LOW-IMPACT HYDROPOWER POWER INSTITUTE CERTIFICATION APPLICATION

ANDROSCOGGIN PROJECT
(FERC NOS. P-2375, P-8277)

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1.0 FACILITY DESCRIPTION

1.1 INTRODUCTION

The Androscoggin Project (Project) is currently certified with the Low Impact Hydro Institute (LIHI) as LIHI Certificate No. 48. The Project is located on the Androscoggin River in the towns of Canton, Jay, and Livermore, Maine (Figure 1) and consists of the Riley, Jay, and Livermore hydroelectric developments, licensed together as FERC Project No. 2375 (R-J-L), and the Otis Project, FERC Project No 8277 (Otis). Andro Hydro, LLC, a wholly owned subsidiary of Eagle Creek Renewable Energy, LLC (ECRE), is the FERC Licensee for both the R-J-L Project and the Otis Project.

R-J-L is located between river miles 53 and 65 on the Androscoggin River; Otis is located between the Jay and Livermore developments (Figure 1). The area adjacent to and upstream of R-J-L and Otis is a mix of developed land of varying intensities, forest, and agriculture (pasture, hay, crops).

The Androscoggin River begins at Umbagog Lake in Coos County, New Hampshire, and meanders generally south for 164-miles, then joins the Kennebec River by Merrymeeting Bay before emptying into the Gulf of Maine at the Atlantic Ocean. The Androscoggin River has a 3,530-square-mile drain basin.

Flow in the Androscoggin River basin (Figure 2) is regulated by five upstream storage reservoirs (Figure 3) to provide a reliable and uniform flow to downstream river reaches and to maintain a target flow of at least 1,550 cubic feet per second (cfs) at Berlin, New Hampshire, during the summer months (FERC Final EA 1998). The R-J-L Project and the Otis Project are operated in run of river mode, meaning that inflow to the powerhouses generally matches outflow and water is not stored for generation. Operation of the Riley development and the Otis Project do not result in the diversion of water from the river channel (Figure 8; Figure 9; Photo 3 ; Photo 8). The Jay and Livermore developments have bypassed reaches (lengths of approximately 130 feet and 1,600 feet, respectively) and minimum flow requirements to protect water quality and fishery

resources (FERC License 1998). A minimum bypass flow of at least 5 cubic feet per second (cfs), or inflow, whichever is less, is required in the Jay development southern bypass from June 15 to September 15 each year. The Licensee provides a minimum flow of 100 cfs from July 1 to September 30 and November 1 to April 30 to the Livermore bypassed reach and 150 cfs from May 1 to June 30 and October 1 to October 31. A minimum downstream river flow of 550 cfs (including the minimum flows in the bypassed reach) is required downstream of the Livermore development (FERC License 1998).

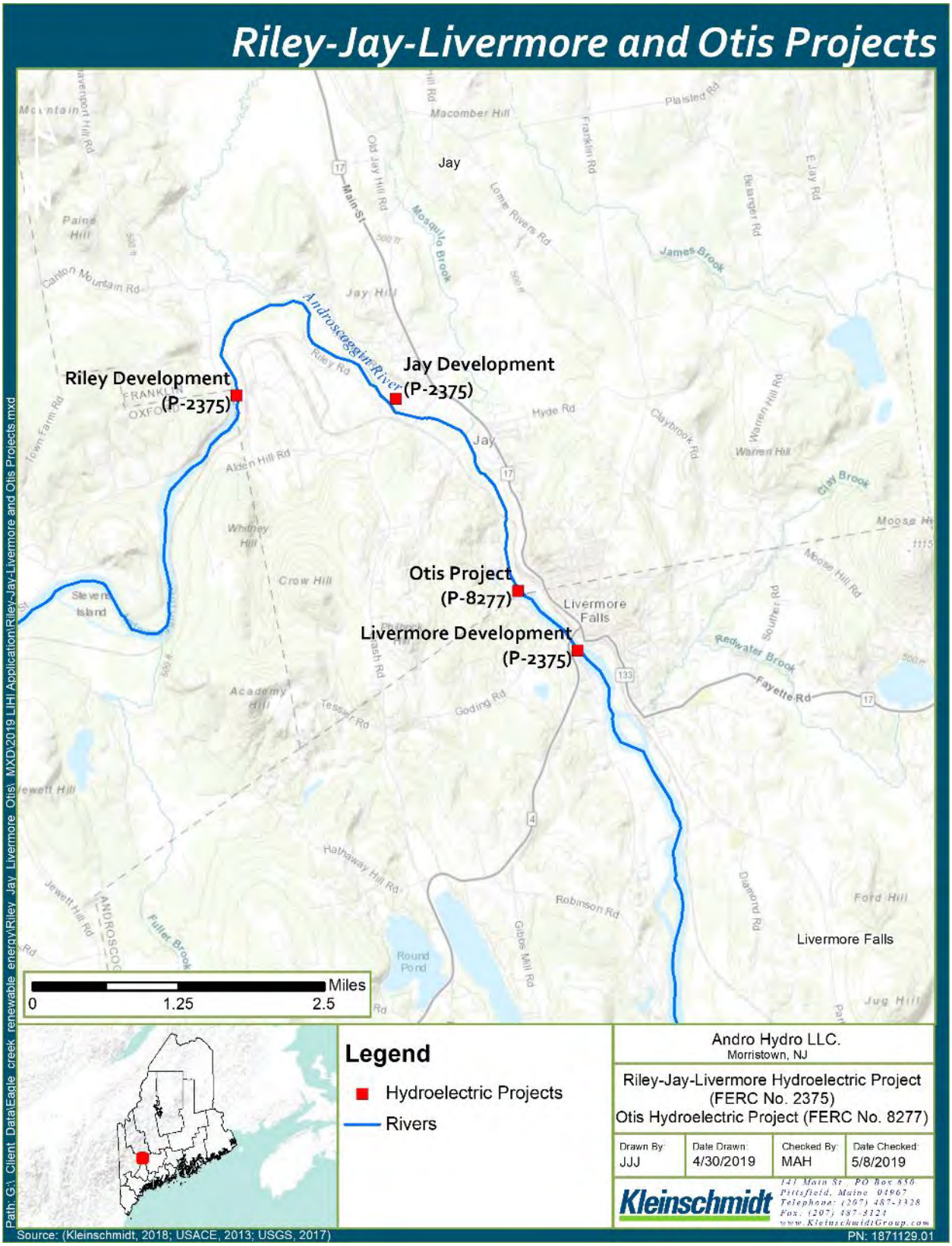

FIGURE 1 RILEY-JAY-LIVERMORE AND OTIS PROJECT LOCATIONS, MAINE

1.2 PROJECT DESCRIPTION

Riley Development:

Riley is the most upstream of the four developments, located at river mile 58.0. Riley dam is a 19.2 ft high by 757 ft long. L-shaped, rock-filled timber crib structure (Appendix A – Photo 3). The dam is topped with 48-inch high flashboards. A triangular forebay discharges to the six identical turbines contained in the 100-ft by 236-ft powerhouse. Turbines are horizontal shaft units, installed in 1982, each rated for 926 cfs hydraulic capacity and electrical output of 1.3 MW at rated head of 20 feet, which is reduced to 18.7 feet of head with all units running. Note also that the Riley forebay is the source of process water supply to Verso pulp and paper mill, on the East shore (Appendix A – Photo 4; Photo 5).

Jay Development:

The Jay dam is located at river mile 56.5. Jay dam totals 893 feet in length and is comprised of three non-contiguous sections separated by two island areas (Appendix A – Photo 6; Photo 7). The two outer sections of Jay dam are topped with 32-inch high flashboards. The 320-ft intake at the Jay forebay leads to a 32-ft by 147-ft powerhouse which contains six turbine-generators. These units were installed in the early 1900's, are rated for a total flow of 3,300 cfs and will provide total electrical output of 3.1 MW. The rated head at Jay is 14.5 feet.

Otis Development:

The Otis dam is located at river mile 54.0. The dam is composed of two contiguous spillway sections totaling 577 feet in length and topped with 24-inch high flashboards (Appendix A – Photo 8; Photo 9). A 95-ft long forebay leads to the 70-ft by 86-ft powerhouse. The powerhouse contains two turbines each rated for 3,000 cfs at 26 feet of head, and each having generation capability of 5.2 MW. While the Otis dam is over 100 years old, the Otis powerhouse was constructed in 1984.

Livermore Development:

The Livermore dam is located at river mile 53.2 and is the furthest downstream of the four developments that comprise the Androscoggin Project. The dam consists of two contiguous spillway sections totaling 599 feet in length and topped with 28-inch high flashboards (Appendix A – Photo 10; Photo 11). A 185-ft wide by 594-ft long forebay leads to two separate powerhouses: (1) the (original) 88-ft by 157-ft powerhouse is located on the eastern side of the

river, containing eight identical horizontal turbines (early 1900's vintage) with total hydraulic capacity of 3,456 cfs and eight generators with total generation capability of 7.8 MW: and (2) a newly (2004) constructed powerhouse on the southwest end of the original powerhouse, housing a single vertical turbine, which discharges into the bypass reach at the southeast end of the forebay. The unit operates with a hydraulic capacity of 450 cfs and generating capability of 1.0 MW. The rated head at Livermore is 33.3 feet.

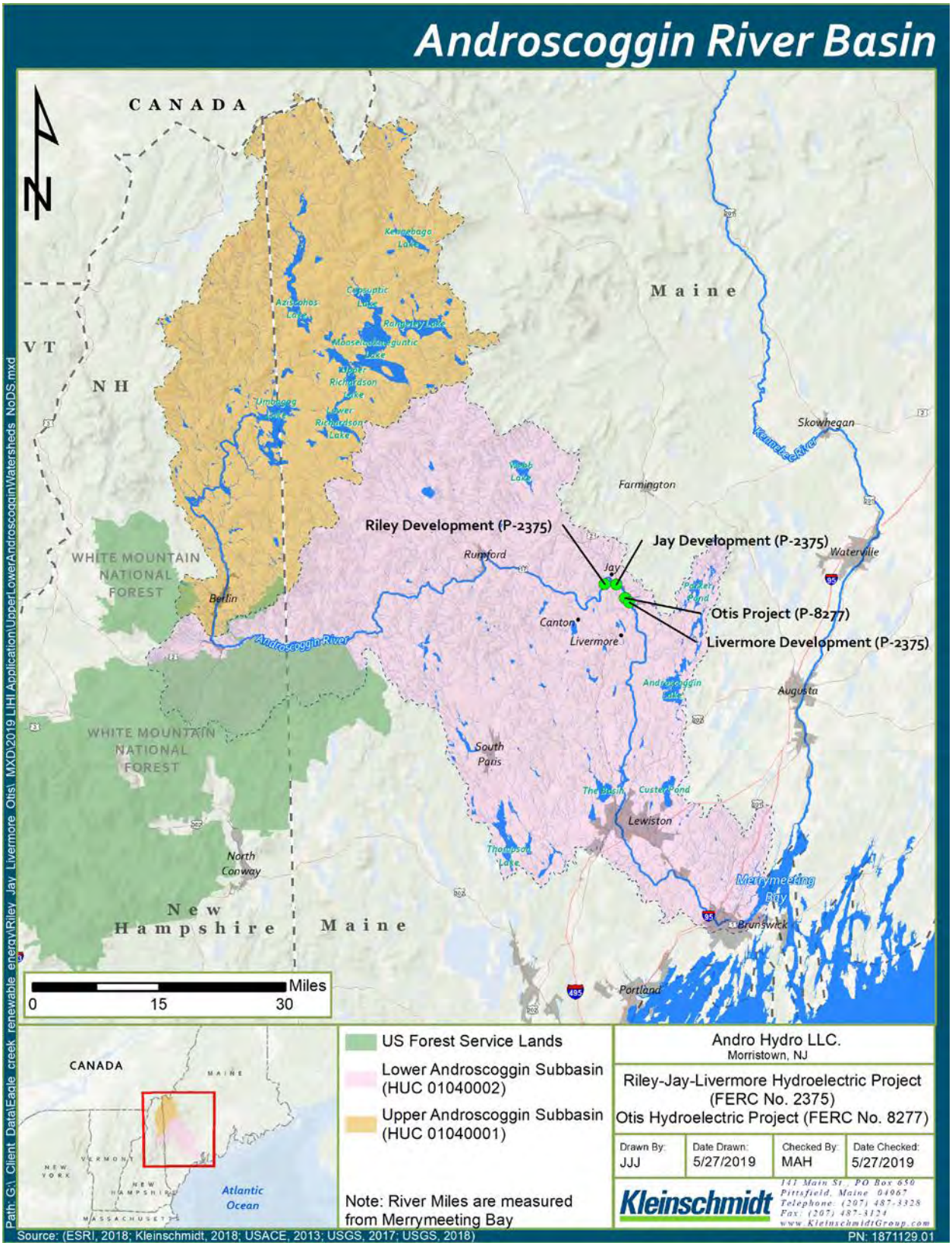

FIGURE 2 UPPER AND LOWER ANDROSCOGGIN RIVER BASIN

TABLE 1 FACILITY DESCRIPTION INFORMATION – ANDROSCOGGIN PROJECT LIHI #48

Note: All elevations are to USGS mean sea level (msl) datum, unless otherwise specified.

Information Type	***Variable Description***	***Response (and reference to further details)***
Name of the Facility	Facility name (FERC Project Name)	The Androscoggin Project consists of two FERC licensed Projects: Riley-Jay-Livermore Hydroelectric Project (FERC Project No. 2375) and; Otis Hydroelectric Project (FERC Project No. 8277)
Location	River name (USGS proper name)	Androscoggin River
	River basin name	Androscoggin River Basin
	Nearest town, county, and state	Canton, Jay, and Livermore, in Oxford, Franklin, and Androscoggin Counties, Maine.
	River mile of dam above next major river	The Androscoggin Project is between river miles 53.25 and 63.5 on the Androscoggin River. The Livermore development is approximately 30 river miles upstream of the confluence of the Little Androscoggin River with the Androscoggin River in Auburn, ME.
	Geographic latitude / longitude	44° 30’ 12.213” N / 70° 14’ 56.501” W (Riley) 44° 30’ 13.108” N / 70° 13’ 15.585” W (Jay) 44° 28’ 40.048” N / 70° 12’ 2.675 W (Otis) 44° 28’ 13.287” N / 70° 11’ 14.038” W (Livermore)
Facility Owner	Application contact names: Please see Section 4.0 for the Facility Contacts Form.	Ms. Susan Giansante Eagle Creek Renewable Energy, LLC Robert Gates Andro Hydro, LLC 65 Madison Ave, Suite 500 Morristown, NJ 07960
	Facility owner (individual and company names)	Andro Hydro, LLC
	Operating affiliate (if different from owner)	See above.
	Representative in LIHI certification	Susan Giansante, Eagle Creek Renewable Energy LLC Robert Gates, Andro Hydro, LLC Andy Qua, Kleinschmidt Associates Nuria Holmes, Kleinschmidt Associates

Information Type	*Variable Description*	*Response (and reference to further details)*
Regulatory Status	FERC Project Number (e.g., P-xxxx), issuance and expiration dates	Riley-Jay-Livermore (FERC Project No. 2375) • 50-year license • Issued September 16, 1998 • Expires September 16, 2048 Otis (FERC Project No. 8277) • 50-year license • Issued September 16, 1998 • Expires September 16, 2048
	FERC license type or special classification (e.g., "qualified conduit")	Major Project License
	Water Quality Certificate identifier and issuance date, plus source agency name	Water Quality Certificate (WQC) was issued by MDEP May 5, 1998 for Riley-Jay-Livermore and Otis Projects. The WQC was modified February 13, 2006 to cease annual water quality monitoring of the Jay impoundment.

Information Type	*Variable Description*	*Response (and reference to further details)*
	Hyperlinks to key electronic records on FERC e-library website (e.g., most recent Commission Orders, WQC, ESA documents, etc.)	1998 Riley-Jay-Livermore License 1998 Otis License 1998 Errata to Otis License 1998 Final Environmental Assessment 1998 Water Quality Certificate (a single WQC issued for both R-J-L and Otis Projects: Please see Appendix B (not available online). 2000 Order Approving Cultural Resources Management Plan 2002 Order Amending License – Livermore Minimum Flow Unit 2006 Order Amending License – Water Quality Monitoring 2007 Environmental Inspection Report 2011 Order Amending Licenses – Eliminating Macroinvertebrate Monitoring & Reporting 2010 Order Amending Licenses – Eliminating Toxin Monitoring & Reporting 2010 Order Amending Licenses – Discontinue Annual Recreation Monitoring 2016 Order Amending License – Name Change
Power Plant Character-istics	Date of initial operation (past or future for operational applications)	Riley: 1982 with current equipment Jay: 1912 Otis: 1984 Livermore: 1908

Information Type	*Variable Description*	*Response (and reference to further details)*
	Total name-plate capacity (MW)	The total installed capacity is 29.4 MW* Riley: 7.1 MW* Jay: 3.1 MW Otis: 10.4 MW Livermore: 8.8 MW * The Riley nameplates each indicate 1.3 MW at 20 feet of head, but as installed with all six units running they develop only 18.7 feet of head and maximum output of 1.18 MW each.
	Average annual generation (MWh)	2014 – 2018 data: Riley: 23,571 MWh Jay: 14,717 MWh Otis: 48,820 MWh Livermore: 33,875 MWh Total: 120,983 MWh
	Number, type, and size of turbines, including maximum and minimum hydraulic capacity of each unit	See Section 1 for description of each development.
	Modes of operation (run-of-river, peaking, pulsing, seasonal storage, etc.)	Run-of-river
	Dates and types of major equipment upgrades	N/A (since 2014 LIHI Certification)
	Dates, purpose, and type of any recent operational changes	N/A (since 2014 LIHI Certification)
	Plans, authorization, and regulatory activities for any facility upgrades	There are no plans at this time for Project upgrades.
Character-istics of Dam, Diversion, or Conduit	Date of construction	Riley was completed in 1885. Jay Dam was completed in 1881. Otis Dam was completed in 1888. Livermore Dam was completed in 1893 All of these dams were later rebuilt in part or in whole.
	Dam height	Riley Dam: 19.2 ft. Jay Dam (North): Range 5 – 17 ft. Jay Dam (Middle): 13.3 feet Jay Dam (South): 22 feet Otis Dam: 19.2 ft. Livermore Dam: Average height 16.2 ft.

Information Type	*Variable Description*	*Response (and reference to further details)*
	Spillway elevation and hydraulic capacity	Spillway elevation (ft.) (msl) / hydraulic capacity (cfs): Riley Dam: 370.75 ft. / 5,556 cfs Jay Dam (North): 351.34 ft. / 3,300 cfs Jay Dam (Middle): 354.3 ft. / 3,300 cfs Jay Dam (South): 351.34 ft. / 3,300 cfs Otis Dam: 340.0 ft. Livermore Dam: 310.3 ft./ 3,456 cfs
	Tailwater elevation	Riley: 355 ft. (with all units offline) Jay: 339.9 ft. (with all units operating) Otis: 313.5 ft. Livermore: 279.3 ft.
	Length and type of all penstocks and water conveyance structures between reservoir and powerhouse	Riley and Jay: N/A Otis canal: 95 feet Livermore canal: 587 feet
	Dates and types of major, generation-related infrastructure improvements	No new generation-related infrastructure improvements have occurred since the 2014 LIHI submission.
	Designated facility purposes (e.g., power, navigation, flood control, water supply, etc.)	Power Generation.
	Water source	Androscoggin River
	Water discharge location or facility	Androscoggin River
Characte-ristics of Reservoir and Watershed	Gross volume and surface area at full pool	The reservoir volume and surface area measured at the normal maximum operating level are: Riley Dam: 2,000 ac-ft. / 578 acres Jay Dam: 1,800 ac-ft. / 206 acres Otis Dam: 877 ac-ft. / 115 acres Livermore Dam: 300 ac-ft. / 46 acres
	Maximum water surface elevation (ft. MSL)	Riley Dam: 374.92 ft. Jay Dam: 354.0 ft. Otis Dam: 339.75 ft. Livermore Dam: 312.6 ft.
	Maximum and minimum volume and water surface elevations for designated power pool, if available	No power pool is present. This is a run-of-river Project.

Information Type	*Variable Description*	*Response (and reference to further details)*
	Upstream dam(s) by name, ownership, FERC number (if applicable), and river mile	Upstream of the Androscoggin Project there are a number of dams in the Androscoggin River (see Figure 3): • Lower/Upper Rumford Falls: Brookfield Renewable Energy Group; P-2333; RM 84 • Shelburne: Great Lakes Hydro America, LLC; P-2300; RM 126 • Gorham: Public Service Company of New Hampshire; P-2288; Mile 129 • Gorham: Great Lakes Hydro America, LLC; P-2311; RM 131 • Cascade: Great Lakes Hydro America, LLC; P-2327; RM 134P • Cross: Great Lakes Hydro America, LLC; P-2326; RM 135 • J. Brodie Smith: Public Service Company of New Hampshire; P-2287; RM 136 • Riverside: Great Lakes Hydro America, LLC; P-2423; RM 136.5 • Sawmill: Great Lakes Hydro America, LLC; P-2422; RM 137 • Pontook: Pontook Operating Limited Partnership; P-2861; RM 150 • Errol: Brookfield White Pine Hydro LLC; P-3133; RM 167
	Downstream dam(s) by name, ownership, FERC number (if applicable), and river mile	Downstream of the Androscoggin Project there are a number of dams in the Androscoggin River (see Figure 4): • Gulf Island/Androscoggin No. 3/ Deer Rips: Brookfield White Pine Hydro LLC; P-2283; RM 33 • Lewiston Falls: Brookfield White Pine Hydro LLC; P-2302; RM 28 • Worumbo: Brown Bear II Hydro; P-3428; RM 14 • Pejepscot: Topsham Hydro Partners Limited Partnership; P-4784; RM 10 • Brunswick: Brookfield White Pine Hydro LLC; P-2284; RM 6

Information Type	*Variable Description*	*Response (and reference to further details)*
	Operating agreements with upstream or downstream reservoirs that affect water availability, if any, and facility operation	In a 1909 agreement[1] between Union Water Power Company, International Paper Company, Berlin Mills Company, and the Rumford Falls Power Company, Union Water Power Company agreed to release through its dam on the Androscoggin River at Errol, New Hampshire a minimum flow of 1,550 cfs. The 1909 Agreement also established a method for calculating headwater benefits received by downstream projects. In 1998, a cooperative agreement[2] among the Owner of R-J-L and Otis, state and federal agencies, and conservation groups as part of the FERC relicensing process, was signed to further guide the water levels and flows specifically to protect fish and wildlife.
	Area inside FERC project boundary, where appropriate	Lands within the two project boundaries include approximately 29 acres (approximately 12,290 ft of shore frontage) of property (including islands).
Hydrologic Setting	Average annual flow at the dam	Average annual flow (2009-2018) as measured at the downstream USGS Gage 01054500 Androscoggin River at Rumford, ME, and prorated to the Riley Development and representative of average flow at all four dams: Annual flow: 5,200 cfs

[1] The 1909 Androscoggin River Improvement Company agreement, as it is known, states that the river flow at Berlin should be maintained at "as high a point above the minimum as shall be consistent with proper and economical use of the stored water."

[2] The agreement could not be located in FERC's library but would have been the basis for the 1999 Run-of-River and Minimum Flow Monitoring Plan.

<table>
<tr><th>Information Type</th><th>Variable Description</th><th>Response (and reference to further details)</th></tr>
<tr><td></td><td>Average monthly flows</td><td>Average monthly flows (2009-2018) as measured at the downstream USGS Gage 01054500 Androscoggin River at Rumford, ME, and prorated to the Riley Development and representative of average flow at all four dams:

<table><tr><th>Month</th><th>cfs</th></tr><tr><td>January</td><td>4,535 cfs</td></tr><tr><td>February</td><td>4,316 cfs</td></tr><tr><td>March</td><td>5,905 cfs</td></tr><tr><td>April</td><td>10,406 cfs</td></tr><tr><td>May</td><td>7,929 cfs</td></tr><tr><td>June</td><td>5,273 cfs</td></tr><tr><td>July</td><td>4,090 cfs</td></tr><tr><td>August</td><td>3,289 cfs</td></tr><tr><td>September</td><td>2,777 cfs</td></tr><tr><td>October</td><td>4,326 cfs</td></tr><tr><td>November</td><td>4,615 cfs</td></tr><tr><td>December</td><td>4,930 cfs</td></tr></table></td></tr>
<tr><td></td><td>Location and name of relevant stream gauging stations above and below the facility</td><td>River flow data were estimated by prorating flow data from USGS Gage No. 01054500 Androscoggin River at Rumford, Maine; the gage is approximately 20.6 river miles upstream of the Riley dam. River flow at the Riley dam was estimated by multiplying the flow data from the USGS gage by a factor of 1.17 to account for the additional drainage area and is representative of average flow at all four dams.</td></tr>
<tr><td></td><td>Watershed area at the dam</td><td>The drainage area at the Riley-Jay-Livermore and Otis Projects is approximately 2,421 square miles as calculated at Riley dam.</td></tr>
<tr><td></td><td>Number of Zones of Effect</td><td>8 Zones of Effect (ZOE). See Appendix A, Figure 7</td></tr>
</table>

<table>
<tr><th>Information Type</th><th>Variable Description</th><th>Response (and reference to further details)</th></tr>
<tr><td rowspan="4">Designated Zones of Effect</td><td>Upstream and downstream locations by river miles</td><td><table><tr><th>Description</th><th>River Mile</th></tr><tr><td>Riley Impoundment</td><td>63.4 to 70.0</td></tr><tr><td>Riley Downstream</td><td>63.4 to 63.7</td></tr><tr><td>Jay Impoundment</td><td>61.1 to 63.4</td></tr><tr><td>Jay Downstream</td><td>61.0 to 61.1</td></tr><tr><td>Otis Impoundment</td><td>59.0 to 61.0</td></tr><tr><td>Otis Downstream/ Livermore Impoundment</td><td>58.3 to 59.0</td></tr><tr><td>Livermore Bypassed Reach</td><td>58.0 to 58.3</td></tr><tr><td>Livermore Downstream[3]</td><td>58.0 to 58.2</td></tr></table></td></tr>
<tr><td>Type of waterbody (river, impoundment, by-passed reach, etc.)</td><td>Impoundment ZOEs: Impoundment
Bypassed Reach ZOE: Bypassed Reach
Downstream ZOEs: Riverine</td></tr>
<tr><td>Delimiting structures</td><td>N/A</td></tr>
<tr><td>Designated uses by state water quality agency</td><td>All eight ZOEs are within the Androscoggin River Basin, on the mainstem of the Androscoggin River, which includes all impoundments. According to the State of Maine Title 38: Water and Navigation, Chapter 3: Protection and Improvements of Waters, Subchapter 1: Environmental Protection Board, Article 4-A: Water Classification Program, all waters within the eight ZOE listed are Class C waters.[4]</td></tr>
<tr><td rowspan="2">Additional Contact Information</td><td>Names, addresses, phone numbers, and e-mail for local state and federal resource agencies</td><td>Please see Section 4.0 for the Project Contacts Form</td></tr>
<tr><td>Names, addresses, phone numbers, and e-mail for local non-governmental stakeholders</td><td>Please see Section 4.0 for the Project Contacts Form</td></tr>
<tr><td rowspan="2">Photographs and Maps</td><td>Photographs of key features of the facility and each of the designated zones of effect</td><td>Please see Appendix A for photographs of key features of the facility and identification of each designated ZOE.</td></tr>
<tr><td>Maps, aerial photos, and/or plan view diagrams of facility area and river basin</td><td>Please see Appendix A for aerial photos of facility area and river basin.</td></tr>
</table>

[3] The extent of the Livermore Downstream ZOE was defined to include the confluence of the bypass reach and the tailwater but limited to upstream of the influence of the Livermore Falls Wastewater Facility outfall.

[4] Class C on the Androscoggin River is defined as the section "from its confluence with the Ellis River to a line formed by the extension of the Bath-Brunswick boundary across Merrymeeting Bay in a northwesterly direction." See Title 38: Waters and Navigation.

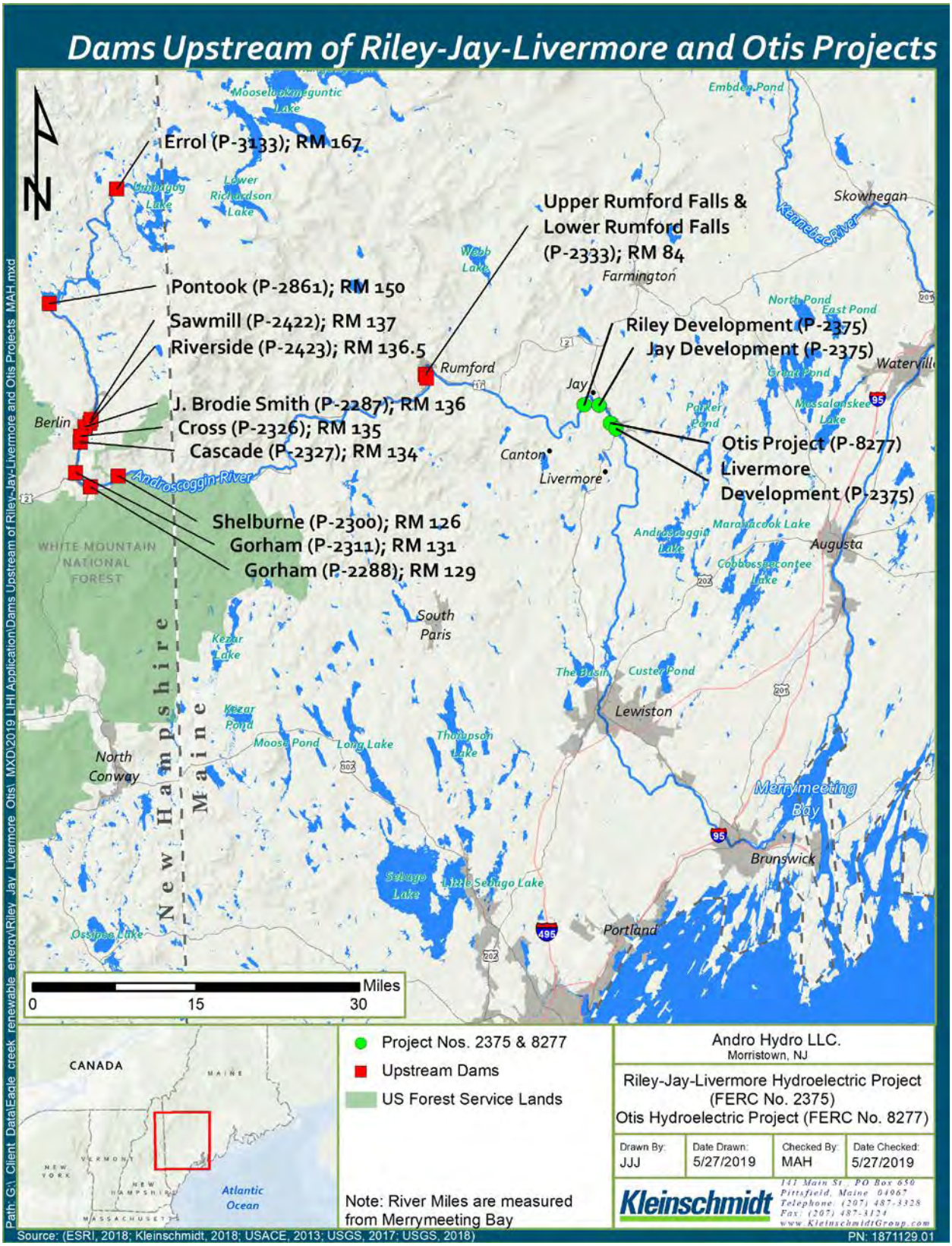

FIGURE 3 HYDROELECTRIC DAMS UPSTREAM OF RILEY-JAY-LIVERMORE AND OTIS PROJECTS

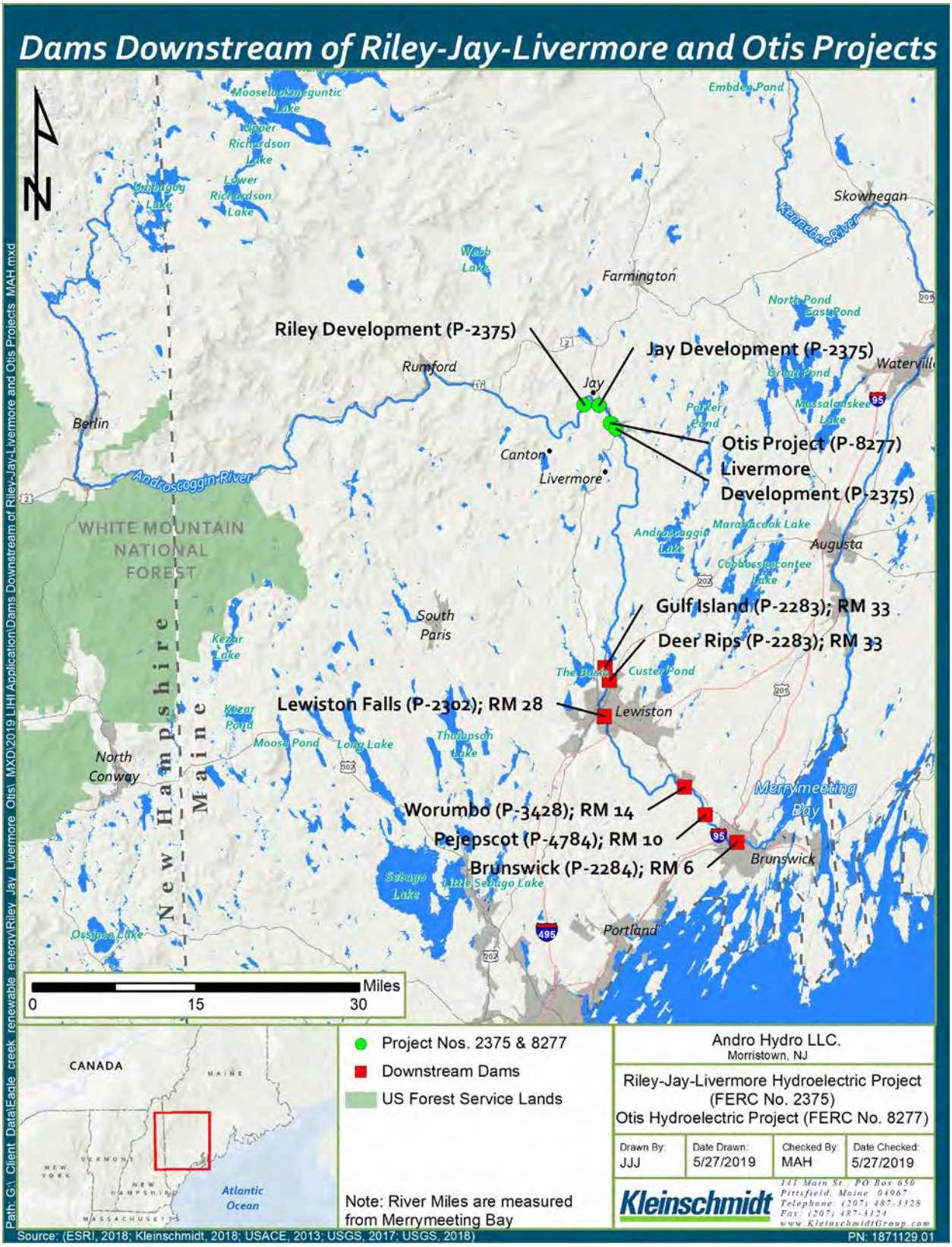

FIGURE 4 HYDROELECTRIC DAMS DOWNSTREAM OF THE RILEY-JAY-LIVERMORE AND OTIS PROJECTS

2.0 STANDARDS MATRICES

2.1 RILEY IMPOUNDMENT[5]

Criterion		Alternative Standards				
		1	2	3	4	Plus
A.	Ecological Flow Regimes		X			
B.	Water Quality		X			
C.	Upstream Fish Passage	X				
D.	Downstream Fish Passage	X				
E.	Watershed and Shoreline Protection	X				
F.	Threatened and Endangered Species Protection		X			
G.	Cultural and Historic Resource Protection		X			
H.	Recreational Resources		X			

2.2 RILEY DOWNSTREAM

Criterion		Alternative Standards				
		1	2	3	4	Plus
A.	Ecological Flow Regimes		X			
B.	Water Quality		X			
C.	Upstream Fish Passage	X				
D.	Downstream Fish Passage	X				
E.	Watershed and Shoreline Protection	X				
F.	Threatened and Endangered Species Protection		X			
G.	Cultural and Historic Resource Protection		X			
H.	Recreational Resources		X			

2.3 JAY IMPOUNDMENT

Criterion		Alternative Standards				
		1	2	3	4	Plus
A.	Ecological Flow Regimes		X			
B.	Water Quality		X			
C.	Upstream Fish Passage	X				
D.	Downstream Fish Passage	X				
E.	Watershed and Shoreline Protection	X				
F.	Threatened and Endangered Species Protection		X			
G.	Cultural and Historic Resource Protection		X			
H.	Recreational Resources		X			

[5] Shaded cells represent Criteria for which Alternative Standards do not exist (*e.g.* Water Quality does not have an Alternative 4.)

2.4 JAY DOWNSTREAM

Criterion		Alternative Standards				
		1	2	3	4	Plus
A.	Ecological Flow Regimes		X			
B.	Water Quality		X			
C.	Upstream Fish Passage	X				
D.	Downstream Fish Passage	X				
E.	Watershed and Shoreline Protection	X				
F.	Threatened and Endangered Species Protection		X			
G.	Cultural and Historic Resource Protection		X			
H.	Recreational Resources		X			

2.5 OTIS IMPOUNDMENT

Criterion		Alternative Standards				
		1	2	3	4	Plus
A.	Ecological Flow Regimes		X			
B.	Water Quality		X			
C.	Upstream Fish Passage	X				
D.	Downstream Fish Passage	X				
E.	Watershed and Shoreline Protection	X				
F.	Threatened and Endangered Species Protection		X			
G.	Cultural and Historic Resource Protection		X			
H.	Recreational Resources		X			

2.6 OTIS DOWNSTREAM/LIVERMORE IMPOUNDMENT

Criterion		Alternative Standards				
		1	2	3	4	Plus
A.	Ecological Flow Regimes		X			
B.	Water Quality		X			
C.	Upstream Fish Passage	X				
D.	Downstream Fish Passage	X				
E.	Watershed and Shoreline Protection	X				
F.	Threatened and Endangered Species Protection		X			
G.	Cultural and Historic Resource Protection		X			
H.	Recreational Resources		X			

2.7 LIVERMORE BYPASSED REACH

Criterion		Alternative Standards				
		1	2	3	4	Plus
A.	Ecological Flow Regimes		X			
B.	Water Quality		X			
C.	Upstream Fish Passage	X				
D.	Downstream Fish Passage	X				
E.	Watershed and Shoreline Protection	X				
F.	Threatened and Endangered Species Protection		X			
G.	Cultural and Historic Resource Protection		X			
H.	Recreational Resources		X			

2.8 LIVERMORE DOWNSTREAM

Criterion		Alternative Standards				
		1	2	3	4	Plus
A.	Ecological Flow Regimes		X			
B.	Water Quality		X			
C.	Upstream Fish Passage	X				
D.	Downstream Fish Passage	X				
E.	Watershed and Shoreline Protection	X				
F.	Threatened and Endangered Species Protection		X			
G.	Cultural and Historic Resource Protection		X			
H.	Recreational Resources		X			

3.0 SUPPORTING INFORMATION

3.1 ECOLOGICAL FLOWS STANDARDS

CRITERION	*STANDARD*	*INSTRUCTIONS*
A	2	Agency Recommendation: • Identify the proceeding and source, date, and specifics of the agency recommendation applied (NOTE: there may be more than one; identify and explain which is most environmentally stringent). • Explain the scientific or technical basis for the agency recommendation, including methods and data used. This is required regardless of whether the recommendation is or is not part of a Settlement Agreement. • Explain how the recommendation relates to agency management goals and objectives for fish and wildlife. • Explain how the recommendation provides fish and wildlife protection, mitigation and enhancement (including in-stream flows, ramping and peaking rate conditions, and seasonal and episodic instream flow variations).

Background

The Maine Department of Environmental Protection (Maine DEP) issued a Water Quality Certificate (WQC) (Appendix B) for the R-J-L Project and Otis Project on May 5, 1998. The R-J-L and Otis projects maintain run-of-river operations under normal conditions, and their development-specific normal impoundment levels. Under this WQC certificate outflows that approximately equal to inflows are maintained from the project developments at all times, along with development-specific targets outlined below. The projects' impoundments[6] do not contain sufficient storage capability to significantly influence river flows.

3.1.1 RILEY IMPOUNDMENT ZOE

Under normal operations, this impoundment is maintained at elevation 374.92 feet.

3.1.2 RILEY DOWNSTREAM ZOE

Under normal operations, max outflow is 5,556 cfs, which is the hydraulic capacity of the station.

[6] Elevations of impoundments provided in this section are contained in the 1998 R-J-L License and the 1998 Otis License.

3.1.3 JAY DEVELOPMENT IMPOUNDMENT ZOE

Under normal operations, this impoundment is maintained at elevation 354 feet.

3.1.4 JAY DEVELOPMENT DOWNSTREAM ZOE

Per license Article 402 (R-J-L), the licensee maintains minimum flows of at least 5 cubic feet per second (cfs) below the Jay development from June 15 through September 15 of each year to improve water quality and enhance the fishery and fish spawning habitat in the southern bypassed reach of the Jay development. The minimum flow is released from a permanent valve through the West dam at Jay, adjacent to the abutment.

3.1.5 OTIS IMPOUNDMENT ZOE

Under normal operations, this impoundment is maintained at elevation 339.5 feet.

3.1.6 OTIS DOWNSTREAM/LIVERMORE IMPOUNDMENT ZOE

Per license Article 401 (Otis), the licensee operates the project in run of river mode. Under normal operations, maximum outflow from the Otis powerhouse is 6,000 cfs, which is the hydraulic capacity of the station. Given the short reach of river (0.75) between Otis and Livermore, Otis essentially discharges into the Livermore impoundment, which is maintained at elevation 312.6 feet.

3.1.7 LIVERMORE BYPASSED REACH ZOE

Per license Article 402 (R-J-L), the licensee maintains a minimum flow of 150 cfs during the months of May, June and October and 100 cfs during the remainder of the year from the Livermore Dam into the upper bypass reach at the Livermore Development. This seasonal flow reflects compliance with D.O., aquatic life criteria, and use (i.e., brown trout fishing in May, June, and October and bass fishing during the remaining months). Minimum flow discharge is 100 cfs (achieved via six 6” by 48” gaps on the dam crest) from July 1 through September 30, and November 1 through April 30; 150 cfs from May 1 through June 30, and October 1 through October 31 in the upper portion of the Livermore bypassed reach. These flows are needed to maintain dissolved oxygen (DO) levels at or above the minimum state standard and to maintain the brown trout and bass fishery.

3.1.8 LIVERMORE DOWNSTREAM ZOE

Per license Article 402 (R-J-L), the licensee maintains a minimum flow of 550 cfs (consisting of upper bypass flows plus minimum flow turbine releases) from the Livermore Dam and powerhouse into the lower bypass reach at the Livermore Development.

Compliance

The following is a compliance summary related to all ZOEs under Article 401 and 402 of the licenses since the last LIHI Certification period (2013 – current):

- **November 25, 2013 Article 401 Temporary Low Pond Deviation:** On November 25, 2013, a pond level deviation occurred at the Livermore Development that caused trickling effects throughout the rest of the R-J-L and Otis developments. There were no observed environmental impacts as a result of the incident. Verso Paper Corporation (later Verso Androscoggin Power LLC[7]), immediately notified USFWS, the Maine DEP, and the Maine DIFW. No comments were received from those resource agencies in response to the notifications. On November 26, 2013, the licensee submitted a notice to FERC describing the incident.[8] On April 2, 2014[9], FERC issued a notice that deviation would not be considered a violation under Article 401 of the R-J-L license.
- **September 14, 2014 Article 402 Minimum Flow Deviation and September 23, 2014 Article 401 Temporary Low Pond Deviation:** On December 4, 2014, FERC staff and the licensee (R-J-L) conducted a phone conversation to discuss staff questions regarding flow and pond level deviations at the Livermore Development reported by the licensee in September 2014.[10] On January 7, 2015, the licensee submitted additional information regarding the September 14, 2014 Article 402 Minimum Flow Deviation and the September 23, 2014 Article 401 Temporary Low Pond Deviation[11] at the R-J-L project. On January 15, 2015, FERC issued a notice that deviation would not be considered a violation under Articles 401 and 402 of the R-J-L license.[12]
- **September 9, 2015 Article 401 Temporary Low Pond Deviation:** On September 9, 2015, a pond level deviation occurred at Livermore Development.[13] Due to the short duration of the incident and the fact that impoundment levels were maintained above the dam crest height, there was no discernable negative environmental impact as a result of this incident. USFWS, the Maine DEP, and the Maine DIFW were all notified. FERC requested additional information, which was provided on November 20, 2015.[14] On

[7] An application to transfer the licenses for P-2375 and P-8277 occurred on January 22, 2014.
[8] https://elibrary.ferc.gov/IDMWS/common/opennat.asp?fileID=13401639
[9] https://elibrary.ferc.gov/IDMWS/common/opennat.asp?fileID=13501392
[10] https://elibrary.ferc.gov/IDMWS/common/opennat.asp?fileID=13731049
[11] https://elibrary.ferc.gov/IDMWS/common/opennat.asp?fileID=13730979
[12] https://elibrary.ferc.gov/IDMWS/common/opennat.asp?fileID=13737504
[13] https://elibrary.ferc.gov/IDMWS/common/opennat.asp?fileID=13989555
[14] https://elibrary.ferc.gov/IDMWS/common/opennat.asp?fileID=14051782

December 18, 2015, FERC issued a notice that the deviation would not be considered a violation under Article 401 of the R-J-L license.[15]

- **August 31, 2016 Article 401 Temporary Low Pond Deviation:** On August 31, 2016, a pond level deviation occurred at the Jay Development.[16] There were no observed adverse environmental impacts as a result of this occurrence. USFWS, the Maine DEP, and the Maine DIFW were all notified. On November 28, 2016, FERC issued a notice that the temporary deviation from run-of-river operation and low pond elevation will not be considered a deviation of Article 401 of the R-J-L license.[17]
- **September 22, 2017 Article 401 Temporary Low Pond Deviation:** On September 22, 2017, an unusual temporary malfunction to the PLC (programmable logic controller) caused the generating equipment at the Otis station (located upstream from Livermore) to unexpectedly shut down at 5:52 AM. Subsequently, due to the Otis unit's shutdown and the small pond storage between Otis and Livermore, the Livermore pond quickly lowered before the generating units could shut down. No adverse environmental impacts were observed as a result of the occurrence and operating personnel continued to pass the minimum flow requirement of 100 cfs while returning the pond elevation to normal elevation.[18] On November 30, 2017, FERC issued a notice that the temporary deviation from run-of-river operation and low pond elevation will not be considered a deviation of Article 401 of the R-J-L license.[19]
- **July 9, 2018 Article 401 Temporary Low Pond Deviation:** On July 9, 2018, a malfunction to the PLC (programmable logic controller) caused a plant trip of the generating equipment at the Otis station (located immediately upstream from Livermore) at 4:08 AM.[20] Subsequently, due to the shutdown of Otis units and short distance between Otis and Livermore, the Livermore pond quickly lowered before its generating units could shut down. No adverse environmental impacts were observed as a result of the occurrence. On July 30, 2018, FERC issued a notice that the temporary deviation from run-of-river operation and low pond elevation will not be considered a deviation of Article 401 of the R-J-L license.[21]
- **July 16, 2018 Article 401 Temporary Low Pond Deviation:** On July 16, 2018, the Otis Hydro (located immediately upstream from Livermore) powerhouse tripped offline due to a system related issue on the electrical power grid.[22] Subsequently, due to the shutdown of Otis units and the short distance between Otis and Livermore, the Livermore pond quickly lowered before its generating units could shut down. The lowest elevation recorded was 310.9 feet (msl), which is 0.7 feet (7 tenths of a foot) below authorized elevation of 311.6 (msl). No adverse environmental impacts were observed due to this occurrence. Operating personnel continued to pass the minimum flow requirement of 450 cfs through the lower bypass reach as well as 150 through the upper bypass reach, while returning the pond to its normal operating elevation. On November 20, 2018, FERC

[15] https://elibrary.ferc.gov/IDMWS/common/opennat.asp?fileID=14076095
[16] https://elibrary.ferc.gov/IDMWS/common/opennat.asp?fileID=14351658
[17] https://elibrary.ferc.gov/IDMWS/common/opennat.asp?fileID=14408948
[18] https://elibrary.ferc.gov/IDMWS/common/opennat.asp?fileID=14702586
[19] https://elibrary.ferc.gov/IDMWS/common/opennat.asp?fileID=14766996
[20] https://elibrary.ferc.gov/IDMWS/common/opennat.asp?fileID=14969277
[21] https://elibrary.ferc.gov/IDMWS/common/opennat.asp?fileID=14987876
[22] https://elibrary.ferc.gov/IDMWS/common/opennat.asp?fileID=14984152

issued a notice that the temporary deviation from run-of-river operation and low pond elevation will not be considered a deviation of Article 401 of the R-J-L license.[23]

- **January 20, 2019 Article 401 Temporary Low Pond Deviation:** On January 20, 2019, Otis Hydro (located immediately upstream from Livermore) generation shut down due to extreme cold weather conditions causing the pond level transmitter to freeze resulting in erroneous readings. Subsequently, due to the shutdown of Otis units and short distance between Otis and Livermore, the Livermore pond quickly lowered before its generating units could shut down.[24] Operators continued to pass 450 cfs through the lower bypass reach while shutting down the Livermore units. No adverse environmental impacts were observed due to this occurrence. Operating personnel continued to pass the minimum flow requirement of 450 cfs through the lower bypass reach but not the 100 cfs through the upper bypass reach, while returning the pond to its normal elevation. At the time of this application, FERC has not yet issued a determination as to whether the deviation will be considered a violation or not.
- On April 24, 2019, Kleinschmidt, on behalf of Andro Hydro, consulted with state and federal agencies, requesting confirmation that the Andro Project is operated in compliance with the conditions of the FERC licenses and WQCs. In preparation of LIHI recertification, and at the recommendation MDEP, the Licensee conducted a Water Quality Study in 2018 confirming that the Class C standards are being met under operational and flow requirements of the WQC. On May 14, 2019, the Maine Department of Environmental Protection provided the following comments (letter attached in Appendix C):
  - "The Department reviewed the 2018 Water Quality Study Report for the Projects and finds no evidence to suggest that the continued operation of the project will negatively impact the designated uses, numeric or narrative criteria of its classification standards (Class C)."
  - "The project does not cause or contribute to non-attainment of Maine's water quality standards."
  - "The presence of a fish consumption advisory due to dioxins, PCB's and mercury, for the waters of the RJL and Otis Project prevents attainment of Maine's Water Quality Standards, specifically the designated use of "fishing" which requires that fish are safe for human consumption. However, non-attainment status from these contaminants is not a result of the operation of the Project."

[23] https://elibrary.ferc.gov/IDMWS/common/opennat.asp?fileID=15100080
[24] https://elibrary.ferc.gov/IDMWS/common/opennat.asp?fileID=15146435

3.2 WATER QUALITY STANDARDS

3.2.1 ALL ZOES

CRITERION	*STANDARD*	*INSTRUCTIONS*
B	2	Agency Recommendation: • If facility is located on a Water Quality Limited river reach, provide an agency letter stating that the facility is not a cause of such limitation. • Provide a copy of the most recent Water Quality Certificate, including the date of issuance. • Identify any other agency recommendations related to water quality and explain their scientific or technical basis. • Describe all compliance activities related to the water quality related agency recommendations for the facility, including on-going monitoring, and how those are integrated into facility operations.

The Maine Department of Environmental Protection (Maine DEP) issued a Water Quality Certificate (WQC) (Appendix B) for the R-J-L Project and Otis Project on May 5, 1998. Under this WQC certificate Article 406 of the R-J-L license, and Article 404 of the Otis license require annual water quality reports. These reports include an evaluation of the water temperature, dissolved oxygen levels, and the macroinvertebrate data, and an assessment of the ability of the projects to meet state water quality standards.

All eight ZOEs are within the Androscoggin River Basin, on the mainstem of the Androscoggin River, which includes all impoundments. According to the State of Maine Title 38: Water and Navigation, Chapter 3: Protection and Improvements of Waters, Subchapter 1: Environmental Protection Board, Article 4-A: Water Classification Program, all waters within the eight ZOE listed are Class C waters.

According to Maine DEP Title 38 §465 Standards for classification of fresh surface waters, Class C is the 4th highest designation and requires that:

A. "Class C waters must be of such quality that they are suitable for the designated uses of drinking water supply after treatment; fishing; agriculture; recreation in and on the water; industrial process and cooling water supply; hydroelectric power generation, except as prohibited under Title 12, section 403; navigation; and as a habitat for fish and other aquatic life.
B. The dissolved oxygen content of Class C water may not be less than 5 parts per million or 60% of saturation, whichever is higher, except that in identified salmonid spawning areas

where water quality is sufficient to ensure spawning, egg incubation and survival of early life stages, that water quality sufficient for these purposes must be maintained.

C. Discharges to Class C waters may cause some changes to aquatic life, except that the receiving waters must be of sufficient quality to support all species of fish indigenous to the receiving waters and maintain the structure and function of the resident biological community. For the purpose of allowing the discharge of aquatic pesticides or chemicals approved by the department and conducted by the department, the Department of Inland Fisheries and Wildlife or an agent of either agency to restore biological communities affected by an invasive species, the department may find that the discharged effluent will not cause unacceptable changes to aquatic life as long as the materials and methods used will ensure the support of all species of indigenous fish and the structure and function of the resident biological community and will allow restoration of nontarget species.

- According to the 2016 State of Maine 2016 Integrated Water Quality Monitoring and Assessment Report, which includes the list of 303(d) List of Impaired Waters,[25] the Androscoggin River upstream of the R-J-L and Otis Projects is considered impaired (Category 4-A) for Escherichia coli (E-coli), and Class C designation as noted above.
- According to the 2016 State of Maine 2016 Integrated Water Quality Monitoring and Assessment Report, which includes the list of 303(d) List of Impaired Waters, the Androscoggin River (main stem) from the Webb River to Riley Dam is considered impaired (Category 4-B) for dioxin (including 2, 3, 7, 8-TCDD), and Class C designation as noted above. This river segment is 15.7 miles.
- According to the 2016 State of Maine 2016 Integrated Water Quality Monitoring and Assessment Report, which includes the list of 303(d) List of Impaired Waters, the Androscoggin River (main stem) from Riley Dam to Nezinscot River26 is considered impaired (Category 4-B) for dioxin (including 2, 3, 7, 8-TCDD), Category 5-D for legacy PCBs, and Class C designation as noted above. This river segment is 21.7 miles.
- According to the 2016 State of Maine 2016 Integrated Water Quality Monitoring and Assessment Report, which includes the list of 303(d) List of Impaired Waters, the Androscoggin River (main stem) at the Livermore Impoundment is considered impaired (Category 4-B) for dioxin (including 2, 3, 7, 8-TCDD, Category 5-D for legacy PCBs, Category 2 for benthic macroinvertebrates and TSS, and Class B (biocriteria).

Compliance

License Article 404 (R-J-L) and Article 403 (Otis) require the Licensee to monitor water quality, including dissolved oxygen concentrations, water temperature, and aquatic invertebrates.

License Article 406 (R-J-L) and Article 404 (Otis) require the licensee to prepare a water quality monitoring report (which may be done jointly for both FERC projects) for the monitoring

[25] https://www.maine.gov/dep/water/monitoring/impairedwaters/index.html
[26] All ZOEs for the R-J-L and Otis Project fall within this reach.

required under Articles 404 (R-J-L) and Article 403 (Otis) and to file an annual water quality report. Condition 4C of the original Maine DEP WQC also required the licensee to monitor water quality and file a report discussing monitoring results annually.

In 2009, the licensee reported that after 9 years of monitoring and reporting, results showed that the dissolved oxygen standards had been consistently met at R-J-L and Otis, with no recorded violations. The licensee requested to remove the monitoring and reporting requirements of license Article 404 (R-J-L) and Article 403 (Otis) and eliminate the water quality reporting requirements of license Articles 406 (R-J-L) and 404 (Otis). In August 2009, Maine DEP concurred that the monitoring of the DO and temperature conditions at the projects could be discontinued.

- On September 2, 2009, Verso Androscoggin, LLC (licensee) filed a request[27] to eliminate water quality monitoring and reporting requirements at the R-J-L and Otis projects. On February 3, 2010 FERC Ordered that the license language be modified to reflect no further requirements in the above articles, unless the agencies and/or FERC requested to modify the arrangement.[28] No further water quality reports have been required (or filed) since 2009.

In 2010, the U.S. Fish & Wildlife service also concurred with the amendment request.

On March 23, 2011, the licensee filed a request to eliminate license Article 405 (prepare plan to monitor macroinvertebrates in R-J-L impoundments and Livermore bypass reach) and 406, as amended on September 1, 2006, (prepare annual report evaluating macroinvertebrate data and present DO & temperature from USGS Jay monitor) of the R-J-L Project and 404 as amended on February 3, 2010 of the Otis Project licenses due to monitoring repeatedly demonstrating compliance with Class C aquatic life standards in the Project impoundments. Approval of this requirement would remove the monitoring required by Article 405 and 406, and removal of the macroinvertebrate monitoring plan. In February 2011, Maine DEP concurred that the monitoring of the DO and temperature conditions at the Jay Impoundment could be discontinued.

- On May 26, 2011, FERC Ordered that the license language be modified to reflect no further requirements in the above articles, unless the agencies and/or FERC requested to modify the arrangement.[29] No further macroinvertebrate monitoring reports have been required (or filed) since 2011.

[27] https://elibrary-backup.ferc.gov/idmws/common/opennat.asp?fileID=12131107
[28] https://elibrary-backup.ferc.gov/idmws/common/opennat.asp?fileID=12260216
[29] https://elibrary-backup.ferc.gov/idmws/common/opennat.asp?fileID=12669515

Based on consultation with MDEP, Andro Hydro performed water quality sampling in 2018 to evaluate whether the Androscoggin River near the projects attains the Class C water quality standards. As agreed to during a Fall 2017 meeting with MDEP, the objective of the 2018 water quality monitoring was to collect contemporary water quality data to meet requirements for the sites' current LIHI Certificate and as well as its recertification. The water quality sampling effort was implemented based on a draft study plan submitted to MDEP for review on May 21, 2018 and subsequently revised to reflect MDEP's comments and input on the sampling locations after field determination of water depth, accessibility, and safety factors. The final study plan was submitted to MDEP on September 10, 2018. In early January 2019, Eagle Creek submitted a draft Water Quality Study Report to MDEP and conducted a follow up meeting with MDEP on January 16, 2019, at which time MDEP provided comments on the report. A final report which addressed MDEP input was resubmitted on March 19, 2019 (See Appendix C).

- On April 24, 2019, Kleinschmidt on behalf of Andro Hydro, consulted with state and federal agencies for confirmation that the projects are operated in compliance with the conditions of the FERC licenses and WQCs. On May 14, 2019, the Maine Department of Environmental Protection provided the following comments (letter attached in Appendix C):
    - "The Department reviewed the 2018 Water Quality Study Report for the Projects and finds no evidence to suggest that the continued operation of the project will negatively impact the designated uses, numeric or narrative criteria of its classification standards (Class C)."
    - "The project does not cause or contribute to non-attainment of Maine's water quality standards."
    - "The presence of a fish consumption advisory due to dioxins, PCB's and mercury, for the waters of the RJL and Otis Project prevents attainment of Maine's Water Quality Standards, specifically the designated use of "fishing" which requires that fish are safe for human consumption. However, non-attainment status from these contaminants is not a result of the operation of the Project."

3.3 UPSTREAM FISH PASSAGE STANDARDS

3.3.1 ALL ZOES

CRITERION	*STANDARD*	*INSTRUCTIONS*
C	1	Not Applicable/ De Minimis Effect: • Explain why the facility does not impose a barrier to upstream fish passage in the designated zone. • Document available fish distribution data and the lack of migratory fish species in the vicinity. • If migratory fish species have been extirpated from the area, explain why the facility is or was not the cause of this.

Background

There are 26 barriers on the Androscoggin River that prevent upstream fish passage, including 8 hydropower FERC-licensed projects (including the R-J-L and Otis developments), one non-jurisdictional hydro facility, and 17 non-hydropower dams, two of which are breached. There are 7 additional dams from Lewiston Falls to Rumford Falls. Figure 3 and Figure 4 show the dams upstream and downstream of the R-J-L and Otis developments, respectively.

Man-made barriers have been present in the Androscoggin River drainage area for over 200 years (as early as 1770). Dams at the head-of tide in Brunswick caused an early and sharp decline of Alewife and American shad as early as 1807, but these dams did not stop Atlantic salmon (who were capable of leaping over the shorter dams). However, subsequent dams were built higher. As a result, Atlantic salmon were no longer caught in Lewiston, Maine by 1815, and were extirpated from above tidewater by 1844. Fish passage was constructed at the Brunswick/Topsham dam in 1982, Pejepscot in 1987 and at Worumbo in 1988. These three projects are the furthest downstream dams in the Androscoggin River Basin. Thus, the addition of fish passage at these three sites re-opened access to approximately 28 river miles of habitat for several anadromous fish species.

While anadromous fish passage is provided at the three most downstream facilities, the falls in Lewiston are a natural barrier to most migratory species. There is currently no infrastructure in place for migratory fish to move further upstream. Three additional hydropower dams that are not required to have fish passage exist between Lewiston and Livermore, Monty, Deer Rips, and Gulf Island. Thus, there are currently no migratory species located within the vicinity of the R-J-L and Otis Projects.

Compliance

The U.S. Department of the Interior (Interior), by letter dated December 17, 1997, requested reservation of authority to prescribe fishways in the future, under Section 18 of the Federal Power Act (FPA). No resource agency has recommended upstream or downstream fish passage facilities for the R-J-L and Otis projects at this time. FERC recommended that a license article be included that reserves Interior's authority to prescribe fishways.

A recent report published by MDMR (March 2019[30]), confirms that Lewiston Falls, over 20 miles downstream of the Livermore dam, is the natural migration barrier for most species, although it is noted that Atlantic salmon and American eel could historically move upstream to Rumford, which is approximately 20 river miles upstream of Riley dam. Although fish reintroduction efforts are occurring downstream of the R-J-L and Otis Projects, other downstream barriers (i.e., the falls at Lewiston), effectiveness of passage facilities at downstream facilities, and size of run return have prevented migratory fish species from reaching the R-J-L and Otis developments.

Resident, non-migratory game species found in the Androscoggin River basin support a mix of warm water and cold-water species including brown trout, brook trout, rainbow trout, yellow perch, and smallmouth bass. Smallmouth bass, rainbow trout, and brown trout are not native species to the drainage but support a popular fishery throughout the basin. While rainbow trout, as well as native brook trout, experience natural recruitment, brown trout reproduction is generally lower. The sport fishery is supplemented by stocking efforts of brook trout, rainbow trout, brown trout, and landlocked Atlantic salmon in various locations across the Androscoggin River basin, and these salmonid species, along with bass and fallfish, are found in waters upstream of the R-J-L and Otis Projects (Brautigam and Pellerin 2014). However, according to MDIFW stocking reports, the agency has not stocked game species in R-J-L or Otis impoundments or at any upstream locations.[31]

The sport fishery in the immediate vicinity of the projects supports warmwater species. The project reservoirs support self-sustaining warmwater fish assemblages that consist of yellow perch and other panfish species. Smallmouth bass are present throughout the project reach and are the primary sportfish species found in the Project Area. This species also accounts for a

[30] https://elibrary-backup.ferc.gov/idmws/common/opennat.asp?fileID=15201288
[31] https://www.maine.gov/ifw/fishing/reports/stocking/stocking.htm

relatively large percentage of the overall fish assemblage. Previous studies suggest that suitable habitat exists in the impoundments and riverine reaches to support all life stages of warmwater game fish assemblages, as well as recruitment of smallmouth bass to a catchable size (FERC 1998; Brautigam and Pellerin 2014).[32]

- On April 24, 2019, Kleinschmidt on behalf of Andro Hydro, sent an inquiry to state and federal agencies for confirmation that the projects are operated in compliance with the conditions of the FERC licenses and WQCs. On May 14, 2019, the Maine Department of Environmental Protection provided the following comments (letter attached in Appendix C):
    - "The Department reviewed the 2018 Water Quality Study Report for the Projects and finds no evidence to suggest that the continued operation of the project will negatively impact the designated uses, numeric or narrative criteria of its classification standards (Class C)."
    - "The project does not cause or contribute to non-attainment of Maine's water quality standards."
    - "The presence of a fish consumption advisory due to dioxins, PCB's and mercury, for the waters of the RJL and Otis Project prevents attainment of Maine's Water Quality Standards, specifically the designated use of "fishing" which requires that fish are safe for human consumption. However, non-attainment status from these contaminants is not a result of the operation of the Project."

[32] Brautigam, F., and J. Pellerin. 2014. Upper Androscoggin River Fishery Management Plan. Maine Department of Wildlife and Inland Fisheries. 33 pp.

3.4 DOWNSTREAM FISH PASSAGE STANDARDS

3.4.1 ALL ZOES

CRITERION	*STANDARD*	*INSTRUCTIONS*
D	1	<u>Not Applicable/ De Minimis Effect:</u> • Explain why the facility does not impose a barrier to downstream fish passage in the designated zone, considering both physical obstruction and increased mortality relative to natural downstream movement (e.g. entrainment into hydropower turbines). • For riverine fish populations that are known to move downstream, explain why the facility does not contribute adversely to the sustainability of these populations or to their access to habitat necessary for successful completion of their life cycles. • Document available fish distribution data and the lack of migratory fish species in the vicinity. • If migratory fish species have been extirpated from the area, explain why the facility is or was not the cause of this.

Please see the Upstream Fish Passage Standards Section 3.3.

While fish passage facilities are installed and operated at the first three downstream projects in the Androscoggin River, per license Article 410 of the R-J-L license and license Article 407 of the Otis license the Secretary of the Interior reserved authority for future fish passage prescriptions under Section 18 of the Federal Power Act, there are no migratory species accessing upstream habitat that would necessitate downstream passage at R-J-L or Otis.[33] Fish species that are currently found, or could be found, at the Project include warmwater centrarchid species as well as several species of trout. These non-migratory species currently have habitat necessary for spawning and recruitment at and above the projects, as evidenced by previous surveys (Brautigam and Pellerin 2014) and would not require downstream access to tidal reaches to complete their life cycles. None of the sixteen fish species documented in the reach immediately upstream of the Project require large movements to find suitable spawning habitat (Table 2). Resident sportfish species identified in the Upstream Fish Passage Section, do not necessitate migratory capability to complete their lifecycle, and at least a portion of trout species existing in other portions of the river are stocked as part put/take fisheries management.

[33] Under FPA section 18, The Secretary of Interior (USFWS) or The Secretary of Commerce (NMFS) may prescribe a facility for fish passage (such as a fish ladder or a trapping site), operation and maintenance of the facility, and any other conditions necessary to ensure effective passage.

TABLE 2 FISH OCCURRING IN THE UPPER ANDROSCOGGIN RIVER FROM GILEAD TO BETHEL

Brown Trout	Blacknose Dace	Yellow Perch
Rainbow Trout	Longnose Dace	Spottail Shiner
White Sucker	Common Shiner	Long Nose Sucker
Burbot	Lake Chub	Fallfish
Brook trout	Smallmouth Bass	
Chain Pickerel	Golden Shiner	

Note: These fish occur in the river upstream of the R-J-L and Otis projects.

3.5 SHORELINE AND WATERSHED PROTECTION STANDARDS

3.5.1 ALL ZOES

CRITERION	*STANDARD*	*INSTRUCTIONS*
E	1	Not Applicable / De Minimis Effect: • If there are no lands with significant ecological value associated with the facility, document and justify this (e.g., describe the land use and land cover within the project boundary). • Document that there have been no Shoreline Management Plans or similar protection requirements for the facility.

- The area surrounding the Impoundment, Bypassed Reach, and Downstream ZOEs consists mostly of forested land, rural residential housing, small towns (Canton, approximate population 990; Jay, approximate population 4,851; Livermore, approximate population 2,095; Livermore Falls, approximate population 3,134[34]) and some industrial and commercial areas on both sides of the river. Further out from the FERC project boundary there are forested stretches along both sides of the river.
- Between the Riley and Jay Impoundments resides the Androscoggin Verso Paper Mill in Jay, Maine which encompasses 580 acres of land and employs approximately 500 individuals[35].
- There are no requirements for a buffer zone, shoreline protection fund, shoreline management plan, or equivalent for the Projects in the Riley-Jay-Livermore or Otis September 16, 1998 FERC Licenses[36] [37]
- Land cover units identified in the vicinity of the project can be found in Figure 5 below.

[34] https://factfinder.census.gov/faces/nav/jsf/pages/community_facts.xhtml?src=bkmk
[35] https://www.versoco.com/wps/wcm/connect/d0fa3542-d9a0-49ad-9f3a-9383b1419be9/Androscoggin+Mill+Fact+Sheet+March+2019.pdf?MOD=AJPERES&CVID=mEcDv1E
[36] https://elibrary.ferc.gov/idmws/common/opennat.asp?fileID=10813673
[37] https://elibrary.ferc.gov/idmws/common/opennat.asp?fileID=10813674

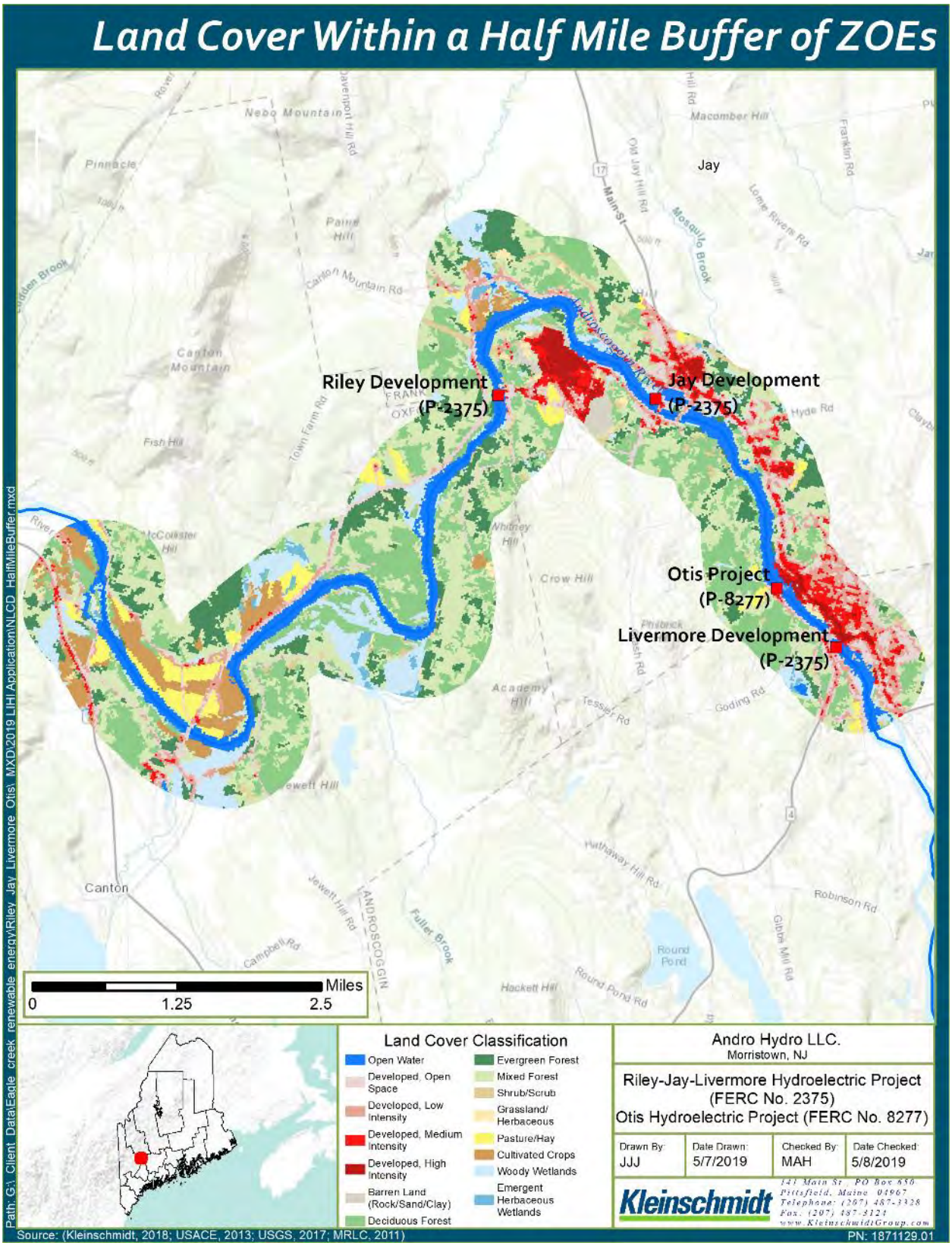

FIGURE 5 LAND COVER WITHIN 0.5-MILE OF PROJECT ZOES

3.6 THREATENED AND ENDANGERED SPECIES STANDARDS

3.6.1 ALL ZOES

CRITERION	STANDARD	INSTRUCTIONS
F	1	Not Applicable/ De Minimis Effect: • Document that there are no listed species in the facility area or affected riverine zones downstream of the facility. • If listed species are known to have existed in the facility area in the past but are not currently present, explain why the facility was not the cause of the extirpation of such species. • If the facility is making significant efforts to reintroduce an extirpated species, describe the actions that are being taken.

A Project Review letter was sent to Maine Natural Areas Program (MNAP) on May 1, 2019. According to MNAP, the information currently in our Biological and Conservation Data System files, the Riley and Jay developments are upstream and downstream, respectively, of two mapped MNAP features: Silver Maple Floodplain Forest and Spotted Wintergreen. MNAP stated that "given that the request is for LIHI Certificate relicensing, and that the river flows will not change as a result of the relicensing, there are no concerns with these projects and the Silver Maple Floodplain Forest or Spotted Wintergreen along the Androscoggin River in Jay."[38] The MNAP project review request and response are included in Appendix C.

An Information for Planning and Consultation (iPaC) report was generated on May 7, 2019 to assess official species known to occur or potentially occur within the project area. The iPaC report is attached as Appendix D. Below are the results of the iPaC report.

Aquatic Species

The USFWS listed the Atlantic salmon as endangered on June 19, 2009, however the Riley-Jay-Livermore and Otis projects are outside of the critical habitat for this species. See further information in Section 3.3.1.

Mammals

While Northern Long Eared Bat range is identified in the vicinity of the Project, the Project has no effect on the species as there are no tree-clearing activities or corridor maintenance activities currently planned.

[38] The R-J-L and Otis projects are not currently in relicensing. The correct term is "recertification."

Birds

The USFWS has also listed the Bald Eagle as potentially being present and/or breeding in the project area. Bald Eagles are protected under both the Migratory Bird Treaty Act and the Bald and Golden Eagle Protection Act. The Riley-Jay-Livermore and Otis projects have no activities or project operations that result in impacts to migratory birds, eagles, or their habitats. Per the 1998 Environmental Assessment (EA)[39], these species are not commonly encountered in the project area, although they may use the project area for occasional wintering habitat.

Source: U.S. Fish & Wildlife Service

PHOTO 1 BALD EAGLE (*HALIAEETUS LEUCOCEPHALUS*)

Source: U.S. Fish & Wildlife Service

PHOTO 2 NORTHERN LONG EARED BAT (*MYOTIS SEPTENTRIONALIS*)

Plants

There are no state or Federally threatened or endangered plants identified in the iPaC or MNAP reviews.

[39] https://elibrary.ferc.gov/idmws/common/opennat.asp?fileID=12751062

3.7 CULTURAL AND HISTORIC RESOURCE STANDARDS

3.7.1 ALL ZOES

CRITERION	STANDARD	INSTRUCTIONS
G	2	Approved Plan: • Provide documentation of all approved state, provincial, federal, and recognized tribal plans for the protection, enhancement, and mitigation of impacts to cultural and historic resources affected by the facility. • Document that the facility is in compliance with all such plans.

- Per license Article 410 (Otis) and Article 413 (R-J-L) of the Commission's September 16, 1998 Order Issuing New Licenses required the Licensees to enter into a Programmatic Agreement (PA)[40] with FERC, the Advisory Council on Historic Preservation, and the Maine State Historic Preservation Officer (SHPO) for managing historic properties that may be affected by a license issued for the continued operation of the Riley-Jay-Livermore and Otis Hydroelectric Projects.[41,42]

  The license requires the licensee to implement the PA (executed Feb 12, 1998), including the filing of a Cultural Resources Management Plan (CRMP). The licensee developed the CRMP in consultation with the SHPO and filed the CRMP with FERC on March 9, 2000. FERC approved the CRMP on May 2, 2000.[43]

- Per license Article 410 (Otis) and Article 413 (R-J-L), the Licensee was required to file annual reports for the first five years after the CRMP was developed. The reports were filed in 2000[44], 2001[45], 2002[46], 2003[47], and 2004 (after a request for extension). FERC approved the final report on July 23, 2004.[48]

- An environmental inspection was completed by FERC on July 26, 2007. The inspection report stated that per license Article 410, no follow-up was needed.[49] The licensees are in compliance with requirements regarding cultural resources.

- On April 24, 2019, Kleinschmidt on behalf of Andro Hydro, sent an inquiry to state and federal agencies, including the SHPO, for confirmation that the projects are operated in compliance with the conditions of the FERC licenses and WQCs. At the time of filing this application, no responses have been received. Andro Hydro anticipates incorporating any responses in the final application.

[40] https://elibrary.ferc.gov/idmws/common/opennat.asp?fileID=8399522
[41] https://elibrary.ferc.gov/idmws/common/opennat.asp?fileID=10813673
[42] https://elibrary.ferc.gov/idmws/common/opennat.asp?fileID=10813674
[43] https://elibrary.ferc.gov/idmws/common/opennat.asp?fileID=10855031
[44] https://elibrary.ferc.gov/IDMWS/common/opennat.asp?fileID=158767
[45] https://elibrary.ferc.gov/IDMWS/common/opennat.asp?fileID=8314985
[46] https://elibrary-backup.ferc.gov/idmws/common/opennat.asp?fileID=10611046
[47] https://elibrary.ferc.gov/idmws/common/opennat.asp?fileID=10425161
[48] https://elibrary-backup.ferc.gov/idmws/common/opennat.asp?fileID=10425161
[49] https://elibrary.ferc.gov/idmws/common/opennat.asp?fileID=11464243

3.8 RECREATIONAL RESOURCES STANDARDS

3.8.1 RILEY-JAY-LIVERMORE ZOES

CRITERION	STANDARD	INSTRUCTIONS
H	2	Agency Recommendation: • Document any comprehensive resource agency recommendations and enforceable recreation plan that is in place for recreational access or accommodations. • Document that the facility is in compliance with all such recommendations and plans.

- Per license Article 411 of the Commission's September 16, 1998 Order Issuing New License required the licensee to monitor recreation use of the project area to determine whether existing recreation facilities were meeting recreation needs, and, concurrent with filing the FERC Form 80, file a report with the Commission on the monitoring results.[50]
- The Commission's January 20, 2010 Order Amending License replaced Article 411 requirements to monitor recreation use annually to once every six years.[51]
- Per the Recreation monitoring report filed March 25, 2015, recreation capacity utilization is low, ranging from one to 18 percent among the project's recreation sites. Given such light use and a declining population in the region, the report concluded that the project's existing recreation resources were sufficient and that no additional facilities were needed at that time. The report fulfilled the recreation monitoring requirements under article 411 of the R-J-L Project license, as amended. FERC issued a letter on May 15, 2015 stating the report fulfilled the requirements of Article 411.[52] The next report is due on or before April 1, 2021.[53]
- On December 20, 2018, FERC issued an Elimination of Form 80 and Revision on Recreational Opportunities and Development at Licensed Hydropower Projects (165 FERC ¶ 61,256).[54] Since this rulemaking was applied in 2018, the licensee does not intend on submitting the Form 80 report in 2021.
- Article 412 of the Commission's September 16, 1998 Order Issuing New License required the Licensee to construct and provide for the operation and maintenance of recreational facilities within 2 years of license issuance.[55]
- In a September 20, 1999, filing, the Licensee submitted four as-built recreation drawings (Figure 6) showing the final construction details for: the Dixfield Boat Access and Dam Canoe Portage at Riley, improvements at the Snoopy site at Jay, and the Bypass Fisherman Access and improvements at the Foundry sites at Livermore. The facilities were constructed during 1998, according to the recreation enhancement measures described in Article 412 of the license.

[50] https://elibrary.ferc.gov/idmws/common/opennat.asp?fileID=10813673
[51] https://elibrary.ferc.gov/idmws/common/opennat.asp?fileID=12248201
[52] https://elibrary-backup.ferc.gov/idmws/common/opennat.asp?fileID=13876266
[53] https://elibrary.ferc.gov/idmws/common/opennat.asp?fileID=13876266
[54] https://www.ferc.gov/whats-new/comm-meet/2018/122018/H-1.pdf
[55] https://elibrary.ferc.gov/idmws/common/opennat.asp?fileID=10813673

The drawings show the following enhancements: (1) A new carry-in boat facility and parking area on Dixfield Site to provide access to the Riley impoundment; (2) a new canoe portage trail and take-out facility at the Riley Dam; (3) an improved parking area and carry-in-boat access on the Snoopy Site to provide access from the Riley Road to Jay impoundment; (4) a new parking area and walk-in-angler access trail to the upper Livermore bypassed reach, and added 6-inch gravel base to the existing shoulder of the road to permit vehicle parking; and (5) an improved parking area, access trail, and carry-in boat access facility on Foundry Site to provide access to the river below the Livermore Dam.

FERC reviewed the drawings and found they did not include a flow board in the Livermore bypassed reach, as required by Article 412. Therefore, in a supplemental filing on September 6, 2000, the licensee indicated that it had installed a color-coded staff gage in place of the flow board, for use of local kayakers. The gage is painted on the wall and is visible from the opposite side of the Livermore bypassed reach at the carry-in boat/angler access site. The licensee also maintains access to the project impoundments via three trails cited in license Article 412.

The filing complies with all the requirements of article 412. On Sept 20, 2000, FERC issued an order approving the Licensee's as built exhibits.[56]

- Per license Article 303 of the 1998 FERC License, within 90 days of completion of construction of the project facilities authorized by the license (i.e. recreational and parking facilities, redevelopment of the Livermore power house, etc.), the licensee shall file, for Commission approval, revised exhibits F and G, to show those final constructed project facilities as-built.

  FERC's Order Approving As-Built Exhibit Drawings (10 FERC ¶ 62,345) was issued March 30, 2005.[57]

[56] https://elibrary.ferc.gov/idmws/common/OpenNat.asp?fileID=3201564
[57] https://elibrary.ferc.gov/idmws/common/opennat.asp?fileID=10471459

3.8.2 OTIS ZOES

CRITERION	STANDARD	INSTRUCTIONS
H	2	Agency Recommendation: • Document any comprehensive resource agency recommendations and enforceable recreation plan that is in place for recreational access or accommodations. • Document that the facility is in compliance with all such recommendations and plans.

- Article 408 of the Commission's September 16, 1998 Order Issuing New License required the licensee to monitor recreation use of the project area to determine whether existing recreation facilities were meeting recreation needs, and, concurrent with filing the FERC Form 80, file a report with the Commission on the monitoring results.[58]

  The report was to include: 1) annual recreation use figures; 2) a discussion of the adequacy of recreation facilities to meet recreation demand; 3) a description of the methodology used to collect study data; 4) a plan to accommodate recreation needs if additional facilities are needed; 5) documentation of agency consultation; and 6) specific descriptions of how the agencies' comments are accommodated by the report. Consulting agencies include the U.S. Fish and Wildlife Service, National Park Service, Maine Department of Environmental Protection, Maine Department of Conservation, Maine Department of Inland Fisheries & Wildlife, Conservation Law Foundation, and Appalachian Mountain Club.[59]

- The Commission's January 20, 2010 Order Amending License replaced article 408 requirements to monitor recreation use annually to once every six years.[60]

- Per the Recreation monitoring report filed March 25, 2015, Capacity utilization is 13 percent. Given such light use and a declining population in the region, the report concluded that the project's existing recreation resources are sufficient and that no additional facilities were needed at the time. The report fulfilled the recreation monitoring requirements under article 408 of the Otis Project license, as amended. The next report is due on or before April 1, 2021.[61]

- On December 20, 2018, FERC issued an Elimination of Form 80 and Revision on Recreational Opportunities and Development at Licensed Hydropower Projects (165 FERC ¶ 61,256).[62] Since this rulemaking was applied in 2018, the licensee does not intend on submitting the Form 80 report in 2021.

- Per license Article 409, within 2 years of license issuance, the licensee shall construct and provide for the operation and maintenance of recreation facilities at Pine Island, as described in the licensee's application for license and Applicant Prepared Environmental Assessment (APEA), filed with the Commission on September 24, 1997.[63]

[58] https://elibrary.ferc.gov/idmws/common/opennat.asp?fileID=10813674
[59] https://elibrary.ferc.gov/idmws/common/opennat.asp?fileID=13876277
[60] https://elibrary.ferc.gov/idmws/common/opennat.asp?fileID=12248201
[61] https://elibrary.ferc.gov/idmws/common/opennat.asp?fileID=13876277
[62] https://www.ferc.gov/whats-new/comm-meet/2018/122018/H-1.pdf
[63] https://elibrary.ferc.gov/idmws/common/opennat.asp?fileID=10813674

The recreation enhancement measures, at the Otis Hydroelectric Project, shall include providing a summer day-use facility, on Pine Island adjacent to the Jay Dam, consisting of a carry-in boat launch, parking area, toilet facilities, picnic tables, a play area, a fishing dock accessible to persons with disabilities, and walking trails (Figure 6). During the term of the license, the licensee shall, in cooperation with International Paper Company, maintain the approximate 13.5-mile- long Multi-use Trail located along the northern side of the Otis impoundment.

FERC granted an extension of time for completing construction of the recreational facilities, according to article 409, to March 31, 2002 and an extension deadline for filing as-built drawings to May 31, 2002.[64]

On June 20, 2002, FERC issued an order approving the design drawings as adequately representing as-built Exhibit R Drawings for the Pine Island Recreation Facility which provided for the operation and maintenance of recreation facilities, as described in the license application filed on September 24, 1997. The design drawings show construction details for the Pine Island recreation facilities, which consist of a carry-in boat launch, parking area, toilet facilities, picnic tables, a play area, a fishing dock accessible to persons with disabilities, and walking trails.[65]

- On April 24, 2019, Kleinschmidt on behalf of Andro Hydro, sent an inquiry to state and federal agencies for confirmation that the projects are operated in compliance with the conditions of the FERC licenses and WQCs. At the time of filing this application, no responses have been received. Andro Hydro anticipates incorporating any responses in the final application. Reference Appendix

[64] https://elibrary.ferc.gov/idmws/common/opennat.asp?fileID=6001622
[65] https://elibrary.ferc.gov/idmws/common/opennat.asp?fileID=9517881

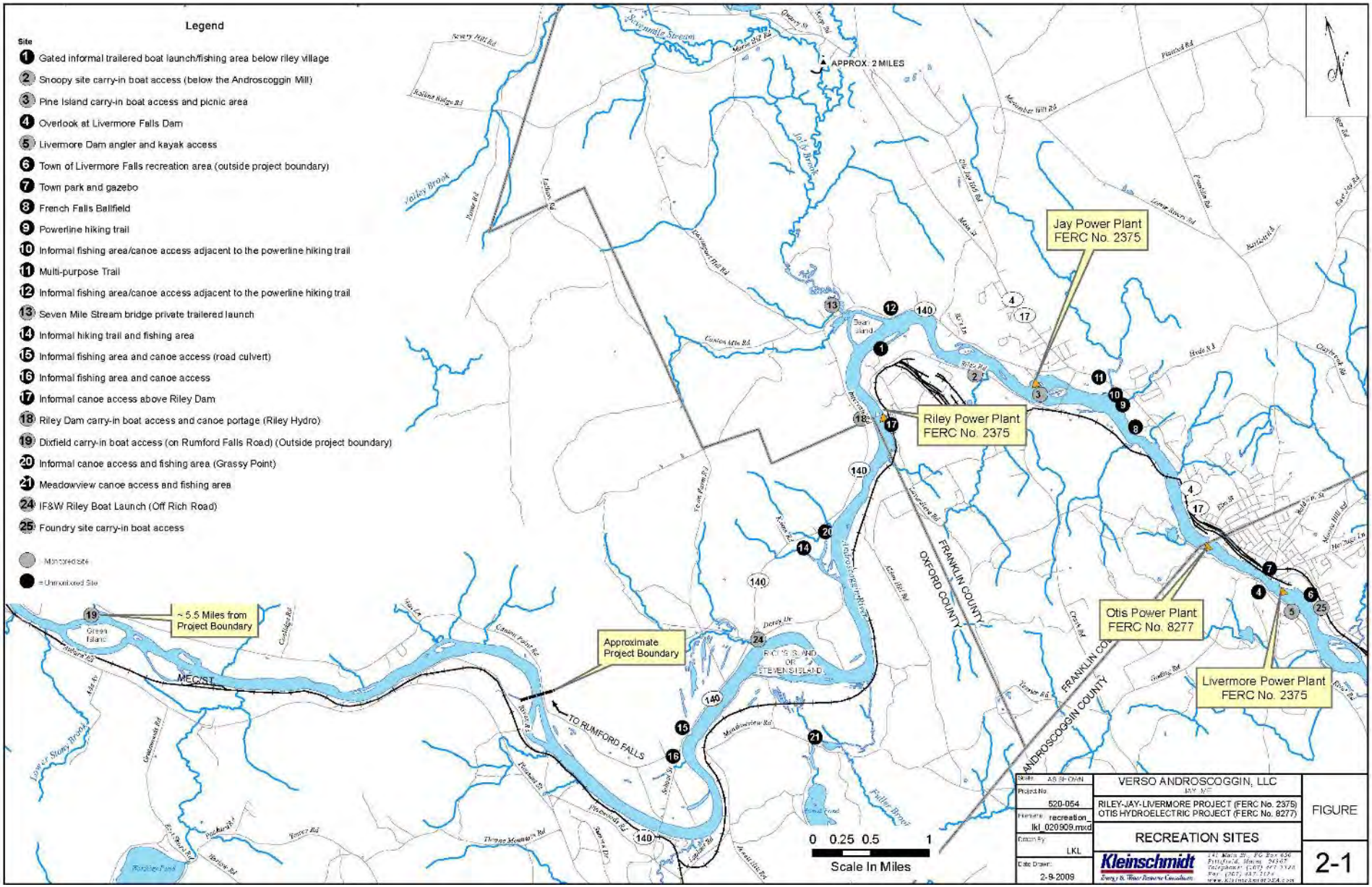

FIGURE 6 RILEY-JAY-LIVERMORE AND OTIS PROJECTS RECREATION SITES

4.0 CONTACTS FORMS

4.1 APPLICANT CONTACT INFORMATION

Project Owner:	
Name and Title	Robert Gates, Vice President
Company	Andro Hydro, LLC
Phone	973-998-8403
Email Address	Bob.Gates@eaglecreekre.com
Mailing Address	65 Madison Avenue, Suite 500, Morristown, NJ 07960
Consulting Firm / Agent for LIHI Program (if different from above):	
Name and Title	Andy Qua and Nuria Holmes
Company	Kleinschmidt Associates
Phone	207-487-3328 (Andy) or 971-266-5395 (Nuria)
Email Address	Andrew.Qua@KleinschmidtGroup.com Nuria.Holmes@KleinschmidtGroup.com
Mailing Address	P.O. Box 650, Pittsfield, ME 04967
Compliance Contact (responsible for LIHI Program requirements):	
Name and Title	Robert Gates, Vice President
Company	Andro Hydro, LLC
Phone	973-998-8403
Email Address	Bob.Gates@eaglecreekre.com
Mailing Address	65 Madison Avenue, Suite 500, Morristown, NJ 07960
Party responsible for accounts payable:	
Name and Title	Robert Gates, Vice President
Company	Andro Hydro, LLC
Phone	973-998-8403
Email Address	Bob.Gates@eaglecreekre.com
Mailing Address	65 Madison Avenue, Suite 500, Morristown, NJ 07960

4.2 STATE, FEDERAL, PROVINCIAL, AND TRIBAL RESOURCE AGENCY CONTACTS

Agency Contact		*Area of Responsibility*
Agency Name	Maine Department of Environmental Protection	☒ Flows ☒ Water Quality ☒ Fish/Wildlife ☒ Watershed ☒ T & E Species ☒ Cultural/Historic ☒ Recreation
Name and Title	Ms. Kathy Howatt, Hydropower Coordinator	
Phone	207-446-2642	
Email address	kathy.howatt@maine.gov	
Mailing Address	17 State House Station Augusta, ME 04333	

Agency Contact		*Area of Responsibility*
Agency Name	Maine Natural Areas Program Department of Agriculture, Conservation and Forestry	☐ Flows ☐ Water Quality ☒ Fish/Wildlife ☐ Watershed ☒ T & E Species ☐ Cultural/Historic ☐ Recreation
Name and Title	Lisa St. Hilaire, Information Manager	
Phone	207-287-8044	
Email address	lisa.st.hilaire@maine.gov	
Mailing Address	93 State House Station Augusta, ME 04333	

Agency Contact		*Area of Responsibility*
Agency Name	Maine Department of Inland Fisheries and Wildlife	☒ Flows ☐ Water Quality ☒ Fish/Wildlife ☒ Watershed ☒ T & E Species ☐ Cultural/Historic ☒ Recreation
Name and Title	John Perry, Environmental Coordinator	
Phone	207-287-5254	
Email address	john.perry@maine.gov	
Mailing Address	284 State Street 41 SHS Augusta, ME 04333	

Agency Contact		*Area of Responsibility*
Agency Name	National Oceanic & Atmospheric Administration, National Marine Fisheries Service	☒ Flows ☐ Water Quality ☒ Fish/Wildlife ☐ Watershed ☒ T & E Species ☐ Cultural/Historic ☐ Recreation
Name and Title	Jeff Murphy, Maine Field Office	
Phone	207-866-7379	
Email address	jeff.murphy@noaa.gov	
Mailing Address	17 Godfrey Drive Suite 1 Orono, ME 04473	

Agency Contact		*Area of Responsibility*
Agency Name	Maine Department of Marine Resources	☒ Flows ☐ Water Quality ☒ Fish/Wildlife ☐ Watershed ☐ T & E Species ☐ Cultural/Historic ☐ Recreation
Name and Title	Casey Clark, Resource Coordinator	
Phone	207-624-6594	
Email address	casey.clark@maine.gov	
Mailing Address	32 Blossum Lane Augusta, ME 04330	

Agency Contact		*Area of Responsibility*
Agency Name	National Marine Fisheries Service	☒ Flows ☐ Water Quality ☒ Fish/Wildlife ☐ Watershed ☒ T & E Species ☐ Cultural/Historic ☐ Recreation
Name and Title	Donald Dow, Maine Field Office	
Phone	207-866-8563	
Email address	donald.dow@noaa.gov	
Mailing Address	17 Godfrey Drive - Suite 1 Orono, ME 04473	

Agency Contact		*Area of Responsibility*
Agency Name	U.S Fish and Wildlife Service	☐ Flows ☒ Water Quality ☒ Fish/Wildlife ☐ Watershed ☒ T & E Species ☐ Cultural/Historic ☐ Recreation
Name and Title	Steve Shepard, Maine Field Office	
Phone	207-902-1572	
Email address	steven_shepard@fws.gov	
Mailing Address	P.O. Box A East Orland, ME 04431	

Agency Contact		*Area of Responsibility*
Agency Name	Maine Historic Preservation Commission	☐ Flows ☐ Water Quality ☐ Fish/Wildlife ☐ Watershed ☐ T & E Species ☒ Cultural/Historic ☐ Recreation
Name and Title	Megan Rideout, Review Compliance / CLG Coordinator	
Phone	207-287-2992	
Email address	Megan.M.Rideout@maine.gov	
Mailing Address	55 Capitol Street 65 State House Station Augusta, ME 04333	

Sworn Statement and Waiver Form

All applications for LIHI Certification must include the following sworn statement before they can be reviewed by LIHI:

SWORN STATEMENT

As an Authorized Representative of Andro Hydro, LLC, the Undersigned attests that the material presented in the application is true and complete.

The Undersigned acknowledges that the primary goal of the Low Impact Hydropower Institute's certification program is public benefit, and that the LIHI Governing Board and its agents are not responsible for financial or other private consequences of its certification decisions.

The Undersigned further acknowledges that if LIHI Certification of the applying facility is granted, the LIHI Certification Mark License Agreement must be executed prior to marketing the electricity product as LIHI Certified®.

The Undersigned further agrees to hold the Low Impact Hydropower Institute, the Governing Board and its agents harmless for any decision rendered on this or other applications, from any consequences of disclosing or publishing any submitted certification application materials to the public, or on any other action pursuant to the Low Impact Hydropower Institute's certification program.

Company Name: Andro Hydro, LLC

Authorized Representative:

Name: Robert Gates

Title: Vice President

Authorized Signature: 

Date: September 17, 2019

APPENDIX A

PROJECT ZOE AND PHOTOS

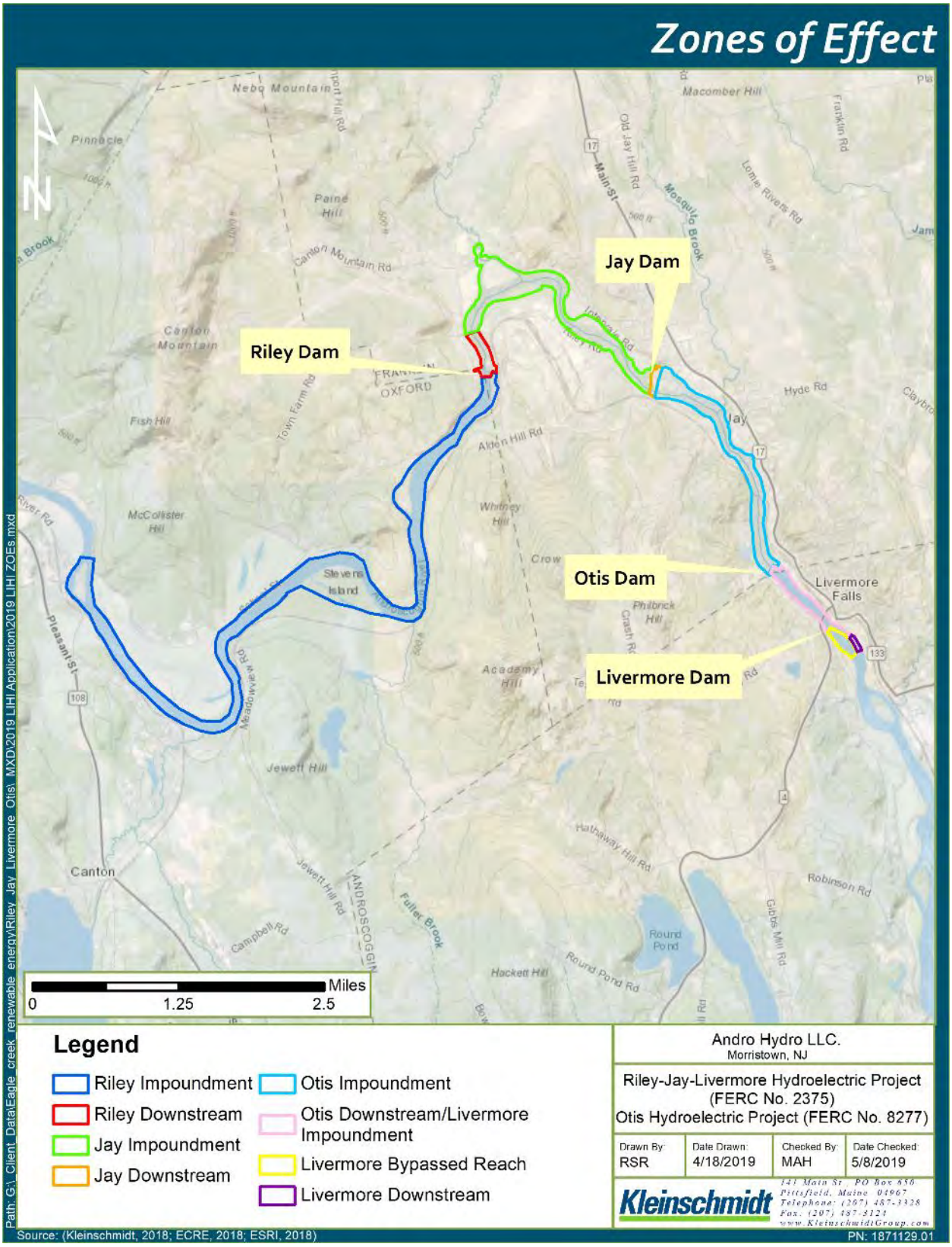

FIGURE 7 ZONES OF EFFECT FOR RILEY-JAY-LIVERMORE AND OTIS DEVELOPMENTS

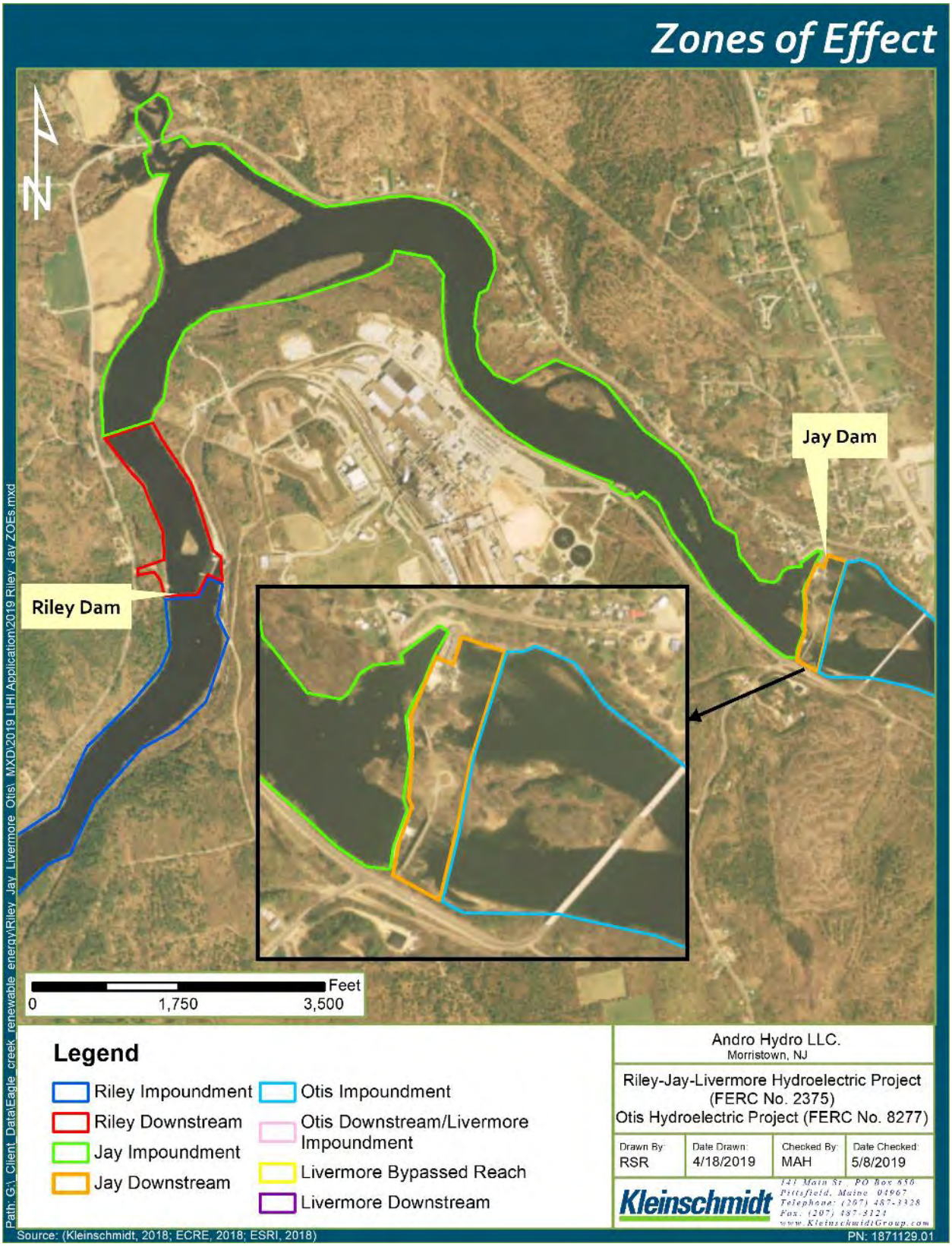

FIGURE 8 RILEY-JAY ZOE INSET DETAIL

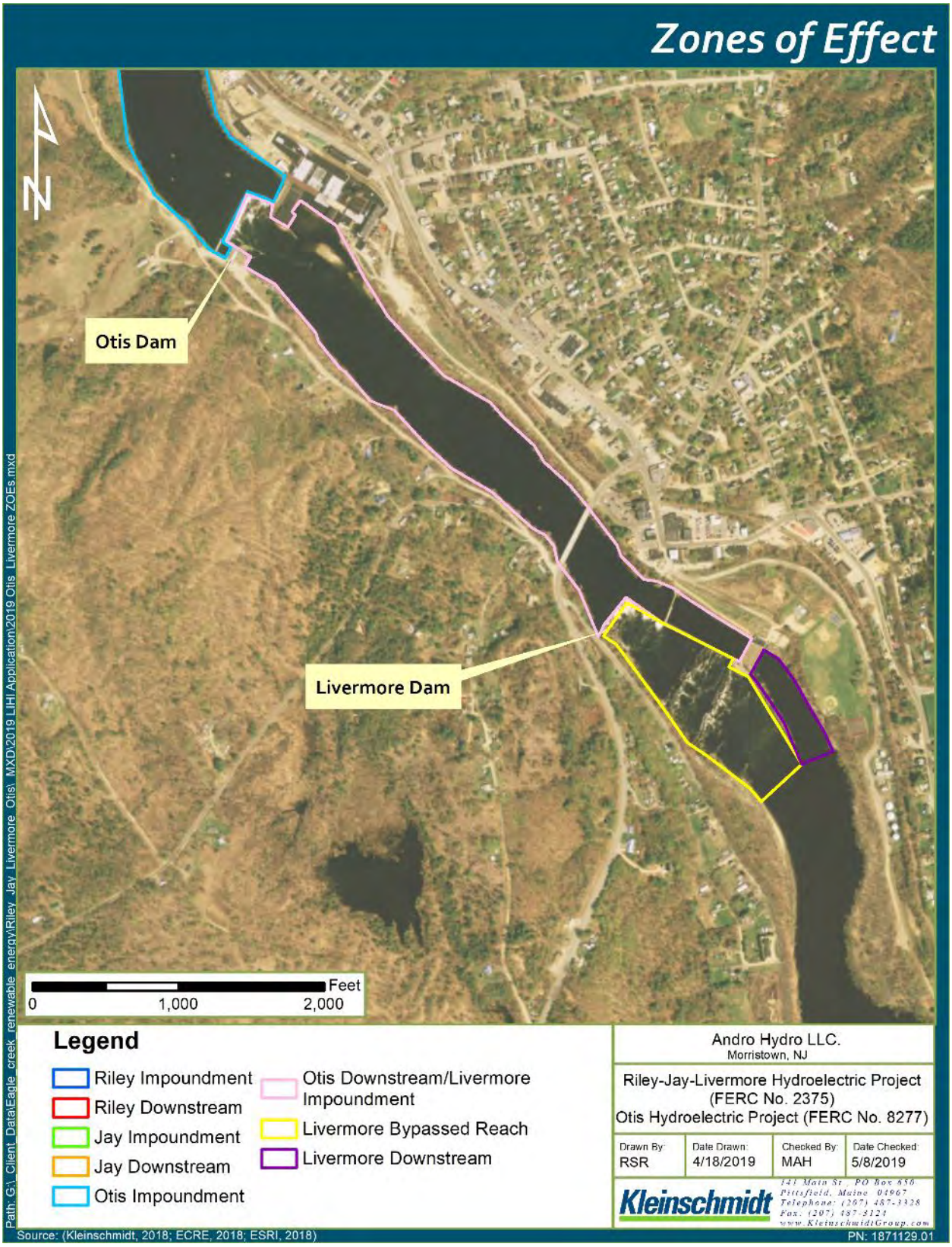

FIGURE 9 OTIS AND LIVERMORE ZOE INSET DETAIL

PHOTO 3 RILEY DAM AERIAL FACILITY DETAILS

PHOTO 4 RILEY IMPOUNDMENT LOOKING UPSTREAM

PHOTO 5 VERSO PULP AND PAPER MILL NEAR RILEY DEVELOPMENT

PHOTO 6 JAY DAM AERIAL FACILITY DETAILS

PHOTO 7 JAY IMPOUNDMENT

PHOTO 8 OTIS DAM AERIAL FACILITY DETAILS

PHOTO 9 OTIS IMPOUNDMENT LOOKING DOWNSTREAM

PHOTO 10 LIVERMORE DAM AERIAL FACILITY DETAILS

PHOTO 11 LIVERMORE IMPOUNDMENT

APPENDIX B

WATER QUALITY

Appendix A

Water Quality Certification for the Riley-Jay-Livermore Project, (FERC No. 2375) and Otis Project (FERC No. 8277) Issued By the Maine Department of Environmental Protection on May 5, 1998.

1. STANDARD CONDITIONS OF APPROVAL

The approved expansion of generating capacity at the Livermore Development is subject to the Standard Conditions of Approval for projects under the Maine Waterway Development and Conservation Act, 06-096 CMR Chapter 450.9 (C).

2. WATER LEVELS

A. Except as temporarily modified by (1) approved maintenance activities, (2) inflows to the project area, (3) operating emergencies beyond the applicants' control, as defined below, and (4) agreement between the applicant and appropriate state and/or federal agencies, water levels in the project impoundments shall be maintained within 1 foot of full pond elevation when flashboards are in place, and within 1 foot of spillway crest elevation when flashboards are not in place.

B. Operating emergencies beyond the applicants' control include, but may not be limited to, equipment failure or other temporary abnormal operating condition, generating unit operation or interruption under power supply emergencies, and order from local, state, or federal law enforcement or public safety authorities.

C. The applicant shall, in accordance with the schedule established in the new FERC licenses for the projects, submit plans for providing and monitoring the impoundment water levels required by Part A of this condition. These plans shall be reviewed by and must receive the approval of the DEP Bureau of Land and Water Quality.

3. MINIMUM FLOWS

A. Except as temporarily modified by (1) approved maintenance activities, (2) inflows to the project area, (3) operating emergencies beyond the applicants' control, as defined below, (4) impoundment refilling after flashboard failure, and (5) agreement between the applicant and appropriate state and/or federal agencies, the following minimum flows shall be released:

a) Outflows approximately equal to inflows shall be

maintained from the project developments at all times;

b) A minimum flow of 5 cfs shall be maintained from the southern spillway of the Jay Dam between June 15 and September 15 annually;

c) A minimum flow of 150 cfs during the months of May, June and October and 100 cfs during the remainder of the year shall be maintained from the Livermore Dam into the upper bypass reach at the Livermore Development; and

d) A minimum flow of 550 cfs (consisting of upper bypass flows plus minimum flow turbine releases) shall be maintained from the Livermore Dam and powerhouse into the lower bypass reach at the Livermore Development.

B. During impoundment refilling after flashboard failure and replacement, a minimum flow of 1,245 cfs or inflow, minus process and cooling water withdrawals, whichever is less, shall be maintained from the project developments.

C. Operating emergencies beyond the applicants' control include, but may not be limited to, equipment failure or other temporary abnormal operating condition, generating unit operation or interruption under power supply emergencies, and order from local, state, or federal law enforcement or public safety authorities.

D. The applicants shall, in accordance with the schedule established in the new FERC licenses for the projects, submit plans for providing and monitoring the minimum flows required by Part A of this condition. These plans shall be reviewed by and must receive the approval of the DEP Bureau of Land and Water Quality.

4. DISSOLVED OXYGEN MONITORING

A. International Paper shall monitor dissolved oxygen and temperature in the Jay impoundment from June 1 through September 30 annually.

B. International Paper shall, in accordance with the schedule established in a new FERC license for the Riley-Jay-Livermore Project, submit plans for monitoring dissolved oxygen and temperature as required by Part A of this condition. These plans shall include provisions for monitoring dissolved oxygen and temperature at an appropriate location in the Jay powerhouse intake area, and determining compliance with applicable dissolved oxygen standards (an instantaneous minimum of 5.0 ppm or 60% of

saturation, whichever is higher, and a 30-day average of 6.5 ppm). These plans shall be reviewed by and must receive the approval of the DEP Bureau of Land and Water Quality.

C. International Paper shall submit an annual report detailing the results of dissolved oxygen and temperature monitoring and the occurrence of any violations of applicable dissolved oxygen standards during the June 1 through September 30 period each year. The Department reserves the right, based on a review of each annual report, and after notice to IP and the opportunity for a public hearing, to require such additional mitigation measures, including but not limited to hydro project modifications or reduced BOD discharges from IP's Androscoggin Paper Mill, as may be deemed necessary to meet applicable dissolved oxygen standards in the Jay impoundment.

5. JAY DAM FLASHBOARDS

Flashboards shall be reinstalled on the Jay Dam before June 1 each year or, failing this, shall not be reinstalled until after July 15.

6. FISH PASSAGE FACILITIES

Based on a written request from the Atlantic Salmon Authority that fish passage facilities be installed on the main stem Androscoggin River above Lewiston Falls to facilitate the restoration of Atlantic salmon, the applicants shall install such fish passage facilities as may be required by the Department, after notice to the applicants and the opportunity for a public hearing, to allow the migration of salmon into and out of the river in and above the project area.

7. BROWN TROUT FISHERY

The applicants shall cooperate with the Department of Inland Fisheries and Wildlife in evaluating the success of efforts to establish a brown trout fishery in the river below the Livermore Development. During each of the first five years following issuance of new FERC licenses for the projects, the applicants shall assist the Department of Inland Fisheries and Wildlife in the annual stocking of up to 250 brown trout in the river, and at the end of the 5-year period shall submit a report to DIFW and the DEP assessing the stocking effort and its success.

8. DISCHARGE OF TOTAL SUSPENDED SOLIDS

International Paper shall, no later than December 31, 1998,

submit an application to the DEP to amend and renew Waste Discharge License #W-000623 for the discharge of treated industrial process waste water from IP's Androscoggin paper mill to incorporate the following reduced effluent limits for the discharge of total suspended solids:

Effluent/Period	Monthly Average	Daily Maximum
TSS-May 1 to Sept 30	12,000 lb/day	22,300 lb/day
TSS-Oct 1 to Apr 30, Starting Oct 1, 1999	31,330 lb/day	44,600 lb/day
TSS-Oct 1 to Apr 30, Starting Oct 1, 2002	25,000 lb/day	44,600 lb/day

Following approval by the DEP in a renewed Waste Discharge License, and except where otherwise specifically noted, these limits shall go into effect concurrent with the October 1, 1999 effective date of the new FERC licenses for the Riley-Jay-Livermore Project and the Otis Project.

9. MACROINVERTBRATE MONITORING--IMPOUNDMENTS

A. As a condition of its renewed Waste Discharge License for the Androscoggin paper mill, and after the reduced limits for the discharge of total suspended solids required by Condition 8 above have become effective, International Paper shall, in consultation with the DEP and the Town of Jay, monitor the macroinvertebrate communities in the lower Jay, Otis and Livermore impoundments annually to determine whether these communities are meeting applicable water quality standards for aquatic life.

B. International Paper shall, in accordance with the schedule established in the renewed Waste Discharge License for the Androscoggin paper mill, submit plans for monitoring macroinvertebrate communities as required by Part A of this condition. This monitoring shall be conducted in accordance with established biological assessment criteria. These plans shall be reviewed by and must receive the approval of the DEP Bureau of Land and Water Quality.

C. International Paper shall submit an annual report detailing the results of macroinvertebrate monitoring in the project impoundments and an analysis of the classification standards met by the monitored macroinvertebrate communities. The Department reserves the right, based on a review of each annual report, and after notice to IP and the opportunity for a public hearing, to require such additional mitigation measures, including but not limited to a further reduction in the discharge of total suspended solids, as may

be deemed necessary to meet applicable aquatic life standards in the project impoundments.

10. MACROINVERTEBRATE STUDY--LIVERMORE BYPASS

A. International Paper shall, in consultation with the DEP, conduct a study to determine whether the macroinvertebrate community in the bypass reach at the Livermore Development is meeting applicable water quality standards for aquatic life following implementation of the minimum bypass flow requirements of this certification. IP shall submit the details of a study plan no later than the October 1, 1999 effective date of a new FERC license for the Riley-Jay-Livermore Project. This study shall be conducted in accordance with established biological assessment criteria. The study plan shall be reviewed by and must receive the approval of the DEP Bureau of Land and Water Quality.

B. The results of the macroinvertebrate study shall be submitted to the Department in accordance with the schedule established in the study plan. After reviewing the study results and comments from IP, and after notice to IP and the opportunity to request a public hearing, the Department may order such modification of the minimum bypass flow established in this certification as may be deemed necessary to meet applicable aquatic life standards in the Livermore bypass reach.

11. FISH TISSUE SAMPLING

A. The applicants shall, in cooperation with the DEP, collect and analyze tissue samples from white suckers and smallmouth bass from the Otis impoundment and the river below the Livermore Dam for levels of PCBs and mercury, respectively.

B. Based on the results of this and other available fish tissue analysis, the Department reserves the right, after notice to the applicants and the opportunity for a public hearing, to require such additional fish tissue collection and analysis as may be deemed necessary to determine whether the presence of the dams is contributing to the issuance of fish consumption advisories on the river.

12. RECREATIONAL ACCESS AND USE FACILITIES

A. The applicants shall construct, improve and maintain new and existing public recreational access and use facilities as described in Section 7 of this order.

B. The applicants shall, in accordance with the schedule established in the new FERC licenses for the projects,

submit plans for constructing, improving and maintaining the recreational access and use facilities required by Part A of this condition. These plans shall be reviewed by and must receive the approval of the DEP Bureau of Land and Water Quality.

13. EROSION AND SEDIMENTATION CONTROL

A. In addition to any specific erosion and sedimentation control measures proposed by the applicants, International Paper and its agents shall take all necessary measures to ensure that their activities do not result in measurable erosion or sedimentation during or after the approved expansion of the Livermore Development.

B. Cofferdam fill placed in the waterway shall consist of clean granular material free from vegetative matter, lumps or balls of clay and other deleterious substances. That portion passing a 3-inch (No. 200) sieve shall not exceed 10 % fines, by weight.

C. International Paper shall, no less than one month prior to construction mobilization, prepare and submit a detailed erosion and sedimentation control plan for the approved expansion of the Livermore Development. This plan must be reviewed and approved by the DEP Bureau of Land and Water Quality prior to the start of construction.

14. CONCRETE CURING

With the exception of limited amounts of concrete used where necessary to seal the interface between steel cofferdams and the underlying bedrock, uncured concrete shall not be placed in direct contact with surface waters. Concrete shall be precast and cured at least three weeks before placing in the water, or where necessary, shall be placed in forms and shall cure at least one week prior to contact with surface water. No washing of tools, forms, etc. shall occur in or adjacent to the waterway.

15. DEMOLITION/EXCAVATION SPOILS DISPOSAL

All solid waste generated by the approved expansion of the Livermore Development, including used cofferdam fill, excavated forebay sediments, excavated rock and demolition debris, shall be disposed of at suitable upland sites in accordance with the Maine Solid Waste Management Rules.

16. PERMITS FOR RECREATIONAL FACILITIES

The applicants shall obtain permits as may be required under the Natural Resources Protection Act to authorize the

construction of new recreational access facilities or the improvement of existing recreational access facilities.

17. LIMITS OF APPROVAL

This approval is limited to and includes the proposals and plans contained in the application and supporting documents submitted and affirmed to by the applicants. All variances from the plans and proposals contained in said documents are subject to the review and approval of the Board or Department prior to implementation.

18. COMPLIANCE WITH ALL APPLICABLE LAWS

The applicants shall secure and appropriately comply with all applicable federal, state and local licenses, permits, authorizations, conditions, agreements and orders required for the operation of the projects.

19. EFFECTIVE DATE

This water quality certification shall be effective concurrent with the October 1, 1999 effective date of the new hydropower licenses issued for the Riley-Jay-Livermore Project and the Otis Project by the Federal Energy Regulatory Commission.

APPENDIX C

AGENCY CONSULTATION

Kleinschmidt

April 24, 2019

VIA E-MAIL

Distribution List

Low Impact Hydropower Institute Recertification
Androscoggin Hydroelectric Project LIHI Certificate #48
Riley, Jay, Livermore, and Otis Hydroelectric Projects (FERC No. 2375 and 8277)
Massachusetts Department of Energy Resources Class II Application Riley Development

Dear Resource Agency:

Kleinschmidt Associates (Kleinschmidt), on behalf of Andro Hydro, LLC (Andro Hydro), a subsidiary of Eagle Creek Renewable Energy, LLC (Eagle Creek), is assisting with the environmental review and resource agency consultation associated with the Low Impact Hydropower Institute Recertification (LIHI) of the Androscoggin Hydroelectric Project which consists of the Riley-Jay-Livermore Project FERC No. 2375 (RJL Project), and the Otis Hydroelectric Project FERC No. 8277, located along the Androscoggin River in Maine (LIHI Certificate #48).

The RJL Project consists of three separate hydroelectric developments, Riley, Jay, and Livermore, located between river miles 53 and 65, in the Towns of Canton, Jay, Livermore, and Livermore Falls within Oxford, Franklin and Androscoggin Counties, on an approximately 12-mile-long reach of the Androscoggin River. The Otis Project is located between the Jay and Livermore developments at river mile 54 in the Towns of Jay and Livermore in Androscoggin County, Maine. The RJL Project has a total installed capacity of 19,725 kilowatts (KW) and Otis has a total installed capacity of 10,350 KW. A map and detailed project description can be found in Attachment A.

Both the RJL Project and Otis Project were issued 50-year FERC licenses on September 16, 1998 which expire September 16, 2048. A Water Quality Certificate was issued by Maine Department of Environmental Protection on May 5, 1998 for both projects. These four hydroelectric developments hold a current LIHI Certificate (#48) as the Androscoggin Hydroelectric Project that was issued on September 25, 2014 and expires on September 25, 2019.

The LIHI recertification process requires the applicant to consult with agencies and receive agency agreement that the continued use of the Project does not have a negative impact on resources. Therefore, Eagle Creek is requesting confirmation that the Projects are, to your knowledge, being operated consistent with the FERC licenses and Section 401 Water Quality Certificates.

141 Main Street, P.O. Box 650 • Pittsfield, ME 04967 • Phone: 207.487.3328 • www.KleinschmidtGroup.com

We respectfully request your confirmation of compliant operations within 30 days so that it may be included and considered in the application to LIHI.

Additionally, Eagle Creek is pursuing MA Class II renewable energy certification through Massachusetts Department of Energy Resources (MADOER) for the Riley Development, to be effective under the current LIHI certification, prior to the issuance and effectiveness of a new certificate. MADOER's renewable energy portfolio standard requirements (Class II - under 225 CMR 15.05(1)(a) 6.e.), stipulate that Eagle Creek must serve notice to all relevant agencies of its application for LIHI recertification, and also provide notice that Eagle Creek is applying for MA Class II renewable energy certification under its current LIHI certification. As such, and in accordance with MA Class II requirements, Eagle Creek requests that agencies provide any comments regarding Eagle Creek's current LIHI Certification, as well as its application to be recertified and its application for MA Class II status, to both Eagle Creek and directly to MADOER within 30 days of this notification. Therefore, by May 24, 2019, please provide any comments both to the Massachusetts DOER at doer.rps@state.ma.us and to Kayla Easler (acting on behalf of Eagle Creek) using the contact information below.

Thank you for your assistance in this matter. If you have questions, please contact me at 207-416-1271 or Kayla.Easler@KleinchmidtGroup.com.

Sincerely,

KLEINSCHMIDT ASSOCIATES

Kayla A Easler

Kayla A. Easler
Regulatory Coordinator

KAE:TMJ
cc: Distribution List
Enclosed: Project Description

\\kleinschmidtusa.com\Condor\Jobs\1871\129\Docs\Agency Coordination\
1871129_Agency ReCert Letter 2019 04 24.docx

DISTRIBUTION LIST

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Hydropower Coordinator
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kathy.howatt@maine.gov

Lisa St. Hilaire
Information Manager, Maine Natural Areas Program
Department of Agriculture, Conservation and Forestry
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Mr. John Perry
Environmental Coordinator
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East Orland, ME 04431
steven_shepard@fws.gov

Ms. Megan Rideout
Review Compliance / CLG Coordinator
Maine Historic Preservation Commission
55 Capitol Street
65 State House Station
Augusta, ME 04333
Megan.M.Rideout@maine.gov

PROJECT DESCRIPTION

Andro Hydro LLC, a subsidiary of Eagle Creek Renewable Energy, LLC, is the Licensee for the Riley-Jay-Livermore Project and the Otis Project, FERC Project Nos. 2375 and 8277, respectively, located on the Androscoggin River in the towns of Canton, Jay, Livermore Falls, and Livermore, Maine. Collectively, these two FERC Projects hold Low Impact Hydro Certification (LIHI) as the Androscoggin Hydroelectric Project (LIHI Certificate #48). Andro Hydro LLC operates the four hydro facilities in a run of river mode, providing minimum flows as required by the FERC licenses and Section 401 Water Quality Certificates, and consistent with the Low Impact Hydropower Institute's certification and criteria.

Riley, Jay, and Livermore are three separate hydroelectric developments[1] located between river miles 53 and 65 on the Androscoggin River; the Otis Project is located between the Jay and Livermore developments (Figure 1). The area adjacent to and upstream of the Riley-Jay-Livermore Project and the Otis Project is a mix of developed land of varying intensities, forest, and agricultural use (pasture, hay, crops).

Flow in the Androscoggin River basin is regulated by five upstream storage reservoirs to provide a reliable and uniform flow to downstream river reaches and to maintain a target flow of at least 1,550 cubic feet per second (cfs) at Berlin, New Hampshire, during the summer months (FERC 1998). The Riley-Jay-Livermore Project and the Otis Project are operated in run of river mode, meaning that inflow to the powerhouses generally matches outflow and water is not stored for generation. Operation of the Riley development and the Otis Project do not result in the diversion of water from the river channel. The Jay and Livermore developments have bypassed reaches (lengths of approximately 130 feet and 1,600 feet, respectively) and minimum flow requirements to protect water quality and fishery resources. A minimum bypass flow of at least 5 cubic feet per second (cfs), or inflow, whichever is less, is required in the Jay development southern bypass from June 15 to September 15 each year. A minimum flow of 100 cfs is provided from July 1 to September 30 and November 1 to April 30 to the Livermore bypassed reach and 150 cfs from May 1 to June 30 and October 1 to October 31. A minimum downstream river flow of 550 cfs (including the minimum flows in the bypassed reach) is required downstream of the Livermore development.

[1] Licensed together as the Riley-Jay-Livermore Project.

FIGURE 1: PROJECT LOCATION

Riley Development:

Riley is the most upstream of the four developments, located at river mile 58.0. Riley dam is a 19.2 feet high by 757 feet long. L-shaped, rock- filled timber crib structure. The dam is topped with 48-inch high flashboards. A triangular forebay discharges to the six identical turbines contained in the 100-foot by 236-foot powerhouse. Turbines are horizontal shaft units, installed in 1982, each rated for 926 cfs hydraulic capacity and electrical output of 1.3 MW. The maximum available head for the turbines at Riley is 20.9 feet. Note also that the Riley forebay is the source of process water supply to a pulp and paper mill.

Jay Development:

The Jay development is located at river mile 56.5. Jay dam totals 893 feet in length and is comprised of three non-contiguous sections separated by two island areas. The two outer sections of Jay dam are topped with 32-inch flashboards. Jay has a 320-ft forebay leading to the 32-feet by 147-feet powerhouse. The six turbine-generators, installed in the early 1900's, are rated for a total flow of 3,300 cfs and provide a total electrical output of 3.1 MW. The maximum available head at Jay is 14.4 feet.

Otis Development:

The Otis development is located at river mile 54.0. The dam is composed of two contiguous spillway sections totaling 577 feet in length and topped with 24-inch flashboards. A 95-feet long forebay leads to the 70-feet by 86-feet powerhouse. The powerhouse contains two turbines each rated for 3,000 cfs at 26 feet of head, and each having generation capability of 5.2 MW. While the Otis dam is over 100 years old, the Otis powerhouse and turbines were constructed in 1984.

Livermore Development:

Livermore is located at river mile 53.2 and is the furthest downstream development. The dam consists of two contiguous spillway sections totaling 599 feet in length and topped with 28-inch flashboards. A 185-feet wide by 594-feet long forebay leads to two separate powerhouses: (1) the (original) 88-feet by 157-feet powerhouse contains eight identical horizontal turbines (early 1900's vintage) with a total hydraulic capacity of 3,456 cfs and eight generators with a total generation capability of 7.8 MW: and (2) a newly constructed powerhouse and vertical turbine (2004), discharging into the rocky area at the side of the forebay, with a hydraulic capacity of 450 cfs and generating capability of 1.0 MW. Gross head available at Livermore is 33.3 feet.

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City, State, ZIP+4®
Augusta, ME 04333

PS Form 3800, April 2015 PSN 7530-02-000-9047 See Reverse for Instructions

Kleinschmidt

May 1, 2019

VIA E-MAIL

Maine Natural Areas Program
93 State House Station
Augusta, ME 04333-0093

Riley-Jay-Livermore Hydroelectric Project (FERC No. 2375) and Otis Hydroelectric Project (FERC No. 8277)
Low-Impact Hydropower Institute (LIHI) Certification Site Review

To Whom It May Concern:

Kleinschmidt Associates, on behalf of Eagle Creek Renewable Energy (Eagle Creek), herein submits information necessary for Maine Natural Areas Program (MNAP) site review for LIHI Certification of the Riley-Jay-Livermore Hydroelectric Project (FERC No. 2375) and Otis Hydroelectric Project (FERC No. 8277) developments (Projects). The Projects are located on the Androscoggin River near the towns of Livermore Falls and Jay in the State of Maine.

The Projects consist of four dams and four impoundments. The Riley Development contains six identical turbines, each with an output of 1.3 MW. The Riley Development forebay is also the source of process water supply for an adjacent pulp and paper mill. The Jay Development contains six turbines for a total output of 3.1 MW. The Otis Development contains two turbines, each having output of 5.2 MW. The Livermore Development contains eight turbines with a total capability of 7.8 MW, and a new vertical turbine with a capability of 1.0 MW. In total, the four developments generate 30.1 MW.

Eagle Creek is applying for re-certification of its 2014 LIHI Certification, which expires at the end of 2019. No structural or operation changes are proposed at this time. The LIHI process considers factors such as ecological flow regimes, water quality, upstream/downstream fish passage, recreation resources, cultural resources, threatened and endangered species, and shoreline and watershed protection in the evaluation of LIHI re-certification. These resources are assessed by "Zone of Effect" as shown in the figure below.

In preparation for the re-certification and Stage I of the LIHI review process, we are requesting MNAP site review of State of Maine listed rare or special status species or habitat that may occur within the proposed project area. Project location maps are attached for MNAP review.

1500 NE Irving St. Suite 550 • Portland, OR 97232 • Phone: 503.345.7956• www.KleinschmidtGroup.com

Should you have any questions regarding this submittal, please contact me at 971.266.5395 or at nuria.holmes@kleinschmidtgroup.com.

Thank you for your assistance.

KLEINSCHMIDT ASSOCIATES

Nuria Holmes
Regulatory Coordinator

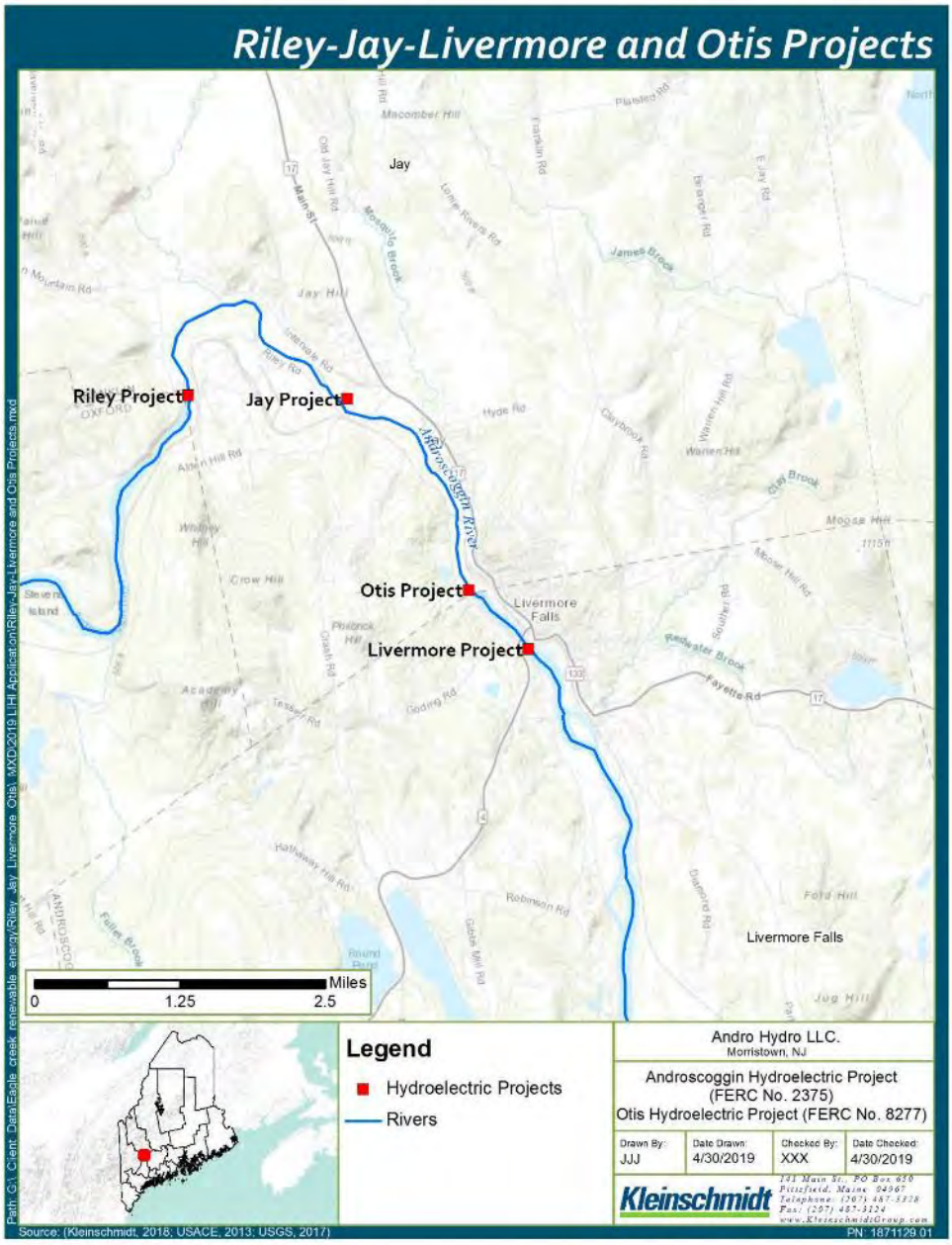
NVII:mjm
Attachments: Proposed Project Area Map
Google Earth Location Maps

cc: Andy Qua – Kleinschmidt Associates

ATTACHMENT A

PROPOSED PROJECT AREA MAP


Zones of Effect
N
Jay Dam
Riley Dam
Otis Dam
Livermore Dam
Miles
0
1.25
2.5
Legend
Riley Impoundment
Riley Downstream
Jay Impoundment
Jay Downstream
Otis Impoundment
Otis Downstream/Livermore Impoundment
Livermore Bypassed Reach
Livermore Downstream
Eagle Creek Renewable Energy
Morristown, NJ
Riley-Jay-Livermore Hydroelectric Project (FERC No. 2375)
Otis Hydroelectric Project (FERC No. 8277)
Drawn By
RSR
Date Drawn
Checked By
Date Checked:
Kleinschmidt


Riley-Jay-Livermore and Otis Projects
Riley Project
Jay Project
Otis Project
Livermore Project
Androscoggin River
Jay
Livermore Falls
Miles
0
1.25
2.5
Legend
Hydroelectric Projects
Rivers
Andro Hydro LLC.
Morristown, NJ
Androscoggin Hydroelectric Project
(FERC No. 2375)
Otis Hydroelectric Project (FERC No. 8277)
Drawn By: JJJ
Date Drawn: 4/30/2019
Checked By: XXX
Date Checked: 4/30/2019
Kleinschmidt
Source: (Kleinschmidt, 2018; USACE, 2013; USGS, 2017)
PN: 1871129.01

ATTACHMENT B

GOOGLE EARTH LOCATION MAPS

PHOTO 1 RILEY DAM LOCATION OVERVIEW

PHOTO 2 JAY DAM LOCATION OVERVIEW

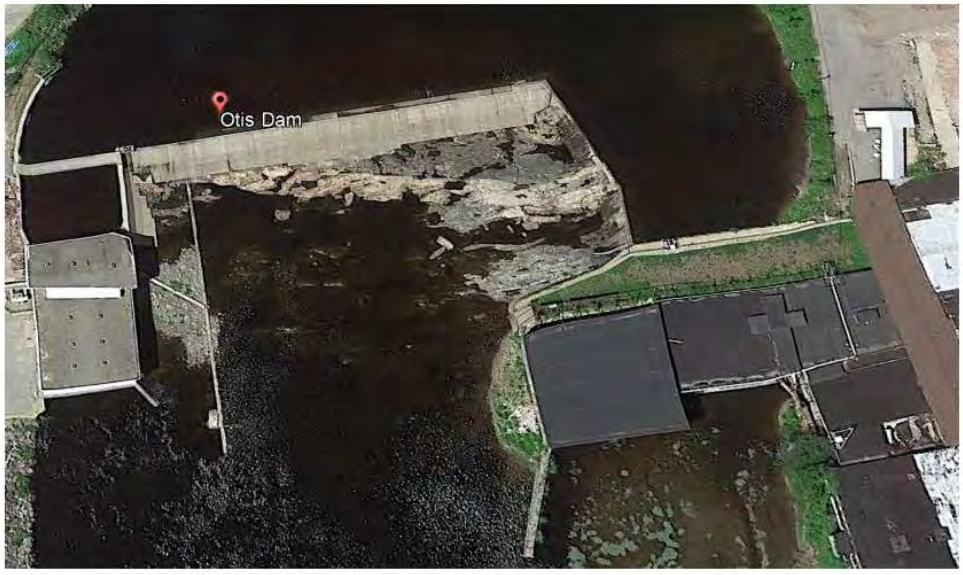


PHOTO 3 OTIS DAM LOCATION OVERVIEW

PHOTO 4 LIVERMORE DAM LOCATION OVERVIEW

Kleinschmidt

May 1, 2019

VIA E-MAIL

Maine Natural Areas Program
93 State House Station
Augusta, ME 04333-0093

Riley-Jay-Livermore Hydroelectric Project (FERC No. 2375) and Otis Hydroelectric Project (FERC No. 8277)
Low-Impact Hydropower Institute (LIHI) Certification Site Review

To Whom It May Concern:

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In preparation for the re-certification and Stage I of the LIHI review process, we are requesting MNAP site review of State of Maine listed rare or special status species or habitat that may occur within the proposed project area. Project location maps are attached for MNAP review.

Should you have any questions regarding this submittal, please contact me at 971.266.5395 or at nuria.holmes@kleinschmidtgroup.com.

Thank you for your assistance.

KLEINSCHMIDT ASSOCIATES

Nuria Holmes
Regulatory Coordinator

NVH:mjm
Attachments: Proposed Project Area Map
Google Earth Location Maps

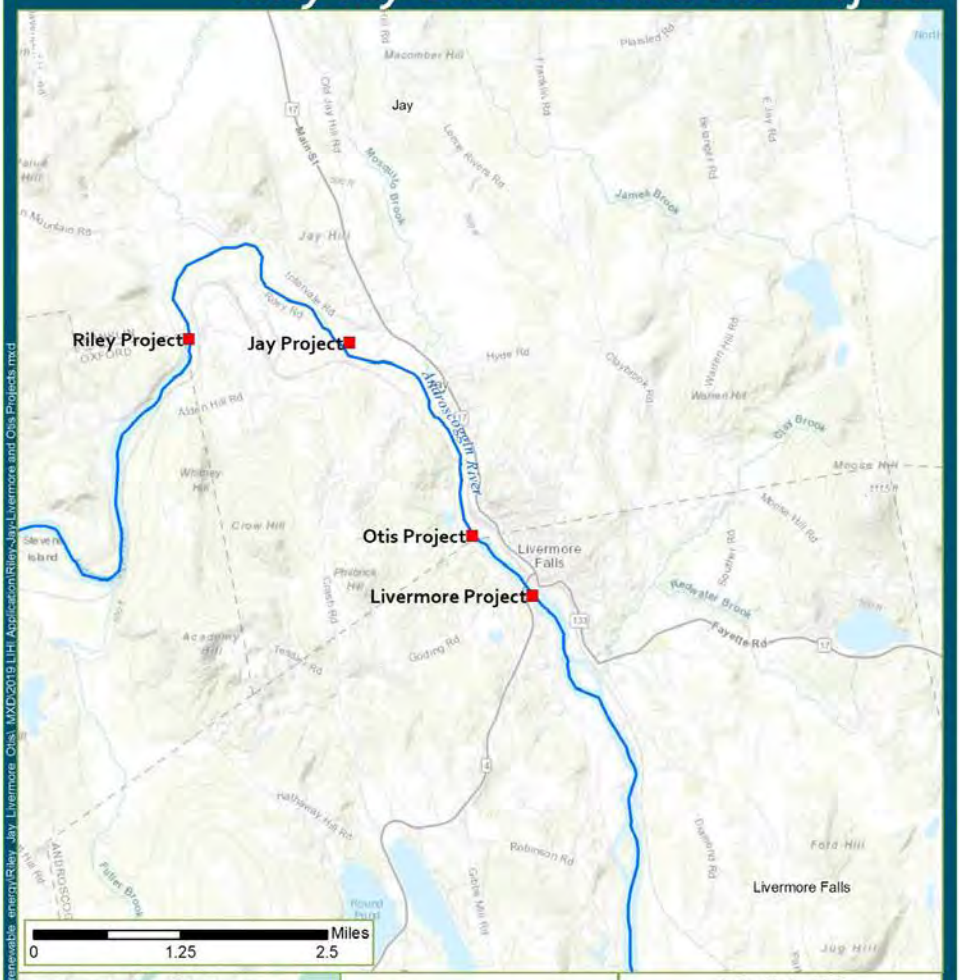
cc: Andy Qua – Kleinschmidt Associates

ATTACHMENT A

PROPOSED PROJECT AREA MAP


Zones of Effect
N
Jay Dam
Riley Dam
Otis Dam
Livermore Dam
0
1.25
2.5
Miles
Legend
Riley Impoundment
Riley Downstream
Jay Impoundment
Jay Downstream
Otis Impoundment
Otis Downstream/Livermore Impoundment
Livermore Bypassed Reach
Livermore Downstream
Eagle Creek Renewable Energy
Morristown, NJ
Riley-Jay-Livermore Hydroelectric Project (FERC No. 2375)
Otis Hydroelectric Project (FERC No. 8277)
Drawn By: RSR
Date Drawn:
Checked By:
Date Checked:
Kleinschmidt
141 Main St., P.O.Box 650
Pittsfield, Maine 04967
Telephone (207) 487-3328
Fax: (207) 487-3124
www.KleinschmidtGroup.com
Source: (Kleinschmidt, 2018; ECRE, 2018; ESRI, 2018)
PN: 1871129.01
Path: G:\Client_Data\Eagle_creek_renewable_ventures\Riley_Jay_Livermore_Otis\MXD\20191_LIH_Application\2019_LIH_ZOEs.mxd

Riley-Jay-Livermore and Otis Projects



Legend

- Hydroelectric Projects
- Rivers

Andro Hydro LLC.
Morristown, NJ

Androscoggin Hydroelectric Project
(FERC No. 2375)
Otis Hydroelectric Project (FERC No. 8277)

Drawn By:	Date Drawn:	Checked By:	Date Checked:
JJJ	4/30/2019	XXX	4/30/2019

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Pittsfield, Maine 04967
Telephone: (207) 487-3328
Fax: (207) 487-3124
www.KleinschmidtGroup.com

Source: (Kleinschmidt, 2018; USACE, 2013; USGS, 2017)

PN: 1871129.01

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ATTACHMENT B

GOOGLE EARTH LOCATION MAPS

PHOTO 1 RILEY DAM LOCATION OVERVIEW

PHOTO 2 JAY DAM LOCATION OVERVIEW

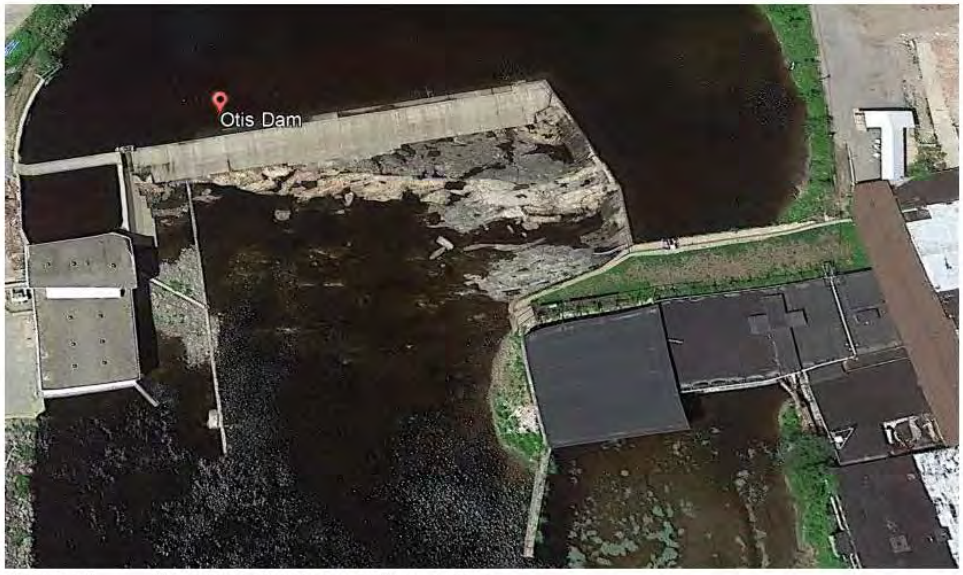


PHOTO 3 OTIS DAM LOCATION OVERVIEW

PHOTO 4 LIVERMORE DAM LOCATION OVERVIEW

From: Nuria Holmes
To: maine.nap@maine.gov
Subject: Data request for Riley-Jay-Livermore and Otis hydroelectric projects
Date: Wednesday, May 01, 2019 3:36:00 PM
Attachments: MNAP Project Review Letter - RJL and Otis Projects 5-1-19.pdf

---

To Whom It May Concern:

Kleinschmidt Associates, on behalf of Eagle Creek Renewable Energy (Eagle Creek), is submitting this information necessary for Maine Natural Areas Program (MNAP) site review for LIHI Certification of the Riley-Jay-Livermore Hydroelectric Project (FERC No. 2375) and Otis Hydroelectric Project (FERC No. 8277) developments (Projects).

We are requesting MNAP site review of State of Maine listed rare or special status species or habitat that may occur within the proposed project area. I've attached a letter that details our request further, and provides maps and photos for guidance. Please contact me if you have any questions about this request.

Thank you,

Nuria V. Holmes, M.S.
Regulatory & Licensing Project Manager
Office: 971.266.5395
Cell: 503.380.9888
Kleinschmidt
www.KleinschmidtGroup.com
Providing practical solutions for complex problems affecting energy, water, and the environment.

STATE OF MAINE
DEPARTMENT OF AGRICULTURE, CONSERVATION & FORESTRY
177 STATE HOUSE STATION
AUGUSTA, MAINE 04333

JANET T. MILLS
GOVERNOR

AMANDA E. BEAL
COMMISSIONER

May 6, 2019

Kayla Easler
Kleinschmidt
PO Box 650
Pittsfield, ME 04967

Via email: kayla.easler@kleinschmidtgroup.com

Re: Rare and exemplary botanical features in proximity to: FERC No. 2375 and FERC No. 8277, Androscoggin Hydroelectric Project LIHI Certificate #48, Jay, Livermore, Livermore Falls, and Canton, Maine

I have searched the Maine Natural Areas Program's Biological and Conservation Data System files in response to your request received April 24, 2019 for information on the presence of rare or unique botanical features documented from the vicinity of the project in Jay, Livermore, Livermore Falls, and Canton, Maine. Rare and unique botanical features include the habitat of rare, threatened, or endangered plant species and unique or exemplary natural communities. Our review involves examining maps, manual and computerized records, other sources of information such as scientific articles or published references, and the personal knowledge of staff or cooperating experts.

Our official response covers only botanical features. For authoritative information and official response for zoological features you must make a similar request to the Maine Department of Inland Fisheries and Wildlife, 284 State Street, Augusta, Maine 04333.

According to the information currently in our Biological and Conservation Data System files, the Riley and Jay developments are upstream and downstream, respectively, of two mapped MNAP features: Silver Maple Floodplain Forest and Spotted Wintergreen. Please see the table below, the attached map, and the attached factsheets for more information about these features. Given that the request is for LIHI Certificate relicensing, and that the riverflows will not change as a result of the relicensing, there are no concerns with these projects and the Silver Maple Floodplain Forest or Spotted Wintergreen along the Androscoggin River in Jay. In short, MNAP has no concerns.

Feature	State Status	State Rank	Global Rank	Occurrence Rank	Site
Silver Maple Floodplain Forest	N/A	S3	GNR	C Fair	Riley Impoundment, Androscoggin River
Spotted Wintergreen *Chimaphila maculata*	T	S2	G5	H Historical	Androscoggin River

This finding is available and appropriate for preparation and review of environmental assessments, but it is not a substitute for on-site surveys. Comprehensive field surveys do not exist for all natural areas in Maine, and in the absence of a specific field investigation, the Maine Natural Areas Program cannot provide a definitive statement on the presence or absence of unusual natural features at this site.

MOLLY DOCHERTY, DIRECTOR
MAINE NATURAL AREAS PROGRAM
90 BLOSSOM LANE, DEERING BUILDING

PHONE: (207) 287-8044
WWW.MAINE.GOV/DACF/MNAP

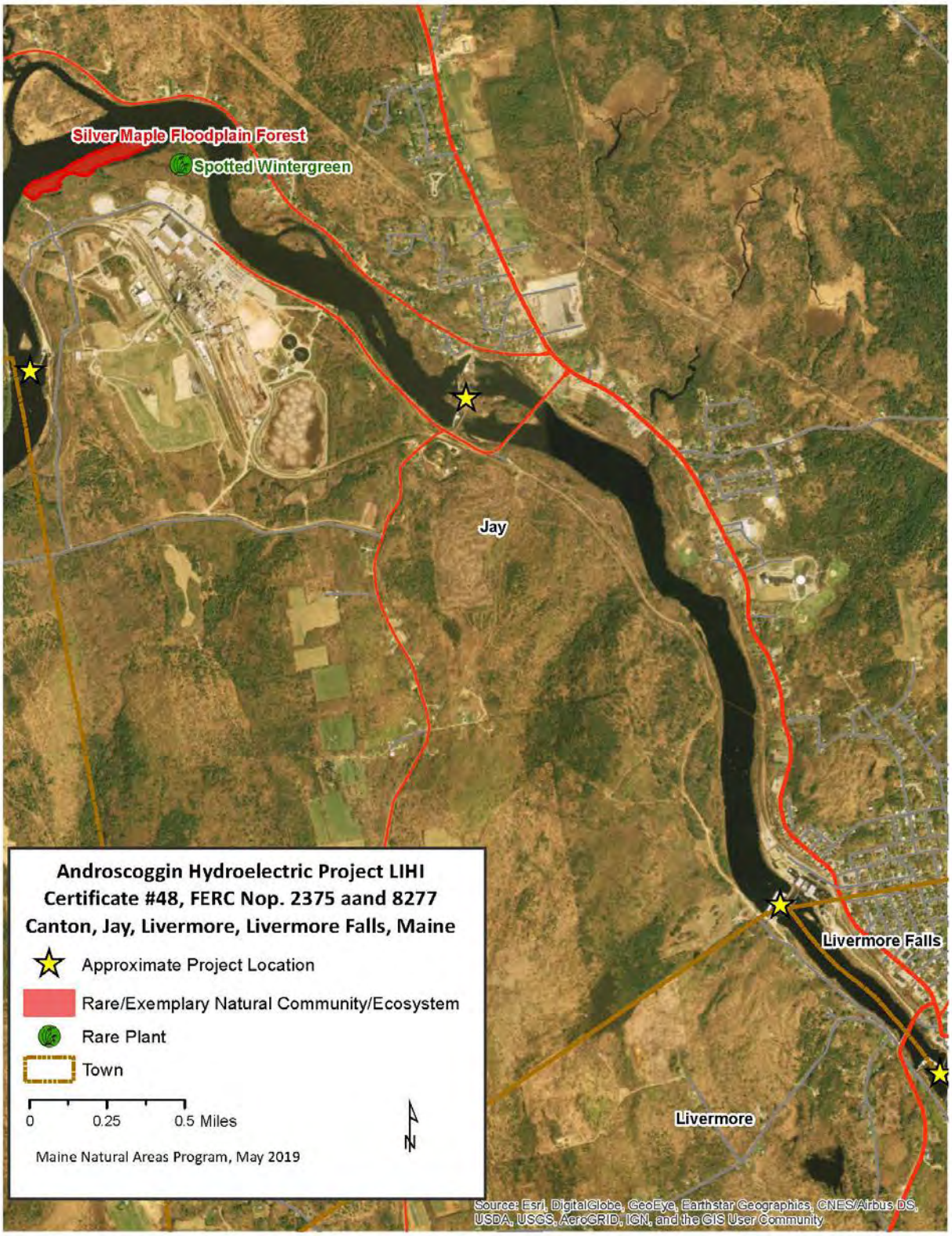
The Maine Natural Areas Program (MNAP) is continuously working to achieve a more comprehensive database of exemplary natural features in Maine. We would appreciate the contribution of any information obtained should you decide to do field work. MNAP welcomes coordination with individuals or organizations proposing environmental alteration, or conducting environmental assessments. If, however, data provided by MNAP are to be published in any form, the Program should be informed at the outset and credited as the source.

The Maine Natural Areas Program has instituted a fee structure of $75.00 an hour to recover the actual cost of processing your request for information. You will receive an invoice for $225.00 for three hours of our services.

Thank you for using MNAP in the environmental review process. Please do not hesitate to contact me if you have further questions about the Natural Areas Program or about rare or unique botanical features on this site.

Sincerely,

Kristen Puryear | Ecologist | Maine Natural Areas Program
207-287-8043 | kristen.puryear@maine.gov


Silver Maple Floodplain Forest
Spotted Wintergreen
Jay
Livermore Falls
Livermore
Androscoggin Hydroelectric Project LIHI
Certificate #48, FERC Nop. 2375 aand 8277
Canton, Jay, Livermore, Livermore Falls, Maine
Approximate Project Location
Rare/Exemplary Natural Community/Ecosystem
Rare Plant
Town
0
0.25
0.5 Miles
N
Maine Natural Areas Program, May 2019
Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

Silver Maple Floodplain Forest

State Rank S3

Community Description

These forests are dominated by silver maple (>60% cover). Associates include red maple and American elm (up to 30% cover) or, in a few locations, bur oak (up to 25% cover). Widely spaced trees, many with multiple trunks, give a park like feeling. The understory is open and shrubs are sparse. Musclewood may be present and is a good indicator. The lush carpet of herbs changes from spring ephemerals such as trout lilies and bloodroot to dense fern cover in summer. Bryoid cover is minor. Some forests have a berm adjacent to the river channel, and herbaceous species composition here is different from the lower elevation interior of the floodplain.

Soil and Site Characteristics

Sites occur on plains flanking low gradient rivers, within the reach of seasonal floods, at elevations <700'. Soils are fine sand or silt, usually with good drainage capacity; the water table fluctuates. Relatively high nutrient levels result from sediment deposition of annual floods; pH is typically 5.0-6.2.

Diagnostics

Sites occur in a floodplain setting with mineral soil. Silver maple is the dominant tree. There is a dense herb layer with sensitive fern and, locally, ostrich fern. Spring ephemerals are frequent.

Similar Types

Hardwood River Terrace Forests may be adjacent to this type on the higher floodplain, but these have a much smaller proportion of silver maple in the canopy. Instead, the canopy is dominated by sugar maple, red oak, or green ash, and herb diversity is higher. Red Maple - Sensitive Fern Swamps lack the dominance of silver maple, and have surface water or saturated soil throughout the growing season. Hardwood Seepage Forests occur along small drainages, usually sloping, rather than in extensive floodplains.

Conservation, Wildlife, and Management Considerations

Although a number of sites have been cleared or pastured in the past, current shoreland regulations provide increased protection to a number of these sites. Exotic plant species such as Japanese knotweed, which may displace those native to our area, also represent a threat to the integrity of these forests and have degraded some Maine examples. Several of the known examples are formally protected from conversion.

Location Map

Silver Maple Floodplain Forest

Northern waterthrush, barred owl, belted kingfisher, bank swallow, and green heron are associates of this community type. In the southern part of the state, the Louisiana waterthrush and yellow-throated vireo are likely associates if the canopy is closed or nearly so. Rare turtles like wood, spotted, and Blanding's turtles may feed on amphibian egg masses present in isolated pools within such forests. Wood turtles overwinter in river channels and forage in floodplain forests. The silver-haired bat often roosts in riparian habitats in trees with loose bark.

Distribution

Long and narrow floodplains along the shores or islands of large rivers and streams throughout Maine, New England, and New Brunswick.

Landscape Pattern: Large Patch (remaining sites mostly 20-200 acres, up to 1000 acres)

Examples on Conservation Lands You Can Visit

- Brownfield Bog Wildlife Management Area – Oxford Co.
- Saco River Preserve – York Co.
- Sunkhaze Meadows National Wildlife Refuge – Penobscot Co.
- The Oxbow, East Branch Penobscot River – Penobscot Co.
- Trout Brook, Baxter State Park – Piscataquis Co.
- Wassataquoik Public Lands – Penobscot Co.

Characteristic Plants

These plants are frequently found in this community type. Those with an asterisk are often diagnostic of this community.

Canopy
American elm
Basswood*
Black ash
Black cherry*
Bur oak*
Green ash*
Red oak*
Silver maple*

Sapling/shrub
Arrowwood*
Buttonbush*
Common blackberry*
Gray birch*
Meadowsweet*
Musclewood*
Nannyberry*
Winterberry holly*

Dwarf Shrub
Swamp dewberry*

Herb
Bluejoint
Cinnamon fern*
Green ash
Jack-in-the-pulpit
Ostrich fern*
Royal fern*
Sensitive fern*
Tall meadow-rue
Wood-nettle*

Associated Rare Plants

Swamp white oak
Wild garlic
Wild leek

Associated Rare Animals

Wood turtle

Maine Natural Areas Program

About MNAP
Focus Areas
Communities, Plants and Animals
Natural Communities and Ecosystems
Rare Plants
Invasive Plants
Ecological Inventory and Monitoring
Rare Animals
State and Global Rarity Ranks
Survey Forms
Maps, Data, and Technical Assistance
Ecological Reserves

Maine Natural Areas Program

Chimaphila maculata (L.) Pursh

Spotted Wintergreen

- State Rank: S2
- Global Rank: G5
- State Status: Threatened

Habitat: Dry woods. [Conifer forest (forest, upland); Hardwood to mixed forest (forest, upland)]

Range: Southern Maine to southern Ontario, south to Georgia, and west to Alabama.

Aids to Identification: A perennial herb, 7-20 cm in height, with toothed, lanceolate, whorled leaves. The dark green leaves are mottled with white along the veins. Its nodding flowers are white or pinkish, 12-20mm wide.

Ecological characteristics: In Maine , this species tends to inhabit mixed woods with full to partial canopy on slight slopes. All Maine populations of spotted wintergreen are small and apparently vulnerable.

Phenology: Flowers June - August.

Family: Ericaceae

Synonyms: *Pyrola maculata* L.

Known Distribution in Maine: This rare plant has been documented from a total of 23 town(s) in the following county(ies): Cumberland, Franklin, Oxford, Sagadahoc, Somerset, York.

Reason(s) for rarity: At northern limit of range.

Conservation considerations: This plant is restricted statewide to southern Maine, and known populations are vulnerable to conversion of their habitat to residential or commercial use. Effects of logging are unknown, but partial removal of the canopy would be less likely to adversely affect the plant than complete removal. Popular for terraria or shady wildflower gardens: Maine populations are all small, and digging any plants could lead to the disappearance of the natural population. Wild plants need to be left undisturbed.

From:	Nuria Holmes
To:	Teta Jungels
Cc:	Andy Qua
Subject:	FW: LIHI Recertification of Riley-Jay-Livermore and Otis hydroelectric project [response requested]
Date:	Wednesday, June 19, 2019 4:19:49 PM
Attachments:	1871129_Agency ReCert Letter 2019 04 24.pdf

Second attempt to get ahold of Megan Rideout. We should add to consultation for Andro LIHI (the e-mail below; not the attachment).

Nuria V. Holmes, M.S.
Regulatory & Licensing Project Manager
Office: 971.266.5395
Cell: 503.380.9888
Kleinschmidt
www.KleinschmidtGroup.com
Providing practical solutions for complex problems affecting energy, water, and the environment.

From: Nuria Holmes
Sent: Friday, June 14, 2019 3:27 PM
To: megan.m.rideout@maine.gov
Subject: LIHI Recertification of Riley-Jay-Livermore and Otis hydroelectric project [response requested]

Hi Megan,

I was writing to check-in on any comments you may have in response to the attached April 24, 2019 letter sent to you with relation to the Riley-Jay-Livermore and Otis hydroelectric projects. I'm working on their LIHI certification, and in particular, am looking for an agency response for the cultural resources portion of the LIHI application. I'm attaching the original letter from Kayla Easler. Let me know if you'd like to provide comments (if any) via e-mail or through a PDF's e-mailed letter. Thank you! Talk soon.

Nuria V. Holmes, M.S.
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APPENDIX D

THREATENED AND ENDANGERED SPECIES

IPaC resource list

This report is an automatically generated list of species and other resources such as critical habitat (collectively referred to as *trust resources*) under the U.S. Fish and Wildlife Service's (USFWS) jurisdiction that are known or expected to be on or near the project area referenced below. The list may also include trust resources that occur outside of the project area, but that could potentially be directly or indirectly affected by activities in the project area. However, determining the likelihood and extent of effects a project may have on trust resources typically requires gathering additional site-specific (e.g., vegetation/species surveys) and project-specific (e.g., magnitude and timing of proposed activities) information.

Below is a summary of the project information you provided and contact information for the USFWS office(s) with jurisdiction in the defined project area. Please read the introduction to each section that follows (Endangered Species, Migratory Birds, USFWS Facilities, and NWI Wetlands) for additional information applicable to the trust resources addressed in that section.

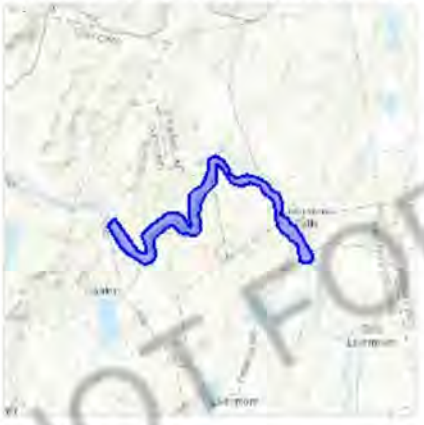
Project information

NAME

Androscoggin LIHI Projects (Riley-Jay-Livermore and Otis)

LOCATION

Androscoggin, Franklin and Oxford counties, Maine



Local office

Maine Ecological Services Field Office

(207) 469-7300
(207) 902-1588

MAILING ADDRESS

P. O. Box A
East Orland, ME 04431

PHYSICAL ADDRESS

306 Hatchery Road
East Orland, ME 04431

http://www.fws.gov/mainefieldoffice/index.html

Endangered species

This resource list is for informational purposes only and does not constitute an analysis of project level impacts.

The primary information used to generate this list is the known or expected range of each species. Additional areas of influence (AOI) for species are also considered. An AOI includes areas outside of the species range if the species could be indirectly affected by activities in that area (e.g., placing a dam upstream of a fish population, even if that fish does not occur at the dam site, may indirectly impact the species by reducing or eliminating water flow downstream). Because species can move, and site conditions can change, the species on this list are not guaranteed to be found on or near the project area. To fully determine any potential effects to species, additional site-specific and project-specific information is often required.

Section 7 of the Endangered Species Act **requires** Federal agencies to "request of the Secretary information whether any species which is listed or proposed to be listed may be present in the area of such proposed action" for any project that is conducted, permitted, funded, or licensed by any Federal agency. A letter from the local office and a species list which fulfills this requirement can **only** be obtained by requesting an official species list from either the Regulatory Review section in IPaC (see directions below) or from the local field office directly.

For project evaluations that require USFWS concurrence/review, please return to the IPaC website and request an official species list by doing the following:

1. Log in to IPaC.
2. Go to your My Projects list.
3. Click PROJECT HOME for this project.
4. Click REQUEST SPECIES LIST.

Listed species[1] and their critical habitats are managed by the Ecological Services Program of the U.S. Fish and Wildlife Service (USFWS) and the fisheries division of the National Oceanic and Atmospheric Administration (NOAA Fisheries[2]).

Species and critical habitats under the sole responsibility of NOAA Fisheries are **not** shown on this list. Please contact NOAA Fisheries for species under their jurisdiction.

1. Species listed under the Endangered Species Act are threatened or endangered; IPaC also shows species that are candidates, or proposed, for listing. See the listing status page for more information.
2. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

The following species are potentially affected by activities in this location:

Mammals

NAME	STATUS
Northern Long-eared Bat Myotis septentrionalis No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/9045	Threatened

Fishes

NAME	STATUS
Atlantic Salmon Salmo salar There is **final** critical habitat for this species. Your location is outside the critical habitat. https://ecos.fws.gov/ecp/species/2097	Endangered

Critical habitats

Potential effects to critical habitat(s) in this location must be analyzed along with the endangered species themselves.

THERE ARE NO CRITICAL HABITATS AT THIS LOCATION.

Migratory birds

Certain birds are protected under the Migratory Bird Treaty Act[1] and the Bald and Golden Eagle Protection Act[2].

Any person or organization who plans or conducts activities that may result in impacts to migratory birds, eagles, and their habitats should follow appropriate regulations and consider implementing appropriate conservation measures, as described below.

1. The Migratory Birds Treaty Act of 1918.
2. The Bald and Golden Eagle Protection Act of 1940.

Additional information can be found using the following links:

- Birds of Conservation Concern http://www.fws.gov/birds/management/managed-species/birds-of-conservation-concern.php
- Measures for avoiding and minimizing impacts to birds http://www.fws.gov/birds/management/project-assessment-tools-and-guidance/conservation-measures.php
- Nationwide conservation measures for birds http://www.fws.gov/migratorybirds/pdf/management/nationwidestandardconservationmeasures.pdf

The birds listed below are birds of particular concern either because they occur on the USFWS Birds of Conservation Concern (BCC) list or warrant special attention in your project location. To learn more about the levels of concern for birds on your list and how this list is generated, see the FAQ below. This is not a list of every bird you may find in this location, nor a guarantee that every bird on this list will be found in your project area. To see exact locations of where birders and the general public have sighted birds in and around your project area, visit the E-bird data mapping tool (Tip: enter your location, desired date range and a species on your list). For projects that occur off the Atlantic Coast, additional maps and models detailing the relative occurrence and abundance of bird species on your list are available. Links to additional information about Atlantic Coast birds, and other important information about your migratory bird list, including how to properly interpret and use your migratory bird report, can be found below.

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, click on the PROBABILITY OF PRESENCE SUMMARY at the top of your list to see when these birds are most likely to be present and breeding in your project area.

NAME	BREEDING SEASON (IF A BREEDING SEASON IS INDICATED FOR A BIRD ON YOUR LIST, THE BIRD MAY BREED IN YOUR PROJECT AREA SOMETIME WITHIN THE TIMEFRAME SPECIFIED, WHICH IS A VERY LIBERAL ESTIMATE OF THE DATES INSIDE WHICH THE BIRD BREEDS ACROSS ITS ENTIRE RANGE. "BREEDS ELSEWHERE" INDICATES THAT THE BIRD DOES NOT LIKELY BREED IN YOUR PROJECT AREA.)

Bald Eagle *Haliaeetus leucocephalus* — Breeds Dec 1 to Aug 31

This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.
https://ecos.fws.gov/ecp/species/1626

Probability of Presence Summary

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read and understand the FAQ "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

Probability of Presence (▪)

Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. (A year is represented as 12 4-week months.) A taller bar indicates a higher probability of species presence. The survey effort (see below) can be used to establish a level of confidence in the presence score. One can have higher confidence in the presence score if the corresponding survey effort is also high.

How is the probability of presence score calculated? The calculation is done in three steps:

1. The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.
2. To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is 0.25/0.25 = 1; at week 20 it is 0.05/0.25 = 0.2.
3. The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

To see a bar's probability of presence score, simply hover your mouse cursor over the bar.

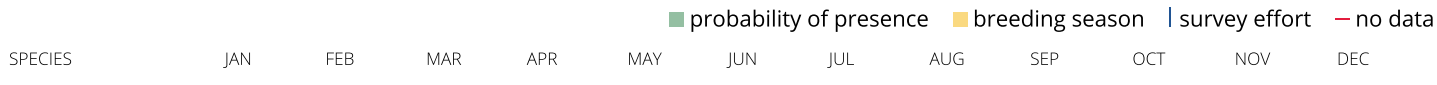
Breeding Season (▪)
Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

Survey Effort (|)
Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps. The number of surveys is expressed as a range, for example, 33 to 64 surveys.

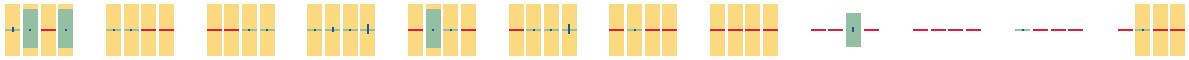
To see a bar's survey effort range, simply hover your mouse cursor over the bar.

No Data (–)
A week is marked as having no data if there were no survey events for that week.

Survey Timeframe
Surveys from only the last 10 years are used in order to ensure delivery of currently relevant information. The exception to this is areas off the Atlantic coast, where bird returns are based on all years of available data, since data in these areas is currently much more sparse.



Bald Eagle
Non-BCC Vulnerable (This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.)



Tell me more about conservation measures I can implement to avoid or minimize impacts to migratory birds.

Nationwide Conservation Measures describes measures that can help avoid and minimize impacts to all birds at any location year round. Implementation of these measures is particularly important when birds are most likely to occur in the project area. When birds may be breeding in the area, identifying the locations of any active nests and avoiding their destruction is a very helpful impact minimization measure. To see when birds are most likely to occur and be breeding in your project area, view the Probability of Presence Summary. Additional measures and/or permits may be advisable depending on the type of activity you are conducting and the type of infrastructure or bird species present on your project site.

What does IPaC use to generate the migratory birds potentially occurring in my specified location?

The Migratory Bird Resource List is comprised of USFWS Birds of Conservation Concern (BCC) and other species that may warrant special attention in your project location.

The migratory bird list generated for your project is derived from data provided by the Avian Knowledge Network (AKN). The AKN data is based on a growing collection of survey, banding, and citizen science datasets and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle (Eagle Act requirements may apply), or a species that has a particular vulnerability to offshore activities or development.

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is not representative of all birds that may occur in your project area. To get a list of all birds potentially present in your project area, please visit the AKN Phenology Tool.

What does IPaC use to generate the probability of presence graphs for the migratory birds potentially occurring in my specified location?

The probability of presence graphs associated with your migratory bird list are based on data provided by the Avian Knowledge Network (AKN). This data is derived from a growing collection of survey, banding, and citizen science datasets .

Probability of presence data is continuously being updated as new and better information becomes available. To learn more about how the probability of presence graphs are produced and how to interpret them, go the Probability of Presence Summary and then click on the "Tell me about these graphs" link.

How do I know if a bird is breeding, wintering, migrating or present year-round in my project area?

To see what part of a particular bird's range your project area falls within (i.e. breeding, wintering, migrating or year-round), you may refer to the following resources: The Cornell Lab of Ornithology All About Birds Bird Guide, or (if you are unsuccessful in locating the bird of interest there), the Cornell Lab of Ornithology Neotropical Birds guide. If a bird on your migratory bird species list has a breeding season associated with it, if that bird does occur in your project area, there may be nests present at some point within the timeframe specified. If "Breeds elsewhere" is indicated, then the bird likely does not breed in your project area.

What are the levels of concern for migratory birds?

Migratory birds delivered through IPaC fall into the following distinct categories of concern:

1. "BCC Rangewide" birds are Birds of Conservation Concern (BCC) that are of concern throughout their range anywhere within the USA (including Hawaii, the Pacific Islands, Puerto Rico, and the Virgin Islands);
2. "BCC - BCR" birds are BCCs that are of concern only in particular Bird Conservation Regions (BCRs) in the continental USA; and
3. "Non-BCC - Vulnerable" birds are not BCC species in your project area, but appear on your list either because of the Eagle Act requirements (for eagles) or (for non-eagles) potential susceptibilities in offshore areas from certain types of development or activities (e.g. offshore energy development or longline fishing).

Although it is important to try to avoid and minimize impacts to all birds, efforts should be made, in particular, to avoid and minimize impacts to the birds on this list, especially eagles and BCC species of rangewide concern. For more information on conservation measures you can implement to help avoid and minimize migratory bird impacts and requirements for eagles, please see the FAQs for these topics.

Details about birds that are potentially affected by offshore projects

For additional details about the relative occurrence and abundance of both individual bird species and groups of bird species within your project area off the Atlantic Coast, please visit the Northeast Ocean Data Portal. The Portal also offers data and information about other taxa besides birds that may be helpful to you in your project review. Alternately, you may download the bird model results files underlying the portal maps through the NOAA NCCOS Integrative Statistical Modeling and Predictive Mapping of Marine Bird Distributions and Abundance on the Atlantic Outer Continental Shelf project webpage.

Bird tracking data can also provide additional details about occurrence and habitat use throughout the year, including migration. Models relying on survey data may not include this information. For additional information on marine bird tracking data, see the Diving Bird Study and the nanotag studies or contact Caleb Spiegel or Pam Loring.

What if I have eagles on my list?

If your project has the potential to disturb or kill eagles, you may need to obtain a permit to avoid violating the Eagle Act should such impacts occur.

Proper Interpretation and Use of Your Migratory Bird Report

The migratory bird list generated is not a list of all birds in your project area, only a subset of birds of priority concern. To learn more about how your list is generated, and see options for identifying what other birds may be in your project area, please see the FAQ "What does IPaC use to generate the migratory birds potentially occurring in my specified location". Please be aware this report provides the "probability of presence" of birds within the 10 km grid cell(s) that overlap your project; not your exact project footprint. On the graphs provided, please also look carefully at the survey effort (indicated by the black vertical bar) and for the existence of the "no data" indicator (a red horizontal bar). A high survey effort is the key component. If the survey effort is high, then the probability of presence score can be viewed as more dependable. In contrast, a low survey effort bar or no data bar means a lack of data and, therefore, a lack of certainty about presence of the species. This list is not perfect; it is simply a starting point for identifying what birds of concern have the potential to be in your project area, when they might be there, and if they might be breeding (which means nests might be present). The list helps you know what to look for to confirm presence, and helps guide you in knowing when to implement conservation measures to avoid or minimize potential impacts from your project activities, should presence be confirmed. To learn more about conservation measures, visit the FAQ "Tell me about conservation measures I can implement to avoid or minimize impacts to migratory birds" at the bottom of your migratory bird trust resources page.

Facilities

National Wildlife Refuge lands

Any activity proposed on lands managed by the National Wildlife Refuge system must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

THERE ARE NO REFUGE LANDS AT THIS LOCATION.

Fish hatcheries

THERE ARE NO FISH HATCHERIES AT THIS LOCATION.

Wetlands in the National Wetlands Inventory

Impacts to NWI wetlands and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local U.S. Army Corps of Engineers District.

Please note that the NWI data being shown may be out of date. We are currently working to update our NWI data set. We recommend you verify these results with a site visit to determine the actual extent of wetlands on site.

This location overlaps the following wetlands:

FRESHWATER EMERGENT WETLAND

- PEM1C
- PEM1Fx
- PEM1E
- PEM1F
- PEM1Eh

FRESHWATER FORESTED/SHRUB WETLAND

- PFO1E
- PSS1E
- PFO1A
- PFO4E
- PSS1Eh
- PFO1C
- PSS1C

FRESHWATER POND

- PUBF
- PUBH
- PUBHx
- PUBHh
- PUBFx

LAKE

- L1UBHh
- L1UBH

RIVERINE

- R2UBH
- R5UBH
- R2RS1C
- R4SBC
- R2UBHx
- R2RSA

A full description for each wetland code can be found at the National Wetlands Inventory website

Data limitations

The Service's objective of mapping wetlands and deepwater habitats is to produce reconnaissance level information on the location, type and size of these resources. The maps are prepared from the analysis of high altitude imagery. Wetlands are identified based on vegetation, visible hydrology and geography. A margin of error is inherent in the use of imagery; thus, detailed on-the-ground inspection of any particular site may result in revision of the wetland boundaries or classification established through image analysis.

The accuracy of image interpretation depends on the quality of the imagery, the experience of the image analysts, the amount and quality of the collateral data and the amount of ground truth verification work conducted. Metadata should be consulted to determine the date of the source imagery used and any mapping problems.

Wetlands or other mapped features may have changed since the date of the imagery or field work. There may be occasional differences in polygon boundaries or classifications between the information depicted on the map and the actual conditions on site.

Data exclusions

Certain wetland habitats are excluded from the National mapping program because of the limitations of aerial imagery as the primary data source used to detect wetlands. These habitats include seagrasses or submerged aquatic vegetation that are found in the intertidal and subtidal zones of estuaries and nearshore coastal waters. Some deepwater reef communities (coral or tuberficid worm reefs) have also been excluded from the inventory. These habitats, because of their depth, go undetected by aerial imagery.

Data precautions

Federal, state, and local regulatory agencies with jurisdiction over wetlands may define and describe wetlands in a different manner than that used in this inventory. There is no attempt, in either the design or products of this inventory, to define the limits of proprietary jurisdiction of any Federal, state, or local government or to establish the geographical scope of the regulatory programs of government agencies. Persons intending to engage in activities involving modifications within or adjacent to wetland areas should seek the advice of appropriate federal, state, or local agencies concerning specified agency regulatory programs and proprietary jurisdictions that may affect such activities.