberland and Southern Ridge Valley, and the Western Allegheny Plateau. The majority of the Cheat River basin (54 percent) is within the Central Appalachian ecoregion, which is known for its mountainous terrain, cooler climate, and biologically diverse habitat (WVDEP 2013). In the Central Appalachian Forest ecoregion, the Cheat River basin meanders through the Western Allegheny Mountains, the Northern High Allegheny Mountains, and the Southern High Allegheny Mountains. The elevation of the basin ranges from 1,800 feet in Preston County, West Virginia, to 4,800 feet in Pocahontas County, West Virginia, deep within the Monongahela National Forest (LSA 2022a).

Nearly 45 percent of the river basin is within the Cumberland and Southern Ridge Valley (CSRV) ecoregion, characterized by its parallel mountain ridgelines and lowland valleys (WVDEP 2013). The Cheat River basin lies within the Cumberland Mountains, a subregion of the CSRV, which stretches from the southern part of West Virginia to Tennessee. The area is characterized as extremely rugged, mountainous terrain ranging from 570 feet to over 4,400 feet in elevation (LSA 2022b). Approximately 1 percent of the basin lies within the Western Allegheny Plateau ecoregion, which is characterized by rounded hills and wide fertile valleys of mixed oak forests and agricultural lands (WVDEP 2013). This ecoregion spans from east to west and includes areas of New York, northwestern West Virginia, western Pennsylvania, and eastern Ohio (LSA 2022c).

4.2.3 Climate

The Monongahela River watershed has a humid continental climate which is characteristic of mid-latitude temperate regions. This climate is characterized by variable weather patterns and four seasons with large temperature variations due to the position between polar and tropical air masses. Dominant airflow patterns are from the west most of the year. During the summer, low pressure cyclonic systems dominate with southern winds and heavy precipitation. From June through November, northeasterly moving hurricanes and tropical storms occasionally produce heavy rains and winds in the region (USACE 2012).

The climate of the Cheat River watershed is characterized by relatively cold winters and moderately hot, showery summers. The average annual temperature at the Morgantown Municipal Airport (approximately 6 miles southwest of the Lake Lynn dam) from 2012 to 2021 was 55 degrees Fahrenheit (°F) with a range of 53°F to 56°F (NRCC 2022). The monthly mean temperature ranged from 32°F in January to 75°F in July. The average annual total precipitation was 44 inches and ranged from 35 inches to 55 inches. The monthly mean precipitation ranged from 2.2 inches in November to 5.5 inches in July (NRCC 2022).

4.2.4 Land and Water Use

The Monongahela River is controlled and maintained for navigation by the United States Army Corps of Engineers (USACE) via a series of nine locks and dams (FERC 2016). Four of these dams (Opekiska, Hildebrand, Morgantown in West Virginia, and Point Marion in Pennsylvania) are located upstream of the Cheat River confluence with the Monongahela River. The other five dams (Grays Landing, Maxwell, Charleroi, Locks and Dam 3, and Braddock) are located downstream of the confluence in Pennsylvania (USACE 2012).

Rivers in the Monongahela River basin, including the Cheat River, were historically used for wastewater assimilation from mining and gas extraction, treated industrial and municipal wastewater, and storm water discharge (PFBC 2011). Due to historical mining activities, these rivers have displayed severe water pollution issues. However, with the introduction of water pollution controls over the past fifty years, these rivers have experienced improved water quality (PFBC 2011).

Today, the Cheat River is primarily used for hydroelectric power generation, wildlife and aquatic habitat, public water supply, and recreation, such as fishing and whitewater kayaking. The Cheat River is the drinking water source for the towns of Parsons, Rowlesburg, Kingwood, and Albright in West Virginia (FOC 2022a).

The only other dam on the Cheat River is at the Albright Power Station dam, approximately 24 river miles (RM) upstream of the Lake Lynn dam. The dam provided the cooling water supply for the power station. The Albright Power Station was decommissioned in 2012, and the dam is under consideration for removal (FOC 2022b).

Land use in the Cheat River basin is dominated by forested area (86 percent), while 8 percent of the land cover is classified as developed, 5 percent is planted/cultivated area, and less than 1 percent is defined as impervious surface area (WVDEP 2013). The

watershed is sparsely populated and very rural. The tributaries that form Black Fork, the principal tributary to the Cheat River, rise in sparsely settled mountainous terrain, much of which is part of the Monongahela National Forest. Additionally, the watershed encompasses portions of the following state and federal public lands:

- *Wildlife Management Areas*: Beaver Dam (37,674 acres), Blackwater (58,978 acres), Cheat (80,771 acres), Little Indian Creek (1,036 acres), Otter Creek (68,782 acres), Potomac (139,786 acres), and Snake Hill (3,092 acres);
- *State Parks*: Blackwater Falls (446 acres), Canaan Valley (6,014 acres), and Cass Scenic Railroad (11 miles long);
- *State Forest*: Coopers Rock (12,747 acres);
- *National Forest*: Monongahela (900,000 acres); and
- *National Wildlife Refuge*: Canaan Valley.

4.2.5 References

Federal Energy Regulatory Commission (FERC). 2016. Multi-Project Environmental Assessment for Hydropower License: Opekiska Lock and Dam Hydroelectric Project, FERC Project No. 13753-002 and Morgantown Lock and Dam Hydroelectric Project, FERC Project No. 13762-002, West Virginia; Point Marion Lock and Dam Hydroelectric Project, FERC Project No. 13771-002, Grays Landing Lock and Dam Hydroelectric Project, FERC Project No. 13763-002, Maxwell Locks and Dam Hydroelectric Project, FERC Project No. 13766-002, Monongahela Locks and Dam 4 Hydroelectric Project, FERC Project No. 13767-002, Pennsylvania. September 2016.

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4.3 Geological and Soil Resources

4.3.1 Affected Environment

The Lake Lynn Project is within the Paleozoic – Pennsylvanian geological region, which formed 299-318 million years ago. Specifically, the Lake Lynn Project vicinity is a mix of Conemaugh Group, Quaternary Alluvium, Pottsville Group, Allegheny Formation, Monongahela Group, and Greenbrier Group. These geological features vary among types but are predominantly cyclical sequences of red and grey shale (mostly non-marine), siltstone, and sandstone, with thin limestones, and coal (SGMC 2017). Thin limestone, shales, and a variety of coals are widely distributed within the Lake Lynn Project vicinity.

The existing topography around the Cheat Lake shoreline is relatively steep with areas of bedrock and large cobbles. The local bedrock consists primarily of sandstone and shale. Much of the bedrock is covered with alluvium composed of sand, gravel, silt, and clay. Several outcrops are located along shoreline, including very high cliffs. Relief in the area is on the order of 300 to 400 feet, with the Cheat River flowing between relatively steep slopes on either side, rising from 870 feet to about 1,200 feet (Lake Lynn 2021). Level land in the Lake Lynn Project boundary is limited to Cheat Lake Park and along a terraced area near the Sunset Beach Marina (Lake Lynn 2021).

Based on a review of the United States Department of Agriculture Natural Resources Conservation Service's (NRCS) Web Soil Survey, the predominant soil types within the Lake Lynn Project area are loamy with mixed stony and silty components (NRCS 2022). Within the Lake Lynn Project boundary, most of the area is water (approximately 85.6 percent) with the remaining soils comprising the remaining 14.4 percent. Specifically, the most common soil types within the Lake Lynn Project area include Dekalb very stony loams, 15-35 percent and 35-65 percent slopes (DdE and DdF); Culleoka-Westmoreland silt loams, 35-65 percent slopes (CwD); Gilpin silt loam, 35-65 percent slopes (GaF); and Dekalb channery loams (DaC, DaD, and DaE). Although some variation exists between these soil types, they are typically found along steep slopes, ridgetops, hillsides, and stream terraces. Water capacity varies from low to moderate, and permeability varies from rapid (i.e., DdE and DdF) to moderate (i.e., CwD and GaF). However, all these soil types have medium to rapid runoff potential and are high-erosion hazard soils. These soil types are at high risk of runoff and severe erosion, particularly in bare earth or unprotected areas. The establishment of vegetative cover for soil protection along the shoreline of the

Cheat Lake is difficult because of the soils' low fertility, reservoir elevation fluctuation, and wave action along the shoreline from wind or watercraft.

In accordance with Article 402 of the existing FERC license, the Licensee has conducted shoreline erosion surveys of the entire Cheat Lake Shoreline every 3 years since 1995 to identify new areas of erosion along the Cheat Lake shoreline. Since 1995, the Licensee has also conducted annual erosion surveys of the Cheat Lake Park shoreline extending from the Cheat Lake dam to the Cheat Haven Peninsula. A total of 19 shoreline erosion monitoring stations where historical erosion has been observed were visually inspected during the most recent annual shoreline erosion survey conducted in 2021. Since 2018, active annual erosion has been minimal as discussed in the 2018, 2019, 2020, and 2021 annual shoreline erosion survey reports. In 2021, three of the 19 survey stations exhibited moderate erosion and one additional station was added during the survey.

4.3.2 Environmental Effects

4.3.2.1 Effects of the Proposed Action

The current FERC license requires that the Licensee release a minimum flow of 212 cubic feet per second (cfs) from the dam with an absolute minimum flow of 100 cfs regardless of inflow. The Lake Lynn Project is operated as a dispatchable peaking hydroelectric facility with storage capability. The facility's ponding capability varies by season and allows for peaking. During the recreation season, fluctuations in lake level are maintained from 868 ft to 870 feet which help alleviate extreme wave action. There are no proposed changes to the existing operation of the hydroelectric facility. As such, geological conditions, soils, and shoreline erosion are expected to remain on current trends as identified in the annual shoreline erosion reports. The most recent shoreline erosion survey report (2021) concluded that the three stations that exhibited moderate erosion as compared to 2020 were in an area of low wind fetch along a narrow portion of the reservoir and that the change was likely due to boat traffic. Wave action from wind and watercraft are anticipated to continue to be a contributing factor to the shoreline erosion within the Lake Lynn Project boundary.

During the pre-filing consultation, WVDNR requested the Licensee conduct a reservoir sedimentation study at areas that have demonstrated an affinity for a build-up of sediment (i.e., Sunset Beach Marina) and develop a plan to monitor and address any sedimentation issues. In addition, CLEAR requested that the Licensee continue

monitoring and remediation of the ongoing shoreline erosion. Rather than conducting a new study, Lake Lynn proposed in its Study Plan to continue conducting the shoreline erosion surveys during relicensing rather than conducting a new study which was not warranted due to the results of recent shoreline erosion surveys. In addition, in 2019, Lake Lynn conducted a bathymetric survey in the vicinity of the Sunset Beach Marina public boat launch and excavated the area in 2020 to maintain the functionality of the public boat launch.

In its comments on the DLA, WVDNR recommended monitoring sedimentation at the Sunset Beach Marina public boat launch on a yearly basis so that any sedimentation issues can be addressed as they occur. WVDNR also recommended that a dredging plan be developed in consultation with WVDNR.

Lake Lynn does not anticipate soil or geologic resources to be adversely affected by the proposed action. Lake Lynn will maintain the Sunset Beach Marina public boat launch during the new license term and proposes to consult with WVDNR on the details for monitoring sedimentation and periodic excavation that would be included in the new Recreation Management Plan proposed to be developed within one year of license implementation. Water depths at the Sunset Beach Marina public boat launch would be taken on an annual basis prior to the recreation season at the Sunset Beach Marina Public Boat Ramp. If warranted, a bathymetric survey in the vicinity of the Sunset Beach Marina Public Boat Ramp would be conducted every 10 years along with excavation to maintain the boat ramp usability. Lake Lynn is also proposing to develop a Shoreline Management Plan (as discussed in Section 4.9.2.1) that would manage shoreline activities within the Lake Lynn Project boundary. Although Lake Lynn cannot control upland activities outside the Lake Lynn Project boundary, the development of a Shoreline Management Plan that clearly outlines allowed activities and procedures for granting permission for shoreline activities will help manage shoreline activities that could cause shoreline erosion. The Licensee proposes to discontinue the shoreline erosion surveys required under the existing FERC license.

4.3.2.2 Effects of the No-Action Alternative

Under the no-action alternative, Lake Lynn would continue to operate the Lake Lynn Project under the terms and conditions of the current license. Thus, the no-action alternative would include the existing facilities and current operation as described in Section 3.0. Under the no-action alternative, the licensee would not receive a new FERC

license and would continue to operate the Lake Lynn Project under the existing license requirements. The effects of the proposed action on soil and geological resources would be minimal under the no-action alternative.

4.3.3 Unavoidable Adverse Effects

Minor amounts of sedimentation and erosion may occur after implementation of PME measures related to shoreline and erosion management. However, PME measures are intended to reduce the effects of operations and any necessary on-site maintenance activities on erosion and sedimentation.

4.3.4 References

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4.4 Water Resources

4.4.1 Affected Environment

Water Quantity, Storage, and Use

The Cheat River watershed has a drainage area of approximately 1,426 square miles. The drainage area at the Lake Lynn dam is approximately 1,411 square miles (FERC 1995). The Cheat River is the second largest tributary to the Monongahela River (Allegheny 1991). Inflow data to the Lake Lynn Project was estimated using flow data from a combination of the active U.S. Geological Survey (USGS) gages located upstream, including USGS Gage No. 03070260 Cheat River at Albright, West Virginia, and USGS Gage No. 03070500 Big Sandy Creek at Rockville, West Virginia (USGS 2022a,b). USGS Gage 03070260 is approximately 27 RMs upstream of the Lake Lynn dam with a drainage area of 1,046 square miles. Big Sandy Creek is a tributary that joins the Cheat River approximately 15 RMs upstream of the Lake Lynn dam. USGS gage 03070500 is approximately 5 RMs upstream of the confluence of Big Sandy Creek and the Cheat River with a drainage area of 200 square miles. To estimate inflow, the Licensee prorated daily average flow data from USGS Gage 03070260 (factor of 1.078) to where Big Sandy Creek joins the Cheat River. The prorated flow data for Big Sandy Creek (proration factor=1.04) was then added to this. The resulting flow data was then prorated (factor of 1.053) from Big Sandy Creek to the Lake Lynn dam. The period of record for the inflow analysis was January 1, 2011, to December 31, 2021. Flow duration curves are provided in Appendix C.

The annual mean inflow from 2011 to 2021 to the Lake Lynn Project was 3,511 cfs with the monthly mean inflow ranging from 1,457 cfs in August to 5,845 cfs in February (Table 4-1). The daily average minimum flows observed during this time period occurred in late September to early October 2019. The daily average maximum flow of 55,858 cfs occurred on March 1, 2021.

Table 4-1 Monthly average, minimum, and maximum inflow to the Lake Lynn Project (January 1, 2011, to December 31, 2021)

Month	Average (cfs)	Minimum (cfs)	Maximum (cfs)
January	4,282	728	31,958
February	5,845	565	30,934
March	5,556	802	55,858
April	5,190	792	31,567
May	4,457	514	31,100
June	2,520	202	23,742
July	2,079	151	41,994
August	1,457	139	33,546
September	1,511	81	33,051
October	1,758	83	11,705
November	2,830	403	30,655
December	4,790	711	36,917
Annual	3,511	81	55,858

Source: USGS 2022a,b

The Cheat River in the Lake Lynn Project area is used for hydroelectric power generation, recreation, wastewater assimilation, and aquatic and wildlife habitat. There are no active water withdrawals located within the Lake Lynn Project boundary. The Cheat River at the Lake Lynn Project is not used for irrigation or domestic water supply, and there are no other known entities with water rights within the Lake Lynn Project boundary.

The WVDEP issues individual National Pollution Discharge Elimination System (NPDES) permits to both publicly and privately-owned wastewater treatment facilities. The Licensee has a general NPDES permit that covers sewerage systems at the Lake Lynn Recreational Facility, Cheat Lake Park (Information System ID WVG551086) (USEPA 2022). Other NPDES discharges into Lake Lynn Project waters are listed in Table 4-2.

Table 4-2 NPDES discharges into Cheat Lake

Permit Holder	Information System ID Number
SCL, PSD, LLC Summit at Cheat Lake	WV0105945
Emma Kaufman Camp	WVG550032
Morgantown Utility Board Cheat Lake (POTW)p	WV0083071

Source: USEPA 2022

4.4.1.1 Water Quality

4.4.1.1.1 Water Quality Standards

The Cheat River upstream of Cheat Lake and Cheat Lake are classified by the state of West Virginia as Category A (Water Supply, Public), Category B (Aquatic Life, Trout Waters), and Category C (Water Contact, Recreation). Trout waters are defined as “waters which sustain year-round trout populations” (WVDEP 2022a). In West Virginia, Cheat Lake is managed as a cool water lake. WVDEP defines cool water lakes as “lentic water bodies that have a summer hydraulic residence time greater than 14 days and are managed by WVDNR for the support of cool water fish species, such as walleye and trout” (WVDEP 2022a). Water quality standards applicable to these West Virginia classifications are summarized in Table 4-3 and Table 4-4

Table 4-3 Selected West Virginia Water Quality Standards Applicable to Cheat Lake

Parameter	Human Health		Aquatic Life
	Category A: Water Supply, Public	Category C: Water Contact, Recreation	Category B2: Trout Waters
Dissolved Oxygen	No less than 5 milligrams per liter (mg/l) at any time	No less than 5 mg/l at any time	No less than 7 mg/L in spawning areas, and no less than 6 mg/L at any time
Temperature	N/A	N/A	No heated effluents will be discharged in the vicinity of spawning areas. Maximum temperatures for cold waters are expressed in Table 4.4.
pH	No values below 6.0 nor above 9.0. Higher values due to photosynthetic activity may be tolerated.	No values below 6.0 nor above 9.0. Higher values due to photosynthetic activity may be tolerated.	No values below 6.0 nor above 9.0. Higher values due to photosynthetic activity may be tolerated.

Source: WVDEP 2022a

Table 4-4 Maximum Temperatures for Category B2 Trout Waters

	Daily Mean (°F)	Hourly Maximum (°F)
October-April	50	55
September and May	58	62
June-August	66	70

Source: WVDEP 2022a

The Cheat River in Pennsylvania, which includes the reach of river from the West Virginia-Pennsylvania border immediately downstream of the Lake Lynn tailrace to the confluence with the Monongahela River, is designated and protected as Warm Water Fishes (WWF) aquatic life habitat. This designation focuses on the maintenance and propagation of fish species and additional flora and fauna which are indigenous to a warm water habitat (PA Code 2022). Water quality standards applicable to the Cheat River downstream of the Lake Lynn dam are summarized in Table 4-5.

Table 4-5 Pennsylvania Water Quality Standards Applicable to the Cheat River downstream of the Lake Lynn dam

Parameter	WWF Designation
Dissolved Oxygen (mg/l)	7-day average 5.5 mg/l; minimum 5.0 mg/l.
Temperature	Maximum temperatures in the receiving water body January 1-31: 40 °F February 1-29: 40 °F March 1-31: 46 °F April 1-15: 52 °F April 16-30: 58 °F May 1-15: 64 °F May 16-31: 72°F June 1-15: 80 °F June 16-30: 84 °F July 1-31: 87 °F August 1-15: 87 °F August 16-30: 87 °F September 1-15: 84 °F September 16-30: 78 °F October 1-15: 72 °F October 16-31: 66 °F November 1-15: 58 °F November 16-30: 50 °F December 1-31: 42 °F
pH	From 6.0 to 9.0 inclusive

Source: PA Code (2022)

4.4.1.1.2 Water Quality Data

Licensee Monitoring Data

In accordance with License Article 405, the Licensee developed and implements a plan to continuously monitor dissolved oxygen, pH, water temperature, and conductivity in the reservoir, in the Lake Lynn Project tailrace, and downstream of Grassy Run and other tributaries from April 1 through October 31 annually and submits an annual report to FERC and the resource agencies (Figure 4-2).

In accordance with License Article 406, as amended, the Licensee must report any deviations of DO below the 5 mg/L standard in the tailrace to FERC and the resource agencies within 5 days of the deviation and must file an annual monitoring report. The Licensee has developed a standard operating procedure for low DO conditions that describes the steps to be taken to mitigate low DO levels in the tailrace.

The standard operating procedure to maintain the tailrace DO above the water quality standard of 5.0 mg/L is based on the DO continuously recorded every 10 minutes in the reservoir upstream of the powerhouse intake. When the DO is 7.0 mg/L or greater, normal operation occurs. When DO decreases to 6.0 mg/L, generation range is limited and a spillway Tainter gate is prepared for opening. Unit 2 is operated preferentially when DO concentration is less than 6.0 mg/L and generation load is less than 5 MW since it has an air entrainment feature. When DO decreases to 5.5 mg/L, generation ramping rate range is limited to a maximum of 15 MW, (1-31 MW), and a spillway Tainter gate is opened. When DO reaches 5.0 mg/L, generation ramping rate range is limited to 12 MW, (1-25 MW), and a spillway Tainter gate is opened to a six-lift position. When DO is 4.0 mg/L or less, generation load dictates the amount, i.e., lift position, of the open spillway Tainter gate(s). These measures are expected to increase the DO concentration to an amount greater than 5.0 mg/L. The target DO concentration is 6.0 mg/L or greater as this allows the greatest flexibility for generation. The Licensee has provided Lake Lynn dissolved oxygen standard operating procedures examples data in Appendix D which provides examples of before, during, and after the standard operating procedures have been initiated to illustrate how DO in the Lake Lynn Project tailrace responds.

Water quality data from 2013 to 2017 are summarized in Table 4-6, and data for 2018 to 2020 are summarized in Table 4-7. Periods of low DO levels were generally found in the

late summer and early fall for most years, particularly at the reservoir site. pH was in attainment with the standard except for a few points in April 2014 and April 2015.

Table 4-6 Range (Mean) of water quality data by year collected from April 1 to October 31 of 2013 to 2017 at the Lake Lynn Project.

Monitor/Gage	Year	Water Temperature (°C)	pH	DO (mg/L)	Specific Conductance (µS/m at 25°C)
Reservoir (USGS Gage No. 03071590 Stewartstown Gage)	2013	3.8-26.0 (18.2)	6.4-7.2 (6.9)	4.5-12.8 (7.8)	98-115 (105)
	2014	4.9-26.6 (18.5)	6.5-7.3 (6.8)	1.9-12.7 (7.3)	53-201 (117)
	2015	6.1-25.6 (19.3)	6.4-7.2 (6.8)	1.1-11.8 (7.1)	62-159 (115)
	2016	5.8-26.7 (19.6)	6.4-7.2 (6.8)	1.0-12.1 (6.8)	52-205 (116)
	2017	7.4-25.1 (18.5)	6.4-7.2 (6.8)	1.0-11.8 (7.4)	48-160 (106)
Tailrace (USGS Gage No. 03071605 Davidson Gage)	2013 ^a	14.5-24.1 (20.3)	6.7-7.2 (7.1)	5.1-9.9 (8.4)	64-151 (110)
	2014	5.6-26.4 (19.1)	6.6-7.4 (7.1)	4.3-12.6 (8.7)	56-177 (121)
	2015	12.0-26.4 (21.4)	6.3-7.2 (7.0) ^b	3.4-12.5 (8.7) ^b	68-163 (121)
	2016	7.2-27.4 (20.2)	6.4-7.4 (6.9)	3.8-12.6 (8.4)	62-178 (115)
	2017	8.6-24.5 (19.1)	6.3-7.2 (6.9)	5.1-12.0 (8.6)	52-157 (109)
Downstream (USGS Gage No. 03071690 Nilan Gage)	2013	14.0-24.9 (20.0) ^c	6.6-7.0 (6.8) ^d	4.3-13.1 (8.3) ^d	124-167 (148)
	2014	6.0-26.6 (18.9)	5.3-7.3 (6.8)	3.4-12.3 (8.0)	54-217 (128)
	2015	6.6-27.1 (19.4)	5.7-7.3 (6.9)	4.1-12.4 (8.3)	69-209 (122)
	2016	7.0-27.2 (19.7)	6.4-7.4 (7.0)	3.1-12.2 (8.0) ^e	69-209 (127)
	2017	8.4-24.5 (19.0)	6.3-7.4 (6.8)	4.3-10.8 (7.7)	58-208 (122)

Source: USGS 2022c, d, e

*Range is based on the daily minimum and maximum.

^a August 1-October 31, 2013 only

^b May 5-October 31, 2014 only

^c July 31-October 31, 2013 only

^d September 30-October 31, 2013 only

^e Missing data July 4-September 10, 2016

In 2018 in the reservoir, the daily minimum DO concentration was below 5 mg/L in mid to late May, early June, several days in July and August, and in late October (Table 4-7) (LLG 2019). In the tailrace, DO was below the 5 mg/L standard on August 2 and 3 for three 10-minute periods and on September 10 for approximately 45 minutes. Following these short-term deviations, operations were adjusted and DO returned to concentrations above 5 mg/L. As required by License Article 406, the Licensee reported these deviations to FERC and the resource agencies.

In 2019, the daily minimum DO concentration in the reservoir was below 5 mg/L from late July to late October (Table 4-7). In the tailrace, the DO concentration was below 5 mg/L on August 28, September 9 to 19, September 22 to October 2, and several days in October (October 4-6, 9, 16, 18, 21, 22). The Licensee reported these excursions and consulted with the resource agencies to identify options to mitigate the low DO. The Licensee ceased generation and obtained a temporary variance from FERC to reduce the headpond elevation to increase flows downstream (FERC 2019, LLG 2020a). The excursions below the standard in 2019 were attributed to low inflow conditions because of a lack of precipitation. At the downstream site, the daily minimum DO concentration was below 5 mg/L in late June, several days throughout July and August, and most days in September and October. pH was in attainment with standard at all three sites in 2019.

In 2020, the daily minimum DO in the reservoir was below the standard from mid-July to early September (excluding August 9), in late September, and several days in October (Table 4-7). There were two short-term (less than two hours) deviations of DO below the standard in the tailrace (July 30 and August 29). In accordance with the standard operating procedures for low DO conditions, changes made to operations quickly resulted in DO concentrations in the tailrace increasing to over the 5 mg/L standard (LLG 2020b,c, LLG 2021a). At the downstream site, the daily minimum DO concentration was below 5 mg/L on several days from July to mid-September. pH was in attainment with standard at all three sites in 2020.

Table 4-7 Average (minimum-maximum) daily average water temperature and conductivity, range of daily minimum DO, and daily minimum and maximum pH from April 1 to October 31, 2018, 2019, and 2020 at the Lake Lynn Project.

Monitor/Gage	Year	Daily Average Water Temperature (°C)	Min-Max pH	Daily Minimum DO (mg/L)	Daily Average Specific Conductance (µS/m at 25°C)
Reservoir (USGS Gage No. 03071590 Stewartstown Gage)	2018	20.4 (6.9-29.4)	6.0-7.8	0.1 – 11.3	110 (69-180)
	2019	21.1 (7.7-29.1)	6.5-7.3	0.0-10.9	133 (78-180)
	2020	19.2 (8.1-29.0)	6.2-8.2	0.3-11.2	81 (43-128)
Tailrace (USGS Gage No. 03071605 Davidson Gage)	2018	18.4 (6.7-25.2)	6.0-7.0 ^a	4.5-10.7	141 (80-309) ^b
	2019	17.4 (7.6-24.0)	6.5-7.6	3.5-11.1	125 (80-388)
	2020	19.0 (8.2-27.5)	7.0-7.9	4.8-11.8	455 (180-1,018)
Downstream (USGS Gage No. 03071690 Nilan Gage)	2018	NA	NA	5.1-12.2	NA
	2019	NA	NA	2.9-8.2	NA
	2020	13.2 (1.9-24.3)	6.6-7.5 ^c	2.4-10.9	376 (134-795)

^a Missing April 6-May 3, May 18-August 12, 2018

^b Through July 18, 2018 only

^c Data for April 5-May 21 2020 only

In 2021, at the reservoir site, the daily average water temperatures ranged from 6.4°C to 25.3°C with an average of 18.4°C (Table 4-8, Figure 4-3). The daily minimum DO ranged from 0.8 mg/L to 11.6 mg/L, with an average of 6 mg/L. The DO concentration was below 5 mg/L from July 20 through the end of August, from September 27 to October 6 and occasionally from October 19 through the end of October (Figure 4-3). The reservoir pH ranged from 8.1 to 9.6 with an average of 8.8; daily maximum pH levels were above the standard from late August through September (Figure 4-4). The daily average conductivity ranged from 47 to 138.1 microsiemes per centimeter (µS/cm) (Table 4-8, Figure 4-5.)

At the tailwater monitoring station, the daily average water temperature ranged from 7.4 degrees Celsius (°C) to 25.6°C, with an average of 17°C (Table 4-9, Figure 4-6). Daily minimum DO levels in the tailwater ranged from 4 mg/L to 13.1 mg/L with an average of 8.4 mg/L. The daily minimum DO concentration was below the 5 mg/L standard on August 11 to 14 and August 16, which was likely due to an equipment malfunction, on August 20 and 30, and on September 1 (LLG 2021b, LLG 2022) (Figure 4-6). The daily average pH level ranged from 6.0 to 7.4 with an average of 6.4 and was in attainment with the standard throughout the study (Figure 4-7).

The downstream monitoring station had daily minimum DO levels ranging from 1.9 mg/L and 10.4 mg/L (Table 4-10). The daily minimum DO was below 5 mg/L on several days from late June through October (Figure 4-8). The pH ranged from 5.9 to 7, with an average of 6.4 (Figure 4-9).

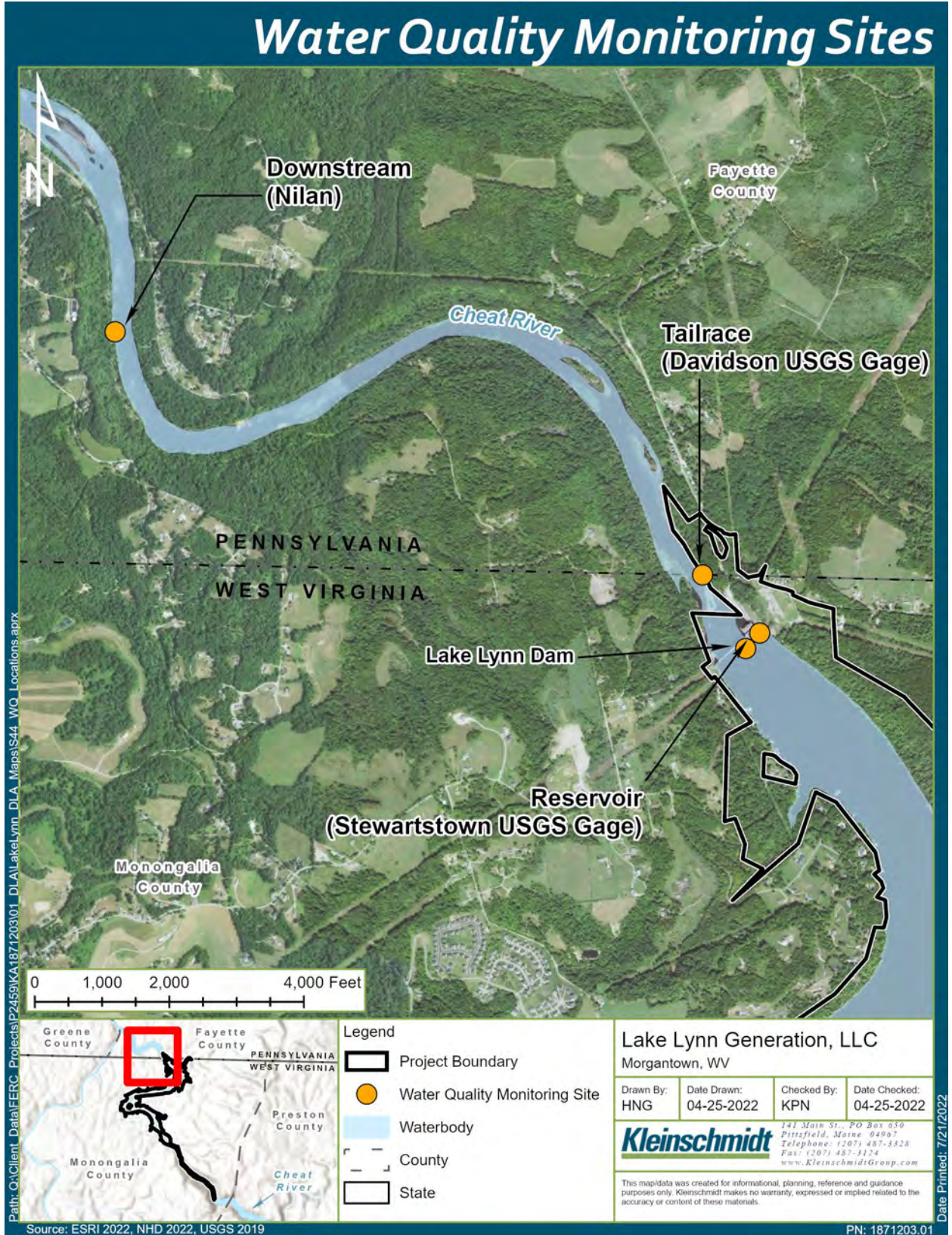


Figure 4-2 Water quality monitoring stations at the Lake Lynn Project

Table 4-8 Water quality data statistics from the Lake Lynn Reservoir monitoring site, April 1 to October 31, 2021

Statistic	Daily average pH	Daily Minimum DO (mg/L)	Daily Average Water Temperature (°C)	Daily Average Conductivity (µS/cm)
Minimum	8.1	0.8	6.4	47
Maximum	9.6	11.6	25.3	138.1
Mean	8.8	6.2	18.4	90.1

Table 4-9 Water quality data statistics from the Lake Lynn Tailrace monitoring site, April 1 to October 31, 2021

Statistic	Daily Average pH	Daily Minimum DO (mg/L)	Daily Average Water Temperature (°C)
Minimum	6.0	4.0	7.4
Maximum	7.0	13.1	25.6
Mean	6.4	8.4	17.0

*Data for conductivity was erroneous and not included in the annual report.

Table 4-10 Water quality data statistics from the Lake Lynn Downstream monitoring site, April 1 to October 31, 2021.

Statistic	Daily Average pH	Daily Minimum DO (mg/L)
Minimum	5.9	1.9
Maximum	7.0	10.4
Mean	6.4	5.9

*Data for temperature and conductivity was erroneous and not included in the annual report.

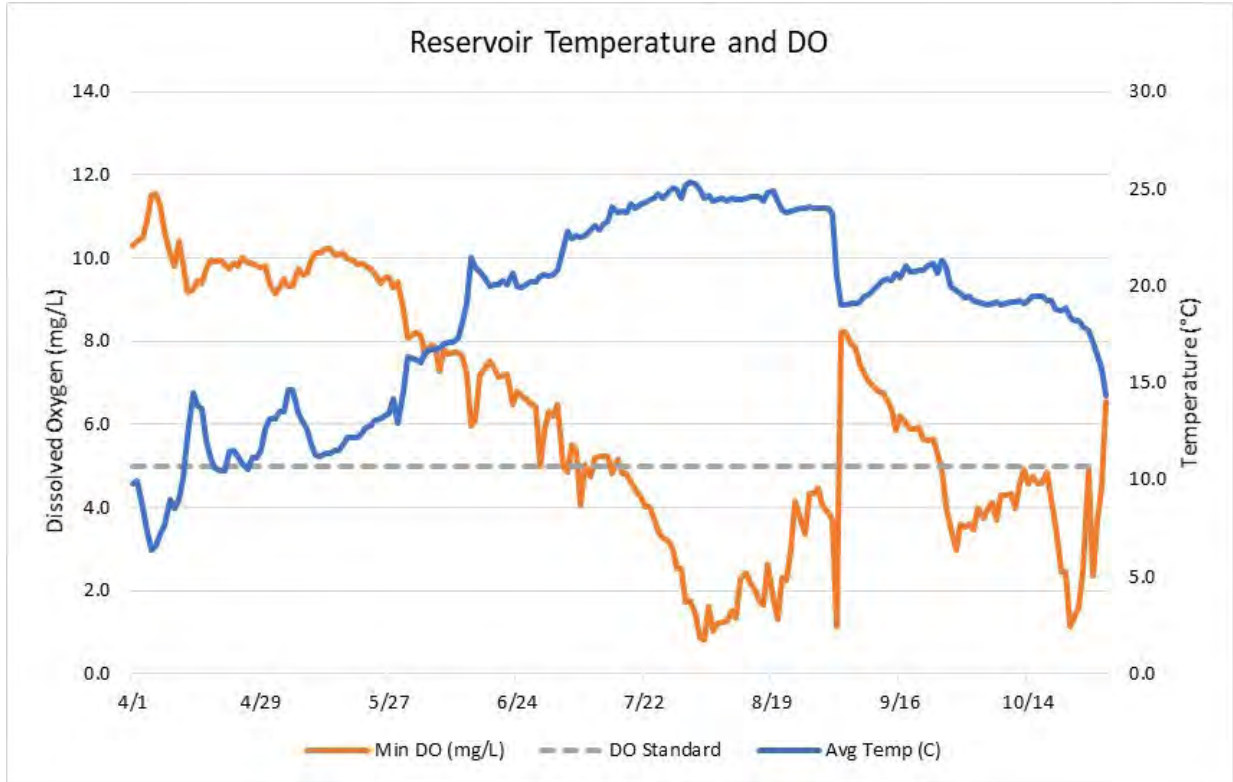


Figure 4-3 Daily minimum DO and daily average water temperature at the reservoir monitoring site, April 1 to October 31, 2021.



Figure 4-4 Daily average pH at the reservoir monitoring site, April 1 to October 31, 2021.



Figure 4-5 Daily average conductivity at reservoir monitoring site, April 1 to October 31, 2021.

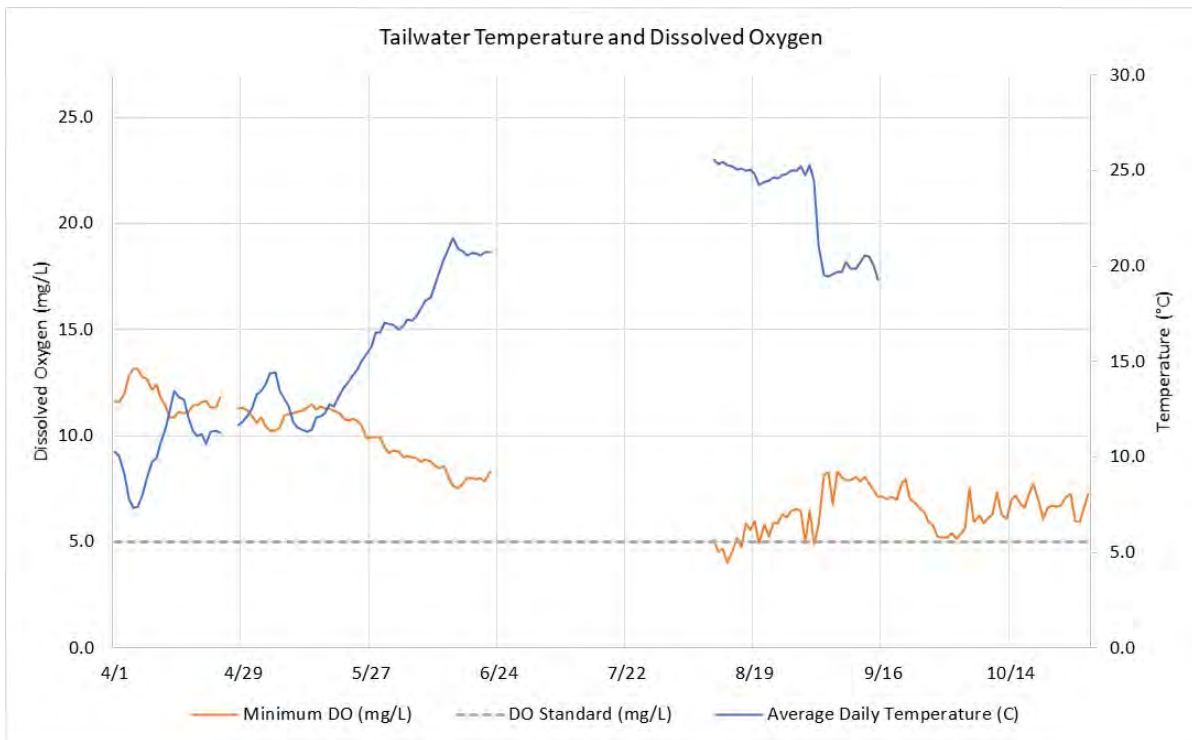


Figure 4-6 Daily minimum DO and daily average water temperature at the tailwater monitoring site, April 1 to October 31, 2021.

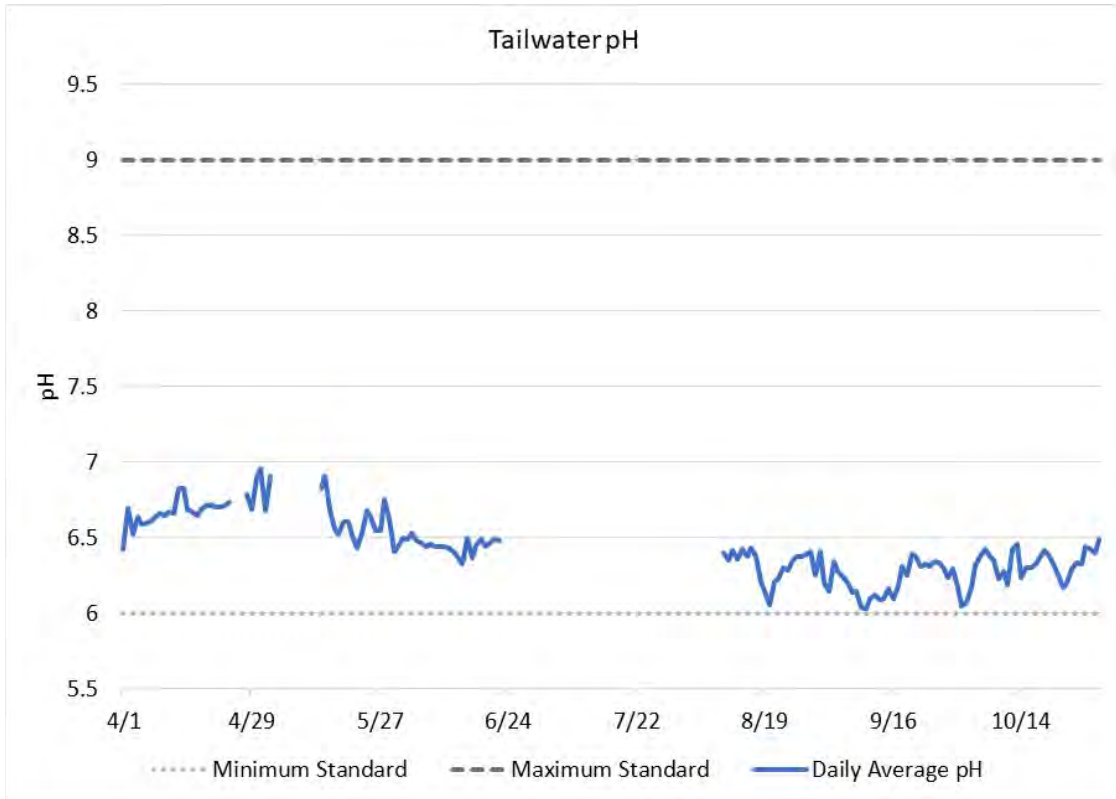


Figure 4-7 Daily average pH at the tailwater monitoring site, April 1 to October 31, 2021.

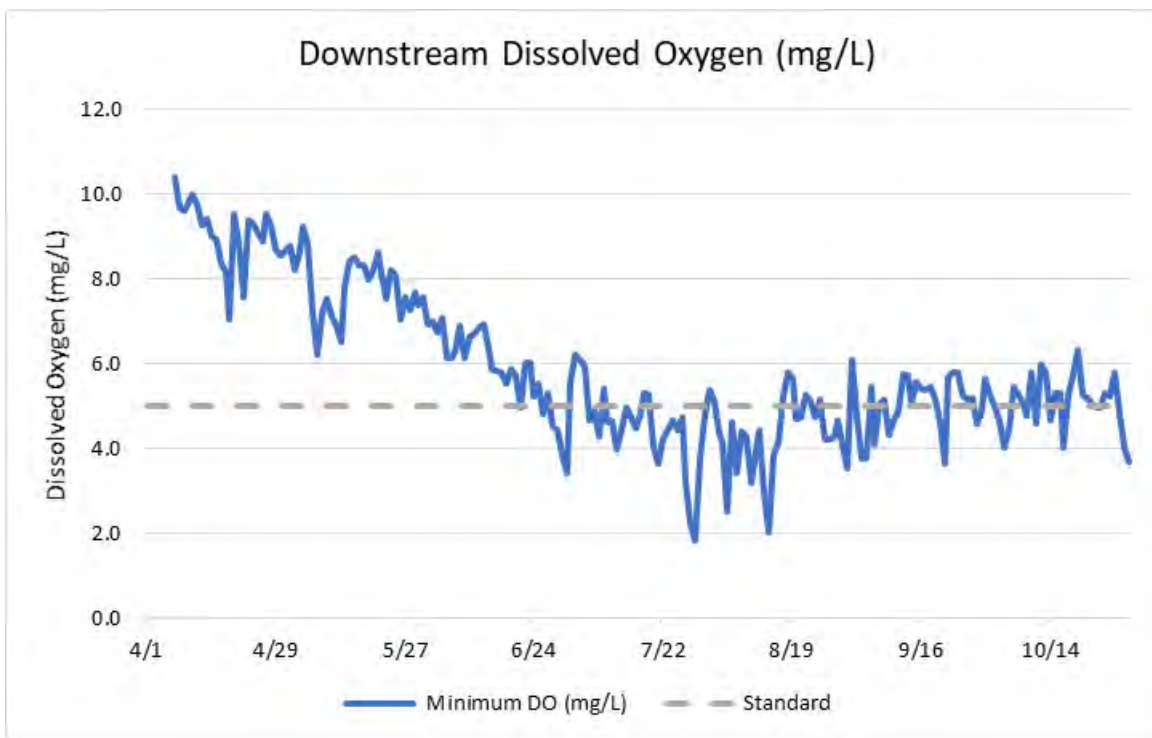


Figure 4-8 Daily minimum DO at the downstream monitoring site, April 1 to October 31, 2021.

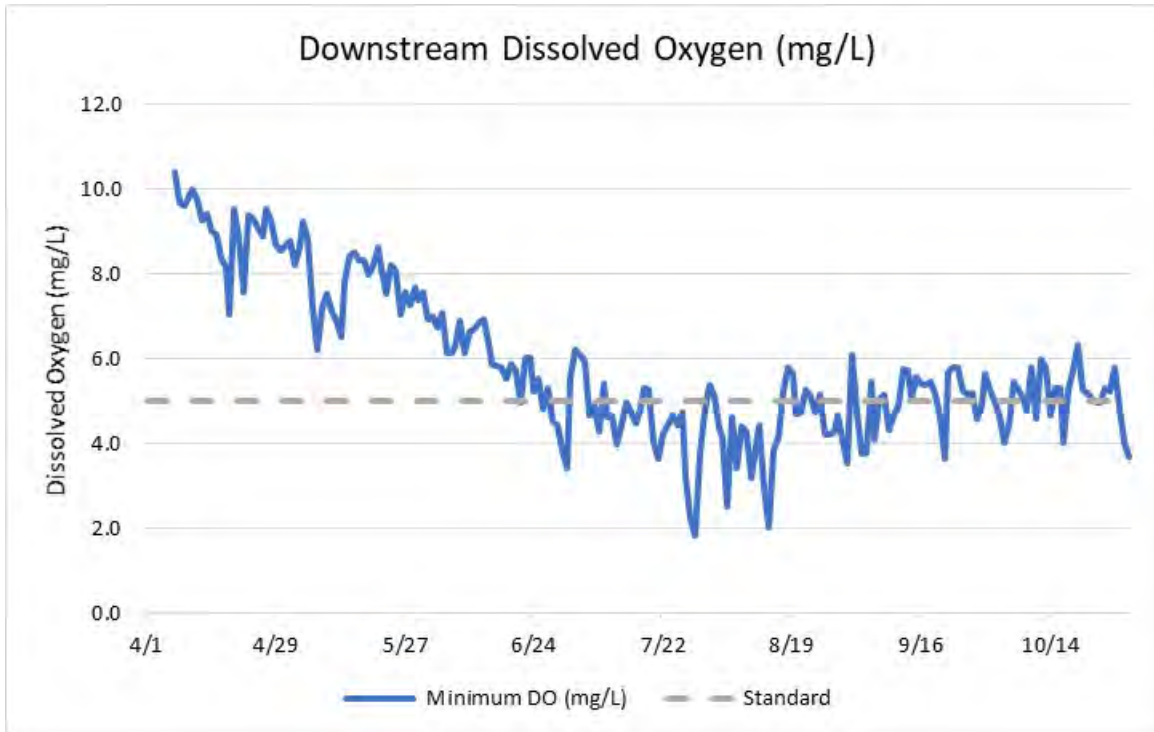


Figure 4-9 Daily average pH at the downstream monitoring site, from April 1 to October 31, 2021.

The conditions that lead to low DO concentrations in the tailrace are discussed below using the data collected during the 2022 monitoring season. The environmental conditions that lead to low DO in the Lake Lynn Project tailrace are a combination of low reservoir inflow and elevated water temperature. Low reservoir inflow typically occurs in mid to late Summer (Figure 4-10). Water temperature also peaks during the Summer (Figure 4-11). A reduction of generation discharge coincides with these conditions which yields decreased DO in the tailrace.

Low inflow to the reservoir is the limiting factor to dissolved oxygen in the tailrace. Generation occurs when inflow allows reservoir volume to be maintained by increasing discharge (Figure 4-12). When generation is limited by low reservoir inflow during peak summer temperature, tailrace DO can decline below the standard (Figure 4-13). Reservoir surface spill is the effective method to mitigate low DO in the tailrace when low reservoir inflow restricts project generation.

The 33 ft vertical opening of the turbine intake lies between elevation 828 and 861 feet. Since the intake opening spans a large portion of the reservoir water column, the likelihood of limnetic stratification impacting dissolved oxygen conditions in the tailrace

is low. The reservoir samples are taken at an elevation of 861 feet. The tailrace samples are taken at an elevation of 789 ft. The downstream samples are taken at an elevation of 779 ft. All of the monitoring station instruments are installed at a depth that is two feet below the minimum surface elevations at each location. Since the surface elevation varies continuously, it is uncertain as to what depth the historical samples were collected, however, the samples were collected at a minimum depth of two feet.

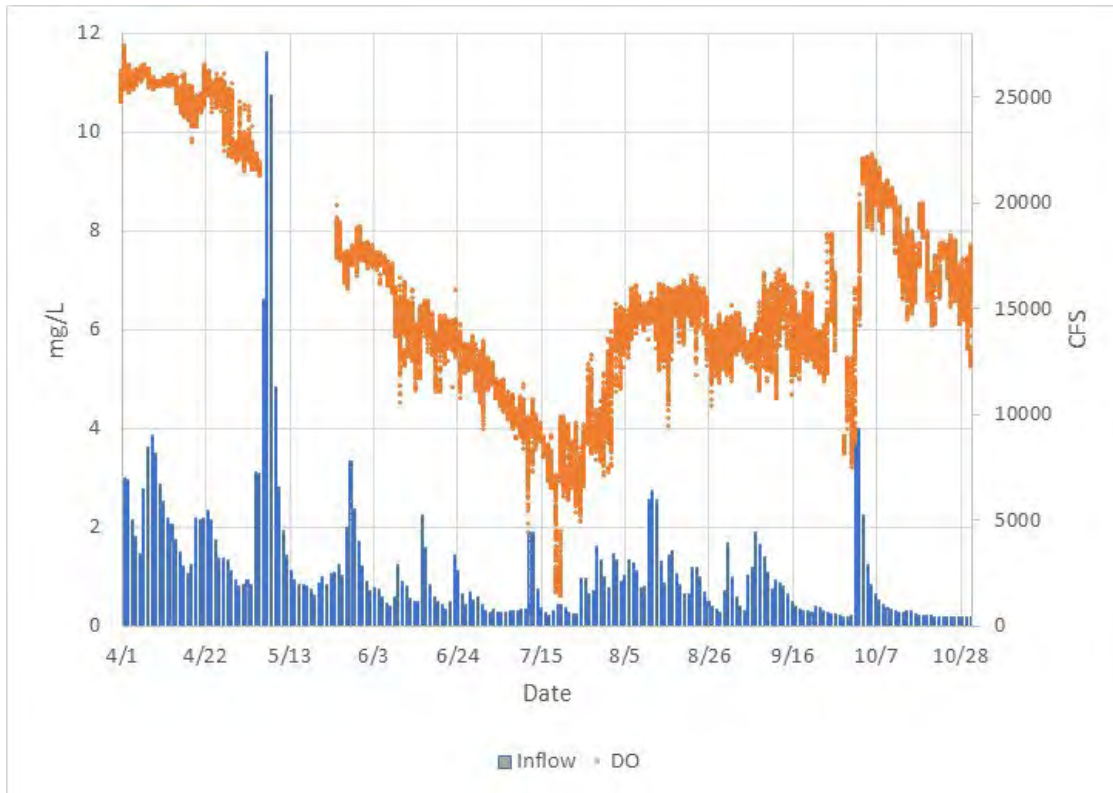


Figure 4-10 Lake Lynn Reservoir Inflow and DO, April 1-October 31, 2022.

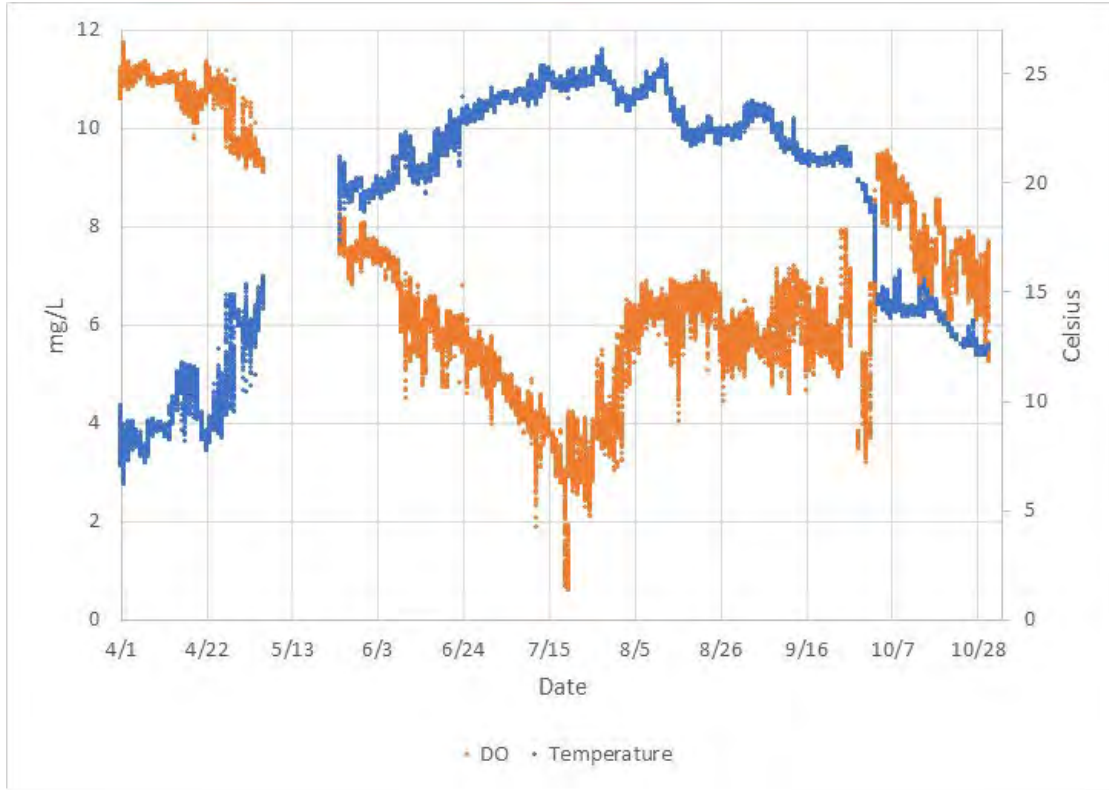


Figure 4-11 Lake Lynn Reservoir Temperature and DO, April 1-October 31, 2022.

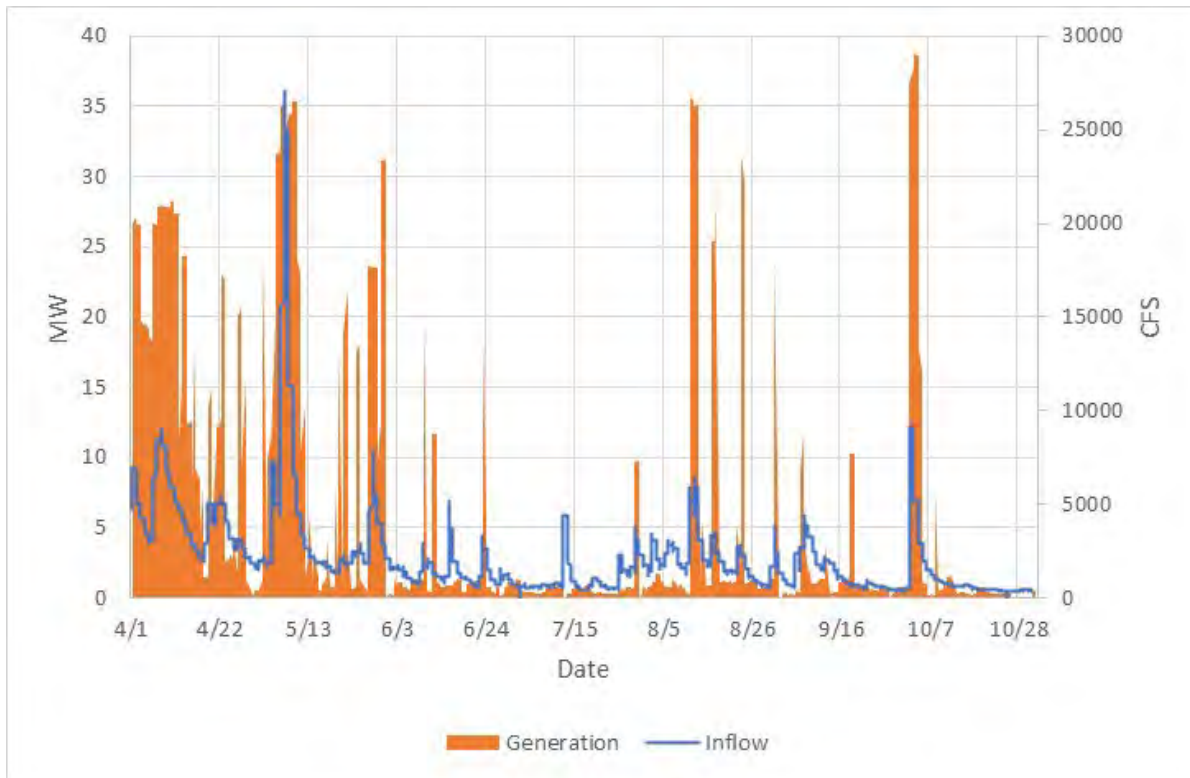


Figure 4-12 Lake Lynn Reservoir Inflow and Project Generation, April 1-October 31, 2022.

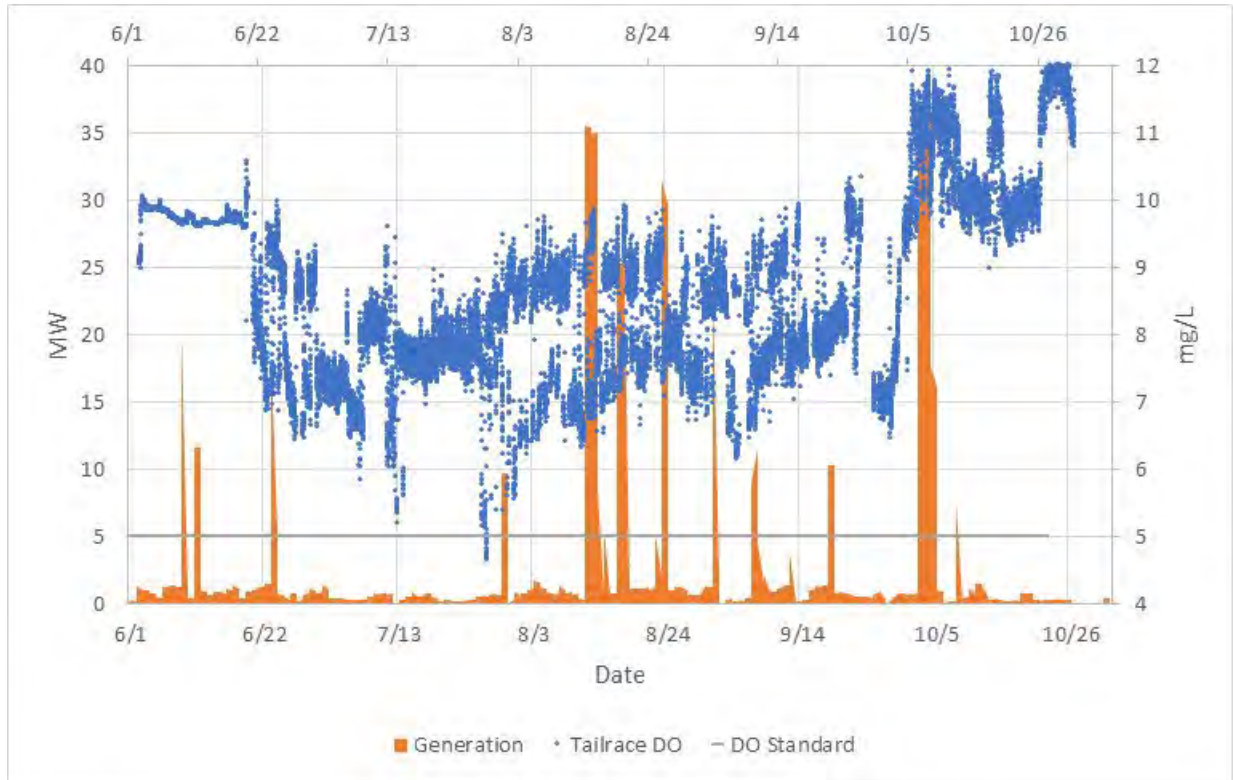


Figure 4-13 Lake Lynn Project Tailrace DO and Generation, June 1-October 31, 2022.

Water quality is proposed to be continuously sampled every ten minutes from June 1 to October 31. The proposed depth of the impoundment and tailrace monitoring locations is 861 ft and 789 ft, respectively, or the equivalent of two feet below the minimum surface elevation. Lake Lynn proposes to include deviations from the water temperature and dissolved oxygen concentration West Virginia state standard for warmwater fisheries in an annual report that includes the results of a monitoring season from June 1 to October 31. The annual report would be submitted to the agencies for a 30-day review prior to submitting to the Commission by April 30 of each year. Lake Lynn proposes to discontinue monitoring for pH and conductivity because sufficient historical information has been collected by Lake Lynn and other entities to demonstrate that efforts to improve water quality have had beneficial effects to the mainstem Cheat River (<https://www.epa.gov/wv/rebirth-cheat-river>).

The historic influence of coal mining is significant in the Cheat River watershed. Water draining from these mines is acidic. The acid drainage impacts aquatic life negatively. Considerable effort has been made in the past three decades to improve water quality in the Cheat River watershed (<https://cheat.org/acid-mine-drainage-remediation/>). This

effort is upstream of the Lake Lynn Project reservoir. Improvements in water quality in the mainstem Cheat River have resulted from the reduction of the impact from acid mine drainage (<https://www.epa.gov/wv/rebirth-cheat-river>). The minimum flow released from the Project dilutes the acid mine drainage from downstream tributaries. The pH of mine drainage can be as low as 2.5 (<https://www.usgs.gov/mission-areas/water-resources/science/mine-drainage>). Average pH at the monitoring station downstream of the Project is a neutral 6.8 (Table 4-6). Continuing to release the absolute minimum flow amount of 100 cfs would beneficially serve the purpose of mitigating the impact of acid coal mine drainage.

WVDEP Monitoring Data

The WVDEP conducts spot measurements during several months each year (ranges from 6 to 12 months depending on year) downstream of the Lake Lynn dam (Station Code MC-0001-3.5) (WVDEP 2022b). DO, temperature, pH, and conductivity data for 2009 to 2021, including minimum, maximum and averages, are summarized in Table 4-11. The DO concentration ranged from 5.3 to 15.4 mg/L and was above the 5 mg/L standard. pH ranged from 5.5 to 8.1, though maintained an average from 6.4 to 7.0 and was in attainment with the standard in 2012 to 2021. Conductivity ranged from 1.0 to 168.0 $\mu\text{S}/\text{cm}$, with yearly averages ranging from 54.7 to 110.7 $\mu\text{S}/\text{cm}$. Temperature ranged from 0.4 °C to 27.8 °C, with yearly average ranging from 12.5 to 15.4 °C.

Table 4-11 WVDEP water quality data collected downstream of the Lake Lynn dam, 2009 to 2021.

	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
DO													
Average (mg/L)	10.2	10.8	10.9	9.3	9.4	10.2	10.0	11.1	10.5	10.2	8.8	9.3	9.6
Min	6.7	6.9	7.9	5.3	5.4	5.7	7.8	7.5	6.6	7.9	5.6	6.1	5.6
Max	13.6	15.4	14.2	12.1	12.4	13.6	13.3	14.0	13.0	13.2	14.0	13.6	13.3
Temperature													
Average (°C)	13.3	14.1	10.2	15.4	12.5	12.8	14.7	13.9	13.7	13.8	15.3	13.6	12.8
Min	2.2	0.4	0.4	2.5	1.6	0.2	0.7	0.8	5.6	2.0	2.5	4.2	1.6
Max	24.1	26.6	24.1	24.9	23.2	22.5	26.0	27.0	23.2	25.1	26.0	27.8	25.3
pH													
Average	6.9	6.9	6.4	7.0	6.7	6.9	7.0	6.9	6.9	6.7	6.8	6.9	6.7
Min	6.2	5.5	5.8	6.7	6.3	6.2	6.3	6.6	6.4	6.3	6.0	6.7	6.3
Max	7.5	7.8	7.1	7.3	7.3	7.5	8.1	7.4	7.4	7.1	7.1	7.2	7.1
Conductivity													
Average (µS/cm)	99.6	94.3	77.3	94.9	108.0	107.4	74.9	100.9	91.4	54.7	108.2	103.1	110.7
Min	75.0	11.0	8.0	7.0	76.0	11.0	14.0	11.0	9.0	1.0	82.9	72.5	74.0
Max	136.0	166.0	125.0	136.0	152.0	151.0	129.0	133.0	131.0	101.0	168.0	119.0	144.0

Source: WVDEP 2022b

4.4.2 Environmental Effects

4.4.2.1 Effects of the Proposed Action

The Licensee is proposing to continue to operate the Lake Lynn Project as currently licensed with no changes to Lake Lynn Project facilities and will continue to provide the existing seasonal elevations and minimum flows downstream of the dam. As such, the proposed action is not expected to adversely affect water quantity in the Lake Lynn Project area as compared to existing conditions. The removal of lands from the existing Lake Lynn Project boundary is not expected to adversely affect water quantity or water quality. Peaking operations typically occur in the winter for five hours in the morning and for five hours in the afternoon. In the summer peaking operations typically occur for five hours in the evening. The typical drawdown rate is 0.2-0.4 feet per day. Due to the limited drawdown rate, the continuation of peaking operations are not expected to impact water quantity or water quality within the Lake Lynn Project Area.

The Licensee proposes to prepare a new water quality monitoring plan for the new license term that includes the stations and parameters that can be affected by Lake Lynn Project operations. The Licensee proposes that the new water quality monitoring plan would include monitoring of DO and water temperature from June 1 through October 31 each year at the reservoir water quality monitoring station and the tailwater monitoring site only. The downstream monitoring site is at USGS Gage No. 03071690 Nilan, approximately 2.6 RM downstream of the Lake Lynn dam, and downstream of Grassy Run. Since this station is downstream of Grassy Run, water quality monitoring at this station is impacted by Grassy Run and other factors outside the control of the Licensee. The Licensee also proposes to discontinue pH and conductivity monitoring.

The Licensee closely monitors tailrace DO levels and has developed standard operating procedures to adjust operations to mitigate low DO concentrations. These procedures include limiting or reducing generation and opening additional spill gates to increase flow downstream. Lake Lynn is proposing to continue to follow those procedures. In 2019, Lake Lynn consulted with the resource agencies and received a temporary variance from FERC to draw down the reservoir to 865 ft during a period of low DO levels in an effort to mitigate the low tailrace DO conditions. In 2020, when DO levels started to decrease, Lake Lynn consulted with the agencies again and received support for pursuing a similar variance. In 2022, when DO levels started to decrease, Lake Lynn consulted with the agencies again and received support for pursuing a similar temporary variance from FERC.

Lake Lynn is proposing to develop an Operation Plan under the new license that will include standard operating procedures to be implemented during period of low DO levels in an effort to mitigate low tailrace DO levels that will also allow the reservoir to be drawn down to 865 ft, consistent with the consultation with resource agencies in 2019, 2020, and 2022. The Operation Plan will also document how Lake Lynn will comply with the operational requirements of the license.

Existing water quality conditions at the Lake Lynn Project are anticipated to continue under the proposed action. Periods of low DO concentrations (e.g., less than the 5 mg/L standard) are expected to be minimal because the operational changes implemented (e.g., reducing generation, opening spill gates) have been consistently shown to quickly improve DO concentrations in the tailrace (e.g., LLG 2020b, c; LLG 2021b). Lake Lynn's proposal to implement the procedures (draw the reservoir down to 865 ft) obtained via a temporary variance in 2019 would provide flexibility to further mitigate low tailrace DO conditions.

4.4.2.2 Effects of the No-Action Alternative

The effects of the no-action alternative mimic the anticipated effects of the proposed action because the Licensee is proposing no changes to existing facilities or operations.

4.4.3 Unavoidable Adverse Effects

The proposed action and PME measures (i.e., continued operation and relicensing of the Lake Lynn Project and standard operating procedures to mitigate low DO values) are not expected to result in unavoidable adverse effects to water quantity and water quality resources in the Lake Lynn Project area.

4.4.4 References

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4.5 Fish and Aquatic Resources

4.5.1 Affected Environment

Aquatic Habitat – Cheat Lake

Cheat Lake is approximately 13-miles-long with a surface area of 1,729 acres and a volume of about 72,000 acre-feet at a full pool elevation of 870 feet National Geodetic Vertical Datum (NGVD). The Lake Lynn impoundment is approximately 950-feet-wide immediately upstream of the Lake Lynn dam, narrowing to 300 feet at the upstream end, with a maximum width of approximately 2,500 feet. The Licensee operates the Lake Lynn Project as a dispatchable peaking facility which allows for storage capability. Impoundment elevations are maintained between 868 to 870 feet NGVD from May 1 to March 31, between 857 to 870 feet from November 1 through March 31, and between 863 to 870 feet from April 1 to April 30. Additionally, the Licensee is required to release a minimum flow of 212 cfs from the dam, with an absolute minimum of 100 cfs regardless of inflow.

The licensee worked with WVDNR and West Virginia University (WVU) to document the distribution and relative abundance of aquatic habitat in Cheat Lake as part of the 2018-2020 Aquatic Biomonitoring Plan. Aquatic vegetation provides habitat for fish and aquatic organisms, yet historically Cheat Lake has had limited aquatic vegetation (Smith and Welsh 2015) The study identified 22 areas of significant aquatic vegetation in Cheat Lake. Overall, aquatic vegetation was found to be limited in Cheat Lake. (Figure 4-14).

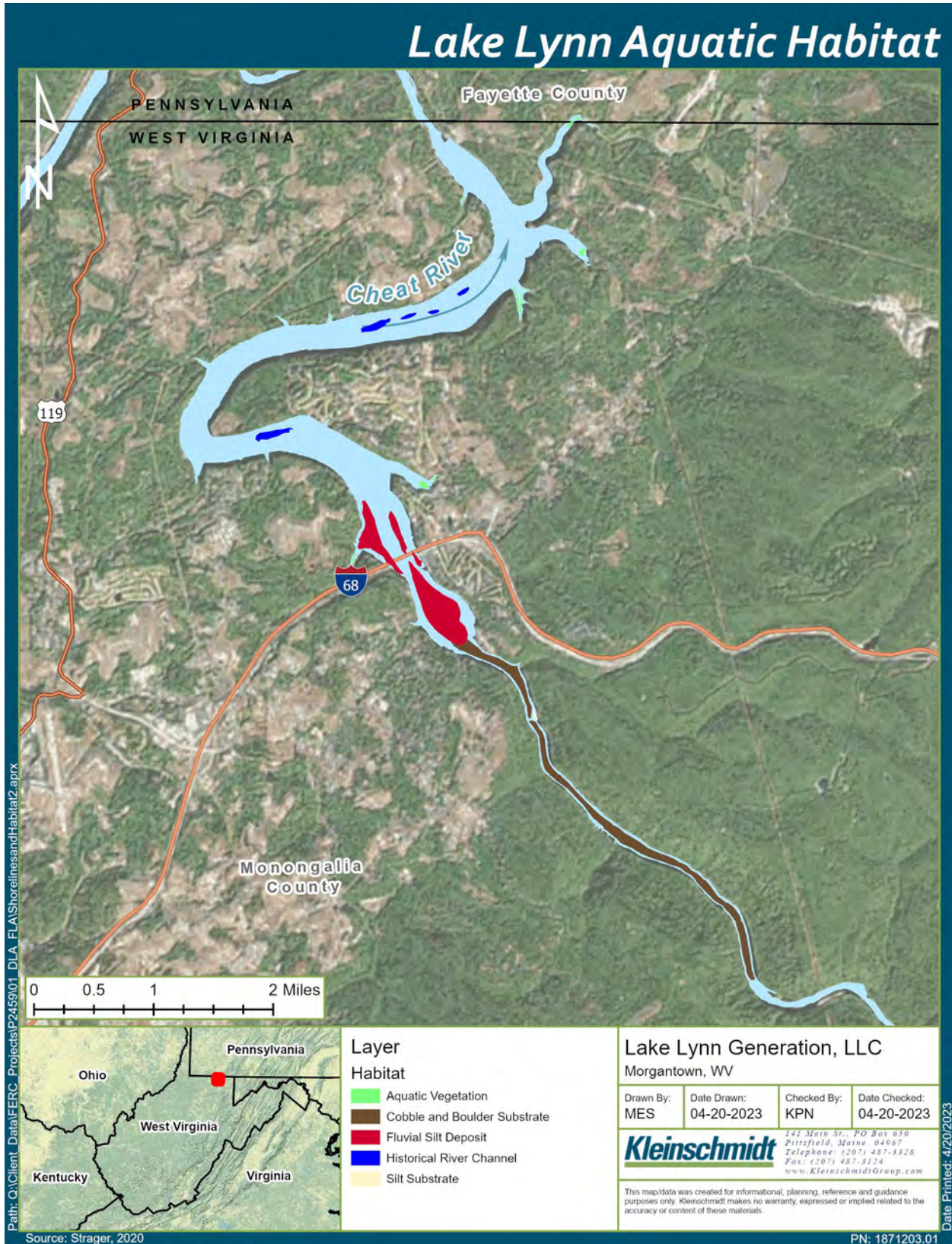


Figure 4-14 Lake Lynn Aquatic Habitat

WVDNR and WVU conducted studies in 2019 and 2020 to evaluate aquatic habitat in Cheat Lake with an emphasis on yellow perch spawning and water level fluctuation. During the study, 40 artificial habitat structures were deployed at two sites on Cheat Lake in 2019 and 2020. The structures were monitored for egg masses during the spring spawning period. Habitat variables and water quality were recorded at the sites during the study. A complete report was developed by Welsch et al. (2020) and provided to FERC and the stakeholders as part of the 2020 Annual Biomonitoring Report. Researchers found that yellow perch in Cheat Lake spawn in nearshore habitat, in a variety of depths or distances from the shore. Deepwater spawning reduces the effects of lake level drawdowns on egg dewatering, yet less available habitat was noted in deeper water. Yellow perch spawning periods were identified as March 21 to April 16 in 2019 and March 21 to April 11 in 2020. The lake level typically does not reach the minimum lake elevations permitted during March or April, therefore, although the potential for egg dewatering is high, the actual percent of eggs dewatered is lower than the rates documented with artificial habitat during the study (Welsh and Matt 2020).

4.5.1.1 Cheat River (Downstream of Cheat Lake)

The Lake Lynn Project boundary extends downstream approximately 656 feet from the Lake Lynn dam. The Cheat River flows approximately 3.6 RMs from the Lake Lynn dam until joining the Monongahela River near Point Marion, Pennsylvania. The Cheat River downstream of the Lake Lynn dam is comprised of two distinct aquatic habitat reaches. From the Lake Lynn dam to approximately 1.2 miles downstream, the Cheat River is a riffle-run complex, composed of a heterogenous mixture of cobble, gravel, boulder, bedrock, and sand (Table 4-12, Photo 4.1). Downstream of the riffle-run complex, the Cheat River transitions into pool habitat until its confluence with the Monongahela River (Photo 4.2). Pool habitat substrate is composed mostly of cobble and gravel, with the most downstream reaches of the Cheat River transitioning to sand and silt (TRC 2020).

Table 4-12 Cheat River Substrate Summary during 2020 Mussel Survey

Site	State	% Substrate Composition								Total
		Br	Bo	Co	Gr	Sd	St	LWD	Vegetation	
1	WV	10	30	45	10	5	-	-	-	100
2	WV	5	-	40	20	10	-	-	-	100
3	PA	-	-	70	-	-	-	-	30	100
4	PA	-	-	45	30	25	-	-	-	100
5	PA	-	-	60	30	-	-	-	10	100
6	PA	-	5	55	25	-	-	-	15	100

Site	State	% Substrate Composition								Total
		Br	Bo	Co	Gr	Sd	St	LWD	Vegetation	
7	PA	-	-	60	40	-	-	-	-	100
8	PA	-	-	40	35	-	-	5	20	100
9	PA	-	-	65	15	-	-	-	20	100
10	PA	-	-	75	15	-	-	-	10	100
11	PA	-	-	60	15	25	-	-	-	100
12	PA	-	-	-	-	55	35	10	-	100

Br=Bedrock, Bo=Boulder, Cb=Cobble, GR=Gravel, Sd=Sand, St= Silt, LWD= Large Woody Debris

Source: TRC 2020



Photo 4.1 Cheat River Habitat Directly Downstream of the Lake Lynn Dam during the 2020 Mussel Survey (TRC 2020)



Photo 4.2 Cheat River Pool Habitat Downstream of the Lake Lynn Dam during the 2020 Mussel Survey (TRC 2020)

During the 1970s water quality degradation was documented in the Cheat River due to acid mine drainage (AMD) discharged from abandoned or active coal mine operations. In 1994, an illegally sealed underground mine failed and discharged contaminated water directly into Muddy Creek (TRC 2020). AMD entered the Cheat River directly above Cheat Canyon and polluted the watershed. Effects of AMD were noted at multiple sites during the 2020 mussel survey completed as part of the relicensing (Photo 4.3) (TRC 2020).



Photo 4.3 Acid Mine Drainage in the Cheat River Downstream of the Lake Lynn Dam during 2020 Mussel Survey (TRC 2022)

4.5.1.2 Fish and Aquatic Assemblages

The Cheat River watershed supports warm water and cool water fisheries. Important recreational fishery species include largemouth bass, smallmouth bass, trout, crappie, walleye, and channel catfish. The licensee has conducted biological monitoring in Cheat Lake and in the tailwater since 1997, in accordance with the current FERC License. Biological surveys were also conducted by WVDNR in 2005 and 2008 and by WVU in 2011, 2014, and 2015. Researchers assessed water quality, aquatic habitat, and aquatic communities (fish and benthic macroinvertebrates). Freshwater mussel, American eel eDNA, water quality monitoring and aquatic habitat studies have also been conducted in the Lake Lynn Project area by the Licensee and other researchers. Table 4-13 summarizes the research efforts that have taken place in the Lake Lynn Project area since 1997. Aquatic resource quality has generally improved over the sampling period (Wellman et al. 2008).

Table 4-13 Summary of Cheat River and Cheat Lake Biomonitoring Activities from 1997 to 2020

Activity	'97	'98	'99	'00	'01	'02	'03	'04	'05	'06	'07	'08	'09	'10	'11	'12	'13	'14	'15	'16	'17	'18	'19	'20
Water quality monitoring (Cheat Lake)	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Water quality monitoring (downstream of Cheat Lake)	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Fish community (Cheat Lake and embayments)	X	X			X		X		X			X			X			X	X					
Benthic macroinvertebrates (downstream of Cheat Lake)	X	X			X				X						X			X	X					
Walleye population monitoring and stock assessment	X	X			X				X			X			X			X	X					
Adult walleye movement									X	X	X	X	X		X	X	X	X	X					
Aquatic vegetation mapping									X	X	X		X		X	X	X		X					
Bathymetric mapping (Cheat Lake)															X	X	X		X					

Activity	'97	'98	'99	'00	'01	'02	'03	'04	'05	'06	'07	'08	'09	'10	'11	'12	'13	'14	'15	'16	'17	'18	'19	'20	
Artificial habitat enhancement and monitoring																							X	X	X
American Eel eDNA (downstream of Cheat Lake)																							X	X	X
Angler creel survey																									1
Freshwater mussel survey (Cheat River downstream of Cheat Lake)																									X

1 – the angler creel survey is taking place in 2022.

Lake Lynn Fisheries - WVDNR's 2005 and 2008 surveys were conducted in May and October and included nighttime boat electrofishing and gill netting. Sampling locations are shown in Figure 4-15 and Figure 4-16. WVU sampled the fish community in 2011, 2014, and 2015 with nighttime boat electrofishing and gill netting during the spring and fall seasons. In total, WVU collected 35 fish species and 8,338 individual fish. Most fish (7,499 individuals) were collected during nighttime boat electrofishing as compared to gill netting (839 individuals). Overall, species richness increased in the riverine zone of Cheat Lake, compared to previous studies. In prior studies in the riverine zone, species richness was as low as 8 species (1990), whereas an average of 23 species were collected during WVU's the 2011 to 2015 samples (Table 4-14). In addition to species richness, species abundance increased between 2011 and 2015 for sportfish and non-game species as compared to prior studies. The most abundant sportfish in Lake Lynn during the 2011 and 2014 sampling included bluegill, smallmouth bass, largemouth bass, yellow perch, and channel catfish. The most abundant non-game species included the emerald shiner, mimic shiner, logperch, brook silverside, and gizzard shad (Smith and Welsh 2015).

In accordance with the 2021-2023 Biomonitoring Plan, the Licensee is conducting a creel survey (a sampling survey that targets recreational anglers) in 2022 to document recreational fishing effort and success. The initial study was planned for 2020, but was postponed due to the Coronavirus Disease 2019 (COVID-19) pandemic. The survey includes survey boxes and in-person creel surveys at six locations on Cheat Lake. Areas surveyed include Ices Ferry Bridge access, Edgewater Marina, Lakeside Marina, Sunset Beach Marina, Cheat Lake Park, and the Lake Lynn Project Tailwater Fishing Pier. The survey is collecting information through December 2022 including angler effort, fish harvest data for game fish species, and size distribution of game fish species.

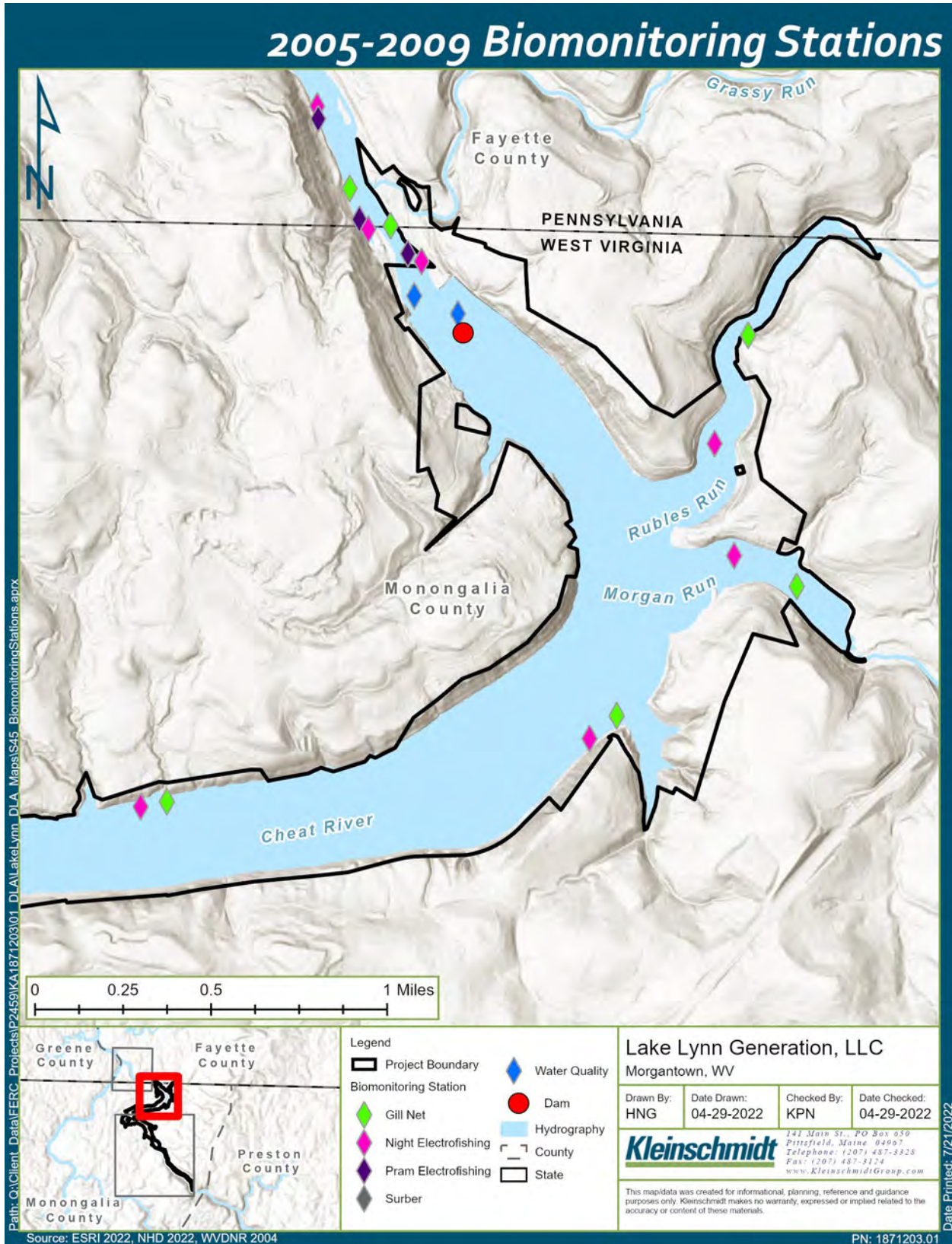


Figure 4-15 Fish Sampling Locations in Lake Lynn (2005, 2008, 2011, 2014, and 2015) (1 of 2).

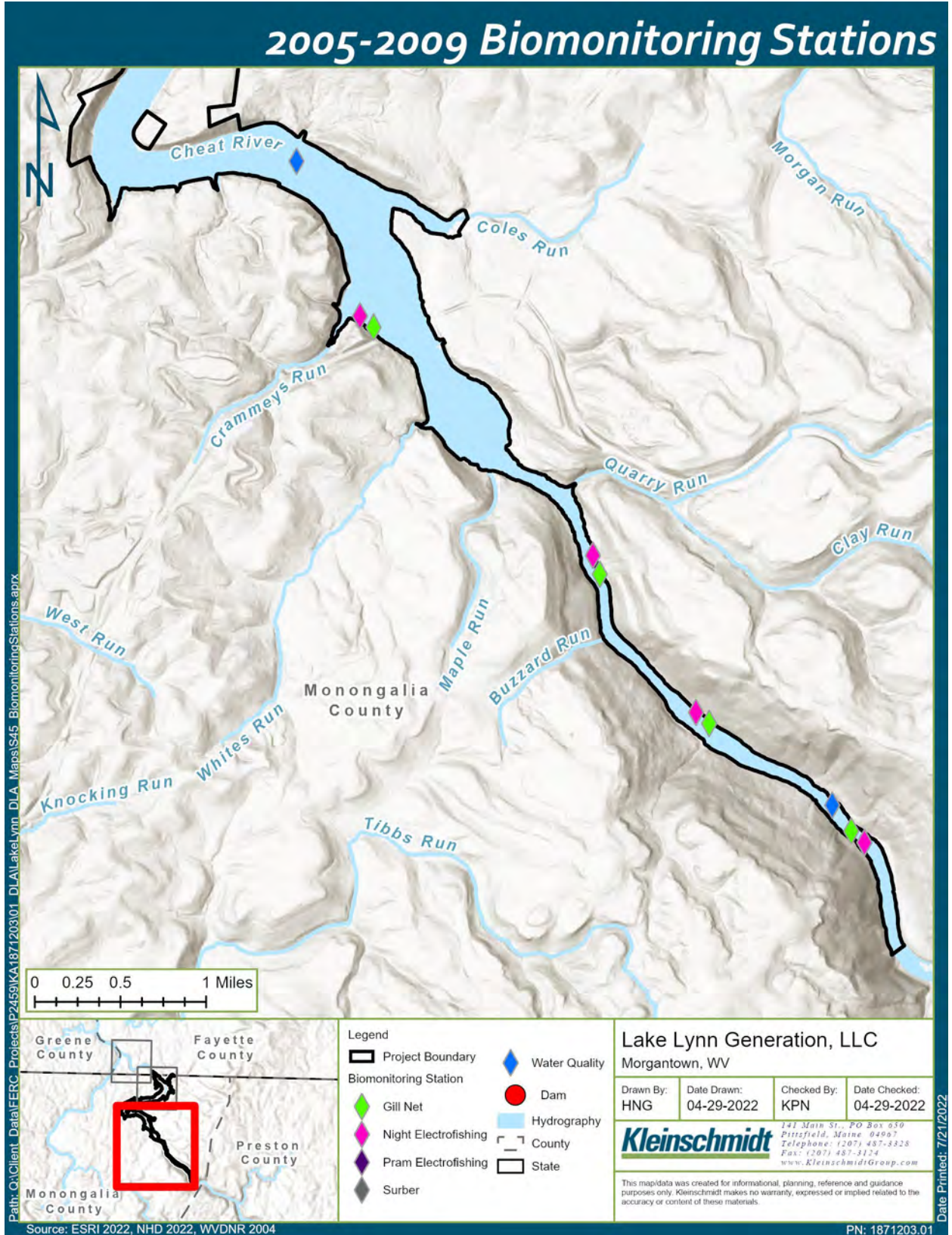


Figure 4-16 Fish Sampling Locations in Lake Lynn (2005, 2008, 2011, 2014, and 2015) (2 of 2).

Table 4-14 Temporal Trends in Fish Catch Per Unit Effort of Boat Electrofishing in the Lake Lynn Impoundment

Boat Electrofishing									
Species	1990	1997	1998	2001	2005	2008	2011	2014	Grand Total
Banded Darter	0.00	0.00	0.00	0.00	0.00	0.50	0.00	0.50	0.11
Black Crappie	0.22	0.00	0.11	0.00	0.00	0.50	2.50	3.75	0.81
Bluegill	8.44	15.08	11.56	30.11	12.50	186.00	10.50	27.25	36.59
Bluntnose Minnow	0.22	0.00	0.00	9.11	10.50	14.25	7.75	0.75	5.38
Brook Silverside	4.00	5.00	4.89	11.33	6.00	37.25	11.25	5.75	10.58
Brown Bullhead	5.11	0.00	0.56	0.00	0.00	0.00	0.50	0.00	0.59
Common Carp	0.89	2.67	2.56	2.33	3.50	1.25	0.25	0.75	1.88
Emerald Shiner	7.11	21.67	20.56	25.67	5.00	7.25	125.50	22.25	29.30
Chain Pickerel	0.00	0.00	0.00	0.00	0.00	0.00	0.25	3.00	0.37
Channel Catfish	0.22	0.42	0.22	1.00	0.75	3.00	1.00	2.00	1.05
Channel Darter	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.50	0.06
Gizzard Shad	0.00	0.00	0.22	2.44	1.00	0.75	5.75	0.00	1.31
Golden Redhorse	0.00	0.92	1.67	1.33	4.25	4.25	19.50	40.00	8.39
Golden Shiner	0.00	0.00	0.11	0.11	0.00	0.50	0.00	0.00	0.10
Greenside Darter	0.00	0.00	0.00	0.33	0.00	0.00	0.00	1.25	0.20
Green sunfish	0.22	0.00	0.33	2.11	1.75	19.50	1.25	10.50	4.21
Flathead Catfish	0.00	0.25	0.33	0.00	0.25	0.00	0.00	0.25	0.14
Freshwater Drum	0.44	0.58	0.56	0.78	0.75	1.00	0.50	3.00	0.93
Hybrid Striped Bass	0.00	0.00	0.00	0.00	0.00	0.00	0.25	0.00	0.03
Hybrid Sunfish	1.56	0.00	0.00	0.00	0.00	0.00	0.25	0.25	0.19
Johnny Darter	0.00	0.00	0.11	0.44	0.00	3.25	0.00	1.75	0.67
Largemouth Bass	2.44	2.75	3.89	3.67	8.50	4.50	9.50	7.50	6.39
Logperch	0.00	1.42	3.33	3.11	10.75	1.50	2.25	14.00	4.52
Longnose Gar	0.00	0.00	0.00	0.22	0.00	0.50	0.25	1.25	0.27
Mimic Shiner	0.89	0.00	0.00	33.78	5.50	54.50	12.75	29.50	17.55
Northern Hogsucker	0.00	0.00	0.33	0.00	0.50	0.25	0.00	0.25	0.17

Boat Electrofishing									
Species	1990	1997	1998	2001	2005	2008	2011	2014	Grand Total
Northern Pike	0.22	0.08	0.22	0.11	0.75	0.00	0.00	0.00	0.17
Popeye Shiner	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.25	0.03
Pumpkinseed	4.67	1.75	2.33	1.22	0.50	3.75	0.50	0.50	1.81
Quillback	0.00	0.33	0.00	0.00	0.00	0.00	0.75	0.25	0.15
Rainbow Darter	0.00	0.00	0.22	0.00	0.00	0.00	0.00	2.50	0.32
River Carpsucker	0.00	0.00	0.22	0.00	0.00	0.00	0.00	0.00	0.04
Rock Bass	0.67	0.42	3.33	2.11	0.25	6.50	2.00	11.25	3.32
Rosyface Shiner	0.00	0.00	0.00	0.00	30.25	3.50	0.00	0.00	3.86
Sauger	0.00	0.67	2.44	1.78	1.75	1.50	4.25	4.50	2.17
Smallmouth Redhorse	0.00	0.00	0.00	0.00	0.00	0.00	0.50	0.00	0.06
Silver Redhorse	1.56	0.25	0.78	0.00	0.00	0.25	0.00	11.25	1.61
Silver Shiner	0.00	0.00	0.00	0.00	0.00	5.00	0.00	6.25	1.29
Smallmouth Bass	0.44	6.42	5.78	4.78	5.00	18.50	27.00	35.50	12.41
Spottail Shiner	0.22	1.67	1.00	0.00	0.00	0.00	0.00	0.25	0.41
Spotted Bass	0.22	0.75	0.00	1.00	2.25	4.75	3.25	8.75	2.45
Spotfin Shiner	0.22	0.00	0.00	0.67	7.25	9.00	0.50	0.25	2.08
Walleye	0.00	0.00	0.00	1.00	0.00	0.50	6.25	2.00	1.17
Warmouth	0.22	0.00	0.00	0.00	0.00	0.25	0.00	0.00	0.05
White Bass	0.00	0.00	0.00	0.00	0.00	0.00	3.50	0.00	0.40
White Sucker	0.00	0.00	0.00	0.00	0.25	0.00	0.00	0.00	0.03
White Crappie	0.00	0.33	0.00	0.67	0.00	0.00	0.00	0.00	0.15
Yellow Bullhead	0.44	0.08	0.11	0.33	0.00	0.00	0.00	0.50	0.18
Yellow Perch	9.56	7.92	24.22	14.00	1.75	0.25	1.25	22.75	11.25

Source: WVDNR 2004

Cheat River Fisheries - WVDNR conducted fisheries surveys in the Cheat Lake tailwater and in the Cheat River downstream of the dam in 2005 and 2008. The surveys consisted of nighttime boat electrofishing, tote barge electrofishing, and gill netting. Surveys took place during low water conditions in May and October. Eight tailwater survey stations and three river survey locations were established (Figure 4-17). Catch per unit effort (CPUE) was calculated as fish captured per hour of fishing effort. Tote barge electrofishing at tailwater stations targeted juvenile fish collection (Smith and Welsh 2015). In addition to the 2005 to 2009 samples, WVU sampled the Cheat Lake tailwater and in the Cheat River downstream of the dam in 2011 and 2014. The survey locations and methods were consistent with WVDNR's 2005 and 2008 surveys. Boat electrofishing and gill netting was conducted twice a year, whereas tote barge electrofishing was conducted three times a year.

During the 2011 and 2014 surveys in the Cheat River downstream of the Lake Lynn dam, WVU collected 3,352 fish consisting of 51 species. Fish abundance, which ranged from 1,825 in 2011 to 1,527 in 2014, was the highest since the biomonitoring program began. Species richness was also the highest in 2011 and 2014 since the biomonitoring program began (Table 4-15). Most fish were captured via boat electrofishing and tote barge electrofishing as compared to gill netting. WVU researchers captured six species during the 2011 and 2014 surveys for the first time since the biomonitoring program began (channel darter, variegate darter, chain pickerel, popeye shiner, muskellunge, and striped shiner). The most abundant species sampled in the Cheat River included the emerald shiner, smallmouth bass, golden redhorse, mimic shiner, and channel catfish (Smith and Welsh 2015).

**Table 4-15 Fish Species Richness for Cheat Lake Tailwater and Cheat River
 Summarized by Gear Type**

Species Richness									
Region	Gear	1990	1997	1998	2001	2005	2008	2011	2014
Cheat Tailwater	Night Boat Electrofishing	-	15	19	24	18	25	14	20
	Biomonitoring Gill Nets	-	8	15	13	14	14	9	5
	PRAM electrofishing	-	18	14	25	16	17	16	30
Cheat River	Night Boat Electrofishing	23	20	24	26	22	25	29	31
	Biomonitoring Gill Nets	17	7	14	10	16	17	16	11
TW & River	Night Boat Electrofishing	24	22	28	28	25	31	30	37
	Biomonitoring Gill Nets	17	11	19	16	19	20	19	12
	All gears	28	32	35	37	36	39	35	44

Source: WVDNR 2004

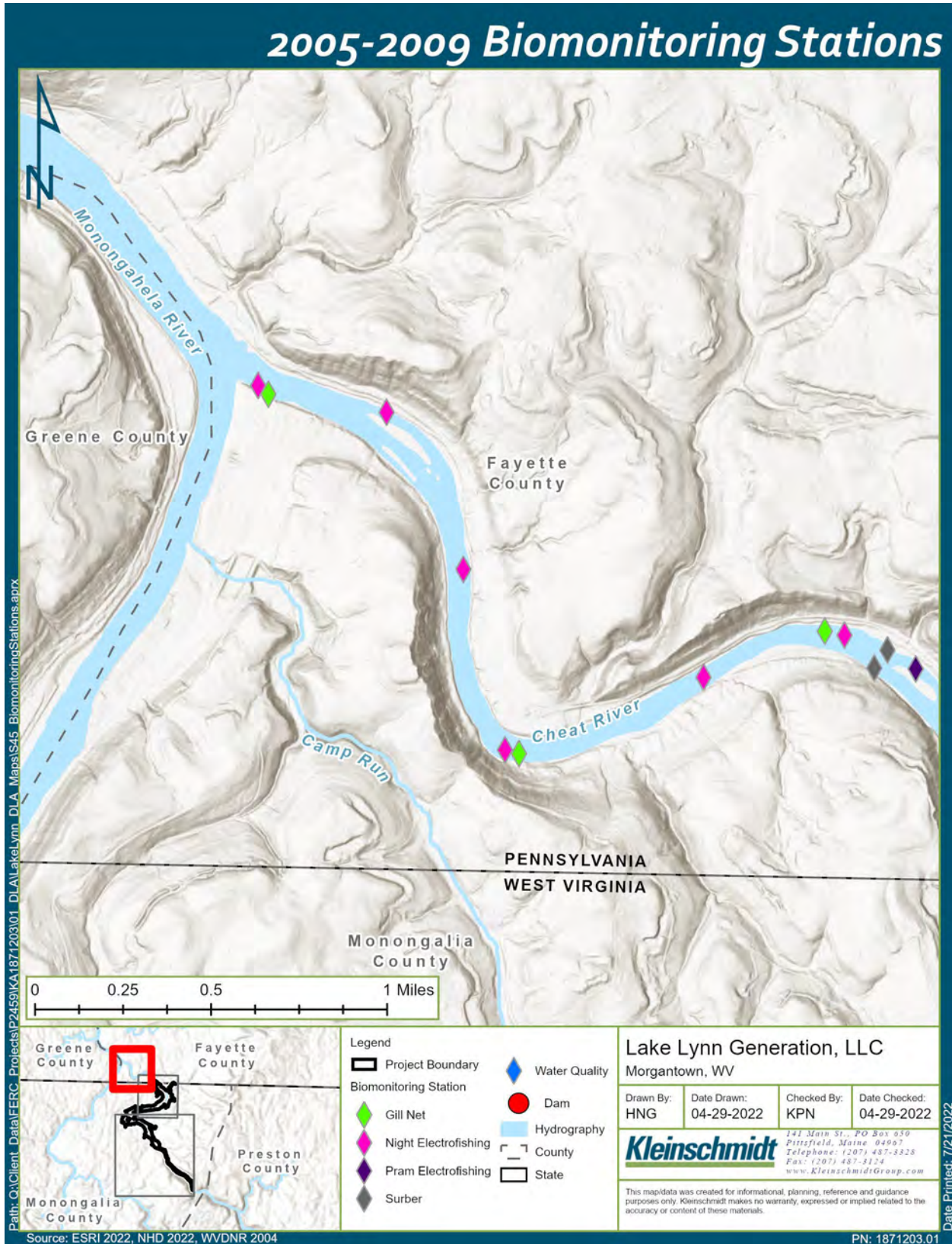


Figure 4-17 Tailwater and Cheat River fish sampling locations, 2005 and 2008; WVU fish sampling locations 2011 and 2014.

4.5.1.3 Essential Fish Habitat

There is no EFH in the vicinity of the Lake Lynn Project (NOAA 2022).

4.5.1.4 Diadromous Fish Species

No migratory fish species are reported from the Cheat River. As part of annual biomonitoring activities, the Licensee used environmental DNA (eDNA) techniques to monitor for the presence of American eel in the Lake Lynn Project tailwater area beginning in 2018. The Licensee collected 5 water samples from the tailwater area in August of 2018. American eel DNA was not detected in 2018 (TRC 2021). In 2019, the Licensee collected a total of 16 eDNA samples seasonally (March, June, August, and October) from the tailwater area (Figure 4-18). American eel DNA was not detected in 2019 (TRC 2021).



Figure 4-18 2019 American Eel eDNA Study Sites

The Licensee conducted a third phase of the American eel eDNA study in 2020 to detect yellow eels moving upriver. The objective of the third phase was to collect samples during

April, May, June and July, August, September of 2020 during daytime and nighttime hours. The Licensee collected samples at five sites in 2020: on July 29 (daytime), July 30 (nighttime), September 29 (nighttime), and October 29 (daytime), and in December. American eel DNA was not detected in 2020.

In 2021, the Licensee completed the fourth phase of the American eel eDNA study which included sampling from five study sites below the dam during the day and night on May 27, June 10, August 10, and September 8. Samples were processed using the modified filter extraction protocol identified by USFWS (USFWS 2022). All eDNA samples were negative for the presence of American eel markers from the May, June, and September sampling events (USFWS 2022). American eel eDNA was detected in a sample collected during the daylight hours on August 10, 2021. Detection reflected a low quantity of American eel eDNA present due to amplification of limited number of replicates and lack of detection at the same sites less than four hours earlier during the night sampling event (USFWS 2022).

4.5.1.5 Benthic Macroinvertebrates

Benthic macroinvertebrate data were collected below the Lake Lynn dam on a regular basis between 1998 and 2015. During recent surveys (e.g., 2011 and 2014) samples were collected at three stations as established during the 2005 and 2008 biomonitoring program (see Figure 4-15 and Figure 4-16). These sites were sampled twice during each study year. The location of the samples was consistent with previous biomonitoring studies and relied on a standard Surber stream bottom sampler. Researchers collected 6,338 benthic macroinvertebrates during the 2011 and 2014 sampling. The caddisfly family *Hydropsychiidae* was the most abundant taxa documented in 2011 and 2014. Samples during 2011 and 2014 demonstrated greater taxa richness (29 taxa total) and taxa abundance than years prior. Additionally, several sensitive mayfly and stonefly taxa were collected during 2011 and 2014 (Smith and Welsh 2015). The studies demonstrated that macroinvertebrate abundance has increased and pollution-sensitive species that indicate good water quality (caddisfly, mayfly and stonefly taxa) were prevalent during the most recent surveys.

4.5.1.6 Freshwater Mussels

Freshwater mussels are sedentary organisms that use benthic habitats through their life cycle. They require areas with high oxygen content and a rich food source of organic

particles and micro-organisms (WVDNR 2003). The Cheat River historically supported 17 species of freshwater mussels (Ortmann 1919) (Table 4-16).

Table 4-16 Mussels Known Historically from the Cheat River

Common Name	Scientific Name	Regulatory Status
Mucket	<i>Actinonaias ligamentina</i>	--
Elktoe	<i>Alasmodonta marginata</i>	--
Threeridge	<i>Amblema plicata</i>	--
Cylindrical Papershell	<i>Anodontooides ferussacianus</i>	--
Purple Wartyback	<i>Cyclonaias tuberculata</i>	--
Spike	<i>Eurynia dilatata</i>	--
Longsolid	<i>Fusconaia subrotunda</i>	--
Plain Pocketbook	<i>Lampsilis cardium</i>	--
Wavyrayed Lampmussel	<i>Lampsilis fasciola</i>	--
Flutedshell	<i>Lasmigona costata</i>	--
Black Sandshell	<i>Ligumia recta</i>	--
Clubshell	<i>Pleurobema clava</i>	SE ¹ & FE ²
Round Pigtoe	<i>Pleurobema sintoxia</i>	--
Kidneyshell	<i>Ptychobranhus fasciolaris</i>	--
Pimpleback	<i>Cyclonaias pustulosa</i>	--
Creeper	<i>Strophitus undulates</i>	--
Rainbow	<i>Villosa iris</i>	--

¹ Federally Endangered

² State Endangered

Source: PFBC 2018

In 2020, the Licensee conducted a study to identify what freshwater mussel species, if any, occur within the Cheat River from the Lake Lynn dam downstream to the confluence with the Monongahela River. The Licensee developed the freshwater mussel study plan in consultation with WVDNR and PFBC. A draft freshwater mussel report was provided to the stakeholders on November 25, 2020 (Attachment D).

The study area included 12 discrete sites downstream of the Lake Lynn downstream to the confluence with the Monongahela River (Figure 4-19). The study survey techniques consisted of a qualitative timed search which were consistent with West Virginia protocol (WVDNR 2020). Survey sites were located in areas where suitable mussel habitat was identified. Survey methods included visually and tactilely searching for mussels while snorkeling. No live mussels were found during the survey, yet eight live Pink heelsplitters (native species) were observed at the confluence of the Cheat River and Monongahela River immediately downstream of the survey area limits. These mussels were assumed to be part of a mussel bed located within the Monongahela River. The Pink heelsplitter is not

a federal or state listed mussel species. Mussel habitat in the mussel survey area may be limited due to water quality degradation caused by AMD. Evidence of AMD was observed at multiple sites during the mussel survey (TRC 2020). Freshwater mussels are sensitive to poor water quality due to their lack of mobility. Substrate in the survey area was suitable for mussels, yet the water quality degradation, may prevent mussels from colonizing these areas (TRC 2020).

4.5.1.7 Fish Passage

There are no fish passage measures or facilities at the Lake Lynn Project.

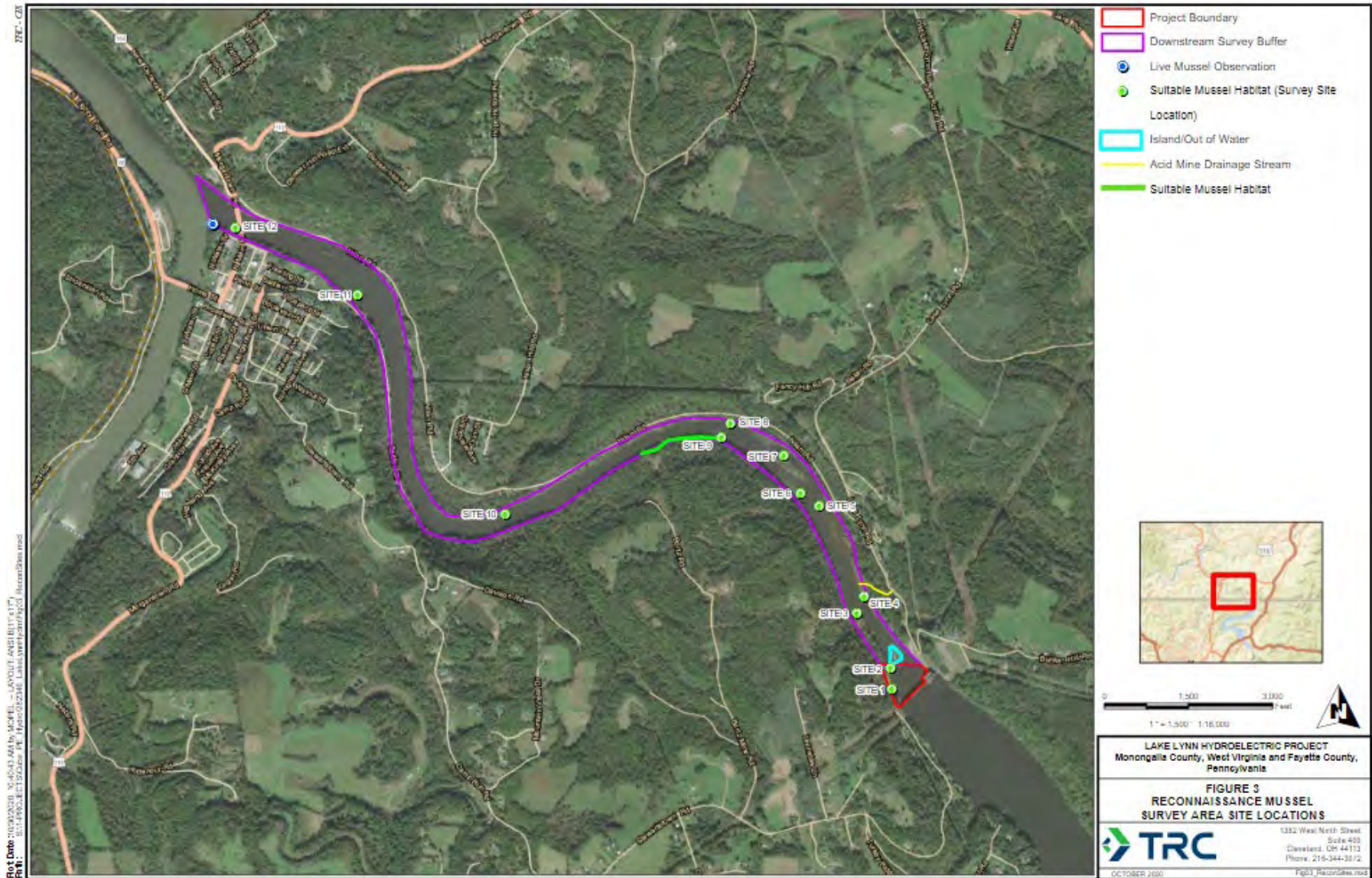


Figure 4-19 2020 Cheat River Mussel Survey Locations

4.5.1.8 Entrainment

Lake Lynn conducted a desktop Fish Entrainment Assessment at the Lake Lynn Project (Normandeau Associates 2022). Community data for biological sampling conducted upstream of Lake Lynn in Cheat Lake documented 35 fish species between 2011 and 2015. Seven species were identified as representative of that community and were included in the desktop assessment of fish entrainment at the Lake Lynn Project (bluegill, channel catfish, smallmouth bass, walleye, emerald shiner, golden redhorse, and gizzard shad). Life history information for the target fish species was reviewed and based on the available habitat requirements and behavioral responses to environmental conditions it was determined that gizzard shad are the target species most susceptible to entrainment at the Lake Lynn Project. These fish may be present in the vicinity of the Lake Lynn Project intakes and could be entrained. Entrainment of shad tends to peak in the fall and winter in reservoirs where they are abundant. The entrainment potential for the remaining target fish species is expected to be low given the lack of high-quality aquatic habitat in the immediate vicinity of the intake structure coupled with the fact that none of the additional fish species are considered obligatory migrants. In general, entrainment for most of the target fish species considered during the evaluation is not anticipated to be high at Lake Lynn. Gizzard shad are the target species most likely to be seasonally entrained during periods of low water temperatures. However, due to their high burst speed swimming capability at all sizes, they are expected to have relatively low entrainment susceptibility during the warmer months of the year.

In the event individuals are entrained, the USFWS Turbine Blade Strike Analysis (TBSA) Tool was used to conduct assessments for fish lengths representative of the size range of target species with potential to fit through the existing rack spacing at Lake Lynn. The TBSA analysis produced a range of survival estimates for turbine survival through the four Francis units at the Lake Lynn Project and were slightly higher for Units 1, 3, and 4 than for the recently modified Unit 2. Survival rates calculated for size classes representative of juvenile life stages (i.e., those less than or equal to six inches) ranged from 82-95 percent.

In addition to the qualitative evaluation for the seven target fish species, quantitative estimates of entrainment and entrainment survival were calculated. Density data available from the Electric Power Research Institution (EPRI) (1997) database was combined with estimated monthly generation volumes to calculate estimates of monthly entrainment for the seven target species. Annual entrainment estimates for species other than gizzard shad ranged from a low of 115 individuals (redhorse) to a high of 7,167 individuals

(channel catfish). Three different sets of monthly entrainment density data were pulled from the EPRI (1997) database to calculate estimates for gizzard shad entrainment at the Lake Lynn Project and produced a wide range of estimates with the highest estimate over 14 million individuals entrained annually and a lowest estimate of 265 individuals entrained annually. Entrainment estimates for each target species were adjusted to reflect the predicted survival rates generated during the TBSA analysis for the Lake Lynn turbine units. The percentage of the annual entrainment expected to experience mortality was generally low, ranging from 12 percent of entrained individuals for bluegill to 37 percent of entrained individuals for redhorse. Similar to the observations for overall abundance, the estimates for the rate of entrainment mortality for gizzard shad varied from a low of 8 percent of entrained individuals to 345 percent of entrained individuals.

4.5.1.9 Fisheries Management

Several fisheries in the Cheat River watershed are managed for recreational opportunities, including the walleye and yellow perch fishery in Cheat Lake. Walleye were reintroduced to Cheat Lake from 1999 – 2002. Natural reproduction was not assessed until the 2005 biomonitoring surveys. From 2005 through 2009, walleye stocking assessments and walleye surveys were conducted by the Licensee in Cheat Lake as part of the biomonitoring program. WVDNR marked walleye with oxytetracycline for otolith identification prior to stocking. These marked fingerlings were stocked during the spring of 2005.

During the walleye assessment, otoliths were removed from appropriate-sized fish to determine if marks were present. Walleye collected from the Lake Lynn tailwater, and the Monongahela River were also assessed for marking (Smith and Welsh 2015). The studies suggest an occurrence and potential increase in natural reproduction during this time (Smith 2018). Age, growth, and diet metrics were also collected during WVNDNR's stocking assessment surveys as was a separate channel catfish survey. WVDNR collected 764 fish from 2012 through 2015. Of these fish, 118 walleye were collected. The most abundant species included the channel catfish, white bass, walleye, and black crappie. Age analysis conducted on walleye suggested that female walleye reach maturity quickly and reach large maximum sizes. Diet analysis found that yellow perch were present in 67 percent of Cheat Lake walleyes, suggesting that yellow perch are an important forage species for the walleye fishery (Smith and Welsh 2015).

Walleye movement and distribution data were collected by WVU from 2012 through 2015 in Cheat Lake using acoustic telemetry. Data was analyzed to understand trends associated with spawning timing and locations, as well as non-spawning movement. Movement varied seasonally and was associated with environmental conditions. Elevated water temperatures in the spring were associated with pre-spawning movements. Spawning timing was determined to occur from mid-March through early April in Cheat Lake. Most spawning occurred in the uppermost part of Cheat Lake below the first riffle/run complex. Female walleye made post-spawn migrations during April, while males made post-spawn migrations during the following fall. Additionally, elevated river discharge and fluctuations in water temperatures were also associated with large non-spawning movements of walleye in Cheat Lake (Smith and Welsh 2015).

4.5.1.10 Invasive Species

Aquatic invasive species include both invasive plants and animals. Invasive species are species intentionally or accidentally introduced by human activity into a region in which they did not evolve and cause harm to natural resources, economic activity, or humans. Aquatic invasive species displace native aquatic species and threaten overall value of aquatic ecosystem. The most common aquatic invasive species of concern in West Virginia include hydrilla (*Hydrilla verticillata*), zebra mussels (*Dreissena polymorpha*), rusty crayfish (*Orconectes rusticus*), virile crayfish (*Orconectes virilis*) and silver carp (*Hypophthalmichthys molitrix*) which are discussed below. (WVDNR, 2014).

Hydrilla – Hydrilla is common freshwater aquarium plant native to Asia, Australia, and part of Africa (USFWS 2020). This plant is considered highly invasive and can be introduced into waterways from accidental introductions by boaters and anglers transferring the plants from contaminated waterways into unestablished one. Currently, hydrilla can be found in 28 states in the United States, including West Virginia and Pennsylvania (Figure 4-20)(Jacono et. al. 2024). Stem pieces of the hydrilla plant can root in the substrate and develop into new colonies. Introduction to new waters often occurs from fragments of hydrilla on boats, motors, trailers, and live wells. Often colonies of hydrilla begin near boat ramps, which can be seen at the Lake Lynn Project (Figure 4-21). Impacts from hydrilla introductions into waterways include outcompeting native plants, altering zooplankton communities which can disrupt fish prey availability, and a decrease in dissolved oxygen caused by thick mats blocking sunlight and decaying below (USFWS 2020). Hydrilla can also have negative impacts on recreation, recreationalist could be

restricted from swimming, fishing, and boating in the areas of dense mats, the hydrilla can even entangle and clog boat props (Sea Grant 2023).

WVDNR conducted spatial mapping of hydrilla in Lake Lynn in early September of 2023. Based on the data collected the highest density of hydrilla was found in the upper portions of Rubbles Run and Morgan Runs embayment's, Sunset Cove around the boat docks, and shallower areas upstream from I-68 of Mont Chateau, notably a large area about the private marina docks as well on the opposite shorelines from Maple Run upstream (Dustin Smith, personal communication, October 5, 2023) (Figure 4-21). There was estimated to be approximately 97 acres of dense hydrilla stands in Lake Lynn, with 50 of those acres in the Maple Run shoreline and private marina areas. At the private marina, a moderately deep channel runs through the marina which limits hydrilla propagation (Figure 4-21 and Figure 4-24). Overall, hydrilla stands are limited by lake depth, and no thick stand of hydrilla was found deeper than approximately 7 to 9 ft (2.1 to 2.7 m) of water depth. On steep shorelines, the hydrilla tapers off quickly, while shallower waters with gradual slopes the hydrilla tapers off slowly. Hydrilla was also found on the two shallow mudflats around I-68 bridge located upstream and downstream of the bridge (Figure 4-24). This Hydrilla was not included in the acreage estimates due the Hydrilla only forming low lying carpet that does not extend far into the water column. No boating is impeded by these mudflats from hydrilla since it does not reach to surface waters. It is likely that the exposure of wave action from boats and wind is reducing the hydrilla growth and preventing thick mats from forming in this location (Dustin Smith, personal communication, October 5, 2023).

Lake Lynn has consulted with WVDNR concerning hydrilla in Cheat Lake and are in the preliminary stages for managing the hydrilla. At this time, herbicide application to reduce impacts of hydrilla is being considered, but further discussions with WVDNR will continue. Additionally, signs were installed over the winter of 2023/2024 at the Cheat Lake Park boat ramp (Photo 4.4) to educate boaters under the guidance of WVDNR. Additional signs will be placed prior to the start of the recreation season at Sunset Beach Marina, Edgewater Marina, and two private marinas once approval is given from the owners.

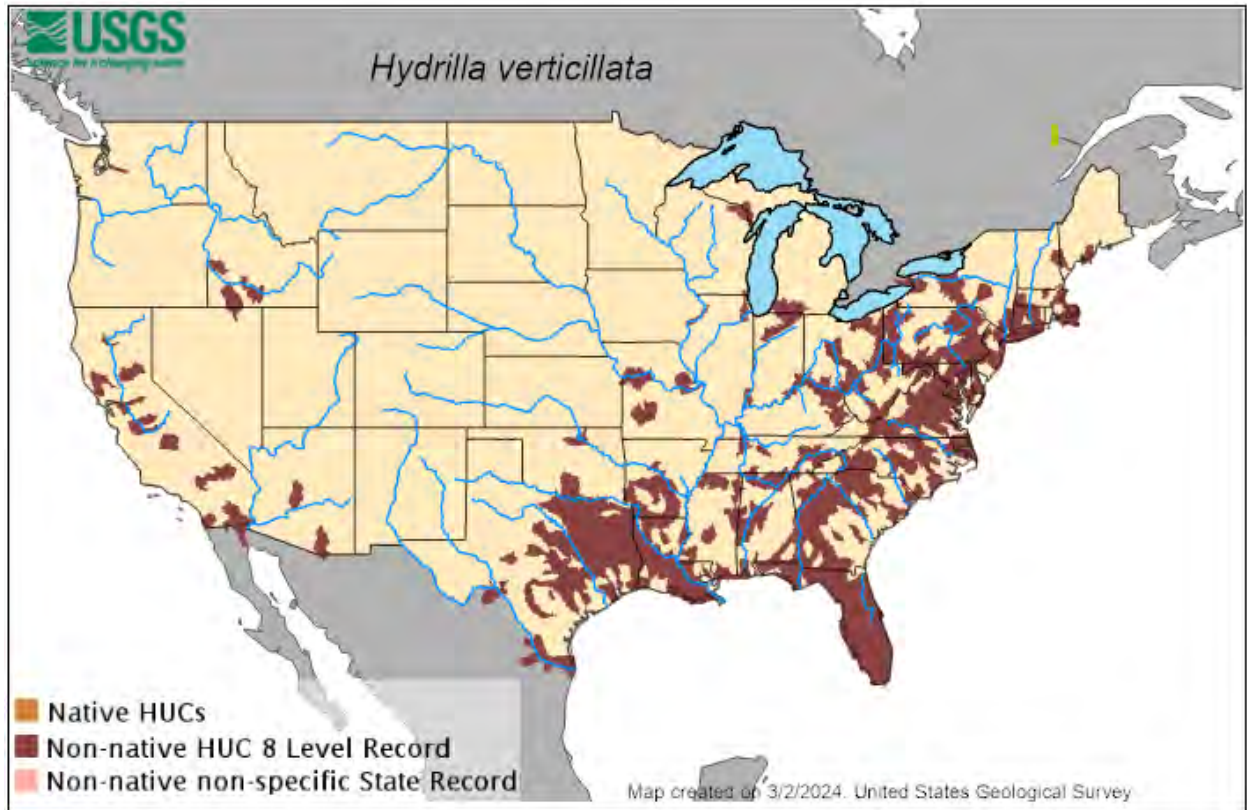


Figure 4-20 Map of Hydrilla Distribution in the Lower 48 States of United States of America (Jacono et. al 2024)

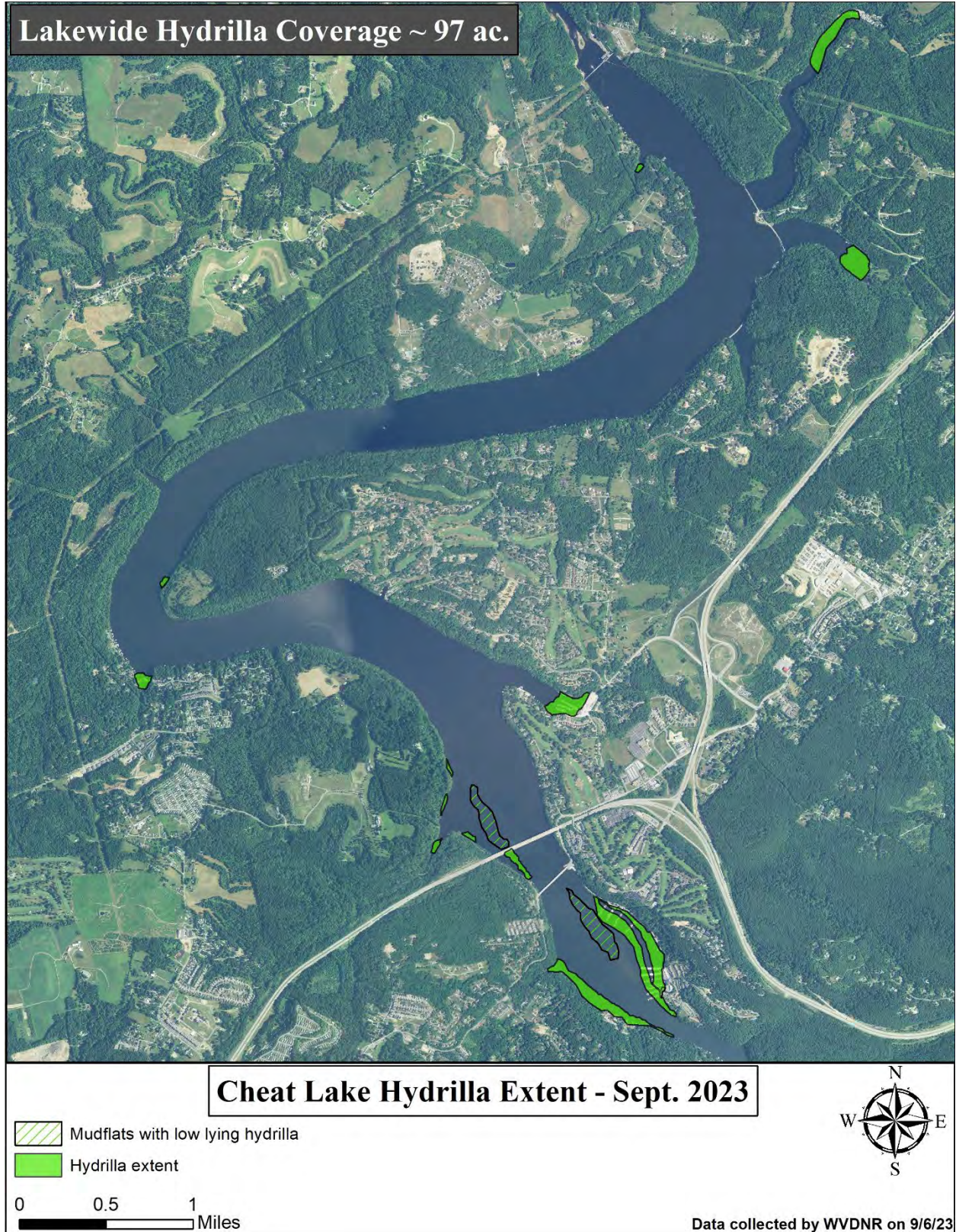


Figure 4-21 Hydrilla density in the entire Cheat Lake Extent

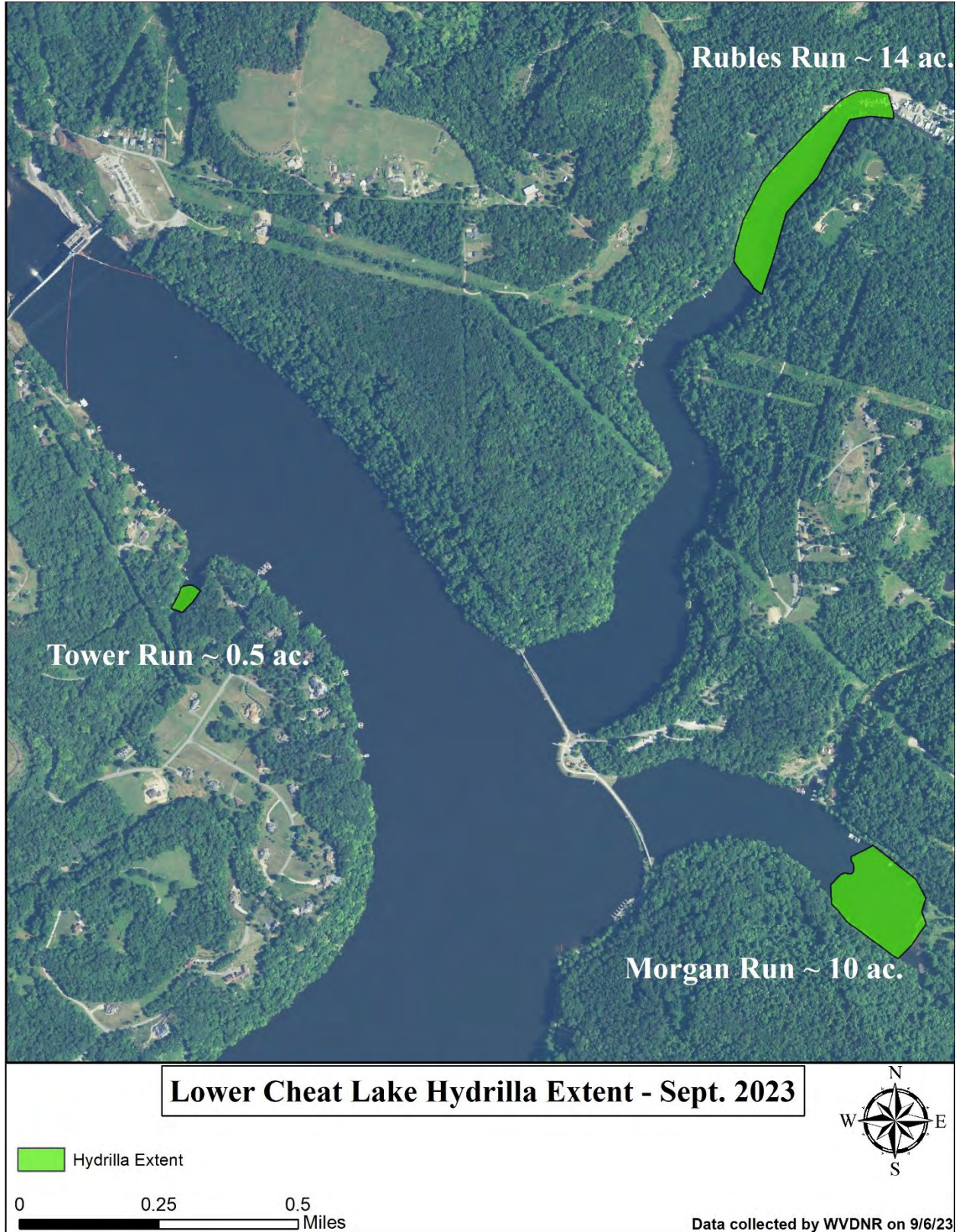


Figure 4-22 Hydrilla Density in the Lower portion of Cheat Lake

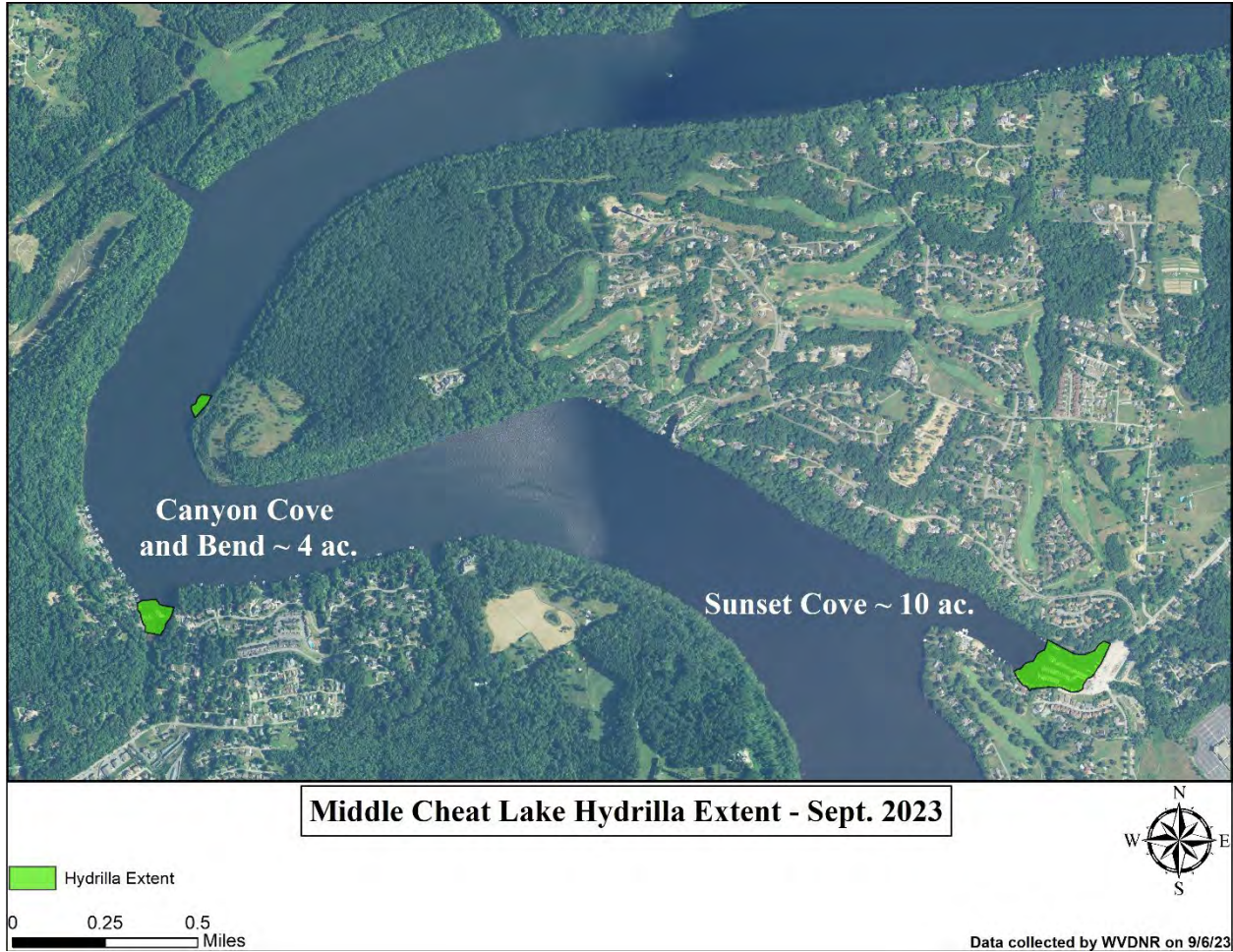


Figure 4-23 Hydrilla Density in the Middle Portion of Cheat Lake

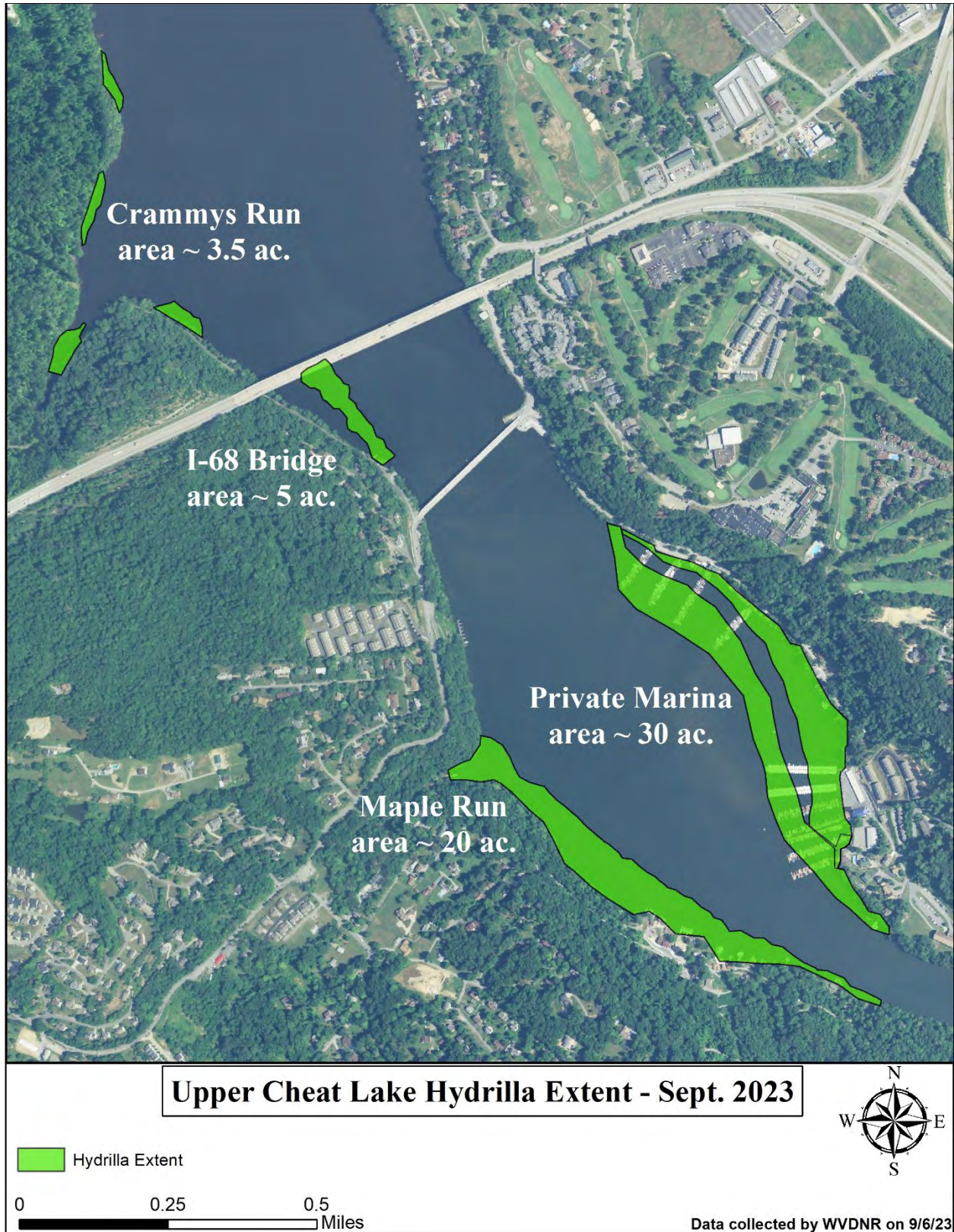


Figure 4-24 Hydrilla Density in the Upper Portion of Cheat Lake



Photo 4.4 Public Hydrilla Warning Sign at the Cheat Lake Park Boat Ramp

Zebra Mussels – The zebra mussel is a small shellfish native to the Black, Caspian, and Azov Seas. The zebra mussel attaches itself to surfaces, does not require a fish host to reproduce, and can disperse during all life stages. These factors provide excellent conditions for spreading in North American waters. Zebra mussels often attach to hulls of boats and floating objects, which allows for easy transfer to other inland lakes or waterways by recreational boats (Benson et. al. 2024).

According to the USGS Nonindigenous Aquatic Species Database and the WVDNR, there are no zebra mussels located in Lake Lynn (Benson et. al 2024, WVDNR 2023). There are records of zebra mussels southeast of the Project in the Monongahela River near the Hildebrand Lock and Dam, Opekiska Lock and Dam, and the Morgantown Lock and Dam (Figure 4-25). Additionally, there are records of zebra mussels north of the Project in the Monongahela River at the Maxwell Lock and Dam (Benson et. al 2024). Currently, there are no impacts to the recreational sites, public access sites, or maintained areas throughout the Project Area as Zebra Mussels have not been found in the Project Boundary.

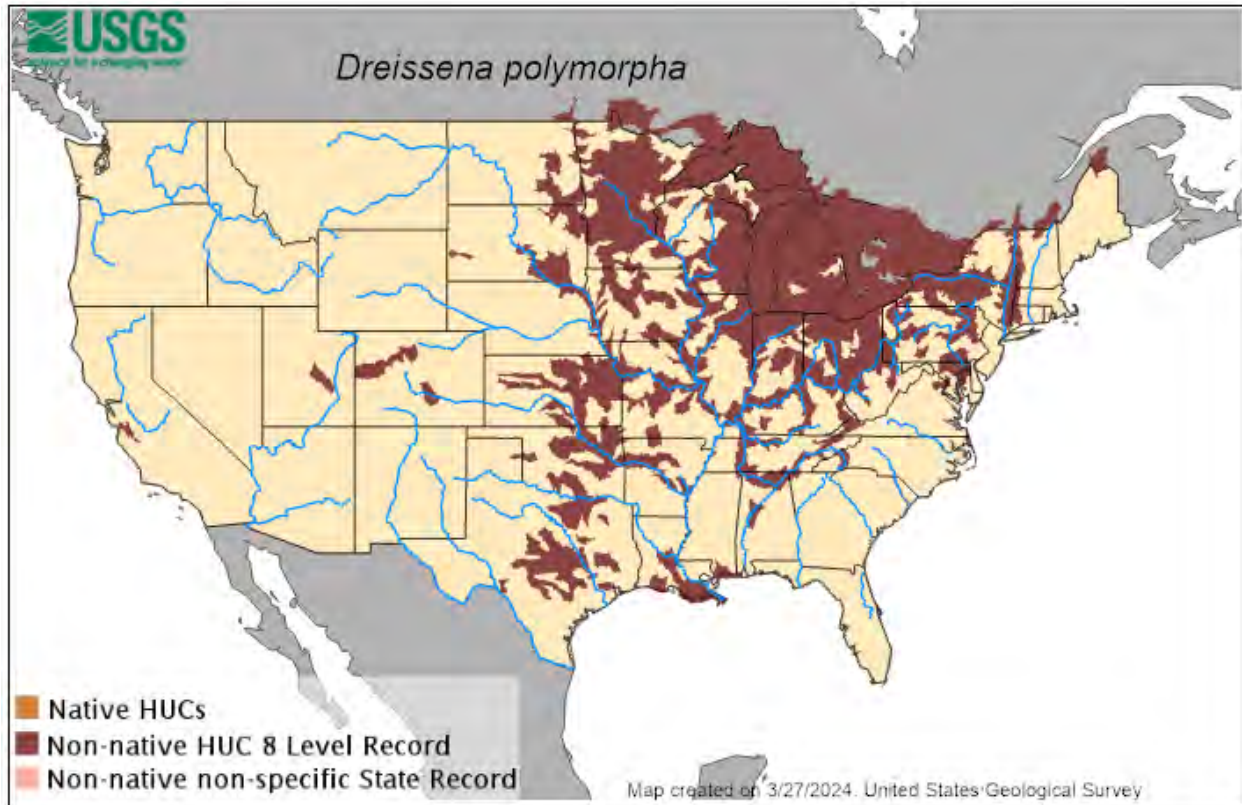


Figure 4-25 Map of Zebra Mussel Distribution in the Lower 48 States of United States of America (Benson et. al 2024)

Rusty Crayfish – The rusty crayfish inhabits lakes, ponds, and streams sheltering in rocks, logs, or other debris. Its native range is within the Ohio River Valley but has since spread outside its natural range, most likely through the release of crayfish from angler bait buckets or other uninformed releases into the wild. Once released into a new body of water, this crayfish colonizes the entire littoral zone up to 39 ft (12 m) deep. Introduction of one viable female crayfish carrying sperm could start a new population. Currently, there are no known populations of the rusty crayfish in the Project Area, or waterbodies near the Project Area. There are however established populations northeast of the Project areas in Pennsylvania and a few occurrences southwest of the Project Area (Figure 4-26) (Durland et. al. 2024).

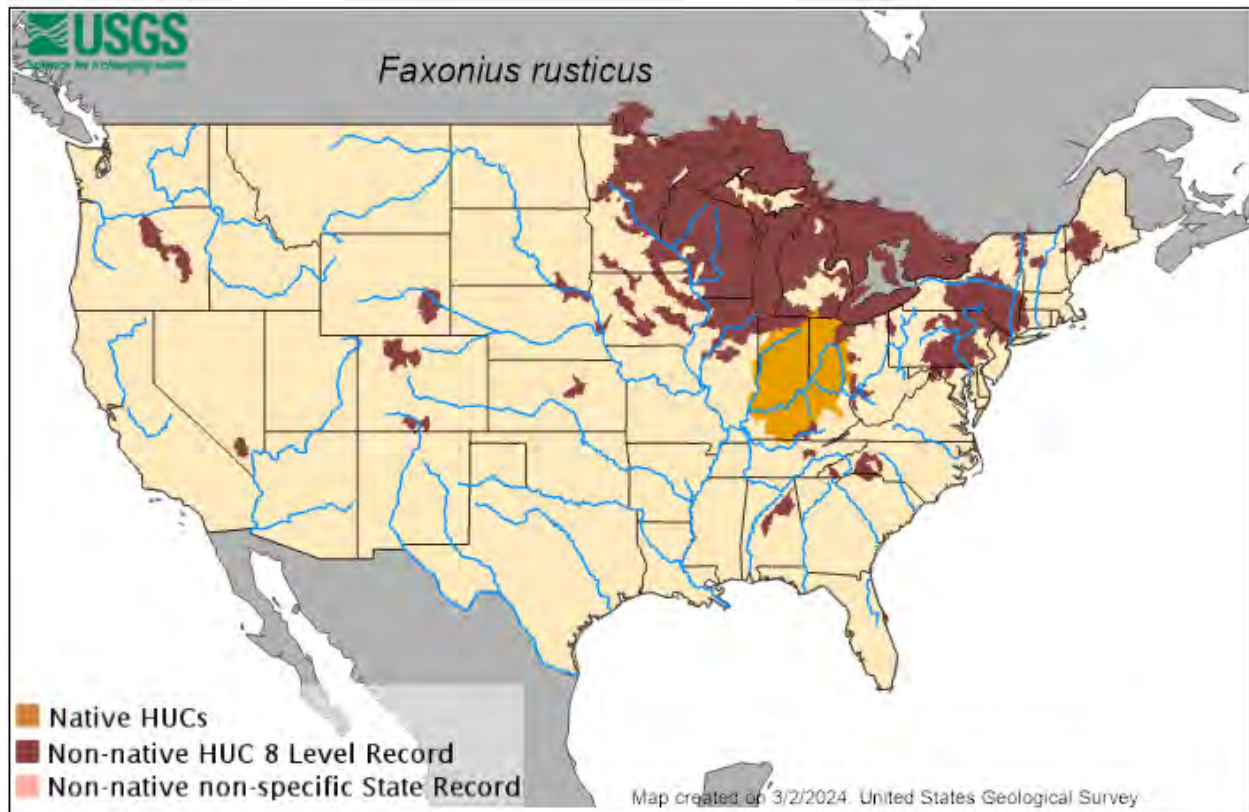


Figure 4-26 Map of Rusty Crayfish Distribution in the Lower 48 States of United States of America (Durland et. al. 2024)

Virile Crayfish – The virile crayfish is native to the Missouri River, Upper Mississippi River, and lower Ohio River up to the State of Montana and into Canada, as well as a northern portion of Texas, and the Great Lakes Region (Figure 4-27). These crayfish can be found in streams with moderate flow and turbidity, abundant cover, sandy, muddy, or rocky substrate with stable water levels. The virile crayfish was likely introduced to non-native ranges through bait bucket introductions and intentional stocking for forage in Montana and Utah. This crayfish is now established in 24 states, including Pennsylvania and West Virginia. When in non-native waters, this crayfish can cause decline or local extirpation of native crayfish and disrupt freshwater biodiversity and macroinvertebrate communities. Currently, the Virile Crayfish is not found within Lake Lynn, however there are some close established populations in Maryland to the east of the project in the Youghiogheny and North Branch Potomac Drainages (Durland 2024).

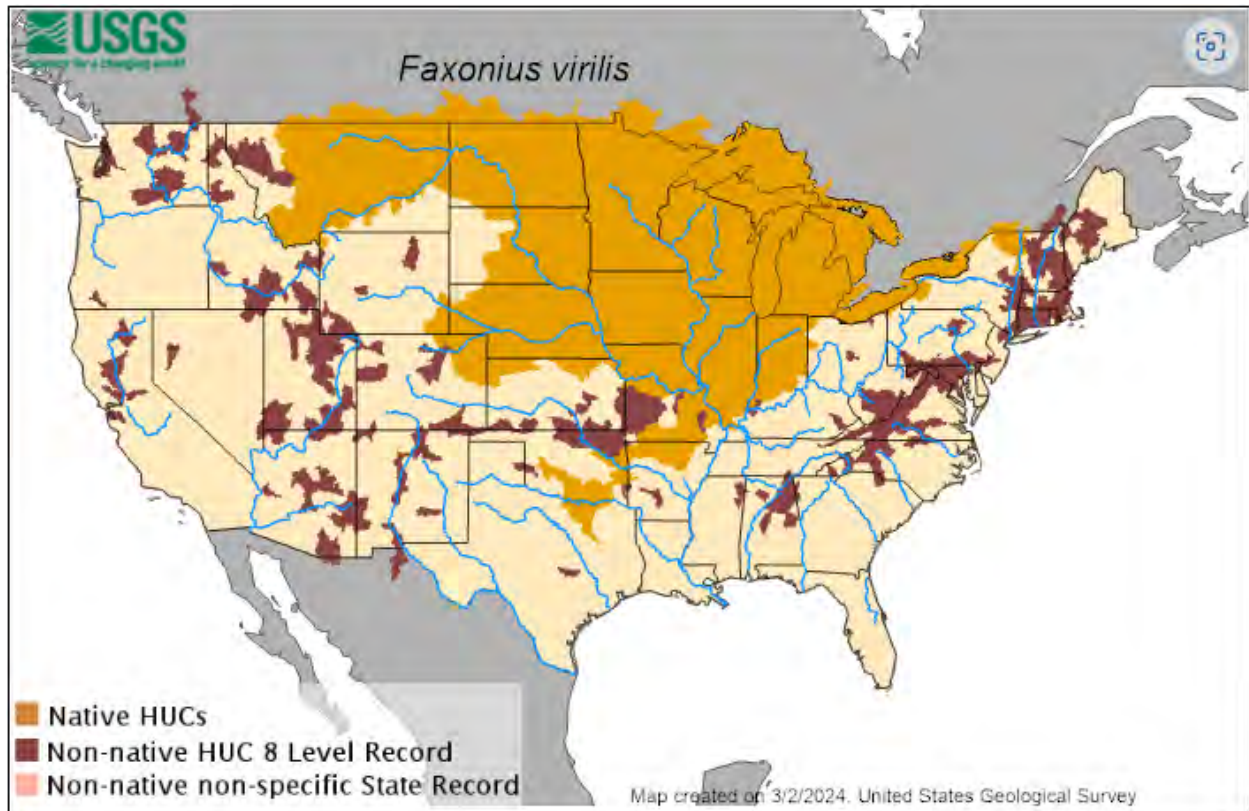


Figure 4-27 Map of Virile Crayfish Distribution in the Lower 48 States of United States of America (Durland 2024)

Silver Carp – The silver carp is native to Asia, Russia, Eastern China, and northern Vietnam. This species was introduced to North America by importation and stocking to control phytoplankton in eutrophic waters and as a source of food. The silver carp was raised in six state, federal, and private facilities in the 1970's and by 1980 it was found in natural waters, likely escaping from aquacultural facilities. Impacts from introduction of silver carp in non-native waters includes impacts to zooplankton communities, which can cause tropic levels of fish community changes as it out competes native fishes. This species is also known for jumping out of the water when startled by boats, which can present a hazard to boaters and cause injury. Currently, the silver carp is found in 12 states (Figure 4-28). The closest locations to Lake Lynn where these fish are found is the Raccoon-Symmes and the Upper Ohio-Shade River Drainages. There are no reports of Silver Carp being found within Lake Lynn or waters nearby (Nico et. al 2024).

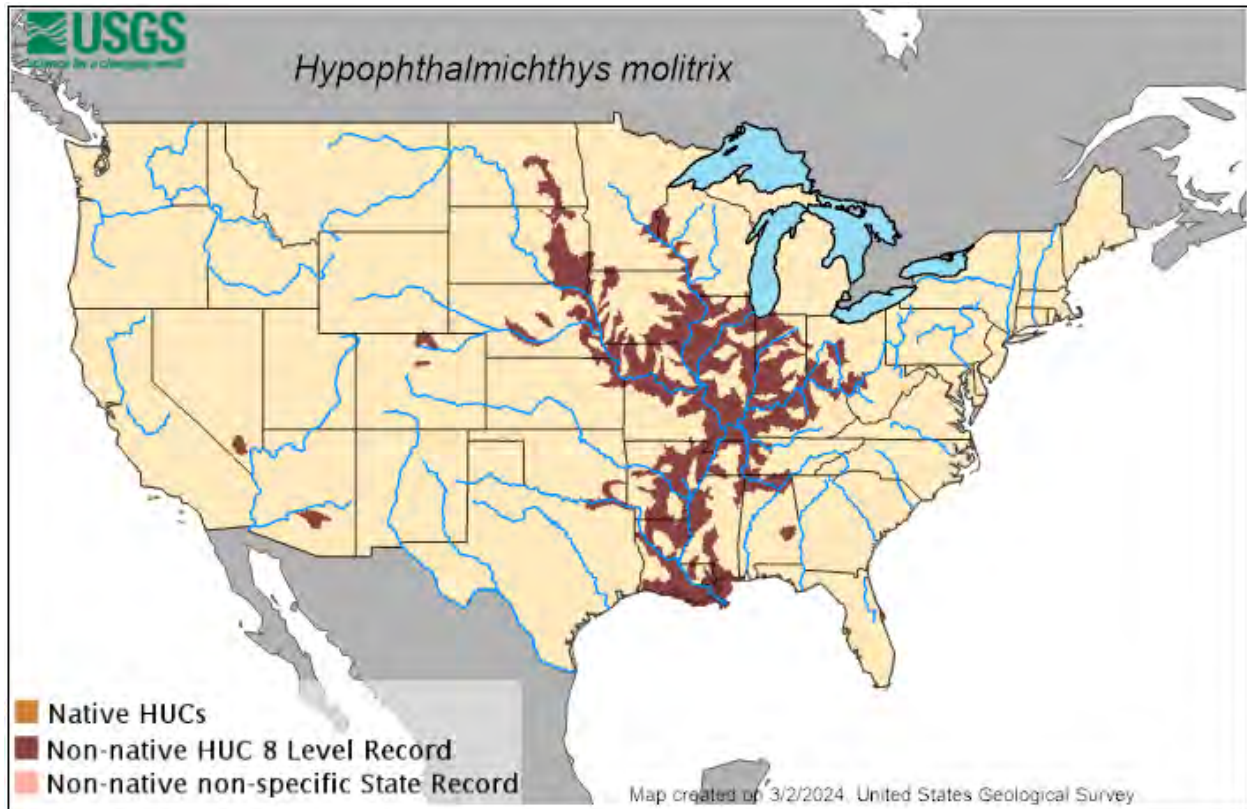


Figure 4-28 Map of Silver Carp Distribution in the Lower 48 States of United States of America (Nico et. al 2024)

4.5.2 Environmental Effects

4.5.2.1 Effects of the Proposed Action

The proposed action (i.e., continued operation of the Lake Lynn Project as a dispatchable peaking facility with storage capability with existing minimum flow requirements) is not expected to adversely affect fish and aquatic resources in the Cheat River or in Cheat Lake. The Licensee is proposing no changes to operations and will maintain existing seasonal elevations and minimum flow requirements to maintain aquatic habitat in the impoundment and in the Cheat River downstream of the Lake Lynn Project. The removal of lands from the existing Lake Lynn Project boundary is not expected to adversely affect aquatic resources or habitats. Peaking operations typically occur in the winter for five hours in the morning and for five hours in the afternoon. In the summer peaking operations typically occur for five hours in the evening. The typical drawdown rate is 0.2-0.4 feet per day. Due to the limited drawdown rate, the continuation of peaking operations are not expected to impact fish or aquatic resources within the Lake Lynn Project Area.

The licensee follows best practices for drawdown and refill regimes when maintenance drawdowns are required. The licensee consults with pertinent resource agencies regarding the timing and duration of periodic maintenance drawdowns. In the case of a drawdown, the licensee would continue to pass required minimum flows to protect downstream reaches.

The fisheries assemblage in Cheat Lake and the Cheat River has improved in species abundance and richness over recent years. Managed recreational fisheries such as the walleye fishery, have demonstrated an increase in natural reproduction. There is no EFH identified in the vicinity of the Lake Lynn Project, therefore continued operation will not adversely affect EFH. Additionally, due to the lack of historical and limited contemporary evidence of diadromous fish in the Lake Lynn Project area, the proposed action is not expected to adversely affect diadromous fish populations.

Water quality in the Lake Lynn Project area is adversely affected by AMD, which may affect aquatic organisms that lack mobility, such as freshwater mussels. AMD effects and overall water quality may be improving, as demonstrated by an improvement in macroinvertebrate communities. Overall macroinvertebrate abundance has increased, and sensitive species (Mayfly and Stonefly taxa) were identified during the most recent surveys, which are indicators of good water quality.

The Licensee will continue to provide access for recreational fishing via a tailrace fishing area, Cheat Lake Park, and the public boat launch. These angling opportunities within the Lake Lynn Project area will be maintained by the Licensee as part of the proposed action.

The licensee has conducted a number of biological monitoring studies in Cheat Lake and in the tailwater since 1997, in accordance with the current FERC License. Biological surveys were also conducted by WVDNR in 2005 and 2008 and by WVU in 2011, 2014, and 2015. Researchers assessed water quality, aquatic habitat, and aquatic communities (fish and benthic macroinvertebrates). Freshwater mussel, American eel eDNA, water quality monitoring and aquatic habitat studies have also been conducted in the Lake Lynn Project area by the Licensee and other researchers. Lake Lynn is not proposing to discontinue the triennial update to the biological monitoring plan for conducting biological monitoring studies.

4.5.2.2 Effects of the No-Action Alternative

The effects of the No Action Alternative mimic the anticipated effects of the proposed action because the licensee is proposing no changes to existing facilities or operations.

4.5.3 Unavoidable Adverse Effects

The proposed operation and relicensing of the Lake Lynn Project with operational PME measures (i.e., pond elevation restrictions, angling access, seasonal minimum flow requirements) is not expected to result in any unavoidable adverse effects to fish or aquatic resources.

4.5.4 References

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4.6 Wildlife Resources

4.6.1 Affected Environment

The Cheat River watershed occupies three geographic ecoregions including the Central Appalachian Forest, the CSRV, and the Western Allegheny Plateau. Approximately 54 percent of the Cheat River basin is contained within the Central Appalachian ecoregion, which is characterized by rugged, mountainous terrain, cooler temperatures, and biologically diverse natural communities (WVDEP 2013). The Ridge and Valley ecoregion encompasses nearly 45 percent of the Cheat River watershed and is marked by a series of mountain ridgelines and valleys. Only about 1 percent of the watershed occurs within the Western Allegheny Plateau ecoregion. This ecoregion is comprised of rolling hills with wide valleys dominated by mixed oak forest and agricultural (WVDEP 2013). The Cheat River watershed is dominated by forested area (86 percent); the remaining land cover is classified as developed (8 percent), planted/cultivated (6 percent), and impervious surface area (<1 percent) (WVDEP 2013).

4.6.1.1 Wildlife Habitats

The natural communities (see section 4.7, *Botanical Resources*) within the Lake Lynn Project vicinity provides habitat for a variety of wildlife species, including over 200 resident and transient bird species, 50 mammal species, and 37 amphibian species with the potential to occur in the Lake Lynn Project area (WVDNR 2001, WVDNR 2003, PGC 2019, Marshall 2019, BBC 2014, and Sibley 2014). Additionally, there are four Nature Viewing/Wildlife Habitat areas located within the Project Boundary (see Figure 4-41 in Section 4.9, Recreation, for a map of these areas). These areas are not developed, have no plans for development and are reserved for natural habitat for the local wildlife.

4.6.1.2 Wildlife

4.6.1.2.1 Mammals

The Cheat River corridor potentially provides habitat to over 50 mammal species (WVDNR 2001, WVDNR 2003, and PGC 2019). Habitat within the Lake Lynn Project boundary is mostly aquatic with limited terrestrial habitat. Many of the mammalian wildlife species are likely to use the riparian corridor for movement and foraging. While some mammals such as red fox, raccoon, Virginia opossum, gray squirrel, and striped skunk are likely common along the riparian corridors associated with the Lake Lynn Project boundary, larger mammal species such as black bear may be transient within the Lake Lynn Project

boundary. Grasslands and agricultural areas are generally uncommon within the Lake Lynn Project boundary; however, several areas of open grassland and agriculture occur within the Lake Lynn Project vicinity. Mammals typically found in open areas or grassland habitats include eastern cottontail rabbits and rodents such as the meadow-jumping mouse. Several bat species may also use terrestrial habitat and manmade structures in and adjacent to the Lake Lynn Project boundary. Beaver, fisher, and river otter were eradicated in the past, but were reintroduced in the 1930s, 1969, and 1985, respectively (WVDNR 2001). Appendix E lists mammal species which may occur within a 5-mile radius of the Lake Lynn Project dam (WVDNR 2001, WVDNR 2003, and PGC 2019).

4.6.1.2.2 Amphibians and Reptiles

Reptiles and amphibian species may use different habitat types including riparian, woodlands, scrub-shrub, or grasslands and early successional areas. These species have different habitat requirements depending on life stage or time of year. Amphibians and reptiles that may be found in wetland or aquatic habitat such as the open water impoundment or tributaries during one or more life stage include frogs, salamanders, and turtle species, as well as the northern water snake. These species use wetland and aquatic habitat for breeding, foraging, and protection. Species such as black ratsnake, spotted salamander, red spotted newt (eft form), and grey tree frog use forested areas, including riparian areas, for foraging, shelter, and feeding. Grasslands and agricultural areas may be used by the northern black racer, eastern American toad, and eastern garter snake (Alden et al., 1999, Marshall 2019). Appendix E lists resident amphibian species that could occur in Cheat River habitats within a 5-mile radius of the Lake Lynn Project dam.

4.6.1.3 Birds

There are over 200 resident and transient bird species found in the Cheat River corridor (BBC 2014, Sibley 2014). Habitats associated with the Lake Lynn Project, including the impoundment, tributaries, wetlands, and riparian areas, may provide breeding habitat, migratory stopovers, and wintering habitat for a variety of bird species. Bird species typically found along the shoreline of the impoundment may include belted kingfisher, song sparrow, bank swallow, and waterfowl such as the mallard duck and wood duck. Birds of prey such as bald eagle, osprey, red-tailed hawk, and barred owl may use many different habitat types on a seasonal basis including forests, scrub-shrub or early successional areas, wetlands, and open water (Stokes 1996). Appendix E lists bird species that may occur or use the habitat within a 5-mile radius of the Lake Lynn Project dam.

4.6.2 Environmental Effects

4.6.2.1 Effects of the Proposed Action

Lake Lynn is not proposing any changes to operations or to the Lake Lynn Project facilities (e.g., dam or powerhouse). The proposed action does not include any ground-disturbing activities; therefore, no adverse effects on wildlife resources are anticipated. The removal of lands from the existing Lake Lynn Project boundary is not expected to adversely affect terrestrial resources or habitats. All nature viewing/wildlife habitat areas will remain within the proposed Project boundary. Peaking operations typically occur in the winter for five hours in the morning and for five hours in the afternoon. In the summer peaking operations typically occur for five hours in the evening. The typical drawdown rate is 0.2-0.4 feet per day. Due to the limited drawdown rate, the continuation of peaking operations are not expected to impact terrestrial resources or habitats within the Lake Lynn Project Area.

4.6.2.2 Effects of the No-Action Alternative

The effects of the no-action alternative mimic the anticipated effects of the proposed action because the Licensee is proposing no changes to existing facilities or operations.

4.6.3 Unavoidable Adverse Effects

Continued operation and relicensing of the Lake Lynn Project along with PME measures are not expected to have unavoidable adverse effects on wildlife resources.

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4.7 Botanical Resources

4.7.1 Affected Environment

4.7.1.1 Upland Botanical Resources

Geographic information system (GIS) analysis of NatureServe land cover data revealed that a majority of the landcover within 1 mile of the Lake Lynn Project boundary is forested habitat (Table 4-17, Figure 4-29). In addition to forested communities, other upland communities in the Lake Lynn Project vicinity include agricultural fields, developed-open space (e.g., golf course), and some residential areas (NatureServe 2009).

The most prominent forested botanical communities within a mile of the Lake Lynn Project boundary include the southern and central Appalachian cove forest and the south-central interior mesophytic forest accounting for over 41 percent of the overall area within 1 mile of the Lake Lynn Project boundary (over 46 percent of the terrestrial area). Other forested communities include northeastern interior dry-mesic oak forest, Allegheny-Cumberland dry oak forest and woodland, and Appalachian (hemlock)-northern hardwood forest. Appendix E lists botanical species that may occur within a 1-mile radius of the Lake Lynn Project boundary.

Table 4-17 Botanical Communities within 1 Mile of Lake Lynn Project Boundary

Botanical Community	% of Project Area
Southern and Central Appalachian Cove Forest	27.2
South-Central Interior Mesophytic Forest	14.3
Open Water	10.4
Developed-Open Space	9.5
Agriculture - Pasture/Hay	9.4
Northeastern Interior Dry-Mesic Oak Forest	8.6
Allegheny-Cumberland Dry Oak Forest and Woodland	6.6
Appalachian (Hemlock)-Northern Hardwood Forest	6.1
Developed-Low Intensity	3.0
Ruderal Forest	1.6
Managed Tree Plantation	0.9

Botanical Community	% of Project Area
Agriculture - Cultivated Crops and Irrigated Agriculture	0.9
Developed-Medium Intensity	0.8
Appalachian Shale Barrens	0.3
Non-Specific Disturbed	0.1
Central Appalachian Dry Oak-Pine Forest	0.1
Total of "Other" Communities with less than 1% coverage	0.2
Total	100.0

Source: NatureServe 2009

Within the existing Lake Lynn Project boundary, over 77 percent of the area is open water (lacustrine and riverine wetlands associated with Cheat Lake and Cheat River) (Table 4-18, Figure 4-30 through Figure 4-35). See Section 4.7.1 for additional information about wetlands. Upland communities are predominantly forested with southern and central Appalachian and Allegheny-for almost 67 percent (350 acres) of the upland area. These communities also represent the greatest change in acreage between the existing Lake Lynn Project boundary and the proposed Lake Lynn Project boundary with a combined reduction of almost 170 acres. Other forested communities include Appalachian (hemlock)- northern hardwood forest, south-central interior mesophytic forest, ruderal forest, and northeastern interior dry-mesic oak forest. Other non-forested upland communities found within the Lake Lynn Project boundary include Appalachian shale barrens, developed areas, floodplains, and agricultural areas (e.g., pastures, cultivated crops, and tree plantations) (Figure 4-30 through Figure 4-35). Table 4-18 gives an overview of the botanical communities found within the existing and proposed Lake Lynn Project boundary along with the area change among these communities.

Table 4-18 Botanical Communities within the Existing and Proposed Lake Lynn Project Boundary

Botanical Community	Area - Existing Project Boundary (Acres)	Area - Existing Project Boundary (%)	Area - Proposed Project Boundary (Acres)	Area - Proposed Project Boundary (%)	Area Change Between Existing and Proposed Project Boundary (Acres)
Open Water (Lacustrine and Riverine Wetlands)	1802.9	78.7	1739.1	85.0	-63.8
Southern and Central Appalachian Cove Forest	189.7	8.3	128.6	6.3	-61.2
Allegheny-Cumberland Dry Oak Forest and Woodland	139.5	6.1	77.5	3.8	-62.0
Developed-Open Space	54.0	2.4	28.5	1.4	-25.5
Appalachian (Hemlock)-Northern Hardwood Forest	33.9	1.5	17.9	0.9	-16.1
South-Central Interior Mesophytic Forest	27.3	1.2	21.6	1.1	-5.7
Developed-Medium Intensity	11.8	0.5	10.8	0.5	-1.0
Agriculture - Pasture/Hay	9.2	0.4	3.4	0.2	-5.8
Ruderal Forest	5.1	0.2	3.7	0.2	-1.4
North-Central Interior Floodplain	3.7	0.2	3.7	0.2	0.0
Developed-Low Intensity	3.3	0.1	2.4	0.1	-0.9
Managed Tree Plantation	2.9	0.1	2.7	0.1	-0.2
Northeastern Interior Dry-Mesic Oak Forest	2.8	0.1	2.5	0.1	-0.3
South-Central Interior Large Floodplain	1.7	0.1	1.7	0.1	0.0
Developed-High Intensity	0.9	0.0	0.9	0.0	0.0
Appalachian Shale Barrens	0.9	0.0	0.7	0.0	-0.2
Non-Specific Disturbed	0.9	0.0	0.9	0.0	0.0
Total	2290.5	100%	2046.6	100%	-243.8

Source: NatureServe 2009

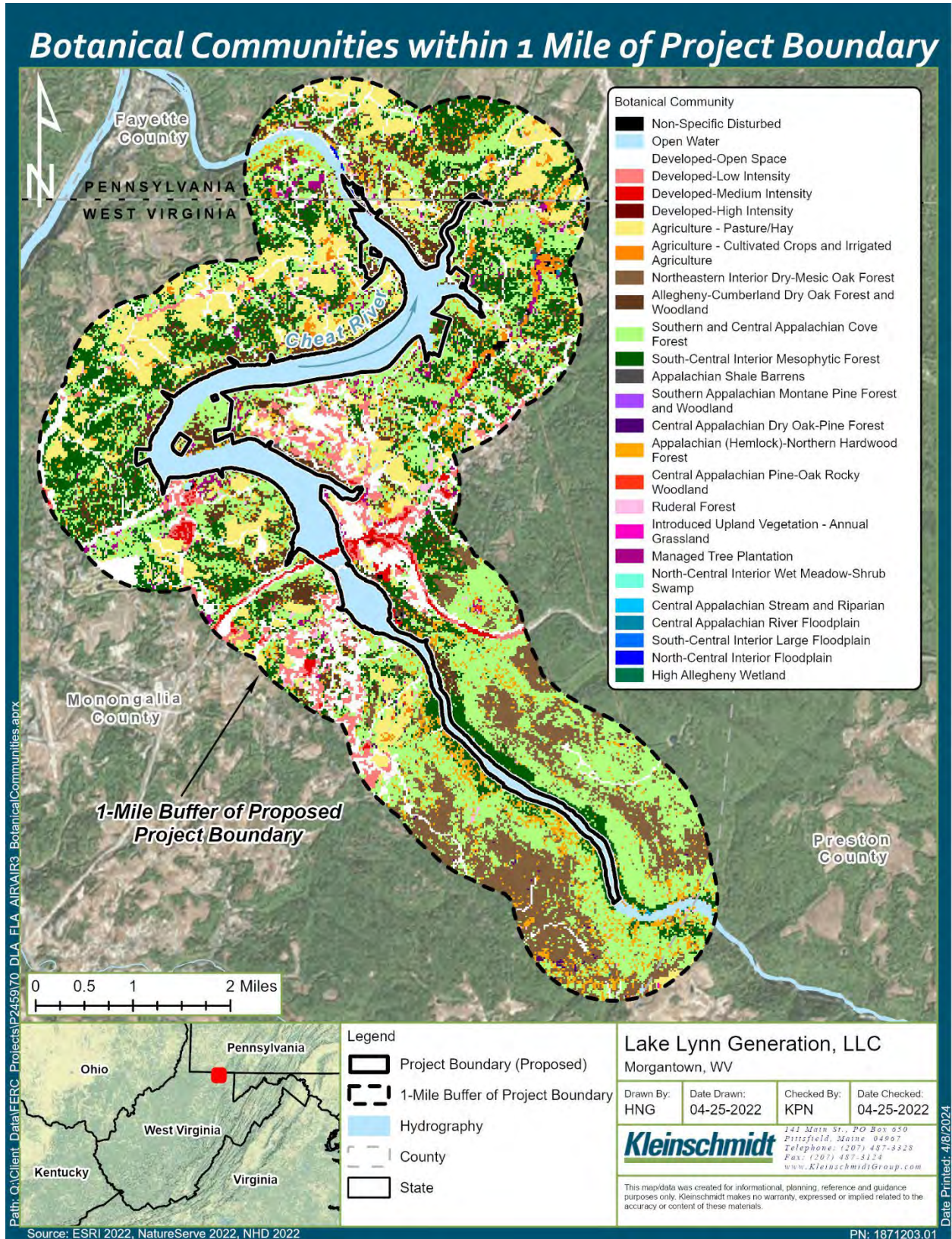


Figure 4-29 Botanical Communities within 1 Mile of Lake Lynn Project

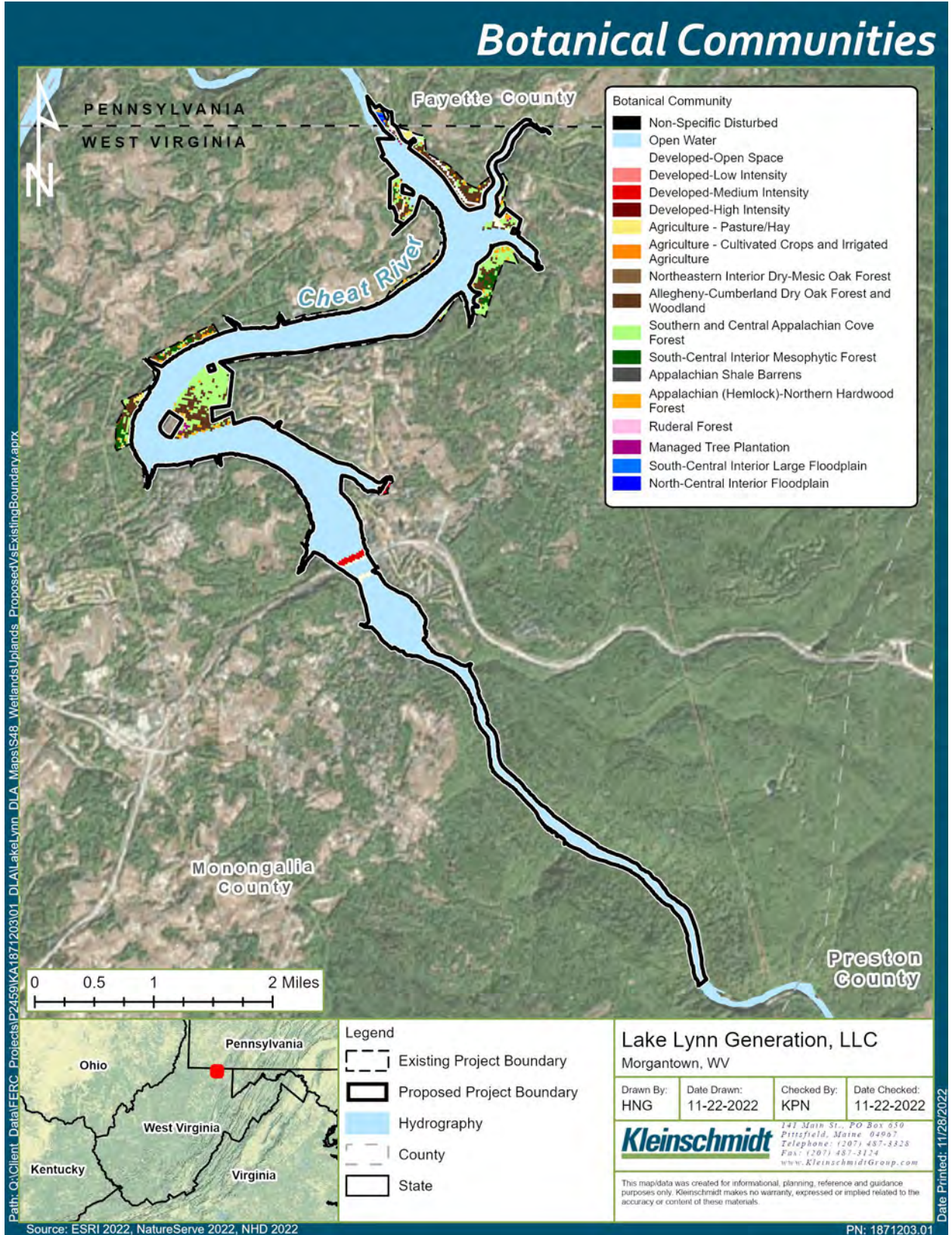


Figure 4-30 Botanical Communities within the Proposed and Existing Project Boundaries

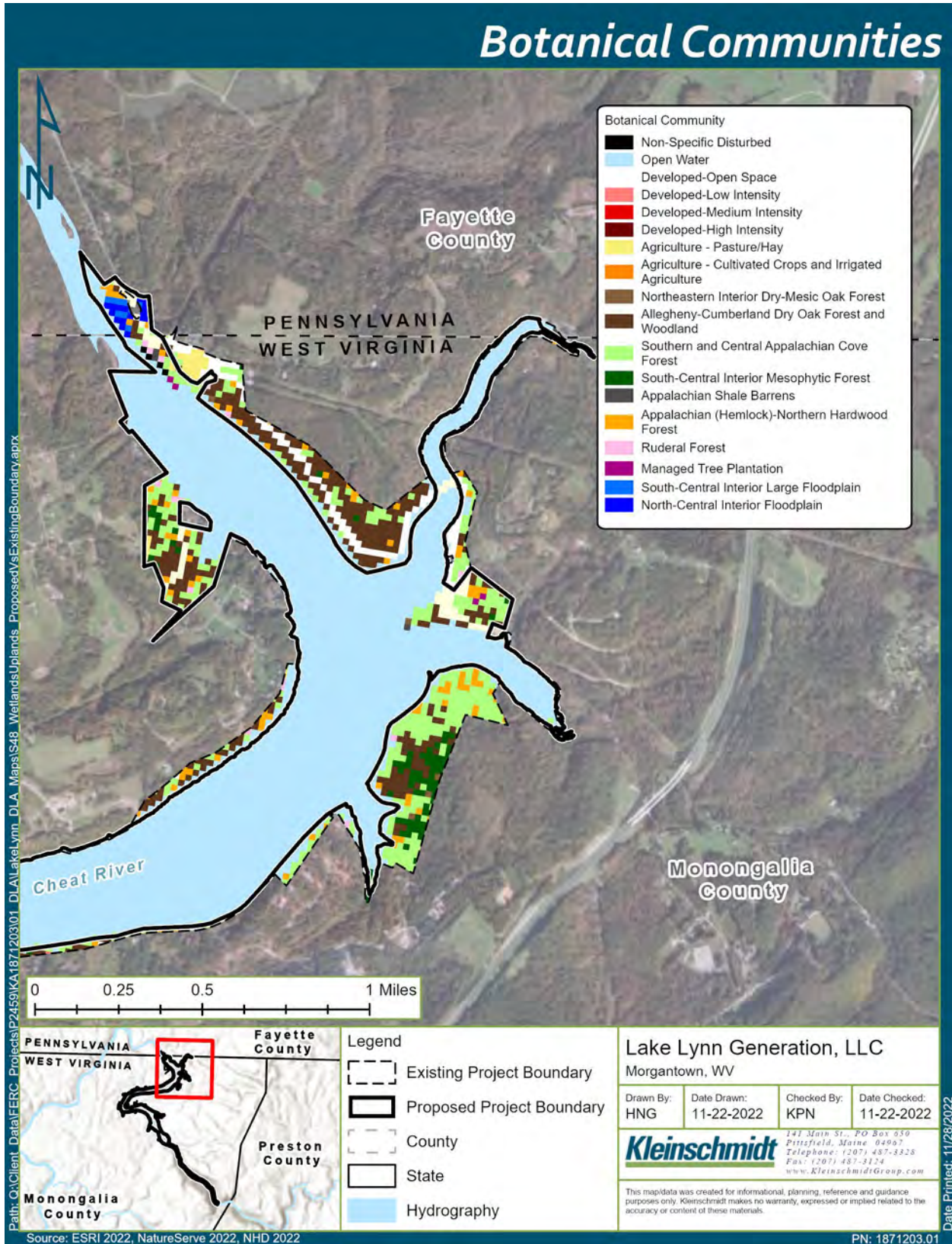


Figure 4-31 Botanical Communities within the Proposed and Existing Project Boundaries

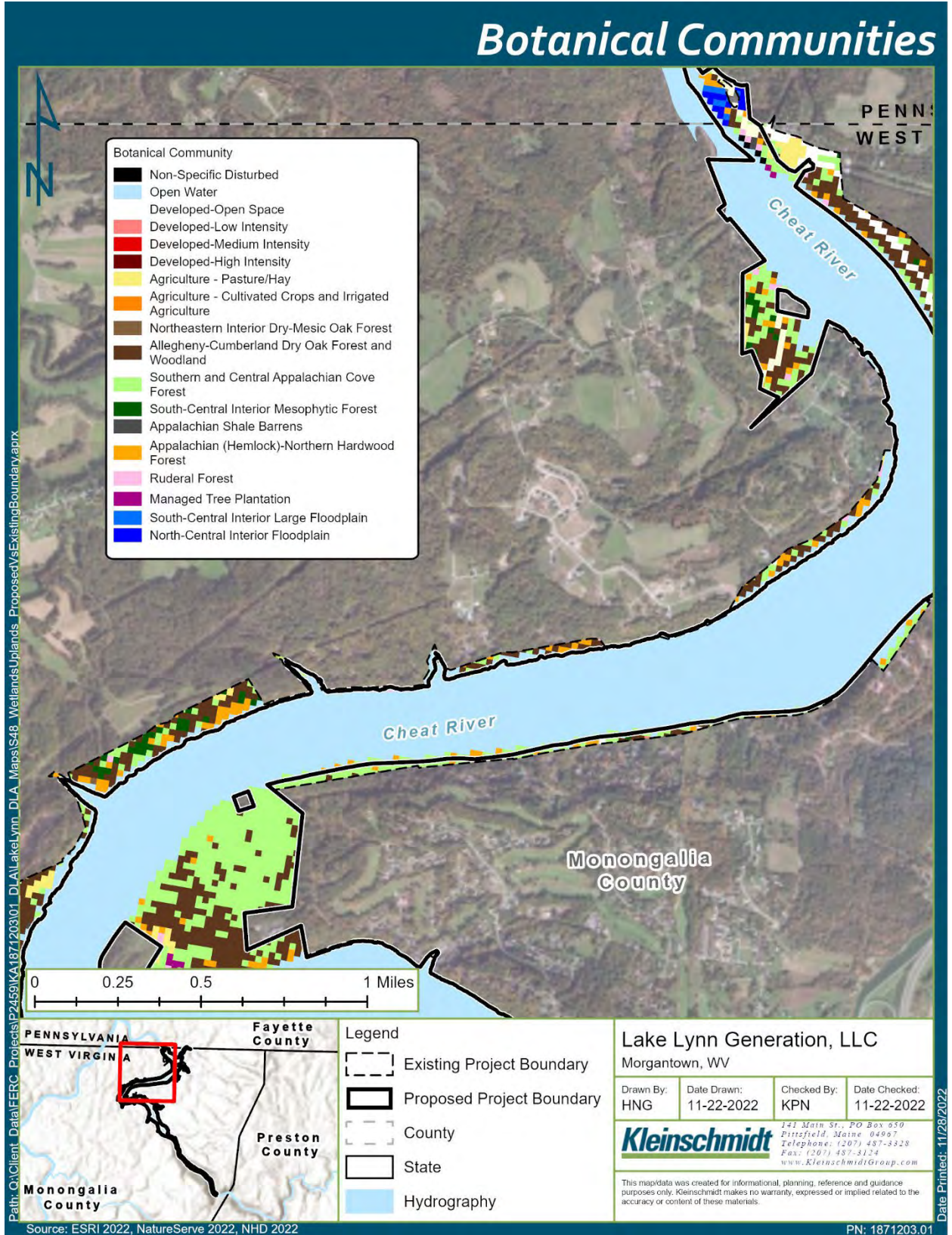


Figure 4-32 Botanical Communities within the Proposed and Existing Project Boundaries

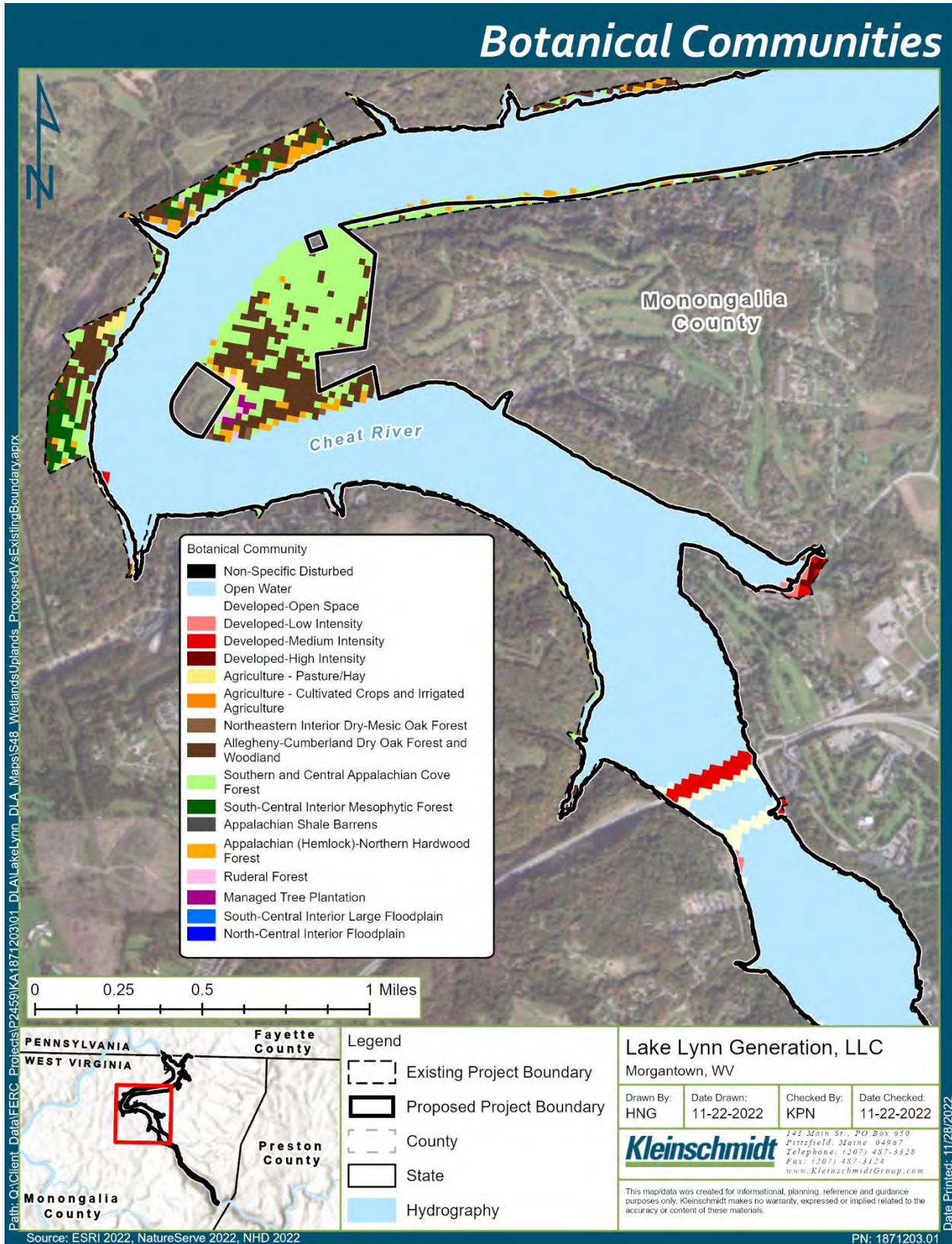


Figure 4-33 Botanical Communities within the Proposed and Existing Project Boundaries

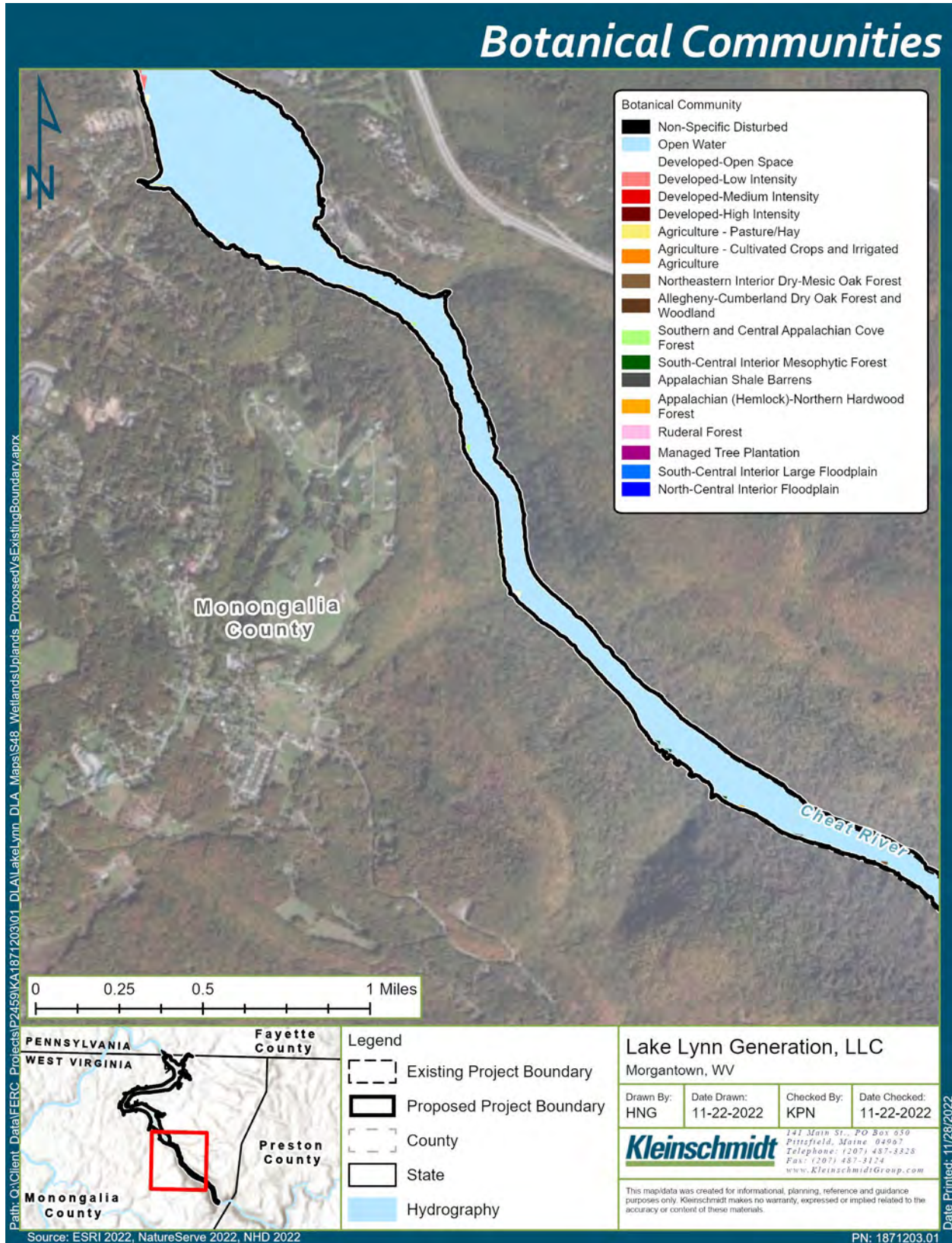


Figure 4-34 Botanical Communities within the Proposed and Existing Project Boundaries

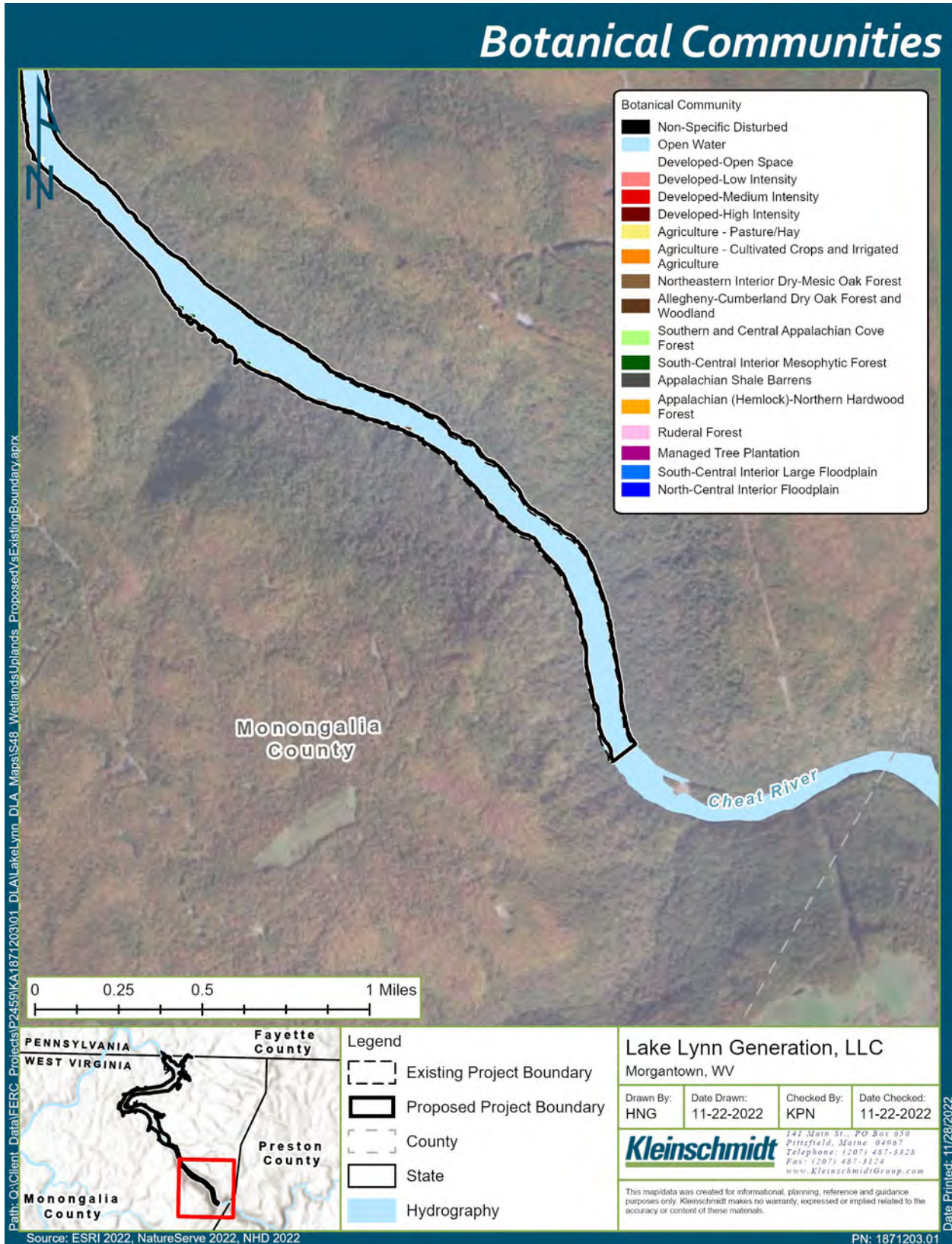


Figure 4-35 Botanical Communities within the Proposed and Existing Project Boundaries

Southern and Central Appalachian Cove Forest

The southern and central Appalachian cove forest is the most abundant vegetative community within 1 mile of the Lake Lynn Project boundary accounting for over 27 percent of the overall study area (Table 4-17, Figure 4-29). This forest is generally found in protected geographic positions with concave slopes that support moist conditions. This community may include a mosaic of acidic and "rich" coves, which are distinguished by differences in the herbaceous plant communities. The acidic cove is typically found on low slope positions, but can may be positioned farther up on north-facing, sheltered slopes. The soils of the acidic cove are less fertile, and the herbaceous layer is not as diverse. The rich cove is usually found on the lowest slope positions on high-fertility soils and have a higher diversity and density of herbaceous species. Dominant tree species include yellow poplar, American basswood, white ash, yellow buckeye, sweet birch, mountain magnolia, cucumber tree, mountain silverbell, black cherry, and eastern hemlock. Herbaceous species may include blue cohosh, Clayton's sweetroot, Canadian woodnettle, bloodroot, black cohosh, and Canadian white violet (NatureServe 2009).

South-Central Interior Mesophytic Forest

This forest community is similar to the southern and central Appalachian cove forest and is typically found on deep, enriched soils in sheltered landscape positions such as coves or lower topographic positions along slopes. The forest type is variable but is generally characterized by deciduous tree canopy and a rich herb layer with abundant spring ephemerals. Small streams often bisect this community. Common tree species include sugar maple, American beech, yellow poplar, American basswood, northern red oak, cucumber tree, black walnut, and eastern hemlock (NatureServe 2009).

Northeastern Interior Dry-Mesic Oak Forest

This oak dominated forest is typically found a low to mid elevations on flat to gently rolling landscapes. Soils are not strongly xeric but are generally acidic and comparatively nutrient poor. This forest community is typically characterized by a closed canopy; however, this community may also include patchy-canopy woodlands. Common canopy trees include northern red oak, white oak, black oak, scarlet oak, and hickory species (NatureServe 2009).

Allegheny-Cumberland Dry Oak Forest and Woodland

This forest type is generally characterized by a closed canopy of deciduous trees and occurs on infertile or acidic soils. Dominant overstory trees include white oak, southern red oak, swamp chestnut oak, and scarlet oak. Other species may include red maple, pignut hickory, and mockernut hickory (NatureServe 2009).

4.7.1.1.1 Invasive Plants and Noxious Weeds

Invasive plants are species intentionally or accidentally introduced by human activity into a region in which they did not evolve and cause harm to natural resources, economic activity, or humans. Invasive plants proliferate and displace native plant species, reduce wildlife habitat, and alter natural processes. According to the WVDNR, there are 633 non-native species located within the State of West Virginia. The WVDNR has developed an extensive list of invasive species inclusive of invasiveness ranking. This comprehensive list is included in Appendix E (WVDNR, 2021). Similarly, the Pennsylvania Department of Conservation and Natural Resources (PADCNR) also maintains a list of invasive species with different threat rankings. This list is also available in Appendix E (PADCNR, 2018).

Invasive species that are commonly **documented** in the **vicinity** of the Lake Lynn Project area include Japanese Knotweed (*Fallopia japonica*), Garlic Mustard (*Alliaria petiolata*), the Tree of Heaven (*Ailanthus altissima*), and Oriental Bittersweet (*Celastrus orbiculatus*), which were most frequently encountered along the Monongahela River corridor in Pennsylvania ((FOC, 2019; Studio for Creative Inquiry, Carnegie Mellon, 2002). Other invasive species observed near the Lake Lynn Project area include Common Purslane (*Portulaca oleracea*), Ground Ivy (*Glechoma hederacea*), Wine Raspberry (*Rubus phoenicolasius*), Smooth Bedstraw (*Galium mollugo*), Purple Crownvetch (*Securigera varia*), Multiflora Rose (*Rosa multiflora*), Japanese Honeysuckle (*Lonicera japonica*), and Morrow's Honeysuckle (*Lonicera morrowii*) (EDDMapS, 2023). Although these species were documented near Cheat Lake, none of these occurrences were within the Lake Lynn Project Boundary and were primarily restricted to roadsides.

No targeted invasive plant surveys have taken place within the Lake Lynn Project boundary; however, two invasive species have been documented. Garlic Mustard and Common Chickweed (*Stellaria media*) were documented in 2018 (EDDMapS, 2023) along the Cheat Lake Trail, which is within the Lake Lynn Project boundary. Records of these occurrences were from iNaturalist, and the number of individuals and their approximate coverage were

not documented. Wetlands, Riparian, and Littoral Habitat

Wetlands

Wetlands within the Lake Lynn Project boundary are primarily deep-water habitats (Figure 4-36, Table 4-19). The most common wetland types within the Lake Lynn Project boundary are lacustrine (L1UBHh) and riverine wetlands (R3UBH, R3USC, R5UBH) associated with Cheat Lake and Cheat River (USFWS 2022). The riverine and the lacustrine wetlands are classified by the National Wetland Inventory (NWI) as having unconsolidated bottoms (L1UBHh, R3UBH, R5UBH) and unconsolidated shores (R3USC). Unconsolidated bottoms are characterized by the *"lack of large stable surfaces for plant and animal attachment"* while unconsolidated shores are characterized by *"substrates lacking vegetation except for pioneer plants that become established during brief periods when growing conditions are favorable"* (USGS 1992). Substrate of the riverine and lacustrine wetlands likely consist of cobble, gravel, sand, mud, or organic material.

According to the NWI map, there are no palustrine wetlands within the existing or the proposed Lake Lynn Project boundary (Figure 4-36, Table 4-19). Palustrine wetlands are limited in size and quantity in this area due to the steep banks and sloping topography surrounding Cheat Lake and Cheat River.).

Riparian Habitat

Riparian habitat within the Lake Lynn Project area is a mix of wetlands, deciduous and mixed forest, and commercial and residential development as discussed in Section 4.7.1.1, *Upland Botanical Resources*. Dominant forest community types include southern and central Appalachian cove forest and the south-central interior mesophytic forest. Ruderal forests are also common riparian habitat. These early succession forests are often found in areas that have been disturbed by human activity such as the construction or maintenance of roads, trails, and buildings. Early successional tree species may include red cedar, pines, yellow poplar, or aspens.

Within the Lake Lynn Project area much of the riparian zone is intact, with some areas of residential development. These areas are commonly dominated by weedy or manicured herbaceous species and an underdeveloped shrub and tree canopy due to vegetation management.

Littoral Zone

The littoral zone is the transitional area between deep-water, aquatic habitat and terrestrial wetlands or uplands. Littoral habitats include those areas of a water body through which light penetrates resulting in primary productivity (Cowardian 1979). Within the Lake Lynn Project boundary, this zone is often unvegetated with a cobble-gravel, sand, mud, or organic bottom. The Licensee worked cooperatively with WVDNR and WVU to document the distribution and relative abundance of aquatic vegetation and to map aquatic vegetation in Cheat Lake. Twenty-two separate areas of aquatic vegetation were documented within the impoundment. These areas occur throughout the impoundment along shores and in coves or other areas with slower moving water (Figure 4-36, Figure 4-37, Figure 4-38, Figure 4-39, and Figure 4-40)(Smith and Welsh, 2015). Aquatic vegetation was mostly found in depths ranging from 0.6 – 2.4 meters (2-8 feet), but some moderate patches did extend into 10 feet of water. Ten species from five genera of aquatic vegetation were in Cheat Lake. The most common species found in dense abundance during the surveys included: brittle naiad (*Najas minor*), wild celery (*Vallisneria americana*), and curly-leaf pondweed (*Potamogeton crispus*). Although several areas of substantial aquatic vegetation growth were found in Cheat Lake, overall Cheat Lake has limited coverage of aquatic vegetation.

Table 4-19 Wetlands within the Existing and Proposed Lake Lynn Project Boundary

Wetland Type	Area - Existing Project Boundary (Acres)	Area - Proposed Project Boundary (Acres)	Area Change Between Existing and Proposed Project Boundary (Acres)
Lake	1464.3	1457.4	-6.9
Riverine	214.1	210.3	-3.7
Total	1667.8	1678.4	-10.6

Source: NWI 2022

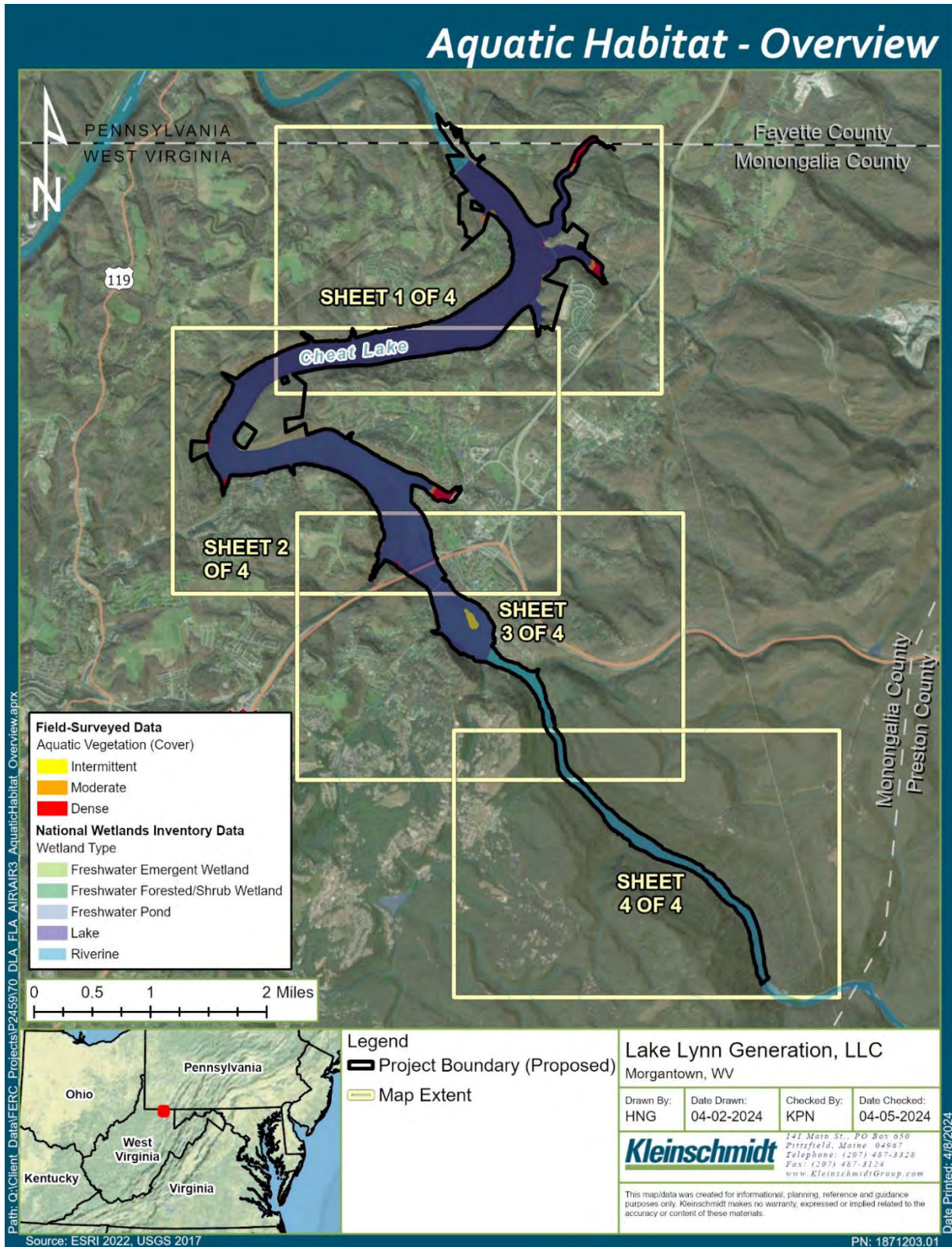


Figure 4-36 Wetlands and Aquatic Habitat at the Lake Lynn Project

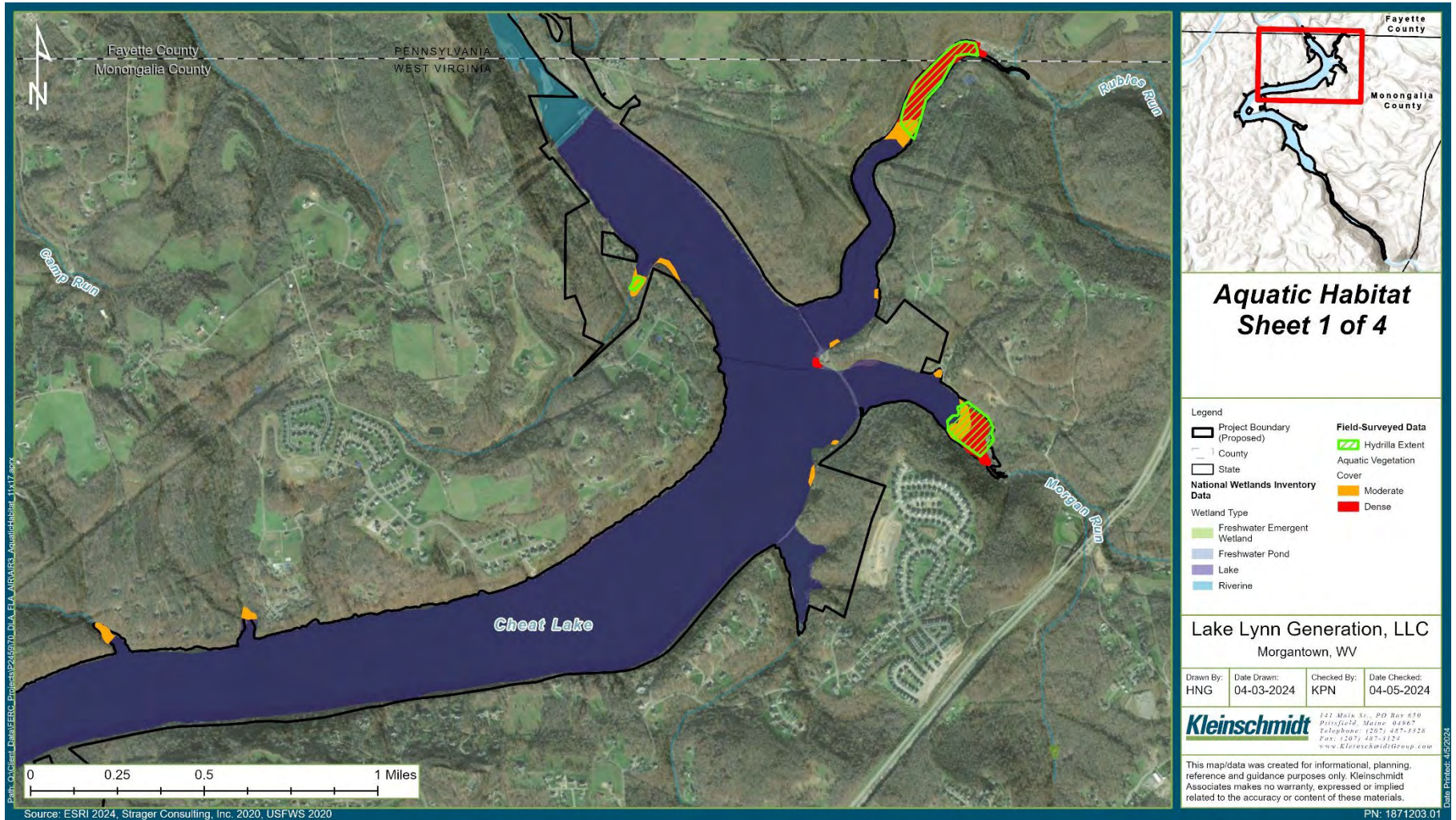


Figure 4-37 Wetlands and Aquatic Habitat in the Northern Portion of Lake Lynn

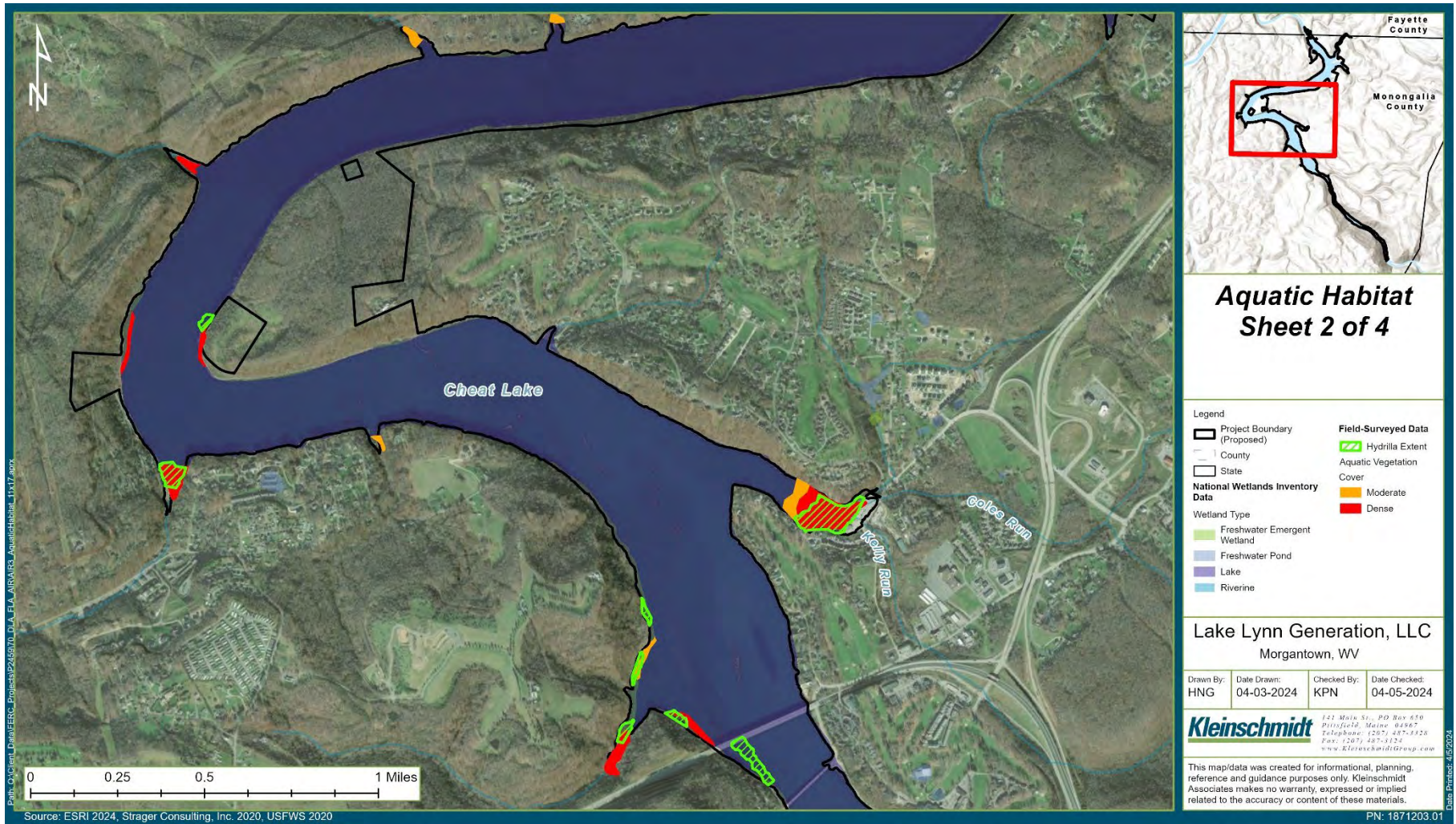


Figure 4-38 Wetlands and Aquatic Habitat in the Upper-Middle Portion of Lake Lynn

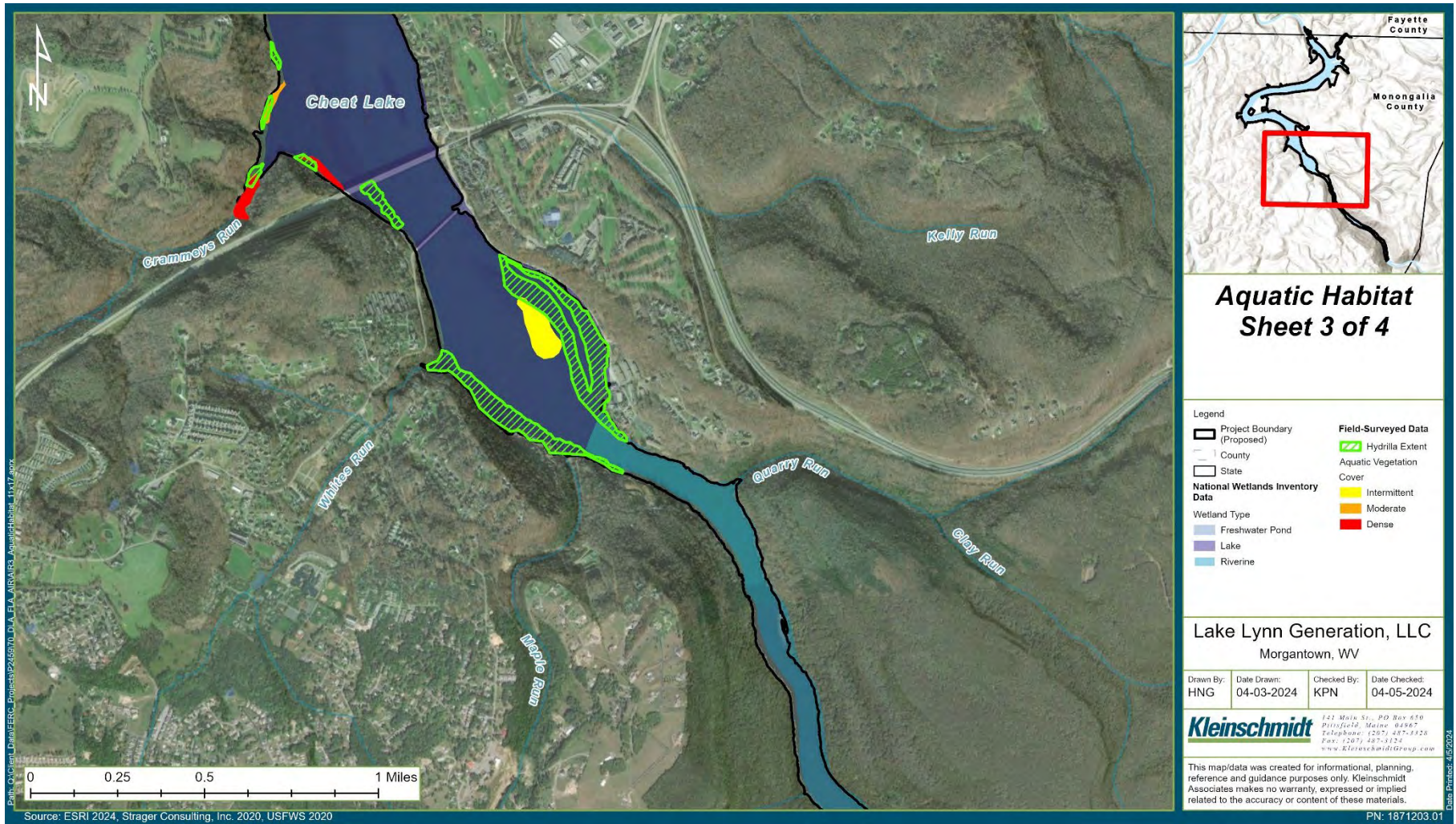


Figure 4-39 Wetlands and Aquatic Habitat in the Lower-Middle Portion of Lake Lynn



Figure 4-40 Wetlands and Aquatic Habitat in the Southern Portion of Lake Lynn

4.7.2 Environmental Effects

4.7.2.1 Effects of the Proposed Action

The Licensee is not proposing any changes to the Lake Lynn Project operations or to the Lake Lynn Project facilities (e.g., dam or powerhouse). Peaking operations typically occur in the winter for five hours in the morning and for five hours in the afternoon. In the summer peaking operations typically occur for five hours in the evening. The typical drawdown rate is 0.2-0.4 feet per day. The steep banks adjacent to Cheat River and Cheat Lake protect the botanical communities from reservoir fluctuations associated with seasonal peaking operation of the Lake Lynn Project. The proposed action does not include any ground-disturbing activities. Lake Lynn performs limited vegetation management at most of the public recreation facilities and the Lake Lynn Project powerhouse. The transmission line corridor includes shrubs, small trees, and grass. The transmission line corridor is cut every five years in accordance with North American Electric Reliability Corporation requirements. The dam abutments are trimmed manually by hand annually. The tailrace fishing platform area and parking area and the substation parking area for the Cheat Lake Trail are sprayed with herbicide every 2 years. Lake Lynn also sprays herbicide every 2 years immediately around the public safety signage and poles for the downriver warning system (measures included in the Public Safety Plan) to ensure that these measures are visible and maintained for public safety. The Cheat Lake Trail is a maintained biking and hiking trail along an old railroad bed. The shoulders of the trail are trimmed with a weed-eater as needed. Trees and shrubs at Cheat Lake Park, including the beach, and the Upper Picnic Area are trimmed as needed and the lawn areas area mowed and trimmed as needed. The Sunset Beach Marina public boat ramp is maintained as needed by weed eating. The Cheat Lake Park nature viewing area is managed as part of the Cheat Lake Park. The other three nature viewing areas are generally not actively managed for vegetation.

As such, the proposed action is not expected to adversely affect botanical communities or wetlands in the Lake Lynn Project area. The removal of lands from the existing Lake Lynn Project boundary is not expected to adversely affect botanical communities or wetlands.

Lake Lynn is proposing to develop a SMP for the Lake Lynn Project in consultation with USFWS, WVDNR, WVDEP, PADEP, PFBC, CLEAR, FOC, Monongalia County, Fayette County, West Virginia SHPO, and Pennsylvania SHPO that would be consistent with the Standard

Land Use Article of any new FERC license. The SMP would clearly outline allowed activities and procedures for Lake Lynn to grant permission for shoreline activities within the Lake Lynn Project boundary, which would balance shoreline uses with shoreline resources.

4.7.2.2 Effects of the No-Action Alternative

The effects of the no-action alternative mimic the anticipated effects of the proposed action because the Licensee is proposing no changes to existing facilities or operations.

4.7.3 Unavoidable Adverse Effects

Continued operation and relicensing of the Lake Lynn Project as proposed are not expected to have unavoidable adverse effects on botanical or wetland resources.

4.7.4 References

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4.8 Rare, Threatened, and Endangered Species

4.8.1 Affected Environment

Federal and applicable state databases were used to identify rare, threatened, and endangered (RTE) species that potentially occur at the Lake Lynn Project. The Pennsylvania Natural Heritage Program (PNHP) identified 17 RTE state listed species in the entire Cheat watershed on the environmental review list (PNHP 2019). A site-specific search on the publicly available PNHP database did not identify any state-listed species within the Lake Lynn Project boundary (PNHP 2022). West Virginia does not have state threatened and endangered species legislation (WVDNR 2022). The USFWS’s Information for Planning and Consultation (IPaC) identified the following federally listed species potentially occurring within the Lake Lynn Project boundary: the endangered Indiana bat (*Myotis sodalis*), the threatened⁵ northern long-eared bat (NLEB; *Myotis septentrionalis*), the threatened flat-spined three-toothed snail (*Triodopsis platysayoides*), and the candidate monarch butterfly (*Danaus plexippus*) (USFWS 2024) (Table 4-20). Also included in Table 4-20 is the tricolored bat (*Perimyotis subflavus*) which is proposed to be listed as endangered.

Table 4-20 Potentially Occurring Rare, Threatened, Endangered, Candidate and Proposed Species in the Project Area

Common Name	Scientific Name	Status
Mammals		
Indiana bat	<i>Myotis sodalis</i>	Federally endangered
Northern long-eared bat	<i>Myotis septentrionalis</i>	Federally endangered
Tricolored bat	<i>Perimyotis subflavus</i>	Proposed for listing as endangered ¹
Snails		
Flat-spined three-toothed snail	<i>Triodopsis platysayoides</i>	Federally threatened
Insects		
Monarch butterfly	<i>Danaus plexippus</i>	Candidate

¹ On September 13, 2022 the USFWS announced a proposal to list the tricolored bat as endangered under the ESA. Source: USFWS 2024, USFWS 2022a through USFWS 2022e.

There are no critical habitats located within the Lake Lynn Project boundary (USFWS 2024). General habitat information for these species is provided in Table 4-21

⁵ On November 29, 2022, the USFWS reclassified the NLEB as endangered under the ESA (USFWS 2022e).

Table 4-21 Habitat Information of Federally Listed, Candidate and Proposed Species Potentially Occurring in Lake Lynn Project Boundary

Family	Common Name	Scientific Name	Habitat
Vespertilionidae	Indiana bat	<i>Myotis sodalis</i>	Hibernates in caves and mines in winter, mostly in tight clusters. In summer, females form small maternity colonies in tree hollows and behind loose bark (USFWS 2022a).
Vespertilionidae	Northern long-eared bat	<i>Myotis septentrionalis</i>	Forested ridges appear favored over riparian woodlands. Hibernacula include caves and mines in winter, but may use crevices in walls or ceilings. Summer roosts include tree holes, birdhouses, or behind loose bark or shutters of buildings (USFWS 2022b).
Vespertilionidae	Tricolored bat	<i>Perimyotis subflavus</i>	Primarily roost among live and dead leaf clusters of live or recently dead deciduous hardwood trees. Will also roost in Spanish moss, lichen and among pine needles. Hibernate in caves, mines, culverts, tree cavities and abandoned water wells (USFWS 2022d).
Polygyridae	Flat-spined three-toothed snail	<i>Triodopsis platysayoides</i>	Only found in West Virginia, along Cheat River gorge. Lives in cracks and crevices in rocks in wooded areas. Prefers cool, moist, deep fissures and rock talus in spring to early summer (iNaturalist 2022).
Nymphalidae	Monarch butterfly	<i>Danaus plexippus</i>	For eastern North American populations, monarchs overwinter in oyamel fir tree roosts. Require milkweeds to lay eggs (USFWS 2022c).

The IPaC lists 15 migratory bird species that are of concern with the potential to occur within the Lake Lynn Project area (Table 4-22). USFWS uses the following status designations: BCC Rangewide (CON) are Birds of Conservation Concern (BCC) that are of

concern throughout their range anywhere within the continental United States; BCC – BCR are BCCs that are of concern only in particular Bird Conservation Regions (BCRs) in the continental United States; and Non-BCC Vulnerable are not BCC species in the Lake Lynn Project area but appear on the list because of the Eagle Act requirements (USFWS 2024).

Table 4-22 Potentially Occurring Migratory Bird Species

Common Name	Scientific Name	Status
Bald eagle	<i>Haliaeetus leucocephalus</i>	Non-BCC Vulnerable
Black-billed Cuckoo	<i>Coccyzus erythrophthalmus</i>	BCC Rangewide (CON)
Black-capped chickadee	<i>Poecile atricapillus praticus</i>	BCC - BCR
Bobolink	<i>Dolichonyx oryzivorus</i>	BCC Rangewide (CON)
Canada warbler	<i>Cardellina canadensis</i>	BCC Rangewide (CON)
Cerulean warbler	<i>Dendroica cerulea</i>	BCC Rangewide (CON)
Eastern whip-poor-will	<i>Antrostomus vociferous</i>	BCC Rangewide (CON)
Golden eagle	<i>Aquila chrysaetos</i>	Non-BCC Vulnerable
Henslow’s sparrow	<i>Ammodramus henslowii</i>	BCC Rangewide (CON)
Kentucky warbler	<i>Oporornis formosus</i>	BCC Rangewide (CON)
Northern saw-whet owl	<i>Aegolius acadicus</i>	BCC - BCR
Prairie warbler	<i>Dendroica discolor</i>	BCC Rangewide (CON)
Red-headed woodpecker	<i>Melanerpes erythrocephalus</i>	BCC Rangewide (CON)
Rusty blackbird	<i>Euphagus carolinus</i>	BCC - BCR
Wood thrush	<i>Hylocichla mustelina</i>	BCC Rangewide (CON)

In the PAD, Lake Lynn proposed to conduct presence/absence surveys for RTE species within the Lake Lynn Project area. USFWS provided comments regarding the federally listed species discussed in the PAD⁶ and noted that no other federally proposed or listed species are known to exist in the Lake Lynn Project area. Lake Lynn did not perform the proposed presence/absence surveys because the USFWS noted the surveys were not warranted.

4.8.2 Environmental Effects

4.8.2.1 Effects of the Proposed Action

Lake Lynn is not proposing any changes to Lake Lynn Project operations and therefore, the proposed action is not expected to adversely affect RTE, proposed or candidate

⁶ Four federally listed species were identified with the potential to occur in the Lake Lynn Project area in the PAD filed August 2019: Indiana bat, northern-long eared bat, flat-spined three-toothed snail, and running buffalo clover. USFWS delisted running buffalo clover in September 2021.

species. The removal of land from the existing Lake Lynn Project boundary is not expected to adversely affect RTE, proposed or candidate species because those lands are being removed because they are not necessary for Lake Lynn Project operations. Peaking operations typically occur in the winter for five hours in the morning and for five hours in the afternoon. In the summer peaking operations typically occur for five hours in the evening. The typical drawdown rate is 0.2-0.4 feet per day. Due to the limited drawdown rate, the continuation of peaking operations is not expected to impact rare, threatened and endangered resources within the Lake Lynn Project Area.

Lake Lynn is proposing to develop an SMP for the Lake Lynn Project in consultation with USFWS, WVDNR, WVDEP, PADEP, PFBC, CLEAR, FOC, Monongalia County, Fayette County, West Virginia SHPO, and Pennsylvania SHPO that would be consistent with the Standard Land Use Article of any new FERC license. The SMP would clearly outline allowed activities and procedures for Lake Lynn to grant permission for shoreline activities within the Lake Lynn Project boundary, including any tree cutting.

4.8.2.1.1 Bats

No studies were requested by the stakeholders, however Lake Lynn has proposed to provide bat protection measures with seasonal tree management restrictions. For any activities requiring clearing of trees, Lake Lynn would follow seasonal tree clearing timelines for bat species and conduct planned tree clearing between November 1st – April 14th. Should tree clearing be required outside this time period (April 15th – October 31st), Lake Lynn would consult with the USFWS regarding removal needs. As a general rule, Lake Lynn only removes trees where their removal is necessary for public safety, protection of human life, or protection of property.

4.8.2.1.2 Flat-spined three-toothed snail

No studies were requested by the stakeholders and there are no specific proposed PME measures for RTE species. Lake Lynn is not proposing any changes to Lake Lynn Project operations, hence the proposed action and the removal of land from the existing Lake Lynn Project boundary is not expected to adversely affect the flat-spined three toothed snail.

4.8.2.1.3 Monarch butterfly

Host species have not been observed in the maintained areas within the Lake Lynn Project boundary. Lake Lynn is not proposing any changes to Lake Lynn Project operations, hence the proposed action and the removal of land from the existing Lake Lynn Boundary is not expected to adversely affect the monarch butterfly habitat.

4.8.2.2 Effects of the No-Action Alternative

The effects of the no-action alternative mimic the anticipated effects of the proposed action because the Licensee is proposing no changes to existing facilities or operations.

4.8.3 Unavoidable Adverse Effects

Construction activities and timber management practices may cause short-term unavoidable adverse effects to the potentially occurring Indiana, NLEB and tricolor bats and the flat-spined three-toothed snail. Following the USFWS guidance for timber management and implementing construction BMPs would minimize any potential effect on these listed species.

4.8.4 References

iNaturalist. 2022. Flat-spined Threetooth. Available online at: <https://www.inaturalist.org/taxa/114430-Triodopsis-platysayoides#Habitat>. Accessed April 14, 2022.

Pennsylvania Natural Heritage Program (PNHP). 2022. Conservation Explorer. Available online at: <https://conservationexplorer.dcnr.pa.gov/content/map>. Accessed April 14, 2022.

PNHP. 2019. Environmental Review List. Available online at: <https://www.naturalheritage.state.pa.us/Species.aspx?msclkid=2d05c6e6c23e11ec851bb8f133e0f01e>. Accessed April 14, 2022.

United States Fish and Wildlife Service (USFWS). 2024. Information for Planning and Consultation (iPaC). Available online at: <https://ipac.ecosphere.fws.gov/project/JAMJM424JZAKJBMM7CM3GW5POQ/index>. Accessed April 5, 2024.

USFWS. 2022a. *Myotis sodalis*. Available online at: <https://www.fws.gov/species/indiana-bat-myotis-sodalis>. Accessed April 14, 2022.

USFWS. 2022b. *Myotis septentrionalis*. Available online at: <https://www.fws.gov/species/northern-long-eared-bat-myotis-septentrionalis>. Accessed April 14, 2022.

USFWS. 2022c. *Danaus plexippus*. Available online at: <https://www.fws.gov/species/monarch-danaus-plexippus>. Accessed April 14, 2022.

USFWS. 2022d. Tricolor bat (*Perimyotis subflavus*). Available online at: <https://fws.gov/species/tricolored-bat-perimyotis-subflavus>. Accessed November 18, 2022.

USFWS. 2022e. Press Release. Available online at: <https://www.fws.gov/press-release/2022-11/northern-long-eared-bat-reclassified-endangered-under-endangered-species-act>. Accessed November 19, 2022.

West Virginia Division of Natural Resources (WVDNR). 2022. Rare, Threatened, and Endangered Species. Available online at: <http://www.wvdnr.net/wildlife/endangered.shtm?msclkid=09124104b4e211eca71631d90cce2ad3>. Accessed April 5, 2022.

4.9 Recreation and Land Use Resources

4.9.1 Affected Environment

4.9.1.1 Existing Recreation Facilities and Opportunities in the Project Boundary

As part of the previous relicensing Lake Lynn developed⁷ a Recreation Plan for Lake Lynn Project, and in accordance with Article 417 of the existing FERC license, Lake Lynn is required to file a Recreation Plan update every 3 years. Lake Lynn filed the most recent update on March 31, 2021, which included: (1) a description of annual recreational use numbers collected in 2020; (2) a discussion of the adequacy of the Lake Lynn Project recreation facilities to meet recreation demand; (3) a description of the methodology used to collect all recreational use data; (4) a discussion of how the recreation needs are addressed if there is demonstrated need for additional facilities; and (5) documentation of agency consultation and agency comments on the update.

Lake Lynn Project recreation sites provide fishing, boating, nature viewing, picnicking, and hiking/biking opportunities. Existing Lake Lynn Project FERC-approved recreation sites are described in the following subsections and summarized in Table 4-23. Figure 4-41 depicts the locations of the Lake Lynn Project recreation sites.

⁷ Approved by FERC on April 11, 1997 - Order Modifying and Approving Recreation and Land Management Plan (79 FERC ¶ 62,017).

Table 4-23 FERC-Approved Recreation Facilities at the Lake Lynn Project

Recreation Site Name	Recreation Amenities
Tailrace Fishing Area	100-foot-long concrete handicap accessible fishing platform, bank fishing opportunities, gravel parking area for approximately 22 vehicles, portable toilet, trash receptables
Cheat Lake Trail	4.5-mile-long hiking/biking trail (handicap accessible) consisting of northern and southern sections, parking at Substation Parking Area or Cheat Lake Park, bike rack, storm shelter, benches, interpretive historical signs, trash receptacle Substation Parking Area: gravel parking area for approximately 20 vehicles, steps to the trail
Cheat Lake Park	Winter/car-top boat ramp with courtesy dock, 2 courtesy docks, swimming beach, 14 picnic tables including 4 in picnic area next to the beach, 8 day-use boat docks, playground area, 2 restroom facilities, 9 benches, security/maintenance station, 2,200 foot-long fishing platforms, 6 water fountains, access to the Cheat Lake Trail, interpretive historical signs, nature viewing area Upper Picnic Area: picnic loop with 29 drive-in picnic sites (each with parking for up to 2 vehicles) one of which includes handicapped accessible parking, 23 grills, 20 picnic tables, restroom building, 2 water fountains, 9 trash receptables, parking lot with 11 parking spaces (of which 2 are ADA accessible) Upper Parking Area: gravel parking area for approximately 50 vehicles, trash receptacle Overflow Parking Area: gravel parking is for approximately 30 vehicles Lower Parking Area: 6 Americans with Disabilities Act (ADA) parking spaces
Sunset Beach Marina Public Boat Launch	Public boat ramp, parking area for up to 85 vehicles with trailers, 2 portable toilets
Cheat Haven Peninsula Nature Viewing Area	Nature viewing and wildlife habitat area with informal rail. No formal development of facilities or amenities proposed for the future. The primary use of these lands is for wildlife habitat but allows informal public access for nature viewing.
Nature Viewing Area Across from Cheat Haven	Nature viewing and wildlife habitat area, accessible by boat only. No formal development within this area existing and none is proposed for the future. The primary use of these lands is for

Recreation Site Name	Recreation Amenities
	wildlife habitat but allows informal public access for nature viewing.
Tower Run Nature Viewing Area	Pull-off parking for approximately 3 vehicles. No formal development of facilities or amenities proposed for the future. The primary use of these lands is for wildlife habitat but allows informal public access for nature viewing.

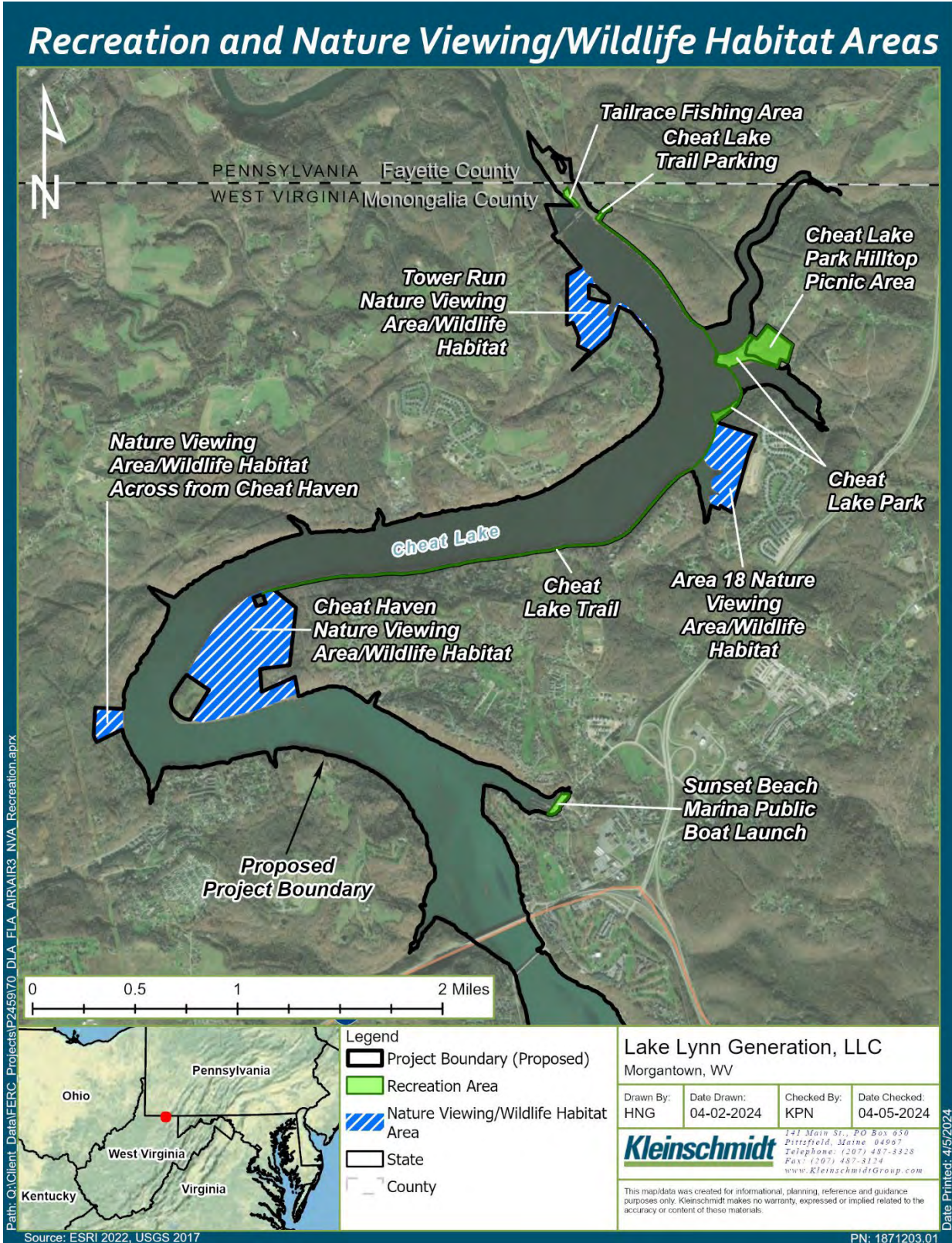


Figure 4-41 Lake Lynn Project Recreation Sites

4.9.1.1.1 Tailrace Fishing Area

The Tailrace Fishing Area (Photo 4.5) provides public access to the Lower Cheat River below the Lake Lynn Project dam for fishing. The site consists of a fishing platform as well as bank fishing opportunities. Access to the fishing platform is provided from Lake Lynn Road along the river. A gravel parking area at the Tailrace Fishing Area can accommodate approximately 22 vehicles and includes two Americans with Disabilities Act (ADA) accessible spaces. Nighttime lighting is provided at both the fishing platform and parking area. An ADA compliant pedestrian ramp connects the parking area with the fishing platform. The fishing platform can accommodate approximately 20 anglers and has handrails constructed with barrier free cutouts to provide accessibility for persons with disabilities. An existing roadway provides easy foot access from the parking lot to the riverbank and a portable ADA accessible toilet is available at the site. To enhance public safety, visual and audible alarms are present to provide notification of increased flow releases from the hydroelectric facility and warn the public to exit the water. In addition to the fishing platform, in September 2000 Lake Lynn installed eight rock pile structures to provide enhanced fish habitat in the first river mile downstream of the tailrace.



Photo 4.5 Tailrace Fishing Platform

4.9.1.1.2 Cheat Lake Trail

The Cheat Lake Trail (Photo 4.6 and Photo 4.7) is a 4.5-mile hiking/biking trail that extends from a parking area near the Lake Lynn Project powerhouse to its southern terminus at the Cheat Haven Nature Viewing Area. The trail is 10-foot-wide, constructed of compacted limestone fines, and ADA accessible. The trail can be accessed from the Substation Parking Area or from Cheat Lake Park (the Upper or Lower Parking Areas). The trail consists of a northern portion and southern portion. The northern portion of the Cheat Lake Trail is approximately 1.4-miles-long and extends from the Substation Parking Area to Cheat Lake Park. The trail passes through Cheat Lake Park. The southern portion of the trail, which is 3.1-miles-long, starts at Cheat Lake Park and is accessed through a gate at Mannings Run. The gate allows Lake Lynn to close the southern portion of the trail at dusk during the recreation season and the winter months. Interpretive signs are installed at several historical sites along the Cheat Lake Trail. Additionally, there are mile-markers, every half-mile, along the length of the trail. Because of safety concerns, the trail may be temporarily closed if snow and/or ice are present or other hazardous conditions exist. Signs are posted on the Morgan Run Bridge to inform hikers of any trail closures.



Photo 4.6 Cheat Lake Trail – Over Northern Causeway from Cheat Lake Park



Photo 4.7 Cheat Lake Trail – Terminus

4.9.1.1.3 Cheat Lake Park

Cheat Lake Park (Photo 4.8 and Photo 4.9) is approximately 46 acres situated on a peninsula between the Rubles Run embayment and the Morgan Run embayment on Cheat Lake. Cheat Lake Park offers an abundance of recreation amenities including a winter/car-top boat ramp with courtesy dock, 2 courtesy docks, swimming beach, picnic tables, day-use boat docks, playground area, restroom facilities, benches, security/maintenance station, 2,200 ft long fishing platforms, water fountains, access to the Cheat Lake Trail, interpretive historical signs, and an adjacent, 40-acre nature viewing and wildlife habitat area between Morgan and Manning Run. Within the park there are multiple parking areas to accommodate approximately 155 vehicles. Of those 155 parking spaces, 10 are ADA accessible.



Photo 4.8 Cheat Lake Park – Playground Area



Photo 4.9 Cheat Lake Park – Boat Launch

4.9.1.1.4 Sunset Beach Marina Public Boat Launch

Sunset Beach Marina is a free public boat launch and associated parking area located at on Cheat Lake. The parking area can accommodate approximately 60 boat trailers. This

public boat launch is available year-round when the lake level is above 865-feet NGVD. Lake Lynn maintains the surface elevation of Cheat Lake at certain levels throughout the year.

4.9.1.1.5 Nature Viewing/Wildlife Habitat Areas

In addition to the developed Lake Lynn Project recreation sites, four parcels of Lake Lynn Project lands have been designated as nature viewing/wildlife habitat areas (NV/WHA) by the Licensee. These areas are open for informal public recreation uses and there are no plans to develop these areas in the future. The first NV/WHA is a 40-acre parcel adjacent to Cheat Lake Park between Morgan and Manning Run embayments. The second is the 140-acre Cheat Haven Peninsula, located at the end of the southern portion of the Cheat Lake Trail. There is an informal trail through the Cheat Haven Peninsula NV/WHA. There is also a 12-acre parcel of land across from the Cheat Haven Peninsula NV/WHA that is only accessible by boat that has been designated as an NV/WHA. The final NV/WHA is located at Tower Run. This NV/WHA is a parcel greater than 25-acres that has a pull off with space for three vehicles to park.

4.9.1.2 Project Recreation Use and Capacities

In accordance with Article 417 of the current FERC License, the Licensee collected recreation data at the Lake Lynn Project from 2000 through 2020 and filed Recreation Plan updates summarizing recreation use every 3 years from 2003 through 2021. Generally, recreation use remained about the same over this 20-year monitoring period (LLG 2015, 2018, 2021).

Lake Lynn collected recreation use data during 2020 as part of the Recreation Plan update. Data collection included spot counts on 40 days at each of the recreation sites for a total of 560 spot counts, as well as obtaining data from the Sunset Beach marina. Spot counts were conducted on random weekday, weekend days, and holiday weekends during each season (spring, summer, fall, and winter) (for more details see 2021 Recreation Plan Update, LLG 2021).

Based on data collected, Lake Lynn estimated a total of 143,981 recreation days were spent at the Lake Lynn Project recreation sites in 2020 (LLG 2021). Overall, at all sites, recreation use was highest in the summer (53 percent), followed by spring (25 percent), and fall (14 percent) and lowest during the winter period (7 percent). Table 4-24 provides

a summary of estimated use at the primary recreation access sites (those with designated and/or on-site parking).

Table 4-24 Estimated Annual Use of Primary Sites in 2020

Recreation Site	Estimated Annual Use (2020)
Tailrace Fishing Area	5,156
Substation Parking Area	3,974
Cheat Lake Park Upper Picnic Area	723
Cheat Lake Park Upper Parking Area	89,748
Cheat Lake Park Lower Parking Area	13,524
Sunset Beach Marina	30,856
Total Annual Use	143,981

Source: LLG 2021

As part of the 2021 Recreation Plan update, Lake Lynn assessed the activities that recreationists participated in most frequently. It was noted that there were multiple activities in which recreationists participated in at the Lake Lynn Project. The most popular activities included walking, hiking, and jogging as they were observed at many of the Lake Lynn Project recreation sites. Other activities were popular at specific sites, such as:

Platform fishing

- Tailrace Fishing Area (83%)
- Day Use Boat Dock (33%)

Passive recreation (sightseeing, shoreline relaxation, bird watching, and photography)

- Beach (59%)
- Day Use Boat Dock (36%)
- Lower Picnic Area (35%)
- Lower Parking Area (26%)

Motor boating

- Sunset Beach Marina (87%)

Spending time at the playground

- Playground (85%)

Non-motor boating

- Winter Boat Launch (51%)

Picnicking

- Lower Picnic Area (50%)

Swimming

- Beach (30%)

As part of the 2021 Recreation Plan update, Lake Lynn also assessed the capacity of the existing recreation facilities based on assessment of utilization of the available amount of parking at each site versus the average number of parking spaces that were occupied during surveys during weekends during each site's peak recreation season. Most of the Lake Lynn Project recreation facilities continue to be utilized at less than 50 percent of capacity. The Cheat Lake Park Lower Parking Area (76 percent) and Sunset Beach Marina (65 percent) were both over 50 percent of capacity. Based on the recreation site inventory, review of available facilities, annual use numbers generated in 2020 and the estimated capacity utilization rates, Lake Lynn determined that the existing recreation facilities, as operated, were adequate to meet the current demonstrated demand for recreation use at the Lake Lynn Project (LLG 2021).

4.9.1.3 Land Use and Management of Project Lands

Land use and land cover inside the Lake Lynn Project boundary and acreages for each are shown in Figure 4-42. The Lake Lynn Project boundary generally follows the normal full pool elevation of the impoundment, except for several nature viewing/wildlife habitat areas, and includes certain lands immediately surrounding the Lake Lynn Project facilities including the dam, powerhouse, access roads, and appurtenant facilities.

The Licensee historically granted leases and permits ("privilege permits") for private recreation access to Lake Lynn Project lands and waters in accordance with the standard land use article in the FERC License. There are approximately 200 privilege permits around the Cheat Lake shoreline that allow permittees to install and maintain boat docks within

their shoreline property. Each permit holder is responsible for the installation and maintenance of any boat docks and the property; however, permits must be approved by the Licensee prior to any improvements being conducted at a privilege permit site. Currently, the Licensee is not issuing any new permits for private piers or boat docks and will not issue any new permits until after relicensing.

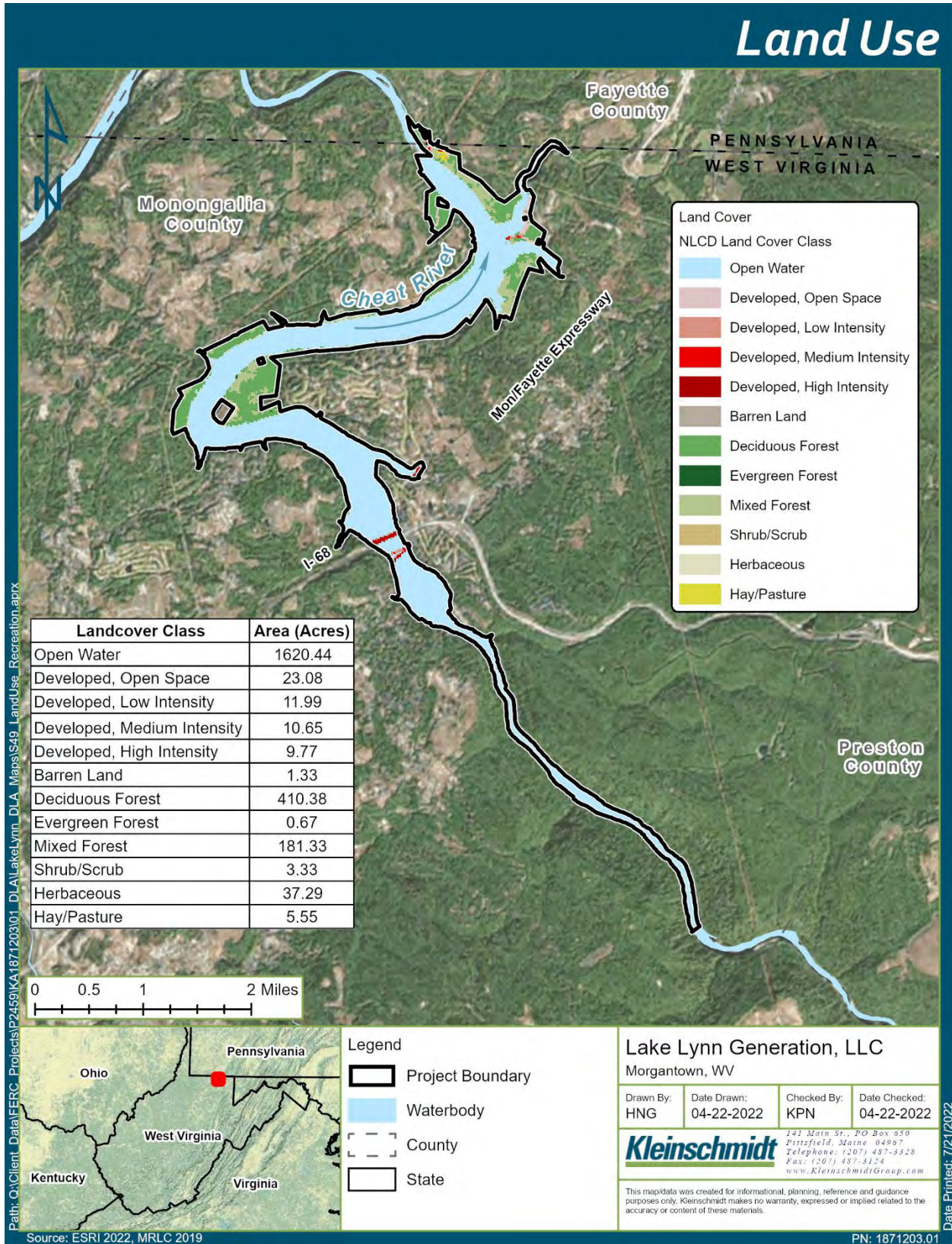


Figure 4-42 Land Use in the Lake Lynn Project Boundary

4.9.2 Environmental Effects

4.9.2.1 Effects of the Proposed Action

Recreation

During the pre-filing consultation, WVDNR and other stakeholders provided comments with respect to recreation. WVDNR commented on boating on Cheat Lake and indicated that law enforcement records do not show any significant increase in boating incidents. WVDNR also commented that it was not opposed to the temporary (or to a continued) moratorium on new private piers/boat docks. WVDNR commented that it was opposed to creating public access to the upper reaches of Cheat Lake through a road in the Snake Hill Wildlife Management Area (WMA). Other stakeholder comments were more specific to recreation PME's including: extending Cheat Lake Trail to the south; connecting Cheat Lake Trail to the Sheepskin Trail; creating public access to the upper reaches of Cheat Lake through the Snake Hill WMA; creating a dog beach; establishing boating guidelines and limits consistent with WVDNR regulations; improving guidance on boating guidelines, public dock maintenance, dredging, and parking lot criteria; improved and clear procedures for trail maintenance and repair; improved guidelines and procedures for Sunset Beach Marina and other marinas; supporting lake cleanup activities; making swimming beach season consistent with boating season; improved debris management at beach; improved guidelines for the fishing pier; reiterate the recreation season dates and open the Trail year-round; description of the functions of recreation personnel, security personnel, park maintenance personnel and guidelines for the interaction of these people with public; and hiring on-site recreation staff.

Based on the comments received, Lake Lynn developed a Study Plan in consultation with stakeholders and conducted a Recreation Site Enhancement Feasibility and Assessment that examined the feasibility of making recreation site/facility enhancements at the Lake Lynn Project, as requested during the pre-filing consultation. The assessment results will inform the development of a new Recreation Plan.

Lake Lynn is proposing no changes to Lake Lynn Project facilities or operations. As such, the proposed action is not expected to adversely affect recreational resources at the Lake Lynn Project. The proposed action will result in the continued provision of recreational facilities that adequately meets demonstrated use in the Lake Lynn Project area. The Recreation Plan was most recently updated in 2021 and Lake Lynn requested in the

Recreation Plan Update that the 2021 update would be the last update under the existing license. Lake Lynn is proposing to develop a new Recreation Plan for the new license term in consultation with USFWS, WVDNR, PFBC, WVDEP, PADEP, Monongalia County, Fayette County, CLEAR, FOC, and MRTC that would include a review and update of the Recreation Plan every 10 years. At this time, Lake Lynn does not anticipate any new recreation facilities under the new Recreation Plan developed. The Recreation Plan would include measures to measure water depths at the Sunset Beach Marina public boat launch on an annual basis prior to the recreation season. If warranted, a bathymetric survey in the vicinity of the Sunset Beach Marina Public Boat Ramp would be conducted every 10 years along with excavation to maintain the boat ramp usability.

Lake Lynn is proposing to remove 11.4 acres of land adjacent to the Cheat Lake Park parcel. This land is located along Morgans Run Road (which is used by private residents) and is not part of the park or available for public recreation use. The area proposed for removal is aligning the proposed Lake Lynn Project boundary with the current contour data available.

Land Use

During the pre-filing consultation, no agencies or stakeholders expressed concern, provided comments, or requested studies with respect to land use. Lands surrounding the Lake Lynn Project are residential, commercial and recreational. Lake Lynn is proposing no changes in operations at the Lake Lynn Project and does not anticipate that continued operation of the Lake Lynn Project will adversely affect land use in the vicinity of the Lake Lynn Project.

Lake Lynn is proposing to develop a SMP in consultation with USFWS, WVDNR, WVDEP, PADEP, PFBC, CLEAR, FOC, Monongalia County, Fayette County, West Virginia SHPO, and Pennsylvania SHPO that would be consistent with the Standard Land Use Article of any new FERC license. The SMP would manage shoreline activities within the Lake Lynn Project boundary. The SMP would clearly outline allowed activities and procedures for granting permission for shoreline activities.

4.9.2.2 Effects of the No-Action Alternative

The effects of the no-action alternative mimic the anticipated effects of the proposed action because the Licensee is proposing no changes to existing facilities or operations.

4.9.3 Unavoidable Adverse Effects

Continued operation of the Lake Lynn Project is not expected to have any unavoidable adverse effects on recreation or land use resources.

4.9.4 References

Lake Lynn Generation, LLC (LLG). 2015. Lake Lynn Hydroelectric Project 2018 Recreation Plan Update. March 2015.

Lake Lynn Generation, LLC (LLG). 2018. Lake Lynn Hydroelectric Project 2018 Recreation Plan Update. April 2018.

Lake Lynn Generation, LLC (LLG). 2021. Lake Lynn Hydroelectric Project 2021 Recreation Plan Update. March 2021.

4.10 Aesthetic Resources

4.10.1 Affected Environment

Cheat Lake and the Cheat River are popular destinations for water recreation activities. The 1,730-acre picturesque Cheat Lake attracts thousands of users each year (WVDNR 2011). Most views of the Lake Lynn Project are aesthetically pleasing and provide views of Cheat Lake (Photo 4.10 and Photo 4.11). None of the Lake Lynn Project waters are designated as Wild and Scenic Rivers (NWSRS 2019). There are no scenic highways or byways within the Lake Lynn Project boundary.

There are several roads that provide limited views of the Lake Lynn Project waters. Lake Lynn Road runs along the northeast side of the Lake Lynn Project boundary near the powerhouse and the tailrace of the dam. This road provides a view of the Lake Lynn dam and tailrace area in addition to a parking area for the Tailrace Fishing Area. Several other roads provide limited views of Cheat Lake that change with the seasons. Most notably, the I-68 bridge and Ices Ferry Bridge (SR 857) provide views of upper Cheat Lake. As the deciduous trees lose their leaves, the views become less obstructed, and areas with no view in summer may offer limited or clear views of the Lake Lynn Project in winter.

In addition to views from local roads, the recreation facilities offer aesthetic views of the Lake Lynn Project. Cheat Lake Trail offers aesthetics views of Cheat Lake (the Lake Lynn Project reservoir) Lake Lynn Project in multiple locations (Photo 4.10 and Photo 4.11). Cheat Lake Park (Photo 4.12) and the beach at Cheat Lake Park (Photo 4.13). The Tailrace Fishing Pier provides a view of the Lake Lynn Project dam and tailwater area (Photo 4.14).



Photo 4.10 View of Lower Cheat Lake from the Cheat Lake Trail

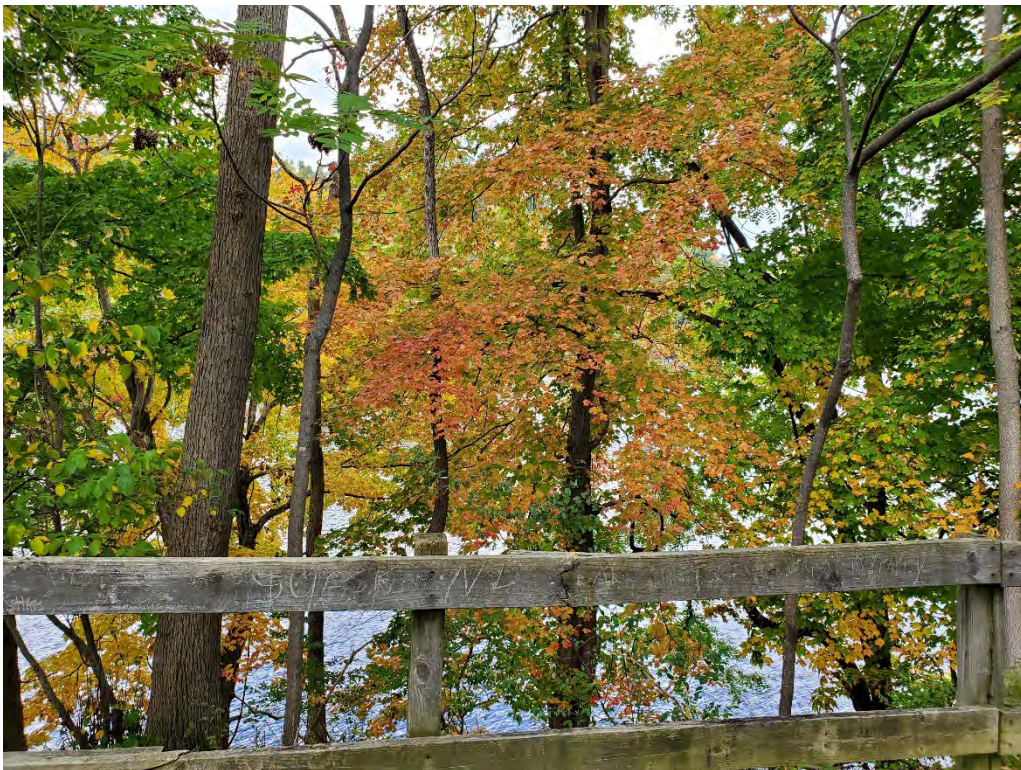


Photo 4.11 View of Upper Cheat Lake from the Cheat Lake Trail South



Photo 4.12 View of Lower Cheat Lake from Cheat Lake Park



Photo 4.13 View of Lower Cheat Lake from the beach at Cheat Lake Park



Photo 4.14 View of Project Dam from Tailwater Fishing Pier

4.10.2 Environmental Effects

During pre-filing consultation, agencies and stakeholders raised no issues or study requests related to aesthetic resources.

4.10.2.1 Effects of the Proposed Action

Lake Lynn is proposing no changes to Lake Lynn Project facilities or operations which would affect the viewshed. As such, the proposed action is not expected to adversely affect aesthetic resources at the Lake Lynn Project.

4.10.2.2 Effects of the No-Action Alternative

The effects of the no-action alternative mimic the anticipated effects of the proposed action because the Licensee is proposing no changes to existing facilities or operations.

4.10.3 Unavoidable Adverse Effects

No unavoidable adverse impacts to aesthetic resources are expected to occur as a result of the continued operation of the Lake Lynn Project.

4.10.4 References

National Wild and Scenic Rivers System (NWSRS). 2019. West Virginia Rivers. Available Online: <https://www.rivers.gov/west-virginia.php>. Accessed: April 5, 2019.

West Virginia Division of Natural Resources (WVDNR). 2011. The Recovery of Cheat Lake: A Success Story. Available Online: https://docs.wixstatic.com/ugd/ec6de6_e68c97639dd0442b863f6a6d9a2c051d.pdf. Accessed: March 29, 2019.

4.11 Historical and Cultural Resources

4.11.1 Affected Environment

4.11.1.1 Historical Overview

During the Middle Archaic period (6,500 – 3,000 B.C.), some archaeologists suggest that a major economic shift toward increased specialization in hunting and gathering resources occurred perhaps in response to continued Early Holocene environmental changes. Middle Archaic populations are poorly understood in the upper Ohia Valley with the typology based, for the most part, on stratified sites in West Virginia where the full range of tool types may have not been identified. The adaptive responses in place during the Middle Archaic period seem coupled with some increase in population and may correlate with the trend towards territoriality and more sedentary lifeways observed in Late Archaic (Phase I Cultural Resource Survey, 1996).

The Lake Archaic period include an emerging widespread interaction sphere in which objects such as copper, marine shell and chert were traded with long distance networks. Woodworking, weaving, and hide working tools are evident on larger base and settlement camps where ceremonial and domestic activities may have occurred. Base camps were located on major rivers and may have at least partially functioned to take advantage of riverine links with cultures outside of the Ohia Valley for the purpose of trade, group hunting activities, ceremonies and/or the exchange of ritual and marriage partners (Phase I Cultural Resource Survey, 1996).

Corresponding with the Lake Archaic period is the xerothermic climactic interval accompanied by an increased potential for oak-hickory forest development. Such specialized subsistence practices as the collection of mussel shell and hickory nuts as well as an increased use of fish and avian resources seem to have been intensified during the Late Archaic, although data for increase in subsistence diversity is difficult to assess because of the lack of archaeological date for this period. (Phase I Cultural Resource Survey, 1996)

The Early woodland period (1,000 B.C. - 100 B.C.) is characterized by a shift to ceramic production, the introduction of cultivated plants, and a more sedentary settlement system. However, some early Woodland sites suggest a persistence of the Archaic hunting, gather and fishing lifeway. One significant Early Woodland component with an important influence in the Lake Lynn Project area is the Adena culture. Numerous Adena

points have been identified in the Lake Lynn Project area as have Half-Moon ceramics. Major ceremonial complexes were present throughout core Adena territory in the central Ohio Valley from eastern Indiana to Western Pennsylvania (Phase I Cultural Resource Survey, 1996).

A continuation of the Late Archaic subsistence and procurement patterns may be indicated by the presence of both Early Woodland and Late Archaic artifacts on the same sites. However, ceramics tend to occur only on base camps or habitation sites. In southern West Virginia, Early Woodland pottery is characterized by the thin ceramics with quartz, siltstone and claystone tempering (Phase I Cultural Resource Survey, 1996).

Although there may have been a major shift in subsistence and settlement system during Middle Woodland times in Illinois, Draggio (1963) suspected that the Adena and Hopewell preferred similar environmental zones on major floodplains and terraces where high yields of seed plants and riverine resources could be supplemented by upland natural resources. Gradually, cultigens such as squash, pumpkin, gourd and corn were introduced from the south and west, although the evidence for cultivated plants in both local Adena and Hopewell sites is unimpressive. This gap in the archaeological record relates as much to the problem of preservation of microflora and faunal artifacts as to the lack of controlled excavation on key sites.

Based on the archaeological record, Middle Woodland populations relied on a broad spectrum of subsistence pattern including the harvesting of wild or quasi-domesticated crops near rich hunting and gathering sites. Evidence for domesticated plants is not impressive. Of particular importance in the subsistence strategies during this period was the use of aquatic resources. Although deer provided the most significant food sources, fish, birds, turtles, and amphibians were components of the subsistence system (Phase I Cultural Resource Survey, 1996).

The Hopewell cultures of the Middle Woodland Period, 100 B.C. to A.D. 400, continued to occupy sites associated with major riverine systems throughout the northeast. Seaman (1979) defined eight major regional traditions which seem to be correlated with ecological and physiographical features. Interregional trade in raw materials was significant but may have been on a more limited basis than previously suggested.

The decline of the Hopewell culture occurred during the period of climatic deterioration. The terminal Middle Woodland period reflects a decrease in long distance interaction and an increase in a more provincial cultural expression.

Topographic settings utilized by Middle Woodland cultures include floodplains, terraces, upland flats and hilltops, and promontories bracketing drainage heads. Habitation sites are present on both high and low order streams. Middle Woodland artifacts including ceramics and diagnostic Cheers, Maker, Snyders, Jack's Reef, Fox Creek, Garver's Ferry, and Kiski notched points have been recovered from sites in the general Lake Lynn Project area.

During the Late Woodland period, subsistence strategies (A.D.) 900 – 1,650) shifted to a reliance on domesticated plants including corn, beans and squash cultivated primarily on the large floodplains and terraces of major rivers. Many sites occur in similar areas as the earlier Middle Woodland villages. Continued occupation of upland sites including rock shelters as hunting and gathering stations, winter campsites, or small farmsteads can be demonstrated by the late Woodland period, a climatic episode known as the NeoBoreal brought cool, moist conditions to the general region. The effect of such climatic changes on the growing season for Late Woodland crops is difficult to assess without additional studies particularly data relating to the significance of cultigens during this period. Late Woodland pottery in southern West Virginia is a characteristically thick ware with cord marking and incising, and siltstone and claystone temper. Other Late Woodland traits include folded rims, Jacks Reef points, and small triangulars (Phase I Cultural Resource Survey, 1996).

Native American culture in northern West Virginia changed dramatically around A.D. 1,200. Large horticultural villages appeared in the large river valley while upland areas were used infrequently. Social and economic elements of the culture relate to some of the drastic changes that occurred. The Cheat River scarcely resembles the stream where native Americans once fished, netted mussels, and crossed on foot. Canoes navigated the river except where bars, shoals, and shallow rapids (known as ripples) formed in the channel. Shoals were shallow places in the stream created when sand or gravel bars became submerged. Bars, created by the river current deposited sand and silt below tributary stream junctures, were once common along the river. In places, back channels formed and the bars emerged as islands. These were places of fordings, of collecting many species of mussels, and of creating fish weirs (Phase I Cultural Resource Survey, 1996).

Historical documentation of the Lake Lynn Project area is significant in understanding past land use patterns and cultural events relating with the regional cultural history. The recorded history of the Lake Lynn Project area begins with French and English fur traders and explorers who penetrated the Cheat River region in the late 17th century during a prolonged period of internecine warfare among native Americans. The conflict continued until the first half of the 18th century when the Iroquis held the balance of power between the French and English in American (Wallace 1965). During this period, indigenous prehistoric populations dispersed from the region. Contemporaneously, Native Americans from the eastern seaboard became refugees as they were uprooted by European colonization. These native American refugees established villages, cabins, farmsteads and trading stations associated with major rivers and trading paths throughout the region.

An examination of the state sites files, located at the West Virginia Division of Culture and History in Charleston, was conducted on March 28, 1996. This research indicated that there are no previously recorded archaeological sites and no properties listed on the National Register of Historical Places located within or adjacent to the Lake Lynn Project area.

Stream terraces were the preferred site situation during all periods of prehistory although hilltops, benches, hill bases, and hillslopes were occupied throughout the entire cultural sequence. Upland village sites were situated on either salles or benches with southern exposures located east of the hilltop. Archaeological potential was enhanced whenever a known Indian path paralleled the stream or terrace particularly at crossings or portages (Phase I Cultural Resource Survey, 1996).

Predicting prehistoric site locations in the region presents significant issues because the region was not densely occupied considering the 17,000 year time span in which human populations exploited the area. Since all high probability sites were not utilized in the prehistoric past, predicting site locations involves problems that are difficult to address within the scope of our current predictive models (Phase I Cultural Resource Survey, 1996).

The Lake Lynn Project area was considered a high probability area for archaeological sites based on the following factors;

1. The Lake Lynn Project area is bisected by tributaries of the Cheat River
2. Slopes of less than 8% are present in some segments

3. Previously recorded archaeological sites occur in similar topographic situations in the general region
4. Rubles Run and Morgan Run provided waterpower for early industries

4.11.1.2 Prior Cultural Resource Investigations

The general Lake Lynn Project area was significantly modified when the level of the Cheat River was raised and the floodplain/terrace system inundated. Heavy equipment impacts were noted along the west portion of the proposed recreation area. Other disturbance factors that affect the probability of archeological sites included the construction of a railroad and the clear cutting of woodland environments resulting in land surface modifications (Phase I Cultural Resource Survey, 1996).

The Phase I field methodology conforms to the approach developed by the West Virginia Division of Cultural and History, Historic Preservation Unit's Guidelines for Phase I Surveys, Phase II Testing, Phase III Mitigation and Cultural Resources Reports. The Phase I study was divided into three segments for the initial pedestrian survey: 1) The Recreation Area, where no artifactual materials or other evidence of archaeological resources were found during subsurface testing procedures in the proposed recreation area, 2) The Woodland campground sites with no indications of rock shelters or other unusual conditions were identified during the surface survey of this area, and 3) The hiking/biking trail where four historic archaeological resources were identified during the surface surveillance of the Lake Lynn Project area, two associated 19th/20th century foundations, six millstones, coal tipple and former Baltimore and Ohio Railroad right-of-way.

Article 414 of the current license requires Lake Lynn to consult with the appropriate SHPO and file a cultural resource management plan for FERC approval prior to any ground-disturbing activities. Prior to the construction of Cheat Lake Park and the Cheat Lake Trail, Lake Lynn conducted a Phase 1 Cultural Resources Survey in 1996 and an addendum in 1998 to survey the additional 3.1-mile section of the Cheat Lake Trail. The 1996 survey identified two associated 19th and 20th century foundations, six millstones, a coal tipple, and a railroad right-of-way (Christine Davis Consultants 1996). The 1998 addendum revealed no additional cultural resources (Christine Davis Consultants 1998). In letters filed June 12, 1996, and June 11, 1998, the WVSHPO stated the proposed trail would have no effect on any historic properties at the Lake Lynn Project (WVSHPO 1996, WVSHPO 1998).

Prior to filing the PAD, Lake Lynn submitted the Lake Lynn Project information to the Pennsylvania State Historic Preservation Office (PASHPO), or Pennsylvania Historical and Museum Commission (PHMC), and the West Virginia SHPO for review. In its June 2019 preliminary review, the PASHPO identified potential NRHP-eligible above ground resources within the Lake Lynn Project area that may require surveying prior to developing final plans. Review of the PASHPO's Pennsylvania's State Historic and Archaeological Resource Exchange (PA-SHARE) identified four known potentially significant cultural resources within the Lake Lynn Project boundary: the Fairmont, Morgantown, and Pittsburgh Rail Corridor (a historic archaeological site identified above as the former Baltimore and Ohio Railroad right-of-way); the Lake Lynn Historic District (which includes the Lake Lynn powerhouse and dam which are potentially eligible for listing on the National Register of Historic Places (NRHP); the Lake Lynn Dam Penn Hill Housing (a single street north of the Lake Lynn Dam that provided housing for workers constructing the dam); and the Catawba Path. The NRHP Interactive Map and WVSHPO Interactive Map were searched, and no NRHP-eligible or potentially eligible cultural resources were identified within the Lake Lynn project boundary (NPS 2020, WVSHPO 2022).

Lake Lynn is also submitting Lake Lynn Project-specific information related to relicensing to WVSHPO and the PASHPO for a formal review.

4.11.1.3 Area of Potential Effects

The Lake Lynn Project relicensing is subject to Section 106 review under the NHPA (36 CFR Part 800) since any new license for the Lake Lynn Project would be issued by the FERC. Lake Lynn initiated consultation with the West Virginia SHPO and the Pennsylvania SHPO with an initial letter on May 20, 2019 and the distribution of the NOI and PAD for the Lake Lynn Project on August 29, 2019. The PASHPO indicated that a preliminary review of the Lake Lynn Project indicates that there may be National Register-eligible aboveground resources in the Lake Lynn Project area (identified above) and that if changes are proposed surveys must be conducted. Lake Lynn consulted with the WVSHPO and PASHPO on a draft Study Plan. No study requests or comments related to cultural resources or historic structures were received. Lake Lynn submitted a formal Lake Lynn Project review request to the WVSHPO and PASHPO on October 26, 2020. The DLA and FLA were distributed to the WVSHPO and PASHPO concurrent with filing with FERC. To date, neither the WVSHPO nor the PASHPO have provided comments on the Area of Potential Effects (APE) for the Lake Lynn Project relicensing.

4.11.2 Environmental Effects

4.11.2.1 Effects of the Proposed Action

Lake Lynn is not proposing any changes to the Lake Lynn Project operations or to the potentially NRHP-eligible Lake Lynn dam or powerhouse. Lake Lynn is proposing to remove approximately 243.8 acres of land that are not required for Lake Lynn Project purposes. Existing historical and cultural resources near or in Area A of the proposed removal include a coal tipple (46MG211), an unevaluated archaeological site (36FA0073), the railroad right-of-way (46MG2123), a portion of the Catawba Path (210394), and the unevaluated Penn Hill Housing property (101383). The mapped boundary of the Penn Hill Housing property extends into the APE, although all of the resources appear to be located outside the APE to the north. The 19th/20th century foundations (46MG214) and **cheat** millstones (46MG212) are located along the Cheat Lake Trail within the APE adjacent to Area D of the proposed removal but will remain inside the Lake Lynn proposed Project boundary. The lands to be removed would remain in Lake Lynn ownership and no ground-disturbing activities are proposed. With exception of the unevaluated archaeological site (36FA0073), and the Catawba Path and Penn Hill Housing, all other existing historic and cultural resources found within the existing Lake Lynn Project Boundary would remain within the proposed Lake Lynn Project Boundary. Therefore, the proposed action is not expected to adversely affect historical or cultural resources.

Since there are known potentially significant cultural resources within the Lake Lynn Project boundary, Lake Lynn is proposing to develop a Historic Properties Management Plan in consultation with the WVSHPO, PASHPO, and Tribes to further review and manage these cultural resources.

4.11.2.2 Effects of the No-Action Alternative

The effects of the no-action alternative mimic the anticipated effects of the proposed action because the Licensee is proposing no changes to existing facilities or operations.

4.11.3 Unavoidable Adverse Effects

Undiscovered cultural resources could be adversely affected by future activities related to the Lake Lynn Project; however, Lake Lynn would continue to consult with appropriate SHPOs prior to any ground-disturbing construction activities to minimize these effects.

4.11.4 References

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- West Virginia State Historic Preservation Office (WVSHPO). 2022. Interactive Map. Available online at: <https://mapwv.gov/shpo/viewer/index.html>. Accessed April 18, 2022.

4.12 Tribal Resources

4.12.1 Affected Environment

On June 27, 2019, FERC sent letters to the tribal leaders inviting the Delaware Nation, the Delaware Tribe of Indians, and the Osage Nation to participate in the relicensing process of the Lake Lynn Project (FERC 2019 a,b,c). As of the filing date of this FLA, Lake Lynn is not aware of FERC receiving responses from the Native American tribes regarding the Lake Lynn Project. In addition, Lake Lynn included the following Native American tribes on the Lake Lynn Project distribution list and sent an information request for the PAD on May 20, 2019:

- Absentee-Shawnee Tribe of Oklahoma
- Cayuga Nation
- Cherokee Nation
- Delaware Nation, Oklahoma
- Delaware Tribe of Indians
- Eastern Band of Cherokee Indians
- Eastern Shawnee Tribe of Oklahoma
- Oneida Indian Nation
- Oneida Indian Nation of Wisconsin
- Onondaga Nation
- Osage Nation
- Seneca-Cayuga Tribe of Oklahoma
- Seneca Nation of Indians
- Shawnee Tribe
- Stockbridge-Munsee Band of the Mohican Nation of Wisconsin
- St. Regis Mohawk Tribe
- Tonawanda Band of Seneca
- Tuscarora Nation
- United Keetoowah Band of Cherokee Indians in Oklahoma

On June 19, 2019, the Cherokee Nation stated that the Lake Lynn Project is outside their Area of Interest and deferred to federally recognized tribes that may have an interest in the area. On July 10, 2019, the Delaware Nation stated that the location of the proposed Lake Lynn Project does not endanger cultural or religious sites of interest and requested to be contacted within 24 hours if any artifacts are discovered. No other tribes have responded to the information request. On October 24, 2019, the Stockbridge-Munsee Community indicated that it did not wish to participate in the Lake Lynn Project relicensing and stated that the Lake Lynn Project is outside their area of cultural interest.

On September 9, 2022, the Bureau of Indian Affairs submitted comments on the DLA indicating that the Catawba Indian Nation was not listed as one of the American Indian tribes contacted in the application. Lake Lynn has included the Catawba Indian Nation on the distribution list of the FLA to include them as part of tribal consultation as required under 36 CFR Part 800.2(c)(2)(ii). On August 12, 2022, the Oneida Nation noted that it did not have comments on the DLA.

4.12.2 Environmental Effects

4.12.2.1 Effects of the Proposed Action

Lake Lynn is not proposing any changes to Lake Lynn Project operations and no tribal interests or issues have been identified. No groundbreaking activities are proposed. As such, the proposed action is not expected to adversely affect tribal resources. There are no specific proposed PME measures for tribal resources, however, Lake Lynn would continue to inform the tribes throughout the relicensing process.

4.12.2.2 Effects of the No-Action Alternative

The effects of the no-action alternative mimic the anticipated effects of the proposed action because the Licensee is proposing no changes to existing facilities or operations.

4.12.3 Unavoidable Adverse Effects

There are no unavoidable adverse effects identified for tribal resources.

4.12.4 References

Federal Energy Regulatory Commission (FERC). 2019a. Delaware Nation. Consultation with Tribes for the Lake Lynn Hydroelectric Project No. 2459. June 27, 2019.

FERC. 2019b. Delaware Tribe of Indians. Consultation with Tribes for the Lake Lynn Hydroelectric Project No. 2459. June 27, 2019.

FERC. 2019c. Osage Nation. Consultation with Tribes for the Lake Lynn Hydroelectric Project No. 2459. June 27, 2019.

4.13 Socioeconomics

4.13.1 Affected Environment

The Lake Lynn Project is located on the Cheat River in Monongalia County, West Virginia near the city of Morgantown, and along the Fayette County, Pennsylvania border, near the borough of Point Marion. Monongalia County is in north-central West Virginia while Fayette County is in southwestern Pennsylvania. The following sections provide a summary of socioeconomic characteristics for Morgantown, West Virginia, and for Point Marion, Pennsylvania, as they are available. The socioeconomic characteristics of the region discussed include land use patterns, population patterns, and sources of employment.

4.13.1.1 General Land Use Patterns

Land use near the Lake Lynn Project is primarily urban in West Virginia and rural in Pennsylvania. Table 4-25 summarizes the rural and urban nature in Morgantown and Point Marion, Monongalia County, Fayette County, West Virginia, and Pennsylvania for comparative purposes.

Table 4-25 Proportion of the Population Living in Urban and Rural Areas, 2010*

Land Use	Morgantown	Point Marion	Monongalia Co.	Fayette Co.	West Virginia	Pennsylvania
Urban	99%	0%	74%	52%	48%	77%
Rural	1%	100%	26%	48%	52%	23%

Source: U.S Census Bureau 2010a,b,c,d,e,f

*The most recent population pattern analysis for urban and rural areas was done in 2010.

4.13.1.2 Population Patterns

Data provided by the US Census Bureau shows that over a ten-year period the population of Morgantown increased by 2.2 percent while Point Marion decreased marginally by 0.3 percent. The population of Monongalia County, West Virginia, increased by 10.0 percent while the growth rate of West Virginia decreased by 3.2 percent. The growth rate in Fayette County, Pennsylvania, decreased by 6.3 percent while the growth rate of Pennsylvania increased marginally by 2.4 percent. The land area of Fayette County is larger than the area of Monongalia County. The population density is highest in the City of Morgantown, West Virginia. Table 4-26 summarizes population statistics in the Lake Lynn Project vicinity in 2010 and 2020, as well as recent population patterns.

Table 4-26 Population Statistics for the Lake Lynn Project Vicinity

Population Statistics	Morgantown	Point Marion	Monongalia Co.	Fayette Co.	West Virginia	Pennsylvania
Population (2010)	29,660	1,159	96,189	136,606	1,852,994	12,702,379
Population (2020)	30,347	1,156	105,822	128,073	1,793,716	13,002,700
% Change 2010 to 2020	2.3%	-0.3%	10.0%	-6.3%	-3.2%	2.4%
Land Area in sq. mi., 2010	10.2	0.4	360.1	790.3	24,038.2	44,742.7
Population per sq. mi., 2020	2,984.0	2,752.4	293.9	162.0	74.6	290.6

Source: City Data 2022, U.S. Census Bureau 2010a, 2010b, 2010c, 2010d, 2010e, 2010f, 2010g 2022a, 2022b, 2022c, 2022d, 2022e, 2022f.

4.13.1.3 Economic Indicators and Employment

Income, poverty, and employment data from the American Community Survey (based on estimates from 2020 U.S. Census Bureau data) are provided in Table 4-27.

Table 4-27 Economic Characteristics of the Lake Lynn Project Region (2020 Estimates)

Economic Class	Morgantown	Point Marion	Monongalia Co.	Fayette Co.
Median Household Income	\$42,474	\$57,125	\$54,198	\$49,075
Mean Household Income	\$66,377	\$63,752	\$82,948	\$64,658
Per Capita Income	\$25,248	\$23,716	\$33,527	\$27,778
Persons Below the Poverty Level	34.7%	20.0%	20.4%	16.5%
Population in Labor Force	57.8%	69.8%	62.5%	54.7%
Unemployment Rate	10.9%	7.4%	6.6%	7.3%

Source: U.S. Census Bureau 2022g-2022u

Table 4-28 summarizes employment by industry in the Lake Lynn Project vicinity. Educational services, and health care and social assistance has the highest employment rate surrounding the in the area.

Table 4-28 Employment by Industry in the Lake Lynn Project Vicinity

Employment Type	Morgantown	Point Marion	Monongalia Co.	Fayette Co.
Agriculture, forestry, fishing and hunting, and mining	0.6%	2.5%	2.6%	3.5%
Construction	2.2%	5.1%	3.6%	8.1%
Manufacturing	3.6%	6.5%	5.1%	10.3%
Wholesale trade	0.5%	0.0%	1.1%	2.1%
Retail trade	11.2%	16.0%	10.1%	12.9%
Transportation and warehousing, and utilities	1.5%	3.2%	2.9%	7.2%
Information	0.6%	0.8%	1.2%	1.1%
Finance and insurance, real estate, rental, leasing	4.7%	1.0%	4.6%	2.9%
Professional, scientific, and management, administrative and waste management services	12.5%	10.5%	11.2%	6.8%
Educational services, and health care and social assistance	37.4%	28.1%	37.6%	28.4%
Arts, entertainment, and recreation, and accommodation and food services	19.2%	18.0%	12.0%	9.0%
Other services, except public administration	2.5%	2.8%	3.1%	4.2%
Public administration	3.6%	5.5%	5.0%	3.5%

Source: U.S. Census Bureau, 2022j,

4.13.2 Environmental Effects

4.13.2.1 Effects of the Proposed Action

The Licensee is not proposing any changes to the Lake Lynn Project facilities or operations. The Licensee will continue to employ staff to operate the facilities as well as contract work for service and maintenance at the Lake Lynn Project. Because no changes are proposed,

socioeconomic resources are not expected to be adversely affected. Continued operations of the Lake Lynn Project will continue to provide clean and reliable renewable energy for consumers in the area for the term of any new license.

4.13.2.2 Effects of the No-Action Alternative

The effects of the no-action alternative mimic the anticipated effects of the proposed action because the Licensee is proposing no changes to existing facilities or operations.

4.13.3 Unavoidable Adverse Effects

Continued operation and relicensing of the Lake Lynn Project and associated PME measures as proposed is not expected to result in unavoidable adverse effects on socioeconomic resources.

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U.S. Census Bureau. 2022m. ACS 5-Year Estimates Detailed Tables. S1701 Poverty Status in the Past 12 Months. Available online: <https://data.census.gov/cedsci/table?q=point%20marion%20poverty>. Accessed: April 12, 2022.

U.S. Census Bureau. 2022n. ACS 5-Year Estimates Subject Tables. S1901 Income in the Past 12 Months (in 2020 Inflation-Adjusted Dollars). Available online:

<https://data.census.gov/cedsci/table?q=monongalia%20county%20income>.

Accessed: April 12, 2022.

U.S. Census Bureau. 2022o. ACS 5-Year Estimates Detailed Tables. B19301 Per Capita Income in the Past 12 Months (in 2020 Inflation-Adjusted Dollars). Available online: <https://data.census.gov/cedsci/table?q=monongalia%20county%20per%20capita%20income&tid=ACSDT5Y2020.B19301>. Accessed: April 12, 2022.

U.S. Census Bureau. 2022p. ACS 5-Year Estimates Detailed Tables. DP03 Selected Economic Characteristics. Available online: <https://data.census.gov/cedsci/table?q=point%20marion%20selected%20economic>. Accessed: April 12, 2022.

U.S. Census Bureau. 2022q. ACS 5-Year Estimates Detailed Tables. DP03 Selected Economic Characteristics. Available online: <https://data.census.gov/cedsci/table?q=monongalia%20county%20selected%20economic&tid=ACSDP5Y2020.DP03>. Accessed: April 12, 2022.

U.S. Census Bureau. 2022r. ACS 5-Year Estimates Subject Tables. S1901 Income in the Past 12 Months (in 2020 Inflation-Adjusted Dollars). Available online: <https://data.census.gov/cedsci/table?q=%20Fayette%20County,%20Pennsylvania%20income&tid=ACSST5Y2020.S1901>. Accessed: April 12, 2022.

U.S. Census Bureau. 2022s. ACS 5-Year Estimates Detailed Tables. B19301 Per Capita Income in the Past 12 Months (in 2020 Inflation-Adjusted Dollars). Available online: <https://data.census.gov/cedsci/table?q=%20Fayette%20County,%20Pennsylvania%20per%20capita%20income&tid=ACSDT5Y2020.B19301>. Accessed: April 12, 2022.

U.S. Census Bureau. 2022t. ACS 5-Year Estimates Detailed Tables. S1701 Poverty Status in the Past 12 Months. Available online: <https://data.census.gov/cedsci/table?q=%20Fayette%20County,%20Pennsylvania%20poverty>. Accessed: April 12, 2022.

U.S. Census Bureau. 2022u. ACS 5-Year Estimates Detailed Tables. DP03 Selected Economic Characteristics. Available online: <https://data.census.gov/cedsci/table?q=%20Fayette%20County,%20Pennsylvania%20selected%20economics&tid=ACSDP5Y2020.DP03>. Accessed: April 12, 2022.

4.14 Environmental Justice

Consistent with Executive Orders 12898⁸ and 14008⁹, the Licensee provides the following Environmental Justice (EJ) information for the Lake Lynn Project. This overview is meant to provide an understanding of the number of EJ communities present within the Lake Lynn Project area, and the population of non-English-speaking residents within the Lake Lynn Project area, to identify the need for any targeted public engagement efforts related to relicensing the Lake Lynn Project.

Identification of Environmental Justice Communities

The thresholds used for populations meeting environmental justice status are as follows:

- The “meaningfully greater analysis” and the “50 percent” methods were used to determine EJ status based on race:
 - To meet EJ criteria using the “meaningfully greater analysis,” a block group qualifies as having EJ communities if the total minority population for a block group is at least 10 percent greater than that of the county population:
 - $(\text{County minority population}) \times (1.10) = \text{threshold above which a block group minority population must be for inclusion as an environmental justice community.}$
 - To meet EJ criteria using the “50 percent” method, the total minority population must be greater than 50 percent to qualify as an EJ community.
- The “low-income threshold criteria” was used to identify environmental justice communities based on income level, where the block group must have a higher percentage of low-income households than the county.

4.14.1 Affected Environment

The Lake Lynn Project is located on the Cheat River in the City of Morgantown, Monongalia County, West Virginia. The Lake Lynn Project tailrace crosses the state border into Fayette County, Pennsylvania, near the borough of Point Marion. Within a one-mile zone around the Lake Lynn Project boundary there are seventeen census block groups

⁸ Exec. Order No. 12898, 59 Fed. Reg. 7629 (Feb. 16, 1994). Federal Actions to Address Environmental Justice in Minority and Low-Income Populations.

⁹ Exec. Order No. 14008, 86 Fed. Reg. 7619-7633 (Jan. 27, 2021) Tackling the Climate Change Crisis at Home and Abroad.

that could potentially be affected by relicensing. Fourteen of the seventeen census block groups within the Lake Lynn Project area include minority populations, three of which meet requirements for status as environmental justice communities for minority populations alone.

In addition to race, environmental justice communities include groups of individuals with income levels below poverty level, measured by household. Within the Lake Lynn Project area there are five communities meeting environmental justice status related to household income level alone (Table 4-29).

One block group meets EJ status for both minority and low-income populations. Of the seventeen block groups considered for this analysis, ten directly border Lake Lynn Project lands; within those ten groups, two block groups have minority only EJ communities, and one block group has a low-income EJ community. (Table 4-29) (Figure 4-43).

Finally, English-speaking ability has been evaluated within the Lake Lynn Project area for all block groups to identify where there may be a language barrier to participation in the licensing process, and a need for more targeted outreach using different languages. Within the one-mile zone around the Lake Lynn Project boundary there are no non-English-speaking groups (Table 4-29).

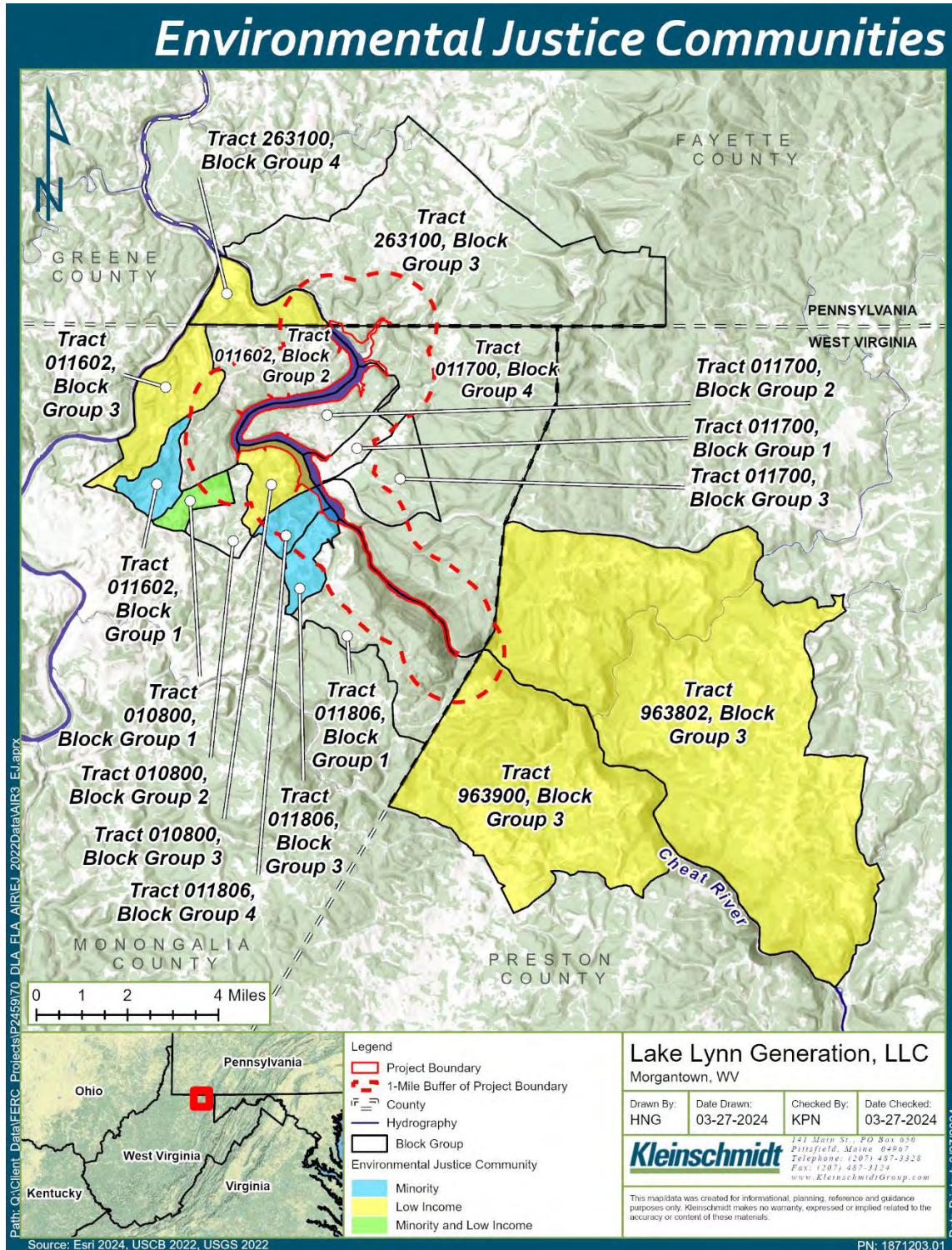


Figure 4-43 Environmental Justice Communities within one mile of the Lake Lynn Project.

Table 4-29 Current Community Data within one mile of the Lake Lynn Project Boundary

Geographic Area	RACE AND ETHNICITY DATA										LOW-INCOME DATA	LANGUAGE DATA
	Total Population (count)	White Alone, not Hispanic (count)	African American/ Black (count)	Native American Indian/ Alaska Native (count)	Asian (count)	Native Hawaiian & Other Pacific Islander (count)	Some Other Race (count)	Two or More Races (count)	Hispanic or Latino (count)	Total Minority Population (%) *	Below Poverty Data (%) *	Non-English Speaking Persons Aged 5 Years and Greater (%)
Pennsylvania	12989208	9671148	1347784	8215	469434	2662	48071	386786	1055108	26%	12%	1%
Fayette County	128417	115547	5408	41	644	51	473	4473	1780	10%	18%	0%
Census Tract 263100, Block Group 4	1410	1343	19	0	0	0	5	11	32	5%	26%	0%
Census Tract 263100, Block Group 3	1516	1513	0	0	0	0	0	3	0	0%	14%	0%
West Virginia	1792967	1625416	60237	1465	13460	631	4004	54844	32910	9%	17%	0%
Monongalia County	105988	92393	3644	19	3583	1	751	3184	2413	13%	20%	0%
Census Tract 010800, Block Group 2	1387	1338	0	0	0	0	0	44	5	4%	10%	0%
Census Tract 011700, Block Group 2	1980	1939	18	7	0	0	0	0	16	2%	0%	0%
Census Tract 011602, Block Group 1	936	803	34	0	0	0	0	99	0	14%	9%	0%
Census Tract 011602, Block Group 2	2245	2079	27	0	0	0	0	66	73	7%	4%	0%
Census Tract 011806, Block Group 3	1723	1392	239	0	6	0	0	85	1	19%	2%	0%
Census Tract 010800, Block Group 3	1077	954	27	0	0	0	0	96	0	11%	29%	0%
Census Tract 011602, Block Group 3	1099	1001	0	0	73	0	0	25	0	9%	45%	0%
Census Tract 011700, Block Group 4	1026	951	59	0	0	0	11	5	0	7%	1%	0%
Census Tract 011700, Block Group 3	532	524	0	0	0	0	0	8	0	2%	16%	0%
Census Tract 011806, Block Group 1	1347	1343	0	0	0	0	0	4	0	0%	0%	0%
Census Tract 011700, Block Group 1	912	830	0	0	0	0	0	10	72	9%	4%	0%
Census Tract 010800, Block Group 1	1934	1381	90	0	305	0	9	149	0	29%	25%	0%
Census Tract 011806, Block Group 4	1656	1388	6	0	133	0	114	15	0	16%	2%	0%
Preston County	34206	30322	2056	83	115	2	16	815	797	11%	15%	0%
Census Tract 963802, Block Group 3	1000	1000	0	0	0	0	0	0	0	0%	26%	0%
Census Tract 963900, Block Group 3	881	827	0	0	0	0	12	42	0	6%	17%	0%

Source: U.S. Census 2022

*Note: Grey shaded cells indicate EJ community

4.14.2 Environmental Effects

For this relicensing application, the USEPA's 2016 guidance document for assessing environmental justice within a regulatory context has been used to analyze potential impacts to environmental justice communities from relicensing. The following three questions posed by the USEPA document are considered below:

- Are there potential environmental justice concerns associated with environmental stressors affected by the regulatory action for the population groups of concern in the baseline (USEPA 2016)?
- For the regulatory option(s) under consideration, are potential environmental justice concerns created or mitigated compared to the baseline (USEPA 2016)?
- Are there potential environmental justice concerns associated with environmental stressors affected by the regulatory action for population groups of concern for the regulatory option(s) under consideration (USEPA 2016)?

Baseline Conditions

The Lake Lynn Project has been in place since 1926, providing safe and renewable power to the region, as well as recreational opportunities to the public. Primary water uses in the Lake Lynn Project area (both consumptive and non-consumptive) include hydropower production, wastewater assimilation, aquatic and wildlife habitat, and recreation. Please see section 4.0 of this exhibit for additional baseline conditions for the region. There are no environmental justice concerns for population groups of concern in the baseline.

4.14.2.1 Effects of the Proposed Action

The Licensee is not proposing changes to Lake Lynn Project operations or facilities as part of this relicensing process, and there are no known entities in possession of water rights within the Lake Lynn Project boundary. Additionally, water within the Lake Lynn Project boundary is not used for domestic water supply or irrigation, and there are no active water withdrawals. Therefore, new impacts to shoreline property or archaeological or tribal sites within the Lake Lynn Project area are not anticipated, nor are impacts to recreation, aesthetics, or wildlife habitat potentially impacting environmental justice communities.

4.14.2.2 Effects of the No-Action Alternative

The no-action alternative represents the baseline conditions at the Lake Lynn Project. There would be no changes to Lake Lynn Project operation or facilities, and therefore no change in effect to environmental justice communities.

4.14.3 Unavoidable Adverse Effects

No infrastructure or operational changes are proposed as part of this relicensing; therefore, relicensing, and continued operation of the Lake Lynn Project is not expected to have any new unavoidable adverse effects on environmental justice communities.

4.14.4 References

United States Census Bureau (U.S. Census). 2022. American Community survey 5-year data (2022). Retrieved from https://www2.census.gov/programs-surveys/acs/summary_file/2022/table-based-SF/data/5YRData/ on March 1, 2024.

United States Environmental Protection Agency (USEPA). 2016. Technical Guidance for Assessing Environmental Justice in Regulatory Analysis. Retrieved from https://www.epa.gov/sites/default/files/2016-06/documents/ejtg_5_6_16_v5.1.pdf on November 22, 2022.

5.0 CONSISTENCY WITH COMPREHENSIVE PLANS

5.1 Consistency with Comprehensive Plans

Section 10(a)(2)(A) of the FPA, 16 U.S.C. section 803 (a)(2)(A), requires FERC to consider the extent to which a project is consistent with federal or state comprehensive plans for improving, developing, or conserving a waterway or waterways affected by a hydropower project. On April 27, 1988, the Commission issued Order No. 481-A, revising Order No. 481, issued October 26, 1987, establishing that the Commission will accord FPA section 10(a)(2)(A) comprehensive plan status to any federal or state plan that: (1) is a comprehensive study of one or more of the beneficial uses of a waterway or waterways; (2) specifies the standards, the data, and the methodology used; and (3) is filed with the Secretary of the Commission.

5.1.1 FERC-Approved Federal and State Comprehensive Plans

FERC currently lists 66 federal and state comprehensive plans and of those, the following 8 comprehensive plans are identified as pertaining to waters in the vicinity of the Lake Lynn Project:

- National Park Service. The Nationwide Rivers Inventory. Department of the Interior, Washington, D.C. 1993.
- Pennsylvania Department of Environmental Resources. 1983. Pennsylvania State water plan. Harrisburg, Pennsylvania. January 1983. 20 volumes.
- Pennsylvania Department of Environmental Resources. 1986. Pennsylvania's recreation plan, 1986-1990. Harrisburg, Pennsylvania.
- Pennsylvania Department of Environmental Resources. 1988. Pennsylvania 1988 water quality assessment. Harrisburg, Pennsylvania. April 1988.
- West Virginia Division of Natural Resources. 1982. Monongahela River Basin plan. Charleston, West Virginia.
- West Virginia Division of Natural Resources. 2015 West Virginia State Wildlife Action Plan. Charleston, West Virginia. September 1, 2015
- West Virginia Governor's Office of Community and Industrial Development. West Virginia State Comprehensive Outdoor Recreation Plan: 1988-1992. Charleston, West Virginia.

- U.S. Fish and Wildlife Service. n.d. Fisheries USA: the recreational fisheries policy of the U.S. Fish and Wildlife Service. Washington, D.C.

Based on a review of these plans, Lake Lynn has determined that current and proposed operations of the Lake Lynn Project facilities are consistent with these plans.

APPENDIX A

CONSULTATION SUMMARY

APPENDIX A
CONSULTATION SUMMARY

A summary of key consultation conducted during the Lake Lynn Traditional Licensing Process is provided in the table provided in this appendix. Copies of relevant documents are provided after the table.

Date	From	To	Description
May 20, 2019	Licensee	Distribution List	Letter to Federal and state agencies and non-governmental organizations to initiate information gathering for the PAD, consultation for Relicensing, and to request input on the use of the TLP for the relicensing of the Project.
June 10, 2019	Licensee	Cheat Lake Environment & Recreation Association (CLEAR)	Provided a summary comparing/contrasting the TLP vs. the Integrated Licensing Process (ILP).
June 12, 2019	Licensee	Distribution List	Reminder for request for information gathering for the PAD for Relicensing and to request input on the use of the TLP for the relicensing of the Project.
June 12, 2019	Licensee	Greystone-on-the-Cheat	Clarified that the Information Request for the PAD was directed to Greystone-on-the-Cheat. Ms. Carter forwarded the Information Request for the PAD to the appropriate contacts in the organization and confirmed that she should continue to be listed as the main contact for the organization.
June 18, 2019	WVDEP	Licensee	Email providing water quality data from WVDEP stations (online database retrieval tool was not working)
June 19, 2019	Cherokee Nation	Licensee	In response to Information Request for the PAD, stated that Monongalia County and Fayette County are outside the Cherokee Nation's Area of Interest, thus, they defer to federally-recognized Tribes that have an interest in this land base.
June 19, 2019	Friends of the Cheat (FOC)	Licensee	In response to Information Request for the PAD, emailed questions about docket number and filing comments in FERC docket.
June 19, 2019	Licensee	FOC	Responded to Amanda Pitzer's email indicating that comments/information should be submitted directly to Jody Smet and that copies of submittals received will be included with the PAD that will be filed with

Date	From	To	Description
			FERC. Instructions were also provided for filing comments in the FERC docket.
June 19, 2019	Janet Norman, USFWS	Licensee	In response to Information Request for the PAD, Ms. Norman contacted Licensee to discuss IPaC process.
June 19, 2019	Licensee	Janet Norman, USFWS	Call to explain that the IPaC was completed informally for the PAD and that no formal consultation had been requested through the IPaC review process. Ms. Norman requested a shapefile of the Project area used for the IPaC.
June 19, 2019	WVDNR	Licensee	In response to Information Request for the PAD, requested clarification that this request is related to information for the PAD and that study requests would be submitted at a later date.
June 19, 2019	Licensee	WVDNR	Responded that the information request is related to information for the PAD.
June 19, 2019	Division of Environmental Review , PA SHPO, PA Historical and Museum Commission	Licensee	In response to Information Request for the PAD, stated that a preliminary review of the Project indicates that there may be National Register-eligible aboveground resources in the Project area and that in order to facilitate the review process, surveys must be conducted if changes proposed to identify these resources before final plans are developed.
June 20, 2019	Licensee	USFWS	Provided Licensee contact information and an update on availability of shapefile for the Project area.
June 20, 2019	USFWS	Licensee	Acknowledged receipt of Licensee contact information.
June 20, 2019	PFBC	Licensee	In response to Information Request for the PAD, stated that the PFBC agrees with the use of the TLP. Ms. Smiles stated that PFBC has been involved in the review of biological monitoring information and has had opportunities to provide comments on future monitoring; and therefore, does not have any additional information requests at this time.
June 20, 2019	CLEAR	Licensee	In response to Information Request for the PAD, provided issues and recommendations relating to carrying capacity, buoys, Cheat River beach sand, large woody debris, vegetation clearing, debris clean-up, and permanent structures along the shoreline.

Date	From	To	Description
June 20, 2019	CLEAR	Licensee	In response to Information Request for the PAD, requested various recreation, safety, and security measures for inclusion in the relicensing of the Lake Lynn Project and for incorporation into the operation and maintenance of the facility and surroundings.
June 20, 2019	Friends of the Cheat (Board Member and Treasurer) American Whitewater (Lifetime Member)	Licensee, FERC	Proposed recreation access and improvements to Upper Cheat Lake through Buzzards Road improvements.
June 20, 2019	FOC	Licensee, FERC	In response to Information Request for the PAD, requested improvement of recreational opportunities that should be considered as part of this next re-licensing process, including public access to the upper reaches of Cheat Lake and extending the southern end of Cheat Lake Trail.
June 21, 2019	Rotary Club of Cheat Lake	Licensee, FERC	Stated that he would like to see an extension of the pedestrian trail system especially from the dam to the Monongahela River, and along other areas to connect to other trails.
June 25, 2019	Licensee	USFWS	As follow-up to June 19 call, provided shapefile for the Project boundary used for IPaC search.
June 26, 2019	Pennsylvania Game Commission (PGC)	Licensee	In response to Information Request for the PAD, requested Project mapping that illustrates the location and boundary of the Project area as well as any proposed improvements that may be proposed as part of the relicensing effort.
June 27, 2019	Licensee	PGC	Provided a figure of the Project boundary and clarified that, at this time, the Licensee is not proposing any changes or improvements at the Project.
June 27, 2019	FERC	Delaware Nation, Delaware Tribe of Indians,	FERC letter to Tribal Leaders inviting participation in the relicensing process for the Lake Lynn Hydroelectric Project.

Date	From	To	Description
		Osage Nation	
July 2, 2019	PGC	Licensee	In response to Information Request for the PAD, provided comments noting that, at this time, given that no activities are proposed, the PGC does not have any information to provide for inclusion in the PAD.
July 8, 2019	Licensee	WVDNR	Email inquiring whether WVDNR has any concerns about the proposed use of the TLP.
July 8, 2019	WVDNR	Licensee	Email indicating that WVDNR would not object to the TLP and that the Licensee does a fairly good job at working with the resource agencies.
July 9, 2019	Licensee	USFWS	Follow-up to confirm that there were no issues with shapefile provided on June 25.
July 10, 2019	Delaware Nation	Licensee	In response to Information Request for the PAD, stated that the proposed Project location does not endanger cultural or religious sites of interest to the Delaware Nation. Requested that if any artifacts are discovered that the Licensee contact their office within 24 hours.
August 29, 2019	Licensee	FERC and Distribution List	Filed request to use TLP, NOI and PAD with FERC and distributed to distribution list
October 24, 2019	Stockbridge Munsee Community	Licensee	Email indicating that the Stockbridge Munsee Community does not wish to participate in the project relicensing
October 18, 2019	Licensee	Distribution List	Email update on process and request for availability for Joint Agency Meeting and Site Visit
November 21, 2019	Licensee	FERC and Distribution List	Notice and agenda for Joint Agency Meeting and Site Visit
December 12, 2019			Joint Agency Meeting and Site Visit
January 23, 2020	Licensee	FERC and Distribution List	Provided summaries of Joint Agency Meeting and Site Visit and proof of public notice in newspaper
February 12, 2020	WVDNR	Licensee, FERC	Provided comments on the PAD and study requests

Date	From	To	Description
February 10, 2020	CLEAR	Licensee	Provided comments on the PAD and study requests
February 13, 2020	USFWS	FERC, Licensee	Provided comments on the PAD and study requests
February 9 2020	Monongahela River Trails Conservancy (MRTC)	Licensee, FERC	Provided comments on the PAD and study requests
January 8, 2020	FOC	FERC	Provided comments on the PAD
January 9, 2020	Gary Marlin	FERC	Provided comments on the PAD
April 15, 2020	Licensee	Distribution List	Emailed Draft Study Plan for review and comment and requested availability for a conference call.
April 24, 2020			Conference Call to discuss Draft Study Plan
May 8, 2020	Licensee	Distribution List	Emailed revised Draft Study Plan for review and comment along with draft notes from the April 24, 2020 Conference call
May 15, 2020	Licensee	USFWS, WVDNR, WVDEP, PDEP, PFBC	Call to collaborate on Streamflow Data and provided background/history and Instream Flow Study to the agencies. Discussed the USFWS request for revisions to the Flow Duration Curves in Appendix E of the PAD
May 18, 2020, Lake	Licensee	USFWS, PBFC, WVDNR	Draft Mussel survey plan distributed to agencies and scheduled a call to discuss the study plan
May 20, 2020			Call with USFWS, PBFC, WVDNR to discuss Mussel Survey
July 9, 2020	Licensee	USFWS, PBFC, WVDNR	Revised Draft Mussel survey plan distributed
July 9,,2020	Licensee	Distribution List	Emailed final Study Plan
July 21, 2020	WVDNR	Licensee	Comments on Draft Mussel survey plan
August 3,,2020	PFBC	Licensee	Comments on Draft Mussel survey plan

Date	From	To	Description
August 25, 2020	Licensee	USFWS, WVDNR, WVDEP, PDEP, PFBC	Provided revised Flow Duration Curves as part of collaborate on Streamflow Data and suggested that another call could be scheduled if there were further comments or requests
September 9, 2020	WVDNR	Licensee	WVDNR approved the Mussel Survey Study Plan
September 11, 2020	PFBC	Licensee	PFBC approved the Mussel Survey Study Plan
October 26, 2020	Licensee	WVSHPO	Submitted request for Section 106 Review for Compliance
October 26, 2020	Licensee	PASHPO	Submitted Section 106 Review for Compliance
January 29, 2021	Licensee	Distribution List	Provided draft entrainment for review and comment
January 29, 2021	Licensee	Distribution List	Provided draft mussel survey report for review and comment
July 30, 2021	Licensee	Distribution List	Provided draft recreation assessment for review and comment
August 5, 2022	Licensee	FERC and Distribution List	Filed DLA with FERC and distributed DLA to Distribution List
August 12, 2022	Oneida Nation	Licensee	Email indicating they have no comments on the DLA
November 3, 2022	FERC	Licensee	Comments on DLA
November 4, 2022	Licensee	WVDNR	Email requesting concurrence with nature viewing area removal
November 7, 2022	WVDNR	FERC. Licensee	Comments on DLA
November 8, 2022	CLEAR	Licensee	Comments on DLA
November 11, 2022	Licensee	PA Coast Resources Program	Email requesting concurrence that project is not located within coastal zone
August 5, November 30, 2022	Licensee	FERC and Distribution List	Filed DLA with FERC and distributed DLA to Distribution List

Date	From	To	Description
February 24, 2023	Licensee	PA Coast Resources Program	Email requesting concurrence that project is not located within coastal zone
April 20, 2023	Licensee	PA Coast Resources Program	Email requesting concurrence that project is not located within coastal zone
April 25, 2023	PA Coast Resources Program	Licensee	Email concurring that the project is not located within coastal zone
March 4, 2024	Licensee	Avian Conservation Center of Appalachia	Email requesting specific information regarding Lake Lynn Project and observed interactions between birds/wildlife and Project transmission facilities/Project
March 8, 2024	Licensee	USFWS Ecological Services Field Office	Email requesting information on seasonal habitat tricolored bat zones
March 15, 2024	Licensee	USFWS Ecological Services Field Office and WVDNR Wildlife Resources Section	Email requesting specific information regarding Lake Lynn Project and observed interactions between birds/wildlife and Project transmission facilities/Project
April 5, 2024	Licensee	USFWS	IPAC system review
April 5, 2024	Licensee	USFWS	Species list request

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June 20, 2019	CLEAR	Licensee	In response to Information Request for the PAD, requested various recreation, safety, and security measures for inclusion in the relicensing of the Lake Lynn Project and for incorporation into the operation and maintenance of the facility and surroundings.
June 20, 2019	Friends of the Cheat (Board Member and Treasurer) American Whitewater (Lifetime Member)	Licensee, FERC	Proposed recreation access and improvements to Upper Cheat Lake through Buzzards Road improvements.
June 20, 2019	FOC	Licensee, FERC	In response to Information Request for the PAD, requested improvement of recreational opportunities that should be considered as part of this next re-licensing process, including public access to the upper reaches of Cheat Lake and extending the southern end of Cheat Lake Trail.
June 21, 2019	Rotary Club of Cheat Lake	Licensee, FERC	Stated that he would like to see an extension of the pedestrian trail system especially from the dam to the Monongahela River, and along other areas to connect to other trails.
June 25, 2019	Licensee	USFWS	As follow-up to June 19 call, provided shapefile for the Project boundary used for IPaC search.
June 26, 2019	Pennsylvania Game Commission (PGC)	Licensee	In response to Information Request for the PAD, requested Project mapping that illustrates the location and boundary of the Project area as well as any proposed improvements that may be proposed as part of the relicensing effort.
June 27, 2019	Licensee	PGC	Provided a figure of the Project boundary and clarified that, at this time, the Licensee is not proposing any changes or improvements at the Project.
June 27, 2019	FERC	Delaware Nation, Delaware Tribe of Indians,	FERC letter to Tribal Leaders inviting participation in the relicensing process for the Lake Lynn Hydroelectric Project.

Date	From	To	Description
		Osage Nation	
July 2, 2019	PGC	Licensee	In response to Information Request for the PAD, provided comments noting that, at this time, given that no activities are proposed, the PGC does not have any information to provide for inclusion in the PAD.
July 8, 2019	Licensee	WVDNR	Email inquiring whether WVDNR has any concerns about the proposed use of the TLP.
July 8, 2019	WVDNR	Licensee	Email indicating that WVDNR would not object to the TLP and that the Licensee does a fairly good job at working with the resource agencies.
July 9, 2019	Licensee	USFWS	Follow-up to confirm that there were no issues with shapefile provided on June 25.
July 10, 2019	Delaware Nation	Licensee	In response to Information Request for the PAD, stated that the proposed Project location does not endanger cultural or religious sites of interest to the Delaware Nation. Requested that if any artifacts are discovered that the Licensee contact their office within 24 hours.
August 29, 2019	Licensee	FERC and Distribution List	Filed request to use TLP, NOI and PAD with FERC and distributed to distribution list
October 24, 2019	Stockbridge Munsee Community	Licensee	Email indicating that the Stockbridge Munsee Community does not wish to participate in the project relicensing
October 18, 2019	Licensee	Distribution List	Email update on process and request for availability for Joint Agency Meeting and Site Visit
November 21, 2019	Licensee	FERC and Distribution List	Notice and agenda for Joint Agency Meeting and Site Visit
December 12, 2019			Joint Agency Meeting and Site Visit
January 23, 2020	Licensee	FERC and Distribution List	Provided summaries of Joint Agency Meeting and Site Visit and proof of public notice in newspaper
February 12, 2020	WVDNR	Licensee, FERC	Provided comments on the PAD and study requests

Date	From	To	Description
February 10, 2020	CLEAR	Licensee	Provided comments on the PAD and study requests
February 13, 2020	USFWS	FERC, Licensee	Provided comments on the PAD and study requests
February 9 2020	Monongahela River Trails Conservancy (MRTC)	Licensee, FERC	Provided comments on the PAD and study requests
January 8, 2020	FOC	FERC	Provided comments on the PAD
January 9, 2020	Gary Marlin	FERC	Provided comments on the PAD
April 15, 2020	Licensee	Distribution List	Emailed Draft Study Plan for review and comment and requested availability for a conference call.
April 24, 2020			Conference Call to discuss Draft Study Plan
May 8, 2020	Licensee	Distribution List	Emailed revised Draft Study Plan for review and comment along with draft notes from the April 24, 2020 Conference call
May 15, 2020	Licensee	USFWS, WVDNR, WVDEP, PDEP, PFBC	Call to collaborate on Streamflow Data and provided background/history and Instream Flow Study to the agencies. Discussed the USFWS request for revisions to the Flow Duration Curves in Appendix E of the PAD
May 18, 2020, Lake	Licensee	USFWS, PBFC, WVDNR	Draft Mussel survey plan distributed to agencies and scheduled a call to discuss the study plan
May 20, 2020			Call with USFWS, PBFC, WVDNR to discuss Mussel Survey
July 9, 2020	Licensee	USFWS, PBFC, WVDNR	Revised Draft Mussel survey plan distributed
July 9,,2020	Licensee	Distribution List	Emailed final Study Plan
July 21, 2020	WVDNR	Licensee	Comments on Draft Mussel survey plan
August 3,,2020	PFBC	Licensee	Comments on Draft Mussel survey plan

Date	From	To	Description
August 25, 2020	Licensee	USFWS, WVDNR, WVDEP, PDEP, PFBC	Provided revised Flow Duration Curves as part of collaborate on Streamflow Data and suggested that another call could be scheduled if there were further comments or requests
September 9, 2020	WVDNR	Licensee	WVDNR approved the Mussel Survey Study Plan
September 11, 2020	PFBC	Licensee	PFBC approved the Mussel Survey Study Plan
October 26, 2020	Licensee	WVSHPO	Submitted request for Section 106 Review for Compliance
October 26, 2020	Licensee	PASHPO	Submitted Section 106 Review for Compliance
January 29, 2021	Licensee	Distribution List	Provided draft entrainment for review and comment
January 29, 2021	Licensee	Distribution List	Provided draft mussel survey report for review and comment
July 30, 2021	Licensee	Distribution List	Provided draft recreation assessment for review and comment
August 5, 2022	Licensee	FERC and Distribution List	Filed DLA with FERC and distributed DLA to Distribution List
August 12, 2022	Oneida Nation	Licensee	Email indicating they have no comments on the DLA
November 3, 2022	FERC	Licensee	Comments on DLA
November 4, 2022	Licensee	WVDNR	Email requesting concurrence with nature viewing area removal
November 7, 2022	WVDNR	FERC. Licensee	Comments on DLA
November 8, 2022	CLEAR	Licensee	Comments on DLA
November 11, 2022	Licensee	PA Coast Resources Program	Email requesting concurrence that project is not located within coastal zone
November 30, 2022	Licensee	FERC and Distribution List	Filed FLA with FERC and distributed FLA to Distribution List

Date	From	To	Description
February 24, 2023	Licensee	PA Coast Resources Program	Email requesting concurrence that project is not located within coastal zone
April 20, 2023	Licensee	PA Coast Resources Program	Email requesting concurrence that project is not located within coastal zone
April 25, 2023	PA Coast Resources Program	Licensee	Email concurring that the project is not located within coastal zone
March 4, 2024	Licensee	Avian Conservation Center of Appalachia	Email requesting specific information regarding Lake Lynn Project and observed interactions between birds/wildlife and Project transmission facilities/Project
March 8, 2024	Licensee	USFWS Ecological Services Field Office	Email requesting information on seasonal habitat tricolored bat zones
March 15, 2024	Licensee	USFWS Ecological Services Field Office and WVDNR Wildlife Resources Section	Email requesting specific information regarding Lake Lynn Project and observed interactions between birds/wildlife and Project transmission facilities/Project
April 5, 2024	Licensee	USFWS	IPAC system review
April 5, 2024	Licensee	USFWS	Species list request

Foster, Joyce

From: Blair, Michelle A.
Sent: Monday, May 20, 2019 3:06 PM
To: Absentee-Shawnee Tribe of Oklahoma; Amanda Pitzer; Anita Carter; Betty Wiley; Bob Irvin; Bonney Hartley; Brett Barnes; Brian Bridgewater; Brice Obermeyer; Bryan Printup; Cassie Harper; Clint Halftown; Colleen McNally-Murphy; Coopers Rock State Forest; Cosmo Servidio; Curtis Schreffler; Dana Kelly; Danny Bennett; Darren Bonaparte; David Wellman; Delaware Nation, Oklahoma; Delaware Tribe of Indians; Duane Nichols; Eastern Shawnee Tribe of Oklahoma; Edgewater Marina; Ella Belling; Heather Smiles; Jacob Harrell; Jay Toth; Jesse Bergevin; John

1

To: Spain; Kevin Colburn; Kevin Mendik; Laura Misita; Megan Gottlieb; Mike Strager; Oneida Indian Nation; Oneida Tribe of Indians of Wisconsin; Onondaga Nation; Renetta McClure; Richard McCorkle; Sean P McDermott; Shannon Holsey; Shaun Wicklein; Steve Moyer; Steve Moyer (smoyer@tu.org); Stuart Welsh; Sunset Beach Marina; Susan Bachor; Susan Pierce; Tonawanda Band of Seneca; Tonya Tipton; Vincent Vicites; William Fisher; William Tarrant
Cc: jsmet@cubehydro.com; Foster, Joyce
Subject: Information Request for the Pre-Application Document for Relicensing of the Lake Lynn Hydroelectric Project (FERC No. 2459)
Attachments: LLG PAD Info-TLP Request Letter_5-20-19.pdf

Good afternoon-

2

Attached is an Information Request for the Pre-Application Document for the FERC relicensing of the Lake Lynn Hydroelectric Project (FERC No. 2459).

Please provide your comments within 30 days of this letter. If you have any questions regarding this request please contact Jody Smet at jsmet@cubehydro.com or Joyce Foster at jfoster@trccompanies.com.

Thank you,
Michelle

Michelle Blair
Project Coordinator

3



14 Gabriel Drive, Augusta, ME 04330
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4

Lake Lynn Generation, LLC
Two Bethesda Metro Center, Suite
1330 Bethesda, MD 20814

May 20, 2019

DISTRIBUTION LIST

RE: Information Request for the Pre-Application Document for Relicensing of the Lake Lynn Hydroelectric Project (FERC No. 2459)

Dear Recipient:

The current Federal Energy Regulatory Commission (FERC) license for the Lake Lynn Hydroelectric Project (Project) expires on November 30, 2024. The Project is owned and operated by Lake Lynn Generation, LLC (LLG). In accordance with FERC's regulations, LLG must file a Notice of Intent (NOI) to relicense the Project with FERC between May 30, 2019 and November 30, 2019. At the same time, LLG is required to file a Pre-Application Document (PAD) for the Project. The PAD will provide FERC, agencies, local governments, and interested parties with existing, relevant, and reasonably available information that pertains to the Project. The information will then be used to identify potential issues and help identify any information needs and related study plans for the relicensing.

The Project is located on the Cheat River in Monongalia County, West Virginia and Fayette County, Pennsylvania approximately 8 miles northeast of Morgantown, West Virginia and about 3.7 miles upstream of the confluence of the Cheat River with the Monongahela River. The Project dam is located in Monongalia County, West Virginia, while most of the tailrace area is in Fayette County, Pennsylvania. Major features of the Project include a 1,000-foot long concrete gravity dam, a 624-foot long spillway, a powerhouse near the east abutment of the dam with four generating units, and a reservoir that is approximately 13 miles long with a surface area of approximately 1,700 acres. The Project operates as a daily peaking facility and the current Project license requires that the Project release into the Cheat River a minimum flow of 212 cubic feet per second (cfs), or inflow to the Project reservoir, whichever is less, with an absolute minimum release flow of 100 cfs regardless of reservoir inflow, evaporation or other withdrawals. The current Project license also requires that the Licensee maintain the Project reservoir at a surface elevation between 868 feet National Geodetic Vertical Datum (NGVD) and 870 feet NGVD from May 1 to October 31, between 857 feet NGVD and 870 feet NGVD from November 1 to March 31, and between 863 feet NGVD and 870 feet NGVD from April 1 to April 30.

We are writing to initiate additional information gathering for the Project and to request your input. The purpose of this letter is to request your assistance in identifying existing relevant and reasonably available information, which cannot be obtained online, that describes either the existing environmental conditions at the Project or any known or potential effects of continuing Project operations. Project resources that will be described in the PAD, and which we would be interested in information about, include water use and water quality, fish and aquatics, wildlife resources, terrestrial resources, rare species, recreation use and facilities, and cultural and tribal resources. We will compile this information with information already in our possession for

May 20, 2019

Lake Lynn Hydroelectric Project (FERC No. 2459) Information Request

incorporation into the PAD. Your response to this request for information within 30 days would be appreciated.

In addition, LLG plans to request FERC approval to use FERC's Traditional Licensing Process (TLP) for the relicensing instead of the Integrated Licensing Process (ILP) (FERC's default process for relicensing) because we believe the TLP will be the most efficient, effective, and least burdensome process for relicensing the Project. Both the TLP and ILP processes provide opportunities for agency/stakeholder/public engagement and input. The TLP is more streamlined and less complex with fewer process steps and; therefore, is less demanding of agency/stakeholder's time and resources. The TLP does not have a strict timeline and provides more flexibility for completion of the various steps of the licensing process. The Project is an existing FERC-licensed project with existing requirements for minimum flow and reservoir surface elevation that has well-known and understood impacts. There is a large amount of resource information and data available for the Project based on monitoring and reporting efforts that have occurred since the most recent relicensing of the Project in 1995, including shoreline erosion surveys, water quality monitoring (including dissolved oxygen, temperature, pH, and conductivity in Cheat Lake and downstream of the Project), recreation use monitoring, and information collected and reported in accordance with the Biological Monitoring Plan. The resource agencies that will be involved in the relicensing process for the Project have knowledge of the Project from the various resource monitoring and reporting efforts that have occurred under the existing FERC license. LLG and the agencies are aware of the issues likely to be raised during the relicensing. LLG does not anticipate that the relicensing will involve complex issues, study needs, or controversy that cannot be resolved with a properly implemented cooperative TLP.

Please provide your comments within 30 days of this letter on the use of the TLP for the relicensing of this Project.

We thank you in advance for providing any pertinent information that meets the criteria for inclusion in the PAD. We look forward to working with you throughout the process. If you have any questions regarding the Project or the relicensing process, please contact either me at jsmet@cubehydro.com or Joyce Foster at TRC Companies at jfoster@trccompanies.com.

Sincerely,

A handwritten signature in cursive script that reads "Jody J Smet".

Jody Smet
Lake Lynn Generation, LLC

**Lake Lynn Generation, LLC
Lake Lynn Project (P-2459)
Distribution List May 20, 2019**

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The Honorable Bob Casey
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Foster, Joyce

From: Jody Smet <jsmet@cubehydro.com>
Sent: Monday, June 10, 2019 10:40 AM
To: Foster, Joyce
Subject: FW: Lake Lynn Relicensing - Relicensing Process ILP v. TLP

Jody J. Smet, AICP
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1

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jsmet@cubehydro.com (Please note new email address)



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2

From: Jody Smet
Sent: Thursday, May 30, 2019 10:45 AM
To: 'Duane Nichols' <duane330@aol.com>
Subject: Lake Lynn Relicensing - Relicensing Process ILP v. TLP

Duane,

I'm sorry that we did not connect on Tuesday, and I understand that you were out yesterday. I have a pretty full day today, so I wanted to email you about your question in case we don't find a time to connect today. The following bullets compare/contrast the Integrated Licensing Process (ILP) and the Traditional Licensing Process (TLP). The ILP is FERC's default process, but we are considering requesting FERC's approval to use the TLP, and are interested in your, and others', feedback.

3

- The TLP and ILP differ mainly in how they coordinate the applicant's pre-filing activities (i.e., before filing the license application), especially study plan development, with National Environmental Policy Act (NEPA) review
- The ILP combines pre-filing consultation with FERC's scoping in accordance with NEPA while these are conducted sequentially in the TLP
- Both the TLP and ILP provide opportunities for stakeholder and public participation throughout the process (and before the filing of the license application)
- The ILP has strict deadlines for FERC, stakeholders, and the applicant. The TLP provides more flexibility for the applicant and stakeholders to complete various steps in the licensing process because it does not have a strict timeline. Although strict deadlines imposed by the ILP may be helpful to keep participating stakeholders on task, these deadlines may also prove unworkable under some circumstances.

4

- The ILP process is more complex with more process steps and, therefore, is more demanding of stakeholder's time and resources. The TLP has less required process steps.
- The ILP has a structured, intensive, and time-constrained study plan development process and study review process. Although the TLP does not have a required study plan development process, we intend for the Lake Lynn relicensing to be collaborative with stakeholders.
- FERC staff is involved early and throughout the ILP while FERC involvement in the TLP is later (after the license application is filed). However, FERC is available for guidance throughout the TLP.
- Of the 19 hydro projects licensed by FERC in the past 4 years in PA and WV, 12 of those used the TLP and 7 used the ILP. Therefore, the WV and PA resource agencies are more likely to be familiar with the TLP.

5

Please let me know if you would like to discuss further and we can schedule a time to talk.

Thanks,

Jody J. Smet, AICP
Director, FERC Licensing and Compliance
(O) 804-739-0654
(C) 804-382-1764
jsmet@cubehydro.com (Please note new email address)



6

CONFIDENTIALITY NOTICE: This e-mail and any files transmitted with it are confidential and intended solely for the use of the individual or entity to which they are addressed. If you are not the intended recipient, you may not review, copy, or distribute this message. If you have received this email in error, please notify the sender immediately and delete the original message. Neither the sender nor the company for which he or she works accepts any liability for damage caused by any virus transmitted by this email

Foster, Joyce

From: Blair, Michelle A.
Sent: Wednesday, June 12, 2019 9:53 AM
To: Absentee-Shawnee Tribe of Oklahoma; Amanda Pitzer; Anita Carter; Betty Wiley; Bob Irvin; Bonney Hartley; Brett Barnes; Brian Bridgewater; Brice Obermeyer; Bryan Printup; Cassie Harper; Clint Halftown; Colleen McNally-Murphy; Coopers Rock State Forest; Cosmo Servidio; Curtis Schreffler; Dana Kelly; Danny Bennett; Darren Bonaparte; David Wellman; Delaware Nation, Oklahoma; Delaware Tribe of Indians; Duane Nichols; Eastern Shawnee Tribe of Oklahoma; Edgewater Marina; Ella Belling; Heather Smiles; Jacob Harrell; Jay Toth; Jesse Bergevin; John

1

To: Spain; Kevin Colburn; Kevin Mendik; Laura Misita; Megan Gottlieb; Mike Strager; Oneida Indian Nation; Oneida Tribe of Indians of Wisconsin; Onondaga Nation; Renetta McClure; Richard McCorkle; Sean P McDermott; Shannon Holsey; Shaun Wicklein; Steve Moyer; Steve Moyer (smoyer@tu.org); Stuart Welsh; Sunset Beach Marina; Susan Bachor; Susan Pierce; Tonawanda Band of Seneca; Tonya Tipton; Vincent Vicites; William Fisher; William Tarrant
Cc: jsmet@cubehydro.com; Foster, Joyce
Subject: REMINDER: Information Request for the Pre-Application Document for Relicensing of the Lake Lynn Hydroelectric Project (FERC No. 2459)
Attachments: LLG PAD Info-TLP Request Letter_5-20-19.pdf
Importance: High

2

Good morning -

Attached is an Information Request for the Pre-Application Document for the FERC relicensing of the Lake Lynn Hydroelectric Project (FERC No. 2459).

As a reminder, please provide your comments within 30 days of this letter (by June 20). If you have any questions regarding this request please contact Jody Smet at jsmet@cubehydro.com or Joyce Foster at jfoster@trccompanies.com.

Thank you,
Michelle

3

Michelle Blair
Project Coordinator



14 Gabriel Drive, Augusta, ME 04330
T 207.620.3845 | F 207.621.8226 | mblair@trccompanies.com
[LinkedIn](#) | [Twitter](#) | [Blog](#) | TRCcompanies.com

4

Lake Lynn Generation, LLC
Two Bethesda Metro Center, Suite
1330 Bethesda, MD 20814

May 20, 2019

DISTRIBUTION LIST

RE: Information Request for the Pre-Application Document for Relicensing of the Lake Lynn Hydroelectric Project (FERC No. 2459)

Dear Recipient:

The current Federal Energy Regulatory Commission (FERC) license for the Lake Lynn Hydroelectric Project (Project) expires on November 30, 2024. The Project is owned and operated by Lake Lynn Generation, LLC (LLG). In accordance with FERC's regulations, LLG must file a Notice of Intent (NOI) to relicense the Project with FERC between May 30, 2019 and November 30, 2019. At the same time, LLG is required to file a Pre-Application Document (PAD) for the Project. The PAD will provide FERC, agencies, local governments, and interested parties with existing, relevant, and reasonably available information that pertains to the Project. The information will then be used to identify potential issues and help identify any information needs and related study plans for the relicensing.

The Project is located on the Cheat River in Monongalia County, West Virginia and Fayette County, Pennsylvania approximately 8 miles northeast of Morgantown, West Virginia and about 3.7 miles upstream of the confluence of the Cheat River with the Monongahela River. The Project dam is located in Monongalia County, West Virginia, while most of the tailrace area is in Fayette County, Pennsylvania. Major features of the Project include a 1,000-foot long concrete gravity dam, a 624-foot long spillway, a powerhouse near the east abutment of the dam with four generating units, and a reservoir that is approximately 13 miles long with a surface area of approximately 1,700 acres. The Project operates as a daily peaking facility and the current Project license requires that the Project release into the Cheat River a minimum flow of 212 cubic feet per second (cfs), or inflow to the Project reservoir, whichever is less, with an absolute minimum release flow of 100 cfs regardless of reservoir inflow, evaporation or other withdrawals. The current Project license also requires that the Licensee maintain the Project reservoir at a surface elevation between 868 feet National Geodetic Vertical Datum (NGVD) and 870 feet NGVD from May 1 to October 31, between 857 feet NGVD and 870 feet NGVD from November 1 to March 31, and between 863 feet NGVD and 870 feet NGVD from April 1 to April 30.

We are writing to initiate additional information gathering for the Project and to request your input. The purpose of this letter is to request your assistance in identifying existing relevant and reasonably available information, which cannot be obtained online, that describes either the existing environmental conditions at the Project or any known or potential effects of continuing Project operations. Project resources that will be described in the PAD, and which we would be interested in information about, include water use and water quality, fish and aquatics, wildlife resources, terrestrial resources, rare species, recreation use and facilities, and cultural and tribal resources. We will compile this information with information already in our possession for

May 20, 2019
Lake Lynn Hydroelectric Project (FERC No. 2459) Information Request

incorporation into the PAD. Your response to this request for information within 30 days would be appreciated.

In addition, LLG plans to request FERC approval to use FERC's Traditional Licensing Process (TLP) for the relicensing instead of the Integrated Licensing Process (ILP) (FERC's default process for relicensing) because we believe the TLP will be the most efficient, effective, and least burdensome process for relicensing the Project. Both the TLP and ILP processes provide opportunities for agency/stakeholder/public engagement and input. The TLP is more streamlined and less complex with fewer process steps and; therefore, is less demanding of agency/stakeholder's time and resources. The TLP does not have a strict timeline and provides more flexibility for completion of the various steps of the licensing process. The Project is an existing FERC-licensed project with existing requirements for minimum flow and reservoir surface elevation that has well-known and understood impacts. There is a large amount of resource information and data available for the Project based on monitoring and reporting efforts that have occurred since the most recent relicensing of the Project in 1995, including shoreline erosion surveys, water quality monitoring (including dissolved oxygen, temperature, pH, and conductivity in Cheat Lake and downstream of the Project), recreation use monitoring, and information collected and reported in accordance with the Biological Monitoring Plan. The resource agencies that will be involved in the relicensing process for the Project have knowledge of the Project from the various resource monitoring and reporting efforts that have occurred under the existing FERC license. LLG and the agencies are aware of the issues likely to be raised during the relicensing. LLG does not anticipate that the relicensing will involve complex issues, study needs, or controversy that cannot be resolved with a properly implemented cooperative TLP.

Please provide your comments within 30 days of this letter on the use of the TLP for the relicensing of this Project.

We thank you in advance for providing any pertinent information that meets the criteria for inclusion in the PAD. We look forward to working with you throughout the process. If you have any questions regarding the Project or the relicensing process, please contact either me at jsmet@cubehydro.com or Joyce Foster at TRC Companies at jfoster@trccompanies.com.

Sincerely,



Jody Smet
Lake Lynn Generation, LLC

**Lake Lynn Generation, LLC
Lake Lynn Project (P-2459)
Distribution List May 20, 2019**

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The Honorable Joe Manchin III
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The Honorable Shelley Capito
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The Honorable David McKinley
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The Honorable Bob Casey
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Angie Rosser
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Cheat Lake, WV 26508

Edgewater Marina
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PHONE LOG

Date: June 12, 2019

Participants: Joyce Foster, TRC for Licensee
Anita Carter, Greystone-on-the Cheat

Subject: Lake Lynn Project Relicensing – Information Request for the PAD

Prepared by: Joyce Foster

Conversation Summary:

Joyce Foster returned a call from Anita Carter. Ms. Carter received the Information Request for the PAD and wanted to clarify that this was intended for Greystone-on-the Cheat. Joyce explained that the letter/email was sent to her as the contact for the Greystone-on-the Cheat. Ms. Carter indicated that she is forwarding the letter to the President of the Greystone-on-the-Cheat but asked that we keep her on the list as the main contact for the association. Joyce stated that copies of what is filed with FERC and other communications with stakeholder will be sent to her as the contact.

Foster, Joyce

From: Murray, Nick S <Nick.S.Murray@wv.gov>
Sent: Tuesday, June 18, 2019 9:23 AM
To: Effler, Hayley
Cc: Foster, Joyce
Subject: RE: WV ambient water quality
Attachments: Cheat River TRC.xlsx; Blank Facts Sheet Form TRC.docx

Hayley,

1

Please see that attached spreadsheet and Word document. This is data from our database for all years of data from these sites. It was just as easy to select all years as the last 10.

Please feel free to contact me again with any questions,

Nicholas Murray
Environmental Resource Specialist Supervisor
WV DEP - Watershed Assessment Branch
601 57th Street S.E.
Charleston WV 25304
Office: (304)926-0499 Ext 1034
Cell: (304) 389-8716

2

From: [Elizabeth Toombs](#)
To: jsmet@cubehydro.com; [Foster, Joyce](#)
Subject: FERC 2459, Lake Lynn Hydroelectric Project
Date: Wednesday, June 19, 2019 11:54:31 AM

Good Morning, Ms. Smet and Ms. Foster:

The Cherokee Nation recently received a review request for the Relicensing of the Lake Lynn Hydroelectric Project in Monongalia County, West Virginia and Fayette County, Pennsylvania. Both Monongalia County and Fayette County are outside the Cherokee Nation's Area of Interest. Thus, this Office respectfully defers to federally recognized Tribes that have an interest in this landbase.

Thank you for the opportunity to comment upon this proposed undertaking. Please contact me if there are any questions or concerns.

Wado,

Elizabeth Toombs, Tribal Historic Preservation Officer
Cherokee Nation
Tribal Historic Preservation Office
PO Box 948
Tahlequah, OK 74465-0948
918.453.5389

From: Amanda Pitzer <amanda@cheat.org>
Sent: Wednesday, June 19, 2019 3:05 PM
To: Robert Flickner <rflickner@cubehydro.com>
Cc: Garrett Thompson <gthompson@cheat.org>
Subject: FERC docket number

Hi Bob,

FOC wants to submit comments on the pre-application but the docket # (2459) doesn't include a letter at the beginning, so the e-file system won't work for us.

Do we have the correct docket number? Do we use e-file or send them directly to you?

Sincerely,

Amanda

--

Amanda J. Pitzer

Executive Director

Friends of the Cheat

NEW ADDRESS EFFECTIVE IMMEDIATELY!
1343 North Preston Highway, Kingwood, WV 26537

Working to restore, preserve, and protect the outstanding natural qualities of the Cheat River watershed since 1994

www.cheat.org

www.cheatriverwatertrail.org

www.cheatfest.org

From: [Foster, Joyce](#)
To: amanda@cheat.org
Cc: [Jody Smet](#); [Robert Flickner - MAH](#); gthompson@cheat.org
Subject: RE: FERC docket number
Date: Wednesday, June 19, 2019 4:39:00 PM
Attachments: [image003.png](#)

Good afternoon,

Your request to Bob Flickner was forwarded to me since I am the consultant assisting with the FERC relicensing process for the Lake Lynn Hydroelectric Project. Since this request is for information or data that you would like to see included in the Pre-application Document (PAD) and comments on the use of the Traditional Licensing Process, please submit this directly to Jody Smet (the Licensee's FERC Licensing Director for the Lake Lynn Project) at jsmet@cubehydro.com and me at jfoster@trccompanies.com. Copies of submittals received will be included with the PAD that will be filed with the Federal Energy Regulatory Commission (FERC) in the Project docket.

If you would also like to file a copy of your response in the FERC docket, you can use the link below to register with FERC for an account:
<https://www.ferc.gov/docs-filing/eregistration.asp?csrt=5854337081307807941>. Once you have registered for a FERC account, you can file comments using the link below and referencing the FERC project number, using the prefix "P-" (e.g., use P-2459) in the submission:
<https://www.ferc.gov/docs-filing/efiling.asp?csrt=5854337081307807941>.

We look forward to working with you throughout the relicensing process. If you have any questions regarding the Project or the relicensing process, please feel free to contact Jody Smet at jsmet@cubehydro.com or me at jfoster@trccompanies.com.

Thanks,

Joyce Foster
Planner



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[LinkedIn](#) | [Twitter](#) | [Blog](#) | TRCcompanies.com

Please note that our domain name and email addresses have changed

From: Amanda Pitzer <amanda@cheat.org>
Sent: Wednesday, June 19, 2019 3:05 PM
To: Robert Flickner <rflickner@cubehydro.com>
Cc: Garrett Thompson <gthompson@cheat.org>
Subject: FERC docket number

CAUTION: This email originated from outside your organization. Exercise caution when opening attachments or clicking links, especially from unknown senders.

Hi Bob,

FOC wants to submit comments on the pre-application but the docket # (2459) doesn't include a letter at the beginning, so the e-file system won't work for us.

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Sincerely,

Amanda

--

Amanda J. Pitzer

Executive Director

Friends of the Cheat

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www.cheat.org

www.cheatriverwatertrail.org

www.cheatfest.org

From: "Norman, Janet" <janet_norman@fws.gov>
Date: June 19, 2019 at 6:06:25 PM GMT+2
To: <jsmet@cubehydro.com>
Subject: **Ipac consultation done?**

CAUTION: This email originated from outside your organization. Exercise caution when opening attachments or clicking links, especially from unknown senders.

Hi Jody,

I don't have your phone number, and was hoping to talk to you regarding the Lake Lynn re-licensing information search. Wanted to go over some of the specifics of the Ipac process, if we can?

Here is my phone, below, and I will be back in the office by 1pmish.

Thanks.

Janet

--

Janet Norman
Biologist
U.S. Fish and Wildlife Service
Chesapeake Bay Field Office
177 Admiral Cochrane Dr.
Annapolis, MD 21401
Office: 410-573-4533
Fax: 410-269-0832
Janet_Norman@fws.gov
www.fws.gov/chesapeakebay

PHONE LOG

Date: June 19, 2019

Participants: Joyce Foster, TRC for Licensee
Janet Norman, USFWS

Subject: Lake Lynn Project Relicensing – Information Request for the PAD

Prepared by: Joyce Foster

Conversation Summary:

Joyce Foster returned a call I spoke to Janet Norman. Ms. Norman asked if the Licensee completed the IPaC review as an official consultation (with log in to receive a consultation number) or as unofficial. Joyce explained that TRC performed the IPaC review as unofficial for the PAD. Ms. Norman asked if we could provide her with the Shapefile for the Project area that was used for the IPaC review. Joyce indicated that she would provide her with a Project boundary shapefile, once the revised file was available. Ms. Norman requested the Licensee's contact information/phone number.

From: Harrell, Jacob D <Jacob.D.Harrell@wv.gov>
Sent: Wednesday, June 19, 2019 2:57 PM
To: Jody Smet <jsmet@cubehydro.com>
Subject: Information request: Lake Lynn

CAUTION: This email originated from outside your organization. Exercise caution when opening attachments or clicking links, especially from unknown senders.

Jody,

Just for clarification purposes on our end, regarding the information request for the Lake Lynn Hydroelectric Project, this request is for information from WVDNR to use in informing the NOI/PAD, correct? There may be some confusion here that the request is for studies that we might request for the relicensing, though I think that would come after the PAD has been submitted and following the first scoping meeting. I want to make sure I have this correct.

Thanks,

Jacob Harrell

Coordination Unit
WVDNR – Wildlife Resources Section
1110 Railroad Street
Farmington, WV 26571
(304)704-9328
Jacob.D.Harrell@wv.gov

Foster, Joyce

From: Jody Smet <jsmet@cubehydro.com>
Sent: Wednesday, June 19, 2019 3:41 PM
To: Harrell, Jacob D
Cc: Foster, Joyce
Subject: RE: Information request: Lake Lynn

Jacob,

Good to hear from you. This request is just for information or data that you would like to see included in the PAD; study requests will come a little later in the process.

1

Thanks for checking,

Jody J. Smet, AICP
Director, FERC Licensing and Compliance
(O) 804-739-0654
(C) 804-382-1764
jsmet@cubehydro.com (Please note new email address)



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2

this message. If you have received this email in error, please notify the sender immediately and delete the original message. Neither the sender nor the company for which he or she works accepts any liability for damage caused by any virus transmitted by this email

From: Harrell, Jacob D <Jacob.D.Harrell@wv.gov>
Sent: Wednesday, June 19, 2019 2:57 PM
To: Jody Smet <jsmet@cubehydro.com>
Subject: Information request: Lake Lynn

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3

Jody,

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Thanks,

Jacob Harrell

Coordination Unit

4

WVDNR – Wildlife Resources Section
1110 Railroad Street
Farmington, WV 26571
(304)704-9328
Jacob.D.Harrell@wv.gov

From: Webber, Tina <twebber@pa.gov>
Sent: Wednesday, June 19, 2019 12:52 PM
To: jfoster@trccompanies.com
Cc: Jody Smet <jsmet@cubehydro.com>
Subject: C_19891217051MM.pdf

CAUTION: This email originated from outside your organization. Exercise caution when opening attachments or clicking links, especially from unknown senders.

Thank you for contacting the Pennsylvania State Historic Preservation Office (SHPO) for project review in accordance with state and federal laws. Our response is attached to this email. A hard copy will not follow in the mail unless requested. If this review requires a response, please mail to the address below; we cannot accept electronic submissions. This message is being sent on behalf of the SHPO review staff. If you have any questions about this review, please contact the appropriate reviewer. A list of reviewers by region and discipline is available at: <http://www.phmc.pa.gov/Preservation/Project-Review/Pages/Contact-Information.aspx>

If you have questions regarding our review for above ground, please contact Cheryl Nagle at chnagle@pa.gov.

*Tina Webber/Clerk Typist II
PHMC/PA State Historic Preservation Office
400 North Street, 2nd Floor/Harrisburg, PA 17120-0093
Phone: (717) 705-4036/Fax: (717) 772-0920
twebber@pa.gov*

Pennsylvania has a new statewide historic preservation plan! [Check it out](#) and learn how we can work together to make sure [#preservationhappenshere](#) in Pennsylvania every day.



June 19, 2019

Jody Smet
Lake Lynn Generation, LLC
Two Bethesda Metro Center, Suite 1330
Bethesda, MD 20814

Re: File No. ER 1989-1217-051-MM
FERC No. 2459: Information Request for Pre-Application Document for Relicensing of
Lake Lynn Hydroelectric Project, Lake Lynn, Fayette County

Dear Ms. Smet:

Thank you for submitting information concerning the above referenced project. The Pennsylvania State Historic Preservation Office (PA SHPO) reviews projects in accordance with state and federal laws. Section 106 of the National Historic Preservation Act of 1966, and the implementing regulations (36 CFR Part 800) of the Advisory Council on Historic Preservation, is the primary federal legislation. The Environmental Rights amendment, Article 1, Section 27 of the Pennsylvania Constitution and the Pennsylvania History Code, 37 Pa. Cons. Stat. Section 500 *et seq.* (1988) is the primary state legislation. These laws include consideration of the project's potential effects on both historic and archaeological resources.

Above Ground Resources

A preliminary review of this project indicates that there may be National Register-eligible above ground resources in the project area. In order to facilitate the review process, the agency, or applicant acting on their behalf, must conduct surveys to identify these resources before final plans are developed. For more information on survey strategies and methodologies, please consult the *Guidelines for Architectural Investigations in Pennsylvania* and/or other relevant guidelines available here:

<http://www.phmc.pa.gov/Preservation/About/Pages/Forms-Guidance.aspx>.

Archaeological Resources

There is a high probability that archaeological resources are located in this project area. In our opinion, the activity described in your proposal should have no effect on such resources. Should the scope of the project be amended to include additional ground disturbing activity this office should be contacted immediately and a Phase I Archaeological Survey may be necessary to locate all potentially significant archaeological resources.

Page 2
June 19, 2019
ER No. 1989-1217-051-MM

If you need further information in this matter, please contact Cheryl L. Nagle at chnagle@pa.gov or (717) 772-4519.

Sincerely,



Douglas C. McLearen, Chief
Division of Environmental Review

DCM/tmw

Foster, Joyce

From: Foster, Joyce
Sent: Thursday, June 20, 2019 8:48 AM
To: janet_norman@fws.gov
Cc: Jody Smet
Subject: Lake Lynn Project (FERC No. 2459) - Ipac consultation done

Janet,

As follow-up to our conversation related to the Lake Lynn Project FERC relicensing, I will send you the Shapefile for the Project that we used for the IPaC unofficial resource/species

1

list as soon as it is available, hopefully later today. Our GIS staff is currently correcting an error in the Project area polygon and we will rerun the IPaC unofficial review using this corrected Shapefile.

As we discussed, I am also sending you the contact information for Jody Smet, the Project Licensee:

Jody J. Smet, AICP
Director, FERC Licensing and Compliance
(O) 804-739-0654
(C) 804-382-1764
jsmet@cubehydro.com

2

As I mentioned, I am the consultant assisting with the relicensing process. My contact information is below:

Joyce Foster

TRC

804-769-1667 (office)

804-338-5110 (cell)

jfoster@trccompanies.com

We are looking forward to working with you.

Joyce Foster

Planner

3



179 Clarks Lane, Aylett, VA 23009

T 804.769.1667 | C 804.338.5110

[LinkedIn](#) | [Twitter](#) | [Blog](#) | TRCcompanies.com

Please note that our domain name and email addresses have changed

Begin forwarded message:

From: "Norman, Janet" <janet_norman@fws.gov>

Date: June 19, 2019 at 6:06:25 PM GMT+2

To: <jsmet@cubehydro.com>

Subject: **Ipac consultation done?**

4

CAUTION: This email originated from outside your organization.
Exercise caution when opening attachments or clicking links,
especially from unknown senders.

Hi Jody,

I don't have your phone number, and was hoping to talk to you
regarding the Lake Lynn re-licensing information search. Wanted to
go over some of the specifics of the Ipac process, if we can?

Here is my phone, below, and I will be back in the office by 1pmish.

Thanks.

Janet

5

--

Janet Norman

Biologist

U.S. Fish and Wildlife Service

Chesapeake Bay Field Office

177 Admiral Cochrane Dr.

Annapolis, MD 21401

Office: 410-573-4533

Fax: 410-269-0832

Janet_Norman@fws.gov

www.fws.gov/chesapeakebay

6

Foster, Joyce

From: Norman, Janet <janet_norman@fws.gov>
Sent: Thursday, June 20, 2019 11:18 AM
To: Foster, Joyce
Cc: Jody Smet
Subject: Re: [EXTERNAL] Lake Lynn Project (FERC No. 2459) - Ipac consultation done

Terrific, thank you Joyce.

1

I appreciate the follow up information.

Janet

On Thu, Jun 20, 2019 at 8:48 AM Foster, Joyce <JFoster@trccompanies.com> wrote:

Janet,

As follow-up to our conversation related to the Lake Lynn Project FERC relicensing, I will send you the Shapefile for the Project that we used for the IPaC unofficial resource/species list as soon as it is available, hopefully later today. Our GIS staff is currently correcting an

2

error in the Project area polygon and we will rerun the IPaC unofficial review using this corrected Shapefile.

As we discussed, I am also sending you the contact information for Jody Smet, the Project Licensee:

Jody J. Smet, AICP

Director, FERC Licensing and Compliance

3

(O) 804-739-0654

(C) 804-382-1764

jsmet@cubehydro.com

As I mentioned, I am the consultant assisting with the relicensing process. My contact information is below:

Joyce Foster

4

TRC

804-769-1667 (office)

804-338-5110 (cell)

jfoster@trccompanies.com

We are looking forward to working with you.

5

Joyce Foster
Planner



179 Clarks Lane, Aylett, VA 23009

T 804.769.1667 | **C** 804.338.5110

[LinkedIn](#) | [Twitter](#) | [Blog](#) | TRCcompanies.com

Please note that our domain name and email addresses have changed

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Begin forwarded message:

From: "Norman, Janet" <janet_norman@fws.gov>
Date: June 19, 2019 at 6:06:25 PM GMT+2
To: <jsmet@cubehydro.com>
Subject: **lpac consultation done?**

CAUTION: This email originated from outside your organization. Exercise caution when opening attachments or clicking links, especially from unknown senders.

7

Hi Jody,

I don't have your phone number, and was hoping to talk to you regarding the Lake Lynn re-licensing information search. Wanted to go over some of the specifics of the lpac process, if we can?

Here is my phone, below, and I will be back in the office by 1pmish.

Thanks.

Janet

8

--

Janet Norman

Biologist

U.S. Fish and Wildlife Service

Chesapeake Bay Field Office

177 Admiral Cochrane Dr.

9

Annapolis, MD 21401

Office: 410-573-4533

Fax: 410-269-0832

Janet_Norman@fws.gov

www.fws.gov/chesapeakebay

10

--

Janet Norman
Biologist
U.S. Fish and Wildlife Service
Chesapeake Bay Field Office
177 Admiral Cochrane Dr.
Annapolis, MD 21401
Office: 410-573-4533
Fax: 410-269-0832
Janet_Norman@fws.gov
www.fws.gov/chesapeakebay

Foster, Joyce

From: Blair, Michelle A.
Sent: Thursday, June 20, 2019 1:58 PM
To: Foster, Joyce; jsmet@cubehydro.com
Subject: FW: [External] REMINDER: Information Request for the Pre-Application Document for Relicensing of the Lake Lynn Hydroelectric Project (FERC No. 2459)

1

From: Smiles, Heather A <hsmiles@pa.gov>
Sent: Thursday, June 20, 2019 1:52 PM
To: Blair, Michelle A. <mblair@trccompanies.com>
Subject: RE: [External] REMINDER: Information Request for the Pre-Application Document for Relicensing of the Lake Lynn Hydroelectric Project (FERC No. 2459)

Michelle,

The PFBC agrees with the use of the Traditional Licensing Process (TLP) for the relicensing of the Lake Lynn Hydroelectric Project. Additionally, the PFBC has been involved in the review of biological monitoring information and has had opportunities to provide comments on future monitoring. Therefore, the PFBC does not have any additional information requests at this time.

2

Thanks in advance,

Heather A. Smiles | Chief, Division of Environmental Services
PA Fish and Boat Commission
595 East Rolling Ridge Drive | Bellefonte, PA 16823
Phone: 814.359.5194
Email: hsmiles@pa.gov
www.fishandboat.com

From: Blair, Michelle A. <mblair@trccompanies.com>

Sent: Wednesday, June 12, 2019 9:53 AM

To: Absentee-Shawnee Tribe of Oklahoma <106NAGPRA@astribe.com>; Amanda Pitzer

3

<amanda@cheat.org>; Anita Carter <greystone.poa@hotmail.com>; Betty Wiley
<betty.w304@gmail.com>; Bob Irvin <birvin@americanrivers.org>; Bonney Hartley
<bonney.hartley@mohican-nsn.gov>; Brett Barnes <bbarnes@estoo.net>; Brian
Bridgewater <Brian.L.Bridgewater@wv.gov>; Brice Obermeyer
<bobermeyer@delawaretribe.org>; Bryan Printup <bprintup@hetf.org>; Cassie Harper
<cassie@shawnee-tribe.com>; Clint Halftown <clint.halftown@gmail.com>; Colleen
McNally-Murphy <colleen@hydroreform.org>; Coopers Rock State Forest
<coopersrocksf@wv.gov>; Cosmo Servidio <cosmo.servidio@epa.gov>; Curtis Schreffler
<clschref@usgs.gov>; Dana Kelly <dkelly@delawarenation.com>; Danny Bennett
<Danny.A.Bennett@wv.gov>; Darren Bonaparte <darren.bonaparte@srmt-nsn.gov>; David
Wellman <David.I.Wellman@wv.gov>; Delaware Nation, Oklahoma
<ec@delawarenation.com>; Delaware Tribe of Indians <cbrooks@delawaretribe.org>;
Duane Nichols <duane330@aol.com>; Eastern Shawnee Tribe of Oklahoma

4

<estochief@hotmail.com>; Edgewater Marina <edgewater@cheatlakedocks.com>; Ella Belling <ella@montrails.org>; Smiles, Heather A <hsmiles@pa.gov>; Jacob Harrell <Jacob.D.Harrell@wv.gov>; jay.toth@sni.org; Jesse Bergevin <jbergevin@oneida-nation.org>; John Spain <john.spain@ferc.gov>; Kevin Colburn <kevin@americanwhitewater.org>; Kevin Mendik <Kevin_Mendik@nps.gov>; Laura Misita <lmisita@oneida-nation.org>; Megan Gottlieb <Megan.K.Gottlieb@usace.army.mil>; Mike Strager <mstrager@gmail.com>; Oneida Indian Nation <info@oneida-nation.org>; Oneida Tribe of Indians of Wisconsin <cwilliam@oneidanation.org>; Onondaga Nation <admin@onondaganation.org>; Renetta McClure <rmcclure@moncommission.com>; Richard McCorkle <richard_mccorkle@fws.gov>; Sean P McDermott <Sean.McDermott@noaa.gov>; Shannon Holsey <shannon.holsey@mohican-nsn.gov>; Shaun Wicklein <smwickle@usgs.gov>; Steve Moyer <steve_moyer@tu.org>; Steve Moyer (smoyer@tu.org) <smoyer@tu.org>; Stuart Welsh <swelsh@wvu.edu>; Sunset Beach

5

Marina <info@sunsetbeach-marina.com>; Susan Bacher <sbacher@delawaretribe.org>; Susan Pierce <susan.m.pierce@wv.gov>; Tonawanda Band of Seneca <tonseneca@aol.com>; Tonya Tipton <tonya@shawnee-tribe.com>; Vincent Vicites <vicites@fayettepa.org>; William Fisher <wfisher@sctribe.com>; William Tarrant <wtarrant@sctribe.com>

Cc: jsmet@cubehydro.com; Foster, Joyce <JFoster@trccompanies.com>

Subject: [External] REMINDER: Information Request for the Pre-Application Document for Relicensing of the Lake Lynn Hydroelectric Project (FERC No. 2459)

Importance: High

6

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Good morning -

Attached is an Information Request for the Pre-Application Document for the FERC relicensing of the Lake Lynn Hydroelectric Project (FERC No. 2459).

As a reminder, please provide your comments within 30 days of this letter (by June 20). If you have any questions regarding this request please contact Jody Smet at jsmet@cubehydro.com or Joyce Foster at jfoster@trccompanies.com.

7

Thank you,
Michelle

Michelle Blair
Project Coordinator



14 Gabriel Drive, Augusta, ME 04330
T 207.620.3845 | F 207.621.8226 | mblair@trccompanies.com
[LinkedIn](#) | [Twitter](#) | [Blog](#) | TRCcompanies.com

8

Foster, Joyce

From: Michael Strager <mstrager@wvu.edu>
Sent: Thursday, June 20, 2019 2:23 PM
To: Blair, Michelle A.
Cc: Jody Smet; Foster, Joyce; Duane Nichols
Subject: RE: Information Request for the Pre-Application Document for Relicensing of the Lake Lynn Hydroelectric Project (FERC No. 2459)
Attachments: Notes from CLEAR for Cube Hydro FERC license 6-20-19.docx

Hi Michelle,

1

Thanks for the invitation to submit information for the PAD.

Attached is the submission from myself and Duane Nicholas who represent the Cheat Lake Environment and Area Recreation (CLEAR).

Mike Strager
102 Lake Pointe
Morgantown, WV 26508
mstrager@gmail.com
304-276-3334

2

From: Blair, Michelle A. [mailto:mblair@trccompanies.com]

Sent: Monday, May 20, 2019 3:06 PM

To: Absentee-Shawnee Tribe of Oklahoma <106NAGPRA@astribe.com>; Amanda Pitzer <amanda@cheat.org>; Anita Carter <greystone.poa@hotmail.com>; Betty Wiley <betty.w304@gmail.com>; Bob Irvin <birvin@americanrivers.org>; Bonney Hartley <bonney.hartley@mohican-nsn.gov>; Brett Barnes <bbarnes@estoo.net>; Brian Bridgewater <Brian.L.Bridgewater@wv.gov>; Brice Obermeyer <bobermeyer@delawaretribe.org>; Bryan Printup <bprintup@hetf.org>; Cassie Harper <cassie@shawnee-tribe.com>; Clint Halftown <clint.halftown@gmail.com>; Colleen McNally-Murphy <colleen@hydroreform.org>; Coopers Rock State Forest <coopersrocksf@wv.gov>; Cosmo Servidio <cosmo.servidio@epa.gov>; Curtis Schreffler <clschref@usgs.gov>; Dana Kelly <dkelly@delawarenation.com>; Danny Bennett <Danny.A.Bennett@wv.gov>; Darren Bonaparte <darren.bonaparte@srmt-nsn.gov>; David

3

Wellman <David.I.Wellman@wv.gov>; Delaware Nation, Oklahoma <ec@delawarenation.com>; Delaware Tribe of Indians <cbrooks@delawaretribe.org>; Duane Nichols <duane330@aol.com>; Eastern Shawnee Tribe of Oklahoma <estochief@hotmail.com>; Edgewater Marina <edgewater@cheatlakedocks.com>; Ella Belling <ella@montrails.org>; Heather Smiles <hsmiles@pa.gov>; Jacob Harrell <Jacob.D.Harrell@wv.gov>; Jay Toth <jay.toth@sni.org>; Jesse Bergevin <jbergevin@oneida-nation.org>; John Spain <john.spain@ferc.gov>; Kevin Colburn <kevin@americanwhitewater.org>; Kevin Mendik <Kevin_Mendik@nps.gov>; Laura Misita <lmisita@oneida-nation.org>; Megan Gottlieb <Megan.K.Gottlieb@usace.army.mil>; Mike Strager <mstrager@gmail.com>; Oneida Indian Nation <info@oneida-nation.org>; Oneida Tribe of Indians of Wisconsin <cwilliam@oneidanation.org>; Onondaga Nation <admin@onondaganation.org>; Renetta McClure <rmcclure@moncommission.com>; Richard McCorkle <richard_mccorkle@fws.gov>; Sean P McDermott

4

<Sean.McDermott@noaa.gov>; Shannon Holsey <shannon.holsey@mohican-nsn.gov>;
Shaun Wicklein <smwickle@usgs.gov>; Steve Moyer <steve_moyer@tu.org>; Steve Moyer
(smoyer@tu.org) <smoyer@tu.org>; Stuart Welsh <swelsh@wvu.edu>; Sunset Beach
Marina <info@sunsetbeach-marina.com>; Susan Bachor <sbachor@delawaretribe.org>;
Susan Pierce <susan.m.pierce@wv.gov>; Tonawanda Band of Seneca
<tonseneca@aol.com>; Tonya Tipton <tonya@shawnee-tribe.com>; Vincent Vicites
<vvicites@fayettepa.org>; William Fisher <wfisher@sctribe.com>; William Tarrant
<wtarrant@sctribe.com>

Cc: jsmet@cubehydro.com; Foster, Joyce <JFoster@trccompanies.com>

Subject: Information Request for the Pre-Application Document for Relicensing of the Lake
Lynn Hydroelectric Project (FERC No. 2459)

Good afternoon-

5

Attached is an Information Request for the Pre-Application Document for the FERC
relicensing of the Lake Lynn Hydroelectric Project (FERC No. 2459).

Please provide your comments within 30 days of this letter. If you have any questions
regarding this request please contact Jody Smet at jsmet@cubehydro.com or Joyce Foster at
jfoster@trccompanies.com.

Thank you,
Michelle

Michelle Blair
Project Coordinator

6



14 Gabriel Drive, Augusta, ME 04330
T 207.620.3845 | F 207.621.8226 | mblair@trccompanies.com
[LinkedIn](#) | [Twitter](#) | [Blog](#) | TRCcompanies.com

Prepared Input for the Pre-Application Document for the Lake Lynn Hydroelectric Project

June 20, 2019

Submitted by:

Mike Strager – Vice President, Cheat Lake Environment and Area Recreation, 102 Lake Pointe, Morgantown, WV 26508, mstrager@gmail.com, 304-276-3334

Duane Nichols – President, Cheat Lake Environment and Area Recreation, 330 Dream Catcher Circle, Morgantown, WV 26508, duane330@aol.com, 304-599-8040

This document highlights issues noted by the Cheat Lake Environment and Area Recreation (CLEAR). CLEAR has been active since 1994 promoting recreational and environmental improvements for Monongalia County's largest open-water resource. We appreciate the opportunity to provide our input for Cube Hydro to address in the relicensing process of the Lake Lynn Hydroelectric Project (FERC No. 2459).

Issues of Concern and Recommendations:

ISSUE #1:

A 2017 Carrying Capacity Study for Cheat Lake, WV was completed for Cube Hydro and concluded that there were a total of 1,226 boats moored on docks at Cheat Lake. This includes the four marinas and 204 private docks. In addition, to these boats on the lake, the Sunset Beach Marina has a public boat ramp which was surveyed throughout the summer of 2017 and found an average of 69 boats brought to the lake for use on a typical summer weekend day.

The traditional approach to calculate a boating carrying capacity for lakes is from published literature in the outdoor recreation, parks and conservation, and National Park Service Literature as well as EPA Environmental Impact Statements and lake management planning. The boating carrying capacity for Cheat Lake focused on the safety carrying capacity of the lake. The carrying capacity based on safety is derived from the traditional "space standards" approach for assessing boating carrying capacity (Bureau of Outdoor Recreation 1970). This approach specifies the amount of space needed for safe boat operation (expressed in acres of surface area per boat, or acres per boat). The National Park Service has adopted a range of 9 to 18 acres per boat as a guideline for safe boating on open water (NPS 1987). Considering the steep topography which creates narrow lines of sight, two bridges, and the fact that Cheat Lake is on average less than a quarter mile wide (measured from 30 random transects), the most restrictive 18 acres per boat could be justifiably used in the study.

The total boat-able or navigable acres of water for Cheat Lake is 1,598 acres (calculated with a Geographic Information Systems and 1:4,800 scale hydrography). According to this factor, the

boating capacity of Cheat Lake maxes out at 88 boats in use at one time using the 18 acres per boat ratio or 177 boats using the less restrictive 9 acres per boat use area. These numbers are simply found for boating capacity by dividing the number of water surface acres by the "acres per boat" standard.

Based on the observed total of 291 boats in use on August 13, 2017 (a typical summer boating weekend day), the lake was greatly over its carry capacity and was therefore a safety issue. In addition, the total number of boats moored at the lake plus an average of 69 trailered on a warm summer weekend day only requires 13.6 % of boats to be in use before the 177 boat carrying capacity is reached.

RECOMMENDATION:

The reason the number of boats used in operation is important is because it directly impacts safety on the lake. Too many permitted boat docks create potentially dangerous situations especially when the lake is unlimited horsepower and without speed limits. While the WV Division of Natural Resources Office of Enforcement monitors the lake for safe operation, their job becomes much more difficult with an unsafe number of boats are permitted for use on the lake by Cube Hydro. Since Cube Hydro is responsible for boat dock permits at both marinas and personal access sites around the lake it is strongly suggested Cube Hydro does not allow any more permits and keeps this policy into the future. Yearly inspections and surveys are also recommended to insure the number of boats moored at the lake are all permitted ones. Another possible suggestion is to charge out of state boaters a higher use fee to operate at the lake.

ISSUE #2:

Many of the marinas and private docks on Cheat Lake randomly place buoys at varying distances from the end of their docks. These buoys are not consistent around the lake and therefore are not taken seriously by boaters and can cause issues regarding right of ways and safe travel at the lake.

RECOMMENDATION:

Cube Hydro should contact the marinas and private dock owners to let them know all buoys should extend 100 feet from the end of the dock to be consistent with US Army Corps of Engineers national waterway policy and guidelines.

ISSUE #3:

The Cheat Lake Beach needs new sand to maintain a quality beach for the community. The last two years sand has been added that was not sufficient enough for coverage and was also the wrong type. The sand chosen was too fine and ended up washing into the lake.

RECOMMENDATION:

After research at six local lake beaches in our area, it is suggested to buy concrete sand for our beach. This sand is lighter in color and coarser than previously applied. This sand applied at Jennings Randolph lake has lasted the past 3 years on a slope that is much steeper than our beach. Note the picture to the right. Because this sand is coarser it does not wash away and doesn't cloud the water once in the lake. This will save Cube Hydro in the long run with less maintenance and applications.



The sand can be purchased from Fairfax Materials, Inc in Oakland Maryland. A quote and information for them is listed below. It is old so a new quote from them would be necessary.



FAIRFAX MATERIALS, INC.
8490 GARRETT HIGHWAY
OAKLAND, MARYLAND 21550

Central Dispatch: (301) 334-8101 (800) 325-8663
Sales - Oakland: (301) 334-8184 / Scherr: (304) 749-8889
Sales Fax - Oakland: (301) 334-9381 / Scherr: (304) 749-8988

QUOTATION - Page 1 of 1

C.O.D. SALES [CASH]
N/A

Attention: MIKE

Project: CHEAT LAKE BEACH SAND [CHELAK]
CUSTOMER NOT ON FILE - COD SALE ONLY.

Quoted: 06/01/2016
Firm Date: 12/31/2016

Plant	Product Description	Est. Qty.	Mat'l FOB		Total	
			Plant	Freight		
THOMAS QUARRY	CONCRETE SAND (SS)	100.00	\$18.90	\$12.70	\$31.60	Per Ton
THOMAS QUARRY	FUEL SURCHG-DELIV	0.00	\$0.00	\$0.00	\$0.00	Per Ton
THOMAS QUARRY	TAILGATED/SPREADER BOX	0.00	\$40.00	\$0.00	\$40.00	Per Load

ISSUE #4:

Large woody debris on the shoreline of the Cheat Lake Beach at the Cheat Lake Park and Trail is unsightly and potentially dangerous for swimmers and small children.

RECOMMENDATION:

The maintenance crew or contracted group needs to remove the large wood that floats to the beach at least every Friday during the summer.

ISSUE #5:

Rail trail closings result from slides that occur along the trail in both directions from the Cheat Lake Park. This is a function of the steep terrain and impacts to the land cover. However, many land owners that believe they own the land down to the rail trail have illegally cleared the natural vegetation and increased the chance of land slides. The picture to the right is of a house building a path and steps down to the rail trail. This house is in the Falling Water development just upstream from the swimming beach location.

RECOMMENDATION:

Cube Hydro needs to inform all adjacent land owners to the Cheat Lake Park and Trail to avoid trespassing and disturbing any of the natural vegetation or elevation to the rail trail. In addition, a shoreline management plan should be implemented to reduce erosion and unsightly development along the riparian area of the lake. It could be recommended that all trees 12in in diameter or larger be preserved for stability and aesthetics of the shoreline riparian area.



ISSUE #6:

For the past 6 years the CLEAR organization has volunteered its time to clean up the lake from large debris that poses boating hazards as well as is aesthetically unpleasant. The pictures show the amount and types of debris that CLEAR has picked up using a work boat that own in an annual sweep of the lake. Some years these cleanups have occurred multiple times. This work is necessary to keep Cheat Lake cleaner and safer.



RECOMMENDATION:

CLEAR plans to continue with these annual clean ups and would like Cube Hydro to cooperate by disposing of the trash we collect from the lake. In years past we have collected the debris and deposited it at the winter boat ramp for hauling. Some years there has been a large dumpster placed at this location to help in the removal.

ISSUE #7

In August of 2013, the Operating Company at Cheat Lake sent the letter below to all permit site licensees along the Cheat Lake Park Trail. It required leases to remove all permanent structures that were not docks from the leased areas. To this date, there remains many sites that have not been cleaned up and that continue to be use for overnight camping which is not allowed. Many of the sites are as shown in the pictures below are on Cube Hydro property illegally.



RECOMMENDATION:

The sites along the rail trail need to be cleaned up and restored to original condition and the sites being used at random locations around the lake should be cleaned up and vacated.

Foster, Joyce

From: Duane Nichols <duane330@aol.com>
Sent: Thursday, June 20, 2019 3:39 PM
To: jsmet@cubehydro.com; Foster, Joyce
Cc: duane330@aol.com
Subject: CLEAR - Nichols - Lake Lynn 2459 - June 20, 2019
Attachments: Submission of CLEAR -Prelicense Document- 6-20-19.docx

Submission of Cheat Lake Environment & Recreation Association, 330 Dream Catcher Circle, Morgantown, WV 26508. Duane Nichols, President; Michael Strager, Vice President, Ann Chester, Secretary, Donna Weems, Treasurer. June 20, 2019

1

RE: Relicensing Process for Lake Lynn Hydroelectric Project (FERC No. 2459).

The following essential topics are requested to become part of the relicensing of the Lake Lynn Project and then incorporated into the operation and maintenance of the facility and surroundings.

1. Memorandum of Understanding (MOU) on Recreation, Safety & Security is needed with other local entities, viz. Monongahela County (Chestnut Ridge County Camp), West Virginia University (WVU Research Forest), WV Division of Natural Resources (Coopers Rock State Forest), WV Division of Natural Resources (fishing facilities, fishing regulation, fish research w/ WVU), et al.

2

2. Cheat Lake Park & Trail: Operation of Trail (security per MOU, security gate, year-round trail availability, rest-room availability), Maintenance of trail (trail surface, erosion, subsidence, tree removal), Signage (install & maintain signage on WV 857 for Park & Trail, maintain or improve current signage), Extension of Trail (integrate with Sheepskin Trail in Pennsylvania, integrate with slate dump at south end via construction of natural science destination)

3. Cheat Lake Swimming Beach (sand selection & supply, limit rip-rap, safety & security per MOU, extend swimming beach and/or picnic area to day-use boat docks, remove woody debris from beach shoreline and new picnic area), Establish separate dog swimming area and disallow dogs at children's beach)

4. Cheat Lake Boat Docks & Boating Activities (prepare & distribute guidebook on dock leasing & dock maintenance, publicize name & contact detail for information officer, establish

3

limitation on number of boats, boat horsepower, boat noise level, boat speed). Note: State Law can prevail.

5. Local Annual Update/Briefing on Lake Lynn Operations & Challenges w/ Q&A (public meeting at Cheat Lake Fire Hall, for example)

6. Lake Lynn Dam & Related Issues (Publicize statement on integrity of dam built ca. 1927, do not permit water withdraw activities from Lake, do not permit horizontal drilling near or under Lake, do not permit underground storage of hydrocarbons near or under Lake.

7. Lake Lynn Advisory Council on Recreation, Safety & Security (establish advisory council to include representatives of County, State and Federal agencies as well as voluntary local group(s).

4

Submitted by Duane Nichols, President, CLEAR, 330 Dream Catcher Circle, Morgantown,
WV 26508. 304-599-8040. WV Day: June 20, 2019.

Submission of Cheat Lake Environment & Recreation Association, 330 Dream Catcher Circle, Morgantown, WV 26508. Duane Nichols, President; Michael Strager, Vice President, Ann Chester, Secretary, Donna Weems, Treasurer. June 20, 2019

RE: Relicensing Process for Lake Lynn Hydroelectric Project (FERC No. 2459).

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1. Memorandum of Understanding (MOU) on Recreation, Safety & Security is needed with other local entities, viz. Monongahela County (Chestnut Ridge County Camp), West Virginia University (WVU Research Forest), WV Division of Natural Resources (Coopers Rock State Forest), WV Division of Natural Resources (fishing facilities, fishing regulation, fish research w/ WVU), et al.
2. Cheat Lake Park & Trail: Operation of Trail (security per MOU, security gate, year-round trail availability, rest-room availability), Maintenance of trail (trail surface, erosion, subsidence, tree removal), Signage (install & maintain signage on WV 857 for Park & Trail, maintain or improve current signage), Extension of Trail (integrate with Sheepskin Trail in Pennsylvania, integrate with slate dump at south end via construction of natural science destination)
3. Cheat Lake Swimming Beach (sand selection & supply, limit rip-rap, safety & security per MOU, extend swimming beach and/or picnic area to day-use boat docks, remove woody debris from beach shoreline and new picnic area), Establish separate dog swimming area and disallow dogs at children's beach)
4. Cheat Lake Boat Docks & Boating Activities (prepare & distribute guidebook on dock leasing & dock maintenance, publicize name & contact detail for information officer, establish limitation on number of boats, boat horsepower, boat noise level, boat speed). Note: State Law can prevail.
5. Local Annual Update/Briefing on Lake Lynn Operations & Challenges w/ Q&A (public meeting at Cheat Lake Fire Hall, for example)
6. Lake Lynn Dam & Related Issues (Publicize statement on integrity of dam built ca. 1927, do not permit water withdraw activities from Lake, do not permit horizontal drilling near or under Lake, do not permit underground storage of hydrocarbons near or under Lake.
7. Lake Lynn Advisory Council on Recreation, Safety & Security (establish advisory council to include representatives of County, State and Federal agencies as well as voluntary local group(s).

Submitted by Duane Nichols, President, CLEAR, 330 Dream Catcher Circle, Morgantown, WV 26508. 304-599-8040. WV Day: June 20, 2019.

Foster, Joyce

From: Stratford Douglas <stratdouglas@gmail.com>
Sent: Thursday, June 20, 2019 4:37 PM
To: Foster, Joyce; jsmet@cubehydro.com
Cc: Charlie Walbridge; Kevin Colburn; Garrett Thompson; Amanda Pitzer
Subject: Proposed Recreational Enhancement, Lake Lynn Relicensing
Attachments: BuzzardRunCheatLakeAccessProposal.docx

Dear Ms Foster and Ms. Smet:

1

Attached you'll find a proposal for a recreational enhancement that I would like to see included in the PAD and comments in the Traditional Licensing Process for the Lake Lynn Hydroelectric Project, P-2459.
Thanks for your consideration.

Stratford Douglas
1024 Snake Hill Road
Morgantown, WV 26508
724-605-5329

PS, here is a text version that does not rely on the figures found in the MS-Word version.

2

The upper end of the Cheat Lake (Lake Lynn) reservoir is remote and beautiful, and difficult to access from the shore. There is an unimproved dirt road (currently gated) on state-owned public land (Snake Hill Wildlife Management Area) that could provide access to a point roughly 3 kilometers south (upstream) of any access point to the lake. The proposed access point is a level area of approximately 6 acres on the shoreline.

By improving this access road and adding a small parking lot, the Lake Lynn licensee could add significant recreational opportunity for fishermen to access quiet and remote areas. It would also make it much more feasible for boaters to access 3.8 miles of remote, wild, and easy (class II) white water in the Lower Cheat Canyon, a section that is rarely run at present because of access difficulties.

Whitewater Access Value. Class II whitewater is suitable for novice kayakers, canoeists, and

3

stand-up paddleboards (SUPs). The Lower Cheat consists of 3.8 miles of Class II whitewater located adjacent to the Morgantown metropolitan area, situated in a wild and remote-feeling 1200 foot deep canyon. The Lower Cheat Canyon is rarely run at present, primarily because of the 4.5 mile flat water paddle across Cheat Lake to the nearest public take-out point.

The proposed recreational enhancement at Buzzard Run Road would shorten the flat water paddle to the take-out from 4.5 miles to 1.9 miles, which will make the whitewater trip much more attractive.

Fishing Access Value. Fishermen wishing to reach the upper section of Cheat Lake currently must do so by boat. The proposed access improvement would allow fishermen to use the area near the parking lot, and it would also allow them access to an existing trail on public land that follows the course of the Cheat River from the end of Buzzard Run Road to

4

approximately 6 miles to the next access point upstream at Jenkinsburg in Preston County.

The Proposed Project. We propose improvements to an existing one-lane road ("Buzzard Run Road"), 1.4 miles long, moderately sloped, and easily accessible by SUV, that connects the proposed take-out to Snake Hill Road. Buzzard Run Road forms the border of the Snake Hill Wildlife Management Area for much of its length. (Google Maps incorrectly shows it following Buzzard Run to the lake; in fact it reaches the lake at the mouth of an unnamed stream farther south.)

We propose improving the existing Buzzard Run Road by adding proper drainage, gravel and, where possible, one or two turnouts to allow for light two-way traffic. In addition, we propose development of a small parking lot in the six-acre flat lakeside area at the bottom of this existing road. For boating access we propose a concrete ramp near the mouth of the

5

unnamed tributary. It may be appropriate to add a fishing pier as well.

It may be of interest to note that this very same improvement was proposed by Allegheny Power in a public meeting concerning previous relicensing proceeding, in 1999. At that time it was proposed as an alternative to the Cheat Lake Trail that was subsequently built at the park at Morgan Run. We believe that the time for this project has come.

Stratford Douglas:
Friends of the Cheat (Board Member and Treasurer)
American Whitewater (Lifetime Member)

6

Recreational Access to Upper Cheat Lake through Buzzard Run Road Improvements

The upper end of the Cheat Lake (Lake Lynn) reservoir is remote and beautiful, and difficult to access from the shore. There is an unimproved dirt road (currently gated) on state-owned public land (Snake Hill Wildlife Management Area) that could provide access to a point roughly 3 kilometers south (upstream) of any access point to the lake. The proposed access point is a level area of approximately 6 acres on the shoreline.

By improving this access road and adding a small parking lot, the Lake Lynn licensee could add significant recreational opportunity for fishermen to access quiet and remote areas. It would also make it much more feasible for boaters to access 3.8 miles of remote, wild, and easy (class II) white water in the Lower Cheat Canyon, a section that is rarely run at present because of access difficulties.

Whitewater Access Value. Class II whitewater is suitable for novice kayakers, canoeists, and stand-up paddleboards (SUPs). The Lower Cheat consists of 3.8 miles of Class II whitewater located adjacent to the Morgantown metropolitan area, situated in the 1200 foot deep canyon shown in the picture at right. The Lower Cheat Canyon is rarely run at present, primarily because of the 4.5 mile flat water paddle across Cheat Lake to the nearest public take-out point.



The proposed recreational enhancement at Buzzard Run Road would shorten the flat water paddle to the take-out from 4.5 miles to 1.9 miles, which will make the whitewater trip much more attractive.

Fishing Access Value. Fishermen wishing to reach the upper section of Cheat Lake currently must do so by boat. The proposed access improvement would allow fishermen to use the area near the parking lot, and it would also allow them access to an existing trail on public land that follows the course of the Cheat River from the end of Buzzard Run Road to approximately 6 miles to the next access point upstream at Jenkinsburg in Preston County.

The Proposed Project. We propose improvements to an existing one-lane road (“Buzzard Run Road”), 1.4 miles long, moderately sloped, and easily accessible by SUV, that connects the proposed take-out to Snake Hill Road. Buzzard Run Road follows approximately the route shown in black on the map. It forms the border of the Snake Hill Wildlife Management Area for much of its length. (Google Maps incorrectly shows it following Buzzard Run to the lake; in fact it reaches the lake at the mouth of an unnamed stream farther south.)



We propose improving the existing Buzzard Run Road by adding proper drainage, gravel and, where possible, one or two turnouts to allow for light two-way traffic. In addition, we propose development of a small parking lot in the six-acre flat lakeside area at the bottom of this existing road. For boating access we propose a concrete ramp near the mouth of the unnamed tributary. It may be appropriate to add a fishing pier as well.

It may be of interest to note that this very same improvement was *proposed by Allegheny Power* in a public meeting concerning previous relicensing proceeding, in 1999. At that time it was proposed as an alternative to the Cheat Lake Trail that was subsequently built at the park at Morgan Run. We believe that the time for this project has come.

Stratford Douglas
1024 Snake Hill Road
Morgantown, WV 26508
stratdouglas@gmail.com
724-605-5329

Friends of the Cheat (Board Member, Treasurer)
American Whitewater (Lifetime Member)

Stratford Douglas, Morgantown, WV.

The upper end of the Cheat Lake (Lake Lynn) reservoir is remote and beautiful, and difficult to access from the shore. There is an unimproved dirt road (currently gated) on state-owned public land (Snake Hill Wildlife Management Area) that could provide access to a point roughly 3 kilometers south (upstream) of any access point to the lake. The proposed access point is a level area of approximately 6 acres on the shoreline.

By improving this access road and adding a small parking lot, the Lake Lynn licensee could add significant recreational opportunity for fishermen to access quiet and remote areas. It would also make it much more feasible for boaters to access 3.8 miles of remote, wild, and easy (class II) white water in the Lower Cheat Canyon, a section that is rarely run at present because of access difficulties.

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The proposed recreational enhancement at Buzzard Run Road would shorten the flat water paddle to the take-out from 4.5 miles to 1.9 miles, which will make the whitewater trip much more attractive.

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The Proposed Project. We propose improvements to an existing one-lane road ("Buzzard Run Road"), 1.4 miles long, moderately sloped, and easily accessible by SUV, that connects the proposed take-out to Snake Hill Road. Buzzard Run Road forms the border of the Snake Hill Wildlife Management Area for much of its length. (Google Maps incorrectly shows it following Buzzard Run to the lake; in fact it reaches the lake at the mouth of an unnamed stream farther south.)

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relicensing proceeding, in 1999. At that time it was proposed as an alternative to the Cheat Lake Trail that was subsequently built at the park at Morgan Run. We believe that the time for this project has come.

Stratford Douglas:

Friends of the Cheat (Board Member and Treasurer)

American Whitewater (Lifetime Member)

Attachments area

Document Content(s)

90478.TXT.....1-2

Foster, Joyce

From: Garrett Thompson <gthompson@cheat.org>
Sent: Thursday, June 20, 2019 11:01 PM
To: jsmet@cubehydro.com; Foster, Joyce
Cc: Amanda Pitzer; Stratford Douglas
Subject: Friends of the Cheat - Comments on Lake Lynn Re-licensing
Attachments: FOC_Comments_P-2459-005.docx

Dear Ms. Smet and Ms. Foster,

1

Attached you'll find a letter I submitted via the FERC e-filing system, on behalf of Friends of the Cheat, commenting on opportunities for recreational enhancement to be considered during the re-licensing of the Lake Lynn Hydroelectric Project, docket # P-2459-005. Thank you for your consideration.

Sincerely,

Garrett Thompson

Recreation and Lands Manager, Friends of the Cheat
1343 N. Preston Hwy, Kingwood WV, 26537

2



Friends of the Cheat

1343 North Preston Highway | Kingwood, West Virginia 26537 | (304) 329-3621

June 20, 2019

RE: *Information Request for the Pre-Application Document for Relicensing of the Lake Lynn Hydroelectric Project (FERC No. P-2459-005)*

Dear Ms. Foster and Ms. Smet,

On behalf of Friends of the Cheat, I'd like to start by thanking you for the opportunity to submit comments to be included as part of the Pre-Application Document for Relicensing of the Lake Lynn Hydroelectric Project.

For 25 years, Friends of the Cheat (FOC) and our River of Promise (ROP) partners have worked diligently to restore water quality to the Cheat River and Cheat Lake through reclamation of mine lands and the remediation of acid mine drainage (AMD). Irresponsible mining had left the Cheat and nine of its lower tributaries severely damaged by AMD. Walleye were extirpated by the late 1940s. Historic data collected by WV Division of Natural Resources (DNR) show mean lake pH levels less than 5 between the 1950s and early 1990s. A few pollution tolerant fish species including bullhead catfish and white suckers sought refuge in the lake's sheltered embayments. Massive pollution releases from the T&T mine into Muddy Creek in 1994 and 1995 dropped the pH of the lake to 4. As a result, the Cheat River was named one of America's Most Endangered Rivers in 1995 by the national organization American Rivers. These events catalyzed the formation of Friends of the Cheat and the River of Promise task force.

The efforts of FOC and our ROP partners, most notably the US Office of Surface Mining (OSM) and WV Department of Environmental Protection (DEP), have restored water quality to the Cheat River main stem and Cheat Lake. Over 200 land reclamation and water treatment projects have been implemented with millions of dollars of funds resulting in millions of pounds of AMD pollution removed from the Cheat's tributaries. The river and lake have not seen a pH depression below 6 since 2011 and the main stem has been removed from the state's list of impaired waters for pH impairment. The removal of iron (ferrous hydroxide or "yellow boy") as well as aluminum and manganese is visibly noticeable by reduced staining of rocks near the water's edge as well as armoring of fiberglass boat bottoms, which was a prevalent problem through the '90s.

Improved water quality has fostered the rebound of Cheat Lake's fishery. DNR reports a dramatic recovery of species richness (27-34 species per year) including abundant sportfish such as largemouth and smallmouth bass, yellow perch, and walleye. Fishing tournaments now attract anglers from across the country which benefits the local economy. FOC is particularly excited about the walleye, which research shows are spawning up into the northern reaches of the Cheat Canyon.

With a drainage area of roughly 1400 square miles all flowing down to Cheat Lake, not only does the Cheat River constitute a critical piece of the region's ecosystem, it is also home to a large human population that lives, works and plays within the drainage. Friends of the Cheat recognizes that opportunities to recreate and connect with nature and the outdoors can not only improve the quality of life for a region's citizens, but it also leads to the engagement with and appreciation of our resources that can help prevent them from being squandered and abused. Cheat Lake and the surrounding area already

Working to restore, preserve, and promote the outstanding natural qualities
of the Cheat River Watershed since 1994



Friends of the Cheat

1343 North Preston Highway | Kingwood, West Virginia 26537 | (304) 329-3621

provides a plethora of outdoor activities; including paddling, boating, fishing, hiking, cycling, birding and more. Cube Hydro has already improved and created recreation opportunities around Cheat Lake. FOC and key partners have identified several opportunities for additional improvement of recreational opportunities that we believe should be considered as part of this next re-licensing process.

FOC is aware and supportive of the proposal to create a public access to the upper reaches of Cheat Lake by improving an existing gated road in Snake Hill Wildlife Management Area along Buzzard Run. This would provide another trailhead for hikers to enter the WMA, fishermen to access this upper section of the lake usually only reachable by boat, and would provide an egress opportunity for whitewater paddlers running the Lower Cheat Canyon. Despite being located in close proximity to the Cheat Lake and Morgantown metropolitan areas, and providing a wonderfully scenic and exciting float through class 2 rapids in a deep canyon, this section is infrequently paddled. This is mostly due to the 4.5 mile paddle across Cheat Lake to the nearest existing public access at the Ices Ferry bridge, which can be a laborious task in short maneuverable whitewater craft that are well suited for the rapids upstream, not to mention the danger of encounters with fast moving power boats. The creation of a new public access by improving Buzzard Run Road would shorten this flatwater paddle to 1.9 miles and thereby make this whitewater trip much more attractive.

Commented [A1]: Could also mention safety/power boats

Another opportunity for recreation enhancement in the Cheat Lake area would be to improve access and connectivity of both ends of the existing Cheat Lake Trail. Currently the trail follows the eastern shoreline of Cheat Lake for 4.4 miles and provides opportunities for walking, running, biking and fishing. The north end of the trail can be accessed via a trailhead and steep flight of stairs off of Morgan Run Road. The south end of the trail dead ends abruptly. With the future route of the Sheepskin Trail passing by just to the north, and local businesses, residential neighborhoods, and Coopers Rock State Forest to the south, there lies an opportunity to work towards increased connectivity of these trail system. By doing so, we can enhance the value of these isolated trail sections in such a way that their value becomes greater than the sum of their parts. We recommend that possibilities to extend the southern end of the Cheat Lake Trail, around the peninsula where it currently terminates, to a newly developed trailhead be thoroughly investigated, as well as the streamlining of the northern terminus to avoid the steep stairs and improve the connectivity to the future route of the Sheepskin Trail.

Thank you for this opportunity to comment on the upcoming relicensing of the Lake Lynn Hydroelectric Project.

Sincerely,

Garrett Thompson
Recreation & Lands Manager
Friends of the Cheat

Foster, Joyce

From: Jody Smet <jsmet@cubehydro.com>
Sent: Friday, June 21, 2019 1:59 PM
To: Foster, Joyce
Subject: Fwd: Cheat Lake trails

Begin forwarded message:

1

From: Dan Miller <DMiller@potesta.com>
Date: June 21, 2019 at 3:44:36 PM GMT+2
To: "jsmet@cubehydro.com" <jsmet@cubehydro.com>
Cc: Garrett Thompson <gthompson@cheat.org>
Subject: Cheat Lake trails

CAUTION: This email originated from outside your organization. Exercise caution when opening attachments or clicking links, especially from unknown senders.

Dear Cube Hydro,

2

I submitted a comment on the FERC web site about your permit renewal. Last year I met with David Fox during a meeting with Friends of the Cheat to discuss how local organizations can partner with Cube Hydro to enhance the recreational aspects of the lake. As a member of the Rotary Club of Cheat Lake we have a mutual interest in expanding the pedestrian trails to connect with other existing trails. I hope you will focus on this aspect of recreation and partner with the local groups who live and recreate around this beautiful resource.

Regards,
Dan

Daniel J. Miller, Ph.D.
Senior Scientist

3

Potesta & Associates, Inc.
125 Lakeview Drive
Morgantown, WV 26508

Office; 304-225-2245 ext.2005
Mobile: 681-285-8159
Fax: 304-225-2246
email: dmiller@potesta.com
www.potesta.com

This electronic communication and its attachments contain confidential information. The recommendations and/or design data included herein are provided as a matter of convenience and should not be used for final design or ultimate decision making. Rely only on the final hardcopy materials bearing the consultant's original signature

4

and seal. If you have received this information in error, please notify the sender immediately.

Daniel Miller, Morgantown, WV.

I would like to see an extension of the pedestrian trail system especially from the dam to the Monongahela River, and along other areas to connect to other trails.

Document Content(s)

90485.TXT.....1-1

Foster, Joyce

From: Foster, Joyce
Sent: Tuesday, June 25, 2019 8:14 AM
To: Norman, Janet
Cc: Jody Smet
Subject: RE: [EXTERNAL] Lake Lynn Project (FERC No. 2459) - Ipac consultation
Attachments: Lake_Lynn_Project_Boundary_revised 6-24-2019.zip

Janet,

1

As follow-up to our communication last week, attached is the corrected Shapefile that we used to re-run the IPaC unofficial review for the Lake Lynn Project (FERC No. 2459). Please let us know if you have any questions or issues with the attachment.

Thanks,

Joyce Foster
Planner



179 Clarks Lane, Aylett, VA 23009
T 804.769.1667 | C 804.338.5110
[LinkedIn](#) | [Twitter](#) | [Blog](#) | [TRCcompanies.com](#)

2

Please note that our domain name and email addresses have changed

From: Norman, Janet [mailto:janet_norman@fws.gov]
Sent: Thursday, June 20, 2019 11:18 AM
To: Foster, Joyce <JFoster@trccompanies.com>
Cc: Jody Smet <jsmet@cubehydro.com>
Subject: Re: [EXTERNAL] Lake Lynn Project (FERC No. 2459) - Ipac consultation done

Terrific, thank you Joyce.

I appreciate the follow up information.

3

Janet

On Thu, Jun 20, 2019 at 8:48 AM Foster, Joyce <JFoster@trccompanies.com> wrote:

Janet,

As follow-up to our conversation related to the Lake Lynn Project FERC relicensing, I will send you the Shapefile for the Project that we used for the IPaC unofficial resource/species list as soon as it is available, hopefully later today. Our GIS staff is currently correcting an error in the Project area polygon and we will rerun the IPaC unofficial review using this corrected Shapefile.

4

As we discussed, I am also sending you the contact information for Jody Smet, the Project Licensee:

Jody J. Smet, AICP

Director, FERC Licensing and Compliance

(O) 804-739-0654

5

(C) 804-382-1764

jsmet@cubehydro.com

As I mentioned, I am the consultant assisting with the relicensing process. My contact information is below:

Joyce Foster

TRC

804-769-1667 (office)

6

804-338-5110 (cell)

jfoster@trccompanies.com

We are looking forward to working with you.

Joyce Foster
Planner

7



179 Clarks Lane, Aylett, VA 23009

T 804.769.1667 | C 804.338.5110

[LinkedIn](#) | [Twitter](#) | [Blog](#) | TRCcompanies.com

Please note that our domain name and email addresses have changed

Begin forwarded message:

8

From: "Norman, Janet" <janet_norman@fws.gov>

Date: June 19, 2019 at 6:06:25 PM GMT+2

To: <jsmet@cubehydro.com>

Subject: **Ipac consultation done?**

CAUTION: This email originated from outside your organization.
Exercise caution when opening attachments or clicking links,
especially from unknown senders.

Hi Jody,

9

I don't have your phone number, and was hoping to talk to you regarding the Lake Lynn re-licensing information search. Wanted to go over some of the specifics of the Ipac process, if we can?

Here is my phone, below, and I will be back in the office by 1pmish.

Thanks.

Janet

10

--

Janet Norman

Biologist

U.S. Fish and Wildlife Service

Chesapeake Bay Field Office

177 Admiral Cochrane Dr.

Annapolis, MD 21401

11

Office: 410-573-4533

Fax: 410-269-0832

Janet_Norman@fws.gov

www.fws.gov/chesapeakebay

--

Janet Norman

12

Biologist
U.S. Fish and Wildlife Service
Chesapeake Bay Field Office
177 Admiral Cochrane Dr.
Annapolis, MD 21401
Office: 410-573-4533
Fax: 410-269-0832
Janet_Norman@fws.gov
www.fws.gov/chesapeakebay

From: [Braun, Olivia](#)
To: [Foster, Joyce](#)
Subject: Lake Lynn Generation, LLC - Relicensing of the Lake Lynn Hydroelectric Project
Date: Wednesday, June 26, 2019 8:44:21 AM

Good Morning Joyce,

The PGC is in receipt of your letter dated May 20, 2019 and would like to request some additional information about the project so that we may provide information for your pre-application document. At your earliest convenience, please provide the PGC with project mapping that clearly illustrates the location and boundary of the project area as well as any proposed improvements that may be proposed as part of the relicensing efforts. Once we receive this information, we will be in a better position to reply to you letter.

Many thanks and please feel free to contact me with any questions,

Olivia A. Braun

Environmental Planner
Environmental Planning & Habitat Protection Division
Bureau of Wildlife Habitat Management
Pennsylvania Game Commission
2001 Elmerton Avenue
Harrisburg, PA 17110
Phone: 717-787-4250, Ext. 3128
olbraun@pa.gov

Foster, Joyce

From: Foster, Joyce
Sent: Thursday, June 27, 2019 11:20 AM
To: Braun, Olivia
Cc: Jody Smet
Subject: RE: Lake Lynn Generation, LLC - Relicensing of the Lake Lynn Hydroelectric Project
Attachments: Lake_Lynn_Project_Boundary_revised.pdf

Good morning,

1

Attached is a figure that shows the Project boundary and Project area for the Lake Lynn Hydroelectric Project. Please let us know if you need anything else or have any questions. Since this request is for information or data you would like to see included in the Pre-application Document, at this time the Licensee is not proposing any changes or improvements at the Project.

Thank you,

Joyce Foster
Planner

2



179 Clarks Lane, Aylett, VA 23009

T 804.769.1667 | C 804.338.5110

[LinkedIn](#) | [Twitter](#) | [Blog](#) | [TRCcompanies.com](#)

Please note that our domain name and email addresses have changed

From: Braun, Olivia [mailto:olbraun@pa.gov]

Sent: Wednesday, June 26, 2019 8:44 AM

To: Foster, Joyce <JFoster@trccompanies.com>

Subject: Lake Lynn Generation, LLC - Relicensing of the Lake Lynn Hydroelectric Project

Good Morning Joyce,

3

The PGC is in receipt of your letter dated May 20, 2019 and would like to request some additional information about the project so that we may provide information for your pre-application document. At your earliest convenience, please provide the PGC with project mapping that clearly illustrates the location and boundary of the project area as well as any proposed improvements that may be proposed as part of the relicensing efforts. Once we receive this information, we will be in a better position to reply to you letter.

Many thanks and please feel free to contact me with any questions,

Olivia A. Braun

Environmental Planner

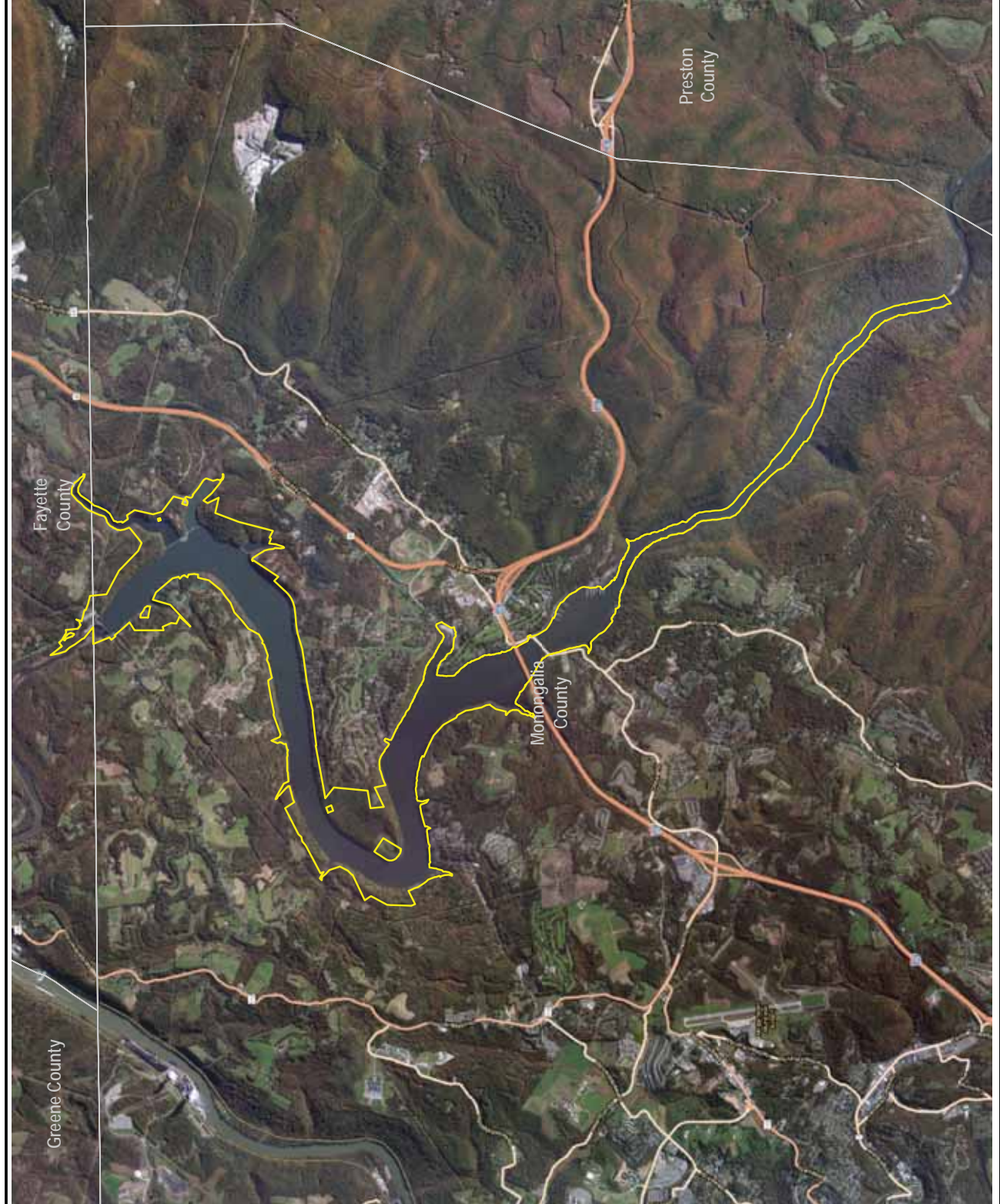
Environmental Planning & Habitat Protection Division

Bureau of Wildlife Habitat Management

Pennsylvania Game Commission

4

2001 Elmerton Avenue
Harrisburg, PA 17110
Phone: 717-787-4250, Ext. 3128
olbraun@pa.gov



LEGEND
 FERC Project Boundary
 County Boundary

K



PROJECT	
CUBE LAKE LYNN RELICENSING PROJECT	
TITLE	
Lake Lynn Project Boundary	
DRAWN BY:	K. BARBOCK (PROJ. NO.):
CHECKED BY:	
APPROVED BY:	
DATE:	JUNE 2019
TRC	
6 Ashley Drive 1st Floor Scarborough, ME 04074	
FILE NO.:	LakeLynn_Project_Boundary.mxd

FEDERAL ENERGY REGULATORY COMMISSION
WASHINGTON D.C. 20426
(June 27, 2019)

OFFICE OF ENERGY PROJECTS

Project No. 2459-000
Lake Lynn Hydroelectric Project
Lake Lynn Generation, LLC

Deborah Dotson, President
Delaware Nation
P.O. Box 825
Anadarko, OK 73005

**Reference: Consultation with Tribes for the Lake Lynn Hydroelectric Project
No. 2459**

Dear President Dotson,

The Federal Energy Regulatory Commission (Commission) invites your participation in the relicensing process for the existing Lake Lynn Hydroelectric Project No. 2459 (Lake Lynn Project). The Commission's relicensing process is an opportunity for both the licensee and interested agencies, tribes, and other stakeholders to consider the project's existing operation and protection, mitigation, and enhancement measures, and evaluate the need for any changes or additional measures to be implemented over the term of any new license issued for the project. The 51.2-megawatt Lake Lynn Project is located on the Cheat River in Monongalia County, West Virginia, and Fayette County, Pennsylvania. We anticipate that Lake Lynn Generation, LLC (Lake Lynn Generation), the licensee for the project, will file a notice of intent and Pre-Application Document by November 30, 2019, to initiate the pre-filing process, and file an application for a new license by November 30, 2022.

It is very important that a tribe whose interests could be affected by the relicensing of the existing Lake Lynn Project participate early in the process so that tribal issues are addressed. For this reason, please inform us if you have an interest in participating in the relicensing process for the project.

In addition, please indicate if you would like to meet with Commission staff to discuss the Commission's licensing process, how your Tribe can participate to the fullest extent possible, your interests and concerns in the affected area, and how to establish procedures to ensure appropriate communication between Commission and tribal staffs.

P-2459-000

2

The meeting can be limited to Commission and your Tribal staff, or can be open to other tribes¹ or Lake Lynn Generation.

If at all possible, we would appreciate your response by August 02, 2019. The Commission strongly encourages electronic filing. Please file your response using the Commission's eFiling system at <http://www.ferc.gov/docs-filing/efiling.asp>. Commenters can submit brief comments up to 6,000 characters, without prior registration, using the eComment system at <http://www.ferc.gov/docs-filing/ecomment.asp>. You must include your name and contact information at the end of your comments. For assistance, please contact FERC Online Support at FERCOnlineSupport@ferc.gov, (866) 208-3676 (toll free), or (202) 502-8659 (TTY). In lieu of electronic filing, please send a paper copy to: Secretary, Federal Energy Regulatory Commission, 888 First Street NE, Washington, DC 20426. The first page of any filing should include docket number **P-2459-000**.

If you have any questions or comments, please contact Emily Carter at (202) 502-6512 or Emily.Carter@ferc.gov. Ms. Carter will contact you shortly to follow-up on this letter.

Sincerely,

John B. Smith, Chief
Mid-Atlantic Branch
Division of Hydropower Licensing

cc:

Kim Penrod, Cultural Resources Manager
Delaware Nation
Via email

Harold Peterson
Bureau of Indian Affairs - Eastern Region
545 Marriott Drive, Suite 700
Nashville, TN 37214

¹ Commission staff is also inviting the Delaware Tribe of Indians and the Osage Nation to participate in the relicensing process.

Document Content(s)

P-2459-000_Delaware Nation.PDF.....1-2

FEDERAL ENERGY REGULATORY COMMISSION
WASHINGTON D.C. 20426
(June 27, 2019)

OFFICE OF ENERGY PROJECTS

Project No. 2459-000
Lake Lynn Hydroelectric Project
Lake Lynn Generation, LLC

Chief Chester Brooks
Delaware Tribe of Indians
170 NE Barbara
Bartlesville, OK 74006

**Reference: Consultation with Tribes for the Lake Lynn Hydroelectric Project
No. 2459**

Dear Chief Brooks,

The Federal Energy Regulatory Commission (Commission) invites your participation in the relicensing process for the existing Lake Lynn Hydroelectric Project No. 2459 (Lake Lynn Project). The Commission's relicensing process is an opportunity for both the licensee and interested agencies, tribes, and other stakeholders to consider the project's existing operation and protection, mitigation, and enhancement measures, and evaluate the need for any changes or additional measures to be implemented over the term of any new license issued for the project. The 51.2-megawatt Lake Lynn Project is located on the Cheat River in Monongalia County, West Virginia, and Fayette County, Pennsylvania. We anticipate that Lake Lynn Generation, LLC (Lake Lynn Generation), the licensee for the project, will file a notice of intent and Pre-Application Document by November 30, 2019, to initiate the pre-filing process, and file an application for a new license by November 30, 2022.

It is very important that a tribe whose interests could be affected by the relicensing of the existing Lake Lynn Project participate early in the process so that tribal issues are addressed. For this reason, please inform us if you have an interest in participating in the relicensing process for the project.

In addition, please indicate if you would like to meet with Commission staff to discuss the Commission's licensing process, how your Tribe can participate to the fullest extent possible, your interests and concerns in the affected area, and how to establish procedures to ensure appropriate communication between Commission and tribal staffs.

P-2459-000

2

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If you have any questions or comments, please contact Emily Carter at (202) 502-6512 or Emily.Carter@ferc.gov. Ms. Carter will contact you shortly to follow-up on this letter.

Sincerely,

John B. Smith, Chief
Mid-Atlantic Branch
Division of Hydropower Licensing

cc:

Dr. Brice Obermeyer, Historic Preservation
Delaware Tribe of Indians
Via email

Harold Peterson
Bureau of Indian Affairs - Eastern Region
545 Marriott Drive, Suite 700
Nashville, TN 37214

¹ Commission staff is also inviting the Delaware Nation and the Osage Nation to participate in the relicensing process.

Document Content(s)

P-2459-000_Delaware Tribe.PDF.....1-2

FEDERAL ENERGY REGULATORY COMMISSION
WASHINGTON D.C. 20426
(June 27, 2019)

OFFICE OF ENERGY PROJECTS

Project No. 2459-000
Lake Lynn Hydroelectric Project
Lake Lynn Generation, LLC

Chief Geoffrey Standing Bear
Osage Nation
627 Grandview Ave.
Pawhuska, OK 74056

**Reference: Consultation with Tribes for the Lake Lynn Hydroelectric Project
No. 2459**

Dear Chief Standing Bear,

The Federal Energy Regulatory Commission (Commission) invites your participation in the relicensing process for the existing Lake Lynn Hydroelectric Project No. 2459 (Lake Lynn Project). The Commission's relicensing process is an opportunity for both the licensee and interested agencies, tribes, and other stakeholders to consider the project's existing operation and protection, mitigation, and enhancement measures, and evaluate the need for any changes or additional measures to be implemented over the term of any new license issued for the project. The 51.2-megawatt Lake Lynn Project is located on the Cheat River in Monongalia County, West Virginia, and Fayette County, Pennsylvania. We anticipate that Lake Lynn Generation, LLC (Lake Lynn Generation), the licensee for the project, will file a notice of intent and Pre-Application Document by November 30, 2019, to initiate the pre-filing process, and file an application for a new license by November 30, 2022.

It is very important that a tribe whose interests could be affected by the relicensing of the existing Lake Lynn Project participate early in the process so that tribal issues are addressed. For this reason, please inform us if you have an interest in participating in the relicensing process for the project.

In addition, please indicate if you would like to meet with Commission staff to discuss the Commission's licensing process, how your Tribe can participate to the fullest extent possible, your interests and concerns in the affected area, and how to establish procedures to ensure appropriate communication between Commission and tribal staffs.

P-2459-000

2

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If at all possible, we would appreciate your response by August 02, 2019. The Commission strongly encourages electronic filing. Please file your response using the Commission's eFiling system at <http://www.ferc.gov/docs-filing/efiling.asp>. Commenters can submit brief comments up to 6,000 characters, without prior registration, using the eComment system at <http://www.ferc.gov/docs-filing/ecomment.asp>. You must include your name and contact information at the end of your comments. For assistance, please contact FERC Online Support at FERCOnlineSupport@ferc.gov, (866) 208-3676 (toll free), or (202) 502-8659 (TTY). In lieu of electronic filing, please send a paper copy to: Secretary, Federal Energy Regulatory Commission, 888 First Street NE, Washington, DC 20426. The first page of any filing should include docket number **P-2459-000**.

If you have any questions or comments, please contact Emily Carter at (202) 502-6512 or Emily.Carter@ferc.gov. Ms. Carter will contact you shortly to follow-up on this letter.

Sincerely,

John B. Smith, Chief
Mid-Atlantic Branch
Division of Hydropower Licensing

cc:

Dr. Andrea Hunter, THPO
Osage Nation Historic Preservation Office
Via email

Harold Peterson
Bureau of Indian Affairs - Eastern Region
545 Marriott Drive, Suite 700
Nashville, TN 37214

¹ Commission staff is also inviting the Delaware Nation and the Delaware Tribe of Indians to participate in the relicensing process.

Document Content(s)

P-2459-000_Osage Nation.PDF.....1-2

From: [Braun, Olivia](#)
To: [Foster, Joyce](#)
Cc: [Jody Smet](#)
Subject: RE: [External] RE: Lake Lynn Generation, LLC - Relicensing of the Lake Lynn Hydroelectric Project
Date: Tuesday, July 02, 2019 7:59:47 AM
Attachments: [image001.png](#)

Hi Joyce,

Thanks so much for this information – it was very helpful. At this time, given that no activities are proposed the PGC does not have any information to provide for inclusion in the Pre-Application Document. However, the PGC would suggest that if/when projects are identified for completion within the Pennsylvania portions of the project area that a Pennsylvania Natural Heritage Inventory (PNDI) search be completed to ensure that coordination with the PGC (or other jurisdictional agencies as necessary) could be identified and initiated as early as possible.

To initiate a PNDI review, please visit www.naturalheritage.state.pa.us and click on the “[Conservation Explorer](#)” link on the bottom left hand side of the page. Upon completion, a receipt will be generated which will summarize search result each of the four jurisdictional agencies. If the Search Results section states that “Further Review is Required” for the PGC, then please refer to the “What to Send to Jurisdictional Agency” section of the receipt for a “Check-list of Minimum Materials” that should be submitted to the PGC.

The PGC appreciates the opportunity to provide comments at this early stage of the relicensing process. If you have any questions, please feel free to contact me.

Best,

Olivia A. Braun

Environmental Planner
Environmental Planning & Habitat Protection Division
Bureau of Wildlife Habitat Management
Pennsylvania Game Commission
2001 Elmerton Avenue
Harrisburg, PA 17110
Phone: 717-787-4250, Ext. 3128
olbraun@pa.gov

From: Foster, Joyce <JFoster@trccompanies.com>
Sent: Thursday, June 27, 2019 11:20 AM
To: Braun, Olivia <olbraun@pa.gov>
Cc: Jody Smet <jsmet@cubehydro.com>
Subject: [External] RE: Lake Lynn Generation, LLC - Relicensing of the Lake Lynn Hydroelectric Project

ATTENTION: *This email message is from an external sender. Do not open links or attachments from unknown sources. To report suspicious email, forward the message as an attachment to CWOPA_SPAM@pa.gov.*

Good morning,

Attached is a figure that shows the Project boundary and Project area for the Lake Lynn Hydroelectric Project. Please let us know if you need anything else or have any questions. Since this request is for information or data you would like to see included in the Pre-application Document, at this time the Licensee is not proposing any changes or improvements at the Project.

Thank you,

Joyce Foster
Planner



179 Clarks Lane, Aylett, VA 23009

T 804.769.1667 | C 804.338.5110

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Please note that our domain name and email addresses have changed

From: Braun, Olivia [<mailto:olbraun@pa.gov>]

Sent: Wednesday, June 26, 2019 8:44 AM

To: Foster, Joyce <JFoster@trccompanies.com>

Subject: Lake Lynn Generation, LLC - Relicensing of the Lake Lynn Hydroelectric Project

Good Morning Joyce,

The PGC is in receipt of your letter dated May 20, 2019 and would like to request some additional information about the project so that we may provide information for your pre-application document. At your earliest convenience, please provide the PGC with project mapping that clearly illustrates the location and boundary of the project area as well as any proposed improvements that may be proposed as part of the relicensing efforts. Once we receive this information, we will be in a better position to reply to you letter.

Many thanks and please feel free to contact me with any questions,

Olivia A. Braun

Environmental Planner

Environmental Planning & Habitat Protection Division

Bureau of Wildlife Habitat Management

Pennsylvania Game Commission

2001 Elmerton Avenue

Harrisburg, PA 17110

Phone: 717-787-4250, Ext. 3128

olbraun@pa.gov

Foster, Joyce

From: Jody Smet <jsmet@cubehydro.com>
Sent: Monday, July 08, 2019 3:25 PM
To: Foster, Joyce
Subject: FW: Information request: Lake Lynn

Jody J. Smet, AICP
Director, FERC Licensing and Compliance
(O) 804-739-0654

1

(C) 804-382-1764
jsmet@cubehydro.com (Please note new email address)



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2

From: Harrell, Jacob D <Jacob.D.Harrell@wv.gov>
Sent: Monday, July 8, 2019 2:55 PM
To: Jody Smet <jsmet@cubehydro.com>
Subject: RE: Information request: Lake Lynn

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Jody,

We have a lot of experience with the ILP. No experience with the ALP, but in reviewing projects in other states that have employed this process, we do like the emphasis the ALP

3

has on developing solutions and building those open-channel relationships between licensees and stakeholders. That collaborative nature seems to resolve conflicts much more amicably than other processes. At least, that is how it appears. For the ILP, we really like the defined structural components which does make it fairly easy for us to know what to expect and what to plan for. FERC's involvement through the ILP can be nice, as well. We find that the TLP works just as well as the ILP, but I feel that disputes and disagreements tend to take a little longer than they should to resolve and so sometimes things get drawn out, at least that is our experience with a few of the projects that had elected to go this route. This is not to say that this project would have a lot of disputes or disagreements that would slow down the relicensing process, but it may be something to think about. Ultimately, I don't know what the best route would be in this situation, but the WVDNR wouldn't be opposed to either one. The end result is always the same, the only difference is the path used to get

4

there. I feel that Cube Hydro does a fairly well job at working with the resource agencies and hopefully this relationship can be maintained throughout the relicensing process.

From: Jody Smet <jsmet@cubehydro.com>
Sent: Monday, July 08, 2019 2:07 PM
To: Harrell, Jacob D <Jacob.D.Harrell@wv.gov>
Subject: RE: Information request: Lake Lynn

Okay, I'm curious about your preference for the ILP or ALP? Just more experience with it, or do you feel it offers benefits over the ILP?

I appreciate your support either way.

5

Jody J. Smet, AICP
Director, FERC Licensing and Compliance
(O) 804-739-0654
(C) 804-382-1764
jsmet@cubehydro.com (Please note new email address)



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From: Harrell, Jacob D <Jacob.D.Harrell@wv.gov>
Sent: Monday, July 8, 2019 2:04 PM
To: Jody Smet <jsmet@cubehydro.com>
Subject: RE: Information request: Lake Lynn

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Jody,

7

The WVDNR would prefer that the ILP or ALP be used, but is perfectly comfortable with the TLP. If you guys want to go the TLP route, then we wouldn't object.

Thanks,

Jacob Harrell

From: Jody Smet <jsmet@cubehydro.com>
Sent: Wednesday, July 03, 2019 4:30 PM
To: Harrell, Jacob D <Jacob.D.Harrell@wv.gov>
Subject: RE: Information request: Lake Lynn

Jacob,

8

A question for you – does WVDNR have any concerns about the relicensing process proposal
– Traditional Licensing Process?

Jody J. Smet, AICP
Director, FERC Licensing and Compliance
(O) 804-739-0654
(C) 804-382-1764
jsmet@cubehydro.com (Please note new email address)



9

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From: Harrell, Jacob D <Jacob.D.Harrell@wv.gov>
Sent: Wednesday, June 19, 2019 2:57 PM
To: Jody Smet <jsmet@cubehydro.com>
Subject: Information request: Lake Lynn

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Jody,

Just for clarification purposes on our end, regarding the information request for the Lake Lynn Hydroelectric Project, this request is for information from WVDNR to use in informing the NOI/PAD, correct? There may be some confusion here that the request is for studies that we might request for the relicensing, though I think that would come after the PAD has been submitted and following the first scoping meeting. I want to make sure I have this correct.

Thanks,

Jacob Harrell

Coordination Unit

11

WVDNR – Wildlife Resources Section
1110 Railroad Street
Farmington, WV 26571
(304)704-9328
Jacob.D.Harrell@wv.gov

12

Foster, Joyce

From: Foster, Joyce
Sent: Tuesday, July 09, 2019 12:17 PM
To: Norman, Janet
Cc: Jody Smet
Subject: FW: [EXTERNAL] Lake Lynn Project (FERC No. 2459) - Ipac consultation
Attachments: Lake_Lynn_Project_Boundary_revised 6-24-2019.zip

Janet,

1

I am following up to make sure you were able to open the attached Shapefile and that it was what you needed. Please let us know if you need anything else.

Thanks,

Joyce Foster
Planner



179 Clarks Lane, Aylett, VA 23009
T 804.769.1667 | C 804.338.5110
[LinkedIn](#) | [Twitter](#) | [Blog](#) | [TRCcompanies.com](#)

Please note that our domain name and email addresses have changed

2

From: Foster, Joyce
Sent: Tuesday, June 25, 2019 8:14 AM
To: Norman, Janet <janet_norman@fws.gov>
Cc: Jody Smet <jsmet@cubehydro.com>
Subject: RE: [EXTERNAL] Lake Lynn Project (FERC No. 2459) - Ipac consultation

Janet,

As follow-up to our communication last week, attached is the corrected Shapefile that we used to re-run the IPaC unofficial review for the Lake Lynn Project (FERC No. 2459). Please let us know if you have any questions or issues with the attachment.

3

Thanks,

Joyce Foster
Planner



179 Clarks Lane, Aylett, VA 23009
T 804.769.1667 | C 804.338.5110
[LinkedIn](#) | [Twitter](#) | [Blog](#) | [TRCcompanies.com](#)

Please note that our domain name and email addresses have changed

4

From: Norman, Janet [mailto:janet_norman@fws.gov]
Sent: Thursday, June 20, 2019 11:18 AM
To: Foster, Joyce <JFoster@trccompanies.com>
Cc: Jody Smet <jsmet@cubehydro.com>
Subject: Re: [EXTERNAL] Lake Lynn Project (FERC No. 2459) - Ipac consultation done

Terrific, thank you Joyce.

I appreciate the follow up information.

Janet

On Thu, Jun 20, 2019 at 8:48 AM Foster, Joyce <JFoster@trccompanies.com> wrote:

5

Janet,

As follow-up to our conversation related to the Lake Lynn Project FERC relicensing, I will send you the Shapefile for the Project that we used for the IPaC unofficial resource/species list as soon as it is available, hopefully later today. Our GIS staff is currently correcting an error in the Project area polygon and we will rerun the IPaC unofficial review using this corrected Shapefile.

As we discussed, I am also sending you the contact information for Jody Smet, the Project Licensee:

6

Jody J. Smet, AICP

Director, FERC Licensing and Compliance

(O) 804-739-0654

(C) 804-382-1764

jsmet@cubehydro.com

7

As I mentioned, I am the consultant assisting with the relicensing process. My contact information is below:

Joyce Foster

TRC

804-769-1667 (office)

804-338-5110 (cell)

jfoster@trccompanies.com

8

We are looking forward to working with you.

Joyce Foster
Planner



179 Clarks Lane, Aylett, VA 23009

T 804.769.1667 | **C** 804.338.5110

[LinkedIn](#) | [Twitter](#) | [Blog](#) | [TRCcompanies.com](#)

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Please note that our domain name and email addresses have changed

Begin forwarded message:

From: "Norman, Janet" <janet_norman@fws.gov>
Date: June 19, 2019 at 6:06:25 PM GMT+2
To: <jsmet@cubehydro.com>
Subject: **Ipac consultation done?**

10

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Exercise caution when opening attachments or clicking links,
especially from unknown senders.

Hi Jody,

I don't have your phone number, and was hoping to talk to you
regarding the Lake Lynn re-licensing information search. Wanted to
go over some of the specifics of the Ipac process, if we can?

Here is my phone, below, and I will be back in the office by 1pmish.

Thanks.

11

Janet

--

Janet Norman

Biologist

U.S. Fish and Wildlife Service

12

Chesapeake Bay Field Office

177 Admiral Cochrane Dr.

Annapolis, MD 21401

Office: 410-573-4533

Fax: 410-269-0832

Janet_Norman@fws.gov

www.fws.gov/chesapeakebay

13

--

Janet Norman

Biologist

U.S. Fish and Wildlife Service

Chesapeake Bay Field Office

177 Admiral Cochrane Dr.

Annapolis, MD 21401

Office: 410-573-4533

Fax: 410-269-0832

Janet_Norman@fws.gov

14

Foster, Joyce

From: Blair, Michelle A.
Sent: Wednesday, July 10, 2019 11:29 AM
To: Foster, Joyce
Subject: Fwd: Information Request for the Pre-Application Document for Relicensing of the Lake Lynn Hydroelectric Project (FERC No. 2459)
Attachments: MISC-PA and WV-0619-002.pdf

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1

From: Erin Thompson <ethompson@delawarenation-nsn.gov>
Sent: Wednesday, July 10, 2019 11:26:53 AM
To: Blair, Michelle A.
Subject: RE: Information Request for the Pre-Application Document for Relicensing of the Lake Lynn Hydroelectric Project (FERC No. 2459)

Please see attached consultation letter.

Thank you,
Erin

Erin Thompson

2

Delaware Nation Historic Preservation Director
31064 SH 281
P.O. Box 825
Anadarko, OK 73005
405-247-2448 ex. 1403
ethompson@delawarenation-nsn.gov

From: Dana Kelly <dkelly@delawarenation-nsn.gov>
Sent: Wednesday, June 19, 2019 2:46 PM
To: Erin Thompson <ethompson@delawarenation-nsn.gov>
Subject: FW: Information Request for the Pre-Application Document for Relicensing of the Lake Lynn Hydroelectric Project (FERC No. 2459)

3

Dana Kelly
Historic Preservation
106/ Archive Assistant
Delaware Nation
31064 S HWY 281
P.O. Box 825
Anadarko, OK 73005
Phone: 405-247-2448 ext. 1407
Email: dkelly@delawarenation-nsn.gov

4

From: Blair, Michelle A. <mblair@trccompanies.com>

Sent: Monday, May 20, 2019 2:06 PM

To: Absentee-Shawnee Tribe of Oklahoma <106NAGPRA@astribe.com>; Amanda Pitzer <amanda@cheat.org>; Anita Carter <greystone.poa@hotmail.com>; Betty Wiley <betty.w304@gmail.com>; Bob Irvin <birvin@americanrivers.org>; Bonney Hartley <bonney.hartley@mohican-nsn.gov>; Brett Barnes <bbarnes@estoo.net>; Brian Bridgewater <Brian.L.Bridgewater@wv.gov>; Brice Obermeyer <bobermeyer@delawaretribe.org>; Bryan Printup <bprintup@hetf.org>; Cassie Harper <cassie@shawnee-tribe.com>; Clint Halftown <clint.halftown@gmail.com>; Colleen McNally-Murphy <colleen@hydroreform.org>; Coopers Rock State Forest <coopersrocksf@wv.gov>; Cosmo Servidio <cosmo.servidio@epa.gov>; Curtis Schreffler <clschref@usgs.gov>; Dana Kelly <dkelly@delawarenation.com>; Danny Bennett <Danny.A.Bennett@wv.gov>; Darren Bonaparte <darren.bonaparte@srmt-nsn.gov>; David

5

Wellman <David.I.Wellman@wv.gov>; e c <ec@delawarenation.com>; Delaware Tribe of Indians <cbrooks@delawaretribe.org>; Duane Nichols <duane330@aol.com>; Eastern Shawnee Tribe of Oklahoma <estochief@hotmail.com>; Edgewater Marina <edgewater@cheatlakedocks.com>; Ella Belling <ella@montrails.org>; Heather Smiles <hsmiles@pa.gov>; Jacob Harrell <Jacob.D.Harrell@wv.gov>; Jay Toth <jay.toth@sni.org>; Jesse Bergevin <jbergevin@oneida-nation.org>; John Spain <john.spain@ferc.gov>; Kevin Colburn <kevin@americanwhitewater.org>; Kevin Mendik <Kevin_Mendik@nps.gov>; Laura Misita <lmisita@oneida-nation.org>; Megan Gottlieb <Megan.K.Gottlieb@usace.army.mil>; Mike Strager <mstrager@gmail.com>; Oneida Indian Nation <info@oneida-nation.org>; Oneida Tribe of Indians of Wisconsin <cwilliam@oneidanation.org>; Onondaga Nation <admin@onondaganation.org>; Renetta McClure <rmcclure@moncommission.com>; Richard McCorkle <richard_mccorkle@fws.gov>; Sean P McDermott <Sean.McDermott@noaa.gov>; Shannon Holsey <shannon.holsey@mohican-nsn.gov>;

6

Shaun Wicklein <smwickle@usgs.gov>; Steve Moyer <steve_moyer@tu.org>; Steve Moyer (smoyer@tu.org) <smoyer@tu.org>; Stuart Welsh <swelsh@wvu.edu>; Sunset Beach Marina <info@sunsetbeach-marina.com>; Susan Bachor <sbachor@delawaretribe.org>; Susan Pierce <susan.m.pierce@wv.gov>; Tonawanda Band of Seneca <toseneca@aol.com>; Tonya Tipton <tonya@shawnee-tribe.com>; Vincent Vicites <vvicites@fayettepa.org>; William Fisher <wfisher@sctribe.com>; William Tarrant <wtarrant@sctribe.com>

Cc: jsmet@cubehydro.com; Foster, Joyce <JFoster@trccompanies.com>

Subject: Information Request for the Pre-Application Document for Relicensing of the Lake Lynn Hydroelectric Project (FERC No. 2459)

Good afternoon-

7

Attached is an Information Request for the Pre-Application Document for the FERC relicensing of the Lake Lynn Hydroelectric Project (FERC No. 2459).

Please provide your comments within 30 days of this letter. If you have any questions regarding this request please contact Jody Smet at jsmet@cubehydro.com or Joyce Foster at jfoster@trccompanies.com.

Thank you,
Michelle

Michelle Blair
Project Coordinator

8



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9

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The Delaware Nation
Historic Preservation Department

31064 State Highway 281
Anadarko, OK 73005
Phone (405)247-2448

July 10, 2019

To Whom It May Concern:

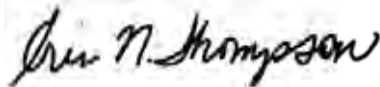
The Delaware Nation Historic Preservation Department received correspondence regarding the following referenced project(s).

Project: Relicensing of the Lake Lynn Hydroelectric Project (FERC No. 2459)

Our office is committed to protecting tribal heritage, culture and religion with particular concern for archaeological sites potentially containing burials and associated funerary objects.

The Lenape people occupied the area indicated in your letter during prior to European contact until their eventual removal to our present locations. According to our files, the location of the proposed project does not endanger cultural, or religious sites of interest to the Delaware Nation. **Please continue with the project as planned** keeping in mind during construction should an archaeological site or artifacts inadvertently be uncovered, all construction and ground disturbing activities should immediately be halted until the appropriate state agencies, as well as this office, are notified (within 24 hours), and a proper archaeological assessment can be made.

Please note the Delaware Nation, the Delaware Tribe of Indians, and the Stockbridge Munsee Band of Mohican Indians are the only Federally Recognized Delaware/Lenape entities in the United States and consultation must be made only with designated staff of these three tribes. We appreciate your cooperation in contacting the Delaware Nation Cultural Preservation Office to conduct proper Section 106 consultation. Should you have any questions, feel free to contact our offices at 405-247-2448 ext. 1403.



Erin Thompson
Director of Historic Preservation
Delaware Nation
31064 State Highway 281
Anadarko, OK 73005
Ph. 405-247-2448 ext. 1403
ethompson@delawarenation-nsn.gov

Joyce Foster

From: Jody Smet <jsmet@cubehydro.com>
Sent: Thursday, October 24, 2019 4:09 PM
To: Foster, Joyce
Subject: [EXTERNAL] Fwd: Lake Lynn Hydro Project (FERC No. 2459) – FERC Relicensing Update and Doodle poll for Joint Meeting/Site Visit

Follow Up Flag: Follow up
Flag Status: Completed

This is an **EXTERNAL** email. Do not click links or open attachments unless you validate the sender and know the content is safe.

Begin forwarded message:

From: Bonney Hartley <bonney.hartley@mohican-nsn.gov>
Date: October 24, 2019 at 10:16:48 AM EDT
To: Jody Smet <jsmet@cubehydro.com>
Subject: RE: Lake Lynn Hydro Project (FERC No. 2459) – FERC Relicensing Update and Doodle poll for Joint Meeting/Site Visit

CAUTION: This email originated from outside your organization. Exercise caution when opening attachments or clicking links, especially from unknown senders.

Hello,
Stockbridge Munsee Community does not wish to participate as this project is not located in our area of cultural interest.

Best,
Bonney

Bonney Hartley

Tribal Historic Preservation Manager
Stockbridge-Munsee Mohican Tribal Historic Preservation
Extension office
65 1st Street
Troy, NY 12180
(518) 244-3164

Bonney.Hartley@mohican-nsn.gov
www.mohican-nsn.gov

From: Jody Smet <jsmet@cubehydro.com>

Sent: Wednesday, October 23, 2019 8:02 PM

To: Absentee-Shawnee Tribe of Oklahoma <106NAGPRA@astribe.com>; Amanda Pitzer <amanda@cheat.org>; Andy Bernick <andrew.bernick@ferc.gov>; Anita Carter <greystone.poa@hotmail.com>; Betty Wiley <betty.w304@gmail.com>; Bob Irvin <birvin@americanrivers.org>; Bonney Hartley <Bonney.Hartley@mohican-nsn.gov>; Brett Barnes <bbarnes@estoo.net>; Brian Bridgewater <Brian.L.Bridgewater@wv.gov>; Brice Obermeyer <bobermeyer@delawaretribe.org>; Bryan Printup <bprintup@hetf.org>; Cassie Harper <cassie@shawnee-tribe.com>; Cheryl Nagle <chnagle@pa.gov>; Clint Halftown <clint.halftown@gmail.com>; Colleen McNally-Murphy <colleen@hydroreform.org>; Coopers Rock State Forest <coopersrocksf@wv.gov>; Curtis Schreffler <clschref@usgs.gov>; Dana Kelly <dkelly@delawarenation.com>; Daniel Miller <DMiller@potesta.com>; Danny Bennett <Danny.A.Bennett@wv.gov>; Darren Bonaparte <darren.bonaparte@srmt-nsn.gov>; David Wellman <David.I.Wellman@wv.gov>; Delaware Nation, Oklahoma <ec@delawarenation.com>; Delaware Tribe of Indians <cbrooks@delawaretribe.org>; Duane Nichols <duane330@aol.com>; Edgewater Marina <edgewater@cheatlakedocks.com>; Ella Belling <ella@montrails.org>; Erin Thompson <ethompson@delawarenation-nsn.gov>; Garrett Thompson <gthompson@cheat.org>; Heather Smiles <hsmiles@pa.gov>; Jacob Harrell <Jacob.D.Harrell@wv.gov>; Janet Norman <Janet_Norman@fws.gov>; Jay Toth <jay.toth@sni.org>; Jesse Bergevin <jbergevin@oneida-nation.org>; John Spain <john.spain@ferc.gov>; Kevin Colburn <kevin@americanwhitewater.org>; Kevin Mendik <Kevin_Mendik@nps.gov>; Laura Misita <lmisita@oneida-nation.org>; Megan Gottlieb <Megan.K.Gottlieb@usace.army.mil>; Mike Strager <mstrager@gmail.com>; Olivia Braun <olbraun@pa.gov>; Oneida Indian Nation <info@oneida-nation.org>; Onondaga Nation <admin@onondaganation.org>; Renetta McClure <rmcclure@moncommission.com>; Scott Williamson <scwilliams@pa.gov>; Sean P McDermott <Sean.McDermott@noaa.gov>; Shannon Holsey <Shannon.Holsey@mohican-nsn.gov>; Shaun Wicklein <smwickle@usgs.gov>; Steve Moyer <smoyer@tu.org>; Stratford Douglas <stratdouglas@gmail.com>; Stuart Welsh <swelsh@wvu.edu>; Susan Bachor <sbachor@delawaretribe.org>; Susan Pierce <susan.m.pierce@wv.gov>; Tonawanda Band of Seneca <tonseneca@aol.com>; Tonya Tipton <tonya@shawnee-tribe.com>; Vincent Vicites <vvicites@fayettepa.org>; William Fisher <wfisher@sctribe.com>; William Tarrant <wtarrant@sctribe.com>; Sunsetoutdoorsupply@gmail.com; Daniel Miller <DMiller@potesta.com>

Subject: RE: Lake Lynn Hydro Project (FERC No. 2459) – FERC Relicensing Update and Doodle poll for Joint Meeting/Site Visit

All, just a reminder to participate in the Doodle poll by Friday.

Thanks,

Jody J. Smet, AICP

Director, FERC Licensing and Compliance

(O) 804-739-0654

(C) 804-382-1764

jsmet@cubehydro.com (Please note new email address)



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From: Jody Smet

Sent: Friday, October 18, 2019 2:27 PM

To: Absentee-Shawnee Tribe of Oklahoma <106NAGPRA@astribe.com>; Amanda Pitzer <amanda@cheat.org>; Andy Bernick <andrew.bernick@ferc.gov>; Anita Carter <greystone.poa@hotmail.com>; Betty Wiley <betty.w304@gmail.com>; Bob Irvin <birvin@americanrivers.org>; Bonney Hartley <bonney.hartley@mohican-nsn.gov>; Brett Barnes <bbarnes@estoo.net>; Brian Bridgewater <Brian.L.Bridgewater@wv.gov>; Brice Obermeyer <bobermeyer@delawaretribe.org>; Bryan Printup <bprintup@hetf.org>; Cassie Harper <cassie@shawnee-tribe.com>; Cheryl Nagle <chnagle@pa.gov>; Clint Halftown <clint.halftown@gmail.com>; Colleen McNally-Murphy <colleen@hydroreform.org>; Coopers Rock State Forest <coopersrocksf@wv.gov>; Curtis Schreffler <clschref@usgs.gov>; Dana Kelly <dkelly@delawarenation.com>; Daniel Miller <DMiller@potesta.com>; Danny Bennett <Danny.A.Bennett@wv.gov>; Darren Bonaparte <darren.bonaparte@srmt-nsn.gov>; David Wellman <David.I.Wellman@wv.gov>; Delaware Nation, Oklahoma <ec@delawarenation.com>; Delaware Tribe of Indians <cbrooks@delawaretribe.org>; Duane Nichols <duane330@aol.com>; Edgewater Marina <edgewater@cheatlakedocks.com>; Ella Belling <ella@montrails.org>; Erin Thompson <ethompson@delawarenation-nsn.gov>; Garrett Thompson <gthompson@cheat.org>; Heather Smiles <hsmiles@pa.gov>; Jacob Harrell <Jacob.D.Harrell@wv.gov>; Janet Norman <Janet_Norman@fws.gov>; Jay Toth <jay.toth@sni.org>; Jesse Bergevin <jbergevin@oneida-nation.org>; John Spain <john.spain@ferc.gov>; Kevin Colburn <kevin@americanwhitewater.org>; Kevin Mendik <Kevin_Mendik@nps.gov>; Laura Misita <lmisita@oneida-nation.org>; Megan Gottlieb <Megan.K.Gottlieb@usace.army.mil>; Mike Strager <mstrager@gmail.com>; Olivia Braun <olbraun@pa.gov>; Oneida Indian Nation <info@oneida-nation.org>; Onondaga Nation <admin@onondaganation.org>; Renetta McClure <rmcclure@moncommission.com>; Scott Williamson <scwilliams@pa.gov>; Sean P McDermott <Sean.McDermott@noaa.gov>; Shannon Holsey <shannon.holsey@mohican-nsn.gov>; Shaun Wicklein <smwickle@usgs.gov>; Steve Moyer <smoyer@tu.org>; Stratford Douglas <stratdouglas@gmail.com>; Stuart Welsh <swelsh@wvu.edu>; Susan Bacher <sbacher@delawaretribe.org>; Susan Pierce <susan.m.pierce@wv.gov>; Tonawanda Band of Seneca <toseneca@aol.com>; Tonya Tipton <tonya@shawnee-tribe.com>; Vincent Vicites <vvicites@fayettepa.org>; William Fisher <wfisher@sctribe.com>; William Tarrant <wtarrant@sctribe.com>; Sunsetoutdoorsupply@gmail.com; Daniel Miller <DMiller@potesta.com>

Subject: Lake Lynn Hydro Project (FERC No. 2459) – FERC Relicensing Update and Doodle poll for Joint Meeting/Site Visit

Importance: High

Lake Lynn Hydro Project Stakeholders,

On August 29, 2019, Lake Lynn Generation, LLC (Lake Lynn) filed with the Federal Energy Regulatory Commission (FERC) a Notification of Intent (NOI) and Pre-Application Document (PAD) for the relicensing of the Lake Lynn Hydroelectric Project (FERC No. 2459) (Project), located near the City of Morgantown, West Virginia, in Monongalia County, West Virginia and Fayette County, Pennsylvania. Lake Lynn also requested approval from FERC to use the Traditional Licensing Process (TLP) for the Project relicensing. On October 17, 2019, FERC provided notice of Lake Lynn's filing and approved the use of the TLP (see attached documents). In accordance with FERC's regulations, Lake Lynn must hold a Joint Agency/Public Meeting and Site Visit for the Project no sooner than 30 days, but no later than 60 days, from FERC's letter dated October 17, 2019 (i.e., between November 16, 2019 and December 16, 2019). The purpose of the Joint Agency/Public Meeting is to provide an overview of the Project, discuss the licensing process and schedule, and receive input from stakeholders and interested parties.

To assist us in scheduling the Joint Agency/Public Meeting and Site Visit at the Project, we have developed a Doodle poll. **Please respond with your availability by noon on Friday, October 25, 2019, to the Doodle poll at the following link: <https://doodle.com/poll/zccu84iaf8msgq6k>.** We will

schedule the Joint Agency/Public Meeting and Site Visit based on the date that works for the majority and the availability of the meeting space.

Thank you,

Jody J. Smet, AICP
Director, FERC Licensing and Compliance
(O) 804-739-0654
(C) 804-382-1764
jsmet@cubehydro.com (Please note new email address)



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Lake Lynn Generation, LLC
Two Bethesda Metro Center, Suite 1330
Bethesda, MD 20814

Via eFiling

November 21, 2019

Kimberly D. Bose, Secretary
Federal Energy Regulatory Commission
888 First Street, N.E.
Washington, D.C. 20426

Re: Lake Lynn Hydroelectric Project (FERC No. 2459)
Notice of Joint Meeting and Site Visit

Dear Secretary Bose,

On August 29, 2018, Lake Lynn Generation, LLC (Lake Lynn) filed with the Federal Energy Regulatory Commission (FERC or Commission) a Notice of Intent to File a License Application (NOI), Pre-Application Document (PAD), and Request to Use the Traditional Licensing Process (TLP) for the relicensing of the Lake Lynn Hydroelectric Project (FERC No. 2459) (Project). By letter order dated October 17, 2019, FERC granted Lake Lynn's request to use the TLP.

Lake Lynn hereby provides written notice to FERC and the Distribution List for the Project of its upcoming Joint Meeting and Site Visit to be conducted in accordance with the requirements of 18 CFR § 16.8 (b)(3)(ii) for the relicensing of the Project. The Joint Meeting and Site Visit are open to the interested public, agencies, and Native American Tribes. The Joint Meeting will be held at 10:00 a.m. on Thursday, December 12, 2019, at the Cheat Lake Volunteer Fire Department located at 409 Fairchance Road, Morgantown, West Virginia 26508. The Site Visit will commence at 1:30 p.m. at Sunset Beach Marina located at 177 Sunset Beach Road, Morgantown, West Virginia 26508. An agenda for the Joint Meeting and Site Visit is attached.

The purpose of the Joint Meeting is to provide an overview of the Project and the information provided in the PAD filed with the Commission on August 29, 2019; discuss the licensing process and schedule; discuss any necessary studies to be conducted by Lake Lynn to support its license application; and receive input and feedback regarding the information presented. All interested parties are invited to attend the Joint Meeting to assist in identifying and clarifying the scope of issues to be addressed during this phase of the relicensing process.

In accordance with the requirements of 18 C.F.R. § 16.8(i), at least 14 days in advance of the Joint Meeting, Lake Lynn will publish notice of the Joint Meeting and Site Visit in *The Herald-Standard* (a daily newspaper of general circulation in Fayette County, Pennsylvania) and *The Dominion Post* (a daily newspaper of general circulation in Monongalia County, West Virginia).

Please do not hesitate to contact me at (804) 739-0654 or by email at jsmet@cubehydro.com if you have any questions concerning this filing, the Joint Meeting, or Site Visit. **Please note that attendees MUST RSVP participation at jsmet@cubehydro.com or 804-739-0654 no later than November 29, 2019.**

November 21, 2019

Notice of Joint Meeting and Site Visit for the Lake Lynn Project (FERC No. 2459)

Sincerely,

Lake Lynn Generation, LLC

A handwritten signature in black ink that reads "Jody J. Smet". The signature is written in a cursive style with a large initial "J" and "S".

Jody Smet

Director, FERC Licensing and Compliance

cc: Joyce Foster, TRC
Distribution List

Agenda for Joint Meeting and Site Visit
Lake Lynn Generation, LLC
Lake Lynn Hydroelectric Project (FERC No. 2459)

December 12, 2019

10:00 a.m. – 12:30 p.m.

Joint Meeting: Morgantown, West Virginia

Location: Cheat Lake Volunteer Fire Department located at 409 Fairchance Road,
Morgantown, West Virginia 26508

12:30 p.m. – 1:30 p.m.

Lunch Break

1:30 p.m. – 4:30 p.m.

Site Visit: Lake Lynn Project

Location: Meet at 1:30 p.m. at Sunset Beach Marina located at 177 Sunset Beach Road,
Morgantown, West Virginia 26508

**Lake Lynn Generation, LLC
Lake Lynn Project (P-2459)
Distribution List (updated November 21, 2019)**

ELECTED OFFICIALS

Governor Jim Justice
West Virginia Office of the Governor
State Capitol
1900 Kanawha Blvd. E
Charleston, WV 25305

Patrick Morrissey
West Virginia Office of the Attorney General
State Capitol Complex, Bldg. 1, Room E-26
Charleston, WV 25305

The Honorable Joe Manchin III
United States Senate
306 Hart Senate Office Building
Washington D.C. 20510

The Honorable Shelley Capito
United States Senate
172 Russell Senate Office Building
Washington, DC 20510

The Honorable David McKinley
United States House of Representatives
2239 Rayburn HOB
Washington, DC 20515

Governor Tom Wolf
Commonwealth of Pennsylvania
Office of the Governor
508 Main Capitol Building
Harrisburg, PA 17120

Josh Shapiro
Pennsylvania Office of the Attorney General
16th Floor, Strawberry Square
Harrisburg, PA 17120

The Honorable Pat Toomey
United States Senate
248 Russell Senate Office Building
Washington, DC 20510

The Honorable Bob Casey
United States Senate
393 Russell Senate Office Building
Washington, DC 20510

The Honorable Guy Reschenthaler
United States House of Representatives
531 Cannon House Office Building
Washington, DC 20515

FEDERAL AGENCIES

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Sean McDermott
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STATE

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Secretary Cindy Adams Dunn
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Cheryl Nagle
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Chairman, County Commissioner
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Uniontown, PA 15401
vvicites@fayettepa.org

Albert Gallatin Municipal Authority
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Point Marion, PA 15474-0211

Borough of Point Marion, PA
426 Morgantown Street
Point Marion, PA 15474

Springhill Township
198 Lake Lynn Rd.
Lake Lynn PA 15451

TRIBAL

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Eastern Regional Office
545 Marriott Drive, Suite 700
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Delaware Tribe of Indians
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Eastern Shawnee Tribe of Oklahoma
Glenna Wallace, Chief
PO Box 350
Seneca, MO 64865

Oneida Indian Nation
Raymond Halbritter, Nation Representative
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info@oneida-nation.org

Oneida Indian Nation of Wisconsin
Tehassi Hill, Chair
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Osage Nation
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Pawhuska, OK 74056

Seneca Nation of Indians
Rickey Armstrong, Sr., President
90 O:hi'yoh Way
Salamanca, NY 14779

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Shawnee Tribe
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cassie@shawnee-tribe.com

St. Regis Mohawk Tribe
Chief Beverly Kiohawiton Cook
71 Margaret Terrance Memorial Way
Akwasasne, NY 13655

Stockbridge-Munsee Band of the Mohican
Nation of Wisconsin
Shannon Holsey, Tribal President
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Via eFiling

January 23, 2020

Kimberly D. Bose, Secretary
Federal Energy Regulatory Commission
888 First Street, N.E.
Washington, D.C. 20426

Re: Lake Lynn Hydroelectric Project (FERC No. P-2459)
Joint Meeting and Site Visit Summary and Proof of Publication of Newspaper Notice

Dear Secretary Bose,

On August 29, 2019, Lake Lynn Generation, LLC (Lake Lynn) filed with the Federal Energy Regulatory Commission (FERC) a Notice of Intent to File a License Application (NOI), Pre-Application Document (PAD), and Request to Use the Traditional Licensing Process (TLP) for the relicensing of the Lake Lynn Hydroelectric Project (FERC No. P-2459) (Project). By letter order dated October 17, 2019, FERC granted Lake Lynn's request to use the TLP.


On November 21, 2019, pursuant to 18 CFR § 16.8(b)(3), Lake Lynn provided written notice to FERC and the Project Distribution List of its Joint Meeting and Site Visit for the relicensing of the Project. In accordance with the requirements of 18 CFR § 16.8(i), at least 14 days in advance of the Joint Meeting, Lake Lynn published notice of the Joint Meeting and Site Visit in the *Herald-Standard* (a daily newspaper of general circulation in Fayette County, Pennsylvania) and *The Dominion Post* (a daily newspaper of general circulation in Monongalia County, West Virginia). Proof of publication of the notices in each newspaper is provided in Attachment 3.

The Joint Meeting and Site Visit were held on Thursday, December 12, 2019. The Joint Meeting was held at 10:00 a.m. at the Cheat Lake Volunteer Fire Department located at 409 Fairchance Road, Morgantown, West Virginia 26508. The Site Visit commenced at approximately 1:30 p.m. at Sunset Beach Marina located at 177 Sunset Beach Road, Morgantown, West Virginia 26508.

Enclosed for filing, in accordance with 18 CFR § 16.8 (b)(4), are summaries for both the Joint Meeting (Attachment 1) and Site Visit (Attachment 2). The audio recording of the Joint Meeting will be filed separately.

Please do not hesitate to contact me at (804) 739-0654 or by email at jsmet@cubehydro.com if you have any questions concerning this filing.

Sincerely,
Lake Lynn Generation, LLC



Jody Smet
Director, FERC Licensing and Compliance

Attachments

cc: Distribution List

Attachment 1
Joint Meeting Summary, Sign-In Sheets, and Presentation

**LAKE LYNN GENERATION, LLC
LAKE LYNN HYDROELECTRIC PROJECT (FERC NO. P-2459)
JOINT MEETING SUMMARY
DECEMBER 12, 2019**

Cheat Lake Volunteer Fire Department
409 Fairchance Road, Morgantown, West Virginia 26508
Time: 10:00 AM

Joint Meeting Participants

Name	Affiliation	Email Address
Amy Wagner	Citizen	awagner1595@gmail.com
Andrew Gast-Bray	Monongalia County Planning Commission	agastbray@moncommission.com
Ann Chester	Community/Cheat Lake Environment & Recreation Association (CLEAR)	chestermcgraw@gmail.com
Bob Flickner	Lake Lynn Generation, LLC (Lake Lynn)	rflickner@cubehydro.com
Brian Bridgewater	West Virginia Department of Environmental Protection (WVDEP)	Brian.L.Bridgewater@wv.gov
Dale Short	Lake Lynn	dshort@cubehydro.com
Dan Griffin	Greystone Property Owners Association	dgriff66@aol.com
Dan Miller	Potesta	dmiller@potesta.com
Dave Hough		davecyndy@frontier.com
Donna Weems	CLEAR	donnaweems@rocketmail.com
Danny Bennett	West Virginia Division of Natural Resources (WVDNR)	Danny.A.Bennett@wv.gov
Duane Nichols	CLEAR	duane330@aol.com
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Ella Belling	Mon River Trails Conservancy	ella@montrails.org
Frank Jernejcic	Upper Monongahela River Association	fjernejcic@comcast.net
Jacob Harrell	WVDNR	Jacob.D.Harrell@wv.gov
Janet Norman	U.S. Fish and Wildlife Service (USFWS)	Janet_Norman@fws.gov
Jody Smet	Lake Lynn	jsmet@cubehydro.com
Joyce Foster	TRC	jfoster@trccompanies.com
Karen Baldwin	Lake Lynn	kbaldwin@cubehydro.com
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Sean Goodwin	Greystone President	seangoodwin@yahoo.com
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Will McNeil	WVU Student/Resident	whm0005@mix.wvu.edu

Joint Meeting Summary

The Joint Meeting commenced at 10:10 AM. Jody Smet (Director of FERC Licensing and Compliance for Cube Hydro [Cube] and Lake Lynn Generation, LLC [Lake Lynn]) opened the Joint Meeting for the relicensing of the Lake Lynn Hydroelectric Project (FERC No. P-2459) (Project). She introduced herself and stated that Lake Lynn is the licensee for the Project. She reviewed the overall schedule for the Joint Meeting and Site Visit, the agenda for the meeting, and logistics for the day. She stated that copies of the Pre-Application Document (PAD) were available in the room.

Ms. Smet asked everyone to introduce themselves. Following introductions, she stated that notification of the Joint Meeting and Site Visit was provided to stakeholders on the Project Distribution List, published in the local newspapers, and filed with the Federal Energy Regulatory Commission (FERC). Ms. Smet noted that the meeting is being recorded and that the recording would be filed with FERC.

Ms. Smet stated that Cube purchased the Project in 2014 and provided a brief overview of Cube. She explained that the Project is an asset of Cube and that Cube and its assets were recently acquired by Ontario Power Generation (OPG) Eagle Creek Renewable Energy (Eagle Creek) (a subsidiary of OPG) in October 2019. She stated that the two companies now collectively own and operate a total of 85 hydropower projects in the United States. Ms. Smet explained that the stakeholders and residents would see very little change and that the change in ownership does not change the requirements of the Project's FERC license or how the Project is operated.

Duane Nichols (Cheat Lake Environment & Recreation Association [CLEAR]) asked about contacts and who is the highest person in charge for the Project. Ms. Smet explained that Bob Flickner is the local manager/operator for the Project plant and that Dale Short is Bob's supervisor. She stated that she is in Virginia and that she is the FERC relicensing manager for the Project. She noted that the new CEO and President of the combined Eagle Creek and Cube is Eli Smith and the corporate office for Lake Lynn is in Bethesda, Maryland while the corporate office for Eagle Creek is in Morristown, New Jersey. She added that David Fox with Lake Lynn oversees FERC compliance and dam safety at the Project.

Richard Scott (resident) asked about the original charter for Cheat Lake/the Project. Ms. Smet explained the FERC license for the Project enumerates the requirements for operating the Project. Mr. Scott asked if the lake level or other requirements could change every time the Project license is applied for. Mr. Scott noted that during the last relicensing security was added at Cheat Lake Park. Ms. Smet explained that FERC issues licenses for a term of 30 to 50 years, with 40 years as the default. She added that the Project license expires in 2024 and that all stakeholders have a voice in the relicensing process. Ms. Smet explained that relicensing must balance all the resources at the Project with the generation of power. When asked about the purpose of lowering lake, Dale Short (Lake Lynn) explained that the lake stores water for power and that it is seasonally lowered from November 1 through spring to accommodate incoming flows from snow melt. He added that Lake Lynn can drop the lake level and that sometimes they need to.

When asked how Lake Lynn notifies residents when the lake level will drop quickly, Ms. Smet stated that Lake Lynn could do better. She added that, this past fall, Lake Lynn posted notification of the low lake levels on the Project website (cheatlake.today), notified marinas, and worked with the Friends of the Cheat and CLEAR so that they could notify members using social media. She advised residents to check the Project website and added that Lake Lynn was open to other suggestions.

Ann Chester (CLEAR member and member of the community) stated that how the FERC license has been implemented by the various owners of the Project has changed over the years. Ms. Smet

acknowledged that it appears there has been a consistency issue historically with how the previous owners of the Project have implemented the license requirements.

A meeting participant stated that there has been significant development in the area since the previous relicensing and that connection to other trails would provide better access to Cheat Lake from communities. When asked if the Cheat Lake Trail is the only trail in the county with maintenance issues, several meeting participants noted that there were others with maintenance and security issues. One meeting participant stated that the Greystone Estates residents have concerns about security and concerns regarding anyone being able to access the Cheat Lake Trail from other trails in the area and walk by their homes.

Ms. Smet acknowledged the desire by some for trails and more connectivity while the homeowners along Cheat Lake have concerns. Ms. Smet added that she met with Friends of the Cheat, Potesta, and others interested in trails in August 2019.

Ms. Smet stated that Lake Lynn recently collaborated on a grant proposal to the Natural Resources Conservation Service (NRCS) to repair the washout of the Cheat Lake Trail and to expand the trail around the Cheat Haven peninsula. She stated that the application was submitted by West Virginia Division of Natural Resources (WVDNR) and that they expected to receive a response in February 2020. Ms. Smet added that Lake Lynn is working on other plans to address the washout on the southern portion of the Cheat Lake Trail.

Ms. Smet stated that the washout on the southern portion of the Cheat Lake Trail is not a quick fix and that Lake Lynn is looking at how to redesign the trail and size the culverts under the trail appropriately. She stated that this would involve engineering design that would take some time. Ms. Smet stated that while this is underway, Lake Lynn is exploring options to reopen the Cheat Lake Trail sooner, but those options need to be safe and sustainable. She added that she is interested in hearing ideas from others.

One participant noted that everyone needs to be cognizant of intense weather patterns and investigate ways to prevent the shoreline from washing into Cheat Lake. Ms. Smet acknowledged that the steep topography plays into this and that stormwater runoff issues are beyond Lake Lynn's control. Ms. Smet stated that Lake Lynn and FERC do not have authority of upland areas outside the Project boundary, but this is under the authority of the county.

Andrew Gast-Bray (Monongalia County Planning Commission) stated that the County regulations do not include regulations related to water retention/stormwater runoff. Ms. Smet stated that Lake Lynn has investigated upland development and National Pollutant Discharge Elimination System (NPDES) permits. Brian Bridgewater (West Virginia Department of Environmental Protection [WVDEP]) clarified that the state's NPDES construction stormwater general permit addresses run-off during construction activities only but the permit does not address run-off after construction is complete.

Janet Norman (U.S. Fish and Wildlife Service [USFWS]) requested the name of the FERC Coordinator for this Project relicensing. Ms. Smet responded that Andy Bernick was assigned at least through the PAD development.

Ms. Smet continued the presentation by explaining that FERC has three licensing processes and that Lake Lynn is using the Traditional Licensing Processes (TLP). She explained that the Joint Meeting and Site Visit today are in the first stage of relicensing and that Lake Lynn filed a Notice of Intent (NOI) and PAD in August 2019. She said that everyone on the Project Distribution List should have received an email

with a link to the PAD. She added that the meeting participants from the sign-in sheets will be added to the Project Distribution List for future information related to the relicensing.

When asked for contact information for questions about the Project, Ms. Smet suggested starting with her.

When asked about technical issues with the link at the Project website for signing up for alerts, Bob Flickner (Lake Lynn) responded that he is working on the link. Ms. Smet added that Lake Lynn can manually enter everyone from the meeting sign-in sheets to that list for Project alerts.

Ms. Smet informed the participants that the next step in the relicensing process is for them to provide written comments and study requests to FERC by February 10, 2020, which is 60 days from the Joint Meeting. She added that this is a regulatory deadline and that study requests should be reasonable and follow the study criteria established by FERC (which will be reviewed at the end of the presentation). Ms. Smet stated that Lake Lynn will review comments in February and will develop a study plan for studies in the early spring. Ms. Smet stated that 2020 will largely focus on conducting studies. She added that in the second stage of the relicensing process, Lake Lynn will develop the draft license application and stakeholders will have the opportunity to review and provide comments on that document.

Ms. Smet stated that comments should be filed with FERC and asked that folks also email her a copy. She noted that comments can be mailed to FERC, but electronic filing is preferred by FERC. She explained that, through the FERC website (ferc.gov), comments can be e-filed using the FERC project number P-2459 and that any comments filed should have this project number on it. Ms. Smet advised meeting participants to e-subscribe on FERC's website (ferc.gov) to receive an email every time something is filed with FERC for the Project. Ms. Smet stated that she or Joyce Foster with TRC (consultant supporting Lake Lynn with the relicensing of the Project) would be happy to help anyone who has trouble using FERC's e-filing or e-subscription system. Janet Norman (USFWS) added that the e-subscription feature is helpful to the agencies so that they can see everyone's comments.

Duane Nichols (CLEAR) asked if a full justification for study requests was necessary. Ms. Smet stated that study requests should try and follow FERC's study criteria. Janet Norman (USFWS) added that it is best to be more specific and more justified.

Ms. Foster (TRC) continued the presentation by providing a brief overview of the Project. Jacob Harrell (WVDNR) asked what the trash rack spacing is. Mr. Flickner responded that it is 4 inches.

Ms. Foster continued the presentation with a figure of the Project boundary and stated that this is the limit of both Lake Lynn's authority and FERC's authority. When asked how far the Project boundary extends into the riparian zone, Ms. Foster and Ms. Smet clarified that it generally follows the normal full pool elevation of the impoundment (870 feet) and includes a small parcel of land at the powerhouse, recreation sites, nature viewing areas, and Project facilities. In response to a question regarding how far the Project boundary extends below the dam, Mr. Flickner responded that it was about 400 yards. Ms. Smet noted that the Project boundary extends into Pennsylvania.

Ms. Foster continued the presentation by reviewing the information provided in the PAD. She reviewed the Project facilities and operation requirements under the existing FERC license.

Ms. Foster continued the presentation with a summary of the information provided in the PAD regarding the natural resources associated with the Project. Ms. Foster stated that the intent of the PAD is to summarize readily available information regarding the existing environment and effects of the Project on resources.

Regarding geology and soils, Ms. Foster noted that shoreline erosion surveys of the entire Cheat Lake shoreline have been conducted every 3 years since 1995 and that the most recent survey conducted in 2017 did not identify any new areas of erosion. She stated that annual shoreline erosion surveys of the Cheat Lake Park shoreline have been conducted since 1995 and that the most recent annual survey in 2018 did not identify any new areas of active erosion. Ms. Foster added that no new issues are anticipated related to geology and soils.

Ms. Foster noted that there are six USGS gauges in the Project vicinity. Janet Norman (USFWS) expressed concern over the short period of record used for the flow duration curves in the PAD due to the recalibration of the tailrace gage several years ago. Ms. Foster stated that water surface elevation data has been measured at the tailrace gage since 2010 but the previous Project licensee conducted an instream flow study in 2014 that determined there was a need to recalibrate the gage to accurately determine flow in the tailrace. Ms. Norman asked if there were a way to adjust the data prior to 2016. Ms. Smet and Ms. Foster responded that there were limitations on the information available prior to Cube owning the Project but that is something to look at moving forward.

Ms. Foster continued the presentation by summarizing the water quality information presented in the PAD. She stated that hourly dissolved oxygen (DO), pH, water temperature, and conductivity have been monitored continuously from April 1 through October 31 annually since 1997 at three locations and data is reported to FERC annually. In response to a question regarding how to obtain that data, Ms. Foster responded that it can be obtained from the FERC website using the Project number or that Lake Lynn could provide the data. Ms. Smet added that a benefit to e-subscribing to the Project docket through FERC's website is receiving an email with a link when these reports are filed with FERC.

In response to a question from a resident regarding monitoring for E. coli, Ms. Foster responded that Lake Lynn does not monitor for this parameter. A participant added that the County Health Department monitors at the beach for E. coli. Owen Mulkeen (Friends of the Cheat [FOC]) stated that FOC monitors the beach for E. coli and that the data is available at the website: theswimguide.org. In response to a question as to whether the E. coli levels are ever too high to swim, Mr. Mulkeen noted that there were times where the E. coli levels were elevated when sewage treatment systems were overrun from flooding. He added that the FOC E. coli sampling is done twice a month and the results are available within 24 hours and posted immediately on the website. Mr. Mulkeen stated that FOC does not have long-term funding to support long term E-coli monitoring.

Ms. Foster continued the presentation to state that recent data collected by Lake Lynn and the state suggests that water quality conditions upstream and downstream of the Project dam generally meet state standards and have generally improved over time, except for periods of low DO generally in late summer/early fall for most years, particularly at Cheat Lake monitor.

In response to a question regarding what the water chemistry parameters should be, Ms. Foster reviewed state water quality standards.

A participant stated that conductivity in the Cheat River and Cheat Lake almost never goes above 200 on the conductivity scale but the Monongahela River almost never goes below 200. He noted that conductivity can be closely related to parts per million of total dissolved solids.

Jody added that the state DEP issues a 401 Water Quality Certificate (WQC) before FERC can issue a license. She explained that the state can include conditions in the WQC requiring Lake Lynn to continue monitoring or perform some sort of enhancement to meet the water quality standards so that operation of the Project does not impact water quality.

In response to a question regarding whether Lake Lynn was responsible for water quality at the discharge from the dam, Ms. Smet replied that it was responsible.

Brian Bridgewater (WVDEP) complimented Lake Lynn on how it handled periods of low DO this past year by working with WVDEP to meet standards and to improve DO to protect fish and aquatic life. He added that Lake Lynn performs continuous monitoring and is required to comply with state standards.

One participant noted that the watershed of Cheat Lake is large and that many factors influence the water coming into Cheat Lake that are beyond the control of Lake Lynn. Ms. Smet responded that this is true, and E. coli and sedimentation are much bigger than Lake Lynn.

In response to a question about aeration, Dale Short (Lake Lynn) stated that Lake Lynn can open the tainter gates and allow water to go over the spillway to aerate the water (which will improve DO).

In response to a question regarding pH and conductivity, Ms. Smet confirmed that Lake Lynn cannot control pH or conductivity but is still required to monitor those parameters. She added that Lake Lynn would be interested in some relief from monitoring for these parameters.

Frank Jernejcic (Upper Monongahela River Association) stated that there has been general improvement in the water quality chemistry data over the past 15 years, and that there no real red flags in the data.

Ms. Foster continued the presentation by summarizing the comprehensive biomonitoring that has been conducted over the past 22 years at the Project under the Project Biomonitoring Plan. She noted that the PAD provides a detailed table and summary of the various biomonitoring activities including: conducting surveys that include water quality, physical habitat, and biota; walleye population monitoring and stock assessment; monitoring adult walleye movement; aquatic vegetation mapping; aquatic habitat enhancement and monitoring; American eel eDNA sampling; and benthic macroinvertebrate surveys. She added that an angler creel survey will be conducted in 2020.

Janet Norman (USFWS) asked if there had been any problems with invasive exotic aquatic plants or concerns about them in the future in Cheat Lake. Jacob Harrell (WVDNR) stated that there are no problems or concerns at present. Ms. Smet stated that she has seen issues at other hydro projects and that it is better to be proactive through education to prevent this from becoming an issue.

In response to a question about the results of the benthic monitoring, Ms. Foster stated that they generally looked good. Ms. Smet added that there was improvement over time.

Janet Norman (USFWS) asked Ms. Smet to provide her with the lab costs for the eel eDNA analysis. Ms. Smet agreed to share that cost information.

A question was raised about geese management and whether there were any studies that existed regarding geese impacts to water quality. Jacob Harrell (WVDNR) did not have any thoughts on geese management. No one was aware of anything and the group acknowledged that geese knew where to go during waterfowl hunting season.

Ms. Foster continued the presentation by summarizing wildlife and botanical resource and wetland information presented in the PAD. She noted that no studies were conducted for the PAD and the PAD summarized information that was available for the Project area.

Ms. Foster stated that for the PAD, a list of federal/state listed rare, threatened, or endangered (RTE) species was developed from a desktop review of state and federal resources. She noted that the PAD lists the RTE species potentially occurring in the Project vicinity of Project.

Ms. Foster continued the presentation by summarizing recreation at the Project. She stated that Lake Lynn collected recreation data from 2000 through 2017, more than at most hydro projects and filed Recreation Plan Updates every three years from 2003 through 2018. She added that recreation use remained about the same over the 17-year monitoring period. She stated that the Cheat Lake boating carrying capacity study conducted in 2017 found that it may be approaching carrying capacity and that Lake Lynn is not issuing any new permits for private piers or boat docks until after relicensing. She added that Lake Lynn contracted with Mike Strager at Strager Consulting to conduct a shoreline inventory in 2019 which was completed after the PAD was filed.

Ms. Smet added that Lake Lynn is not issuing permits for new piers right now based on the 2017 boating capacity study and that Lake Lynn is working to improve shoreline management at Cheat Lake. She introduced Karen Baldwin (Lake Lynn) and explained her role. She stated that Ms. Baldwin is overseeing permitting for any activities on Cheat Lake. She noted that anyone with questions about any activities in Cheat Lake or along the shoreline should contact Ms. Baldwin.

Mike Lutman (Greystone on the Cheat) asked about debris and trash collections. Ms. Smet stated that Lake Lynn supports CLEAR and Friends of the Cheat with dumpsters and monetary contributions. Mike Strager (WVU) added that many WVU student organizations volunteer their time to assist CLEAR and Friends of the Cheat with clean-up activities. Mr. Lutman asked about larger trees. Duane Nichols (CLEAR) stated that large trees are natural and provide natural habitat and that what doesn't flush down to the trash rack at the powerhouse is flagged. Mr. Nichols expressed concern about the beach area and noted that there were opportunities to improve clean up of the beach area.

Janet Norman (USFWS) stated that she needs additional information on the mussel surveys conducted in the Cheat River/Project area, including specifics on where and when. Ms. Smet stated that no recent mussel data was found during the PAD due diligence and that the agencies were contacted but no one informed Lake Lynn about any available mussel data. Ms. Norman asked about the reference in the PAD to the Pennsylvania Fish and Boat Commission (PFBC) source in the PAD. Ms. Foster clarified that this PFBC source referred to historical data.

Ms. Smet added that the Pennsylvania agencies were invited to the Joint Meeting and Site Visit but the Pennsylvania Department of Environmental Protection (PADEP) responded that the invitation was sent to them in error. In response to Ms. Smet's question as to whether WVDEP or PADEP would issue the 401 WQC, Brian Bridgewater (WVDEP) agreed to reach out to his counterpart at PADEP for clarification.

Jacob Harrell (WVDNR) added that Janet Clayton has mussel data in the Cheat River. Duane Nichols (CLEAR) added that mussels are an important topic since residents see less mussel shell material along the shoreline than in the past. Mr. Harrell stated that mussels are not a high priority for WVDNR in biomonitoring efforts.

Several residents on Cheat Lake expressed concerns about the moratorium on new pier permits while the public boat launches allow large numbers of boats onto the reservoir. Ms. Smet explained that Lake Lynn must balance various interests with its authority under the FERC license. She clarified that Lake Lynn does not have the authority to limit public use or establish and enforce boating regulations such as horsepower or noise.

In response to a question about how the boat carrying capacity was determined, Mike Strager (Strager Consulting) explained that the boating carrying capacity study used National Park Service criteria. Ms. Smet added that the moratorium is temporary. She explained that Lake Lynn oversees the marinas at the Project reservoir under its land use article in the FERC license. She added that Lake Lynn is working to improve its oversight of marinas through the lease agreements with marina operators.

Ms. Foster continued the presentation by providing an overview of the information provided by the shoreline inventory and offering to make the site available during the lunch break so that people can see the information included in the inventory. Ms. Smet added that this inventory will provide good baseline data for development of a shoreline management plan.

Ms. Foster continued the presentation with an overview of aesthetic resources. She stated that no issues have been identified relative to aesthetic resources.

Regarding cultural resources, Ms. Foster stated that there are two potentially significant cultural resources previously identified within the Project boundary – the railroad bed along the Cheat Lake Trail (a linear historic archaeological site) and the Lake Lynn powerhouse and dam (potentially eligible for the National Register of Historic Places). She noted that no other historic properties have been identified within the Project boundary. She said that no new issues have been identified and no changes to the Projects or Project operations are proposed.

Ms. Foster stated that nineteen Native American tribes have been identified as potentially interested in Project relicensing. She stated that no tribal interests or issues have been identified to date.

Ms. Foster stated that no issues related to socioeconomic resources have been identified.

Ms. Smet explained to the group that statements in the PAD about no issues being identified does not mean that those resources will not be looked at again. She stated that these resources will need to be discussed in the license application and reminded the group that this is an ongoing process with opportunities for feedback and input.

Ms. Foster stated that there is a lot of data that has been collected under the existing FERC license and will continue to be collected during this relicensing process to maintain compliance with the existing FERC license. She briefly reviewed the studies proposed by Lake Lynn in the PAD and noted efforts that will be continued under the existing FERC license: 1) no new studies for geology and soils but shoreline erosion surveys will continue in accordance with the existing FERC license; 2) no new studies for water resources but water quality data will continue to be collected and reported in accordance with the existing FERC license; 3) no new studies for aquatic resources but biomonitoring activities will be conducted in accordance with the Biomonitoring Plan that was updated in 2018 (including the angler creel survey in 2020, the ongoing aquatic habitat monitoring, and completing the American eel eDNA sampling; 4) presence/absence surveys for RTE species likely to occur within FERC Project boundary; 5) a recreation inventory of the existing Project recreation sites; 6) collect recreation use data in 2020 and (consistent with FERC's Order approving the 2018 Recreation Plan Update); and 8) consult with the state historic preservation offices (SHPO) in West Virginia and Pennsylvania and submit the Project to the SHPOs for formal review.

Janet Norman (USFWS) raised a question about the PAD's statement that no new facilities are proposed so no ground disturbance or tree cutting is proposed. She said that over the course of a new 40-year license it seemed likely that something would be proposed. Ms. Smet noted that the PAD was mainly written before the Cheat Lake Trail washout and stated that if any new facilities or expansion of facilities

are proposed, Lake Lynn would consult with the agencies and seek FERC approval, if necessary. Duane Nichols (CLEAR) noted that CLEAR is asking for an expansion of the swimming beach which would involve the removal of one or two large trees.

Ms. Norman asked about the RTE species survey and the area that it would cover. Ms. Foster responded that the RTE survey would encompass the area within the Project boundary. Ms. Smet added that she had done something similar in Virginia at Cube Hydro's projects on the Shenandoah River (Warren, Luray-Newport, and Shenandoah) and that the study was developed in consultation with the agencies and David Sutherland, USFWS. Ms. Smet committed to providing Ms. Norman with the Shenandoah Projects RTE Survey study plan as a point of reference.

In response to a question as to whether evaluations of dam integrity are performed, Ms. Foster responded that there is a FERC Office of Dam Safety with a rigorous program. Dale Short (Lake Lynn) explained the Part 12 evaluations and noted that these evaluations result in a list of items that Lake Lynn must monitor including cracks in the dam. Ms. Smet added the most recent surveillance monitoring report found no serious issues.

Ella Belling (Mon River Trails Conservancy) stated that the closure of the Cheat Lake Trail will affect the numbers for the recreation use monitoring and asked how Lake Lynn would address this. Ms. Smet responded that Lake Lynn hoped to have the Cheat Lake Trail open for the 2020 recreation season, but if not, historical data could be used to estimate use. She added that Lake Lynn is proposing a 2020 study season, but there is an opportunity to possibly extend data collection into the second year (2021) prior to the submittal of the license application.

In response to a question regarding the recreation season, Ms. Foster stated that for this Project it has been considered as Memorial Day weekend through Labor Day weekend, but this varies by Project. Duane Nichols (CLEAR) added that the trail is open year-round, but the southern portion of the trail is gated and open dusk to dawn. He added that people utilize the Cheat Lake Trail during the winter in the snow.

A concern was raised about the gate at south end of Cheat Lake Trail being open for months this past year. Duane Nichols (CLEAR) stated that the recreational specialist at the recreation facilities could serve safety and security functions. He noted that there is a need for some sort of security (a Lake Lynn presence) but, since this is not a high-risk area, this would be mainly to make sure the gate functions properly and to deter issues.

Ms. Smet reminded participants that these are Lake Lynn's proposed studies and explained that additional study requests and comments on the proposed studies are due to FERC by February 10, 2020. She briefly reviewed the FERC study criteria and said that touching on these criteria will help ensure that the study request is reasonable and has a nexus to the Project. As an example, Ms. Smet noted that acid mine drainage has no nexus to the Project since Lake Lynn has no control over this and it is not connected to Project operations, but low DO does have a Project nexus. She clarified that FERC does not issue a formal Study Plan Determination for studies in the TLP.

The meeting was adjourned at approximately 12:50 p.m. Ms. Smet stated that anyone planning to join in on the Site Visit should meet at Sunset Beach Marina at approximately 1:30 p.m. Ms. Foster handed out an itinerary with addresses/coordinates for the Site Visit stops.

Lake Lynn Hydroelectric Project (FERC No. 2459)
 December 12, 2019 Relicensing Meeting Attendance List

* Denotes Site Visit Participants

Name	Affiliation	Email	Mailing Address	Phone
Dan Miller	Potesta	d.miller@potesta.com		481-285-8139
Ann Duester	Community CLEAR	duestern@gmail.com		304 319-2992
Rogers Wilkin	divs in CPAT Lakes!	Rogers@C.Pacific.com		501-892-4412
Richard Scott	LABS FAT	PTRKHUB@YAHOO.COM		724-998-4072
Will McNeil	Living on the lake	wmcd@mix.wvu.edu		304-777-9886
Ella Belling	Mon River Trails Conservancy	ella@montail.org	MRTC PO Box 782 Morgantown WV 26507	304 692-6782
DAVE HOWEN		davec@FRONTIER.COM		304-288-7781

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Lake Lynn Hydroelectric Project (FERC No. 2459)
 December 12, 2019 Relicensing Meeting Attendance List

Name	Affiliation	Email	Mailing Address	Phone
Danna Deems	CLEAR	dannadeems@rocketmail.com	384. 320 Dream Catcher Circle Morgantown WV 26508	304-599-2867
Danny Bennett	WVDMR	danny.a.bennett@wv.gov	P.O. 67 WARD Rd BELLEVILLE, WV	304-637-0228
Parke Johnson	Greystone Estates	GraceandParke@yahoo.com	3956 Earthkeller Morgantown WV 26508	304-276-8592
DAN GRIFFIN	BELLEVILLE POA	dgriffell@aol.com	3203 DERRFIELD Ct Morgantown, WV 26508	304-435-3055
Mike Strager	CLEAR FCC	mstrager@comcast.net	102 Lake Park Morgantown WV 26508	304-276-3335
Janet Norman	USFWS	Janet_Norman@fws.gov	1717 Admiral Cochrane Annapolis MD 21401	410-573-4533
OWEN MULKEN	Friends of The Chest	Owens@chest.org	1343 North Parka Hwy Kingwood, WV 26537	304 329 3621

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Lake Lynn Hydroelectric Project (FERC No. 2459)
 December 12, 2019 Relicensing Meeting Attendance List

Name	Affiliation	Email	Mailing Address	Phone
* Jacob Harrell	WDNR	jacob.d.harrell@w.gov	1110 Railroad St Farmington WV 26571	(304) 704-9328
* Duane Nichols	CLEAR			
* Andrew GAST-BRAV	Wsn County	agastbray@ wvcommission.com	2113 High St Martinsburg WV 26154	(304) 291-9572
* Elyse Hankin	Morganston County Commissioner	dr.hankin@comcast.net		
* Brian Bridgewater	WVDEP	Brian.L.Bridgewater@ wv.gov		304-926-0199
* Amy Wagner	citizen	awagner1595@gmail.com	628 Mariner Village Martinsburg, WV 26158	304.376.4420
* Frank Terrence	WMRA	fjterrence@ comcast.net	501 Lakeview Estates Townhomes Martinsburg 26158	304- 612- 7725

Lake Lynn Hydroelectric Project (FERC No. 2459)
 December 12, 2019 Relicensing Meeting Attendance List

Name	Affiliation	Email	Mailing Address	Phone
Lewis Barnes	Lakehouse Rest.	SZBarnes@yahoo.com	55 Mont Chateau Rd. Morgantown, WV.	304-685-6565
Steve Coleat	Resident	Steve Coleat@renewinggroupsllc.com	4334 Brothers Ln. Morgantown, WV 26508	
MIKE LUTMAN	Resident	MLUTMAN@CAST.NET	4131 Cove Pt. Rd Morgantown, WV 26508	304.290.0727
Sean Goodwin	EnergyStone President	sean.goodwin@yahoo.com	4685 Shoshone Morganfield, WV 26508	304 594 3880
Nathaniel James	WV Student	Reedjames98@gmail.com	277A Spruce St. Morgantown, WV 26505	304-851-3794

*
x



**LAKE LYNN
HYDROELECTRIC
PROJECT**
FERC No. 2459

RELICENSING MEETING AND SITE VISIT
DECEMBER 12, 2019

LAKE LYNN GENERATION, LLC

1

SITE VISIT AND MEETING

Overall Schedule

- Joint Meeting - 10:00 AM-12:30 PM
- Lunch Break - 12:30 PM-1:30 PM
- Site visit - 1:30 PM (meet at Sunset Beach Marina)
 - Sunset Beach Marina
 - Cheat Lake Park
 - Cheat Lake Trail (north end)
 - Tailwater Fishing Platform
 - Powerhouse

Meeting Agenda

- Welcome and Introductions
- Overview of FERC Traditional Licensing Process and Relicensing Schedule
- Project Description
- Overview of Information Provided in the Pre-Application Document (PAD)
- Proposed Resource Studies
- Next Steps - Solicitation of Comments

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INTRODUCTIONS

- Meeting Participants
- TRC
- Lake Lynn Generation, LLC

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3

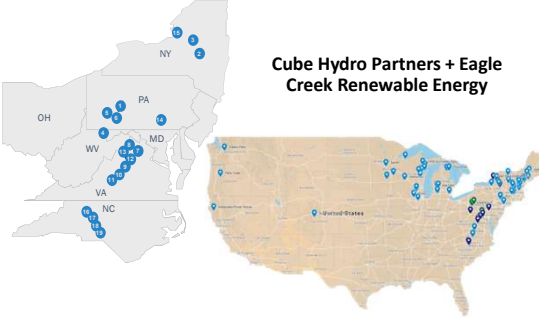
OPG / Eagle Creek / Cube

- Cube Hydro Partners has been a leading private hydropower company focused on developing, acquiring, optimizing and operating environmentally friendly run-of-river hydropower projects
- Cube managed 385 MW of installed capacity at 19 hydropower projects on 10 rivers in 5 states, generating approximately 1.5 million MWh annually
- Cube was recently acquired by OPG Eagle Creek US (October 2019)
- The two companies now collectively own and operate a total of 85 hydropower projects in the US (620 MW of capacity and 2.5M MWhs of clean energy annually)
- Our combined teams have experienced staff with extensive collective hydropower and energy experience, spanning engineering, power markets, legal and regulatory, and commercial expertise

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4

COMBINED HYDRO PORTFOLIO



**Cube Hydro Partners + Eagle
Creek Renewable Energy**

5

FERC LICENSING AUTHORITY

- Under the authority of the Federal Power Act, as amended by the Electric Consumers Protection Act, FERC is responsible for issuing licenses for non-federal hydroelectric power plants.
- FERC issues licenses and relicenses for up to 50 years for constructing, operating and maintaining non-federal hydropower projects.
- Licenses issued by FERC must take into consideration the environmental as well as economic aspects of continued operation of the project.
- License conditions assure the best comprehensive use of the waterway where the project is located.

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6

TRADITIONAL LICENSING PROCESS (TLP) OVERVIEW

- **First Stage**
 - Applicant files NOI, PAD, request to use TLP, and newspaper notice (8/29/2019)
 - FERC approves use of TLP (10/17/2019)
 - Applicant conducts joint agency/public meeting and site visit (12/12/2019)
 - Resource agencies, tribes, and stakeholders provide written comments and recommend resource studies (2/10/2020)
- **Second Stage**
 - Applicant completes reasonable and necessary studies
 - Applicant provides draft license application and study results to resource agencies and tribes
 - Resource agencies and tribes comment on draft license application
 - Applicant conducts meeting if substantive disagreements exist
- **Third Stage**
 - Applicant files final license application and sends copies to agencies and tribes

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7

FERC TLP

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8

RELICENSING SCHEDULE

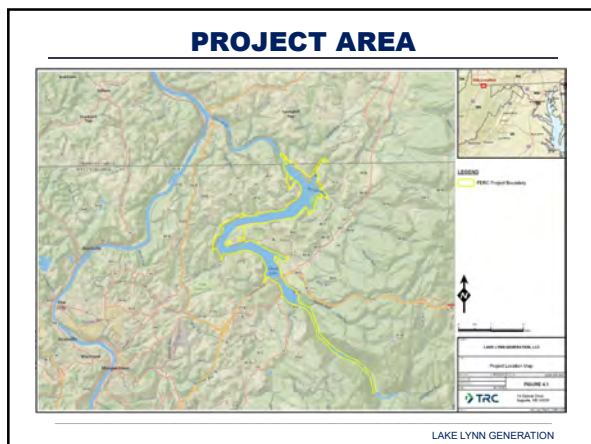
Activity	Responsibility	Timeframe and Regulations	Dates
File NOI, PAD, and Request to use TLP and publish Public Notice in newspapers	Lake Lynn	5 to 5 1/2 years prior to license expiration	August 29, 2019
Comments on TLP Request	FERC, Relicensing Participants	Within 30 days of NOI/PAD/TLP request filing and newspaper notice	September 28, 2019
FERC issues Notice of Commencement	FERC	Within 60 days of NOI/PAD/TLP request filing	October 17, 2019
FERC approves use of TLP	FERC	Within 60 days of NOI/PAD/TLP request filing	October 17, 2019
Notify FERC of Joint Meeting and publish Notice in newspapers	Lake Lynn	At least 15 days in advance of meeting	November 21, 2019
Joint Meeting for consultation with agencies, tribes, and interested public	Lake Lynn	30-60 days following FERC approval of TLP	December 12, 2019
Comments and Study Requests	Relicensing Participants	Due 60 days after Joint Meeting	February 10, 2020
Study Plan Development	Lake Lynn	Ongoing following Joint Meeting	December 12-March 1, 2020
Conduct Field Studies	Lake Lynn	One season of field studies	April 1-November 1, 2020
DLA and Study Results	Lake Lynn	Following conclusion of studies	November 30, 2021
Comments on DLA	Relicensing Participants	90-day comment period	February 28, 2022
FLA filed with FERC	Lake Lynn	2 years prior to license expiration	November 30, 2022
FERC issues Public Notice of Application	FERC	Within 14 days of FLA submittal	December 14, 2022
FERC Issues New License on or before License Expiration Date	FERC		November 30, 2024

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9



10



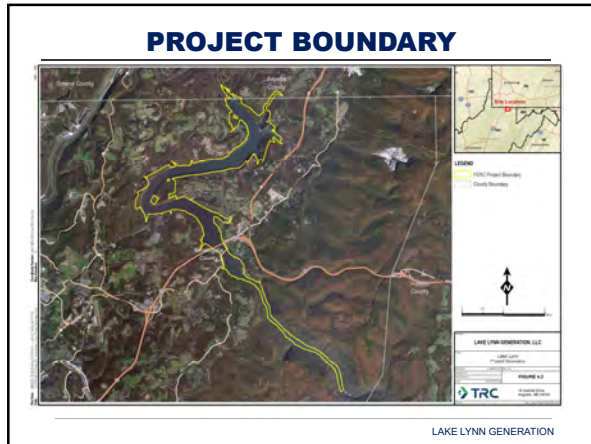
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LAKE LYNN PROJECT (FERC NO. 2459)

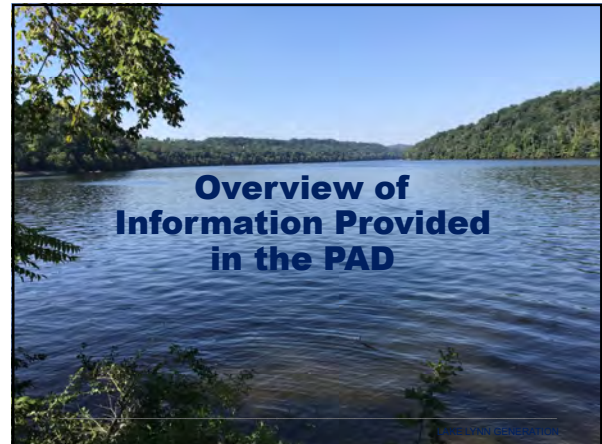
- 51.2 MW
- Project produces a long-term average generation of 140,352 MWh of clean electricity annually
- Constructed in 1926
- New FERC license issued in 1994
- 30-year license term expires on November 30, 2024
- Located near Morgantown, WV
- On Cheat River approximately about 3.7 miles upstream of the confluence with the Monongahela River
- Drainage area at dam – 1,411 square miles
- USGS Gage for water surface elevations in the tailrace below the Project dam (Lake Lynn gage)
- USGS Gage on Cheat River (Albright gage) approximately 14 mi upstream of the Project

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12



13



14

PROJECT FACILITIES

- Concrete gravity-type dam with a spillway controlled by Tainter gates
- Reservoir with a surface area of 1,729 acres
- Log boom and trash racks at the intake facility
- Eight gated reinforced concrete penstocks
- Powerhouse containing four identical Francis generating units
- Dual 800-foot-long, 138-kV transmission lines
- Other appurtenant facilities

15

PROJECT OPERATIONS

- Operated as a dispatchable peaking hydroelectric facility with storage capability
- Ponding capability varies by season and allows for peaking to satisfy minimum flow requirement
 - Minimum flow requirement of 212 cfs from the dam, or inflow, whichever is less, with an absolute minimum flow of 100 cfs regardless of inflow
- Cheat Lake operations:

Time of Year	Lake Elevation (ft)
May 1 – October 31	868 – 870 ft
November 1 – March 31	857 – 870 ft
April 1 – April 30	863 – 870 ft

16

EXISTING ENVIRONMENT AND PROJECT EFFECTS

Geology and Soils

- Shoreline erosion surveys of the entire Cheat Lake shoreline conducted every 3 years since 1995 to identify new areas of erosion
 - Most recent survey (2017) of the entire Cheat Lake shoreline did not identify any new areas of erosion
- Annual shoreline erosion surveys of the Cheat Lake Park shoreline (Project dam to Cheat Haven peninsula) conducted since 1995
 - 2018 annual survey – no new areas of active erosion identified; previously identified areas exhibited minimal annual change in erosion levels
- Shoreline construction and reinforcement conducted in 2018 at two monitoring stations

No new issues anticipated related to geology and soils

17

EXISTING ENVIRONMENT AND PROJECT EFFECTS

Water Resources

Hydrology and Streamflow

- Six USGS gages in Project vicinity; closest measuring streamflow is Albright gage
- Annual flow statistics for Project (23 years of USGS gage records)

Lake Lynn Project at the Albright Gage		Annual (cfs)
Min		2,058
Mean		2,677
Max		3,568

Water Quality

- Hourly DO, pH, water temperature, and conductivity monitored continuously from April 1 through October 31 annually since 1997 at three locations; reported annually
- Recent data suggests water quality conditions upstream and downstream of Project dam generally meet state standards and have generally improved over time, except for periods of low DO generally in late summer/early fall for most years (September and early October), particularly at Cheat Lake monitor

Continued Project operations not anticipated to create any new adverse effects on water quality

18

EXISTING ENVIRONMENT AND PROJECT EFFECTS

USGS Gage/Licensee Water Quality Data, 2008-2018

Monitor/Gage	Water Temperature (°C)	pH	Dissolved Oxygen (mg/l)	Specific Conductance (µS/m at 25°C)
USGS Gage No. 03071590 Stewartstown Gage (Cheat Lake Site 07)	3.2 - 26.7	6.4 - 7.3	1.0 - 12.8	48 - 205
USGS Gage No. 03071605 Davidson Gage (Tailrace Site 08)	3.5 - 27.4	6.3 - 7.4	3.4 - 14.0	52 - 178
USGS Gage No. 03071690 Nilan Gage (Downstream Site 09 - from 2013 - Oct/Nov 2017)	6.0 - 27.2	5.3 - 7.4	3.1 - 13.0	54 - 217
USGS Gage 03071700 Point Marion Gage (Downstream Site 09 - site discontinued by USGS in September 2015 ¹)	0.2 - 27.5	4.0 - 8.3	5.5 - 15.2	61 - 681

¹ Data available through September 2015.

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19

EXISTING ENVIRONMENT AND PROJECT EFFECTS

Summary of WVDEP Ambient Water Quality Monitoring Data for Stations Closest to the Project, 2009-2019

Parameter	MC-0001-3.5 (near the Project dam)	MC-0001-30 (upstream of Project)
Dissolved Oxygen (mg/L)	5.31 - 15.41	6.15 - 14.98
Temperature (°C)	0.22 - 27.0	-0.07 - 29.03
pH	5.48 - 8.12	5.02 - 8.15
Conductivity (µS/m)	58.0 - 166.0	50.0 - 168.0
Fecal Coliform (colonies)	0 - 2,400 ¹	2 - 9,000 ²
Total ammonia nitrogen (mg/l)	0.02 - 0.05	0.02 - 0.05

¹ Average number of colonies is 81.8 units.
² Average number of colonies is 290.9 units.

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20

EXISTING ENVIRONMENT AND PROJECT EFFECTS

Fish and Aquatic Resources

- Cheat River supports warm water and cool water fish species
- Popular game species include largemouth bass, smallmouth bass, trout, crappie, walleye, and channel catfish.
- Fish and aquatic resources monitored through Project Biomonitoring Plan (and Plan updates) developed in consultation with DOI (USFWS), WVDNR, and PFBC
- Table 5.9 in the PAD summarizes comprehensive biomonitoring conducted over the past 22 years (1997-2019) and activities planned for 2020

LAKE LYNN GENERATION

21

EXISTING ENVIRONMENT AND PROJECT EFFECTS

Fish and Aquatic Resources

- Worked with WVDNR to conduct surveys 2005-2009 and WVU to conduct surveys March 2001-December 2015
 - Consisted of sampling water quality, physical habitat, and biota (fish and benthic macroinvertebrates)
 - Improvements in aquatic resources found
- Walleye Population Monitoring and Stock Assessment - Walleye stocking assessments and walleye surveys conducted 2005-2009 in Cheat Lake and Cheat Lake embayments


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22

EXISTING ENVIRONMENT AND PROJECT EFFECTS

Fish and Aquatic Resources

- Monitoring Adult Walleye Movement - Seasonal movements and distribution of Cheat Lake walleyes were monitored using acoustic telemetry from 2012-2015
- Aquatic Vegetation Mapping - Worked with WVDNR and WVU to document the distribution and relative abundance of aquatic vegetation in Cheat Lake
- Aquatic Habitat Enhancement and Monitoring - Aquatic habitat enhancement structures installed March 2019; working with WVDNR and WVU to conduct pre-spawn, spawn, and post-spawn monitoring; consultation with resource agencies to be conducted to determine if additional enhancement/monitoring is warranted in 2020



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23

EXISTING ENVIRONMENT AND PROJECT EFFECTS

Fish and Aquatic Resources

- Angler Creel Survey - A creel survey (survey targeting recreational anglers) will be conducted in 2020
- American eel eDNA - Working with USFWS in 2018 and 2019 to conduct sampling in Project tailwater for American eel DNA
- Benthic macroinvertebrate surveys - Conducted in Cheat Lake tailwater in 1997, 1998, 2001, 2005, 2008, 2011, 2014, and 2015

No issues anticipated related to fish species inhabiting Project waters

LAKE LYNN GENERATION

24

EXISTING ENVIRONMENT AND PROJECT EFFECTS

Wildlife and Botanical Resources

- Over 200 resident/transient bird species, 50 mammal species, and 37 amphibian species potentially occur in Cheat River habitats
- Botanical resources typical of Cheat River basin

Riparian, Wetland and Littoral Habitats

- Most wetlands are open water lake areas followed by riverine habitat

RTE Species

- List of federal/state listed RTE species potentially occurring, in vicinity of Project included in PAD – 2 bat species (Indiana bat and Northern Long-eared bat), 1 snail (Flat-spined Three-toothed Snail), and 1 plant (Running Buffalo Clover)

No known/expected issues related to wildlife, terrestrial botanical resources, or wetland/riparian habitat

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25

EXISTING ENVIRONMENT AND PROJECT EFFECTS

Recreation

- Cheat Lake Park
- Cheat Lake Trail
- Tailrace Recreation Area
- Sunset Beach Marina Public Boat Launch
- Cheat Haven Peninsula Nature Viewing Area
- Morgan and Manning Run embayments Nature Viewing Area
- Nature Viewing Area Across from Cheat Haven
- Towers Run Nature Viewing Area



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26

EXISTING ENVIRONMENT AND PROJECT EFFECTS

Recreation

- Recreation data collected 2000 through 2017
- Recreation Plan Updates filed every three years from 2003 through 2018
- Recreation use remained about the same over the 17-year monitoring period
- Cheat Lake boating carrying capacity study conducted in 2017
- No new permits for private piers or boat docks will be issued until after relicensing


No adverse effects to recreational opportunities anticipated

LAKE LYNN GENERATION

27

EXISTING ENVIRONMENT AND PROJECT EFFECTS

Land Use



- Project boundary generally follows the normal full pool elevation of the impoundment, except for several nature viewing areas, and includes certain lands immediately surrounding the Project facilities including the dam, powerhouse, access roads, and appurtenant facilities
- Leases and permits ("privilege permits") for private recreation access were historically granted
- Shoreline inventory conducted in 2013 to inventory boat docks along the Cheat Lake shoreline; inventory completed again in 2019 (after filing of the PAD)
- No new permits for private piers or boat docks will be issued until after relicensing

LAKE LYNN GENERATION

28

EXISTING ENVIRONMENT AND PROJECT EFFECTS

Aesthetic Resources

- No scenic highways or byways or National Wild and Scenic Rivers within the Project boundary or adjacent to the Project boundary

No issues identified relative to aesthetic resources

Cultural Resources

- Two potentially significant cultural resources within the Project boundary – the railroad bed along the Cheat Lake Trail (a linear historic archaeological site) and the Lake Lynn powerhouse and dam (potentially eligible for the NRHP); no other historic properties identified within Project boundary

No new issues identified; no changes to the Project or Project operations

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29

EXISTING ENVIRONMENT AND PROJECT EFFECTS

Tribal Resources

- 19 tribes identified as potentially interested in Project relicensing
- No tribal interests or issues identified to date

Socioeconomic Resources

- No issues identified

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30

PROPOSED RESOURCE STUDIES

Geology and Soils

- Continue to conduct shoreline erosion surveys in accordance with the existing FERC License - no new studies

Water Resources

- Continue to collect and report water quality data in accordance with the existing FERC License - no new studies

Fish and Aquatic Resources

- Continue to conduct biomonitoring activities in accordance with the existing FERC License and the Biomonitoring Plan - no new studies

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31

PROPOSED RESOURCE STUDIES

RTE Species

- Presence/absence surveys for RTE species likely to occur within FERC Project boundary

Recreation

- Conduct inventory of existing Project recreation sites
- Collect recreation use data in 2020 and file the next Recreation Plan update by March 31, 2021 (consistent with FERC's Order modifying and approving the 2018 Recreation Plan Update)
- Conduct a creel survey (survey that targets recreational anglers) in 2020 (consistent with 2018 Biomonitoring Plan)

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32

PROPOSED RESOURCE STUDIES

Cultural Resources

- Consult with the WVSHPO and PHMC and submit the Project to the SHPO for formal review

LAKE LYNN GENERATION

33

NEXT STEPS RELICENSING SCHEDULE

Activity	Responsibility	Timeframe and Regulations	Dates
File NOI, PAD, and Request to use TLP and publish Public Notice in newspapers	Lake Lynn	5 to 5 1/2 years prior to license expiration	August 29, 2019
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LAKE LYNN GENERATION

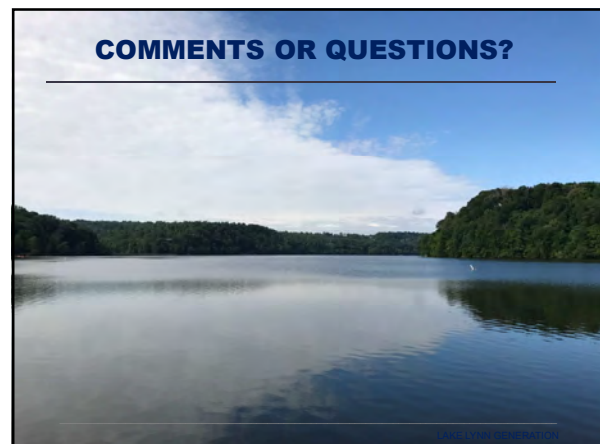
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FERC STUDY CRITERIA

- Describe goals and objectives of study proposal
- Explain relevant resource management goals
- Describe any existing information
- Explain relevant public interest if requester is not a resource agency
- Nexus to project operations and effects and how study results would inform development of license requirements
- Methodology consistent with accepted practice
- Consideration of level of effort and cost and why alternative studies would not suffice

LAKE LYNN GENERATION

35



36

CONTACT

LAKE LYNN GENERATION, LLC

Jody Smet
Director, FERC Licensing and Compliance
2 Bethesda Metro Center, Suite 1330
Bethesda, MD 20814
jsmet@cubehydro.com
Tel: 804-739-0654

LAKE LYNN GENERATION

Attachment 2
Site Visit Summary

**LAKE LYNN GENERATION, LLC
LAKE LYNN HYDROELECTRIC PROJECT (FERC NO. P-2459) RELICENSING**

**SITE VISIT SUMMARY
DECEMBER 12, 2019**

Site Visit Participants¹

Name	Affiliation	Email Address
Amy Wagner	Citizen	awagner1595@gmail.com
Bob Flickner	Lake Lynn Generation, LLC (Lake Lynn)	rflickner@cubehydro.com
Dale Short	Lake Lynn	dshort@cubehydro.com
Dan Miller	Potesta	dmiller@potesta.com
Dave Hough		davecyndy@frontier.com
Duane Nichols	Cheat Lake Environment & Recreation Association (CLEAR)	duane330@aol.com
Ella Belling	Mon River Trails Conservancy	ella@montrails.org
Jacob Harrell	West Virginia Division of Natural Resources (WVDNR)	Jacob.D.Harrell@wv.gov
Janet Norman	U.S. Fish and Wildlife Service (USFWS)	Janet_Norman@fws.gov
Jody Smet	Lake Lynn	jsmet@cubehydro.com
Joyce Foster	TRC	jfoster@trcsolutions.com
Karen Baldwin	Lake Lynn	kbaldwin@cubehydro.com
Lewis Barnes	The Lakehouse Restaurant	szybarnes@yahoo.com
Mike Strager	CLEAR/Friends of the Cheat/West Virginia University	mstrager@gmail.com
Owen Mulkeen	Friends of the Cheat	owen@cheat.org
Parke Johnson	Greystone Estates	graceandparke@yahoo.com
Richard Scott	Resident	qtrking86@yahoo.com
Roger Phillips	Resident	rogerdalephillips@gmail.com

Site Visit Summary

The group gathered at approximately 1:30 p.m. at Sunset Beach Marina. Participants were noted on the Joint Meeting sign-in sheets. The group viewed the public launch ramp at Sunset Beach Marina.

Some participants departed from the Site Visit at Sunset Beach Marina. The remaining participants caravanned to the upper parking area at Cheat Lake Park. The group walked to the lower area of the park near the playground area and continued along the south end of the Cheat Lake Trail. The group viewed the beach area along the trail. The group was given the option of continuing to walk along the trail to the wash-out area or returning to the park. The group decided to return to the park. The group viewed the winter boat ramp at Cheat Lake Park and then returned to their vehicles.

¹ This list includes the participants at the first stop on the Site Visit. Some participants left the Site Visit after this first stop and did not continue on the Site Visit.

Due to the small size of the group planning to continue to the powerhouse, the group decided to caravan in two vehicles along the north end of the Cheat Lake Trail to the powerhouse. Before entering the powerhouse facilities, Lake Lynn provided safety gear. Dale Short and Bob Flickner (Lake Lynn) provided a safety briefing. Mr. Flickner led the tour of the powerhouse facilities and provided an overview of the project facilities.

After the tour of the powerhouse facilities, the group viewed the reopened Tailwater Fishing Pier from the powerhouse parking area. The group caravanned along the north end of the Cheat Lake Trail and returned to the vehicles at the Cheat Lake Park upper parking lot.

The site visit concluded at approximately 4:30 p.m.

Site Visit Discussion Topics

Topics discussed during the Site Visit included:

- Concerns about parking overflow from Sunset Beach Marina blocking the road so that residents cannot access their property;
- Excavation at Sunset Beach Marina;
- Unauthorized trail across Lake Lynn's property to join the Cheat Lake Trail;
- Possible shoreline vegetation enhancement at Cheat Lake Park;
- Concern over a portion of the dock at the winter boat ramp that was damaged;
- Maintenance at recreation sites; and
- Questions and clarifications regarding operations, fish, American eel eDNA sample locations, and dissolved oxygen.

Attachment 3
Proof of Publication of Newspaper Notices

DominionPost

1251 Earl L Core Road
Morgantown, WV 26505
(304) 291-9420

PUBLISHER'S CERTIFICATE OF PUBLICATION

010152287 November 20
**NOTICE OF JOINT MEETING AND SITE VISIT
LAKE LYNN HYDROELECTRIC PROJECT (FERC NO. 2459)**

On August 29, 2019, Lake Lynn Generation, LLC (Lake Lynn) filed with the Federal Energy Regulatory Commission (FERC) a Notice of Intent to File a License Application (NOI), Pre-Application Document (PAD), and Request to Use the Traditional Licensing Process (TLP) for the relicensing of the Lake Lynn Hydroelectric Project (Project) (FERC No. 2459) located on the Cheat River in Monongalia County, West Virginia and Fayette County, Pennsylvania. By letter dated October 17, 2019, FERC approved Lake Lynn's request to use the TLP.

Lake Lynn is holding a joint meeting and site visit in accordance with FERC requirements (18 CFR § 16.8 (b)(3)(ii)). The joint meeting and site visit are open to the public. The joint meeting will be held at 10:00 a.m. on Thursday, December 12, 2019, at the Cheat Lake Volunteer Fire Department located at 409 Fairchance Road, Morgantown, West Virginia 26508. The site visit for the Lake Lynn Project will be held immediately following the meeting.

The purpose of the joint meeting is to outline Lake Lynn's plan to relicense the Project and provide a forum for comments and questions about the Project and the relicensing process. The agenda for the meeting includes an overview of the relicensing process and schedule, an overview of the Project, an overview of the information provided in the PAD filed with FERC, a summary of the proposed resource studies, and a description of the next steps in the relicensing process.

If you have any questions regarding the joint meeting or site visit or would like to request a detailed meeting agenda, please contact Ms. Jody Smet at jsmet@cubehydro.com or 804-739-0654. **Please note that you MUST RSVP your participation to Jody Smet at jsmet@cubehydro.com or 804-739-0654 no later than November 29, 2019.**

I, Brad Pennington, Advertising Director of
THE DOMINION POST, a newspaper of general circulation
published in the City of Morgantown, County and State
aforesaid, do hereby certify that the annexed

Legal Notice

was published in the said THE DOMINION POST once a week
for 1 successive weeks commencing on the
20th day of November, 2019 and ending on the
20th day of November, 2019

The publisher's fee for said publication is \$59.06

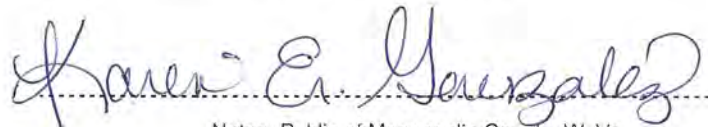
Given under my hand this 20th day of
November, 2019



(SEAL)

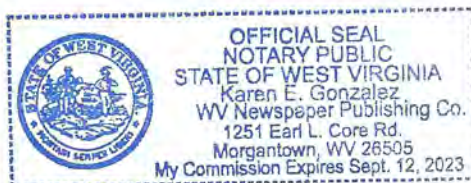
Advertising Director of THE DOMINION POST

Subscribed and sworn to before me this 20th
day of November, 2019



Notary Public of Monongalia County, W. Va.

My commission expires on the 12 day of
September 2023.



HERALD-Standard

8 East Church Street

Uniontown, PA 15401-0848

Phones: 724-439-7510 (Classified) 724-439-7509 (Billing)

PUBLIC NOTICE ADVERTISING NOTICE

Account Number:

Proof Date: 11-19-19

Ad Number: 3768

TRC
ATTN: JOYCE FOSTER
179 CLARKS LANE
AYLETT, VA 23009

PROOF CHARGE IS \$5.00 FOR AFFIDAVIT, \$2.50 FOR CLERICAL FEE

FOR YOUR RECORDS ONLY

ACCOUNT #	DESCRIPTION	LINES	TIMES	PROOF	TOTAL CHARGES
	NOTICE OF JOINT MEETING AND SITE VISIT I	36	1	7.50	.00
11-19-19	DATES APPEARED				

PROOF OF PUBLICATION

The **HERALD-Standard**

a daily newspaper of general circulation, published by Central Pennsylvania Newspapers, LLC., a Pennsylvania corporation, 8 East Church Street, Uniontown, Fayette County, Pennsylvania, was established in 1907, and has been issued regularly, except legal holidays since said date.

The attached advertisement, which is exactly as printed and published, appeared in the regular issue

Central Pennsylvania Newspapers, LLC./Herald Standard

By

Sharon K. Wallach

STATE OF PENNSYLVANIA,
COUNTY OF FAYETTE,

} SS:

Before me, a Notary Public in and for such county and state, personally appeared SHARON K. WALLACH, who being duly sworn according to law says that she is ADVERTISING DIRECTOR of Central Pennsylvania Newspapers, LLC./Herald-Standard that neither affiant nor said corporation is interested in the subject matter of the attached advertisement; and that all of the allegations of the foregoing statement including those as to the time, place and character of publication are true.

Sworn to and subscribed before me this
19th day of November 2019

Commonwealth of Pennsylvania - Notary Seal
Beverly L. Paull, Notary Public
Fayette County
My commission expires August 8, 2023
Commission number 1355326

Member, Pennsylvania Association of Notaries

By

Beverly L. Paull

Central Pennsylvania Newspapers, LLC.

8 East Church Street

UNIONTOWN, PA. 15401-0848

ADNo: 3768 Customer Number:
Customer Name: Company: TRC
Address: ATTN: JOYCE FOSTER 179 CLARKS LANE
City/St/Zip: AYLETT ,VA 23009
Phone: (804) 769-1667 Solicitor: SM
Category: 10 Class: 10 Rate: LE-0 Start: 11-19-2019 Stop: 11-19-2019
Lines: 36 Inches: 3.50 Words: 307

Credit Card: Am. Express #####1002 Expire: 04-20
Order Number:
Cost: 210.86 Adjustments: .00
Payments: 210.86 Discount: .00
Balance: .00

**NOTICE OF JOINT MEETING AND SITE VISIT
LAKE LYNN HYDROELECTRIC PROJECT (FERC NO. 2459)**

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if you have any questions regarding the joint meeting or site visit or would like to request a detailed meeting agenda, please contact Ms. Jody Smet at jsmet@cubehydro.com or 804-739-0654. Please note that you MUST RSVP your participation to Jody Smet at jsmet@cubehydro.com or 804-739-0654 no later than November 29, 2019.



DIVISION OF NATURAL RESOURCES
Wildlife Resources Section
District 1
P.O. Box 99
1110 Railroad Street
Farmington, West Virginia 26571-0099
Telephone (304) 825-6787
Fax (304) 825-6270

Jim Justice
Governor

Stephen S. McDaniel
Director

February 12, 2020

Electronic file

Kimberly D. Bose, Secretary
Federal Energy Regulatory Commission
888 First Street, N.E.
Washington, DC 20426

RE: Lake Lynn Hydroelectric Project (FERC no. P-2459); Notice of Intent, Pre-Application Document, and Study Requests

Dear Secretary Bose:

Thank you for allowing the West Virginia Division of Natural Resources, Wildlife Resources Section (WRS) the opportunity to provide comments with regards to the referenced Pre-Application Document (PAD) for the relicensing of the Lake Lynn Hydroelectric Project (Project), FERC No. 2459. Lake Lynn Generation, LLC (Licensee or Applicant) has elected to utilize the Traditional Licensing Process in preparing for a new license. The current Project license was issued on December 27, 1994 and is set to expire on November 30, 2024. The applicant submitted the referenced NOI/PAD in accordance with FERC regulation and consistent with the requirements of 18 CFR § 5.5.

The Project is an established hydroelectric project located on the Cheat River adjacent to the border between Pennsylvania and West Virginia with Project areas located occupying lands in

both states. The Project has an installed project capacity at 51.2 MW using four Francis generating units. The comments below are being provided pursuant to 18 C.F.R §4.38(b)(5).

Section 4.2 Project Facilities

The description of the Project facilities described within this section makes mention of trash racks installed at the intake facility. Beyond that, there is no further information regarding the specifications of the trash racks. Based on a preliminary site visit, it would appear as if the trash racks were of a steel construction and installed with spacing of approximately 5-inches. Such large trash rack spacing allows for the entrainment of larger fish that would be more susceptible to blade strikes and turbine-induced mortality as these fish enter the intake structures and pass through the turbines. In an effort to reduce fish mortality, the WRS would request that the trash rack spacing not exceed 3 inches and have an approach velocity of no more than 2.0 fps. The WRS further recommends angled trash racks be employed as a means to further reduce entrainment.

Section 4.4 Current and Proposed Project Operations

The current FERC license requires an operation schedule whereby the lake elevation is maintained between 868 and 870 feet from May 1 to October 31, between 857 and 870 feet from November 1 through March 31, and between 863 feet and 870 feet from April 1 through April 30. The April 1 to April 30 schedule was initially designed as a provision to reduce the Project's impacts on spawning fish populations within the lake, particularly yellow perch and walleye. The thinking at that time was that these fish species predominantly spawned during the early Spring month of April. Recent data has become available through the triennial biomonitoring studies, in particular a recent analysis of yellow perch habitat, which may indicate that in some years, based on temperature and weather conditions, the spawn may begin in mid-March and extend into Mid-April or later. Similar results were observed in a study on the walleye populations within the lake by a member of the WRS staff whereby the walleye spawn was documented as early as mid-March. Considering, there is concern that the lake elevation schedule during the month of March (between 857 and 870 feet) would not be sufficient in protecting the spawn and would have the potential to dewater a great many eggs thus impacting recruitment. It may be necessary, then, to revisit the current project operations and examine possible avenues to protect these species throughout the spawning season. A new schedule could be based on temperature such that in normal years the schedule can remain as is, but in warm years where the WRS, based on water temperature variables (45°F for a sustained period in March), anticipates that an early spawning period would occur, the April elevation schedule could be moved back to mid-March.

Section 5.2

The continuous monitoring of water quality as required by License Article 405 of the existing Project License is an invaluable tool in the management of the resources. As such, the WRS would request that water quality monitoring within the reservoir and tailwaters be continued throughout the term of the upcoming license.

Section 5.3.2.2 Catadromous and Diadromous Species

This passage asserts that “there is no known occurrence of the American eel in the Cheat River basin, however...eels have been collected in the Ohio River basin from the Kanawha, New, and Greenbrier Rivers.” In fact, the American eel has also been collected in the Monongahela River within the past 10 years as far upstream as the Morgantown Lock and Dam. This point is upstream of the confluence of Cheat River with the Monongahela River. It could therefore be assumed that there is a strong likelihood that the American eel may also be located within the Cheat drainage. However, it should be noted that, at least with regards to recent data collection, the American eel has not been observed within the tailwaters of the project. A recent eDNA study of the Project tailwaters resulted in no positive recordings of the American eel. The reasons for the negative results may be because of study design or perhaps because there were no eels in the Cheat River watershed. Nonetheless, it is the WRS’ understanding that the US Fish and Wildlife Service (USFWS) will be requesting additional analysis of the Project waters to determine presence or absence of the American eel. The WRS would not be opposed to any USFWS request regarding this particular subject matter.

Section 5.3.2 Fish Resources and Habitats

As per state rule §47-5A-6, reimbursement for the incidental loss of fish due to project operation will be required. Therefore, the WRS would request that a comprehensive desktop entrainment study be utilized to determine the likely number of fish, fish species, and size classes to become entrained and experience mortality as a result of the Project’s operation.

Section 5.3.2.3 Fish Passage

The major components of a hydropower facility (i.e. the turbines) pose a particular risk to fish passage and an additional impediment to fish passage. Project operations may attract fish moving downstream to pass through the turbines creating an unnecessary risk for mortality. It is the flowing water through the Project that initially attracts the migrating fish. Additionally, passage over the spillway could also be hazardous for fish. To minimize the potential hazards for the downstream movement of fish, the WRS would request that a feasibility study be conducted to explore potential options for a bypass system or diversionary tactics.

Section 5.8.3.4 Public Boat Launching Facility at Sunset Beach Marina

Sedimentation at the Sunset Beach Marina has become a significant issue over the years and has only worsened to the point by which anglers and boaters are affected. Launching a boat from this area has become more challenging and at some levels, is next to impossible. The Licensee has made great strides in correcting the sedimentation via dredging the embayment. Still, there is concern that this is a temporary fix and without a plan in place to address future sedimentation of the embayment, this is a problem that will likely occur again. Therefore, the WRS would request the licensee draft a sedimentation plan in an effort to minimize future sedimentation and reduce costly dredging activities.

Section 5.8.5 Boating Carrying Capacity Study

The results of the boating carrying capacity study would suggest that the number of boaters using Lake Lynn at any given time has exceeded that of a safe operating amount for the lake. Law enforcement records have yet to show any significant increase of incidents. Nevertheless, the WRS is not opposed to the Licensee's moratorium on new private piers/boat docks within the Project reservoir. According to the scoping meeting, the moratorium was enacted by the Licensee as a temporary measure to reduce the number of boats on the lake with the intention to lift the moratorium, or at least re-examine its effectiveness, following the relicensing process. The WRS views the moratorium as being beneficial in reducing the level of impact to shoreline habitat caused by the continued construction of the lake shoreline. Shoreline habitat is critical for a healthy, sustainable fishery and therefore, the WRS would be not be opposed to continuing the moratorium beyond the FERC relicensing of the Project.

Section 6.2.7.1 Potential Issues and Project Effects

This section lists a proposal to "create public access to the upper reaches of Cheat Lake by improving an existing gated road in Snake Hill Wildlife Management Area along Buzzard Run." The WRS would be unequivocally opposed to this proposal. The WRS is not interested in opening up the gated road that passes through the WMA property. Continued maintenance of the access road would be problematic and an undue burden for the state and the Licensee with very little benefit to the WRS' prime constituents.

State 401 Water Quality Certification

Section 401(a)(1) of the federal Clean Water Act, 33 U.S.C. § 1341(a)(1) provides that any applicant of a federal license or permit must obtain a state certification from the appropriate state certifying agency. This certification is to ensure that any activity conducted under the license are to be in compliance with all applicable provisions of the Clean Water Act. The state of WV will have one year to act on a received 401 application from the date the US Army Corps of Engineers deems the federal 404 application to be complete.

Study Requests

The WRS is in support of the studies proposed by the Licensee for the Lake Lynn Hydroelectric Project as identified within the PAD. Additional studies not previously included within the PAD are being provided by the WRS. The WRS makes these requests in support of currently proposed studies, to correct deficiencies in data and to offer a greater level of detail where needed. The WRS further requests the opportunity to review any study plans associated with this project. The request format is in accordance with that described in 18 CFR § 5.9 (b).

Study Request 1: Entrainment Study

Goals and Objectives:

The goal of the proposed study is to determine the number of fish that are either entrained or impinged and to estimate the injury and mortality of fish that pass through the turbines during

Project operation. The WRS is requesting a desktop entrainment study be conducted on the Lake Lynn Project. The goal of the desktop study will be to estimate mortality for compliance with state code.

As the resource agency, it is the goal of the WRS to manage and protect the resources. To the furtherment of this goal, WV code §47-5A-6 requires that mitigation be completed for any impacts to the resources. In this case, entrainment of fish through the turbines causes undue stress to the fish and can potentially be fatal. Therefore, the WRS would request that any mortality in fish be compensated. In order to properly ascertain the number of fish that succumb to mortality, an entrainment study will need to be performed.

The WRS recommends a desktop entrainment analysis utilizing the EPRI database. Data used for the analysis should be presented by species and by two-inch size classes. The WRS would further recommend that a field component be incorporated to verify results.

Resource Management Goals:

The WRS is charged with the protection and management of all wildlife within West Virginia, including within Cheat river and Lake Lynn. As per state rule §47-5A-6, the State would require the applicant to compensate the state for any loss of fish.

Existing Information:

To the best of its knowledge, the WRS is not aware of any entrainment studies that have been conducted at the Project. The years of biomonitoring data conducted in accordance with the existing license, will help to inform this entrainment analysis.

Nexus Between Project Operation:

During Project operation, fish of a certain size are able to pass through the trash racks and become entrained through the turbines. As the turbines operate, it is likely that some fish will be struck by the turbine blades while others will succumb to changes in barometric pressures as they pass through the intake. The likelihood of a blade strike and turbine-induced mortality increases as the size of the fish increases. Therefore, compensatory mitigation will be required as replacement for the loss of fish.

Study Methodology:

The methodology employed should include a combination of desktop entrainment analysis and field verification. The standard practice has been to utilize the Electric Power Research Institute (EPRI) turbine entrainment and survival database as a model in evaluated the potential of entrainment at a facility. The WRS has had concerns that this particular practice lacks the scientific creditability necessary to make informed decisions about the management of the fishery. Therefore, the WRS requests the opportunity to review any entrainment data considered

for use in the desktop entrainment analysis. Further, the WRS may request that a verification procedure be incorporated as a means to test the veracity and accuracy of the desktop entrainment results. Deploying hydroacoustics sampling techniques may be one way to achieve this goal as a more cost-effective method than deploying nets downstream. Data for any type of analysis should be presented by species and by 2-inch class sizes to remain consistent with general state practices. The WRS is willing to further discuss methodologies with the applicant.

Level of Effort and Cost:

The level of effort required to conduct a desktop entrainment analysis is relatively minor and most consulting firms/universities are well equipped to perform such an analysis. Additionally, the cost of a desktop entrainment analysis is much more attainable when compared to the alternative of an in-field entrainment analysis. Incorporating an in-field verification procedure with the analysis will increase the level of effort and cost and would require certain levels of training, expertise, and equipment. Nonetheless, an in-field verification procedure is still attainable and within reasonable limits of effort and cost.

Study Request 2: Upstream/Downstream Fish Passage and Feasibility Study

Goals and Objectives:

The goals of this study are to assess movement of fish through the project area; identify likely routes fish would take under a variety of conditions; and assess the feasibility of incorporating alternative routes or additional fish protection measures.

Existing Information:

To the best of its knowledge, the WRS is unaware of any study on upstream/downstream passage at the Project. Any study that may have been completed is likely dated material and incompatible in reflecting current conditions and population dynamics.

Nexus Between Project Operation:

Dam features, because of their general nature, impede the upstream and downstream movement of fish. By design, the dam at the Project affords no migration upstream. Downstream migration is offered by one of two routes: through the dam gates; and through the Project's powerhouse. Neither of these two routes provides for a safe migration downstream. The route through the powerhouse would mean risking turbine strikes or dangerous changes in barometric pressure. The route through the dam gates may provide for an equally perilous journey with fish tumbling down rough concrete faces. It is evident, then, that the Project has a direct relationship to fish passage.

Study Methodology:

Methodology would include a literature review of all available options for bypass routes and fish protection measures and an analysis on how such measures could be incorporated into the current project designs. Architectural design and structural engineers would need to be consulted for their expertise in determining feasibility of any new structural component at the project.

Level of Effort and Cost:

A study such as this would most likely take less than a year to complete with minimal effort. Discussions with engineers and reviews of designed structures would be necessary to properly assess the feasibility of any bypass channels or fish protection structures. Additionally, this study could be completed in concert with study request #1 (entrainment study) to reduce costs and effort. The WRS is not aware of the cost associated with this study but would assume it to be at a nominal rate.

Study Request 3: Reservoir Sedimentation Study

The WRS is requesting that a sedimentation study of the Project's reservoir be conducted at the problem areas and a plan to monitor and address any sedimentation issues be developed.

Goals and Objectives:

The goal of this survey is to assess sedimentation within certain problem areas within the Project reservoir and to develop a plan to address any deficiencies as they arise.

Existing Information:

Reports of sedimentation affecting boaters and anglers have risen in recent years, but as of yet no study that the WRS is aware of has been conducted on the sedimentation and no plan has been developed to address it. Steps to remedy sedimentation are typically taken when the issue rises to unsuitable levels. A more preventive strategy here may reduce future costs of sediment removal and keep recreation areas open without issue.

Nexus Between Project Operation:

By their very nature, dams cause sedimentation within the reservoir as the moving water slows down and particles are allowed to settle out. Therefore, the Project operations have a direct influence on the level of sedimentation.

Study Methodology:

The methodology should begin by examining possible sources of sedimentation within the reservoir and then by identifying potential preventive measures that could be taken to reduce the level of sedimentation in those areas that have demonstrated an affinity for a build-up of sediment (i.e. Sunset Beach).

Level of Effort and Cost:

Most consulting firms and universities would be fully capable of conducting a sedimentation study, including interpreting and analyzing the data. The costs of such a study is variable dependent on contractor used to conduct the study and the level of attention to detail.

The WRS appreciates the opportunity to provide comments and to make study requests. If you have any questions regarding this letter, comments made, or these study requests, please contact me by telephone at (304)825-6787, or by email at Jacob.D.Harrell@wv.gov.

Sincerely Yours,



Jacob Harrell
Hydropower Coordination Biologist

- Cc: Jody Smet, Lake Lynn Generation, LLC
David Fox, Lake Lynn Generation, LLC
Janet Norman, USFWS
Paul Johanson, WVDNR
Mark Scott, WVDNR
Zack Brown, WVDNR
David Wellman, WVDNR
Danny Bennett, WVDNR

LAKE LYNN HYDRO PROJECT: ISSUES AND COMMENTS FOR RELICENSING

SUBMITTED BY: Duane Nichols, President, Cheat Lake Environment & Recreation Association, 330 Dream Catcher Circle, Morgantown, WV 26508

RE: Project P-2459, Relicense for Lake Lynn Hydroelectric Project. Date: February 10, 2020

1. Clear and complete procedures are needed for Trail maintenance and repair, for both routine and non-routine circumstances.
2. Clear and complete goals, guidelines and procedures are needed for the Sunset Beach marina and other marinas, to cover the operation, maintenance and planning for the future.
3. Boating is a primary recreational activity on the Lake, so there is a need for boating guidelines and limits consistent with the rules and regulations of the WV DNR. Boat guidelines and regulations, public dock maintenance, channel depth (dredging), parking lot criteria, etc., are all in need of explicit definition and guidance.
4. Periodic lake cleanup activities need to be continued by CLEAR and others with the support of Lake Lynn Hydro to remove plastic and structural debris floating in the lake and backwaters. The CLEAR pontoon boat should be useful for these activities.
5. Given that the Lake is limited in boating capacity during busy weekends, the limit has been reached for the number of marinas, boat slips and personal access area sites.
6. Swimming beach season should match the boating season of May 1st to October 31st
7. Regular maintenance of the swimming beach is needed to remove large debris (mainly tree segments) and to keep quality sand fresh and deep, as mostly children use it.
8. The swimming beach area needs to be extended toward the day-use boat docks to permit the designation of a dog beach, given that dogs interfere with the swimming experience of small children; this will also add space for additional picnic tables, that are already needed.
9. Monitoring and remediation of the on-going shoreline erosion are needed with components of these activities taking place on an annual basis.
10. Hillside slips, ground subsidence and washouts along the Trails must be prepared for, as they are not uncommon, so that monitoring, temporary work-arounds and repairs can take place in a timely manner.
11. Signage on WV 857 for the Cheat Lake Park & Trail needs to be maintained year round and the signage on the Trail maintained for public use year round.

12. Telephone(s) & email address(es) are needed on signs and on web page(s) for information and for emergencies.
13. Formal plans and procedures are needed that assigns responsibilities for the various types of emergency at the Dam, on the Trails, on the Lake, downstream in Pennsylvania, etc.
14. Brochures are needed for public distribution to include the history, overview of facilities, rules/regulations, contacts, etc.
15. The Internet Web-Site is needed with multiple pages to include the brochure information, lake level, operational updates, warnings, etc.
16. News Releases (quarterly & timely) are needed providing general information, trail closings, warnings and other items for current news.
17. For the Fishing Pier, there is a need to identify the opportunities, guidelines, operation and maintenance schedules.
18. A continued commitment to regional trail development should include interfacing with the proposed Sheepskin Trail in Pennsylvania, for a connection to other regional trails, to involve the opening of the trail level gate at the Lake Lynn Dam for daylight walking, hiking, jogging and bicycling.
19. For the Lake level protocol, there is a need to reiterate the water level ranges vs. months of the year on the Web-site and in the Brochure(s).
20. For the Recreation Season protocol, there is a need to reiterate the schedule of May 1 thru October 31, with the Trail being open and accessible year round. The “boat launch” in the Park is essential for summer use by kayak & canoe users and for winter use by fishing boat users.
21. There is a need for a description of the functions of (existing & new) recreation personnel, security personnel, park maintenance personnel; and guidelines are needed for the interaction of these people with public.
22. An Advisory Committee is needed with Quarterly meetings and quarterly reports, consisting of members from Monongalia County, WV-DNR, WVU, WV trail group, PA trail group, PA-DNR/DEP, plus 2 or 3 local environmental/conservation groups.
23. A study of the details of the history of Cheat Lake and the Lake Lynn Dam is needed to examine the role of the project there on the Mason-Dixon Line affecting both West Virginia and Pennsylvania, whether it is a private “for-profit” entity with public obligations or whether it is “for the public interest” to provide recreation and a public service (electricity). These considerations take on a greater significance when foreign ownership is under way.

The Cheat Lake Environment & Recreation Association (CLEAR) has been active to promote the public use of Cheat Lake for over 30 years. The officers are Duane Nichols, President, Mike Strager, Vice President, Ann Chester, Secretary, and Donna Weems, Treasurer.

CONTACT INFORMATION: Duane G. Nichols, 330 Dream Catcher Circle, Morgantown, WV 26508. Phone: 304-216-5535, Email Address: Duane330@aol.com

Submitted by Duane Nichols of CLEAR this 10th day of February 2020.

Document Content(s)

CLEAR.P-2459.Comments.2.10.20.PDF.....1-3



United States Department of the Interior



FISH AND WILDLIFE SERVICE

Chesapeake Bay Field Office
177 Admiral Cochrane Drive
Annapolis, Maryland 21401
<http://www.fws.gov/chesapeakebay>

February 13, 2020

Jody Smet
Director, FERC Licensing and Compliance
Lake Lynn Generation, LLC
2 Bethesda Metro Center, Suite 1330
Bethesda, MD 20814

Dear Ms. Smet:

The U.S. Fish and Wildlife Service (Service) has reviewed the October 17, 2019 Notice of Intent (NOI) to File for a License and attached Pre-Application Document (PAD) for the Lake Lynn Hydroelectric Project (FERC #2459), filed by Lake Lynn Generation, LLC (Applicant). The Applicant has elected to use the Traditional Licensing Process (TLP) for this re-licensing application of the Lake Lynn Hydroelectric Project on the Cheat River near Morgantown, West Virginia and in Fayette County, Pennsylvania. The current project license was issued on December, 1994 and will expire on November 30, 2024.

The Service attended the Joint Agency meeting and site visit on December 12, 2020 in Morgantown, WV, with the Applicant, state and local agencies, and interested residents. We offer the following recommendations on the PAD and our Study Requests.

The following comments are provided pursuant to the Endangered Species Act (ESA) of 1973 (87 Stat. 884, as amended: 16 U.S.C. 1531 *et seq.*), the Migratory Bird Treaty Act (16 U.S.C. 703-712; Ch. 128; July 13, 1918; 40 Stat. 755), and the Fish and Wildlife Coordination Act (48 Stat. 401, as amended; 16 U.S.C. 661 *et seq.*).

The project is a 51.2 megawatt (MW) single development project operated since 1926. It consists of: 1) a 125-foot high by 1,000-foot long concrete gravity-type dam with a 624-foot long spillway controlled by 26 Tainter gates, each 17 feet high by 21 feet long; 2) a reservoir with a surface area of 1,729 acres and containing about 72,00 acre-feet of water at full pool elevation of 870 feet National Geodetic Vertical Datum; 3) a log boom and track racks at the intake facility; 4) eight 12-foot by 18-foot gated penstocks of reinforced concrete; 5) a 72-foot by 165-foot by 68-foot high brick powerhouse containing four identical Francis generating units with a total rated capacity of 51.2 MW; 6) dual 800-foot long 138-kilovolt transmission lines; and 7) appurtenant facilities. In 2018, the licensee completed a turbine replacement and upgrade of Unit 2.

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IN AMERICA** 

Pre-Application Document

Section 4.4 Current and Proposed Project Operations.

The Service supports the concerns of the West Virginia Division of Natural Resources (WV DNR) regarding the quality and timing of available yellow perch (*Perca flavescens*) and walleye (*Sander vitreus*) habitat within the reservoir lake, with proposed drawdown operations. Their assessment is that the lake elevation schedule during the month of March (between 863 and 870 feet) is likely insufficient to protect the spawning period and could dewater many fish eggs which would hamper recruitment to the populations. We would like to better understand how lake levels, downstream flow releases, and draw down schedules impact fish and wildlife resource needs so we can determine whether there are ways to minimize these impacts.

Section 5.2 Water Resources

The current License Article 405 (continuous monitoring of water quality) has proved very beneficial to the Licensee and resource agencies as this monitoring resulted in effective management of a low flow event during the summer/early fall of 2019. The Service believes this monitoring should be continued in any new license condition granted.

Section 5.2.3 Streamflow, Gage Data and Flow Statistics

This section of the PAD does not provide sufficient information for the Service to fully assess the seasonality, duration and magnitude of streamflows inflowing to the reservoir and dam, and the appropriate flow releases for the upcoming license period. The graphs in Appendix E (Flow Duration Curves) are not scaled appropriately to discern the patterns of what occurs in the 5 to 99 percent exceedance flows that we would need to examine. It would be helpful if the maximum flow event(s) and duration for the period record 2016 to 2019 is displayed separately from the rest of the graphs so as not to flatten all other flow interpretation.

The Service does not see the Project Instream Flow Study which is referenced in this section of the PAD, contained in Appendix E, in order to assess its applicability to current and future conditions. Without this information, we have many remaining questions, and would recommend an Instream Flow Study to help us determine appropriate flow releases in the new license articles.

The Service also believes a mussel survey should be conducted downstream in the tailwater area and downstream reaches to assess this valuable component of the aquatic community and potentially help inform our flow regime recommendations for the project.

Section 5.7.2 Rare, Threatened and Endangered Resources and Habitats

Table 5.16 of the PAD identifies four species federally listed under the ESA with the potential to occur in the project area, Indiana bat (*Myotis sodalis*), northern long-eared bat (*Myotis septentrionalis*), running buffalo clover (*Trifolium stoloniferum*), and the flat-spined three-toothed snail (*Triodopsis platysayoides*).

The federally threatened northern long-eared bat and the federally endangered Indiana bat are temperate, insectivorous migratory bats that hibernate in mines and caves during the winter and spend summers in wooded areas. There are no known northern long-eared bat maternity roosts

or hibernacula within the immediate vicinity of this site. Indiana bats are most likely to be in maternity roosts from May 1 to July 31.

Any project-related tree removal (e.g., for maintenance or recreational improvements) should involve consultation with the Service under Section 7 of the ESA, for the protection of the Indiana bat and northern long-eared bat.

The Service filed an August 27, 2019 Proposed Rule in the Federal Register for the de-listing of running buffalo clover (*Trifolium stoloniferum*) found at this web address: <https://www.govinfo.gov/content/pkg/FR-2019-08-27/pdf/2019-18413.pdf#page=1>. Its current status is still federally endangered as of this comment date. However, we believe this existing project with minor habitat modification of the project area will not likely adversely affect running buffalo clover, a terrestrial plant. We therefore, are not requesting surveys for the plant.

The flat-spined three-toothed snail is found within Monongalia County, West Virginia in close proximity to the project, but is not found within the project boundary. It is found in Coopers Rock State Forest, primarily on the rock bluffs. The area within the project boundary lacks the habitat requirements for the snail, therefore, this project will have “no effect” on the species.

Except for occasional transient individuals, no other federally proposed or listed threatened or endangered species are known to exist within the project area. Should project plans change or if additional information on the distribution of listed or proposed species becomes available, this determination may be reconsidered.

Study Requests

The Service has reviewed the evaluation of study proposals in the PAD by the Applicant for the Lake Lynn Hydroelectric project. We feel the proposed presence/absence surveys for rare, threatened, and endangered species may not be warranted, based upon our comments on the PAD. Aside from a field inventory of existing project recreation sites, a creel survey, and a cultural resources examination along the Cheat Lake Trail and Lake Lynn dam and powerhouse, the Applicant is not proposing any other studies. The only protection, mitigation, and environmental (PM&E) measures the Applicant proposes relate to recreation and land use. The Service believes the studies we and other resource agencies have identified are necessary to determine appropriate PM&E measures for the upcoming license period.

The Service requests the opportunity for further review and discussion as the study plans develop from a conceptual phase into more defined proposals.

Study Request 1: American Eel Monitoring Study

Goals and Objectives: To assess if American eel (*Anguilla rostrata*) is currently present below the Lake Lynn dam on the Cheat River and to help inform project operations and fishway prescription needs.

Resource Management Goals: Resource management goals include providing safe, timely, and

effective passage for fish species that migrate. Additional goals include providing passage to fish species which serve as glochidial hosts to freshwater mussels in the Cheat River, in order to prevent negative impacts to fish and mussel populations from the proposed project.

Public Interest: The requestor is a resource agency.

Existing Information: American eels have been documented in the Monongahela River within the past 10 years as far upstream as the Morgantown Lock and Dam, upstream of the confluence of the Cheat River with the Monongahela River. The Lake Lynn Hydropower Project is 3.7 miles upstream on the Cheat River from its confluence with the Monongahela River, therefore there is significant potential for current and future eel habitat usage within the Cheat River below Lake Lynn Hydroelectric project, and within the upstream miles of the Cheat River and tributaries. A preliminary sampling effort was conducted using the technique of environmental DNA (eDNA) detection technology as detailed in the “Project Report: June 2019 qPCR analysis of eDNA filter samples collected at Lake Lynn Dam, Target species: American eel (*Anguilla rostrata*),” dated December 4, 2019 by the Northeast Fishery Center’s Conservation Genetics Lab.

Study Methodology: The recommended study uses standardized protocols employed in published literature.

Level of Effort and Cost: The methodology employed by the pilot sampling project described in the December 4, 2019 Project Report has shown that this method is a lower cost technique. This new study would seek to improve on sampling conditions to greatly reduce the influence of above dam released water on the collected samples, and to include areas lower in the Cheat River before its confluence with the Monongahela River.

Study Request 2: Entrainment Study and Mortality Study

Goals and Objectives: The goal of the proposed study is to determine the number of fish that are either entrained or impinged by the project operation, and to examine methods to reduce this injury and mortality to fishes.

Resource Management Goals: The Service’s strategic conservation priorities include aquatic connectivity efforts that provide for passage, community protection, and enhanced recreational opportunities using the best available science and decision support tools.

Public Interest: The requestor is a resource agency.

Existing Information: The Service is not aware of previous entrainment studies conducted at the project. The biomonitoring data conducted under prior license conditions and filed in the FERC record can be used to assist in this analysis.

Nexus To Project Operation: Due to the large spacing of the current trash racks, certain sizes of fish are able to pass through the racks and become entrained through the turbines as they operate, causing fish mortality of an unknown quantity.

Study Methodology: The Applicant could use the Service's Turbine Blade Strike Analysis Model as one component of their assessment of current operational impact on entrainment and mortality of fishes. It can be found at <https://www.fws.gov/northeast/fisheries/fishpassageengineering.html>, along with other Service guidelines such as the Northeast Region Fish Passage Engineering Design Criteria, Fish Passage Design Criteria, and the Federal Interagency Nature-Like Fishway Passage Design Guidelines. Some literature analysis of mortality from Francis units of the diameter that exist at the project could also be utilized.

Level of Effort and Cost: These desktop analyses should be achievable within the one year timeframe.

Study Request 3: Upstream and Downstream Fish Passage Study

Goals and Objectives: The goals of the study are to assess movement of fish through the project area. It would identify likely routes fish would take under a variety of conditions, and assess the feasibility of incorporating alternative routes or additional fish protection measures.

Public Interest: The requestor is a resource agency.

Existing Information: The Service is not aware of previous studies examining passage options for the Lake Lynn Hydroelectric Project.

Nexus To Project Operation: The dam at the project blocks migration of fishes upstream and likely impedes safe, timely, and effective passage downstream. Downstream migration is currently only available through the dam gates, and through the project's powerhouse.

Study Methodology: The methodology would include a literature review of available options for upstream passage of eels, downstream passage bypass of the turbines, and other fish protection measures, in addition to iterative discussions with the Service's fishway engineers and other case studies.

Level of Effort and Cost: We anticipate that evaluating feasibility of passage would be fairly straightforward and not a lengthy process. Discussions with engineers would be necessary to properly assess the feasibility of bypass channels or fish protection structures.

We appreciate the opportunity to provide review and comment on the PAD and draft study proposals developed by the Applicant. We look forward to further discussions with you on how the Applicant can incorporate all the above listed studies. Finally, it would be helpful if the study proposals incorporated into the Draft Study Plan are as detailed as possible so that all parties

know exactly what is being agreed upon when the study plan is approved. If you have any questions regarding this matter, please contact Janet Norman of my staff at 410-573-4533 or Janet_Norman@fws.gov.

Sincerely,



for Genevieve LaRouche
Field Supervisor

cc: Lindy Nelson, Regional Environmental Officer, DOI OPEC

References

U.S. Fish and Wildlife Service. Endangered and Threatened Wildlife and Plants; Removing *Trifolium stoloniferum* (Running Buffalo Clover) From the Federal List of Endangered and Threatened Plants. 84 FR 44832, August 27, 2019. <https://www.govinfo.gov/content/pkg/FR-2019-08-27/pdf/2019-18413.pdf#page=1>

U.S. Fish and Wildlife Service. 2019. Fish Passage Engineering Design Criteria. USFWS, Northeast Region R5, Hadley, Massachusetts.



P.O. Box 282
Morgantown
West Virginia
26507-0282

February 9, 2020

Kimberly Bose, Secretary
Federal Energy Regulatory Commission
888 First Street, N.E.
Mailcode PJ- 12.1
Washington, DC 20426

Re: *Information Request for the Pre-Application Document for Relicensing of the Lake Lynn Hydroelectric Project (FERC No. P-2459-005)*

Dear Ms. Bose,

On behalf of the Monongahela River Trails Conservancy Ltd. (MRTC), I am submitting comments concerning the Relicensing of the Lake Lynn Hydroelectric Project (FERC No. P-2459-005). MRTC is a non-profit 501c3 organization founded in 1991 to develop and manage 40 miles of a 48-mile, tri-county rail-trail network in North Central West Virginia. The remaining 8 miles are managed by the city of Morgantown and Star City, with MRTC as an active partner. The Mon River, Caperton, Deckers Creek Trail network was established as a National Recreation Trail in 1996. MRTC shares with other regional stakeholders the vision of having the Cheat Lake Trail connect with the Sheepskin Trail in Pennsylvania and the Mon River Trail network in West Virginia and ultimately be part of a long-distance trail network that extends from Ohio through West Virginia and Pennsylvania to Washington D.C.

Cube Hydro, in now owning and managing the Cheat Lake Dam aka Lake Lynn Facilities, has continued to provide a wide mix of public recreational options to enjoy the area including hiking, biking, birding, paddling, fishing, swimming, and boating. MRTC supports these recreational activities and would like to see improvements to these recreational opportunities be included in this re-licensing process:

1. To restore the Cheat Lake Trail to its 4.5 mile length by repairing a major wash-out that occurred in the summer of 2019.
2. To plan and build a connection of the Cheat Lake Trail to the Sheepskin Trail at the north end of the 4.5 mile Cheat Lake Trail. This would connect the Cheat Lake Trail into a nearly 60 mile rail-trail network and connect many communities including Point Marion, PA, Morgantown, WV, and Fairmont, WV. This involves opening the gate at the north end of trail and working with other stakeholders to build new trail on Cube Hydro property to link into the Sheepskin Trail corridor. The Sheepskin Trail Corridor is owned by Fayette County, PA and is currently being engineered and built. The Sheepskin Trail is not yet built to Cheat Lake Trail but we anticipate it will be in the next 5 years.
3. To extend the Cheat Lake Trail south on Cube Hydro property and in doing so, open up more area to hiking, biking, birding and fishing.
4. To improve fish, bird, and pollinator habitat along the Cheat Lake Trail.

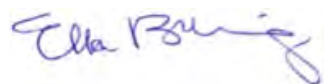
5. To improve recreational promotion of the Cheat Lake recreation area by hiring on-site recreation staff, by improving public communication (website, social media, phone), and by creating a process for holding events on the Cheat Lake Trail such as walks and runs.

Recreation on the river and neighboring rail-trails ties our communities in West Virginia and Pennsylvania together economically and socially. Bass tournament participants cross city, county and state lines. Both the Monongahela River and Cheat Rivers are regionally promoted water trails, and both paddlers and boaters move up and down the rivers to access different communities. Our rail-trails are used for commuting to work and school, trail tourism, and recreation. Our communities are dependent on each other to provide access, amenities, and tourism services in order to recruit new businesses and people to live in the region and entice visitors into extended stays and return visits.

The Cheat Lake Trail is one of a cluster of rail-trails in the region that provides recreation, a social gathering space, and a chance to connect with nature. It is widely used by local groups such as Hike it Baby, an outdoor meet-up group for families with young children, the Mountaineer Chapter of the National Audubon Society for public birding outings and the Christmas Bird Count, and cycling and running groups for exercise and outdoor recreation. Additionally, the Cheat Lake Trail is a part of a growing 1,500+ mile trail network connecting 50+ counties in four states (WV, OH, PA and NY). The Industrial Heartland Trails Coalition is a group comprised of more than 100 organizations, whose vision and mission it is to advance the trail network by closing gaps and connecting communities to bring health and wealth to communities through trail tourism and safe, equitable trail access by local residents.

Thank you for considering these recommendations from community stakeholders as part of the re-licensing process. Please feel free to contact me at 304-692-6782 or ella@montrails.org with any questions or if you need additional information.

Sincerely,
Monongahela River Trails Conservancy, Ltd.



Ella Belling, Executive Director

Document Content(s)

LakeLynnRelicensingComments.PDF.....1-2

Owen Mulkeen, Kingwood, WV.

On behalf of Friends of the Cheat, I'd like to start by thanking you for the opportunity to submit comments to be included as part of the Pre-Application Document for Relicensing of the Lake Lynn Hydroelectric Project.

For 25 years, Friends of the Cheat (FOC) and our River of Promise (ROP) partners have worked diligently to restore water quality to the Cheat River and Cheat Lake through reclamation of mine lands and the remediation of acid mine drainage (AMD). Irresponsible mining had left the Cheat and nine of its lower tributaries severely damaged by AMD. Walleye were extirpated by the late 1940s. Historic data collected by WV Division of Natural Resources (DNR) show mean lake pH levels less than 5 between the 1950s and early 1990s. A few pollution tolerant fish species including bullhead catfish and white suckers sought refuge in the lake's sheltered embayments. Massive pollution releases from the T&T mine into Muddy Creek in 1994 and 1995 dropped the pH of the lake to 4. As a result, the Cheat River was named one of America's Most Endangered Rivers in 1995 by the national organization American Rivers. These events catalyzed the formation of Friends of the Cheat and the River of Promise task force.

The efforts of FOC and our ROP partners, most notably the US Office of Surface Mining (OSM) and WV Department of Environmental Protection (DEP), have restored water quality to the Cheat River main stem and Cheat Lake. Over 200 land reclamation and water treatment projects have been implemented with millions of dollars of funds resulting in millions of pounds of AMD pollution removed from the Cheat's tributaries. The river and lake have not seen a pH depression below 6 since 2011 and the main stem has been removed from the state's list of impaired waters for pH impairment. The removal of iron (ferrous hydroxide or "yellow boy") as well as aluminum and manganese is visibly noticeable by reduced staining of rocks near the water's edge as well as armoring of fiberglass boat bottoms, which was a prevalent problem through the '90s. Improved water quality has fostered the rebound of Cheat Lake's fishery. DNR reports a dramatic recovery of species richness (27-34 species per year) including abundant sportfish such as largemouth and smallmouth bass, yellow perch, and walleye. Fishing tournaments now attract anglers from across the country which benefits the local economy. FOC is particularly excited about the walleye, which research shows are spawning up into the northern reaches of the Cheat Canyon.

With a drainage area of roughly 1400 square miles all flowing down to Cheat Lake, not only does the Cheat River constitute a critical piece of the region's ecosystem, it is also home to a large human population that lives, works and plays within the drainage. Friends of the Cheat recognizes that opportunities to recreate and connect with nature and the outdoors can not only improve the quality of life for a region's citizens, but it also leads to the engagement with and appreciation of our resources that can help prevent them from being squandered and abused. Cheat Lake and the surrounding area already Working to restore, preserve, and promote the outstanding natural qualities of the Cheat River Watershed since 1994

provides a plethora of outdoor activities; including paddling, boating, fishing, hiking, cycling, birding and more. Cube Hydro has already improved and created recreation

opportunities around Cheat Lake. FOC and key partners have identified several opportunities for additional improvement of recreational opportunities that we believe should be considered as part of this next re-licensing process.

FOC is aware and supportive of the proposal to create a public access to the upper reaches of Cheat Lake by improving an existing gated road in Snake Hill Wildlife Management Area along Buzzard Run. This would provide another trailhead for hikers to enter the WMA, fishermen to access this upper section of the lake usually only reachable by boat, and would provide an egress opportunity for whitewater paddlers running the Lower Cheat Canyon. Despite being located in close proximity to the Cheat Lake and Morgantown metropolitan areas, and providing a wonderfully scenic and exciting float through class 2 rapids in a deep canyon, this section is infrequently paddled. This is mostly due to the 4.5 mile paddle across Cheat Lake to the nearest existing public access at the Ices Ferry bridge, which can be a laborious task in short maneuverable whitewater craft that are well suited for the rapids upstream, not to mention the danger of encounters with fast moving power boats. The creation of a new public access by improving Buzzard Run Road would shorten this flatwater paddle to 1.9 miles and thereby make this whitewater trip much more attractive.

Another opportunity for recreation enhancement in the Cheat Lake area would be to improve access and connectivity of both ends of the existing Cheat Lake Trail. Currently the trail follows the eastern shoreline of Cheat Lake for 4.4 miles and provides opportunities for walking, running, biking and fishing. The north end of the trail can be accessed via a trailhead and steep flight of stairs off of Morgan Run Road. The south end of the trail dead ends abruptly. With the future route of the Sheepskin Trail passing by just to the north, and local businesses, residential neighborhoods, and Coopers Rock State Forest to the south, there lies an opportunity to work towards increased connectivity of these trail system. By doing so, we can enhance the value of these isolated trail sections in such a way that their value becomes greater than the sum of their parts. We recommend that possibilities to extend the southern end of the Cheat Lake Trail, around the peninsula where it currently terminates, to a newly developed trailhead be thoroughly investigated, as well as the streamlining of the northern terminus to avoid the steep stairs and improve the connectivity to the future route of the Sheepskin Trail.

Thank you for this opportunity to comment on the upcoming relicensing of the Lake Lynn Hydroelectric Project.

Sincerely,

Owen Mulkeen

Associate Director

Friends of the Cheat

Document Content(s)

93813.TXT.....1-2

Dave Harshbarger, Morgantown, WV.

Please see the Cheat Lake Trail restored at the wash-out and re-opened to the public ASAP from the storm damage in summer of 2019.

A commitment to connecting to the Sheepskin Trail once the Sheepskin Trail is developed to this area.

And an entrance for cyclists and walkers on the northern end with a replacement of the gate and fence to a gate with a bike/ped pass-thru on the Cheat Lake Trail.

Document Content(s)

94931.TXT.....1-1

GARY V MARLIN, WESTOVER, WV.

January 9, 2020

I am a member of the Morgantown community and would like to submit some suggestions to be considered for Project # P-2459. I would like to see the slip on the Cheat Lake Trail repaired and to see a passage way from the Trail through the dam facility so that there will be a connection to the Sheepskin Trail when it comes by the dam.

Respectfully,

Gary Marlin

Document Content(s)

93890.TXT.....1-1

From: Jody Smet
To: Janet_Norman@fws.gov; Megan_K_Gottlieb@usace.army.mil; sean.mcdermott@noaa.gov; Kevin_Mendik@nps.gov; clschref@usgs.gov; smwickle@usgs.gov; Jacob_D_Harrell@wv.gov; Danny_A_Bennett@wv.gov; David_J_Wellman@wv.gov; coopersrocks@wv.gov; Brian_L_Bridgewater@wv.gov; susan_m_pierce@wv.gov; scwilliams@pa.gov; pelswerth@pa.gov; hsmiles@pa.gov; olbraun@pa.gov; chnagle@pa.gov; agastbray@moncommission.com; dr.hawk@comcast.net; rmcclore@moncommission.com; vvicities@favettepa.org; harold.peterson@bia.gov; clint_halftown@gmail.com; ec@delawarenation.com; cbrooks@delawaretribe.org; info@oneida-nation.org; admin@onondaganation.org; wfisher@sctribe.com; cassie@shawnee-tribe.com; tonseneca@aol.com; 106NAGPRA@astribe.com; sthompson@delawarenation-nsn.gov; dkelly@delawarenation.com; sbachor@delawaretribe.org; bbarnes@estoo.net; jbergevin@oneida-nation.org; lmisita@oneida-nation.org; jay.toth@sni.org; wtarrant@sctribe.com; tonya@shawnee-tribe.com; darren.bonaparte@srmt-nsn.gov; bprintup@heff.org; duane330@aol.com; mstrager@gmail.com; ella@montrails.org; amanda@cheat.org; owen@cheat.org; betty.w304@gmail.com; flernejic@comcast.net; greystone.poa@hotmail.com; dgriff66@aol.com; seangoodwin@yahoo.com; graceandparke@yahoo.com; kevin@americanwhitewater.org; birvin@americanrivers.org; smoyer@tu.org; colleen@hydroreform.org; DMiller@potesta.com; swelsh@wvu.edu; edgewater@cheatflakedocks.com; stratdouglas@gmail.com; KCampitell@oxforddevelopment.com; shall@ccpgh.org; awagner1595@gmail.com; chestercgraw@gmail.com; donnaweems@rocketmail.com; davecyndy@frontier.com; szbarnes@yahoo.com; mlutman@comcast.net; Reecejames98@gmail.com; qtrking86@yahoo.com; rogerdalephillips@gmail.com; scalvert@greenrivergroupllc.com; jkotcon@gmail.com; john.spain@ferc.gov; andrew.bernick@ferc.gov; dtrested (Guest); Foster_Joyce; Dale_Short; Robert_Flickner
Subject: [EXTERNAL] Lake Lynn Project Relicensing - Draft Study Plan
Date: Wednesday, April 15, 2020 1:08:27 PM
Attachments: [image001.png](#)
[Lake Lynn Draft Study Plan_April 2020_Rev.pdf](#)

This is an **EXTERNAL** email. Do not click links or open attachments unless you validate the sender and know the content is safe.

Dear Stakeholders,

Lake Lynn Generation LLC (Lake Lynn) is relicensing the Lake Lynn Hydroelectric Project (FERC No. P-2459) (Project) with the Federal Energy Regulatory Commission (FERC). Lake Lynn initiated the relicensing process in August 2019 by filing a Notice of Intent (NOI) and Pre-Application Document (PAD). At the same time, Lake Lynn requested FERC approval to use the Traditional Licensing Process (TLP). FERC approved the use of the TLP in October 2019, and Lake Lynn held a Joint Meeting and Site Visit in December 2019. Following the Joint Meeting and Site Visit, resource agencies and other stakeholders were afforded the opportunity to comment on the PAD and to request resource studies that they deemed were needed to evaluate Project impacts on natural, cultural and recreational resources. Based on the comments received, we prepared the attached draft Study Plan to document the resource studies we plan to undertake at the Project in 2020.

We would like to convene a meeting via conference **next week** to discuss the attached draft Study Plan. Please respond to the Doodle poll at the link below by the end of this week, close of business on Friday, April 17, to let us know your availability for a call next week. We will schedule a time that works for the majority of the respondents.

https://doodle.com/poll/byziw97sfp7eukz25b4dqki/private?utm_campaign=poll_invitecontact_participant_invitation_with_message&utm_medium=email&utm_source=poll_transactional&utm_content=participatenow-cta

Please do not hesitate to contact me at (804) 739-0654 or by email at jody.smet@eaglecreekre.com if you have any questions or trouble accessing the Doodle poll.

Jody Smet, AICP | Director, FERC Licensing and Compliance
Eagle Creek Renewable Energy

Desk: 804 739 0654

Mobile: 804 382 1764

Email: jody.smet@eaglecreekre.com [Please note my new email - Eagle Creek and Cube Hydro have merged!]



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Lake Lynn Hydroelectric Project (FERC No. P-2459)
Draft Study Plan
April 2020

Background

Lake Lynn Generation LLC (Lake Lynn or Licensee) is relicensing the Lake Lynn Hydroelectric Project (FERC No. P-2459) (Project) with the Federal Energy Regulatory Commission (FERC). The current FERC license for the Project expires on November 30, 2024. The Project is located on the Cheat River in Monongalia County, West Virginia and Fayette County, Pennsylvania (Attachment 1).

Lake Lynn initiated the relicensing process in August 2019 by filing a Notice of Intent (NOI) and Pre-Application Document (PAD). At the same time, Lake Lynn requested FERC approval to use the Traditional Licensing Process (TLP). FERC approved the use of the TLP in October 2019, and in accordance with FERC regulations, Lake Lynn held a Joint Meeting and Site Visit in December 2019. Following the Joint Meeting and Site Visit, resource agencies and other stakeholders were afforded the opportunity to comment on the PAD and to request resource studies that they deemed were needed to evaluate Project impacts on natural, cultural and recreational resources.

In response to the NOI/PAD filing and the Joint Meeting and Site Visit, Lake Lynn received written comments and study requests from the U.S. Fish and Wildlife Service (USFWS), West Virginia Division of Natural Resources (WVDNR), Cheat Lake Environment and Recreation Association (CLEAR), Friends of the Cheat (FOC), Monongahela River Trails Conservancy (MRTC), and individual residents in the local community. A summary of the study requests and comments is provided in Attachment 2. The complete study requests are provided in Attachment 3.

Lake Lynn is utilizing the TLP. There is no requirement to prepare a formal study plan document as is required in the Integrated Licensing Protocol (ILP), and therefore, there is no subsequent study plan determination by FERC. Nonetheless, Lake Lynn has prepared this Study Plan to document and share with resource agencies and stakeholders its plans for conducting resource studies and ongoing monitoring efforts in 2020 to inform the relicensing process. The individual study plans detailed below are proposed for the Project relicensing.

1.0 Geology and Soils

1.1 Reservoir Shoreline Erosion Survey

Study Request

WVDNR requested the Licensee conduct a reservoir sedimentation study at areas that have demonstrated an affinity for a build-up of sediment (i.e., Sunset Beach Marina) and develop a plan to monitor and address any sedimentation issues. WVDNR suggested that the Licensee examine possible sources of sedimentation within the reservoir and identify potential preventive measures that could be taken to reduce the level of sedimentation in those areas where sediment builds up (i.e., Sunset Beach Marina). In addition, CLEAR requested that the Licensee continue monitoring and remediation of the ongoing shoreline erosion.

Study Goals

Article 402 of the existing FERC License requires the Licensee to: 1) conduct annual shoreline erosion surveys of the Cheat Lake Park shoreline extending from the dam to the Cheat Haven peninsula and 2) conduct triennial shoreline erosion surveys of the entire Cheat Lake shoreline to identify new areas of erosion. Since 1995, the Licensee has been conducting shoreline erosion surveys and documenting areas of shoreline erosion within the Project boundary, which can influence sedimentation in Cheat Lake. In recent years, no new areas of active shoreline erosion have been identified and previously identified areas have exhibited minimal annual changes, therefore, the Licensee believes that an additional study is not warranted at this time. The goals of this study are to: 1) conduct a visual shoreline erosion survey of the Cheat Lake Park shoreline extending from the dam to the Cheat Haven peninsula to evaluate changes in shoreline erosion monitoring stations where historic erosion has been observed and 2) conduct a shoreline erosion survey of the entire Cheat Lake shoreline to identify new areas of erosion.

Study Scope

For the upcoming 2020 annual shoreline erosion survey of the Cheat Lake Park shoreline, the Licensee will conduct a visual survey by boat of the Cheat Lake Park shoreline extending from the dam to the Cheat Haven Peninsula. During the survey, the boat will be kept as close to the shoreline as practical to allow for careful observation. Sixteen (16) shoreline erosion monitoring stations where historic erosion has been observed will be visually inspected and photographed for future reference and comparison. Any evidence of new areas of erosion will be noted and photographed. Additionally, for the 2020 shoreline erosion survey, the same scope will be performed along the entire reservoir shoreline to identify and document any new areas of erosion. The Licensee will prepare a report summarizing the results of the shoreline survey.

Study Schedule

The Licensee anticipates that the shoreline erosion survey will be conducted in November or December 2020, when the reservoir level is lowered and vegetation has died back. This timing is consistent with the timing in previous years. It is anticipated that the annual report will be filed with FERC by February 2021.

2.0 Water Resources

2.1 Water Quality Monitoring

Study Request

At this time, no stakeholders have requested new studies related to water quality at the Project. However, the USFWS and WVDNR requested the existing water quality monitoring be continued throughout the term of the new License.

Study Goals

In accordance with the existing FERC License (Article 405) and the Project Water Quality Monitoring Plan (West Penn Power Company, 1995), the Licensee will continue to monitor water quality and report the results to USFWS, WVDNR, Pennsylvania Fish and Boat and Commission (PFBC), Pennsylvania Department of Environmental Protection (PDEP), and FERC annually during the relicensing process. The water quality data will be used in the development of the License Application.

Study Scope

In accordance with the existing FERC License (Article 405) and the Project Water Quality Monitoring Plan (West Penn Power Company, 1995), the Licensee will continue to monitor and record hourly water quality data from April 1 through October 31 on an annual basis during the relicensing process. For the purposes of this 2020 relicensing study, the Licensee will collect dissolved oxygen and water temperature from April 1, 2020 through October 31, 2020 at the existing three locations in conjunction with U.S. Geological Survey (USGS) gages located in Cheat Lake, the Project tailrace, and downstream of Grassy Run. The Licensee will prepare and provide an annual report of the monitoring results to USFWS, WVDNR, PFBC, and PDEP for review and comment. The Licensee will submit the final annual report to FERC.

Study Schedule

For this 2020 relicensing study, the Licensee will monitor and record hourly water quality data from April 1 through October 31, 2020. The Licensee will provide an annual report of the monitoring results to USFWS, WVDNR, PFBC, and PDEP within 90 days (by February 1, 2021) of the end of the monitoring season. The Licensee will file the final annual report with FERC within 150 days following the end of the monitoring season (by April 1, 2021).

2.2 Streamflow Data Collaboration

Additional Information Request

The USFWS requested additional information so that it could fully evaluate the seasonality, duration, and magnitude of streamflow into the Project. The USFWS requested the existing Project Instream Flow Study (EA Engineering, Science, and Technology, Inc. (EA Engineering), 2014) discussed in the PAD and noted that, without this information, the USFWS may have remaining questions and recommend an Instream Flow Study. The USFWS also requested the graphs (Flow Duration Curves) in Appendix E of the PAD be revised so that the maximum flow

event(s) and duration for the period of record (2016 to 2019) is displayed separately from the rest of the graphs.

The Licensee will provide additional information to the USFWS to assist it with evaluating the seasonality, duration, and magnitude of streamflow into the Project. The Licensee will provide the USFWS with the Project Instream Flow Study and supporting information referenced in the PAD. The Licensee will also collaborate with the USFWS on the presentation of the Flow Duration Curves and revise the curves in a manner that will assist the USFWS with its evaluation. The Licensee plans to provide the USFWS with the Project Instream Flow Study by May 2020. The Licensee also plans to collaborate with the USFWS on the presentation of the Flow Duration Curves and provide revised curves by October 2020.

3.0 Fish and Aquatic Resources

3.1 Desktop Fish Entrainment Assessment

Study Request

The USFWS and WVDNR requested the Licensee conduct a desktop entrainment study to determine the number of fish that are either entrained or impinged by Project operation and to estimate the injury and mortality of fish that pass through the turbines during Project operation. WVDNR also recommended a field component to verify results.

Study Goals

The goals of this study are to 1) conduct a desktop assessment of the potential for impingement/entrainment and 2) estimate the numbers of fish entrained at the Project.

Study Scope

The Licensee will conduct a desktop fish entrainment assessment for the Project that includes the following:

- A description of the Project reservoir, intake structure, turbine units, and seasonal operational regime;
- Summary of available fisheries information historically collected in the Cheat River upstream of the Project;
- Life history and habitat requirements for target fish species;
- Assessment of impingement and entrainment potential as a function of (1) the existing rack spacing, (2) calculated approach velocities, (3) the physical dimensions of target fish species, and (4) the swim capabilities (i.e., burst speed) of target fish species;
- Review of information contained in the 1997 Electric Power Research Institute (EPRI) database to provide a summary of (1) the size class composition of target fish species, (2) entrainment densities of target fish species, and (3) calculated survival rates of target species for the subset of hydroelectric projects comparable to the Project;
- Calculation of site-specific turbine passage survival rates for target fish species using the USFWS Turbine Blade Strike Analysis Tool (TBSA); and

- Utilize seasonal species/size class-specific entrainment densities from comparable projects and project-specific discharge volumes to generate estimates of numbers of fish entrained at the Project.

The results of the desktop assessment will be documented in a study report.

Study Schedule

The desktop fish entrainment assessment will be conducted during the period June through December 2020, with a draft report for agency review anticipated in January 2021.

3.2 American Eel Environmental DNA Sampling

Study Request

The USFWS requested the Licensee continue the American eel monitoring that was conducted in 2018 and 2019 under the Project Aquatic Biomonitoring Plan (2018-2020) (Lake Lynn, 2018a). For this second year of collecting water samples for American eel environmental DNA (eDNA), USFWS requested that the Licensee improve sampling locations and include areas lower in the Cheat River before the confluence with the Monongahela River. WVDNR supported the USFWS request for additional analysis of Project waters for American eels. The USFWS and WVDNR also requested the Licensee assess movement of fish throughout the Project area and assess the feasibility of incorporating alternative routes or additional fish protection measures at the Project. The USFWS' proposed methodology includes a literature review of available options for upstream passage of eels, downstream passage bypass of the turbines, and other fish protection measures, in addition to discussions with the USFWS fishway engineers.

Study Goals

In accordance with the Project Aquatic Biomonitoring Plan (2018-2020) (Lake Lynn, 2018a), developed in consultation with the USFWS, WVDNR, and PFBC, the Licensee worked collaboratively with the USFWS to select four sampling locations in the Project tailwater and to collect quarterly samples in 2018 and 2019 to sample the Project tailwater for American eel environmental DNA (eDNA). No American eel eDNA has been detected to date, however, concerns have been raised by the USFWS and WVDNR regarding the sampling locations.

The goals of the second year of American eel eDNA sampling are to: 1) collaborate with the USFWS, WVDNR, and PFBC to determine if the sampling locations used in the first year of the sampling need to be adjusted; and 2) continue the American eel eDNA sampling performed in 2018 and 2019 to determine whether American eels are present in the tailwater.

Study Scope

The Licensee will initiate the second year of sampling by working collaboratively with the USFWS, WVDNR, and PFBC to determine if there should be any adjustments to the four sampling locations in the Project tailwater or any adjustments to the methodology. The Licensee will work with the USFWS to continue to collect quarterly samples at four sampling locations in the Project tailwater in accordance with the USFWS' Protocol, *Field Collection of*

Environmental DNA (eDNA) Water Samples from Streams (USFWS, no date) and additional training from the USFWS. The Licensee will coordinate with the USFWS to provide the samples to the USFWS Northeast Fishery Center Conservation Genetics Lab in Lamar, Pennsylvania for analysis. Once the second year of sampling results are available, the Licensee will consult with the USFWS, WVDNR, and PFBC to determine if any additional fish passage assessment is warranted.

Study Schedule

The Licensee will finalize the quarterly sampling schedule with the USFWS, WVDNR, and PFBC by May 2020. The Licensee anticipates that the quarterly sample periods will be April-June 2020, July-September 2020, October-December 2020, and January-March 2021. The sample results will be provided to the Licensee by the USFWS Lamar lab. The Licensee will provide the results upon receipt to the USFWS, WVDNR, and PFBC.

3.3 Tailwater Mussel Survey

Study Request

The USFWS requested that a mussel survey be conducted in the tailwater area and downstream reaches to assess this component of the aquatic community.

Study Goals

The goal of this study is to conduct a mussel survey within the Project boundary downstream of the Project dam to document mussel habitat (location, depth, and substrate) and the occurrence density, distribution, and relative abundance of any mussel species present.

Study Scope

The Licensee will conduct a mussel survey to evaluate the likelihood of the presence or absence of mussels within the Project boundary downstream of the Project dam (approximately 200 meters downstream of the dam at the furthest point). The area inside the Project boundary downstream of the dam is in West Virginia and ends at the Pennsylvania/West Virginia state line (Attachment 1). A malacologist experienced in mussel collection and qualified to work in West Virginia will lead all mussel sampling efforts.

The Licensee will prepare a survey plan and coordinate with WVDNR for approval. The survey plan will outline the methods and approach for conducting the mussel survey following the West Virginia Mussel Protocol (Protocol) guidelines for hydroelectric projects. WVDNR approval of the survey plan will be required prior to initiating fieldwork.

The Licensee will evaluate for mussel presence/absence within the Project boundary downstream of the dam. The Licensee will survey approximately 5 transects spaced 25 meters apart that will span bank to bank. Snorkeling and surface supplied air diving will be used to visually and tactilely search for mussels at the substrate surface and minor excavation will occur where appropriate to ensure recovery of buried mussels. Qualitative timed searches will be employed

based on mussel and habitat distribution along transects throughout the survey area. Search effort will meet minimum Protocol requirements (1 min/m² in heterogenous substrates).

A report summarizing mussel habitat, survey observations, occurrence, location maps, density, distribution, and relative abundance of any mussel species present within survey area will be prepared. Figures will present mussel distribution and high-quality habitat areas within the survey area.

Study Schedule

The mussel survey will be conducted during the period June through October 2020. It is anticipated that a draft report will be available for stakeholder review in December 2020.

3.4 Aquatic Habitat Enhancement and Monitoring

Study Request

The Project Aquatic Biomonitoring Plan (2018-2020) (Lake Lynn, 2018a), developed in consultation with USFWS, WVDNR, and PFBC, includes the installation and monitoring of fish habitat enhancement structures. The Licensee worked with WVDNR and West Virginia University in 2019 to purchase and install artificial fish habitat structures along the Cheat Lake shoreline and to monitor their effectiveness. The Licensee reviewed the results of the 2019 activities with the USFWS, WVDNR, and PFBC and determined that a second year of monitoring in 2020 was warranted (Lake Lynn, 2020b). A scope for the second year of monitoring was developed in consultation with the USFWS, WVDNR, and PFBC (Welsh, 2019). No new studies related to fish aquatic habitat enhancement and monitoring at the Project have been requested.

Study Goals

The goals of the 2020 aquatic habitat enhancement and monitoring are to: 1) document the timing of spawning, as well as examine spawning habitat characteristics, i.e., water depth, distance from shore, and water turbidity; and 2) examine water level fluctuation as a variable of influence on the timing of spawning, as well as its role in the potential for egg dewatering.

Study Scope

During February 2020, forty artificial spawning structures were placed (submerged) at two sites on Cheat Lake (Welsh, 2019). Each site will also have four benthic artificial habitat reefs, which were placed during 2019 aquatic habitat enhancement and monitoring efforts. The forty artificial spawning structures and the eight artificial reef areas will be checked daily for the presence of egg masses during the expected spring spawning period. The artificial spawning structures will be checked by removing them from the water, and the reef structures will be checked with an underwater camera. The presence/absence of egg masses will be recorded and the number of egg

masses on each spawning or reef structure will be counted. A subsample of egg masses will be evaluated to estimate the average number of eggs per egg mass.

Additional habitat data will be recorded daily, primarily at the time when spawning structures are checked and will include water depth at the spawning structure, distance of the structure to the nearest shoreline's high water mark (i.e. full pool elevation level), distance of the structure to the nearest shoreline's current water level, surface water temperature, bottom water temperature using data loggers at depth ranges from shallow to deep water consistent with habitat unit placement, and secchi disk depth at each site to provide an index of water turbidity.

A study report will be developed and provided to the USFWS, WVDNR, and PFBC in accordance with the scope for the second year of aquatic habitat enhancement and monitoring (Welsh, 2019).

Study Schedule

Artificial spawning structures were placed (submerged) in February 2020 at two sites on Cheat Lake. The structures will be monitored daily until the end date of the spawning period has been determined. A study report will be developed and provided to the USFWS, WVDNR, and PFBC by August 2020.

3.5 Angler Creel Survey

Study Request

The Project Aquatic Biomonitoring Plan (2018-2020) (Lake Lynn, 2018a), developed in consultation with USFWS, WVDNR, and PFBC, includes an angler creel survey component (a sampling survey that targets recreational anglers) to be conducted in 2020 to document a baseline of recreational fishing effort and success. At this time, no new studies related to angling or creel surveys at the Project have been requested.

Study Goals

The goal of the angler creel survey is to document a baseline of recreational fishing effort and success.

Study Scope

In accordance with the Project Aquatic Biomonitoring Plan (2018-2020) (Lake Lynn, 2018a), the Licensee consulted with the resource agencies in December 2019 and January 2020 on a workplan (Lake Lynn, 2020a) and survey instrument (Lake Lynn, 2020b) for the angler creel survey. The Licensee initiated the angler creel survey in January 2020 and will continue collecting surveys through December 2020¹.

The Licensee is conducting the survey utilizing a standardized questionnaire (administered via survey boxes and in-person interviews) at the following locations:

¹ The survey may be temporarily suspended and continued in 2021 due to COVID-19.

- Upper Cheat Lake: Ices Ferry Bridge access, Edgewater Marina, Lakeside Marina;
- Middle Cheat Lake at the Sunset Beach Marina public boat ramp/dock;
- Lower Cheat Lake at Cheat Lake Park (the winter boat ramp, the fishing pier at Morgan Run, and the fishing pier at Rubles Run); and
- Lake Lynn Project Tailwater Fishing Pier.

A report summarizing the results of the survey will be developed in accordance with the Aquatic Biomonitoring Plan (2018-2020) (Lake Lynn, 2018) and the Angler Creel Survey Workplan (Lake Lynn, 2020a). Information collected during the survey will provide useful information on recreational angling.

Study Schedule

The Licensee initiated the angler creel survey in January 2020 and will continue collecting surveys through December 2020². A report summarizing the results of the survey will be provided to USFWS, WVDNR, and PFBC, with a report anticipated in February 2021.

4.0 Rare, Threatened and Endangered Species

4.1 Rare Species Survey

In the PAD, the Licensee proposed to conduct presence/absence surveys for rare, threatened and endangered (RTE) species that are likely to occur within the Project boundary. The USFWS provided comments on the four federally listed species with the potential to occur in the Project area that were discussed in the PAD (Indiana bat, northern long-eared bat, running buffalo clover, and the flat-spined three toothed snail) and noted that except for occasional transient individuals, no other federally proposed or listed threatened or endangered species are known to exist within the Project area. The USFWS noted that the proposed presence/absence surveys for RTE species may not be warranted; therefore, the Licensee is no longer proposing to conduct these surveys.

5.0 Recreation and Land Use

5.1 Recreation Site Enhancement Feasibility and Assessment

Study Request

Several stakeholders have requested recreation site enhancements or new recreation sites at the Project.

MRTC, CLEAR, FOC, and several individuals requested that the Licensee work with stakeholders on planning and building a connection from the Cheat Lake Trail to the Sheepskin Trail, including opening the gate at the northern end of the trail to create a passageway from the northern end of the Cheat Lake Trail through the dam facility. CLEAR also requested a continued commitment for a connection to other regional trails.

² The survey may be temporarily suspended and continued in 2021 due to COVID-19.

MRTC and FOC have requested the Licensee extend the Cheat Lake Trail toward the south.

FOC requested the Licensee create public access to the upper reaches of Cheat Lake by improving an existing gated road in the Snake Hill Wildlife Management Area (WMA) along Buzzard Run to provide a trailhead for hikers, angler access to upper Cheat Lake, and egress for whitewater paddlers running the Lower Cheat Canyon. WVDNR commented that it is unequivocally opposed to creating public access to the upper reaches of Cheat Lake by opening a gated road that passes through Snake Hill WMA property because continued maintenance of the access road would be problematic and an undue burden for the State of West Virginia and the Licensee with very little benefit to the WVDNR's prime constituents.

CLEAR requested the Licensee extend the swimming beach area toward the day-use boat docks to create a dog beach. CLEAR also requested the Licensee add additional picnic tables in this area.

Study Goals

The goals of this study are to evaluate the feasibility of the recreation site/facility enhancements requested by stakeholders at the Project, as described in the Study Scope.

Study Scope

The Licensee will evaluate the feasibility of making certain recreation site/facility enhancements at the Project. Specific enhancements to be evaluated include:

- Connection from the Cheat Lake Trail to the Sheepskin Trail at the northern end of the Cheat Lake Trail;
- Extension of the Cheat Lake Trail toward the south;
- Public access to the upper reaches of Cheat Lake by improving an existing gated road in Snake Hill WMA along Buzzard Run; and
- Extension of the swimming beach area to create a dog beach.

The feasibility assessment will include both desktop and in-field assessments. The desktop phase will examine existing tax and property records to determine property ownership and access limitations associated with each site or enhancement. The Licensee will also assess safety and security concerns and considerations associated with Project operations, including a review of any history of past safety or security concerns at the Project.

With basic information in hand, the Licensee will conduct an in-field assessment of each of the listed enhancements. The field review may be conducted in coordination with appropriate stakeholders and may include specific site visits with adjacent property owners and VDGIF, as appropriate.

The results of the feasibility assessment and any enhancement alternatives developed will be documented in a study report.

Study Schedule

The recreation site enhancement feasibility and assessment will be conducted during the period May through December 2020, with a draft report for stakeholder review anticipated in December 2020.

5.2 Recreation Use and Recreation Facility Inventory

Study Request

At this time, no stakeholders have specifically requested a study related to recreation use at the Project.

Study Goals

In accordance with FERC's Order dated August 10, 2018 modifying and approving the 2018 Recreation Plan Update (Lake Lynn, 2018b), the Licensee is collecting recreation use data in 2020 and must file the next Recreation Plan Update with FERC by March 31, 2021 that includes this data. As part of the next Recreation Plan Update, the Licensee will also conduct an inventory of the existing Project recreation sites to update and expand the discussion of the existing Project recreation sites and amenities in the next Recreation Plan Update.

Study Scope

In accordance with FERC's Order dated August 10, 2018 modifying and approving the 2018 Recreation Plan Update (Lake Lynn, 2018b), the Licensee initiated the collection of recreation use data in January 2020 and will collect recreation use data through December 2020³. This data will be summarized in the next Recreation Plan Update that must be filed with FERC by March 31, 2021.

In the PAD, the Licensee proposed to conduct a field inventory of the existing Project recreation sites that included identifying the amenities or facilities at each site, photographs of the sites, an evaluation of the overall condition of each site, and general observations on site use and accessibility. The Licensee will conduct a field inventory of the existing Project recreation sites in 2020 and include the full recreation site inventory in the next Recreation Plan Update, which is due to be filed with FERC by March 31, 2021.

Study Schedule

The Licensee initiated recreation use data collection in January 2020 and will collect recreation use data through December 2020⁴. The Licensee will conduct a field inventory of the existing Project recreation sites during the summer of 2020 and include the full recreation site inventory in the next Recreation Plan Update. The next Recreation Plan Update must be filed with FERC

³ The data collection may be temporarily suspended and continued in 2021 due to COVID-19.

⁴ The data collection may be temporarily suspended and continued in 2021 due to COVID-19.

by March 31, 2021 and the Licensee anticipates a draft report will be available for stakeholder review by February 2021.

5.3 Shoreline Classification and Aquatic Habitat Mapping

Study Request

At this time, no stakeholders have specifically requested a study related to shoreline classification at the Project or development of a shoreline management plan.

Study Goals

The goals of classifying the Cheat Lake shoreline and developing an aquatic habitat map of Cheat Lake are to: 1) collect information that will be used in the development of a Shoreline Management Plan for the Project and the License Application and 2) create datasets to assist the Licensee in managing shoreline uses.

Study Scope

The Licensee will classify the Cheat Lake shoreline (the area up to 100 feet inward from the summer pool elevation of the reservoir) into the following classifications: Forest, Industrial, Private, Public Recreation, and All Other Classes. The shoreline classification will utilize 2018 imagery from the National Aerial Image Program at 1-meter resolution and 1:10,000 scale, which is the best available temporal and spatial resolution imagery for the shoreline classification. The entire 31.3 miles of Cheat Lake shoreline will be classified. The shoreline classification will also indicate the natural versus constructed or converted shoreline habitat areas. A spatially referenced shapefile (polyline) with metadata will be prepared.

An aquatic habitat map of Cheat Lake will be developed based on data collected from an Aquatic Water Drone. The aquatic habitat areas will be digitized as polygon areas and include aquatic vegetation, silt substrate, cobble and boulder substrate, historical river channels, and water depth.

The datasets for the shoreline classification and the aquatic habitat mapping will be added to the online map viewer of the Cheat Lake Dock and property management system developed for the Project in 2019.

Study Schedule

The shoreline classification and aquatic habitat mapping will be completed by December 2020. The shoreline classification and aquatic habitat mapping will be used in the development of a Shoreline Management Plan for the Project and the License Application.

6.0 Cultural Resources

6.1 Cultural Resources (Section 106) Consultation

Study Request

At this time, no resource agencies or Tribes have requested studies of cultural resources at the Project. The Cherokee Nation commented that Monongalia County and Fayette County are

outside the Cherokee Nation's Area of Interest, thus, the Cherokee Nation defers to federally recognized Tribes that have an interest in this landbase. The Delaware Nation commented that the location of the Project does not endanger cultural or religious sites of interest to the Delaware Nation and requested that if any artifacts are discovered that the Licensee halt work and contact state agencies and its office within 24 hours.

Study Goals

The Licensee will initiate formal consultation with the WVSHPO and PHMC to inform the development of the License Application.

Study Scope

The Licensee is aware of two potentially significant cultural resources within the Project boundary – the railroad bed along the Cheat Lake Trail (a linear historic archaeological site) and the Lake Lynn powerhouse and dam (potentially eligible for the National Register of Historic Places [NRHP]). The Licensee will consult with the West Virginia State Historic Preservation Office (WVSHPO) and its Interactive Map Viewer and submit the Project information for a formal review. The Licensee will also consult with the Pennsylvania Historical and Museum Commission (PHMC) and the Cultural Resources Geographic Information System (CRGIS) and submit the Project to the PHMC for review.

Study Schedule

The Licensee plans to initiate formal consultation with the WVSHPO and PHMC by July 2020.

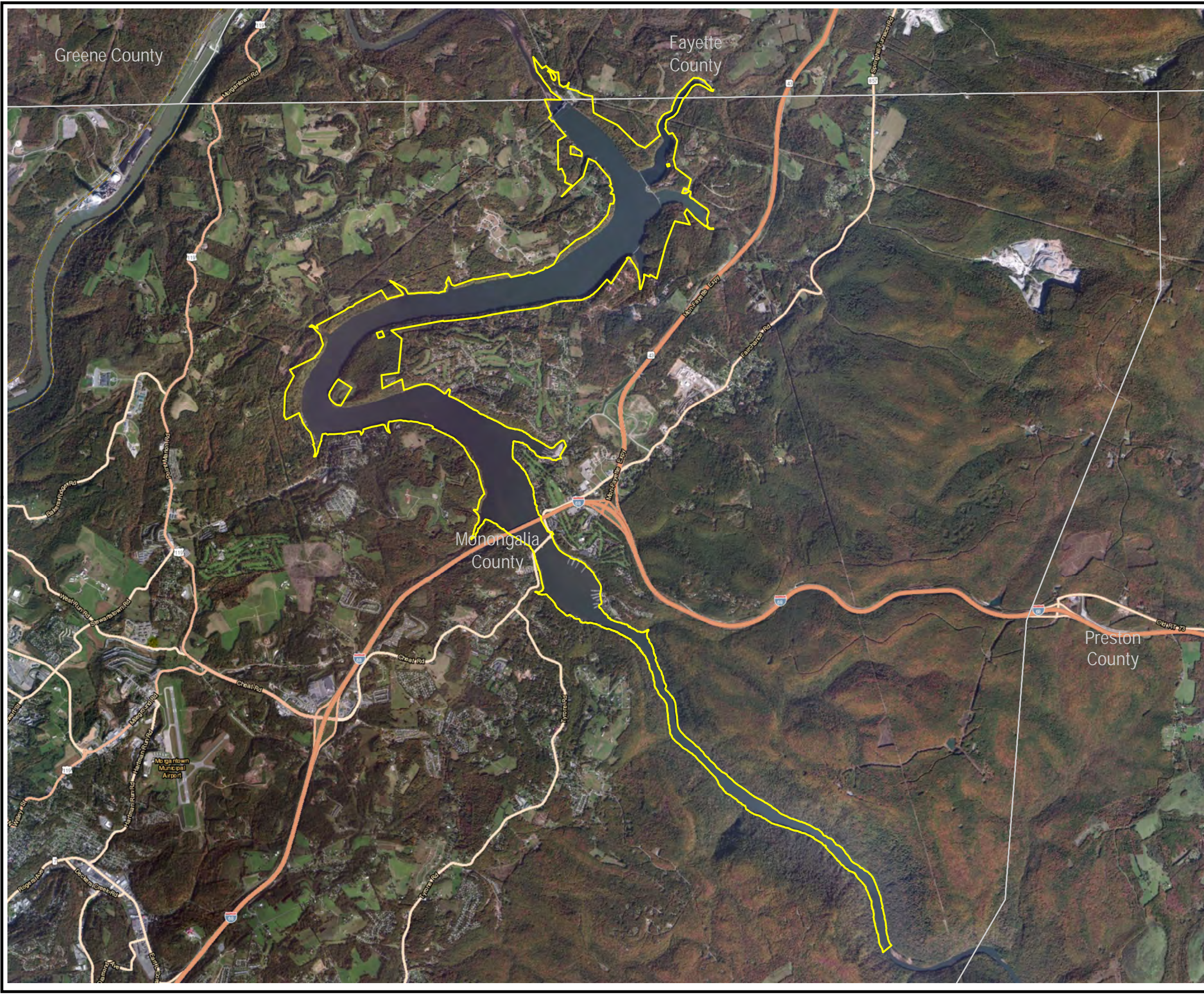
7.0 References

- EA Engineering, Science, and Technology, Inc. (EA Engineering). 2014. Instream Flow Study: Lake Lynn Hydroelectric Project. December 2014.
- Lake Lynn Generation, LLC (Lake Lynn). 2018a. Lake Lynn Hydroelectric Project (FERC No. 2459) Aquatic Biomonitoring Plan (2018-2020). January 31, 2018.
- Lake Lynn Generation, LLC (Lake Lynn). 2018b. Lake Lynn Hydroelectric Project 2018 Recreation Plan Update. April 2018.
- Lake Lynn Generation, LLC (Lake Lynn). 2020a. Lake Lynn Hydroelectric Project (FERC No. 2459) Angler Creel Survey Workplan. January 2020.
- Lake Lynn Generation, LLC (Lake Lynn). 2020b. Lake Lynn Hydroelectric Project (FERC No. 2459) Aquatic Biomonitoring Plan (2018-2020): 2019 Annual Status Report. 2020.
- U.S. Fish and Wildlife Service (USFWS) Northeast Fishery Center Conservation Genetics Lab. No date. Field Collection of Environmental DNA (eDNA) Water Samples from Streams. No date.

Welsh, Stuart A. West Virginia Cooperative Fish and Wildlife Research Unit. 2019. Evaluations of Yellow Perch Spawning and Water Level Fluctuations for Cheat Lake, West Virginia: A Research Proposal. November 29, 2019.

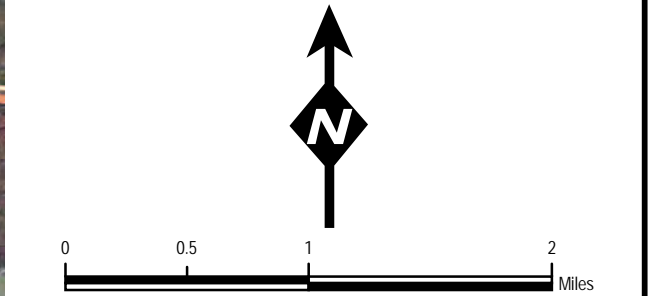
West Penn Power Company. 1995. Water Quality Monitoring Plan for Lake Lynn Hydro Station FERC Project No, 2459. October 6, 1995.

Attachment 1
Project Boundary Figure



LEGEND

- FERC Project Boundary
- County Boundary



PROJECT:	
LAKE LYNN GENERATION, LLC	
TITLE:	
Lake Lynn Project Boundary	
DRAWN BY:	K. BABCOCK
CHECKED BY:	PROJ. NO.:
APPROVED BY:	
DATE:	AUGUST 2019
TRC	
14 Gabriel Drive Augusta, ME 04330	
FILE NO.:	Lake_Lynn_Project_Boundary.mxd

Attachment 2
Summary of Study Related Comments and Study Requests

Agency/ Stakeholder	Study Related Comment/ Study Request
SEDIMENTATION AND SHORELINE EROSION	
WVDNR	Requests reservoir sedimentation study at problem areas and a sedimentation plan to monitor/address any future sedimentation issues. Proposed methodology includes examining possible sources of sedimentation within the reservoir and identifying potential preventive measures that could be taken to reduce the level of sedimentation in those areas where sediment builds up (i.e., Sunset Beach).
CLEAR	Monitoring and remediation of the on-going shoreline erosion are needed with components of these activities taking place on an annual basis.
WATER QUANTITY AND QUALITY	
USFWS and WVDNR	Requests that water quality monitoring be continued throughout the term of the new License.
USFWS	The Project Instream Flow Study is not contained in the PAD. Without this information, the USFWS has remaining questions and would recommend an Instream Flow Study to help determine appropriate flow releases in license articles.
FISH AND AQUATICS	
USFWS	A mussel survey should be conducted downstream in the tailwater area and downstream reaches to assess this component of the aquatic community and inform the USFWS flow regime recommendations.
USFWS and WVDNR	Requests a desktop entrainment study. WVDNR recommends a field component to verify results and requests the opportunity to review data for use in the desktop analysis. USFWS suggests that the USFWS Turbine Blade Strike Analysis Model could be used as one component of the assessment.
USFWS and WVDNR	Requests American eel monitoring study that improves on sampling conditions and includes areas lower in the Cheat River before the confluence with the Monongahela. WVDNR is not be opposed to any USFWS request regarding additional analysis of Project waters for American eel.
USFWS and WVDNR	Requests upstream/downstream fish passage and feasibility study. Proposed methodology includes a literature review of available options for bypass routes/fish protection measures and an analysis on how such measures could be incorporated into current project design. USFWS mentions the methodology would include a literature review of available options for upstream passage of eels.
WILDLIFE AND RARE, THREATENED AND ENDANGERED (RTE) SPECIES	
USFWS	The proposed survey for RTE species may not be warranted.
RECREATION/AESTHETICS	
MRTC and FOC	Trails - Requests the Licensee extend the Cheat Lake Trail toward the south.
MRTC, CLEAR, FOC Dave Harshbarger ,and Gary Marlin	Trails - Request License work with stakeholders on planning and building a connection from the Cheat Lake Trail to the Sheepskin Trail, including opening the gate at the northern end of the trail to create a passageway from the northern end of the Cheat Lake Trail through the dam facility. CLEAR also requests a continued commitment for a connection to other regional trails.

Agency/ Stakeholder	Study Related Comment/ Study Request
WVDNR	Snake Hill Wildlife Management Area (WMA) - WVDNR is unequivocally opposed to creating public access to the upper reaches of Cheat Lake by opening a gated road that passes through Snake Hill WMA property because continued maintenance of the access road would be problematic and an undue burden for the State of West Virginia and the Licensee with very little benefit to the WVDNR's prime constituents.
FOC	Snake Hill Wildlife WMA - Supports creating a public access to the upper reaches of Cheat Lake by improving an existing gated road in Snake Hill WMA along Buzzard Run to provide trailhead for hikers, angler access to upper Cheat Lake, and egress for whitewater paddlers running the Lower Cheat Canyon.
CLEAR	Dog Beach - The swimming beach area needs to be extended toward the day-use boat docks to include a dog beach and additional picnic tables
WVDNR	Boating - Law enforcement records do not show any significant increase in boating incidents. WVDNR is not opposed to the temporary moratorium on new private piers/boat docks and would not be opposed to the moratorium continuing.
CLEAR	Boating - Requests boating guidelines and limits consistent with the rules and regulations of the WVDNR. Boat guidelines/regulations, public dock maintenance, channel depth (dredging), and parking lot criteria are all in need of explicit definition and guidance.
CLEAR	Recreation Operations and Maintenance (O&M) - Requests clear and complete procedures for trail maintenance and repair.
CLEAR	Recreation O&M - Requests clear and complete goals, guidelines and procedures for Sunset Beach Marina and other marinas, including O&M and future.
CLEAR	Recreation O&M - Periodic lake cleanup activities need to be continued by CLEAR and others with the support of the Licensee.
CLEAR	Recreation O&M - Swimming beach season should match the boating season of May 1-Oct 31.
CLEAR	Recreation O&M - Regular maintenance of the swimming beach is needed to remove large debris and to keep quality sand fresh and deep
CLEAR	Recreation O&M - For the Fishing Pier, there is a need to identify the opportunities, guidelines, operation and maintenance schedules.
CLEAR	Recreation O&M - Hillside slips, ground subsidence, and washouts along the Trails must be prepared for so that temporary work-arounds/repairs can take place in a timely manner.
CLEAR	Recreation O&M - For the Recreation Season protocol, there is a need to reiterate the schedule of May 1 thru October 31, with the Trail being open and accessible year-round.
CLEAR	Recreation O&M - The boat launch in the Park is essential for summer use by kayak & canoe users and for winter use by fishing boat users.
CLEAR	Recreation O&M - There is a need for a description of the functions of (existing & new) recreation personnel, security personnel, park maintenance personnel; and guidelines are needed for the interaction of these people with public.
MRTC	Recreation O&M - Requests the Licensee hire onsite recreation staff.
WVDNR	Boating - Law enforcement records do not show any significant increase in boating incidents. WVDNR is not opposed to the temporary moratorium on new private piers/boat docks and would not be opposed to the moratorium continuing.

Agency/ Stakeholder	Study Related Comment/ Study Request
CLEAR	Boating - Requests boating guidelines and limits consistent with the rules and regulations of the WVDNR. Boat guidelines/regulations, public dock maintenance, channel depth (dredging), and parking lot criteria are all in need of explicit definition and guidance.
ENHANCED COMMUNICATIONS/INFORMATION	
CLEAR	Telephone(s) & email address(es) are needed on signs and on web page(s) for information and for emergencies.
CLEAR	Formal plans and procedures are needed that assigns responsibilities for the various types of emergency at the dam, on the trails, on Cheat Lake, and downstream.
CLEAR	Public brochures are needed that include the history, overview of facilities, rules/regulations, contacts, etc.
CLEAR	The website needs additional pages that includes the brochure information, lake level, operational updates, warnings, etc.
CLEAR	News releases are needed providing general information, trail closings, warnings and other items for current news.
CLEAR	Signage on WV 857 for the Cheat Lake Park and Trail needs to be maintained year-round and the signage on the Trail maintained for public use year-round.
CLEAR	For the lake level protocol, need to reiterate the water level ranges vs. months of the year on the website and in the brochure(s).
MRTC	Requests improved public communication (website, social media, phone), and creating a process for holding events on the Cheat Lake Trail.
GENERAL	
WVDNR	Supports studies proposed in the PAD.
CLEAR	A study of the history of Cheat Lake and the dam is needed to examine the role of the Project affecting WV and PA - whether it is a private “for-profit” entity with public obligations or whether it is “for the public interest” to provide recreation and a public service (electricity).

Attachment 3

Copies of Comments and Study Requests



DIVISION OF NATURAL RESOURCES
Wildlife Resources Section
District 1
P.O. Box 99
1110 Railroad Street
Farmington, West Virginia 26571-0099
Telephone (304) 825-6787
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Jim Justice
Governor

Stephen S. McDaniel
Director

February 12, 2020

Electronic file

Kimberly D. Bose, Secretary
Federal Energy Regulatory Commission
888 First Street, N.E.
Washington, DC 20426

RE: Lake Lynn Hydroelectric Project (FERC no. P-2459); Notice of Intent, Pre-Application Document, and Study Requests

Dear Secretary Bose:

Thank you for allowing the West Virginia Division of Natural Resources, Wildlife Resources Section (WRS) the opportunity to provide comments with regards to the referenced Pre-Application Document (PAD) for the relicensing of the Lake Lynn Hydroelectric Project (Project), FERC No. 2459. Lake Lynn Generation, LLC (Licensee or Applicant) has elected to utilize the Traditional Licensing Process in preparing for a new license. The current Project license was issued on December 27, 1994 and is set to expire on November 30, 2024. The applicant submitted the referenced NOI/PAD in accordance with FERC regulation and consistent with the requirements of 18 CFR § 5.5.

The Project is an established hydroelectric project located on the Cheat River adjacent to the border between Pennsylvania and West Virginia with Project areas located occupying lands in

both states. The Project has an installed project capacity at 51.2 MW using four Francis generating units. The comments below are being provided pursuant to 18 C.F.R §4.38(b)(5).

Section 4.2 Project Facilities

The description of the Project facilities described within this section makes mention of trash racks installed at the intake facility. Beyond that, there is no further information regarding the specifications of the trash racks. Based on a preliminary site visit, it would appear as if the trash racks were of a steel construction and installed with spacing of approximately 5-inches. Such large trash rack spacing allows for the entrainment of larger fish that would be more susceptible to blade strikes and turbine-induced mortality as these fish enter the intake structures and pass through the turbines. In an effort to reduce fish mortality, the WRS would request that the trash rack spacing not exceed 3 inches and have an approach velocity of no more than 2.0 fps. The WRS further recommends angled trash racks be employed as a means to further reduce entrainment.

Section 4.4 Current and Proposed Project Operations

The current FERC license requires an operation schedule whereby the lake elevation is maintained between 868 and 870 feet from May 1 to October 31, between 857 and 870 feet from November 1 through March 31, and between 863 feet and 870 feet from April 1 through April 30. The April 1 to April 30 schedule was initially designed as a provision to reduce the Project's impacts on spawning fish populations within the lake, particularly yellow perch and walleye. The thinking at that time was that these fish species predominantly spawned during the early Spring month of April. Recent data has become available through the triennial biomonitoring studies, in particular a recent analysis of yellow perch habitat, which may indicate that in some years, based on temperature and weather conditions, the spawn may begin in mid-March and extend into Mid-April or later. Similar results were observed in a study on the walleye populations within the lake by a member of the WRS staff whereby the walleye spawn was documented as early as mid-March. Considering, there is concern that the lake elevation schedule during the month of March (between 857 and 870 feet) would not be sufficient in protecting the spawn and would have the potential to dewater a great many eggs thus impacting recruitment. It may be necessary, then, to revisit the current project operations and examine possible avenues to protect these species throughout the spawning season. A new schedule could be based on temperature such that in normal years the schedule can remain as is, but in warm years where the WRS, based on water temperature variables (45°F for a sustained period in March), anticipates that an early spawning period would occur, the April elevation schedule could be moved back to mid-March.

Section 5.2

The continuous monitoring of water quality as required by License Article 405 of the existing Project License is an invaluable tool in the management of the resources. As such, the WRS would request that water quality monitoring within the reservoir and tailwaters be continued throughout the term of the upcoming license.

Section 5.3.2.2 Catadromous and Diadromous Species

This passage asserts that “there is no known occurrence of the American eel in the Cheat River basin, however...eels have been collected in the Ohio River basin from the Kanawha, New, and Greenbrier Rivers.” In fact, the American eel has also been collected in the Monongahela River within the past 10 years as far upstream as the Morgantown Lock and Dam. This point is upstream of the confluence of Cheat River with the Monongahela River. It could therefore be assumed that there is a strong likelihood that the American eel may also be located within the Cheat drainage. However, it should be noted that, at least with regards to recent data collection, the American eel has not been observed within the tailwaters of the project. A recent eDNA study of the Project tailwaters resulted in no positive recordings of the American eel. The reasons for the negative results may be because of study design or perhaps because there were no eels in the Cheat River watershed. Nonetheless, it is the WRS’ understanding that the US Fish and Wildlife Service (USFWS) will be requesting additional analysis of the Project waters to determine presence or absence of the American eel. The WRS would not be opposed to any USFWS request regarding this particular subject matter.

Section 5.3.2 Fish Resources and Habitats

As per state rule §47-5A-6, reimbursement for the incidental loss of fish due to project operation will be required. Therefore, the WRS would request that a comprehensive desktop entrainment study be utilized to determine the likely number of fish, fish species, and size classes to become entrained and experience mortality as a result of the Project’s operation.

Section 5.3.2.3 Fish Passage

The major components of a hydropower facility (i.e. the turbines) pose a particular risk to fish passage and an additional impediment to fish passage. Project operations may attract fish moving downstream to pass through the turbines creating an unnecessary risk for mortality. It is the flowing water through the Project that initially attracts the migrating fish. Additionally, passage over the spillway could also be hazardous for fish. To minimize the potential hazards for the downstream movement of fish, the WRS would request that a feasibility study be conducted to explore potential options for a bypass system or diversionary tactics.

Section 5.8.3.4 Public Boat Launching Facility at Sunset Beach Marina

Sedimentation at the Sunset Beach Marina has become a significant issue over the years and has only worsened to the point by which anglers and boaters are affected. Launching a boat from this area has become more challenging and at some levels, is next to impossible. The Licensee has made great strides in correcting the sedimentation via dredging the embayment. Still, there is concern that this is a temporary fix and without a plan in place to address future sedimentation of the embayment, this is a problem that will likely occur again. Therefore, the WRS would request the licensee draft a sedimentation plan in an effort to minimize future sedimentation and reduce costly dredging activities.

Section 5.8.5 Boating Carrying Capacity Study

The results of the boating carrying capacity study would suggest that the number of boaters using Lake Lynn at any given time has exceeded that of a safe operating amount for the lake. Law enforcement records have yet to show any significant increase of incidents. Nevertheless, the WRS is not opposed to the Licensee's moratorium on new private piers/boat docks within the Project reservoir. According to the scoping meeting, the moratorium was enacted by the Licensee as a temporary measure to reduce the number of boats on the lake with the intention to lift the moratorium, or at least re-examine its effectiveness, following the relicensing process. The WRS views the moratorium as being beneficial in reducing the level of impact to shoreline habitat caused by the continued construction of the lake shoreline. Shoreline habitat is critical for a healthy, sustainable fishery and therefore, the WRS would be not be opposed to continuing the moratorium beyond the FERC relicensing of the Project.

Section 6.2.7.1 Potential Issues and Project Effects

This section lists a proposal to "create public access to the upper reaches of Cheat Lake by improving an existing gated road in Snake Hill Wildlife Management Area along Buzzard Run." The WRS would be unequivocally opposed to this proposal. The WRS is not interested in opening up the gated road that passes through the WMA property. Continued maintenance of the access road would be problematic and an undue burden for the state and the Licensee with very little benefit to the WRS' prime constituents.

State 401 Water Quality Certification

Section 401(a)(1) of the federal Clean Water Act, 33 U.S.C. § 1341(a)(1) provides that any applicant of a federal license or permit must obtain a state certification from the appropriate state certifying agency. This certification is to ensure that any activity conducted under the license are to be in compliance with all applicable provisions of the Clean Water Act. The state of WV will have one year to act on a received 401 application from the date the US Army Corps of Engineers deems the federal 404 application to be complete.

Study Requests

The WRS is in support of the studies proposed by the Licensee for the Lake Lynn Hydroelectric Project as identified within the PAD. Additional studies not previously included within the PAD are being provided by the WRS. The WRS makes these requests in support of currently proposed studies, to correct deficiencies in data and to offer a greater level of detail where needed. The WRS further requests the opportunity to review any study plans associated with this project. The request format is in accordance with that described in 18 CFR § 5.9 (b).

Study Request 1: Entrainment Study

Goals and Objectives:

The goal of the proposed study is to determine the number of fish that are either entrained or impinged and to estimate the injury and mortality of fish that pass through the turbines during

Project operation. The WRS is requesting a desktop entrainment study be conducted on the Lake Lynn Project. The goal of the desktop study will be to estimate mortality for compliance with state code.

As the resource agency, it is the goal of the WRS to manage and protect the resources. To the furtherment of this goal, WV code §47-5A-6 requires that mitigation be completed for any impacts to the resources. In this case, entrainment of fish through the turbines causes undue stress to the fish and can potentially be fatal. Therefore, the WRS would request that any mortality in fish be compensated. In order to properly ascertain the number of fish that succumb to mortality, an entrainment study will need to be performed.

The WRS recommends a desktop entrainment analysis utilizing the EPRI database. Data used for the analysis should be presented by species and by two-inch size classes. The WRS would further recommend that a field component be incorporated to verify results.

Resource Management Goals:

The WRS is charged with the protection and management of all wildlife within West Virginia, including within Cheat river and Lake Lynn. As per state rule §47-5A-6, the State would require the applicant to compensate the state for any loss of fish.

Existing Information:

To the best of its knowledge, the WRS is not aware of any entrainment studies that have been conducted at the Project. The years of biomonitoring data conducted in accordance with the existing license, will help to inform this entrainment analysis.

Nexus Between Project Operation:

During Project operation, fish of a certain size are able to pass through the trash racks and become entrained through the turbines. As the turbines operate, it is likely that some fish will be struck by the turbine blades while others will succumb to changes in barometric pressures as they pass through the intake. The likelihood of a blade strike and turbine-induced mortality increases as the size of the fish increases. Therefore, compensatory mitigation will be required as replacement for the loss of fish.

Study Methodology:

The methodology employed should include a combination of desktop entrainment analysis and field verification. The standard practice has been to utilize the Electric Power Research Institute (EPRI) turbine entrainment and survival database as a model in evaluated the potential of entrainment at a facility. The WRS has had concerns that this particular practice lacks the scientific creditability necessary to make informed decisions about the management of the fishery. Therefore, the WRS requests the opportunity to review any entrainment data considered

for use in the desktop entrainment analysis. Further, the WRS may request that a verification procedure be incorporated as a means to test the veracity and accuracy of the desktop entrainment results. Deploying hydroacoustics sampling techniques may be one way to achieve this goal as a more cost-effective method than deploying nets downstream. Data for any type of analysis should be presented by species and by 2-inch class sizes to remain consistent with general state practices. The WRS is willing to further discuss methodologies with the applicant.

Level of Effort and Cost:

The level of effort required to conduct a desktop entrainment analysis is relatively minor and most consulting firms/universities are well equipped to perform such an analysis. Additionally, the cost of a desktop entrainment analysis is much more attainable when compared to the alternative of an in-field entrainment analysis. Incorporating an in-field verification procedure with the analysis will increase the level of effort and cost and would require certain levels of training, expertise, and equipment. Nonetheless, an in-field verification procedure is still attainable and within reasonable limits of effort and cost.

Study Request 2: Upstream/Downstream Fish Passage and Feasibility Study

Goals and Objectives:

The goals of this study are to assess movement of fish through the project area; identify likely routes fish would take under a variety of conditions; and assess the feasibility of incorporating alternative routes or additional fish protection measures.

Existing Information:

To the best of its knowledge, the WRS is unaware of any study on upstream/downstream passage at the Project. Any study that may have been completed is likely dated material and incompatible in reflecting current conditions and population dynamics.

Nexus Between Project Operation:

Dam features, because of their general nature, impede the upstream and downstream movement of fish. By design, the dam at the Project affords no migration upstream. Downstream migration is offered by one of two routes: through the dam gates; and through the Project's powerhouse. Neither of these two routes provides for a safe migration downstream. The route through the powerhouse would mean risking turbine strikes or dangerous changes in barometric pressure. The route through the dam gates may provide for an equally perilous journey with fish tumbling down rough concrete faces. It is evident, then, that the Project has a direct relationship to fish passage.

Study Methodology:

Methodology would include a literature review of all available options for bypass routes and fish protection measures and an analysis on how such measures could be incorporated into the current project designs. Architectural design and structural engineers would need to be consulted for their expertise in determining feasibility of any new structural component at the project.

Level of Effort and Cost:

A study such as this would most likely take less than a year to complete with minimal effort. Discussions with engineers and reviews of designed structures would be necessary to properly assess the feasibility of any bypass channels or fish protection structures. Additionally, this study could be completed in concert with study request #1 (entrainment study) to reduce costs and effort. The WRS is not aware of the cost associated with this study but would assume it to be at a nominal rate.

Study Request 3: Reservoir Sedimentation Study

The WRS is requesting that a sedimentation study of the Project's reservoir be conducted at the problem areas and a plan to monitor and address any sedimentation issues be developed.

Goals and Objectives:

The goal of this survey is to assess sedimentation within certain problem areas within the Project reservoir and to develop a plan to address any deficiencies as they arise.

Existing Information:

Reports of sedimentation affecting boaters and anglers have risen in recent years, but as of yet no study that the WRS is aware of has been conducted on the sedimentation and no plan has been developed to address it. Steps to remedy sedimentation are typically taken when the issue rises to unsuitable levels. A more preventive strategy here may reduce future costs of sediment removal and keep recreation areas open without issue.

Nexus Between Project Operation:

By their very nature, dams cause sedimentation within the reservoir as the moving water slows down and particles are allowed to settle out. Therefore, the Project operations have a direct influence on the level of sedimentation.

Study Methodology:

The methodology should begin by examining possible sources of sedimentation within the reservoir and then by identifying potential preventive measures that could be taken to reduce the level of sedimentation in those areas that have demonstrated an affinity for a build-up of sediment (i.e. Sunset Beach).

Level of Effort and Cost:

Most consulting firms and universities would be fully capable of conducting a sedimentation study, including interpreting and analyzing the data. The costs of such a study is variable dependent on contractor used to conduct the study and the level of attention to detail.

The WRS appreciates the opportunity to provide comments and to make study requests. If you have any questions regarding this letter, comments made, or these study requests, please contact me by telephone at (304)825-6787, or by email at Jacob.D.Harrell@wv.gov.

Sincerely Yours,



Jacob Harrell
Hydropower Coordination Biologist

- Cc: Jody Smet, Lake Lynn Generation, LLC
David Fox, Lake Lynn Generation, LLC
Janet Norman, USFWS
Paul Johanson, WVDNR
Mark Scott, WVDNR
Zack Brown, WVDNR
David Wellman, WVDNR
Danny Bennett, WVDNR

LAKE LYNN HYDRO PROJECT: ISSUES AND COMMENTS FOR RELICENSING

SUBMITTED BY: Duane Nichols, President, Cheat Lake Environment & Recreation Association, 330 Dream Catcher Circle, Morgantown, WV 26508

RE: Project P-2459, Relicense for Lake Lynn Hydroelectric Project. Date: February 10, 2020

1. Clear and complete procedures are needed for Trail maintenance and repair, for both routine and non-routine circumstances.
2. Clear and complete goals, guidelines and procedures are needed for the Sunset Beach marina and other marinas, to cover the operation, maintenance and planning for the future.
3. Boating is a primary recreational activity on the Lake, so there is a need for boating guidelines and limits consistent with the rules and regulations of the WV DNR. Boat guidelines and regulations, public dock maintenance, channel depth (dredging), parking lot criteria, etc., are all in need of explicit definition and guidance.
4. Periodic lake cleanup activities need to be continued by CLEAR and others with the support of Lake Lynn Hydro to remove plastic and structural debris floating in the lake and backwaters. The CLEAR pontoon boat should be useful for these activities.
5. Given that the Lake is limited in boating capacity during busy weekends, the limit has been reached for the number of marinas, boat slips and personal access area sites.
6. Swimming beach season should match the boating season of May 1st to October 31st
7. Regular maintenance of the swimming beach is needed to remove large debris (mainly tree segments) and to keep quality sand fresh and deep, as mostly children use it.
8. The swimming beach area needs to be extended toward the day-use boat docks to permit the designation of a dog beach, given that dogs interfere with the swimming experience of small children; this will also add space for additional picnic tables, that are already needed.
9. Monitoring and remediation of the on-going shoreline erosion are needed with components of these activities taking place on an annual basis.
10. Hillside slips, ground subsidence and washouts along the Trails must be prepared for, as they are not uncommon, so that monitoring, temporary work-arounds and repairs can take place in a timely manner.
11. Signage on WV 857 for the Cheat Lake Park & Trail needs to be maintained year round and the signage on the Trail maintained for public use year round.

12. Telephone(s) & email address(es) are needed on signs and on web page(s) for information and for emergencies.
13. Formal plans and procedures are needed that assigns responsibilities for the various types of emergency at the Dam, on the Trails, on the Lake, downstream in Pennsylvania, etc.
14. Brochures are needed for public distribution to include the history, overview of facilities, rules/regulations, contacts, etc.
15. The Internet Web-Site is needed with multiple pages to include the brochure information, lake level, operational updates, warnings, etc.
16. News Releases (quarterly & timely) are needed providing general information, trail closings, warnings and other items for current news.
17. For the Fishing Pier, there is a need to identify the opportunities, guidelines, operation and maintenance schedules.
18. A continued commitment to regional trail development should include interfacing with the proposed Sheepskin Trail in Pennsylvania, for a connection to other regional trails, to involve the opening of the trail level gate at the Lake Lynn Dam for daylight walking, hiking, jogging and bicycling.
19. For the Lake level protocol, there is a need to reiterate the water level ranges vs. months of the year on the Web-site and in the Brochure(s).
20. For the Recreation Season protocol, there is a need to reiterate the schedule of May 1 thru October 31, with the Trail being open and accessible year round. The “boat launch” in the Park is essential for summer use by kayak & canoe users and for winter use by fishing boat users.
21. There is a need for a description of the functions of (existing & new) recreation personnel, security personnel, park maintenance personnel; and guidelines are needed for the interaction of these people with public.
22. An Advisory Committee is needed with Quarterly meetings and quarterly reports, consisting of members from Monongalia County, WV-DNR, WVU, WV trail group, PA trail group, PA-DNR/DEP, plus 2 or 3 local environmental/conservation groups.
23. A study of the details of the history of Cheat Lake and the Lake Lynn Dam is needed to examine the role of the project there on the Mason-Dixon Line affecting both West Virginia and Pennsylvania, whether it is a private “for-profit” entity with public obligations or whether it is “for the public interest” to provide recreation and a public service (electricity). These considerations take on a greater significance when foreign ownership is under way.

The Cheat Lake Environment & Recreation Association (CLEAR) has been active to promote the public use of Cheat Lake for over 30 years. The officers are Duane Nichols, President, Mike Strager, Vice President, Ann Chester, Secretary, and Donna Weems, Treasurer.

CONTACT INFORMATION: Duane G. Nichols, 330 Dream Catcher Circle, Morgantown, WV 26508. Phone: 304-216-5535, Email Address: Duane330@aol.com

Submitted by Duane Nichols of CLEAR this 10th day of February 2020.

Document Content(s)

CLEAR.P-2459.Comments.2.10.20.PDF.....1-3



United States Department of the Interior



FISH AND WILDLIFE SERVICE

Chesapeake Bay Field Office
177 Admiral Cochrane Drive
Annapolis, Maryland 21401
<http://www.fws.gov/chesapeakebay>

February 13, 2020

Jody Smet
Director, FERC Licensing and Compliance
Lake Lynn Generation, LLC
2 Bethesda Metro Center, Suite 1330
Bethesda, MD 20814

Dear Ms. Smet:

The U.S. Fish and Wildlife Service (Service) has reviewed the October 17, 2019 Notice of Intent (NOI) to File for a License and attached Pre-Application Document (PAD) for the Lake Lynn Hydroelectric Project (FERC #2459), filed by Lake Lynn Generation, LLC (Applicant). The Applicant has elected to use the Traditional Licensing Process (TLP) for this re-licensing application of the Lake Lynn Hydroelectric Project on the Cheat River near Morgantown, West Virginia and in Fayette County, Pennsylvania. The current project license was issued on December, 1994 and will expire on November 30, 2024.

The Service attended the Joint Agency meeting and site visit on December 12, 2020 in Morgantown, WV, with the Applicant, state and local agencies, and interested residents. We offer the following recommendations on the PAD and our Study Requests.

The following comments are provided pursuant to the Endangered Species Act (ESA) of 1973 (87 Stat. 884, as amended: 16 U.S.C. 1531 *et seq.*), the Migratory Bird Treaty Act (16 U.S.C. 703-712; Ch. 128; July 13, 1918; 40 Stat. 755), and the Fish and Wildlife Coordination Act (48 Stat. 401, as amended; 16 U.S.C. 661 *et seq.*).

The project is a 51.2 megawatt (MW) single development project operated since 1926. It consists of: 1) a 125-foot high by 1,000-foot long concrete gravity-type dam with a 624-foot long spillway controlled by 26 Tainter gates, each 17 feet high by 21 feet long; 2) a reservoir with a surface area of 1,729 acres and containing about 72,00 acre-feet of water at full pool elevation of 870 feet National Geodetic Vertical Datum; 3) a log boom and track racks at the intake facility; 4) eight 12-foot by 18-foot gated penstocks of reinforced concrete; 5) a 72-foot by 165-foot by 68-foot high brick powerhouse containing four identical Francis generating units with a total rated capacity of 51.2 MW; 6) dual 800-foot long 138-kilovolt transmission lines; and 7) appurtenant facilities. In 2018, the licensee completed a turbine replacement and upgrade of Unit 2.

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Pre-Application Document

Section 4.4 Current and Proposed Project Operations.

The Service supports the concerns of the West Virginia Division of Natural Resources (WV DNR) regarding the quality and timing of available yellow perch (*Perca flavescens*) and walleye (*Sander vitreus*) habitat within the reservoir lake, with proposed drawdown operations. Their assessment is that the lake elevation schedule during the month of March (between 863 and 870 feet) is likely insufficient to protect the spawning period and could dewater many fish eggs which would hamper recruitment to the populations. We would like to better understand how lake levels, downstream flow releases, and draw down schedules impact fish and wildlife resource needs so we can determine whether there are ways to minimize these impacts.

Section 5.2 Water Resources

The current License Article 405 (continuous monitoring of water quality) has proved very beneficial to the Licensee and resource agencies as this monitoring resulted in effective management of a low flow event during the summer/early fall of 2019. The Service believes this monitoring should be continued in any new license condition granted.

Section 5.2.3 Streamflow, Gage Data and Flow Statistics

This section of the PAD does not provide sufficient information for the Service to fully assess the seasonality, duration and magnitude of streamflows inflowing to the reservoir and dam, and the appropriate flow releases for the upcoming license period. The graphs in Appendix E (Flow Duration Curves) are not scaled appropriately to discern the patterns of what occurs in the 5 to 99 percent exceedance flows that we would need to examine. It would be helpful if the maximum flow event(s) and duration for the period record 2016 to 2019 is displayed separately from the rest of the graphs so as not to flatten all other flow interpretation.

The Service does not see the Project Instream Flow Study which is referenced in this section of the PAD, contained in Appendix E, in order to assess its applicability to current and future conditions. Without this information, we have many remaining questions, and would recommend an Instream Flow Study to help us determine appropriate flow releases in the new license articles.

The Service also believes a mussel survey should be conducted downstream in the tailwater area and downstream reaches to assess this valuable component of the aquatic community and potentially help inform our flow regime recommendations for the project.

Section 5.7.2 Rare, Threatened and Endangered Resources and Habitats

Table 5.16 of the PAD identifies four species federally listed under the ESA with the potential to occur in the project area, Indiana bat (*Myotis sodalis*), northern long-eared bat (*Myotis septentrionalis*), running buffalo clover (*Trifolium stoloniferum*), and the flat-spined three-toothed snail (*Triodopsis platysayoides*).

The federally threatened northern long-eared bat and the federally endangered Indiana bat are temperate, insectivorous migratory bats that hibernate in mines and caves during the winter and spend summers in wooded areas. There are no known northern long-eared bat maternity roosts

or hibernacula within the immediate vicinity of this site. Indiana bats are most likely to be in maternity roosts from May 1 to July 31.

Any project-related tree removal (e.g., for maintenance or recreational improvements) should involve consultation with the Service under Section 7 of the ESA, for the protection of the Indiana bat and northern long-eared bat.

The Service filed an August 27, 2019 Proposed Rule in the Federal Register for the de-listing of running buffalo clover (*Trifolium stoloniferum*) found at this web address: <https://www.govinfo.gov/content/pkg/FR-2019-08-27/pdf/2019-18413.pdf#page=1>. Its current status is still federally endangered as of this comment date. However, we believe this existing project with minor habitat modification of the project area will not likely adversely affect running buffalo clover, a terrestrial plant. We therefore, are not requesting surveys for the plant.

The flat-spined three-toothed snail is found within Monongalia County, West Virginia in close proximity to the project, but is not found within the project boundary. It is found in Coopers Rock State Forest, primarily on the rock bluffs. The area within the project boundary lacks the habitat requirements for the snail, therefore, this project will have “no effect” on the species.

Except for occasional transient individuals, no other federally proposed or listed threatened or endangered species are known to exist within the project area. Should project plans change or if additional information on the distribution of listed or proposed species becomes available, this determination may be reconsidered.

Study Requests

The Service has reviewed the evaluation of study proposals in the PAD by the Applicant for the Lake Lynn Hydroelectric project. We feel the proposed presence/absence surveys for rare, threatened, and endangered species may not be warranted, based upon our comments on the PAD. Aside from a field inventory of existing project recreation sites, a creel survey, and a cultural resources examination along the Cheat Lake Trail and Lake Lynn dam and powerhouse, the Applicant is not proposing any other studies. The only protection, mitigation, and environmental (PM&E) measures the Applicant proposes relate to recreation and land use. The Service believes the studies we and other resource agencies have identified are necessary to determine appropriate PM&E measures for the upcoming license period.

The Service requests the opportunity for further review and discussion as the study plans develop from a conceptual phase into more defined proposals.

Study Request 1: American Eel Monitoring Study

Goals and Objectives: To assess if American eel (*Anguilla rostrata*) is currently present below the Lake Lynn dam on the Cheat River and to help inform project operations and fishway prescription needs.

Resource Management Goals: Resource management goals include providing safe, timely, and

effective passage for fish species that migrate. Additional goals include providing passage to fish species which serve as glochidial hosts to freshwater mussels in the Cheat River, in order to prevent negative impacts to fish and mussel populations from the proposed project.

Public Interest: The requestor is a resource agency.

Existing Information: American eels have been documented in the Monongahela River within the past 10 years as far upstream as the Morgantown Lock and Dam, upstream of the confluence of the Cheat River with the Monongahela River. The Lake Lynn Hydropower Project is 3.7 miles upstream on the Cheat River from its confluence with the Monongahela River, therefore there is significant potential for current and future eel habitat usage within the Cheat River below Lake Lynn Hydroelectric project, and within the upstream miles of the Cheat River and tributaries. A preliminary sampling effort was conducted using the technique of environmental DNA (eDNA) detection technology as detailed in the “Project Report: June 2019 qPCR analysis of eDNA filter samples collected at Lake Lynn Dam, Target species: American eel (*Anguilla rostrata*),” dated December 4, 2019 by the Northeast Fishery Center’s Conservation Genetics Lab.

Study Methodology: The recommended study uses standardized protocols employed in published literature.

Level of Effort and Cost: The methodology employed by the pilot sampling project described in the December 4, 2019 Project Report has shown that this method is a lower cost technique. This new study would seek to improve on sampling conditions to greatly reduce the influence of above dam released water on the collected samples, and to include areas lower in the Cheat River before its confluence with the Monongahela River.

Study Request 2: Entrainment Study and Mortality Study

Goals and Objectives: The goal of the proposed study is to determine the number of fish that are either entrained or impinged by the project operation, and to examine methods to reduce this injury and mortality to fishes.

Resource Management Goals: The Service’s strategic conservation priorities include aquatic connectivity efforts that provide for passage, community protection, and enhanced recreational opportunities using the best available science and decision support tools.

Public Interest: The requestor is a resource agency.

Existing Information: The Service is not aware of previous entrainment studies conducted at the project. The biomonitoring data conducted under prior license conditions and filed in the FERC record can be used to assist in this analysis.

Nexus To Project Operation: Due to the large spacing of the current trash racks, certain sizes of fish are able to pass through the racks and become entrained through the turbines as they operate, causing fish mortality of an unknown quantity.

Study Methodology: The Applicant could use the Service's Turbine Blade Strike Analysis Model as one component of their assessment of current operational impact on entrainment and mortality of fishes. It can be found at <https://www.fws.gov/northeast/fisheries/fishpassageengineering.html>, along with other Service guidelines such as the Northeast Region Fish Passage Engineering Design Criteria, Fish Passage Design Criteria, and the Federal Interagency Nature-Like Fishway Passage Design Guidelines. Some literature analysis of mortality from Francis units of the diameter that exist at the project could also be utilized.

Level of Effort and Cost: These desktop analyses should be achievable within the one year timeframe.

Study Request 3: Upstream and Downstream Fish Passage Study

Goals and Objectives: The goals of the study are to assess movement of fish through the project area. It would identify likely routes fish would take under a variety of conditions, and assess the feasibility of incorporating alternative routes or additional fish protection measures.

Public Interest: The requestor is a resource agency.

Existing Information: The Service is not aware of previous studies examining passage options for the Lake Lynn Hydroelectric Project.

Nexus To Project Operation: The dam at the project blocks migration of fishes upstream and likely impedes safe, timely, and effective passage downstream. Downstream migration is currently only available through the dam gates, and through the project's powerhouse.


Study Methodology: The methodology would include a literature review of available options for upstream passage of eels, downstream passage bypass of the turbines, and other fish protection measures, in addition to iterative discussions with the Service's fishway engineers and other case studies.

Level of Effort and Cost: We anticipate that evaluating feasibility of passage would be fairly straightforward and not a lengthy process. Discussions with engineers would be necessary to properly assess the feasibility of bypass channels or fish protection structures.

We appreciate the opportunity to provide review and comment on the PAD and draft study proposals developed by the Applicant. We look forward to further discussions with you on how the Applicant can incorporate all the above listed studies. Finally, it would be helpful if the study proposals incorporated into the Draft Study Plan are as detailed as possible so that all parties

know exactly what is being agreed upon when the study plan is approved. If you have any questions regarding this matter, please contact Janet Norman of my staff at 410-573-4533 or Janet_Norman@fws.gov.

Sincerely,



for Genevieve LaRouche
Field Supervisor

cc: Lindy Nelson, Regional Environmental Officer, DOI OPEC

References

U.S. Fish and Wildlife Service. Endangered and Threatened Wildlife and Plants; Removing *Trifolium stoloniferum* (Running Buffalo Clover) From the Federal List of Endangered and Threatened Plants. 84 FR 44832, August 27, 2019. <https://www.govinfo.gov/content/pkg/FR-2019-08-27/pdf/2019-18413.pdf#page=1>

U.S. Fish and Wildlife Service. 2019. Fish Passage Engineering Design Criteria. USFWS, Northeast Region R5, Hadley, Massachusetts.



P.O. Box 282
Morgantown
West Virginia
26507-0282

February 9, 2020

Kimberly Bose, Secretary
Federal Energy Regulatory Commission
888 First Street, N.E.
Mailcode PJ- 12.1
Washington, DC 20426

Re: *Information Request for the Pre-Application Document for Relicensing of the Lake Lynn Hydroelectric Project (FERC No. P-2459-005)*

Dear Ms. Bose,

On behalf of the Monongahela River Trails Conservancy Ltd. (MRTC), I am submitting comments concerning the Relicensing of the Lake Lynn Hydroelectric Project (FERC No. P-2459-005). MRTC is a non-profit 501c3 organization founded in 1991 to develop and manage 40 miles of a 48-mile, tri-county rail-trail network in North Central West Virginia. The remaining 8 miles are managed by the city of Morgantown and Star City, with MRTC as an active partner. The Mon River, Caperton, Deckers Creek Trail network was established as a National Recreation Trail in 1996. MRTC shares with other regional stakeholders the vision of having the Cheat Lake Trail connect with the Sheepskin Trail in Pennsylvania and the Mon River Trail network in West Virginia and ultimately be part of a long-distance trail network that extends from Ohio through West Virginia and Pennsylvania to Washington D.C.

Cube Hydro, in now owning and managing the Cheat Lake Dam aka Lake Lynn Facilities, has continued to provide a wide mix of public recreational options to enjoy the area including hiking, biking, birding, paddling, fishing, swimming, and boating. MRTC supports these recreational activities and would like to see improvements to these recreational opportunities be included in this re-licensing process:

1. To restore the Cheat Lake Trail to its 4.5 mile length by repairing a major wash-out that occurred in the summer of 2019.
2. To plan and build a connection of the Cheat Lake Trail to the Sheepskin Trail at the north end of the 4.5 mile Cheat Lake Trail. This would connect the Cheat Lake Trail into a nearly 60 mile rail-trail network and connect many communities including Point Marion, PA, Morgantown, WV, and Fairmont, WV. This involves opening the gate at the north end of trail and working with other stakeholders to build new trail on Cube Hydro property to link into the Sheepskin Trail corridor. The Sheepskin Trail Corridor is owned by Fayette County, PA and is currently being engineered and built. The Sheepskin Trail is not yet built to Cheat Lake Trail but we anticipate it will be in the next 5 years.
3. To extend the Cheat Lake Trail south on Cube Hydro property and in doing so, open up more area to hiking, biking, birding and fishing.
4. To improve fish, bird, and pollinator habitat along the Cheat Lake Trail.

5. To improve recreational promotion of the Cheat Lake recreation area by hiring on-site recreation staff, by improving public communication (website, social media, phone), and by creating a process for holding events on the Cheat Lake Trail such as walks and runs.

Recreation on the river and neighboring rail-trails ties our communities in West Virginia and Pennsylvania together economically and socially. Bass tournament participants cross city, county and state lines. Both the Monongahela River and Cheat Rivers are regionally promoted water trails, and both paddlers and boaters move up and down the rivers to access different communities. Our rail-trails are used for commuting to work and school, trail tourism, and recreation. Our communities are dependent on each other to provide access, amenities, and tourism services in order to recruit new businesses and people to live in the region and entice visitors into extended stays and return visits.

The Cheat Lake Trail is one of a cluster of rail-trails in the region that provides recreation, a social gathering space, and a chance to connect with nature. It is widely used by local groups such as Hike it Baby, an outdoor meet-up group for families with young children, the Mountaineer Chapter of the National Audubon Society for public birding outings and the Christmas Bird Count, and cycling and running groups for exercise and outdoor recreation. Additionally, the Cheat Lake Trail is a part of a growing 1,500+ mile trail network connecting 50+ counties in four states (WV, OH, PA and NY). The Industrial Heartland Trails Coalition is a group comprised of more than 100 organizations, whose vision and mission it is to advance the trail network by closing gaps and connecting communities to bring health and wealth to communities through trail tourism and safe, equitable trail access by local residents.

Thank you for considering these recommendations from community stakeholders as part of the re-licensing process. Please feel free to contact me at 304-692-6782 or ella@montrails.org with any questions or if you need additional information.

Sincerely,
Monongahela River Trails Conservancy, Ltd.



Ella Belling, Executive Director

Document Content(s)

LakeLynnRelicensingComments.PDF.....1-2

Owen Mulkeen, Kingwood, WV.

On behalf of Friends of the Cheat, I'd like to start by thanking you for the opportunity to submit comments to be included as part of the Pre-Application Document for Relicensing of the Lake Lynn Hydroelectric Project.

For 25 years, Friends of the Cheat (FOC) and our River of Promise (ROP) partners have worked diligently to restore water quality to the Cheat River and Cheat Lake through reclamation of mine lands and the remediation of acid mine drainage (AMD). Irresponsible mining had left the Cheat and nine of its lower tributaries severely damaged by AMD. Walleye were extirpated by the late 1940s. Historic data collected by WV Division of Natural Resources (DNR) show mean lake pH levels less than 5 between the 1950s and early 1990s. A few pollution tolerant fish species including bullhead catfish and white suckers sought refuge in the lake's sheltered embayments. Massive pollution releases from the T&T mine into Muddy Creek in 1994 and 1995 dropped the pH of the lake to 4. As a result, the Cheat River was named one of America's Most Endangered Rivers in 1995 by the national organization American Rivers. These events catalyzed the formation of Friends of the Cheat and the River of Promise task force.

The efforts of FOC and our ROP partners, most notably the US Office of Surface Mining (OSM) and WV Department of Environmental Protection (DEP), have restored water quality to the Cheat River main stem and Cheat Lake. Over 200 land reclamation and water treatment projects have been implemented with millions of dollars of funds resulting in millions of pounds of AMD pollution removed from the Cheat's tributaries. The river and lake have not seen a pH depression below 6 since 2011 and the main stem has been removed from the state's list of impaired waters for pH impairment. The removal of iron (ferrous hydroxide or "yellow boy") as well as aluminum and manganese is visibly noticeable by reduced staining of rocks near the water's edge as well as armoring of fiberglass boat bottoms, which was a prevalent problem through the '90s. Improved water quality has fostered the rebound of Cheat Lake's fishery. DNR reports a dramatic recovery of species richness (27-34 species per year) including abundant sportfish such as largemouth and smallmouth bass, yellow perch, and walleye. Fishing tournaments now attract anglers from across the country which benefits the local economy. FOC is particularly excited about the walleye, which research shows are spawning up into the northern reaches of the Cheat Canyon.

With a drainage area of roughly 1400 square miles all flowing down to Cheat Lake, not only does the Cheat River constitute a critical piece of the region's ecosystem, it is also home to a large human population that lives, works and plays within the drainage. Friends of the Cheat recognizes that opportunities to recreate and connect with nature and the outdoors can not only improve the quality of life for a region's citizens, but it also leads to the engagement with and appreciation of our resources that can help prevent them from being squandered and abused. Cheat Lake and the surrounding area already Working to restore, preserve, and promote the outstanding natural qualities of the Cheat River Watershed since 1994

provides a plethora of outdoor activities; including paddling, boating, fishing, hiking, cycling, birding and more. Cube Hydro has already improved and created recreation

opportunities around Cheat Lake. FOC and key partners have identified several opportunities for additional improvement of recreational opportunities that we believe should be considered as part of this next re-licensing process.

FOC is aware and supportive of the proposal to create a public access to the upper reaches of Cheat Lake by improving an existing gated road in Snake Hill Wildlife Management Area along Buzzard Run. This would provide another trailhead for hikers to enter the WMA, fishermen to access this upper section of the lake usually only reachable by boat, and would provide an egress opportunity for whitewater paddlers running the Lower Cheat Canyon. Despite being located in close proximity to the Cheat Lake and Morgantown metropolitan areas, and providing a wonderfully scenic and exciting float through class 2 rapids in a deep canyon, this section is infrequently paddled. This is mostly due to the 4.5 mile paddle across Cheat Lake to the nearest existing public access at the Ices Ferry bridge, which can be a laborious task in short maneuverable whitewater craft that are well suited for the rapids upstream, not to mention the danger of encounters with fast moving power boats. The creation of a new public access by improving Buzzard Run Road would shorten this flatwater paddle to 1.9 miles and thereby make this whitewater trip much more attractive.

Another opportunity for recreation enhancement in the Cheat Lake area would be to improve access and connectivity of both ends of the existing Cheat Lake Trail. Currently the trail follows the eastern shoreline of Cheat Lake for 4.4 miles and provides opportunities for walking, running, biking and fishing. The north end of the trail can be accessed via a trailhead and steep flight of stairs off of Morgan Run Road. The south end of the trail dead ends abruptly. With the future route of the Sheepskin Trail passing by just to the north, and local businesses, residential neighborhoods, and Coopers Rock State Forest to the south, there lies an opportunity to work towards increased connectivity of these trail system. By doing so, we can enhance the value of these isolated trail sections in such a way that their value becomes greater than the sum of their parts. We recommend that possibilities to extend the southern end of the Cheat Lake Trail, around the peninsula where it currently terminates, to a newly developed trailhead be thoroughly investigated, as well as the streamlining of the northern terminus to avoid the steep stairs and improve the connectivity to the future route of the Sheepskin Trail.

Thank you for this opportunity to comment on the upcoming relicensing of the Lake Lynn Hydroelectric Project.

Sincerely,

Owen Mulkeen

Associate Director

Friends of the Cheat

Document Content(s)

93813.TXT.....1-2

Dave Harshbarger, Morgantown, WV.

Please see the Cheat Lake Trail restored at the wash-out and re-opened to the public ASAP from the storm damage in summer of 2019.

A commitment to connecting to the Sheepskin Trail once the Sheepskin Trail is developed to this area.

And an entrance for cyclists and walkers on the northern end with a replacement of the gate and fence to a gate with a bike/ped pass-thru on the Cheat Lake Trail.

Document Content(s)

94931.TXT.....1-1

GARY V MARLIN, WESTOVER, WV.

January 9, 2020

I am a member of the Morgantown community and would like to submit some suggestions to be considered for Project # P-2459. I would like to see the slip on the Cheat Lake Trail repaired and to see a passage way from the Trail through the dam facility so that there will be a connection to the Sheepskin Trail when it comes by the dam.

Respectfully,

Gary Marlin

Document Content(s)

93890.TXT.....1-1

From: [Jody Smet](mailto:Jody.Smet)
To: Janet_Norman@fws.gov; Megan.K.Gottlieb@usace.army.mil; sean.mcdermott@noaa.gov;
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(Guest); Foster_Joyce; Dale_Short; Robert_Flickner; [Karen Baldwin](mailto:Karen_Baldwin)
Subject: [EXTERNAL] Lake Lynn Project Relicensing (FERC No. 2459) - April 24, 2020 Meeting Notes and REVISED Study Plan
Date: Friday, May 8, 2020 2:57:01 PM
Attachments: [image001.png](#)
[Lake Lynn Study Plan_04-24-2019 Meeting_Notes.pdf](#)
[Lake Lynn Study Plan_May 2020_revised.pdf](#)

This is an **EXTERNAL** email. Do not click links or open attachments unless you validate the sender and know the content is safe.

Dear Stakeholders,

As follow-up to my email dated April 15, 2020 providing the Lake Lynn Hydroelectric Project (FERC No. P-2459) draft Study Plan for the FERC relicensing and the April 24, 2020 conference call/meeting to discuss the draft Study Plan, I have attached several documents for your review. If you have any comments on the attached revised draft Study Plan, please provide them to us within two weeks, or by May 22, 2020. We are planning to convene several calls with the resource agencies as follow-up to the April 24 call.

I have also attached notes from the April 24 call. Please let us know if we did not capture any discussions correctly. Thank you for your time discussing and reviewing the draft Study Plan.

Please do not hesitate to contact me at (804) 739-0654 or by email at jody.smet@eaglecreekre.com if you have any questions.

Thanks,

Jody Smet, AICP | Director, FERC Licensing and Compliance
Eagle Creek Renewable Energy

Desk: 804 739 0654

Mobile: 804 382 1764

Email: jody.smet@eaglecreekre.com [Please note my new email - Eagle Creek and Cube Hydro have merged!]



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**LAKE LYNN HYDRO GENERATION, LLC
LAKE LYNN HYDROELECTRIC PROJECT (FERC NO. P-2459) RELICENSING**

Draft Study Plan Meeting Notes

Meeting Date and Time

Date: April 24, 2020

Time: 11:00 a.m. – 12:30 p.m.

Meeting via MS Teams

Meeting Attendees

Janet Norman - U.S. Fish and Wildlife Service (USFWS)

Greg Pond- U.S. Environmental Protection Agency, Wheeling Office (USEPA)

Harold Peterson - Bureau of Indian Affairs (BIA)

Brian Bridgewater - West Virginia Environmental Protection (WVDEP)

Jacob Harrell - West Virginia Division of Natural Resources (WVDNR)

Danny Bennett - WVDNR

David Wellman - WVDNR

Heather Smiles - Pennsylvania Fish and Boat Commission (PFBC)

Cheryl Nagle - Pennsylvania Historical and Museum Commission (PHMC), State Historic Preservation Office (SHPO)

Erin Paden - Delaware Nation

Andrew Gast-Bray - Monongalia County Planning Commission

Duane Nichols - Cheat Lake Environment and Recreation Association (CLEAR)

Ann Chester - CLEAR

Mike Strager - CLEAR and West Virginia University (WVU)

Owen Mulkeen - Friends of the Cheat (FOC)

Sean Goodwin - Greystone Property Owners Association (POA)

Parke Johnson - Greystone Estates

Kelly Campitell - Emma Kaufmann Camp and Oxford Development Company

Amy Wagner - Mariner Village Resident

Richard Scott - Resident

Jody Smet - Lake Lynn Generation, LLC (Lake Lynn)

Dale Short - Lake Lynn

Bob Flickner - Lake Lynn

Karen Baldwin - Lake Lynn

Joyce Foster - TRC

Elizabeth Krchnavek - TRC

Drew Trested - Normandeau Associates

Notes

Introduction

Jody Smet (Lake Lynn) opened the call and took attendance. She stated that the purpose of the call was to review the draft Relicensing Study Plan distributed, by email, on April 15, 2020 and gather feedback on the proposed studies. Ms. Smet reminded participants that Lake Lynn, the Licensee for the Lake Lynn Project, is using FERC's Traditional Licensing Process (TLP) to relicense the Project and that there is no requirement to prepare a formal study plan and that there would be no FERC review and prior approval of the plan.

Joyce Foster (TRC) led a discussion of the individual study plans proposed in the draft Study Plan by resource area.

Reservoir Shoreline Erosion Survey

Ms. Foster said that WVDNR requested a reservoir sedimentation study at areas where a build-up of sediment occurs (such as Sunset Beach Marina) and develop a plan to monitor and address any sedimentation issues. Ms. Foster added that Lake Lynn conducted a bathymetric survey in the vicinity of the Sunset Beach Marina public boat launch in 2019 and completed sediment removal in early 2020 to restore the public boat launch to full functionality. She said that a report was filed with FERC documenting the completion of this work. She provided an overview of the shoreline erosion surveys of the Cheat Lake shoreline that Lake Lynn will conduct in 2020 in accordance with the existing FERC license.

Duane Nichols (CLEAR) stated that it is important to have a study to look at mitigation options to address any shoreline erosion areas of concern. Ms. Foster responded that the necessity for mitigation as well as mitigation options would be addressed in the License Application.

Water Quality Monitoring

Ms. Foster reviewed the 2020 water quality monitoring effort which will be conducted in accordance with the existing FERC license. She explained that Lake Lynn will continue to monitor and record hourly water quality data from April 1 through October 31 in 2020, provide an annual report of the monitoring results to USFWS, WVDNR, PFBC, and Pennsylvania Department of Environmental Protection (PADEP) by February 1, 2021 for review and comment and then submit the final annual report to FERC by April 1, 2021.

Ms. Smet added that Lake Lynn would be monitoring dissolved oxygen, water temperature, conductivity, and pH, as required under the existing FERC license. She added that Lake Lynn is very interested in relief from monitoring conductivity and pH under the new FERC license since those parameters are not related to Project operation.

Brian Bridgewater (WVDEP) asked that WVDEP also be included on the distribution of the draft report. Ms. Smet responded that WVDEP will be included and added that all stakeholders on the Project relicensing distribution list will receive the draft study reports.

Duane Nichols (CLEAR) asked about coliform bacteria monitoring to protect the public while recreating in Cheat Lake and using the Cheat Lake Park beach. Ms. Smet added that Friends of the Cheat conducts bacteria monitoring, and the data is available online.

Owen Mulkeen (FOC) added that FOC does do water quality sampling at the Cheat Lake Park beach. He said that FOC monitors throughout the Cheat River watershed two times a month during the summer and one time a month during the remainder of the year.

Streamflow Data Collaboration

Ms. Foster reviewed the proposed streamflow data collaboration in response to the USFWS comments and additional information request. She noted that the USFWS requested additional information so that it could fully evaluate the seasonality, duration, and magnitude of streamflow into the Project, including the existing Project Instream Flow Study discussed in the PAD, and revised flow duration curves. She said that Lake Lynn will provide the USFWS with the Project Instream Flow Study and collaborate on the presentation of the flow duration curves and revise the curves, as necessary.

Janet Norman (USFWS) stated that the flow duration curves provided in the PAD were insufficient for their review. Ms. Smet acknowledged this comment and suggested scheduling a separate call with USFWS and other interested parties to discuss this further so that Lake Lynn can better understand the USFWS' information needs. She stated that the information developed for this effort would be provided to all stakeholders on the Project relicensing distribution list.

Desktop Fish Entrainment Assessment

Ms. Foster provided an overview of the proposed desktop entrainment study to determine the number of fish that are either entrained or impinged by Project operation and to estimate the injury and mortality of fish that pass through the turbines during Project operation. She explained that Lake Lynn is proposing to contract with Normandeau Associates to conduct a desktop fish entrainment assessment for the Project that includes the elements listed in the study plan.

Ms. Norman (USFWS) noted that the USFWS has expertise in this area and advised Lake Lynn to take advantage of this expertise. She suggested that Lake Lynn and Normandeau Associates involve herself and Jessica Pica, a USFWS fishway engineer, early to avoid concerns over the validity of the study later in the process. She stated that the intake velocity measurements is useful for an impingement analysis if the trash rack spacing is small enough to be an exclusion, but if the rack spacing is wide enough to permit entrainment, then velocity is not as meaningful since fish can swim through the trash racks. Bob Flickner (Lake Lynn) confirmed that the trash rack spacing is 4 inches at Lake Lynn. Ms. Norman added that generally $\frac{3}{4}$ inch spacing is recommended for eels.

Jacob Harrell (WVDNR) asked if the proposed study includes a field component to verify the results. Ms. Smet responded that Lake Lynn will focus on the desktop analysis in Year 1, but a field verification could be a Phase 2 to this study in 2021, if warranted. Ms. Norman added that

desktop intake velocity generally looks at averages of various projects, so it is likely that field verification is needed.

Ms. Foster stated that it sounded like a separate call with USFWS would be warranted to discuss further the types of resources and expertise available with USFWS.

American Eel Environmental DNA Sampling

Ms. Foster provided an overview of the proposed American Eel environmental DNA (eDNA) sampling. She stated that the USFWS requested that Lake Lynn continue the American eel monitoring that was conducted in 2018 and 2019 under the Project Aquatic Biomonitoring Plan. She added that the USFWS and WVDNR also requested that Lake Lynn assess movement of fish throughout the Project area and assess the feasibility of incorporating alternative routes or additional fish protection measures at the Project.

Ms. Foster explained that Lake Lynn, in accordance with the Project Aquatic Biomonitoring Plan, worked collaboratively with the USFWS to select four sampling locations in the Project tailwater and to collect quarterly samples in 2018 and 2019 to sample the Project tailwater for American eel eDNA. She said that concerns have been raised by the USFWS and WVDNR regarding the sampling locations and whether the locations were representative of the tailwater. She stated that Lake Lynn will initiate the second year of sampling by working collaboratively with the USFWS, WVDNR, and PFBC to determine if there should be any adjustments to the four sampling locations in the Project tailwater or any adjustments to the methodology. She added that Lake Lynn will work with the USFWS to continue to collect the quarterly samples in accordance with the USFWS' Protocol and that Lake Lynn will coordinate with the USFWS to provide the samples to the USFWS Lab in Lamar, PA for analysis. She noted that Lake Lynn anticipates that the quarterly sample periods will be April-June 2020, July-September 2020, October-December 2020, and January-March 2021.

Ms. Foster said that once the second year of sampling results are available, Lake Lynn will consult with the USFWS, WVDNR, and PFBC to determine if any additional fish passage assessment is warranted.

Ms. Norman (USFWS) expressed a concern with the proposed sampling locations and schedule. She said that the sampling locations and schedule will need to be finalized by May to be able to obtain the first sample before the end of June. Ms. Smet acknowledged this concern and said she would schedule a call within the next couple of weeks to discuss the sampling locations. Ms. Norman also asked for an update on the overall schedule in relation to COVID-19. Ms. Smet explained that it is her current understanding that although some regulatory deadlines have been extended due to COVID-19, statutory required dates, such as the Draft License Application, have not been extended.

Tailwater Mussel Survey

Ms. Foster provided an overview of the proposed tailwater mussel survey. She noted that this study was added in response to the USFWS request for a mussel survey in the tailwater area to assess this component of the aquatic community. She stated that Lake Lynn will conduct a

mussel survey to evaluate the likelihood of the presence or absence of mussels within the Project boundary downstream of the Project dam (approximately 200 meters downstream of the dam at the furthest point). She said that Lake Lynn will prepare a survey plan and coordinate with WVDNR and USFWS for approval. The survey plan will outline the methods and approach for conducting the mussel survey. WVDNR and USFWS review of the survey plan will be required prior to initiating fieldwork.

Ms. Norman (USFWS) expressed a concern that the extent of the surveyed area downstream of the dam is not sufficient. Ms. Norman added that she is not the local expert, so she would welcome opinion from state and local experts. Mr. Harrell (WVDNR) commented that the current proposed study does not meet the West Virginia Mussel Protocol regarding survey extent below the dam. Mr. Harrell stated that they would generally require the mussel survey area to extend one kilometer below the dam.

Ms. Smet explained that the mussel survey as proposed would be conducted within the Project boundary since the Project boundary is drawn to include the entire area impacted by the Project. She added that the study plan includes development of a survey plan. She suggested having a separate call with interested parties, including WVDNR and USFWS, to further discuss the survey plan and the area that would be surveyed.

Aquatic Habitat Enhancement and Monitoring

Ms. Foster provided an overview of the installation and monitoring of fish habitat enhancement structures that is currently underway in accordance with the Project Aquatic Biomonitoring Plan, developed in consultation with USFWS, WVDNR, and PFBC. She stated that Lake Lynn worked with WVDNR and West Virginia University in 2019 to purchase and install artificial fish habitat structures along the Cheat Lake shoreline and to monitor their effectiveness. She explained that Lake Lynn and the resource agencies (USFWS, WVDNR, and PFBC) determined that a second year of monitoring in 2020 was warranted and a scope was developed. She said that during February 2020, artificial spawning structures were placed at two sites on Cheat Lake, which also have benthic artificial habitat reefs that were placed during 2019 aquatic habitat enhancement and monitoring efforts. She said that the structures and reefs were checked daily for the presence of egg masses during the spring spawning period. Ms. Smet added that Stuart Welsh with West Virginia University removed the structures earlier in the week. Ms. Foster stated that a study report will be developed and provided to the USFWS, WVDNR, and PFBC and to all stakeholders on Lake Lynn's relicensing distribution list.

No comments were provided on this study.

Angler Creel Survey

Ms. Foster stated that the most recent Project Aquatic Biomonitoring Plan, developed in consultation with USFWS, WVDNR, and PFBC, includes an angler creel survey to be conducted in 2020 to document baseline recreational fishing effort and success. She added that Lake Lynn consulted with the resource agencies in December 2019 and January 2020 on a workplan and survey instrument for the survey and initiated the angler creel survey in January 2020 utilizing a

standardized questionnaire, which has been administered via survey boxes and in-person interviews at public access points at the Project. She explained that Lake Lynn has decided to postpone the continuation of the angler creel survey until 2021 based on recent communication with the WVDNR and concerns about conducting angler surveys, which involve public interaction, during the COVID-19 outbreak and stay-at-home orders. She noted that this decision was made since the draft Study Plan was distributed.

No comments were provided on this proposal.

Rare Species Survey

Ms. Foster stated that the PAD proposed a study to conduct presence/absence surveys for rare, threatened and endangered (RTE) species that are likely to occur within the Project boundary. She explained that the USFWS provided comments as follow-up to the Joint Meeting and Site Visit stating that the proposed presence/absence surveys for RTE species may not be warranted. Ms. Foster added that Lake Lynn is no longer proposing to conduct these RTE surveys.

No comments were provided on this proposal.

Recreation Site Enhancement Feasibility and Assessment

Ms. Foster provided an overview of a proposed study that was not included in the PAD. She stated that several stakeholders have requested recreation site enhancements or new recreation sites at the Project, including working with stakeholders on planning and building a connection from the Cheat Lake Trail to the Sheepskin Trail, connection to other regional trails, extension of the Cheat Lake Trail toward the south, and extension of the swimming beach area to create a dog beach. She noted that FOC also requested creating public access to the upper reaches of Cheat Lake by improving an existing gated road in the Snake Hill Wildlife Management Area. She added that Lake Lynn will evaluate the feasibility of the recreation site/facility enhancements requested by stakeholders which would include both desktop and in-field assessments.

Mr. Nichols (CLEAR) commented that the previous Project owners committed to making a connection to the Sheepskin Trail once it is developed. He noted that the connection is desirable and beneficial to the region and added that this study really is not necessary. Ms. Smet responded by adding this specific trail connection must consider proximity to the Lake Lynn Powerhouse and Project access and security.

Andrew Gast-Bray (Monongalia County Planning Commission) stated that they support efforts to achieve trail connectivity and offered planning assistance. Ms. Smet thanked Mr. Gast-Bray for the support and stated that Lake Lynn looks forward to working with them.

Ms. Norman (USFWS) stated that connecting people with nature is a USFWS mission. She added that they rely on the National Park Service (NPS), state agencies, and local governments for their expertise in the topic of recreation, and they welcome comments from those entities regarding recreation for USFWS consideration and potential support.

Recreation Use and Recreation Facility Inventory

Ms. Foster noted that Lake Lynn began collecting recreation use data in January 2020 in accordance with FERC's approval of the 2018 Recreation Plan Update, and that Lake Lynn will collect the required recreation use data through December 2020. She explained that instead of conducting an independent study to inventory the existing Project recreation sites, as proposed in the PAD, Lake Lynn will conduct the inventory to update and expand the discussion in the next Recreation Plan Update. She added that the field inventory will be conducted during the summer of 2020 and include: identifying the amenities or facilities at each Project recreation site, photographs of the sites, and an evaluation of the overall condition of each site. She noted that recreation use data and inventory will be summarized in the next Recreation Plan Update that must be filed with FERC by March 31, 2021.

No comments were provided on this proposal.

Shoreline Classification and Aquatic Habitat Mapping

Ms. Foster provided an overview of the proposed follow-up study to the Cheat Lake Dock and property management system. She reminded the group that this system was discussed and shown during the December 2019 Joint Meeting. She explained that Lake Lynn is proposing to classify the Cheat Lake shoreline and develop an aquatic habitat map of Cheat Lake. Ms. Smet noted that Lake Lynn has Mike Strager, with Strager Consulting/West Virginia University under contract for this effort. She added that this information will be used in the development of a Shoreline Management Plan for the Project and will be used to create datasets to assist Lake Lynn in managing shoreline uses, which has been raised as an issue. She stated that the datasets for the shoreline classification and the aquatic habitat mapping will be added to the online map viewer of the Cheat Lake Dock and property management system that Lake Lynn is using.

No comments were provided on this proposal.

Cultural Resources (Section 106) Consultation

Ms. Foster stated that no studies related to cultural resources have been requested at the Project. She explained that Lake Lynn will initiate formal consultation with the West Virginia and Pennsylvania SHPOs to inform the development of the License Application.

Cheryl Nagle (Pennsylvania SHPO) stated that the letter provided from the Pennsylvania SHPO in June 2019 noted that there may be National Register-eligible above ground resources in the Project area. She added that there are structures indirectly related to the construction of the dam outside the Area of Potential Effect (APE). Ms. Nagle also stated that it is likely that an Inadvertent Discovery Plan may be required due to the location of the Project. Ms. Nagle stated that she wanted to confirm that all Tribes with potential interest are consulted. Ms. Foster confirmed that potentially interested Tribes have been included on the Project relicensing distribution list, and will continue to be included.

Erin Paden (Delaware Nation) asked to be kept updated during the study process.

Mr. Nichols (CLEAR) requested that Lake Lynn consider the historic aspects of the Project area, such as the Ices Family First Birth, iron used in Cheat River coal mining, and the millstone industry.

Wrap-Up

Mr. Nichols (CLEAR) asked for an update on the Cheat Lake South Trail repair. Ms. Smet responded that Lake Lynn is pursuing various options for repairing the trail. She stated that various permits and consultation are required, and that Lake Lynn is currently working to obtain the required permits and approvals from the U.S. Army Corps of Engineers (USACE), Pennsylvania Department of Environmental Protection (PADEP), WVDNR, and SHPO for replacing the existing culvert with a larger culvert. Mr. Nichols asked if the work to be done is just in the one area. Mr. Flickner stated that most of the work is the washout, but a few small improvements in other locations will be needed.

Mr. Nichols requested an update on the opening of the boating season in relation to potential impacts from COVID-19. Ms. Smet explained that due to COVID-19, certain facilities such as picnic tables, playgrounds, and restrooms have been temporarily closed. Mr. Flickner confirmed that at this time, the boating season is still planned to begin May 1, and the lake level will be raised accordingly.

Ms. Smet said that Lake Lynn will distribute the meeting notes soon and she will schedule follow-up calls specific to several studies with the appropriate agencies. She added that a revised Study Plan will be distributed. She encouraged the participants to reach out to herself or Ms. Foster with any other comments or questions. She concluded the call at 12:30 p.m.

Lake Lynn Hydroelectric Project (FERC No. P-2459)
Revised Study Plan
May 2020

Background

Lake Lynn Generation LLC (Lake Lynn or Licensee) is relicensing the Lake Lynn Hydroelectric Project (FERC No. P-2459) (Project) with the Federal Energy Regulatory Commission (FERC). The current FERC license for the Project expires on November 30, 2024. The Project is located on the Cheat River in Monongalia County, West Virginia and Fayette County, Pennsylvania (Attachment 1).

Lake Lynn initiated the relicensing process in August 2019 by filing a Notice of Intent (NOI) and Pre-Application Document (PAD). At the same time, Lake Lynn requested FERC approval to use the Traditional Licensing Process (TLP). FERC approved the use of the TLP in October 2019, and in accordance with FERC regulations, Lake Lynn held a Joint Meeting and Site Visit in December 2019. Following the Joint Meeting and Site Visit, resource agencies and other stakeholders were afforded the opportunity to comment on the PAD and to request resource studies that they deemed were needed to evaluate Project impacts on natural, cultural and recreational resources.

In response to the NOI/PAD filing and the Joint Meeting and Site Visit, Lake Lynn received written comments and study requests from the U.S. Fish and Wildlife Service (USFWS), West Virginia Division of Natural Resources (WVDNR), Cheat Lake Environment and Recreation Association (CLEAR), Friends of the Cheat (FOC), Monongahela River Trails Conservancy (MRTC), and individual residents in the local community. A summary of the study requests and comments is provided in Attachment 2. The complete study requests are provided in Attachment 3.

Based on the comments received, Lake Lynn developed and distributed a draft Study Plan to the resource agencies and stakeholders on April 15, 2020 for review. Lake Lynn held a conference call/meeting on April 24, 2020 to review and discuss the draft Study Plan. The draft Study Plan has been revised based on the discussions and a revised Study Plan is being distributed to resource agencies and stakeholders for additional review and comment.

Lake Lynn is utilizing the TLP. There is no requirement to prepare a formal study plan document as is required in the Integrated Licensing Protocol (ILP), and therefore, there is no subsequent study plan determination by FERC. Nonetheless, Lake Lynn has prepared this Study Plan to document and share with resource agencies and stakeholders its plans for conducting resource studies and ongoing monitoring efforts in 2020 to inform the relicensing process. The individual study plans detailed below are proposed for the Project relicensing.

1.0 Geology and Soils

1.1 Reservoir Shoreline Erosion Survey

Study Request

WVDNR requested the Licensee conduct a reservoir sedimentation study at areas that have demonstrated an affinity for a build-up of sediment (i.e., Sunset Beach Marina) and develop a plan to monitor and address any sedimentation issues. WVDNR suggested that the Licensee examine possible sources of sedimentation within the reservoir and identify potential preventive measures that could be taken to reduce the level of sedimentation in those areas where sediment builds up (i.e., Sunset Beach Marina). In addition, CLEAR requested that the Licensee continue monitoring and remediation of the ongoing shoreline erosion.

Study Goals

Article 402 of the existing FERC License requires the Licensee to: 1) conduct annual shoreline erosion surveys of the Cheat Lake Park shoreline extending from the dam to the Cheat Haven peninsula and 2) conduct triennial shoreline erosion surveys of the entire Cheat Lake shoreline to identify new areas of erosion. Since 1995, the Licensee has been conducting shoreline erosion surveys and documenting areas of shoreline erosion within the Project boundary, which can influence sedimentation in Cheat Lake. In recent years, no new areas of active shoreline erosion have been identified and previously identified areas have exhibited minimal annual changes, therefore, the Licensee believes that an additional study is not warranted at this time. The goals of this study are to: 1) conduct a visual shoreline erosion survey of the Cheat Lake Park shoreline extending from the dam to the Cheat Haven peninsula to evaluate changes in shoreline erosion monitoring stations where historic erosion has been observed and 2) conduct a shoreline erosion survey of the entire Cheat Lake shoreline to identify new areas of erosion.

Study Scope

For the upcoming 2020 annual shoreline erosion survey of the Cheat Lake Park shoreline, the Licensee will conduct a visual survey by boat of the Cheat Lake Park shoreline extending from the dam to the Cheat Haven Peninsula. During the survey, the boat will be kept as close to the shoreline as practical to allow for careful observation. Sixteen (16) shoreline erosion monitoring stations where historic erosion has been observed will be visually inspected and photographed for future reference and comparison. Any evidence of new areas of erosion will be noted and photographed. Additionally, for the 2020 shoreline erosion survey, the same scope will be performed along the entire reservoir shoreline to identify and document any new areas of erosion. The Licensee will prepare a report summarizing the results of the shoreline survey.

Study Schedule

The Licensee anticipates that the shoreline erosion survey will be conducted in November or December 2020, when the reservoir level is lowered and vegetation has died back. This timing is consistent with the timing in previous years. It is anticipated that the annual report will be filed with FERC by February 2021 and a copy of the annual report will be provided to stakeholders included on the Project Relicensing Distribution List.

2.0 Water Resources

2.1 Water Quality Monitoring

Study Request

At this time, no stakeholders have requested new studies related to water quality at the Project. However, the USFWS and WVDNR requested the existing water quality monitoring be continued throughout the term of the new License.

Study Goals

In accordance with the existing FERC License (Article 405) and the Project Water Quality Monitoring Plan (West Penn Power Company, 1995), the Licensee will continue to monitor water quality and report the results to USFWS, WVDNR, Pennsylvania Fish and Boat and Commission (PFBC), Pennsylvania Department of Environmental Protection (PDEP), West Virginia Department of Environmental Protection (WVDEP), and FERC annually during the relicensing process. The water quality data will be used in the development of the License Application.

Study Scope

In accordance with the existing FERC License (Article 405) and the Project Water Quality Monitoring Plan (West Penn Power Company, 1995), the Licensee will continue to monitor and record hourly water quality data from April 1 through October 31 on an annual basis during the relicensing process. For the purposes of this 2020 relicensing study, the Licensee will collect dissolved oxygen and water temperature from April 1, 2020 through October 31, 2020 at the existing three locations in conjunction with U.S. Geological Survey (USGS) gages located in Cheat Lake, the Project tailrace, and downstream of Grassy Run. The Licensee will prepare and provide an annual report of the monitoring results to USFWS, WVDNR, PFBC, and PDEP for review and comment. The Licensee will submit the final annual report to FERC.

Study Schedule

For this 2020 relicensing study, the Licensee will monitor and record hourly water quality data from April 1 through October 31, 2020. The Licensee will provide an annual report of the monitoring results to USFWS, WVDNR, PFBC, PDEP, and WVDEP within 90 days (by February 1, 2021) of the end of the monitoring season. The Licensee will file the final annual report with FERC within 150 days following the end of the monitoring season (by April 1, 2021). The Licensee will provide a copy of the annual report to stakeholders included on the Project Relicensing Distribution List.

2.2 Streamflow Data Collaboration

Additional Information Request

The USFWS requested additional information so that it could fully evaluate the seasonality, duration, and magnitude of streamflow into the Project. The USFWS requested the existing Project Instream Flow Study (EA Engineering, Science, and Technology, Inc. (EA Engineering),

2014) discussed in the PAD and noted that, without this information, the USFWS may have remaining questions and recommend an Instream Flow Study. The USFWS also requested the graphs (Flow Duration Curves) in Appendix E of the PAD be revised so that the maximum flow event(s) and duration for the period of record (2016 to 2019) is displayed separately from the rest of the graphs.

The Licensee will provide additional information to the USFWS, WVDEP, WVDNR, PFBC to assist with evaluating the seasonality, duration, and magnitude of streamflow into the Project. The Licensee will provide the USFWS, WVDEP, WVDNR, and PFBC with the Project Instream Flow Study and supporting information referenced in the PAD. The Licensee will also collaborate with the USFWS, WVDEP, WVDNR, and PFBC on the presentation of the Flow Duration Curves and revise the curves in a manner that will assist the resource agencies with their evaluation. The Licensee plans to provide the USFWS, WVDEP, WVDNR, and PFBC with the Project Instream Flow Study by May 2020. The Licensee also plans to collaborate with the USFWS, WVDEP, WVDNR, and PFBC on the presentation of the Flow Duration Curves and provide revised curves by October 2020. The Licensee will provide a copy of this additional information to stakeholders included on the Project Relicensing Distribution List.

3.0 Fish and Aquatic Resources

3.1 Desktop Fish Entrainment Assessment

Study Request

The USFWS and WVDNR requested the Licensee conduct a desktop entrainment study to determine the number of fish that are either entrained or impinged by Project operation and to estimate the injury and mortality of fish that pass through the turbines during Project operation. WVDNR also recommended a field component to verify results.

Study Goals

The goals of this study are to 1) conduct a desktop assessment of the potential for impingement/entrainment and 2) estimate the numbers of fish entrained at the Project.

Study Scope

The Licensee will conduct a desktop fish entrainment assessment for the Project that includes the following:

- A description of the Project reservoir, intake structure, turbine units, and seasonal operational regime;
- Summary of available fisheries information historically collected in the Cheat River upstream of the Project;
- Life history and habitat requirements for target fish species;
- Assessment of impingement and entrainment potential as a function of (1) the existing rack spacing, (2) calculated approach velocities, (3) the physical dimensions of target fish species, and (4) the swim capabilities (i.e., burst speed) of target fish species;

- Review of information contained in the 1997 Electric Power Research Institute (EPRI) database to provide a summary of (1) the size class composition of target fish species, (2) entrainment densities of target fish species, and (3) calculated survival rates of target species for the subset of hydroelectric projects comparable to the Project;
- Calculation of site-specific turbine passage survival rates for target fish species using the USFWS Turbine Blade Strike Analysis Tool (TBSA); and
- Utilize seasonal species/size class-specific entrainment densities from comparable projects and project-specific discharge volumes to generate estimates of numbers of fish entrained at the Project.

The results of the desktop assessment will be documented in a study report.

Study Schedule

The desktop fish entrainment assessment will be conducted during the period June through December 2020, with a draft report for stakeholder review anticipated in January 2021.

3.2 American Eel Environmental DNA Sampling

Study Request

The USFWS requested the Licensee continue the American eel monitoring that was conducted in 2018 and 2019 under the Project Aquatic Biomonitoring Plan (2018-2020) (Lake Lynn, 2018a). For this second year of collecting water samples for American eel environmental DNA (eDNA), USFWS requested that the Licensee improve sampling locations and include areas lower in the Cheat River before the confluence with the Monongahela River. WVDNR supported the USFWS request for additional analysis of Project waters for American eels. The USFWS and WVDNR also requested the Licensee assess movement of fish throughout the Project area and assess the feasibility of incorporating alternative routes or additional fish protection measures at the Project. The USFWS' proposed methodology includes a literature review of available options for upstream passage of eels, downstream passage bypass of the turbines, and other fish protection measures, in addition to discussions with the USFWS fishway engineers.

Study Goals

In accordance with the Project Aquatic Biomonitoring Plan (2018-2020) (Lake Lynn, 2018a), developed in consultation with the USFWS, WVDNR, and PFBC, the Licensee worked collaboratively with the USFWS to select four sampling locations in the Project tailwater and to collect quarterly samples in 2018 and 2019 to sample the Project tailwater for American eel environmental DNA (eDNA). No American eel eDNA has been detected to date, however, concerns have been raised by the USFWS and WVDNR regarding the sampling locations.

The goals of the second year of American eel eDNA sampling are to: 1) collaborate with the USFWS, WVDNR, and PFBC to determine if the sampling locations used in the first year of the sampling need to be adjusted; and 2) continue the American eel eDNA sampling performed in 2018 and 2019 to determine whether American eels are present in the tailwater.

Study Scope

The Licensee will initiate the second year of sampling by working collaboratively with the USFWS, WVDNR, and PFBC to determine if there should be any adjustments to the four sampling locations in the Project tailwater or any adjustments to the methodology. The Licensee will work with the USFWS to continue to collect quarterly samples at four sampling locations in the Project tailwater in accordance with the USFWS' Protocol, *Field Collection of Environmental DNA (eDNA) Water Samples from Streams* (USFWS, no date) and additional training from the USFWS. The Licensee will coordinate with the USFWS to provide the samples to the USFWS Northeast Fishery Center Conservation Genetics Lab in Lamar, Pennsylvania for analysis. Once the second year of sampling results are available, the Licensee will consult with the USFWS, WVDNR, and PFBC to determine if any additional fish passage assessment is warranted.

Study Schedule

The Licensee will finalize the quarterly sampling schedule with the USFWS, WVDNR, and PFBC by June 2020. The Licensee anticipates that the quarterly sample periods will be April-June 2020, July-September 2020, October-December 2020, and January-March 2021. The sample results will be provided to the Licensee by the USFWS Lamar lab. The Licensee will provide the results upon receipt to the USFWS, WVDNR, and PFBC. The Licensee will also provide copies of these results to stakeholders included on the Project Relicensing Distribution List.

3.3 Tailwater Mussel Survey

Study Request

The USFWS requested that a mussel survey be conducted in the tailwater area and downstream reaches to assess this component of the aquatic community.

Study Goals

The goal of this study is to conduct a mussel survey within the Project boundary downstream of the Project dam to document mussel habitat (location, depth, and substrate) and the occurrence density, distribution, and relative abundance of any mussel species present.

Study Scope

The Licensee will conduct a mussel survey to evaluate the likelihood of the presence or absence of mussels within the Project boundary downstream of the Project dam (approximately 200 meters downstream of the dam at the furthest point). The area inside the Project boundary downstream of the dam is in West Virginia and ends at the Pennsylvania/West Virginia state line (Attachment 1). A malacologist experienced in mussel collection and qualified to work in West Virginia will lead all mussel sampling efforts.

The Licensee will prepare a survey plan and review the survey plan with USFWS and WVDNR. The survey plan will outline the methods and approach for conducting the mussel survey following the West Virginia Mussel Protocol (Protocol) guidelines¹.

The Licensee will evaluate for mussel presence/absence within the Project boundary downstream of the dam. The Licensee will survey approximately 7-8² transects spaced 25 meters apart that will span bank to bank and include a downstream buffer of 25 meters. Snorkeling and surface supplied air diving will be used to visually and tactilely search for mussels at the substrate surface and minor excavation will occur where appropriate to ensure recovery of buried mussels. Qualitative timed searches will be employed based on mussel and habitat distribution along transects throughout the survey area. Search effort will meet minimum Protocol requirements (1 min/m² in heterogenous substrates).

A report summarizing mussel habitat, survey observations, occurrence, location maps, density, distribution, and relative abundance of any mussel species present within survey area will be prepared. Figures will present mussel distribution and high-quality habitat areas within the survey area.

Study Schedule

The mussel survey will be conducted during the period June through October 2020. It is anticipated that a draft report will be available for stakeholder review in December 2020.

3.4 Aquatic Habitat Enhancement and Monitoring

Study Request

The Project Aquatic Biomonitoring Plan (2018-2020) (Lake Lynn, 2018a), developed in consultation with USFWS, WVDNR, and PFBC, includes the installation and monitoring of fish habitat enhancement structures. The Licensee worked with WVDNR and West Virginia University in 2019 to purchase and install artificial fish habitat structures along the Cheat Lake shoreline and to monitor their effectiveness. The Licensee reviewed the results of the 2019 activities with the USFWS, WVDNR, and PFBC and determined that a second year of monitoring in 2020 was warranted (Lake Lynn, 2020b). A scope for the second year of monitoring was developed in consultation with the USFWS, WVDNR, and PFBC (Welsh, 2019). No new studies related to fish aquatic habitat enhancement and monitoring at the Project have been requested.

¹ Based on the Licensee's review of the West Virginia Mussel Protocol, the study area would be classified as a Group 3 stream for a non-scoping project since the Licensee is not proposing any changes to the Project.

² The exact number will depend on how close the first transect can be safely conducted below the dam.

Study Goals

The goals of the 2020 aquatic habitat enhancement and monitoring are to: 1) document the timing of spawning, as well as examine spawning habitat characteristics, i.e., water depth, distance from shore, and water turbidity; and 2) examine water level fluctuation as a variable of influence on the timing of spawning, as well as its role in the potential for egg dewatering.

Study Scope

During February 2020, forty artificial spawning structures were placed (submerged) at two sites on Cheat Lake (Welsh, 2019). Each site will also have four benthic artificial habitat reefs, which were placed during 2019 aquatic habitat enhancement and monitoring efforts. The forty artificial spawning structures and the eight artificial reef areas will be checked daily for the presence of egg masses during the expected spring spawning period. The artificial spawning structures will be checked by removing them from the water, and the reef structures will be checked with an underwater camera. The presence/absence of egg masses will be recorded and the number of egg masses on each spawning or reef structure will be counted. A subsample of egg masses will be evaluated to estimate the average number of eggs per egg mass.

Additional habitat data will be recorded daily, primarily at the time when spawning structures are checked and will include water depth at the spawning structure, distance of the structure to the nearest shoreline's high water mark (i.e. full pool elevation level), distance of the structure to the nearest shoreline's current water level, surface water temperature, bottom water temperature using data loggers at depth ranges from shallow to deep water consistent with habitat unit placement, and secchi disk depth at each site to provide an index of water turbidity.

A study report will be developed and provided to the USFWS, WVDNR, and PFBC in accordance with the scope for the second year of aquatic habitat enhancement and monitoring (Welsh, 2019).

Study Schedule

Artificial spawning structures were placed (submerged) in February 2020 at two sites on Cheat Lake. The structures will be monitored daily until the end date of the spawning period has been determined. A study report will be developed and provided to the USFWS, WVDNR, and PFBC by August 2020. The Licensee will provide a copy of the report to stakeholders included on the Project Relicensing Distribution List.

3.5 Angler Creel Survey

Study Request

The Project Aquatic Biomonitoring Plan (2018-2020) (Lake Lynn, 2018a), developed in consultation with USFWS, WVDNR, and PFBC, includes an angler creel survey component (a sampling survey that targets recreational anglers) to be conducted in 2020 to document a baseline of recreational fishing effort and success. At this time, no new studies related to angling or creel surveys at the Project have been requested.

Study Goals

The goal of the angler creel survey is to document a baseline of recreational fishing effort and success.

Study Scope

In accordance with the Project Aquatic Biomonitoring Plan (2018-2020) (Lake Lynn, 2018a), the Licensee consulted with the resource agencies in December 2019 and January 2020 on a workplan (Lake Lynn, 2020a) and survey instrument (Lake Lynn, 2020b) for the angler creel survey. The Licensee initiated the angler creel survey in January 2020 and temporarily suspended the survey in April 2020 due to COVID-19, but will initiate the survey again in 2021 in consultation with USFWS, WVDNR, and PFBC.

The Licensee will conduct the survey utilizing a standardized questionnaire (administered via survey boxes and in-person interviews) at the following locations:

- Upper Cheat Lake: Ices Ferry Bridge access, Edgewater Marina, Lakeside Marina;
- Middle Cheat Lake at the Sunset Beach Marina public boat ramp/dock;
- Lower Cheat Lake at Cheat Lake Park (the winter boat ramp, the fishing pier at Morgan Run, and the fishing pier at Rubles Run); and
- Lake Lynn Project Tailwater Fishing Pier.

A report summarizing the results of the survey will be developed in accordance with the Aquatic Biomonitoring Plan (2018-2020) (Lake Lynn, 2018) and the Angler Creel Survey Workplan (Lake Lynn, 2020a). Information collected during the survey will provide useful information on recreational angling.

Study Schedule

The Licensee initiated the angler creel survey in January 2020 and temporarily suspended the survey in April 2020 due to COVID-19, but will initiate the survey again in 2021 in consultation with USFWS, WVDNR, and PFBC. A report summarizing the results of the survey will be provided to USFWS, WVDNR, and PFBC, with a report anticipated in January 2022. The Licensee will provide a copy of the report to stakeholders included on the Project Relicensing Distribution List.

4.0 Rare, Threatened and Endangered Species

4.1 Rare Species Survey

In the PAD, the Licensee proposed to conduct presence/absence surveys for rare, threatened and endangered (RTE) species that are likely to occur within the Project boundary. The USFWS provided comments on the four federally listed species with the potential to occur in the Project area that were discussed in the PAD (Indiana bat, northern long-eared bat, running buffalo clover, and the flat-spined three toothed snail) and noted that except for occasional transient individuals, no other federally proposed or listed threatened or endangered species are known to exist within the Project area. The USFWS noted that the proposed presence/absence surveys for

RTE species may not be warranted; therefore, the Licensee is no longer proposing to conduct these surveys.

5.0 Recreation and Land Use

5.1 Recreation Site Enhancement Feasibility and Assessment

Study Request

Several stakeholders have requested recreation site enhancements or new recreation sites at the Project.

MRTC, CLEAR, FOC, and several individuals requested that the Licensee work with stakeholders on planning and building a connection from the Cheat Lake Trail to the Sheepskin Trail, including opening the gate at the northern end of the trail to create a passageway from the northern end of the Cheat Lake Trail through the dam facility. CLEAR also requested a continued commitment for a connection to other regional trails.

MRTC and FOC have requested the Licensee extend the Cheat Lake Trail toward the south.

FOC requested the Licensee create public access to the upper reaches of Cheat Lake by improving an existing gated road in the Snake Hill Wildlife Management Area (WMA) along Buzzard Run to provide a trailhead for hikers, angler access to upper Cheat Lake, and egress for whitewater paddlers running the Lower Cheat Canyon. WVDNR commented that it is unequivocally opposed to creating public access to the upper reaches of Cheat Lake by opening a gated road that passes through Snake Hill WMA property because continued maintenance of the access road would be problematic and an undue burden for the State of West Virginia and the Licensee with very little benefit to the WVDNR's prime constituents.

CLEAR requested the Licensee extend the swimming beach area toward the day-use boat docks to create a dog beach. CLEAR also requested the Licensee add additional picnic tables in this area.

Study Goals

The goals of this study are to evaluate the feasibility of the recreation site/facility enhancements requested by stakeholders at the Project, as described in the Study Scope.

Study Scope

The Licensee will evaluate the feasibility of making certain recreation site/facility enhancements at the Project. Specific enhancements to be evaluated include:

- Connection from the Cheat Lake Trail to the Sheepskin Trail at the northern end of the Cheat Lake Trail;
- Extension of the Cheat Lake Trail toward the south;
- Public access to the upper reaches of Cheat Lake by improving an existing gated road in Snake Hill WMA along Buzzard Run; and
- Extension of the swimming beach area to create a dog beach.

The feasibility assessment will include both desktop and in-field assessments. The desktop phase will examine existing tax and property records to determine property ownership and access limitations associated with each site or enhancement. The Licensee will also assess safety and security concerns and considerations associated with Project operations, including a review of any history of past safety or security concerns at the Project.

With basic information in hand, the Licensee will conduct an in-field assessment of each of the listed enhancements. The field review may be conducted in coordination with appropriate stakeholders and may include specific site visits with adjacent property owners, as appropriate.

The results of the feasibility assessment and any enhancement alternatives developed will be documented in a study report.

Study Schedule

The recreation site enhancement feasibility and assessment will be conducted during the period May through December 2020, with a draft report for stakeholder review anticipated in December 2020.

5.2 Recreation Use and Recreation Facility Inventory

Study Request

At this time, no stakeholders have specifically requested a study related to recreation use at the Project.

Study Goals

In accordance with FERC's Order dated August 10, 2018 modifying and approving the 2018 Recreation Plan Update (Lake Lynn, 2018b), the Licensee is collecting recreation use data in 2020 and must file the next Recreation Plan Update with FERC by March 31, 2021 that includes this data. As part of the next Recreation Plan Update, the Licensee will also conduct an inventory of the existing Project recreation sites to update and expand the discussion of the existing Project recreation sites and amenities in the next Recreation Plan Update.

Study Scope

In accordance with FERC's Order dated August 10, 2018 modifying and approving the 2018 Recreation Plan Update (Lake Lynn, 2018b), the Licensee initiated the collection of recreation use data in January 2020 and will collect recreation use data through December 2020. This data will be summarized in the next Recreation Plan Update that must be filed with FERC by March 31, 2021.

In the PAD, the Licensee proposed to conduct a field inventory of the existing Project recreation sites that included identifying the amenities or facilities at each site, photographs of the sites, an evaluation of the overall condition of each site, and general observations on site use and accessibility. The Licensee will conduct a field inventory of the existing Project recreation sites in 2020 and include the full recreation site inventory in the next Recreation Plan Update, which is due to be filed with FERC by March 31, 2021.

Study Schedule

The Licensee initiated recreation use data collection in January 2020 and will collect recreation use data through December 2020. The Licensee will conduct a field inventory of the existing Project recreation sites during the summer or fall of 2020 and include the full recreation site inventory in the next Recreation Plan Update. The next Recreation Plan Update must be filed with FERC by March 31, 2021 and the Licensee anticipates a draft will be available for stakeholder review by February 2021.

5.3 Shoreline Classification and Aquatic Habitat Mapping

Study Request

At this time, no stakeholders have specifically requested a study related to shoreline classification at the Project or development of a shoreline management plan.

Study Goals

The goals of classifying the Cheat Lake shoreline and developing an aquatic habitat map of Cheat Lake are to: 1) collect information that will be used in the development of a Shoreline Management Plan for the Project and the License Application and 2) create datasets to assist the Licensee in managing shoreline uses.

Study Scope

The Licensee will classify the Cheat Lake shoreline (the area up to 100 feet inward from the summer pool elevation of the reservoir) into the following classifications: Forest, Industrial, Private, Public Recreation, and All Other Classes. The shoreline classification will utilize 2018 imagery from the National Aerial Image Program at 1-meter resolution and 1:10,000 scale, which is the best available temporal and spatial resolution imagery for the shoreline classification. The entire 31.3 miles of Cheat Lake shoreline will be classified. The shoreline classification will also indicate the natural versus constructed or converted shoreline habitat areas. A spatially referenced shapefile (polyline) with metadata will be prepared.

An aquatic habitat map of Cheat Lake will be developed based on data collected from an Aquatic Water Drone. The aquatic habitat areas will be digitized as polygon areas and include aquatic vegetation, silt substrate, cobble and boulder substrate, historical river channels, and water depth.

The datasets for the shoreline classification and the aquatic habitat mapping will be added to the online map viewer of the Cheat Lake Dock and property management system developed for the Project in 2019.

Study Schedule

The shoreline classification and aquatic habitat mapping will be completed by December 2020. The shoreline classification and aquatic habitat mapping will be used in the development of a Shoreline Management Plan for the Project and the License Application.

6.0 Cultural Resources

6.1 Cultural Resources (Section 106) Consultation

Study Request

At this time, no resource agencies or Tribes have requested studies of cultural resources at the Project. The Cherokee Nation commented that Monongalia County and Fayette County are outside the Cherokee Nation's Area of Interest, thus, the Cherokee Nation defers to federally recognized Tribes that have an interest in this landbase. The Delaware Nation commented that the location of the Project does not endanger cultural or religious sites of interest to the Delaware Nation and requested that if any artifacts are discovered that the Licensee halt work and contact state agencies and its office within 24 hours.

Study Goals

The Licensee will initiate formal consultation with the WVSHPO and PHMC to inform the development of the License Application.

Study Scope

The Licensee is aware of two potentially significant cultural resources within the Project boundary – the railroad bed along the Cheat Lake Trail (a linear historic archaeological site) and the Lake Lynn powerhouse and dam (potentially eligible for the National Register of Historic Places [NRHP]). The Licensee will consult with the West Virginia State Historic Preservation Office (WVSHPO) and its Interactive Map Viewer and submit the Project information for a formal review. The Licensee will also consult with the Pennsylvania Historical and Museum Commission (PHMC) and the Cultural Resources Geographic Information System (CRGIS) and submit the Project to the PHMC for review.

Study Schedule

The Licensee plans to initiate formal consultation with the WVSHPO and PHMC by July 2020.

7.0 References

EA Engineering, Science, and Technology, Inc. (EA Engineering). 2014. Instream Flow Study: Lake Lynn Hydroelectric Project. December 2014.

Lake Lynn Generation, LLC (Lake Lynn). 2018a. Lake Lynn Hydroelectric Project (FERC No. 2459) Aquatic Biomonitoring Plan (2018-2020). January 31, 2018.

Lake Lynn Generation, LLC (Lake Lynn). 2018b. Lake Lynn Hydroelectric Project 2018 Recreation Plan Update. April 2018.

Lake Lynn Generation, LLC (Lake Lynn). 2020a. Lake Lynn Hydroelectric Project (FERC No. 2459) Angler Creel Survey Workplan. January 2020.

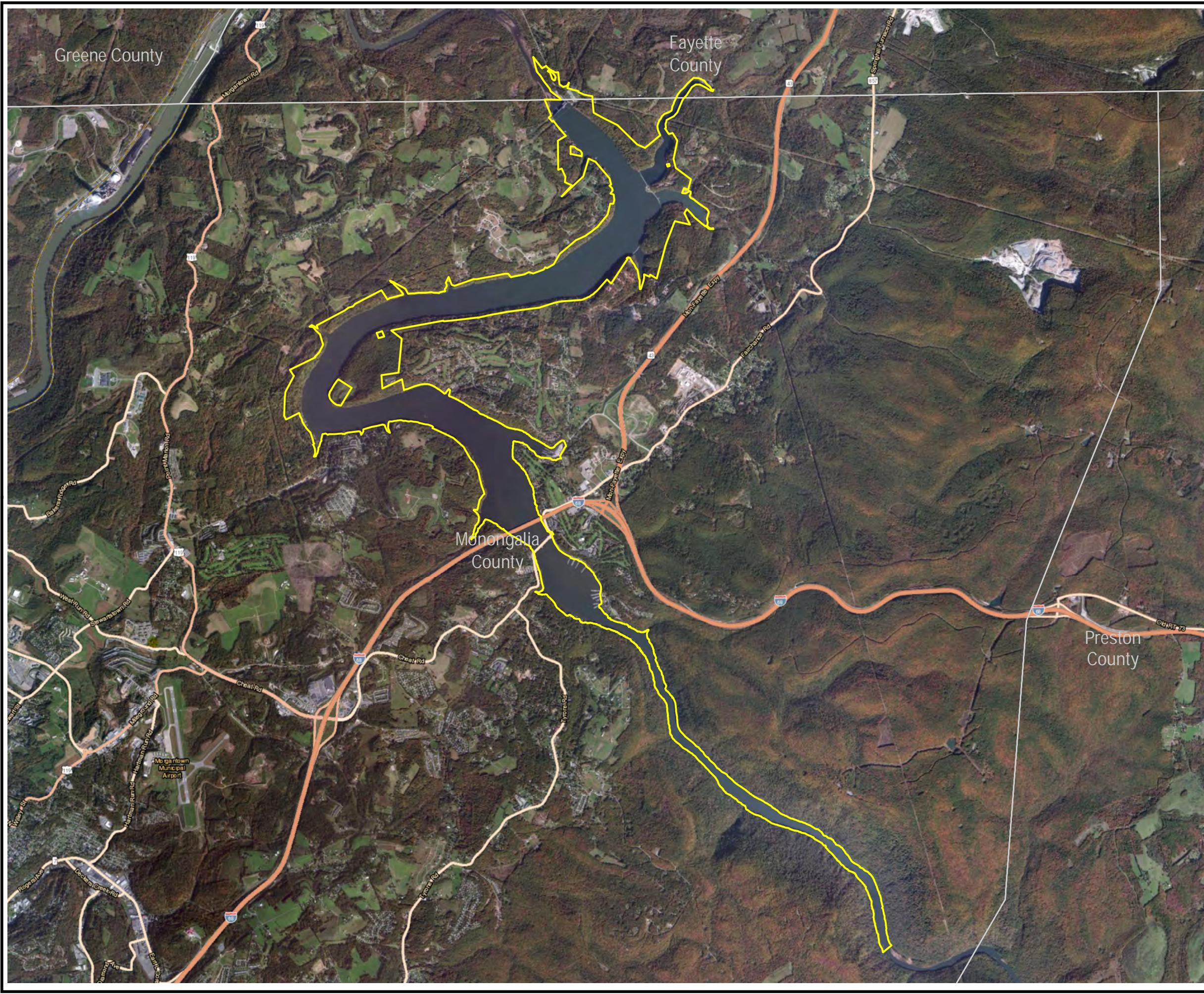
Lake Lynn Generation, LLC (Lake Lynn). 2020b. Lake Lynn Hydroelectric Project (FERC No. 2459) Aquatic Biomonitoring Plan (2018-2020): 2019 Annual Status Report. 2020.

U.S. Fish and Wildlife Service (USFWS) Northeast Fishery Center Conservation Genetics Lab.
No date. Field Collection of Environmental DNA (eDNA) Water Samples from Streams. No date.

Welsh, Stuart A. West Virginia Cooperative Fish and Wildlife Research Unit. 2019. Evaluations of Yellow Perch Spawning and Water Level Fluctuations for Cheat Lake, West Virginia: A Research Proposal. November 29, 2019.

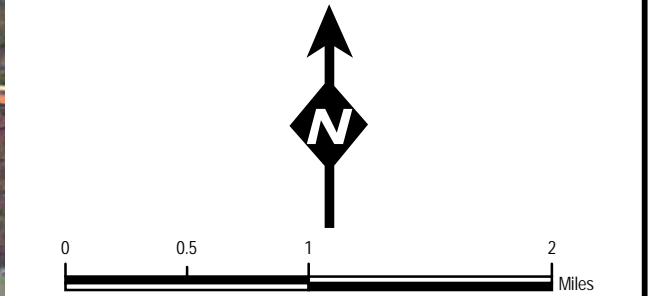
West Penn Power Company. 1995. Water Quality Monitoring Plan for Lake Lynn Hydro Station FERC Project No, 2459. October 6, 1995.

Attachment 1
Project Boundary Figure



LEGEND

- FERC Project Boundary
- County Boundary



PROJECT:	
LAKE LYNN GENERATION, LLC	
TITLE:	
Lake Lynn Project Boundary	
DRAWN BY:	K. BABCOCK
CHECKED BY:	PROJ. NO.:
APPROVED BY:	
DATE:	AUGUST 2019
14 Gabriel Drive Augusta, ME 04330	
FILE NO.:	Lake_Lynn_Project_Boundary.mxd

Attachment 2
Summary of Study Related Comments and Study Requests

Agency/ Stakeholder	Study Related Comment/ Study Request
SEDIMENTATION AND SHORELINE EROSION	
WVDNR	Requests reservoir sedimentation study at problem areas and a sedimentation plan to monitor/address any future sedimentation issues. Proposed methodology includes examining possible sources of sedimentation within the reservoir and identifying potential preventive measures that could be taken to reduce the level of sedimentation in those areas where sediment builds up (i.e., Sunset Beach).
CLEAR	Monitoring and remediation of the on-going shoreline erosion are needed with components of these activities taking place on an annual basis.
WATER QUANTITY AND QUALITY	
USFWS and WVDNR	Requests that water quality monitoring be continued throughout the term of the new License.
USFWS	The Project Instream Flow Study is not contained in the PAD. Without this information, the USFWS has remaining questions and would recommend an Instream Flow Study to help determine appropriate flow releases in license articles.
FISH AND AQUATICS	
USFWS	A mussel survey should be conducted downstream in the tailwater area and downstream reaches to assess this component of the aquatic community and inform the USFWS flow regime recommendations.
USFWS and WVDNR	Requests a desktop entrainment study. WVDNR recommends a field component to verify results and requests the opportunity to review data for use in the desktop analysis. USFWS suggests that the USFWS Turbine Blade Strike Analysis Model could be used as one component of the assessment.
USFWS and WVDNR	Requests American eel monitoring study that improves on sampling conditions and includes areas lower in the Cheat River before the confluence with the Monongahela. WVDNR is not be opposed to any USFWS request regarding additional analysis of Project waters for American eel.
USFWS and WVDNR	Requests upstream/downstream fish passage and feasibility study. Proposed methodology includes a literature review of available options for bypass routes/fish protection measures and an analysis on how such measures could be incorporated into current project design. USFWS mentions the methodology would include a literature review of available options for upstream passage of eels.
WILDLIFE AND RARE, THREATENED AND ENDANGERED (RTE) SPECIES	
USFWS	The proposed survey for RTE species may not be warranted.
RECREATION/AESTHETICS	
MRTC and FOC	Trails - Requests the Licensee extend the Cheat Lake Trail toward the south.
MRTC, CLEAR, FOC Dave Harshbarger ,and Gary Marlin	Trails - Request License work with stakeholders on planning and building a connection from the Cheat Lake Trail to the Sheepskin Trail, including opening the gate at the northern end of the trail to create a passageway from the northern end of the Cheat Lake Trail through the dam facility. CLEAR also requests a continued commitment for a connection to other regional trails.

Agency/ Stakeholder	Study Related Comment/ Study Request
WVDNR	Snake Hill Wildlife Management Area (WMA) - WVDNR is unequivocally opposed to creating public access to the upper reaches of Cheat Lake by opening a gated road that passes through Snake Hill WMA property because continued maintenance of the access road would be problematic and an undue burden for the State of West Virginia and the Licensee with very little benefit to the WVDNR's prime constituents.
FOC	Snake Hill Wildlife WMA - Supports creating a public access to the upper reaches of Cheat Lake by improving an existing gated road in Snake Hill WMA along Buzzard Run to provide trailhead for hikers, angler access to upper Cheat Lake, and egress for whitewater paddlers running the Lower Cheat Canyon.
CLEAR	Dog Beach - The swimming beach area needs to be extended toward the day-use boat docks to include a dog beach and additional picnic tables
WVDNR	Boating - Law enforcement records do not show any significant increase in boating incidents. WVDNR is not opposed to the temporary moratorium on new private piers/boat docks and would not be opposed to the moratorium continuing.
CLEAR	Boating - Requests boating guidelines and limits consistent with the rules and regulations of the WVDNR. Boat guidelines/regulations, public dock maintenance, channel depth (dredging), and parking lot criteria are all in need of explicit definition and guidance.
CLEAR	Recreation Operations and Maintenance (O&M) - Requests clear and complete procedures for trail maintenance and repair.
CLEAR	Recreation O&M - Requests clear and complete goals, guidelines and procedures for Sunset Beach Marina and other marinas, including O&M and future.
CLEAR	Recreation O&M - Periodic lake cleanup activities need to be continued by CLEAR and others with the support of the Licensee.
CLEAR	Recreation O&M - Swimming beach season should match the boating season of May 1-Oct 31.
CLEAR	Recreation O&M - Regular maintenance of the swimming beach is needed to remove large debris and to keep quality sand fresh and deep
CLEAR	Recreation O&M - For the Fishing Pier, there is a need to identify the opportunities, guidelines, operation and maintenance schedules.
CLEAR	Recreation O&M - Hillside slips, ground subsidence, and washouts along the Trails must be prepared for so that temporary work-arounds/repairs can take place in a timely manner.
CLEAR	Recreation O&M - For the Recreation Season protocol, there is a need to reiterate the schedule of May 1 thru October 31, with the Trail being open and accessible year-round.
CLEAR	Recreation O&M - The boat launch in the Park is essential for summer use by kayak & canoe users and for winter use by fishing boat users.
CLEAR	Recreation O&M - There is a need for a description of the functions of (existing & new) recreation personnel, security personnel, park maintenance personnel; and guidelines are needed for the interaction of these people with public.
MRTC	Recreation O&M - Requests the Licensee hire onsite recreation staff.
WVDNR	Boating - Law enforcement records do not show any significant increase in boating incidents. WVDNR is not opposed to the temporary moratorium on new private piers/boat docks and would not be opposed to the moratorium continuing.

Agency/ Stakeholder	Study Related Comment/ Study Request
CLEAR	Boating - Requests boating guidelines and limits consistent with the rules and regulations of the WVDNR. Boat guidelines/regulations, public dock maintenance, channel depth (dredging), and parking lot criteria are all in need of explicit definition and guidance.
ENHANCED COMMUNICATIONS/INFORMATION	
CLEAR	Telephone(s) & email address(es) are needed on signs and on web page(s) for information and for emergencies.
CLEAR	Formal plans and procedures are needed that assigns responsibilities for the various types of emergency at the dam, on the trails, on Cheat Lake, and downstream.
CLEAR	Public brochures are needed that include the history, overview of facilities, rules/regulations, contacts, etc.
CLEAR	The website needs additional pages that includes the brochure information, lake level, operational updates, warnings, etc.
CLEAR	News releases are needed providing general information, trail closings, warnings and other items for current news.
CLEAR	Signage on WV 857 for the Cheat Lake Park and Trail needs to be maintained year-round and the signage on the Trail maintained for public use year-round.
CLEAR	For the lake level protocol, need to reiterate the water level ranges vs. months of the year on the website and in the brochure(s).
MRTC	Requests improved public communication (website, social media, phone), and creating a process for holding events on the Cheat Lake Trail.
GENERAL	
WVDNR	Supports studies proposed in the PAD.
CLEAR	A study of the history of Cheat Lake and the dam is needed to examine the role of the Project affecting WV and PA - whether it is a private “for-profit” entity with public obligations or whether it is “for the public interest” to provide recreation and a public service (electricity).

Attachment 3

Copies of Comments and Study Requests



DIVISION OF NATURAL RESOURCES
Wildlife Resources Section
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Jim Justice
Governor

Stephen S. McDaniel
Director

February 12, 2020

Electronic file

Kimberly D. Bose, Secretary
Federal Energy Regulatory Commission
888 First Street, N.E.
Washington, DC 20426

RE: Lake Lynn Hydroelectric Project (FERC no. P-2459); Notice of Intent, Pre-Application Document, and Study Requests

Dear Secretary Bose:

Thank you for allowing the West Virginia Division of Natural Resources, Wildlife Resources Section (WRS) the opportunity to provide comments with regards to the referenced Pre-Application Document (PAD) for the relicensing of the Lake Lynn Hydroelectric Project (Project), FERC No. 2459. Lake Lynn Generation, LLC (Licensee or Applicant) has elected to utilize the Traditional Licensing Process in preparing for a new license. The current Project license was issued on December 27, 1994 and is set to expire on November 30, 2024. The applicant submitted the referenced NOI/PAD in accordance with FERC regulation and consistent with the requirements of 18 CFR § 5.5.

The Project is an established hydroelectric project located on the Cheat River adjacent to the border between Pennsylvania and West Virginia with Project areas located occupying lands in

both states. The Project has an installed project capacity at 51.2 MW using four Francis generating units. The comments below are being provided pursuant to 18 C.F.R §4.38(b)(5).

Section 4.2 Project Facilities

The description of the Project facilities described within this section makes mention of trash racks installed at the intake facility. Beyond that, there is no further information regarding the specifications of the trash racks. Based on a preliminary site visit, it would appear as if the trash racks were of a steel construction and installed with spacing of approximately 5-inches. Such large trash rack spacing allows for the entrainment of larger fish that would be more susceptible to blade strikes and turbine-induced mortality as these fish enter the intake structures and pass through the turbines. In an effort to reduce fish mortality, the WRS would request that the trash rack spacing not exceed 3 inches and have an approach velocity of no more than 2.0 fps. The WRS further recommends angled trash racks be employed as a means to further reduce entrainment.

Section 4.4 Current and Proposed Project Operations

The current FERC license requires an operation schedule whereby the lake elevation is maintained between 868 and 870 feet from May 1 to October 31, between 857 and 870 feet from November 1 through March 31, and between 863 feet and 870 feet from April 1 through April 30. The April 1 to April 30 schedule was initially designed as a provision to reduce the Project's impacts on spawning fish populations within the lake, particularly yellow perch and walleye. The thinking at that time was that these fish species predominantly spawned during the early Spring month of April. Recent data has become available through the triennial biomonitoring studies, in particular a recent analysis of yellow perch habitat, which may indicate that in some years, based on temperature and weather conditions, the spawn may begin in mid-March and extend into Mid-April or later. Similar results were observed in a study on the walleye populations within the lake by a member of the WRS staff whereby the walleye spawn was documented as early as mid-March. Considering, there is concern that the lake elevation schedule during the month of March (between 857 and 870 feet) would not be sufficient in protecting the spawn and would have the potential to dewater a great many eggs thus impacting recruitment. It may be necessary, then, to revisit the current project operations and examine possible avenues to protect these species throughout the spawning season. A new schedule could be based on temperature such that in normal years the schedule can remain as is, but in warm years where the WRS, based on water temperature variables (45°F for a sustained period in March), anticipates that an early spawning period would occur, the April elevation schedule could be moved back to mid-March.

Section 5.2

The continuous monitoring of water quality as required by License Article 405 of the existing Project License is an invaluable tool in the management of the resources. As such, the WRS would request that water quality monitoring within the reservoir and tailwaters be continued throughout the term of the upcoming license.

Section 5.3.2.2 Catadromous and Diadromous Species

This passage asserts that “there is no known occurrence of the American eel in the Cheat River basin, however...eels have been collected in the Ohio River basin from the Kanawha, New, and Greenbrier Rivers.” In fact, the American eel has also been collected in the Monongahela River within the past 10 years as far upstream as the Morgantown Lock and Dam. This point is upstream of the confluence of Cheat River with the Monongahela River. It could therefore be assumed that there is a strong likelihood that the American eel may also be located within the Cheat drainage. However, it should be noted that, at least with regards to recent data collection, the American eel has not been observed within the tailwaters of the project. A recent eDNA study of the Project tailwaters resulted in no positive recordings of the American eel. The reasons for the negative results may be because of study design or perhaps because there were no eels in the Cheat River watershed. Nonetheless, it is the WRS’ understanding that the US Fish and Wildlife Service (USFWS) will be requesting additional analysis of the Project waters to determine presence or absence of the American eel. The WRS would not be opposed to any USFWS request regarding this particular subject matter.

Section 5.3.2 Fish Resources and Habitats

As per state rule §47-5A-6, reimbursement for the incidental loss of fish due to project operation will be required. Therefore, the WRS would request that a comprehensive desktop entrainment study be utilized to determine the likely number of fish, fish species, and size classes to become entrained and experience mortality as a result of the Project’s operation.

Section 5.3.2.3 Fish Passage

The major components of a hydropower facility (i.e. the turbines) pose a particular risk to fish passage and an additional impediment to fish passage. Project operations may attract fish moving downstream to pass through the turbines creating an unnecessary risk for mortality. It is the flowing water through the Project that initially attracts the migrating fish. Additionally, passage over the spillway could also be hazardous for fish. To minimize the potential hazards for the downstream movement of fish, the WRS would request that a feasibility study be conducted to explore potential options for a bypass system or diversionary tactics.

Section 5.8.3.4 Public Boat Launching Facility at Sunset Beach Marina

Sedimentation at the Sunset Beach Marina has become a significant issue over the years and has only worsened to the point by which anglers and boaters are affected. Launching a boat from this area has become more challenging and at some levels, is next to impossible. The Licensee has made great strides in correcting the sedimentation via dredging the embayment. Still, there is concern that this is a temporary fix and without a plan in place to address future sedimentation of the embayment, this is a problem that will likely occur again. Therefore, the WRS would request the licensee draft a sedimentation plan in an effort to minimize future sedimentation and reduce costly dredging activities.

Section 5.8.5 Boating Carrying Capacity Study

The results of the boating carrying capacity study would suggest that the number of boaters using Lake Lynn at any given time has exceeded that of a safe operating amount for the lake. Law enforcement records have yet to show any significant increase of incidents. Nevertheless, the WRS is not opposed to the Licensee's moratorium on new private piers/boat docks within the Project reservoir. According to the scoping meeting, the moratorium was enacted by the Licensee as a temporary measure to reduce the number of boats on the lake with the intention to lift the moratorium, or at least re-examine its effectiveness, following the relicensing process. The WRS views the moratorium as being beneficial in reducing the level of impact to shoreline habitat caused by the continued construction of the lake shoreline. Shoreline habitat is critical for a healthy, sustainable fishery and therefore, the WRS would be not be opposed to continuing the moratorium beyond the FERC relicensing of the Project.

Section 6.2.7.1 Potential Issues and Project Effects

This section lists a proposal to "create public access to the upper reaches of Cheat Lake by improving an existing gated road in Snake Hill Wildlife Management Area along Buzzard Run." The WRS would be unequivocally opposed to this proposal. The WRS is not interested in opening up the gated road that passes through the WMA property. Continued maintenance of the access road would be problematic and an undue burden for the state and the Licensee with very little benefit to the WRS' prime constituents.

State 401 Water Quality Certification

Section 401(a)(1) of the federal Clean Water Act, 33 U.S.C. § 1341(a)(1) provides that any applicant of a federal license or permit must obtain a state certification from the appropriate state certifying agency. This certification is to ensure that any activity conducted under the license are to be in compliance with all applicable provisions of the Clean Water Act. The state of WV will have one year to act on a received 401 application from the date the US Army Corps of Engineers deems the federal 404 application to be complete.

Study Requests

The WRS is in support of the studies proposed by the Licensee for the Lake Lynn Hydroelectric Project as identified within the PAD. Additional studies not previously included within the PAD are being provided by the WRS. The WRS makes these requests in support of currently proposed studies, to correct deficiencies in data and to offer a greater level of detail where needed. The WRS further requests the opportunity to review any study plans associated with this project. The request format is in accordance with that described in 18 CFR § 5.9 (b).

Study Request 1: Entrainment Study

Goals and Objectives:

The goal of the proposed study is to determine the number of fish that are either entrained or impinged and to estimate the injury and mortality of fish that pass through the turbines during

Project operation. The WRS is requesting a desktop entrainment study be conducted on the Lake Lynn Project. The goal of the desktop study will be to estimate mortality for compliance with state code.

As the resource agency, it is the goal of the WRS to manage and protect the resources. To the furtherment of this goal, WV code §47-5A-6 requires that mitigation be completed for any impacts to the resources. In this case, entrainment of fish through the turbines causes undue stress to the fish and can potentially be fatal. Therefore, the WRS would request that any mortality in fish be compensated. In order to properly ascertain the number of fish that succumb to mortality, an entrainment study will need to be performed.

The WRS recommends a desktop entrainment analysis utilizing the EPRI database. Data used for the analysis should be presented by species and by two-inch size classes. The WRS would further recommend that a field component be incorporated to verify results.

Resource Management Goals:

The WRS is charged with the protection and management of all wildlife within West Virginia, including within Cheat river and Lake Lynn. As per state rule §47-5A-6, the State would require the applicant to compensate the state for any loss of fish.

Existing Information:

To the best of its knowledge, the WRS is not aware of any entrainment studies that have been conducted at the Project. The years of biomonitoring data conducted in accordance with the existing license, will help to inform this entrainment analysis.

Nexus Between Project Operation:

During Project operation, fish of a certain size are able to pass through the trash racks and become entrained through the turbines. As the turbines operate, it is likely that some fish will be struck by the turbine blades while others will succumb to changes in barometric pressures as they pass through the intake. The likelihood of a blade strike and turbine-induced mortality increases as the size of the fish increases. Therefore, compensatory mitigation will be required as replacement for the loss of fish.

Study Methodology:

The methodology employed should include a combination of desktop entrainment analysis and field verification. The standard practice has been to utilize the Electric Power Research Institute (EPRI) turbine entrainment and survival database as a model in evaluated the potential of entrainment at a facility. The WRS has had concerns that this particular practice lacks the scientific creditability necessary to make informed decisions about the management of the fishery. Therefore, the WRS requests the opportunity to review any entrainment data considered

for use in the desktop entrainment analysis. Further, the WRS may request that a verification procedure be incorporated as a means to test the veracity and accuracy of the desktop entrainment results. Deploying hydroacoustics sampling techniques may be one way to achieve this goal as a more cost-effective method than deploying nets downstream. Data for any type of analysis should be presented by species and by 2-inch class sizes to remain consistent with general state practices. The WRS is willing to further discuss methodologies with the applicant.

Level of Effort and Cost:

The level of effort required to conduct a desktop entrainment analysis is relatively minor and most consulting firms/universities are well equipped to perform such an analysis. Additionally, the cost of a desktop entrainment analysis is much more attainable when compared to the alternative of an in-field entrainment analysis. Incorporating an in-field verification procedure with the analysis will increase the level of effort and cost and would require certain levels of training, expertise, and equipment. Nonetheless, an in-field verification procedure is still attainable and within reasonable limits of effort and cost.

Study Request 2: Upstream/Downstream Fish Passage and Feasibility Study

Goals and Objectives:

The goals of this study are to assess movement of fish through the project area; identify likely routes fish would take under a variety of conditions; and assess the feasibility of incorporating alternative routes or additional fish protection measures.

Existing Information:

To the best of its knowledge, the WRS is unaware of any study on upstream/downstream passage at the Project. Any study that may have been completed is likely dated material and incompatible in reflecting current conditions and population dynamics.

Nexus Between Project Operation:

Dam features, because of their general nature, impede the upstream and downstream movement of fish. By design, the dam at the Project affords no migration upstream. Downstream migration is offered by one of two routes: through the dam gates; and through the Project's powerhouse. Neither of these two routes provides for a safe migration downstream. The route through the powerhouse would mean risking turbine strikes or dangerous changes in barometric pressure. The route through the dam gates may provide for an equally perilous journey with fish tumbling down rough concrete faces. It is evident, then, that the Project has a direct relationship to fish passage.

Study Methodology:

Methodology would include a literature review of all available options for bypass routes and fish protection measures and an analysis on how such measures could be incorporated into the current project designs. Architectural design and structural engineers would need to be consulted for their expertise in determining feasibility of any new structural component at the project.

Level of Effort and Cost:

A study such as this would most likely take less than a year to complete with minimal effort. Discussions with engineers and reviews of designed structures would be necessary to properly assess the feasibility of any bypass channels or fish protection structures. Additionally, this study could be completed in concert with study request #1 (entrainment study) to reduce costs and effort. The WRS is not aware of the cost associated with this study but would assume it to be at a nominal rate.

Study Request 3: Reservoir Sedimentation Study

The WRS is requesting that a sedimentation study of the Project's reservoir be conducted at the problem areas and a plan to monitor and address any sedimentation issues be developed.

Goals and Objectives:

The goal of this survey is to assess sedimentation within certain problem areas within the Project reservoir and to develop a plan to address any deficiencies as they arise.

Existing Information:

Reports of sedimentation affecting boaters and anglers have risen in recent years, but as of yet no study that the WRS is aware of has been conducted on the sedimentation and no plan has been developed to address it. Steps to remedy sedimentation are typically taken when the issue rises to unsuitable levels. A more preventive strategy here may reduce future costs of sediment removal and keep recreation areas open without issue.

Nexus Between Project Operation:

By their very nature, dams cause sedimentation within the reservoir as the moving water slows down and particles are allowed to settle out. Therefore, the Project operations have a direct influence on the level of sedimentation.

Study Methodology:

The methodology should begin by examining possible sources of sedimentation within the reservoir and then by identifying potential preventive measures that could be taken to reduce the level of sedimentation in those areas that have demonstrated an affinity for a build-up of sediment (i.e. Sunset Beach).

Level of Effort and Cost:

Most consulting firms and universities would be fully capable of conducting a sedimentation study, including interpreting and analyzing the data. The costs of such a study is variable dependent on contractor used to conduct the study and the level of attention to detail.

The WRS appreciates the opportunity to provide comments and to make study requests. If you have any questions regarding this letter, comments made, or these study requests, please contact me by telephone at (304)825-6787, or by email at Jacob.D.Harrell@wv.gov.

Sincerely Yours,



Jacob Harrell
Hydropower Coordination Biologist

- Cc: Jody Smet, Lake Lynn Generation, LLC
David Fox, Lake Lynn Generation, LLC
Janet Norman, USFWS
Paul Johanson, WVDNR
Mark Scott, WVDNR
Zack Brown, WVDNR
David Wellman, WVDNR
Danny Bennett, WVDNR

LAKE LYNN HYDRO PROJECT: ISSUES AND COMMENTS FOR RELICENSING

SUBMITTED BY: Duane Nichols, President, Cheat Lake Environment & Recreation Association, 330 Dream Catcher Circle, Morgantown, WV 26508

RE: Project P-2459, Relicense for Lake Lynn Hydroelectric Project. Date: February 10, 2020

1. Clear and complete procedures are needed for Trail maintenance and repair, for both routine and non-routine circumstances.
2. Clear and complete goals, guidelines and procedures are needed for the Sunset Beach marina and other marinas, to cover the operation, maintenance and planning for the future.
3. Boating is a primary recreational activity on the Lake, so there is a need for boating guidelines and limits consistent with the rules and regulations of the WV DNR. Boat guidelines and regulations, public dock maintenance, channel depth (dredging), parking lot criteria, etc., are all in need of explicit definition and guidance.
4. Periodic lake cleanup activities need to be continued by CLEAR and others with the support of Lake Lynn Hydro to remove plastic and structural debris floating in the lake and backwaters. The CLEAR pontoon boat should be useful for these activities.
5. Given that the Lake is limited in boating capacity during busy weekends, the limit has been reached for the number of marinas, boat slips and personal access area sites.
6. Swimming beach season should match the boating season of May 1st to October 31st
7. Regular maintenance of the swimming beach is needed to remove large debris (mainly tree segments) and to keep quality sand fresh and deep, as mostly children use it.
8. The swimming beach area needs to be extended toward the day-use boat docks to permit the designation of a dog beach, given that dogs interfere with the swimming experience of small children; this will also add space for additional picnic tables, that are already needed.
9. Monitoring and remediation of the on-going shoreline erosion are needed with components of these activities taking place on an annual basis.
10. Hillside slips, ground subsidence and washouts along the Trails must be prepared for, as they are not uncommon, so that monitoring, temporary work-arounds and repairs can take place in a timely manner.
11. Signage on WV 857 for the Cheat Lake Park & Trail needs to be maintained year round and the signage on the Trail maintained for public use year round.

12. Telephone(s) & email address(es) are needed on signs and on web page(s) for information and for emergencies.
13. Formal plans and procedures are needed that assigns responsibilities for the various types of emergency at the Dam, on the Trails, on the Lake, downstream in Pennsylvania, etc.
14. Brochures are needed for public distribution to include the history, overview of facilities, rules/regulations, contacts, etc.
15. The Internet Web-Site is needed with multiple pages to include the brochure information, lake level, operational updates, warnings, etc.
16. News Releases (quarterly & timely) are needed providing general information, trail closings, warnings and other items for current news.
17. For the Fishing Pier, there is a need to identify the opportunities, guidelines, operation and maintenance schedules.
18. A continued commitment to regional trail development should include interfacing with the proposed Sheepskin Trail in Pennsylvania, for a connection to other regional trails, to involve the opening of the trail level gate at the Lake Lynn Dam for daylight walking, hiking, jogging and bicycling.
19. For the Lake level protocol, there is a need to reiterate the water level ranges vs. months of the year on the Web-site and in the Brochure(s).
20. For the Recreation Season protocol, there is a need to reiterate the schedule of May 1 thru October 31, with the Trail being open and accessible year round. The “boat launch” in the Park is essential for summer use by kayak & canoe users and for winter use by fishing boat users.
21. There is a need for a description of the functions of (existing & new) recreation personnel, security personnel, park maintenance personnel; and guidelines are needed for the interaction of these people with public.
22. An Advisory Committee is needed with Quarterly meetings and quarterly reports, consisting of members from Monongalia County, WV-DNR, WVU, WV trail group, PA trail group, PA-DNR/DEP, plus 2 or 3 local environmental/conservation groups.
23. A study of the details of the history of Cheat Lake and the Lake Lynn Dam is needed to examine the role of the project there on the Mason-Dixon Line affecting both West Virginia and Pennsylvania, whether it is a private “for-profit” entity with public obligations or whether it is “for the public interest” to provide recreation and a public service (electricity). These considerations take on a greater significance when foreign ownership is under way.

The Cheat Lake Environment & Recreation Association (CLEAR) has been active to promote the public use of Cheat Lake for over 30 years. The officers are Duane Nichols, President, Mike Strager, Vice President, Ann Chester, Secretary, and Donna Weems, Treasurer.

CONTACT INFORMATION: Duane G. Nichols, 330 Dream Catcher Circle, Morgantown, WV 26508. Phone: 304-216-5535, Email Address: Duane330@aol.com

Submitted by Duane Nichols of CLEAR this 10th day of February 2020.

Document Content(s)

CLEAR.P-2459.Comments.2.10.20.PDF.....1-3



United States Department of the Interior



FISH AND WILDLIFE SERVICE

Chesapeake Bay Field Office
177 Admiral Cochrane Drive
Annapolis, Maryland 21401
<http://www.fws.gov/chesapeakebay>

February 13, 2020

Jody Smet
Director, FERC Licensing and Compliance
Lake Lynn Generation, LLC
2 Bethesda Metro Center, Suite 1330
Bethesda, MD 20814

Dear Ms. Smet:

The U.S. Fish and Wildlife Service (Service) has reviewed the October 17, 2019 Notice of Intent (NOI) to File for a License and attached Pre-Application Document (PAD) for the Lake Lynn Hydroelectric Project (FERC #2459), filed by Lake Lynn Generation, LLC (Applicant). The Applicant has elected to use the Traditional Licensing Process (TLP) for this re-licensing application of the Lake Lynn Hydroelectric Project on the Cheat River near Morgantown, West Virginia and in Fayette County, Pennsylvania. The current project license was issued on December, 1994 and will expire on November 30, 2024.

The Service attended the Joint Agency meeting and site visit on December 12, 2020 in Morgantown, WV, with the Applicant, state and local agencies, and interested residents. We offer the following recommendations on the PAD and our Study Requests.

The following comments are provided pursuant to the Endangered Species Act (ESA) of 1973 (87 Stat. 884, as amended: 16 U.S.C. 1531 *et seq.*), the Migratory Bird Treaty Act (16 U.S.C. 703-712; Ch. 128; July 13, 1918; 40 Stat.755), and the Fish and Wildlife Coordination Act (48 Stat. 401, as amended; 16 U.S.C. 661 *et seq.*).

The project is a 51.2 megawatt (MW) single development project operated since 1926. It consists of: 1) a 125-foot high by 1,000-foot long concrete gravity-type dam with a 624-foot long spillway controlled by 26 Tainter gates, each 17 feet high by 21 feet long; 2) a reservoir with a surface area of 1,729 acres and containing about 72,00 acre-feet of water at full pool elevation of 870 feet National Geodetic Vertical Datum; 3) a log boom and track racks at the intake facility; 4) eight 12-foot by 18-foot gated penstocks of reinforced concrete; 5) a 72-foot by 165-foot by 68-foot high brick powerhouse containing four identical Francis generating units with a total rated capacity of 51.2 MW; 6) dual 800-foot long 138-kilovolt transmission lines; and 7) appurtenant facilities. In 2018, the licensee completed a turbine replacement and upgrade of Unit 2.

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IN AMERICA** 

Pre-Application Document

Section 4.4 Current and Proposed Project Operations.

The Service supports the concerns of the West Virginia Division of Natural Resources (WV DNR) regarding the quality and timing of available yellow perch (*Perca flavescens*) and walleye (*Sander vitreus*) habitat within the reservoir lake, with proposed drawdown operations. Their assessment is that the lake elevation schedule during the month of March (between 863 and 870 feet) is likely insufficient to protect the spawning period and could dewater many fish eggs which would hamper recruitment to the populations. We would like to better understand how lake levels, downstream flow releases, and draw down schedules impact fish and wildlife resource needs so we can determine whether there are ways to minimize these impacts.

Section 5.2 Water Resources

The current License Article 405 (continuous monitoring of water quality) has proved very beneficial to the Licensee and resource agencies as this monitoring resulted in effective management of a low flow event during the summer/early fall of 2019. The Service believes this monitoring should be continued in any new license condition granted.

Section 5.2.3 Streamflow, Gage Data and Flow Statistics

This section of the PAD does not provide sufficient information for the Service to fully assess the seasonality, duration and magnitude of streamflows inflowing to the reservoir and dam, and the appropriate flow releases for the upcoming license period. The graphs in Appendix E (Flow Duration Curves) are not scaled appropriately to discern the patterns of what occurs in the 5 to 99 percent exceedance flows that we would need to examine. It would be helpful if the maximum flow event(s) and duration for the period record 2016 to 2019 is displayed separately from the rest of the graphs so as not to flatten all other flow interpretation.

The Service does not see the Project Instream Flow Study which is referenced in this section of the PAD, contained in Appendix E, in order to assess its applicability to current and future conditions. Without this information, we have many remaining questions, and would recommend an Instream Flow Study to help us determine appropriate flow releases in the new license articles.

The Service also believes a mussel survey should be conducted downstream in the tailwater area and downstream reaches to assess this valuable component of the aquatic community and potentially help inform our flow regime recommendations for the project.

Section 5.7.2 Rare, Threatened and Endangered Resources and Habitats

Table 5.16 of the PAD identifies four species federally listed under the ESA with the potential to occur in the project area, Indiana bat (*Myotis sodalis*), northern long-eared bat (*Myotis septentrionalis*), running buffalo clover (*Trifolium stoloniferum*), and the flat-spined three-toothed snail (*Triodopsis platysayoides*).

The federally threatened northern long-eared bat and the federally endangered Indiana bat are temperate, insectivorous migratory bats that hibernate in mines and caves during the winter and spend summers in wooded areas. There are no known northern long-eared bat maternity roosts

or hibernacula within the immediate vicinity of this site. Indiana bats are most likely to be in maternity roosts from May 1 to July 31.

Any project-related tree removal (e.g., for maintenance or recreational improvements) should involve consultation with the Service under Section 7 of the ESA, for the protection of the Indiana bat and northern long-eared bat.

The Service filed an August 27, 2019 Proposed Rule in the Federal Register for the de-listing of running buffalo clover (*Trifolium stoloniferum*) found at this web address: <https://www.govinfo.gov/content/pkg/FR-2019-08-27/pdf/2019-18413.pdf#page=1>. Its current status is still federally endangered as of this comment date. However, we believe this existing project with minor habitat modification of the project area will not likely adversely affect running buffalo clover, a terrestrial plant. We therefore, are not requesting surveys for the plant.

The flat-spined three-toothed snail is found within Monongalia County, West Virginia in close proximity to the project, but is not found within the project boundary. It is found in Coopers Rock State Forest, primarily on the rock bluffs. The area within the project boundary lacks the habitat requirements for the snail, therefore, this project will have “no effect” on the species.

Except for occasional transient individuals, no other federally proposed or listed threatened or endangered species are known to exist within the project area. Should project plans change or if additional information on the distribution of listed or proposed species becomes available, this determination may be reconsidered.

Study Requests

The Service has reviewed the evaluation of study proposals in the PAD by the Applicant for the Lake Lynn Hydroelectric project. We feel the proposed presence/absence surveys for rare, threatened, and endangered species may not be warranted, based upon our comments on the PAD. Aside from a field inventory of existing project recreation sites, a creel survey, and a cultural resources examination along the Cheat Lake Trail and Lake Lynn dam and powerhouse, the Applicant is not proposing any other studies. The only protection, mitigation, and environmental (PM&E) measures the Applicant proposes relate to recreation and land use. The Service believes the studies we and other resource agencies have identified are necessary to determine appropriate PM&E measures for the upcoming license period.

The Service requests the opportunity for further review and discussion as the study plans develop from a conceptual phase into more defined proposals.

Study Request 1: American Eel Monitoring Study

Goals and Objectives: To assess if American eel (*Anguilla rostrata*) is currently present below the Lake Lynn dam on the Cheat River and to help inform project operations and fishway prescription needs.

Resource Management Goals: Resource management goals include providing safe, timely, and

effective passage for fish species that migrate. Additional goals include providing passage to fish species which serve as glochidial hosts to freshwater mussels in the Cheat River, in order to prevent negative impacts to fish and mussel populations from the proposed project.

Public Interest: The requestor is a resource agency.

Existing Information: American eels have been documented in the Monongahela River within the past 10 years as far upstream as the Morgantown Lock and Dam, upstream of the confluence of the Cheat River with the Monongahela River. The Lake Lynn Hydropower Project is 3.7 miles upstream on the Cheat River from its confluence with the Monongahela River, therefore there is significant potential for current and future eel habitat usage within the Cheat River below Lake Lynn Hydroelectric project, and within the upstream miles of the Cheat River and tributaries. A preliminary sampling effort was conducted using the technique of environmental DNA (eDNA) detection technology as detailed in the “Project Report: June 2019 qPCR analysis of eDNA filter samples collected at Lake Lynn Dam, Target species: American eel (*Anguilla rostrata*),” dated December 4, 2019 by the Northeast Fishery Center’s Conservation Genetics Lab.

Study Methodology: The recommended study uses standardized protocols employed in published literature.

Level of Effort and Cost: The methodology employed by the pilot sampling project described in the December 4, 2019 Project Report has shown that this method is a lower cost technique. This new study would seek to improve on sampling conditions to greatly reduce the influence of above dam released water on the collected samples, and to include areas lower in the Cheat River before its confluence with the Monongahela River.

Study Request 2: Entrainment Study and Mortality Study

Goals and Objectives: The goal of the proposed study is to determine the number of fish that are either entrained or impinged by the project operation, and to examine methods to reduce this injury and mortality to fishes.

Resource Management Goals: The Service’s strategic conservation priorities include aquatic connectivity efforts that provide for passage, community protection, and enhanced recreational opportunities using the best available science and decision support tools.

Public Interest: The requestor is a resource agency.

Existing Information: The Service is not aware of previous entrainment studies conducted at the project. The biomonitoring data conducted under prior license conditions and filed in the FERC record can be used to assist in this analysis.

Nexus To Project Operation: Due to the large spacing of the current trash racks, certain sizes of fish are able to pass through the racks and become entrained through the turbines as they operate, causing fish mortality of an unknown quantity.

Study Methodology: The Applicant could use the Service's Turbine Blade Strike Analysis Model as one component of their assessment of current operational impact on entrainment and mortality of fishes. It can be found at <https://www.fws.gov/northeast/fisheries/fishpassageengineering.html>, along with other Service guidelines such as the Northeast Region Fish Passage Engineering Design Criteria, Fish Passage Design Criteria, and the Federal Interagency Nature-Like Fishway Passage Design Guidelines. Some literature analysis of mortality from Francis units of the diameter that exist at the project could also be utilized.

Level of Effort and Cost: These desktop analyses should be achievable within the one year timeframe.

Study Request 3: Upstream and Downstream Fish Passage Study

Goals and Objectives: The goals of the study are to assess movement of fish through the project area. It would identify likely routes fish would take under a variety of conditions, and assess the feasibility of incorporating alternative routes or additional fish protection measures.

Public Interest: The requestor is a resource agency.

Existing Information: The Service is not aware of previous studies examining passage options for the Lake Lynn Hydroelectric Project.

Nexus To Project Operation: The dam at the project blocks migration of fishes upstream and likely impedes safe, timely, and effective passage downstream. Downstream migration is currently only available through the dam gates, and through the project's powerhouse.

Study Methodology: The methodology would include a literature review of available options for upstream passage of eels, downstream passage bypass of the turbines, and other fish protection measures, in addition to iterative discussions with the Service's fishway engineers and other case studies.

Level of Effort and Cost: We anticipate that evaluating feasibility of passage would be fairly straightforward and not a lengthy process. Discussions with engineers would be necessary to properly assess the feasibility of bypass channels or fish protection structures.

We appreciate the opportunity to provide review and comment on the PAD and draft study proposals developed by the Applicant. We look forward to further discussions with you on how the Applicant can incorporate all the above listed studies. Finally, it would be helpful if the study proposals incorporated into the Draft Study Plan are as detailed as possible so that all parties

know exactly what is being agreed upon when the study plan is approved. If you have any questions regarding this matter, please contact Janet Norman of my staff at 410-573-4533 or Janet_Norman@fws.gov.

Sincerely,



for Genevieve LaRouche
Field Supervisor

cc: Lindy Nelson, Regional Environmental Officer, DOI OPEC

References

U.S. Fish and Wildlife Service. Endangered and Threatened Wildlife and Plants; Removing *Trifolium stoloniferum* (Running Buffalo Clover) From the Federal List of Endangered and Threatened Plants. 84 FR 44832, August 27, 2019. <https://www.govinfo.gov/content/pkg/FR-2019-08-27/pdf/2019-18413.pdf#page=1>

U.S. Fish and Wildlife Service. 2019. Fish Passage Engineering Design Criteria. USFWS, Northeast Region R5, Hadley, Massachusetts.



P.O. Box 282
Morgantown
West Virginia
26507-0282

February 9, 2020

Kimberly Bose, Secretary
Federal Energy Regulatory Commission
888 First Street, N.E.
Mailcode PJ- 12.1
Washington, DC 20426

Re: *Information Request for the Pre-Application Document for Relicensing of the Lake Lynn Hydroelectric Project (FERC No. P-2459-005)*

Dear Ms. Bose,

On behalf of the Monongahela River Trails Conservancy Ltd. (MRTC), I am submitting comments concerning the Relicensing of the Lake Lynn Hydroelectric Project (FERC No. P-2459-005). MRTC is a non-profit 501c3 organization founded in 1991 to develop and manage 40 miles of a 48-mile, tri-county rail-trail network in North Central West Virginia. The remaining 8 miles are managed by the city of Morgantown and Star City, with MRTC as an active partner. The Mon River, Caperton, Deckers Creek Trail network was established as a National Recreation Trail in 1996. MRTC shares with other regional stakeholders the vision of having the Cheat Lake Trail connect with the Sheepskin Trail in Pennsylvania and the Mon River Trail network in West Virginia and ultimately be part of a long-distance trail network that extends from Ohio through West Virginia and Pennsylvania to Washington D.C.

Cube Hydro, in now owning and managing the Cheat Lake Dam aka Lake Lynn Facilities, has continued to provide a wide mix of public recreational options to enjoy the area including hiking, biking, birding, paddling, fishing, swimming, and boating. MRTC supports these recreational activities and would like to see improvements to these recreational opportunities be included in this re-licensing process:

1. To restore the Cheat Lake Trail to its 4.5 mile length by repairing a major wash-out that occurred in the summer of 2019.
2. To plan and build a connection of the Cheat Lake Trail to the Sheepskin Trail at the north end of the 4.5 mile Cheat Lake Trail. This would connect the Cheat Lake Trail into a nearly 60 mile rail-trail network and connect many communities including Point Marion, PA, Morgantown, WV, and Fairmont, WV. This involves opening the gate at the north end of trail and working with other stakeholders to build new trail on Cube Hydro property to link into the Sheepskin Trail corridor. The Sheepskin Trail Corridor is owned by Fayette County, PA and is currently being engineered and built. The Sheepskin Trail is not yet built to Cheat Lake Trail but we anticipate it will be in the next 5 years.
3. To extend the Cheat Lake Trail south on Cube Hydro property and in doing so, open up more area to hiking, biking, birding and fishing.
4. To improve fish, bird, and pollinator habitat along the Cheat Lake Trail.

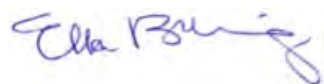
5. To improve recreational promotion of the Cheat Lake recreation area by hiring on-site recreation staff, by improving public communication (website, social media, phone), and by creating a process for holding events on the Cheat Lake Trail such as walks and runs.

Recreation on the river and neighboring rail-trails ties our communities in West Virginia and Pennsylvania together economically and socially. Bass tournament participants cross city, county and state lines. Both the Monongahela River and Cheat Rivers are regionally promoted water trails, and both paddlers and boaters move up and down the rivers to access different communities. Our rail-trails are used for commuting to work and school, trail tourism, and recreation. Our communities are dependent on each other to provide access, amenities, and tourism services in order to recruit new businesses and people to live in the region and entice visitors into extended stays and return visits.

The Cheat Lake Trail is one of a cluster of rail-trails in the region that provides recreation, a social gathering space, and a chance to connect with nature. It is widely used by local groups such as Hike it Baby, an outdoor meet-up group for families with young children, the Mountaineer Chapter of the National Audubon Society for public birding outings and the Christmas Bird Count, and cycling and running groups for exercise and outdoor recreation. Additionally, the Cheat Lake Trail is a part of a growing 1,500+ mile trail network connecting 50+ counties in four states (WV, OH, PA and NY). The Industrial Heartland Trails Coalition is a group comprised of more than 100 organizations, whose vision and mission it is to advance the trail network by closing gaps and connecting communities to bring health and wealth to communities through trail tourism and safe, equitable trail access by local residents.

Thank you for considering these recommendations from community stakeholders as part of the re-licensing process. Please feel free to contact me at 304-692-6782 or ella@montrails.org with any questions or if you need additional information.

Sincerely,
Monongahela River Trails Conservancy, Ltd.



Ella Belling, Executive Director

Document Content(s)

LakeLynnRelicensingComments.PDF.....1-2

Owen Mulkeen, Kingwood, WV.

On behalf of Friends of the Cheat, I'd like to start by thanking you for the opportunity to submit comments to be included as part of the Pre-Application Document for Relicensing of the Lake Lynn Hydroelectric Project.

For 25 years, Friends of the Cheat (FOC) and our River of Promise (ROP) partners have worked diligently to restore water quality to the Cheat River and Cheat Lake through reclamation of mine lands and the remediation of acid mine drainage (AMD). Irresponsible mining had left the Cheat and nine of its lower tributaries severely damaged by AMD. Walleye were extirpated by the late 1940s. Historic data collected by WV Division of Natural Resources (DNR) show mean lake pH levels less than 5 between the 1950s and early 1990s. A few pollution tolerant fish species including bullhead catfish and white suckers sought refuge in the lake's sheltered embayments. Massive pollution releases from the T&T mine into Muddy Creek in 1994 and 1995 dropped the pH of the lake to 4. As a result, the Cheat River was named one of America's Most Endangered Rivers in 1995 by the national organization American Rivers. These events catalyzed the formation of Friends of the Cheat and the River of Promise task force.

The efforts of FOC and our ROP partners, most notably the US Office of Surface Mining (OSM) and WV Department of Environmental Protection (DEP), have restored water quality to the Cheat River main stem and Cheat Lake. Over 200 land reclamation and water treatment projects have been implemented with millions of dollars of funds resulting in millions of pounds of AMD pollution removed from the Cheat's tributaries. The river and lake have not seen a pH depression below 6 since 2011 and the main stem has been removed from the state's list of impaired waters for pH impairment. The removal of iron (ferrous hydroxide or "yellow boy") as well as aluminum and manganese is visibly noticeable by reduced staining of rocks near the water's edge as well as armoring of fiberglass boat bottoms, which was a prevalent problem through the '90s. Improved water quality has fostered the rebound of Cheat Lake's fishery. DNR reports a dramatic recovery of species richness (27-34 species per year) including abundant sportfish such as largemouth and smallmouth bass, yellow perch, and walleye. Fishing tournaments now attract anglers from across the country which benefits the local economy. FOC is particularly excited about the walleye, which research shows are spawning up into the northern reaches of the Cheat Canyon.

With a drainage area of roughly 1400 square miles all flowing down to Cheat Lake, not only does the Cheat River constitute a critical piece of the region's ecosystem, it is also home to a large human population that lives, works and plays within the drainage. Friends of the Cheat recognizes that opportunities to recreate and connect with nature and the outdoors can not only improve the quality of life for a region's citizens, but it also leads to the engagement with and appreciation of our resources that can help prevent them from being squandered and abused. Cheat Lake and the surrounding area already Working to restore, preserve, and promote the outstanding natural qualities of the Cheat River Watershed since 1994

provides a plethora of outdoor activities; including paddling, boating, fishing, hiking, cycling, birding and more. Cube Hydro has already improved and created recreation

opportunities around Cheat Lake. FOC and key partners have identified several opportunities for additional improvement of recreational opportunities that we believe should be considered as part of this next re-licensing process.

FOC is aware and supportive of the proposal to create a public access to the upper reaches of Cheat Lake by improving an existing gated road in Snake Hill Wildlife Management Area along Buzzard Run. This would provide another trailhead for hikers to enter the WMA, fishermen to access this upper section of the lake usually only reachable by boat, and would provide an egress opportunity for whitewater paddlers running the Lower Cheat Canyon. Despite being located in close proximity to the Cheat Lake and Morgantown metropolitan areas, and providing a wonderfully scenic and exciting float through class 2 rapids in a deep canyon, this section is infrequently paddled. This is mostly due to the 4.5 mile paddle across Cheat Lake to the nearest existing public access at the Ices Ferry bridge, which can be a laborious task in short maneuverable whitewater craft that are well suited for the rapids upstream, not to mention the danger of encounters with fast moving power boats. The creation of a new public access by improving Buzzard Run Road would shorten this flatwater paddle to 1.9 miles and thereby make this whitewater trip much more attractive.

Another opportunity for recreation enhancement in the Cheat Lake area would be to improve access and connectivity of both ends of the existing Cheat Lake Trail. Currently the trail follows the eastern shoreline of Cheat Lake for 4.4 miles and provides opportunities for walking, running, biking and fishing. The north end of the trail can be accessed via a trailhead and steep flight of stairs off of Morgan Run Road. The south end of the trail dead ends abruptly. With the future route of the Sheepskin Trail passing by just to the north, and local businesses, residential neighborhoods, and Coopers Rock State Forest to the south, there lies an opportunity to work towards increased connectivity of these trail system. By doing so, we can enhance the value of these isolated trail sections in such a way that their value becomes greater than the sum of their parts. We recommend that possibilities to extend the southern end of the Cheat Lake Trail, around the peninsula where it currently terminates, to a newly developed trailhead be thoroughly investigated, as well as the streamlining of the northern terminus to avoid the steep stairs and improve the connectivity to the future route of the Sheepskin Trail.

Thank you for this opportunity to comment on the upcoming relicensing of the Lake Lynn Hydroelectric Project.

Sincerely,

Owen Mulkeen

Associate Director

Friends of the Cheat

Document Content(s)

93813.TXT.....1-2

Dave Harshbarger, Morgantown, WV.

Please see the Cheat Lake Trail restored at the wash-out and re-opened to the public ASAP from the storm damage in summer of 2019.

A commitment to connecting to the Sheepskin Trail once the Sheepskin Trail is developed to this area.

And an entrance for cyclists and walkers on the northern end with a replacement of the gate and fence to a gate with a bike/ped pass-thru on the Cheat Lake Trail.

Document Content(s)

94931.TXT.....1-1

GARY V MARLIN, WESTOVER, WV.

January 9, 2020

I am a member of the Morgantown community and would like to submit some suggestions to be considered for Project # P-2459. I would like to see the slip on the Cheat Lake Trail repaired and to see a passage way from the Trail through the dam facility so that there will be a connection to the Sheepskin Trail when it comes by the dam.

Respectfully,

Gary Marlin

Document Content(s)

93890.TXT.....1-1

Foster, Joyce

Subject: FW: [EXTERNAL] Lake Lynn Relicensing - Draft Mussel Survey Plan
Location: Microsoft Teams Meeting

Start: Wed 5/20/2020 11:00 AM
End: Wed 5/20/2020 12:00 PM
Show Time As: Tentative

Recurrence: (none)

Meeting Status: Not yet responded

Organizer: Jody Smet

-----Original Appointment-----

From: Jody Smet <Jody.Smet@eaglecreekre.com>

Sent: Monday, May 18, 2020 11:04 PM

To: Jody Smet; Janet.Norman@fws.gov; Jacob Harrell; Heather Smiles; Foster, Joyce

Cc: Robert Flickner; Dale Short

Subject: [EXTERNAL] Lake Lynn Relicensing - Draft Mussel Survey Plan

When: Wednesday, May 20, 2020 11:00 AM-12:00 PM (UTC-05:00) Eastern Time (US & Canada).

Where: Microsoft Teams Meeting

This is an **EXTERNAL** email. Do not click links or open attachments unless you validate the sender and know the content is safe.

All,

Based on the responses received to the Doodle poll, I would also like to schedule a conference call at 11 a.m. on Wednesday, May 20, to discuss the attached draft survey plan for the proposed Lake Lynn Project mussel survey. We anticipate that this call will last no more than an hour. Please join by phone, or MS Teams link, below. Please forward this invitation to others, as appropriate.

Thank you.

[Join Microsoft Teams Meeting](#)

+1 920-393-6252 United States, Green Bay (Toll)

Conference ID: 578 406 16#

[Local numbers](#) | [Reset PIN](#) | [Learn more about Teams](#) | [Meeting options](#)

2020 MUSSEL SURVEY PLAN
CHEAT RIVER – LAKE LYNN HYDROELECTRIC PROJECT
MONONGALIA COUNTY, WEST VIRGINIA AND FAYETTE COUNTY, PENNSYLVANIA

Project Justification

Lake Lynn Generation LLC (Lake Lynn) is relicensing the Lake Lynn Hydroelectric Project (FERC No. P-2459) (Project) with the Federal Energy Regulatory Commission (FERC). The current FERC license was issued in December 1994 and will expire on November 30, 2024. The Project is located on the Cheat River near Morgantown, West Virginia in Monongalia County, West Virginia and Fayette County, Pennsylvania (**Figure 1**). Lake Lynn filed a Notice of Intent (NOI) and Pre-Application Document (PAD) with FERC on August 29, 2019 and held a Joint Meeting and Site Visit in December 2019. Following the Joint Meeting and Site Visit, resource agencies and other stakeholders were afforded the opportunity to comment on the PAD and to request resource studies that they deemed were needed to evaluate Project impacts on natural, cultural and recreational resources. The U.S. Fish and Wildlife Service (USFWS) reviewed NOI and PAD and requested that a mussel survey be conducted in the tailwater area of the Project and downstream to assess this component of the aquatic community. The objective of this mussel survey is to survey within the Project boundary downstream of the Project dam to document mussel habitat (location, depth, and substrate) and the occurrence density, distribution, and relative abundance of any mussel species present.

The Project is a 51.2 megawatt (MW) single dam development operated since 1926. It consists of:

- a 125-foot high by 1,000-foot long concrete gravity-type dam with a 624-foot long spillway controlled by 26 Tainter gates, each 17 feet high by 21 feet long;
- a reservoir with a surface area of 1,729 acres and containing about 72,00 acre-feet of water at full pool elevation of 870 feet National Geodetic Vertical Datum;
- a log boom and track racks at the intake facility;
- eight 12-foot by 18-foot gated penstocks of reinforced concrete;
- a 72-foot by 165-foot by 68-foot high brick powerhouse containing four identical Francis generating units with a total rated capacity of 51.2 MW;
- dual 800-foot long 13 8-kilovolt transmission lines; and
- appurtenant facilities.

Survey Plan

Survey efforts will be coordinated and led by a West Virginia Approved Malacologist (Lindsey Jakovljevic). Ms. Jakovljevic will provide survey oversight and guidance on execution of the survey and will be the lead taxonomist in the field for the duration of the work. The mussel survey will follow West Virginia Protocol guidance for effort required for Group 3 streams (West Virginia Division of Natural Resources [WVDNR], 2020). The survey area includes the Project boundary that extends approximately 200 meters downstream of the dam and a downstream buffer (DSB) limit of 25 meters. TRC has preliminarily defined the survey area as depicted on the attached **Figure 2**.

TRC will perform a transect survey to evaluate for mussel presence/absence within the survey area downstream of the dam. Seven transects will be placed in the Project boundary and two transects will be placed in the DSB (**Figure 2**). Each transect will span the width of the river (approximately 200 meters). Transects will be set perpendicular to flow and marked into 10-meter segments; each segment constitutes a separate sample. Transects will be visually searched in a 1-meter wide swath along the line. If no mussels are observed in two adjacent transects, with at least one of the transects containing apparent suitable mussel habitat, then a Qualitative timed search will be employed between the two transects in the area of suitable mussel habitat, for a minimum of 10-minutes. If any live and/or fresh dead mussels are found between the two transects, then an additional transect will be placed bank to bank in suitable mussel

2020 MUSSEL SURVEY PLAN
CHEAT RIVER – LAKE LYNN HYDROELECTRIC PROJECT
MONONGALIA COUNTY, WEST VIRGINIA AND FAYETTE COUNTY, PENNSYLVANIA

habitat between the two transects. All search effort will meet minimum Protocol requirements which includes a minimum effort of 1.0 min/m² search time in areas of heterogeneous substrate and 0.5 min/m² search time in areas of homogenous substrate.

This survey will consist of visually and tactilely searching the survey area for presence of mussels and to determine limits of any mussel concentrations. Snorkeling and surface supplied air diving will be used to visually and tactilely search for mussels at the substrate surface; moving cobble and woody debris; hand sweeping away silt, sand and/or small detritus; and disturbing/probing the upper 5cm (2in) of substrate in order to ensure recovery of buried mussels. Data will be collected separately for Project boundary and the DSB.

If any federally listed species are observed during survey or efforts, efforts will stop and WVDNR and USFWS will be immediately contacted.

Data Collection

Photographs will be taken of the survey area and a minimum of one representative photo of each mussel species will be taken for verification purposes. Live mussels will be kept in stream water in mesh collection bags and out of water time will be kept to one minute or less during processing. At a minimum, data to be recorded includes: time for each 10 meter sample; substrate composition of each sample (visual percentage based on Wentworth scale; water depth (centimeters); mussel species, individual size (length, height, and width to the nearest millimeter), sex (where applicable), and age (external annuli count); mussel shells (classified as fresh dead, weathered dead, or relic shell); where applicable, catch per unit effort (CPUE) as the number live per hour and surface density as the number live per 10 square meters; Global Positioning System (GPS) coordinates of the survey area, mussel aggregation limits; and other notable features such as land use and general observations about the stream.

Reporting

A report documenting the results of the mussel survey will be prepared upon completion of field work. Reports will follow technical reporting guidelines and will include an introduction, methods, results, and discussion with associated tables, figures, and appendices. Maps showing the survey area, mussel distribution, and habitat conditions will also be included, along with photo documentation of the survey area and mussel species encountered. Reporting will follow Protocol recommendations.

References

West Virginia Division of Natural Resources (WVDNR). 2020. West Virginia Mussel Survey Protocols.
West Virginia Division of Natural Resources. unpublished. 25pp + app.

Mussel Survey Scope of Work Summary Sheet

Form Date **3/16/2020**

Project Title: Mussel Survey for the Lake Lynn Hydroelectric Project (FERC #2459), Cheat River, Monongalia County, West Virginia and Fayette County, Pennsylvania

Project Company: Lake Lynn Generation, LLC Date Submitted: _____
 Mussel Contractor: TRC Environmental Corporation, Inc. Date Revised: _____
 Lead Malacologist: Lindsey Jakovljevic
 Project Contractor: _____
 Collectors: if applicable Lindsey Jakovljevic, Thomas Radford, Tony Tredway

County: Monongalia, WV Fayette, PA Group (Circle One): 1 2 **3** 4
 Stream: Cheat River Location Description: _____
 Navigational Pool if Applicable: _____
 If Group 1 or 2, Receiving Stream: _____

Project Type: FERC Re-licensing; Hydroelectric project (corresponds to Table 3, WV Mussel Survey Protocol)

ADI Length:	<u>200 m</u>	ADI Width:	<u>200 m</u>	Salvage area (m ²):	_____
US Buffer Length:	<u>NA</u>	US Buffer Width:	<u>NA</u>	USS Buffer Length:	_____
DS Buffer Length:	<u>25 m</u>	DS Buffer Width:	<u>100 m</u>	DSS Buffer Length:	_____
Lateral Buffer Length:	<u>BB</u>	Lateral Buffer Width:	<u>NA</u>	Lateral S Buffer Width:	_____

Phase 1 Survey Method Transect Cells Other
 # Transects/Length (m): Cell Size (mxm): Cell Search Effort (Min/m²)
6/200 m ADI: _____ 1 min/m²
NA USB: _____ 1 min/m²
2/200 m DSB: _____ 1 min/m²
25 m Spacing Between Transects (M)

Coordinates (Decimal Degrees, NAD83)
 Upstream End US Buffer: Long. NA Lat. NA
 Upstream End ADI: Long. -79.8572 Lat. 39.719375
 ADI Center: Long. -79.8578 Lat. 39.720092
 Downstream End ADI: Long. -79.8581 Lat. 39.720741
 Downstream End DS Buffer: Long. -79.8586 Lat. 39.721185
 RELOCATION AREA: Long. NA Lat. NA

Map: Show ADI, USB, DSB and survey layout with outline of proposed impact.

Did you provide? Justification must be provided in scope of work

Addressed Alternative Methods Yes Provide Description in Scope
 Addressed Alternative Sites Yes Provide Description in Scope

Phase 2 requested?: Yes No

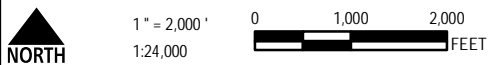
Request for Relocation: Yes No

Method:
 (check one) Cell Size (mxm): _____
 Moving Transect: _____
 Other: _____

Multiple passes are to be made through the area until less than 5 % of the number collected on the first two passes combined are recovered



BASE MAP FROM USGS TOPOGRAPHIC MAP WEB SERVICE, QUAD: LAKE LYNN



1382 West Ninth Street
Suite 400
Cleveland, OH 44113
Phone: 216-344-3072

TRC - GIS

PROJECT:
**LAKE LYNN HYDROELECTRIC PROJECT
MONONGALIA COUNTY, WEST VIRGINIA**

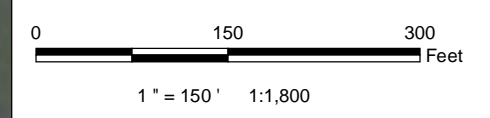
TITLE:
SITE LOCATION MAP



FIGURE 1



- Project Boundary
- Downstream Survey Buffer
- Transect



**LAKE LYNN HYDROELECTRIC PROJECT
MONONGALIA COUNTY, WEST VIRGINIA**

**FIGURE 2
SURVEY AREA LIMITS**



1382 West Ninth Street
Suite 400
Cleveland, OH 44113
Phone: 216-344-3072

From: [Jody Smet](#)
To: [Smiles, Heather A](#)
Subject: [EXTERNAL] RE: Lake Lynn Relicensing - Draft Mussel Survey Plan
Date: Tuesday, May 19, 2020 8:16:18 AM

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Great, thanks Heather.

Jody J. Smet, AICP
Vice President Regulatory Affairs
Eagle Creek Renewable Energy

Please note my new email address – jody.smet@eaglecreekre.com

-----Original Appointment-----

From: Smiles, Heather A <hsmiles@pa.gov>
Sent: Tuesday, May 19, 2020 8:15 AM
To: Jody Smet
Subject: Accepted: Lake Lynn Relicensing - Draft Mussel Survey Plan
When: Wednesday, May 20, 2020 11:00 AM-12:00 PM (UTC-05:00) Eastern Time (US & Canada).
Where: Microsoft Teams Meeting

Jody,

Our Malacologist, Nevin Welte, will join the meeting. For your records, below is his information.

Thanks,

Heather A. Smiles | Chief, Division of Environmental Services
PA Fish and Boat Commission
595 East Rolling Ridge Drive | Bellefonte, PA 16823
Phone: 814.359.5194
Email: hsmiles@pa.gov
www.fishandboat.com

Nevin Welte
Malacologist/Nongame Biologist, Natural Diversity Section
Pennsylvania Fish & Boat Commission
Centre Region Office
595 E. Rolling Ridge Dr.
Bellefonte, PA 16823
c-nwelte@pa.gov

412-586-2334

From: [Jody Smet](#)
To: [Norman, Janet](#); [Harrell, Jacob D](#); [Heather Smiles](#); c-nwelte@pa.gov
Cc: [Dale Short](#); [Robert Flickner](#); [Michael Scarzello](#); [Matthew Nini](#); [Foster, Joyce](#)
Subject: [EXTERNAL] Lake Lynn Relicensing – Revised Draft Mussel Survey Plan
Date: Thursday, July 9, 2020 11:11:10 AM
Attachments: [image001.png](#)
[Lake Lynn Mussel Survey Plan_REV 1.pdf](#)

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All,

As follow-up to our call on May 20 discussing the draft Lake Lynn Mussel Survey Plan and review of the 1993 Lake Lynn Instream Flow Study Report, we have attached a revised draft Lake Lynn Mussel Survey Plan for your review. Please provide your comments on the revised Survey Plan by July 17.

Thank you,

Jody J. Smet, AICP | Vice President Regulatory Affairs
Eagle Creek Renewable Energy

Desk: 804 739 0654

Mobile: 804 382 1764

Email: jody.smet@eaglecreekre.com



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2020 MUSSEL SURVEY PLAN (JUNE 2020)
CHEAT RIVER – LAKE LYNN HYDROELECTRIC PROJECT
MONONGALIA COUNTY, WEST VIRGINIA AND FAYETTE COUNTY, PENNSYLVANIA

Survey Background and Justification

Lake Lynn Generation LLC (Lake Lynn) is relicensing the Lake Lynn Hydroelectric Project (FERC No. P-2459) (Project) with the Federal Energy Regulatory Commission (FERC). The current FERC license was issued in December 1994 and will expire on November 30, 2024. The Project is located on the Cheat River near Morgantown, West Virginia in Monongalia County, West Virginia and Fayette County, Pennsylvania (**Figure 1**). Lake Lynn filed a Notice of Intent (NOI) and Pre-Application Document (PAD) with FERC on August 29, 2019 and held a Joint Meeting and Site Visit in December 2019. Following the Joint Meeting and Site Visit, resource agencies and other stakeholders were afforded the opportunity to comment on the PAD and to request resource studies that they deemed were needed to evaluate Project impacts on natural, cultural and recreational resources. The U.S. Fish and Wildlife Service (USFWS) reviewed the NOI and PAD and requested that a mussel survey be conducted downstream of the dam.

By email dated May 18, 2020, Lake Lynn provided a draft Mussel Survey Plan to the USFWS, Pennsylvania Fish and Boat Commission (PBFC), and West Virginia Division of Natural Resources (WVDNR). Lake Lynn convened a meeting via MS Teams and conference call on May 20, 2020 to discuss the draft Mussel Survey Plan. The draft Mussel Survey Plan proposed following West Virginia Protocol guidance for effort required for Group 3 streams (WVDNR, 2020) and defining the survey area as the area inside the Project boundary and a downstream buffer (DSB) limit of 25 meters beyond the Project boundary. The Resource Agencies expressed concerns about limiting the survey area and requested that the survey area extend 1 mile downstream of the Project since they considered this project as a scoping project without a full hydraulic study. As an action item, Lake Lynn agreed to share the 1993 Project Instream Flow Study to provide additional information about the Project's operational influence downstream of the dam and the geographic scope of the survey.

Lake Lynn distributed the 1993 Project Instream Flow Study to the Resource Agencies on June 2, 2020. The 1993 Project Instream Flow Study reported that water level fluctuations due to Project operation are greatest in the segment of river extending 1.02 mile below the Project dam. The 1993 Project Instream Flow Study also reported that the water depth in the Cheat River segment from the 1.02-mile point below the Project dam to the confluence with the Monongahela is dependent upon and maintained by Pool 7 water elevations during Project shutdown.

The draft Mussel Survey Plan has been revised based on additional information and comments received. The objective of this mussel survey is to conduct a habitat assessment survey to delineate any mussel beds/habitat from the Project dam to one mile downstream to document mussel habitat (location, depth, and substrate) and the occurrence density, distribution, and relative abundance of any mussel species present.

The Project is a 51.2 megawatt (MW) single development project operated since 1926. It consists of:

- a 125-foot high by 1,000-foot long concrete gravity-type dam with a 624-foot long spillway controlled by 26 Tainter gates, each 17 feet high by 21 feet long;
- a reservoir with a surface area of 1,729 acres and containing about 72,00 acre-feet of water at full pool elevation of 870 feet National Geodetic Vertical Datum;
- a log boom and track racks at the intake facility;
- eight 12-foot by 18-foot gated penstocks of reinforced concrete;



2020 MUSSEL SURVEY PLAN (JUNE 2020)
CHEAT RIVER – LAKE LYNN HYDROELECTRIC PROJECT
MONONGALIA COUNTY, WEST VIRGINIA AND FAYETTE COUNTY, PENNSYLVANIA

- a 72-foot by 165-foot by 68-foot high brick powerhouse containing four identical Francis generating units with a total rated capacity of 51.2 MW;
- dual 800-foot long 13 8-kilovolt transmission lines; and
- appurtenant facilities.

Survey Plan

Habitat assessment survey efforts will be coordinated and led by a West Virginia and Pennsylvania approved malacologist. The qualified malacologist will provide survey oversight and guidance on execution of the survey and will be the lead taxonomist in the field for the duration of the work. The habitat assessment survey will follow modified West Virginia Protocol guidance (West Virginia Division of Natural Resources [WVDNR], 2020) with additional guidance from the American Fisheries Society Monograph 8 (Strayer and Smith, 2003). The survey area includes the Project boundary that extends approximately 200 meters downstream of the Project dam and will continue one mile downstream. TRC has preliminarily defined the survey area as depicted on the attached **Figure 2**.

TRC will perform a habitat assessment survey to determine areas of suitable mussel habitat and evaluate for mussel presence/absence within the survey area downstream of the dam. The habitat assessment will start one mile downstream of the Project boundary and move upstream to the Project dam (**Figure 2**). The banks will be searched for shell material and the substrate will be evaluated to identify suitable mussel habitat (stable burrowable substrates including sand, gravel, cobble, etc.). Once suitable mussel habitat is located, a qualitative timed search will be employed for a minimum of 10-minutes to search for live mussels and shell material. If no suitable habitat is found within a 100-meter stretch of the survey area, then a qualitative search will be performed in the best possible substrate at once least every 100 meters. If live mussels are collected, the area will be searched until the limits of the mussel bed are delineated.

This survey will consist of visually and tactilely searching the survey area for presence of mussels and to determine limits of any mussel concentrations. Snorkeling and surface supplied air diving will be used to visually and tactilely search for mussels at the substrate surface; moving cobble and woody debris; hand sweeping away silt, sand and/or small detritus; and disturbing/probing the upper 5cm (2in) of substrate in order to ensure recovery of buried mussels. Data will be collected separately for each qualitative search.

If any federally listed species are observed during survey or efforts, efforts will stop and PBFC, WVDNR, and USFWS will be immediately contacted.

Data Collection

Photographs will be taken of the survey area and a minimum of one representative photo of each mussel species will be taken for verification purposes. Live mussels will be kept in stream water in mesh collection bags and out of water time will be kept to one minute or less during processing. At a minimum, data to be recorded includes: substrate composition of each sample (visual percentage based on Wentworth scale; water depth (meters); mussel species, individual size (length, height, and width to the nearest millimeter), sex (where applicable), and age (external annuli count); mussel shells (classified as fresh dead, weathered dead, or relic shell); where applicable; Global Positioning System (GPS) coordinates of the survey area, mussel aggregation limits; and other notable features such as land use and general observations about the stream.



2020 MUSSEL SURVEY PLAN (JUNE 2020)
CHEAT RIVER – LAKE LYNN HYDROELECTRIC PROJECT
MONONGALIA COUNTY, WEST VIRGINIA AND FAYETTE COUNTY, PENNSYLVANIA

Reporting

A report documenting the results of the habitat assessment survey will be prepared upon completion of field work. Reports will follow technical reporting guidelines and will include an introduction, methods, results, and discussion with associated tables, figures, and appendices. Maps showing the survey area, mussel distribution, and habitat conditions will also be included, along with photo documentation of the survey area and mussel species encountered. Reporting will follow Protocol recommendations.

References

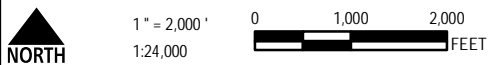
Strayer, D.L., and D.R. Smith. 2003. A guide to sampling freshwater mussel populations. American Fisheries Society, Monograph 8, Bethesda, Maryland.

West Virginia Division of Natural Resources (WVDNR). 2020. West Virginia Mussel Survey Protocols. West Virginia Division of Natural Resources. unpublished. 25pp + app.

DRAFT



BASE MAP FROM USGS TOPOGRAPHIC MAP WEB SERVICE, QUAD: LAKE LYNN



1382 West Ninth Street
Suite 400
Cleveland, OH 44113
Phone: 216-344-3072

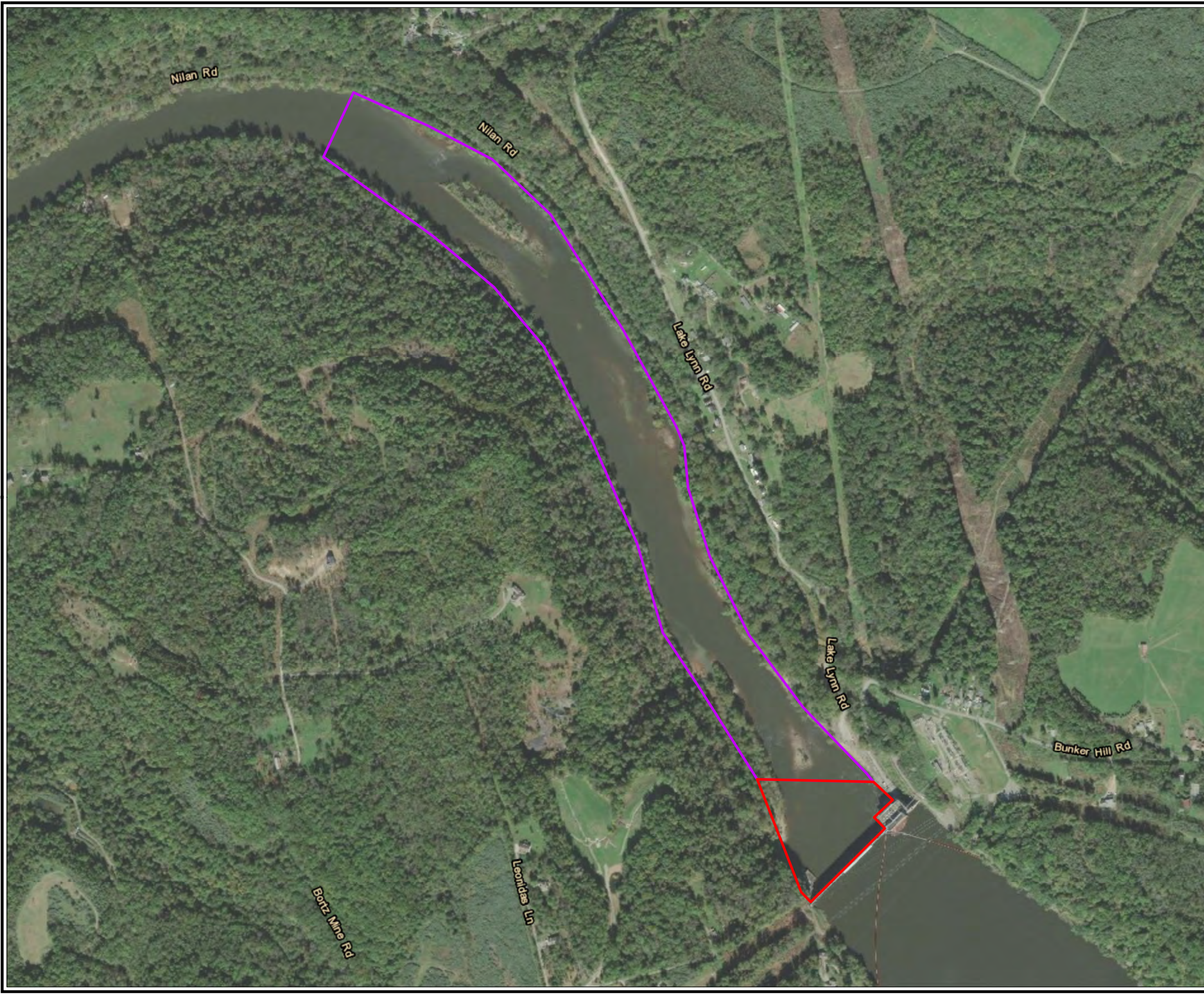
TRC - GIS

PROJECT:
**LAKE LYNN HYDROELECTRIC PROJECT
MONONGALIA COUNTY, WEST VIRGINIA**

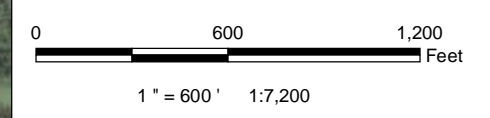
TITLE:
SITE LOCATION MAP



FIGURE 1



- Project Boundary
- Downstream Survey Buffer



**LAKE LYNN HYDROELECTRIC PROJECT
MONONGALIA COUNTY, WEST VIRGINIA**

**FIGURE 2
SURVEY AREA LIMITS**



1382 West Ninth Street
Suite 400
Cleveland, OH 44113
Phone: 216-344-3072

From: [Jody Smet](#)
To: [Foster, Joyce](#)
Subject: [EXTERNAL] FW: Lake Lynn Mussel Survey Plan Comments
Date: Thursday, July 30, 2020 9:39:25 AM
Attachments: [Lake Lynn Mussel Survey Plan Revision Comments.pdf](#)

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FYI, I haven't seen any others.

Jody J. Smet, AICP
Vice President Regulatory Affairs
Eagle Creek Renewable Energy

Please note my new email address – jody.smet@eaglecreekre.com

From: Harrell, Jacob D <Jacob.D.Harrell@wv.gov>
Sent: Tuesday, July 21, 2020 2:37 PM
To: Jody Smet <Jody.Smet@eaglecreekre.com>
Subject: Lake Lynn Mussel Survey Plan Comments

Jody,

Please see the attached comments concerning the Lake Lynn Mussel Survey Plan. Comments by our Diversity section are included within.

Thanks,

Jacob Harrell

Coordination Unit
WVDNR – Wildlife Resources Section
1110 Railroad Street
Farmington, WV 26571
(304)704-9328
Jacob.D.Harrell@wv.gov



**DIVISION OF NATURAL RESOURCES
Wildlife Resources Section
District I
PO Box 99, 1110 Railroad Street
Farmington, West Virginia 26571-0099
Telephone 304 825-6787
Fax 304 825-6270
TDD 800-354-6087**

**Stephen S. McDaniel
Director**

July 20, 2020

Jody Smet, AICP
Vice President Regulatory Affairs
Eagle Creek Renewable Energy
2 Bethesda Metro Center, Suite 1330
Bethesda, MD 20814

**RE: Lake Lynn Hydroelectric Project, FERC no. 2459; Lake Lynn Mussel Survey Plan
Revision**

Dear Ms. Smet:

Thank you for allowing the West Virginia Division of Natural Resources, Wildlife Resources Section (WRS) the opportunity to review the Mussel Survey Plan as part of the relicensing process for the Lake Lynn Hydroelectric Project, FERC no. 2459. The WRS has reviewed the plan and offers the following comments for your consideration.

As provided, it is unclear if the intent of the surveys is for scoping or to identify potential impacts related to the project. Such intent should be made clear on the first page of the mussel survey plan. If the intent is to conduct a reconnaissance scoping survey to identify what mussels, if any, may be within the project impact area, then the methodology as provided would be sufficient. However, if the intent of the survey is to identify potential impacts that may occur due to project operation, then the methodology provided is insufficient and would fail to meet the standards of the 2020 West Virginia Mussel Survey Protocols which would require additional work (i.e. transect surveys).

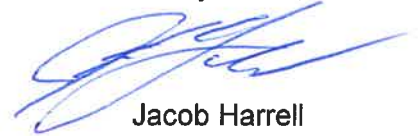
Within West Virginia, the Cheat River is a Group 3 stream (large river not expected to have federally threatened and endangered mussel species). Transect surveys on Group 3 streams must include a minimum of 500 linear meters of surveyed area and contain a minimum of 5 transects (up to a maximum of 10 transectes).

With further regard to the methodology, the handling of mussels should be addressed within the survey plan. Mussels that are bagged and held for identification need to be hand placed back into their respective habitat where they were collected.

A summary protocol form, see attached, must also be completed and attached to the mussel survey plan. The mussel survey plan must also be approved by the Diversity Section of the West Virginia Division of Natural Resources and a scientific collection permit would need to be obtained to survey the sections of the survey within West Virginia.

Thank you again for the opportunity to provide comments regarding the mussel survey plan. If you have any questions or comments concerning the mussel survey plan please contact me at (304)989-0208 or by email at jacob.d.harrell@wv.gov.

Sincerely Yours,



Jacob Harrell
Hydropower Coordination Biologist

Mussel Survey Scope of Work Summary Sheet

Form Date: 3/16/2020

Project Title:

Project Company: _____ Date Submitted: _____
 Mussel Contractor: _____ Date Revised: _____
 Lead Malacologist: _____
 Project Contractor: _____
 Collectors: if applicable _____

County: _____ Group (Circle One): 1 2 3 4
 Stream: _____ Location Description:
 Navigational Pool if Applicable: _____
 If Group 1 or 2, Receiving Stream: _____

Project Type: _____ (corresponds to Table 3, WV Mussel Survey Protocol)

ADI Length: _____ ADI Width: _____ Salvage area (m²): _____
 US Buffer Length: _____ US Buffer Width: _____ USS Buffer Length: _____
 DS Buffer Length: _____ DS Buffer Width: _____ DSS Buffer Length: _____
 Lateral Buffer Length: _____ Lateral Buffer Width: _____ Lateral S Buffer Width: _____

Phase 1 Survey Method: Transect Cells Other _____
 # Transects/Length (m): _____ Cell Size (mxm): _____ Cell Search Effort (Min/m²) _____
 _____ ADI: _____
 _____ USB: _____
 _____ DSB: _____
 _____ Spacing Between Transects (M)

Coordinates (Decimal Degrees, NAD83)
 Upstream End US Buffer: Long. _____ Lat. _____
 Upstream End ADI: Long. _____ Lat. _____
 ADI Center: Long. _____ Lat. _____
 Downstream End ADI: Long. _____ Lat. _____
 Downstream End DS Buffer: Long. _____ Lat. _____
 RELOCATION AREA: Long. _____ Lat. _____

Map: Show ADI, USB, DSB and survey layout with outline of proposed impact.

Did you provide? Justification must be provided in scope of work

Addressed Alternative Methods Yes Provide Description in Scope
 Addressed Alternative Sites Yes Provide Description in Scope

Phase 2 requested?: Yes No

Request for Relocation: Yes No

Method:
 (check Cell Size (mxm): _____
 one) Moving Transect: _____
 Other: _____

Multiple passes are to be made through the area until less than 5 % of the number collected on the first two passes combined are recovered on the

From: [Jody Smet](#)
To: [Norman, Janet](#); [Harrell, Jacob D](#); [Heather Smiles](#); c-nwelte@pa.gov
Cc: [Dale Short](#); [Robert Flickner](#); [Michael Scarzello](#); [Matthew Nini](#); [Foster, Joyce](#)
Subject: [EXTERNAL] RE: Lake Lynn Relicensing – Revised Draft Mussel Survey Plan
Date: Thursday, July 30, 2020 9:41:00 AM
Attachments: [image001.png](#)

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All,

Comments were due on the revised mussel survey plan on 7/17. We received comments from WVDNR. We are working to finalize this study plan so that we are prepared to be in the field in late August / early September.

Thank you,

Jody J. Smet, AICP
Vice President Regulatory Affairs
Eagle Creek Renewable Energy

Please note my new email address – jody.smet@eaglecreekre.com

From: Jody Smet
Sent: Thursday, July 9, 2020 11:10 AM
To: Norman, Janet <janet_norman@fws.gov>; Harrell, Jacob D <Jacob.D.Harrell@wv.gov>; Heather Smiles <hsmiles@pa.gov>; c-nwelte@pa.gov
Cc: Dale Short <Dale.Short@eaglecreekre.com>; Robert Flickner <Robert.Flickner@eaglecreekre.com>; Michael Scarzello <Michael.Scarzello@eaglecreekre.com>; Matthew Nini <Matthew.Nini@eaglecreekre.com>; Foster, Joyce <JFoster@trccompanies.com>
Subject: Lake Lynn Relicensing – Revised Draft Mussel Survey Plan

All,

As follow-up to our call on May 20 discussing the draft Lake Lynn Mussel Survey Plan and review of the 1993 Lake Lynn Instream Flow Study Report, we have attached a revised draft Lake Lynn Mussel Survey Plan for your review. Please provide your comments on the revised Survey Plan by July 17.

Thank you,

Jody J. Smet, AICP | Vice President Regulatory Affairs
Eagle Creek Renewable Energy

Desk: 804 739 0654

Mobile: 804 382 1764

Email: jody.smet@eaglecreekre.com



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From: [Jody Smet](#)
To: [Foster, Joyce](#)
Subject: FW: [External] RE: Lake Lynn Relicensing – Revised Draft Mussel Survey Plan - PFBC Comments
Date: Monday, August 3, 2020 12:29:10 PM
Attachments: [image001.png](#)

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Jody J. Smet, AICP
Vice President Regulatory Affairs
Eagle Creek Renewable Energy

Please note my new email address – jody.smet@eaglecreekre.com

From: Smiles, Heather A <hsmiles@pa.gov>
Sent: Monday, August 3, 2020 11:35 AM
To: Jody Smet <Jody.Smet@eaglecreekre.com>
Subject: RE: [External] RE: Lake Lynn Relicensing – Revised Draft Mussel Survey Plan - PFBC Comments

Dear Jody,

Thanks for the opportunity to review the proposed study plan. While PFBC agrees with the proposed survey methodologies, we disagree with the limits of the study area being restricted to 1.02 miles downstream of the dam.

Per the study plan, the study area was restricted based upon the area of fluctuating water elevations, but wetted width of a river is but one component of regulated rivers that may have an adverse effect on freshwater mussel communities. Discharge water temperature is another critical component to the survival and persistence of a viable mussel community. Discharge temperatures are controlled by where water is being released from within the impoundment, and coldwater releases have a well-documented effect on freshwater mussel communities including limiting gametogenesis, growth, as well as altering the host fish community which affects mussel community composition. The Lake Lynn study limit should, at minimum, consider the entire length of the Cheat that has temperature affected by the discharge of the dam.

In lieu of a temperature study delimits the downstream thermal effects of the dam, a mussel study that focuses on potential mussel habitat from the dam downstream to its confluence with the Monongahela River would be appropriate to ascertain what species if any, occur in the Cheat River.

If such a survey effort results in the detection of no mussels or a limited community in the Cheat River then it would be a worthy biological objective of relicensing to try and mimic, to the extent practicable, the natural flow and/or thermal regime as much as possible to maintain the river's restoration potential.

The proximity of the project to recent/known populations of state listed species (e.g., Snuffbox, Salamander Mussel, and Pistolgrip) approximately ~ 2.4 miles from the confluence of the Cheat and Monongahela River confluence suggests that it is a possibility that these species could occur in the Cheat, could disperse there in the future, and thus may be affected by Lake Lynn dam operations.

As you may know, the Cheat contained a diverse mussel fauna including the state and federal listed Clubshell (*Pleurobema clava*), a species undergoing a federal status assessment (SSA) (Longsolid, *Fusconaia subrotunda*), as well as two species that haven't been seen in Pennsylvania in over 100 years (Pimpleback, *Cyclonaias pustulosa* and Purple Wartback, *C. tuberculata*). This Cheat River population was likely an extension of the Monongahela River population which was also quite diverse (e.g., Fanshell, *Cyprogenia stegaria*) until the effects of the steel and associated industries became too severe, before 1900. The Monongahela River, like the Ohio River (21 mussel species in PA), is a river in recovery since water quality improvements began in the 1970s.

Despite the effects of that industry, Dunkard Creek – a tributary to the Monongahela River just 2.4 miles downstream of the Cheat – was considered the crown jewel of the Monongahela River system until 2009, when a toxic event wiped that fauna out. Dunkard Creek harbored – as of 2009 – the state and federally endangered Snuffbox (*Epioblasma triquetra*), the state endangered Salamander Mussel (*Simpsonaias ambigua*, also undergoing a federal SSA), and the state endangered Pistolgrip (*Tritogonia verrucosa*). Numerous other species also occurred in Dunkard and PFBC and WVDNR are actively working to restore Dunkard with common mussels and via propagation and augmentation efforts. It's not unreasonable to suspect that glochidia-inoculated host fishes from Dunkard Creek were able to traverse the short distance to the Cheat River.

Although the Cheat River has not been examined recently to detect freshwater mussels it is possible that species have recolonized the Cheat in areas that contain suitable mussel habitat. A survey of the Pennsylvania stretch of the Cheat would entail a scouting trip to determine areas of potentially suitable habitat followed by a qualitative survey of these areas (similar to the Large Scoping Projects in the WV mussel protocol). Such an effort would be necessary to determine whether mussels are present and to determine, to some extent, what the effects of the existing management of Lake Lynn are having on the Cheat River downstream of the dam.

We look forward to reviewing a modified mussel survey plan.

Heather A. Smiles | Chief, Division of Environmental Services

PA Fish and Boat Commission

595 East Rolling Ridge Drive | Bellefonte, PA 16823

Phone: 814.359.5194

Email: hsmiles@pa.gov

www.fishandboat.com

From: Jody Smet <Jody.Smet@eaglecreekre.com>

Sent: Thursday, July 30, 2020 9:41 AM

To: Norman, Janet <janet_norman@fws.gov>; Harrell, Jacob D <Jacob.D.Harrell@wv.gov>; Smiles, Heather A <hsmiles@pa.gov>; Welte, Nevin <c-nwelte@pa.gov>

Cc: Dale Short <Dale.Short@eaglecreekre.com>; Robert Flickner <Robert.Flickner@eaglecreekre.com>; Michael Scarzello <Michael.Scarzello@eaglecreekre.com>; Matthew Nini <Matthew.Nini@eaglecreekre.com>; Foster, Joyce <JFoster@trccompanies.com>

Subject: [External] RE: Lake Lynn Relicensing – Revised Draft Mussel Survey Plan

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All,

Comments were due on the revised mussel survey plan on 7/17. We received comments from WVDNR. We are working to finalize this study plan so that we are prepared to be in the field in late August / early September.

Thank you,

Jody J. Smet, AICP
Vice President Regulatory Affairs
Eagle Creek Renewable Energy

Please note my new email address – jody.smet@eaglecreekre.com

From: Jody Smet

Sent: Thursday, July 9, 2020 11:10 AM

To: Norman, Janet <janet_norman@fws.gov>; Harrell, Jacob D <Jacob.D.Harrell@wv.gov>; Heather Smiles <hsmiles@pa.gov>; c-nwelte@pa.gov

Cc: Dale Short <Dale.Short@eaglecreekre.com>; Robert Flickner <Robert.Flickner@eaglecreekre.com>; Michael Scarzello <Michael.Scarzello@eaglecreekre.com>; Matthew Nini <Matthew.Nini@eaglecreekre.com>; Foster, Joyce <JFoster@trccompanies.com>

Subject: Lake Lynn Relicensing – Revised Draft Mussel Survey Plan

All,

As follow-up to our call on May 20 discussing the draft Lake Lynn Mussel Survey Plan and review of the 1993 Lake Lynn Instream Flow Study Report, we have attached a revised draft Lake Lynn Mussel Survey Plan for your review. Please provide your comments on the revised Survey Plan by July 17.

Thank you,

Jody J. Smet, AICP | Vice President Regulatory Affairs
Eagle Creek Renewable Energy

Desk: 804 739 0654

Mobile: 804 382 1764

Email: jody.smet@eaglecreekre.com



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From: [Welte, Nevin](#)
To: [Sarah Veselka](#)
Cc: [Jacob.D.Harrell@wv.gov](#); [Smiles, Heather A](#); [Jody Smet](#); [Foster, Joyce](#); [Jakovljevic, Lindsey](#); [Urban, Chris](#); [Anderson, Robert M](#)
Subject: RE: [External] FW: Lake Lynn Survey Plan
Date: Friday, September 11, 2020 9:29:47 AM

This is an **EXTERNAL** email. Do not click links or open attachments unless you validate the sender and know the content is safe.

Hi Sarah,

Thanks for sharing with us a revised study plan. PFBC concurs with the proposed survey methodology and extent of the study area. Please keep us posted on anticipated survey dates and we may join you in the field.

Thanks again and good luck with the survey,

Nevin

Nevin Welte
Malacologist/Nongame Biologist, Natural Diversity Section
Pennsylvania Fish & Boat Commission
Centre Region Office
595 E. Rolling Ridge Dr.
Bellefonte, PA 16823
c-nwelte@pa.gov

From: Sarah Veselka <sveselka@enviroscienceinc.com>
Sent: Thursday, September 10, 2020 5:10 PM
To: Welte, Nevin <c-nwelte@pa.gov>
Cc: [Jacob.D.Harrell@wv.gov](#); [Smiles, Heather A](#) <hsmiles@pa.gov>; [Jody.Smet@eaglecreekre.com](#); [Foster, Joyce](#) <JFoster@trccompanies.com>; [Jakovljevic, Lindsey](#) <LJakovljevic@trccompanies.com>; [Urban, Chris](#) <curban@pa.gov>; [Anderson, Robert M](#) <Robert_M_Anderson@fws.gov>
Subject: RE: [External] FW: Lake Lynn Survey Plan

Hi Nevin,

Thank you for your comments. Please find the requested revised survey plan attached here for your review.

Thank you,

Sarah

Sarah Veselka

EnviroScienceInc.com

“Excellence in Any Environment”

From: Welte, Nevin <c-nwelte@pa.gov>

Sent: Tuesday, September 8, 2020 8:51 AM

To: Sarah Veselka <sveselka@enviroscienceinc.com>; Sargent, Barbara D <Barbara.D.Sargent@wv.gov>

Cc: Jacob.D.Harrell@wv.gov; Smiles, Heather A <hsmiles@pa.gov>; Jody.Smet@eaglecreekre.com; Foster, Joyce <JFoster@trccompanies.com>; Jakovljevic, Lindsey <LJakovljevic@trccompanies.com>; Urban, Chris <curban@pa.gov>; Anderson, Robert M <Robert_M_Anderson@fws.gov>

Subject: RE: [External] FW: Lake Lynn Survey Plan

Hi Sarah,

Thanks for the email and the attached survey plan. While PFBC agrees with the proposed survey methods (i.e., “how to look for mussels”) we continue to disagree with the extent of the study area (1.0 mile downstream of the project). The extent of the study area was not revised based upon recent PFBC comments submitted by Heather Smiles (email dated August 3, 2020) and no biological rationale was given for maintaining a limited study area. Any data collected from this limited study area will be continue to be insufficient data to answer the question of whether or not this dam or its operations have an effect on Pennsylvania’s freshwater mussels. We continue to advise that the study scope be revised and extended to include the length of the Cheat River in Pennsylvania using the approach described in Heather’s email (in quotes below).

“Although the Cheat River has not been examined recently to detect freshwater mussels it is possible

that species have recolonized the Cheat in areas that contain suitable mussel habitat. A survey of the Pennsylvania stretch of the Cheat would entail a scouting trip to determine areas of potentially suitable habitat followed by a qualitative survey of these areas (similar to the Large Scoping Projects in the WV mussel protocol). Such an effort would be necessary to determine whether mussels are present and to determine, to some extent, what the effects of the existing management of Lake Lynn are having on the Cheat River downstream of the dam.”

We look forward to reviewing a revised study plan.

Thanks,

Nevin

Nevin Welte
Malacologist/Nongame Biologist, Natural Diversity Section
Pennsylvania Fish & Boat Commission
Centre Region Office

595 E. Rolling Ridge Dr.
Bellefonte, PA 16823
c-nwelte@pa.gov

From: Sarah Veselka <sveselka@enviroscienceinc.com>
Sent: Monday, September 7, 2020 4:19 PM
To: Welte, Nevin <c-nwelte@pa.gov>; Sargent, Barbara D <Barbara.D.Sargent@wv.gov>
Cc: Jacob.D.Harrell@wv.gov; Smiles, Heather A <hsmiles@pa.gov>; Jody.Smet@eaglecreekre.com;
Foster, Joyce <JFoster@trccompanies.com>; Jakovljevic, Lindsey <LJakovljevic@trccompanies.com>
Subject: [External] FW: Lake Lynn Survey Plan

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Hello Nevin and Barb,

On behalf of Lake Lynn Generation and TRC, please find the attached mussel survey plan for the Lake Lynn Hydroelectric Project for your review and approval. I will be acting as the WV/PA qualified malacologist for the Project.

Thank you,

Sarah

Sarah Veselka
EnviroScienceInc.com
“Excellence in Any Environment”

From: [Sarah Veselka](#)
To: [Foster, Joyce](#); [Jakovljevic, Lindsey](#)
Subject: FW: [External] FW: Lake Lynn Survey Plan
Date: Monday, September 14, 2020 9:22:59 AM
Attachments: [veselka_sAdd08.pdf](#)

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Sarah Veselka

[EnviroScienceInc.com](#)

“Excellence in Any Environment”

From: Sargent, Barbara D <Barbara.D.Sargent@wv.gov>
Sent: Wednesday, September 9, 2020 10:20 AM
To: Sarah Veselka <sveselka@enviroscienceinc.com>
Cc: Harrell, Jacob D <Jacob.D.Harrell@wv.gov>
Subject: RE: [External] FW: Lake Lynn Survey Plan

Hi Sarah—

I have attached your addenda for the Lake Lynn project. The Scope is approved only for the WV portion; we defer to PA for their portion.

b.

From: Sarah Veselka [<mailto:sveselka@enviroscienceinc.com>]
Sent: Monday, September 07, 2020 4:19 PM
To: Welte, Nevin; Sargent, Barbara D
Cc: Harrell, Jacob D; hsmiles@pa.gov; Jody.Smet@eaglecreekre.com; Foster, Joyce; Jakovljevic, Lindsey
Subject: [External] FW: Lake Lynn Survey Plan

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Thank you,

Sarah

Sarah Veselka

EnviroScienceInc.com

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DIVISION OF NATURAL RESOURCES

Wildlife Resources Section
Elkins Operations Center
738 Ward Rd., PO Box 67
Elkins, WV 26241
Telephone 304-637-0245
Fax 304-637-0250

Stephen S. McDaniel
Director

ADDENDUM TO SCIENTIFIC COLLECTING PERMIT NO. 2020.111

Permittee: Sarah Veselka
Address: EnviroScience, Inc.
West Virginia – Appalachia Operations
129 Greenbag Road
Morgantown, WV 26501

Expiration Date: October 1, 2020

THE FOLLOWING PROVISIONS ARE ADDED TO THIS PERMIT: The Scope of Work is approved for the West Virginia portion of the project only. The WVDNR defers to the Pennsylvania Fish and Boat Commission for surveys conducted in their waters.

Mussel surveys are permitted in the Cheat River in Monongalia at the West Virginia – Pennsylvania state line (Lake Lynn Hydroelectric Relicensing)

THIS ADDENDUM MUST BE ATTACHED TO ORIGINAL PERMIT.

Must be signed before valid.

Signature of permittee

A handwritten signature in blue ink, appearing to read "R. Veselka", written over a horizontal line.

Scientific Collecting Permit Coordinator

A handwritten date "9/19/2020" in blue ink, written over a horizontal line.

Date of Issue

From: [Sarah Veselka](#)
To: [Foster, Joyce](#); [Jakovljevic, Lindsey](#)
Subject: FW: [External] FW: Lake Lynn Survey Plan
Date: Monday, September 14, 2020 9:22:59 AM
Attachments: [veselka_sAdd08.pdf](#)

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Sarah Veselka

[EnviroScienceInc.com](#)

“Excellence in Any Environment”

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Sent: Wednesday, September 9, 2020 10:20 AM
To: Sarah Veselka <sveselka@enviroscienceinc.com>
Cc: Harrell, Jacob D <Jacob.D.Harrell@wv.gov>
Subject: RE: [External] FW: Lake Lynn Survey Plan

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Sent: Monday, September 07, 2020 4:19 PM
To: Welte, Nevin; Sargent, Barbara D
Cc: Harrell, Jacob D; hsmiles@pa.gov; Jody.Smet@eaglecreekre.com; Foster, Joyce; Jakovljevic, Lindsey
Subject: [External] FW: Lake Lynn Survey Plan

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Thank you,

Sarah

Sarah Veselka

EnviroScienceInc.com

“Excellence in Any Environment”



DIVISION OF NATURAL RESOURCES

Wildlife Resources Section
Elkins Operations Center
738 Ward Rd., PO Box 67
Elkins, WV 26241
Telephone 304-637-0245
Fax 304-637-0250

Stephen S. McDaniel
Director

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Permittee: Sarah Veselka
Address: EnviroScience, Inc.
West Virginia – Appalachia Operations
129 Greenbag Road
Morgantown, WV 26501

Expiration Date: October 1, 2020

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Must be signed before valid.

Signature of permittee

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Scientific Collecting Permit Coordinator

A handwritten date "9/19/2020" in blue ink, written over a horizontal line.

Date of Issue



50101 Governors Dr.
Suite 250
Chapel Hill, NC 27517

T 919.475.5507
TRCcompanies.com

26 October 2020

Ms. Susan Pierce (via email)
Deputy State Historic Preservation Officer
West Virginia Division of Culture and History
The Culture Center, Capitol Complex
1900 Kanawha Boulevard East
Charleston, West Virginia 25305-0300

Re: Lake Lynn Hydroelectric Relicensing Project, Monongalia County, West Virginia
Section 106 Review for Compliance

Dear Ms. Pierce:

The Lake Lynn Hydroelectric Project (Project) is an existing hydroelectric facility located on the Cheat River in Monongalia County, West Virginia and Fayette County, Pennsylvania, approximately 10 miles northeast of Morgantown, West Virginia and about 3.7 miles upstream of the confluence with the Monongahela River (Figure 1). The operator, Lake Lynn Generation, LLC (Lake Lynn) intends to file an application with the Federal Energy Regulatory Commission (FERC) for a new license for the Project (FERC No. 2459) using the Traditional Licensing Process (TLP). Following TLP requirements, Lake Lynn filed a Notice of Intent (NOI) and Pre-Application Document (PAD) with FERC on 29 August 2019, and the Director of the Division of Hydropower Licensing approved Lake Lynn's request to use the TLP on 17 October 2019. The current Project license was issued on December 27, 1994 and expires on November 30, 2024. Lake Lynn intends to complete and distribute the Draft License Application for the Project by 30 November 2021, and a final License Application is scheduled to be filed with FERC no later than 30 November 2022.

The Project consists of a concrete gravity-type dam and spillway controlled by 26 Tainter gates; a reservoir with a surface area of 1,700 acres; a log boom and trash racks at the intake facility; eight gated penstocks of reinforced concrete; a brick powerhouse containing four identical Francis generating units with a total rated capacity of 51.2 MW; dual 138-kV transmission lines; and appurtenant facilities (Figures 2–8). A turbine replacement and upgrade of Unit 2 was completed in 2018. The Project operates as a dispatchable peaking hydroelectric facility with storage capability, and no changes to Project facilities or operations are proposed. The proposed FERC Project Area of Potential Effects (APE) includes approximately 2,269.5 acres within West Virginia.

The NOI and PAD documents were sent to a distribution list comprised of federal and state agencies, tribes, local government representatives, non-governmental organizations (NGOs), and interested parties. Lake Lynn also published a newspaper announcement with information about the Project in *The Herald-Standard* and *The Dominion Post*. FERC provided Project details to the Delaware Nation, Oklahoma, the Delaware Tribe of Indians, and the Osage Nation on 27 June 2019 requesting a response by 2 August 2019 regarding their interest in the Project. As of 28 September 2020, FERC has not received any responses from that request. In addition, Lake Lynn sent Project details on 20 May 2019 to these and 16 additional Native American tribes (the Absentee-Shawnee Tribe of Oklahoma, the Seneca Nation of Indians, the Cayuga Nation, the Shawnee Tribe, the Cherokee Nation, the Stockbridge-Munsee Band of the Mohican Nation of Wisconsin, the Eastern Band of Cherokee Indians, the St. Regis Mohawk Tribe, the Eastern Shawnee Tribe of Oklahoma, the Tonawanda Band of Seneca, the Oneida Indian Nation, the Tuscarora Nation, the Oneida Indian Nation of Wisconsin, the United Keetoowah Band of Cherokee

Indians in Oklahoma, the Onondaga Nation, and the Seneca-Cayuga Tribe of Oklahoma) inviting participation in the relicensing process, Lake Lynn has received a response from one Native American tribe. The Cherokee Nation indicated that the Project was outside of its area of interest. Although no specific tribal interests have been identified, Lake Lynn and FERC will continue to communicate with the Native American tribes throughout the relicensing process. Lake Lynn also contacted the Bureau of Indian Affairs (BIA) and requested any information on tribal resources or tribal interests in the vicinity of the Project but has not received a response from the BIA regarding the Project. Lake Lynn is not aware that the Project affects any Native American tribal lands, tribal cultural sites, or tribal interests.

There is not a comprehensive Cultural Resources Management Plan (CRMP) for the Project, however, individual plans for cultural resources studies have been developed for SHPO review prior to any modifications involving ground disturbance following the stipulations in License Article 414. A Phase I archaeological survey was conducted for the proposed development of Cheat Lake Park and the Cheat Lake Trail and reported on 26 April 1996 and additional survey was conducted for that project and reported on 13 April 1998; both studies were conducted by Christine Davis Consultants, Inc. (90-148-MG). A letter dated 26 May 1998 from your office stated that the proposed Cheat Lake Trail would have no effect on any historic properties at the Project and that no further archaeological investigation was required for that project. Additional review was requested from your office by letter on 28 April 2020 regarding proposed repair for a small section of the Cheat Lake South Trail that was washed out during heavy rains in 2019. A response from your office issued on 8 May 2020 indicated that the proposed project would have no effect on NRHP eligible or potentially eligible resources and that no further cultural resources studies would be necessary for that project.

Several cultural resources are documented within the APE and several are located just outside the APE. The Phase I survey for the Cheat Lake Park and the Cheat Lake Trail identified nineteenth and twentieth century foundations (46MG214), six millstones (46MG212), a coal tipple (46MG211), and the Cheat Haven & Bruceton Railroad bed (46MG213), all within the APE. Also within the APE, the early twentieth century Ices Ferry Bridge (MG-0052) spans Cheat Lake southwest of Lake Lynn. The early twentieth century Lake Lynn powerhouse and dam have not been formally documented but are located within the APE in West Virginia. A survey conducted for the proposed Falling Water Development Project to the east of the APE identified two prehistoric isolated finds (46MG253 and 46MG254). Two other archaeological sites are recorded outside but in some proximity to the APE—46MG83 and 46MG84, both prehistoric rockshelter sites recorded in 1985.

Lake Lynn Hydro LLC respectfully requests your participation in this process as we collaborate with the FERC and other state, federal, and tribal agencies to identify and resolve any cultural resources issues related to this Project. We look forward to hearing from you at your earliest convenience. Please do not hesitate to contact me at (919) 475-5507 or hmillis@trccompanies.com should you have any questions concerning this letter or the project.

Sincerely,



Heather Millis
Office Practice Leader, Cultural Resources

cc: Jody Smet, Lake Lynn Generation
Joyce Foster, TRC Environmental Corporation

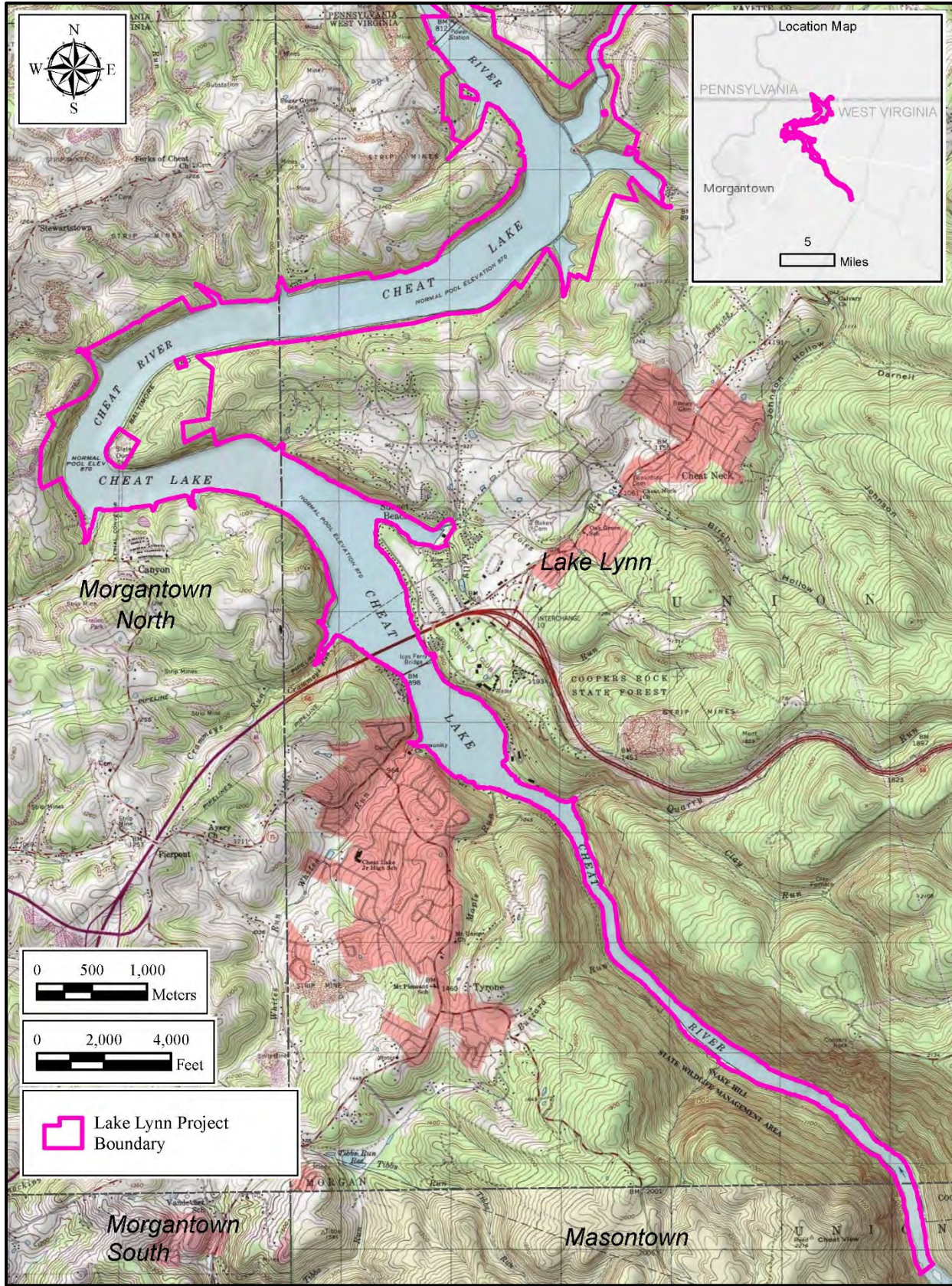


Figure 1. Location of Lake Lynn Hydroelectric Project.



Figure 2. View of Powerhouse and Dam at Lake Lynn Hydroelectric Project.



Figure 3. View of Powerhouse and Dam at Lake Lynn Hydroelectric Project.



Figure 4. View of Dam at Lake Lynn Hydroelectric Project.



Figure 5. View of Powerhouse at Lake Lynn Hydroelectric Project.



Figure 6. View of Interior of Powerhouse at Lake Lynn Hydroelectric Project.



Figure 7. View of Tailrace Fishing Pier at Lake Lynn Hydroelectric Project.

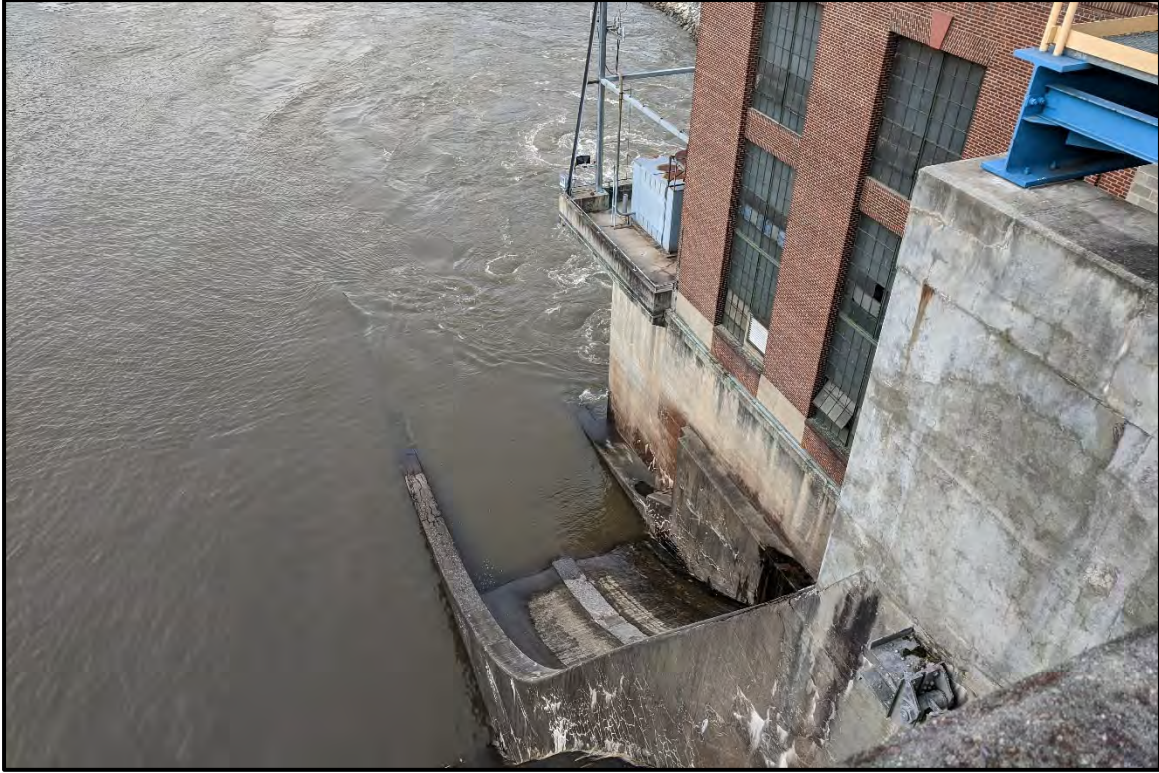


Figure 8. View of Sluice at Lake Lynn Hydroelectric Project.

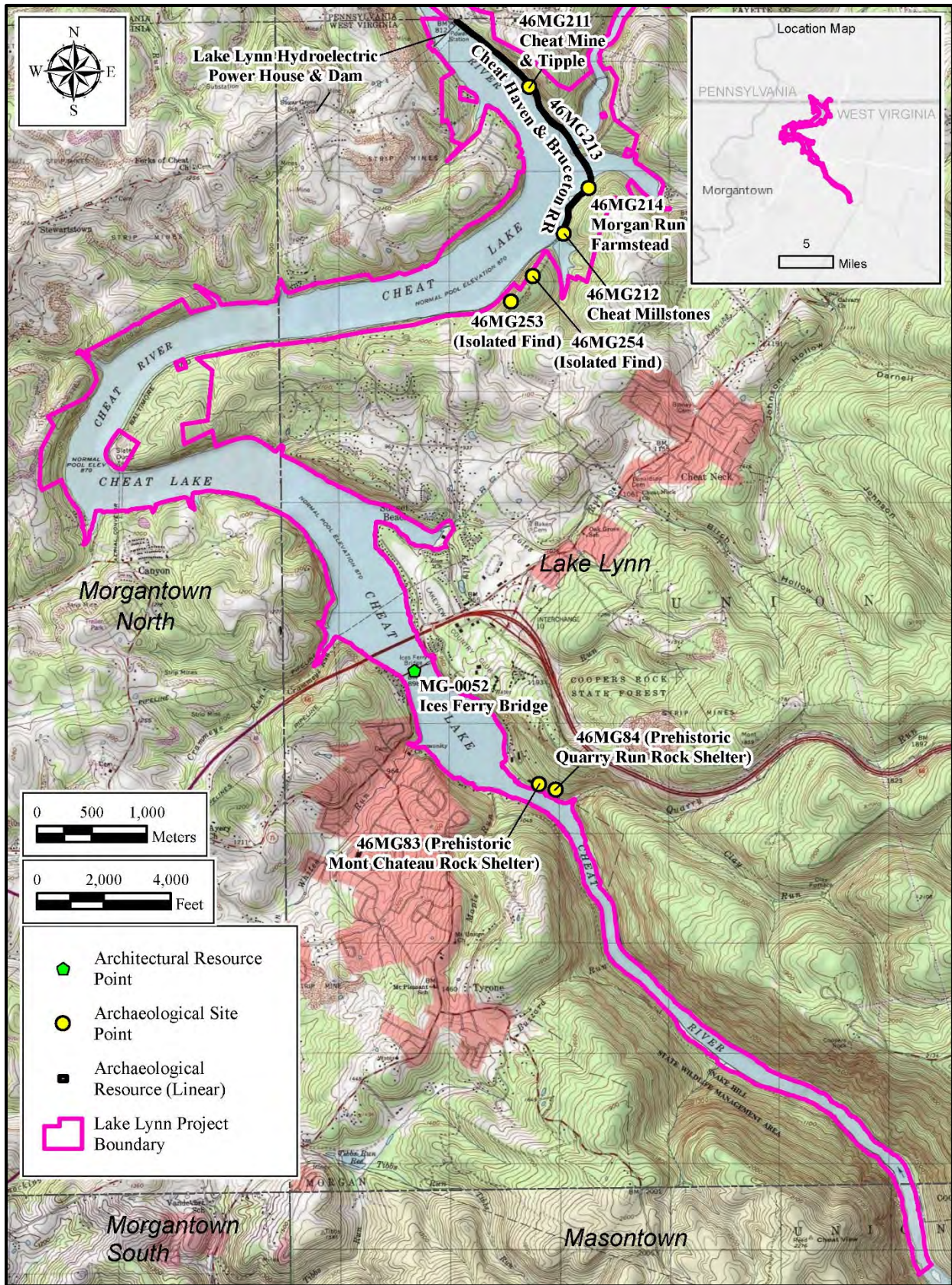


Figure 9. Location of Lake Lynn Hydroelectric Project Showing Nearby Cultural Resources.

Lake Lynn Hydroelectric Relicensing Project, Fayette County, Pennsylvania
Section 106 Review for Compliance

The Lake Lynn Hydroelectric Project (Project) is an existing hydroelectric facility located on the Cheat River in Monongalia County, West Virginia and Fayette County, Pennsylvania, approximately 10 miles northeast of Morgantown, West Virginia and about 3.7 miles upstream of the confluence with the Monongahela River (Figure 1). The operator, Lake Lynn Generation, LLC (Lake Lynn) intends to file an application with the Federal Energy Regulatory Commission (FERC) for a new license for the Project (FERC No. 2459) using the Traditional Licensing Process (TLP). Following TLP requirements, Lake Lynn filed a Notice of Intent (NOI) and Pre-Application Document (PAD) with FERC on 29 August 2019, and the Director of the Division of Hydropower Licensing approved Lake Lynn's request to use the TLP on 17 October 2019. The current Project license was issued on December 27, 1994 and expires on November 30, 2024. Lake Lynn intends to complete and distribute the Draft License Application for the Project by 30 November 2021, and a final License Application is scheduled to be filed with FERC no later than 30 November 2022.

The Project consists of a concrete gravity-type dam and spillway controlled by 26 Tainter gates; a reservoir with a surface area of 1,700 acres; a log boom and trash racks at the intake facility; eight gated penstocks of reinforced concrete; a brick powerhouse containing four identical Francis generating units with a total rated capacity of 51.2 MW; dual 138-kV transmission lines; and appurtenant facilities (Figures 2–8). A turbine replacement and upgrade of Unit 2 was completed in 2018. The Project operates as a dispatchable peaking hydroelectric facility with storage capability, and no changes to Project facilities or operations are proposed. The proposed FERC Project Area of Potential Effects (APE) includes approximately 39.7 acres within Pennsylvania.

The NOI and PAD documents were sent to a distribution list comprised of federal and state agencies, tribes, local government representatives, non-governmental organizations (NGOs), and interested parties. Lake Lynn also published a newspaper announcement with information about the Project in *The Herald-Standard* and *The Dominion Post*. FERC provided Project details to the Delaware Nation, Oklahoma, the Delaware Tribe of Indians, and the Osage Nation on 27 June 2019 requesting a response by 2 August 2019 regarding their interest in the Project. As of 28 September 2020, FERC has not received any responses from that request. In addition, Lake Lynn sent Project details on 20 May 2019 to these and 16 additional Native American tribes (the Absentee-Shawnee Tribe of Oklahoma, the Seneca Nation of Indians, the Cayuga Nation, the Shawnee Tribe, the Cherokee Nation, the Stockbridge-Munsee Band of the Mohican Nation of Wisconsin, the Eastern Band of Cherokee Indians, the St. Regis Mohawk Tribe, the Eastern Shawnee Tribe of Oklahoma, the Tonawanda Band of Seneca, the Oneida Indian Nation, the Tuscarora Nation, the Oneida Indian Nation of Wisconsin, the United Keetoowah Band of Cherokee Indians in Oklahoma, the Onondaga Nation, and the Seneca-Cayuga Tribe of Oklahoma) inviting participation in the relicensing process, Lake Lynn has received a response from one Native American tribe. The Cherokee Nation indicated that the Project was outside of its area of interest. Although no specific tribal interests have been identified, Lake Lynn and FERC will continue to communicate with the Native American tribes throughout the relicensing process. Lake Lynn also contacted the Bureau of Indian Affairs (BIA) and requested any information on tribal resources or tribal interests in the vicinity of

the Project but has not received a response from the BIA regarding the Project. Lake Lynn is not aware that the Project affects any Native American tribal lands, tribal cultural sites, or tribal interests.

There is not a comprehensive Cultural Resources Management Plan (CRMP) for the Project, however, individual plans for cultural resources studies have been developed for SHPO review prior to any modifications involving ground disturbance following the stipulations in License Article 414.

Several cultural resources are documented within the APE and several are located just outside the APE (Figure 2). Resources within or partially within the APE include the Fairmont, Morgantown & Pittsburgh Railroad (097804), the Catawba Path (210394), Bridge No. 1 (133794), and archaeological site 36FA0073. The mapped boundary of the Lake Lynn Dam Penn Hill Housing property (101383) extends into the APE, although all of the resources appear to be located outside the APE to the north. A portion of the Lake Lynn Historic District (105909) is located outside the APE to the northeast. The Fairmont, Morgantown & Pittsburgh Railroad, constructed in the late nineteenth century, has been determined eligible for the National Register of Historic Places (NRHP) by the PHMC. Bridge No. 1 was constructed in 1949 and has been determined not eligible for the NRHP. The Catawba Path is part of a Native American footpath system that ran from New York to the Carolinas that was documented by Paul Wallace in his 1965 publication Indian Paths of Pennsylvania. This resource is unevaluated for NRHP eligibility. Site 36FA0073 is a prehistoric site dating to an unknown time period that was recorded in 1964 and is unevaluated for NRHP eligibility.

Lake Lynn Hydro LLC respectfully requests your participation in this process as we collaborate with the FERC and other state, federal, and tribal agencies to identify and resolve any cultural resources issues related to this Project. We look forward to hearing from you at your earliest convenience. Please do not hesitate to contact me at (919) 475-5507 or hmillis@trccompanies.com should you have any questions concerning this letter or the project.

Sincerely,



Heather Millis
Office Practice Leader, Cultural Resources

cc: Jody Smet, Lake Lynn Generation
Joyce Foster, TRC Environmental Corporation

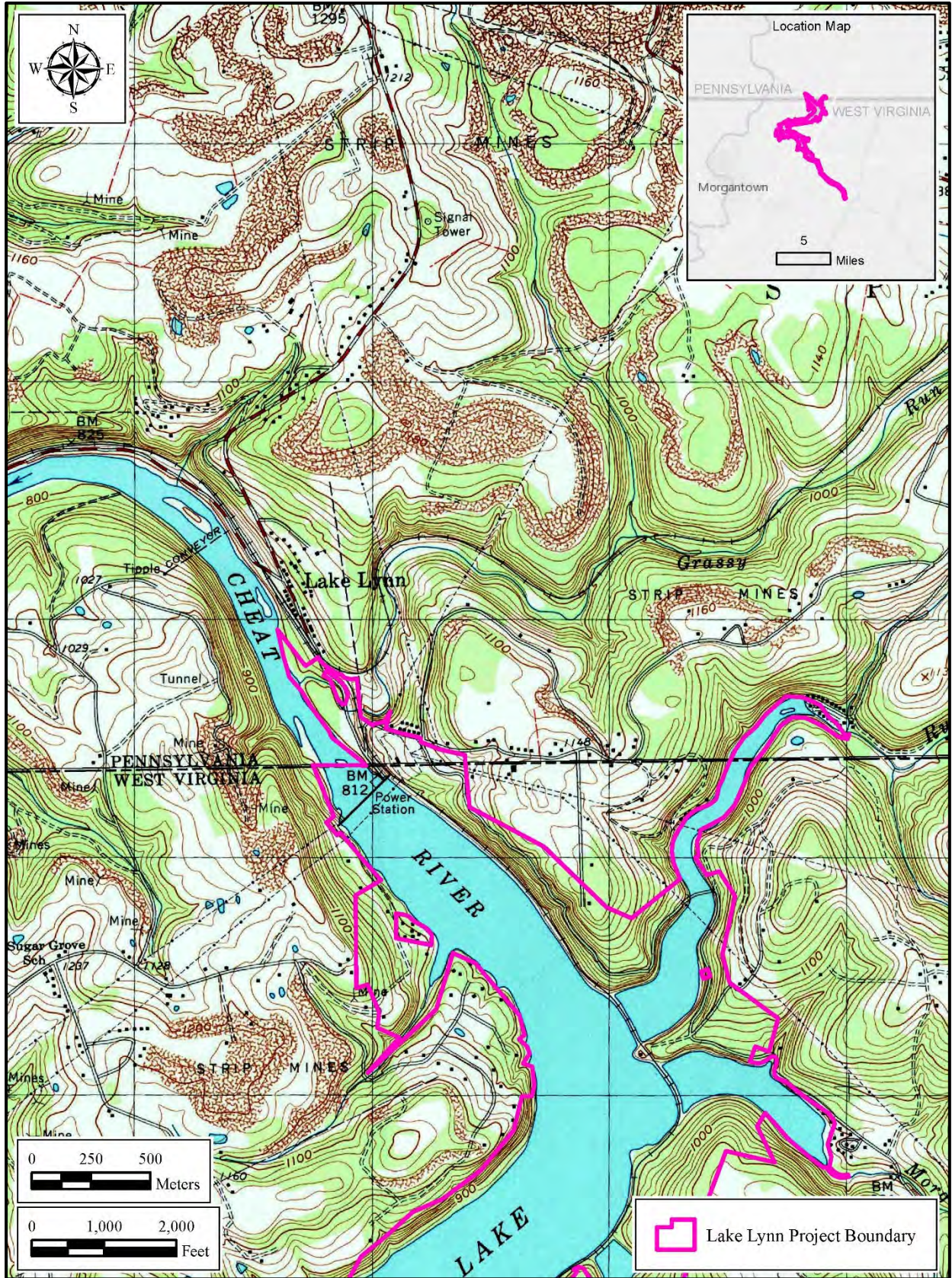


Figure 1. Location of Lake Lynn Hydroelectric Project in Pennsylvania.

Joyce Foster

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jkotcon@gmail.com
Cc: Jody Smet
Subject: Lake Lynn Hydro Project (FERC No. 2459) - Draft Study Report for Review
Attachments: Lake Lynn_P-2459_Draft Entrainment Report.pdf

Dear Stakeholder:

Lake Lynn Generation, LLC (Lake Lynn), a subsidiary of Eagle Creek Renewable Energy, is the owner and operator of the Lake Lynn Hydroelectric Project (FERC No. 2459) located on the Cheat River in Monongalia County, WV and Fayette County, PA. The existing Federal Energy Regulatory Commission (FERC) license for the Project expires November 30, 2024. Lake Lynn is providing a draft fish entrainment report for review and comment that was developed in accordance with the final Study Plan that was provided to you in July of last year.

Please provide any written comments within 30 days. If you have any questions, please contact me at 804-338-5110 or joyce.foster@eaglecreekre.com.

Joyce A. Foster | Director, Licensing and Compliance

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jkotcon@gmail.com
Cc: Jody Smet
Subject: Lake Lynn Hydro Project (FERC No. 2459) - Draft Study Report for Review
Attachments: Lake Lynn_P-2459_Draft Mussel Survey Report.pdf

Dear Stakeholder:

Lake Lynn Generation, LLC (Lake Lynn), a subsidiary of Eagle Creek Renewable Energy, is the owner and operator of the Lake Lynn Hydroelectric Project (FERC No. 2459) located on the Cheat River in Monongalia County, WV and Fayette County, PA. The existing Federal Energy Regulatory Commission (FERC) license for the Project expires November 30, 2024. Lake Lynn is providing a draft mussel survey report for review and comment that was developed in accordance with the final Study Plan that was provided to you in July of last year.

Please provide any written comments within 30 days. If you have any questions, please contact me at 804-338-5110 or joyce.foster@eaglecreekre.com.

Joyce A. Foster | Director, Licensing and Compliance

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Joyce Foster

From: Joyce Foster
Sent: Friday, July 30, 2021 3:58 PM
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Cc: Jody Smet
Subject: Lake Lynn Hydro Project (FERC No. 2459) - Draft Study Report for Review
Attachments: Lake Lynn_P-2459_Draft Recreation Assessment Report.pdf

Dear Stakeholder:

Lake Lynn Generation, LLC (Lake Lynn), an affiliate subsidiary of Eagle Creek Renewable Energy, is the owner and operator of the Lake Lynn Hydroelectric Project (FERC No. 2459) located on the Cheat River in Monongalia County, WV and Fayette County, PA. The existing Federal Energy Regulatory Commission (FERC) license for the Project expires November 30, 2024. Lake Lynn is providing a draft report for review and comment that was developed in accordance with the final Study Plan that was provided to you in July of last year.

K

Please provide any written comments within 30 days. If you have any questions, please contact me at 804-338-5110 or joyce.foster@eaglecreekre.com.

Joyce A. Foster | Director, Licensing and Compliance

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Lake Lynn Generation, LLC

c/o Eagle Creek Renewable Energy, LLC
7315 Wisconsin Avenue, Suite 1100W
Bethesda, Maryland 20814
240.482.2700

August 5, 2022

VIA E-FILING

Honorable Kimberly D. Bose, Secretary
Federal Energy Regulatory Commission
888 First Street, N.E.
Washington, D.C. 20426

Subject: Lake Lynn Hydroelectric Project (FERC No. P-2459)
Draft License Application

Dear Secretary Bose:

Lake Lynn Generation, LLC (Lake Lynn or Licensee), a subsidiary of Eagle Creek Renewable Energy, LLC (Eagle Creek), is the licensee and operator of the Lake Lynn Hydroelectric Project (Lake Lynn Project). The Lake Lynn Project is on the Cheat River, in Monongalia County, West Virginia, near the city of Morgantown, and in Fayette County, Pennsylvania, near the borough of Point Marion. The existing FERC license for the Lake Lynn Project expires on November 30, 2024. Lake Lynn intends to file an application for a new license with FERC on or before November 30, 2022. Lake Lynn filed a Notice of Intent to File a License Application (NOI), the Pre-Application Document (PAD), and a request to use the Traditional Licensing Process (TLP) for the Lake Lynn Project on August 29, 2019. FERC approved the Licensee's request to use the TLP on October 17, 2019.

In accordance with 18 CFR § 16.8(c)(4), Lake Lynn respectfully submits the Draft License Application (DLA) for filing with FERC. The DLA consists of the following draft technical exhibits and environmental report:

- Initial Statement;
 - Exhibit A - Project Description;
 - Exhibit B - Project Operation and Resource Utilization;
 - Exhibit C - Construction History;
 - Exhibit D - Statement of Cost and Financing;
 - Exhibit E - Environmental Report;
 - Exhibit F - General Design Drawings (Exhibit F to be filed with the FLA with FERC only as CEI under a separate cover);
 - Exhibit G - Project Maps; and
-

- Exhibit H - Description of Project Management and Need for Project Power (Single Line Diagram filed as CEII).

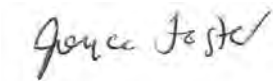
Lake Lynn is providing electronic copies of the DLA to relevant resource agencies, tribes, non-governmental organizations, and other potential interested parties included on the attached distribution list. An electronic copy of the DLA can be downloaded from FERC's eLibrary system (<https://elibrary.ferc.gov/eLibrary/search>) by searching under docket number P-2459. The primary relicensing documents can also be downloaded from the Lake Lynn Project Relicensing website at: <https://cheatlake.today/relicensing/>.

Exhibit E discusses the results of the studies conducted in support of the relicensing and considers how the information and data collected during the studies address the issues that were raised by agencies and other relicensing participants, and how that data addresses the Licensee's proposal. In support of the proposed relicensing, Exhibit E evaluates the potential effects on environmental, recreational, and cultural resources that may occur as a result of continued Lake Lynn Project operation under a new license. As appropriate, Exhibit E includes the Licensee's preliminary proposals for the protection and mitigation of effects on, or enhancements to, resources that are associated with the continued operation of the Lake Lynn Project.

Certain information within the DLA, such as portions of Exhibit D and Exhibit H and Exhibit F, are still under development and will be filed with the Final License Application (FLA); the FLA filing date is November 30, 2022. In accordance with FERC regulations 18 CFR§16.8 (c)(4)(5), participants and Commission staff may submit comments to the Licensee regarding the DLA within 90 days following this filing, i.e., by November 3, 2022.

If you have any questions or require any additional information, please contact me at (804) 338-5110 or via e-mail at joyce.foster@eaglecreekre.com.

Sincerely,



Joyce Foster
Director, Licensing and Compliance

Attachment: Draft License Application for the Lake Lynn Hydroelectric Project

cc: Distribution List

**Lake Lynn Generation, LLC
Lake Lynn Project (P-2459)
Distribution List (updated June 2022)**

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Joyce Foster

From: Joyce Foster
Sent: Friday, August 5, 2022 7:32 PM
To: gkratina@pa.gov; richard_mccorkle@fws.gov; Megan.K.Gottlieb@usace.army.mil; sean.mcdermott@noaa.gov; Kevin_Mendik@nps.gov; clschref@usgs.gov; smwickle@usgs.gov; Jacob.D.Harrell@wv.gov; Danny.A.Bennett@wv.gov; David.I.Wellman@wv.gov; coopersrocksf@wv.gov; Brian.L.Bridgewater@wv.gov; susan.m.pierce@wv.gov; dadrake@pa.gov; peiswerth@pa.gov; hsmiles@pa.gov; olbraun@pa.gov; gkratina@pa.gov; chnagle@pa.gov; agastbray@moncommission.com; dr.hawk@comcast.net; rmclure@moncommission.com; vvicites@fayettepa.org; harold.peterson@bia.gov; clint.halftown@gmail.com; ec@delawarenation.com; cbrooks@delawaretribe.org; info@oneida-nation.org; admin@onondaganation.org; wfisher@sctribe.com; cassie@shawnee-tribe.com; tonseneca@aol.com; 106NAGPRA@astribe.com; ethompson@delawarenation-nsn.gov; dkelly@delawarenation.com; sbachor@delawaretribe.org; bbarnes@estoo.net; jbergevin@oneida-nation.org; lmisita@oneida-nation.org; jay.toth@sni.org; wtarrant@sctribe.com; tonya@shawnee-tribe.com; darren.bonaparte@srmt-nsn.gov; bprintup@hetf.org; duane330@aol.com; mstrager@gmail.com; ella@montrails.org; amanda@cheat.org; owen@cheat.org; betty.w304@gmail.com; fjernejcic@comcast.net; greystone.poa@hotmail.com; dgriff66@aol.com; seangoodwin@yahoo.com; graceandparke@yahoo.com; kevin@americanwhitewater.org; birvin@americanrivers.org; smoyer@tu.org; colleen@hydroreform.org; grichardson@cheat.org; DMiller@potesta.com; info@sunsetbeach-marina.com; swelsh@wvu.edu; edgewater@cheatlakedocks.com; stratdouglas@gmail.com; KCampitell@oxforddevelopment.com; shall@jccpgh.org; awagner1595@gmail.com; chestermcgraw@gmail.com; donnaweems@rocketmail.com; davecyndy@frontier.com; szybarnes@yahoo.com; mlutman@comcast.net; Reecejames98@gmail.com; qtrking86@yahoo.com; rogerdalephillips@gmail.com; scalvert@greenrivergroupllc.com; whm0005@mix.wvu.edu; jkotcon@gmail.com; john.spain@ferc.gov; andrew.bernick@ferc.gov
Cc: Joyce Foster
Subject: Lake Lynn Hydro Project (FERC No. 2459) - Draft License Application for review
Attachments: Lake Lynn_P-2459_Cover Letter DLA.pdf

Dear Stakeholder:

Lake Lynn Generation, LLC (Lake Lynn), a subsidiary of Eagle Creek Renewable Energy, is the owner and operator of the Lake Lynn Hydroelectric Project (FERC No. 2459) located on the Cheat River in Monongalia County, WV and Fayette County, PA. The existing Federal Energy Regulatory Commission (FERC) license for the Project expires November 30, 2024. Lake Lynn is providing the Draft License Application (DLA) for the Project to FERC and the relevant resource agencies, tribes, non-governmental organizations, and other interested parties included on the relicensing distribution list (see attached letter). The attached transmittal letter and the DLA was filed with FERC today.

An electronic copy of the DLA can be downloaded at: https://www.dropbox.com/s/w8k76py7drpeluh/Lake%20Lynn_P-2459_Draft%20License%20Application.pdf?dl=0 An electronic copy of the DLA can also be downloaded from FERC's elibrary system at <https://elibrary.ferc.gov/eLibrary/search> by searching under the FERC Project number (P-2459).

Attached to this e-mail you will find a transmittal letter for the DLA providing additional information. Please provide any written comments on the DLA to my attention by **November 3, 2022** to me at Joyce.Foster@eaglecreekre.com. If you have any questions or have any issues downloading the DLA, please contact me at 804-338-5110 or Joyce.Foster@eaglecreekre.com.

Joyce A. Foster | Director, Licensing and Compliance

Eagle Creek Renewable Energy

Mobile: 804 338 5110

Email: joyce.foster@eaglecreekre.com



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From: [Jesse Bergevin](#)
To: [Joyce Foster](#)
Subject: RE: Lake Lynn Hydro Project (FERC No. 2459) - Draft License Application for review
Date: Friday, August 12, 2022 12:16:30 PM
Attachments: [image002.png](#)

[This email originated OUTSIDE of Eagle Creek. Exercise caution. DO NOT open attachments or click links from unknown senders or unexpected email.]

Ms. Foster,

The Oneida Indian Nation has no comments at this time regarding this license application.

Please let me know if there are any questions.

Best Regards,

JESSE BERGEVIN

Historical Resources Specialist

ONEIDA INDIAN NATION

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From: Joyce Foster [mailto:joyce.foster@eaglecreekre.com]

Sent: Friday, August 05, 2022 7:32 PM

To: gkratina@pa.gov; richard_mccorkle@fws.gov; Megan.K.Gottlieb@usace.army.mil; sean.mcdermott@noaa.gov; Kevin_Mendik@nps.gov; clschref@usgs.gov; smwickle@usgs.gov; Jacob.D.Harrell@wv.gov; Danny.A.Bennett@wv.gov; David.I.Wellman@wv.gov; coopersrocksf@wv.gov; Brian.L.Bridgewater@wv.gov; susan.m.pierce@wv.gov; dadrake@pa.gov; peiswerth@pa.gov; hsmiles@pa.gov; olbraun@pa.gov; gkratina@pa.gov; chnagle@pa.gov; agastbray@moncommission.com; dr.hawk@comcast.net; rmclure@moncommission.com; vvicites@fayettepa.org; harold.peterson@bia.gov; clint.halftown@gmail.com; ec@delawarenation.com; cbrooks@delawaretribe.org; [Shared] The Oneida <info@oneida-nation.org>; admin@onondaganation.org; wfisher@sctribe.com; cassie@shawnee-tribe.com; tonseneca@aol.com; 106NAGPRA@astribe.com; ethompson@delawarenation-nsn.gov; dkelly@delawarenation.com; sbachor@delawaretribe.org; bbarnes@estoo.net; Jesse Bergevin <jbergevin@oneida-nation.org>; Laura Misita <lmisita@oneida-nation.org>; jay.toth@sni.org; wtarrant@sctribe.com; tonya@shawnee-tribe.com; darren.bonaparte@srmt-nsn.gov; bprintup@hetf.org; duane330@aol.com; mstrager@gmail.com; ella@montrails.org; amanda@cheat.org; owen@cheat.org; betty.w304@gmail.com; fjernejcic@comcast.net; greystone.poa@hotmail.com; dgriff66@aol.com; seangoodwin@yahoo.com; graceandparke@yahoo.com; kevin@americanwhitewater.org; birvin@americanrivers.org;

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Cc: Joyce Foster <joyce.foster@eaglecreekre.com>

Subject: Lake Lynn Hydro Project (FERC No. 2459) - Draft License Application for review

Dear Stakeholder:

Lake Lynn Generation, LLC (Lake Lynn), a subsidiary of Eagle Creek Renewable Energy, is the owner and operator of the Lake Lynn Hydroelectric Project (FERC No. 2459) located on the Cheat River in Monongalia County, WV and Fayette County, PA. The existing Federal Energy Regulatory Commission (FERC) license for the Project expires November 30, 2024. Lake Lynn is providing the Draft License Application (DLA) for the Project to FERC and the relevant resource agencies, tribes, non-governmental organizations, and other interested parties included on the relicensing distribution list (see attached letter). The attached transmittal letter and the DLA was filed with FERC today.

An electronic copy of the DLA can be downloaded at:

[https://www.dropbox.com/s/w8k76py7drpeluh/Lake%20Lynn_P-](https://www.dropbox.com/s/w8k76py7drpeluh/Lake%20Lynn_P-2459_Draft%20License%20Application.pdf?dl=0)

[2459_Draft%20License%20Application.pdf?dl=0](https://www.dropbox.com/s/w8k76py7drpeluh/Lake%20Lynn_P-2459_Draft%20License%20Application.pdf?dl=0) An electronic copy of the DLA can also be downloaded from FERC's elibrary system at <https://elibrary.ferc.gov/eLibrary/search> by searching under the FERC Project number (P-2459).

Attached to this e-mail you will find a transmittal letter for the DLA providing additional information. Please provide any written comments on the DLA to my attention by **November 3, 2022** to me at Joyce.Foster@eaglecreekre.com. If you have any questions or have any issues downloading the DLA, please contact me at 804-338-5110 or Joyce.Foster@eaglecreekre.com.

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FEDERAL ENERGY REGULATORY COMMISSION
WASHINGTON, DC 20426
November 3, 2022

OFFICE OF ENERGY PROJECTS

Project No. 2459-263—West Virginia
and Pennsylvania
Lake Lynn Hydroelectric Project
Lake Lynn Generation, LLC

VIA FERC Service

Ms. Joyce Foster
Director, Licensing and Compliance
Lake Lynn Generation, LLC
7315 Wisconsin Avenue, Suite 1100W
Bethesda, MD 20814

**Reference: Staff Comments on Draft License Application for the Lake Lynn
Hydroelectric Project No. 2459**

Dear Ms. Foster:

On August 8, 2022, you filed a draft license application (draft application) with the Federal Energy Regulatory Commission for the Lake Lynn Hydroelectric Project relicensing. We have reviewed the draft application, and provide our comments in the enclosed Schedule A.

If you have any questions concerning this letter, please contact Allan Creamer at (202) 502-8365 or allan.creamer@ferc.gov, or Joshua Dub at (202) 502-8138 or Joshua.dub@ferc.gov.

Sincerely,

Stephen Bowler, Chief
South Branch
Division of Hydropower Licensing

Enclosures: Schedule A
Attachment A- Environmental Justice Table

Schedule A

General Comments

1. Section 5.18(b)(5)(ii)(C) of the Commission's regulations requires that all of an applicant's proposed environmental measures must be provided in the final license application (FLA).¹ Section 3.3.2, *Proposed Environmental Measures*, of the draft license application (DLA) states that Lake Lynn is proposing to develop a new Water Quality Plan, a new Recreation Plan, and a Shoreline Management Plan (SMP) for the project. The DLA did not contain copies of these plans, nor did the DLA contain the conceptual elements and costs of the plans. To ensure that the FLA includes all of the proposed protection, mitigation, and enhancement (PM&E) measures for review by Commission staff and stakeholders, and that staff has sufficient information to inform an economic and environmental analysis for each of the plans, please include, with the FLA, draft plans or the conceptual elements of the plans, as well as cost estimates for the plans.
2. Section 3.2.1, *Proposed Project Facilities and Operations*, of Exhibit E of the DLA states that Lake Lynn Generation, LLC (Lake Lynn) proposes to remove approximately 10 acres of land from the project boundary that are not required for project purposes. Please include in the FLA the reason(s) that the land no longer serves a project purpose and would no longer need to be included within the project boundary, noting any structures that may be sited on the land. Also, please provide a map showing the location of the land to be removed in relation to the proposed project boundary.

Exhibit A – Project Description

3. Section 2.1, *Project Structures*, of Exhibit A of the DLA, provides a description of existing project features. To facilitate Commission staff's review of the project and its features, consistent with section 4.51(b) of the Commission's regulations, please provide the: (a) gross storage capacity (acre-feet) and average depth (feet) of the project impoundment; (b) crest elevation (feet) of the dam; (c) dimensions of the (i) log boom, along with a description of its composition, and (ii) substation; (d) length and width of the project tailrace; (e) sill elevation, status (*i.e.*, operational or not), uses (*e.g.*, high inflow conditions, minimum flow release, *etc.*), mode of operation (*i.e.*, automatic or manual), and frequency and method of repair, of the tainter gates; (f) rated capacity, minimum hydraulic capacity, and maximum hydraulic capacity of each turbine-generator unit; and (g) voltage of each transformer.

¹ See Guidance on Environmental Measures in License Application; available at <https://www.ferc.gov/sites/default/files/2020-04/GuidanceonEnvironmentalMeasuresinLicenseApplications.pdf>.

4. Section 2.1.2, *Intake and Conveyance System*, of Exhibit A of the DLA, indicates that the intake for the Lake Lynn Project is equipped with trash racks. However, section 2.1.2 does not include a detailed description of the trash racks, including: (a) the dimensions of the trash rack(s); (b) the trash racks' clear bar spacing; (c) the intake approach velocity; and (d) the through-rack velocity. This information, which is required by sections 4.51(b)(1) and 5.18(a)(5)(iii) of the Commission's regulations to be included in the FLA, is necessary to evaluate the potential for fish entrainment at the project.
5. Section 4.51(b)(5) of the Commission's regulations requires that an applicant describe the appurtenant facilities and equipment (electrical, mechanical, *etc.*) associated with the proposed project. Please provide this information in the FLA.
6. Section 2.1.4, *Generating Equipment*, of Exhibit A of the DLA describes a 72-foot-wide by 165-foot-long project powerhouse. However, Table 1, *Project Components List*, of Exhibit A indicates that the powerhouse is 165-feet-wide by 72-feet-long. Also, Table 1 lists an average annual generation of 126,639 megawatt-hours (MWh), over the period of record (2009 to 2018), whereas section 2.2, *Average Annual Energy Generation and Dependable Capacity*, of Exhibit B of the DLA indicates that the project generates an average of 140,352 MWh annually. In the FLA, please clarify the dimensions of the project powerhouse and the project's average annual generation.
7. Section 2.1.4, *Generating Equipment*, of Exhibit A of the DLA states that Lake Lynn completed a turbine replacement and upgrade of unit 2 in 2018. In the FLA, please explain: (a) the reason for replacement of unit 2; (b) the specific upgrade(s) made to the unit; and (c) whether the upgrade(s) resulted in any change in rated capacity.

Exhibit B – Project Operation and Resource Utilization

8. Section 1.3.1, *Normal Project Operation*, of Exhibit B of the DLA indicates that Lake Lynn operates the Lake Lynn Project as a dispatchable peaking hydroelectric facility using the impoundment's storage capacity, which varies seasonally. However, the DLA provides no additional details regarding peaking operations at the project. To facilitate Commission staff's review of project operation, and in accordance with section 4.51(c) of the Commission's regulations, please provide, in the FLA, a more detailed description of peaking operations, including: (a) the frequency and timing of peaking operation (*i.e.*, peak hours, number of cycles per day, *etc.*), and whether operations vary seasonally; (b) the sequence of operation of the turbine-generator units; (c) whether the project operates to the full extent of the existing seasonal impoundment fluctuation limits; and (d) the amount of time needed to refill the impoundment to the normal maximum surface water elevation. In addition, please provide historic records from the past 10 years of daily lake level elevations and daily generation at the Lake Lynn Powerhouse.

9. Section 1.3.1, *Normal Operation*, of Exhibit B of the DLA indicates that a continuous minimum flow of 212 cubic feet per second is released through the powerhouse or via tainter gates 12 and 13. In the FLA, please clarify the operating condition(s) that govern use of the powerhouse versus the tainter gate(s) as the mechanism for releasing the minimum flow.

10. In order for Commission staff to complete its economic analysis of each relicensing alternative (*i.e.*, no action, applicant's proposal, staff alternative, staff alternative with mandatory conditions), please provide, in the FLA, the median monthly flow duration at the dam in both graphic and tabular form for an average flow year.

11. Appendix B of the DLA provides the annual and monthly flow duration curves for the Cheat River at the Lake Lynn Project. Please provide the tabular data for these graphs in the FLA.

Exhibit E – Environmental Resources

General Comments

12. Section 2.5, *Coastal Zone Management Act (CZMA)*, of Exhibit E of the DLA states that the Lake Lynn Project is not located within a coastal zone. Because Pennsylvania has a coastal zone management program, in the FLA, please provide the certification of consistency from the Pennsylvania CZMA agency, or a statement from the CZMA agency that the project is not subject CZMA review.

13. The DLA includes maps of the project area showing various geographic information system (GIS) data collected during the pre-filing studies conducted by Lake Lynn. To facilitate review of the data collected on environmental resources at the project, please file the GIS shapefiles associated with the studies, if available, with the FLA.

Water and Aquatic Resources

14. Tables 7, 8, and 12 in section 4.4.1.1.2, *Water Quality Data*, of Exhibit E of the DLA presents the range in values for water temperature, pH, dissolved oxygen, and specific conductance (or conductivity) for the period from April 1 to October 31 of 2008 through 2018. To assist Commission staff in reviewing the significance to the biological community of the range in values for each water quality constituent, please revise Tables 7, 8, and 12 to show the range (minimum and maximum) in values by year, as well as the average for each constituent by year.

15. Section 4.5.1., *Fish and Aquatic Resources – Affected Environment*, of Exhibit E of the DLA includes citations for several references and reports that will need to be part of the public record for this project. Please include with the FLA copies of the following documents:

- (a) Normandeau Associates. 2020. Lake Lynn Hydroelectric Project Desktop Fish Entrainment Assessment. December 2020;
- (b) Smith, D., and S. Welsh. 2015. Biological Monitoring of Aquatic Communities of Cheat Lake, and Cheat River Downstream of the Lake Lynn Hydro Station, 2011 – 2015. Division of Forestry and Natural Resources West Virginia University;
- (c) Smith, Dustin. 2018. Evaluation of a Re-established Walleye Population within a Hydropower Reservoir Recovering from Acidification. Graduate Theses, Dissertations, and Problem Reports;
- (d) TRC. 2020. Freshwater Mussel Reconnaissance Scoping Survey Report;
- (e) United States Fish and Wildlife Service (USFWS). 2022. qPCR analysis of eDNA filter samples collected in 2021 at Lake Lynn Dam Target species: American Eel (*Anguilla rostrata*);
- (f) Wellman, D., F. Jernejcic, and J. Hedrick. 2008. Biological monitoring of aquatic communities of Cheat Lake, and Cheat River downstream of the Lake Lynn Hydro Station, 2008;
- (g) Welsh, S. and K. Matt. 2020. An Evaluation of Artificial Habitat Structures in Cheat Lake with Emphasis on Yellow Perch Spawning and Water Level Fluctuations. West Virginia Cooperative Fish and Wildlife Research Unit; and
- (h) West Virginia Division of Natural Resources (WVDNR). 2004. Biological Monitoring of Aquatic Communities of Cheat Lake, and Cheat River downstream of the Lake Lynn Hydro-station, 2005 – 2009.

Terrestrial Resources

16. Section 2.1.5, *Transmission Facilities*, of Exhibit A of the DLA includes a brief, general description of the project substation, transformers, and transmission lines. Section 4.6, *Wildlife Resources*, of Exhibit E of the DLA does not include information regarding the effects of operating and maintaining the transmission facilities on terrestrial resources, including birds and other wildlife. To facilitate Commission staff's review of the design, configuration, and maintenance of the project transmission facilities as they relate to avian protection, please provide the following information in the FLA:

- (a) a discussion of whether the project transmission line poles and other equipment currently installed are consistent with the Avian Power Line Interaction Committee (APLIC) and U.S. Fish and Wildlife Service (FWS) guidelines to

- minimize adverse avian interactions (*i.e.*, potential avian electrocutions and collisions) (APLIC, 2006 and 2012; and APLIC and FWS, 2005);
- (b) detailed descriptions, figures, and diagrams of the project transmission facilities and any existing avian protection devices currently installed;
- (c) the specifications and locations of any proposed avian protection measures that would be consistent with APLIC guidelines, if applicable;
- (d) a copy of the Avian Protection Plan for the project, or a general Avian Protection Plan that Lake Lynn implements at all of its hydropower projects that include transmission facilities, if applicable; and
- (e) data regarding observed or documented avian interactions with the project's transmission facilities, such as nest building, perching, electrocutions, collisions, and any outages related to such interactions, if available.

17. Exhibit E of the DLA does not include a description of Lake Lynn's vegetation management activities, including tree removal, within the project boundary. To facilitate Commission staff's review of the effects of project operation and maintenance activities on terrestrial resources, including regular vegetation management, please provide the following information in the FLA:

- (a) the types of existing and proposed vegetation management activities used at the project (*e.g.*, tree trimming and removal, mowing, and herbicide applications);
- (b) the locations where each vegetation management technique occurs within the project boundary (*e.g.*, transmission facilities; access roads; parking areas; and recreation areas, such as the tailrace fishing area, Cheat Lake Trail, Cheat Lake Park, Sunset Beach Marina Public Boat Launch, nature viewing areas, *etc.*);
- (c) the procedures, including any time of year restrictions, for managing vegetation in sensitive habitats such as wetlands, riparian areas, and suitable locations for rare, threatened, or endangered species; and
- (d) a schedule for conducting regular vegetation management (*i.e.*, activities performed annually, seasonally, as-needed, *etc.*). If herbicides are used to control vegetation, please include the method/location of application (*e.g.*, foliar, stump, stem, and/or vine).

18. Section 4.7, *Botanical Resources*, of Exhibit E of the DLA provides a general description of the types of upland and wetland habitats that occur in the project vicinity, as well as general statements of project related effects on these habitats. The DLA lists different land cover types in uplands within 1 mile of the project by percentage, but it does not provide any acreage estimates for upland habitat types within the project boundary. It is also unclear where the identified wetlands occur within the project

boundary, which species occur in the “[r]uderal forests² [that] are ... common riparian habitat...,” and whether existing project operation and maintenance activities affect these wetlands and forests.

In addition, Lake Lynn proposes to remove lands from the project boundary. However, the DLA does not include any information on the change in upland and wetland habitat areas between the existing and proposed project boundaries. Section 4.7.2, *Environmental Effects*, of Exhibit E of the DLA concludes that “no effects on botanical resources are expected because Lake Lynn is not proposing any changes to the project operations or to the Lake Lynn project facilities (e.g., dam or powerhouse)...[and]...the proposed action does not include any ground-disturbing activities.” To facilitate Commission staff’s independent review of ongoing project operation and maintenance activities on botanical resources, please provided the following information in the FLA:

- (a) the estimated acreages of each identified upland and wetland habitat type within the existing and proposed project boundary;
- (b) a map showing the identified uplands and wetlands relative to the existing and proposed project boundary;
- (c) a description of project operation and maintenance activities (e.g., reservoir fluctuations associated with seasonal peaking operation, vegetation management activities, and project-related recreation) in relation to existing upland and wetland habitats; and
- (d) detailed descriptions of the potential project-related effects on these botanical resources, including the effects of the proposed removal of land from the project boundary.

19. Section 4.7.1.2, *Wetlands, Riparian, and Littoral Habitat*, of Exhibit E of the DLA indicates that Lake Lynn “...worked cooperatively with West Virginia DNR and West Virginia University to document the distribution and relative abundance of aquatic vegetation and to map aquatic vegetation in Cheat Lake. Twenty-two separate areas of aquatic vegetation were documented [throughout] the impoundment. The most common species found in dense abundance during the surveys included brittle naiad (*Najas minor*), wild celery (*Vallisneria americana*), and curly-leaf pondweed (*Potamogeton crispus*).” These aquatic plants are all non-native, invasive species. The DLA does not include information about the effects of ongoing project operation and maintenance activities on these species within the project boundary. In addition, while Exhibit E of the DLA includes information regarding the aforementioned aquatic, non-native, invasive

² The DLA describes these habitats as “...early succession forests [that] are often found in areas that have been disturbed by human activity, such as the construction or maintenance of roads, trails, and buildings. See DLA at E-4-54.

plants, it does not discuss occurrences of terrestrial, non-native, invasive plants. In the FLA, please provide:

- (a) the locations of terrestrial non-native invasive plants in the project boundary;
- (b) a description of the potential project-related effects on the identified populations of both aquatic and terrestrial, non-native, invasive plants in the project boundary, including: (i) the existing seasonal reservoir fluctuations associated with peaking operations; (ii) project maintenance activities, including vegetation management; and (iii) project-related recreation activities;
- (c) the methods being used to monitor and/or manage the identified populations of brittle naiad, wild celery, and curly-leaf pondweed, and any terrestrial non-native invasive plants in the project boundary, if applicable; and
- (d) the entity/entities managing these populations, if applicable.

Threatened and Endangered Species

20. Section 4.8, *Rare, Threatened, and Endangered Species*, of Exhibit E of the DLA discusses species protected under the Endangered Species Act, including the endangered Indiana bat, the threatened northern long-eared bat (NLEB) and flat-spined three-toothed snail, as well as the monarch butterfly, a candidate for federal listing, among the species that may occur within the project boundary. However, the DLA does not include the FWS's newly proposed species, tricolored bat,³ which FWS proposed for listing as endangered on September 14, 2022, nor does it recognize the proposed reclassification of the federal status of NLEB.⁴ The DLA also does not address potential project effects on these federally listed species, with the exception of a brief/general statement regarding proposed seasonal tree clearing restrictions to protect bats. The DLA does not provide enough detail for Commission staff to assess potential project-related effects on federally listed, proposed, and candidate species. Therefore, in the FLA, please ensure that the *Rare, Threatened, and Endangered Species* section:

³ 87 Fed. Reg. 56,381-56,393 (September 14, 2022). Please note that the range of tricolored bats includes all of West Virginia and Pennsylvania, and there may be a delay for this species to appear on species lists generated on FWS's Information for Planning and Consultation (IPaC) system.

⁴ FWS proposed to reclassify the NLEB from a threatened to an endangered species under the ESA on March 23, 2022. See 87 Fed. Reg. 16,442-16,452 (March 23, 2022). FWS anticipates issuing a decision on this proposed rule by the end of November 2022. See FWS's questions and answers on the proposed rule, available at: <https://www.fws.gov/sites/default/files/documents/NLEB%20pUplisting%20FAQs%20FINAL%20%281%29.pdf>.

- (a) provides detailed, species-specific discussions of the potential project-related effects (*i.e.*, operation; maintenance, including seasonal vegetation management; and project-related recreation activities; as well as the proposed removal of land from the project boundary) on federally listed, proposed, and candidate species, and their habitats, that may occur at the project. These species include the Indiana bat, NLEB, tricolored bat, flat-spined three-toothed snail, and monarch butterfly; and
- (b) ensures that the description of any existing or proposed tree removal activities (requested in item #17 above), includes cutting down, harvesting, destroying, trimming, or manipulating in any other way the trees, saplings, snags, or any other form of woody vegetation likely to be used by NLEBs or tricolored bats within the project boundary. Please note that suitable NLEB roosts include live or dead trees that are typically greater than, or equal to, 3 inches in diameter at breast height and have cavities, peeling bark, crevices, or hollows. Tricolored bats primarily roost among live and dead leaf clusters of live or recently dead deciduous hardwood trees, but they have also been observed roosting in lichens with pendant growth forms, as well as among pine and eastern red cedar needles.

Recreation

21. Section 4.9.2.1, *Recreation and Land Use Resources – Environmental Effects, Affects of the Proposed Action*, of Exhibit E of the DLA states that Lake Lynn is proposing to formally remove the water-accessible nature viewing area across from Cheat Haven from the Lake Lynn Project boundary and no longer designate this area as a nature viewing area. So that Commission staff can analyze the effects of removing the nature viewing area from the project boundary, please provide the following in the FLA:

- (a) an explanation of why Lake Lynn is requesting to remove the habitat viewing area;
- (b) the record of consultation with West Virginia DNR on the proposed removal;
- (c) images taken from the viewing area;
- (d) visitor usage information or data for the viewing area;
- (e) information on any dock, ramp, or bathroom facilities, if any such infrastructure exists for boaters visiting the nature viewing area;
- (f) whether or not any such infrastructure would be removed; and
- (g) how the removal of the viewing area would be communicated to Lake Lynn Project visitors.

Land Use and Aesthetic Resources

22. Section 4.10.1, *Aesthetic Resources – Affected Environment*, of Exhibit E of the DLA discusses aesthetic resources at the Lake Lynn Project. The only aesthetic resources described are limited viewing opportunities from roadways. The project offers several wildlife viewing opportunities, including views from a tower, that may offer scenic viewing of the project area. So that Commission staff can analyze aesthetic

resources at the project, in the FLA, please clarify if any of the recreation sites add additional aesthetic resources to the project; if so, please include images taken from the observation points.

Cultural Resources

23. Section 4.11.1, *Historical and Cultural Resources – Affected Environment*, of Exhibit E of the DLA provides a brief description of the cultural context for the project, but does not provide a discussion of pre-European contact historical background or the archeological context of the region, as required in section 4.51(f)(4) of the Commission's regulations. So that Commission staff can describe the affected environment and analyze potential effects to cultural and Tribal resources, in the FLA, please provide a description of the pre-European contact historical background and archeological resources within the region.

24. In the FLA, please provide a record of consultation with the West Virginia State Historic Preservation Office and Pennsylvania State Historic Preservation Office, including concurrence on the Area of Potential Effects.

Environmental Justice

25. Executive Order 14008, *Tackling the Climate Crisis at Home and Abroad*,⁵ and Executive Order 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low Income Populations*,⁶ as amended, require federal agencies to consider if impacts on human health or the environment would be disproportionately high and adverse for environmental justice (EJ) communities in the surrounding community resulting from the programs, policies, or activities of federal agencies. To assist Commission staff with its analysis under the National Environmental Policy Act (NEPA), please provide the following in the FLA:

- (a) a table of racial, ethnic, and poverty statistics for each state, county, and census block group within the geographic scope of analysis. In this case, the geographic scope of analysis is areas within 1 mile of the existing project boundary. The table should include the following information from the U.S. Census Bureau's most recently available American Community Survey 5-year Estimates for each state, county, and block group (wholly or partially) within the geographic scope of analysis:

⁵ 86 Fed. Reg. 7,619-7,633 (January 27, 2021).

⁶ 59 Fed Reg. 7,629-7,633 (February 16, 1994).

- i. total population;
- ii. total population of each racial and ethnic group (*i.e.*, White Alone Not Hispanic, Black or African American, American Indian and Alaska Native, Asian, Native Hawaiian and Other Pacific Islander, some other race, two or more races, Hispanic or Latino origin [of any race]) (count for each group);
- iii. minority population including individuals of Hispanic or Latino origin as a percentage of total population;⁷ and
- iv. total population below poverty level as a percentage.⁸

The data should be collected from the most recent American Community Survey files available, using table #B03002 for race and ethnicity data and table #B17017 for low-income households. A template table is attached.

(b) identification of environmental justice populations by block group, using the data obtained in response to part a) above, by applying the following methods included in EPA's *Promising Practices for EJ Methodologies in NEPA Reviews* (2016).⁹

- i. to identify environmental justice communities based on the presence of minority populations, use the "50 percent" and the "meaningfully greater" analysis methods. To use the "50 percent" analysis method, determine whether the total percent minority population of any block group in the affected area exceeds 50 percent. To use the "meaningfully greater" analysis determine whether any affected block group affected is 10 percent greater than the minority population percent in the county using the following process:
 1. calculate the percent minority in the reference population (county).
 2. to the reference population's percent minority, add 10 percent (*i.e.*, multiply the percent minority in the reference population by 1.1).

⁷ To calculate the percent total minority population, subtract the percentage of "White Alone Not Hispanic" from 100 percent for any given area.

⁸ To calculate percentage of total population below poverty level, divide the total households below the poverty level by the total number of households and multiply by 100.

⁹ Available online at https://www.epa.gov/sites/default/files/2016-08/documents/nepa_promising_practices_document_2016.pdf.

3. This new percentage is the threshold that a block group's percent minority would need to exceed to qualify as an environmental justice community under the meaningfully greater analysis method.
 - ii. to identify environmental justice communities based on the presence of low-income populations, use the "low-income threshold criteria" method. To use the "low income threshold criteria," the percent of the population below the poverty level in the identified block group must be equal to, or greater than, that of the reference population (county).
- (c) a map showing the project boundary and location(s) of any project-related construction in relation to any identified environmental justice communities within the geographic scope. Denote on the map if the block group is identified as an environmental justice community based on the presence of minority population, low-income population, or both.
- (d) a discussion of anticipated project-related impacts on any environmental justice communities for all resources where there is a potential nexus between the effect and the environmental justice community. Examples of resource impacts may include, but are not necessarily limited to, project-related effects on: erosion or sedimentation of private properties; groundwater or other drinking water sources; subsistence fishing, hunting, or plant gathering; access for recreation; housing or industries of importance to environmental justice communities; and construction- or operation-related air quality, noise, and traffic. For any identified effects, please also describe whether or not any of the effects would be disproportionately high and adverse.
- (e) if environmental justice communities are present, please provide a description of your public outreach efforts regarding your project, including:
- i. a summary of any outreach to environmental justice communities conducted prior to filing the application (include the date, time, and location of any public meetings beyond those required by the regulations);
 - ii. a summary of comments received from members of environmental justice communities or organizations representing the communities;
 - iii. a description of information provided to environmental justice communities; and
 - iv. planned future outreach activities and methods specific to working with the identified communities.

- (f) a description of any mitigation measures proposed to avoid and/or minimize project effects on environmental justice communities.
- (g) identification of any non-English speaking groups, within the geographic scope of analysis, that would be affected by the project (regardless of whether the group is part of an identified environmental justice community). Please describe your previous or planned efforts to identify and communicate with non-English speaking groups, and identify and describe any measures that you propose to avoid and minimize any project-related effects on these communities.

When you file your response with the Commission, please include documentation of any consultation you conducted with entities that expressed interest in environmental justice, copies of their comments, and an explanation of how you have addressed their comments in your final response.

Exhibit F – General Design Drawings, Supporting Design Report

26. An applicant must provide a supporting design report (SDR) that complies with section 4.41(g)(3) of the Commission’s regulations, and demonstrates that existing and proposed structures are safe and adequate to fulfill their stated functions. No SDR report was filed with the DLA. Therefore, please provide the SDR in the FLA.

Exhibit G – Project Boundary Maps

27. The Exhibit G maps, included with the DLA, show a proposed project boundary, along with the existing project boundary. Please submit, as part of the FLA, GIS data layers for both of the project boundaries.

28. The Exhibit G maps show several inholding areas within the project boundary. In the FLA, please: (a) describe each of these areas; (b) identify ownership; and (c) describe the reason(s) that they are not included within the proposed project boundary.

Joyce Foster

From: Joyce Foster
Sent: Friday, November 4, 2022 3:52 PM
To: Jacob Harrell <jacob.d.harrell@wv.gov>
Subject: Lake Lynn Hydroelectric Project (FERC Project No. 2459) DLA

Jacob,

I am reaching out to you to as a follow-up to the FERC comments on the Lake Lynn Draft License Application. We are proposing to remove a nature viewing area that is only accessible by boat. I would like to discuss whether WVDNR is supportive of this request.

Thank you,

Joyce A. Foster | Director, Licensing and Compliance
Eagle Creek Renewable Energy

Mobile: 804 338 5110

Email: joyce.foster@eaglecreekre.com



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Governor Jim Justice

Director Brett W. McMillion

November 1, 2002

Electronic File

Kimberly D. Bose, Secretary
Federal Energy Regulatory Commission
888 First Street, N.E.
Washington, DC 20426

**RE: Lake Lynn Hydroelectric Project (FERC no. P-2459); Draft License Application
Comments**

Dear Secretary Bose:

Thank you for the opportunity to provide comments on the referenced Draft License Application (DLA) for the Lake Lynn Hydroelectric Project (Lake Lynn, FERC no. P-2459). Lake Lynn Generation, LLC (applicant) submitted the DLA for Lake Lynn on August 5, 2002. The West Virginia Division of Natural Resources, Wildlife Resources Section (WRS) has reviewed the submitted DLA and offers the following comments pursuant to 18 C.F.R. §4.38(c)(5):

Exhibit E, 2.1.1

In addition to the US Fish and Wildlife Service and National Marine Fisheries Service, authority to prescribe fishway protections is also afforded to the State of West Virginia through provisions within WV state code § 61-3-47 which requires free and easy passage at any dam constructed on waters within West Virginia and further provides authority to the Division of Natural Resources to prescribe fishway protections at any water concourse obstructions.

Exhibit E, 3.1

Results of recent fisheries assessments (Matt et al 2021) of Cheat Lake would indicate the need to provide for a deviation from the No-Action Alternative to better protect the Cheat Lake fishery.

Exhibit E, 3.2.2

A new recreation plan for Lake Lynn should additionally address the development of the shoreline. Any changes to the shoreline (i.e., addition of new docks/piers) would have an effect

Data from spot checks conducted by WV Department of Environmental Protection (WVDEP) are not comparable to the data collected by the applicant through the continuous water quality monitoring station (US Geological Survey gage station) at the facility. WVDEP's program collects one shoreline (right descending bank) sample bi-monthly at a location. The location of this sample does not match the location of the gage station. Further, the spot check collection by WVDEP only offers a brief snapshot of water quality conditions and cannot possibly capture the true nature of water quality at the project. The WRS does not agree with including WVDEP spot check data within this report due to the inherent incompatibility between the spot check data collection program and the continuous monitoring data collection program.

Exhibit E, 4.3.2.1

Prior to March 2020, sedimentation at the Sunset Beach Marina public boat launch reached levels that hampered and severely restricted recreation activity and the public's ability to use the boat launch. This area was dredged between March 9 and March 13, 2020, to an elevation of 861 feet, allowing for safe passage for boats at a lake elevation of 865 feet. Since that date, sediment has continued to accumulate within the docks and within the dredged channel. There is concern that as these areas continue to accumulate sediment, over time the Sunset Beach Marina public boat launch and associated boat docks may become inoperable once again. Monitoring of sedimentation of Sunset Beach Marina public boat launch should be conducted on, at the very least, a yearly basis to determine conditions of sedimentation and to allow for the ability to timely and effectively address any sedimentation issues as they occur. Additionally, a dredging plan should be developed, in consultation with WRS.

Exhibit E, 4.4.1.1.2

The Lake Lynn Project has a history of exhibiting periods of low dissolved oxygen (<5mg/L) in the tailrace. Such periodic events typically occur from August to October when increased water temperatures coupled with low in flow contribute to a depletion of available dissolved oxygen passing downstream. Prolonged period of low dissolved oxygen can have profound effects on ichthyofauna, as well as mussel species and other aquatic organisms. Even short duration periods of low dissolved oxygen can depress activity and increase stress responses in aquatic fauna. Therefore, the WRS requests that further attention be afforded to this matter and that operational changes be made to prevent future deviations from occurring. The procedures to address dissolved oxygen should be described in detail with descriptions of steps taken to avoid low dissolved oxygen situations, water quality thresholds that would act as trigger points for various steps in the process, and mechanisms to increase dissolved oxygen in the tailwaters. Such procedures should be made in consultation with WRS and WVDEP.

Exhibit E, 4.5.1

To date, the WRS has not been made aware of results for a desktop fish entrainment analysis by the applicant. Beyond the initial consultation with the applicant requesting a fish entrainment analysis, the WRS has not had any further consultation with Eagle Creek regarding the entrainment analysis, to include study design and species list. The WRS has noted several errors and deficiencies in the fish entrainment analysis presented within the DLA. These issues will be expounded further under comments for Appendix D.

Exhibit E, 4.5.2.1

The proposed action has been demonstrated to potentially adversely affect fish species during spawning periods, especially yellow perch, as noted elsewhere within the DLA. The noted improvements made in fish assemblages are not attributable to project operations. Rather, they are most likely the result of improvements made in upstream water quality.

Exhibit E, 4.9

The applicant has offered no reason for the proposed removal of the boat accessible Cheat Haven nature viewing area. The WRS is aware of a separate proposal from a third-party developer (Tuscan Ridge) planning to construct a substantial boat dock area (84 slips) in the general vicinity of the boat accessible Cheat Haven nature viewing area. The WRS has expressed its opposition to such development. The WRS is concerned that the removal of the Cheat Haven nature viewing area would lead to further development of the shoreline, which may contribute to increased erosion, increased sedimentation, and loss of valuable aquatic shoreline habitat. The WRS would therefore request that this area remain as a boat accessible nature viewing area.

Exhibit E, 4.9.1.1.3

The courtesy dock at the winter boat launch area continues to be unsafe, despite multiple requests to repair. Issues with the courtesy dock have been documented for at least the past 5 years. As the condition of the courtesy dock continues to deteriorate, the likelihood of somebody seriously injuring themselves at the dock increases. The WRS is concerned about public safety at this courtesy dock and will continue to request that these concerns be addressed by the applicant to ensure the safe use of the facilities.

The location of the swimming beach leaves it vulnerable to erosion. It receives little to no protection from heavy flows from Cheat River. The WRS recommends relocating to a more suitable location. As always, the WRS would be available to consult with the applicant in identifying more suitable beach location areas.

Exhibit E, 4.9.1.1.4



Governor Jim Justice

Director Brett W. McMillion

seven fish species examined. The WRS is having difficulty in understanding how the turbine survival of two fish species can represent five other fish species with different morphologies and behaviors.

The estimated number of fish entrained is lower than expected, particularly for walleye. Movement studies of walleye in Lake Lynn would indicate walleye may have a higher propensity for entrainment due to their migratory behavior and nature of congregating near dam facilities (Smith 2015; Jernejcic 1986). This may be a relic of using the downstream fish community to identify entrainment within the reservoir community.

One of the goals of any entrainment analysis is to identify the dangers in downstream fish passage. Blade-strike mortality is only one component of the challenges imposed on downstream fish passage at the project. Other aspects to consider would be barotrauma and spill over the dam face. This desktop entrainment analysis was restricted to just examining blade-strike mortality. As such, the WRS would request further analysis that could shed light on barotrauma effects and potential spill mortality. Additionally, in-field verification of the desktop analysis may be warranted to offer support for any conclusions presented by this analysis.

Thank you for the opportunity to review the variance request. If you have any questions or comments related to the WRS' position regarding this reservoir elevation variance, please contact me by phone at XXX-XXX-XXXX or through email at XXXX.X.XXXXX@wv.gov.

Sincerely Yours,

Danny Bennett

WVDNR – Wildlife Resources Section
Natural Resources Program Manager 1
Coordination

Study References:

Jernejcic, F. 1986. Walleye migration through Tygart Dam and angler utilization of the resulting tailwater and lake fisheries. Reservoir Fisheries Management: Strategies for the 80's. pg 294-300/

Joyce Foster

From: Duane Nichols <duane330@aol.com>
Sent: Tuesday, November 8, 2022 8:34 PM
To: Joyce Foster
Cc: Mike Strager; ChesterMcGraw; Donna Weems; Duane Nichols
Subject: CLEAR Comments on Draft Relicensing Application P-2459 (typos removed)

[This email originated OUTSIDE of Eagle Creek. Exercise caution. DO NOT open attachments or click links from unknown senders or unexpected email.]

CLEAR Comments on Draft Relicensing Application for Lake Lynn Hydroelectric Project (P-2459), November 8, 2022.

1. THE RELICENSING PROCESS IS CHALLENGING FOR THE PUBLIC. This process seems unnecessarily long and drawn-out, being conducted over multiple years. And, the status of input is not at all clear as to what is “heard” and what is accepted for use. The draft relicensing document being some 480 pages is too large to comprehend or evaluate.

2. CLEAR EXPECTED A COMPREHENSIVE SHORELINE MANAGEMENT PLAN AND RECREATION GUIDELINES TO BE ALREADY IN PLACE BUT APPARENTLY THIS IS BEING DELAYED FOR TWO TO THREE MORE YEARS. A number of topics cry out for attention on Cheat Lake. An up dated dock and boat capacity study is needed. The shoreline camping issues continue. Preparations are needed for possible landslides and washouts that interfere with or close the trail(s). The need for an expanded swimming area plus a dog beach exists as well as regular maintenance of these areas. Rest room facilities and regular trash removal are important.

3. CLEAR RECOMMENDS & REQUESTS NEAR-TERM ATTENTION FOR A NUMBER OF ACTIVITIES:

a. SWIMMING BEACH ~ CLEAR was instrumental in the establishment of a Swimming Beach on Cheat Lake, which exceeds capacity on many week-ends and most holidays. We have worked with Lake Lynn Hydro to extend this beach to the Day Use Boat Docks, but this extension process has slowed. It is our priority that this work continue to completion due to its substantial public need.

b. DOG BEACH ~ In the past, dogs have been swimming at the Swimming Beach and interfering with the activities of small children there. CLEAR has recommended a Dog Beach for exclusive use of dogs at the small beach location in the Morgan Run Backwater, noticeably separate from and well separated from the Swimming Beach. We anticipate that no extra preparations or costs, other than signage, will be involved. (The requirement that dogs must be on a leash will not detract from or preclude this plan.)

c. SHORELINE CAMP SITES ~ CLEAR believes that the granting of shoreline camp sites has been discontinued and that residual sites were to be cleaned up. We support these efforts and encourage attention to these plans.

d. SEA WALLS & BUOYS ~ Inappropriate and illegal sea walls and buoys are sometimes installed in the Lake. Attention to these situations can be included in the Lake monitoring activities that are needed on a continuing periodic basis.

c. CAPACITY STUDIES ~ CLEAR has observed the continuing growth in the number of docks and boats on the Lake, some of excessive horsepower due to the noise created. Another capacity study may well be justified in the near term, rather than wait until relicensing to decide.

d. WILDLIFE VIEWING AREAS ~ CLEAR supports the development of specific plans for the Wildlife Viewing Areas as part of the overall Project planning described as post relicensing. It may be that one or two can be discontinued, or planted for long term monitoring at little or no cost. There is no need to discontinue any of them during relicensing.

e. THE SHEEPSKIN TRAIL WILL DESIRABLY SOMEDAY INTERFACE TO THE CHEAT LAKE TRAIL. This year the Sheepskin Trail has been extended a few miles from the mouth of the Cheat River at Pt. Marion, PA, toward the Lake and Dam. CLEAR recommends that provisions proceed to interface the Sheepskin Trail with the Cheat Lake Trail, at least for limited times of greatest usage. Generally, these trails may well ultimately interconnect Parkersburg, WV, on the Ohio River with Washington, DC, on the Potomac River.

f. BIOMONITORS SHOULD BE PLACED IN AT LEAST FOUR OTHER LOCATION IN ADDITION TO THE DAM AREA. Four recommended important locations for additional biomonitors with easy access are as follows: # Southwest end of the Day Use Boat Docks to monitor the swimming area, # Under the CLEAR dock along the South Trail, near its end, # Off the parking area at the east end of the new Route 857 Bridge across the Lake, aka. the Ices Ferry location, and # Downstream boundary of Mt. Chateau property at the Lake (WV State owned property). The latter will provide a measure of the inflow water conditions.

g. OTHER ACTIVITIES ~ # CLEAR supports continued fishing and boating on the Lake and encourages Lake Lynn Hydro and the WV Division of Natural Resources to continue studies and activities that benefit fish, mussels, turtles, etc. The hellbender should not be neglected, as upstream habitat appears compatible. # The Winter Boat Ramp is an important feature to maintain; and, this location is important as, and should be maintained as, a kayak launch site year round. # A bicycle rental concession at the Morgan Run & Ruble Run trail head would be a useful addition to the overall recreation plan — volunteers may be available for its operation after the initial establishment is achieved.

4. AN ON-SITE RANGER IS NEEDED TO PATROL THE RECREATIONAL AREA. Particularly on Saturdays and Sundays during the recreation & boating season, a trained “steward” is needed to monitor the recreational area, to provide information to visitors, to conduct safety surveys, to provide a liaison with security services, and to respond quickly by requesting assistance for any accident victims. This is necessitated because of the extent of the recreational area, because of the dangers of swimming, jogging and bicycling as well as possible incidents involving dogs, wild animals and steep terrain.

5. REGULAR “LAKE LYNN COMMUNITY MEETINGS” ARE NEEDED TO PROVIDE INTERACTION AMONG LAKE USES, LAKE LYNN HYDRO, MONONGALIA COUNTY OFFICIALS, WV DIVISION OF NATURAL RESOURCES, AND OTHER INTERESTED PARTIES. Quarterly meetings at the Cheat Lake Fire Department would be appropriate for those interested in timely information, timely opportunities to provide input, and generally to ensure that the general public has an obvious channel to the Project. Participation by Lake Lynn Hydro personnel would be essential.

NOTE: CLEAR wishes to express our appreciation to Lake Lynn Hydro, to WV DNR, to FERC, and to all the others interested and concerned about Cheat Lake and this Project. We believe that the potential here is for better and more services to this region. Let’s always remember that the Lake Lynn Dam was dedicated from the very beginning to providing for recreation and a public service. Hopefully, we can continue the quest for more and better communications and understanding among all interested parties.

SUBMITTED BY THE CHEAT LAKE ENVIRONMENT AND RECREATION ASSOCIATION, Duane Nichols (President), Michael Strager (Vice President), Ann Chester (Secretary), Donna Weems (Treasurer). ADDRESS: CLEAR, [330 Dream Catcher Circle, Morgantown, WV 26508](#).

Joyce Foster

From: Joyce Foster
Sent: Friday, November 11, 2022 3:00 PM
To: ra-epcoastalzone@epa.gov
Subject: Lake Lynn Hydroelectric Project (FERC Project No. 2459) PA Coastal Zone

Lake Lynn Generation, LLC is the owner and operator of the Lake Lynn Hydroelectric Project located on the Cheat River in Monongalia County, WV and Fayette County, PA. Based on a review of the PA Coastal Resources Management Program website, we do not believe this project is located within a Coastal Zone and, therefore, is not subject to the CZMA. The website notes that Pennsylvania has two coastal areas: Lake Erie Coastal Zone located within Erie County and Delaware Estuary Coastal Zone within Bucks, Philadelphia, and Delaware counties. Can you please confirm our understanding at your earliest convenience.

Thank you,

Joyce A. Foster | Director, Licensing and Compliance
Eagle Creek Renewable Energy
Mobile: 804 338 5110
Email: joyce.foster@eaglecreekre.com



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Joyce Foster

From: Joyce Foster
Sent: Monday, March 4, 2024 5:38 PM
To: katie@accawv.org
Subject: Lake Lynn Hydroelectric Project (FERC No. P-2459)

In your October 25, 2023 scoping comments filed with the Federal Energy Regulatory Commission (FERC), you stated that the Avian Conservation Center of Appalachia partners with the Cheat Lake Animal Hospital to rehabilitate injured or displaced birds annually from throughout the region. I am reaching out to you to see if you have specific information regarding the Lake Lynn Project and observed interactions between birds/wildlife at the Lake Lynn Project transmission facilities. The Lake Lynn Project is located mainly in Monongalia County, West Virginia with a small portion in Fayette County, PA. It is important to note that the Lake Lynn Project only has two transformers and dual 800-foot-long transmission lines that lead from the Lake Lynn powerhouse (at the Cheat Lake Dam) to the interconnection point with the grid at a substation owned and operated by FirstEnergy. These two short sections of transmission line are unlikely to cause any significant adverse impacts to birds and none have been observed by Lake Lynn staff. As a general rule, Lake Lynn only removes trees where removal is necessary for public safety, protection of human life, or protection of property.

I would be happy to discuss this with you at your convenience and would appreciate receiving a response no later than April 1, 2024.

Joyce A. Foster | Director, Licensing and Compliance
Eagle Creek Renewable Energy

Mobile: 804 338 5110

Email: joyce.foster@eaglecreekre.com



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Joyce Foster

From: Joyce Foster
Sent: Friday, March 8, 2024 6:45 AM
To: fws5_wvfo@fws.gov
Subject: Tricolored bat protections Lake Lynn Hydroelectric Project (FERC No. 2459)

For the Federal Energy Regulatory Commission (FERC or Commission) relicensing of the Lake Lynn Hydroelectric Project (FERC No 2459) located mainly in Monongalia County, West Virginia with a small portion in Fayette County, PA, Lake Lynn Generation is trying to understand the proposed listing for the tricolored bat. It is our understanding that the USFWS is in the process of developing tricolored bat protection recommendations based on seasonal habitat use, which varies geographically. I am reaching out to you to understand the tricolored bat protection recommendations and seasonal habitat tricolored bat zones occur at the Lake Lynn Project (see attached figure). I would be happy to discuss this with you at your convenience but would appreciate any information you can provide related to the seasonal habitat tricolored bat zones no later than April 4, 2024.

Joyce A. Foster | Director, Licensing and Compliance
Eagle Creek Renewable Energy

Mobile: 804 338 5110

Email: joyce.foster@eaglecreekre.com



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Joyce Foster

From: Joyce Foster
Sent: Friday, March 15, 2024 3:51 PM
To: fws5_wvfo@fws.gov; dnr.wildlife@wv.gov
Subject: Lake Lynn Hydroelectric Project (FERC No. P-2459)

I am reaching out to you to see if you have specific information regarding the Lake Lynn Project and interactions between birds/wildlife at the Lake Lynn Project transmission facilities. The Lake Lynn Project is located mainly in Monongalia County, West Virginia with a small portion in Fayette County, PA (see attached figure). It is important to note that the Lake Lynn Project only has two transformers and dual 800-foot-long transmission lines that lead from the Lake Lynn powerhouse (at the Cheat Lake Dam) to the interconnection point with the grid at a substation owned and operated by FirstEnergy. These two short sections of transmission line are unlikely to cause any significant adverse impacts to birds and none have been observed by Lake Lynn staff. As a general rule, Lake Lynn only removes trees where removal is necessary for public safety, protection of human life, or protection of property. I would appreciate receiving any comments or information no later than April 4, 2024.

Joyce A. Foster | Director, Licensing and Compliance
Eagle Creek Renewable Energy

Mobile: 804 338 5110

Email: joyce.foster@eaglecreekre.com



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United States Department of the Interior



FISH AND WILDLIFE SERVICE
Assistant Regional Director-Ecological Services
5600 American Blvd. West
Bloomington, MN 55437-1458
Phone: (612) 713-5350 Fax: (612) 713-5292

In Reply Refer To:
Project code: 2024-0073645
Project Name: Lake Lynn (P-2459)

04/05/2024 19:17:44 UTC

Federal Nexus: no
Federal Action Agency (if applicable): Federal Energy Regulatory Commission

Subject: Record of project representative's no effect determination for 'Lake Lynn (P-2459)'

Dear Karen Bishop:

This letter records your determination using the Information for Planning and Consultation (IPaC) system provided to the U.S. Fish and Wildlife Service (Service) on April 05, 2024, for 'Lake Lynn (P-2459)' (here forward, Project). This project has been assigned Project Code 2024-0073645 and all future correspondence should clearly reference this number. **Please carefully review this letter.**

Ensuring Accurate Determinations When Using IPaC

The Service developed the IPaC system and associated species' determination keys in accordance with the Endangered Species Act of 1973 (ESA; 87 Stat. 884, as amended; 16 U.S.C. 1531 et seq.) and based on a standing analysis. All information submitted by the Project proponent into IPaC must accurately represent the full scope and details of the Project.

Failure to accurately represent or implement the Project as detailed in IPaC or the Northern Long-eared Bat Rangewide Determination Key (Dkey), invalidates this letter. ***Answers to certain questions in the DKey commit the project proponent to implementation of conservation measures that must be followed for the ESA determination to remain valid.***

Determination for the Northern Long-Eared Bat

Based upon your IPaC submission and a standing analysis, your project has reached the determination of "No Effect" on the northern long-eared bat. To make a no effect determination, the full scope of the proposed project implementation (action) should not have any effects (either positive or negative), to a federally listed species or designated critical habitat. Effects of the action are all consequences to listed species or critical habitat that are caused by the proposed action, including the consequences of other activities that are caused by the proposed action. A

consequence is caused by the proposed action if it would not occur but for the proposed action and it is reasonably certain to occur. Effects of the action may occur later in time and may include consequences occurring outside the immediate area involved in the action. (See § 402.17).

Under Section 7 of the ESA, if a federal action agency makes a no effect determination, no consultation with the Service is required (ESA §7). If a proposed Federal action may affect a listed species or designated critical habitat, formal consultation is required except when the Service concurs, in writing, that a proposed action "is not likely to adversely affect" listed species or designated critical habitat [50 CFR §402.02, 50 CFR§402.13].

Other Species and Critical Habitat that May be Present in the Action Area

The IPaC-assisted determination for the northern long-eared bat does not apply to the following ESA-protected species and/or critical habitat that also may occur in your Action area:

- Flat-spined Three-toothed Snail *Triodopsis platysayoides* Threatened
- Indiana Bat *Myotis sodalis* Endangered
- Monarch Butterfly *Danaus plexippus* Candidate
- Tricolored Bat *Perimyotis subflavus* Proposed Endangered

You may coordinate with our Office to determine whether the Action may affect the animal species listed above and, if so, how they may be affected.

Next Steps

Based upon your IPaC submission, your project has reached the determination of “No Effect” on the northern long-eared bat. If there are no updates on listed species, no further consultation/coordination for this project is required with respect to the northern long-eared bat. However, the Service recommends that project proponents re-evaluate the Project in IPaC if: 1) the scope, timing, duration, or location of the Project changes (includes any project changes or amendments); 2) new information reveals the Project may impact (positively or negatively) federally listed species or designated critical habitat; or 3) a new species is listed, or critical habitat designated. If any of the above conditions occurs, additional coordination with the Service should take place to ensure compliance with the Act.

If you have any questions regarding this letter or need further assistance, please contact the Assistant Regional Director-Ecological Services and reference Project Code 2024-0073645 associated with this Project.

Action Description

You provided to IPaC the following name and description for the subject Action.

1. Name

Lake Lynn (P-2459)

2. Description

The following description was provided for the project 'Lake Lynn (P-2459)':

Lake Lynn relicensing

The approximate location of the project can be viewed in Google Maps: <https://www.google.com/maps/@39.669328300000004,-79.86339437775065,14z>



DETERMINATION KEY RESULT

Based on the information you provided, you have determined that the Proposed Action will have no effect on the Endangered northern long-eared bat (*Myotis septentrionalis*). Therefore, no consultation with the U.S. Fish and Wildlife Service pursuant to Section 7(a)(2) of the Endangered Species Act of 1973 (87 Stat. 884, as amended 16 U.S.C. 1531 *et seq.*) is required for those species.

QUALIFICATION INTERVIEW

1. Does the proposed project include, or is it reasonably certain to cause, intentional take of the northern long-eared bat or any other listed species?

Note: Intentional take is defined as take that is the intended result of a project. Intentional take could refer to research, direct species management, surveys, and/or studies that include intentional handling/encountering, harassment, collection, or capturing of any individual of a federally listed threatened, endangered or proposed species?

No

2. Does any component of the action involve construction or operation of wind turbines?

Note: For federal actions, answer 'yes' if the construction or operation of wind power facilities is either (1) part of the federal action or (2) would not occur but for a federal agency action (federal permit, funding, etc.).

No

3. Is the proposed action authorized, permitted, licensed, funded, or being carried out by a Federal agency in whole or in part?

No

4. [Semantic] Is the action area located within 0.5 miles of a known northern long-eared bat hibernaculum?

Note: The map queried for this question contains proprietary information and cannot be displayed. If you need additional information, please contact your State wildlife agency.

Automatically answered

No

5. Does the action area contain any caves (or associated sinkholes, fissures, or other karst features), mines, rocky outcroppings, or tunnels that could provide habitat for hibernating northern long-eared bats?

No

6. Does the action area contain or occur within 0.5 miles of (1) talus or (2) anthropogenic or naturally formed rock crevices in rocky outcrops, rock faces or cliffs?

No

7. Is suitable summer habitat for the northern long-eared bat present within 1000 feet of project activities?
(If unsure, answer "Yes.")

Note: If there are trees within the action area that are of a sufficient size to be potential roosts for bats (i.e., live trees and/or snags ≥ 3 inches (12.7 centimeter) dbh), answer "Yes". If unsure, additional information defining suitable summer habitat for the northern long-eared bat can be found at: <https://www.fws.gov/media/northern-long-eared-bat-assisted-determination-key-selected-definitions>

Yes

8. Will the action cause effects to a bridge?

No

9. Will the action result in effects to a culvert or tunnel?

No

10. Does the action include the intentional exclusion of northern long-eared bats from a building or structure?

Note: Exclusion is conducted to deny bats' entry or reentry into a building. To be effective and to avoid harming bats, it should be done according to established standards. If your action includes bat exclusion and you are unsure whether northern long-eared bats are present, answer "Yes." Answer "No" if there are no signs of bat use in the building/structure. If unsure, contact your local U.S. Fish and Wildlife Services Ecological Services Field Office to help assess whether northern long-eared bats may be present. Contact a Nuisance Wildlife Control Operator (NWCO) for help in how to exclude bats from a structure safely without causing harm to the bats (to find a NWCO certified in bat standards, search the Internet using the search term "National Wildlife Control Operators Association bats"). Also see the White-Nose Syndrome Response Team's guide for bat control in structures

No

11. Does the action involve removal, modification, or maintenance of a human-made structure (barn, house, or other building) **known or suspected to contain roosting bats**?

No

12. Will the action directly or indirectly cause construction of one or more new roads that are open to the public?

Note: The answer may be yes when a publicly accessible road either (1) is constructed as part of the proposed action or (2) would not occur but for the proposed action (i.e., the road construction is facilitated by the proposed action but is not an explicit component of the project).

No

13. Will the action include or cause any construction or other activity that is reasonably certain to increase average daily traffic on one or more existing roads?

Note: For federal actions, answer 'yes' when the construction or operation of these facilities is either (1) part of the federal action or (2) would not occur but for an action taken by a federal agency (federal permit, funding, etc.). .

No

14. Will the action include or cause any construction or other activity that is reasonably certain to increase the number of travel lanes on an existing thoroughfare?

For federal actions, answer 'yes' when the construction or operation of these facilities is either (1) part of the federal action or (2) would not occur but for an action taken by a federal agency (federal permit, funding, etc.).

No

15. Will the proposed action involve the creation of a new water-borne contaminant source (e.g., leachate pond pits containing chemicals that are not NSF/ANSI 60 compliant)?

No

16. Will the proposed action involve the creation of a new point source discharge from a facility other than a water treatment plant or storm water system?

No

17. Will the action include drilling or blasting?

No

18. Will the action involve military training (e.g., smoke operations, obscurant operations, exploding munitions, artillery fire, range use, helicopter or fixed wing aircraft use)?

No

19. Will the proposed action involve the use of herbicide or other pesticides (e.g., fungicides, insecticides, or rodenticides)?

No

20. Will the action include or cause activities that are reasonably certain to cause chronic nighttime noise in suitable summer habitat for the northern long-eared bat? Chronic noise is noise that is continuous or occurs repeatedly again and again for a long time.

Note: Additional information defining suitable summer habitat for the northern long-eared bat can be found at: <https://www.fws.gov/media/northern-long-eared-bat-assisted-determination-key-selected-definitions>

No

21. Does the action include, or is it reasonably certain to cause, the use of artificial lighting within 1000 feet of suitable northern long-eared bat roosting habitat?

Note: Additional information defining suitable roosting habitat for the northern long-eared bat can be found at: <https://www.fws.gov/media/northern-long-eared-bat-assisted-determination-key-selected-definitions>

No

22. Will the action include tree cutting or other means of knocking down or bringing down trees, tree topping, or tree trimming?

No

23. Will the action result in the use of prescribed fire?

No

24. Will the action cause noises that are louder than ambient baseline noises within the action area?

No

PROJECT QUESTIONNAIRE

IPAC USER CONTACT INFORMATION

Agency: Kleinschmidt Associates
Name: Karen Bishop
Address: 35 Pratt Street Suite 201
City: Essex
State: CT
Zip: 06246
Email: karen.bishop@kleinschmidtgroup.com
Phone: 8605815877

LEAD AGENCY CONTACT INFORMATION

Lead Agency: Federal Energy Regulatory Commission



United States Department of the Interior



FISH AND WILDLIFE SERVICE
West Virginia Ecological Services Field Office
6263 Appalachian Highway
Davis, WV 26260-8061
Phone: (304) 866-3858 Fax: (304) 866-3852

In Reply Refer To:
Project Code: 2024-0073645
Project Name: Lake Lynn

04/05/2024 19:13:03 UTC

Subject: List of threatened and endangered species that may occur in your proposed project location or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed, and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through IPaC by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2) (c)). For projects other than major construction activities, the Service suggests that a biological

evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at: <https://www.fws.gov/sites/default/files/documents/endangered-species-consultation-handbook.pdf>

Migratory Birds: In addition to responsibilities to protect threatened and endangered species under the Endangered Species Act (ESA), there are additional responsibilities under the Migratory Bird Treaty Act (MBTA) and the Bald and Golden Eagle Protection Act (BGEPA) to protect native birds from project-related impacts. Any activity, intentional or unintentional, resulting in take of migratory birds, including eagles, is prohibited unless otherwise permitted by the U.S. Fish and Wildlife Service (50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)). For more information regarding these Acts, see [Migratory Bird Permit | What We Do | U.S. Fish & Wildlife Service \(fws.gov\)](#).

The MBTA has no provision for allowing take of migratory birds that may be unintentionally killed or injured by otherwise lawful activities. It is the responsibility of the project proponent to comply with these Acts by identifying potential impacts to migratory birds and eagles within applicable NEPA documents (when there is a federal nexus) or a Bird/Eagle Conservation Plan (when there is no federal nexus). Proponents should implement conservation measures to avoid or minimize the production of project-related stressors or minimize the exposure of birds and their resources to the project-related stressors. For more information on avian stressors and recommended conservation measures, see <https://www.fws.gov/library/collections/threats-birds>.

In addition to MBTA and BGEPA, Executive Order 13186: *Responsibilities of Federal Agencies to Protect Migratory Birds*, obligates all Federal agencies that engage in or authorize activities that might affect migratory birds, to minimize those effects and encourage conservation measures that will improve bird populations. Executive Order 13186 provides for the protection of both migratory birds and migratory bird habitat. For information regarding the implementation of Executive Order 13186, please visit <https://www.fws.gov/partner/council-conservation-migratory-birds>.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Code in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Note: IPaC has provided all available attachments because this project is in multiple field office jurisdictions.

Attachment(s):

- Official Species List
- USFWS National Wildlife Refuges and Fish Hatcheries
- Bald & Golden Eagles
- Migratory Birds
- Wetlands

OFFICIAL SPECIES LIST

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

West Virginia Ecological Services Field Office

6263 Appalachian Highway
Davis, WV 26260-8061
(304) 866-3858

This project's location is within the jurisdiction of multiple offices. However, only one species list document will be provided for all offices. The species and critical habitats in this document reflect the aggregation of those that fall in each of the affiliated office's jurisdiction. Other offices affiliated with the project:

Pennsylvania Ecological Services Field Office

110 Radnor Road Suite 101
State College, PA 16801-7987
(814) 234-4090

PROJECT SUMMARY

Project Code: 2024-0073645
Project Name: Lake Lynn
Project Type: Dam - Maintenance/Modification
Project Description: Lake Lynn relicensing
Project Location:

The approximate location of the project can be viewed in Google Maps: <https://www.google.com/maps/@39.669328300000004,-79.86339437775065,14z>



Counties: Pennsylvania and West Virginia

ENDANGERED SPECIES ACT SPECIES

There is a total of 5 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries¹, as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

-
1. [NOAA Fisheries](#), also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

MAMMALS

NAME	STATUS
Indiana Bat <i>Myotis sodalis</i> There is final critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/5949	Endangered
Northern Long-eared Bat <i>Myotis septentrionalis</i> No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/9045	Endangered
Tricolored Bat <i>Perimyotis subflavus</i> No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/10515	Proposed Endangered

SNAILS

NAME	STATUS
Flat-spined Three-toothed Snail <i>Triodopsis platysayoides</i> No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/464	Threatened

INSECTS

NAME	STATUS
Monarch Butterfly <i>Danaus plexippus</i> No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/9743	Candidate

CRITICAL HABITATS

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

YOU ARE STILL REQUIRED TO DETERMINE IF YOUR PROJECT(S) MAY HAVE EFFECTS ON ALL ABOVE LISTED SPECIES.

USFWS NATIONAL WILDLIFE REFUGE LANDS AND FISH HATCHERIES

Any activity proposed on lands managed by the [National Wildlife Refuge](#) system must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

THERE ARE NO REFUGE LANDS OR FISH HATCHERIES WITHIN YOUR PROJECT AREA.

BALD & GOLDEN EAGLES

Bald and golden eagles are protected under the Bald and Golden Eagle Protection Act¹ and the Migratory Bird Treaty Act².

Any person or organization who plans or conducts activities that may result in impacts to bald or golden eagles, or their habitats³, should follow appropriate regulations and consider implementing appropriate conservation measures, as described in the links below. Specifically, please review the "[Supplemental Information on Migratory Birds and Eagles](#)".

1. The [Bald and Golden Eagle Protection Act](#) of 1940.
2. The [Migratory Birds Treaty Act](#) of 1918.
3. 50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)

There are likely bald eagles present in your project area. For additional information on bald eagles, refer to [Bald Eagle Nesting and Sensitivity to Human Activity](#)

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, see the PROBABILITY OF PRESENCE SUMMARY below to see when these birds are most likely to be present and breeding in your project area.

NAME	BREEDING SEASON
Bald Eagle <i>Haliaeetus leucocephalus</i> This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/1626	Breeds Sep 1 to Aug 31
Golden Eagle <i>Aquila chrysaetos</i> This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/1680	Breeds elsewhere

PROBABILITY OF PRESENCE SUMMARY

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read "[Supplemental Information on Migratory Birds and Eagles](#)", specifically the FAQ section titled "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

Probability of Presence (■)

Green bars; the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during that week of the year.

Breeding Season (■)

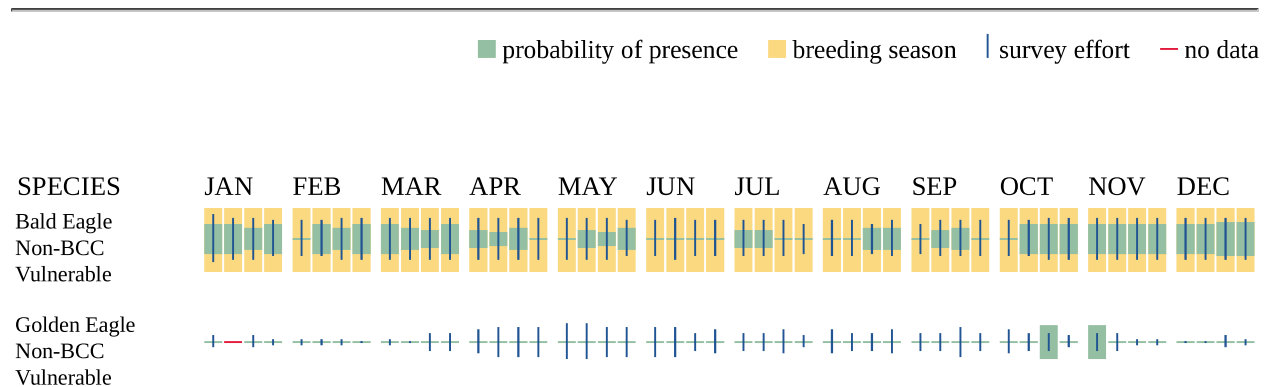
Yellow bars; liberal estimate of the timeframe inside which the bird breeds across its entire range.

Survey Effort (|)

Vertical black lines; the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps.

No Data (—)

A week is marked as having no data if there were no survey events for that week.



Additional information can be found using the following links:

- Eagle Management <https://www.fws.gov/program/eagle-management>
- Measures for avoiding and minimizing impacts to birds <https://www.fws.gov/library/collections/avoiding-and-minimizing-incident-take-migratory-birds>
- Nationwide conservation measures for birds <https://www.fws.gov/sites/default/files/documents/nationwide-standard-conservation-measures.pdf>
- Supplemental Information for Migratory Birds and Eagles in IPaC <https://www.fws.gov/media/supplemental-information-migratory-birds-and-bald-and-golden-eagles-may-occur-project-action>

MIGRATORY BIRDS

Certain birds are protected under the Migratory Bird Treaty Act¹ and the Bald and Golden Eagle Protection Act².

Any person or organization who plans or conducts activities that may result in impacts to migratory birds, eagles, and their habitats³ should follow appropriate regulations and consider

implementing appropriate conservation measures, as described in the links below. Specifically, please review the ["Supplemental Information on Migratory Birds and Eagles"](#).

1. The [Migratory Birds Treaty Act](#) of 1918.
2. The [Bald and Golden Eagle Protection Act](#) of 1940.
3. 50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, see the PROBABILITY OF PRESENCE SUMMARY below to see when these birds are most likely to be present and breeding in your project area.

NAME	BREEDING SEASON
Bald Eagle <i>Haliaeetus leucocephalus</i> This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/1626	Breeds Sep 1 to Aug 31
Black-billed Cuckoo <i>Coccyzus erythrophthalmus</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9399	Breeds May 15 to Oct 10
Black-capped Chickadee <i>Poecile atricapillus praticus</i> This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA https://ecos.fws.gov/ecp/species/10645	Breeds Apr 10 to Jul 31
Bobolink <i>Dolichonyx oryzivorus</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9454	Breeds May 20 to Jul 31
Canada Warbler <i>Cardellina canadensis</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9643	Breeds May 20 to Aug 10
Chimney Swift <i>Chaetura pelagica</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9406	Breeds Mar 15 to Aug 25
Eastern Whip-poor-will <i>Antrastomus vociferus</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/10678	Breeds May 1 to Aug 20

NAME	BREEDING SEASON
Golden Eagle <i>Aquila chrysaetos</i> This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/1680	Breeds elsewhere
Northern Saw-whet Owl <i>Aegolius acadicus acadicus</i> This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA https://ecos.fws.gov/ecp/species/10655	Breeds Mar 1 to Jul 31
Red-headed Woodpecker <i>Melanerpes erythrocephalus</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9398	Breeds May 10 to Sep 10
Rusty Blackbird <i>Euphagus carolinus</i> This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA https://ecos.fws.gov/ecp/species/9478	Breeds elsewhere
Wood Thrush <i>Hylocichla mustelina</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9431	Breeds May 10 to Aug 31

PROBABILITY OF PRESENCE SUMMARY

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read "[Supplemental Information on Migratory Birds and Eagles](#)", specifically the FAQ section titled "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

Probability of Presence (■)

Green bars; the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during that week of the year.

Breeding Season (■)

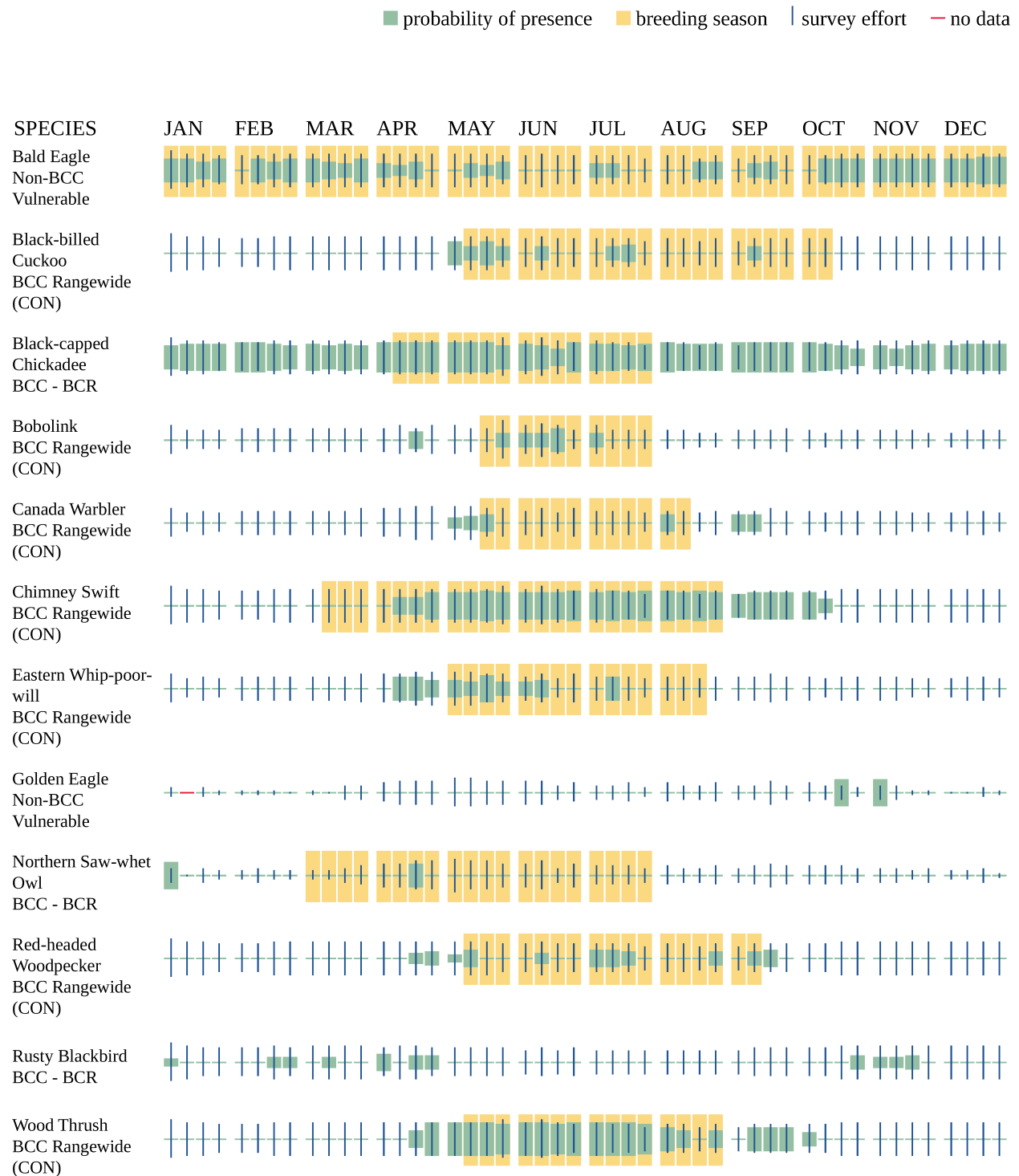
Yellow bars; liberal estimate of the timeframe inside which the bird breeds across its entire range.

Survey Effort (|)

Vertical black lines; the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps.

No Data (—)

A week is marked as having no data if there were no survey events for that week.



Additional information can be found using the following links:

- Eagle Management <https://www.fws.gov/program/eagle-management>

- Measures for avoiding and minimizing impacts to birds <https://www.fws.gov/library/collections/avoiding-and-minimizing-incident-take-migratory-birds>
- Nationwide conservation measures for birds <https://www.fws.gov/sites/default/files/documents/nationwide-standard-conservation-measures.pdf>
- Supplemental Information for Migratory Birds and Eagles in IPaC <https://www.fws.gov/media/supplemental-information-migratory-birds-and-bald-and-golden-eagles-may-occur-project-action>

WETLANDS

Impacts to [NWI wetlands](#) and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local [U.S. Army Corps of Engineers District](#).

Please note that the NWI data being shown may be out of date. We are currently working to update our NWI data set. We recommend you verify these results with a site visit to determine the actual extent of wetlands on site.

WETLAND INFORMATION WAS NOT AVAILABLE WHEN THIS SPECIES LIST WAS GENERATED. PLEASE VISIT <HTTPS://WWW.FWS.GOV/WETLANDS/DATA/MAPPER.HTML> OR CONTACT THE FIELD OFFICE FOR FURTHER INFORMATION.

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APPENDIX B

RESPONSE TO COMMENTS ON THE DRAFT LICENSE APPLICATION

APPENDIX C

FLOW DURATION CURVES

APPENDIX D

LAKE LYNN DISSOLVED OXYGEN STANDARD OPERATING PROCEDURES EXAMPLES DATA

APPENDIX E

SPECIES LISTS

Mammal Species that Potentially Occur in the Lake Lynn Project Vicinity

Order	Family	Common Name	Scientific Name
Didelphimorphia	Didelphidae	Virginia opossum	<i>Didelphis virginiana</i>
Insectivora	Soricidae	long-tailed shrew	<i>Sorex dispar</i>
		masked shrew	<i>Sorex cinereus</i>
		northern short-tailed shrew	<i>Blarina brevicauda</i>
		pygmy shrew	<i>Sorex hoyi</i>
		smoky shrew	<i>Sorex fumeus</i>
		southeastern shrew	<i>Sorex longirostris</i>
	Talpidae	eastern mole	<i>Scalopus aquaticus</i>
		hairy-tailed mole	<i>Parascalops breweri</i>
		star-nosed mole	<i>Condylura cristata</i>
Chiroptera	Vespertilionidae	big brown bat	<i>Eptesicus fuscus</i>
		eastern pipistrelle	<i>Pipistrellus subflavus</i>
		eastern red bat	<i>Lasiurus borealis</i>
		hoary bat	<i>Lasiurus cinereus</i>
		Indiana bat ¹	<i>Myotis sodalists</i>
		northern long-eared bat ²	<i>Myotis septentrionalis</i>
		silver-haired bat	<i>Lasionycteris noctivagans</i>
		Virginia big-eared bat ¹	<i>Corynorhinus townsendii</i>
Rodentia	Castoridae	American beaver	<i>Castor canadensis</i>
	Dipodidae	meadow jumping mouse	<i>Zapus hudsonius</i>
		woodland jumping mouse	<i>Napaeozapus insignis</i>
	Erethizontidae	common porcupine	<i>Erethizon dorsatum</i>
	Muridae	Allegheny wood rat	<i>Neotoma magister</i>
		black rat	<i>Rattus</i>
		deer mouse	<i>Peromyscus maniculatus</i>
		golden mouse	<i>Ochrotomys nuttalli</i>
		house mouse	<i>Mus musculus</i>
		meadow vole	<i>Microtus pennsylvanicus</i>
		muskrat	<i>Ondatra zibethicus</i>
		Norway rat	<i>Rattus norvegicus</i>
		rock vole	<i>Microtus chrotorrhinus</i>
		southern bog lemming	<i>Synaptomys cooperi</i>
southern red-backed vole		<i>Clethrionomys gapperi</i>	
white-footed mouse	<i>Peromyscus leucopus</i>		

Order	Family	Common Name	Scientific Name
		woodland vole	<i>Microtus pinetorum</i>
Lagomorpha	Leporidae	Appalachian cottontail	<i>Sylvilagus obscurus</i>
		eastern cottontail	<i>Sylvilagus floridana</i>
		snowshoe hare	<i>Lepus americanus</i>
Carnivora	Canidae	coyote	<i>Canis latrans</i>
		gray fox	<i>Urocyon cinereoargenteus</i>
		red fox	<i>Vulpes</i>
	Felidae	bobcat	<i>Lynx rufus</i>
	Mephitidae	eastern spotted skunk	<i>Spilogale putorius</i>
		striped skunk	<i>Mephitis</i>
	Mustelidae	fisher	<i>Martes pennant</i>
		least weasel	<i>Mustela nivalis</i>
		long-tailed weasel	<i>Mustela frenata</i>
		mink	<i>Mustela vison</i>
		fisher	<i>Martes pennant</i>
river otter		<i>Lutra canadensis</i>	
Artiodactyla	Cervidae	white-tailed deer	<i>Odocoileus virginianus</i>

Source: WVDNR 2001; WVDNR 2003; PGC 2019

¹Federally Endangered

²Federally Threatened

Amphibians and Reptiles that Potentially Occur in the Lake Lynn Project Vicinity

Family	Common Name	Scientific Name
Salamandridae	newt, red spotted	<i>Notophthalmus viridescens</i>
Ambystomatidae	salamander, Jefferson	<i>Ambystoma jeffersonianum</i>
	salamander, spotted	<i>Ambystoma maculatum</i>
	salamander, sarbled	<i>Ambystoma opacum</i>
Plethodontidae	salamander, green	<i>Aneides aeneus</i>
	salamander, northern dusky	<i>Desmognathus fuscus</i>
	salamander, seal	<i>Desmognathus monticola</i>
	salamander, Allegheny Mountain dusky	<i>Desmognathus ochrophaeus</i>
	salamander, northern spring	<i>Gyrinophilus porphyriticus</i>
	salamander, four-toed	<i>Hemidactylium scutatum</i>
	salamander, northern two-lined	<i>Eurycea bislineata</i>
	salamander, long-tailed	<i>Eurycea longicauda</i>
	salamander, eastern red-backed	<i>Plethodon cinereus</i>
	salamander, northern slimy	<i>Plethodon glutinosus</i>
	salamander, northern ravine	<i>Plethodon richmondi</i>
	salamander, Cheat Mountain ¹	<i>Plethodon nettingi</i>
	salamander, Wehrle's	<i>Plethodon wehrlei</i>
	salamander, northern red	<i>Pseudotriton r. ruber</i>
Bufonidae	toad, eastern american	<i>Bufo americanus</i>
	toad, fowler's	<i>Bufo fowleri</i>
Hylidae	peeper, northern spring	<i>Pseudacris crucifer</i>
	frog, mountain chorus	<i>Pseudacris brachyphona</i>
	treefrog, gray	<i>Hyla chrysoscelis</i>
Ranidae	bullfrog, American	<i>Rana catesbeiana</i>
	frog, northern green	<i>Rana clamitans melanota</i>
	frog, northern leopard	<i>Lithobates pipiens</i>
	frog, pickerel	<i>Rana palustris</i>
	frog, wood	<i>Rana sylvatica</i>
Chelydridae	turtle, common snapping	<i>Chelydra serpentine serpentina</i>
	turtle, eastern painted	<i>Chrysemys picta</i>
	turtle, northern map	<i>Graptemys geographica</i>
	turtle, eastern box	<i>Terrapene carolina</i>
Kinosternidae	turtle, common musk	<i>Kinosternon odoratus</i>
Phrynosomatidae	lizard, northern fence	<i>Sceloporus undulatus</i>

Family	Common Name	Scientific Name
Scincidae	skink, common five-lined	<i>Eumeces fasciatus</i>
Colubridae	racetr, northern black	<i>Coluber constrictor</i>
	snake, northern ringneck	<i>Diadophis punctatus edwardsii</i>
	ratsnake, black	<i>Elaphe obsoleta</i>
	snake, eastern hognose	<i>Heterodon platirhinos</i>
	snake, eastern milk	<i>Lampropeltis Triangulum</i>
	snake, northern water	<i>Nerodia sipedon</i>
	snake, smooth green	<i>Opheodrys vernalis</i>
	snake, queen	<i>Regina septemvittata</i>
	snake, northern red-bellied	<i>Storeria o. occipitamaculata</i>
	gartersnake, eastern	<i>Thamnophis sirtalis</i>
Viperidae	copperhead, northern	<i>Agkistrodon contortrix</i>
	rattlesnake, timber	<i>Crotalus horridus</i>

Source: Marshall 2019

¹Federally Threatened

Bird Species that Potentially Occur in the Lake Lynn Project Vicinity

Family	Common Name	Scientific Name
Gaviidae	loon, common	<i>Gavia immer</i>
	loon, red-throated	<i>Gavia stellata</i>
Podicipedidae	grebe, horned	<i>Podiceps auritus</i>
	grebe, pied-billed	<i>Podilymbus podiceps</i>
Pelecanidae	pelican, American white	<i>Pelecanus erythrorhynchos</i>
Phalacrocoracidae	cormorant, double-crested	<i>Phalacrocorax auritus</i>
Ardeidae	heron, great blue	<i>Ardea herodias</i>
	heron, green	<i>Butorides virescens</i>
	egret, cattle	<i>Bubulcus ibis</i>
	egret, great	<i>Ardea alba egretta</i>
	bittern, American	<i>Botaurus lentiginosus</i>
	bittern, least	<i>Ixobrychus exilis</i>
	swan, mute	<i>Cygnus olor</i>
Anatidae	night-heron, black-crowned	<i>Nycticorax hoactii</i>
	goose, Canada	<i>Branta canadensis</i>
	mallard	<i>Anas platyrhynchos</i>
	gadwall	<i>Anas strepera</i>
	pintail, northern	<i>Anas acuta</i>
	teal, green-winged	<i>Anas crecca carolinensis</i>
	teal, blue-winged	<i>Anas discors orphna</i>
	wigeon, American	<i>Anas americana</i>
	shoveler, northern	<i>Anas clypeata</i>
	duck, American black	<i>Anas rubripes</i>
	duck, wood	<i>Aix sponsa</i>
	canvasback	<i>Aythya valisineria</i>
	redhead	<i>Aythya americana</i>
	duck, ring-necked	<i>Aythya collaris</i>
	scaup, lesser	<i>Aythya affinis</i>
	goldeneye, common	<i>Bucephala clangula</i>
	bufflehead	<i>Bucephala albeola</i>
	merganser, common	<i>Mergus merganser</i>
	merganser, hooded	<i>Lophodytes cucullatus</i>
duck, ruddy	<i>Oxyura jamaicensis</i>	
Cathartidae	vulture, turkey	<i>Cathartes aura</i>
	vulture, black	<i>Coragyps atratus</i>

Family	Common Name	Scientific Name
	osprey	<i>Pandion haliaetus</i>
Accipitridae	harrier, northern	<i>Circus cyaneus</i>
	hawk, sharp-shinned	<i>Accipiter striatus velox</i>
	hawk, Cooper's	<i>Accipiter cooperii</i>
	goshawk, northern	<i>Accipiter gentilis</i>
	hawk, red-tailed	<i>Buteo jamaicensis</i>
	hawk, red-shouldered	<i>Buteo lineatus</i>
	hawk, broad-winged	<i>Buteo platypterus</i>
	hawk, rough-legged	<i>Buteo lagopus johannis</i>
	eagle, bald	<i>Haliaeetus leucocephalus</i>
	eagle, golden	<i>Aquila chrysaetos</i>
Falconidae	falcon, peregrine	<i>Falco peregrinus</i>
	kestrel, American	<i>Falco sparverius</i>
	merlin	<i>Falco columbarius</i>
Phasianidae	grouse, ruffed	<i>Bonasa umbellus</i>
	pheasant, ring-necked	<i>Phasianus colchicus</i>
	turkey, wild	<i>Meleagris gallopavo silvestris</i>
Odontophoridae	bobwhite, northern	<i>Colinus virginianus</i>
Rallidae	gallinule, common	<i>Gallinula galeata</i>
	coot, American	<i>Fulica americana</i>
	rail, Virginia	<i>Rallus limicola</i>
	sora	<i>Porzana carolina</i>
	moorhen, common	<i>Gallinula chloropus cachinnans</i>
Charadriidae	plover, semipalmated	<i>Charadrius semipalmatus</i>
	killdeer	<i>Charadrius vociferus</i>
Scolopacidae	yellowlegs, greater	<i>Tringa melanoleuca</i>
	yellowlegs, lesser	<i>Tringa flavipes</i>
	sandpiper, upland	<i>Bartramia longicauda</i>
	sandpiper, solitary	<i>Tringa solitaria</i>
	sandpiper, spotted	<i>Actitis macularia</i>
	sandpiper, semipalmated	<i>Calidris pusilla</i>
	sandpiper, least	<i>Calidris minutilla</i>
	sandpiper, pectoral	<i>Calidris melanotos</i>
	sandpiper, white-rumped	<i>Calidris fuscicollis</i>
	dunlin	<i>Calidris alpina</i>
snipe, Wilson's	<i>Gallinago delicata</i>	

Family	Common Name	Scientific Name
	woodcock, American	<i>Scalopax minor</i>
Laridae	gull, Bonaparte's	<i>Chroicocephalus philidelphia</i>
	gull, ring-billed	<i>Larus delawarensis</i>
	gull, Herrington	<i>Larus argentatus</i>
Columbidae	pigeon, rock	<i>Columba livia</i>
	dove, mourning	<i>Zenaida macroura</i>
Cuculidae	cuckoo, yellow-billed	<i>Coccyzus americanus</i>
	cuckoo, black-billed	<i>Coccyzus erythrophthalmus</i>
Tytonidae	owl, barn	<i>Tyto alba</i>
Strigidae	owl, long-eared	<i>Asio otus</i>
	owl, short-eared	<i>Asio flammeus</i>
	owl, great Horned	<i>Bubo virginianus</i>
	owl, barred	<i>Strix varia</i>
	owl, northern saw-whet	<i>Aegolius acadicus</i>
	screech-owl, eastern	<i>Megascops asio</i>
Caprimulgidae	whip-poor-will, eastern	<i>Antrostomus vociferus</i>
	nighthawk, common	<i>Chordeiles minor</i>
Apodidae	swift, chimney	<i>Chaetura pelagica</i>
Trochilidae	hummingbird, ruby-throated	<i>Archilochus colubris</i>
Alcedinidae	kingfisher, belted	<i>Megaceryle alcyon</i>
Picidae	woodpecker, red-headed	<i>Melanerpes erythrocephalus</i>
	woodpecker, red-bellied	<i>Melanerpes carolinus</i>
	sapsucker, yellow-bellied	<i>Sphyrapicus varius</i>
	woodpecker, downy	<i>Picoides pubescens</i>
	woodpecker, hairy	<i>Picoides villosus</i>
	flicker, northern	<i>Colaptes auratus</i>
	woodpecker, pileated	<i>Dryocopus pileatus</i>
Tyrannidae	flycatcher, olive-sided	<i>Contopus cooperi</i>
	wood-pewee, eastern	<i>Contopus virens</i>
	flycatcher, yellow-bellied	<i>Empidonax flaviventris</i>
	flycatcher, Acadian	<i>Empidonax virens</i>
	flycatcher, willow	<i>Empidonax traillii</i>
	flycatcher, alder	<i>Empidonax alnorum</i>
	flycatcher, least	<i>Empidonax minimus</i>
	phoebe, eastern	<i>Sayornis phoebe</i>
	flycatcher, great crested	<i>Myiarchus crinitus</i>

Family	Common Name	Scientific Name
	kingbird, eastern	<i>Tyrannus</i>
Laniidae	shrike, loggerhead	<i>Lanius ludovicianus</i>
	shrike, northern	<i>Lanius excubitor</i>
Vireonidae	vireo, white-eyed	<i>Vireo griseus</i>
	vireo, blue-headed	<i>Vireo solitarius</i>
	vireo, yellow-throated	<i>Vireo flavifrons</i>
	vireo, warbling	<i>Vireo gilvus</i>
	vireo, Philadelphia	<i>Vireo philadelphicus</i>
	vireo, red-eyed	<i>Vireo olivaceus</i>
Corvidae	jay, blue	<i>Cyanocitta cristata</i>
	raven, common	<i>Corvus corax</i>
	crow, American	<i>Corvus brachyrhynchos</i>
	crow, fish	<i>Corvus ossifragus</i>
Alaudidae	lark, horned	<i>Eremophilla alpestris</i>
Hirundinidae	martin, purple	<i>Progne subis</i>
	swallow, tree	<i>Tachycineta bicolor</i>
	swallow, bank	<i>Tachycineta thalassina</i>
	swallow, rough-winged	<i>Stelgidopteryx serripennis</i>
	swallow, cliff	<i>Petrochelidon pyrrhonota</i>
	swallow, barn	<i>Hirundo rustica</i>
Paridae	chickadee, Carolina	<i>Poecile carolinensis</i>
	chickadee, black-capped	<i>Poecile atricapillus</i>
	titmouse, tufted	<i>Baeolophus bicolor</i>
Sittidae	nuthatch, red-breasted	<i>Sitta canadensis</i>
	nuthatch, white-breasted	<i>Sitta carolinensis</i>
Certhiidae	creeper, brown	<i>Certhia americana</i>
Troglodytidae	wren, Carolina	<i>Thryothorus ludovicianus</i>
	wren, house	<i>Troglodytes aedon</i>
	wren, winter	<i>Troglodytes hiemalis</i>
	wren, marsh	<i>Cistothorus palustris</i>
Regulidae	kinglet, golden-crowned	<i>Regulus satrapa</i>
	kinglet, ruby-crowned	<i>Regulus calendula</i>
Sylviidae	gnatcatcher, blue-gray	<i>Polioptila caerulea</i>
Turdidae	bluebird, eastern	<i>Sialia sialis</i>
	veery	<i>Catharus fuscescens</i>
	thrush, gray-cheeked	<i>Catharus minimus</i>

Family	Common Name	Scientific Name
	thrush, Swainson's	<i>Catharus ustulatus</i>
	thrush, hermit	<i>Catharus guttatus</i>
	thrush, wood	<i>Hylocichla mustelina</i>
	robin, American	<i>Turdus migratorius</i>
Mimidae	catbird, gray	<i>Dumetella carolinensis</i>
	mockingbird, northern	<i>Mimus polyglottos</i>
	thrasher, brown	<i>Toxostoma rufum</i>
Sturnidae	starling, european	<i>Sturnus vulgaris</i>
Motacillidae	pipit, American	<i>Anthus rubescens</i>
Bombycillidae	waxwing, Bohemian	<i>Bombycilla garrulus</i>
	waxwing, cedar	<i>Bombycilla cedrorum</i>
Calcariidae	longspur, lapland	<i>Calcarius lapponicus</i>
	bunting, snow	<i>Plectrophenax nivalis</i>
Parulidae	ovenbird	<i>Seiurus aurocapilla</i>
	warbler, worm-eating	<i>Helmitheros vermivorum</i>
	waterthrush, Louisiana	<i>Parkesia motacilla</i>
	waterthrush, northern	<i>Parkesia noveboracensis</i>
	warbler, black-and-white	<i>Mniotilta varia</i>
	warbler, golden-winged	<i>Vermivora chrysoptera</i>
	warbler, blue-winged	<i>Vermivora cyanoptera</i>
	warbler, orange-crowned	<i>Oreothlypis celata</i>
	warbler, Tennessee	<i>Oreothlypis peregrina</i>
	warbler, Nashville	<i>Oreothlypis ruficapilla</i>
	warbler, Connecticut	<i>Oporornis agilis</i>
	warbler, Kentucky	<i>Geothlypis, Formosa</i>
	warbler, mourning	<i>Geothlypis philadelphia</i>
	yellowthroat, common	<i>Geothlypis trichas</i>
	warbler, hooded	<i>Setophaga citrina</i>
	redstart, American	<i>Seophaga ruticilla</i>
	warbler, Cape May	<i>Setophaha tigrina</i>
	warbler, cerulean	<i>Setophaga cerulea</i>
	parula, northern	<i>Setophaga americana</i>
	warbler, magnolia	<i>Setophaga magnolia</i>
warbler, blackburnian	<i>Setophaga fusca</i>	
warbler, yellow	<i>Setophaga petechia</i>	
warbler, chestnut-sided	<i>Setophaga pennsylvanica</i>	

Family	Common Name	Scientific Name
	warbler, black-throated blue	<i>Setophaga caerulescens</i>
	warbler, blackpoll	<i>Setophaga striata</i>
	warbler, bay-breasted	<i>Setophaga castanea</i>
	warbler, pine	<i>Setophaga pinus</i>
	warbler, prairie	<i>Setophaga discolor</i>
	warbler, palm	<i>Setophaga palmarum</i>
	warbler, yellow-throated	<i>Setophaga dominica</i>
	warbler, yellow-rumped	<i>Setophaga coronata</i>
	warbler, black-throated green	<i>Setophaga virens</i>
	warbler, Wilson's	<i>Cardellina pusilla</i>
	warbler, Canada	<i>Cardellina canadensis</i>
	chat, yellow-breasted	<i>Icteria virens</i>
Emberizidae	towhee, eastern	<i>Pipilo erythrophthalmus</i>
	sparrow, American tree	<i>Spizella arborea</i>
	sparrow, field	<i>Spizella pusilla</i>
	sparrow, chipping	<i>Spizella passerina</i>
	sparrow, Savannah	<i>Passerculus sandwichensis</i>
	sparrow, vesper	<i>Pooecetes gramineus</i>
	sparrow, grasshopper	<i>Ammodramus savannarum</i>
	sparrow, Henslow's	<i>Ammodramus henslowii</i>
	sparrow, fox	<i>Passerella iliaca</i>
	sparrow, song	<i>Melospiza melodia</i>
	sparrow, Lincoln's	<i>Melospiza lincolnii</i>
	sparrow, swamp	<i>Melospiza georgiana</i>
	junco, dark-eyed	<i>Junco hyemalis</i>
	sparrow, white-crowned	<i>Zonotrichia leucophrys</i>
sparrow, white-throated	<i>Zonotrichia albicollis</i>	
Cardinalidae	tanager, summer	<i>Piranga rubra</i>
	tanager, scarlet	<i>Piranga olivacea</i>
	cardinal, northern	<i>Cardinalis</i>
	grosbeak, rose-breasted	<i>Pheucticus ludovicianus</i>
	bunting, indigo	<i>Passerina cyanea</i>
Icteridae	blackbird, rusty	<i>Euphagus carolinus</i>
	grackle, common	<i>Quiscalus quiscula</i>
	blackbird, red-winged	<i>Agelaius phoeniceus</i>
	cowbird, brown-headed	<i>Molothrus ater</i>

Family	Common Name	Scientific Name
	bobolink	<i>Dolichonyx oryzivorus</i>
	meadowlark, eastern	<i>Sturnella magna</i>
	oriole, orchard	<i>Icterus spurius</i>
	oriole, Baltimore	<i>Icterus galbula</i>
Fringillidae	finch, purple	<i>Haemorhous purpureus</i>
	finch, house	<i>Haemorhous mexicanus</i>
	crossbill, red	<i>Loxia curvirostra</i>
	redpoll, common	<i>Acanthis flammea</i>
	siskin, pine	<i>Spinus pinus</i>
	goldfinch, American	<i>Spinus tristis</i>
Passeridae	sparrow, house	<i>Passer domesticus</i>

Source: BBC 2014, Sibley 2014

Botanical Species that Potentially Occur in the Lake Lynn Project Vicinity

Common Name	Scientific Name	Common Name	Scientific Name
sugar maple	<i>Acer saccharum</i>	Clayton's sweetroot	<i>Osmorhiza claytonii</i>
black cohosh	<i>Actaea racemosa</i>	shortleaf pine	<i>Pinus echinata</i>
yellow buckeye	<i>Aesculus flava</i>	eastern white pine	<i>Pinus strobus</i>
yellow birch	<i>Betula alleghaniensis</i>	Virginia pine	<i>Pinus virginiana</i>
sweet birch	<i>Betula lenta</i>	black cherry	<i>Prunus serotina</i>
mockernut hickory	<i>Carya alba</i>	white oak	<i>Quercus alba</i>
bitternut hickory	<i>Carya cordiformis</i>	swamp white oak	<i>Quercus bicolor</i>
pignut hickory	<i>Carya glabra</i>	scarlet oak	<i>Quercus coccinea</i>
blue cohosh	<i>Caulophyllum thalictroides</i>	southern red oak	<i>Quercus falcata</i>
American beech	<i>Fagus grandifolia</i>	swamp chestnut oak	<i>Quercus prinus</i>
white ash	<i>Fraxinua americana</i>	northern red oak	<i>Quercus rubra</i>
mountain silverbell	<i>Halesia tetraptera</i>	northern red oak	<i>Quercus rubra</i>
black walnut	<i>Juglans nigra</i>	black oak	<i>Quercus velutina</i>
Canadian woodnettle	<i>Laportea canadensis</i>	bloodroot	<i>Sanguinaria canadensis</i>
yellow poplar	<i>Liriodendron tulipifera</i>	American basswood	<i>Tilia americana</i>
cucumber tree	<i>Magnolia acuminata</i>	eastern hemlock	<i>Tsuga canadensis</i>
mountain magnolia	<i>Magnolia fraseri</i>	Canadian white violet	<i>Viola canadensis</i>
blackgum	<i>Nyssa sylvatica</i>		

Source: NatureServe, 2009

APPENDIX F

STUDY REPORTS