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February 17, 2022

VIA ELECTRONIC FILING

Secretary Kimberly D. Bose
Federal Energy Regulatory Commission
888 First Street, N.E.
Washington, DC 20426

Re; Crescent Hydroelectric Project, FERC Project No. 4678-052
Vischer Ferry Hydroelectric Project, FERC Project No. 4679-049
Updated Study Report

Dear Secretary Bose:

In accordance with 18 C.F.R § 5.15(f), the Power Authority of the State of New York (Power Authority) encloses for filing the attached Updated Study Report (USR) for the Crescent and Vischer Ferry Hydroelectric Projects (Projects), FERC Nos. 4678 and 4679, respectively. The Federal Energy Regulatory Commission (FERC or Commission) issued licenses for both Projects on June 26, 1984, and both licenses expire on May 31, 2024. The Power Authority is following the Integrated Licensing Process (ILP) as outlined by 18 C.F.R. Part 5 to relicense the Projects.

On January 21, 2020, the Power Authority filed a Revised Study Plan (RSP) for the Projects. On February 20, 2020, FERC issued a Study Plan Determination (SPD) for the Projects that approved the seven studies included in the RSP and added an eighth study. Of the eight studies required by the SPD, five were completed in 2020, and three others were postponed until 2021 due to the COVID-19 pandemic.

The study results for the five studies conducted in 2020 were reported in the Initial Study Report (ISR) that was filed with FERC on February 19, 2021. An ISR Meeting was held on March 3, 2021, and the Power Authority then filed its ISR Meeting Summary on March 16, 2021, after which stakeholder comments were received. The Power Authority filed its response to comments on May 18, 2021. On June 14, 2021, FERC issued an additional determination, in which it found that no additional studies were required.¹

The enclosed USR reports the results of the 2021 studies, which includes three of the studies included in the RSP that were postponed until 2021: the American Eel Study, the Recreation Study, and the Bald Eagle Study, as well as a second year of the Water Quality Study that was voluntarily conducted in 2021 in response to comments filed by Riverkeeper Inc. and the New York State Department of Environmental Conservation.

The Bald Eagle Study Report includes sensitive information on Bald Eagle nesting locations. Pursuant to 18 C.F.R. § 388.112(b), the Power Authority requests that the nesting location information be designated

¹ Letter from Terry Turpin, FERC, to Cindy Brady, New York Power Authority, Project Nos. 4678-052 and 4679-049 (issued June 14, 2021).

and treated as privileged and that it not be released to the public. The Power Authority has filed this information separately and labeled it with “**CONTAINS PRIVILEGED INFORMATION – DO NOT RELEASE (CUI//PRIV).**”

In accordance with 18 C.F.R § 5.15(c)(2), the Power Authority will hold a public USR meeting with resource agencies and stakeholders to discuss the study results. The Power Authority hereby notifies the Commission and licensing participants that due to the COVID-19 pandemic, the USR Meeting will be held virtually using Microsoft Teams, an online meeting platform, on March 3, 2022 beginning at 10:00 AM EST. Anyone wishing to participate in the meeting is kindly asked to RSVP to cvf.relicensing@nypa.gov on or before February 28, 2022. Log-in information will be emailed directly to interested participants.

Following the USR meeting, the Power Authority will file a meeting summary within 15 days. In accordance with the ILP schedule, agencies, stakeholders, members of the public or Commission staff may file a disagreement on the USR meeting summary or requests to amend the study plan by April 20, 2022. Responses to the disagreements or amendment requests are to be filed by May 20, 2022.

The Power Authority looks forward to continuing to work with the Commission, resource agencies, Native American nations, local governments, and members of the public on the relicensing of the Crescent and Vischer Ferry Projects. In addition to filing the USR with the Commission, the Power Authority will share the USR with relicensing participants via posting on the Crescent and Vischer Ferry Project’s relicensing website at <http://www.nypa.gov/cvf>. If you have any questions regarding this filing, please contact me at (914) 681-6564 or Rob.Daly@nypa.gov.

Sincerely,



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Enclosure:
Updated Study Report

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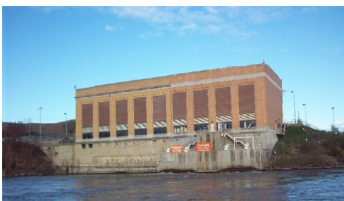


February 2022

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CRESCENT AND VISCHER FERRY PROJECTS RELICENSING

FERC NOs. 4678 AND 4679



**NY Power
Authority**

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Appendix A – 2021 Water Quality Study Report

Appendix B – American Eel Study Report

Appendix C – Bald Eagle Study Report

Appendix D – Recreation Study Report

List of Acronyms

BCD	Barge Canal Datum
Barge Canal Projects	New York State Barge Canal System
CFR	Crescent and Vischer Ferry Projects
cfs	Code of Federal Regulations
COVID-19	cubic feet per second
DO	Coronavirus Disease 2019
El.	Dissolved Oxygen
FERC or Commission	Elevation
ft.	Federal Energy Regulatory Commission
ILP	feet
ISR	Integrated Licensing Process
MW	Initial Study Report
NOI	megawatt
NYSCC	Notice of Intent
NYSDEC	New York State Canal Corporation
PAD	New York State Department of Environmental Conservation
Power Authority or NYPA	Pre-Application Document
PSP	New York Power Authority
RSP	Proposed Study Plan
SD1	Revised Study Plan
SPD	Scoping Document 1
USFWS	Study Plan Determination
USR	United States Fish and Wildlife Service
	Updated Study Report

1 OVERVIEW

1.1 Project Description

The Power Authority of the State of New York (Power Authority) is licensed by the Federal Energy Regulatory Commission (FERC or the Commission) to operate the Crescent and Vischer Ferry Hydroelectric Projects (FERC Nos. 4678 and 4679) (Projects) located on the Mohawk River in New York. The Power Authority is relicensing the Projects using the FERC Integrated Licensing Process (ILP), as outlined in 18 C.F.R. Part 5. The Crescent and Vischer Ferry Projects (Projects) are located adjacent to one another on the Mohawk River in New York at river miles 4 and 14, respectively, upstream from their confluence with the Hudson River in New York. The Projects are both operated on a run-of-river basis. The original purpose of the Crescent and Vischer Ferry dams was to impound water to support navigation on the New York State Barge Canal System¹ (Canal System);² this remains true today. During unusual conditions or emergencies associated with either system, public safety is always the first priority. Otherwise, navigation and Canal System operations take priority over the operation of the Projects. Unless emergency conditions exist, the Projects operate in run-of-river mode.

Crescent Project

The Crescent Project is an 11.8 megawatt (MW) hydroelectric project located on the Mohawk River, approximately 4 miles upstream from its confluence with the Hudson River. It is located 2 miles upstream of the School Street Hydroelectric Project (FERC No. 2539) owned by Erie Boulevard Hydropower, L.P.

The principal features of the Crescent Project are the dam, powerhouse, impoundment, and appurtenant facilities. The Crescent Dam consists of two independent concrete gravity overflow sections which link each riverbank to a rock island in the middle of the Mohawk River. Both sections are curved in plan and have a crest at elevation (El.) 184 feet (ft.) Barge Canal Datum (BCD).

In order to aid canal navigation, one-foot-high (12 inch) wooden flashboards are installed along the crests of both spillways (Dams A and B) seasonally in Spring (generally in April, based on seasonal conditions) and removed in the Fall (generally in November, based on seasonal conditions). When the flashboards are installed, the spillway crest is El. 185 ft. BCD. The Crescent impoundment extends upstream approximately 10 miles to the Vischer Ferry Project Dam.

The Crescent powerhouse is located on the western bank and houses four turbine/generator units: two 2.8 MW rated Francis turbines and two 3.0 MW vertical Kaplan turbines. The original portion of the

¹ The existing Barge Canal System was created following the passage of the Barge Canal Act in 1903. However, some portions of the original Erie Canal built between 1817 and 1825 still exist. For the purposes of this document, the Licensee will consistently refer to the portions of the Barge Canal or Erie Canal adjacent to the Projects as the Canal System.

² The Canal System is owned by the People of the State of New York and operated by the New York State Canal Corporation (NYSCC), which was created by the New York State Legislature in 1992 as a subsidiary of the New York State Thruway Authority (NYSTA). Prior to 1992, the operations of the Canal System fell under the New York State Department of Transportation. On January 1, 2017, the NYSCC became a subsidiary of the Power Authority (N.Y. Public Authorities Law § 1005-b).

powerhouse contains the two original Francis units (Units 1 and 2). The two newer Kaplan units (Units 3 and 4) are located riverward of the original powerhouse.

Crescent Project operations are performed in a manner to maintain the normal full pool elevation of the impoundment. Flow through the Project is through the powerhouse or over the dam. During the non-navigation season, a minimum flow of 100 cubic feet per second (cfs) (or inflow, whichever is less) is required to be passed at the Crescent Dam. During canal navigation season, the minimum flow is increased to 250 cfs and is passed through a notch in the Dam A flashboards. These required minimum flows are provided for fish protection measures. Once minimum flows and any diversions required for canal operations are met, the remaining flow is available for power generation.

Vischer Ferry Project

The Vischer Ferry Project is an 11.8 MW hydroelectric project located on the Mohawk River, approximately 14 miles upstream from its confluence with the Hudson River, and approximately 10 miles upstream of the Crescent Project. The principal features of the Vischer Ferry Project are the dam, powerhouse, impoundment, and appurtenant facilities. The Vischer Ferry Dam consists of three connected spillway sections. The two outer sections (Dams D and F) are regular, ungated, ogee-shaped weirs with an average structural height of approximately 30 ft. above rock. The middle section (Dam E) is a broad-crested weir constructed over a small bedrock island near the center of the river. Lock E-7 is located at Vischer Ferry Dam on the right bank, which is the opposite side of the river from the Vischer Ferry powerhouse.

To aid canal navigation, flashboards are installed along the crests of all spillways seasonally from Spring (generally in April) to the end of navigation season (generally in November based on season conditions). The flashboards are 27 inches high and when the flashboards are installed the impoundment elevation is 213.25 ft. BCD. The spillway crest elevation is 211.0 ft. when flashboards are removed. The Vischer Ferry impoundment is 10.3 miles long and the upstream terminus of the impoundment is located at Lock E-8 in Schenectady.

The Vischer Ferry Project powerhouse is located at the northern end of the dam and houses four turbine/generator units: two 2.8 MW rated Francis turbines and two 3.0 MW vertical shaft Kaplan turbines (identical units as at the Crescent Project). The original portion of the powerhouse contains the two original Francis units (Units 1 and 2). The two newer Kaplan units (Units 3 and 4) are located riverward of the original powerhouse. The turbines discharge water into the tailrace, the elevation of which is controlled by the Crescent impoundment level.

Vischer Ferry Project operations are performed in a manner to maintain the normal full pool elevation of the impoundment. Flow through the Project is through the powerhouse or over the dam. A minimum flow of 200 cfs (or inflow, whichever is less) is required to be passed at the Vischer Ferry Dam. An 8-foot section of the flashboards on Dam F is removed during navigation season to provide fish passage flow. Once Project minimum flows and any diversion required for canal operations are met, the remaining flow is available for power generation.

1.2 Initial Study Report Development

The current FERC licenses for both Projects expire on May 31, 2024. In 2019, the Power Authority began the public process for seeking new licenses for the Projects. To prepare its relicensing applications, the

Power Authority is using FERC's Integrated Licensing Process (ILP) as outlined in 18 Code of Federal Regulations (CFR) Part 5. In accordance with 18 C.F.R. §§ 5.5 and 5.6, the Power Authority filed its Notice of Intent (NOI) and Pre-Application Document (PAD) on May 3, 2019. The Commission issued its Scoping Document 1 (SD1) on June 10, 2019. On July 10, 2019, the Commission conducted environmental site visits to each of the Projects in conjunction with the public scoping meetings on July 10-11, 2019, in Clifton Park, New York, where potential issues were identified by agencies, stakeholders, and the public.

Subsequently, the Power Authority received comments on the PAD and the study plans as well as requests for additional studies. The Power Authority reviewed the comments and study requests, and developed a Proposed Study Plan (PSP), which served to address and respond to all comments and requests received. The Power Authority filed the PSP with FERC on September 23, 2019. Subsequent to the PSP filing, the Power Authority held a PSP Meeting on October 23, 2019, and PSP comments were due on December 22, 2019. The Power Authority filed a Revised Study Plan (RSP) on January 21, 2020. On February 20, 2020, FERC issued a Study Plan Determination (SPD) for the Projects.

The February 20, 2020 SPD approved seven studies in the RSP for the Projects and added an eighth study. The following is the list of studies approved by FERC in the SPD: 1) Water Quality Study; 2) Fish Entrainment Study; 3) Blueback Herring Downstream Migration Study; 4) Fish Community Study; 5) Aquatic Mesohabitat Study; 6) American Eel Study; 7) Bald Eagle Study; and 8) Recreation Study. Five of the eight studies were conducted in 2020. Due to the global Coronavirus Disease 2019 (COVID-19) pandemic, three of the studies were delayed or postponed to 2021: the American Eel Study, the Recreation Study, and the Bald Eagle Study, as well as a second year of water quality monitoring that the Power Authority voluntarily conducted in 2021 in response to comments filed on the ISR.

Following the first study season, study results for the five studies completed in 2020 were reported in the Initial Study Report (ISR) that was filed with FERC on February 19, 2021. The five studies reported fully in the ISR included the following: Water Quality Study; Fish Entrainment Study; Blueback Herring Downstream Migration Study; Fish Community Study; and Aquatic Mesohabitat Study. The Power Authority held the ISR meeting on March 3, 2021. Comments on the ISR and requests for additional studies were due April 19, 2021. FERC issued its study plan determination for second year studies on June 14, 2021. In response to comments on the ISR, FERC did not require any study modifications or additional studies for the 2021 season.

The purpose of this document is to report the results of the 2021 studies. Accordingly, the Power Authority is submitting for Commission review, this Updated Study Report (USR) for the Projects, which includes study reports for four studies that were completed in 2021.

1.3 Study Plan Implementation Summary

As described above, three of the studies included in the RSP were postponed until 2021 due to the COVID-19 pandemic; the American Eel Study, the Recreation Study, and portions of the Bald Eagle Study. In addition, a second year of water quality monitoring was voluntarily conducted in 2021, as requested by NYSDEC and Riverkeeper. Thus, in accordance with the FERC-approved study plan, with the filing of this USR the Power Authority has fully completed all eight studies required by the Commission's study plan determinations, as well as additional, voluntary water quality monitoring in 2021. The final technical reports for the Fish Entrainment Study, Blueback Herring Downstream Migration Study, Fish Community Study, and Aquatic Mesohabitat Study appear in the ISR. This USR contains the final technical reports for all

remaining studies, as follows:

1. 2021 Water Quality Study Report (Appendix A)
2. American Eel Study Report (Appendix B)
3. Bald Eagle Study Report (Appendix C)
4. Recreation Study Report (Appendix D)

1.4 Next Steps

In accordance with FERC's regulations, the Power Authority will hold a USR Meeting with resource agencies and stakeholders for the purpose of reviewing the Power Authority's progress in implementing the FERC-approved study plans. Because of the global pandemic, the USR meeting will be held virtually on March 3, 2022. Within fifteen (15) days following the USR Meeting the Power Authority will file the USR meeting summary. In accordance with the ILP schedule, agencies, stakeholders, members of the public or Commission staff may file a disagreement on the USR Meeting summary or requests to amend the study plan by April 20, 2022. The request for a modified or new study must be accompanied by a justification as set forth in the Commission's regulations at 18 C.F.R. § 5.15(d)(e). Responses to the disagreements or amendment requests are to be filed by May 20, 2022. The Commission will issue its Study Plan Determination by June 19, 2022.

Draft License Applications (DLA) for the Crescent and Vischer Ferry Projects were filed with the Commission on December 22, 2021. Prior to filing the Final License Application (FLA), due May 31, 2022, the Power Authority will use the results of the resource studies reported herein to inform its FLA. More specifically, the results of the studies will be included and analyzed in Exhibit E.

2 UPDATED STUDY REPORTS

2.1 2021 Water Quality Study

2.1.1 Introduction

On January 21, 2020, the Power Authority filed its RSP for the Crescent and Vischer Ferry Projects with FERC (Power Authority 2020). One of the studies proposed in the RSP was a Water Quality Study. FERC approved the Water Quality Study Plan without modification in its SPD issued on February 20, 2020 (FERC 2020). The overall goal of the Water Quality Study was to evaluate the effects of Project operations on water quality.

The Initial Study Report (ISR) for the Projects was filed by the Power Authority on February 19, 2021 and contains the results of the 2020 Water Quality Study. The Power Authority held the ISR Meeting on March 3, 2021. In their comments on the ISR, the New York State Department of Environmental Conservation (NYSDEC) and Riverkeeper requested collection of additional water quality data at the Projects for 2021. The Commission, in its study determination dated June 14, 2021, did not recommend modifying the study to require an additional season of water quality sampling, as requested by the NYSDEC and Riverkeeper.

However, in response to the request for follow-up water quality data collection in 2021, the Power Authority voluntarily conducted a second-year water quality study designed to collect additional dissolved oxygen (DO) and temperature data from the Project impoundments. Water quality data for the Projects were collected between June 28, 2021, and September 29, 2021. The Power Authority developed a report of its 2021 Water Quality Study which is included herein as Appendix A.

2.1.2 Study Goals

The goals of the 2021 study were to determine if the infrequent DO and temperature stratification patterns observed in the Projects' forebays in 2020 were unique to the forebays, or were a reflection of similar patterns in the impoundments, and to evaluate whether the Projects' forebays are representative of DO and temperature conditions elsewhere in the Project impoundments.

2.1.3 Geographic Scope

The geographic scope of this study encompassed the Projects' forebays, as well as two locations in the impoundments of each Project.

2.1.4 Study Implementation, Methods, and Variances

The methods used in this study follow those outlined in the 2021 study plan and are detailed in the study report. Approximate impoundment water quality monitoring station locations were selected in consultation with the resource agencies. Forebay sampling locations were kept the same from the 2020 study. Vertical profiles of dissolved oxygen and water temperature were collected approximately every week between June 28, 2021 and September 29, 2021, at six locations.

High river flows occurred periodically throughout the 2021 study period, making boat access unsafe for the impoundment data collection at the Projects on some dates. During these high flow periods, profiles were only collected in the Project forebays.

2.1.5 Results

The study successfully collected additional water quality data in the forebays of the two Projects, as well as data from the impoundments. Temperature and DO data were collected at the Projects under a range of environmental and operational conditions, including both normal and high river flow events. The Mohawk River generally experienced higher than normal flows during the study period.

Vertical profile temperature data showed similar patterns between the two Projects at both impoundment and forebay monitoring stations. At both Projects water temperatures were generally consistent from top to bottom, with some surface warming observed, at all monitoring stations. At Crescent, the greatest top to bottom temperature gradient of 3.1 °C was observed on June 28, 2021, at the deepest Crescent impoundment site (Impoundment Site B). At Vischer Ferry, the greatest top to bottom temperature gradient of 3.5 °C was also observed on June 28, 2021 at the Vischer Ferry impoundment site (Impoundment Site B).

The DO data measured at all the Crescent sampling locations were generally consistent from top to bottom, with the exceptions of June 28, July 7, and August 12 when DO levels were lower towards the bottom of the water column. On July 7, vertical stratification in DO was observed at the Crescent Project in both the forebay and impoundment locations.

At Vischer Ferry, the DO patterns were also consistent throughout the Project monitoring sites and the water column was generally well-mixed. DO stratification was observed at the Vischer Ferry monitoring stations on the low flow days of June 28, July 7, and August 12, and was most pronounced on June 28. On this day, vertical stratification in DO was observed at the Vischer Ferry Project in both the forebay and impoundment locations.

These periods of stratification occurred when river flows were relatively low.

2.1.6 Completing the Study

The 2021 Water Quality Study was completed in 2021 and a final report is contained in Appendix A. The Power Authority is not proposing any modifications to the study.

2.1.7 Schedule

The 2021 Water Quality Study was completed in 2021 and there are no remaining outstanding tasks to be completed.

2.1.8 Conclusions

The 2021 Water Quality Study results demonstrate that DO stratification can occur during low flow periods in both the Project impoundments and forebay locations. At higher river flows, the water column stays mixed from top to bottom and neither DO or thermal stratification was observed. The results of the 2021 monitoring demonstrate that DO stratification patterns observed in 2020 are not localized to the Project forebays but are representative of overall impoundment conditions.

As reported in the 2020 Water Quality Study, the Project tailrace locations remain well oxygenated despite varying DO conditions in the forebays. Overall, considering data collected in 2020 and 2021, the operation of the Projects does not adversely affect water quality conditions.

2.1.9 References

Federal Energy Regulatory Commission (FERC). 2020. Study Plan Determination for the Crescent and Vischer Ferry Project. Issued February 20, 2020.

New York Power Authority (NYPA). 2020. Revised Study Plan.

New York Power Authority (NYPA). 2021a. Water Quality Report for The Crescent and Vischer Ferry Hydroelectric Projects. FERC No. P-4678 and P-4679. February 2021.

New York Power Authority (NYPA). 2021b. 2021 Water Quality Monitoring Study Plan for the Crescent and Vischer Ferry Hydroelectric Projects. FERC No. P-4678 and P-4679. May 18, 2021.

2.2 American Eel Study

2.2.1 Introduction

On January 21, 2020, the Power Authority filed its RSP for the Crescent and Vischer Ferry Projects with FERC (Power Authority 2020). Not included in the RSP was a study of American Eel. In its February 20, 2020 SPD, FERC staff recommended that an American Eel study be conducted at the Projects in 2020. Accordingly, the Power Authority prepared a study plan for the American Eel Study.

The Power Authority made initial plans to conduct the American Eel study in 2020. However, plans to conduct spring sampling for eels were disrupted due to the global COVID-19 pandemic. As a result, the decision was made to postpone the entire study until 2021. The Power Authority used the time available in 2020 to further consult with the agencies on a detailed study plan for the American Eel Study. The resulting study plan was filed with the Commission as an addendum to the RSP on February 4, 2021.

The Power Authority conducted the American Eel Study in 2021 and developed a full report on the study results which is included herein as Appendix B. The report details efforts that were made to document American eels in Project waters from April to October 2021. Three different sampling techniques were used to document eels, including nighttime surveys, nighttime electrofishing, and eel ramp traps. The study was completed as planned, and no further study of American eel at the Projects is needed or recommended.

2.2.2 Study Goals

The goal of this study was to assess the presence and quantity of American eel upstream and downstream of the Projects.

2.2.3 Geographic Scope

The geographic scope of this study included the areas immediately downstream of the Crescent and Vischer Ferry dams as well as the Vischer Ferry impoundment.

2.2.4 Study Implementation, Methods, and Variances

The study methods outlined in the RSP were revised based on consultation with the NYSDEC and the United States Fish and Wildlife Service (USFWS). The methods are detailed in the study report. In addition to American eel sampling techniques, sampling locations were selected in consultation with the resource agencies. American eel monitoring was conducted from mid-April until October 2021.

Variances

The American Eel Study was originally to be conducted in 2020. However, due to the COVID-19 pandemic, the entire study was postponed until 2021. The American Eel Study was conducted in 2021, and the results are reported herein (Appendix B).

2.2.5 Results

Three methods were used to survey eels at the Project. Details of the methods used and the study results are provided in the study report (Appendix B).

Nighttime surveys were performed throughout the tailrace and spillway locations downstream of the Crescent and Vischer Ferry dams, respectively, on five dates: April 22, April 28, May 13, May 18, and June 9, 2021. No eels were observed during any of the observation events.

Nighttime boat electrofishing occurred on the nights of August 12 and September 14, 2021. The sampling transects were located in the Vischer Ferry impoundment, in the vicinity of the Isle of the Mohawks, as recommended by the resource agencies. No American eel were observed or collected during the electrofishing surveys.

Six eel ramp traps (three at each Project) were installed in the tailrace and spillway areas of each Project during the week of May 18, 2021 and sampled through September 30, 2021 with periodic outages due to high flow conditions and maintenance. The traps were checked twice a week, except during high water events or severe weather conditions. No eels were observed or collected during eel ramp trap sampling.

Overall, though three different sampling methods were used for this American Eel Study, no eels were observed or collected at any of the study locations. These results demonstrate that both juvenile and adult American eel are uncommon at the Projects. This finding is consistent with other on-going and relatively recent eel and fisheries studies that have been conducted in the Lower Mohawk River in the vicinity of the Projects. The result of other fisheries studies are presented in the Fish Community Study which was submitted as Appendix D of the ISR.

2.2.6 Completing the Study

The American Eel Study was completed in 2021 and a final report is contained in Appendix B. The study was completed in accordance with the FERC approved study plan. The Power Authority is not proposing any modifications to the study.

2.2.7 Schedule

The American Eel Study was completed in 2021 and there are no remaining outstanding tasks to be completed.

2.2.8 Conclusions

The American Eel Study results demonstrate that American eels are uncommon in the lower Mohawk River and at the Projects. As a result, the operation of the Crescent and Vischer Ferry Projects have no adverse effect on American eels.

2.2.9 References

Federal Energy Regulatory Commission (FERC). 2020. Study Plan Determination for the Crescent and Vischer Ferry Project. Issued February 20, 2020.

New York Power Authority (Power Authority). 2020. Revised Study Plan.

2.3 Bald Eagle Study

2.3.1 Introduction

On January 21, 2020, the Power Authority filed its RSP for the Crescent and Vischer Ferry Projects with FERC (Power Authority 2020). One of the studies proposed in the RSP was a Bald Eagle Study. FERC approved the Bald Eagle Study without modification in its SPD issued on February 20, 2020 (FERC 2020).

As outlined in the RSP, the Bald Eagle Study was to be conducted as a single-season study with field surveys to be conducted in the early spring (nesting surveys) and summer 2020.

However, the early field season was disrupted in 2020 due to the COVID-19 pandemic, and the early spring nesting survey was postponed until 2021. Summer season observations were made during the Aquatic Mesohabitat Study, which was reported in the ISR, Appendix E. Spring nesting surveys were conducted in the spring 2021 and observations were also made throughout the summer 2021.

The Power Authority concluded the Bald Eagle Study in 2021 and developed a final report of the study results which is included herein as Appendix C. The report demonstrates that the Bald eagles frequent both Projects and use Project waters and adjacent lands for foraging and nesting. The Projects have no impacts on Bald Eagles. No further study of Bald Eagles is needed or recommended.

2.3.2 Study Goals

The goal of the study was to identify and map areas of existing and potential bald eagle nesting, roosting, and foraging habitats at the Crescent and Vischer Ferry Projects, and to monitor and record bald eagle activities in those areas.

2.3.3 Geographic Scope

The geographic scope of the study was the FERC Project boundaries for the Crescent and Vischer Ferry Projects.

2.3.4 Study Implementation, Methods, and Variances

The methods used in this study followed those outlined in the RSP. Observations of bald eagle activities were made in 2020 in conjunction with the Aquatic Mesohabitat Study and were reported in the ISR. Details regarding methods used to survey Bald eagle activities during 2021, as well as in 2020, are discussed in the final study report included herein (Appendix C).

Variances

The RSP called for the Bald Eagle Study to be conducted in its entirety in 2020, including both spring nesting surveys, as well as summer surveys. Due to the COVID-19 pandemic, the early spring nesting survey was postponed until the spring of 2021. The final study report, which includes the results from both the 2020 and 2021 seasons, is reported herein (Appendix C).

2.3.5 Results

Bald eagles were routinely observed using both the Crescent and Vischer Ferry Project areas during the 2020 surveys conducted for the Aquatic Mesohabitat Study in August and November 2020. Bald eagles were also frequently observed in 2021 both during the spring nesting surveys and during observations

made (and recorded) during the 2021 water quality monitoring and American eel studies. Two active bald eagle nests were identified and observed during the spring of 2021. Observations of bald eagles and bald eagle nests are detailed in the final study report (Appendix C). Nest site locations have been removed from the public version of the final report but will be reported separately and filed with FERC as Privileged information.

2.3.6 Completing the Study

The study was completed in accordance with the FERC approved study plan. The Power Authority is not proposing any modifications to the study.

2.3.7 Schedule

The Bald Eagle Study was completed in 2020 and 2021 and the study is being filed as part of this USR. There are no remaining outstanding tasks to be completed.

2.3.8 Conclusions

The Bald Eagle Study results demonstrate that the Projects are frequently used by bald eagles for foraging, roosting, and nesting. Two bald eagle nests were observed in 2021 in locations adjacent to the Crescent impoundment. Operation of the Crescent and Vischer Ferry Projects have no adverse impact on bald eagle use of the Projects.

2.3.9 References

Federal Energy Regulatory Commission (FERC). 2020. Study Plan Determination for the Crescent and Vischer Ferry Project. Issued February 20, 2020.

New York Power Authority (Power Authority). 2020. Revised Study Plan.

New York Power Authority (Power Authority). 2021. Aquatic Mesohabitat Study Report.

2.4 Recreation Study

2.4.1 Introduction

On January 21, 2020, the Power Authority filed its RSP for the Crescent and Vischer Ferry Projects with FERC (Power Authority 2020). One of the studies proposed in the RSP was a Recreation Study. FERC approved the Recreation Study without modification in its SPD issued on February 20, 2020 (FERC 2020).

As outlined in the RSP, the Recreation Study was to be conducted as a single-season study with recreation use data and surveys collected throughout the 2020 recreation season. However, because normal recreation use at the Projects was disrupted in 2020 due to the COVID-19 pandemic, the entire study was postponed until 2021.

The Power Authority conducted the Recreation Study in 2021 and developed a full report on the study results which is included herein as Appendix D.

2.4.2 Study Goals

The goal of the study was to inventory formal, informal, commercial, and non-commercial recreation sites providing public recreational access to Project waters, and to evaluate current use and future needs of the FERC-approved Project recreation sites through the conduct of use counts and user surveys. The specific objectives of this study were to complete a recreation facility inventory and condition assessment, to evaluate recreation use at the Project recreation sites, and to conduct user surveys to help determine the adequacy of the existing Project recreation sites.

2.4.3 Geographic Scope

The study area encompasses lands and waters within the FERC Project boundaries as well as other commercial and non-commercial public recreation sites immediately adjacent to the Projects that provide public recreational access to Crescent and Vischer Ferry Project lands and waters.

2.4.4 Study Implementation, Methods, and Variances

The methods used in this study followed those outlined in the RSP and are detailed in the final study report. A comprehensive recreation site inventory and condition assessment was conducted in the study area in August of 2021. Use at the FERC-approved Project recreation sites was evaluated between May 1 and October 31, 2021 using trail cameras to record recreational use and parking lot utilization. Voluntary, self-administered user surveys were made available in collection stations at the Project recreation sites during that same timeframe to solicit information on user characteristics, use patterns, and user perceptions of the sites.

Variances

The RSP called for the Recreation Study to be conducted in its entirety in 2020. However, because normal recreation use at the Projects was disrupted in 2020 due to the COVID-19 pandemic, the entire study was postponed until 2021.

Because the study was conducted in 2021, certain adjustments had to be made as a result of construction and maintenance activities occurring in two locations. The adjustments made to accommodate these unanticipated activities are detailed in the final study report (Appendix D).

2.4.5 Results

The recreation site inventory showed that numerous recreation sites provide abundant recreational opportunities in the vicinity of the Projects. Public and commercial boat launches and marina facilities line both sides of the Mohawk River and provide boating access to the Project impoundments. Regional trails provide hiking and biking opportunities along miles of near-Project shoreline. Various parks and preserves provide angler access, picnic areas, and scenic views of the Projects.

The Crescent Project provides two FERC-approved Project recreation sites offering angler access below the Project dam as well as picnicking opportunities and scenic views of the Project. The Vischer Ferry Project provides three FERC-approved Project recreation sites offering scenic views of the Project from upstream and downstream, shoreline angler access below the Project dam, and boating access to the Project impoundment. The condition assessment conducted at the Project recreation sites generally found the Project recreation sites, facilities, and amenities to be functioning well and meeting their intended use.

The assessment of recreational use at the FERC-approved Project recreation sites demonstrated that each site has ample capacity to meet existing and future recreational demand. Parking areas for the Crescent Project recreation sites were estimated to be used at 10 percent of capacity and parking areas for the Vischer Ferry Project were estimated to be used at 25 percent or less of capacity on average, non-peak weekends during the study period. Recreational use of both Projects is expected to increase by less than 15 percent between 2021 and 2060, and the existing Project recreation sites will meet projected future demand.

A survey of existing recreational users was administered at the Project recreation sites to gather basic information regarding user characteristics, use patterns, and user preferences. The majority of respondents visiting the Crescent Project recreation sites indicated that they are satisfied with the available recreation facilities and rated the attributes of both sites favorably. The majority of respondents visiting the Vischer Ferry Project recreation sites indicated that they are satisfied with the available recreation facilities, and rated most site attributes favorably. Respondents visiting all FERC-approved recreation sites at the Projects rated the overall site value as above average, and the vast majority indicated that they would return to the sites in the future.

Overall, the study results demonstrate that there are ample public recreation opportunities at the Projects, and that Project access for recreation is provided by both Project and non-Project recreation sites, facilities, and amenities. The existing Project recreation sites and facilities are meeting current demand, and are expected to meet future demand through 2060.

2.4.6 Completing the Study

The Recreation Study was completed in 2021 and a final report is contained in Appendix D. The study was completed in accordance with the FERC approved study plan with the exception of the variances described above. The Power Authority is not proposing any modifications to the study.

2.4.7 Schedule

The Recreation Study was completed in 2021 and there are no remaining outstanding tasks to be completed.

2.4.8 Conclusions

The Recreation Study results demonstrate there are numerous recreation sites that provide ample access and opportunity for public recreation at the Projects. Regarding the Project recreation sites, the study results show that there is ample opportunity and capacity for existing and future recreation use. No further study of recreation opportunities at the Projects is needed or recommended.

2.4.9 References

Federal Energy Regulatory Commission (FERC). 2020. Study Plan Determination for the Crescent and Vischer Ferry Project. Issued February 20, 2020.

New York Power Authority (Power Authority). 2020. Revised Study Plan.

Appendix A – 2021 Water Quality Study Report

2021 WATER QUALITY STUDY

Prepared by:

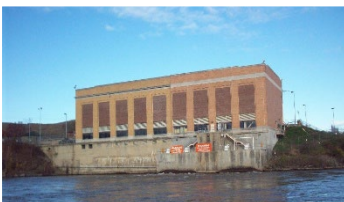


February 2022

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**CRESCENT AND VISCHER FERRY PROJECTS
RELICENSING**

FERC NO. 4678 AND 4679



**NY Power
Authority**

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List of Abbreviations

BCD	Barge Canal Datum
°C	Celsius
cfs	cubic feet per second
DLA	Draft License Application
DO	Dissolved Oxygen
El.	Elevation
°F	Fahrenheit
FERC	Federal Energy Regulatory Commission
ft	Foot or Feet
ft ²	square feet
ILP	Integrated Licensing Process
ISR	Initial Study Report
m	Meter
Mg/L	Milligram per liter
mi	Mile
MW	Megawatt
NOAA	National Oceanic and Atmospheric Administration
NOI	Notice of Intent
NY	New York
NYSDEC	New York State Department of Environmental Conservation
PAD	Pre-Application Document
Power Authority	New York Power Authority
QA/QC	Quality Assurance / Quality Control
SD1	Scoping Document 1
USGS	United States Geological Survey

1 Introduction

1.1 Background

The Power Authority of the State of New York (the Power Authority) is licensed by the Federal Energy Regulatory Commission (FERC or the Commission) to operate the Crescent and Vischer Ferry Hydroelectric Projects (FERC Nos. 4678 and 4679) (Projects) located on the Mohawk River in New York. The Power Authority is using the Federal Energy Regulatory Commission's (FERC or Commission) Integrated Licensing Process (ILP) as outlined in 18 C.F.R. Part 5 to relicense the Projects.

In accordance with 18 C.F.R. §§ 5.5 and 5.6, the Power Authority filed its Notice of Intent (NOI) and Pre-Application Document (PAD) on May 3, 2019, which included the Power Authority's preliminary issues and study list for the Projects. FERC issued its Scoping Document 1 (SD1) on June 10, 2019 and held public scoping meetings on July 10-11, 2019 in Clifton Park, New York, where potential issues were identified by agencies, stakeholders, and the public.

A Water Quality Study was conducted in 2020 in accordance with the Revised Study Plan and the Commission's Study Plan Determination. The 2020 Water Quality Study collected continuous water temperature and dissolved oxygen (DO) data from the Projects' forebays and tailwater areas from June through October 2020. Bi-weekly profiles of temperature, DO, pH, turbidity, and conductivity were also collected.

The Initial Study Report (ISR) for the Projects was filed by the Power Authority on February 19, 2021 and contains the results of the 2020 Water Quality Study. The Power Authority held the ISR Meeting on March 3, 2021. In their comments on the ISR, the New York State Department of Environmental Conservation (NYSDEC) and Riverkeeper requested collection of additional water quality data at the Projects for 2021. The Commission, in its study determination dated June 14, 2021, did not recommend modifying the study to require an additional season of water quality sampling, as requested by the NYSDEC and Riverkeeper.

The 2020 Water Quality Study indicated some infrequent, short-term DO stratification in the Vischer Ferry forebay location and some erratic changes in DO conditions in both Project forebays. As no other impoundment water quality data was collected as part of the study, it is unknown whether the DO stratification and erratic changes in DO concentrations are representative of broader impoundment conditions (influenced by the presence of extensive stands of water chestnut) or just a very localized phenomenon in the forebays. To address this question, and in response for follow-up water quality data collection in 2021, the Power Authority conducted a second-year Water Quality Study designed to collect additional DO and temperature data from the Project impoundments.

A relicensing study plan for the second-year water quality study was submitted by the Power Authority on May 18, 2021, as part of its Response to ISR Comments. This study report presents information and results pertaining to the 2021 Water Quality Study conducted at the Crescent and Vischer Ferry Projects.

1.2 Study Goals and Objectives

The goals of the 2021 Water Quality Study were to: a) determine if the DO patterns observed in the Projects' forebays in 2020 occur in the Mohawk River upstream of the Projects' forebays or if the conditions are localized to the Projects' forebays, and b) evaluate whether the Projects' forebays are representative of DO and temperature conditions elsewhere in the impoundment.

The objectives of this study were to collect vertical profile DO and temperature data in the Projects' impoundments and forebays during the summer months sufficient to characterize current DO and temperature conditions at each Project impoundment, and to compare the water quality data to concurrent river flow, weather conditions and Project operations.

1.3 Project Description

The Crescent and Vischer Ferry Projects are located adjacent to one another on the Mohawk River in New York at river miles (mi) 4 and 14, respectively ([Figure 1.3-1](#)). The Crescent and Vischer Ferry Projects are both operated on a run-of-river basis. The original purpose of the Crescent and Vischer Ferry Dams was to impound water to support navigation on the Barge Canal; this remains true today. During unusual conditions or emergencies associated with either system, public safety is always the first priority. Otherwise, navigation and Canal System operations take priority over the operation of the Projects. Unless emergency conditions exist, the Projects operate in run-of-river mode.

Crescent Project

The Crescent Project is an 11.8 megawatt (MW) hydroelectric project located on the Mohawk River, approximately 4 miles upstream from its confluence with the Hudson River. It is located 2 miles upstream of the School Street Hydroelectric Project (FERC No. 2539) owned by Erie Boulevard Hydropower, L.P.

The principal features of the Crescent Project are the dam, powerhouse, impoundment, and appurtenant facilities. The Crescent Dam consists of two independent concrete gravity overflow sections which link each riverbank to a rock island in the middle of the Mohawk River ([Figure 1.3-2](#)). Both sections are curved in plan and have a crest at elevation (El.) 184 Barge Canal Datum (BCD).

In order to aid canal navigation, one-foot-high (12 inch) wooden flashboards are installed along the crests of both spillways (Dams A and B) seasonally in Spring (generally in April based on seasonal conditions) and removed in the Fall (generally in November based on seasonal conditions). When the flashboards are installed, the spillway crest is El. 185 ft. BCD. The Crescent impoundment extends upstream approximately 10 miles to the Vischer Ferry Project Dam. At El. 184 ft. BCD, the surface area of the impoundment is 2,108 acres and impounds approximately 50,000 acre-feet of water. Installation of the flashboards increases the normal full pool elevation of the impoundment by 1 foot, to El. 185 ft. BCD, and the impoundment retains an additional 2,000 acre-feet of water.

The Crescent powerhouse is located on the western bank and houses four turbine/generator units: two 2.8 MW rated Francis turbines and two 3.0 MW vertical Kaplan turbines. The original portion of the powerhouse contains the two original Francis units (Units 1 and 2). The two newer Kaplan units (Units 3 and 4) are located riverward of the original powerhouse.

Crescent Project operations are performed in a manner to maintain the normal full pool elevation of the impoundment. Flow through the Project is through the powerhouse or over the dam. During the non-navigation season, a minimum flow of 100 cubic feet per second (cfs) (or inflow, whichever is less) is required to be passed at the Crescent Dam. In accordance with a July 31, 2007 FERC order, the minimum flow during canal navigation season is increased to 250 cfs and is passed through a notch in the Dam A flashboards. These minimum flows are for fish protection measures. Once minimum flows and any diversions required for canal operations are met, the remaining flow is available for power generation.

Vischer Ferry Project

The Vischer Ferry Project is an 11.8 MW hydroelectric project located on the Mohawk River, approximately 14 miles upstream from its confluence with the Hudson River, and approximately 10 miles upstream of the Crescent Project. The principal features of the Vischer Ferry Project are the dam, powerhouse, impoundment, and appurtenant facilities. The Vischer Ferry Dam consists of three connected spillway sections ([Figure 1.3-3](#)). The two outer sections (Dams D and F) are regular, ungated, ogee-shaped weirs with an average structural height of approximately 30 ft. above rock. The middle section (Dam E) is a broad-crested weir constructed over a small bedrock island near the center of the river. Lock E-7 is located at Vischer Ferry Dam on the right bank, which is the opposite side of the river from the Vischer Ferry powerhouse.

To aid canal navigation, flashboards are installed along the crests of all spillways seasonally from Spring (generally in April) to the end of navigation season (generally in November based on season conditions). The flashboards are 27 inches high and when the flashboards are installed the impoundment elevation is 213.25 ft. BCD. The spillway crest elevation is 211.0 ft. when flashboards are removed. The Vischer Ferry impoundment is 10.3 miles long and the upstream terminus of the impoundment is located at Lock E-8 in Schenectady. At El. 211 ft. BCD, the surface area of the impoundment is approximately 1,137 acres and impounds approximately 25,000 acre-feet of water. Installation of the flashboards raises the normal full pool to El. 213.25 ft. BCD, and the impoundment retains an additional 2,400 acre-feet of water.

The Vischer Ferry Project powerhouse is located at the northern end of the dam and houses four turbine/generator units: two 2.8 MW rated Francis turbines and two 3.0 MW vertical shaft Kaplan turbines (identical units as at the Crescent Project). The original portion of the powerhouse contains the two original Francis units (Units 1 and 2). The two newer Kaplan units (Units 3 and 4) are located riverward of the original powerhouse. The turbines discharge water into the tailrace, the elevation of which is controlled by the Crescent impoundment level.

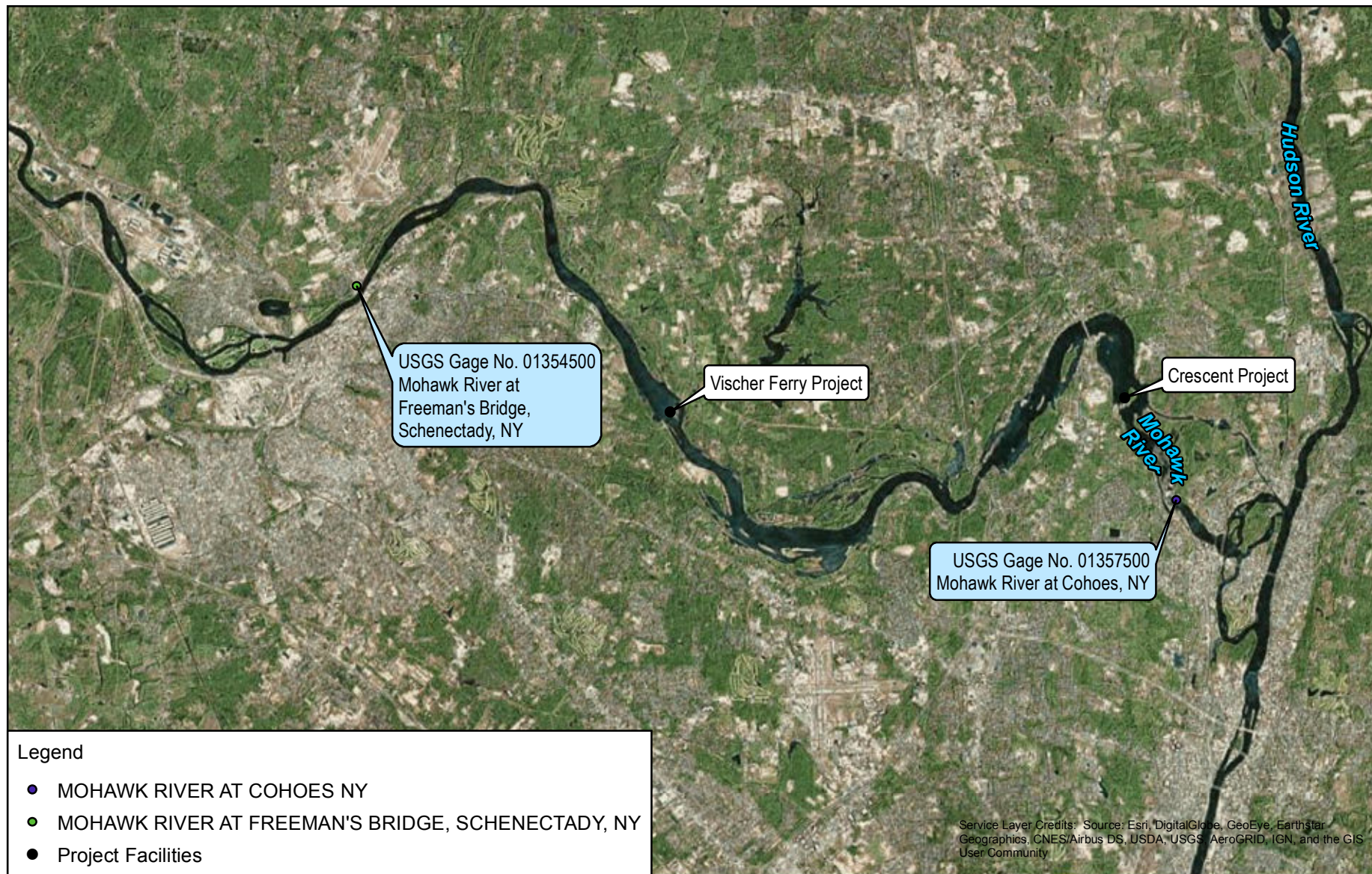
Vischer Ferry Project operations are performed in a manner to maintain the normal full pool elevation of the impoundment. Flow through the Project is through the powerhouse or over the dam. A minimum flow of 200 cfs (or inflow, whichever is less) is required to be passed at the Vischer Ferry Dam. An 8-foot section of the flashboards on Dam F is removed during navigation season to provide fish passage flow. Once Project minimum flows and any diversion required for canal operations are met, the remaining flow is available for power generation.

1.4 Water Quality Standards and Classifications

The New York State Department of Environmental Conservation (NYSDEC) defines the Mohawk River at the Crescent and Vischer Ferry Projects as Class A waters, except for the Barge Canal Section associated with the Crescent Project, which is classified as Class C waters. The Barge Canal section classified as Class C includes the Waterford Flight portion of the canal from Lock E-6 where it joins the Mohawk River at the Crescent Project down to Lock E-2, approximately 1.5 miles further down the canal.

Class A waters are described as a source of water supply for drinking, culinary or food processing purposes, primary and secondary contact recreation, and fishing. The waters shall be suitable for fish, shellfish, and wildlife propagation and survival (6 NYCRR § 701.6). Class A waters at no time shall have a DO concentration less than 4.0 milligrams per liter (mg/L) and must have a minimum daily average no less than 5.0 mg/L.

Class C waters are described as suitable for fish, shellfish and wildlife propagation and survival. The water quality shall be suitable for primary and secondary contact recreation, although other factors may limit the use for these purposes (6 NYCRR § 701.8). Class C waters shall have a minimum daily average no less than 5.0 mg/L and at no time have a DO concentration less than 4.0 mg/L.



Crescent and Vischer Ferry
Projects Relicensing
FERC No. P-4678 and P-4679

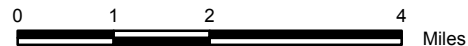


Figure 1.3-1:
Locations of Crescent
and Vischer Ferry Projects

Figure 1.3-2: Major Project Facilities of the Crescent Project

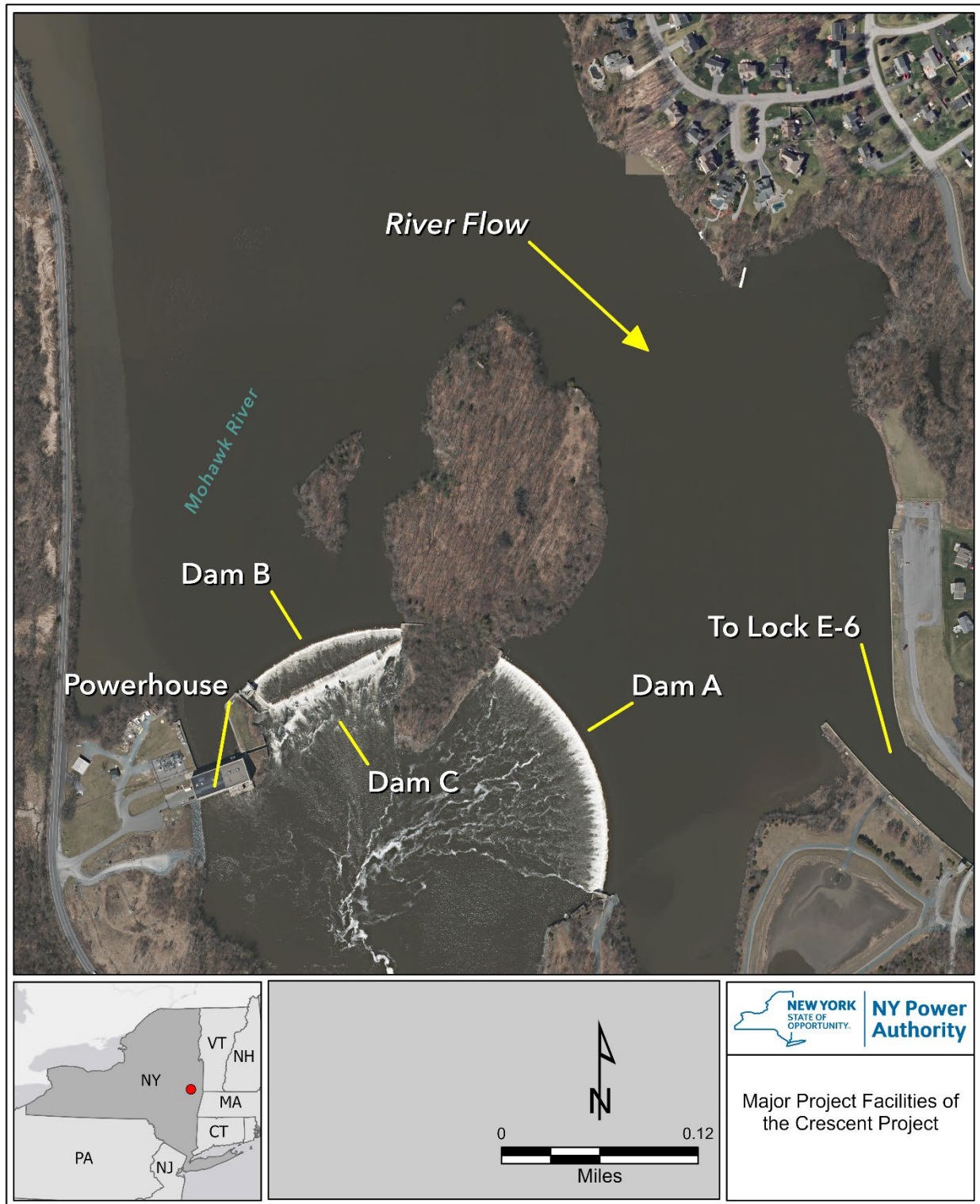
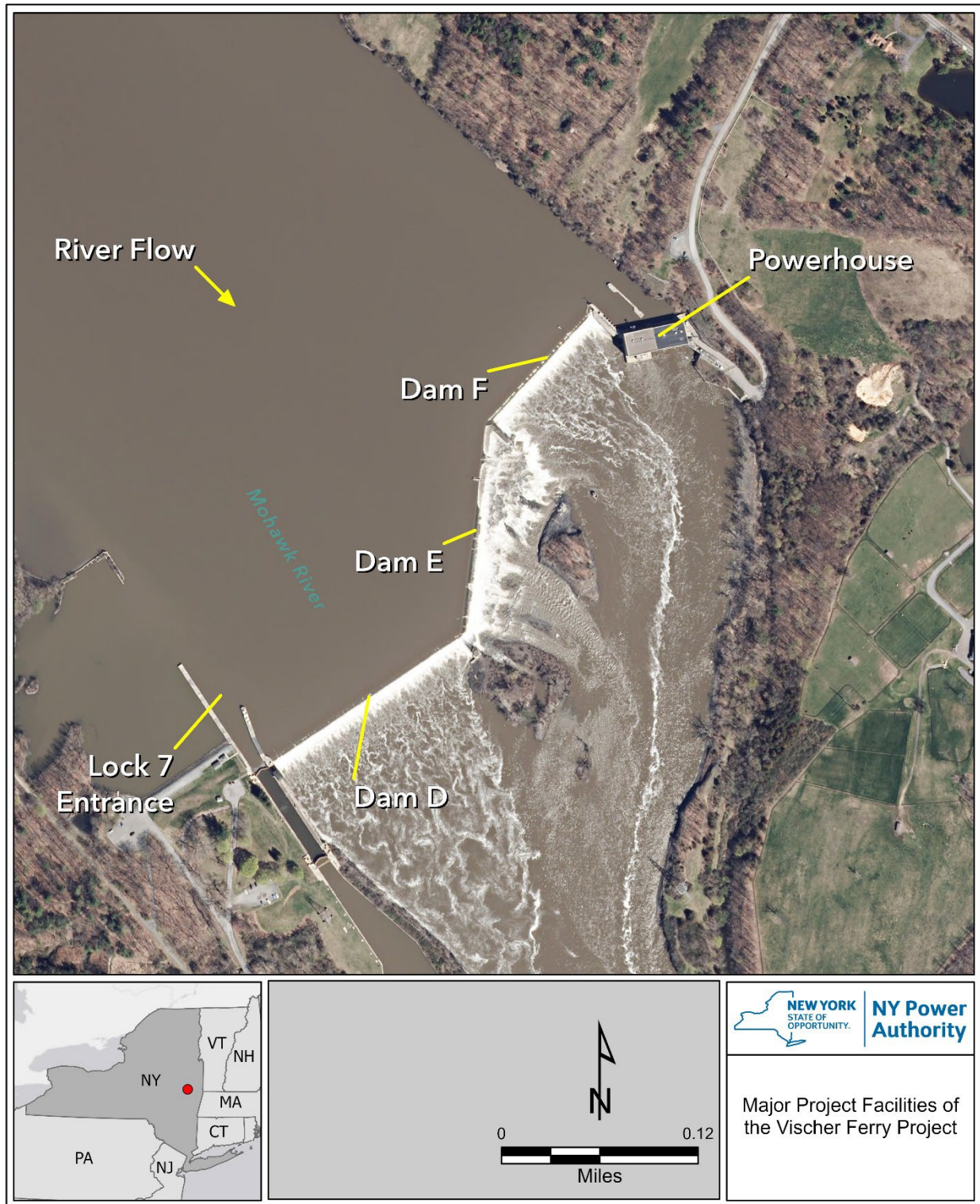


Figure 1.3-3: Major Project Facilities of the Vischer Ferry Project



2 Methodology

Prior to initiating sampling on June 21, 2021, the Power Authority met with representatives from the NYSDEC regarding the 2021 sampling effort and the final locations of the impoundment monitoring locations. The NYSDEC requested that the Power Authority proceed with the second-year study as proposed in its May 2021 filing with FERC. Based on this consultation the Power Authority agreed to voluntarily conduct the second year Water Quality Study as proposed.

2.1 Monitoring Locations

Water quality monitoring in 2021 was conducted at three locations at each Project. Profile locations were selected in the 2021 study plan to determine stratification patterns in deeper areas of the lower impoundments compared with the Project forebay locations. Profiles of dissolved oxygen and temperature were conducted in the same locations as the 2020 water quality monitoring study in the forebay of each Project and in two locations within the impoundments of each Project, described in [Table 2.1-1](#). The Crescent Impoundment B site was the deepest profile location in the Crescent study area at 8.5 meters deep. The Crescent Forebay and Impoundment A sites were shallower (3-7-3.9 meters deep). Conversely, at the Vischer Ferry Project study area, the Forebay site was the deepest sample location at 7.6 meters deep, compared to the two impoundment sites which had depths ranging from 3.8 to 5.7 meters.

[Figures 2.1-1](#) and [2.1-2](#) provide maps of the Project areas showing the water quality monitoring locations. Representative photographs of the monitoring locations are contained in [Figures 2.1-3](#) through [2.1-6](#).

2.2 Water Quality Monitoring Methods

2.2.1 Weekly Vertical Profiles

Vertical water quality profiles were collected every week between June 28 and September 29, 2021, resulting in 14 vertical profiles in the forebay at each Project, and 10 vertical profiles in the impoundment of each Project. High river flows occurred periodically throughout the study period, making boat access unsafe for impoundment data collection. During these high flow periods, water quality profiles were only collected in the forebays of the Projects. The profile data were generally collected weekly from mid-morning to early afternoon. Data were collected to characterize the water quality conditions throughout the water column of forebays and the Mohawk River upstream of the Projects.

A handheld multiparameter meter (YSI model Pro DSS) was used to collect water quality data at 1-meter increments, from just below the water surface (0.1 meter) to between 1 and 0.5 meters from the bottom of the river. Water temperature and DO (% saturation and mg/L) were collected at each location. The instrument was lowered to each sampling depth interval until the readings stabilized and were recorded. The accuracy, range, and resolution of each sensor are outlined in [Table 2.2-1](#).

2.3 Field QA/QC Procedures

Adherence to standard methods and QA/QC procedures for water quality monitoring helps ensure that the resulting data will be accurate, precise, comparable, and representative. QA/QC procedures were conducted throughout the study period. Only personnel trained or experienced in the measurement and data recording techniques described above conducted the field data collection.

The handheld meter was calibrated according to the manufacturer's specifications prior to each sampling

event. DO was calibrated to 100% saturation.

2.4 Data Compilation and Review

2.4.1 Weather, Flow, and Operations Data

To support the water quality data analysis, weather, flow, and Project operations data were obtained for the water quality monitoring period. Air temperature and precipitation data collected from a nearby weather station during the monitoring period were obtained from the online Northeast Region Climate Center – NOAA Online Weather Data¹ from the Albany International Airport NY, located approximately 11 miles southwest of the Projects. In addition to daily weather observations during the 2021 monitoring period, the data included long-term (1991-2020²) monthly normal air temperature and precipitation data for comparison. Visual observations of weather and flow conditions were also recorded at the Projects on each sampling day.

Mohawk River flow data were obtained from two U.S Geological Survey (USGS) gages to support this study: 1) Freeman’s Bridge in Schenectady, NY (No. 01354500), located approximately 6.9 miles downstream of the Vischer Ferry Project with a period of record from 2014-2020, and 2) the Mohawk River at Cohoes, NY (No. 01357500), located approximately 1.7 mi downstream of the Crescent Dam with a longer period of record. See [Table 2.4.1-1](#) for details on these stream flow gages. The location of these gages in relation to the Projects is shown in [Figure 1.3-1](#).

Operations data were obtained for both Projects concurrent to the water quality monitoring period of June through September 2021. Hourly data for total flow through the Project turbines were used to support this study. In addition, the forebay water surface elevations from each Project during the monitoring period are reported in the results.

2.4.2 2021 Water Quality Data Compilation and Review

Each water quality monitoring site was visited weekly to collect vertical profiles, all parameters were recorded on field data sheets. Collected data included discrete DO and water temperature measurements, general weather conditions, Projects’ operation status, and meter calibration notes.

All field collected data underwent a thorough QA/QC review process to ensure accuracy of the dataset. Data were reviewed after each weekly visit throughout the course of the study to confirm the accuracy of data and to screen for instrument error. Each dataset was compiled and subsequently reviewed. The desktop review of the dataset consisted of tabulating, charting, and visually examining the data for erroneous measurements.

¹ <https://www.weather.gov/wrh/climate?wfo=aly>

² The 1991-2020 U.S. Monthly Climate Normals data set is the most recent long-term monthly normals data released by NOAA. This data set is updated every 10 years.

Table 2.1-1: Vertical Profile Sites at Crescent and Vischer Ferry Projects

Site	Location
Crescent Forebay	Upstream end of Forebay, same location as 2020 sampling location.
Crescent Impoundment A	800 feet upstream of the Crescent Dam and intake channel.
Crescent Impoundment B	Navigation channel approximately 0.6 miles upstream of the Crescent Dam.
Vischer Ferry Forebay	Upstream end of Forebay, same location as 2020 sampling location.
Vischer Ferry Impoundment A	Navigation Channel approximately 0.4 miles upstream of the Vischer Ferry Dam and intake channel.
Vischer Ferry Impoundment B	Navigation Channel approximately 0.8 miles upstream of the Vischer Ferry Dam.

Table 2.2-1: Water Quality Instrument Specifications

Parameter	Specification	Description
YSI ProDSS Water Quality Meter		
Dissolved Oxygen (% saturation)	Sensor Type	Optical Luminescence- Lifetime Method
	Range	0 to 500 % air saturation
	Accuracy	± 1 % air saturation
	Resolution	0.1 % air saturation
Dissolved Oxygen (mg/L)	Sensor Type	Optical Luminescence- Lifetime Method
	Range	0 to 50 mg/L
	Accuracy	± 0.1 mg/L
	Resolution	0.01 mg/L
Temperature (°C)	Sensor Type	Thermistor; combination sensory with conductivity
	Range	-5 to +70°C
	Accuracy	± 0.2°C
	Resolution	0.1°C

Table 2.2-2: 2021 Average Depth of Profile Sites at Crescent and Vischer Ferry Projects

Site	Site Depth (m)	Site Depth (ft)
Crescent Forebay	3.7	12.1
Crescent Impoundment A	3.9	12.8
Crescent Impoundment B	8.5	27.9
Vischer Ferry Forebay	7.6	24.9
Vischer Ferry Impoundment A	3.8	12.5
Vischer Ferry Impoundment B	5.7	18.7

Table 2.4.1-1: USGS Monitoring Gages

Gage Name	Gage Number	Location	Notes
Mohawk River at Freeman's Bridge, Schenectady, NY	USGS 01354500	<p>Lat 42°49'49.9" Long 73°55'50.7"</p> <p>On left bank downstream from bridge on Freeman's Bridge Road, 1.2 mi north of Schenectady.</p> <p>Drainage area = 3,310 mi²</p>	<p>Daily average stream flow used for this study.</p> <p>Generally representative of Mohawk River flow conditions upstream of the Projects.</p> <p>Shorter period of record (August 2011 to current year) for comparison of 2021 flow conditions to long-term normals.</p>
Mohawk River at Cohoes, NY	USGS 01357500	<p>Lat 42°47'07.4" Long 73°42'28.0"</p> <p>On right bank at School Street powerplant in Cohoes, and 2.0 mi upstream from mouth.</p> <p>Drainage area = 3,450 mi²</p>	<p>Daily average stream flow compared to long-term data used for this study for an overview of flow conditions experienced during the 2021 monitoring period.</p> <p>Longer period of record (discharge since 1926) for comparison of 2021 flow conditions to long-term normals.</p>



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Authority**

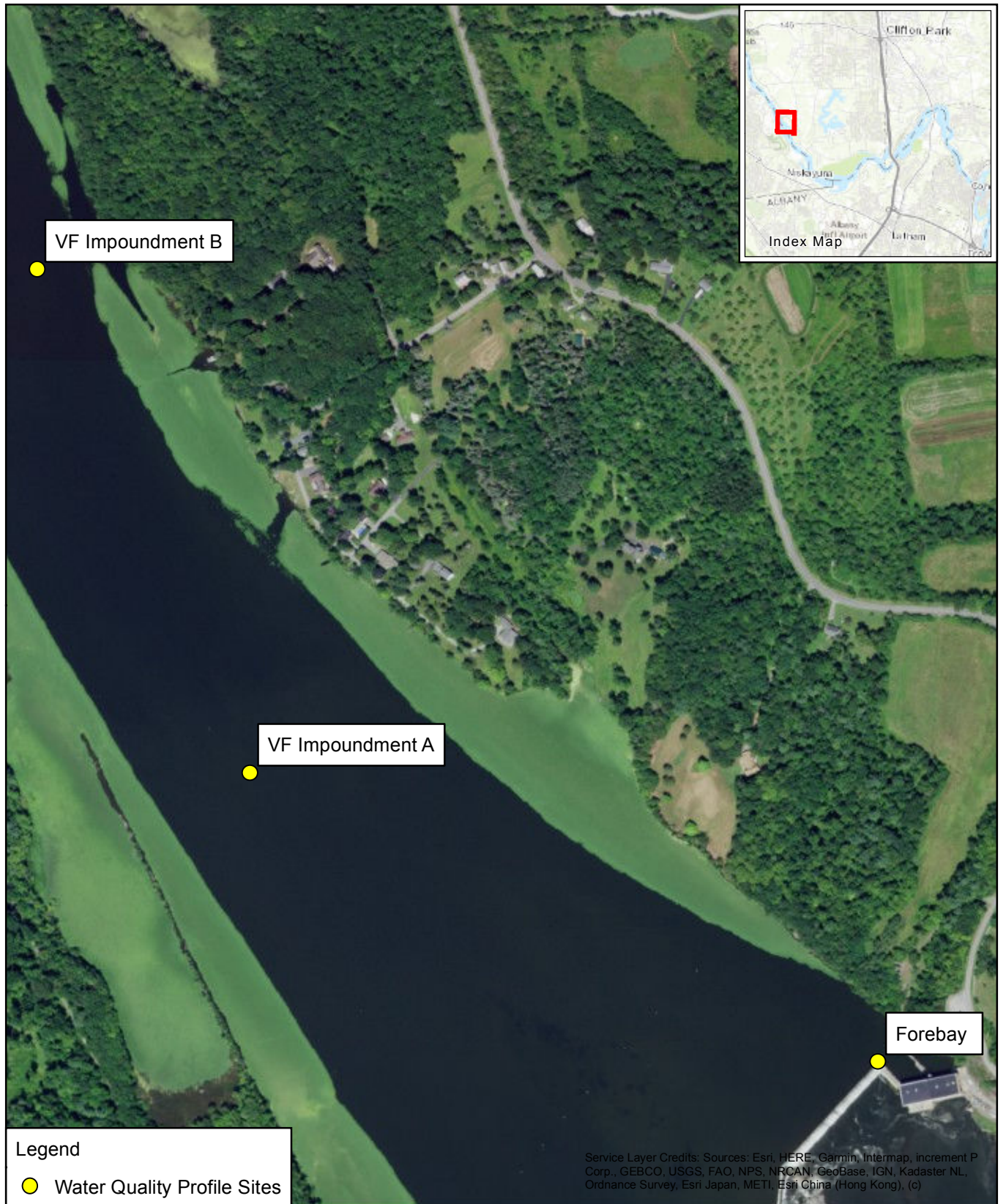
Crescent and Vischer Ferry
Projects Relicensing
FERC No. P-4678 and P-4679



**Figure 2.1-1
Crescent Water Quality
Profile Sites**

0 100 200 400
Feet

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Crescent and Vischer Ferry
Projects Relicensing
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**Figure 2.1-2
Vischer Ferry Water
Quality Profile Sites**

0 100 200 400
Feet

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Figure 2.1-3: Photograph of Crescent Forebay Monitoring Location



View is looking upstream from project intake. Water quality monitoring location on Right Bank (left wall in picture).

Figure 2.1-4: Photograph of Crescent Impoundment A Monitoring Location



View is looking downstream at warning buoy with the Crescent powerhouse on river right in background.

Figure 2.1-5: Photograph of Crescent Impoundment B Monitoring Location



View is looking at rock ledge. Water quality monitoring location is in deep spot marked with a white buoy.

Figure 2.1-6: Photograph of Vischer Ferry Forebay Monitoring Location



View is looking upstream from project intake. Water quality monitoring location on left forebay wall in picture.

Figure 2.1-7: Photograph of Vischer Ferry Impoundment A Monitoring Location



View is looking downstream with Project powerhouse on left side of photograph. Water quality monitoring location is marked by white buoy.

Figure 2.1-8: Photograph of Vischer Ferry Impoundment B Monitoring Location



View is looking downstream. Water quality monitoring location is marked by white buoy.

3 Results

Weekly profiles conducted at the Projects resulted in 14 vertical profiles for the Crescent Forebay and 10 vertical profiles for the Crescent Impoundment A and B sites. Twelve vertical profiles were collected for the Vischer Ferry Forebay site, and 10 vertical profiles were collected for the Vischer Ferry Impoundment A and B sites. The study was marked by periods of high flow, where impoundment profiles could not be collected for safety concerns on four occasions, and full-depth forebay profiles at Vischer Ferry could not be collected with accuracy on two occasions.

3.1 2021 Weather, Flow, and Operations Conditions

3.1.1 Weather Conditions

The weather conditions from the 2021 monitoring period within the study area were compared to long-term averages. The 2021 monthly temperature and precipitation data is compared against the long-term normal (1991-2020) in [Table 3.1.1-1](#). The 2021 daily average air temperature and the month-to-date precipitation in Albany, NY are displayed in [Figure 3.1.1-1](#). Every month of the study, June through September, experienced air temperatures that were lower than the long-term normal, with July being 2.9°C cooler than normal. June and August were less than a 0.5°C cooler than the normal long-term air temperature. Monthly precipitation data showed that July had close to double the long-term normal, with a monthly total of 8.96 in of rain. In the third week of August, the region was impacted from Hurricane Henri and in the first week of September, the area received heavy rain (1.42 in) due to Hurricane Ida moving up the East Coast.

3.1.2 River Flow and Operations Conditions

River Flows

The Mohawk River generally experienced higher than normal flows during the 2021 monitoring period. [Figure 3.1.2-1](#) shows 2021 daily average flows compared with long-term median daily flow (2012-2020) at Freeman's Bridge at Schenectady, NY (USGS 01354500). [Figure 3.1.2-2](#) shows 2021 daily average flows compared with long-term median daily flow (1926-2020) at the Mohawk River at Cohoes, NY (USGS 01357500).

Water quality profiles were collected under periods of low to moderate flows during late June and early July. River flows were very high from mid-July through early August, with July 10 through August 1 generally having flows over 5,000 cfs and daily average flow reaching up to 26,900 cfs on July 19. High flows were also experienced later in August (August 19 through 26), reaching 22,900 cfs. Flows were high in late August when Hurricane Henri caused heavy precipitation, and high flows were recorded again in the first week of September, consistent with a high precipitation event due to Hurricane Ida.

Operations Data

Turbine generation concurrent with the weekly profiles at each Project are shown in the tabular vertical profile data contained in [Appendix A](#). At both Projects, the turbines were operating to some degree during every weekly profile data collection. At the Crescent Project, turbine outflows were lowest on July 7 and there were various sample dates when the turbines were running at full capacity during high flow periods. The Vischer Ferry Project also had various dates when the turbines were running at full capacity during high flow periods experienced in 2021. During high flow periods on July 15 and 21, the regulating gates at the Vischer Ferry forebay were used to release excess water (thus preventing full-depth profile collection at

this site on those two days).

Hourly average turbine discharge and forebay water levels at the Projects during the 2021 water quality monitoring period are shown in [Figure 3.1.2-3](#) (Crescent) and [Figure 3.1.2-4](#) (Vischer Ferry).

3.2 Weekly Vertical Profile Results

Weekly vertical profiles were taken at each of the six sites at the Projects. Measurements included water temperature, DO (mg/L), and DO (% saturation). [Figure 3.2-1](#) and [Figure 3.2-2](#) depict the vertical profile data for each site. The tabular vertical profile data is contained in [Appendix A](#).

At the Crescent Project, the water temperature profiles at all sites were generally consistent from top to bottom. Some surface warming/cooling was observed, but none of the Crescent sampling sites were thermally stratified during the 2021 sampling period. The largest top to bottom temperature gradient of 3.1 °C was observed on June 28, 2021 at the deepest site (Crescent Impoundment B).

The DO data measured at all the Crescent sampling locations were generally consistent from top to bottom, with the exceptions of June 28, July 7, and August 12 when DO levels were lower towards the bottom of the water column. On July 7, vertical stratification in dissolved oxygen was observed at the Crescent Project in both the forebay and impoundment locations. On this same day, all sites at the Crescent Project displayed the lowest DO values, with Crescent Forebay displaying a DO of 4.58 mg/L at 3 meters, Crescent Impoundment A displaying a DO of 5.50 mg/L at 3 meters and Crescent Impoundment B displaying a DO of 3.01 mg/L on at 9 meters. These periods of stratification occurred when river flows were relatively low. [Figure 3.2-3](#) through [Figure 3.2-5](#) present a comparison of the temperature and DO profiles amongst sites on the three days when DO stratification was observed.

At Vischer Ferry, the temperature profile data were similar to the patterns observed at the Crescent Project. The temperature profiles at all the monitoring sites were generally consistent from top to bottom with surface warming observed on days with lower river flow (e.g., June 28, July 7, and August 12). The largest top to bottom temperature gradient of 3.5 °C was observed on June 28, 2021 at Vischer Ferry Impoundment B location.

The DO in the Vischer Ferry Forebay generally remained consistent throughout the water column. Vertical DO stratification was observed on June 28 in the forebay, as well as in the impoundment sites.

The DO patterns were consistent throughout the Project sites at Vischer Ferry, and the water column remained above 5.0 mg/L for DO at all depths. This remained true even when DO stratification occurred on the low flow days of June 28, July 7, and August 12. A comparison of the temperature and DO profiles amongst sites on the three days when DO stratification was observed is presented in [Figure 3.2-3](#) through [Figure 3.2-5](#). DO stratification was most pronounced at the three Vischer Ferry sites on June 28.

Table 3.1.1-1: Monthly Long-Term Average Air Temperatures and Precipitation
Compared to 2021 at Albany International Airport, NY

Month	Average Daily Air Temperature (°C)			Monthly Precipitation (inches)		
	Mean (2021)	Normal (1991-2020)	Departure	Total (2021)	Normal (1991-2020)	Departure
June	20.1	20.2	-0.1	2.70	4.05	-1.35
July	19.9	22.8	-2.9	8.96	4.55	4.41
August	21.6	21.9	-0.3	3.43	3.76	-0.33
September	16.8	17.5	-0.7	5.30	3.73	1.57

Source: NOAA Online Weather Data for Albany International Airport, NY. [National Weather Service - Albany, NY](#)

Figure 3.1.1-1: 2021 Average Daily Air Temperature and the Total Daily Precipitation in Albany, NY

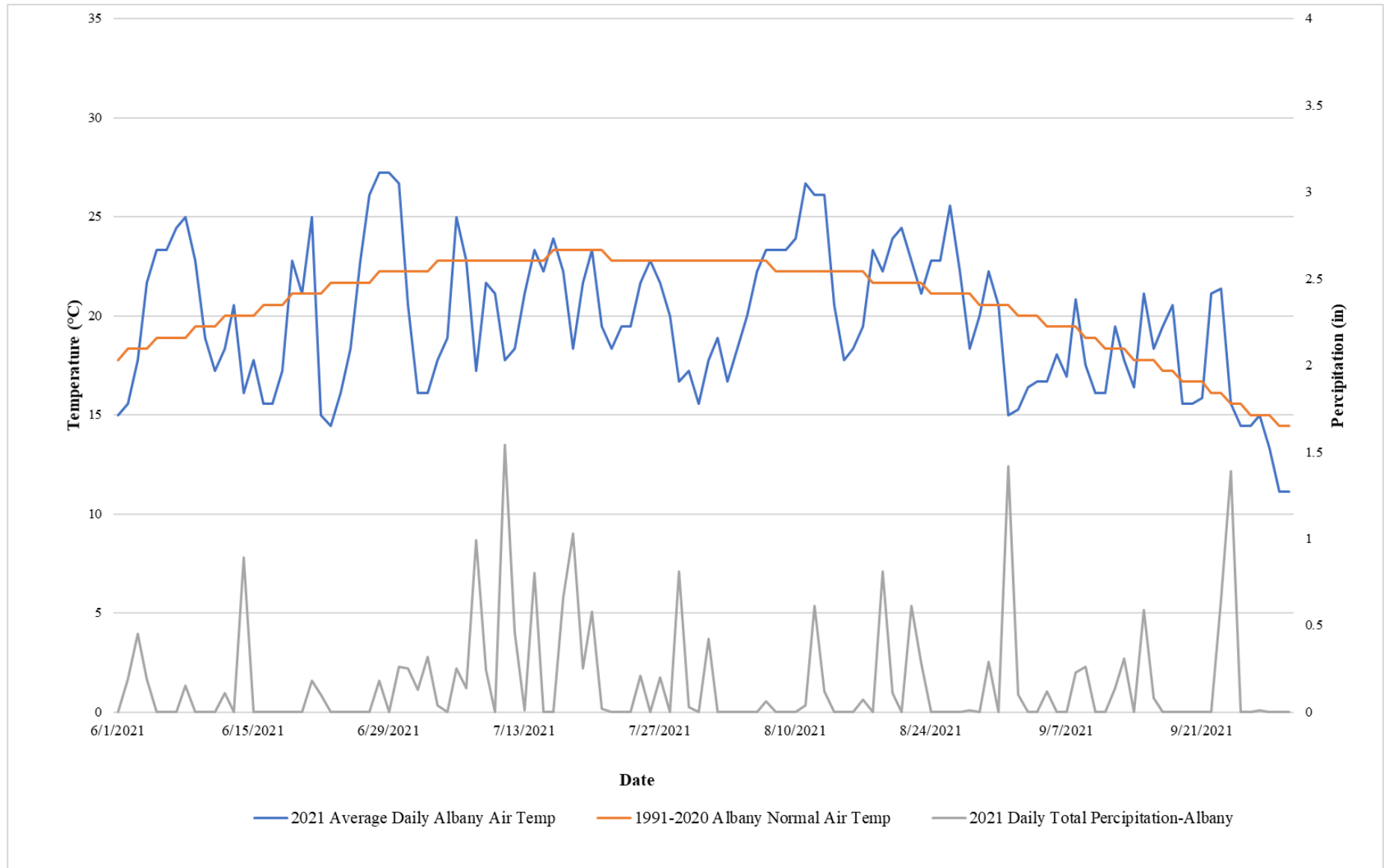


Figure 3.1.2-1: Daily Average Flows at the Mohawk River USGS Gage at Freeman's Bridge in Schenectady, NY, June through September 2021

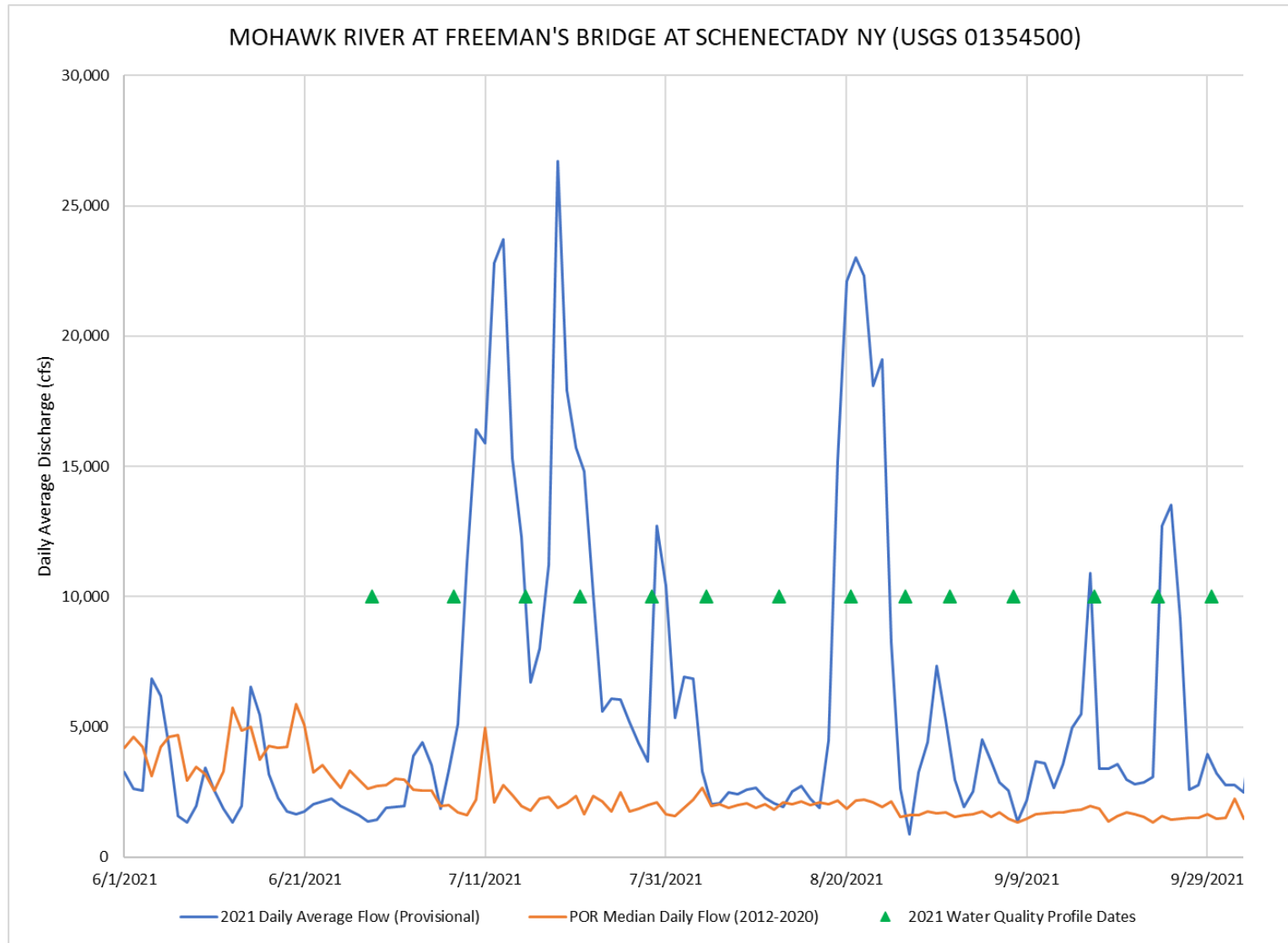


Figure 3.1.2-2: Daily Average Flows at the Mohawk River USGS Gage at Cohoes, NY, June through September 2021.

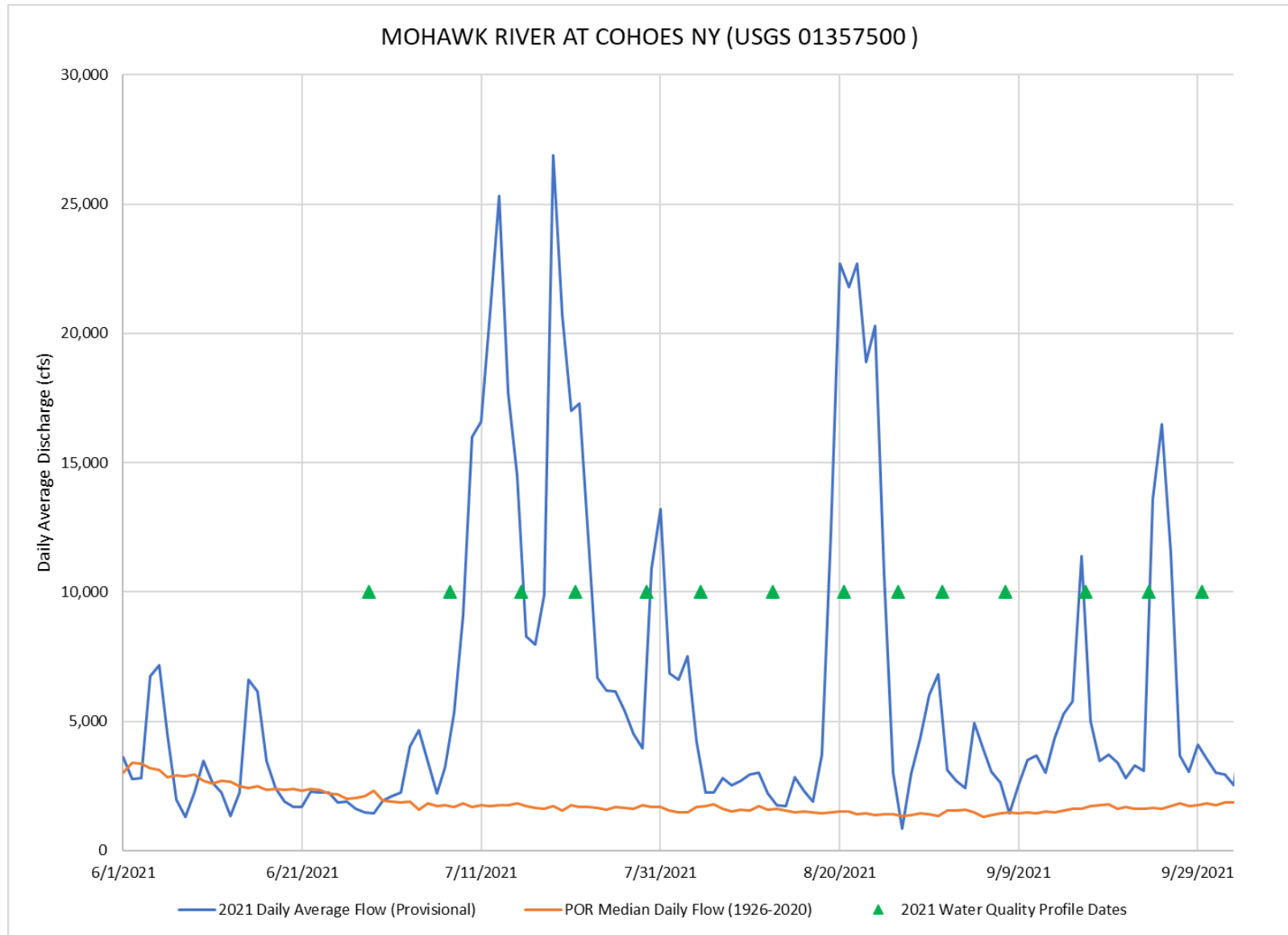


Figure 3.1.2-3: Crescent Project Hourly Turbine Discharge and Forebay Water Level, June – September 2021.

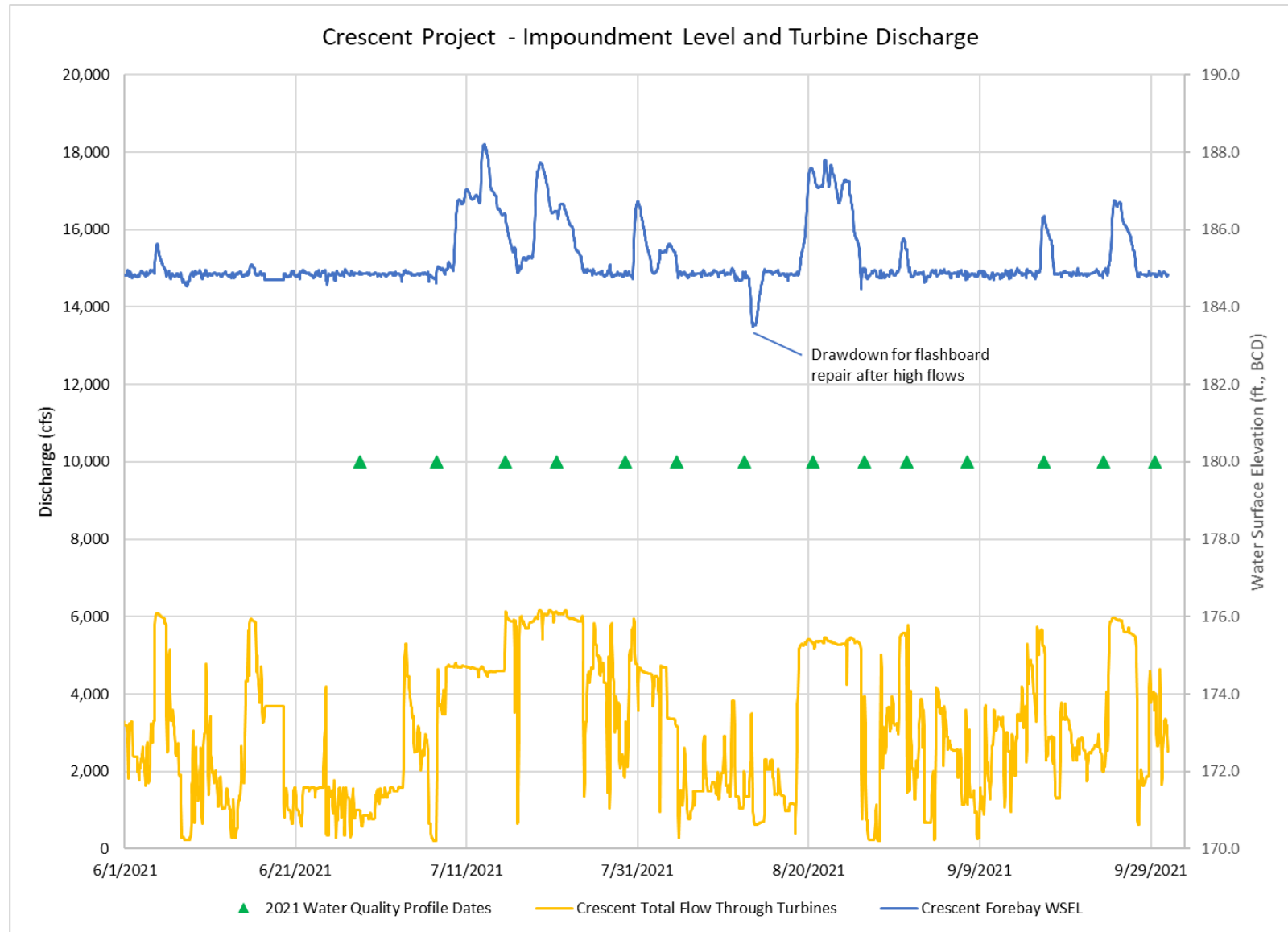


Figure 3.1.2-4: Vischer Ferry Project Hourly Turbine Discharge and Forebay Water Level, June – September 2021.

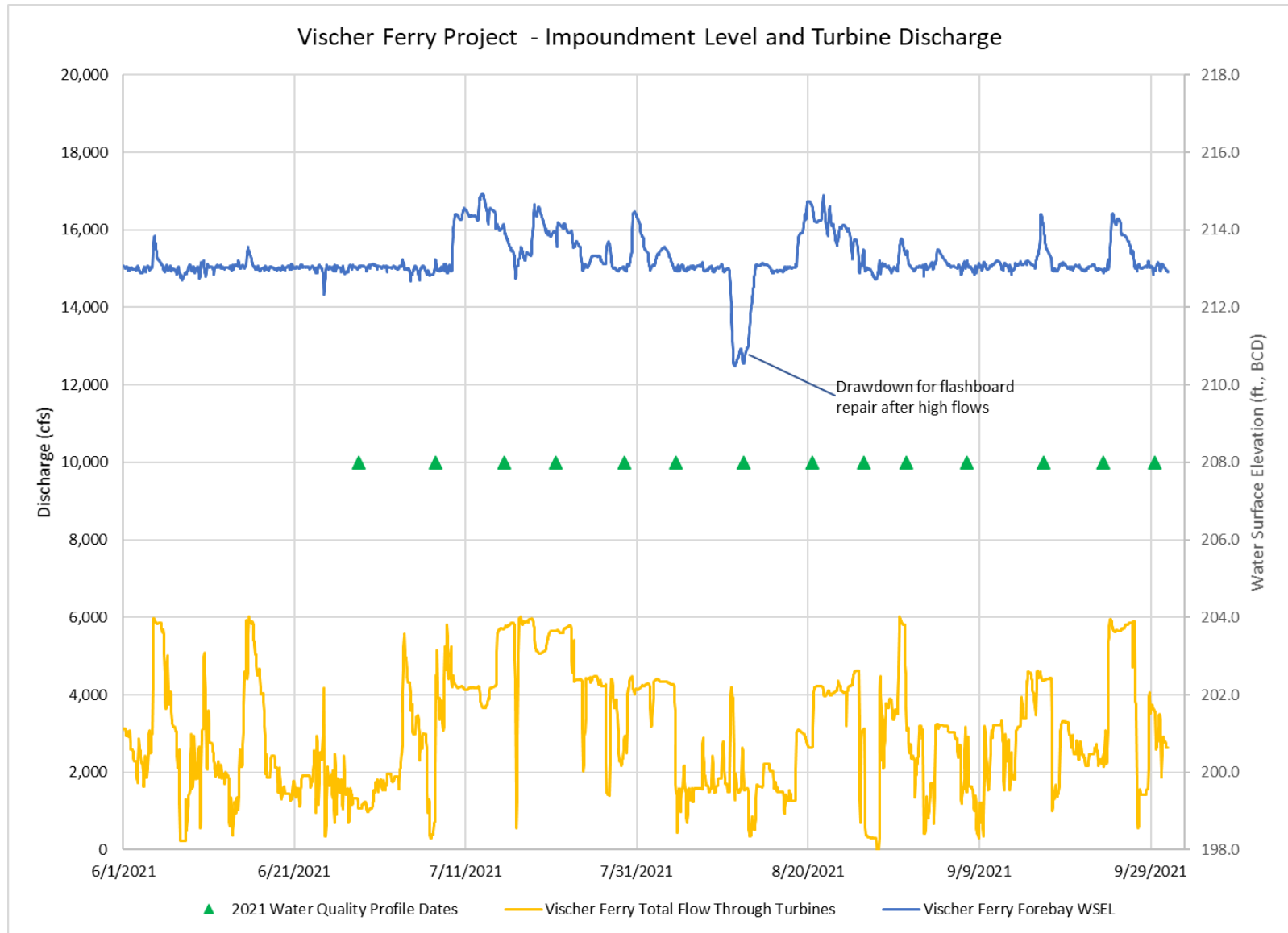
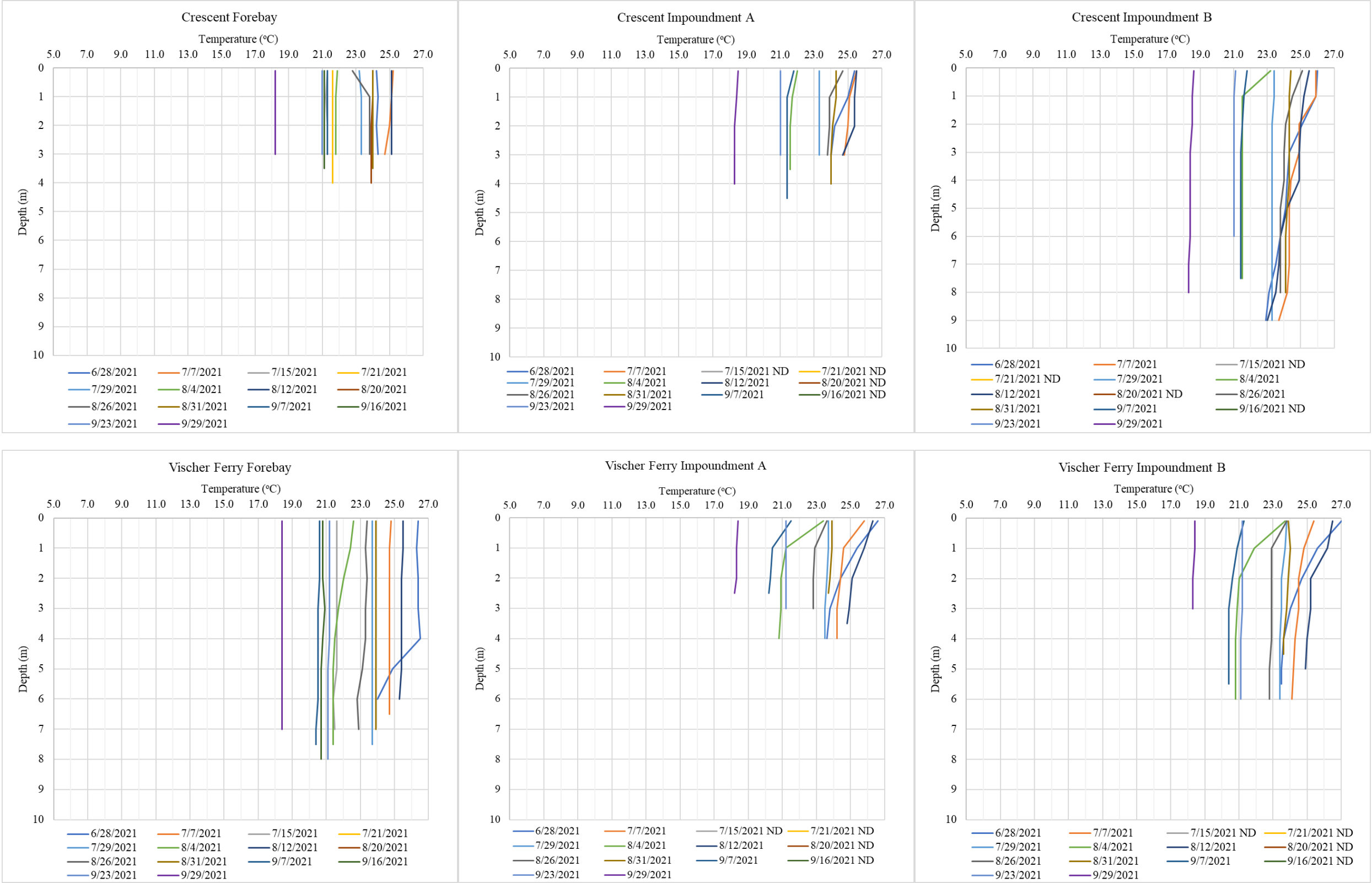
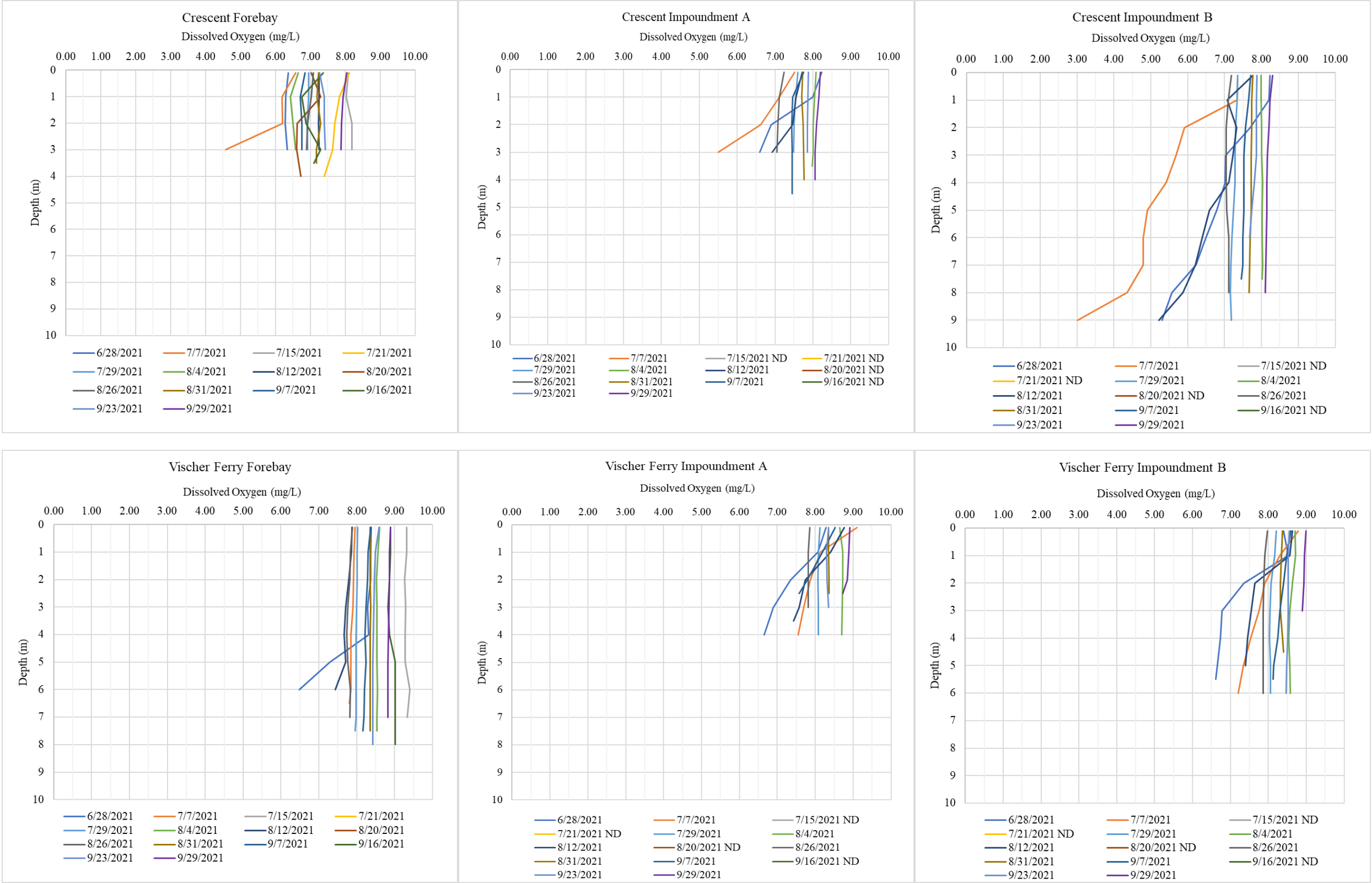


Figure 3.2-1: Temperature Vertical Profiles at All Sites



Variations in sampling depths occurred at each site due to local environmental conditions such as wind and river currents which may have affected precise sample location.

Figure 3.2-2: Dissolved Oxygen Vertical Profiles at All Sites



Variations in sampling depths occurred at each site due to local environmental conditions such as wind and river currents which may have affected precise sample location.

Figure 3.2-3: Comparison on Days of DO Stratification at Project Sites, June 28, 2021

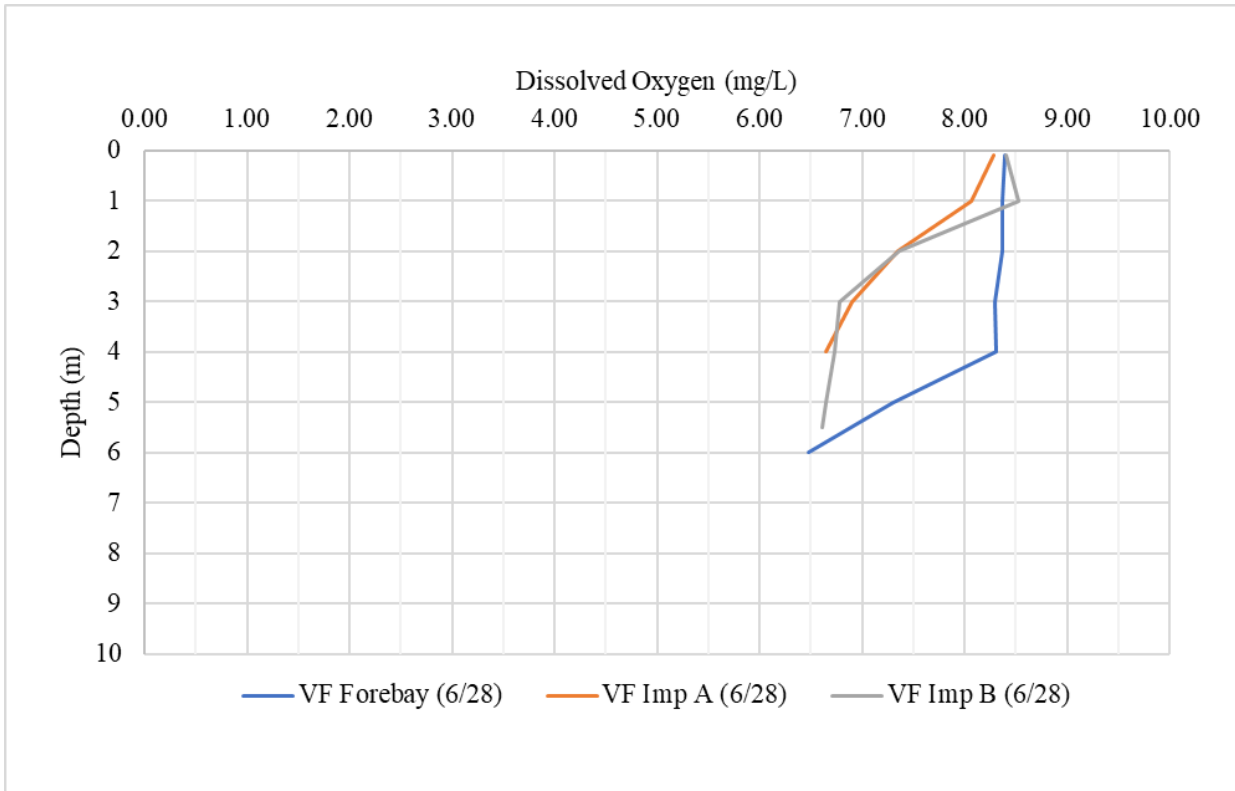
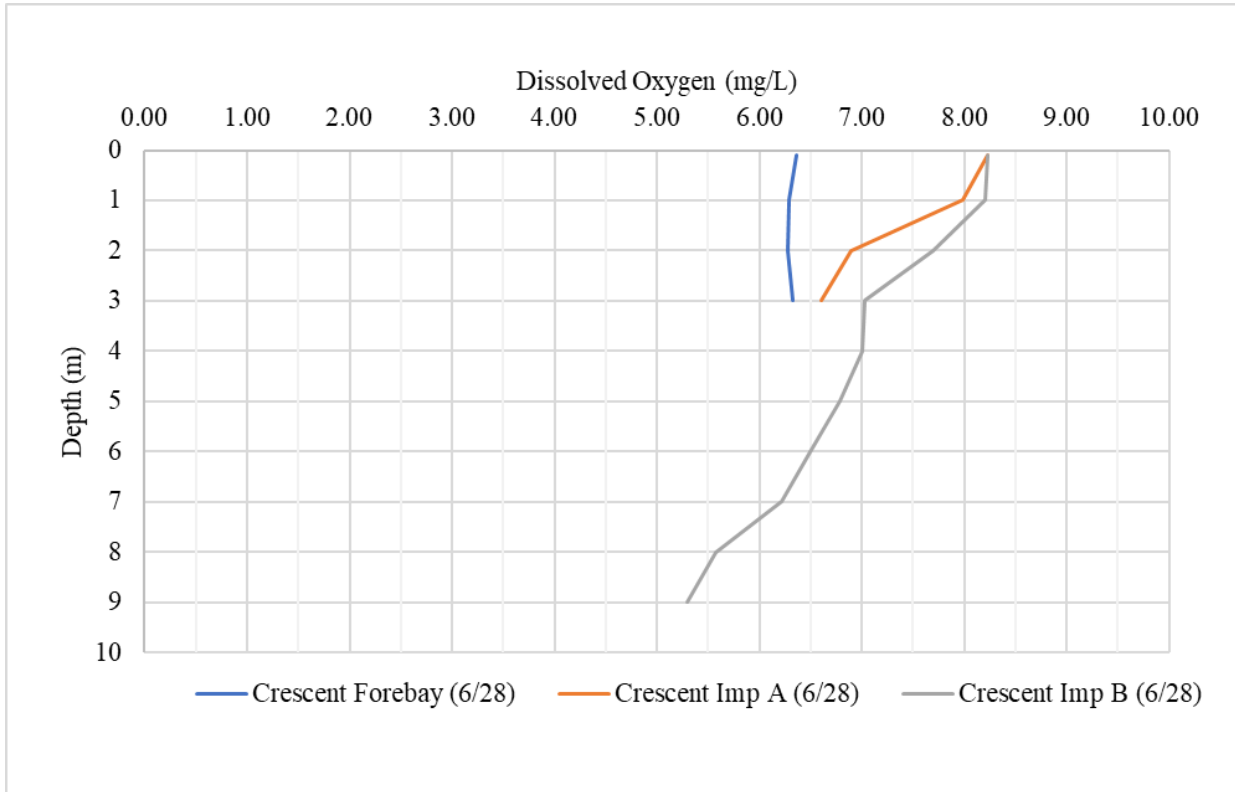


Figure 3.2-4: Comparison on Days of DO Stratification at Project Sites, July 7, 2021

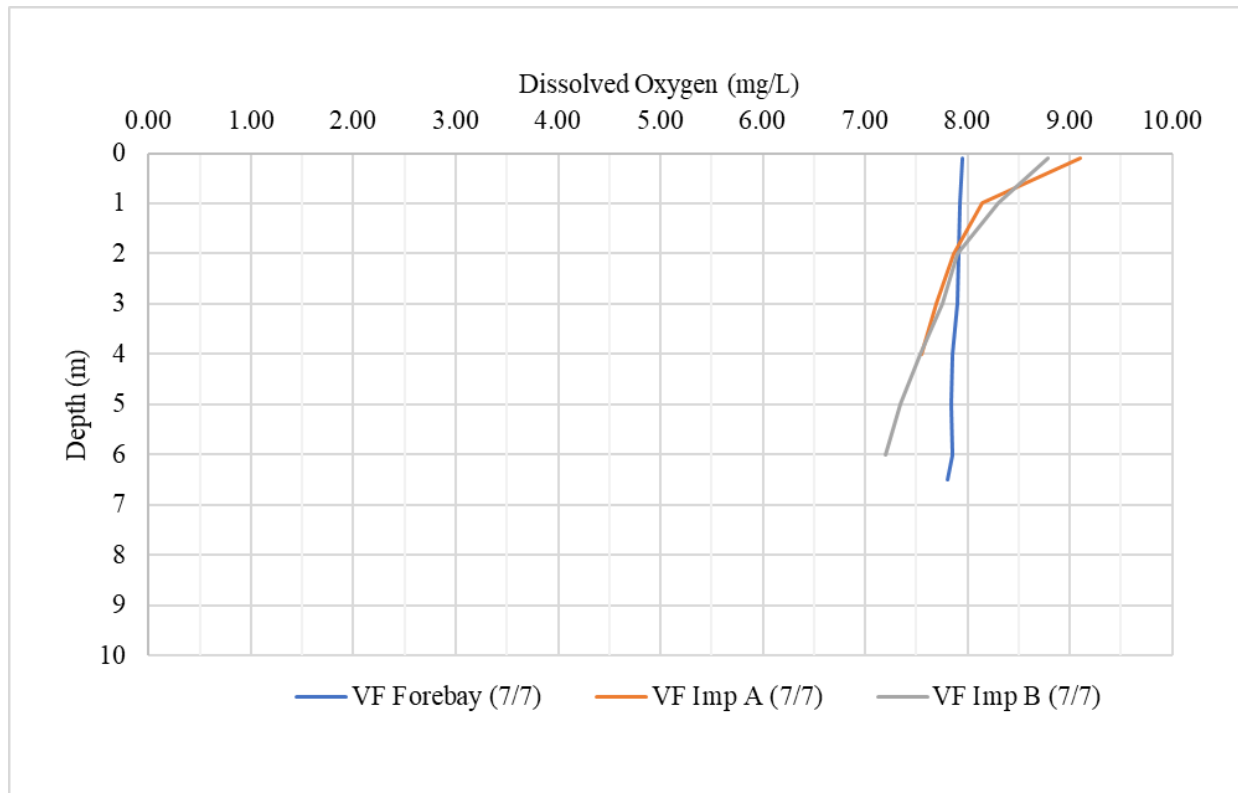
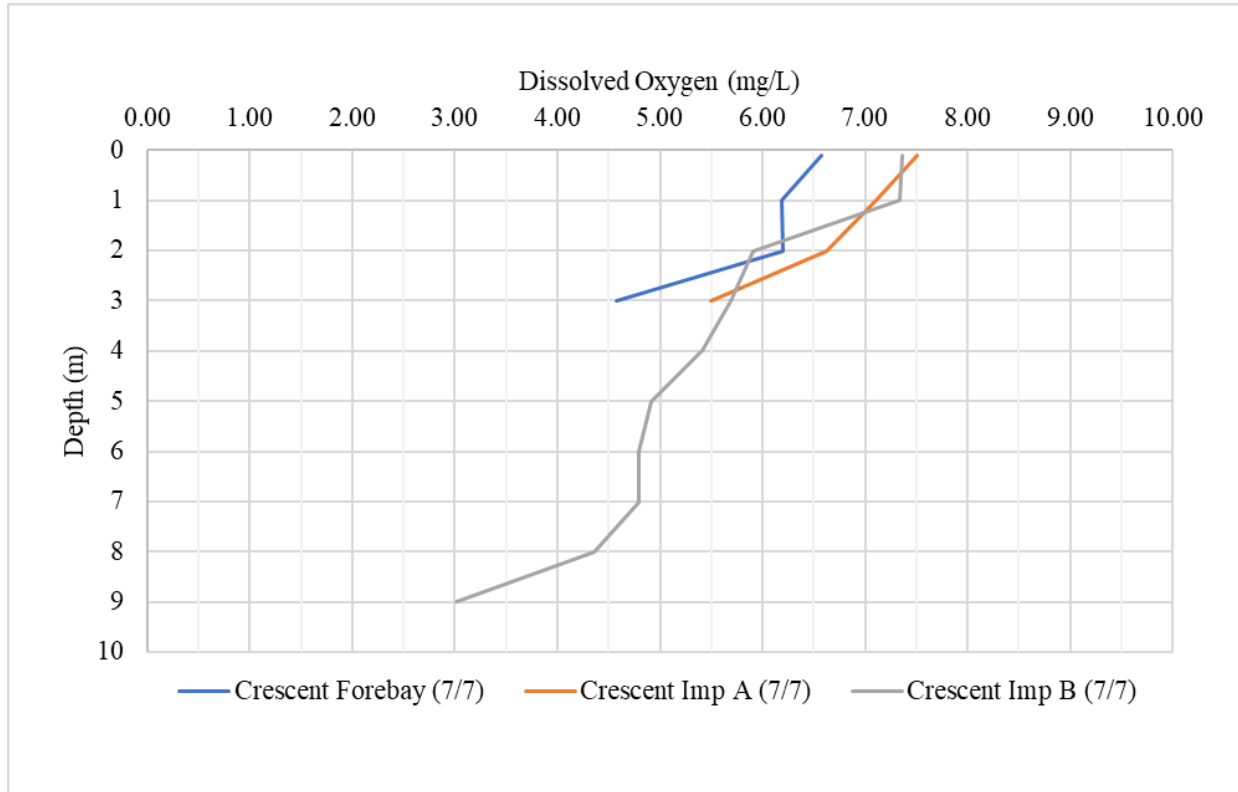
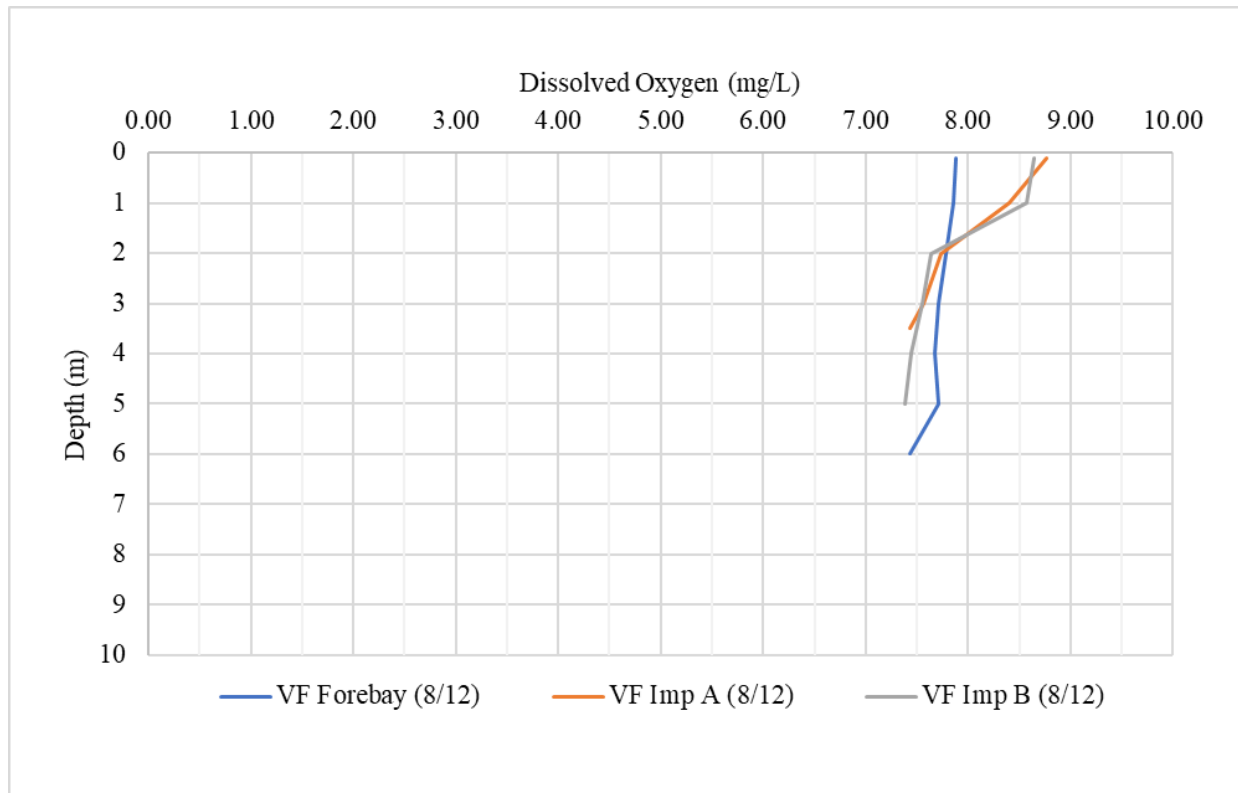
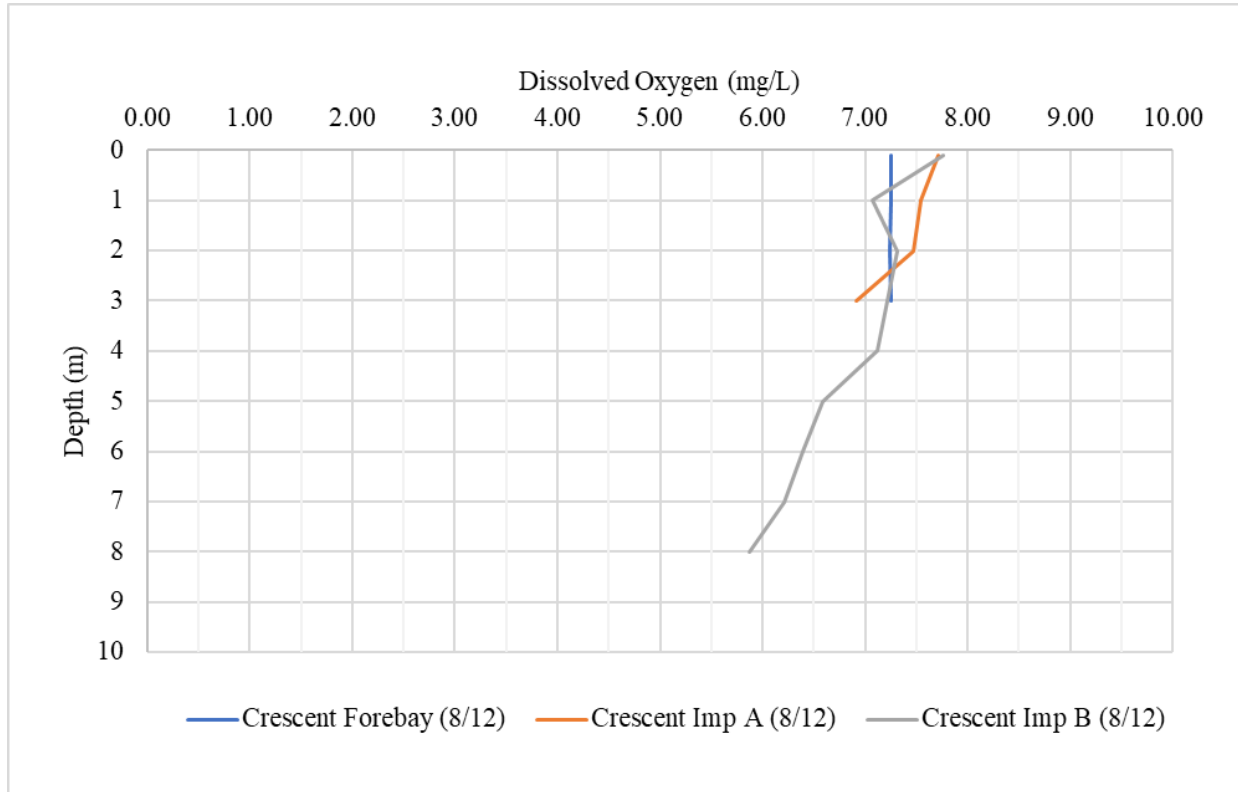


Figure 3.2-5: Comparison on Days of DO Stratification at Project Sites, August 12, 2021



4 Summary and Discussion

The goals of the 2021 water quality monitoring study were to: a) determine if the DO patterns observed in the Projects' forebays in 2020 occur in the Mohawk River upstream of the Projects' forebays or if the conditions are localized to the Projects' forebays, and b) evaluate whether the Projects' forebays are representative of DO and temperature conditions elsewhere in the impoundment. Although the Projects experienced high flows during the study period, the objectives of this study were accomplished.

The study successfully collected additional water quality data at the Projects', which included a range of environmental and operational conditions, including high flow events. Weekly vertical profiles were collected in the Projects' forebays and impoundments during the summer of 2021. The key findings are discussed below.

The Projects continued to display consistent vertical temperature patterns throughout the study period, as they did in the 2020 Water Quality Study. The temperatures were consistent from top to bottom at each site, and only slight thermal stratification was observed throughout the study period on days when DO levels were also found to be stratified.

The dissolved oxygen levels at the Projects remained well mixed during the summer months, except for DO stratification observed on days with lower flow and high temperatures (e.g., June 28, July 7, and August 12). The largest vertical DO gradient observed during the study period was on July 7, when dissolved oxygen levels decreased to 3.01 mg/L at a depth of 9 meters in the Crescent impoundment, at the upstream site, Impoundment B. DO stratification was also observed in the Crescent Forebay below 2 meters, consistent with the two other Crescent sites, on July 7. During this time, river flows were relatively low, and the Project turbines were operating at a low level due to low river flows.

DO stratification was also observed at the two Crescent impoundment locations on June 28 and on August 12—again, during periods of low river flows. However, due to the shallower sampling location in the Forebay, this site did not stratify on June 28 and August 12 when DO stratification was observed in the impoundment locations. On these occasions, the Crescent turbine(s) were operating.

The Vischer Ferry forebay sampling location was deeper compared to the impoundment locations, but the impoundment locations were observed to be more likely to stratify. DO data collected on two of three low flow days (July 7 and August 12) showed the impoundment sites have a DO gradient decreasing with depth, whereas the Forebay site was mixed top to bottom on these days.

Data collected for this study in 2021 demonstrates that DO stratification can occur during low flow periods in the Project impoundments and forebay locations. At higher river flows, the water column stays mixed from top to bottom in all locations and neither DO or thermal stratification was observed. These results demonstrate that the DO stratification patterns observed in the forebays in 2020 are not localized to the Project forebays and are representative of overall impoundment conditions. Stratification patterns are not related to the Projects' turbine operations *per se*, but stratification can occur during low river flow conditions. As reported in the 2020 Water Quality Study, the Project tailrace locations remain well oxygenated despite varying DO conditions in the forebays. Overall, considering data collected in 2020 and 2021, the operation of the Projects does not adversely affect water quality conditions.

5 Literature Cited

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Appendix A– Vertical Profile Data

Table A-1: Crescent Forebay Vertical Profile Data

Crescent Forebay		Average Depth (m)		3.70	
Crescent Forebay					
6/28/2021					
Depth (m)	Temp (°C)	DO (mg/L)	DO (% Sat)	Notes	
0.1	24.2	6.36	75.1		
1	24.3	6.29	74.1		
2	24.2	6.28	74.0		
3	24.3	6.33	74.4		
3.5				bottom	
Change	0.10	-0.03	-0.70		
7/7/2021					
Depth (m)	Temp (°C)	DO (mg/L)	DO (% Sat)	Notes	
0.1	25.2	6.57	79.2		
1	25.1	6.19	74.6		
2	25.0	6.20	74.4		
3	24.7	4.58	54.7		
3.5				bottom	
Change	-0.50	-1.99	-24.50		
7/15/2021					
Depth (m)	Temp (°C)	DO (mg/L)	DO (% Sat)	Notes	
0.1	21.3	8.09	90.0		
1	21.2	8.03	89.3		
2	21.3	8.19	91.2		
3	21.3	8.19	91.3		
3.5				bottom	
Change	0.00	0.10	1.30		
7/21/2021					
Depth (m)	Temp (°C)	DO (mg/L)	DO (% Sat)	Notes	
0.1	21.6	8.12	91.5		
1	21.6	7.83	88.2		
2	21.6	7.69	86.8		
3	21.6	7.64	85.9		
4	21.6	7.40	83.5		
4.5				bottom	
Change	0.00	-0.72	-8.00		

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Crescent Forebay									
7/29/2021					Begin Time: 8:02 End Time: 8:08 Meter: YSI PRODSS				
Depth (m)	Temp (°C)	DO (mg/L)	DO (% Sat)	Notes					
0.1	23.2	6.95	80.6		Weather: Sunny, slight breeze, cool, ~65F				
1	23.3	6.95	80.8		Daily Flow @ Freemans Gate: 3680 cfs				
2	23.3	6.91	80.3		Total Turbine Flow @ 8:00 = 2068 cfs				
3	23.3	6.92	80.4		Field Notes: Light current moving towards powerhouse, light spill				
3.5				Bottom	Field Staff: MN, MF				
Change	0.10	-0.03	-0.20						
8/4/2021					Begin Time: 12:10 End Time: 12:14 Meter: YSI PRODSS				
Depth (m)	Temp (°C)	DO (mg/L)	DO (% Sat)	Notes					
0.1	21.9	6.65	74.8		Weather: Muggy, hot				
1	21.8	6.42	72.2		Daily Flow @ Freemans Gate: 3300 cfs				
2	21.8	6.50	73.1		Total Turbine Flow @ 12:00: 3192 cfs				
3	21.8	6.57	73.9		Field Notes: Current moving towards powerhouse, spilling				
3.5				Bottom	Field Staff: MN, MF				
Change	-0.10	-0.08	-0.90						
8/12/2021					Begin Time: 8:17 End Time: 8:22 Meter: YSI PRODSS				
Depth (m)	Temp (°C)	DO (mg/L)	DO (% Sat)	Notes					
0.1	25.1	7.25	87.3		Weather: Sunny, hot, no breeze				
1	25.1	7.25	87.3		Daily Flow @ Freemans Gate: 2070 cfs				
2	25.1	7.24	87.1		Total Turbine Flow @ 8:00: 1062 cfs				
3	25.1	7.25	87.3		Field Notes: Spilling				
3.5				Bottom	Field Staff: MN, MF				
Change	0.00	0.00	0.00						
8/20/2021					Begin Time: 9:08 End Time: 9:15 Meter: YSI PRODSS				
Depth (m)	Temp (°C)	DO (mg/L)	DO (% Sat)	Notes					
0.1	24.0	7.03	83.0		Weather: Cloudy, warm, heavy rain in the prior 2 days				
1	24.0	7.30	86.0		Daily Flow @ Freemans Gate: 22100 cfs				
2	23.9	6.62	78.2		Total Turbine Flow @ 9:00: 5338 cfs				
3	23.9	6.60	77.8		Field Notes: High flows				
4	23.9	6.73	79.4		Field Staff: MN, BS				
4.25				Bottom					
Change	-0.10	-0.30	-3.60						

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Crescent Forebay																
8/26/2021					Begin Time:		9:27		End Time:		9:32		Meter:		YSI PRODS5	
Depth (m)	Temp (°C)	DO (mg/L)	DO (% Sat)	Notes												
0.1	22.8	7.08	82.8		Weather:		Sunny, hot, slight breeze									
1	23.8	7.02	82.0		Daily Flow @ Freemans Gage:		2630 cfs									
2	23.8	6.92	80.8		Total Turbine Flow @ 9:00:		3797 cfs									
3	23.8	6.89	80.6		Field Notes:		Slight spill, current moving towards powerhouse									
3.5				Bottom	Field Staff:		MN, MF									
Change	1.00	-0.19	-2.20													
8/31/2021					Begin Time:		11:12		End Time:		11:16		Meter:		YSI PRODS5	
Depth (m)	Temp (°C)	DO (mg/L)	DO (% Sat)	Notes												
0.1	24.0	7.24	85.8		Weather:		Partly sunny, slight breeze, ~70F									
1	24.0	7.19	85.2		Daily Flow @ Freemans Gage:		5230 cfs									
2	24.0	7.29	86.4		Total Turbine Flow @ 11:00:		1451 cfs									
3	24.0	7.17	85.0		Field Notes:		Current moving towards powerhouse, spilling									
3.5	24.0	7.17	85.0		Field Staff:		MN, MF									
4				Bottom												
Change	0.00	-0.07	-0.80													
9/7/2021					Begin Time:		9:34		End Time:		9:39		Meter:		YSI PRODS5	
Depth (m)	Temp (°C)	DO (mg/L)	DO (% Sat)	Notes												
0.1	21.3	6.85	76.7		Weather:		Cloudy, 70F									
1	21.3	6.71	75.1		Daily Flow @ Freemans Gage:		2560 cfs									
2	21.3	6.75	75.6		Total Turbine Flow @ 9:00:		3601 cfs									
3	21.3	6.75	75.5		Field Notes:											
3.5				Bottom	Field Staff:		MN, CD									
Change	0.00	-0.10	-1.20													
9/16/2021					Begin Time:		11:55		End Time:		12:02		Meter:		YSI PRODS5	
Depth (m)	Temp (°C)	DO (mg/L)	DO (% Sat)	Notes												
0.1	21.1	7.37	84.3		Weather:		Sunny, 70F									
1	21.1	6.75	74.7		Daily Flow @ Freemans Gage:		10900 cfs									
2	21.1	6.87	75.7		Total Turbine Flow @ 12:00:		5194 cfs									
3	21.1	7.30	80.7		Field Notes:		Current moving towards powerhouse, high flows after storm event last night, spilling									
3.5	21.1	7.10	78.5		Field Staff:		MN, MF									
4				Bottom												
Change	0.00	-0.27	-5.80													
Crescent Forebay																
9/23/2021					Begin Time:		8:30		End Time:		8:35		Meter:		YSI PRODS5	
Depth (m)	Temp (°C)	DO (mg/L)	DO (% Sat)	Notes												
0.1	21.0	7.27	81.0		Weather:		Partly sunny, breezy, rain in forecast									
1	21.0	7.39	82.3		Daily Flow @ Freemans Gage:		3090 cfs									
2	21.0	7.39	82.3		Total Turbine Flow @ 8:00:		2026 cfs									
3	21.0	7.42	82.6		Field Notes:		Current moving towards powerhouse									
3.5				Bottom	Field Staff:		MN, MF									
Change	0.00	0.15	1.60													
9/29/2021					Begin Time:		9:54		End Time:		9:56		Meter:		YSI PRODS5	
Depth (m)	Temp (°C)	DO (mg/L)	DO (% Sat)	Notes												
0.1	18.2	8.04	84.3		Weather:		Sunny, breezy, cool									
1	18.2	7.94	83.5		Daily Flow @ Freemans Gage:		3950 cfs									
2	18.2	7.89	82.9		Total Turbine Flow @ 10:00:		3592 cfs									
3	18.2	7.88	82.9		Field Notes:		Current moving towards powerhouse									
3.5				Bottom	Field Staff:		MN, MF									
Change	0.00	-0.16	-1.40													

Table A-2: Crescent Impoundment A Vertical Profile Data

Crescent Imp A				
6/28/2021				
Depth (m)	Temp (°C)	DO (mg/L)	DO (% Sat)	Notes
0.1	25.4	8.23	99.0	
1	25.0	7.99	95.6	
2	24.2	6.90	81.3	
3	24.0	6.60	77.4	
3.5				bottom
Change	-1.40	-1.63	-21.60	
7/7/2021				
Depth (m)	Temp (°C)	DO (mg/L)	DO (% Sat)	Notes
0.1	25.5	7.51	91.3	
1	25.1	7.11	85.6	
2	25.0	6.62	79.5	
3	24.8	5.50	65.8	
3.5				bottom
Change	-0.70	-2.01	-25.50	
7/15/2021 ND				
ND				
7/21/2021 ND				
ND				
7/29/2021				
Depth (m)	Temp (°C)	DO (mg/L)	DO (% Sat)	Notes
0.1	23.3	7.60	88.3	
1	23.3	7.54	87.6	
2	23.3	7.50	87.2	
3	23.3	7.49	87.1	
3.5				bottom
Change	0.00	-0.11	-1.20	

Begin Time:	11:48	End Time:	11:51	Meter:	YSI PRODSS
Weather:	Sunny, ~90F, windy				
Daily Flow @ Freemans Gage:	1360 cfs				
Total Turbine Flow @ 11:00:	991 cfs				
Field Notes:	Second white bouy off island at Crescent				
Field Staff:	JG, MN, MF				
Begin Time:	10:45	End Time:	10:49	Meter:	YSI PRODSS
Weather:	Hot, sunny, calm				
Daily Flow @ Freemans Gage:	3340 cfs				
Total Turbine Flow @ 10:00:	299 cfs				
Field Notes:					
Field Staff:	MN, MF				
Field Notes:	River Flows too high for safe boat access.				
Field Notes:	River Flows too high for safe boat access.				
Begin Time:	9:32	End Time:	9:36	Meter:	YSI PRODSS
Weather:	Sunny, cool, slight breeze, ~65F				
Daily Flow @ Freemans Gage:	3680 cfs				
Total Turbine Flow @ 9:00:	2009 cfs				
Field Notes:					
Field Staff:	MN, MF				

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Crescent Imp A																			
8/4/2021																			
Depth (m)	Temp (°C)	DO (mg/L)	DO (% Sat)	Notes															
0.1	22.0	8.08	91.1																
1	21.7	8.04	90.1																
2	21.6	8.01	89.6																
3	21.6	8.00	89.4																
3.5	21.6	7.98	89.2																
4				bottom															
Change	-0.40	-0.10	-1.90																
8/12/2021																			
Depth (m)	Temp (°C)	DO (mg/L)	DO (% Sat)	Notes															
0.1	25.5	7.72	93.6																
1	25.4	7.55	91.5																
2	25.4	7.47	90.3																
3	24.7	6.92	82.9																
3.5				bottom															
Change	-0.80	-0.80	-10.70																
8/20/2021 ND																			
ND																			
8/26/2021																			
Depth (m)	Temp (°C)	DO (mg/L)	DO (% Sat)	Notes															
0.1	24.7	7.24	85.9																
1	23.9	7.11	83.3																
2	23.9	7.07	82.7																
3	23.8	7.05	82.4																
3.5				bottom															
Change	-0.90	-0.19	-3.50																

Begin Time:	13:03	End Time:	13:05	Meter:	YSI PRODSS														
Weather:	Partly cloudy, hot, slight breeze																		
Daily Flow @ Freemans Gage:	3300 cfs																		
Total Turbine Flow @ 13:00:	3183 cfs																		
Field Notes:																			
Field Staff:	MN, MF																		
Begin Time:	10:08	End Time:	10:15	Meter:	YSI PRODSS														
Weather:	Hot, sunny, slight breeze																		
Daily Flow @ Freemans Gage:	2070 cfs																		
Total Turbine Flow @ 10:00:	1996 cfs																		
Field Notes:																			
Field Staff:	MN, MF																		
Field Notes:	River Flows too high for safe boat access.																		
Begin Time:	12:47	End Time:	12:50	Meter:	YSI PRODSS														
Weather:	Partly sunny, hot, humid																		
Daily Flow @ Freemans Gage:	2630 cfs																		
Total Turbine Flow @ 12:00:	3905 cfs																		
Field Notes:																			
Field Staff:	MN, MF																		

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Crescent Imp A																			
8/31/2021																			
Depth (m)	Temp (°C)	DO (mg/L)	DO (% Sat)	Notes															
0.1	24.3	7.73	92.1																
1	24.3	7.70	91.8																
2	24.1	7.74	92.0																
3	24.0	7.75	91.9																
4	24.0	7.76	92.0																
4.5				bottom															
Change	-0.30	0.03	-0.10																
9/7/2021																			
Depth (m)	Temp (°C)	DO (mg/L)	DO (% Sat)	Notes															
0.1	21.8	7.75	87.6																
1	21.4	7.47	83.8																
2	21.4	7.44	83.4																
3	21.4	7.45	83.5																
4	21.4	7.45	83.5																
4.5	21.4	7.45	83.5																
5				bottom															
Change	-0.40	-0.30	-4.10																
9/16/2021 ND																			
ND																			
9/23/2021																			
Depth (m)	Temp (°C)	DO (mg/L)	DO (% Sat)	Notes															
0.1	21.0	7.88	87.8																
1	21.0	7.87	87.6																
2	21.0	7.86	87.5																
3	21.0	7.86	87.5																
3.5				bottom															
Change	0.00	-0.02	-0.30																
Crescent Imp A																			
9/29/2021																			
Depth (m)	Temp (°C)	DO (mg/L)	DO (% Sat)	Notes															
0.1	18.5	8.20	86.6																
1	18.4	8.16	86.1																
2	18.3	8.09	85.1																
3	18.3	8.06	84.8																
4	18.3	8.05	84.7																
4.25				bottom															
Change	-0.20	-0.15	-1.90																
Begin Time:					13:04	End Time:					13:10	Meter:		YSI PRODSS					
Weather:					Sunny, breezy, ~75F														
Daily Flow @ Freemans Gage:					5230 cfs														
Total Turbine Flow @ 13:00:					5546 cfs														
Field Notes:																			
Field Staff:					MN, MF														
Begin Time:					10:35	End Time:					10:39	Meter:		YSI PRODSS					
Weather:					Sunny, 70F														
Daily Flow @ Freemans Gage:					2560 cfs														
Total Turbine Flow @ 10:00:					3368 cfs														
Field Notes:																			
Field Staff:					MN, CD														
Field Notes:					River Flows too high for safe boat access.														
Begin Time:					9:25	End Time:					9:31	Meter:		YSI PRODSS					
Weather:					Cloudy, breezy, rain in forecast														
Daily Flow @ Freemans Gage:					3090 cfs														
Total Turbine Flow @ 9:00:					1999 cfs														
Field Notes:																			
Field Staff:					MN, MF														

Table A-3: Crescent Impoundment B Vertical Profile Data

Crescent Imp B					Begin Time:	12:07	End Time:	12:18	Meter:	YSI PRODSS
6/28/2021										
Depth (m)	Temp (°C)	DO (mg/L)	DO (% Sat)	Notes						
0.1	26.0	8.23	100.1							
1	25.9	8.21	99.6							
2	25.1	7.70	91.9							
3	24.3	7.03	82.9							
4	24.2	7.01	82.5							
5	24.1	6.79	79.7							
6	23.8	6.49	75.8							
7	23.5	6.22	71.5							
8	23.1	5.57	64.0							
9	22.9	5.30	60.7							
9.25				bottom						
Change	-3.1	-2.9	-39.4							
7/7/2021					Begin Time:	10:25	End Time:	10:39	Meter:	YSI PRODSS
Depth (m)	Temp (°C)	DO (mg/L)	DO (% Sat)	Notes						
0.1	25.9	7.36	89.8							
1	25.9	7.34	89.8							
2	24.9	5.91	71.0							
3	24.9	5.69	68.2							
4	24.4	5.41	64.1							
5	24.3	4.91	58.4							
6	24.3	4.79	56.8							
7	24.3	4.79	56.8							
8	24.2	4.36	51.6							
9	23.7	3.01	35.5							
9.25				bottom						
Change	-2.2	-4.4	-54.3							
7/15/2021 ND										
ND										
7/21/2021 ND										
ND										
Crescent Imp B					Begin Time:	9:14	End Time:	9:22	Meter:	YSI PRODSS
7/29/2021										
Depth (m)	Temp (°C)	DO (mg/L)	DO (% Sat)	Notes						
0.1	23.4	7.36	85.7							
1	23.4	7.34	85.4							
2	23.3	7.30	84.9							
3	23.3	7.29	84.7							
4	23.3	7.28	84.5							
5	23.3	7.24	84.2							
6	23.3	7.20	83.6							
7	23.3	7.17	83.3							
8	23.3	7.16	83.2							
9	23.3	7.19	83.5							
9.25				bottom						
Change	-0.1	-0.2	-2.2							
8/4/2021					Begin Time:	13:14	End Time:	13:22	Meter:	YSI PRODSS
Depth (m)	Temp (°C)	DO (mg/L)	DO (% Sat)	Notes						
0.1	23.2	7.99	90.3							
1	21.5	7.99	89.3							
2	21.5	8.01	89.5							
3	21.5	8.01	89.5							
4	21.5	8.03	89.7							
5	21.5	8.02	89.6							
6	21.5	8.02	89.6							
7	21.5	8.03	89.6							
7.5	21.5	8.02	89.5							
8				bottom						
Change	-1.7	0.0	-0.8							

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Crescent Imp B					Begin Time:	9:38	End Time:	9:49	Meter:	YSI PRODSS
8/12/2021										
Depth (m)	Temp (°C)	DO (mg/L)	DO (% Sat)	Notes						
0.1	25.5	7.76	94.1							
1	25.2	7.07	85.2							
2	25.0	7.32	87.8							
3	24.9	7.22	86.6							
4	24.9	7.12	85.1							
5	24.2	6.59	78.1							
6	23.8	6.39	75.1							
7	23.7	6.21	72.8							
8	23.5	5.87	68.4							
9	23.0	5.22	60.3							
9.25				bottom						
Change	-2.5	-2.5	-33.8							
8/20/2021 ND										
ND										
8/26/2021										
Depth (m)	Temp (°C)	DO (mg/L)	DO (% Sat)	Notes						
0.1	25.1	7.19	86.2							
1	24.5	7.10	84.1							
2	24.1	7.05	82.9							
3	24.0	7.05	82.7							
4	24.0	7.05	82.7							
5	23.8	7.06	82.6							
6	23.8	7.11	83.1							
7	23.8	7.11	83.2							
8	23.8	7.12	83.2							
8.75				bottom						
Change	-1.3	-0.1	-3.0							
Crescent Imp B										
8/31/2021										
Depth (m)	Temp (°C)	DO (mg/L)	DO (% Sat)	Notes						
0.1	24.4	7.77	92.7							
1	24.3	7.74	92.3							
2	24.3	7.73	92.1							
3	24.3	7.72	92.1							
4	24.3	7.72	92.0							
5	24.2	7.72	91.9							
6	24.1	7.70	91.4							
7	24.1	7.68	91.2							
8	24.1	7.67	91.1							
8.5				bottom						
Change	-0.3	-0.1	-1.6							
9/7/2021										
Depth (m)	Temp (°C)	DO (mg/L)	DO (% Sat)	Notes						
0.1	21.8	7.71	87.0							
1	21.6	7.65	86.1							
2	21.5	7.57	85.0							
3	21.4	7.52	84.4							
4	21.4	7.53	84.4							
5	21.4	7.53	84.4							
6	21.4	7.50	84.4							
7	21.4	7.49	83.9							
7.5	21.4	7.46	83.7							
8				bottom						
Change	-0.4	-0.3	-3.3							

Begin Time:		9:38	End Time:		9:49	Meter:	YSI PRODSS
Weather:		Hot, sunny, light breeze					
Daily Flow @ Freemans Gage:		2070 cfs					
Total Turbine Flow @ 9:00:		1153 cfs					
Field Notes:							
Field Staff:		MN, MF					

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9/16/2021 ND				
ND				
9/23/2021				
Depth (m)	Temp (°C)	DO (mg/L)	DO (% Sat)	Notes
0.1	21.1	7.88	87.9	
1	21.0	7.86	87.6	
2	21.0	7.86	87.6	
3	21.0	7.86	87.5	
4	21.0	7.81	87.0	
5	21.0	7.74	86.2	
6	21.0	7.68	85.5	
6.5				bottom
Change	-0.1	-0.2	-2.4	
9/29/2021				
Depth (m)	Temp (°C)	DO (mg/L)	DO (% Sat)	Notes
0.1	18.6	8.30	87.9	
1	18.5	8.23	87.0	
2	18.5	8.20	86.7	
3	18.4	8.16	86.1	
4	18.4	8.15	86.0	
5	18.4	8.14	85.8	
6	18.4	8.13	85.7	
7	18.3	8.12	85.5	
8	18.3	8.10	85.3	
8.5				bottom
Change	-0.3	-0.2	-2.6	

Table A-4: Vischer Ferry Forebay Vertical Profile Data

VF Forebay					Begin Time:	13:12	End Time:	13:19	Meter:	YSI PRODSS
6/28/2021										
Depth (m)	Temp (°C)	DO (mg/L)	DO (% Sat)	Notes						
0.1	26.4	8.39	103.0							
1	26.3	8.37	102.6							
2	26.4	8.37	102.8							
3	26.4	8.29	101.9							
4	26.5	8.31	102.2							
5	24.9	7.30	87.5							
6	24.0	6.48	79.9							
6.75				bottom						
Change	-2.4	-1.9	-23.1							
7/7/2021					Begin Time:	12:25	End Time:	12:30	Meter:	YSI PRODSS
Depth (m)	Temp (°C)	DO (mg/L)	DO (% Sat)	Notes						
0.1	24.8	7.95	95.2							
1	24.7	7.93	95.0							
2	24.7	7.91	94.9							
3	24.7	7.90	94.6							
4	24.7	7.85	94.0							
5	24.7	7.84	93.9							
6	24.7	7.85	94.0							
6.5	24.7	7.80	93.5							
6.75				bottom						
Change	-0.1	-0.1	-1.2							
VF Forebay					Begin Time:	11:41	End Time:	11:47	Meter:	YSI PRODSS
7/15/2021										
Depth (m)	Temp (°C)	DO (mg/L)	DO (% Sat)	Notes						
0.1	21.6	9.32	104.6							
1	21.6	9.32	104.6							
2	21.6	9.27	104.0							
3	21.6	9.29	104.2							
4	21.6	9.28	104.1							
5	21.6	9.28	104.1							
6	21.4	9.40	105.1							
7	21.5	9.34	104.7							
7.5				bottom						
Change	-0.1	0.0	0.1							
7/21/2021					Begin Time:	10:05	End Time:	10:05	Meter:	YSI PRODSS
Depth (m)	Temp (°C)	DO (mg/L)	DO (% Sat)	Notes						
0.1	21.6	9.12	103.1							
1										
7/29/2021					Begin Time:	11:58	End Time:	12:05	Meter:	YSI PRODSS
Depth (m)	Temp (°C)	DO (mg/L)	DO (% Sat)	Notes						
0.1	23.7	8.03	94.3							
1	23.7	8.01	94.2							
2	23.7	8.01	94.2							
3	23.7	8.00	94.0							
4	23.7	7.99	93.9							
5	23.7	7.99	93.9							
6	23.7	7.98	93.8							
7	23.7	7.98	93.8							
7.5	23.7	7.96	93.6							
8				bottom						
Change	0.0	-0.1	-0.7							

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VF Forebay														
8/4/2021					Begin Time:	14:41	End Time:	14:41	Meter:	YSI PRODSS				
Depth (m)	Temp (°C)	DO (mg/L)	DO (% Sat)	Notes										
0.1	22.6	8.60	98.2											
1	22.4	8.56	97.4											
2	22.0	8.52	96.2											
3	21.7	8.54	95.9											
4	21.5	8.53	95.3											
5	21.4	8.53	95.2											
6	21.4	8.55	95.4											
7	21.4	8.54	95.3											
7.5	21.4	8.53	95.2											
8				bottom										
Change	-1.2	-0.1	-3.0											
8/12/2021					Begin Time:	11:08	End Time:	11:14	Meter:	YSI PRODSS				
Depth (m)	Temp (°C)	DO (mg/L)	DO (% Sat)	Notes										
0.1	25.5	7.88	95.7											
1	25.5	7.86	95.2											
2	25.4	7.79	94.4											
3	25.4	7.71	93.3											
4	25.4	7.67	92.8											
5	25.4	7.71	93.4											
6	25.3	7.43	89.8											
6.25				bottom										
Change	-0.2	-0.5	-5.9											
8/20/2021					Begin Time:	9:44	End Time:	9:45	Meter:	YSI PRODSS				
Depth (m)	Temp (°C)	DO (mg/L)	DO (% Sat)	Notes										
0.1	22.8	9.14	105.7											
1														

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VF Forebay					Begin Time:	11:37	End Time:	11:43	Meter:	YSI PRODSS
9/7/2021										
Depth (m)	Temp (°C)	DO (mg/L)	DO (% Sat)	Notes						
0.1	20.6	8.37	92.5							
1	20.6	8.30	91.8							
2	20.6	8.29	91.6							
3	20.5	8.25	91.0							
4	20.5	8.22	90.7							
5	20.5	8.24	90.9							
6	20.5	8.21	90.5							
7	20.4	8.19	90.2							
7.5	20.4	8.17	89.9							
8				bottom						
Change	-0.2	-0.2	-2.6							
9/16/2021					Begin Time:	13:52	End Time:	13:57	Meter:	YSI PRODSS
Depth (m)	Temp (°C)	DO (mg/L)	DO (% Sat)	Notes						
0.1	20.8	8.89	97.8							
1	20.8	8.89	97.8							
2	20.8	8.86	97.6							
3	20.9	8.83	97.2							
4	20.8	8.87	97.6							
5	20.7	9.02	99.0							
6	20.7	9.02	99.0							
7	20.7	9.02	99.0							
8	20.7	9.02	99.0							
8.5				bottom						
Change	-0.1	0.1	1.2							
VF Forebay					Begin Time:	10:42	End Time:	10:47	Meter:	YSI PRODSS
9/23/2021										
Depth (m)	Temp (°C)	DO (mg/L)	DO (% Sat)	Notes						
0.1	21.2	8.59	96.1							
1	21.2	8.49	95.0							
2	21.2	8.47	94.8							
3	21.2	8.45	94.6							
4	21.2	8.44	94.4							
5	21.1	8.43	94.2							
6	21.1	8.43	94.2							
7	21.1	8.43	94.2							
8	21.1	8.42	94.1							
8.5				bottom						
Change	-0.1	-0.2	-2.0							
9/29/2021					Begin Time:	15:11	End Time:	15:16	Meter:	YSI PRODSS
Depth (m)	Temp (°C)	DO (mg/L)	DO (% Sat)	Notes						
0.1	18.4	8.89	94.0							
1	18.4	8.87	93.8							
2	18.4	8.86	93.6							
3	18.4	8.85	93.5							
4	18.4	8.84	93.4							
5	18.4	8.83	93.3							
6	18.4	8.82	93.2							
7	18.4	8.82	93.2							
7.5				bottom						
Change	0.0	-0.1	-0.8							

Begin Time:	11:37	End Time:	11:43	Meter:	YSI PRODSS
Weather:	Sunny, 75F				
Daily Flow @ Freemans Gage:	2560 cfs				
Total Turbine Flow @ 11:00:	1653 cfs				
Field Notes:					
Field Staff:	MN, CD				
Begin Time:	13:52	End Time:	13:57	Meter:	YSI PRODSS
Weather:	Sunny, cool, 70F				
Daily Flow @ Freemans Gage:	10900 cfs				
Total Turbine Flow @ 14:00:	4373 cfs				
Field Notes:	Current moving towards powerhouse, spilling, high flow after storm event last night				
Field Staff:	MN, MF				
Begin Time:	10:42	End Time:	10:47	Meter:	YSI PRODSS
Weather:	Partly cloudy, slight breeze, humid				
Daily Flow @ Freemans Gage:	3090 cfs				
Total Turbine Flow @ 10:00:	2398 cfs				
Field Notes:	Current moving towards powerhouse, light spill				
Field Staff:	MN, MF				
Begin Time:	15:11	End Time:	15:16	Meter:	YSI PRODSS
Weather:	Partly sunny, cool				
Daily Flow @ Freemans Gage:	3950 cfs				
Total Turbine Flow @ 15:00:	2584 cfs				
Field Notes:	Current moving towards powerhouse				
Field Staff:	MN, MF				

Table A-5: Vischer Ferry Impoundment A Vertical Profile Data

VF Imp A					Begin Time:	14:50	End Time:	14:53	Meter:	YSI PRODSS
6/28/2021										
Depth (m)	Temp (°C)	DO (mg/L)	DO (% Sat)	Notes						
0.1	26.6	8.28	102.0		Weather:	~95F, partly sunny, breezy				
1	25.4	8.07	97.2		Daily Flow @ Freemans Gage:	1360 cfs				
2	24.4	7.35	86.9		Total Turbine Flow @ 15:00:	1079 cfs				
3	23.8	6.90	80.6		Field Notes:	Marked with white bouy in channel				
4	23.6	6.65	77.5			*Depth near boat barrier is 11 ft deep				
4.5				bottom	Field Staff:	JG, MN, MF				
Change	-3.00	-1.63	-24.50							
7/7/2021					Begin Time:	13:54	End Time:	13:59	Meter:	YSI PRODSS
Depth (m)	Temp (°C)	DO (mg/L)	DO (% Sat)	Notes						
0.1	25.8	9.10	111.1		Weather:	hot, sunny, humid, slight breeze				
1	24.6	8.14	97.3		Daily Flow @ Freemans Gage:	3340 cfs				
2	24.4	7.87	93.6		Total Turbine Flow @ 14:00:	4547 cfs				
3	24.2	7.70	91.5		Field Notes:	Current towards powerhouse				
4	24.2	7.55	89.6		Field Staff:	MN, MF				
4.5				bottom						
Change	-1.60	-1.55	-21.50							
7/15/2021 ND										
ND					Field Notes:	River Flows too high for safe boat access.				
7/21/2021 ND										
ND					Field Notes:	River Flows too high for safe boat access.				
VF Imp A					Begin Time:	11:03	End Time:	11:08	Meter:	YSI PRODSS
7/29/2021										
Depth (m)	Temp (°C)	DO (mg/L)	DO (% Sat)	Notes						
0.1	23.7	8.13	95.4		Weather:	Cloudy, breezy, cool, ~65F				
1	23.7	8.09	95.0		Daily Flow @ Freemans Gage:	3680 cfs				
2	23.6	8.07	94.5		Total Turbine Flow @ 11:00:	2591 cfs				
3	23.5	8.09	94.6		Field Notes:					
4	23.5	8.09	94.6		Field Staff:	MN, MF				
4.5				bottom						
Change	-0.20	-0.04	-0.80							
8/4/2021					Begin Time:	16:00	End Time:	16:08	Meter:	YSI PRODSS
Depth (m)	Temp (°C)	DO (mg/L)	DO (% Sat)	Notes						
0.1	23.4	8.65	100.4		Weather:	Sunny, hot, no wind				
1	21.2	8.73	97.0		Daily Flow @ Freemans Gage:	3300 cfs				
2	20.9	8.73	96.6		Total Turbine Flow @ 16:00:	1526 cfs				
3	20.9	8.71	96.2		Field Notes:					
4	20.8	8.70	96.1		Field Staff:	MN, MF				
4.5				bottom						
Change	-2.60	0.05	-4.30							
8/12/2021					Begin Time:	12:22	End Time:	12:26	Meter:	YSI PRODSS
Depth (m)	Temp (°C)	DO (mg/L)	DO (% Sat)	Notes						
0.1	26.3	8.77	108.0		Weather:	Sunny, hot, slight breeze				
1	25.8	8.40	102.6		Daily Flow @ Freemans Gage:	2070 cfs				
2	25.1	7.73	93.2		Total Turbine Flow @ 12:00:	1571 cfs				
3	24.9	7.57	91.0		Field Notes:	Water level below crest of dam				
3.5	24.8	7.43	89.1		Field Staff:	MN, MF				
4				bottom						
Change	-1.50	-1.34	-18.90							

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VF Imp A										
9/16/2021 ND										
ND					Field Notes:	River Flows too high for safe boat access.				
9/23/2021					Begin Time:	11:32	End Time:	11:37	Meter:	YSI PRODS5
Depth (m)	Temp (°C)	DO (mg/L)	DO (% Sat)	Notes						
0.1	21.2	8.35	93.5		Weather:	Partly cloudy, breezy				
1	21.2	8.30	93.0		Daily Flow @ Freemans Gage:	3090 cfs				
2	21.2	8.31	93.0		Total Turbine Flow @ 11:00:	2467 cfs				
3	21.2	8.35	93.5		Field Notes:					
3.5				bottom	Field Staff:	MN, MF				
Change	0.00	0.00	0.00							
9/29/2021					Begin Time:	12:33	End Time:	12:35	Meter:	YSI PRODS5
Depth (m)	Temp (°C)	DO (mg/L)	DO (% Sat)	Notes						
0.1	18.4	8.92	94.2		Weather:	Sunny, slight breeze, cool				
1	18.3	8.89	93.8		Daily Flow @ Freemans Gage:	3950 cfs				
2	18.3	8.85	93.2		Total Turbine Flow @ 12:00:	3577 cfs				
2.5	18.2	8.73	91.9		Field Notes:	Pulled buoy				
3				bottom	Field Staff:	MN, MF				
Change	-0.20	-0.19	-2.30							

Table A-5: Vischer Ferry Impoundment B Vertical Profile Data

VF Imp B				
6/28/2021				
Depth (m)	Temp (°C)	DO (mg/L)	DO (% Sat)	Notes
0.1	27.0	8.40	104.2	
1	25.6	8.53	103.3	
2	24.7	7.36	87.6	
3	24.0	6.78	79.6	
4	23.6	6.73	78.4	
5	23.5	6.65	77.4	
5.5	23.5	6.61	77.0	
6				bottom
Change	-3.50	-1.79	-27.20	
7/7/2021				
Depth (m)	Temp (°C)	DO (mg/L)	DO (% Sat)	Notes
0.1	25.4	8.79	106.8	
1	24.8	8.30	99.5	
2	24.5	7.90	94.3	
3	24.5	7.76	92.4	
4	24.3	7.54	89.8	
5	24.2	7.34	87.1	
6	24.1	7.20	85.2	
6.5				bottom
Change	-1.30	-1.59	-21.60	
7/15/2021 ND				
ND				
7/21/2021 ND				
ND				

Begin Time:	14:30	End Time:	14:39	Meter:	YSI PRODSS
Weather:	~95F, partly sunny, slightly breezy				
Daily Flow @ Freemans Gage:	1360 cfs				
Total Turbine Flow @ 14:00:	1078 cfs				
Field Notes:	Marked with white bouy				
Field Staff:	JG, MN, MF				

*Crescent and Vischer Ferry Hydroelectric Projects (FERC Nos. 4678 and 4679)
2021 Water Quality Study*

VF Imp B																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																						
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Crescent and Vischer Ferry Hydroelectric Projects (FERC Nos. 4678 and 4679)
2021 Water Quality Study

VF Imp B					Begin Time:	12:51	End Time:	12:56	Meter:	YSI PRODSS
9/7/2021										
Depth (m)	Temp (°C)	DO (mg/L)	DO (% Sat)	Notes						
0.1	21.3	8.60	96.3							
1	20.9	8.49	94.5							
2	20.6	8.40	92.8							
3	20.4	8.31	91.5							
4	20.4	8.25	90.8							
5	20.4	8.14	89.6							
5.5	20.4	8.12	89.4							
6				bottom						
Change	-0.90	-0.48	-6.90							
9/16/2021 ND										
ND										
9/23/2021										
Depth (m)	Temp (°C)	DO (mg/L)	DO (% Sat)	Notes						
0.1	21.2	8.55	95.8							
1	21.2	8.53	95.5							
2	21.2	8.53	95.5							
3	21.2	8.53	95.5							
4	21.1	8.51	95.2							
5	21.1	8.49	95.0							
6	21.1	8.47	94.7							
6.25				bottom						
Change	-0.10	-0.08	-1.10							
VF Imp B					Begin Time:	12:45	End Time:	12:50	Meter:	YSI PRODSS
9/29/2021										
Depth (m)	Temp (°C)	DO (mg/L)	DO (% Sat)	Notes						
0.1	18.4	9.00	95.0							
1	18.4	8.95	94.5							
2	18.3	8.94	94.3							
3	18.3	8.90	93.9							
3.5				bottom						
Change	-0.10	-0.10	-1.10							
					Weather:	Cloudy, warm				
					Daily Flow @ Freemans Gage:	2560 cfs				
					Total Turbine Flow @ 13:00:	1484 cfs				
					Field Notes:					
					Field Staff:	MN, CD				

Appendix B – American Eel Study Report

AMERICAN EEL MONITORING

Prepared by:

Kleinschmidt

February 2022

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CRESCENT AND VISCHER FERRY PROJECTS RELICENSING

FERC Nos. 4678 and 4679



**NY Power
Authority**

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Appendices

Appendix A – Consultation

Appendix B – Meteorological Data

List of Abbreviations

Barge Canal System	New York State Canal System/Barge Canal System
BCD	Barge Canal Datum
C.F.R.	Code of Federal Regulations
cfs	cubic feet per second
Commission	Federal Energy Regulatory Commission
DO	dissolved oxygen
El.	elevation
FERC	Federal Energy Regulatory Commission
gpm	gallons per minute
ILP	Integrated Licensing Process
ISR	Initial Study Report
MW	megawatt
NOI	Notice of Intent
NYNHP	New York Natural Heritage Program
Power Authority or NYPA	New York Power Authority
NYSDEC	New York State Department of Environmental Conservation
PAD	Pre-Application Document
SD1	Scoping Document 1
The Projects	Crescent and Vischer Ferry Hydroelectric Projects
USGS	United States Geological Survey

1 Introduction

The Power Authority of the State of New York (Power Authority) is licensed by the Federal Energy Regulatory Commission (FERC or the Commission) to operate the Crescent and Vischer Ferry Hydroelectric Projects (FERC Nos. 4678 and 4679) (Projects) located on the Mohawk River in New York. The Power Authority is relicensing the Projects using the FERC Integrated Licensing Process (ILP), as outlined in 18 C.F.R. Part 5.

In accordance with 18 C.F.R. §§ 5.5 and 5.6, the Power Authority filed its Notice of Intent (NOI) and Pre-Application Document (PAD) on May 3, 2019, which included the Power Authority's preliminary issues and studies list for the Projects. FERC issued its Scoping Document 1 (SD1) on June 10, 2019 and held public scoping meetings on July 10-11, 2019 in Clifton Park, New York, where potential issues were identified by agencies, stakeholders, and the public.

Subsequently, the Power Authority received comments on the PAD and requests for additional studies. The Power Authority reviewed these comments and study requests and developed a Proposed Study Plan (PSP), which was filed with the Commission on September 23, 2019. The Power Authority held a PSP public meeting to discuss the PSP on October 23, 2019. Written comments on the PSP were received through December 23, 2019.

The Power Authority then developed its Revised Study Plan (RSP), which was filed with FERC on January 21, 2020. On February 20, 2020, FERC issued its Study Plan Determination (SPD), which included an American eel study.

This study report presents information and results pertaining to the American eel study conducted at the Crescent and Vischer Ferry Projects between April and October of 2021.

1.1 Background

The Mohawk River, in the vicinity of the Projects, is managed by the New York State Department of Environmental Conservation (NYSDEC) as a mixed cool-water and warm-water fishery. The fish community is dominated by warm-water species and is used extensively by recreational anglers (NYSDEC, 2018). The river is also managed for anadromous blueback herring. NYSDEC's fishery management goals for the Mohawk River are multi-faceted and recognize that the fisheries of the Mohawk River watershed, like many inland waters, are in a state of transition (NYSDEC, 2018). Management of the Mohawk River fishery is complicated by the continuous influx of new species through the Barge Canal and must balance the need to provide desirable fishing opportunities for sportfish while also trying to sustain native biodiversity (NYSDEC, 2018).

American eel (*Anguilla rostrata*) is a diadromous species known to occur in the Mohawk River and is native to all drainages in the state of New York. American eel are the only catadromous species in the state of New York, meaning they migrate out to sea to spawn. The catadromous life history of the American eel necessitates long migrations up and down rivers to successfully complete their life cycle. American eel spawn in the Sargasso Sea and their larvae then drift and migrate to coastal streams and enter North American estuaries, including the Hudson River. From there, most young eel (elvers) move upstream into freshwater rivers, lakes, and ponds. However, research has shown that some eels complete their life cycle entirely in brackish water habitats (United States Fish and Wildlife Service [USFWS], 2015).

Dams can create barriers to eel migration. Upstream migrating juvenile eels (elvers) are strong climbers and small elvers can negotiate wetted vertical surfaces (USFWS, 2015). Carlson et al., referencing Greeley 1935, noted that sufficient numbers ascend the Mohawk River and other tributaries to the Hudson, giving the species a wide range in the Hudson River drainage area. Recent data, however, indicates that American eel are uncommon and are not routinely documented by fisheries surveys in the vicinity of the Crescent and Vischer Ferry Hydroelectric Projects (Projects).

FERC's American eel study determination stated that comparisons of the relative abundance of eels immediately upstream and downstream of each project dam (using the same gear type) are needed to properly assess the ability of eels to migrate upstream past each dam. Sampling methodology in FERC's study determination included eel mops and fyke nets. The Power Authority consulted with the NYSDEC and USFWS to refine the study. This included a site visit on November 19, 2020, and several conference calls. All parties agreed to utilize three methodologies to assess the presence and relative abundance of American eel at the Projects. The consultation record is provided in Appendix A. These methodologies included:

- Weekly nighttime observations immediately downstream of each Project from mid-April through mid-May;
- Deployment of three eel ramp traps downstream of each Project from mid-May through September; and
- Nighttime boat electrofishing upstream of the Vischer Ferry Project.

1.2 Study Goals and Objectives

The purpose of this study was to assess the presence and quantity of American eel (*Anguilla rostrata*) upstream and downstream of the Crescent and Vischer Ferry Projects on the Mohawk River.

1.3 Project Descriptions

The Crescent and Vischer Ferry Projects are located adjacent to one another on the Mohawk River in New York at river miles (mi) 4 and 14, respectively. The Crescent and Vischer Ferry Projects are both operated on a run-of-river basis. The original purpose of the Crescent and Vischer Ferry Dams was to impound water to support navigation on the Barge Canal; this remains true today. During unusual conditions or emergencies associated with either system, public safety is always the first priority. Otherwise, navigation and Canal System operations take priority over the operation of the Projects. Unless emergency conditions exist, the Projects operate in run-of-river mode.

Crescent Project

The Crescent Project is an 11.8 megawatt (MW) hydroelectric project located on the Mohawk River, approximately 4 miles upstream from its confluence with the Hudson River. It is located 2 miles upstream of the School Street Hydroelectric Project (FERC No. 2539) owned by Erie Boulevard Hydropower, L.P.

The principal features of the Crescent Project are the dam, powerhouse, impoundment, and appurtenant facilities. The Crescent Dam consists of two independent concrete gravity overflow sections which link each riverbank to a rock island in the middle of the Mohawk River ([Figure 1-1](#)). Both sections are curved in plan

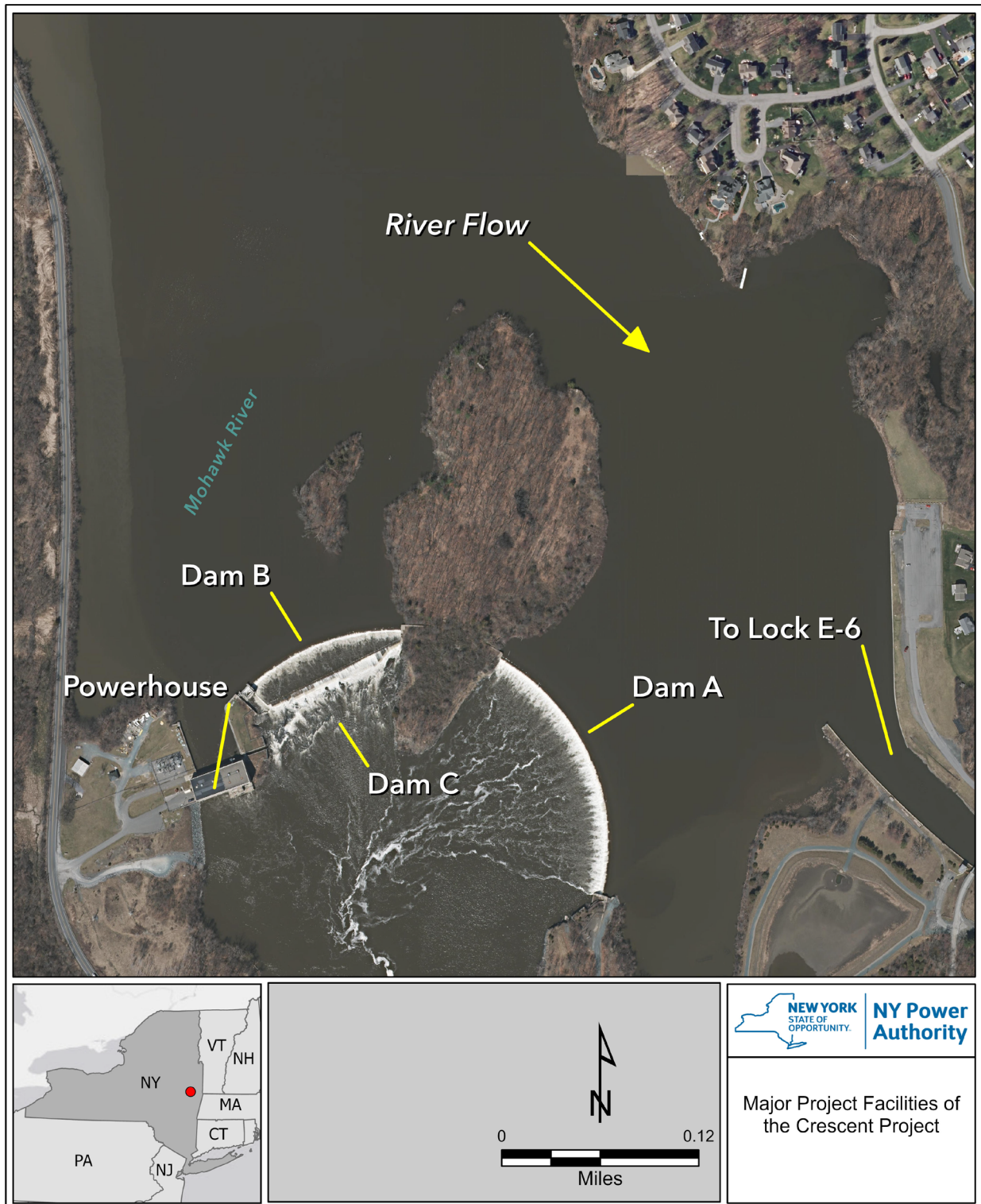
and have a crest at elevation (El.) 184 Barge Canal Datum (BCD).

In order to aid canal navigation, one-foot-high (12 inch) wooden flashboards are installed along the crests of both spillways (Dams A and B) seasonally in Spring (generally in April based on seasonal conditions) and removed in the Fall (generally in November based on seasonal conditions). When the flashboards are installed, the spillway crest is El. 185 ft. BCD. The Crescent impoundment extends upstream approximately 10 miles to the Vischer Ferry Project Dam. At El. 184 ft. BCD, the surface area of the impoundment is 2,108 acres and impounds approximately 50,000 acre-feet of water. Installation of the flashboards increases the normal full pool elevation of the impoundment by 1 foot, to El. 185 ft. BCD, and the impoundment retains an additional 2,000 acre-feet of water.

The Crescent powerhouse is located on the western bank and houses four turbine/generator units: two 2.8 MW rated Francis turbines and two 3.0 MW vertical Kaplan turbines. The original portion of the powerhouse contains the two original Francis units (Units 1 and 2). The two newer Kaplan units (Units 3 and 4) are located riverward of the original powerhouse.

Crescent Project operations are performed in a manner to maintain the normal full pool elevation of the impoundment. Flow through the Project is through the powerhouse or over the dam. During the non-navigation season, a minimum flow of 100 cubic feet per second (cfs) (or inflow, whichever is less) is required to be passed at the Crescent Dam. In accordance with a July 31, 2007 FERC order, the minimum flow during canal navigation season is increased to 250 cfs and is passed through a notch in the Dam A flashboards. These minimum flows are for fish protection measures. Once minimum flows and any diversions required for canal operations are met, the remaining flow is available for power generation.

Figure 1-1: Major Project Facilities of the Crescent Project



Vischer Ferry Project

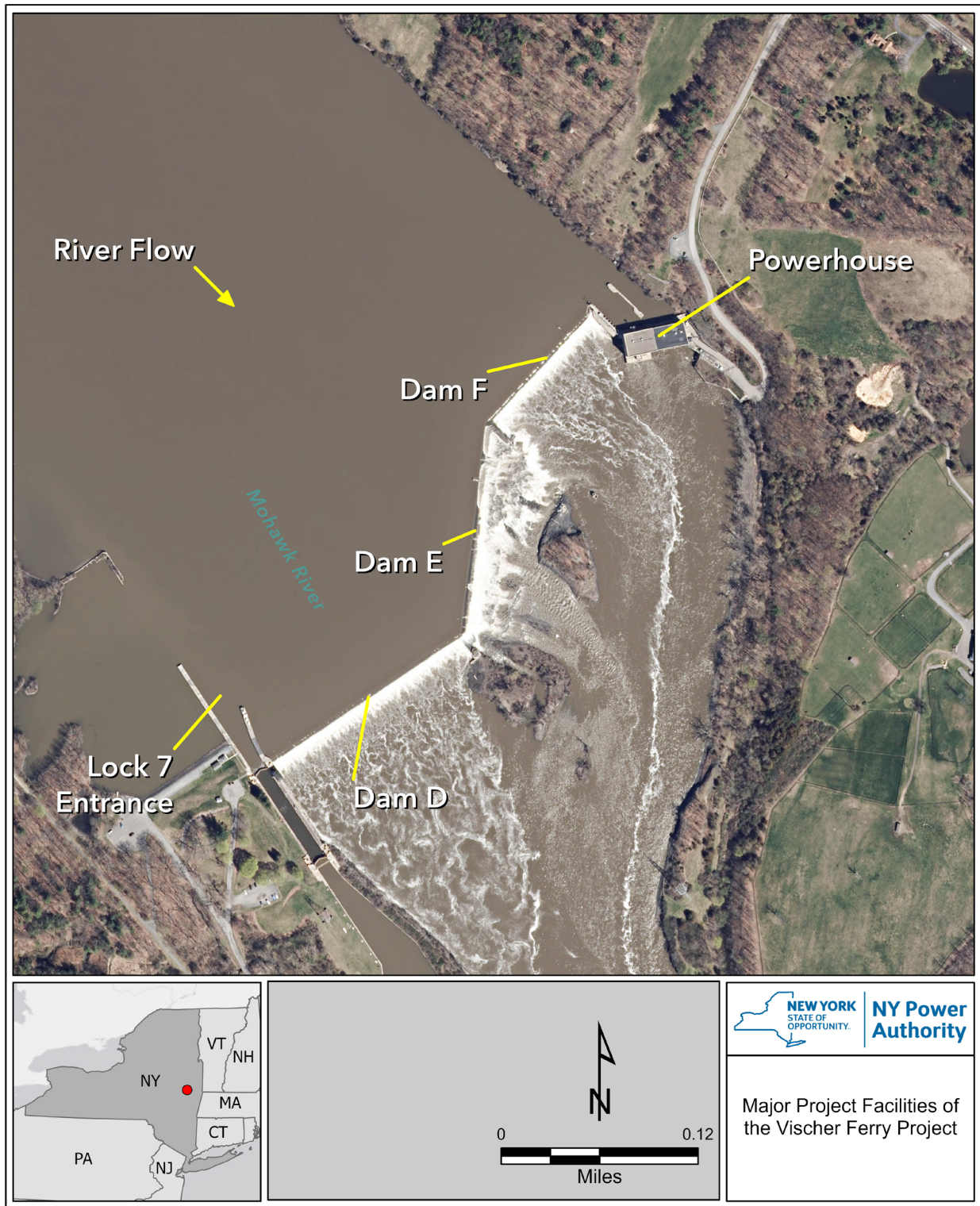
The Vischer Ferry Project is an 11.8 MW hydroelectric project located on the Mohawk River, approximately 14 miles upstream from its confluence with the Hudson River, and approximately 10 miles upstream of the Crescent Project. The principal features of the Vischer Ferry Project are the dam, powerhouse, impoundment, and appurtenant facilities. The Vischer Ferry Dam consists of three connected spillway sections ([Figure 1-2](#)). The two outer sections (Dams D and F) are regular, ungated, ogee-shaped weirs with an average structural height of approximately 30 ft. above rock. The middle section (Dam E) is a broad-crested weir constructed over a small bedrock island near the center of the river. Lock E-7 is located at Vischer Ferry Dam on the right bank, which is the opposite side of the river from the Vischer Ferry powerhouse.

To aid canal navigation, flashboards are installed along the crests of all spillways seasonally from Spring (generally in April) to the end of navigation season (generally in November based on season conditions). The flashboards are 27 inches high and when the flashboards are installed the impoundment elevation is 213.25 ft. BCD. The spillway crest elevation is 211.0 ft. when flashboards are removed. The Vischer Ferry impoundment is 10.3 miles long and the upstream terminus of the impoundment is located at Lock E-8 in Schenectady. At El. 211 ft. BCD, the surface area of the impoundment is approximately 1,137 acres and impounds approximately 25,000 acre-feet of water. Installation of the flashboards raises the normal full pool to El. 213.25 ft. BCD, and the impoundment retains an additional 2,400 acre-feet of water.

The Vischer Ferry Project powerhouse is located at the northern end of the dam and houses four turbine/generator units: two 2.8 MW rated Francis turbines and two 3.0 MW vertical shaft Kaplan turbines (identical units as at the Crescent Project). The original portion of the powerhouse contains the two original Francis units (Units 1 and 2). The two newer Kaplan units (Units 3 and 4) are located riverward of the original powerhouse. The turbines discharge water into the tailrace, the elevation of which is controlled by the Crescent impoundment level.

Vischer Ferry Project operations are performed in a manner to maintain the normal full pool elevation of the impoundment. Flow through the Project is through the powerhouse or over the dam. A minimum flow of 200 cfs (or inflow, whichever is less) is required to be passed at the Vischer Ferry Dam. An 8-foot section of the flashboards on Dam F is removed during navigation season to provide fish passage flow. Once Project minimum flows and any diversion required for canal operations are met, the remaining flow is available for power generation.

Figure 1-2: Major Project Facilities of the Vischer Ferry Project



2 Methods

As stated above, field study methods included nighttime observation surveys, nighttime boat electrofishing, and eel ramp trap sampling. Each methodology is described below. Habitat types and the area of the river targeted by boat electrofishing transects and eel ramp trap locations were selected in consultation with the resource agencies during a pre-study site visit held in November 2020. Appendix A contains the consultation record.

2.1 Nighttime Observations

Nighttime surveys were conducted by researchers using headlamps and handheld flashlights to search for eels trying to ascend sloped or vertical structures. All surveys included at least two researchers traversing the spillway and tailwater of each Project by boat and on foot. Effort was focused on areas of suitable habitat including rough wetted surfaces that allow eels to gain enough purchase to climb, as well as areas of flow, which attract upstream migrants. Surveys began a minimum of 30 minutes after sunset and lasted a minimum of 90 minutes. Four weekly surveys were scheduled from mid-April through mid-May.

Any eels observed during these surveys would likely be glass eels or elvers. As such they would not be suitable for tagging. Therefore, the location of any eels observed would be documented, the eels would be photographed if feasible, and their numbers and size estimated.

2.2 Boat Electrofishing

Boat electrofishing was accomplished using a 16-foot Jon-boat rigged with a pulsed-DC Smith-Root GPP 5.0 electrofisher. The electrofisher had the capacity to adjust pulse rates between 30 to 120 pulses/second and to vary both output voltage and amperage to accommodate ambient conductivity and maximize collection effectiveness, respectively. For the purposes of this study, collection effectiveness balanced the system's ability to immobilize fishes so that they could be netted but also moderated the electric field as to not jeopardize their survival under the conditions experienced at the time of the survey. Fish collection was conducted by a boat captain and two netters.

Two electrofishing events were planned: one each in July and August. Each event consisted of six, 20-minute sampling transects. All sampling began a minimum of 30 minutes after sunset and targeted a combination of coarse rocky habitat with large interstitial spaces for eels to hide and beds of submerged aquatic vegetation. The sampling process consisted of the electrofisher maneuvering through the targeted habitat with the two netters positioned on the bow of the boat. Due to the difficulty in netting eels relative to other species, the netters would only net eels and qualitatively note other species observed. Netted eels would be placed in the live well for processing at the end of the sampling run. Any eels observed, but not collected, were to be documented.

Eels collected would be photographed, measured (total length and girth), weighed, and scanned for existing tags. Information from existing tags would be recorded. If the eels were not tagged, they would be tagged using Passive Integrated Transponder (PIT) tags to identify them should they be recaptured. Tag numbers would be confirmed and recorded. Eels would then be observed for recovery and released in the vicinity of capture. If small eels were observed or collected, they would be enumerated and processed as appropriate, but may not be suitable for tagging due to their size.

Habitat types and the general area where electrofishing would be conducted were selected in consultation with resource agencies during the site visit held in November 2020.

2.3 Eel Ramp Traps

Eel ramp traps were also used for this study. The eel ramp traps were designed to duplicate areas that upstream migrating eels typically try to ascend. In general, they consisted of attraction flow, wetted climbing substrate, and a holding tank. A photo of one of the eel ramp traps constructed for this study is provided in [Figure 2-1](#). These traps were constructed based on previous experience of the researchers and consistent with designs used at other studies (Atlantic States Marine Fisheries Commission 2013).

Initially, the ramp traps were only equipped with a single size of substrate which has been shown to allow a wide size range of eels to successfully ascend the climbing surface. This substrate designed to be consistent with the substrate at the eel ladder at the Power Authority's Robert Moses Power Dam on the St. Lawrence River. The Power Authority held a conference call with the USFWS and NYSDEC on June 3, 2021 to provide an update on the status of the eel study and set-up a time for a site visit. The USFWS requested that a second climbing substrate be added that could potentially allow smaller eels to climb the ramps more successfully. The Power Authority implemented this request. The additional substrate consisted of Encamat® which is a synthetic erosion control material that has been successfully used as climbing substrate on other eel ramp traps. An example of the modified climbing ramps with the two climbing substrates is provided in [Figure 2-2](#).

Three eel ramp traps were deployed downstream of each Project from mid-May through September. The eel ramp traps were deployed in locations determined in consultation with the NYSDEC and the USFWS during a site visit held in November 2020. They were positioned in areas adjacent to flow and/or near a physical feature that acted as a guide (shoreline, wall, or other structure). The locations of the eel ramp traps at Vischer Ferry and Crescent Dam are shown in [Figure 2-3](#) and [Figure 2-4](#).

Initially, the traps were deployed at locations selected in consultation with the resource agencies during a November 2020 site visit. Once the eel ramp traps were deployed and operating, it became evident that location of one of the traps (mid-river downstream of Vischer Ferry dam) was subject to debris loading and it would be problematic to keep the trap functioning even during typical summer conditions. A consultation teleconference call was held with the agencies, during which, the Power Authority discussed issues with the location of the mid-river ramp trap downstream of Vischer Ferry. It was agreed that this eel trap should be moved to the west side of Goat Island. In addition to shielding the trap from some debris loading, it also provided sampling in the channel between Goat Island and Lock 7. [Figure 2-4](#) shows the location of the mid-river trap below Vischer Ferry dam after it was relocated on June 7, 2021.

A site visit to both Crescent and Vischer Ferry was held on the afternoon of June 8, 2021. Representatives from the Power Authority as well as the USFWS attended. There was agreement on the set-up of the traps and their locations. USFWS suggested that more attraction flow that created additional disturbance to the water surface may be more beneficial at attracting eels. The Power Authority implemented this request.

The traps were deployed such that water was pumped to wet the climbing substrate (i.e., ramp) thus providing attraction flow and also supply the holding tank with a continuous supply of fresh water. Outflow from the holding tank was then directed to the ramp entrance to provide additional attraction flow. Total flow was approximately 5 gpm. Additionally, in concept, any eels in the holding tank would release pheromones that could attract additional eels to the climbing ramp entrance. They were positioned in areas adjacent to

flow and/or near a physical feature that acted as a guide (shoreline, wall, or other structure).

The ramp trap locations did not have access to a power supply. Therefore, the traps were self-contained. Each trap was equipped with a 24-volt battery system to operate the water supply pump and a solar panel to keep the battery charged. The system was sized such that energy storage was sufficient to operate the pumps for several days without being recharged.

Eel ramp traps were checked twice weekly, and trap operation was checked and American eel were to be recorded. Routine maintenance, trap adjustments, and repair occurred as needed. Proper operation of the pump, recharge of the batteries, and energy storage were confirmed or corrected as needed.

Eels collected would be photographed, measured (total length and girth), weighed, and scanned for existing tags. Information from existing tags would be recorded. If the eels were not tagged, they would be tagged using Passive Integrated Transponder (PIT) tags to identify them should they be recaptured. Tag numbers would be confirmed and recorded. Eels would then be observed for recovery and released in the vicinity of capture. If small eels were collected, they would be enumerated and processed as appropriate, but may not be suitable for tagging due to their size.

Figure 2-1: Eel Ramp Trap Installed Downstream of the Crescent Dam Tailrace Area (Crescent Trap #1).



Figure 2-2: Eel Ramp Trap Climbing Substrate with Encamat®



Figure 2-3: Eel Ramp Trap Locations Downstream of Vischer Ferry Dam

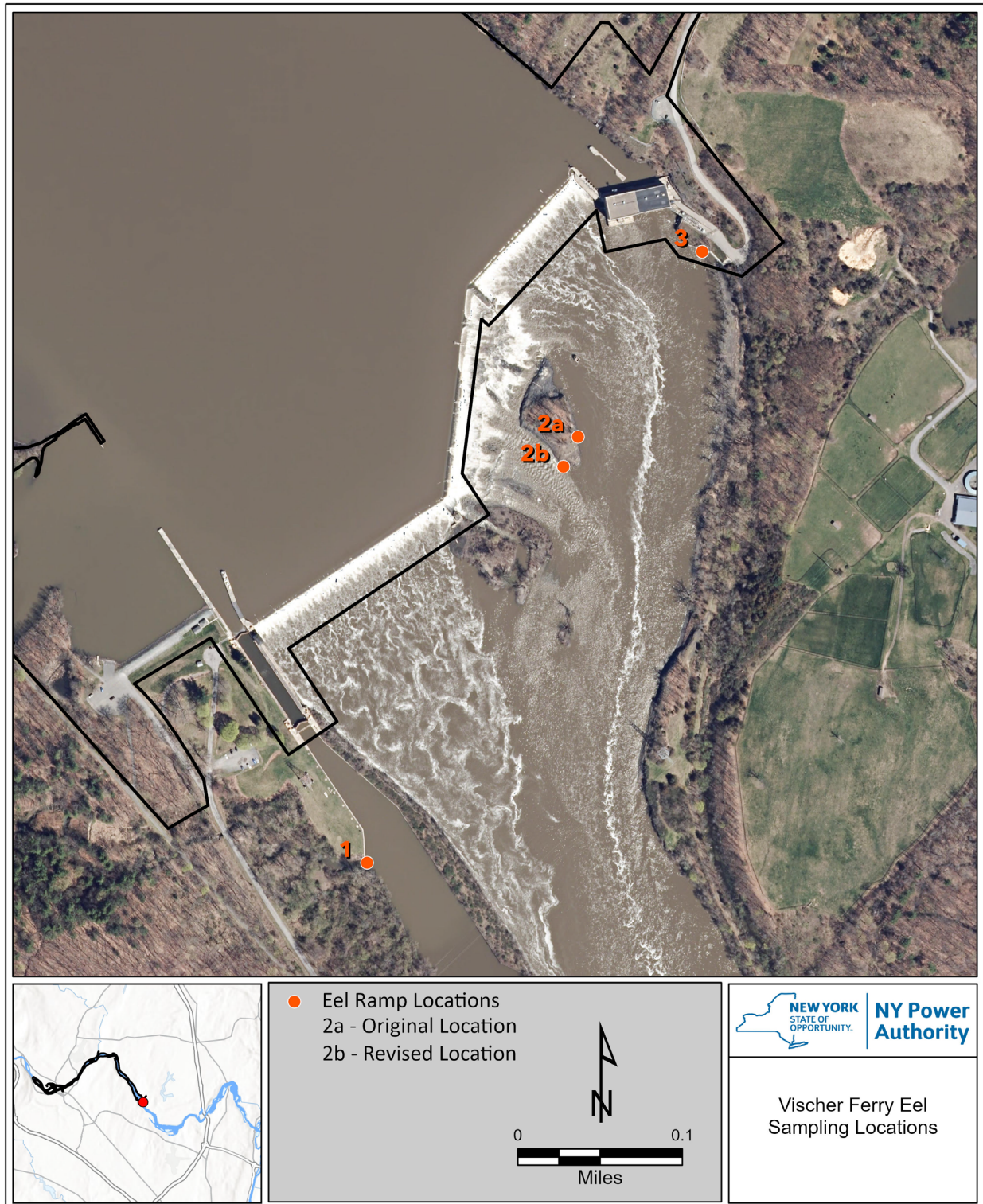
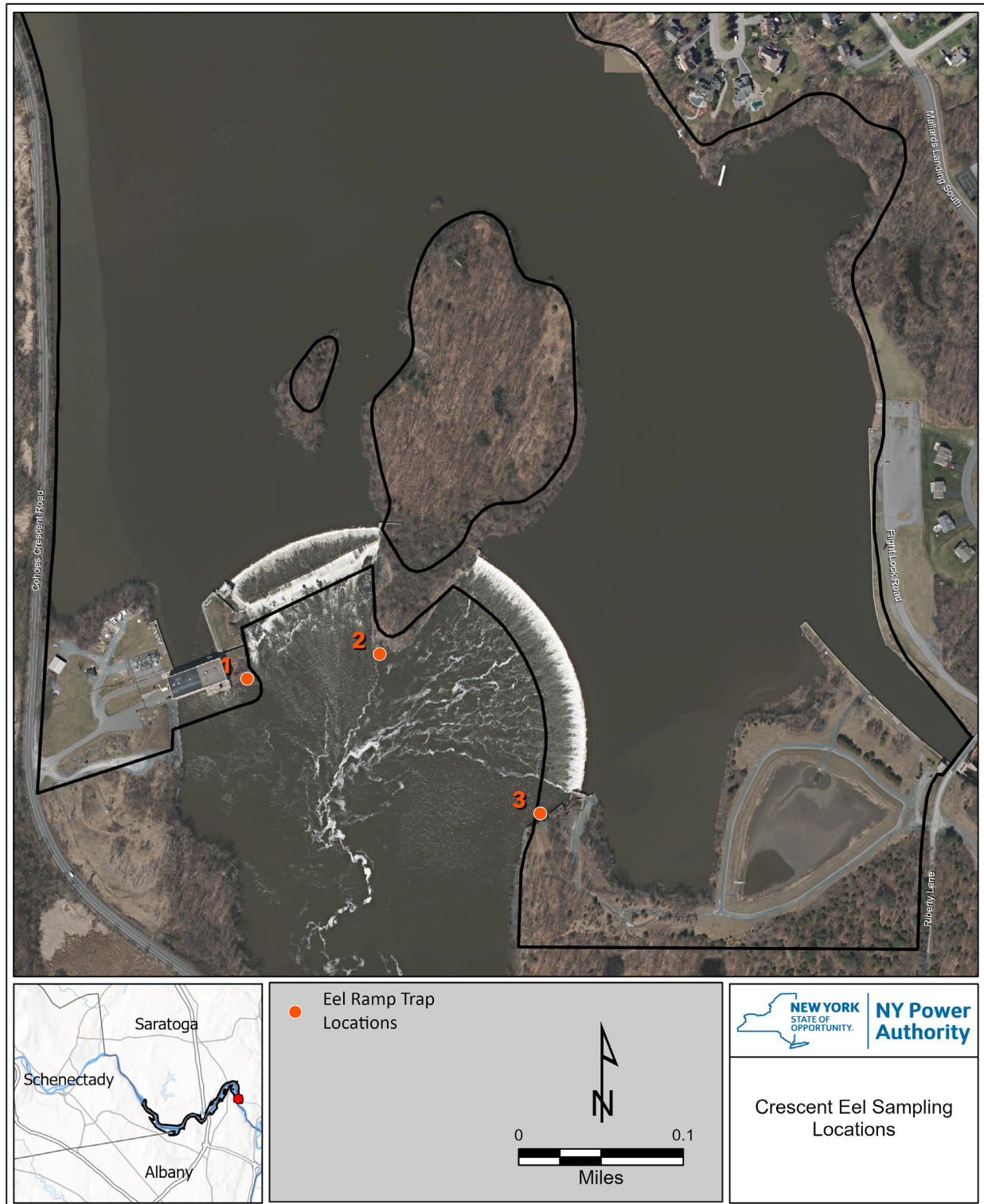


Figure 2-4: Eel Ramp Trap Locations Downstream of Crescent Dam



2.4 Variances from the Study Plan

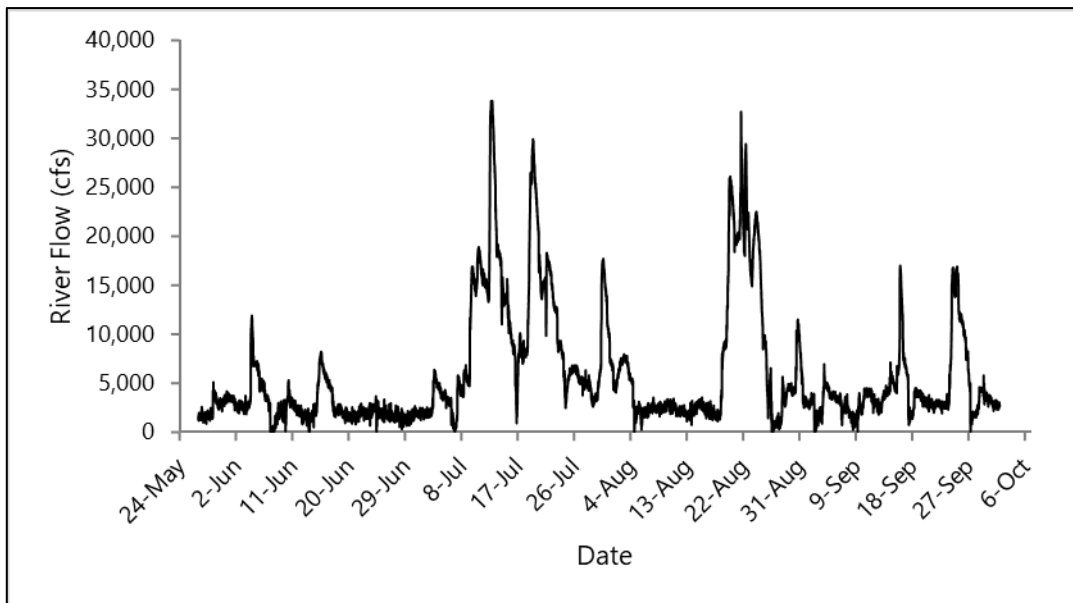
The American Eel Study was originally to be conducted in 2020. However, due to the global COVID-19 pandemic, the entire study was postponed until 2021. The American Eel Study will be conducted in 2021 and the results will be reported in the USR.

3 Results

3.1 River Flow and Outages

During the study period the Mohawk River, as recorded from the United States Geological Survey (USGS) Gage #01354500 experienced several high-water events that coincided with severe weather events ([Figure 3-1](#)). River flow during this period reached historic seasonal highs multiple times. The peak river flow was 33,800 cubic feet per second (cfs) recorded on July 12, 2021. The second highest river flow reached 31,100 cfs recorded on August 21, 2021, and the third highest flow event was 28,800 cfs recorded on July 19, 2021. As a result of these high-water events, the eel ramp traps experienced periodic outages due to water inundation, power loss, or removal to prevent damage or equipment loss.

Figure 3-1: River Flow (cfs) for the Eel Ramp Trap Monitoring Period
(May 24 to October 1, 2021)



Outage periods are depicted in [Table 3-1](#). The largest outage periods occurred during the July and August high flow events. Due to the fact that the Projects operate in run of river mode, there is typically very little water level fluctuation except for high flow events that exceed powerhouse capacity. The eel ramp traps were deployed in a manner to accommodate expected water level fluctuations and were securely positioned to remain viable at flows up approximately 15,000 cfs. The abnormally high flow events experienced during the summer of 2022 however, greatly exceeded expected water levels. As such, some eel ramp trap equipment was destroyed and/or lost on more than one occasion. Following high water events all eel ramp traps were checked as soon as safely possible. Every effort was made to repair, reconstruct, or redeploy the ramp traps, and return them to operating condition in as timely a manner as possible given safe river conditions and the ability to acquire replacement equipment. As such, the six eel ramp traps provided over 550 nights of sampling.

Table 3-1: Eel Ramp Trap Operation Dates, 2021

Date																			5/19	5/20	5/21	5/22	5/23	5/24	5/25	5/26	5/27	5/28	5/29	5/30	5/31							
Crescent	Trap 1																		TRAP DEPLOYMENT																			
	Trap 2																																					
	Trap 3																																					
Vischer Fe	Trap 1																																					
	Trap 2																																					
	Trap 3																																					
Date		6/1	6/2	6/3	6/4	6/5	6/6	6/7	6/8	6/9	6/10	6/11	6/12	6/13	6/14	6/15	6/16	6/17	6/18	6/19	6/20	6/21	6/22	6/23	6/24	6/25	6/26	6/27	6/28	6/29	6/30							
Crescent	Trap 1																																					
	Trap 2																																					
	Trap 3																																					
Vischer Fe	Trap 1																																					
	Trap 2																																					
	Trap 3																																					
Date		7/1	7/2	7/3	7/4	7/5	7/6	7/7	7/8	7/9	7/10	7/11	7/12	7/13	7/14	7/15	7/16	7/17	7/18	7/19	7/20	7/21	7/22	7/23	7/24	7/25	7/26	7/27	7/28	7/29	7/30	7/31						
Crescent	Trap 1																																					
	Trap 2																																					
	Trap 3																																					
Vischer Fe	Trap 1																																					
	Trap 2																																					
	Trap 3																																					
Date		8/1	8/2	8/3	8/4	8/5	8/6	8/7	8/8	8/9	8/10	8/11	8/12	8/13	8/14	8/15	8/16	8/17	8/18	8/19	8/20	8/21	8/22	8/23	8/24	8/25	8/26	8/27	8/28	8/29	8/30	8/31						
Crescent	Trap 1																																					
	Trap 2																																					
	Trap 3																																					
Vischer Fe	Trap 1																																					
	Trap 2																																					
	Trap 3																																					
Date		9/1	9/2	9/3	9/4	9/5	9/6	9/7	9/8	9/9	9/10	9/11	9/12	9/13	9/14	9/15	9/16	9/17	9/18	9/19	9/20	9/21	9/22	9/23	9/24	9/25	9/26	9/27	9/28	9/29	9/30	10/1						
Crescent	Trap 1																																					
	Trap 2																																					
	Trap 3																																					
Vischer Fe	Trap 1																																					
	Trap 2																																					
	Trap 3																																					

Note: Green areas designate dates when eel ramp traps were deployed and functioning.

3.2 Water Temperature and Meteorological Conditions

Instantaneous water temperature (°C) was recorded within each eel ramp trap and in the river adjacent to each trap. In total water temperature data were collected a total of 29 times from May 25 through October 1, 2021. The minimum, maximum, and mean values for water temperature in each eel ramp trap at each location and the Mohawk River are provided in [Table 3-2](#).

Additionally, air temperature, barometric pressure, precipitation, and moon phase was recorded. This information is provided in Appendix B. This information would be used to develop any potential relationship between these environmental factors and eel collections.

Table 3-2: Water Temperature Data Summary for Eel Ramp Traps and Mohawk River at Eel Trap Locations

Location	Trap #	Temperature (°C)		
		Min	Max	Mean
Vischer Ferry	1	18.8	26.1	22.9
	2	17.0	26.1	22.6
	3	16.5	26.6	22.8
Crescent	1	10.9	26.5	22.9
	2	15.6	25.6	22.1
	3	10.9	26.1	22.2
Mohawk River		12.5	26.5	22.7

3.3 Eel Monitoring Results

3.3.1 Nighttime Surveys

Nighttime surveys were performed in the tailrace and spillway locations downstream of the Crescent and Vischer Ferry dams, respectively, on five dates: April 22, April 28, May 13, May 18, and June 9, 2021. The first four nighttime surveys were scheduled per the study plan. The fifth and final survey on June 9, 2021 was added after consultation with USFWS.¹ No eels were observed during any of the observation events.

Nighttime observation surveys have been successful at documenting the presence of upstream migrating eels as they ascend wetted surfaces. Areas typically attractive to upstream migrants are wetted, have suitable climbing substrate, have reasonable slope, and have attraction flow. These conditions are common throughout the Vischer Ferry and Crescent spillway and tailwater areas. Examples of such areas observed during the nighttime surveys are included in [Figure 3-2](#).

¹ USFWS indicated that juvenile eels were still being observed at the Normans Kill River, a Hudson River tributary downstream of the Mohawk River and that an additional survey may be beneficial. In response, the Power Authority agreed to add the June survey.

Figure 3-2: Example of Nighttime Eel Observation Areas



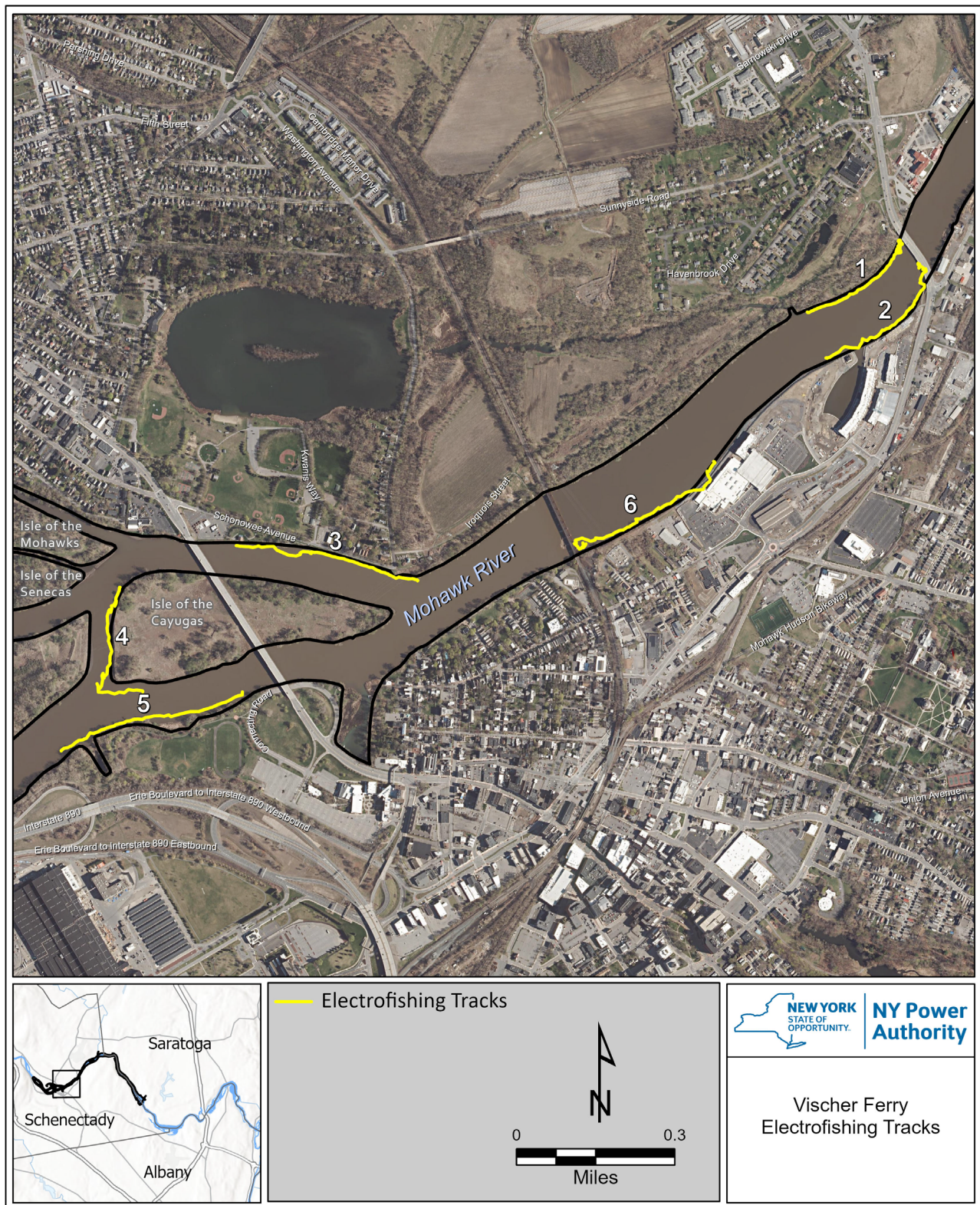
Researchers traversed the spillway and tailwater areas during each survey, searching throughout each location where suitable climbing habitat was present. Wildlife was present such as Canada geese and red fox, but no American eel were observed.

3.3.2 Nighttime Boat Electrofishing

Nighttime boat electrofishing occurred on the nights of August 12, and September 14, 2021. The event originally scheduled for July was postponed due to unsafe high flow conditions and was conducted in September. The sampling transects were in the vicinity of the Isle of the Mohawks as had been recommended during the resource agency site visit in November 2020. This area is in the Vischer Ferry Impoundment in the vicinity of the Route 5 Western Gateway Bridge. The sampling transects are shown in [Figure 3-3](#).

No American eel were observed or collected during any of the electrofishing surveys. Numerous fish species, including gamefish and non-gamefish were observed. The dominant gamefish species observed were walleye and smallmouth bass. Other species observed included largemouth bass, northern pike, and yellow perch. An invasive round goby was also observed.

Figure 3-3: Electrofishing Sites Upstream of Vischer Ferry Dam



3.3.3 Eel Ramp Traps

Six eel traps (three at each Project) were installed the week of May 18, 2021. All of the traps were deployed and operational on May 24, 2021. The traps were checked twice a week unless prevented by unsafe conditions such as pending high water events or severe weather. No eels were captured at any of the traps (n = 6) at either Project throughout the entirety of the study (May 24 through October 1).

No American eels were collected in the eel ramp traps during the study. The only aquatic organisms routinely collected in the traps were crayfish.

4 Discussion

Sampling using multiple methodologies throughout the warm water season at the Projects did not document any American eel at the Projects. Use of three separate sampling methodologies provided opportunity to collect or observe all lifestages of American eel potentially present in the vicinity of the Projects. Nighttime observations target glass eels and elvers; eel ramp traps target elvers and yellow eel lifestages; and electrofishing targets yellow to adult silver eel lifestages. It is likely that if any lifestage of American eel were present in reasonable numbers they would have been observed or collected in the upstream or downstream areas of either project dam.

The results of this study are consistent with the findings of the Power Authority's Fish Community Study and fisheries data collected for the lower Mohawk River in the last 30+ years that has shown American eel to be present upstream of the Project dams but are uncommon. For example, American eel research was conducted by the USGS on the Mohawk River in 2015-2016. These efforts included electrofishing of 35 tributaries to the Mohawk River targeting eels. No eels were found.

The results of this study are also consistent with other field efforts designed to locate and document American eel conducted during 2021 in the Lower Mohawk River area. During June 2021, the NYSDEC conducted 11 boat electrofishing trips in the Mohawk River. Locations ranged from the Waterford Flight, the upstream end of which is located at Crescent Dam, to St. Johnsville, NY which is located over 50 miles upstream of Vischer Ferry Dam. These efforts targeted American eel as well as several other species. One eel, which appeared to be a mature silver eel, was collected in the vicinity of Lock 8. No other eels were observed (Scott Wells Personal Communication).

Also in 2021, the USGS conducted eDNA sampling for American Eel at 35 sites. Of these, 20 were in the mainstem Mohawk River between the Hudson River and Rome, NY. An additional 15 sampling sites were located in Mohawk River tributaries. All sites were sampled in the late spring 2021 and again in late summer. The lab analysis of these samples is not yet complete (Scott George, USGS, Personal Communication).

Overall, while American eel have been caught in the main channel of the Mohawk River as far west as Herkimer, as well as in Schoharie and West Canada Creeks (Carlson et al., 2016), the number observed is low. That data coupled with the results of Power Authority efforts in 2021 indicate that American eel are uncommon at the Projects.

5 References

- 2013 Special Report No. 90 of the Atlantic States Marine Fisheries Commission. Proceedings of a Workshop on American Eel Passage Technologies. Convened by: Atlantic States Marine Fisheries Commission March 30-31, 2011 Gloucester, Massachusetts.

Appendix A

Consultation

**Meeting Minutes
Draft (11/19/2020)
Crescent and Vischer Ferry Projects
American Eel Site Visit**

Date:	November 19, 2020
Re:	Evaluate Potential American Eel Collection Locations at Crescent and Vischer Ferry for 2021
Location:	Crescent and Vischer Ferry Hydroelectric Projects
Attendees:	NYPA - Cindy Brady, Tara Groom, Andrew Weinstock, Vincent Pezzulo NYDEC - Nicole Cain, Chris VanMaaren USFWS - John Wiley, Arianna Ramirez Kleinschmidt - Mike Hreben

Notes:

The group met at the Crescent Project parking lot at 10:00 a.m. Safety and COVID-19 screening protocols were reviewed, and appropriate PPE was worn throughout the site visit. After visiting the Crescent site, the group proceeded to the Vischer Ferry site.

Open discussion occurred throughout the site visit regarding the FERC approved American Eel Study Plan. The focus of the discussion was to ensure that the 2021 field efforts are well conducted and accurately assess the potential of American Eel in the vicinity of the Projects. All agreed that the goal was to sample in a manner that would provide confidence in the results. Key points of the discussion were:

- FERC recommended using eel mops and fyke nets both upstream and downstream at each Project. All agreed that eel mops would not be an effective sampling method and that at best, fyke nets were questionable. These gear types typically target small elvers and glass eels when present in numbers. Consensus was that if eels are present, they would likely be larger.
- Eel ramp traps appear to be a more appropriate sampling gear.
- Reservoir sampling (i.e., upstream of each Project) will not be productive using the same gear types used downstream of each facility.
- Sampling in the VF tailrace could be considered the “upstream” component for Crescent.
- Sampling does not need to begin in early April and late May would likely be sufficient for a start date.
- To check for small, early season upstream migrants, several nighttime visual observation surveys could be conducted.

- Need to make sure sampling extends long enough into the eel migration season.
- Three locations downstream of each Project were discussed and are displayed on the attached figures.
- Should eels be collected, they will be marked/tagged to identify potential recaptures.
- Boat access to the Vischer Ferry tailrace may be constrained based on the type and installation time of the tailrace boat barrier. NYPA to follow-up.
- The group decided to think about the visit, distribute notes, and reconvene on a conference call to finalize the Study Plan. Any agreed upon difference to the FERC approved plan would be submitted to FERC for approval.

Figure 1: Crescent Project Proposed Eel Sampling Locations

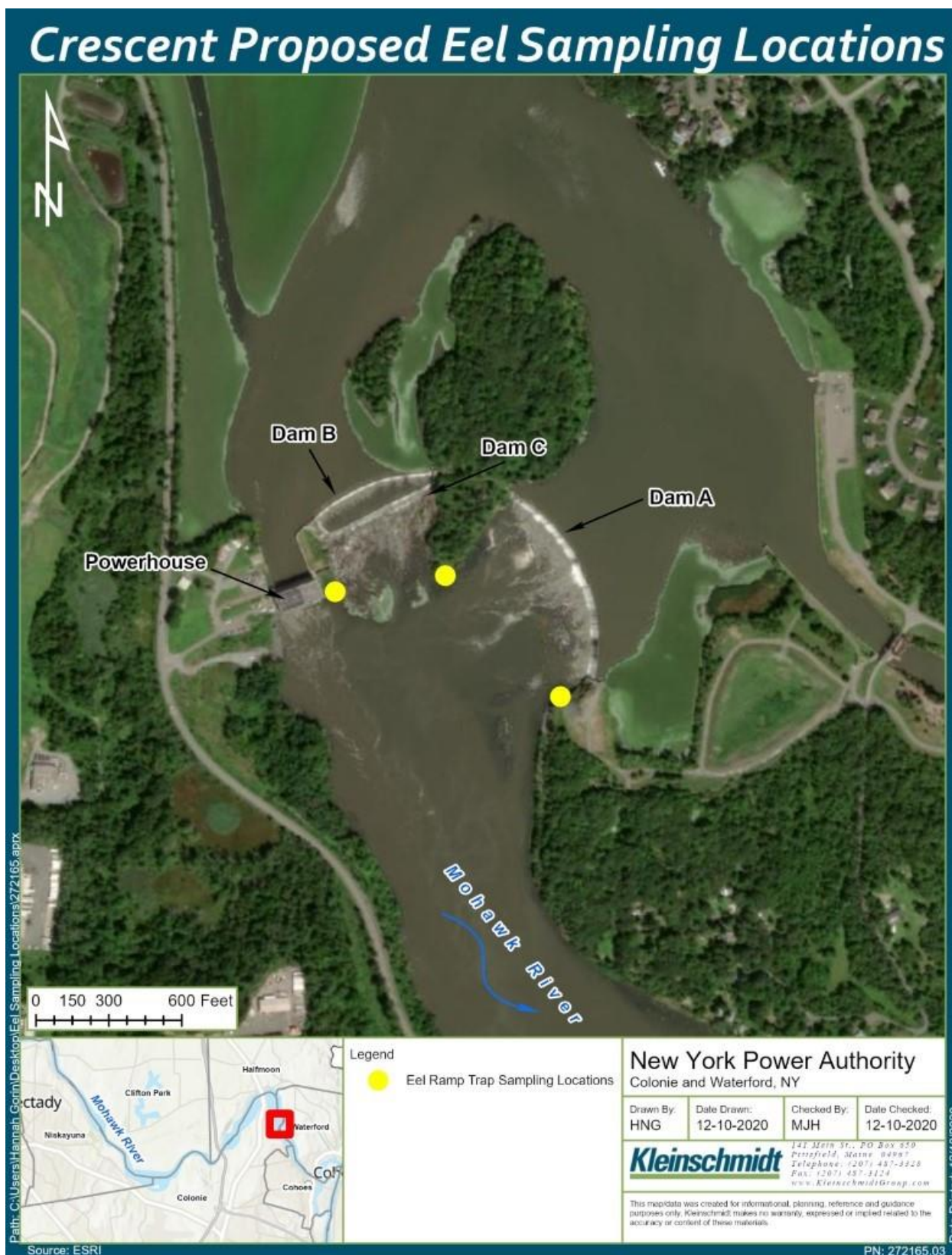
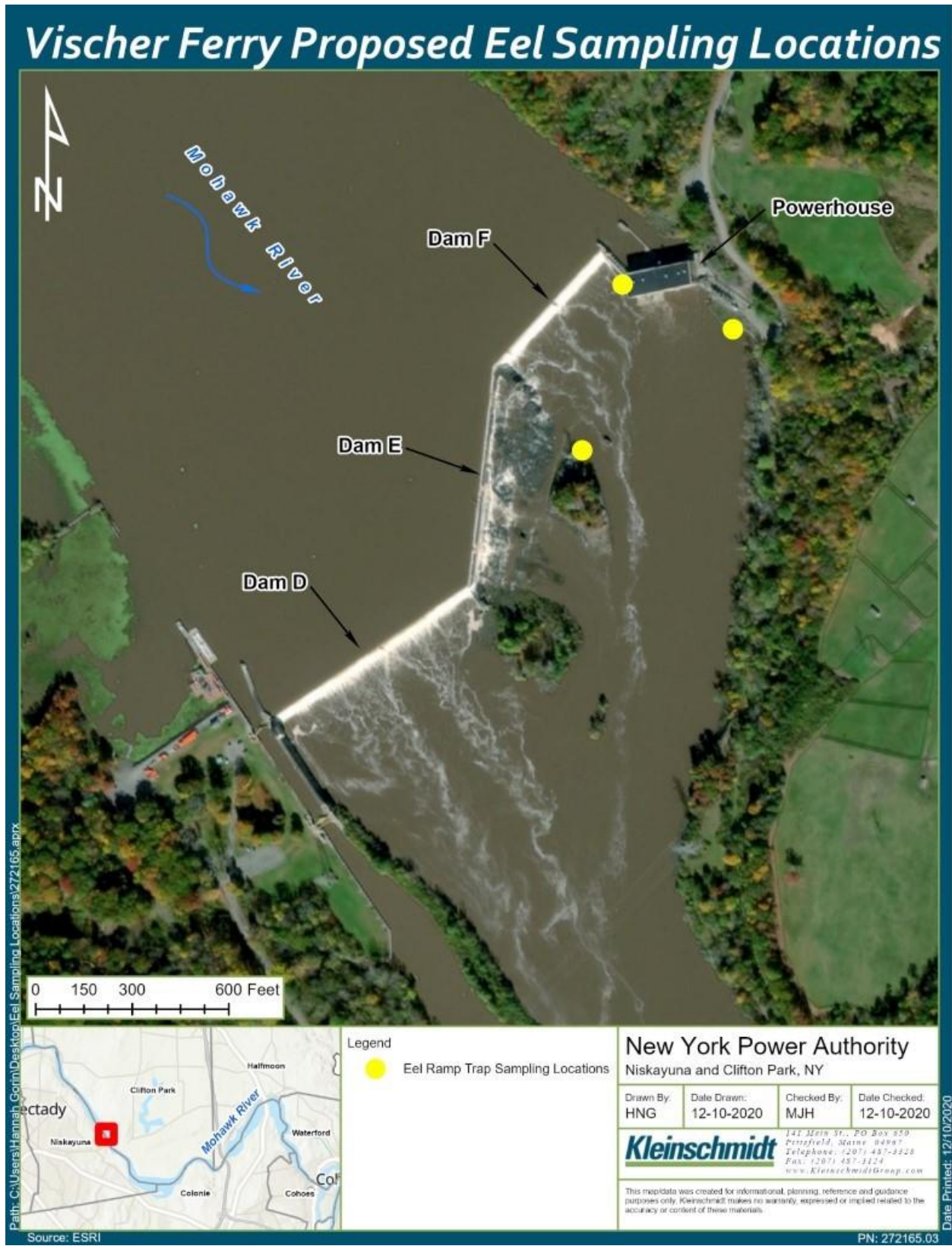


Figure 2: Vischer Ferry Project Proposed Eel Sampling Locations



CRESCENT AND VISCHER FERRY
Eel Study Plan Call Summary
December 17, 2020

Attendees:

NYPA: Andrew Weinstock, Rob Daly, Cindy Brady, Tara Groom, Vin Pezzullo, Jeff Gerlach

NYSDEC: Nicole Cain, Chris VanMaaren

USFWS: John Wiley

Kleinschmidt: Mike Hreben

Call Summary:

The group discussed the draft eel study plan outline that was distributed on 12/15/2020. The draft plan was developed based on consultation with the USFWS and NYSDEC (resource agencies) during the site visit on 11/19/2020. Mike Hreben walked group through the study design and then opened up the meeting for discussion. There were several changes the group worked through that were generally agreed to by all. These pertained to study schedule, sampling locations, and sampling methods.

Schedule – after discussion, there was general consensus among the group to conduct eel observations one night per week from mid-April until mid-May (4 weeks total). Additionally, eel ramp trap sampling would begin in mid-May. This modified schedule would allow some type of monitoring to occur from early spring until September 30. The draft plan originally included eel observations in May with eel ramp trap sampling beginning in June.

Sampling locations – the resource agencies collaborated after the 11/19 site visit and suggested that an eel ramp trap sampling location along the western shoreline immediately downstream of Vischer Ferry Dam. They felt that this would distribute the sampling locations over a wider area rather than concentrating them in the VF tailrace area. It would also allow for an alternative location since the area near the trash sluice may not be feasible.

Sampling methods – there was further discussion about adding some type of sampling upstream of the Vischer Ferry Dam. Boat electrofishing was discussed as potentially the most effective and would target rocky and weedy areas. The area near the Isle of Mohawks was specifically mentioned as having good eel habitat. The potential to use eDNA sampling was also mentioned. The group discussed ramp traps as the primary effort for the study but they would only pertain to the areas downstream of each Project.

The potential to collect small eels or observe and subsequently mark/tag them was discussed. It was agreed that upstream migrating eels may be too small to tag. The issue wasn't resolved but the general thought is that we are unlikely to collect or observe eels too small to tag (i.e. glass eels or small elvers) but we just don't know.

NYPA committed to revising the plan outline and getting it back to the resource agencies for review. NYPA also stressed that timing is important and that a study plan would need to be approved by FERC, so it will take time. USFWS & NYSDEC committed to writing a letter of support to FERC once we finalize the plan.

Toward the end of the call, USFWS noted that the main purpose of the study is to effectively sample to determine the relative abundance of eels at the Projects, and to use this information to assess whether the abundance of eels warrants passage.

From: Weinstock, Andrew <Andrew.Weinstock@nypa.gov>

Sent: Tuesday, January 5, 2021 4:05 PM

To: Wiley, John <john_wiley@fws.gov>; Chris VanMarren (chris.vanmaaren@dec.ny.gov) <chris.vanmaaren@dec.ny.gov>; Cain, Nicole E (DEC) <Nicole.Cain@dec.ny.gov>

Cc: Daly, Rob <Robert.Daly@nypa.gov>; Brady, Cindy <Cynthia.Brady@nypa.gov>; Groom, Tara <Tara.Groom@nypa.gov>; Jeff Gerlach <Jeff.Gerlach@nypa.gov>; VC Pezzullo <Vincent.Pezzullo@nypa.gov>; Mike Hreben <Mike.Hreben@KleinschmidtGroup.com>; Wendy Bley <Wendy.Bley@Kleinschmidtgroup.com>

Subject: Crescent and Vischer Ferry American Eel Study Plan

Hi John, Chris and Nicole,

During our phone conversation on December 17, 2020, we discussed the Crescent/Vischer Ferry American Eel Study Plan components, your field observations and recommendations on the plan. We revised the plan incorporating your recommendations and feel that we have a robust plan that will accurately determine the presence and abundance of American Eel at the projects. Please see the attached American Eel Study Plan. We are happy to communicate with you via email regarding concurrence of the plan, but if you feel an additional phone call is warranted, please let me know and we will gladly set one up. If you are satisfied with the plan, we would appreciate your concurrence to the plan via letter or email so we can send that along with the plan to FERC for their approval. Thank you everyone and Happy New Year.

Cheers,
Andrew

Andrew Weinstock
Environmental Fisheries Scientist

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Draft American Eel Study Plan Outline Crescent and Vischer Ferry Hydroelectric Projects

Study Purpose

The purpose of this study effort is to assess the presence and relative abundance of American Eel upstream and downstream of the Crescent and Vischer Ferry (CVF) Projects.

Study Location

The study locations are the tailrace and spillway areas downstream of the Crescent and Vischer Ferry (CVF) Projects and the Vischer Ferry impoundment.

Study Methods

NYPA consulted with the NYSDEC and USFWS (resource agencies) regarding the sampling methods and gear types suggested by FERC in the Study Plan Determination. This discussion occurred while observing the habitat available and using the experience of the fisheries biologists participating. It was agreed that eel mops would not likely be an effective gear type for this environment especially considering that eels, if present, would be low in density. Likewise, fyke nets could potentially be effective in the tailwaters, but maintenance would be difficult and concentrations of upstream migrating eels are unlikely. Additionally, fyke nets would not be an effective gear type in the impoundments. The only potential would possibly be in association with a tributary stream, of which few are present therefore, several sampling methods suggested by and discussed with resource agencies will be used to assess the presence and relative abundance of American Eel upstream and downstream of each Project, including nighttime observations and eel ramp traps.

As suggested by the resource agencies, during spring 2021, nighttime observations will be made in the tailrace and spillway area of each Project to document if upstream migrating elvers are present. Nighttime observations have proven to be an effective method of documenting the presence of American Eel where this lifestage is present. Typically, glass eel and elvers ascend obstacles by climbing over wetted surfaces at night during the spring. This behavior makes them more readily observable. It is unknown if these lifestages are present at the Projects, but nighttime observations for glass eels and elvers is one of the best ways to determine their presence and potential abundance. If eels are observed, it will provide insight on the use of the Mohawk River by this species. It is proposed that eel observations be made one night per week over a four-week period from mid-April through mid-May at each Project. Observations will occur in the tailrace and spillway of each Project on exposed, wetted surfaces where eels may be attracted and that can be safely accessed by field crews. Areas will likely include the dam face and other surfaces where trickle flows provide the proper climbing conditions. Eel ramp traps have proven to be an effective means of collecting upstream migrating eels. These devices use attraction flow to direct eels to a wetted climbing substrate (i.e. ramp), where after climbing the ramp, they are collected in a basin or holding pen. The climbing substrate will be sized based on the expected size of the eels present and coordinated with the resource agencies. To maximize

their effectiveness, ramp traps are best located in an area that is generally attractive to eels. This usually consists of areas with or adjacent to flow and with a physical feature that can act as a guide (i.e. shoreline, wall, or other structure).

Based on these preferred features, there are three potential sampling locations currently being considered downstream of each Project. With the exception of the Lock channel at Vischer Ferry, these areas were observed during a site visit on November 19, 2020 with representatives from the USFWS and NYSDEC and are illustrated in Figures 1 and 2. While desirable, the logistics of these locations in terms of being able to maintain a functioning trap, reasonable access, and safety are currently being evaluated and will ultimately determine actual locations.

The presence and relative abundance of eels upstream of Crescent dam will be determined from the sampling conducted below the Vischer Ferry Project dam. The presence and abundance of eels upstream of Vischer Ferry cannot be determined using these same methods, as there is no dam immediately upstream of Vischer Ferry where upstream migrating eels would likely congregate and/or could easily be observed or trapped. Therefore, to assess eel abundance in the Vischer Ferry impoundment, nighttime boat electrofishing will also be conducted as recommended by the NYSDEC and USFWS. Two sampling events will occur, one night each in July and August. Target areas will be directed at potential eel habitat and may include rocky substrates, vegetated shorelines, and the mouths of tributary streams. To the extent practical, sampling will occur during darker moon phases when there is potentially more eel activity. Sampling effort will consist of six, 20-minute sampling runs per event. Sampling will begin no earlier than 30 minutes after sunset. Only eels will be collected. While American Eel are very susceptible to electrofishing, they can be difficult to capture even though they are observed. Therefore, all collection efforts will be focused on eels only. If eels are observed, but not captured, they will be documented.

If eels are collected, they will be photographed, measured (total length and girth), weighed, and scanned for existing tags. If the eels are not tagged indicating a recapture, they will be tagged using Passive Integrated Transponder (PIT) tags to identify them should they be recaptured. If glass eels or small elvers are observed or collected, they will be enumerated and processed as appropriate, but may not be suitable for tagging. It is proposed that eel ramp trap sampling will begin in mid-May, 2021 and continue through September 30, 2021. It should be noted that the nighttime observations target small, early migrants while the eel ramp traps target larger elvers and yellow eels that are expected to migrate through the summer and early fall. Between the two methodologies, a level of monitoring will essentially occur from mid-April through the end of September 2021.

As study planning continues and throughout the study period, the researchers will maintain contact with the NYSDEC which conducts a juvenile eel collection program on Hudson River tributaries. Monitoring the progress of NYSDEC's efforts will allow for potentially adjusting the sampling period for this study based on upstream progression of eels through the Hudson River.

Figure 1: Crescent Project Proposed Eel Sampling Locations

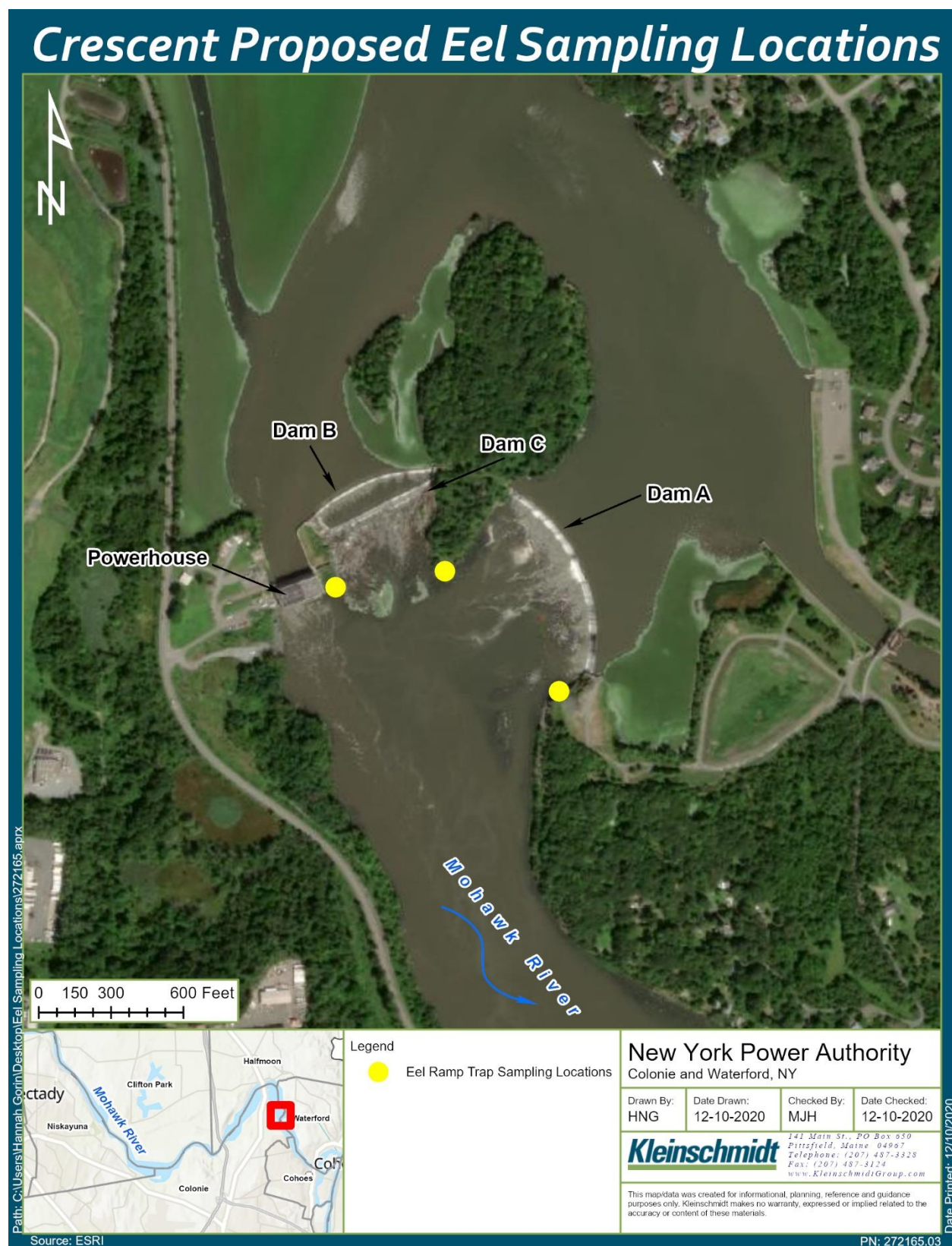
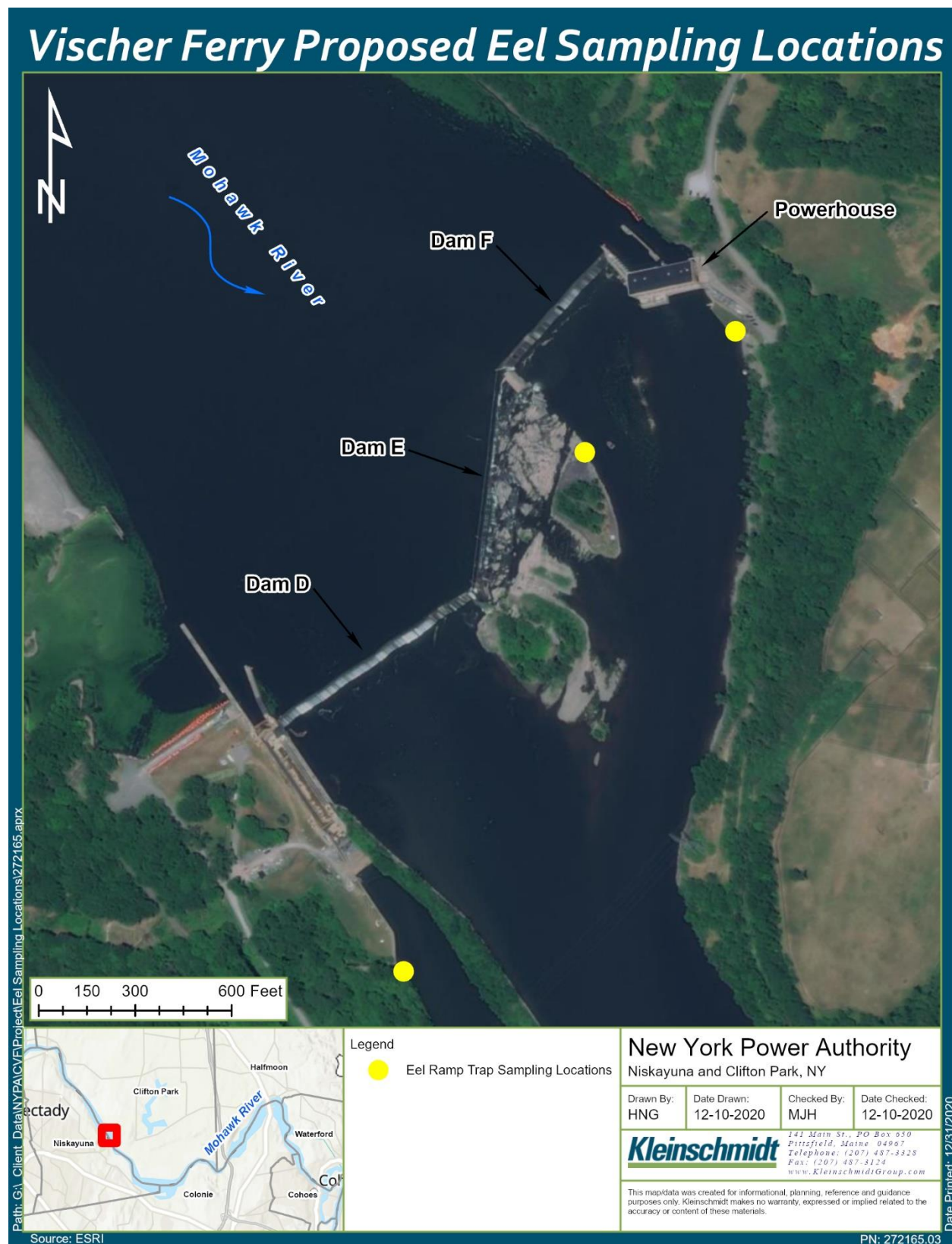


Figure 2: Vischer Ferry Project Proposed Eel Sampling Locations



From: Wiley, John <John_Wiley@fws.gov>

Sent: Wednesday, January 20, 2021 4:05 PM

To: Andrew Weinstock <andrew.weinstock@nypa.gov>; Chris VanMarren
(chris.vanmaaren@dec.ny.gov) <chris.vanmaaren@dec.ny.gov>; Cain, Nicole E (DEC)
<nicole.cain@dec.ny.gov>

Cc: Daly, Rob <Robert.Daly@nypa.gov>; Brady, Cindy <cynthia.brady@nypa.gov>; Groom, Tara
<Tara.Groom@nypa.gov>; Jeff Gerlach <Jeff.Gerlach@nypa.gov>; VC Pezzullo
<Vincent.Pezzullo@nypa.gov>; Mike Hreben <Mike.Hreben@KleinschmidtGroup.com>; Wendy Bley
<Wendy.Bley@Kleinschmidtgroup.com>

Subject: Re: [EXTERNAL] Crescent and Vischer Ferry American Eel Study Plan

Andrew,

I have reviewed the revised American Eel Study Plan. Thank you for your coordination on our site visit and follow-up calls regarding this topic. The plan as presented appears to address our conversations to date and notes points where ongoing consultation will be carried out throughout the study period. Please feel free to submit to the FERC for their consideration after DEC provides their concurrence.

Cheers,
John

John J. Wiley, Jr.

Fish and Wildlife Biologist
U.S. Fish & Wildlife Service
Department of the Interior
North Atlantic-Appalachian Region

New York Field Office
3817 Luker Road
Cortland, New York 13045
Office: 607-753-9334
www.fws.gov/northeast/nyfo/

From: Weinstock, Andrew <Andrew.Weinstock@nypa.gov>

Sent: Tuesday, January 5, 2021 4:05 PM

To: Wiley, John <John_Wiley@fws.gov>; Chris VanMarren (chris.vanmaaren@dec.ny.gov)

<chris.vanmaaren@dec.ny.gov>; Cain, Nicole E (DEC) <nicole.cain@dec.ny.gov>

Cc: Daly, Rob <Robert.Daly@nypa.gov>; Brady, Cindy <Cynthia.Brady@nypa.gov>; Groom, Tara <Tara.Groom@nypa.gov>; Gerlach, Jeff <Jeff.Gerlach@nypa.gov>; Pezzullo, Vincent <Vincent.Pezzullo@nypa.gov>; Mike Hreben <Mike.Hreben@KleinschmidtGroup.com>; Wendy Bley <Wendy.Bley@Kleinschmidtgroup.com>

Subject: [EXTERNAL] Crescent and Vischer Ferry American Eel Study Plan

This email has been received from outside of DOI - Use caution before clicking on links, opening attachments, or responding.

Hi John, Chris and Nicole,

During our phone conversation on December 17, 2020, we discussed the Crescent/Vischer Ferry American Eel Study Plan components, your field observations and recommendations on the plan. We revised the plan incorporating your recommendations and feel that we have a robust plan that will accurately determine the presence and abundance of American Eel at the projects. Please see the attached American Eel Study Plan. We are happy to communicate with you via email regarding concurrence of the plan, but if you feel an additional phone call is warranted, please let me know and we will gladly set one up. If you are satisfied with the plan, we would appreciate your concurrence to the plan via letter or email so we can send that along with the plan to FERC for their approval. Thank you everyone and Happy New Year.

Cheers,
Andrew

Andrew Weinstock
Environmental Fisheries Scientist

New York Power Authority
123 Main Street
White Plains, NY 10601
Office: 914-287-3688 | Cell: 914-364-0923 | Andrew.Weinstock@nypa.gov
www.nypa.gov

From: Cain, Nicole E (DEC) <Nicole.Cain@dec.ny.gov>

Sent: Thursday, January 21, 2021 10:10 AM

To: Andrew Weinstock <andrew.weinstock@nypa.gov>; Wiley, John <john_wiley@fws.gov>; VanMaaren, Chris C (DEC) <chris.vanmaaren@dec.ny.gov>

Cc: Daly, Rob <Robert.Daly@nypa.gov>; Brady, Cindy <cynthia.brady@nypa.gov>; Groom, Tara <Tara.Groom@nypa.gov>; Jeff Gerlach <Jeff.Gerlach@nypa.gov>; VC Pezzullo <Vincent.Pezzullo@nypa.gov>; Mike Hreben <Mike.Hreben@KleinschmidtGroup.com>; Wendy Bley <Wendy.Bley@Kleinschmidtgroup.com>

Subject: Re: Crescent and Vischer Ferry American Eel Study Plan

Good morning Andrew,

My apologies for the time it took to do a review of the draft study. NYSDEC concurs with the contents of the draft study as presented. When you file with FERC, NYSDEC will be ready and willing to write a letter of support for the study should it be needed.

Nicole E. Cain

Biologist 1 (Ecology), Division of Fish & Wildlife

New York State Department of Environmental Conservation

625 Broadway, Albany, NY 12233-4756

P: (518) 402-8847 | F: (518) 402-8925 | nicole.cain@dec.ny.gov

From: Weinstock, Andrew <Andrew.Weinstock@nypa.gov>

Sent: Tuesday, January 5, 2021 4:05 PM

To: Wiley, John <John_Wiley@fws.gov>; VanMaaren, Chris C (DEC) <chris.vanmaaren@dec.ny.gov>; Cain, Nicole E (DEC) <Nicole.Cain@dec.ny.gov>

Cc: Daly, Rob <Robert.Daly@nypa.gov>; Brady, Cindy <Cynthia.Brady@nypa.gov>; Groom, Tara <Tara.Groom@nypa.gov>; Gerlach, Jeff <jeff.gerlach@nypa.gov>; Pezzullo, Vincent <Vincent.Pezzullo@nypa.gov>; Mike Hreben <Mike.Hreben@KleinschmidtGroup.com>; Wendy Bley <Wendy.Bley@Kleinschmidtgroup.com>

Subject: Crescent and Vischer Ferry American Eel Study Plan

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Cheers,
Andrew

Andrew Weinstock
Environmental Fisheries Scientist

New York Power Authority
123 Main Street
White Plains, NY 10601
Office: 914-287-3688 | Cell: 914-364-0923 | Andrew.Weinstock@nypa.gov
www.nypa.gov

From: [Weinstock, Andrew](#)
To: [Wiley, John](#); [Chris VanMarren \(chris.vanmaaren@dec.ny.gov\)](mailto:chris.vanmaaren@dec.ny.gov); [Cain, Nicole E \(DEC\)](#)
Cc: [Brady, Cindy](#); [Daly, Rob](#); [Jeff Gerlach](#); [VC Pezzullo](#); [Mike Hreben](#)
Subject: Crescent/Vischer Ferry nighttime eel observations
Date: Wednesday, May 5, 2021 10:15:01 AM

Hi John, Chris and Nicole,

NYPA has completed the first two of the four weeks of eel observations at Crescent and Vischer Ferry Projects (FERC Nos. 4678 and 4679 respectively). These observations occur at night, once per week to document any eels trying to ascend the dams and other wetted surfaces. No eels were observed on the nights of 4/22/2021 and 4/28/2021.

This weeks' observations are scheduled for Thursday evening (5/6/2021). However, due to a significant rain event, the Projects have been in a spill condition all week with flows predicting to increase to 16,000 cfs by tomorrow night (May 6) at the Cohoes gage. These flows present additional safety hazards for the crew. Additionally, this magnitude of spill over the Dam would eliminate the ability to observe areas where eels may try to ascend Project structures.

Therefore, NYPA is planning to postpone this week's eel observation effort and conduct the remaining two observations during the weeks of 5/10/2021 and 5/17/2021, conditions permitting.

Please let me know if you have any questions or comments.

Thanks you,
Andrew

Andrew Weinstock
Environmental Fisheries Scientist

New York Power Authority
123 Main Street
White Plains, NY 10601
Office: 914-287-3688 | Cell: 914-364-0923 | Andrew.Weinstock@nypa.gov
www.nypa.gov

From: [Wiley, John](#)
To: [Andrew Weinstock](#); [chris.vanmaaren](#); [Cain, Nicole E \(DEC\)](#)
Cc: [Brady, Cindy](#); [Daly, Rob](#); [Jeff Gerlach](#); [VC Pezzullo](#); [Mike Hreben](#)
Subject: Re: [EXTERNAL] Crescent/Vischer Ferry nighttime eel observations
Date: Wednesday, May 5, 2021 11:01:56 AM

Andrew,

Understood. Thank you for the update.

John Wiley (he/him)

Fish and Wildlife Biologist
U.S. Fish & Wildlife Service
Department of the Interior
North Atlantic-Appalachian Region

New York Field Office
3817 Luker Road
Cortland, New York 13045
Office: 607-753-9334
www.fws.gov/northeast/nyfo/

From: Weinstock, Andrew <Andrew.Weinstock@nypa.gov>
Sent: Wednesday, May 5, 2021 1:15 PM
To: Wiley, John <John_Wiley@fws.gov>; chris.vanmaaren <chris.vanmaaren@dec.ny.gov>; Cain, Nicole E (DEC) <nicole.cain@dec.ny.gov>
Cc: Brady, Cindy <Cynthia.Brady@nypa.gov>; Daly, Rob <Robert.Daly@nypa.gov>; Gerlach, Jeff <Jeff.Gerlach@nypa.gov>; Pezzullo, Vincent <Vincent.Pezzullo@nypa.gov>; Mike Hreben <Mike.Hreben@KleinschmidtGroup.com>
Subject: [EXTERNAL] Crescent/Vischer Ferry nighttime eel observations

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Therefore, NYPA is planning to postpone this week's eel observation effort and conduct the remaining two observations during the weeks of 5/10/2021 and 5/17/2021, conditions permitting.

Please let me know if you have any questions or comments.

Thanks you,
Andrew

Andrew Weinstock
Environmental Fisheries Scientist

New York Power Authority

123 Main Street

White Plains, NY 10601

Office: 914-287-3688 | Cell: 914-364-0923 | Andrew.Weinstock@nypa.gov

www.nypa.gov

From: [Cain, Nicole E \(DEC\)](#)
To: [Andrew Weinstock](#); [Wiley, John](#); [VanMaaren, Chris C \(DEC\)](#)
Cc: [Brady, Cindy](#); [Daly, Rob](#); [Jeff Gerlach](#); [VC Pezzullo](#); [Mike Hreben](#)
Subject: Re: Crescent/Vischer Ferry nighttime eel observations
Date: Wednesday, May 5, 2021 11:14:46 AM

Safety first! Thank you for the update.

Nicole E. Cain

Biologist 1 (Ecology), Division of Fish & Wildlife

New York State Department of Environmental Conservation

625 Broadway, Albany, NY 12233-4756

P: (518) 402-8847 | F: (518) 402-8925 | nicole.cain@dec.ny.gov

From: Weinstock, Andrew <Andrew.Weinstock@nypa.gov>
Sent: Wednesday, May 5, 2021 1:15 PM
To: Wiley, John <John_Wiley@fws.gov>; VanMaaren, Chris C (DEC) <chris.vanmaaren@dec.ny.gov>; Cain, Nicole E (DEC) <Nicole.Cain@dec.ny.gov>
Cc: Brady, Cindy <Cynthia.Brady@nypa.gov>; Daly, Rob <Robert.Daly@nypa.gov>; Gerlach, Jeff <jeff.gerlach@nypa.gov>; Pezzullo, Vincent <Vincent.Pezzullo@nypa.gov>; Mike Hreben <Mike.Hreben@KleinschmidtGroup.com>
Subject: Crescent/Vischer Ferry nighttime eel observations

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Therefore, NYPA is planning to postpone this week's eel observation effort and conduct the remaining two observations during the weeks of 5/10/2021 and 5/17/2021, conditions permitting.

Please let me know if you have any questions or comments.

Thanks you,
Andrew

Andrew Weinstock

Environmental Fisheries Scientist

New York Power Authority

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Meeting Minutes
Crescent and Vischer Ferry Projects
American Eel Study Call - June 3, 2021

Date:	June 3, 2021
Re:	Call to Discuss American Eel Trap Locations and Configuration at the Crescent and Vischer Ferry Projects
Location:	Teleconference
Attendees:	John Wiley, USFWS; Nicole Cain, NYSDEC; Andrew Weinstock, Jeff Gerlach, Vin Pezzulo, Cindy Brady, and Tara Groom, NYPA; Mike Hreben, Kleinschmidt

Notes:

A call was held between the Power Authority and USFWS (John Wiley) and NYSDEC (Nicole Cain) to discuss the eel traps. Primary discussion topics are summarized as follows:

- Mike Hreben provided an overview of the eel ramp trap deployment with photos and location descriptions.
- USFWS (John Wiley) would like the Power Authority to add some additional substrate for smaller eels. The substrate currently in the traps is geared for eels 150 mm (6 inches) on up, but he was seeing eels closer to 100 mm at another site. The Power Authority agreed to add a 6-8 inch strip of climbing substrate within the existing ramp, and USFWS was good with that.
- Both NYSDEC (Nicole Cain) and USFWS (John Wiley) were in favor of moving the Vischer Ferry mid-river trap to the opposite side of Goat Island to help protect it from debris and sample the area between the island and Lock 7. The Power Authority agreed to move the trap as recommended.
- USFWS (John Wiley) suggested that the Power Authority consider doing another nighttime eel survey based on what USFWS was seeing at the Normans Kill River. The Power Authority agreed to considering an addition nighttime survey.
- Both NYSDEC (Nicole Cain) and USFWS (John Wiley) expressed interest in a site visit. It was agreed the site visit would be held Tuesday June 8, 2021. Nicole indicated she had a full schedule and was not able to make that date but the site visit should proceed. The Power Authority agreed to also invite Chris VanMaaren and Scott Wells of the NYSDEC.



Crescent and Vischer Ferry Eel Trap Site Visit



Mike Hreben

✓ Accept ▾

? Tentative ▾

✕ Decline ▾

🕒 Propose New Time ▾



Required ● Mike Hreben; ● Andrew Weinstock; ○ John Wiley (john_wiley@fws.gov); ○ Wells, Scott M (DEC); ○ VanMaaren, Chris C (DEC)

Fri 6/4/2021 5:32 PM

Optional ○ Gerlach, Jeff; ○ VC Pezzullo; ○ Daly, Rob; ○ Brady, Cindy; ○ Groom, Tara



Tuesday, June 8, 2021 2:30 PM-5:30 PM



Crescent Parking Lot

Good afternoon,

As discussed on the 6/3 call with Nicole Cain and John Wiley, this is an invitation to view the American Eel traps at the Crescent and Vischer Ferry Projects on Tuesday, 6/8.

Scott/Chris – Nicole requested that you be invited.

We will meet at the Crescent parking lot at 2:30. The plan is to visit the Crescent traps by boat and then launch at Lock 7 to visit the VF traps. If you plan to attend, please bring a PFD in case I don't have enough extras. I also suggest that you wear waterproof boots – I wear waders to walk around the traps but knee highs should work for most sites.

Please let me know if you have any questions and I hope you can make it.

Mike

PS – for those attending, I will distribute a liability waiver form for the boat ride.

-----Original Appointment-----

From: VanMaaren, Chris C (DEC) <chris.vanmaaren@dec.ny.gov>

Sent: Monday, June 7, 2021 8:26 AM

To: Mike Hreben

Subject: Declined: Crescent and Vischer Ferry Eel Trap Site Visit

When: Tuesday, June 8, 2021 2:30 PM-5:30 PM (UTC-05:00) Eastern Time (US & Canada).

Where: Crescent Parking Lot

-----Original Appointment-----

From: Wells, Scott M (DEC) <scott.wells@dec.ny.gov>

Sent: Saturday, June 5, 2021 8:19 AM

To: Mike Hreben

Subject: Declined: Crescent and Vischer Ferry Eel Trap Site Visit

When: Tuesday, June 8, 2021 2:30 PM-5:30 PM (UTC-05:00) Eastern Time (US & Canada).

Where: Crescent Parking Lot

Hello Mike – thanks for the invite but I will out of the region doing lamprey work early next week.

-----Original Appointment-----

From: Wiley, John <John_Wiley@fws.gov>

Sent: Sunday, June 6, 2021 5:54 PM

To: Mike Hreben

Subject: Accepted: [EXTERNAL] Crescent and Vischer Ferry Eel Trap Site Visit

When: Tuesday, June 8, 2021 2:30 PM-5:30 PM (UTC-05:00) Eastern Time (US & Canada).

Where: Crescent Parking Lot

Meeting Minutes
Crescent and Vischer Ferry Projects
American Eel Study Site Visit - June 8, 2021

Date:	June 8, 2021
Re:	Site Visit to view American Eel Ramp Traps
Location:	Crescent and Vischer Ferry Hydroelectric Projects
Attendees:	John Wiley and Arianna Ramirez, USFWS; Andrew Weinstock, NYPA; Mike Hreben, Kleinschmidt

Notes:

A site visit was held with the USFWS on June 8, 2021 to see the eel ramp traps and trap locations. NYSDEC staff were invited but were unable to attend. The Crescent traps were visited by boat but the boating component of the visit was cut short due to thunderstorms. The Vischer Ferry traps in the tailrace and near Lock 7 were visited from shore. The Power Authority was able to show USFWS the eel trap set-up, operation and location of the traps. Primary discussion points were:

- USFWS (John Wiley) said that he thinks the Power Authority is fishing in the correct locations.
- Overall, USFWS liked the trap set-up but did express some concern that more attraction flow or a flow pattern causing enough surface disturbance would better attract eels. The Power Authority felt this was a valid comment and committed to seeing if some adjustments could be made to address this concern.
- USFWS (John Wiley) photographed the eel traps and took notes.

From: [Weinstock, Andrew](#)
To: [Wiley, John](#)
Cc: [VC Pezzullo](#); [Jeff Gerlach](#); [Daly, Rob](#); [Brady, Cindy](#); [Groom, Tara](#); [Mike Hreben](#)
Subject: RE: [EXTERNAL] Update from the C/VF Eel Study Site Visit
Date: Tuesday, June 29, 2021 11:35:46 AM

Hi John,

The original pump supplies approximately 5 gallons/minute of flow which is distributed between the eel ramp and attraction flow. An additional pump was installed and provides approximately 3 gallons/minute in additional attraction flow. The supplemental pump delivers water through a pressurized hose which also allows for more of a spray/water disturbance effect.

Cheers,
Andrew

Andrew Weinstock
Environmental Fisheries Scientist

New York Power Authority
123 Main Street
White Plains, NY 10601
Office: 914-287-3688 | Cell: 914-364-0923 | Andrew.Weinstock@nypa.gov
www.nypa.gov

From: Wiley, John <John_Wiley@fws.gov>
Sent: Thursday, June 24, 2021 5:23 PM
To: Weinstock, Andrew <Andrew.Weinstock@nypa.gov>
Cc: Pezzullo, Vincent <Vincent.Pezzullo@nypa.gov>; Gerlach, Jeff <Jeff.Gerlach@nypa.gov>; Daly, Rob <Robert.Daly@nypa.gov>; Brady, Cindy <Cynthia.Brady@nypa.gov>; Groom, Tara <Tara.Groom@nypa.gov>; Mike Hreben <Mike.Hreben@KleinschmidtGroup.com>
Subject: Re: [EXTERNAL] Update from the C/VF Eel Study Site Visit

Andrew,

Thank you all for addressing this request. Can we get a flow rate for the original vs new pump?

John Wiley (he/him)
Fish and Wildlife Biologist
U.S. Fish & Wildlife Service
Department of the Interior
North Atlantic-Appalachian Region

New York Field Office
3817 Luker Road
Cortland, New York 13045
Office: 607-753-9334
www.fws.gov/northeast/nyfo/

From: Weinstock, Andrew <Andrew.Weinstock@nypa.gov>
Sent: Thursday, June 24, 2021 3:55 PM
To: Wiley, John <John_Wiley@fws.gov>
Cc: Pezzullo, Vincent <Vincent.Pezzullo@nypa.gov>; Gerlach, Jeff <Jeff.Gerlach@nypa.gov>; Daly, Rob <Robert.Daly@nypa.gov>; Brady, Cindy <Cynthia.Brady@nypa.gov>; Groom, Tara <Tara.Groom@nypa.gov>; Mike Hreben <Mike.Hreben@KleinschmidtGroup.com>
Subject: [EXTERNAL] Update from the C/VF Eel Study Site Visit

This email has been received from outside of DOI - Use caution before clicking on links, opening attachments, or responding.

Hi John,

I just wanted to send you an update, from our conversation from the Eel Study Site Visit on June 8th. We added a small pump to provide additional attraction flow to the ramps. We think the extra pump will be beneficial for the study. Please let me know if you any questions. Thanks John.

Cheers,
Andrew

Andrew Weinstock
Environmental Fisheries Scientist

New York Power Authority
123 Main Street
White Plains, NY 10601
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www.nypa.gov

From: Weinstock, Andrew <Andrew.Weinstock@nypa.gov>

Sent: Monday, July 12, 2021 10:04 AM

To: Wiley, John <john_wiley@fws.gov>; Cain, Nicole E (DEC) <Nicole.Cain@dec.ny.gov>; Chris VanMarren (chris.vanmaaren@dec.ny.gov) <chris.vanmaaren@dec.ny.gov>

Cc: Daly, Rob <Robert.Daly@nypa.gov>; Brady, Cindy <cynthia.brady@nypa.gov>; Groom, Tara <Tara.Groom@nypa.gov>; Jeff Gerlach <Jeff.Gerlach@nypa.gov>; VC Pezzullo <Vincent.Pezzullo@nypa.gov>; Mike Hreben <Mike.Hreben@KleinschmidtGroup.com>

Subject: FW: [EXTERNAL]CVF Flows

Hi John, Nicole and Chris,

As you may have heard, we are experiencing some very high flows on the Mohawk River due to some extensive rain events within the region. Please see Mike Hreben's email below describing the flows and his plan to remove as much equipment today as possible before the flows reach their peak in the upcoming days. The only correction is that the peak flow is projected to be closer to 60,000 cfs. Please let us know if you have any questions or concerns.

Cheers,
Andrew

Andrew Weinstock

Environmental Fisheries Scientist

New York Power Authority

123 Main Street

White Plains, NY 10601

Office: 914-287-3688 | Cell: 914-364-0923 | Andrew.Weinstock@nypa.gov

www.nypa.gov

From: Mike Hreben <Mike.Hreben@KleinschmidtGroup.com>

Sent: Sunday, July 11, 2021 11:34 PM

To: Daly, Rob <Robert.Daly@nypa.gov>; Brady, Cindy <Cynthia.Brady@nypa.gov>; Groom, Tara <Tara.Groom@nypa.gov>; Gerlach, Jeff <Jeff.Gerlach@nypa.gov>; Weinstock, Andrew <Andrew.Weinstock@nypa.gov>; Weiman, David <David.Weiman@nypa.gov>; Pezzullo, Vincent <Vincent.Pezzullo@nypa.gov>; LaSasso, Jasan <Jasan.LaSasso@nypa.gov>; Knowles, Justin <Justin.Knowles@nypa.gov>

Cc: Wendy Bley <Wendy.Bley@Kleinschmidtgroup.com>; Fatima Oswald <Fatima.Oswald@Kleinschmidtgroup.com>

Subject: [EXTERNAL]CVF Flows

CAUTION — External Email

Suspicious? Click Report Phishing on Outlook toolbar. For **Mobile** forward to (abuse@nypa.gov)

Hello,

If you remember last weeks email, I was concerned about flows reaching 10,000 cfs which was the peak flow forecast as of Thursday morning. Dave and I worked through some flow and water level estimates on Thursday and Friday. The forecast jumped around a bit but on Friday, the forecast called for flows to peak around 12, 000 sometime on Saturday. Well Saturdays flows were closer to 17K. Based on what Dave and I worked on, this should have been fine. However, flow predictor has exhibited substantial changes throughout Sunday.

As I am writing this email, Flows are predicted to be about 47,000 late tomorrow night. To put this in perspective, the max July flow at Crescent at reported in the PAD was less than 30,000. The current estimate reaches the action stage. So this is unusual to say the least.

There may be an opportunity to get some of the equipment out of the river tomorrow afternoon and I've done my best to try to make that happen. Flows are predicted to be less than 20K which is workable. Then in the evening they are anticipated to climb sharply. So we will assess things in the morning and if we can safely access the sites we will remove whatever gear we can. It is likely that we will lose whatever we cannot remove. While we built in what seemed like ample room for high flows, we didn't expect flows of this magnitude.

I'll keep you posted. Obviously safety is the priority and if conditions are questionable we won't access the area.

As far as electrofishing goes, we just have to wait until flow approach normal levels.

If you have any questions, please call my cell.

Mike

Mike Hreben

Senior Scientist

Kleinschmidt

Office: 717.983.4131

Cell: 717.341.9634

From: Weinstock, Andrew <Andrew.Weinstock@nypa.gov>

Sent: Friday, August 6, 2021 11:34 AM

To: Wiley, John <John_Wiley@fws.gov>; Cain, Nicole E (DEC) <Nicole.Cain@dec.ny.gov>; Chris VanMarren (chris.vanmaaren@dec.ny.gov) <chris.vanmaaren@dec.ny.gov>

Cc: Daly, Rob <Robert.Daly@nypa.gov>; Brady, Cindy <Cynthia.Brady@nypa.gov>; Groom, Tara <Tara.Groom@nypa.gov>; Gerlach, Jeff <Jeff.Gerlach@nypa.gov>; Pezzullo, Vincent <Vincent.Pezzullo@nypa.gov>; Mike Hreben <mike.hreben@kleinschmidtgroup.com>

Subject: Crescent/Vischer Ferry Eel Study Update

Hi John, Nicole and Chris,

As you are aware, high water conditions on the Mohawk River have created challenges for the American Eel study. The study consists of three main components; nighttime observations, eel ramp trap sampling, and electrofishing.

- Nighttime eel observations have been completed as planned plus one additional sampling event. No eels were observed
- Six eel traps were deployed in May and were functioning until the high water event, which began around July 9. No eels were collected.
- Flows and subsequently water levels were extremely high for this time of year. The flows were much higher than forecasted and there was very little equipment that could be removed safely. As a result the traps were not effectively functioning from July 9 until July 29. All traps were substantially damaged.
 - Three traps (two at Crescent and one at VF) were repaired and functioning on Jul 29th when the flows allowed safe working conditions.
 - One additional trap at VF was repaired and it began functioning on August 5th. (Total of 4 functioning)
 - The third trap at Crescent is close to being operational and should be operating soon. That will result in 5 of the 6 traps operating.
 - The mid-river trap at VF is missing with no sign of any components remaining. This location has the greatest exposure to debris from the spillway and will remain the most exposed to high flows for the remainder of the study.
 - We are working on constructing a replacement trap for the VF mid-river location (6th trap). Pending supply chain delays with needed components, hopefully this will be completed around the middle of August. The plan is operate all traps through September.
- Electrofishing
 - Per the Study Plan, two nighttime boat electrofishing events were scheduled; one in July and one in August.

- The July event was postponed due to safety concerns. This was the start of a weather pattern that consisting of severe thunderstorms and heavy rain that resulted in high flows and high turbidity leading to unsafe conditions.
- Our first event is rescheduled for August 11th.
- Our second event is tentatively planned for late August or September.

Please let me know if you have any questions or comments. Thank you.

Cheers,
Andrew

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Subject: Crescent/Vischer Ferry Eel Study Update

Hi John, Nicole and Chris,

We wanted to provide an update on the ongoing American Eel Studies at the Crescent and Vischer Ferry Hydro Projects. While all six eel traps were operating as intended, predicted high river flows required that the traps needed to be removed to prevent damage and loss of equipment. All six traps were removed on Thursday, August 19. While flows did not reach the predicted 57K cfs, they did peak at about 24K cfs which would have also resulted in the loss of equipment. The current forecast predicts high flows for the remainder of this week. The current plan is to redeploy the traps when river conditions allow this work to be completed in a safe manner. The best information available indicates that this may occur early next week (8/30).

Additionally, the second electrofishing event is planned for September 1, with September 8 as a back-up date.

Please let us know if you have any questions.

Cheers,
Andrew






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Appendix B

Meteorological Data







Appendix B - Meteorological Data

Date	Daily Average Air Temperature (°C)	Moon Phase	Daily Avg. Barometric Pressure (Hg)	Daily Precipitation Total (cm)
4/1/2021	1.7		29.6	0.9
4/2/2021	-1.7		29.9	0.8
4/3/2021	2.2		29.9	0.0
4/4/2021	5.7	3rd quarter 	29.8	0.0
4/5/2021	9.4		29.6	0.0
4/6/2021	9.1		29.7	0.0
4/7/2021	11.1		29.7	0.0
4/8/2021	13.7		29.8	0.0
4/9/2021	14.5		29.8	0.0
4/10/2021	15.8		29.6	0.0
4/11/2021	14.9	New 	29.3	0.0
4/12/2021	8.8		29.5	0.0
4/13/2021	9.6		29.7	0.0
4/14/2021	14.3		29.6	0.0
4/15/2021	7.6		29.4	0.0
4/16/2021	2.0		29.4	3.2
4/17/2021	4.9		29.5	0.2
4/18/2021	7.9		29.5	0.0
4/19/2021	8.6		29.5	0.0
4/20/2021	7.8	1st quarter 	29.6	0.2
4/21/2021	2.4		29.4	0.1
4/22/2021	0.6		29.5	0.3
4/23/2021	6.5		29.6	0.0
4/24/2021	12.8		29.6	0.0
4/25/2021	10.7		29.4	0.0
4/26/2021	5.0	Full 	29.7	0.0
4/27/2021	9.6		29.7	0.0
4/28/2021	12.8		29.5	0.2
4/29/2021	11.7		29.3	0.4
4/30/2021	8.3		29.2	4.1
5/1/2021	5.7		29.5	0.0
5/2/2021	10.8		29.4	0.1
5/3/2021	11.5	3rd quarter 	29.5	0.7
5/4/2021	10.6		29.4	0.5
5/5/2021	10.3		29.4	1.4
5/6/2021	9.8		29.6	0.6
5/7/2021	9.9		29.6	0.0
5/8/2021	9.4		29.6	0.0
5/9/2021	9.4		29.6	0.0
5/10/2021	8.7		29.6	0.7






Appendix B - Meteorological Data

Date	Daily Average Air Temperature (°C)	Moon Phase	Daily Avg. Barometric Pressure (Hg)	Daily Precipitation Total (cm)
5/11/2021	8.4	New	29.7	0.0
5/12/2021	9.6		29.8	0.0
5/13/2021	11.6		29.9	0.0
5/14/2021	13.8		29.9	0.0
5/15/2021	14.9		29.9	0.0
5/16/2021	16.6		29.9	0.0
5/17/2021	15.8		29.9	0.0
5/18/2021	18.3		29.9	0.0
5/19/2021	19.6	1st quarter	30	0.0
5/20/2021	20.6		30.1	0.0
5/21/2021	21.4		30.1	0.0
5/22/2021	22.8		29.8	0.0
5/23/2021	19.4		29.7	0.0
5/24/2021	14.6		29.9	0.0
5/25/2021	17.8		29.8	0.0
5/26/2021	21.2	Full	29.6	0.0
5/27/2021	16.6		29.7	0.2
5/28/2021	6.8		29.8	0.0
5/29/2021	7.0		29.8	1.7
5/30/2021	7.6		29.9	0.2
5/31/2021	10.5		29.9	1.7
6/1/2021	15.0		29.9	0.0
6/2/2021	15.9	3rd quarter	29.9	0.0
6/3/2021	17.3		29.7	0.0
6/4/2021	19.6		29.6	1.6
6/5/2021	21.6		29.6	0.0
6/6/2021	24.6		29.7	0.0
6/7/2021	24.8		29.7	0.0
6/8/2021	23.6		29.7	0.0
6/9/2021	22.6	New	29.7	0.4
6/10/2021	18.8		29.8	0.0
6/11/2021	16.5		29.7	0.0
6/12/2021	16.7		29.6	0.3
6/13/2021	19.3		29.6	0.0
6/14/2021	16.2		29.5	0.7
6/15/2021	15.8		29.5	1.5
6/16/2021	15.2		29.6	0.0
6/17/2021	16.1	1st quarter	29.6	0.0
6/18/2021	18.7		29.6	0.0
6/19/2021	23.1		29.4	0.0
6/20/2021	21.8		29.5	0.0




Appendix B - Meteorological Data

Date	Daily Average Air Temperature (°C)	Moon Phase	Daily Avg. Barometric Pressure (Hg)	Daily Precipitation Total (cm)
6/21/2021	24.9		29.3	0.0
6/22/2021	15.9		29.4	0.5
6/23/2021	14.7		29.8	0.2
6/24/2021	16.9	Full 	30	0.0
6/25/2021	19.3		29.9	0.0
6/26/2021	22.1		29.8	0.0
6/27/2021	26.0		29.8	0.0
6/28/2021	26.9		29.8	0.0
6/29/2021	26.5		29.8	0.5
6/30/2021	23.6		29.6	0.0
7/1/2021	20.2	3rd quarter 	29.5	0.7
7/2/2021	17.1		29.5	0.6
7/3/2021	14.8		29.5	0.3
7/4/2021	16.2		29.6	0.9
7/5/2021	18.0		29.7	0.0
7/6/2021	22.4		29.6	0.0
7/7/2021	22.3		29.6	0.6
7/8/2021	17.5		29.7	1.3
7/9/2021	21.1	New 	29.5	1.5
7/10/2021	19.7		29.7	0.6
7/11/2021	17.2		29.8	0.0
7/12/2021	18.3		29.8	4.7
7/13/2021	20.2		29.9	0.4
7/14/2021	21.4		29.8	0.1
7/15/2021	21.3		29.8	2.0
7/16/2021	24.2		29.7	0.0
7/17/2021	20.3	1st quarter 	29.7	0.0
7/18/2021	17.7		29.7	1.7
7/19/2021	19.5		29.6	3.2
7/20/2021	21.7		29.6	0.0
7/21/2021	19.2		29.6	1.5
7/22/2021	18.8		29.8	0.0
7/23/2021	19.2	Full 	29.8	0.0
7/24/2021	19.1		29.8	0.0
7/25/2021	20.9		29.6	0.3
7/26/2021	20.8		29.6	0.2
7/27/2021	19.8		29.6	0.0
7/28/2021	18.9		29.7	0.5
7/29/2021	17.8		29.5	0.0
7/30/2021	18.1		29.5	2.1
7/31/2021	15.3	3rd quarter 	29.7	0.0
8/1/2021	16.9		29.6	0.0

Appendix B - Meteorological Data

Date	Daily Average Air Temperature (°C)	Moon Phase	Daily Avg. Barometric Pressure (Hg)	Daily Precipitation Total (cm)
8/2/2021	17.7		29.6	1.0
8/3/2021	17.0		29.8	0.0
8/4/2021	18.2		29.8	0.0
8/5/2021	19.8		29.8	0.0
8/6/2021	21.8		29.8	0.0
8/7/2021	22.4		29.7	0.0
8/8/2021	23.1	New 	29.8	0.2
8/9/2021	23.2		29.8	0.0
8/10/2021	23.3		29.8	0.0
8/11/2021	25.7		29.6	0.0
8/12/2021	23.8		29.6	0.1
8/13/2021	24.4		29.7	1.5
8/14/2021	21.3		29.8	0.3
8/15/2021	17.7	1st quarter 	29.9	0.0
8/16/2021	18.2		29.9	0.0
8/17/2021	20.3		29.9	0.0
8/18/2021	22.6		29.9	0.2
8/19/2021	21.1		29.6	1.4
8/20/2021	22.1		29.6	0.9
8/21/2021	24.1		29.6	0.0
8/22/2021	21.8	Full 	29.5	0.0
8/23/2021	20.7		29.5	1.6
8/24/2021	22.3		29.6	0.7
8/25/2021	22.9		29.8	0.0
8/26/2021	25.2		29.8	0.0
8/27/2021	23.1		29.8	0.0
8/28/2021	18.1		30	0.0
8/29/2021	19.3		29.8	0.0
8/30/2021	22.6	3rd quarter 	29.5	0.0
8/31/2021	20.1		29.5	0.7
9/1/2021	15.6		29.5	0.0
9/2/2021	14.8		29.6	3.9
9/3/2021	15.7		29.7	0.0
9/4/2021	16.8		29.7	0.0
9/5/2021	17.2		29.5	0.0
9/6/2021	17.1	New 	29.5	0.3
9/7/2021	17.2		29.6	0.0
9/8/2021	19.8		29.5	0.0
9/9/2021	22.1		29.5	0.0
9/10/2021	16.0		29.6	0.0
9/11/2021	16.1		29.8	0.0
9/12/2021	19.1		29.7	0.0

Appendix B - Meteorological Data

Date	Daily Average Air Temperature (°C)	Moon Phase	Daily Avg. Barometric Pressure (Hg)	Daily Precipitation Total (cm)
9/13/2021	18.1	1st quarter 	29.7	1.1
9/14/2021	16.8		29.7	0.0
9/15/2021	20.2		29.6	0.0
9/16/2021	17.5		29.9	1.7
9/17/2021	19.1		29.9	0.0
9/18/2021	18.8		29.8	0.0
9/19/2021	14.9		29.9	0.0
9/20/2021	15.0	Full 	30	0.0
9/21/2021	16.8		30	0.0
9/22/2021	20.3		29.8	0.0
9/23/2021	21.5		29.6	0.0
9/24/2021	15.0		29.7	5.2
9/25/2021	12.6		29.7	0.0
9/26/2021	14.6		29.6	0.0
9/27/2021	15.1		29.5	0.0
9/28/2021	14.7	3rd quarter 	29.5	0.0
9/29/2021	11.7		29.7	0.0
9/30/2021	11.8		29.8	0.0

Appendix C – Bald Eagle Study Report

2021 BALD EAGLE STUDY

Prepared by: ***Kleinschmidt***

February 2022

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CRESCENT AND VISCHER FERRY HYDROELECTRIC PROJECTS RELICENSING

FERC Nos. 4678 and 4679



**NY Power
Authority**

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List of Abbreviations

Barge Canal	New York State Canal System
BCD	Barge Canal Datum
CFR	Code of Federal Regulations
cfs	cubic feet per second
FERC or Commission	Federal Energy Regulatory Commission
El.	elevation
ILP	Integrated Licensing Process
ISR	Initial Study Report
MW	megawatt
NOI	Notice of Intent
NYNHP	New York Natural Heritage Program
NYSDEC	New York State Department of Environmental Conservation
PAD	Pre-Application Document
SD1	Scoping Document 1
Power Authority or NYPA	New York Power Authority
Projects	Crescent and Vischer Ferry Hydroelectric Projects

1 Introduction

1.1 Background

The Power Authority of the State of New York (Power Authority) is licensed by the Federal Energy Regulatory Commission (FERC or Commission) to operate the Crescent and Vischer Ferry Hydroelectric Projects (FERC Nos. 4678 and 4679) (Projects) located on the Mohawk River in New York. The Power Authority is using the Commission's Integrated Licensing Process (ILP), as outlined in 18 C.F.R. Part 5, to relicense the Projects.

In accordance with 18 C.F.R. §§ 5.5 and 5.6, the Power Authority filed its Notice of Intent (NOI) and Pre-Application Document (PAD) on May 3, 2019, which included the Power Authority's preliminary issues and study list for the Projects. FERC issued its Scoping Document 1 (SD1) on June 10, 2019, and held public scoping meetings on July 10-11, 2019, in Clifton Park, New York, where potential issues were identified by agencies, stakeholders, and the public.

A Bald Eagle Study was initiated by the Power Authority in 2020 in accordance with the Revised Study Plan and the Commission's Study Plan Determination. The 2020 portion of the Bald Eagle Study collected observations of bald eagle activities at the Projects. The bald eagle nesting survey component of the study was postponed until the spring of 2021, due to the COVID-19 pandemic. Results of the first season of bald eagle observations were reported in a study update included in the Initial Study Report (ISR). The Initial Study Report (ISR) for the Projects was filed by the Power Authority on February 19, 2021. The Power Authority held the ISR Meeting on March 3, 2021.

In 2021, the spring bald eagle nesting survey was completed, and additionally other observations of bald eagle activities were recorded during other field work being done for the 2021 Water Quality Study and the 2021 American Eel Study. This study report combines the results of the 2020 and 2021 bald eagle observations along with the 2021 bald eagle nesting survey into a single report.

1.2 Study Goals and Objectives

The goal of the study was to identify and map areas of existing and potential bald eagle nesting, roosting, and foraging habitats at the Crescent and Vischer Ferry Projects, and to monitor and record bald eagle activities in those areas. The geographic scope of this study is the FERC Project boundaries for the Crescent and Vischer Ferry Projects.

Prior to this study, there was significant information on the distribution of nesting and over-wintering bald eagles within New York State (NYSDEC 2016). Over the past two decades, the New York State Department of Environmental Conservation (NYSDEC) has compiled data and information on eagle use of the Upper Hudson River and eastern Mohawk River. It is known that bald eagles utilize the eastern Mohawk River (in the vicinity of the Projects) during the breeding season and, also, sometimes for overwintering. The Projects' impoundments and tailwater areas are known to provide foraging habitat for bald eagles. The Project areas are known to support nesting bald eagles as well.

1.3 Project Description

The Projects are located adjacent to one another on the Mohawk River in New York at river miles 4 and 14, respectively. The Projects are both operated on a run-of-river basis. The original purpose of the Crescent and Vischer Ferry Dams was to impound water to support navigation on the Barge Canal; this remains true today. During unusual conditions or emergencies associated with either system, public safety is always the first priority. Otherwise, navigation and Canal System operations take priority over the operation of the Projects. Unless emergency conditions exist, the Projects operate in run-of-river mode.

Crescent Project

The Crescent Project is an 11.8 megawatt (MW) hydroelectric project located on the Mohawk River, approximately four miles upstream from its confluence with the Hudson River. It is located two miles upstream of the School Street Hydroelectric Project (FERC No. 2539) owned by Erie Boulevard Hydropower, L.P.

The principal features of the Crescent Project are the dam, powerhouse, impoundment, and appurtenant facilities. The Crescent Dam consists of two independent concrete gravity overflow sections which link each riverbank to a rock island in the middle of the Mohawk River. Both sections are curved in plan and have a crest at elevation (El.) 184 Barge Canal Datum (BCD).

In order to aid canal navigation, one-foot-high (12 inch) wooden flashboards are installed along the crests of both spillways (Dams A and B) seasonally in Spring (generally in April based on seasonal conditions) and removed in the Fall (generally in November based on seasonal conditions). When the flashboards are installed, the spillway crest is El. 185 ft. BCD. The Crescent impoundment extends upstream approximately 10 miles to the Vischer Ferry Project Dam. At El. 184 ft. BCD, the surface area of the impoundment is 2,108 acres and impounds approximately 50,000 acre-feet of water. Installation of the flashboards increases the normal full pool elevation of the impoundment by 1 foot, to El. 185 ft. BCD, and the impoundment retains an additional 2,000 acre-feet of water.

The Crescent powerhouse is located on the western bank and houses four turbine/generator units: two 2.8 MW rated Francis turbines and two 3.0 MW vertical Kaplan turbines. The original portion of the powerhouse contains the two original Francis units (Units 1 and 2). The two newer Kaplan units (Units 3 and 4) are located riverward of the original powerhouse.

Crescent Project operations are performed in a manner to maintain the normal full pool elevation of the impoundment. Flow through the Project is through the powerhouse or over the dam. During the non-navigation season, a minimum flow of 100 cubic feet per second (cfs) (or inflow, whichever is less) is required to be passed at the Crescent Dam. In accordance with a July 31, 2007 FERC order, the minimum flow during canal navigation season is increased to 250 cfs and is passed through a notch in the Dam A flashboards. These minimum flows are for fish protection measures. Once minimum flows and any diversions required for canal operations are met, the remaining flow is available for power generation.

Vischer Ferry Project

The Vischer Ferry Project is an 11.8 MW hydroelectric project located on the Mohawk River, approximately 14 miles upstream from its confluence with the Hudson River, and approximately 10 miles upstream of the

Crescent Project. The principal features of the Vischer Ferry Project are the dam, powerhouse, impoundment, and appurtenant facilities. The Vischer Ferry Dam consists of three connected spillway sections. The two outer sections (Dams D and F) are regular, ungated, ogee-shaped weirs with an average structural height of approximately 30 ft. above rock. The middle section (Dam E) is a broad-crested weir constructed over a small bedrock island near the center of the river. Lock E-7 is located at Vischer Ferry Dam on the right bank, which is the opposite side of the river from the Vischer Ferry powerhouse.

To aid canal navigation, flashboards are installed along the crests of all spillways seasonally from Spring (generally in April) to the end of navigation season (generally in November based on season conditions). The flashboards are 27 inches high and when the flashboards are installed the impoundment elevation is 213.25 ft. BCD. The spillway crest elevation is 211.0 ft. when flashboards are removed. The Vischer Ferry impoundment is 10.3 miles long and the upstream terminus of the impoundment is located at Lock E-8 in Schenectady. At El. 211 ft. BCD, the surface area of the impoundment is 1,137 acres and impounds approximately 25,000 acre-feet of water. Installation of the flashboards raises the normal full pool to El. 213.25 ft. BCD, and the impoundment retains an additional 2,400 acre-feet of water.

The Vischer Ferry Project powerhouse is located at the northern end of the dam and houses four turbine/generator units: two 2.8 MW rated Francis turbines and two 3.0 MW vertical shaft Kaplan turbines (identical units as at the Crescent Project). The original portion of the powerhouse contains the two original Francis units (Units 1 and 2). The two newer Kaplan units (Units 3 and 4) are located riverward of the original powerhouse. The turbines discharge water into the tailrace, the elevation of which is controlled by the Crescent impoundment level.

Vischer Ferry Project operations are performed in a manner to maintain the normal full pool elevation of the impoundment. Flow through the Project is through the powerhouse or over the dam. A minimum flow of 200 cfs (or inflow, whichever is less) is required to be passed at the Vischer Ferry Dam. An 8-foot section of the flashboards on Dam F is removed during navigation season to provide fish passage flow. Once Project minimum flows and any diversion required for canal operations are met, the remaining flow is available for power generation.

2 Work to Provide a Methods

The survey area included approximately 2,108 acres and 1,137 acres of Project waters at the Crescent and Vischer Ferry Projects, respectively. [Figure 2-1](#) and [Figure 2-2](#) show the respective Project boundaries which also approximate the respective survey areas.

2.1 Background Research

As part of consultation for the ongoing relicensing of the Crescent and Vischer Ferry projects, the New York Natural Heritage Program (NYNHP) identified two state-threatened species as present in the vicinity of the Projects: the bald eagle and Culver's root. The bald eagle is also protected by the Bald and Golden Eagle Protection Act, 16 U.S.C. § 668 et seq.

Over the past 30 years, research and survey efforts associated with bald eagles in the Upper Hudson River and eastern Mohawk River systems have been performed and well documented. The Power Authority researched information from resource agencies and non-governmental organizations to obtain existing information associated with bald eagles in the lower Mohawk River system in the vicinity of the Projects.

2.2 Field Work and Online Documentation

The Power Authority conducted field surveys and recorded observations of bald eagles to determine the location and use of nesting, roosting and foraging habitat. Initial surveys were conducted in the summer and fall of 2020 in association with the 2020 Aquatic Mesohabitat Study. During 2020, all observations of bald eagles were recorded, including GPS coordinates for the observed location of the bird, and a notation of its observed activity (flying, roosting, etc.). The results of this portion of the study were provided in the ISR Appendix E.

A bald eagle nesting survey was conducted in early spring and summer of 2021 to determine the location and use of any bald eagle nests within the immediate Project area. Additional observations of bald eagles at the Projects were made throughout the remainder of the summer field season by field crews conducting the 2021 Water Quality Study and the 2021 American Eel Study. All observations were recorded and ultimately combined with the 2020 observational dataset. Bald eagle overwintering use of the Project area was documented using birding observations reported through the eBird website. The eBird website, is a repository where citizen scientists who are avid birders document their observations of not only bald eagles but all bird species. The eBird bald eagle observation data was analyzed for points taken between December 2020 and March 2021.

Field surveys were conducted by boat, vehicle and on foot, as appropriate, to gain access to areas of potential habitat. Data recorded for each bald eagle sighting included the number of eagles, eagle activity, eagle location (relative to associated Project), latitude and longitude coordinates, and other notes as needed. The location of bald eagle nests, nesting trees, roost locations, and foraging areas were mapped using ArcGIS Pro.

The survey also included routine checks of eBird and other online documentation of bald eagle listings and sightings in the Project vicinity. Such observations were combined with survey data collected during field comprehensive assessment of bald eagle use of the Crescent and Vischer Ferry Projects.

Figure 2-1: Crescent Project Location

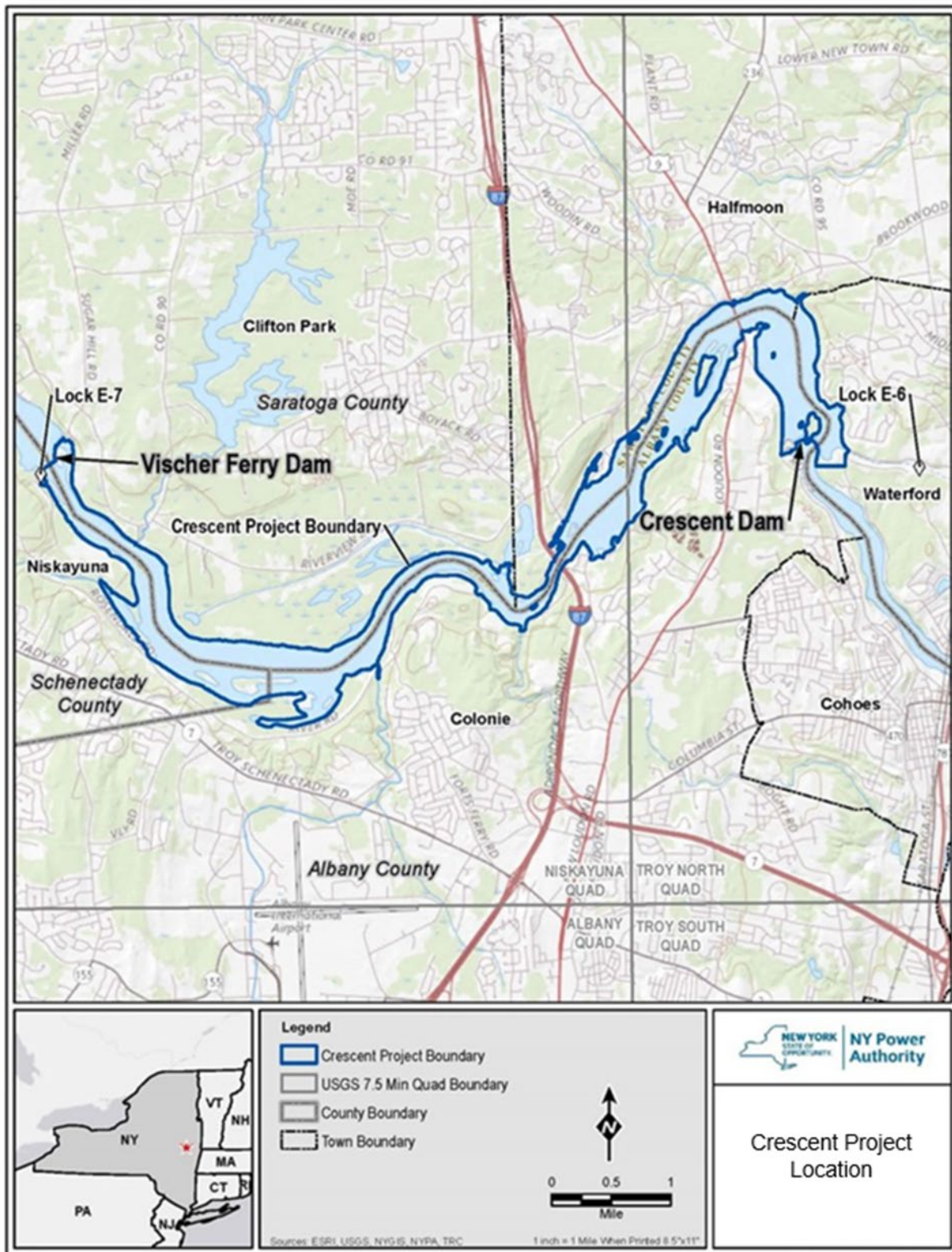
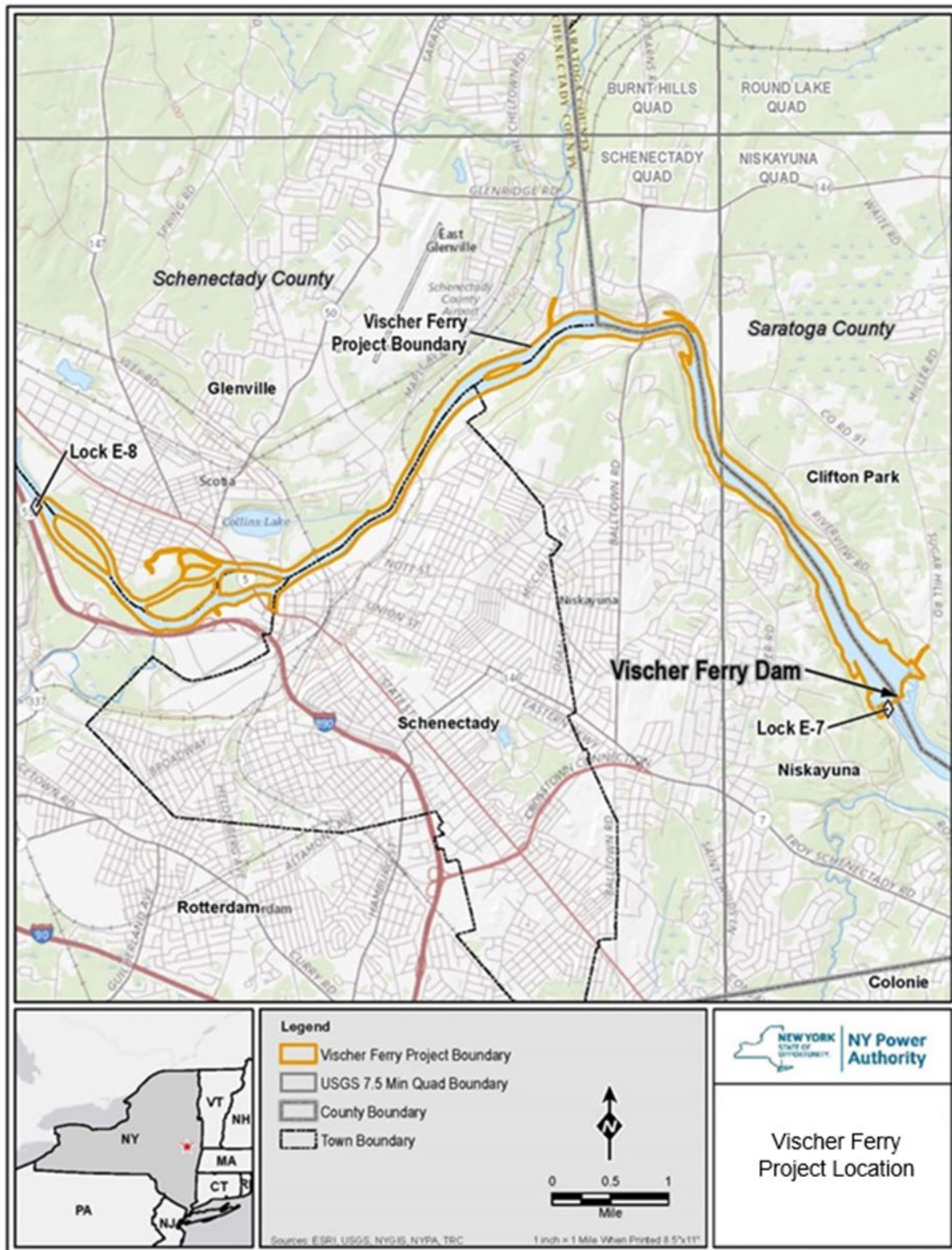


Figure 2-2: Vischer Ferry Project Location



2.3 Variances from the Study Plan

The RSP called for the Bald Eagle Study to be conducted in its entirety in 2020, including both spring nesting surveys as well as summer surveys. Due to the global COVID-19 pandemic, the early spring nesting survey was postponed until the spring of 2021. The final study report will be included in the USR.

3 Results

3.1 2020 Survey Results

During the 2020 field surveys conducted as part of the Aquatic Mesohabitat Study (ISR, Appendix E), a total of 36 Bald Eagle observations were recorded – these include multiple observations of the same birds, as the impoundments were traversed several times, as well as incidental observations during the course of other relicensing field studies during 2020. Of the 36 sightings, 10 were of juvenile bald eagles. Eagles were observed at both Crescent and Vischer Ferry impoundments. All the bald eagles observed during the field survey were documented either in flight or roosting. One potential nest was observed during the fall 2020 survey, but no eagles were observed at the nest at that time. The 2020 bald eagle observation data is provided in [Table 3-3](#). [Figure 3-5](#) and [Figure 3-6](#) show the locations of Bald Eagles observed during the 2020 field surveys.

3.2 2021 Survey Results

During the 2021 surveys conducted between April 22, 2021, and August 27, 2021, there were eight bald eagle observations recorded over the course of four designated bald eagle survey days ([Table 3-1](#) and [Figure 3-1](#), [Figure 3-2](#), [Figure 3-3](#), and [Figure 3-4](#)). There were four observations at the Crescent Project, and four observations at the Vischer Ferry Project. A total of 11 bald eagle observations were recorded. Most sightings were of single eagles; however, there were three instances when a pair of bald eagles were observed together. Observations consisted of a mix of adult and juvenile eagles. It should be noted that some bald eagle observations were likely repeat sightings of the same individual eagle.

During the spring 2021 nesting surveys two active bald eagle nests were located and observed along the Crescent Project impoundment. While both nests were observed to be active, it was not possible to determine the number of eaglets, if any, that were in the nests. These nests were confirmed by the NYSDEC during aerial surveys conducted in 2021. These surveys are conducted every three years and these nests were not present during the 2018 survey. One nest, however, is considered a “replacement” nest for one that had fallen and, as such, it is believed to have been occupied by the same nesting pair. There are no other active nests currently known to be in the Project areas (Joe Nelson, NYSDEC personal communication).

As in the previous year, in 2021 eagles were observed flying, nesting, and perching in trees. Over half of all bald eagle observations occurred at both Project impoundments. The other observations occurred in the vicinity of the Crescent Forebay, the Vischer Ferry Spillway, and at Lock 7 (associated with Vischer Ferry).

3.3 Online e-Bird Records

Between December 1, 2020 and March 31, 2021, citizen scientists recorded on eBird 260 bald eagle observation events from 51 geographic locations within 0.5 miles of the Crescent/Vischer Ferry Project Boundaries. Some of these observations consisted of more than one bald eagle and as a result, 483 bald eagle observations were recorded ([Table 3-2](#)). This is distinguished in [Figure 3-1](#) and [Figure 3-2](#). Most bald eagle observations were recorded in the vicinity of the Crescent Project. Observations were concentrated near the Project impoundments at both Projects. While 483 total bald eagle observations were made, the number of distinct bald eagles is not known. It is likely that there is a high occurrence of observations being recorded by multiple observers and individual bald eagles being documented multiple times. It is evident however, that bald eagles use the Project areas during the winter months.

Table 3-1: Bald Eagle Observations at the Crescent and Vischer Ferry Projects in 2021

Date Observed	Bird Observed	Number of Eagles	Activity Observed	Project	Latitude	Longitude	Notes
04/22/2021	Juvenile	1	Flying	Crescent	42.807747	-73.723717	
04/28/2021	Adult	2	Nesting Pair	Crescent	*	*	One adult on nest. One perched in the same tree
04/28/2021	Adult	1	Landing in tree	Crescent	42.798454	-73.75547	
04/28/2021	Adult	1	Perched in tree	Crescent	*	*	Nest present: eagle from above observation joined this one.
04/29/2021	Adult & Juvenile	2	Perched in tree	Vischer Ferry	42.806451	-73.857999	No nest observed
04/29/2021	Juvenile	2	Perched in tree	Vischer Ferry	42.8248002	-73.8613519	No nest observed
08/27/2021	Adult	1	Perched	Vischer Ferry	42.804131	-73.846103	Perched on boulder
08/27/2021	Adult	1	Flying	Vischer Ferry	42.804578	-73.847644	Flying just upstream of the dam near the lock

* Nest locations are privileged information.

Table 3-2: eBird Bald Eagle Observations at the Crescent and Vischer Ferry Projects (December 2020 – March 2021)

Location	Observations	Individuals	Observation Points
Crescent Project	210	406	39
Vischer Ferry Project	50	77	12
Total	260	483*	51

Source: eBird 2021

* The number of distinct bald eagles is not known.

Figure 3-1: 2021 Bald Eagle Observations at the Vischer Ferry Project

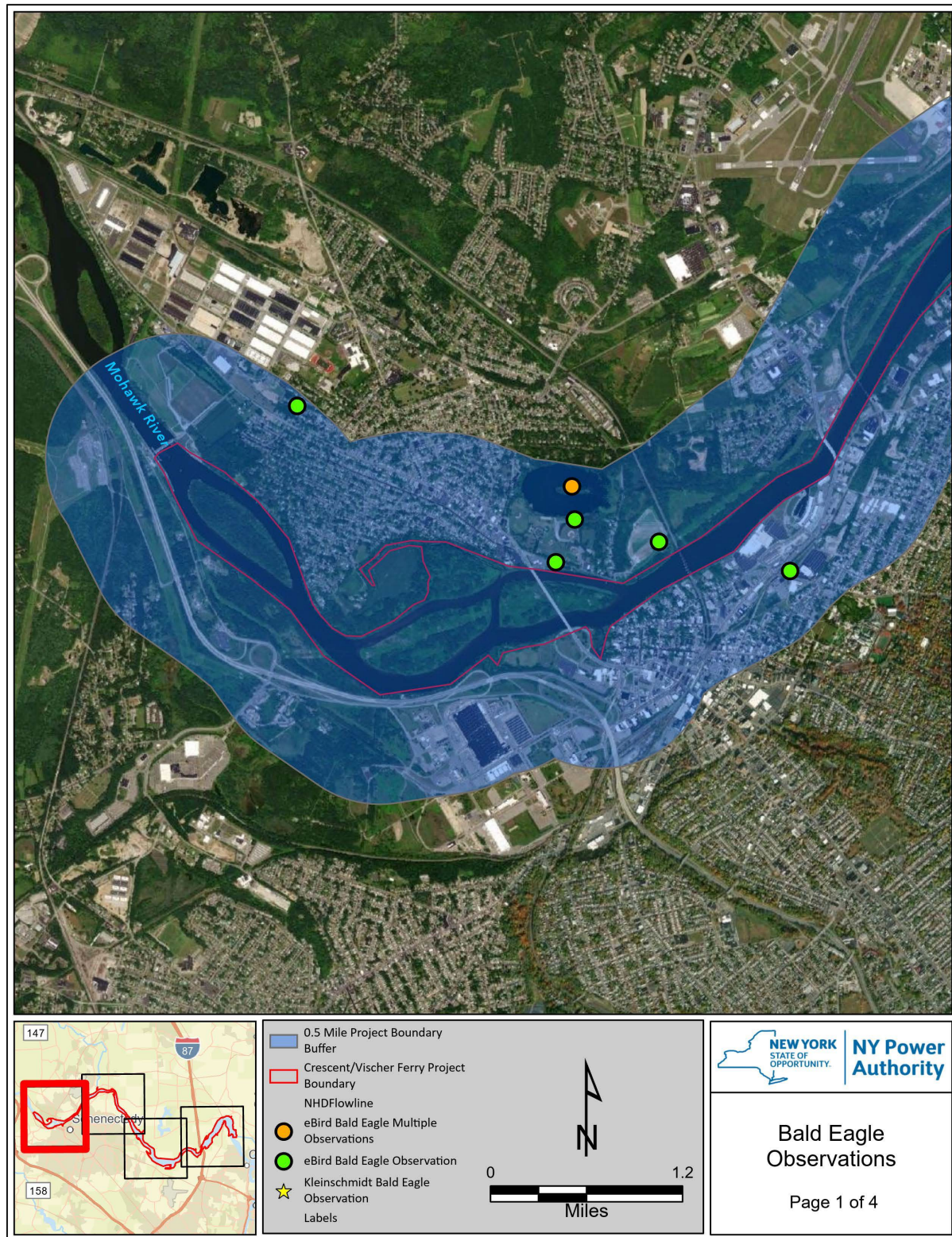


Figure 3-2: 2021 Bald Eagle Observations at the Vischer Ferry Project

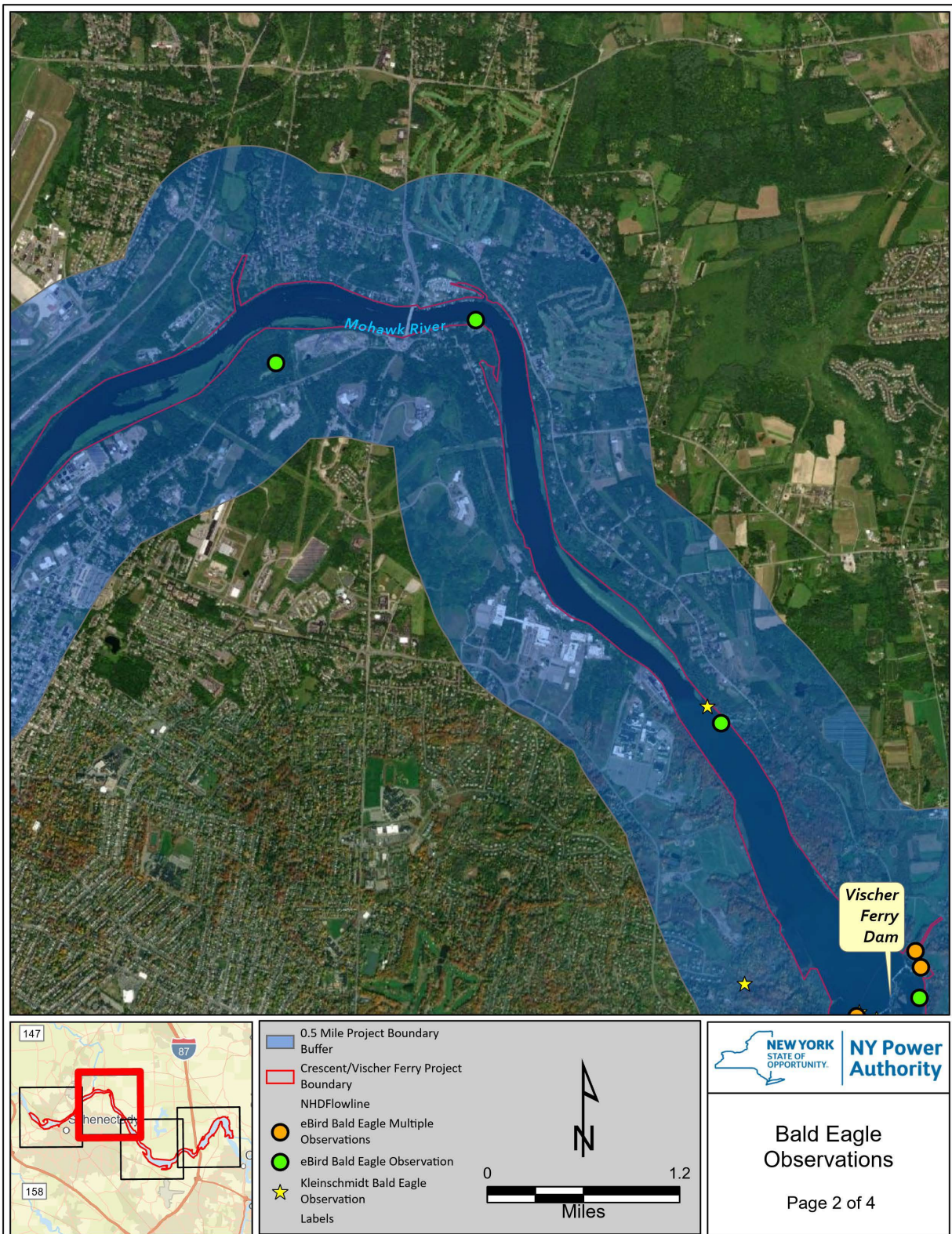


Figure 3-3: 2021 Bald Eagle Observations at the Vischer Ferry and Crescent Projects

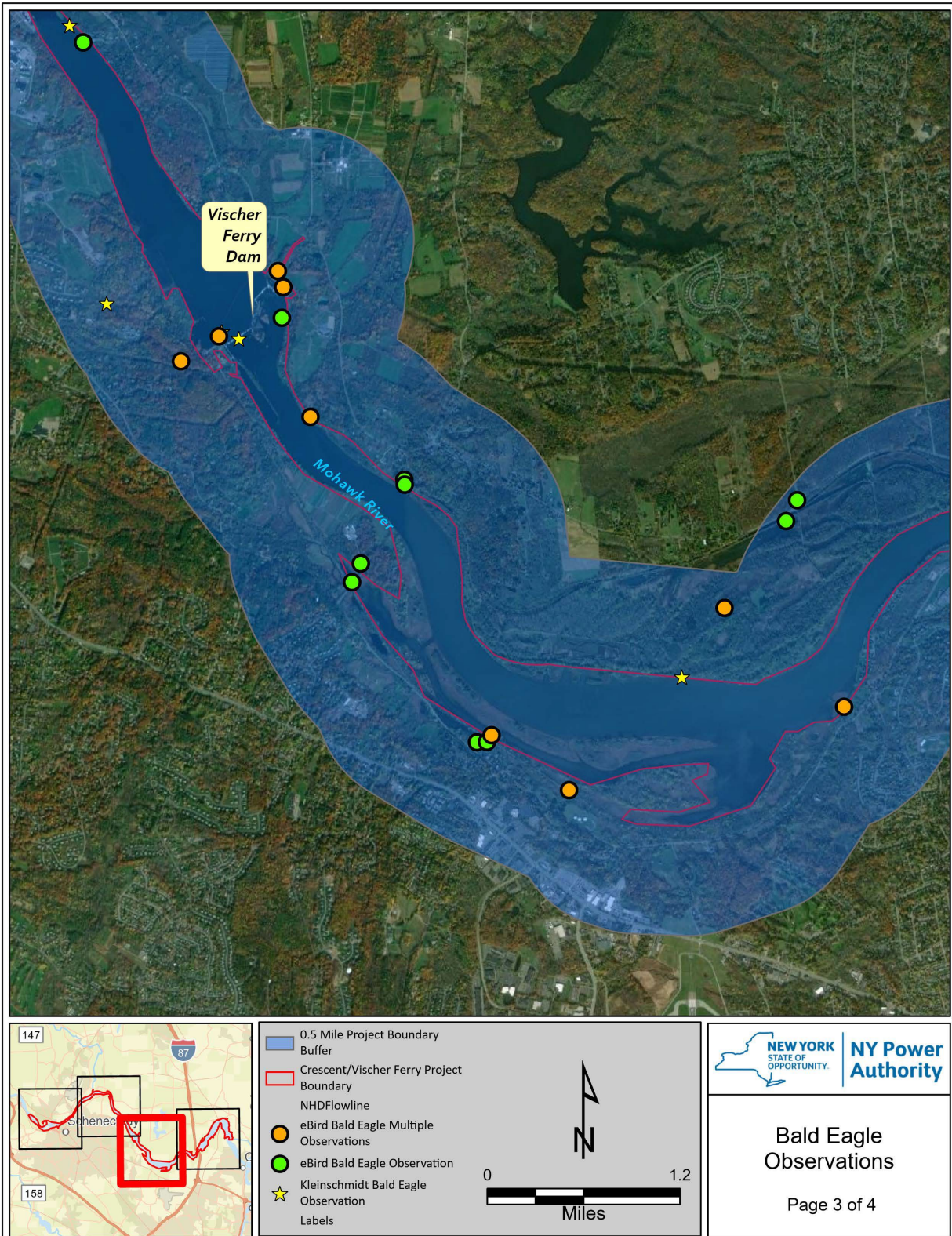
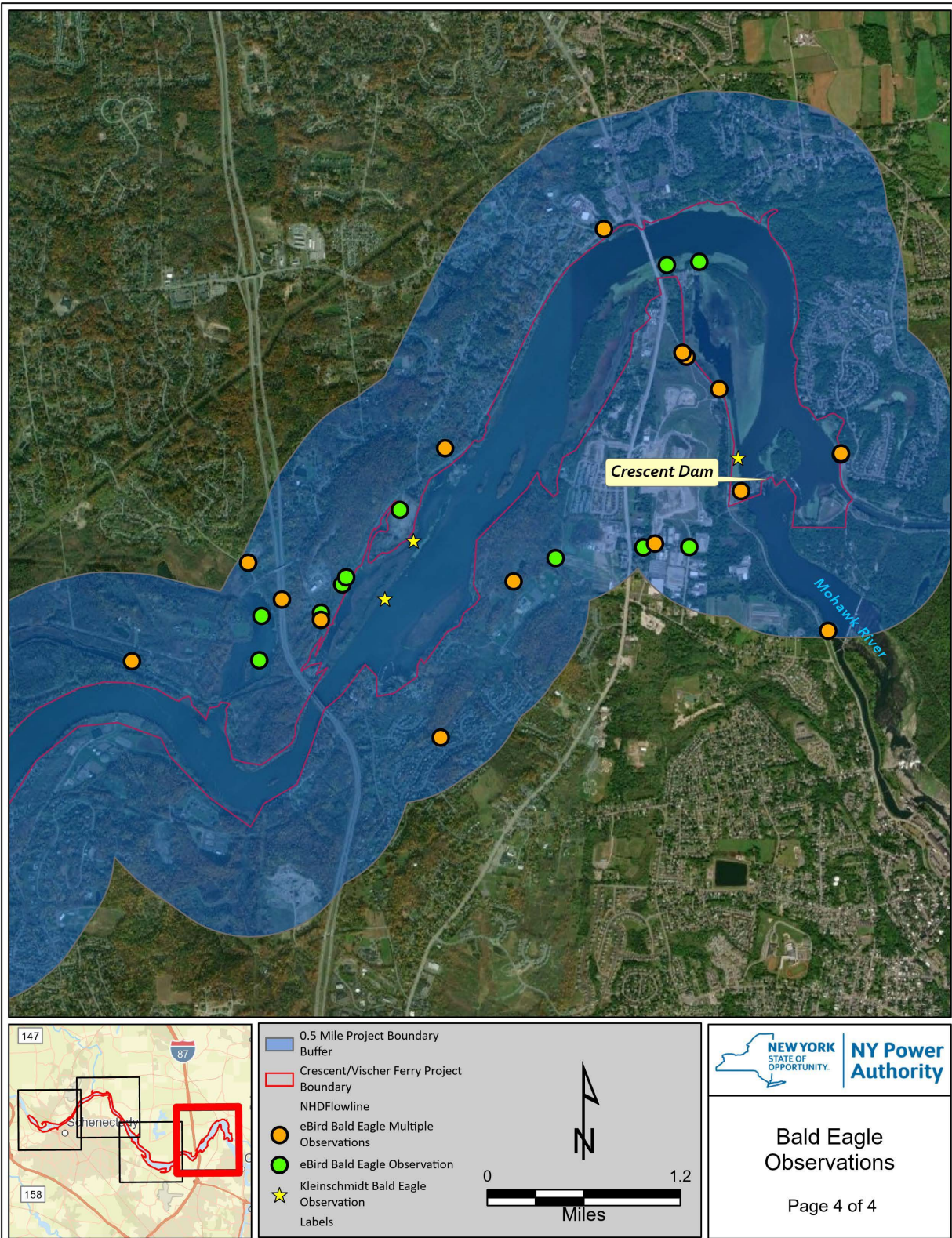


Figure 3-4: 2021 Bald Eagle Observations at the Crescent Project



Eagle observations were recorded during environmental field studies conducted in 2020 and 2021 and are listed in [Table 3-3](#). The locations of these observations are included in [Table 3-3](#), which also categorize the eagle observations by activity. Forty-five (45) observations were documented. The number of distinct eagles is not known.

Table 3-3: Combined 2020 and 2021 Bald Eagle Observations at the Crescent and Vischer Ferry Projects

Date Observed	Bird Observed	Number of Eagles	Activity Observed	Project	Latitude	Longitude	Notes
08/01/2020	Adult	1	Roost	Vischer Ferry	42.84094	-73.9227	
08/01/2020	Adult	1	Flight	Vischer Ferry	42.81766	-73.9725	
08/01/2020	Juvenile	1	Flight	Vischer Ferry	42.81773	-73.9747	
08/01/2020	Juvenile	1	Roost	Vischer Ferry	42.83785	-73.8792	
08/01/2020	Adult	1	Roost	Vischer Ferry	42.83626	-73.8782	
08/01/2020	Adult	1	Flight	Vischer Ferry	42.83597	-73.8781	
08/04/2020	Adult	2	Roost	Vischer Ferry	42.85029	-73.902	
08/21/2020	Adult	1	Flight	Crescent	42.77851	-73.8116	
08/21/2020	Adult	1	Roost	Crescent	42.79479	-73.839	
08/21/2020	Adult	1	Roost	Crescent	42.79487	-73.8392	
08/21/2020	Adult	1	Flight	Crescent	42.77696	-73.8131	
08/21/2020	Juvenile	1	Flight	Crescent	42.77714	-73.8117	
08/21/2020	Juvenile	1	Flight	Vischer Ferry	42.8431	-73.8774	
08/21/2020	Adult	1	Flight	Crescent	42.81769	-73.736	
08/21/2020	Adult	1	Roost	Crescent	42.80903	-73.7188	
08/26/2020	Juvenile	1	Flight	Vischer Ferry	42.80913	-73.8484	
08/26/2020	Juvenile	1	Flight	Crescent	42.804517	-73.7221	
08/27/2020	Juvenile	1	Roost	Crescent	42.80786	-73.7147	
08/27/2020	Adult	1	Roost	Crescent	42.808	-73.7148	
08/27/2020	Adult	1	Roost	Crescent	42.81823	-73.7362	
08/27/2020	Juvenile	1	Flight	Crescent	42.81828	-73.7368	
08/27/2020	Adult	1	Flight	Crescent	42.81774	-73.7366	
08/27/2020	Adult	1	Roost	Crescent	42.78509	-73.766	
08/27/2020	Adult	1	Flight	Crescent	42.80324	-73.8437	
09/03/2020	Adult	1	Flight	Crescent	42.805233	-73.7224	
09/03/2020	Adult	1	Flight	Vischer Ferry	42.807932	-73.8433	
09/10/2020	Juvenile	2	Flight	Vischer Ferry	42.80808	-73.8446	
10/02/2020	Adult	1	Flight	Crescent	42.813324	-73.7231	
10/07/2020	Undetermined	1	Roost	Crescent	42.80827	-73.7213	

Crescent and Vischer Ferry Hydroelectric Projects (FERC Nos. 4678 and 4679)
2021 Bald Eagle Study

Date Observed	Bird Observed	Number of Eagles	Activity Observed	Project	Latitude	Longitude	Notes
11/19/2020	Adult	1	Flight	Crescent	42.78114	-73.7988	
11/19/2020	Undetermined	1	Nest	Crescent	*	*	
11/19/2020	Adult	1	Flight	Crescent	42.79792	-73.8427	
11/20/2020	Adult	1	Flight	Vischer Ferry	42.84886	-73.8789	
11/20/2020	Adult	1	Roost	Vischer Ferry	42.851	-73.881	
11/20/2020	Adult	1	Flight	Vischer Ferry	42.82711	-73.9846	
08/12/2021	Juvenile	1	Flight	Crescent	42.80590233	-73.72283911	
08/12/2021	Adult	1	Flight	Crescent	42.81365895	-73.7190971	
08/31/2021	Juvenile	2	Flight	Crescent	42.80516553	-73.72159883	
09/07/2021	Juvenile	1	Flight	Crescent	42.80750945	-73.72240248	
09/16/2021	Juvenile	1	Flight	Crescent	42.8131617	-73.71925957	
09/16/2021	Adult	2	Perched	Crescent	42.80807948	-73.72166642	Perched on tower on the island closest to the forebay
09/23/2021	Adult	1	Perched	Crescent	42.80777212	-73.72156615	Perched on tower on the island closest to the forebay
09/23/2021	Juvenile	1	Flight	Vischer Ferry	42.8123482	-73.85181745	
10/14/2021	Adult	1	Flight	Vischer Ferry	42.8118036	-73.85102287	
11/01/2021	Adult	1	Flight	Vischer Ferry	42.80684524	-73.84253922	

* Nest locations are privileged information.

Figure 3-5: Location of Bald Eagle Observations at the Crescent Project by Activity, 2020-2021

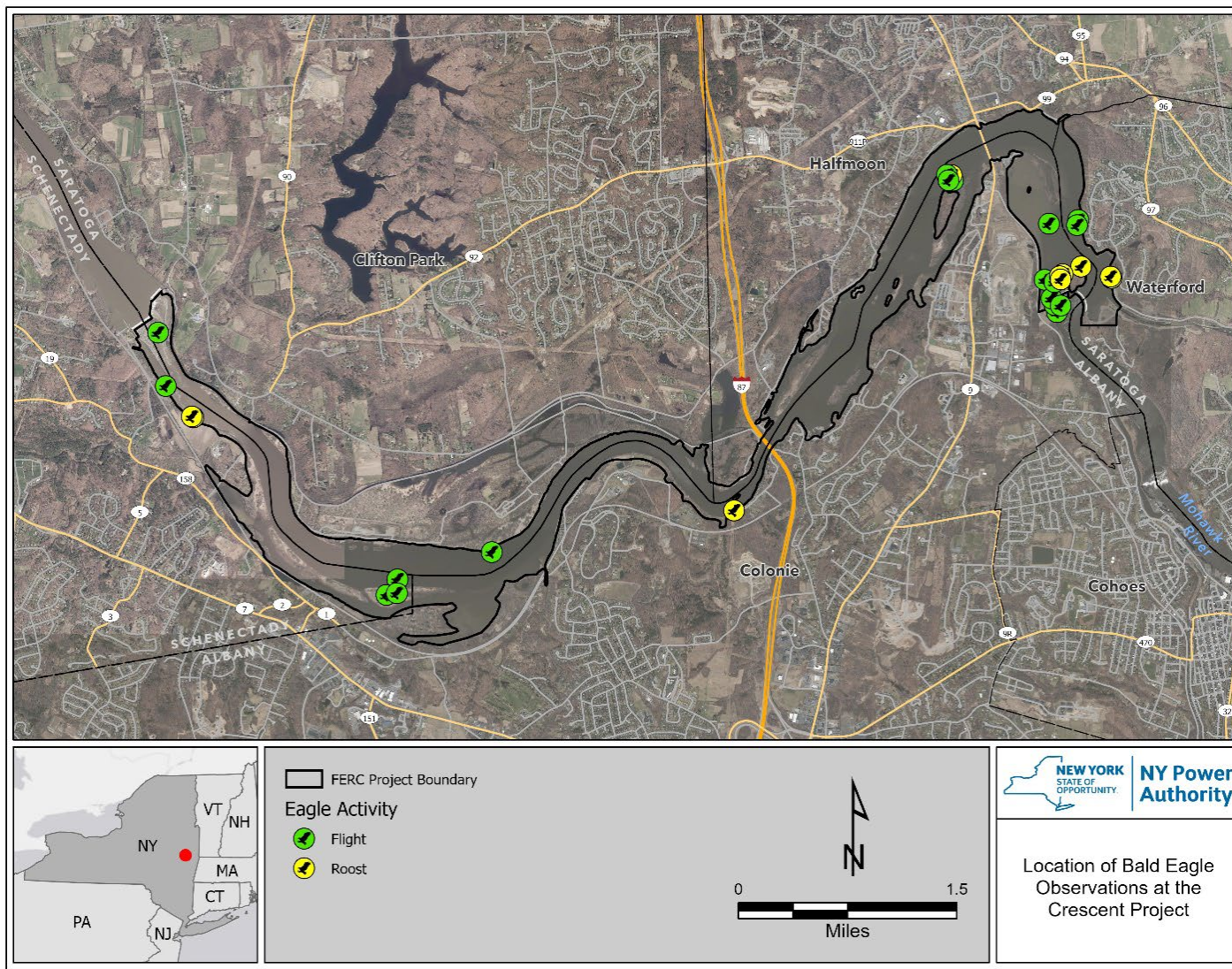
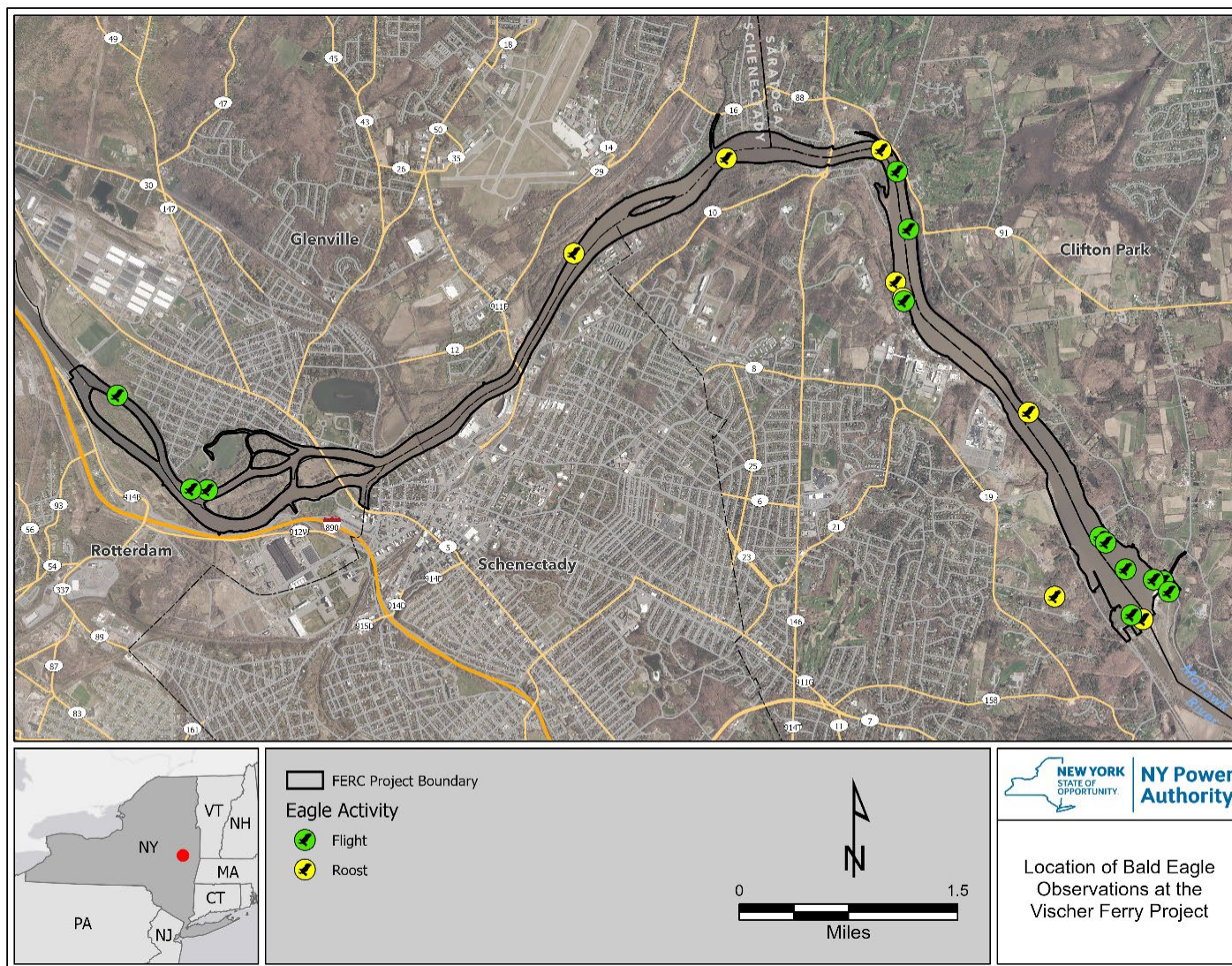


Figure 3-6: Location of Bald Eagle Observations at the Vischer Ferry Project by Activity, 2020-2021



4 Discussion

There is a very limited amount of terrestrial habitat located within the Project Boundaries of the Crescent and Vischer Ferry Projects. Out of the approximately 2,283 acres within the Crescent Project Boundary, only 14 acres are upland areas that are primarily used for Project operations (which includes the powerhouse, dams and switchyard). Out of the approximately 1,156 acres within the Vischer Ferry Project Boundary, only 12 acres are upland areas that are primarily used for Project operations (which includes the powerhouse, dams and switchyard). Therefore, while open-water bald eagle foraging can occur throughout the Project areas, there is limited habitat present for roosting and nesting other than the project shorelines. There is, however, upland habitat adjacent to each project boundary.

The wide range of eagle activities observed at both Projects during the two seasons of study suggests that Project waters and the general Project area are frequently used by bald eagles for a range of activities, including nesting, throughout the year. This is supported by the relatively large number of bald eagle observations made by the Power Authority in 2020 and 2021, as well as observations recorded for winter months on the eBird website. Further, online research of bald eagle viewing opportunities in New York provides numerous articles that reference the Lower Mohawk River in the general vicinity of the Projects, particularly Cohoes Falls, as providing good opportunities to see bald eagles, especially during the winter.

The number of references to Cohoes Falls for winter observations, which is adjacent to the Crescent Project's downstream project boundary, is likely related to the fact that open water foraging habitat exists throughout the winter. It is also likely that such habitat occurs in the tailwaters of the Crescent and Vischer Ferry Projects, which operate such that there is always flowing water (i.e., run of river operation). Open water foraging opportunities likely explain the number of winter observations of bald eagles recorded on eBird.

Given the number of eagle sightings, as well as the nesting activity observed, the results of this study suggest that there is an established eagle population that regularly utilizes habitat associated with both Projects throughout the year. Continued operation of the Projects in the future should have no impact on bald eagle use of the Projects.

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Appendix D – Recreation Study Report

RECREATION STUDY

Prepared by:

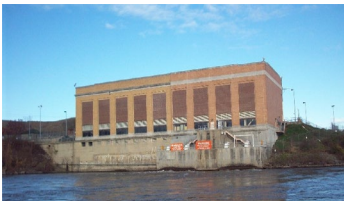


FEBRUARY 2022

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**CRESCENT AND VISCHER FERRY PROJECTS
RELICENSING**

FERC NO. 4678 AND 4679



**NY Power
Authority**

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List of Abbreviations

ADA	Americans with Disabilities Act
BCD	Barge Canal Datum
Commission	Federal Energy Regulatory Commission
El.	Elevation
FERC	Federal Energy Regulatory Commission
GIS	Geographic Information System
ILP	Integrated Licensing Process
NOI	Notice of Intent
NY	New York
NYS	New York State
NYSCC	New York State Canal Corporation
NYSDEC	New York State Department of Environmental Conservation
NYSTA	New York State Thruway Authority
PAD	Pre-Application Document
Power Authority	Power Authority of the State of New York / New York Power Authority
PSP	Proposed Study Plan
RSP	Revised Study Plan
SD1	Scoping Document 1
SPD	Study Plan Determination
USDA	United States Department of Agriculture
USDOJ	United States Department of Justice

1 Introduction

1.1 Background

The Power Authority of the State of New York (the Power Authority) is licensed by the Federal Energy Regulatory Commission (FERC or the Commission) to operate the Crescent and Vischer Ferry Hydroelectric Projects (FERC Nos. 4678 and 4679) (Projects) located on the Mohawk River in New York. The Power Authority is using the Federal Energy Regulatory Commission's (FERC or Commission) Integrated Licensing Process (ILP), as outlined in 18 C.F.R. Part 5, to relicense the Projects.

In accordance with 18 C.F.R. §§ 5.5 and 5.6, the Power Authority filed its Notice of Intent (NOI) and Pre-Application Document (PAD) on May 3, 2019, which included the Power Authority's preliminary issues and studies list for the Projects. FERC issued its Scoping Document 1 (SD1) on June 10, 2019 and held public scoping meetings on July 10-11, 2019 in Clifton Park, New York, where potential issues were identified by agencies, stakeholders, and the public.

Subsequently, the Power Authority received comments on the PAD and requests for additional studies. The Power Authority reviewed these comments and study requests and developed a Proposed Study Plan (PSP), which was filed with the Commission on September 23, 2019. The Power Authority held a meeting to discuss the PSP on October 23, 2019. Written comments on the PSP were received through December 23, 2019.

The Power Authority then developed its Revised Study Plan (RSP), which was filed with FERC on January 21, 2020. On February 20, 2020, FERC issued its Study Plan Determination (SPD), which approved the Power Authority's Recreation Study with no recommended modifications. Although the single-year study was originally intended to be conducted in 2020, due to the COVID-19 pandemic, the study was postponed until 2021.

This study report presents information and results pertaining to the Recreation Study conducted at the Crescent and Vischer Ferry Projects in 2021.

1.2 Study Goals and Objectives

The goal of the study was to inventory formal, informal, commercial, and non-commercial recreation sites providing public recreational access to Project waters, and to evaluate current use and future needs of the Projects' recreation sites by conducting use counts and user surveys. The specific objectives of the study were to:

- Complete a recreation site inventory and condition assessment;
- Evaluate recreation use at the Project recreation sites; and
- Conduct user surveys to help determine the adequacy of the existing recreation sites.

2 Project Description and Study Area

2.1 Project Description

The Crescent and Vischer Ferry Projects are located adjacent to one another on the Mohawk River in New York at river miles (mi) 4 and 14, respectively ([Figure 2.1-1](#)). The Crescent and Vischer Ferry Projects are both operated on a run-of-river basis. The original purpose of the Crescent and Vischer Ferry Dams was to impound water to support navigation on the Barge Canal; this remains true today. During unusual conditions or emergencies associated with either system, public safety is always the first priority. Otherwise, navigation and Canal System operations take priority over the operation of the Projects. Unless emergency conditions exist, the Projects operate in run-of-river mode.

Crescent Project

The Crescent Project is an 11.8 megawatt (MW) hydroelectric project located on the Mohawk River, approximately 4 miles upstream from its confluence with the Hudson River. It is located 2 miles upstream of the School Street Hydroelectric Project (FERC No. 2539) owned by Erie Boulevard Hydropower, L.P.

The principal features of the Crescent Project are the dam, powerhouse, impoundment, and appurtenant facilities. The Crescent Dam consists of two independent concrete gravity overflow sections which link each riverbank to a rock island in the middle of the Mohawk River. Both sections are curved in plan and have a crest at elevation (El.) 184 Barge Canal Datum (BCD).

In order to aid canal navigation, one-foot-high (12 inch) wooden flashboards are installed along the crests of both spillways (Dams A and B) seasonally in Spring (generally in April based on seasonal conditions) and removed in the Fall (generally in November based on seasonal conditions). When the flashboards are installed, the spillway crest is El. 185 ft. BCD. The Crescent impoundment extends upstream approximately 10 miles to the Vischer Ferry Project Dam. At El. 184 ft. BCD, the surface area of the impoundment is 2,108 acres and impounds approximately 50,000 acre-feet of water. Installation of the flashboards increases the normal full pool elevation of the impoundment by 1 foot, to El. 185 ft. BCD, and the impoundment retains an additional 2,000 acre-feet of water.

The Crescent powerhouse is located on the western bank and houses four turbine/generator units: two 2.8 MW rated Francis turbines and two 3.0 MW vertical Kaplan turbines. The original portion of the powerhouse contains the two original Francis units (Units 1 and 2). The two newer Kaplan units (Units 3 and 4) are located riverward of the original powerhouse.

Crescent Project operations are performed in a manner to maintain the normal full pool elevation of the impoundment. Flow through the Project is through the powerhouse or over the dam. During the non-navigation season, a minimum flow of 100 cubic feet per second (cfs) (or inflow, whichever is less) is required to be passed at the Crescent Dam. In accordance with a July 31, 2007 FERC order, the minimum flow during canal navigation season is increased to 250 cfs and is passed through a notch in the Dam A flashboards. These minimum flows are for fish protection measures. Once minimum flows and any diversions required for canal operations are met, the remaining flow is available for power generation.

Vischer Ferry Project

The Vischer Ferry Project is an 11.8 MW hydroelectric project located on the Mohawk River, approximately 14 miles upstream from its confluence with the Hudson River, and approximately 10 miles upstream of the Crescent Project. The principal features of the Vischer Ferry Project are the dam, powerhouse, impoundment, and appurtenant facilities. The Vischer Ferry Dam consists of three connected spillway sections (Figure 1.3-3). The two outer sections (Dams D and F) are regular, ungated, ogee-shaped weirs with an average structural height of approximately 30 ft. above rock. The middle section (Dam E) is a broad-crested weir constructed over a small bedrock island near the center of the river. Lock E-7 is located at Vischer Ferry Dam on the right bank, which is the opposite side of the river from the Vischer Ferry powerhouse.

To aid canal navigation, flashboards are installed along the crests of all spillways seasonally from Spring (generally in April) to the end of navigation season (generally in November based on season conditions). The flashboards are 27 inches high and when the flashboards are installed the impoundment elevation is 213.25 ft. BCD. The spillway crest elevation is 211.0 ft. when flashboards are removed. The Vischer Ferry impoundment is 10.3 miles long and the upstream terminus of the impoundment is located at Lock E-8 in Schenectady. At El. 211 ft. BCD, the surface area of the impoundment is approximately 1,137 acres and impounds approximately 25,000 acre-feet of water. Installation of the flashboards raises the normal full pool to El. 213.25 ft. BCD, and the impoundment retains an additional 2,400 acre-feet of water.

The Vischer Ferry Project powerhouse is located at the northern end of the dam and houses four turbine/generator units: two 2.8 MW rated Francis turbines and two 3.0 MW vertical shaft Kaplan turbines (identical units as at the Crescent Project). The original portion of the powerhouse contains the two original Francis units (Units 1 and 2). The two newer Kaplan units (Units 3 and 4) are located riverward of the original powerhouse. The turbines discharge water into the tailrace, the elevation of which is controlled by the Crescent impoundment level.

Vischer Ferry Project operations are performed in a manner to maintain the normal full pool elevation of the impoundment. Flow through the Project is through the powerhouse or over the dam. A minimum flow of 200 cfs (or inflow, whichever is less) is required to be passed at the Vischer Ferry Dam. An 8-foot section of the flashboards on Dam F is removed during navigation season to provide fish passage flow. Once Project minimum flows and any diversion required for canal operations are met, the remaining flow is available for power generation.

Project Area Recreation

Section 4.8 of the PAD provides a summary of Project-related recreational opportunities and sites, as well as a general discussion of recreation in the region. As discussed in the PAD, public recreation opportunities are abundant along the lower Mohawk River in the vicinity of the Crescent and Vischer Ferry Projects. As part of the Canal System, the lower Mohawk River, including the Crescent and Vischer Ferry impoundments, is used extensively for recreational boating. There are currently no permits or fees required for locking through the canal with a recreational vessel ([NYSCC, 2021](#)). There are a number of boat launching sites along the lower Mohawk River, including several that provide access to Crescent and Vischer Ferry Project waters. The eastern Erie Canal is part of the New York State Canalway Water Trail, a system of water trails with numerous access points across New York State. In addition to the many boat

launching and mooring sites, several state and municipal parks, commercial recreation sites, and one nature preserve are located along the Projects' shorelines, providing additional boat access as well as angling, picnicking, hiking and biking opportunities. Portions of the Erie Canalway Trail, which stretches across over 350 miles of upstate New York from Buffalo to Albany, follow the southern shoreline of the Mohawk River in close proximity to the Project impoundments.

In addition to the numerous state, municipal, and commercial recreation sites providing access to Project lands and waters, several FERC-approved Project recreation sites provide access, including the following:

- Crescent Project
 - The Crescent Tailrace Bank Fishing Area, located adjacent to the Crescent Project powerhouse and Crescent Picnic Area on the south bank of the Mohawk River, provides shoreline and angler access.
 - The Crescent Picnic Area, located adjacent to the Crescent Project powerhouse and just upstream from the Crescent Tailrace Bank Fishing Area, provides a grassy picnic area with interpretive displays and views of the Project dam.
- Vischer Ferry Project
 - The Vischer Ferry Scenic Overlook, located on the north bank of the Mohawk River just upstream from the Vischer Ferry powerhouse, provides a scenic overlook with views of the Mohawk River and the Project dam.
 - The Vischer Ferry Fishing Access, located on the north bank of the Mohawk River downstream of the Vischer Ferry powerhouse, provides shoreline access and access to the Erie Canal Towpath Community Connector trail. Parking for the site is shared with the Vischer Ferry Scenic Overlook.
 - The Lock 7 Boat Launch, located on the south bank of the Mohawk River at Lock 7, directly across the river from the Vischer Ferry Project powerhouse, provides a boat launch for hand-carry and trailered boats.

Throughout the duration of the study period (May 1, 2021 through October 31, 2021), the Crescent Tailrace Bank Fishing Area was being used as a staging area for concrete rehabilitation work on Dams A and B in compliance with FERC dam safety requirements. As a result, the parking area that serves the site was closed to the public, and users were directed to park in the Crescent Picnic Area parking lot. Temporary signage was erected at the Crescent Picnic Area directing anglers to a temporarily installed informal footpath leading to the Crescent Tailrace Bank Fishing Area shoreline access. Both sites are described in more detail in [Section 4.1.1.1](#). The construction work and demobilization of the staging area is complete and the recreation site has been returned to its pre-construction state.

Two other construction projects affected Project recreation sites and facilities during the study period:

- The Lock 7 Boat Launch site, including the access lane and parking area, was closed from May 10, 2021 to July 1, 2021 for the replacement of a failing culvert and repaving.
- The Vischer Ferry Scenic Overlook parking area was used as a staging area for the erection of boat barriers below Vischer Ferry Dam between August 27, 2021 and September 30, 2021. During this time construction equipment blocked approximately half of the parking area. Recreational users of the Scenic Overlook and Vischer Ferry Fishing Access sites were observed to park on the road shoulder across from

the designated parking area during this time.

[Section 3](#) discusses the methodology used to mitigate potential effects of these closures on study results.

2.2 Study Area

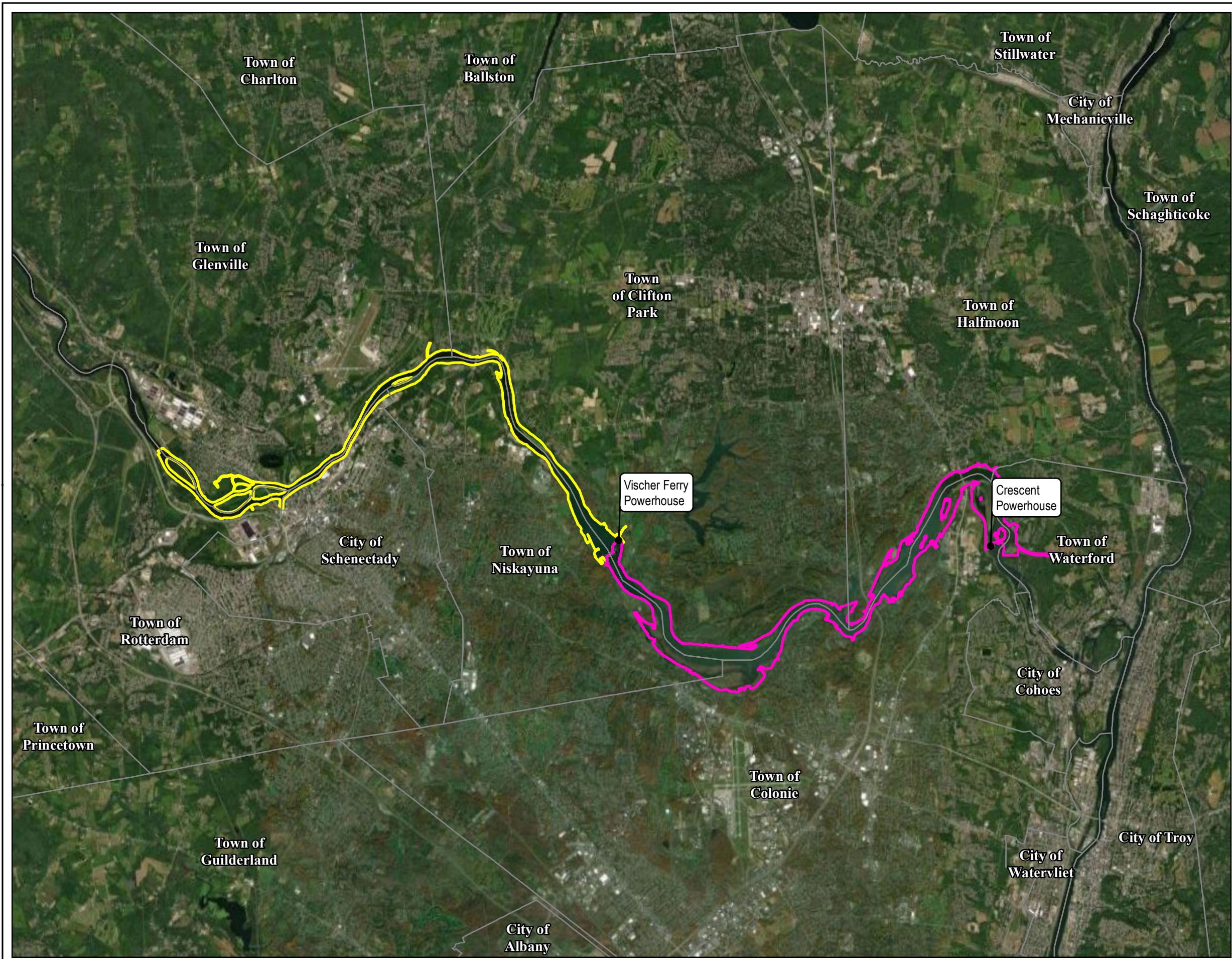
In accordance with the RSP, the study area encompasses all lands and waters within the FERC Project boundaries of each Project, as well as commercial and non-commercial recreation sites that provide public recreational access to Project lands and waters.



Crescent and Vischer Ferry
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Figure 2.1-1:
Locations of Crescent
and Vischer Ferry Projects



Crescent and Vischer Ferry
Projects Relicensing
FERC No. P-4678 and P-4679

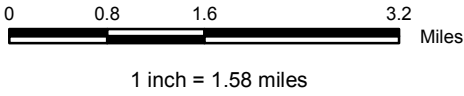
Figure 2.1-2:
Project Boundary of Crescent
and Vischer Ferry Projects

Legend

- Crescent Project Boundary
- Vischer Ferry Project Boundary



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3 Methodology

The following sections discuss the methodology for the data gathering and analysis performed for this study. Study results are discussed in [Section 4](#). Note that calculations for this report were performed prior to rounding; therefore, statistics may not reflect the precise sum or product of the given input data.

3.1 Background Research

The Power Authority reviewed existing information to consider Project recreation site locations and determine the appropriate locations for trail camera and survey station placement. Existing and historic information on recreation use at the Project recreation sites was examined to determine its potential value for assessing recreation demand and site capacity at existing Project recreation sites. Aerial imagery and online parcel viewers were used to identify formal and informal non-Project recreation sites for inclusion in the site inventory. Information gathered during this task was used to guide implementation of the following tasks.

3.2 Recreation Site Inventory

The Power Authority updated existing data on public recreation sites within the Projects' boundaries and/or providing access to Project lands and waters by conducting an onsite inventory and site condition assessment from August 16, 2021 to August 18, 2021. The onsite recreation site inventory included each formal, informal, commercial¹, and non-commercial public recreation site in the study area, including the Project recreation sites. Photos of the recreation sites were taken (provided in [Appendix A](#)) and GPS datapoints recorded for each site. The Power Authority utilized a standardized site inventory form ([Appendix B²](#)) to evaluate each site included in the onsite inventory. The following information was documented at each site:

- Facilities, amenities, and signage associated with each site.
- Site owner and entity responsible for site operation.
- Number and types of facilities and amenities, including any Americans with Disabilities Act (ADA) compliant facilities/amenities at formal sites.
- Estimated parking capacity, if applicable.
- Recreation opportunities provided.
- General aesthetics of the site.
- Effects of vegetation growth, including invasive aquatic vegetation, on Project site condition and function.

¹ For commercial recreation sites within the study area, the Power Authority contacted facility owners or operators seeking permission to conduct an onsite inventory. Where permission was granted, the Power Authority included the facility in the onsite inventory. Where permission was not granted, either by lack of response or by denial of permission, the Power Authority did not include the facility in the onsite inventory but used information readily available online to inform the facility inventory.

² As data was recorded both in writing and using the ArcGIS Field Maps application on a field tablet, [Appendix B](#) provides the blank inventory form depicting what information was gathered at each site. [Section 4.1](#) presents the information gathered by site.

- General condition of Project recreation sites, facilities, and amenities, including observations of erosion and impacts to vegetation caused by recreation use. The following categories were used to describe Project site condition:
 - Sites were considered to be in good condition if the site or amenity is functional and well-maintained; no maintenance or repair is required.
 - Sites were considered to be in fair condition if the site or amenity exhibits signs of wear but is generally serviceable; maintenance and/or minor repair required.
 - Sites were considered to be in poor condition if the site or amenity is no longer performing its intended purpose; major repair or replacement required.

3.3 Existing Recreation Use

The Power Authority conducted a field study at the FERC-approved Project recreation sites (the Crescent Picnic Area, Crescent Tailrace Bank Fishing Area, Vischer Ferry Scenic Overlook, Vischer Ferry Fishing Access, and Lock 7 Boat Launch) to estimate recreation use by activity type. Trail cameras were strategically installed at each site to monitor recreational use between May 1, 2021 and October 31, 2021 (study season). At the Crescent Project, one trail camera monitored use of the Picnic Area and the entrance to the temporary footpath leading to the Tailrace Bank Fishing Area, and a second camera monitored use of the Picnic Area parking lot. At the Vischer Ferry Project, one trail camera monitored use of the Scenic Overlook parking area, one monitored the entrance to the trail leading to the Fishing Access area, and two were deployed at the Lock 7 Boat Launch site, with one monitoring the parking area and the other monitoring the boat launch. The location and orientation of the trail cameras at each site are depicted in [Figure 3.3-1](#) through [Figure 3.3-4](#).

Trail camera settings were configured according to site conditions and were adjusted as necessary throughout the study period to ensure optimal performance. Photos were date and time stamped³. To manage the volume of data recorded throughout the six-month study period, trail cameras monitoring parking areas (Crescent Picnic Area parking, Lock 7 Boat Launch parking, Vischer Ferry Scenic Overlook parking) were set to take one photo every hour without requiring a motion trigger, thus providing hourly snapshots of use throughout daylight hours. These cameras also recorded motion-triggered photos, but the interval setting (how much time must lapse after the camera is triggered to take a photo before motion will trigger another photo) was set to 10 minutes. Cameras monitoring trail locations (Crescent Tailrace Bank Fishing Area trailhead, Vischer Ferry Fishing Access trailhead) were set with a three second interval to ensure that all users were recorded. As launching a boat can take several minutes, the camera monitoring the Lock 7 boat launch was set to a three-minute interval to reduce redundant images. Trail camera settings are provided for reference in [Table 3.3-1](#).

Field technicians downloaded the data from the trail cameras biweekly. Images from selected days during the study period were reviewed and use counts recorded in spreadsheets. A set of 28 days was randomly selected from strata consisting of the different day types (weekdays, weekends, and peak use days) during

³ The date and time stamp function for the camera monitoring the Lock 7 Boat Launch was not functioning from May 1 to August 5. For data review during that period, technicians were able to identify the photos pertaining to the sample days based on counting sunrises and sunsets. The issue was resolved by replacing the camera on August 5, 2021. As the data from this camera was taken as a daily tally by activity type on each sample day, the error is not considered to have a significant effect on study results.

the study period. [Table 3.3-2](#) depicts the days selected for trail camera image review and recording (sample days).

Images from the trail cameras were used in different ways according to camera location and activity recorded. For cameras monitoring parking areas, each hourly photo in a given sample day was reviewed and the number of vehicles⁴ visible in the parking lot was recorded to provide a snapshot of use over the course of the day. This data was used to calculate average utilization (the number of parking spaces in use) at the site for each day type, discussed in more detail below. For cameras monitoring the Project recreation sites, all photos in a given sample day were reviewed and recreational users were tallied to produce a daily count for each sample day. Each type of recreation activity (e.g., fishing, boating, walking, etc.) was recorded where possible; where the activity type was unidentifiable, the activity was recorded as “other”.

To avoid double counting at the angler access locations, where cameras monitored use along an access path, only users headed toward the camera along the path were counted. The daily counts for each day type were averaged. This average daily use was then multiplied by the number of days of that day type during the study season to produce estimated use by day type. Estimates for each day type were then summed to provide a total use estimate presented in terms of the total number of recreation days spent from May 1, 2021 through October 31, 2021 at each site. Consistent with FERC’s definition, a recreation day is defined as each visit by a person to the study area for recreational purposes during any portion of a 24-hour period ([FERC, 1996](#)).

Site capacity and utilization were estimated for the Project recreation site parking areas based on parking area utilization during average non-peak weekends during the study period. Point-in-time tallies of vehicles recorded from hourly trail camera photos taken on non-peak weekends were averaged and rounded up to the nearest whole number. This average point-in-time use was then divided by the maximum vehicular capacity of the parking area to determine an average percent utilization. Peak utilization was also calculated by dividing the highest use observed during the study period, including on peak use weekends, by the capacity of the parking area. Parking lot capacity was estimated during the site inventory based on nine-foot-wide by eighteen-foot-long parking stalls.

As discussed in [Section 2.1](#), full or partial site closures affected use of certain sites during portions of the study period. Data gathering and analysis for those sites was adjusted to mitigate potential effects on study results as follows:

- The Lock 7 Boat Launch and parking area were closed from May 10, 2021 to July 1, 2021. As public recreational use of the site was essentially zero during this time period, sample days falling within this timeframe were excluded from use and site utilization calculations. This ensures the resulting estimates more accurately reflect a typical recreation season.
- The Vischer Ferry Scenic Overlook parking area was partially taken up by construction equipment from August 27 to September 30. During this period, site users were observed parking across the street from the parking area. This use would not have been captured by the trail camera monitoring

⁴ Vehicles at the site for non-recreational purposes, such as construction vehicles and Power Authority staff, were excluded.

the parking area. To confirm, the average point-in-time use by day type during the construction period was compared to that of the period during which no construction occurred and was found to be significantly lower. To more accurately reflect a typical recreation season, sample days falling within the construction timeframe were excluded from use and site utilization calculations.

- The Crescent Tailrace Bank Fishing Area parking area was closed to the public throughout the study period. During this time users were directed to park in the Crescent Picnic Area parking lot and to access the site using a temporary footpath from the picnic area to the shoreline. To distinguish between use of the Picnic Area and Tailrace Bank Fishing Area, users observed with fishing gear and/or primarily using the footpath to the shoreline were counted as using the Tailrace Bank Fishing Area. Users observed to be primarily using the picnic area and not carrying fishing gear were attributed to the Picnic Area. To produce separate estimates of what site utilization would look like for the Picnic Area and Tailrace Bank Fishing Area parking lots during a typical recreation season, total utilization of the Crescent Picnic Area parking lot during the 2021 study season was multiplied by the percentage of users using the picnic area and the percentage of users using the fishing area.

3.4 User Survey

The Power Authority solicited information on recreational user characteristics, use patterns, and user perceptions of the FERC-approved Project recreational sites and facilities via voluntary, self-administered surveys made available online and in collection stations strategically located at Project recreation sites. Survey station locations are depicted in [Figure 3.3-1](#) through [Figure 3.3-4](#). Survey stations contained paper surveys and pencils as well as a sign displaying a QR code linked to an online SurveyMonkey survey; both the paper and online surveys presented the same questions and response options. Survey stations were erected prior to May 1, 2021 and remained stocked and serviced through October 31, 2021. The online survey remained open throughout the same time period. Completed surveys were gathered from the collection boxes and downloaded from SurveyMonkey biweekly throughout the study period. A copy of the survey is provided in [Appendix C](#).

Analyses of survey responses typically relied either on averages or medians, as with distance traveled, or percentages, as with previous visitation. For questions with multiple categories as responses, such as a range of satisfaction, percentages were calculated for each range. Open-ended responses are summarized where possible and included verbatim in [Section 4.3](#). Inappropriate and offensive comments were omitted; however, the non-offensive comments and numerical ratings from those surveys were included in the results.

3.5 Projected Recreation Demand

Future recreational use of Project recreation sites and facilities will be affected by changes in the population served by the sites as well as by changing rates of participation in the various recreational activity types supported by each site. The following sections discuss the population projections and projected recreation participation rates used to estimate future recreational use and capacity of Project recreation sites.

3.5.1 Population Growth

An increase or decrease in the population served by recreation sites can influence future use of those sites.

Based on user survey resident ZIP code responses, approximately 89 percent of recreationists utilizing Project recreation sites are residents of Albany, Schenectady, and Saratoga Counties. Cornell University's Program on Applied Demographics has developed county-level population projections for New York counties in five-year increments through the year 2040. The projections are based on the rates of change from historical data. As shown in [Table 3.5.1-1](#), populations for Albany, Schenectady, and Saratoga Counties are projected to increase through 2040. Based on this change, growth was extrapolated to provide population projections through 2060. As shown, collectively the population of the region is expected to increase by 10 percent over the period 2021 to 2060.

3.5.2 Participation Rates

In addition to population changes, an increase or decrease in the percentage of the population that tends to participate in a given activity may also influence future use of recreational sites. Participation rates for activities typically participated in at recreation sites in the study area were projected based on per capita participation rates from the United States Department of Agriculture (USDA) Forest Service's *U.S. Outdoor Recreation Participation Projections to 2060* (Bowker & Askew, 2012). The report develops projected recreation participation rates for 17 recreation activities and activity groups based on a number of factors including past recreation trends, demographics, socioeconomics, climate change, and land use changes. [Table 3.5.2-1](#) presents the USDA's projected per capita participation rates (indexed) for activities typically engaged in at the study area assuming mid-range population growth and high income levels⁵. Growth for each activity was calculated for the period from 2021 to 2060. As shown, participation rates for most recreational activities engaged in the study area are expected to increase, with the exception of fishing, which is projected to decline slightly in popularity. Biking is expected to see the greatest growth in popularity, followed by motorboating.

3.5.3 Projected Use

Recreational use of Project recreation sites was projected to 2060 by activity based on expected population growth and participation rates. An overall growth factor for recreation days was calculated by multiplying the population growth factor for 2021-2060, based on the expected 10 percent growth for the region served by Project sites by the participation growth factor for each recreation activity type supported by the site/facilities, based on the rates previously presented (see [Table 3.5.2-1](#)). [Table 3.5.3-1](#) presents the recreation days growth factor for each recreational activity typically engaged in at Project recreation sites. As shown, population growth is expected to increase recreational usage of Project sites across all activity categories. For all activities except fishing, growth in participation rates will additionally increase usage. Using these recreation days growth factors, use of Project recreation sites was projected to 2060 by multiplying 2021 estimated usage by activity, presented in [Section 4.2](#), by the growth factor for that activity. Finally, the recreation days growth factors presented in [Table 3.5.3-1](#) were also used to project future site capacity utilization based on parking area utilization during average (non-peak) weekend use.

⁵ The USDA projections offer three scenarios to characterize socioeconomic and climate conditions likely to affect future participation in outdoor recreation activities. The mid-range population growth and high income level scenario predicts the greatest increase in per capita participation rates for activities typically engaged in at the Projects.

3.6 Variances from the Study Plan

The study was conducted in accordance with the FERC-approved RSP. Due to concerns that the COVID-19 pandemic could cause anomalous recreational use conditions, the study was postponed from the 2020 recreation season and was instead conducted in 2021. Although the ongoing pandemic may still have influenced recreational use to some extent in 2021, the Power Authority believes the data gathered during the 2021 recreation season is representative to meet the objectives of the study and sufficient to inform the FERC licensing process.

As discussed in [Section 2.1](#), during the study there was ongoing construction and maintenance activities at Crescent Dam which resulted in temporary modification to certain recreation facilities at the Crescent Tailrace Bank Fishing Area and the Crescent Picnic Area sites. Appropriate adjustments were made to the study to collect valid and reliable use and user information at these sites.

Table 3.3-1: Trail Camera Settings

Monitoring Location	Motion-triggered Interval	Field Scan Interval
Crescent Parking Area	10 minutes	60 minutes
Crescent Tailrace Bank Fishing Area	3 seconds	N/A
Vischer Ferry Scenic Overlook	10 minutes	60 minutes
Vischer Ferry Tailrace Fishing Access	3 seconds	N/A
Lock 7 Boat Launch	3 minutes	N/A
Lock 7 Parking Area	10 minutes	60 minutes

Table 3.3-2: Sample Days for Trail Camera Image Review

Sample #	Date (2021) ¹	Season	Day Type
1	Sunday, May 2, 2021	Spring	Weekend
2	Wednesday, May 12, 2021	Spring	Weekday
3	Sunday, May 23, 2021	Spring	Weekend
4	Wednesday, May 26, 2021	Spring	Weekday
5	Saturday, May 29, 2021	Spring	Peak/Holiday
6	Sunday, June 6, 2021	Spring	Weekend
7	Tuesday, June 8, 2021	Spring	Weekday
8	Thursday, June 24, 2021	Summer	Weekday
9	Saturday, June 26, 2021	Summer	Weekend
10	Sunday, July 4, 2021	Summer	Peak/Holiday
11	Saturday, July 17, 2021 ²	Summer	Weekend
12	Wednesday, July 28, 2021	Summer	Weekday
13	Friday, July 30, 2021	Summer	Weekday
14	Saturday, July 31, 2021	Summer	Weekend
15	Sunday, August 8, 2021	Summer	Weekend
16	Wednesday, August 18, 2021	Summer	Weekday
17	Tuesday, August 24, 2021	Summer	Weekday
18	Saturday, August 28, 2021	Summer	Weekend
19	Friday, September 3, 2021	Summer	Weekday
20	Monday, September 6, 2021	Summer	Peak/Holiday
21	Monday, September 13, 2021	Summer	Weekday
22	Saturday, September 18, 2021	Summer	Weekend
23	Sunday, September 26, 2021	Fall	Weekend
24	Saturday, October 2, 2021	Fall	Weekend
25	Monday, October 11, 2021	Fall	Peak/Holiday
26	Friday, October 22, 2021	Fall	Weekday
27	Sunday, October 24, 2021	Fall	Weekend
28	Thursday, October 28, 2021	Fall	Weekday

¹ As discussed in [Section 2.1](#), the Lock 7 Boat Launch and parking area were closed from May 10, 2021 to July 1, 2021. Trail camera data from this time period was not used to calculate recreational use at the sites.

²Trail camera data recorded on July 17, 2021 at the Vischer Ferry Fishing Access trail camera was discarded due to equipment malfunction.

Table 3.5.1-1: Population Projections for Project Region Counties

County	2015	Projection 2021 ¹	Projection 2040 ¹	% Change, 2015-2040	Extrapolated Projection 2060	% Change, 2021-2060
Albany	308,958	313,779	328,968	6.5%	344,976	9.9%
Schenectady	155,089	156,341	156,535	0.9%	157,692	0.9%
Saratoga	226,551	235,476	252,521	11.5%	273,297	16.1%
Total	690,598	705,596	738,024	6.9%	775,965	10.0%

¹Source: [Cornell, 2018](#).

Table 3.5.2-1: Participation Projections by Recreational Activity, 2010 to 2060, United States

Activity	Indexed Participated Rate ¹			Growth Rate
	2020	2021 ²	2060	2021-2060
Biking	1.025	1.026	1.176	14.6%
Boating (motorized)	1.022	1.022	1.154	12.9%
Boating (non-motorized)	0.986	0.983	1.031	4.8%
Fishing	0.991	0.989	0.970	-2.0%
Hiking/running/walking	1.017	1.018	1.097	7.7%
Picnicking	1.005	1.005	1.026	2.1%
Sightseeing ³	1.025	1.027	1.075	4.7%

¹Source: [Bower & Askew, 2012](#).

²Interpolated from the projected change between 2020 and 2030.

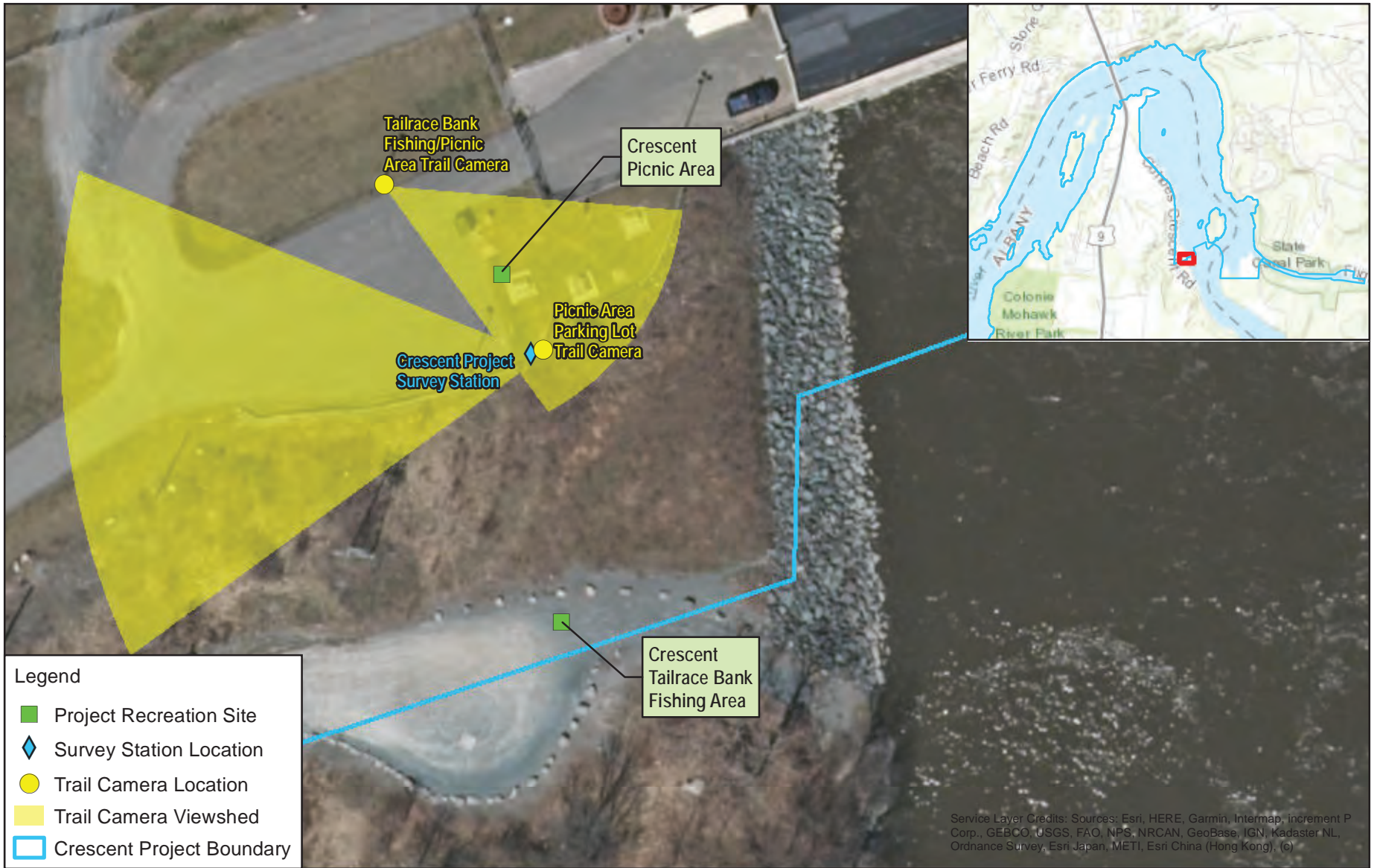
³Includes birding, wildlife viewing, and photography.

Table 3.5.3-1: Projected Recreation Growth Factor, 2021 to 2060, Projects

Activity	Population Growth Factor 2021-2060	Participation Growth Factor 2021-2060	Recreation Days Growth Factor 2021-2060
Biking	1.100	1.146	1.260
Boating (motorized)	1.100	1.129	1.241
Boating (non-motorized)	1.100	1.048	1.153
Fishing	1.100	0.980	1.078
Hiking/running/walking	1.100	1.077	1.185
Picnicking	1.100	1.021	1.122
Sightseeing ¹	1.100	1.047	1.151
Other use ²	1.100	1.064	1.170

¹Includes birding, wildlife viewing, and photography.

²The "other use" growth factor was calculated by averaging growth rates for all other activities engaged in at Project recreation sites. "Other use" includes activity types that were not identified; this may include both recreational and non-recreational use.



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Figure 3.3-1:
Monitoring Equipment Locations,
Crescent Project



Legend

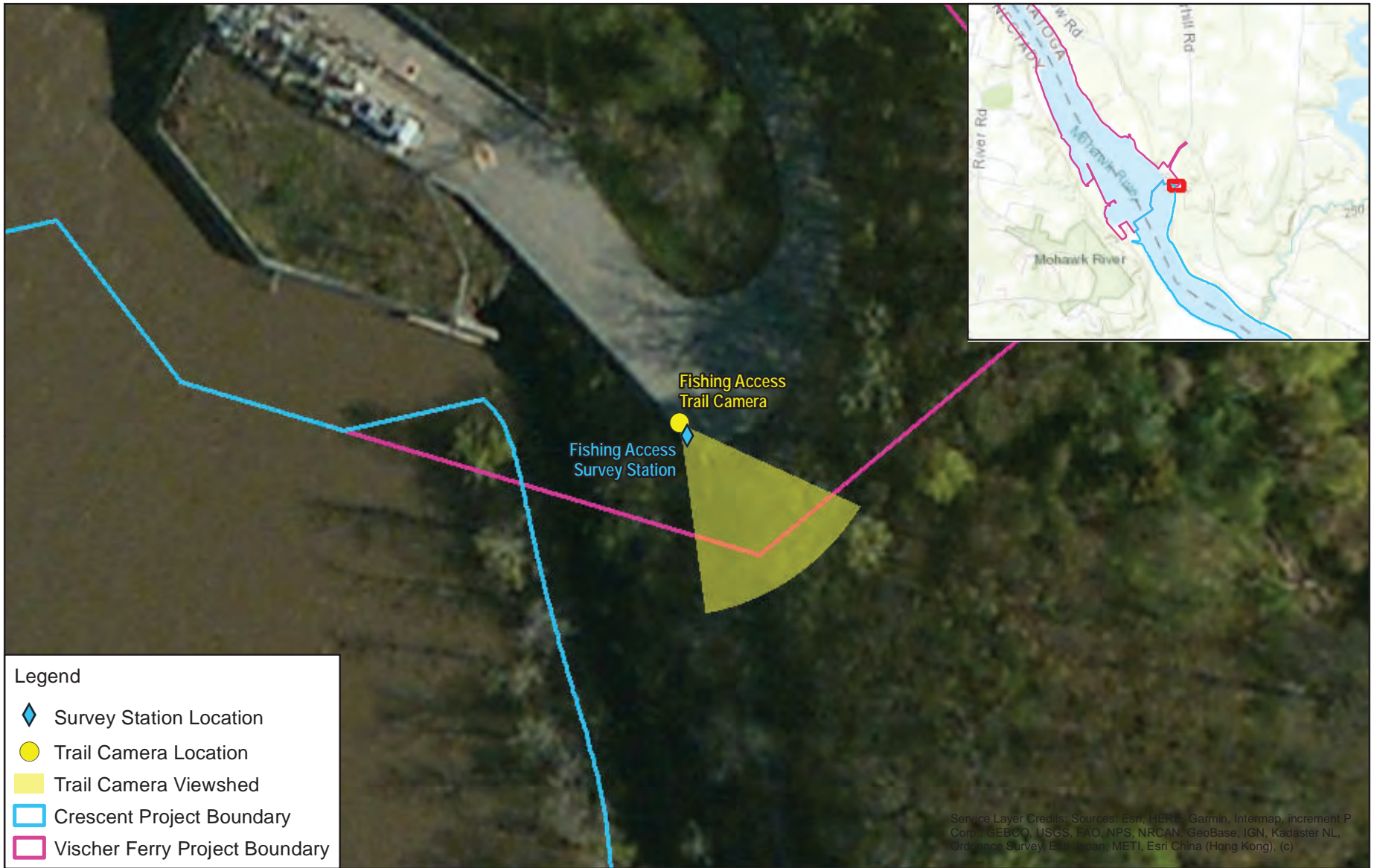
- Project Recreation Site
- ◆ Survey Station Location
- Trail Camera Location
- Trail Camera Viewshed
- Vischer Ferry Project Boundary

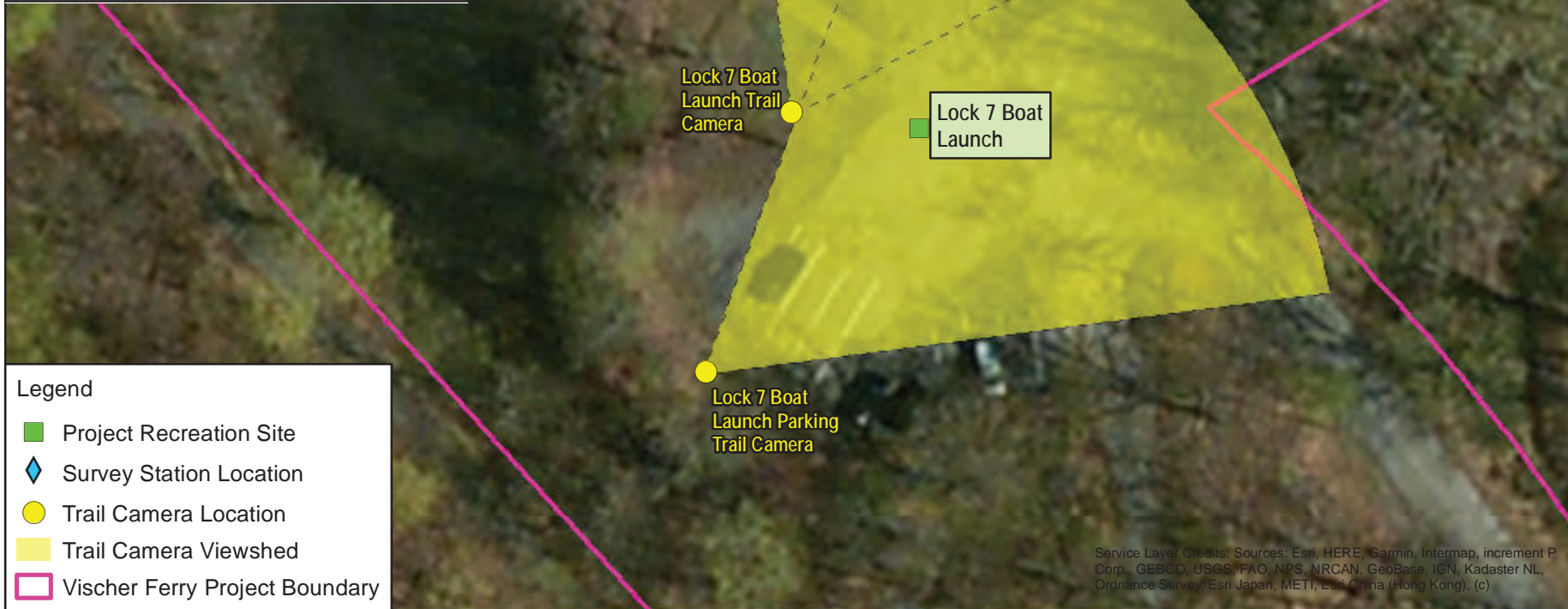


Crescent and Vischer Ferry
Projects Relicensing
FERC No. P-4678 and P-4679



Figure 3.3-2:
Monitoring Equipment Locations,
Vischer Ferry Scenic Overlook





Legend

- Project Recreation Site
- ◆ Survey Station Location
- Trail Camera Location
- Trail Camera Viewshed
- Vischer Ferry Project Boundary

Service Layer Credits: Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c)



Crescent and Vischer Ferry
Projects Relicensing
FERC No. P-4678 and P-4679



Figure 3.3-4:
Monitoring Equipment Locations,
Lock 7 Boat Launch

4 Results

4.1 Existing Recreation Sites and Facilities

As discussed in [Section 2.1](#), public recreation opportunities are abundant along the Mohawk River in the vicinity of the Projects. As part of the Canal System, the lower Mohawk River, including the Project impoundments, are used extensively for recreational boating, and there are numerous public and commercial sites serving this need. In addition to the many boat launching and mooring sites, several state and municipal parks, regional multi-use trails, and one nature preserve are located along or near the Project shorelines, providing additional boat access as well as angling, picnicking, hiking and biking opportunities. As discussed in [Section 3.2](#), the Power Authority conducted an onsite inventory and site condition assessment to document and evaluate formal, informal, commercial, and non-commercial public recreation sites in the study area. The following sections present the results of this extensive inventory. Photographic documentation for all sites included in the onsite inventory is provided in [Appendix A](#). Overview maps showing the location of each site relative to the FERC Project boundaries for each Project are provided in [Figure 4.1-1](#) through [Figure 4.1-4](#).

4.1.1 Crescent Project

4.1.1.1 Project Recreation Sites

In addition to the numerous state, municipal, and commercial recreation sites providing access to Crescent Project lands and waters, two FERC-approved Project recreation sites provide access. These sites are described below and depicted in [Figure 4.1.1.1-1](#).

4.1.1.1.1 Crescent Tailrace Bank Fishing Area

Description

The Crescent Tailrace Bank Fishing Area is located adjacent to the Crescent Project powerhouse and Crescent Picnic Area on the south bank of the Mohawk River in the City of Cohoes. The site is owned and operated by the Power Authority and provides a gravel parking area and shoreline access. Access to the site is provided off Cohoes-Crescent Road via a gravel road. The site is open to the public from sunrise to sunset.

The bank fishing access is immediately downstream of the powerhouse on a large boulder-stabilized bank with sparse vegetation. Users can access an approximately 200 foot stretch of shoreline starting at the downstream wall of the powerhouse. Slopes along the shoreline are generally moderate, and the boulders provide stable but uneven footing. Views of the powerhouse, dam, spillways, and the Mohawk River downstream from the Crescent impoundment are available along the shoreline.

During the 2021 study season, the Tailrace Bank Fishing Area was being used as a staging area for construction equipment (discussed in [Section 2.1](#)). The parking lot was unavailable for public use. Temporary parking for and access to the Tailrace Bank Fishing Area were provided at the Crescent Picnic Area for the duration of the construction. Temporary signage was placed at the vehicular entrance to the Tailrace Bank Fishing Area directing users to the Crescent Picnic Area parking lot. Additional signage at the entrance to a temporary informal footpath leading from the Crescent Picnic Area to the Tailrace Bank Fishing Area directed users to the shoreline access. Construction activities have been completed, and the

Power Authority has restored the Tailrace Bank Fishing Area site to its preconstruction condition and use.

Opportunities Provided

The site provides fishing opportunities and informal shoreline access to the Mohawk River below the Crescent impoundment.

Vehicular Access and Parking

As discussed above, site users were directed to park in the Crescent Picnic Area parking lot (described in [Section 4.1.1.1.2](#)) during the 2021 recreation season. During a normal season, the Crescent Tailrace Bank Fishing Area provides parking for approximately 10 vehicles around the perimeter of a loosely defined gravel turn-around area and along the edge of the access road. Additional parking is located at the Crescent Picnic Area.

Site Condition

The improved areas of the site (access road and parking area) are in good condition. While shoreline access is in good condition, the shoreline itself is generally unimproved and the large boulders may be difficult to navigate for some users. No ADA access to the shoreline is available due to the irregular boulder bank stabilization and lack of a formalized path.

4.1.1.1.2 Crescent Picnic Area

Description

The Crescent Picnic Area is located adjacent to the Crescent Project powerhouse on the south bank of the Mohawk River in the City of Cohoes. The site is owned and operated by the Power Authority and provides a paved access road, paved parking area, and grassy picnic area providing views of the Crescent Project and of the Mohawk River below the Project impoundment. Access to the site is provided off Cohoes-Crescent Road via a paved road.

The picnic area consists of a flat, grassy area with three picnic tables on concrete pads. A sign containing Project recreational information pursuant to 18 CFR § 8.2 is affixed to the powerhouse fencing, while a small kiosk and a concrete pedestal provide historical information about the Project. Beyond the picnic tables, the picnic area overlooks the Mohawk River just downstream of the powerhouse and provides views of the dam, spillway, and river. A guardrail continues from the parking area and follows the perimeter of the picnic area until it meets the powerhouse fencing.

As discussed in [Section 4.1.1.1.1](#), during the 2021 season, directional signage and an unimproved footpath were temporarily provided at the Crescent Picnic Area to allow access to the Tailrace Bank Fishing Area immediately downstream.

Opportunities Provided

The site provides picnicking and sight-seeing opportunities with views of the Crescent Project and the Mohawk River below the Project impoundment.

Vehicular Access and Parking

The site provides parking for approximately 10 vehicles in an unmarked paved parking area. Additional parking is available on either side of the paved access road.

Site Condition

The site is in good condition overall; however, the picnic tables were noted to be weathered and worn with some moss growth. Scenic views are generally limited around the picnic area due to tall leafy vegetation, except in the eastern corner where vegetation has been cleared to maintain views of the dam, spillway, and Mohawk River.

The site does not provide ADA parking, access, or amenities.

4.1.1.2 Non-Project Public Recreation Sites

4.1.1.2.1 Flightlock Road Boat Launch

Description

Flightlock Road Boat Launch is located on the north bank of the Mohawk River in the Town of Waterford, directly across from the Crescent Project and upstream of Lock 6. The site is owned and operated by NYSCC and consists of a paved access road (Flight Lock Road), turn-around area, paved parking area, concrete boat launch, and informal shoreline access to the Crescent impoundment.

The boat launch consists of two concrete ramps extending into the water at constant grade with a floating dock in the middle. At the top of the ramp, the asphalt road smoothly transitions to the concrete ramp. The approach to the dock (between the ramps) is grassy and gravel in segments with a small curb. Near the boat launch is a kiosk providing information on kayak rentals.

Between the concrete pier along the Mohawk River and Flightlock Road is an approximately 40 foot wide strip of land which provides general recreational access and three park grills. Several people were observed fishing off the concrete pier. The ground is mostly flat mowed grass with a few sections of loose gravel.

A NYSCC sign restricts snowmobiles, motorbikes or motorized vehicles, dumping of garbage and/or refuse, and hunting or carrying firearms on NYSCC lands. No other signs were observed at the site.

Opportunities Provided

The site provides cartop and trailered boat launch access to the Crescent impoundment, fishing, and picnicking opportunities.

Vehicular Access and Parking

The site is accessible from Flightlock Road, which follows the Canal along Lock 6 and continues through a gate into the parking area. The paved parking provides unmarked spaces for approximately 20 vehicles with trailers along with a turn-around area for the boat launch. Large boulders separate the grassy area along the river from the parking area.

4.1.1.2.2 Freddie's Park

Description

Freddie's Park is located on the south bank of the Mohawk River just downstream of the Route 9 bridge in the City of Cohoes. Access to the site is provided by Albany Marine Service Lane Road, a short distance off Route 9. The site is owned by NYSCC and provides a mowed grassy area with a picnic table and kiosk, along with a paved parking area. A paved trail approximately 100 feet long connects the parking area to the picnic table and provides a foundation for the table. Signage indicates the park is open from 8 a.m. to dusk.

In addition to the formal paved trail, informal footpaths lead to the water's edge and to the top of a small aging granite block abutment. The rest of the site is generally separated from the river by vegetation growth; however, views of the Mohawk River (Crescent impoundment) are available.

A kiosk provides historical information on the Erie Canal system, park hours, and fish and bird identification information with pictures. A trash bin is also provided near the kiosk.

Opportunities Provided

The site provides picnicking opportunities area and informal angler access to approximately 200 feet of shoreline on the Crescent impoundment.

Vehicular Access and Parking

The parking area is located along a paved road (Albany Marine Service Lane) just off Route 9/Loudon Road. The lot provides marked spaces for ten vehicles. One of the parking spaces is delineated as an accessible space with an adjacent access aisle; however, there is no ADA signage identifying space. A wooden guardrail separates the parking area from the grassy picnic area.

4.1.1.2.3 Halfmoon Crescent Park

Description

Halfmoon Crescent Park is located on the north bank of the Mohawk River in the Town of Halfmoon. The site consists of two distinct areas adjacent to the Mohawk River (Crescent impoundment) upstream and downstream of the Route 9/Loudon Road Bridge. Each has a separate parking area which are linked by a paved bike path (Erie Canal Towpath Community Connector Trail), which begins at the downstream site and continues through the upstream site. Both sites are owned and operated by the Town of Halfmoon.

The downstream Halfmoon Crescent Park site consists of a parking area, floating dock with gangway and cartop boat launch, picnic area, pier along the Mohawk River, informal shoreline access, and access to the Erie Canal Towpath Community Connector Trail. The site is accessible from Route 9 via Terminal Road, a paved road which loops into the parking area. The parking area is mostly gravel, but includes paved spaces near the picnic area. In the downstream corner of the site, an ADA cartop boat launch is located on a floating dock connected to shore by a metal gangway. Between the paved parking and gangway is a small grassy area with two circular picnic tables. A paved path connects the parking and picnic areas and ends at the gangway.

A 190-foot-long concrete pier with a gravel surface extends along the river at the front of the gravel portion

of the parking area. No handrails are situated along the pier. Further upstream of the concrete pier and downstream of the bridge, informal and unimproved trails were observed leading to the shoreline. A kayak rental kiosk is located near the gangway with signage for rental information. Signage indicates the site is open from dawn to dusk.

The paved Erie Canal Towpath Community Connector Trail leads from the downstream parking area to an ADA fishing site underneath the Route 9 Bridge. Four ADA fishing bays are provided on a concrete paved surface, which is connected to the paved trail. A bench and trash bin are also at the site. The trail continues approximately 1,100 feet upstream from the bridge to the paved upstream parking area.

The upstream Halfmoon Crescent Park site is located just off Old Canal Road and provides a paved parking area, picnic area, and access to the Erie Canal Towpath Community Connector Trail. Downstream of the parking area are mowed grassy lawns on both sides of the trail with three regular picnic tables and one ADA picnic table. Trees and thick leafy vegetation border the river.

Opportunities Provided

The site provides cartop boating and fishing access to the Crescent impoundment, picnicking, hiking, and biking opportunities.

Vehicular Access and Parking

The downstream parking area is accessible from Route 9/Loudon Road via Terminal Road and consists of paved and gravel areas. Parking spaces in the paved area are delineated. The site provides two ADA parking spaces, nine standard paved spaces, and 12 to 24 standard gravel spaces around the perimeter. The perimeter of the gravel parking area is lined with large boulders on the river side and curbs on the upstream side.

The upstream parking area is accessible from Old Canal Road, just a short distance from Crescent Vischer Ferry Road. The paved parking area provides six standard parking spaces. The river side edge of the paved area is marked with cross lines to prevent vehicles from blocking the bike trail that traverses the parking area.

4.1.1.2.4 Vischer Ferry Nature and Historic Preserve

Description

The 740-acre Vischer Ferry Nature and Historic Preserve is located in the Town of Clifton Park along the north bank of the Mohawk River. The preserve is owned by NYSCC and maintained by the Town of Clifton Park. Two parking areas are provided, both immediately off Riverview Road. The easterly site is referred to as Clute's Dry Dock and provides access to the eastern end of Preserve. The westerly parking area, sometimes referred to as the Whipple Bridge Entrance, provides the primary access to the preserve. Both parking areas are stops along the Mohawk Towpath Scenic Byway, a 26-mile route with numerous stops at scenic, historical, or recreation opportunities. The Erie Canal Towpath Community Connector Trail follows the Byway and runs the length of the Preserve on a gravel path. Numerous hiking trails loop through the preserve and provide hiking and wildlife viewing opportunities. The preserve is a Bird Conservation Area designated by the New York State Department of Environmental Conservation (NYSDEC).

The westerly parking area (Whipple Bridge Entrance) includes a grassy picnic area with two picnic tables

and a kiosk with a map of the Preserve. Various signs around the parking area identify the park hours (open from 5 a.m. to 10 p.m.), hiking trails, and historical information regarding the preserve and the nearby Whipple truss bridge. The bridge crosses the old canal, which separates the parking and picnic areas from the rest of the preserve.

Across the bridge is the Erie Canal Towpath Community Connector Trail, a six foot wide compact gravel path extending in both directions. Signs indicate Route 9 Crescent Bridge is 5.4 miles downstream and Vischer Ferry Power Dam is 3.4 miles upstream along the trail. The preserve provides dispersed access to the Crescent impoundment along approximately two to three miles of shoreline via informal trails. A sign just over the bridge indicates a self-serve kayak rental kiosk 0.5 miles away.

The easterly parking area (Clute's Dry Dock) provides a gravel parking area, an approximately eight-foot-wide gravel trail leading to the historic Dry Dock, and informational signage.

Opportunities Provided

The site provides picnicking, hiking, biking, wildlife watching, and sightseeing opportunities, as well informal access to the Crescent impoundment.

Vehicular Access and Parking

The westerly parking area is located on a wide pull-off from Riverview Road and provides approximately 10 paved spaces and two gravel spaces on the widened edge of Riverview Road.

The easterly parking area (Clutes Dry Dock) is a gravel parking area directly off Riverview Road. It provides space for approximately 12 vehicles.

4.1.1.2.5 Colonie Mohawk River Park

Description

The Colonie Mohawk River Park is located on the south bank of the Mohawk River and is owned and operated by the Town of Colonie. The site is accessible from Schermerhorn Road via a paved road which has an entrance building with a posted fee schedule for residents, non-residents, and senior citizens. The road leads to a large, paved parking area for the Town swimming pool, tennis courts, and softball fields, then continues for approximately half a mile to a smaller parking area, boat launch, and an expansive picnic area along the shoreline. The onsite inventory focuses on these latter facilities, which provide access to the Crescent Project impoundment.

The boat ramp starts at the end of the paved access road and continues down the bank before transitioning to concrete for the last 20 feet before the edge of water. The ramp is wide enough to support two lanes; however, the approach road only supports a single lane. The slope is relatively constant from the asphalt down to the concrete, with a small increase in slope near the waterline. No docks are present. A kiosk at the boat ramp provides information on aquatic invasive plants.

Upstream and downstream of the boat ramp and overlooking the Mohawk River is an open and expansive park with many picnic shelters, tables, trash cans, and grills. Scattered trees provide shade. Permanent restrooms are available as was a manned ranger/office building.

Opportunities Provided

The site provides picnicking opportunities and cartop and trailered boat launching access to the Crescent impoundment.

Vehicular Access and Parking

The site is accessible via a paved road, which continues from the larger park complex and leads directly into the boat ramp. A parking area at the top of the boat ramp provides 14 standard spaces, delineated by curbs. No parking for vehicles with trailers is provided. The parking area serving the upper park area provides additional parking in two large lots.

4.1.1.2.6 Klamsteam Kayak Launch

Description

The Klamsteam Kayak Launch is located on the north bank of the Mohawk River (Crescent impoundment) in the Town of Halfmoon. The site consists of a paved parking area and an improved gravel path to the shoreline, which serves as a cartop boat launch. The Erie Canal Towpath Community Connector Trail enters the site from the downstream side on Beach Road, and leaves the site on gravel path heading upstream. The site is owned and operated by the Town of Halfmoon.

The paved parking area is directly off Beach Road, nearly across from the intersection with Clamsteam Road. A gravel path begins near the end of the parking area and continues approximately 70 feet to the shoreline and into the water, serving as a cartop boat launch. The site is partially separated from the main Mohawk River by two islands.

Signage at the perimeter of the parking area includes historical information about the Erie Canal and identifies the Erie Canal Towpath Connector. A NYSCC Water Trail sign is located near the roadway. A kayak rental kiosk is located at the edge of the parking area with signage for rental information.

The site provides ADA access to the Erie Canal Towpath Community Connector Trail.

Opportunities Provided

The site provides cartop boat launching access to the Crescent impoundment, and hiking and biking access to the Erie Canal Towpath Community Connector trail.

Vehicular Access and Parking

The site is accessible immediately off Beach Road, with a paved, delineated parking area sloped towards the river providing eleven standard spaces and one ADA space.

4.1.1.2.7 Niskayuna Lions Park

Description

The Niskayuna Lions Park is located on the south bank of the Mohawk River (Crescent impoundment) in the Town of Niskayuna. The site includes a paved parking area, permanent restrooms, an improved trail to the shoreline, an unimproved cartop boat launch, and a picnic area overlooking the river. Also, the Erie Canalway Trail intersects the site between the Mohawk River and the parking area.

The site is accessible from Route 158/Rosendale Road, where a paved entrance leads to a large, paved parking lot with delineated spaces. Permanent restrooms with flush toilets are located off the parking lot. Paved trails provide ADA access from the parking lot to the Erie Canalway Trail, which runs along the river and is bordered by a wooden fence on the river side. Between the parking lot and bike trail is a grassy picnic area with seven picnic tables. Numerous benches facing the river are located on the river side of the wooden fence. Signage identifying the site is located along the bike path entering the site and at the vehicle entrance.

From the Erie Canalway Trail, a paved path leads down the bank towards the river and transitions to gravel at the toe of the slope. The gravel trail leads to the nearest shoreline facing upstream; however, use was inhibited by vegetation growth along the shoreline and the presence of water chestnut between the shoreline and island parallel with the shoreline at the time of the onsite inventory. Informal dirt trails with uneven and muddy footing led farther out on the small peninsula to other shoreline access points which appear to be used as cartop boat launches.

Also on the site is the historic Niskayuna Train Station, a medium-sized brick building situated along the Erie Canalway Trail adjacent to the Mohawk River.

The site provides ADA access to the Erie Canalway Trail and scenic overlooks.

Opportunities Provided

The site provides picnicking and sightseeing opportunities, cartop boat launching access to the Crescent impoundment, and hiking and biking access to the Erie Canalway Trail.

Vehicular Access and Parking

The delineated, paved parking area is accessible a short distance from Route 158 and provides 70 standard spaces and two ADA spaces.

4.1.1.2.8 Mohawk River Kayak/Canoe Access

Description

The informal Mohawk River Kayak/Canoe Access is located on the north bank of the Mohawk River (Crescent impoundment) in the Town of Clifton Park. The site is accessible from Towpath Road directly underneath the Interstate 87 Bridge. The site provides an informal gravel parking area and an informal, unimproved cartop boat launch with a gentle gravel slope into the water. The Erie Canal Towpath Community Connector Trail intersects the site and continues towards the Vischer Ferry Nature Preserve. The site is entirely within the right-of-way for the Interstate 87 Bridge; it is unclear if the site is maintained as an informal recreation area.

Opportunities Provided

The site provides informal cartop boat launching and informal shoreline access to the Crescent impoundment.

Vehicular Access and Parking

The site provides an informal gravel parking area for approximately four to six vehicles. Space for a few

additional vehicles is located along the side of Towpath Road.

[4.1.1.3 Commercial Recreation Sites](#)

[4.1.1.3.1 Crescent Boat Club](#)

Description

The Crescent Boat Club is a commercial marina located on the north bank of the Mohawk River (Crescent impoundment) in the Town of Clifton Park. The entrance is located off Old Canal Road and is clearly marked as private by signage. The marina provides approximately 90 boat slips ([Waterway Guide, 2021d](#)), a picnic area with pavilion, a gas pump, and restroom facilities. Approximately 15 boat slips are available for rent by transient boaters. The site provides electricity, water, septic pump outs, restrooms, showers, internet, and cable ([NYSCC, N.D.](#)).

Water chestnut was observed at the marina during the onsite inventory. The site operator reported that the water chestnut must be mechanically removed on a continuous basis to maintain access to the boat slips.

Opportunities Provided

The site provides commercial boating access and transient boat dockage on the Crescent impoundment.

Vehicular Access and Parking

Vehicular access and parking are for marina customers only.

[4.1.1.3.2 Blain's Bay Marina](#)

Description

Blain's Bay Marina is a commercial marina located on the south bank of the Mohawk River (Crescent impoundment) in the Town of Cohoes. The entrance is located off Dunsbach Ferry Road and is clearly marked as a private marina by signage. The marina provides approximately 150 boat slips, a boat launch, restroom facilities, a gas pump, and a repair shop. Any available boat slips can be rented by transient boaters. The site provides electricity, water, septic pump outs, restrooms, showers, internet, and cable ([NYSCC, N.D.](#)).

Water chestnut was observed at the marina during the onsite inventory. The site operator reported that the water chestnut must be mechanically removed on a continuous basis to maintain access to the boat slips.

Opportunities Provided

The site provides commercial boating access and transient boat dockage on the Crescent impoundment.

Vehicular Access and Parking

Vehicular access and parking are for marina customers only.

[4.1.1.3.3 Diamond Reef Yacht Club](#)

Description

The Diamond Reef Yacht Club is a commercial marina located on the north bank of the Mohawk River

(Crescent impoundment) downstream of the Interstate 87 bridge in the Town of Clifton Park. The entrance is located off Towpath Road. Diamond Reef Yacht Club did not grant the Power Authority permission to include the site in the onsite inventory. Based on information available online, the site provides approximately 54 boat slips, a boat launch, picnic tables, gas grills, restroom and shower facilities, a river house, a full-service docking and storage site, a campground, and boat storage, and is open 24 hours a day from May 9th to October 20th ([Diamond Reef Yacht Club, 2019](#)).

Opportunities Provided

The site provides commercial boating access and transient boat dockage on the Crescent impoundment.

Vehicular Access and Parking

Vehicular access and parking are for marina customers only.

4.1.1.3.4 Albany Marine Services Marina

Description

The Albany Marine Services Marina is a commercial marina located on the south bank of the Mohawk River (Crescent impoundment) just downstream of the Route 9 bridge in the Town of Colonie. The entrance is located at the end of Albany Marine Service Lane and is gated with a large sign identifying the private marina. Albany Marine Services Marina did not grant the Power Authority permission to include the site in the onsite inventory. Based on information available online, the site provides 62 boat slips, repair services, a boat ramp, and boat storage. Six of the boat slips can be rented by transient boaters. Hours of operation are from 9 a.m. to 5 p.m. Monday through Saturday ([Waterway Guide, 2021a](#)). The majority of boat slips are located on an isolated backwater with a few out on the Mohawk River. The site provides electric, water, septic pump outs, restrooms, and showers ([NYSCC, N.D.](#))

Opportunities Provided

The site provides commercial boating access and transient boat dockage on the Crescent impoundment.

Vehicular Access and Parking

Vehicular access and parking are for marina members only.

4.1.2 Vischer Ferry Project

4.1.2.1 Project Recreation Sites

In addition to the numerous state, municipal, and commercial recreation sites providing access to Vischer Ferry Project lands and waters, three FERC-approved Project recreation sites provide access. These sites are described below and depicted in [Figure 4.1.2.1-1](#).

4.1.2.1.1 Vischer Ferry Scenic Overlook

Description

The Vischer Ferry Scenic Overlook is located on the north bank of the Mohawk River in the Town of Clifton Park, just upstream from the Vischer Ferry powerhouse. The site is owned and operated by the Power

Authority and consists of a paved access road, gravel parking area, and scenic overlook. Access to the gravel parking area is provided along the Project access road (at the intersection of Sugar Hill Road and River View). The parking area serves both the Scenic Overlook site and the Vischer Ferry Fishing Access site, and can be used to access the Erie Canal Towpath Community Connector trail.

A guardrail circles the perimeter of the parking area with an opening to provide access to a flat grassy area leading from the parking area to the overlook. The overlook is approximately 65 feet long with a chain link fence to prevent access down the slope to the forebay. Scenic views of the Vischer Ferry Project and spillway are available. A trash bin is provided at the opening in the guardrail. Signage throughout the site includes historical information, operating hours (5 a.m. to 10 p.m.), and Project recreation information pursuant to 18 CFR § 8.2. Signage and a gate along the Project access road prohibit motor vehicle access below the parking area, although the Project access road continues to the powerhouse.

Opportunities Provided

The site provides scenic views of the Mohawk River upstream and downstream of the Vischer Ferry dam, the Vischer Ferry powerhouse, dam and spillway, as well as Lock 7, on the far side of the river. Access to the Erie Canal Towpath Community Connector trail and Vischer Ferry Fishing Access are also provided (see [Section 4.1.2.1.2](#)).

Vehicular Access and Parking

The gravel parking area provides unmarked parking for approximately 12 vehicles. The parking is shared with the Vischer Ferry Fishing Access site and can be used to access the Erie Canal Towpath Community Connector trail (see [Section 4.1.2.1.2](#)).

Site Condition

The site is in good condition. The gravel parking area is firm and flat, and the overlook grass is mowed. The site does not provide ADA access as it lacks accessible parking and access routes.

4.1.2.1.2 Vischer Ferry Fishing Access

Description

The Vischer Ferry Fishing Access site is located on the north bank of the Mohawk River downstream of the Vischer Ferry powerhouse in the Town of Clifton Park. The site is owned and operated by the Power Authority and consists of a paved access road, shoreline access, and access to the Erie Canal Towpath Community Connector trail. Access to the site is provided by the Project access road, described above. The Vischer Ferry Scenic Overlook parking area provides parking for the site (see [Section 4.1.2.1.1](#)).

As discussed above, the Project access road continues to the Project powerhouse, but motor vehicles are prohibited below the Scenic Overlook parking area. Recreationists follow the road down the moderate slope on foot or bicycle. Signage at the parking area directs trail users down the access road, and signage at the trail entrance identifies the site as a public fishing area and provides Project recreation information pursuant to 18 CFR § 8.2. From the entrance, a wide gravel trail with solid footing and a gentle grade continues to the tailwater area downstream of the Powerhouse. In addition to providing access to the tailwater area below the Project dam, this trail serves as the upstream terminus of the Erie Canal Towpath Community Connector trail, which is a non-Project recreation site. Short informal spur trails with moderate slopes and

uneven footing lead from the improved trail to the shoreline access area.

The shoreline access area is open with little vegetation and gentle sand and gravel slopes toward the water. Scattered tree cover provides shade. Additional informal spur trails off the Erie Canal Towpath Community Connector trail provide dispersed shoreline access further downstream, where the shoreline becomes more heavily vegetated.

Opportunities Provided

The site provides angling, picnicking, hiking, and biking opportunities.

Vehicular Access and Parking

Vehicular access and parking are shared with the Vischer Ferry Scenic Overlook, discussed in [Section 4.1.2.1.1](#).

Site Condition

The site is in fair condition overall. During the onsite inventory, trash and debris were observed to litter the trail and shoreline. Minor erosion was observed on the spur trails leading from the gravel Erie Canal Towpath Community Connector trail to the shoreline.

The site does not provide ADA access due to the length and slope of the Project access road between the parking area and trailhead.

4.1.2.1.3 Lock 7 Boat Launch

Description

The Lock 7 Boat Launch is located on the south bank of the Mohawk River at Lock 7 in the Town of Niskayuna, directly across the river from the Vischer Ferry Project powerhouse. Access is provided by Lock 7 Road. The site, which consists of a boat launch and parking area, was constructed by the Power Authority and is maintained by the Town of Niskayuna. The site is integrated with the larger Lock 7 Park, operated by NYSCC, which includes a separate parking area, picnic area, and scenic overlook (see [Section 4.1.2.1.4](#)). The Erie Canalway Trail intersects with the site through the paved parking area, providing access to the adjacent Mohawk River State Park and John Brown Trail System ([Town of Niskayuna, 2016](#)).

The boat launch is located upstream of Lock 7. The top of the ramp is asphalt, which extends from the parking area. The ramp transitions to concrete planks forming two launch lanes with a floating dock in the middle; however, during the onsite inventory the left lane (looking towards the river) was closed. It appeared that the subgrade under the planks had eroded, causing an irregular surface which could cause problems when launching.

Opportunities Provided

The site provides boat launching opportunities and shoreline access, as well as hiking and biking access to the Erie Canalway Trail. During the onsite inventory two people were observed fishing from the floating dock and along the shoreline upstream from the launch.

Vehicular Access and Parking

The paved parking area is located at the end of Lock 7 Road and provides unlined parking spaces for approximately 20 standard vehicles and five vehicles with trailers. As the parking lot is roughly square (approximately 90 feet by 110 feet), available parking may vary based on how vehicles are parked.

Site Condition

The site was generally found to be in good to fair condition overall. The paved entrance and parking area are in good condition. As discussed above, at the time of the onsite inventory one lane of the boat ramp was closed. While the open lane appeared to be in good condition, water chestnut was encroaching on the ramp and had filled in the small backwater area surrounding the ramp. A narrow channel of open water through approximately two hundred feet of water chestnut led to the open channel of the Mohawk River.

The boat launch does not provide ADA parking or access. At the boat ramp, a three-inch-high lip between the asphalt approach and the floating dock prevents ADA compliance. The parking area lacks a designated ADA space.

4.1.2.2 Non-Project Public Recreation Sites

4.1.2.2.1 Lock 7 Park

Description

The Lock 7 Park is located on the south bank of the Mohawk River (Vischer Ferry Impoundment) adjacent to Lock 7 in the Town of Niskayuna. The site is accessible via Lock 7 Road, which leads to a paved parking area adjacent to Lock 7. A sign at the entrance indicates the operating hours are from 7 a.m. to 11 p.m. The site provides access to Lock 7 and scenic views of the Mohawk River. A grassy, shaded picnic area near the parking area contains one picnic table and one grill. A stairway from the parking area provides access to Lock 7. At the top of the lock is a concrete walkway with handrails which extends a few hundred feet along the upstream end of Lock 7. The Lock 7 Boat Launch site is at the northern end of the park (see [Section 4.1.2.1.3](#)). Upstream from the Lock 7 Boat Launch, a series of informal footpaths follow the shoreline for a few hundred feet and connect to the Erie Canalway Trail, which provides access to the adjacent Mohawk River State Park and John Brown Trail System ([Town of Niskayuna, 2016](#)). Two picnic tables in cleared dirt areas, a bench, and an ADA portable toilet are located near the parking area.

Opportunities Provided

The site provides picnicking, hiking, biking, angling, and sightseeing opportunities along the Vischer Ferry impoundment.

Vehicular Access and Parking

The paved parking area is located at the end of a paved access road off Lock 7 Road. Five standard parking spaces are delineated by lines on the pavement.

4.1.2.2.2 Mohawk Landing Kayak Launch

Description

The Mohawk Landing Kayak Launch is part of the Mohawk Landing Nature Preserve located on the north

bank of the Mohawk River (Vischer Ferry impoundment) in the Town of Clifton Park. The site is accessible from Riverview Road via a short gravel access road which leads into the parking area. The site consists of a parking area, several developed trails, picnic areas, and a cartop boat launch. The site is owned and operated by the Town of Clifton Park.

At the parking area there are numerous signs, including trail maps of the preserve, historical information, a large site identification sign, and a sign indicating the hours of operation (5 a.m. to 10 p.m.). The trail maps show two trails: a gravel trail which leads to the picnic area and cartop boat launch, and a dirt path which loops the six-acre preserve. The gravel trail includes several boardwalks over wetland or muddy areas. Additional historical signage is located along the trail.

The picnic area is located at the end of the approximately 800-foot-long gravel trail in a mowed grassy area with good tree cover overlooking the Mohawk River. One ADA and two standard picnic tables are provided on flat grades. Within the area is the cartop boat launch, which has been excavated from the bank to provide a constant moderate slope and is surfaced with gravel. The path is approximately three feet wide with vegetation encroaching on both sides.

Opportunities Provided

The site provides cartop boat launching and dispersed shoreline access to the Vischer Ferry impoundment and hiking, picnicking, and sightseeing opportunities.

Vehicular Access and Parking

The parking area provides one paved ADA space and eight standard gravel parking spaces.

4.1.2.2.3 Aqueduct Park

Description

Aqueduct Park is located on the south bank of the Mohawk River (Vischer Ferry impoundment) in the Town of Niskayuna and includes the Rexford Aqueduct State Historic Site. The park consists of two locations; the upstream site is west of the Route 146 bridge on Aqueduct Road, while a separate scenic overlook is located east (downstream) of the Route 146 bridge. The upstream site consists of a paved access road, paved parking area, paved trail with overlook, picnic area, and a gravel path leading to a cartop boat launch and floating docks. The downstream site consists of a paved parking area and a scenic overlook located on the remains of the historic aqueduct. Both sites are owned by the State of New York and operated by the Town of Niskayuna.

The upstream site is accessed from a paved road off of Aqueduct Road, which leads to a paved parking area. A paved path leads from the parking area down to a scenic overlook with two benches facing the Mohawk River.

Off the access road before the parking lot is an eight-foot-wide gravel path with bollards to prevent vehicle access. This path leads down the slope to a concrete abutment and gangway connected to a series of floating docks. Signage by the Aqueduct Rowing Club indicates the docks are for use by non-motorized watercraft only. A flat grassy area adjacent to the gravel path has three picnic tables.

The scenic overlook site downstream of the Route 146 bridge is accessed via Williams Street, near the

Route 146 roundabout. Perimeter fencing encircles the parking lot and continues around the remains of the historic Rexford Aqueduct, which serves as a scenic overlook. A paved sidewalk leads from the parking area to the site of the Rexford Bridge abutment (removed in 2017) where signage provides information on the historic aqueduct remains.

Opportunities Provided

The site provides picnicking, cartop boat launching, and sightseeing opportunities on the Vischer Ferry impoundment.

Vehicular Access and Parking

The upstream site provides approximately four standard parking spaces in an unmarked lot. Additional parking may be available along the side of the paved access road.

The scenic overlook paved parking area provides one ADA parking space and four standard parking spaces.

4.1.2.2.4 Freedom Park and Scotia Landing

Description

Freedom Park and Scotia Landing are located on the north bank of the Mohawk River (Vischer Ferry impoundment) in the Village of Scotia. The site is accessible from Schonowee Avenue with a large parking area shared with Jumping Jack's Drive-In restaurant. The Park provides a large picnic area with tables, grills, and trash cans, a concert venue with amphitheater seating, and permanent and portable restroom facilities. Ten picnic tables, two grills, and six trash cans were observed. The area is generally mowed grass with paved pathways near the amphitheater and Scotia Landing further downstream. Scattered tree cover provides adequate shade. A weekly water ski show is performed on the river during the summer season, adjacent to the Jumping Jack's Drive-In and the parking area. The site is owned and operated by the Village of Scotia.

At the downstream end of the park is Scotia Landing, which provides two ADA gangways (approximately 35 feet long), floating docks with 12 boat slips, and a kiosk with pay station. Signage lists the dock fees at \$20 per night (three night maximum), plus \$10 per night for power and water. There is no fee for day use.

Opportunities Provided

Freedom Park provides picnicking opportunities and an event venue. Scotia Landing provides boat docking and sightseeing opportunities on the Vischer Ferry impoundment.

Vehicular Access and Parking

The paved parking area seems to be shared with the Jumping Jack's Drive-In restaurant and there are approximately 140 parking spaces available.

4.1.2.2.5 Freemans Bridge Fishing Access Site

Description

The Freemans Bridge Fishing Access Site, owned and operated jointly by the Town of Glenville and

NYSDEC, is located on the north bank of the Mohawk River (Vischer Ferry impoundment) just downstream of Freemans Bridge. The site is accessible from Freemans Bridge Road/Route 12 and shares an entrance with the adjacent Waters Edge Lighthouse restaurant and Homewood Suites by Hilton hotel. The site provides separate cartop boat and trailered boat launches, paved and gravel parking and turnaround areas, an ADA portable toilet, an information kiosk, and an invasive species disposal station.

The paved parking area includes a turnaround area which leads to the trailered boat launch. Off the edge of the pavement near the launch is an invasive species disposal station with signage. The pavement transitions to solid slab of grooved concrete at the top of the ramp. On the upstream side, a concrete abutment provides the shoreline attachment for the gangway leading to the floating dock. The paved turnaround area then continues to parking spaces for vehicles with trailers.

Upstream of the trailered boat launch is the cartop boat launch, which has a separate gravel parking area. A designated ADA parking space is located near the top of the gangway. Also, an ADA portable toilet is located on a concrete pad on the island between paved and gravel parking areas. The cartop boat launch consists of a concrete abutment with a metal gangway, which leads to a floating dock with a cartop boat launch.

An information kiosk, two benches, and a trash can are located between the boat launches.

Opportunities Provided

The site provides angler access and boat launching opportunities on the Vischer Ferry impoundment.

Vehicular Access and Parking

The paved portion of the parking area provides thirteen spaces for vehicles with trailers. The gravel portion provides an additional three spaces for vehicles along with a designated ADA space. The ADA space is delineated with wooden ties embedded in the ground. Additional informal parking is located on the perimeter of the gravel area.

4.1.2.2.6 Gateway Landing Park

Description

The Gateway Landing Park is located on the south bank of the Mohawk River (Vischer Ferry impoundment) downstream of the Western Gateway bridge in the City of Schenectady. The site is situated along Cucumber Alley, which is accessed via Route 5/State Street. A paved road follows a wide curve with roadside parking spaces on the inside of the curve. Roughly in the middle of the curve is Gateway Landing Park (alternatively Gateway Park per signage), which consists of a mowed grassy area, gazebo, paved path, and floating docks. The site is owned by the County of Schenectady and is operated by the Schenectady Rotary Club. The Erie Canalway Bike Trail passes through the site, following Cucumber Alley on the river side.

From the roadside parking spaces along Cucumber Alley, an approximately 100-foot-long paved path, with bollards to prevent vehicle access, leads to the top of the bank where the surface transitions to concrete pavers. A metal gangway is fixed to a concrete abutment at the edge of the concrete pavers. The gangway connects to a series of wooden floating docks which extend approximately 50 feet along the river. Mowed grassy areas extend along the shoreline upstream and downstream of the floating docks. Also present at

the site is a gazebo on a concrete pad. Signage at the site provides historical information.

Opportunities Provided

The site provides cartop boat launching, angler access, and picnicking opportunities on the Vischer Ferry impoundment.

Vehicular Access and Parking

The parking spaces along Cucumber Alley provide eleven standard spaces and one ADA space.

4.1.2.2.7 Lock 8 Kayak Launch

Description

The Lock 8 Kayak Launch is located on the south side of Lock 8 on the Mohawk River (Vischer Ferry impoundment) in the City of Schenectady. The site is accessible from Rice Road and provides a gravel parking area at the downstream end of Lock 8. The parking area is shared with the Lock 8 Park. The Erie Canalway Trail travels between the parking area and river. The site is owned and operated by the NYSCC.

The path to the cartop boat launch begins at the downstream end of the parking area, where a paved and gated access road leads down the slope to the top of the concrete pier. From there the path turns to mowed grass and leads to the downstream end of the 500-foot-long concrete pier. At the end of the pier is an unimproved cartop boat launch with moderate to gentle slopes. A path leads from the pier down to the launch.

Opportunities Provided

The site provides shoreline access and cartop boat launching opportunities on the Vischer Ferry impoundment. The adjacent Lock 8 Park provides a greater range of recreational opportunities (see [Section 4.1.2.2.8](#)).

Vehicular Access and Parking

The parking area is shared with the Lock 8 Park, which provides unmarked parking for approximately 20 vehicles.

4.1.2.2.8 Lock 8 Park

Description

The Lock 8 Park is located on the south side of Lock 8 on the Mohawk River in the City of Schenectady. The site is accessible from Rice Road and provides a gravel parking area at the downstream end of Lock 8. The Parking area is shared with the Lock 8 Kayak Launch (see [Section 4.1.2.2.7](#)). The site provides picnic areas, scenic views of the Mohawk River (Vischer Ferry impoundment) and of Lock 8, an ADA portable toilet, and ADA access to the Erie Canalway Trail. The site is owned and operated by the NYSCC.

Upstream of the parking area and buildings associated with the lock, a grassy area provides a picnic table, grill, and trash bin. The ADA portable toilet is situated nearby across the Erie Canalway Tail. Downstream of the lock is another mowed grassy area with two picnic tables, two grills, and a trash bin. Both areas provide views of the Mohawk River and Lock 8.

Opportunities Provided

The site provides scenic and angling access to the Vischer Ferry impoundment and picnicking, sightseeing, hiking, and biking opportunities.

Vehicular Access and Parking

The parking area is shared with the Lock 8 Kayak Launch, which provides unmarked parking for approximately 20 vehicles.

4.1.2.2.9 Maalwyck Park Road River Access

Description

This state-owned property is located adjacent to Lock 8 on the north bank of the Mohawk River (Vischer Ferry impoundment) along Maalwyck Park Road in Glenville. The site provides informal shoreline access. Maalwyck Park Road approaches Lock 8 from Route 5/Mohawk Avenue; near the lock the road becomes a gravel road and turns downstream. Just beyond a wooden gate is a gravel parking area, which allows for pull-in parking spaces off the road. The road continues downstream following the top of the bank, providing additional parking closer to the shoreline. The shoreline is accessible at several locations along the road. Along the shoreline the bank consists of small, rounded cobbles mixed with gravel. A gentle slope extends from the bank into the water. The site provides scenic views of the upstream end of the Vischer Ferry impoundment and of Lock 8.

Opportunities Provided

The site provides informal shoreline access to the upstream end of the Vischer Ferry impoundment.

Vehicular Access and Parking

The parking area is a wide area off the gravel road, with capacity for approximately eight to ten vehicles. Farther along the road on the dirt shoulders there is additional parking capacity.

4.1.2.3 Commercial Recreation Sites

4.1.2.3.1 Schenectady Yacht Club

Description

The Schenectady Yacht Club is a commercial marina located on the north bank of the Mohawk River (Vischer Ferry impoundment) just downstream of the Rexford Bridge in Rexford. The marina is accessible on a private paved access road off NY Route 146. A small gravel parking area is provided near the yacht club building, and the road continues down towards the shoreline. A large boat storage area is also registered with the state as a campground but is only available to club members. The marina provides 78 boat slips on the river, 12 boat slips on the backwater, a large shoreline picnic area, a boat launch, swimming pool, and fuel pumps. The marina is open from 11 a.m. to 7 p.m. Monday through Friday and 9 a.m. to 7 p.m. Saturday and Sunday ([Schenectady Yacht Club, N.D.](#)). A few boat slips are available to rent by transient boaters. The site provides electricity, water, septic pump outs, restrooms, showers, a laundromat, internet, and cable ([NYSCC, N.D.](#)).

Opportunities Provided

The site provides commercial boating access and transient boat dockage on the Vischer Ferry impoundment.

Vehicular Access and Parking

Vehicular access and parking are for club members only.

4.1.2.3.2 Waters Edge Lighthouse

Description

The Waters Edge Lighthouse is a restaurant and marina located on the north bank of the Mohawk River (Vischer Ferry impoundment) in the Town of Glenville. The site is accessible from Freemans Bridge Road/Route 12 and shares an entrance with the adjacent Homewood Suites by Hilton hotel and Freemans Bridge Fishing Access Site. The site provides a marina with 16 boat slips. Four of these are available for customer use, and the remaining slips are available for seasonal rental ([Waters Edge Lighthouse, 2021](#)).

Opportunities Provided

The site provides boating access to the Vischer Ferry impoundment and limited docking for restaurant customers.

Vehicular Access and Parking

There is a large, paved parking lot serving both the hotel and the Waters Edge Lighthouse restaurant. Access to the boat slips from the parking area requires traversing the outdoor patio of the restaurant.

4.1.2.3.3 Mohawk Valley Marine

Description

Mohawk Valley Marine is a commercial marina located on the north bank of the Mohawk River (Vischer Ferry impoundment) in the City of Schenectady. The marina did not grant the Power Authority permission to include the site in the onsite inventory. Based on information available online, the site provides 70 boat slips, a boat launch, a boat storage area, and repair services ([Mohawk Valley Marine, 2021](#)). One boat slip is available to rent by transient boaters ([Waterway, 2021b](#)). The site provides electricity, water, septic pump outs, restrooms, and showers ([NYSCC, N.D.](#))

Opportunities Provided

The site provides commercial boating access and transient boat dockage on the Vischer Ferry impoundment.

Vehicular Access and Parking

Vehicular access and parking are for marina customers only.

4.1.2.3.4 Mohawk Harbor

Description

Mohawk Harbor is commercial marina located on the south bank of the Mohawk River (Vischer Ferry impoundment) within a small inlet in the City of Schenectady. As part of a 60-acre planned community, the Rivers Casino and Resort, The Landing Hotel, The River House (high-end apartment building), and other commercial restaurants and businesses are a short walk from the harbor ([Mohawk Harbor Marina, N.D.](#)). Separate paved and gravel parking areas are available off River Street. The approximately 1.5 mile long ALCO Heritage Trail begins at the Erie Canalway trail and runs upstream through the community, passing both parking areas and following the shoreline for half a mile upstream of the harbor.

Mohawk Harbor did not grant the Power Authority permission to include the site in the onsite inventory. Based on information available online, the harbor features 50 boat slips, of which fifteen are available to overnight transient boaters ([Waterway Guide, 2021c](#)). In addition, short-term daily dockage is available for guests of several retail establishments affiliated with the planned community ([Mohawk Harbor, N.D.](#)). The site provides electricity, water, and restrooms ([NYSCC, N.D.](#)).

Extending to the south of the harbor is a large amphitheater facing the harbor with gentle slopes and mowed grassy seating areas.

Opportunities Provided

The site provides commercial boating access and transient boat dockage on the Vischer Ferry impoundment.

Vehicular Access and Parking

Vehicular access and parking are for marina customers only.

4.1.3 Regional Trails

4.1.3.1 Erie Canalway Trail

Description

The Erie Canalway Trail runs along the south bank of the Mohawk River. The multi-use trail is 365 miles long, with approximately 20 miles following the river along the Crescent and Vischer Ferry Project boundaries. This segment is referred to as the Mohawk Hudson Bike/Hike Trail, which runs from Little Falls to Albany. The trail is paved except for portions of the trail through Schenectady and Dunsbach Ferry, where the trail follows the shoulder of vehicular roads. The trail downstream of the Interstate 87 bridge generally swings inland and does not follow the Mohawk River. The trail forms part of the 750-mile Empire State Trail system.

The Erie Canalway Trail provides access to following sites: Colonie Mohawk River Park, Blain's Bay Marina, Niskayuna Lions Park, Lock 7 Park, Lock 7 Boat Launch, Aqueduct Park, Mohawk Harbor, Gateway Landing Park, the Lock 8 Park, and Lock 8 Kayak Launch. In turn, as discussed in separate sections, many of these sites provide direct access to portions of the Project.

Opportunities Provided

The trail provides biking, hiking, and sight-seeing opportunities along the Erie Canal and Mohawk River. The trail provides visual access to the Project impoundments at many locations.

Vehicular Access and Parking

The trail is accessible from many locations. There are nine parking locations for the Erie Canalway Trail located in the vicinity of the Projects, including Niskayuna Lions Park, Lock 7 Park, Gateway Landing Park, and the Lock 8 Park. The remaining parking locations are not adjacent to the Project boundaries ([New York Parks and Trails, N.D.](#)).

4.1.3.2 Erie Canal Towpath Community Connector

Description

The Erie Canal Towpath Community Connector is an approximately nine mile long regional biking and hiking trail which follows the north bank of the Mohawk River from Halfmoon Crescent Park to the Vischer Ferry Project Fishing Access. Ownership and operation of the trail varies. The trail surface varies from gravel to pavement and occasionally follows the shoulder of vehicular roads. The following recreation sites are accessible from the trail: Halfmoon Crescent Park, Klamsteam Kayak Launch, Mohawk River Canoe/Kayak Access, Vischer Ferry Nature and Historic Preserve, and the Vischer Ferry Project Fishing Access. The trail follows a similar route to the Mohawk Towpath Scenic Byway and provides numerous stops of scenic or historic interest.

Opportunities Provided

The trail provides biking, hiking, and sightseeing opportunities along the Erie Canal and Mohawk River.

Vehicular Access and Parking

The trail can be accessed at the Halfmoon Crescent Park, Klamsteam Kayak Launch, Mohawk River Canoe/Kayak Access, Vischer Ferry Nature and Historic Preserve, and the Vischer Ferry Project Fishing Access sites, each of which provides vehicular parking.

4.1.3.3 New York State Canalway Water Trail

Description

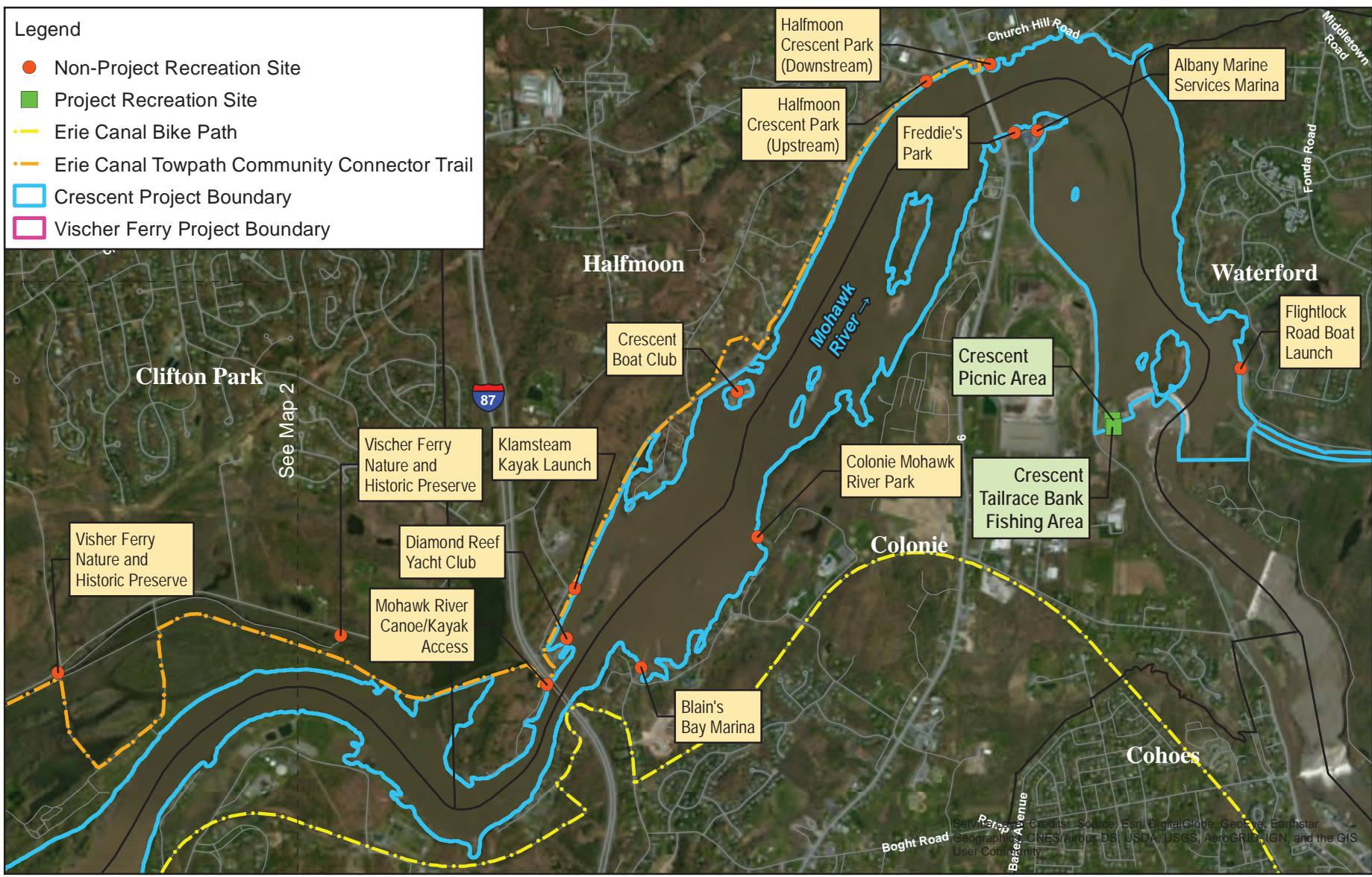
The New York State Canalway Water Trail traverses approximately 450 miles of canals, lakes, and rivers, including the Erie, Cayuga-Seneca, Oswego, and Champlain canals. The water trail is accessible from more than 140 sites, and several canal parks provide overnight camping opportunities for trail users ([Erie Canalway National Heritage Corridor, 2022](#)). The water trail traverses the full extent of both the Crescent and Vischer Ferry impoundments and can be accessed from several Project and non-Project facilities, including Maalwyck Park, Lock 8 Kayak Launch, Gateway Landing Park, Freemans Bridge Fishing Access Site, Aqueduct Park, Mohawk Landing Kayak Launch, Lock 7 Boat Launch, Mohawk River Kayak/Canoe Access, Niskayuna Lions Park, Klamsteam Kayak Launch, Colonie Mohawk River Park, Vischer Ferry Nature Preserve, Halfmoon Crescent Park, Flightlock Road Boat Launch, and several commercial marinas.

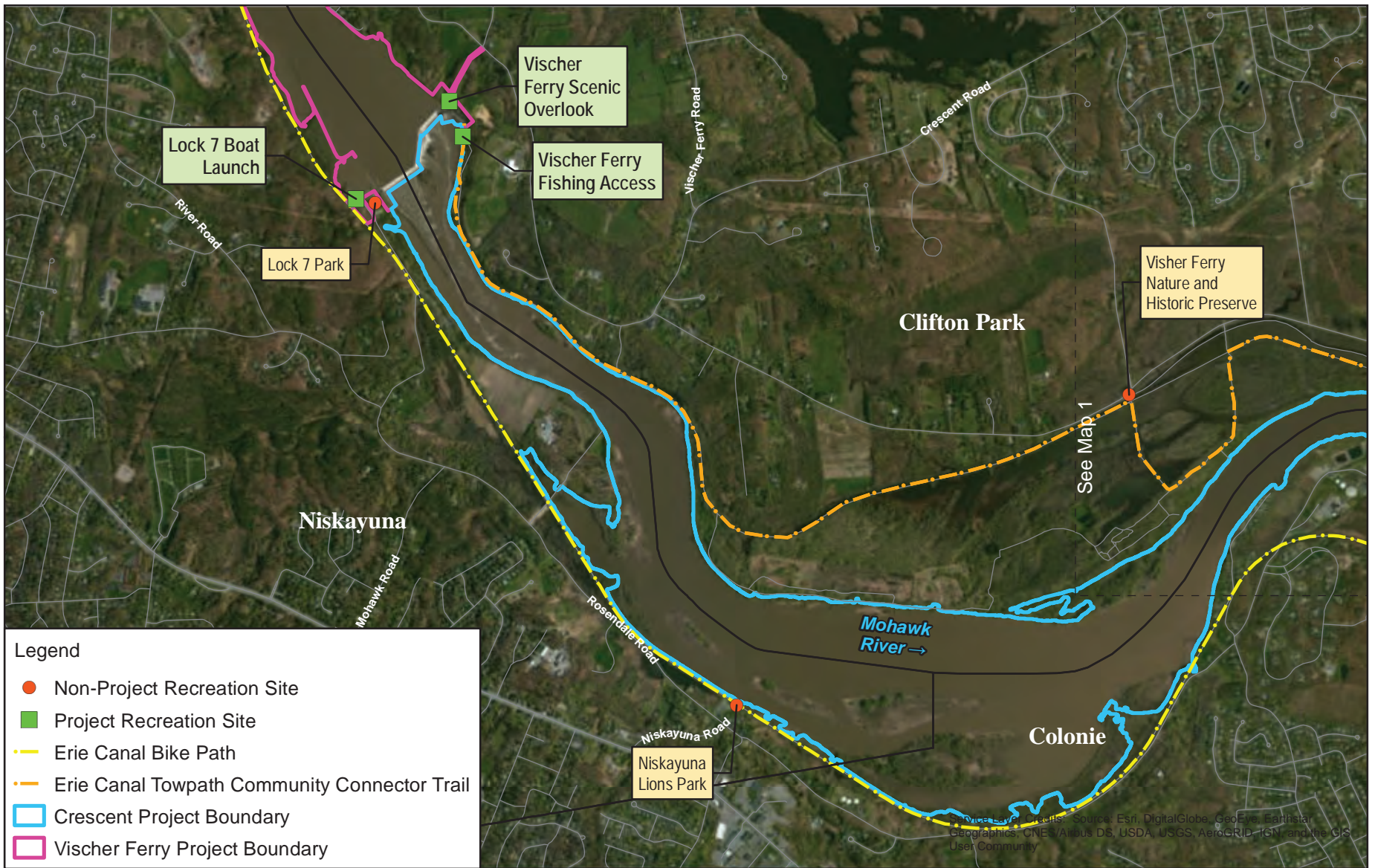
Opportunities Provided

The water trail provides boating, fishing, wildlife watching, and sightseeing opportunities on both the Crescent and Vischer Ferry impoundments. Numerous access points provide land-based recreational activities including picnicking, hiking, biking, and camping opportunities.

Vehicular Access and Parking

As discussed above, the water trail can be accessed from several boat launches on the Crescent and Vischer Ferry impoundments, all of which provide vehicular access and parking.

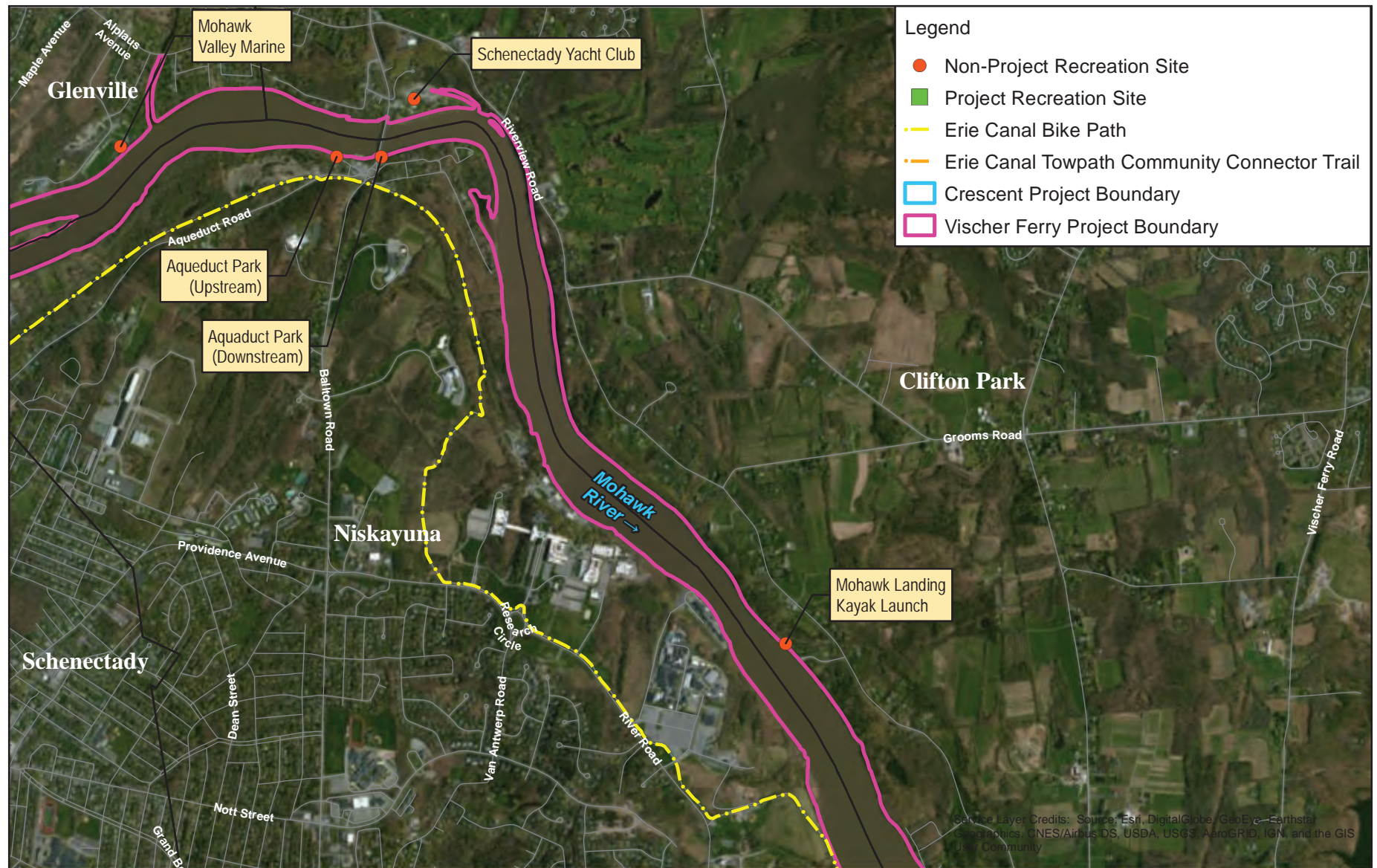




Crescent and Vischer Ferry
Projects Relicensing
FERC No. P-4678 and P-4679



Figure 4.1-2:
Recreation Sites
in the Study Area



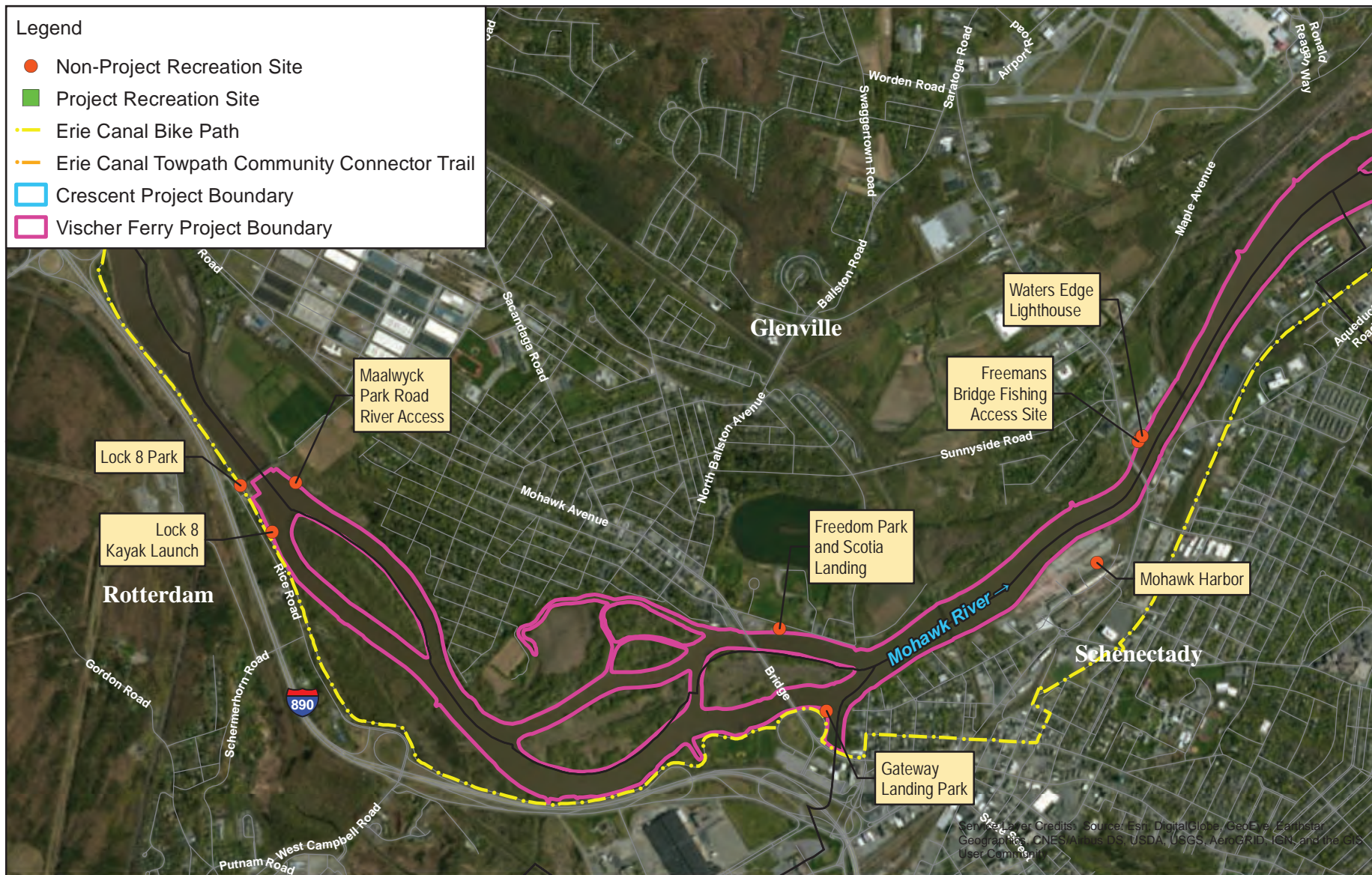
Crescent and Vischer Ferry
Projects Relicensing
FERC No. P-4678 and P-4679



Figure 4.1-3:
Recreation Sites
in the Study Area

Legend

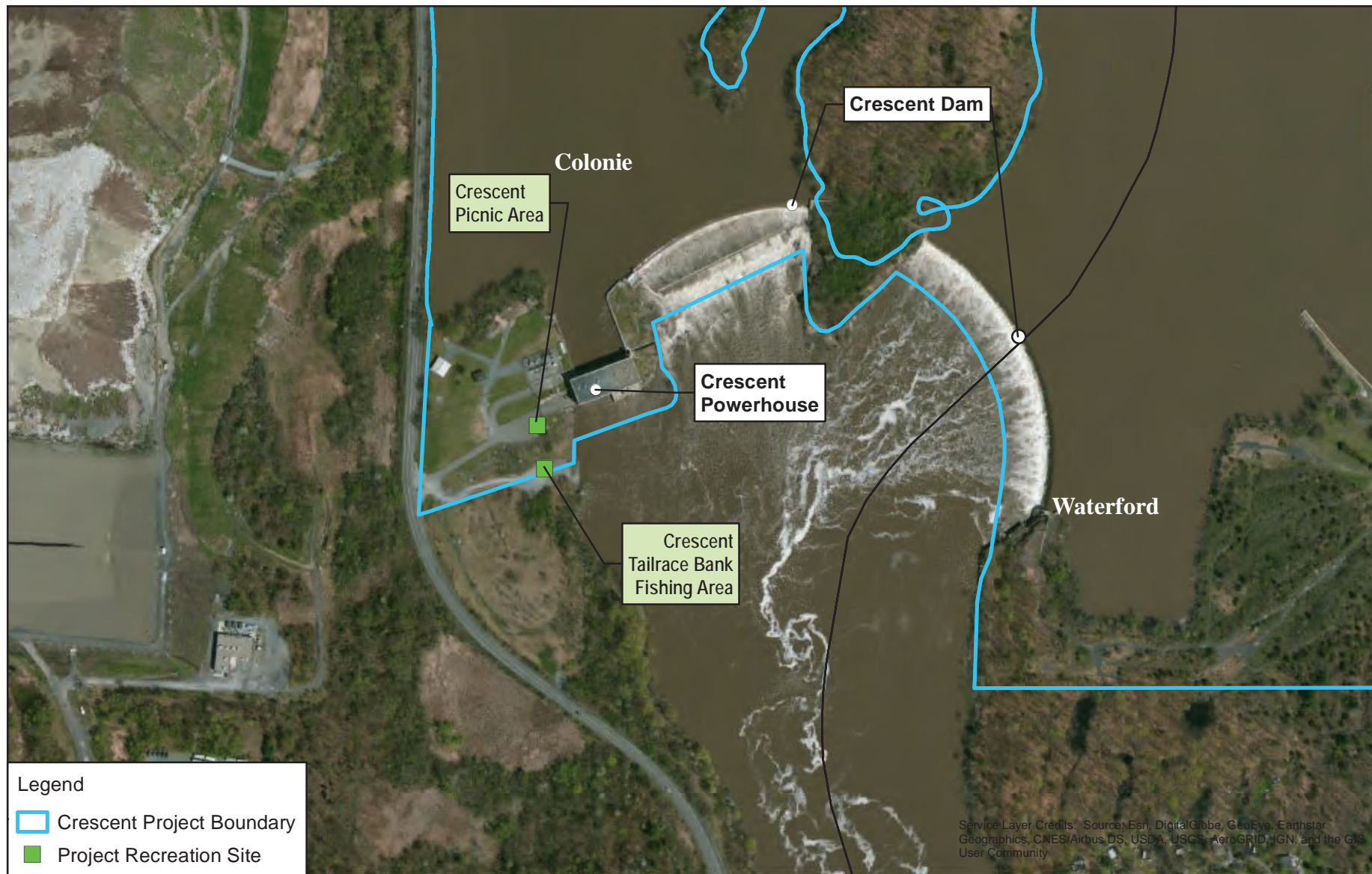
- Non-Project Recreation Site
- Project Recreation Site
- Erie Canal Bike Path
- Erie Canal Towpath Community Connector Trail
- Crescent Project Boundary
- Vischer Ferry Project Boundary



Crescent and Vischer Ferry Projects Relicensing FERC No. P-4678 and P-4679



Figure 4.1-4:
Recreation Sites
in the Study Area

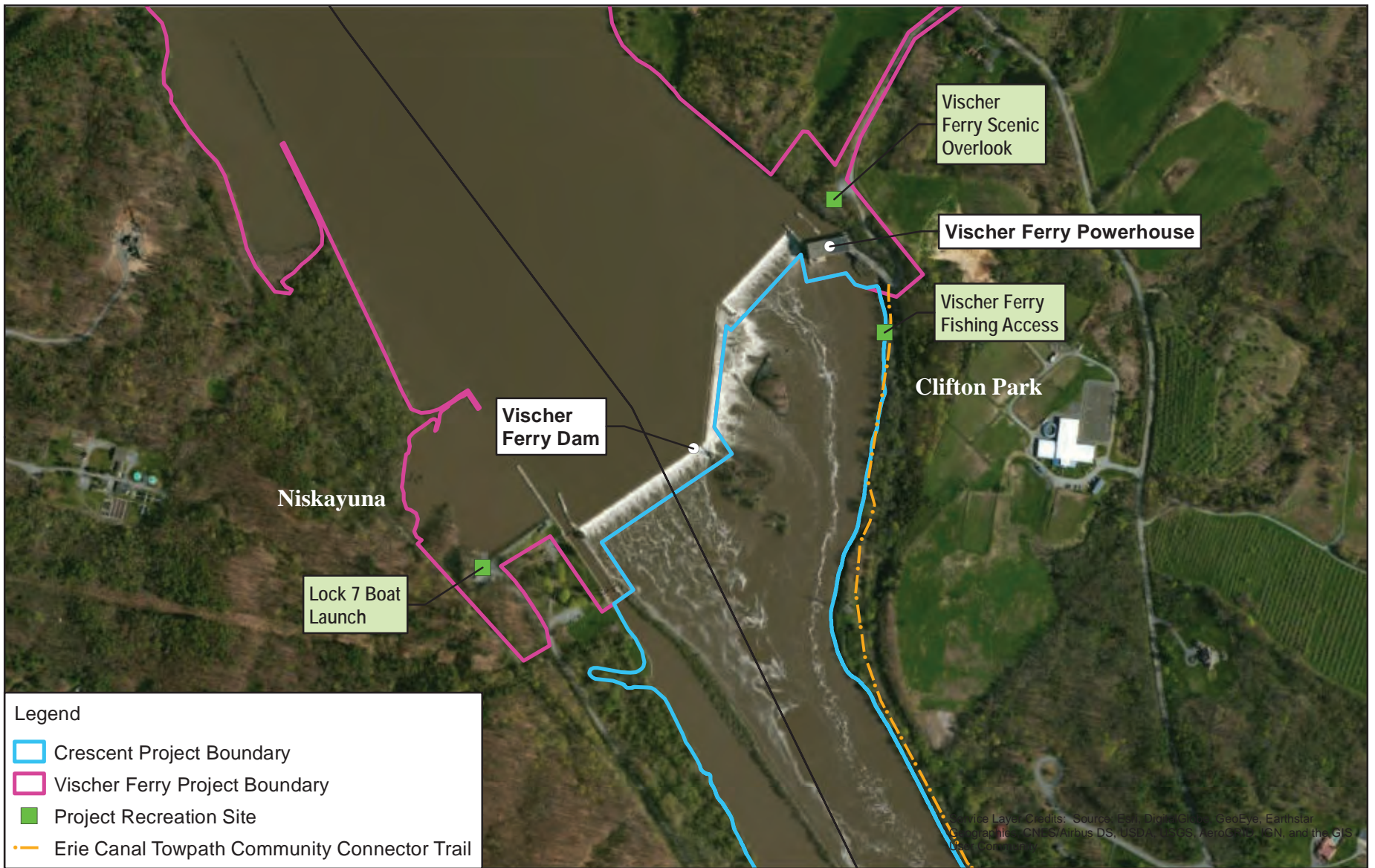


Crescent and Vischer Ferry
Projects Relicensing
FERC No. P-4678 and P-4679

0 200 400 800
Feet



**Figure 4.1.1.1-1:
Crescent Project
Recreation Sites**



Crescent and Vischer Ferry
Projects Relicensing
FERC No. P-4678 and P-4679



Figure 4.1.2.1-1:
Vischer Ferry Project
Recreation Sites

0 175 350 700
Feet

4.2 Existing Recreation Use

4.2.1 Crescent Project

As discussed in [Section 2.1](#) and [Section 4.1](#), the Crescent Project provides two FERC-approved Project recreation sites on the south bank of the Mohawk River adjacent to the Project powerhouse: the Crescent Tailrace Bank Fishing Area, which provides shoreline and angler access, and the Crescent Picnic Area, which provides a grassy picnic area with views of the Project dam. Recreational use and capacity at each site are discussed in the following subsections.

As discussed in [Section 2.1](#), the parking area serving the Tailrace Bank Fishing Area was closed to the public throughout the study period due to construction activities at the Project dam. Temporary signage directed users to park in the Crescent Picnic Area parking lot and to access the Tailrace Bank Fishing Area via a temporary informal footpath leading from the parking area/edge of the picnic area to the shoreline. Due to this closure and temporary relocation, use at the Picnic Area during the 2021 recreation season may have been higher than usual, as Tailrace Bank Fishing Area users who wouldn't typically utilize the site were redirected to it. Conversely, use of the Tailrace Bank Fishing Area may have been lower than usual during the 2021 recreation season. As discussed below, both the Picnic Area and Tailrace Bank Fishing parking lots were found to have ample capacity to meet the existing and future demand; therefore, the temporary closure is not considered to have significantly affected the study findings.

4.2.1.1 Crescent Tailrace Bank Fishing Area

[Table 4.2.1.1-1](#) depicts estimated recreational use by day type and activity as well as total use in recreation days for the Crescent Tailrace Bank Fishing Area. As shown, total estimated use at the site during the study season was 949 recreation days. Approximately 57 percent of this use was for fishing and 37 percent was for sightseeing. The remaining 7 percent was categorized as "other" and included use of the site as an informal hand-carry boat launch⁶.

[Table 4.2.1.1-2](#) depicts the estimated parking area capacity utilization at the Crescent Tailrace Bank Fishing Area on average non-peak weekends, based on estimated site use and the site's percentage of overall use of the Crescent Picnic Area parking lot during the 2021 recreation season (see discussion in [Section 3.3](#)). The table also depicts the percentage of the site's capacity estimated to be utilized on average non-peak weekends, as well as the estimated peak use and capacity utilization. As shown, the average point-in-time parking for recreational use at the site on non-peak weekends is estimated to be 1 space, which is 10 percent of the site's capacity of 10 spaces. The estimated peak parking for recreational use is 4 spaces, or 40 percent of the site's capacity.

4.2.1.2 Crescent Picnic Area

[Table 4.2.1.2-1](#) depicts estimated recreational use by day type and activity as well as total use in recreation days for the Crescent Picnic Area. As shown, total estimated use at the site during the study season was 508 recreation days. Approximately 93 percent of this use was for sightseeing and 3 percent was for picnicking. The remaining 4 percent was categorized as "other" and included unidentified activities.

⁶ NYPA does not promote boat access at this site.

[Table 4.2.1.2-2](#) depicts estimated parking area capacity utilization due to recreational use at the Crescent Picnic Area on average non-peak weekends, based on estimated recreational use at the site and the site's percentage of overall use of the parking lot during the 2021 recreation season (see discussion in [Section 3.3](#)). The table also depicts the percentage of the site's capacity estimated to be utilized on average non-peak weekends, as well as the estimated peak use and capacity utilization. As shown, the average point-in-time parking for recreational use at the site on non-peak weekends is estimated to be 1 space, which is 10 percent of the site's capacity of 10 spaces. The estimated peak parking for recreational use is 2 spaces, or 20 percent of the site's capacity.

On weekdays, the Crescent Picnic Area parking lot is also used by Power Authority employees accessing the Project. During the 2021 recreation season, the average point-in-time weekday use (rounded up to nearest whole number) including vehicles at the site for both recreational and non-recreational purposes, was three vehicles, which comprises 30 percent of the site's capacity. As discussed in [Section 4.1.1.1.2](#), there is additional parking capacity for this site along the shoulder of the access lane.

4.2.2 Vischer Ferry Project

As discussed in [Section 2.1](#) and [Section 4.1](#), the Vischer Ferry Project provides three FERC-approved Project recreation sites: the Vischer Ferry Scenic Overlook, the Vischer Ferry Fishing Access, and the Lock 7 Boat Launch. The Vischer Ferry Scenic Overlook and Fishing Access Area are both on the north shore of the Mohawk River and share a single parking area adjacent to the scenic overlook. The Lock 7 Boat Launch is adjacent to the Lock 7 Park on the south bank of the Mohawk River. Recreational use and capacity at each site are discussed in the following subsections.

As discussed in [Section 2.1](#), the Lock 7 Boat Launch and parking area were closed from May 10, 2021 to July 1, 2021 and the Vischer Ferry Scenic Overlook parking area was partially taken up by construction equipment from August 27 to September 30. As site use was calculated from data gathered only on the days the sites were fully open, these temporary closures are not considered to have significantly affected the study results.

4.2.2.1 Vischer Ferry Scenic Overlook

[Table 4.2.2.1-1](#) depicts the parking area capacity utilization at the Vischer Ferry Scenic Overlook on average non-peak weekends during the 2021 recreation season. The table also presents the percentage of the site's capacity utilized on average non-peak weekends, as well as the peak use and peak capacity utilization. As shown, the average point-in-time parking for recreational use at the site on non-peak weekends was 3 spaces, which is 25 percent of the site's capacity of 12 spaces. The peak parking for recreational use was 8 spaces or 67 percent of the site's capacity; this peak use was observed on one weekday during the study period.

Based on the average number of visits per year reported by user survey respondents (see [Section 4.3](#)), approximately 55 percent of parking area usage is by Vischer Ferry Scenic Overlook users and 44 percent is by Vischer Ferry Fishing Access users; however, in many cases recreationists use both sites during the same trip, and a large percentage of users attributed to the Vischer Ferry Fishing Access are likely also using the Erie Canal Towpath Community Connector trail (see discussion in [Section 4.2.2.2](#), below).

4.2.2.2 Vischer Ferry Fishing Access

[Table 4.2.2.2-1](#) depicts estimated recreational use by day type and activity as well as total use in recreation days for the Vischer Ferry Fishing Access. As shown, total estimated use along the trail leading to the site during the study season was 7,216 recreation days. Approximately 41 percent of this use was for walking, 39 percent was for fishing, and 11 percent was for biking. The remaining uses, including jogging, sightseeing, boating, and “other” uses (including unidentified activities), each represented less than 5 percent of total use.

As discussed in [Section 4.1.2.1.2](#), access to the shoreline at the Vischer Ferry Fishing Access is via several informal footpaths leading from the improved Erie Canal Towpath Community Connector trail, a non-Project recreation site sharing a trailhead with the fishing access site. Use of the connector trail is further tied to that of both the Vischer Ferry Scenic Overlook and the Vischer Ferry Fishing Access in that all three sites share the same parking area and access road. As such, users of the connector trail are included in use estimates for the fishing access site as well as for the scenic overlook parking area.

4.2.2.3 Lock 7 Boat Launch

[Table 4.2.2.3-1](#) depicts estimated recreational use by day type and activity as well as total use in recreation days for the Lock 7 Boat Launch. As shown, total estimated use at the site during the study season was 3,121 recreation days. Approximately 37 percent of this use was for boating, 35 percent was for sightseeing, and 28 percent was for fishing. Approximately 67 percent of boats launched at the site were hand-carry boats and 33 percent were trailered boats.

[Table 4.2.2.3-2](#) depicts the parking area capacity utilization at the Lock 7 Boat Launch on average non-peak weekends during the 2021 recreation season. The table also presents the percentage of the site’s capacity utilized on average non-peak weekends, as well as the peak use and peak capacity utilization. As shown, the average point-in-time parking for recreational use at the site on non-peak weekends was 2 spaces, which is 8 percent of the site’s capacity of 25 spaces. The peak parking for recreational use was 9 spaces or 36 percent of the site’s capacity; this peak use was observed on two weekdays during the study period.

As discussed in [Section 4.1.2.1.3](#), the Lock 7 Boat Launch site is integrated with the larger Lock 7 Park, and the Erie Canalway Trail intersects with the site through the paved parking area, providing access to the adjacent Mohawk River State Park and John Brown Trail System. Field observations indicate that a significant portion of Lock 7 Boat Launch parking area use is for Erie Canalway Trail access.

Table 4.2.1.1-1: Existing Recreational Use, Crescent Tailrace Bank Fishing Area

Day Type	Average Daily Use ¹			
	Fishing	Sightseeing	Other	Total
Weekday	2.0	1.6	0.2	3.8
Weekend	4.8	2.3	0.8	7.9
Peak Use/Holiday	5.7	3.3	0.0	9.0
Total (recreation days)	538	349	63	949
Percent of Total Use	57%	37%	7%	

¹Average number of people per day using site for recreational purposes.

Table 4.2.1.1-2: Existing Parking Area Capacity Utilization, Crescent Tailrace Bank Fishing Area

Available Spaces	Average Non-Peak Weekend		Estimated Peak Use	
	Spaces in Use ¹	Capacity Utilization	Spaces in Use	Capacity Utilization
10	1	10%	4	40%

¹Rounded up to the nearest whole number.

Table 4.2.1.2-1: Existing Recreational Use, Crescent Picnic Area

Day Type	Average Daily Use ¹			
	Sightseeing	Picnicking	Other	Total
Weekday	2.1	0.1	0.2	2.3
Weekend	2.1	0.2	0.0	2.3
Peak Use/Holiday	9.7	0.0	0.0	9.7
Total (recreation days)	471	17	19	508
Percent of Total Use	93%	3%	4%	

¹Average number of people per day using site for recreational purposes.

Table 4.2.1.2-2: Existing Parking Area Capacity Utilization, Crescent Picnic Area

Available Spaces	Average Non-Peak Weekend		Estimated Peak Use	
	Spaces in Use ¹	Capacity Utilization	Spaces in Use ¹	Capacity Utilization
10	1	10%	2	20%

¹Rounded up to the nearest whole number.

Table 4.2.2.1-1: Existing Parking Area Capacity Utilization, Vischer Ferry Scenic Overlook

Available Spaces	Average Non-Peak Weekend		Observed Peak Use	
	Spaces in Use ¹	Capacity Utilization	Spaces in Use	Capacity Utilization
12	3	25%	8	67%

¹Rounded up to the nearest whole number.

Table 4.2.2.2-1: Existing Recreational Use, Vischer Ferry Fishing Access

Day Type	Average Daily Use ¹							
	Biking	Fishing	Jogging	Boating	Sightseeing	Walking	Other	Total
Weekday	2.7	11.2	1.5	0.5	1.0	13.1	0.9	30.9
Weekend	9.2	25.8	1.7	0.7	0.9	25.4	0.1	63.8
Peak Use/Holiday	2.3	20.7	1.0	0.3	1.3	10.7	1.0	37.3
Total (recreation days)	784	2,822	278	99	183	2,927	125	7,216
Percent of Total Use	11%	39%	4%	1%	3%	41%	2%	

¹Average number of people per day using site for recreational purposes.

Table 4.2.2.3-1: Existing Recreational Use, Lock 7 Boat Launch

Day Type	Average Daily Use ¹				
	Boating	Fishing	Sightseeing	Other	Total
Weekday	5.9	4.3	5.7	0.1	15.9
Weekend	7.1	5.0	6.1	0.0	18.3
Peak Use/Holiday	7.0	9.0	8.5	0.0	24.5
Total (recreation days)	1,150	869	1,092	11	3,121
Percent of Total Use	37%	28%	35%	0%	

¹Average number of people per day using site for recreational purposes.

Table 4.2.2.3-2: Existing Parking Area Capacity Utilization, Lock 7 Boat Launch

Available Spaces	Average Non-Peak Weekend		Peak Use Observed	
	Spaces in Use ¹	Capacity Utilization	Spaces in Use	Capacity Utilization
25	2	8%	9	36%

¹Rounded up to the nearest whole number.

4.3 User Perceptions of Recreation Sites

A survey of recreational users was administered at Project recreation sites as well as online throughout the study period. The survey solicited basic information regarding user characteristics and use patterns, as well as user opinions on various aspects of the recreation sites. The survey in its entirety is included as [Appendix C](#). In total, 112 surveys were completed (31 online and 81 on paper). Individual surveys in some cases pertain to multiple recreation sites, and in a few cases surveys pertain to sites at both Projects (21 survey responses pertain to the Crescent Project and 93 pertain to the Vischer Ferry Project, with 8 surveys pertaining to both Projects). Not all respondents answered each question, and some respondents selected multiple answers to the same question; therefore, the number of responses for a single question may not equal the total number of completed surveys.

Basic information on user characteristics and use patterns were summarized from the survey results and presented in [Table 4.3-1](#) and [Figure 4.3-1](#). As shown in [Table 4.3-1](#), the majority of survey respondents reside in Saratoga County (42 percent), followed by Schenectady (24 percent) and Albany (23 percent) Counties. The majority of respondents reported visiting the Vischer Ferry Scenic Overlook (36 percent) during the day of the survey, followed by the Vischer Ferry Fishing Access (23 percent) and the Lock 7 Boat Launch (21 percent). The Crescent Tailrace Bank Fishing Area and Crescent Picnic Area were the least visited sites according to survey responses, with 11 and 9 percent of respondents, respectively, reporting visiting each site on the day of the survey. The average group size was just under two people, with most people (72 percent) traveling to the site by automobile, 19 percent by foot, and 9 percent by bicycle. Respondents reported visiting the Vischer Ferry Scenic Overlook an average of 56 times per year, the Vischer Ferry Fishing Access 46 times per year, and the Crescent Tailrace Bank Fishing Area 20 times per year. The Lock 7 Boat Launch and Crescent Picnic Area reportedly see less repeat visitors, with each site averaging 9 repeat visits per year.

As shown in [Figure 4.3-1](#), when asked which activities respondents engage in by season at Project recreation sites, the most popular activities reported across all seasons were trail-based and sightseeing activities, including walking, nature observation, scenic viewing, hiking, canal trail usage, birding, photography, biking, and sightseeing. Less popular activities included fishing, driving for pleasure, canoeing/kayaking, running, picnicking, and fishing from a boat. Power boating, educational programs, paddle boarding, sunbathing, and swimming are reportedly seldom or never engaged in at Project recreation sites.

Survey results pertaining to user opinions are discussed by Project in the following sections. Where possible, responses are grouped based on which Project recreation site they pertain to. In some cases, especially with the sites that are closely related or share facilities (Crescent Picnic Area and Tailrace Bank Fishing Area, Vischer Ferry Scenic Overlook and Fishing Access), the responses pertain to both sites, or it is unclear to which site they pertain. In those cases, the responses were included for all sites to which they may pertain.

4.3.1 Crescent Project

The majority of survey respondents visiting the Crescent Project recreation sites reported that the site is not crowded and indicated that they are satisfied with the available recreation facilities. [Figure 4.3.1-1](#) and [Figure 4.3.1-2](#) depict the rating of each of these site aspects by percentage of respondents. As shown in [Figure 4.3.1-1](#), 86 percent of respondents rated the sites as not crowded, while only 10 percent and 5

percent rated the sites as slightly or somewhat crowded, respectively. As shown in [Figure 4.3.1-2](#), 29 percent were satisfied with the available facilities, 19 percent were more than satisfied, and 24 percent were extremely satisfied. Of the 29 percent of respondents who were less than satisfied with the available facilities, 24 percent were slightly satisfied, and 5 percent were not satisfied. Respondents were asked to explain any ratings of less than “satisfied” in an open-ended question. Verbatim responses are included in [Table 4.3.1-1](#). At the Crescent Picnic Area, only 5 responses were provided and each response cited a different reason for the low rating. Responses included wishing to know more about an osprey nest, an observation on the construction status, garbage at the site, lack of restrooms and dated picnic tables, and the need to mow the picnic area. The average satisfaction rating for this site was 4, or “more than satisfied.” At the Crescent Bank Fishing Area, 6 responses were provided. Three pertained to litter, two to lack of boat launching opportunities, and one to need for improved maintenance. The average satisfaction rating for this site was 3, or “satisfied.”

Survey respondents were asked to rate the following attributes for Project recreation sites on a scale of one to five, with one being poor and five being excellent:

- Parking
- River Access
- Signs/Information
- Trash Receptacles
- Overall Site Condition

[Figure 4.3.1-3](#) depicts summarized ratings for each attribute by the percentage of respondents who reported visiting the site. As shown, the majority of respondents rated all attributes of the Crescent Picnic Area as fair to excellent, although 43 percent of respondents rated the trash receptacles at the site as below fair. The majority of respondents visiting the Crescent Tailrace Bank Fishing Area similarly rated all attributes as fair or above, with the exception of site condition. Half of respondents rated site condition as fair or above and half as below fair. Additionally, 46 percent rated trash receptacles as being below fair. Respondents were asked to explain any rating below fair. Verbatim responses are provided in [Table 4.3.1-2](#). Two of the three responses for the Crescent Picnic Area involved litter; the third indicated that the site is clean and mowed. At the Crescent Tailrace Bank Fishing Area, responses referenced litter, construction, and parking lot maintenance.

Recreationists were also asked to rate the value of the site on a scale of 1 to 5, with 1 being low and 5 being high, were given open-ended questions asking what they liked most and least about the site, and were given the opportunity to provide any additional comments. Verbatim responses to these open-ended questions are provided in [Table 4.3.1-3](#). The responses are similar to responses on previous open-ended questions, discussed above. The average value reported for the Crescent Picnic Area was approximately 4.3, and the average value reported for the Crescent Tailrace Bank Fishing Area was approximately 3.7. When asked whether they would return to the site, 100 percent of Crescent Picnic Area visitors responded yes, and 93 percent of Crescent Tailrace Bank Fishing Area visitors responded yes.

4.3.2 Vischer Ferry Project

The majority of respondents visiting the Vischer Ferry Project recreation sites reported that the site is not crowded and indicated that they are satisfied with the available recreation facilities. [Figure 4.3.2-1](#) and [Figure 4.3.2-2](#) depict the rating of each of these site aspects by percentage of respondents. As shown in [Figure 4.3.2-1](#), 71 percent of respondents rated the site as not crowded, while only 22 percent and 7 percent rated the sites as slightly or somewhat crowded, respectively. As shown in [Figure 4.3.2-2](#), 34 percent were satisfied with the available facilities, 16 percent were more than satisfied, and 34 percent were extremely satisfied. Of the 15 percent of respondents who were less than satisfied with the available facilities, 12 percent were slightly satisfied 3 percent were not satisfied. Respondents were asked to explain any ratings of less than “satisfied” in an open-ended question. Verbatim responses are included in [Table 4.3.2-1](#). At the Vischer Ferry Scenic Overlook, responses included lack of restrooms, litter, maintenance needs, and one request for benches and a raised viewing platform. The average satisfaction rating for this site was 4, or “more than satisfied.” At the Vischer Ferry Fishing Access, all 7 negative responses pertained to litter. The average satisfaction rating for this site was 4, or “more than satisfied.” At the Lock 7 Boat Launch, 11 responses contained various requests, several of which pertained to the non-Project amenities associated with Lock 7 Park. Responses pertaining to the Project site cited dock and launch maintenance issues, construction closures, and water chestnut removal. The average satisfaction rating for this site was 3, or “satisfied.”

Survey respondents were asked to rate the following attributes for Project recreation sites on a scale of one to five, with one being poor and five being excellent:

- Parking
- River Access
- Signs/Information
- Trash Receptacles
- Overall Site Condition

[Figure 4.3.2-3](#) depicts summarized ratings for each attribute by the percentage of respondents who reported visiting the site. As shown, the majority of respondents rated all attributes of the Vischer Ferry Project recreation sites as fair to excellent, with the exception of trash receptacles. At the Vischer Ferry Scenic Overlook, 72 percent of respondents rated trash receptacles as below fair, as did 61 percent of respondents visiting the Fishing Access and 70 percent of respondents visiting the Lock 7 Boat Launch. Respondents were asked to explain any rating below fair. Verbatim responses are provided in [Table 4.3.2-2](#). Nearly all explanations for low ratings at the Vischer Ferry Scenic Overlook and Vischer Ferry Fishing Access concerned litter. Some explanations concerned the Erie Canal Towpath Community Connector trail, which is not a Project recreation site. At the Lock 7 Boat Launch, explanations for low ratings included construction activities impacting the site, lack of trash receptacles, and a need for boat launch maintenance.

Recreationists were also asked to rate the value of the site on a scale of 1 to 5, with 1 being low and 5 being high, were given open-ended questions asking what they liked most and least about the site, and were given the opportunity to provide any additional comments. Verbatim responses to these open-ended questions are provided in [Table 4.3.2-3](#). The responses are very similar to responses on previous open-

ended questions, discussed above. The average value reported for the Vischer Ferry Scenic Overlook was 4.4, for the Vischer Ferry Fishing Access was 4.5, and for the Lock 7 Boat Launch was 4.6. When asked whether they would return to the site, 95 percent of Vischer Ferry Scenic Overlook visitors responded yes, 97 percent of Vischer Ferry Fishing Access visitors responded yes, and 90 percent of Lock 7 Boat Launch visitors responded yes.

Table 4.3-1: Summary of Responses to Visitor Survey Informational Questions

Informational Questions	Number of Responses	Response Summary ¹	
What is your zip code?	112	County of Residence	Percent of Responses
		Saratoga	42%
		Schenectady	24%
		Albany	23%
		Rensselaer	5%
Which recreation site did you visit this trip?	150	Site	Percent of Responses
		Vischer Ferry Scenic Overlook	36%
		Vischer Ferry Fishing Access	23%
		Lock 7 Boat Launch	21%
		Crescent Tailrace Bank Fishing Area	11%
		Crescent Picnic Area	9%
How many were in your group at this recreation site, including yourself?	110	Average Group Size: 1.9 people	
How did you/your group arrive at the recreation site?	116	Mode of Transportation	Percent of Responses
		Auto	72%
		Foot	19%
		Bike	9%
Have you visited this or other Crescent and Vischer Ferry Project recreation sites before? If yes, please fill in the approximate number of visits you made to each site in the past year.	Varies per site	Site	Average Visits per Year²
		Vischer Ferry Scenic Overlook	56
		Vischer Ferry Fishing Access	46
		Crescent Tailrace Bank Fishing Area	20
		Lock 7 Boat Launch	9
		Crescent Picnic Area	9

¹Percentages may not add to 100 due to rounding, multiple responses per respondent, etc.

²Average number of visits per year reported by respondents indicating that they visit the site.

Table 4.3.1-1: Verbatim Explanations for Ratings Less than Satisfied, Crescent Project

Verbatim Response
Crescent Picnic Area
I would like to know more about the osprey nest
Looks like things are under construction now
Garbage
No restroom, old picnic tables
Picnic area needs mowing
Crescent Tailrace Bank Fishing Area
Too much trash
Garbage
Pick up litter!
I am now unable to launch my cartop boat because of construction, there is a narrow, long path from the parking area
No good flat spots for fishing, no dock for kayak
Not well maintained

Table 4.3.1-2: Verbatim Explanations for Poor Site Attribute Ratings, Crescent Project

Verbatim Response
Crescent Picnic Area
Garbage, I've done garbage pick up here before
Clean, mowed, thank you
Many people leave trash, since childhood we always brought a garbage bag and filled it
Crescent Tailrace Bank Fishing Area
Need more trash receptacles
Site is very dirty. People leave trash everyone around the riverfront. Evidence of parties and other activities as well
Garbage, I've done garbage pick up here before

Pick up litter
Long narrow path to River
Construction, no dock
Not usable
Parking terrible at lower official fishing lot- my small car bottoms out on deep potholes. I always park up by the power plant lot

Table 4.3.1-3: Verbatim Responses to Open-Ended Questions, Crescent Project

Verbatim Response
Crescent Picnic Area
<i>Question: What did you like most about your recreational experience today?</i>
Seeing the water and nest
Access to see the falls- perhaps put a boat in
Wildlife
Watching osprey in their nest
Rocks & Birds
Heath (sic)
Looking at the potential of a new boat launch, however more people will fish this out. Already experienced a decline in channel cats. Have caught 20lb-30lb cats and now we see 5lb-10lb cats. Very low bass numbers and size.
View
<i>Question: What did you like least about your recreational experience today?</i>
No birds! (They Fly!)
Under construction
Scratchy old picnic table and bench
Weather
The rain
Boat ramp is not ready!
long grass

<i>Question: Do you have any additional comments regarding recreation opportunities in this part of the Mohawk River?</i>
I live here and come here daily. The trash and fish garbage is bad
Public restroom would be great
Been fishing the mohawk for 50+ years. Have seen a large increase in the volume of water chestnuts, and trash. Keeping the river clean so future generations may eat what they catch. We will continue to memories on our River!
Falls view park is great!
Crescent Tailrace Bank Fishing Area
<i>Question: What did you like most about your recreational experience today?</i>
Scenic and good fishing
Wildlife
Relaxing and great views
Access to river via kayak during construction periods, very important to keep available
Good
Rocks & Birds
The weather
Scenic with two spillways
Any day birding is a good day
<i>Question: What did you like least about your recreational experience today?</i>
Water too fast
Trash
The amount of trash in the fishing area
Condition of kayak launch
Litter
Trash all over, and construction equipment
Construction
Weather
The messiness
No warning signs for the downstream spillway

Nothing
<i>Question: Do you have any additional comments regarding recreation opportunities in this part of the Mohawk River?</i>
People need to take their trash with them
Awesome local resource
Keep access to fishing OPEN
I live here and come here daily. The trash and fish garbage is bad
Clean it up
Make it wheel chair accessible
Very scenic areas and natural.

Table 4.3.2-1: Verbatim Explanations for Ratings Less than Satisfied, Vischer Ferry Project

Verbatim Response
Vischer Ferry Scenic Overlook
Need a potty house please
There could be more bathrooms and maybe a waterslide. Cormorants are cool
Garbage
Pick up litter!
I dislike how people do not take care of their trash
Trash left by lazy people on beach!!!
A lot of weeds in parking area, hangover limbs everywhere at overlook, canal trail could use some tall lopper cuts for the horseback riders, parking area asphalt-drip-edge needs a grading correction: It's a serious bump but it's bad for tires/ball joints. Fill it with a UTV load of 3/8/.5 inch stone?
Trails need to be better maintained.
Nice quiet place for me to sit
Garbage and litter all over
All the trash & garbage at the fishing access (party place)
But, people are leaving much trash.
Trash both at overlook and fishing site
A bench or 2 would be nice, a raised viewing platform would be amazing
Beautiful, but trash had clearly been collected sometime ago or bagged, but no trashcan or removal, so it's getting spread out again as the animals go at the bag
Vischer Ferry Fishing Access
although clean today generally this area is very trashed, mainly by people fishing. if there were trash cans and a public bathroom I think this would improve. Also this is a prime area to bird and cross country ski in winter but the plow trucks always 'wall off' the entrance to the trail down to the water making it difficult.
Garbage
I dislike how people do not take care of their trash
Beautiful view!
Trash left by lazy people on beach!!!
Garbage and litter all over
All the trash & garbage at the fishing access (party place)

Trash
Lock 7 Boat Launch
The lock 7 road and boat launch have been essentially closed for the past 2 seasons. The dock has not been in the water for several years.
Has been under construction for a long time. Need better signage. More picnic tables. Trash around.
This site was on satisfactorily kept the weeds were overgrown not squared up the dock was not squared up and is filthy with bird duck poop. It was unavailable for the boat to get in on one side and the other side the driving ramp was broken up and has a huge ditch making it very difficult to launch
Would like portaPotties to be regularly at the boat launch and near the bike path
Appreciate the porta potties, would like upgrade on launching dock, cleaning too if possible
It would be great to have improvements of the waterfront area for recreational use and trail maintenance of this area and the adjoining state park
Portapotty knocked over. Back picnic table is slightly dismantled. Still love this placed! Water chestnuts very apparent
Need more overlooks, and picnic areas
Better restroom facilities would be great as well as better trail signage for the bike trails and Mohawk River State Park
Thank you for adding a clean porta-potty
Picnic tables should be repaired. Water chestnuts should be pulled in spring, not poisoned for small boat use

Table 4.3.2-2: Verbatim Explanations for Poor Site Attribute Ratings, Vischer Ferry Project

Verbatim Response
Vischer Ferry Scenic Overlook
Carry in- carry out but could have trashcans for people also helping pick up garbage
Garbage, I've done garbage pick up here before
Pick up litter
Please on their trash
More garbage cans for lazy people who leave trash
Lots of trash and litter.
Signs: Let's keep the grass and borders cut/arbores if we are endorsing that ticks are plentiful here. There are broken signs/demolished
I only see garbage bags left out near river as if for someone else to take out-no actual garbage receptacle
There was a lot of trash on the ground

No trash at overlook
Garbage and litter all over parking and fishing area
Trash along trail, need more signs with mileage
No trash receptacles. Trash all over at the fishing access
Limited trash receptacles and trash along the beginning of the pathetic*
Carry-in carry out not working. Need cleanup + monitoring
First time I've seen trash receptacles - thank you
Need trash removal and/or sign where to bring it, e.g. take out all trash
Roads messed up/trail needs love
Garbage left behind by fishermen
Vischer Ferry Fishing Access
Garbage, I've done garbage pick up here before
Please on their trash
More garbage cans for lazy people who leave trash
No trash cans
Garbage and litter all over parking and fishing area
No trash receptacles. Trash all over at the fishing access
Unfortunately where we were we did see a bag of trash left over by people visiting. And this isn't the first time we've seen such things. On a positive note, we have also seen people who will come in and help pick up the trash.
Too much trash
Garbage a lot
People had left overflowing bags of garbage after fishing
Garbage left behind by fishermen
No trash receptacles near power plant
I didn't see any trash cans, but pack in/pack out is my preference anyway
Improve parking, update neighborhood private property signs
Lock 7 Boat Launch
park construction equipment taking a lot of space...no trash receptacles

Unable to access parking because the road is closed. No docks and the boat ramp is in rough shape. No trash bins in sight.
Construction going on so couldn't see the lock up close
Boat area needs much maintenance and improvements. No trash receptacles, more tables
Launch terrible
No trash bins here
Launch is very dilapidated, chestnut, no garbage cans
Glad the bridge is open and road paved, I have brought our kids and now grandkids and visitors
No trash where we parked
Trash receptacles are nonexistent and boat access needs work. This is an off year as was 2020 due to rebuilding and to Covid restrictions
Boat ramp is half closed
Very little signage about surrounding area. No table receptacles
Didn't see garbage pail assumed carry in/out
No trash cans, so there's litter
Lots of trash and no receptacles. I voluntarily pick up trash and would participate as part of a regular project: same as pulling invasives in spring

Table 4.3.2-3: Verbatim Responses to Open-Ended Questions, Vischer Ferry Project

Verbatim Response
Vischer Ferry Scenic Overlook
<i>Question: What did you like most about your recreational experience today?</i>
Views, natural areas
Nature sounds
Beautiful place to walk dog, enjoy the river, canal, and boat life
Easy walking
Nature, water access, wildlife
We love the birds and the river
Hiking, fishing, wildlife
Great access to water and wildlife-easy parking

Wildlife
Good
The view
Close by and nice scenic walk
Walking and the beautiful view
Solitude
The beauty of the river, the canal path, and all the flora and fauna. Also enjoyed checking to see the EnCon eel project!
Weather
Good access to the river
Seeing a variety of flora and fauna
As a 26- year resident of Riverview, people truly come to hear the waterfall. It is a soothing sound, apart and away from town. 2 turns from Town Hall, it's a gem.
Cinder/macadean (spelling?) trail perfect for running
It's lowkey and helps me think
Bird habitat
We caught 2 fish
Nature
Pretty view to sit and smoke
Scenic view, fishing, walking, photography
Nature area, not filled with houses like the rest of Clifton park
Scenic View
Views, plants, info on the power plant
The views
Fresh air and views
Trails
walking by the river
being able to be close to river
Cool on a hot day!
Nice views

beautiful, well maintained
Walking through the power station and tow path areas
Walking around/enjoying the birds
Beautiful trails
<i>Question: What did you like least about your recreational experience today?</i>
It was great all-around
Trash on the ground
No bathroom
Not enough water slides
Litter
Bugs
Trash along riverbank
Again people with their trash
Nothing
Trash left in fishing area.
Trash
The view from the overlook could be so much better.
the hill back up from river
People left trash outside of receptacles
The trash. It's everywhere. The rainstorms make it collect, then becomes an eyesore. We need to weed-whack
Seeing multiple bags of garbage along trail
Trash
There was a long "hike" down to water's edge
The weather
Garbage
Dog poop
Trash
The trash & garbage

The garbage on the path
Trash
no bench
Bugs, but I forgot bug repellent
Very hot in the sun today. Also some trash visible on the trail
trash
Trash
Condition of the site
<i>Question: Do you have any additional comments regarding recreation opportunities in this part of the Mohawk River?</i>
From reading your signs and calling your information line, I was under the impression that this a complete walking path along the river to Schenectady. Finding a well-worn trail to the right of your parking lot we ran into a less than pleased land-owner. Please put what is public to the right of this lot. On further investigation, I understand this as a driving-only "historical" path.
Thank you for making this space so beautiful
We also regularly walk our dog east of Vischer Ferry starting in the winapple bridge to Vischer ferry area
More benches
Riverview road needs to be widened for bicycles. Serious bikers won't use the trail and they use riverview road regardless of no median
More tables and cookers and bathrooms
N/A- thanks for keeping nice, clean facilities. Good work!
I live here and come here daily. The trash and fish garbage is bad
Clean it up
Love it
I think there should be a walking/biking path on Riverview Road
Many of the VF residents this place. They too, use it almost daily as a form of relief. We had run a trash4coffee event at the general store; 1 bag (small, even 'heftys): 1 cup. I think the fishermen should have a few more PVC waste pipes. They fill quickly.
Would be nice to have water spicket for drinking or cheap gatorade/pop vending machine
Please don't let developer ruin this area
Wish more educational
Nice views & nice walk
Maybe a local school group could adopt the area and clean up the trash a few times a year.

The only problem @ this site is trash. The trails in Vischer Ferry Preserve are really clean + well maintained
Picnic tables may be nice at parking area
So glad we have it
Keep up the good work! Love your partners the Mohawk Towpath Byway
it was great
Thank you
Vischer Ferry Fishing Access
<i>Question: What did you like most about your recreational experience today?</i>
Nature sounds
Beautiful place to walk dog, enjoy the river, canal, and boat life
Easy walking
Nature, water access, wildlife
Isolation, birds
scenery and opportunity to watch bald eagles
Wildlife
The view
Close by and nice scenic walk
Walking and the beautiful view
The sunset and the walk to watch it
Views
The beauty of the river, the canal path, and all the flora and fauna. Also enjoyed checking to see the EnCon eel project!
Weather
Nature
Seeing a variety of flora and fauna
Not busy
Catching fish
A bunny on the trail:)
It's lowkey and helps me think

Scenic view, fishing, walking, photography
Views, plants, info on the power plant
Great views. There's a nice point on the trail where you can overlook the falls
Cool on a hot day!
Beautiful water view
Pleasant view
Pleasant path, views from up high
Beautiful trails
Easy walk, nice view, not crowded
The history of the canal. That was the purpose
Plant life observation, trails, sunny views
<i>Question: What did you like least about your recreational experience today?</i>
It was great all-around
Ruts on the bike trail
'sketchy' people were down at the waterfront area drinking, throwing rocks, etc. but not much can be done about this :)
Bugs
Trash along riverbank
Again people with their trash
The people and the wind
Nothing
Trash left in fishing area.
Trash
No trash cans
the hill back up from river
People left trash outside of receptacles
Too much garbage and broken glass
Not enough open area to fish from shore
A cigarette butt on the trail:)

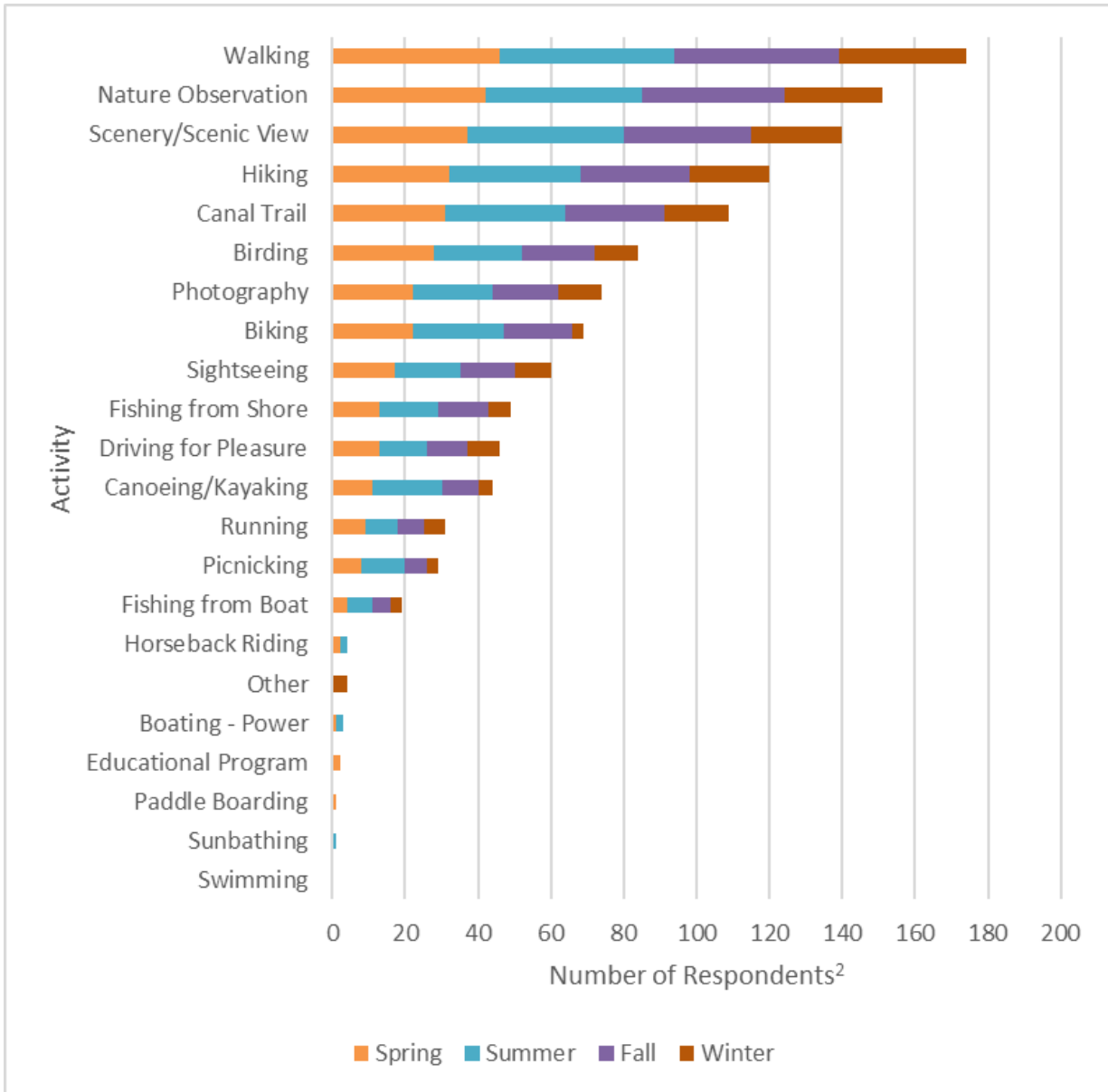
Garbage
The trash & garbage
I don't have any major complaints
Bugs, but I forgot bug repellent
Mud
Garbage, and erosion of the path on the way down to the river
No toilet
<i>Question: Do you have any additional comments regarding recreation opportunities in this part of the Mohawk River?</i>
Thank you for making this space so beautiful
We also regularly walk our dog east of Vischer Ferry starting in the winapple bridge to Vischer ferry area
More benches
Yes. Please do something about the water chestnuts!! these nasty things choke off prime kayaking / swimming areas and they're so sharp and dangerous. Isn't Cornell working on some possible solutions to this? Could we at the very least purchase a local weed harvester similar to what they do in Halfmoon at the marina? could maintain an open waterway in the shallows for wildlife and recreational users. Also I have concerns about the changing water levels for canal navigation- every spring I watch birds and other aquatic life get killed - for example nesting killdeer don't realize that the beach areas they've been using in early spring will suddenly disappear and flood their nests when the level is raised up overnight. I see dead fish when the water level suddenly drops due to canal operations. are you still considering leaving the water levels natural? Also is shoreline erosion being studied? the shale seems so fragile every year more and more crumbles into the water. Thank you!! Oh Also maybe consider putting up some Osprey nest platforms I think that'd be great!!
I live here and come here daily. The trash and fish garbage is bad
Love it
I think there should be a walking/biking path on Riverview Road
It needs a trash can or two
Would recommend!
Should be more area to fish from shore
It would be nice if there were bell/whistle stations along the trail for in case of emergencies.
Nice views & nice walk
Great spot for a view of the falls, and one of my favorite spots to walk. Especially on windy days!
Keep up the good work! Love your partners the Mohawk Towpath Byway
Need a kayak launch like freeman's bridge
I've been trying to understand where the original Clinton's Ditch canal went through Saratoga County. More clarity on the history and path would be terrific.

Open to public 24/7
Lock 7 Boat Launch
<i>Question: What did you like most about your recreational experience today?</i>
Looks like construction a lock 7 is getting finished.
Nature setting scenery
Wildlife
We saw lots of birdies, and a baby snapping turtle.
Ease of access via bike.
Like usual, the balance of nature and progress
Nice view
Quiet
Bike path along the waterfront
Scenery, history, nature
Bathroom available
Location
Mohawk
Being out on this river, wildlife (seagulls, eagles, heron, beaver, bird, overmount)
Mohawk cliffs, wildlife
Watching the boats go up and down in the lock
Seeing river, petting dog
Smooth trail! Seeing the water and lock
Access to the river and a local place to explore with young kids
Peaceful time by river
Beautiful scenery & weather
The water view
Site seeing & bicycling
The beauty and serenity of the area
River views! Fresh air!

Sunny, leaves are changing, exercise, wildlife
Uncrowded, clean
Beautiful peace and quiet
Variety of plant life and birds: snowy egret and great blue herons. Access to river to just sit and relax
<i>Question: What did you like least about your recreational experience today?</i>
Construction equipment all packed up (crane and 3 trailers of equipment) not being removed in a timely manner.
I neglected to apply any bug spray, so I'm nursing some bites
The boat launch continues to decline and police are patrolling the road, which has been closed for several seasons. Please open full access to the public ASAP.
Can't you clean out boat launch-clean out the green algae
Rain
Lake of seating by waterfront
Trash, bad signage
Launch conditions
Dog poop on the bike path
Chestnut
Duck poop
Road nearby
I wish this area was better maintained
Limitations due to reconstruction
Picnic tables slightly dismantled (2nd table more near water & fishing sites)
All the construction
Lack of facilities
Boat ramp
Garbage in parking area
River access somewhat blocked by construction
Trash piles and excessive water chestnut, loud jet skis
Trash and excessive water invasive plants
<i>Question: Do you have any additional comments regarding recreation opportunities in this part of the Mohawk River?</i>

Would like to see the access to the Mohawk river by the Niskayuna water filtration plant improved for kayak launching. Below Lock 7
Has great potential, accessible, well kept
No, thanks!
This is one of the few boat launches on this stretch of river and it has been inaccessible for a long time. I used to launch here and visit the businesses in Mohawk Harbor, Waters Edge Lighthouse, Scotia, etc. but have been unable to do so for far too long because of the continued construction, road closures, and lack of dock facilities.
Tell the public what kinds of fish are in the river with posted signs
Lack of boat trailer parking, trash receptacles
Needs more TLC. Plus turn on from River Road is treacherous.
Been coming here my entire life and this is the poorest condition it's ever been in
Will be nice when construction is done and lower one is opened back up
We love this river, this bike trail is also wonderful, Thank you!
Very glad road has been rebuilt
Love the locks for 30 plus years
Keep it up
Please consider some fenced safe area for small children
2nd picnic table fix, anything to fix water chestnuts?
Keep up the good work
Please repair the second half of the boat ramp
Please continue to develop amenities for bikers
Don't develop it. Give people a way to keep it clean, and that's all that's needed
It a beautiful space and I hope we can do a better job keeping it clean and allowing for the varieties of flora and fauna already there and not destroy it with overdevelopment and too many motorboats and jet ski usage

Figure 4.3-1: Participation in Various Activities at the Projects, Number of Respondents¹



¹Figure depicts number of respondents reporting participation in various activities during the current visit and by season. In some instances, users reported participation in activities that is unlikely given the season; these responses were included as given.

²Totals shown include multiple responses from individual recreationists.

Figure 4.3.1-1: Ratings for Crowding, Crescent Project Recreation Sites

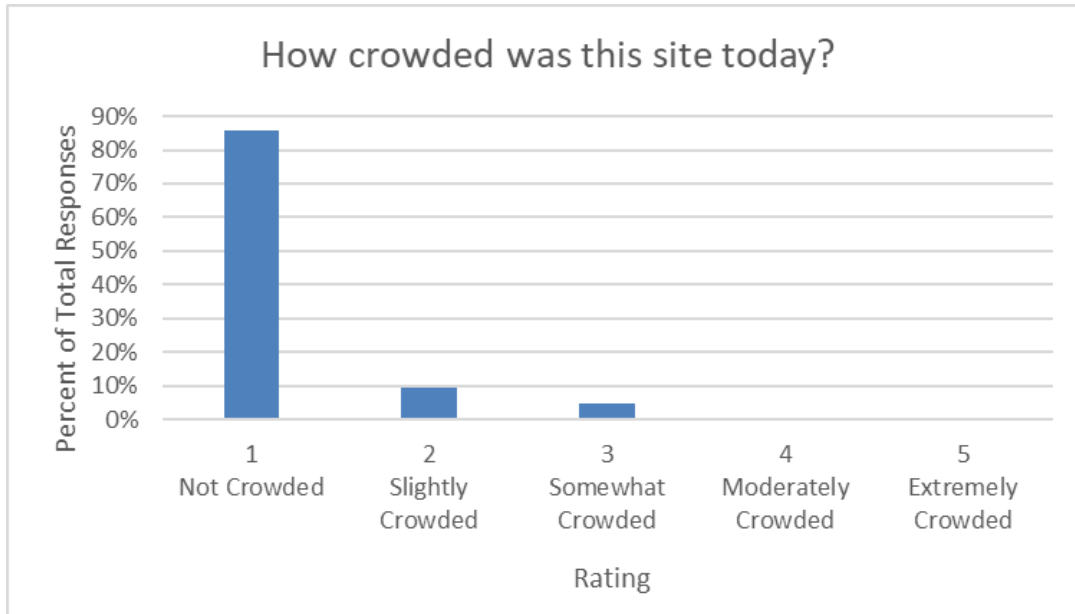


Figure 4.3.1-2: Ratings for Satisfaction, Crescent Project Recreation Sites



Figure 4.3.1-3: Ratings for Various Attributes, Crescent Project Recreation Sites

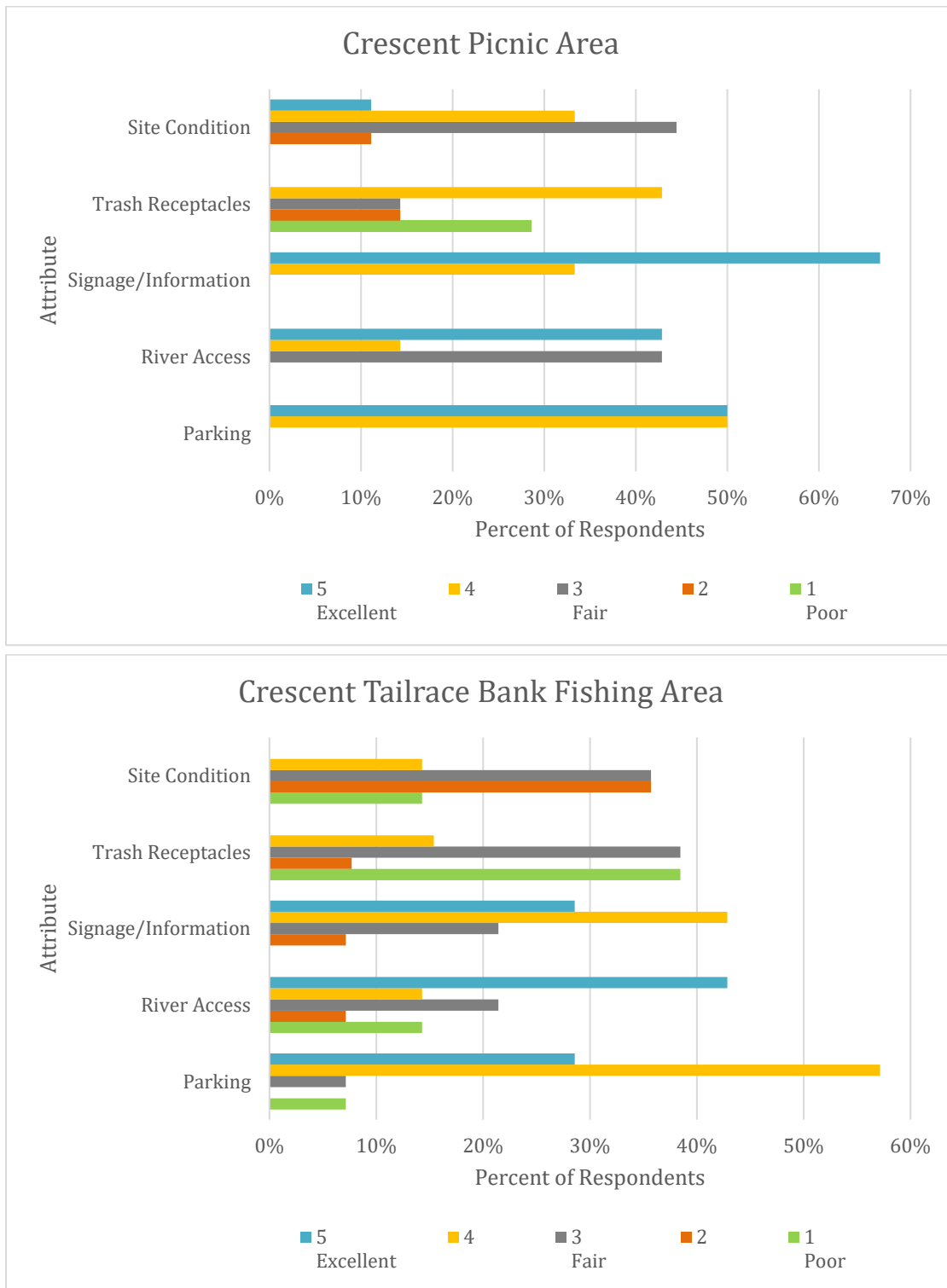


Figure 4.3.2-1: Ratings for Crowding, Vischer Ferry Project Recreation Sites

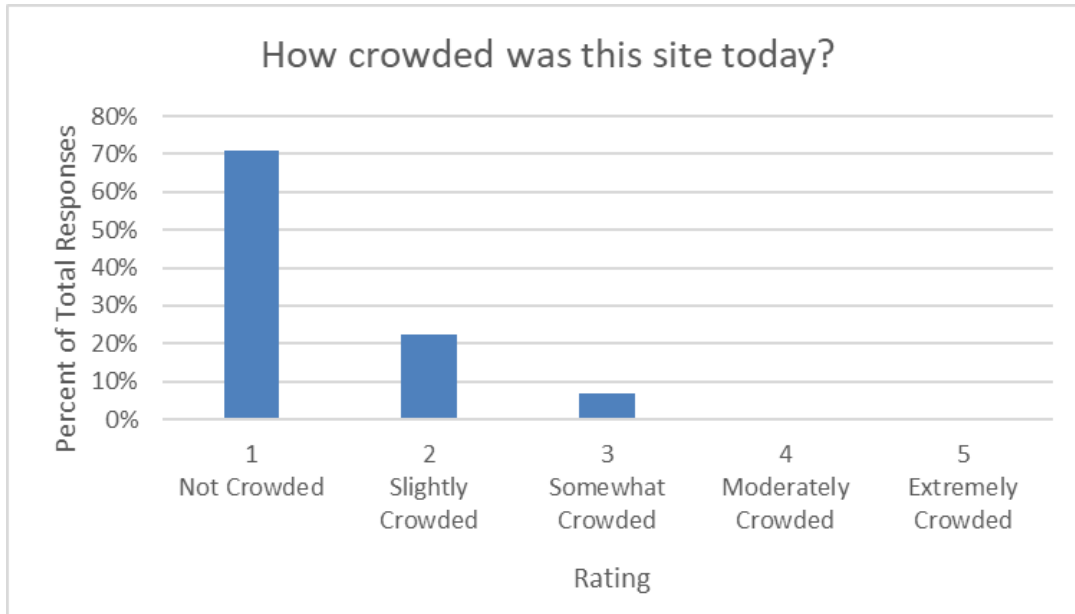


Figure 4.3.2-2: Ratings for Satisfaction, Vischer Ferry Project Recreation Sites

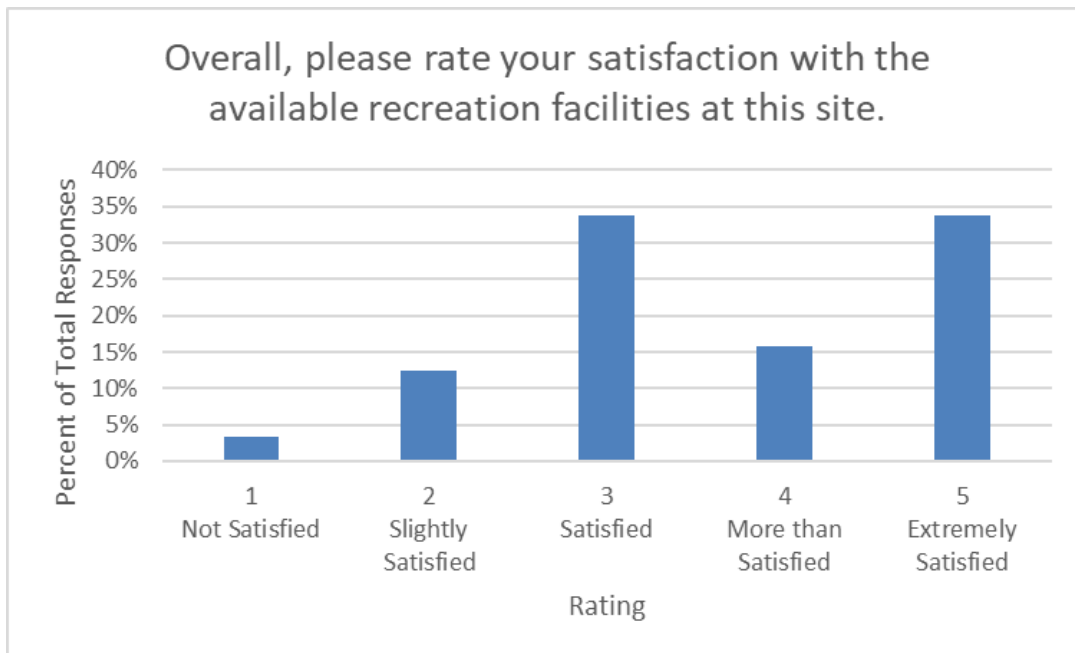
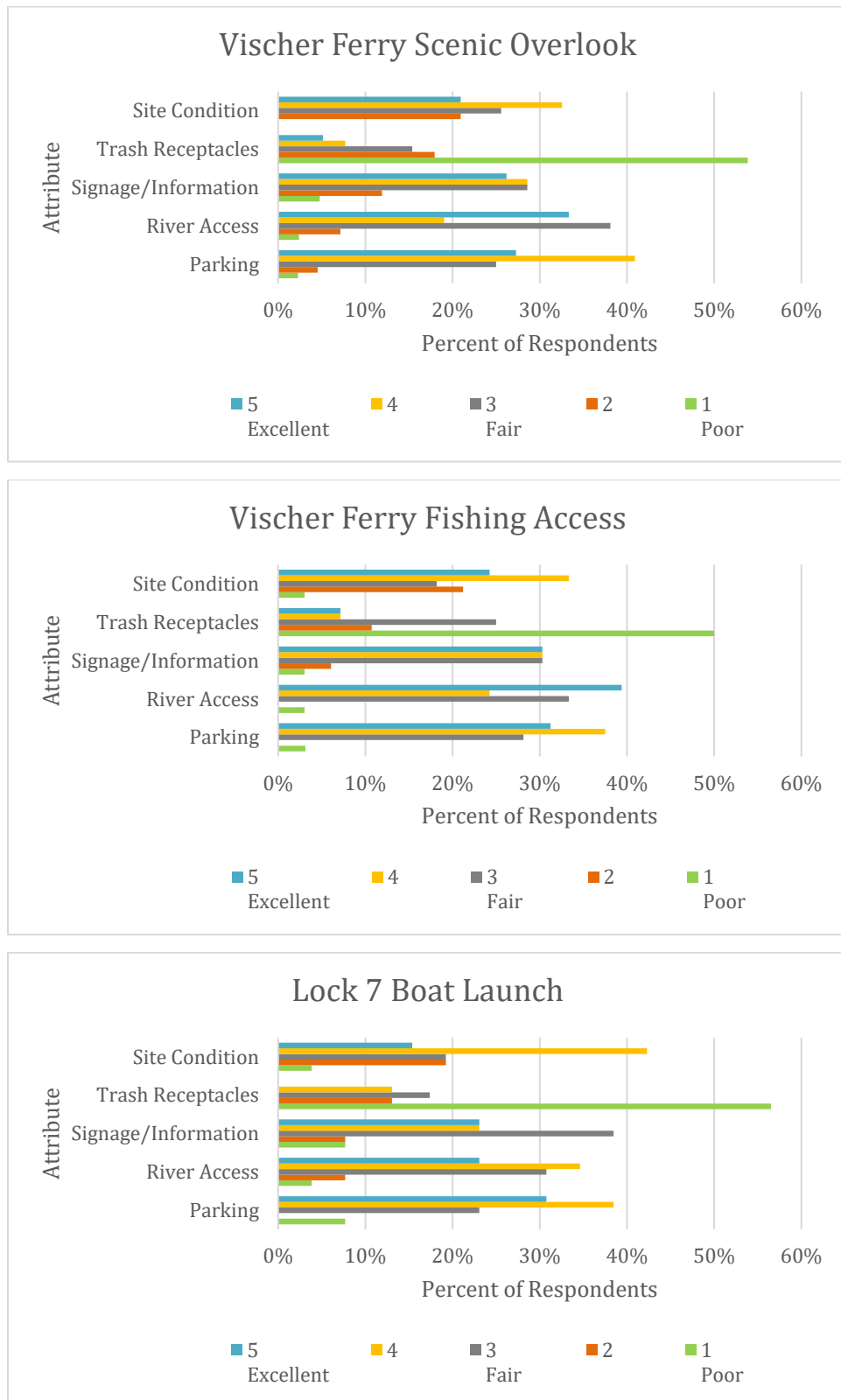


Figure 4.3.2-3: Ratings for Various Attributes, Vischer Ferry Project Recreation Sites



4.4 Projected Recreation Demand

4.4.1 Crescent Project

As discussed in [Section 3.5](#), use of Crescent Project recreation sites was projected to 2060 based on 2021 estimated usage. [Table 4.4.1-1](#) presents projected 2060 recreational use of Project recreation sites by activity type as compared to estimated use in 2021. As shown, use of the Crescent Tailrace Bank Fishing Area is expected to increase 11.1 percent to 1,054 recreation days, and use of the Crescent Picnic Area is expected to increase 15.1 percent to 585 recreation days.

[Table 4.4.1-2](#) presents parking area capacity utilization for Project recreation sites projected to 2060. Based on the projected 11.1 percent increase in use at the Crescent Tailrace Bank Fishing Area, parking area utilization in 2060 is projected to increase to 20 percent of capacity. Based on the projected 15.1 percent increase in use at the Crescent Picnic Area, parking area utilization in 2060 is projected to increase to 20 percent of capacity.

4.4.2 Vischer Ferry Project

As discussed in [Section 3.5](#), use of Vischer Ferry Project recreation sites was projected to 2060 based on 2021 estimated usage. [Table 4.4.2-1](#) presents projected 2060 recreational use of Project recreation sites by activity type as compared to estimated use in 2021. As shown, use of the Vischer Ferry Fishing Access is expected to increase 15.0 percent to 8,296 recreation days, and use of the Lock 7 Boat Launch is expected to increase 13.9 percent to 3,553 recreation days.

[Table 4.4.2-2](#) presents parking area capacity utilization for Project recreation sites projected to 2060. Based on the projected 15.0 percent increase in use at the Vischer Ferry Fishing Access, Vischer Ferry Scenic Overlook parking area utilization in 2060 is projected to increase to 33 percent of capacity (see [Section 4.2.2.2](#) for a discussion of the relationship between these two sites in terms of usage and capacity). Based on the projected 13.9 percent increase in use at the Lock 7 Boat Launch, parking area utilization in 2060 is projected to increase to 12 percent of capacity.

Table 4.4.1-1: Projected Recreational Use, Crescent Project Recreation Sites

Site/Activity	2021 Estimated Recreation Use ¹ (Recreation Days)	2060 Projected Recreation Use (Recreation Days) ²	% Change, 2021-2060
Crescent Tailrace Bank Fishing Area			
Fishing	538	580	7.8%
Sightseeing	349	401	15.1%
Other	63	74	17.0%
Total	949	1,054	11.1%
Crescent Picnic Area			
Sightseeing	471	543	15.1%
Picnicking	17	19	12.2%
Other	19	23	17.0%
Total	508	585	15.1%

¹See Table 4.2.1.1-1 and Table 4.2.1.2-1.

²2021 Estimated Recreation Use multiplied by Recreation Days Growth Factor 2021-2060 presented in Table 3.5.3-1.

Table 4.4.1-2: Projected Parking Area Capacity Utilization, Crescent Project Recreation Sites

Available Spaces	2021 Estimated Use ^{1,2}		2060 Projected Use ¹	
	Spaces in Use ¹	Capacity Utilization	Spaces in Use	Capacity Utilization
Crescent Tailrace Bank Fishing Area				
10	1	10%	2	20%
Crescent Picnic Area				
10	1	10%	2	20%

¹Rounded up to the nearest whole number.

²See Table 4.2.1.1-2 and Table 4.2.1.2-2.

Table 4.4.2-1: Projected Recreational Use, Vischer Ferry Project Recreation Sites

Site/Activity	2021 Estimated Recreation Use ¹ (Recreation Days)	2060 Projected Recreation Use (Recreation Days)	% Change, 2021-2060
Vischer Ferry Fishing Access Area			
Biking	784	988	26.0%
Fishing	2,822	3,043	7.8%
Jogging	278	329	18.5%
Boating	99	114	15.3%
Sightseeing	183	210	15.1%
Walking	2,927	3,467	18.5%
Other	125	146	17.0%
Total	7,216	8,296	15.0%
Lock 7 Boat Launch			
Boating ²	1,150	1,360	18.3%
Fishing	869	936	7.8%
Sightseeing	1,092	1,257	15.1%
Other	11	12	17.0%
Total	3,121	3,553	13.9%

¹See Table 4.2.2.1-1 and Table 4.2.2.3-1.

²Growth factor for boating at the Lock 7 Boat Launch was taken as the weighted average of motorized and non-motorized use based on the percentage of use for each boat type as presented in Section 4.2.2.3).

Table 4.4.2-2: Projected Parking Area Capacity Utilization, Vischer Ferry Project Recreation Sites

Available Spaces	2021 Estimated Use ^{1,2}		2060 Projected Use ¹	
	Spaces in Use ¹	Capacity Utilization	Spaces in Use	Capacity Utilization
Vischer Ferry Scenic Overlook³				
12	3	25%	4	33%
Lock 7 Boat Launch				
25	2	8%	3	12%

¹Rounded up to the nearest whole number.

²See Table 4.2.2.1-1 and Table 4.2.2.3-2.

³Projected use based on projected growth rate at the Vischer Ferry Fishing Access site (see Section 4.4.2.2).

5 Discussion

5.1 Recreation Sites

Project, non-Project, and commercial recreation sites provide abundant recreational opportunities in the vicinity of the Projects. Several public and commercial boat launches, boat slips, and marina facilities line both sides of the Mohawk River along the Project impoundments. Regional trails provide hiking and biking opportunities along miles of near-Project shoreline. Various parks and preserves provide angler access, picnic areas, and scenic views. The Crescent Project provides two Project recreation sites offering angler access below the Project dam as well as picnicking opportunities and scenic views of the Project. The Vischer Ferry Project provides three Project recreation sites offering scenic views of the Project from upstream and downstream, shoreline access below the Project dam, and boating access to the Project impoundment. Ample parking capacity is provided throughout the area at the various recreation sites. [Table 5.1-1](#) summarizes recreational sites and amenities and parking capacity for public recreation sites providing access to Crescent Project lands and waters, and [Table 5.1-2](#) does the same for the Vischer Ferry Project.

Table 5.1-1: Recreation Sites in the Crescent Project Study Area

Site Name	Facilities/Amenities	Estimated Parking Capacity
Project Recreation Sites		
Crescent Tailrace Bank Fishing Area	Parking area, informal shoreline access, informal footpath	10 vehicles
Crescent Picnic Area	Parking area, picnic tables, historical and informational signage	10 vehicles
Non-Project Recreation Sites		
Flightlock Road Boat Launch	Parking area, two concrete boat ramps, floating dock, picnic area, grills, informal shoreline access	20 vehicles with trailers
Freddie's Park	Parking area, picnic table, kiosk, trail, informal shoreline access, trash bin, historical and informational signage	10 vehicles
Halfmoon Crescent Park	Parking area, cartop boat launch, floating dock with gangway, picnic area, pier, informal shoreline access, trails, informal shoreline access, trash bin, kayak rental kiosk	30-40 vehicles
Vischer Ferry Nature and Historic Preserve	Parking area, trails, picnic area, historical and informational signage, kayak rental kiosk, informal shoreline access	24 vehicles
Colonie Mohawk River Park	Parking area, swimming pool, tennis courts, ball fields, concrete boat ramp, kiosk, picnic tables, pavilions, trash bins, grills, restrooms	14 vehicles (at boat ramp; additional parking provided at main park)
Klamsteam Kayak Launch	Parking area, trail, cartop boat launch, historical and informational signage, kayak rental kiosk	12 vehicles
Niskayuna Lions Park	Parking area, trails, restrooms, cartop boat launch, picnic tables, benches, informal shoreline access, historic structure	72 vehicles
Mohawk River Kayak/Canoe Access	Parking area, informal cartop boat launch	4-6 vehicles
Commercial Recreation Sites		
Crescent Boat Club	Commercial marina	Parking for marina

Site Name	Facilities/Amenities	Estimated Parking Capacity
		customers only
Blain's Bay Marina	Commercial marina	Parking for marina customers only
Diamond Reef Yacht Club	Commercial marina	Parking for marina customers only
Albany Marine Services Marina	Commercial marina	Parking for marina customers only

Table 5.1-2: Recreation Sites in the Vischer Ferry Project Study Area

Site Name	Facilities/Amenities Provided	Estimated Parking Capacity
Project Recreation Sites		
Vischer Ferry Scenic Overlook	Parking area, scenic overlook, trash bin, historical and informational signage	12 vehicles
Vischer Ferry Fishing Access	Trails, informal shoreline access	Shared with Vischer Ferry Scenic Overlook
Lock 7 Boat Launch	Parking area, concrete boat ramp, floating dock, trail access	20 vehicles and 5 vehicles with trailers
Non-Project Recreation Sites		
Lock 7 Park	Parking area, picnic tables, grill, informal shoreline access, portable toilet, trail access	5 vehicles
Mohawk Landing Kayak Launch	Parking area, trails, cartop boat launch, historical and informational signage, picnic tables, dispersed shoreline access	9 vehicles
Aqueduct Park	Parking area, scenic overlook, trails, cartop boat launch, floating docks, benches, picnic tables	9 vehicles
Freedom Park and Scotia Landing	Parking area, picnic tables, grills, trash bins, concert venue, restrooms, boat slips	140 vehicles
Freemans Bridge Fishing Access Site	Parking area, cartop boat launch, concrete boat launch, floating docks, portable toilet, information kiosk, invasive species disposal station, benches, trash bin	17+ vehicles
Gateway Landing Park	Parking area, trails, gazebo, floating docks, historical signage, shoreline access	12 vehicles
Lock 8 Kayak Launch	Pier, trails, cartop boat launch	Shared with Lock 8 Park
Lock 8 Park	Parking area, picnic tables, grills, trash bins, scenic overlook, portable toilet, trails	20 vehicles
Maalwyck Park Road River Access	Parking area, informal shoreline access	8-10 vehicles
Commercial Recreation Sites		
Schenectady Yacht Club	Commercial marina	Parking for marina customers only
Waters Edge Lighthouse	Restaurant and marina	Parking for restaurant customers only
Mohawk Valley Marine	Commercial marina	Parking for marina customers only

Mohawk Harbor	Commercial marina	Parking for marina customers only
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5.2 Recreation Use

Recreational use at Crescent Project recreation sites during the study season (May 1st through October 31st) was estimated at 1,457 recreation days. Approximately 65 percent of this use is attributed to the Crescent Tailrace Bank Fishing Area, and the other 35 percent is attributed to the Crescent Picnic Area. Approximately 57 percent of estimated use at the Crescent Tailrace Bank Fishing Area was for fishing, 37 percent was for sightseeing, and 7 percent for “other” uses. At the Crescent Picnic Area, approximately 93 percent of use was for sightseeing, 3 percent was for picnicking, and 4 percent was categorized as “other.” Parking areas for both sites are estimated to be used at 10 percent of capacity on average, non-peak weekends, with peak use estimated at 40 percent of capacity for the Crescent Tailrace Bank Fishing Area and at 20 percent of capacity for the Crescent Picnic Area.

Recreational use at Vischer Ferry Project recreation sites during the study season was estimated at 10,337 recreation days. Approximately 70 percent of this use is attributed to the Vischer Ferry Fishing Access and 30 percent is attributed to the Lock 7 Boat Launch. At the Vischer Ferry Fishing Access, approximately 41 percent of estimated use was for walking, 39 percent was for fishing, and 11 percent was for biking. The remaining uses, including jogging, sightseeing, boating, and “other” uses (including unidentified activities), each represented less than 5 percent of total use. At the Lock 7 Boat Launch, approximately 37 percent of use was for boating, 35 percent was for sightseeing, and 28 percent was for fishing.

The parking area for the Vischer Ferry Scenic Overlook was used at 25 percent of capacity on average, non-peak weekends during the study period. Peak use observed at the site was 67 percent of the site's capacity. The parking area at the Lock 7 Boat Launch was used at 8 percent of capacity on average, non-peak weekends. Peak use observed was 36 percent of the site's capacity.

5.3 Recreation User Perceptions

A survey of existing recreational users was administered at the Project recreation sites to gather basic information regarding user characteristics, use patterns, and user preferences. According to survey results, the majority of respondents reported visiting the Vischer Ferry Scenic Overlook (36 percent) during the day of the survey, followed by the Vischer Ferry Fishing Access (23 percent) and the Lock 7 Boat Launch (21 percent). The Crescent Tailrace Bank Fishing Area and Crescent Picnic Area were the least visited sites according to survey responses, with 11 and 9 percent of respondents, respectively, reporting visiting each site on the day of the survey. The average group size was just under two people, with most people (72 percent) traveling to the site by automobile, 19 percent by foot, and 9 percent by bicycle. The most popular activities reportedly engaged in across all seasons at the Project recreation sites were trail-based and sightseeing activities, including walking, nature observation, scenic viewing, hiking, canal trail usage, birding, photography, biking, and sightseeing. Less popular activities included fishing, driving for pleasure, canoeing/kayaking, running, picnicking, and fishing from a boat.

The majority of respondents visiting the Crescent Project recreation sites reported that the site is not crowded and indicated that they are satisfied with the available recreation facilities. For those respondents

who were less than satisfied, litter was the most common reason given. When asked to rate the sites' parking, river access, signage, trash receptacles, and overall sight condition, the majority of respondents rated all attributes of the Crescent Picnic Area as fair to excellent, although 43 percent of respondents rated the trash receptacles at the site as below fair. The majority of respondents visiting the Crescent Tailrace Bank Fishing Area similarly rated all attributes as fair or above, with the exception of site condition; half of respondents rated site condition as fair or above and half as below fair. Again, respondents who gave low ratings tended to reference litter as an issue at both sites. Respondents visiting each Crescent Project recreation site rated the overall site value as above average and the vast majority indicated that they would return to the site in the future.

The majority of respondents visiting the Vischer Ferry Project recreation sites reported that the site is not crowded and indicated that they are satisfied with the available recreation facilities. Explanations for any low satisfaction ratings varied by site. At the Vischer Ferry Scenic Overlook, responses included lack of restrooms, litter, and maintenance needs. At the Vischer Ferry Fishing Access, all explanations pertained to litter. Responses pertaining to the Lock 7 Boat Launch cited dock and launch maintenance issues, construction closures, and water chestnut removal. When asked to rate the site's parking, river access, signage, trash receptacles, and overall sight condition, the majority of respondents rated all attributes of the Vischer Ferry Project recreation sites as fair to excellent, with the exception of trash receptacles, which were rated as below fair at all three sites. Explanations for low ratings were similar to explanations for low satisfaction ratings. Respondents visiting each Vischer Ferry Project recreation site rated the overall site value as above average and the vast majority indicated that they would return to the site in the future.

5.4 Projected Recreation Demand

All Project recreation sites at both the Crescent Project and the Vischer Ferry Project are projected to have ample capacity to accommodate recreational demand on average, non-peak weekends in 2060. Use of Crescent Project recreation sites is expected to increase from 2021 to 2060 by 12.5 percent, with a projected total of 1,639 recreation days in 2060. Individually, use of the Crescent Tailrace Bank Fishing Area is expected to increase 11.1 percent to 1,054 recreation days, and use of the Crescent Picnic Area is expected to increase 15.1 percent to 585 recreation days. Based on the projected increase in use, parking area utilization in 2060 is projected to increase to 20 percent of capacity at both the Crescent Tailrace Bank Fishing Area and the Crescent Picnic Area.

Use of Vischer Ferry Project recreation sites is expected to increase from 2021 to 2060 by 14.6 percent, with a projected total of 11,850 recreation days in 2060. Individually, use of the Vischer Ferry Fishing Access is expected to increase 15.0 percent to 8,296 recreation days, and use of the Lock 7 Boat Launch is expected to increase 13.9 percent to 3,553 recreation days. Based on the projected increase in use, parking area utilization in 2060 is projected to increase to 33 percent of capacity at the Vischer Ferry Scenic Overlook and 12 percent of capacity at the Lock 7 Boat Launch.

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Appendix A – Site Inventory Photos

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Photo 63: Mohawk River Canoe/Kayak Access | Roadside Parking



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Photo 116: Aqueduct Park | Downstream, Scenic Overlook View



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Photo 118: Freedom Park and Scotia Landing | Amphitheater



Photo 119: Freedom Park and Scotia Landing | Path



Photo 120: Freedom Park and Scotia Landing | Picnic Area



Photo 121: Freedom Park and Scotia Landing | Scotia Landing Dock and Boat Slips



Photo 122: Freedom Park and Scotia Landing | Scotia Landing Kiosk



Photo 123: Freemans Bridge Fishing Access Site | Entrance



Photo 124: Freemans Bridge Fishing Access Site | Parking



Photo 125: Freemans Bridge Fishing Access Site | Trailered Boat Ramp



Photo 126: Freemans Bridge Fishing Access Site | Trailered Boat Ramp



Photo 127: Freemans Bridge Fishing Access Site | Cartop Boat Launch Gangway



Photo 128: Freemans Bridge Fishing Access Site | Cartop Boat Launch



Photo 129: Freemans Bridge Fishing Access Site | Gravel Parking Area



Photo 130: Freemans Bridge Fishing Access Site | ADA Portable Toilet



Photo 131: Freemans Bridge Fishing Access Site | Kiosk



Photo 132: Gateway Landing Park | Roadside Parking



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Photo 134: Gateway Landing Park | Entrance and Path



Photo 135: Gateway Landing Park | Gangway and Docks



Photo 136: Gateway Landing Park | Gazebo



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Photo 152: Schenectady Yacht Club | Transient Boater Picnic Area



Photo 153: Schenectady Yacht Club | Fuel Pump and Building



Photo 154: Waters Edge Lighthouse | Marina



Photo 155: Waters Edge Lighthouse | Boat Slips



Photo 156: Waters Edge Lighthouse | Sign, Gangway



Appendix B – Recreation Site Inventory Form

CRESCENT AND VISCHER FERRY PUBLIC RECREATION SITE INVENTORY FORM

Inspected by: _____ Date: _____ Time: _____

Site Name/Code: _____ City/Town: _____

Address: _____ State: _____ Zip Code: _____

Site Owned by: _____ Operated/Maintained by: _____

Facility Type (Primary Purpose): ☐ **Public** ☐ **Commercial** (open to public) ☐ **Private** (non public)

Developed Facilities: ☐ Boat Launch ☐ Picnic Area ☐ Angling Access
☐ Campground ☐ Swim Area ☐ Overlook/Roadside Pull-off
☐ Marina ☐ Other: _____

Undeveloped Facilities: ☐ Primitive Campsite ☐ Informal Boat Launch ☐ Informal Angling ☐ Other

Road Access: Condition: _____

☐ Paved access # entrances _____ # lanes _____ ☐ Circular entrance/exit ☐ Signage
☐ Unpaved access # entrances _____ # lanes _____ ☐ Circular entrance/exit ☐ Signage

Parking Lots: Condition: _____

Type	# Paved	# Gravel	Space Delineation		
ADA Spaces	_____	_____	<input type="checkbox"/> Painted	<input type="checkbox"/> Curbs	<input type="checkbox"/> Signage
Regular Spaces	_____	_____	<input type="checkbox"/> Painted	<input type="checkbox"/> Curbs	<input type="checkbox"/> Signage
Vehicle & Trailer Spaces	_____	_____	<input type="checkbox"/> Painted	<input type="checkbox"/> Curbs	<input type="checkbox"/> Signage

Operations:

☐ Staffed ☐ Unstaffed ☐ Seasonal (From _____ To _____)

☐ Fee: (Site \$ _____; Parking \$ _____) ☐ Year Round

Operating Hours _____

Day Use Site Amenities (total # of all amenities per site; provide additional specifications on next page):

_____ Picnic Shelter	_____ Overlook/Vista	_____ Boat Launch Ramp
_____ Picnic Tables	_____ Hiking/Walking Trail	_____ Carry-in Boat Launch Area
_____ Trash Cans	_____ Fishing Trail/Shoreline	_____ Designated Swim Area
_____ Grills/Fire pits	_____ Fishing Pier/Platform	_____ Designated Campsite Area
_____ Restrooms - fixed	_____ Fishing Prep Area	_____ Safety Signage
_____ Restrooms - portable	_____ Information Kiosk	_____ Informational Signage
_____ Other (specify) _____		

Boat Launch Facilities: Condition: _____

Craft Type: ☐ Motorized ☐ Carry In ☐ Boat Prep Area
Launch Type: ☐ Hard surface ☐ Gravel ☐ Informal (undeveloped)
☐ ADA Compliant ☐ Turn-around area _____ # of Lanes

Fishing Prep Area/Docks: Condition: _____

☐ Prep Area ☐ Fishing Dimensions: _____ ☐ ADA Compliant
☐ Prep Area ☐ Fishing Dimensions: _____ ☐ ADA Compliant

Trails: Condition: _____

Type: _____ Length (ft): _____ Condition: _____ ☐ ADA Compliant
Type: _____ Length (ft): _____ Condition: _____ ☐ ADA Compliant
Type: _____ Length (ft): _____ Condition: _____ ☐ ADA Compliant

Interpretive/Site Information Condition: _____

Display Type: ☐ None ☐ Kiosk ☐ Other ____ No. of Displays

Information Type: ☐ Boating Safety ☐ Invasive Species ☐ Fishing Regulations ☐ Fish Type
 ☐ Regional Events ☐ Other (specify) _____

Sanitation Facilities: Condition: _____

	# Flush	(# ADA)	# Portable	(# ADA)
Unisex	_____	(____)	_____	(____)
Women	_____	(____)	_____	(____)
Men	_____	(____)	_____	(____)

Campground/Campsite: Condition: _____

	RV Sites	Tent Sites	Cabins/Cottages	Group Sites	Primitive Sites
# of sites					
# ADA compliant					

Notes (including general condition, any restrictions, such as boating use, invasive species, erosion, etc.):

Photos: No. _____ to _____

Site Sketch (and GPS coordinates for facilities and amenities):

Appendix C – User Survey

CRESCENT AND VISCHER FERRY PROJECTS RECREATION USER SURVEY

The New York Power Authority welcomes you to the Crescent and Vischer Ferry Hydroelectric Projects Recreation Areas. If you have participated in any recreational activities in the Project areas, please take a moment to complete the brief survey below. Your input will assist us in determining if existing recreational facilities are meeting recreational needs. **Please complete the survey at the end of your visit and place in the collection box or scan the QR code to complete the survey online.**

1. Have you participated in this recreation survey before? If yes, thank you for your time. We are only interviewing each person once with this survey. If not, please continue with the survey.
2. What is your home (resident) zip code? _____
3. What is today's date? _____
4. Which recreation site did you visit this trip? (Check all that apply)
☐ Vischer Ferry Overlook ☐ Vischer Ferry Tailwater Fishing Area ☐ Niskayuna/Lock E7 Boat Launch
☐ Crescent Picnic Area ☐ Crescent Tailwater Fishing Area
5. How many were in your group at this recreation site, including yourself? _____
6. How did you/your group arrive at the recreation site? (check the one that best applies)
☐ Automobile ☐ Boat ☐ Bicycle
☐ On foot ☐ Other: _____
7. Have you visited this or other Crescent and Vischer Ferry Project recreation sites before? (circle one)

Yes No

If yes, please fill in the approximate number of visits you made to each site in the past year.

Crescent Picnic Area	Crescent Tailwater Fishing Area	Vischer Ferry Overlook	Vischer Ferry Tailwater Fishing Area	Niskayuna (Lock E7) Boat Launch

8. Please indicate which of the following activities you have participated in **at this site** in the past year, including this trip (check all that apply in each season).

Activity	Spring (Mar. 1-May 31)	Summer (June 1-Aug. 31)	Fall (Sept. 1-Nov. 30)	Winter (Dec. 1-Feb. 28)
Biking				
Birding				
Boating - Power				
Boating – Jet Ski				
Canal Trail				
Canoeing/Kayaking				
Driving for Pleasure				
Educational Program				
Fishing from Boat				
Fishing from Shore				
Hiking				
Horseback Riding				
Nature Observation				
Paddle Boarding				
Photography				
Picnicking				
Running				
Scenery/Scenic View				
Sightseeing				
Sunbathing				
Swimming				
Walking				
Waterskiing				
Other:				

9. How crowded was this site today? (circle one)

1 2 3 4 5
 Not Slightly Somewhat Moderately Extremely
 Crowded Crowded Crowded Crowded Crowded

10. Overall, please rate your satisfaction with the available recreation facilities at this site (circle one).

1 2 3 4 5
 Not Slightly Satisfied More than Extremely
 Satisfied Satisfied Satisfied Satisfied

If less than “satisfied” (rating of 1 or 2) please explain why: _____

11. Please rate the following amenities at the recreation site you visited on this trip (circle a number)

	Poor		Fair		Excellent
Parking	1	2	3	4	5
River Access	1	2	3	4	5
Signs/Information	1	2	3	4	5
Trash Receptacles	1	2	3	4	5
Overall Site Condition	1	2	3	4	5

Please explain any poor (1) ratings: _____

12. How would you rate the **value** of this recreation site as a public recreation opportunity on a scale of 1 to 5? (circle number)

1 2 3 4 5
Low \longrightarrow High

13. Would you return to this recreation site over the course of the next year? (circle one)

Yes No

14. What did you like **most** about your recreational experience today?

15. What did you like **least** about your recreational experience today?

16. About how many times a year do you visit this part of the Mohawk River for recreation?

17. Do you have any additional comments regarding recreation opportunities in this part of the Mohawk River?

Thank you for your time and input.