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October 30, 2020

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

Re: Gregory B. Jarvis Power Project, FERC No. 3211-009, Additional Information Pertaining to Native Freshwater Mussels

Dear Secretary Bose:

The Power Authority of the State of New York (Power Authority) is in the process of relicensing the Gregory B. Jarvis Power Project (Project), FERC Project No. 3211, by using the Integrated Licensing Process (ILP). The Power Authority submitted its Final Application for a New License (Application) with the Federal Energy Regulatory Commission (FERC or the Commission) on July 31, 2020.

On October 2, 2020, the Power Authority filed a letter with the Commission stating that, following notification from the New York State Department of Environmental Conservation of the observance of freshwater mussels in Hinckley Reservoir, the Power Authority conducted two separate informal mussel surveys on September 23 and September 29, 2020. The letter also stated that the Power Authority was preparing to file a more detailed report to support the Commission's environmental analysis of the Project.

Enclosed please find the report detailing the methods, environmental conditions, and results of the two informal surveys.

We look forward to continuing our work together as the Commission and other resource agencies complete their environmental review related to the Commission's issuance of a new license for the Project. If there are any questions regarding this information, please direct them to the undersigned at (315) 323-4443 or cindy.brady@nypa.gov.

Sincerely,

Cindy Brady

Cindy Brady
Manager, Licensing

cc: Emily Carter, FERC
Todd Phillips, NYSDEC (Utica)

HINCKLEY RESERVOIR INFORMAL MUSSEL SURVEY, SEPTEMBER 2020

Prepared by: Gomez and Sullivan Engineers

October 2020

GREGORY B. JARVIS PROJECT RELICENSING

FERC NO. 3211

NEW YORK STATE OF OPPORTUNITY. | NY Power Authority

Table of Contents

List of Tables

List of Figures and Photos

List of Abbreviations

Application	Final Application for a New License
BCD	Barge Canal Datum
FERC or the Commission	Federal Energy Regulatory Commission
ILP	Integrated Licensing Process
NYSDEC	New York State Department of Environmental Conservation
Power Authority or NYPA	Power Authority of the State of New York
Project	Gregory B. Jarvis Power Project
SGCN	Species of Greatest Conservation Need

1 Introduction

The Power Authority of the State of New York (Power Authority or NYPA) is in the process of relicensing the Gregory B. Jarvis Power Project (Project), FERC Project No. 3211, by using the Integrated Licensing Process (ILP). The Power Authority submitted its Final Application for a New License (Application) with the Federal Energy Regulatory Commission (FERC or the Commission) on July 31, 2020.

During its relicensing of the Project, the Power Authority conducted the *Hinckley Reservoir Fluctuation Field Study* in accordance with FERC's specifications contained in its Study Plan Determination. The study methods included a reconnaissance level-field survey of the reservoir's littoral zone, which included conducting observations on aquatic habitat and documenting any observed freshwater mussels. The field survey occurred from July 16-19, 2018 when the water surface elevation levels of Hinckley Reservoir were between 1213.2 – 1213.8 ft. (Barge Canal Datum or BCD).

In early September of 2020, the New York State Department of Environmental Conservation (NYSDEC) was notified by a local resident that freshwater mussels were observed on the shore of Hinckley Reservoir. On September 11, 2020, the NYSDEC informed the Power Authority that they conducted a site visit on September 9, 2020 and confirmed the observations. The Power Authority responded to the NYSDEC on September 14, 2020 and requested additional details to assess the information cooperatively. On September 22, 2020, the NYSDEC notified the Power Authority that they were compiling a report to summarize the results of their informal mussel survey of Hinckley Reservoir conducted on September 9th. NYSDEC informed the Power Authority that its preliminary draft report indicated that live and dead mussels of the species Eastern floater (*Pyganodon cataracta*) were found at several locations within the reservoir. The water surface elevation on the date of the NYSDEC survey was approximately 1206 feet (BCD).

The Power Authority conducted two informal visual surveys to search the shoreline of Hinckley Reservoir for freshwater mussels on September 23 and September 29, 2020 and submitted a letter to FERC on October 2, 2020 summarizing the findings of these surveys. This report contains additional details and associated analysis related to the informal mussel surveys conducted by the Power Authority.

2 Methods

The Power Authority conducted two informal surveys to search the shoreline of Hinckley Reservoir for freshwater mussels on September 23 and September 29, 2020. The surveys were performed on foot by biologists from Gomez and Sullivan Engineers. The search methods involved biologists walking along the reservoir shoreline and in shallow areas in a single pass survey. In addition to the exposed shoreline, areas underwater to a depth of approximately two feet were searched. These were informal surveys in which no live mussels were collected. Observations on mussel presence/absence were documented. Figure 1 shows the areas in the

reservoir covered by the two surveys.

The water surface elevation of Hinckley Reservoir on these two days was approximately 1203 feet (BCD) and 1201.7 (BCD), respectively. The region surrounding the Project had been abnormally dry for most of the summer of 2020. On June 19, 2020, per directive from the Canal Corporation, the Hinckley Reservoir release rate was reduced to 250 cfs from the specified Operating Diagram release rate of 400 cfs. As a result, the Jarvis Project has not been operating during this period as it requires a minimum of 300 cfs to operate the turbines.

The September 23 survey covered approximately 3,000 feet along the south shore of the reservoir and approximately 4,000 feet along the northwest shore of the reservoir from the boat launch to the first tributary, Beaver Meadow Creek. This survey was conducted by one Gomez and Sullivan biologist accompanied by Power Authority personnel. On September 23, 2020 the survey began around 9:45 and ended at approximately 13:00. The water surface elevation was approximately 1203 ft. (BCD). The first section of the survey began north of the dam at the boat launch and continued north to Beaver Meadow Creek. The second portion of the survey began at the south end of the Project dam and continued north along exposed shoreline. The areas surveyed can be seen in Figure 1, Areas 4-6. This search was conducted with one individual walking along the shoreline and in shallows in a single pass survey. In addition to the exposed shoreline, areas underwater to a depth of approximately two feet were searched. Representative photographs were taken of live mussels and spent shells.

The September 29 survey covered approximately 2.5 miles beginning at the upstream extent of the Project boundary where West Canada Creek enters Hinckley Reservoir (approximately 1,500 feet downstream of Harvey Bridge Road) and continuing downstream. This survey was conducted by two Gomez and Sullivan biologists and began at 9:00 and ended around 13:30. The water surface elevation was approximately 1201.7 ft. (BCD) during the survey. The surveyed areas can be seen in Figure 1, Areas 1-3. The search was conducted with one individual on each side of the creek walking on the shoreline and in the shallows. Further downstream, where the reservoir was impounded, the individuals walked along the north shore, with one individual in the water and one on shore. In addition to the exposed shoreline, areas underwater to a depth of approximately two feet were searched. Representative photographs were taken.

3 Results

Evidence of mussels was observed in Areas 2, 3, 4, 5, and 6 (see Figure 1). Live mussels were found in shallow water and on shore. Freshly dead mussels and spent shells were also found on shore. From spent shells and photographs, all mussels found were identified as the Eastern floater by Dr. Lee Harper, a local expert in New York State freshwater mussels. The mussels found appeared to be of various ages due to their range in size (Photo 1). Mussels were predominantly located in soft sand and fine substrate. Mussel location descriptions and estimated total numbers of mussels for each area can be found in Table 1.

The informal survey conducted on September 23 covered Areas 4-6. Along the north shore, in Area 4, several hundred mussels were found. The substrate in this area was predominantly sand and finer grained material (Photo 2). In Area 5, less than 5 live mussels were found on shore and less than 5 live mussels were found in the water (Photo 3). This area was an exposed sand bar. Area 6 was a mud cove that was exposed due to the lower water levels that day (1203 ft. BCD). Less than 5 mussels were found on shore inside of the mud cove and less than 5 were found in the water along the cove's exposed shore.

The informal survey that was conducted on September 29 covered Areas 1-3. No mussels were found in Area 1, the most upstream portion of the Project boundary where West Canada Creek enters the reservoir, and which is riverine in nature during low reservoir water levels (Photo 4). The substrate in Area 1 predominantly consisted of cobble and gravel. Area 2 in the impounded section of the West Canada Creek, approximately 1.3 miles inside the Project boundary, had less than 5 live mussels, had less than 5 relic shells and had less than 5 mussels found on shore (Photo 5). At Area 3, which is located on the north shore of the reservoir, hundreds of live mussels and hundreds of freshly dead and relic shells were found on shore (Photo 6). The substrate in Areas 3 was soft, predominantly consisting of sand and finer grained material. Significant predation on mussels was apparent in this location, apparently by birds.

Table 2 and Table 3 show a summary of the monthly and annual reservoir water level duration data in relation to the surveyed areas where mussels were found. Consistent with other relicensing study reports for the Project, the water level data are based on two periods: 2001-2012 when Hinckley Reservoir was regulated using the 1920 Operating Diagram and 2013-2019 when reservoir regulation was based on the 2012 Operating Diagram. The percentages in the tables reflect the amount of time (monthly and annually) that the reservoir's water surface elevation was lower than the elevation of each surveyed area, indicating how often these areas are exposed. The elevation shown for each area is the approximate maximum elevation of the reservoir bed where mussels were found during the two surveys. During the period of 2013-2019, the reservoir water surface elevation never dropped below 1207 ft. BCD during the months of May, June, July, August, and December. The reservoir was lowest during the months of February, March, and October, with March being the lowest month of the year.

The general bed profile at representative cross sections through each mussel survey area was plotted using existing bathymetric data of Hinckley Reservoir and GIS tools. The bed profiles provide an overview of the reservoir bed slope at each location. A point was added to each graph to show the approximate elevation where mussels were observed in each area during the two surveys. The cross section locations can be seen in Figure 2. The bed profiles are shown in Figure 3.

4 Summary and Discussion

The results of the Power Authority informal mussel surveys are consistent with the NYSDEC survey: freshwater mussels of a single species (Eastern floater) were found at several locations

within the reservoir. The Eastern floater is a common mussel in New York State. It is not listed as Threatened or Endangered under the federal Endangered Species Act, nor by NYSDEC pursuant to 6 NYCRR Part 182, nor is it a species that is ranked as S1 or S2 by the New York Natural Heritage Program, collectively referred to as "imperiled mussels." Observations included live mussels of various sizes along the shoreline and in shallow water, spent mussel shells, and mussel tracks where live mussels moved to deeper water. In any area with harder, rocky substrate and/or steep banks, fewer to no mussels were observed.

In March of 2018, Erie Boulevard Hydropower, L.P. performed mussel surveys downstream of the Jarvis Project for the West Canada Creek Project relicensing. Survey areas included the Prospect impoundment which is located immediately downstream from the Jarvis Project. According to the mussel survey report filed in that relicensing proceeding (Kleinschmidt Associates, 2020[1]), the lake floater (*Pyganodon lacustris)* was the only mussel species found in the Prospect impoundment.

Mussels were readily observable in Hinckley Reservoir during the September 2020 surveys due to the lower elevation of the reservoir and lower inflow conditions in contrast to the relicensing study survey period in 2018 when neither live mussels nor mussel presence (i.e., shells) were observed. In 2020, the water level of the reservoir was approximately 10-12 feet lower than during the 2018 study and inflows were so low that the Jarvis Project did not operate at all during summer and into the fall 2020. The Eastern floater was the only species found by both the Power Authority and the NYSDEC during the September 2020 surveys at Hinckley Reservoir. Eastern floater is a common mussel according to the New York Natural Heritage Program and is not in need of any special listing or protection.

[1] *Kleinschmidt Associates. (March 2020.) Macroinvertebrate and Freshwater Mussel Survey. Prepared for Erie Boulevard Hydropower, L.P., Fulton, New York.*

Tables, Figures and Photographs

Table 1: Approximate Number of Mussels Found During Power Authority Surveys of Hinckley Reservoir, September 2020

Location	Predominant Substrate	Live Mussels	Dead/Spent Shells	Stranded Live Mussels	Total
Area 1	Gravel, cobble & sand	0	0	0	0
Area 2	Sand, finer grained material & boulders	< 5	< 5	< 5	< 15
Area 3	Sand & finer grained material	100-200	100-200	100-200	300-600
Area 4	Sand & finer grained material	200+	200+	200+	600+
Area 5	Sand & finer grained material	< 5	0	< 5	< 10
Area 6	Finer grained material	< 5	0	< 5	< 10

Table 2: Summary of Monthly and Annual Hinckley Reservoir Water Level Duration (2001-2012) in Relation to Mussel Survey Areas

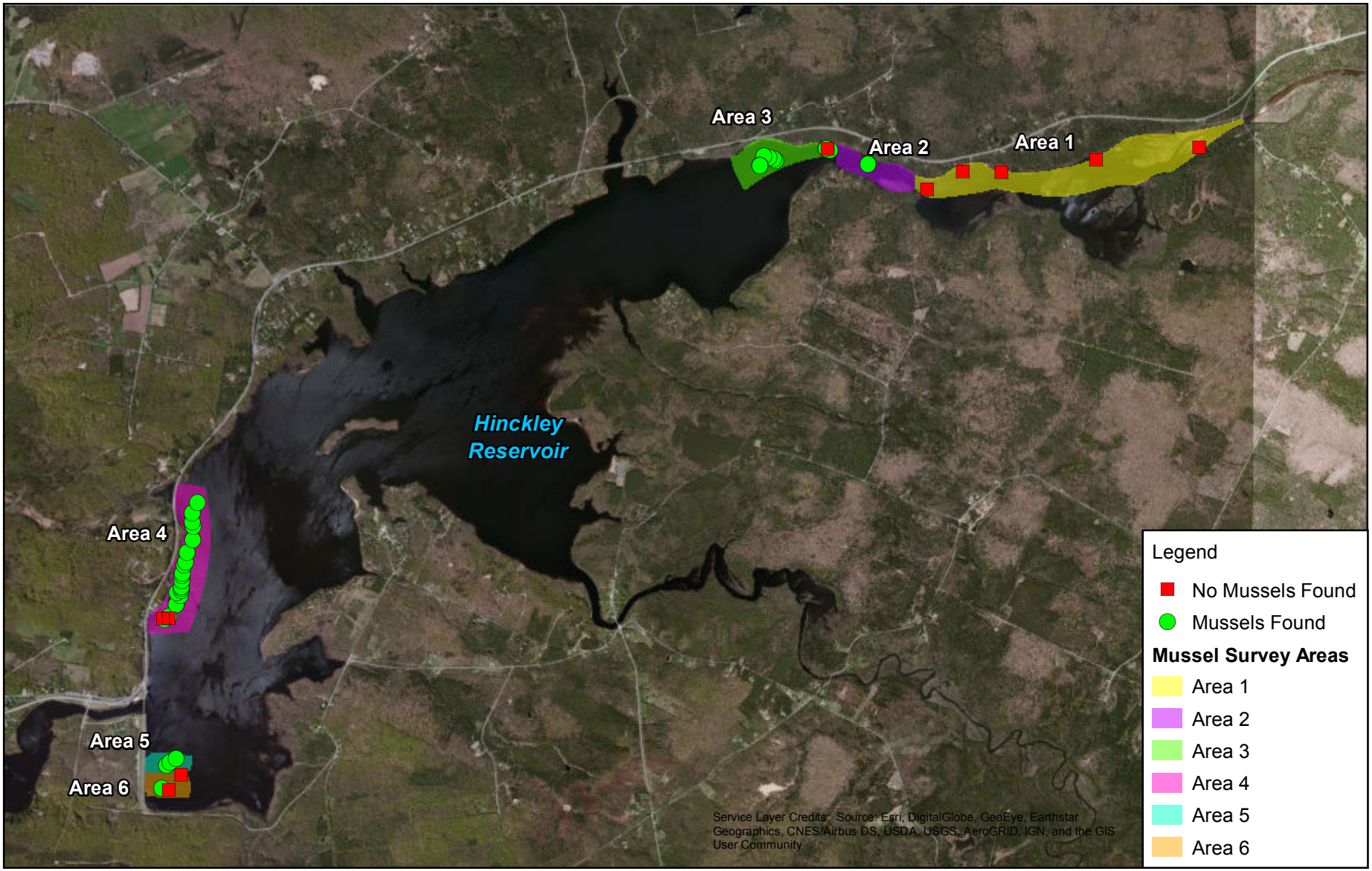
Location ID	Approx. Maximum Bed El. Mussels Found (ft.)	Percentage of Time the Reservoir Water Surface Elevation is less than the Max Bed Elevation Where Mussels Were Found (2001-2012)												
		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
Area 1	None found	-	-	-	-	-	-	-	-	-	-	-	-	-
Area 2	1207	24%	50%	57%	4%	0%	0%	0%	8%	31%	29%	24%	10%	19%
Area 3	1207	24%	50%	57%	4%	0%	0%	0%	8%	31%	29%	24%	10%	19%
Area 4	1207	24%	50%	57%	4%	0%	0%	0%	8%	31%	29%	24%	10%	19%
Area 5	1204	18%	41%	47%	3%	0%	0%	0%	5%	19%	16%	17%	4%	14%
Area 6	1203	16%	36%	44%	3%	0%	0%	0%	5%	13%	14%	15%	3%	12%

Note: Elevations are rounded to the nearest foot.

Table 3: Summary of Monthly and Annual Hinckley Reservoir Water Level Duration (2013-2019) in Relation to Mussel Survey Areas

Location ID	Approx. Maximum Bed El. Mussels Found (ft.)	Percentage of Time the Reservoir Water Surface Elevation is less than the Max Bed Elevation Where Mussels Were Found (2013-2019)												
		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
Area 1	None found	-	-	-	-	-	-	-	-	-	-	-	-	-
Area 2	1207	10%	30%	62%	18%	0%	0%	0%	0%	16%	32%	8%	0%	15%
Area 3	1207	10%	30%	62%	18%	0%	0%	0%	0%	16%	32%	8%	0%	15%
Area 4	1207	10%	30%	62%	18%	0%	0%	0%	0%	16%	32%	8%	0%	15%
Area 5	1204	3%	24%	59%	15%	0%	0%	0%	0%	5%	14%	0%	0%	10%
Area 6	1203	2%	23%	59%	14%	0%	0%	0%	0%	2%	11%	0%	0%	9%

Note: Elevations are rounded to the nearest foot.



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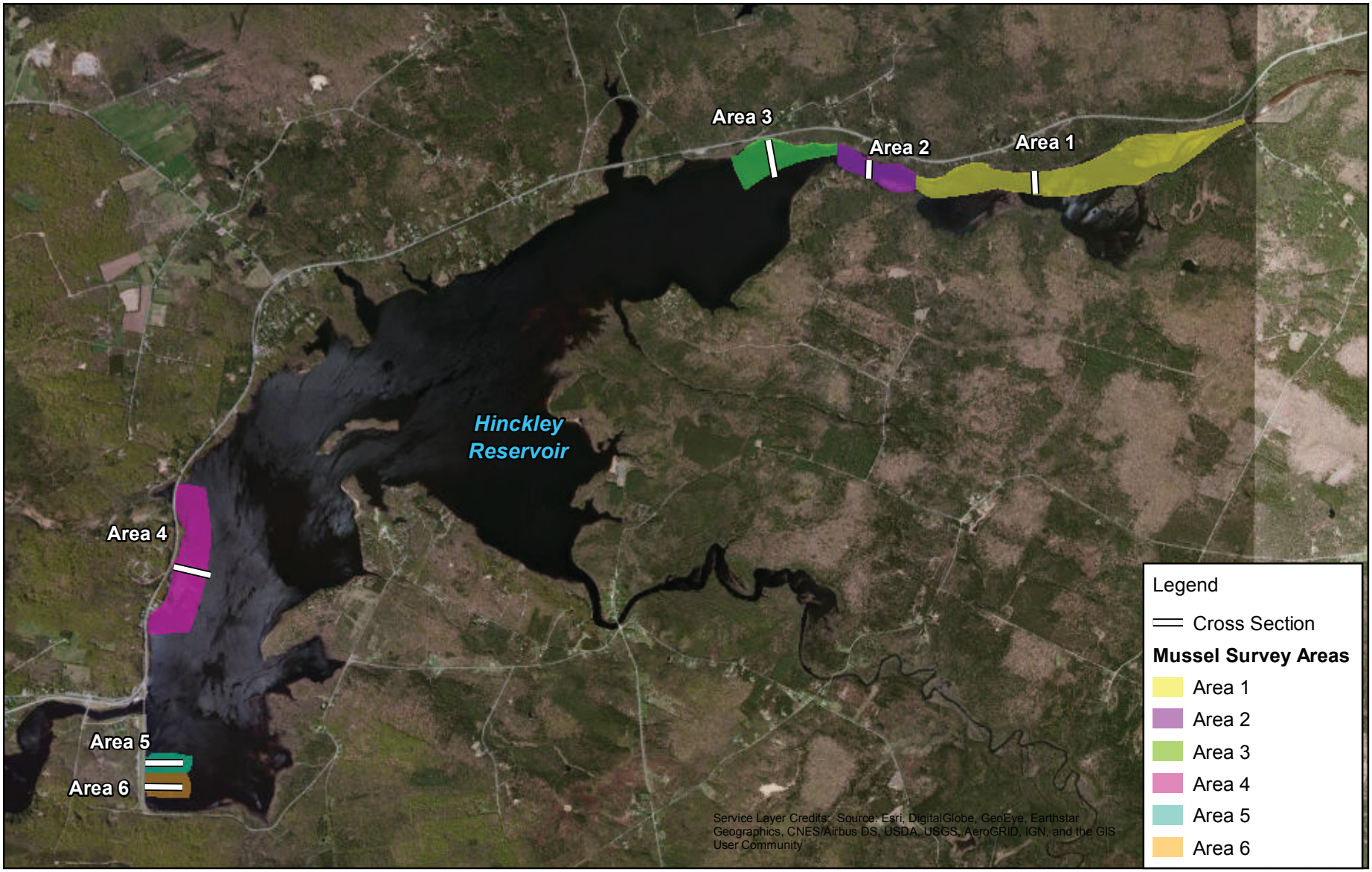
N

0 0.5 1 2 Miles

Gregory B. Jarvis Project
(FERC No. P-3211)

Figure 1
NYPA Informal Mussel Survey Locations
Sept. 23 and 29, 2020

Path: J:\studies\mussels\memo_mussel_locations.mxd



NEW YORK STATE OF OPPORTUNITY. | NY Power Authority

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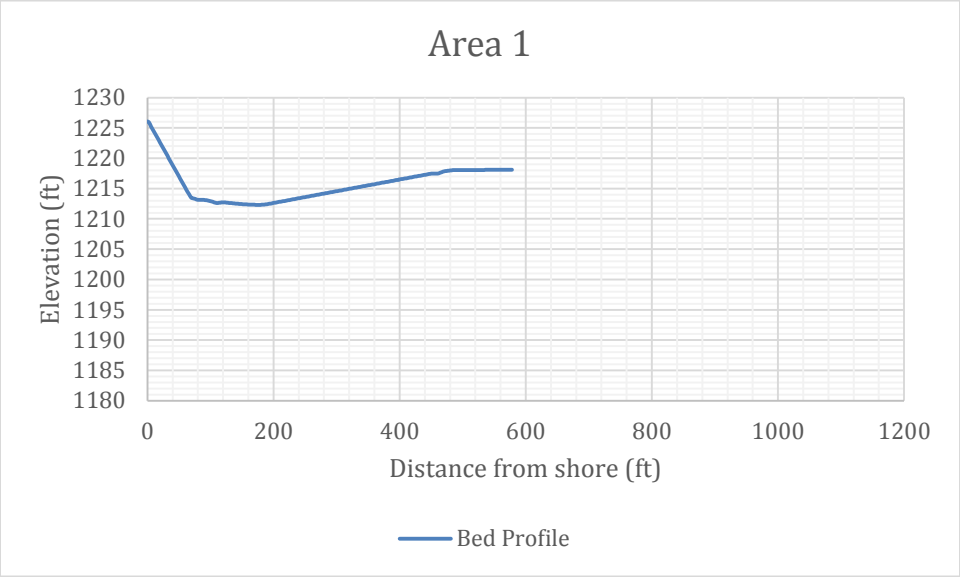
Gregory B. Jarvis Project
(FERC No. P-3211)

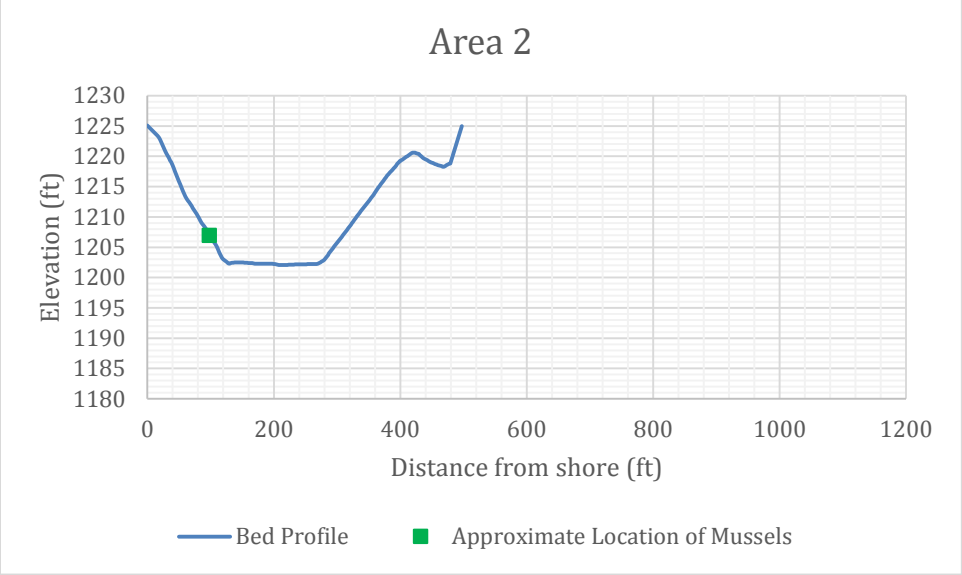
0 0.5 1 2 Miles

Figure 2
NYPA Informal Mussel Survey Locations
Sept. 23 and 29, 2020

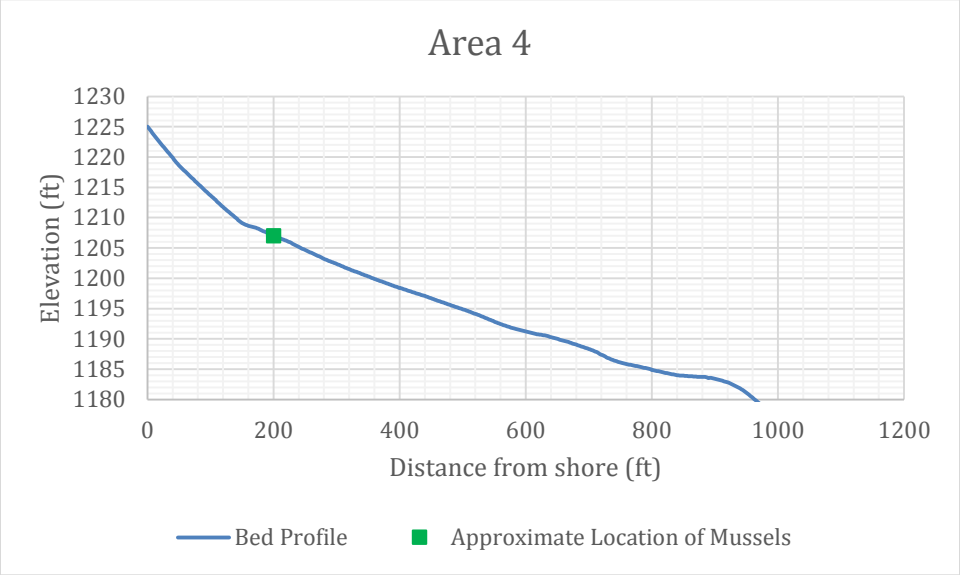
Path: J:\studies\mussels\Area_transects.mxd

Figure 3: Bed Profiles for Areas 1-6






Area 3
Elevation (ft)
1230
1225
1220
1215
1210
1205
1200
1195
1190
1185
1180
0
200
400
600
800
1000
1200
Distance from shore (ft)
Bed Profile
Approximate Location of Mussels


Area 4
Elevation (ft)
1230
1225
1220
1215
1210
1205
1200
1195
1190
1185
1180
0
200
400
600
800
1000
1200
Distance from shore (ft)
Bed Profile
Approximate Location of Mussels


Area 5
Elevation (ft)
1230
1225
1220
1215
1210
1205
1200
1195
1190
1185
1180
0
200
400
600
800
1000
1200
Distance from shore (ft)
Bed Profile
Approximate Location of Mussels

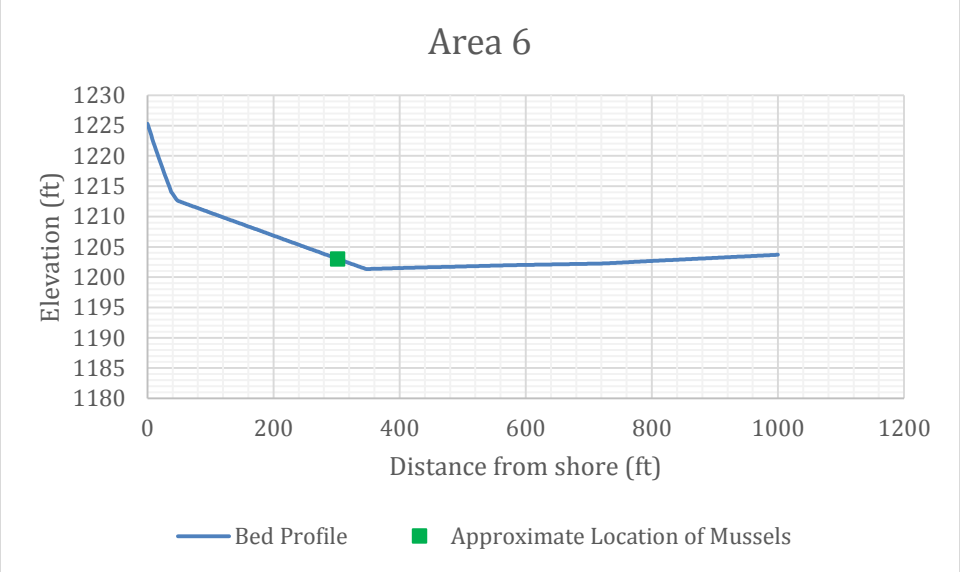

Area 6
Elevation (ft)
1230
1225
1220
1215
1210
1205
1200
1195
1190
1185
1180
0
200
400
600
800
1000
1200
Distance from shore (ft)
Bed Profile
Approximate Location of Mussels

Photo 1: Eastern Floater Mussels of Various Sizes Found in Hinckley Reservoir

Photo 2: Substrate in Area 4

Photo 3: Eastern Floater Mussels Found in Area 5

Photo 4: Substrate in Area 1

Photo 5: Live Eastern Floater Found in Area 2

Photo 6: Mussel Predation Observed in Area 3