

# FULL APPLICATION

## Eel Weir Hydroelectric Facility

### Certification Application to the Low Impact Hydropower Institute

FERC Project No. 2984



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*On Behalf of*  
**S.D. Warren Company d/b/a**  
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September 1, 2017

**sappi**

 **cleantech**  
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## I. INTRODUCTION

The headgate of the Eel Weir hydroelectric project is located at the outlet of Sebago Lake in the towns of Windham and Standish, Maine. The Presumpscot River originates from this point and extends roughly 25 miles southeast to the Atlantic Ocean at Casco Bay. The original license for the Eel Weir Project was issued in 1984, and the Project currently holds a 40-year license issued on March 23, 2015. In accordance with the National Environmental Policy Act (NEPA) a draft Environmental Assessment (EA) was issued on July 11, 2005 as part of the relicensing process. Following the public comment period, a final EA was issued on November 29, 2005. A final Supplemental EA was issued on April 8, 2014 after S.D. Warren proposed an amendment to the license application.

Based on the requirements set forth in the Eel Weir Project license and Water Quality Certificate, and the conclusions of the final and supplemental EA's, as well as the efforts made by S.D. Warren to maintain habitat quality in the Presumpscot River and surrounding area, S.D. Warren hereby submits this application for Low Impact Hydropower Institute (LIHI) Certification for the Eel Weir Project, FERC No. P-2984.

## II. FACILITY DESCRIPTION

<b>Information Type</b>	<b>Variable Description</b>	<b>Response (and reference to further details)</b>
<b>Name of the Facility</b>	Facility name (use FERC project name if possible)	Eel Weir FERC No. P-2984
<b>Location</b>	River name (USGS proper name)	Presumpscot River
	River basin name	Presumpscot River Basin
	Nearest town, county, and state	Standish, and Windham, Cumberland County, Maine
	River mile of dam	25
	Geographic latitude	43°49'47.48"N (Headgates)
	Geographic longitude	70°27'19.31"W (Headgates)
<b>Facility Owner</b>	Application contact names (IMPORTANT: you must also complete the Facilities Contact Form):	Brad Goulet: 207-856-4083
	- Facility owner (individual and company names)	S.D. Warren Company d/b/a Sappi North America
	- Operating affiliate (if different from owner)	N/A
	- Representative in LIHI certification	Brad Goulet – 207-856-4083
<b>Regulatory Status</b>	FERC Project Number (e.g., P-xxxxx), issuance and expiration dates	<ul style="list-style-type: none"> <li>• FERC No. P-2984</li> <li>• 150 FERC ¶ 62,185</li> <li>• Issued March 23, 2015</li> <li>• Expires March 1, 2055</li> </ul>

	FERC license type or special classification (e.g., "qualified conduit")	Major Project Under 5 MW
	Water Quality Certificate identifier and issuance date, plus source agency name	<ul style="list-style-type: none"> <li>WQC (#L-19937-33-J-N ) issued August 30, 2011 by the Maine Department of Environmental Protection</li> </ul>
	Hyperlinks to key electronic records on FERC e-library website (e.g., most recent Commission Orders, WQC, ESA documents, etc.)	See Appendix A
<b>Power Plant Characteristics</b>	Date of initial operation (past or future for operational applications)	1903
	Total name-plate capacity (MW)	1.8 MW
	Average annual generation (MWh)	12,300 MWh
	Number, type, and size of turbines, including maximum and minimum hydraulic capacity of each unit	<ul style="list-style-type: none"> <li>Three Hercules Turbines (Horizontal)</li> <li>Maximum Hydraulic Capacity: 274 cfs each</li> <li>Minimum Hydraulic Capacity: 100 cfs each</li> </ul>
	Modes of operation (run-of-river, peaking, pulsing, seasonal storage, etc.)	Store-and-release
	Dates and types of major equipment upgrades	2009 Rewind #1 Gen; Add Digital Metering and Relaying (No Cap. Increase)
	Dates, purpose, and type of any recent operational changes	New minimum flows per the new operating license (2015)
	Plans, authorization, and regulatory activities for any facility upgrades	Alteration of the canal waste gates to flow 125 cfs by April 1, 2019, required by new operating license.
<b>Characteristics of Dam, Diversion, or Conduit</b>	Date of construction	Powerhouse: 1903 Headgates: Mid-1800's
	Dam height	23 feet
	Spillway elevation and hydraulic capacity	266.65 ft. msl
	Tailwater elevation	221.65 ft. msl
	Length and type of all penstocks and water conveyance structures between reservoir and powerhouse	4,820 ft. long canal
	Dates and types of major, generation-related infrastructure improvements	2003 Replaced Fish Screens and installed automatic rake 2008 Installed Flood Gate Motor Actuators

		2010 Major Canal Repair 2011 Reconstruct Canal Bridge 2012 Install Early Warning Camera 2013 Replace river trash racks and install 5 gates 2014 Major Canal Repairs 2017 Upstream and Downstream Eel Passage			
	Designated facility purposes (e.g., power, navigation, flood control, water supply, etc.)	Electricity generation (In addition to electricity generation the water uses for the impoundment provide for public water supply as managed by the Portland Water District, recreation including boating, fishing, and swimming, and through the Operations and Flow Monitoring Plan, some level of flood control. The formal LLMP adopted into the previous license has been replaced with a combined Operations and Flow Monitoring Plan (“OFMP”). The OFMP includes Impoundment Water Level Monitoring, Minimum Flow Monitoring, Dissolved Oxygen Monitoring, and the Flood Management Communication Protocol.)			
	Water source	Sebago Lake			
	Water discharge location or facility	Presumpscot River at the bypass, and tailrace			
<b>Characteristics of Reservoir and Watershed</b>	Gross volume and surface area at full pool	<ul style="list-style-type: none"> <li>• Volume: 177,120 acre-feet (Usable); 330,000 acre-feet (Gross)</li> <li>• Surface Area: 28,771 acres</li> </ul>			
	Maximum water surface elevation (ft. MSL)	267.15 ft. msl.			
	Maximum and minimum volume and water surface elevations for designated power pool, if available	<ul style="list-style-type: none"> <li>• Minimum elevation of Sebago Lake under the 2015 license is 261.00 ft. msl.</li> <li>• Maximum elevation of Sebago Lake under the 2015 license is 267.15 ft. msl<sup>1</sup>.</li> <li>• Volumes are unknown.</li> </ul>			
	Upstream dam(s) by name, ownership, FERC number (if applicable), and river mile	None			
	Downstream dam(s) by name, ownership, FERC number (if	Project Name	FERC No.	Owner	River Mile

<sup>1</sup> Flowage Rights survey 1912-1913 (Exhibit A)

	applicable), and river mile	North Gorham <sup>2</sup>	P-2519	Brookfield	23.6		
		Dundee	P-2942	S.D. Warren	21.9		
		Gambo	P-2931	S.D. Warren	18.6		
		Little Falls	P-2941	S.D. Warren	16.9		
		Mallison Falls	P-2932	S.D. Warren	16.4		
		Saccarappa	P-2897	S.D. Warren	11.3		
		Cumberland Mills	N/A	S.D. Warren	10.3		
	Operating agreements with upstream or downstream reservoirs that affect water availability, if any, and facility operation	<ul style="list-style-type: none"> <li>Eel Weir is the most upstream hydro facility on the Presumpscot River, and therefore has no operating agreements with upstream reservoirs.</li> <li>North Gorham is the next downstream facility and the only one not owned by S.D. Warren on the Presumpscot. Operating agreements primarily consist of EAP coordination and open communication during periods of extreme weather and/or high flow.</li> <li>At S.D. Warren's downstream dam Gambo, DO is monitored throughout the summer. When warranted, increased total flow from Eel Weir (408cfs Min.) and additional flows to the bypass at Dundee and Gambo improves DO concentrations in the river.</li> </ul>					
	Area inside FERC project boundary, where appropriate	The Eel Weir P-2984 Project Boundary consists of 31,423 Acres.					
<b>Hydrologic Setting</b>	Average annual flow at the dam	640 cfs (average daily flow)					
	Average monthly flows	Gauge No. 01064000					
		<b>Jan</b>	<b>Feb</b>	<b>Mar</b>	<b>Apr</b>	<b>May</b>	<b>Jun</b>
		642	654	618	760	784	710
<b>Jul</b>		<b>Aug</b>	<b>Sept</b>	<b>Oct</b>	<b>Nov</b>	<b>Dec</b>	
582	590	574	576	600	620		

<sup>2</sup> North Gorham received LIHI Certification on April 27, 2016 (Certificate #129)

	<p>Location and name of relevant stream gauging stations above and below the facility</p>	<p>There are four stream gauges located on the river and the lake with available information:</p> <ul style="list-style-type: none"> <li>• No. 01064000 – Outlet of Sebago Lake (operated from 1901-2000)</li> <li>• No. 01063995 – Sebago Lake</li> <li>• No. 01064118 – Westbrook, ME</li> <li>• No. 01064140 – Falmouth, ME</li> </ul> <p>Gauge No. 01064000 has a drainage area of 441 square miles, a total period of record from 1901 to 2000, and is located downstream of the Eel Weir Dam. This gauge was utilized to estimate project flows. Flows were normalized to the project using a drainage area ratio. A period of record of 1970-2000 was utilized to reflect more recent historic flows.</p> <p>Gauge No. 01063995 has a drainage area of 440 square miles, a period of record of 2000 to 2017, and is located in North Windham, Maine.</p> <p>Gauge No. 01064118 has a drainage area of 557 square miles, a period of record of 1975 to 2017 and is located downstream of the Saccarappa Project.</p> <p>No. 01064140 has a drainage area of 598 square miles, a period of record of 1975-1984 and is located downstream of the Cumberland Mills Dam.</p>
	Watershed area at the dam	441 sq. miles
<b>Designated Zones of Effect</b>	Number of zones of effect	3
	Upstream and downstream locations by river miles	Zone 1: RM 24 – 23.6 Zone 2: RM 25 – 24 Zone 3: RM 25
	Type of waterbody (river, impoundment, by-passed reach, etc.)	Zone 1: Tailwater Zone 2: Bypassed Reach Zone 3: Impoundment
	Delimiting structures	Zone 1 : Eel Weir Powerhouse to North Gorham impoundment Zone 2: Headgates to Powerhouse Zone 3: Sebago Lake

	Designated uses by state water quality agency	<p>1) All riverine zones are Class A<sup>3</sup> - Designated uses<sup>4</sup>:</p> <ul style="list-style-type: none"> <li>• Drinking water after disinfection</li> <li>• Fishing</li> <li>• Agriculture</li> <li>• Recreation in and on the water</li> <li>• Industrial process and cooling water supply</li> <li>• Hydroelectric power generation</li> <li>• Navigation</li> <li>• Habitat for fish and other aquatic life</li> </ul> <p>2) Impoundment Zone (Sebago Lake) is Class GPA<sup>5</sup> - Designated Uses<sup>6</sup>:</p> <ul style="list-style-type: none"> <li>• Drinking water after disinfection</li> <li>• Recreation in and on the water</li> <li>• Fishing</li> <li>• Industrial process and cooling water supply</li> <li>• Hydroelectric power generation</li> <li>• Navigation</li> <li>• Habitat for fish and other aquatic life</li> <li>• The habitat must be characterized as natural</li> </ul>
<b>Additional Contact Information</b>	Names, addresses, phone numbers, and e-mail for local state and federal resource agencies	See Appendix C
<b>Photographs and Maps</b>	<p><b>Photographs of key features of the facility and each of the designated zones of effect</b></p> <p><b><u>Key Features of Facility:</u></b></p>	

<sup>3</sup> 38 MRS §467(9)(A)(1)

<sup>4</sup> 38 MRS §465(2)(A)

<sup>5</sup> 38 MRS §465-A

<sup>6</sup> 38 MRS §465-A(1)(A)



**1. Spillway and Rivergate structure, (Bypass Reach):**



**2. Canal Waste Gates looking toward bypass/left abutment:**



**3. Canal waste gates from left abutment:**



**4. Canal looking downstream from Rt. 35:**



**5. Canal looking upstream from powerhouse:**



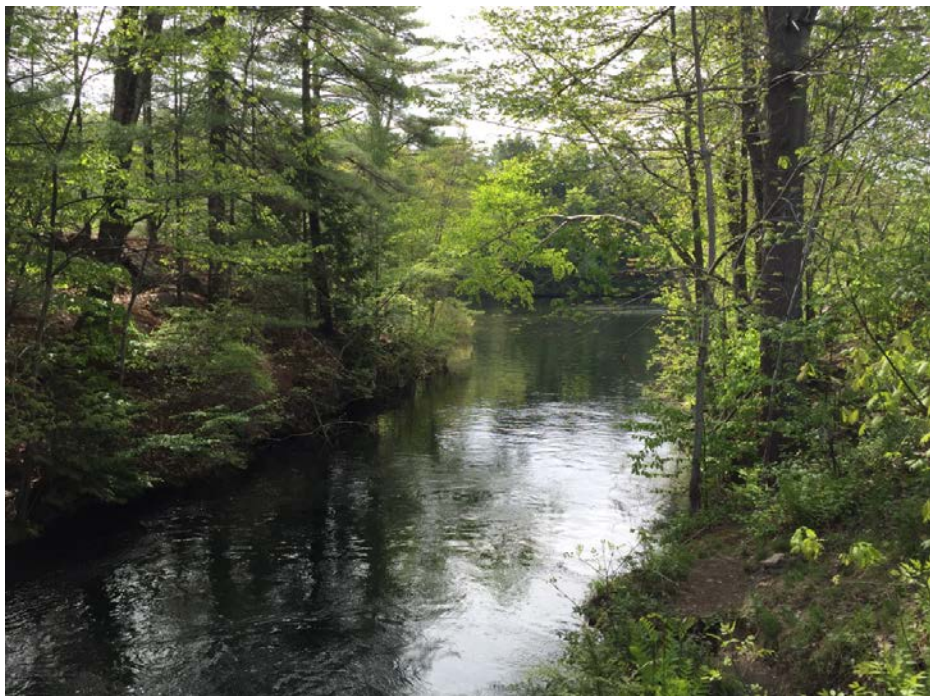
**6. West forebay sluice discharge to lower bypass at powerhouse**





**Designated Zones of Effect:**

**7. Project tailrace – Zone 1:**



**8. Bypass looking downstream from headgates – Zone 2:**



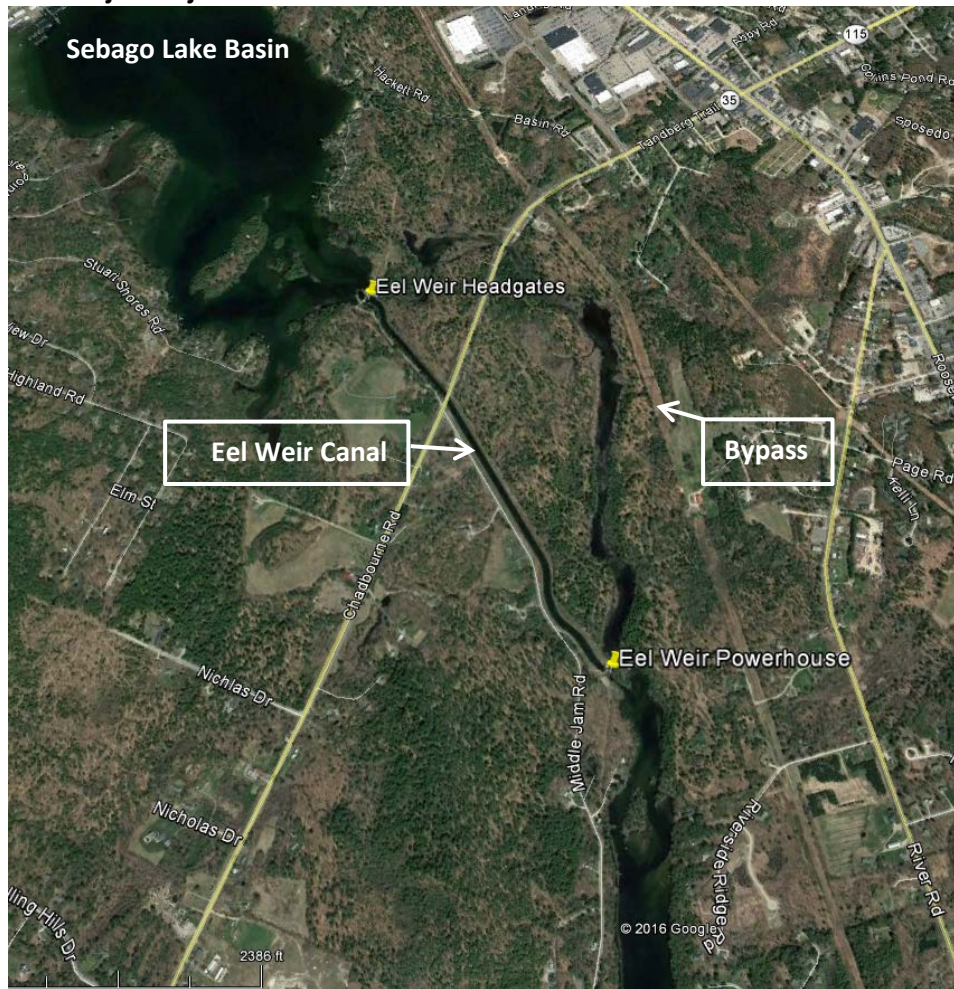
**9. Impoundment – Zone 3:**



**10. Maps, aerial photos, and/or plan view diagrams of facility area and river basin**



**11. Major Project Features**



### III. STANDARDS MATRICES

#### Zone 1 - Tailrace

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 Resources Protection		X			
H	Recreational Resources		X			

#### Zone 2 - 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 Resources Protection		X			
H	Recreational Resources		X			

#### Zone 3 - 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 Resources Protection		X			
H	Recreational Resources		X			

#### IV. SUPPORT OF STANDARDS SELECTED

##### Ecological Flow Regimes

##### Zone 1 – Tailrace

A	2	<p><u>Agency Recommendation:</u></p> <ul style="list-style-type: none"> <li>• 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).</li> <li>• 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.</li> <li>• Explain how the recommendation relates to agency management goals and objectives for fish and wildlife.</li> <li>• 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).</li> </ul>
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***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).***

The most environmentally stringent agency recommendation is the Section 401 Water Quality Certification<sup>7</sup> (WQC) issued by the Maine Department of Environmental Protection (MDEP) during the most recent relicensing proceedings for the Eel Weir Project, dated August 30, 2011. The WQC requirements became effective on March 23, 2015, when the FERC issued a new license<sup>8</sup> for the Project, incorporating the WQC conditions. A link to the complete water quality certificate can be found in Appendix A.

The WQC provides that the continued operation of the Eel Weir Project will not violate water quality standards so long as the conditions of certification are met. With regard to ecological flow regimes in the tailrace, the conditions<sup>9</sup> are as follows:

- Total Project minimum flow of 270 cfs year-round (this includes the bypass minimum flow); and
- Total Project minimum flow of 408 cfs between June 1 and September 30 annually when required by the downstream Gambo Dam to provide adequate dissolved oxygen levels during warm weather (this also includes the bypass minimum flow).

<sup>7</sup> #L-19337-33-J-N

<sup>8</sup> 150 FERC ¶ 62,185

<sup>9</sup> WQC Condition #2



***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.***

The MDEP used a variety of studies conducted during the relicensing process to arrive at the final WQC. The studies, requested collectively by the resource agencies, include<sup>10</sup>:

- Final Environmental Assessment (2005) for the Eel Weir Project (Supplemental EA issued in 2014);
- Sebago Lake Wetlands Inventory and Monitoring Study (1999) to determine the effects of a new lake level management plan;
- Sebago Lake Wetlands Monitoring Study – Years 1-4 (1999-2001);
- Sebago Lake Nearshore Water Quality Study (2000);
- Sebago Lake Beach Profile Study (2000) – A series of five reports over the course of five years to determine changes in beach erosion or accretion, if any, at Sebago Lake resulting from the 1997 Lake Level Management Plan;
- Eel Weir Bypass Reach Instream Flow Study (2002);
- Rare, Threatened, and Endangered Species Surveys, Final Report (2002);
- Sebago Lake 2001 Lake Level Assessment (2002);
- An Assessment of Access by Rainbow Smelt (*Osmerus mordax*) to Potential Spawning Tributaries of Sebago Lake, Maine (2002), and Addendum (2002);
- Bypass Reach Water Quality Monitoring Final Report (2002);
- Report of Bypass Reach Benthic Macroinvertebrates Final Report (2000);
- Recreation Resources Report (2002);
- Sebago Lake Level Management Recreation Summary (2000); and
- Draft Fishery Management Plan for the Presumpscot River Drainage (2001).
- Revised Water Quality Model (See L-19937-33-J-N, §11¶f)<sup>11</sup>.

The cumulative results of these studies indicate that continued store-and-release operation of the Eel Weir Project is appropriate and acceptable within the context of ecological flow regimes and should continue subject to the conditions set forth in the WQC.

***Explain how the recommendation relates to agency management goals and objectives for fish and wildlife.***

The collective management goals for the Presumpscot River set forth by MDMR, MDIFW, and MASC<sup>12</sup> are detailed in the Draft Fishery Management Plan for the Presumpscot River Drainage (2001) and are

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<sup>10</sup> These studies, excluding the Draft Fishery Management Plan, can be found in the Eel Weir Project Application for New License (2002) in volumes II, III, and IV.

<sup>11</sup> This model, while not disseminated by MDEP, concluded that S.D. Warren's increase to seasonal 408 cfs would meet WQC criteria in the lower river under critical conditions.

<sup>12</sup> The Maine Atlantic Salmon Commission was instrumental in securing a sustainable recreational fishery within the State of Maine; however, funding was eliminated in 2009 by Public Law, Chapter 462 and 2010 Public Law, Chapter 561 officially abolished the agency. MDMR and MDIFW continue the work that the three agencies began; the recommendations as they relate to S.D. Warren owned projects remain unchanged despite the abolition of the MASC.

summarized for the Eel Weir Project tailrace<sup>13</sup> as follows:

- Management as a migratory pathway for American eel and Atlantic salmon;
- Sustainable populations of resident and diadromous species within the capabilities of the habitat;
- Promotion of the existing and potential commercial American eel fishery;
- Management consistent with the Atlantic States Marine Fisheries Commission's (ASMFC) Interstate Fisheries Management Plan for American eel;
- Recreational angling opportunities for warm water and cold water species; and
- Establishment of a year-round stocked trout and landlocked Atlantic salmon fishery.

The strategies developed by MDMR, MDIFW, and MASC for the above stated goals, as outlined in the 2001 Draft Fishery Management Plan, are as follows, as they relate to Eel Weir<sup>14</sup>:

- Upstream American eel passage facilities;
- Downstream American eel passage measures/facilities; and
- Establishment of year-round minimum flows at the Eel Weir Dam.

The recommendation relates to agency management goals and objectives for fish and wildlife by incorporating the strategies to achieve the stated goals as WQC conditions.

***Explain how the recommendation provides fish and wildlife protection, mitigation and enhancement.***

S.D. Warren has worked with the state environmental and natural resource agencies by meeting all requirements set forth in the WQC and FERC license to mitigate the impacts of the hydro facilities on the river and come to equitable solutions that allow for the protection of fish and wildlife as well as energy generation. The removal of the Central Maine Power (CMP) owned Smelt Hill Dam, resulting in an additional 7 miles of habitat access, and the closure of the pulping operation at the S.D. Warren Westbrook mill, resulting in improved water quality; both provided fish protection, mitigation, and enhancement, and initiated the potential for diadromous species in the Presumpscot River. An additional mile of habitat became available when S.D. Warren installed fish passage facilities became operational at the Cumberland Mills Dam in 2013, and an additional 5 miles of habitat will become available with the anticipated removal of the Saccarappa Project Dam (P-2897), S.D. Warren's Project at river mile 11.3. The agency recommendation (WQC) set by the MDEP aids in maintaining the designated fish and wildlife uses of the Presumpscot River, while still allowing hydroelectric power generation at the Eel Weir Project, by including the above stated strategies for diadromous fish passage as WQC conditions, all of which S.D. Warren is compliant with.

Additionally, the requirement for year-round total project minimum flows with seasonally adjusted reaeration flows during warm weather provides for adequate water depth, temperature, and dissolved

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<sup>13</sup> Further goals and objectives of this Plan relating to other zones are detailed in the standards discussion for those zones.

<sup>14</sup> For clarity and conciseness the strategies to meet the listed goals that do not include actions to be taken by S.D. Warren have been omitted from this application.

oxygen levels to maintain fish and wildlife habitat. Based upon the results of the above listed studies, the prescribed WQC recommendations were tailored to maintain suitable flow regimes in riverine reaches that are affected by the facility in order to support habitat and other conditions suitable for healthy fish and wildlife resources.

## Ecological Flow Regimes

## Zone 2 – Bypassed Channel

A	2	<p><u>Agency Recommendation:</u></p> <ul style="list-style-type: none"> <li>• 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).</li> <li>• 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.</li> <li>• Explain how the recommendation relates to agency management goals and objectives for fish and wildlife.</li> <li>• 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).</li> </ul>
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**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).**

The most environmentally stringent agency recommendation is the Section 401 Water Quality Certification<sup>15</sup> (WQC) issued by the Maine Department of Environmental Protection (MDEP) during the most recent relicensing proceedings for the Eel Weir Project, dated August 30, 2011. The WQC requirements became effective on March 23, 2015, when the FERC issued a new license<sup>16</sup> for the Project, incorporating the WQC conditions. A link to the complete water quality certificate can be found in Appendix A.

Bypass reach minimum flows are mandated at 75 cfs year round in the WQC but are supplemented by an additional 50 cfs to 125 cfs from April 01 to October 31 in the FERC License issued March 23, 2015 to enhance aquatic habitat and angler suitability. S.D. Warren currently releases 93 cfs to the bypass reach under an Extension of Time EOT, issued March 8, 2017<sup>17</sup>. S. D. Warren requested this EOT to insure studies related to fisheries habitat, eel behavior, installation of up- and downstream eel passage facilities and initial effectiveness testing were not compromised. S. D. Warren has completed and received FERC approval of design for a gate to release 125 cfs to the bypass reach and anticipates installing the gate no later than December 31, 2018. This EOT has the support of the pertinent resource agencies.

**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.**

Please see response to Zone 1, above.

<sup>15</sup> #L-19337-33-J-N

<sup>16</sup> 150 FERC ¶ 62,185

<sup>17</sup> [Order 158 FERC ¶ 62, 179](#)

***Explain how the recommendation relates to agency management goals and objectives for fish and wildlife.***

Please see response to Zone 1, above. The same agency management goals and objectives apply here.

***Explain how the recommendation provides fish and wildlife protection, mitigation and enhancement.***

S.D. Warren has worked with the state environmental and natural resource agencies by meeting all requirements set forth in the WQC and FERC license to mitigate the impacts of the hydro facilities on the river and come to equitable solutions that allow for the protection of fish and wildlife as well as energy generation. The removal of the Central Maine Power (CMP) owned Smelt Hill Dam, resulting in an additional 7 miles of habitat access, and the closure of the pulping operation at the S.D. Warren Westbrook mill, resulting in improved water quality, led to discussion within the state fisheries agencies about the potential for diadromous fish runs in the River. An additional mile of habitat became available when fish passage became operational at the Cumberland Mills Dam in 2013, and an additional 5 miles of habitat will become available with the anticipated removal of the Saccarappa Project Dam (P-2897), S.D. Warren's Project at river mile 11.3. The agency recommendation (WQC) set by the MDEP aids in maintaining the designated fish and wildlife uses of the Presumpscot River, while still allowing hydroelectric power generation at the Eel Weir Project, by including the above stated strategies for diadromous fish passage as WQC conditions, all of which S.D. Warren is compliant with.

Additionally, the requirement for year-round minimum flows to the bypass with seasonally adjusted reaeration flows during warm weather provides for adequate water depth, temperature, and dissolved oxygen levels to maintain fish and wildlife habitat. Based upon the results of the above listed studies, the prescribed WQC recommendations were tailored to maintain suitable flow regimes in riverine reaches that are affected by the facility in order to support habitat and other conditions suitable for healthy fish and wildlife resources.

Warren submits an annual report to the MDEP and FERC on yearly operations related to the OFMP which includes bypass reach flows. The 2015 report can be found at [http://elibrary.ferc.gov/idmws/file\\_list.asp?accession\\_num=20160120-5046](http://elibrary.ferc.gov/idmws/file_list.asp?accession_num=20160120-5046) and the 2016 report at [http://elibrary.ferc.gov/idmws/file\\_list.asp?accession\\_num=20170126-5114](http://elibrary.ferc.gov/idmws/file_list.asp?accession_num=20170126-5114).

There have been no deviations from normal Impoundment Levels, Total Project Flow, or Bypass Reach Minimum Flow in 2017.

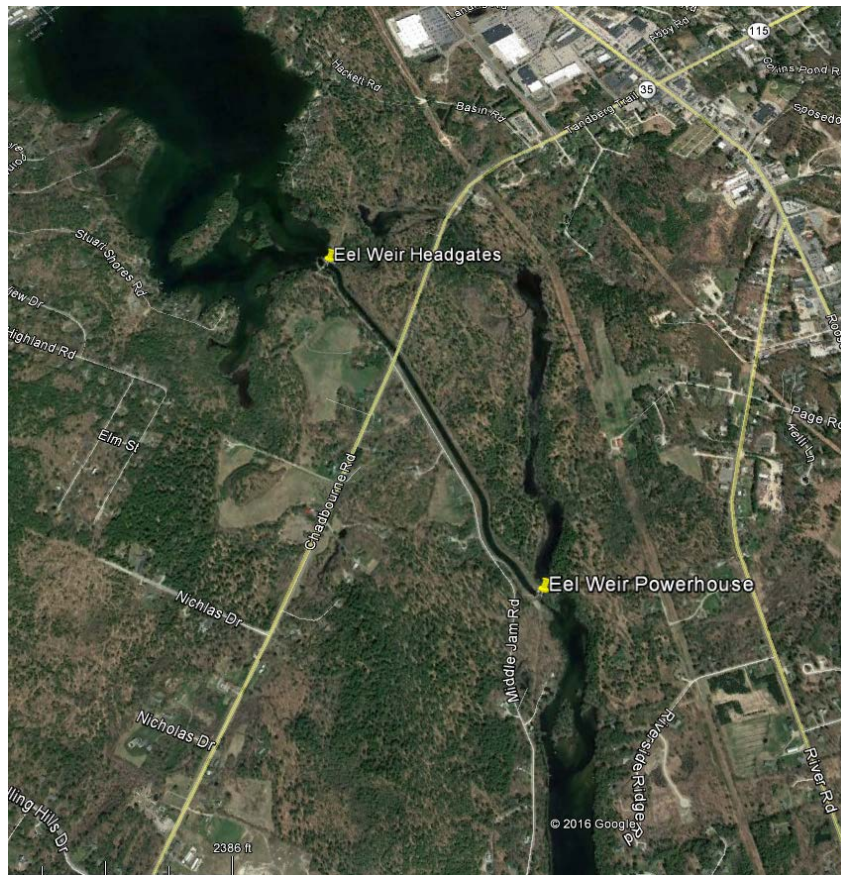
Warren reports impoundment levels and outflow changes weekly, resource agencies, regulating agencies, and first responders under the EAP all receive the report by email. The report is also posted for public notification on tumblr at <http://presumpscotriver.tumblr.com/>.

## Ecological Flow Regimes

## Zone 3 – Impoundment

A	1	<p><u>Not Applicable / De Minimis Effect:</u></p> <ul style="list-style-type: none"><li>• Confirm the location of the powerhouse relative to other dam/diversion structures to establish that there are no bypassed reaches at the facility.</li><li>• If Run-of-River operation, provide details on how flows, water levels, and operation are monitored to ensure such an operational mode is maintained.</li><li>• In a conduit project, identify the water source and discharge points for the conduit system within which the hydropower plant is located.</li><li>• For impoundment zones only, explain how fish and wildlife habitat within the zone is evaluated and managed – <b>NOTE:</b> this is required information, but it will not be used to determine whether the Ecological Flows criterion has been satisfied. All impoundment zones can apply Criterion A-1 to pass this criterion.</li></ul>
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**Confirm the location of the powerhouse relative to other dam/diversion structures to establish that there are no bypassed reaches at the facility.**



Satellite image of the lower impoundment at Eel Weir (FERC No. 2984).

The satellite image above shows the southern end of the impoundment zone at Eel Weir. The powerhouse, spillway, and bypass are located downstream of the impoundment, and therefore not part of this zone. Furthermore, S. D. Warren selected Criterion A-1 due to LIHI specifications: “All impoundment zones can apply Criterion A-1 to pass this criterion.”

***If Run-of-River operation, provide details on how flows, water levels, and operation are monitored to ensure such an operational mode is maintained.***

S. D. Warren operates the Project in accordance with the approved OFMP which is a flow based management plan designed to maintain impoundment levels at the approximate fill and low targets similar to the 2000 LLMP it replaced, while regulating outflow for more consistent riverflows, ie. minimizing operating the river in flood or near drought conditions to support lake level. The plan identifies conditions for normal flows (periods and ranges of level and flow for operating at Warren’s discretion), as well as a seasonal minimum of 270 cfs except from June 1 to September 30 (potential critical water quality period) when the minimum is 408 cfs to address the potential for downstream reduced dissolved oxygen. The plan also sets a Total Project Flow maximum of 1,000 cfs from October 16 to November 15 to support MDIFW’s operation of a landlocked salmon trap at the Jordan River. Exceptions and deviation reporting are also included in the Plan.

Eel Weir is not a run-of-river project; it is a store-and-release project. The WQC provides that the continued operation of the Eel Weir Project will not violate water quality standards so long as the conditions of certification are met. With regard to ecological flow regimes in the impoundment, the conditions<sup>18</sup> are as follows:

- Lake levels will be managed to achieve:
  - A target range between 266.65 feet msl and 262.0 feet msl (with lake levels above or below that range triggering increased or decreased flow releases); and
  - A level of 266.0 feet msl between May 1 and June 15 annually.

Warren submits an annual report to the MDEP and FERC on yearly operations related to the OFMP. The 2015 report can be found at [http://elibrary.ferc.gov/idmws/file\\_list.asp?accession\\_num=20160120-5046](http://elibrary.ferc.gov/idmws/file_list.asp?accession_num=20160120-5046) and the 2016 report at [http://elibrary.ferc.gov/idmws/file\\_list.asp?accession\\_num=20170126-5114](http://elibrary.ferc.gov/idmws/file_list.asp?accession_num=20170126-5114).

There have been no deviations from normal Impoundment Levels, Total Project Flow, or Bypass Reach Minimum Flow in 2017.

Warren reports impoundment levels and outflow changes weekly, resource agencies, regulating agencies, and first responders under the EAP all receive the report by email. The report is also posted for public notification on tumblr at <http://presumpscotriver.tumblr.com/>.

***In a conduit project, identify the water source and discharge points for the conduit system within which the hydropower plant is located.***

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<sup>18</sup> WQC Condition #1

Eel Weir is not a conduit project.

***Explain how the recommendation relates to agency management goals and objectives for fish and wildlife.***

Please see response to Zone 1, above. The same agency management goals and objectives apply here.

***For impoundment zones only, explain how fish and wildlife habitat within the zone is evaluated and managed – NOTE: this is required information, but it will not be used to determine whether the Ecological Flows criterion has been satisfied. All impoundment zones can apply Criterion A-1 to pass this criterion.***

S.D. Warren has worked with the state environmental and natural resource agencies by meeting all requirements set forth in the WQC and FERC license to mitigate the impacts of the hydro facilities on the river and Sebago Lake and come to equitable solutions that allow for the protection of fish and wildlife as well as energy generation. The agency recommendation (WQC) set by the MDEP aids in maintaining the designated fish and wildlife uses of Sebago Lake, while still allowing hydroelectric power generation at the Eel Weir Project, by including the above (bypass discussion) stated strategies for aquatic wildlife protection as WQC conditions, all of which S.D. Warren is compliant with. Additionally, based upon the results of the above listed studies, the prescribed WQC recommendations were tailored to maintain suitable flow regimes in the impoundment to support habitat and other conditions suitable for healthy fish and wildlife resources.



B	2	<p><u>Agency Recommendation:</u></p> <ul style="list-style-type: none"> <li>• <i>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.</i></li> <li>• <i>Provide a copy of the most recent Water Quality Certificate, including the date of issuance.</i></li> <li>• <i>Identify any other agency recommendations related to water quality and explain their scientific or technical basis.</i></li> <li>• <i>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.</i></li> </ul>
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***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.***

The most recent Integrated Water Quality Monitoring Assessment Report<sup>19</sup> lists this section of the Presumpscot River (above Dundee Dam, ME0106000103\_608R) as Class A, the second highest classification of Maine waters.

***Provide a copy of the most recent Water Quality Certificate, including the date of issuance.***

The most recent Water Quality Certificate (WQC) was issued on August 30, 2011 by the Maine Department of Environmental Protection. A link to the complete water quality certificate can be found in Appendix A.

***Identify any other agency recommendations related to water quality and explain their scientific or technical basis.***

There are no agency recommendations outside of the Water Quality Certification.

***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.***

As required by WQC condition 2A a year-round total project minimum flow of 270 cfs will be released, with a seasonal increase to 408 cfs from June 1 through September 30 to account for warmer conditions in the river and to ensure adequate dissolved oxygen levels are provided to maintain aquatic habitat. This flow includes releases into the bypass required by WQC condition 2B.

WQC condition 2E requires monitoring of the new minimum flows and condition 2F requires that S.D. Warren monitor the effectiveness of the new minimum flows by continuing to monitor the dissolved

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<sup>19</sup> 2014 305(b) Report

oxygen levels at the downstream Gambo Project (P-2931) Dam in accordance with the 2003 WQC for those Projects. The Operations and Flow Monitoring Plan<sup>20</sup> incorporates the monitoring requirements for minimum flows and dissolved oxygen required by WQC conditions 2E and 2F. Results of the monitoring are compiled annually and submitted to MDEP by December 31<sup>st</sup> and the FERC by March 1, in an Annual Operations and Flow Compliance Report<sup>21,22</sup>.

S.D. Warren received a letter<sup>23</sup> from MDEP confirming compliance with all terms in WQC and the project attaining water quality standards (O'Connor, May 31, 2017.)

“Therefore, based on the Department’s review of the referenced Presumpscot River hydropower project files and available water quality data, the Department concludes that S.D. Warren is currently in compliance with its WQC conditions and the projects attain Maine Water Quality Standards. The Department supports your application for LIHI certification.”

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<sup>20</sup> Approved on October 6, 2016 (157 FERC ¶ 62,013)

<sup>21</sup> Required by Ordering Paragraph C of the Director’s Order Approving OFMP dated October 6, 2016 (157 FERC ¶ 62,013). Most recently submitted on January 26, 2017.

<sup>22</sup> See Appendix A

<sup>23</sup> See Appendix B

**Water Quality Protection**

**Zone 2 – Bypassed Reach**

<i>B</i>	<i>2</i>	<p><u>Agency Recommendation:</u></p> <ul style="list-style-type: none"> <li>• <i>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.</i></li> <li>• <i>Provide a copy of the most recent Water Quality Certificate, including the date of issuance.</i></li> <li>• <i>Identify any other agency recommendations related to water quality and explain their scientific or technical basis.</i></li> <li>• <i>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.</i></li> </ul>
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***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.***

See response for Zone 1, above.

***Provide a copy of the most recent Water Quality Certificate, including the date of issuance.***

The most recent Water Quality Certificate (WQC) was issued on August 30, 2011 by the Maine Department of Environmental Protection. A link to the complete water quality certificate can be found in Appendix A.

***Identify any other agency recommendations related to water quality and explain their scientific or technical basis.***

The Water Quality Certification includes all Agency Recommendations.

***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.***

As required by WQC Condition 2A a minimum of 75 cfs will be spilled into the bypass year-round. This required bypass flow is included in the total project minimum flow of 270 cfs year-round. License Article 402 requires that annually from April 1 through October 31, a seasonally adjusted minimum flow of 125 cfs<sup>24</sup> be released into the bypass to protect and enhance aquatic habitat and fishing opportunities. Additionally, WQC Condition 2A requires that a total project outflow of 408 cfs shall be released between June 1 and September 30, which includes the 125 cfs bypass flow, when conditions at the downstream Gambo Dams necessitate it based on dissolved oxygen levels.

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<sup>24</sup> Due to eel passage facility installation during the spring of 2017 S.D. Warren was granted an extension of time by Order dated March 8, 2017 (158 FERC ¶ 62,179) to make the necessary infrastructure modifications to release 125 cfs to the bypass. Currently, 125 cfs bypass flow is required to begin by April 1, 2019.

WQC Condition 2E requires the development of a Minimum Flow Release Plan and WQC Condition 2F requires that S.D. Warren continue to monitor dissolved oxygen levels at the downstream Gambo (P-2932) Dam to determine if the new flow requirements at Eel Weir are effective in meeting Class B water quality requirements.

Additional monitoring and plans required by the FERC license and WQC include:

- Bypassed Reach Monitoring Plan<sup>25</sup>;
- Dissolved Oxygen Monitoring Report (filed annually by March 1)<sup>26</sup>;
- Minimum Flow Monitoring<sup>27</sup>;
- Minimum Flow Release Plan<sup>28</sup>;
- Land Use and Recreation Management Plan<sup>29</sup>; and
- Operations and Flow Compliance Report<sup>30</sup>.

S.D. Warren received a letter from Maine DEP confirming compliance with all terms in WQC and the project attaining water quality standards (O'Connor, May 30, 2017.) See discussion under ecological flows to bypass channel for additional information regarding 125 cfs releases.

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<sup>25</sup> Approved on January 11, 2016 – 154 FERC ¶ 62,011; Study Report filed December 8, 2016

<sup>26</sup> Incorporated into the OFMP – Approved on October 6, 2016 (157 FERC ¶ 62,013)

<sup>27</sup> Incorporated into the OFMP – Approved on October 6, 2016 (157 FERC ¶ 62,013)

<sup>28</sup> Dated June 22, 2015 (Revised September 10, 2015)

<sup>29</sup> Approved on January 30, 2017 (158 FERC ¶ 62,061)

<sup>30</sup> Required by Ordering Paragraph C of the Director's Order Approving OFMP dated October 6, 2016 (157 FERC ¶ 62,013). Most recently submitted on January 26, 2017.

## Water Quality Protection

## Zone 3 – Impoundment

B	2	<p><u>Agency Recommendation:</u></p> <ul style="list-style-type: none"> <li>• <i>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.</i></li> <li>• <i>Provide a copy of the most recent Water Quality Certificate, including the date of issuance.</i></li> <li>• <i>Identify any other agency recommendations related to water quality and explain their scientific or technical basis.</i></li> <li>• <i>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.</i></li> </ul>
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***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.***

The most recent Integrated Water Quality Monitoring Assessment Report<sup>31</sup> lists the Eel Weir impoundment (Sebago Lake) as Class GPA and Category 1<sup>32</sup>.

***Provide a copy of the most recent Water Quality Certificate, including the date of issuance.***

Please see response to Zone 1, above.

***Identify any other agency recommendations related to water quality and explain their scientific or technical basis.***

The Water Quality Certification includes all Agency Recommendations.

***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.***

As required by WQC condition 1A, water levels in Sebago Lake will be managed within a target range of between 266.65 and 262.0 feet msl, with a goal of reaching 266.0 feet msl between May 1 and June 15 annually. Lake levels that reach elevations above or below this target range will trigger increased or decreased flow from the lake to the river to bring the level back into the target range.

The Operations and Flow Monitoring Plan<sup>33</sup> incorporates the monitoring requirements for impoundment water level monitoring required by WQC condition 1D. Results of the monitoring are compiled annually and submitted to FERC and MDEP by January 31 in an Annual Operations and Flow Compliance Report<sup>34</sup>.

<sup>31</sup> 2014 305(b) Report

<sup>32</sup> Lake waters fully attaining all uses

<sup>33</sup> Approved on October 6, 2016 (157 FERC ¶ 62,013)

<sup>34</sup> Required by Ordering Paragraph C of the Director's Order Approving OFMP dated October 6, 2016 (157 FERC ¶ 62,013). Most recently submitted on January 26, 2017.

**Upstream Fish Passage**

**Zone 1 – Tailrace AND  
Zone 2 – Bypassed Reach**

C	2	<p><u>Agency Recommendation:</u></p> <ul style="list-style-type: none"> <li>• 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).</li> <li>• 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.</li> <li>• Describe any provisions for fish passage monitoring or effectiveness determinations that are part of the agency recommendation, and how these are being implemented.</li> </ul>
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**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).**

The most environmentally stringent agency recommendation is the Section 401 Water Quality Certification (WQC) issued by the Maine Department of Environmental Protection (MDEP) during the most recent relicensing proceedings for the Eel Weir Project, dated August 30, 2011. A link to the WQC can be found in Appendix A of this application.

With regard to upstream fish passage, the WQC conditions are summarized as follows:

- Within 2 years of license issuance upstream eel passage facilities shall be installed<sup>35</sup>; and
- Anadromous species passage is not required at this time. The MDEP does reserve the right to reopen the WQC for Eel Weir if the circumstances change and fish passage becomes necessary<sup>36</sup>.

Due to snowpack during the early spring of 2017 an extension of time was granted by FERC for the upstream eel passage facility installation. S.D. Warren completed installation of the facility during April 2017 and the facility continuously operated through its first season which ended August 15, 2017.

**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.**

The requirement for upstream eel passage facilities at the Eel Weir Project was based on the Environmental Assessment (2005; supplemented in 2014), as well as the occurrence of eels in the river below the Eel Weir Dam. Although there is currently no American eel passage at the immediately downstream North Gorham Project (P-2519, owned by Brookfield), functional upstream passage facilities at each of S.D. Warren’s downstream stations will result in higher numbers of American eels successfully reaching the Eel Weir Project.

<sup>35</sup> WQC Condition 4 – this condition also requires provisions for effectiveness studies and reporting.

<sup>36</sup> WQC Condition 6

The Environmental Assessment (EA) was also used to determine a recommendation for anadromous fish passage at the Eel Weir Dam, as well as consultation with MDIFW. MDIFW does not support upstream anadromous fish passage at Eel Weir because of the potential impact it would have on the managed fishery in the Presumpscot River. An upstream passage facility would mean that fish could pass out of the bypass and into Sebago Lake, reducing the popularity of the bypass reach as a fishery, making it less successful. Additionally, MDIFW fears that the introduction of new fish species to Sebago Lake via upstream passage facilities increases the risk of introducing fish diseases not previously known to the lake ecosystem, adversely affecting the ecology of Sebago Lake. It was indicated in the Supplemental EA that the potential benefits of providing anadromous fish passage at Eel Weir do not outweigh the potential risks, and therefore, S.D. Warren is not required to provide upstream fish passages facilities at this time.

USFWS concurred with MDIFW to not provide upstream passage at time of re-licensing. On Page 10 of the Project License the Commission reiterates in paragraph 41 discussion of Section 18 Fishway Prescription: USFWS states in its August 1, 2003 letter that there currently is no need for additional fish passage measures at the project to accomplish fishery management goals (other than those needed for American eels as noted below). Insofar as such management plans could change in the future, USFWS recommended that any license for the project reserve the authority of the Secretary of the Interior to prescribe fishways pursuant to Section 18 of the Federal Power Act (FPA).

MDMR also concurred with not providing upstream passage at that time, although also noted that it could be required in the future. In December 2001, the MDMR, Department of Inland Fisheries and Wildlife (DIFW), and Atlantic Salmon Commission (now part of MDMR) jointly issued a "Draft Fishery Management Plan for the Presumpscot River Basin." Under the Draft Plan, management goals include: providing migratory routes and habitat for catadromous American eel and various anadromous species including river herring, American shad, striped bass, and Atlantic salmon, and possibly Atlantic sturgeon, rainbow smelt, sea-run brook trout, sea-run brown trout, and tomcod; sustaining the production of existing riverine species and targeted anadromous and catadromous species; promoting existing and potential commercial and sport fisheries for anadromous, catadromous, and resident species; establishing a recreational fishery for stocked trout in the main stem; and managing specific tributaries for the production of wild brook trout. The Draft Plan calls for restoration of anadromous species to occur in two phases, allowing the fisheries agencies to assess potential interactions between resident and anadromous species and changes in fishing opportunities. Phase I involves restoring anadromous fish up to the base of the Gambo Dam. If the three fisheries agencies agree, Phase II will involve restoring anadromous fish from Gambo Dam up to the base of the Eel Weir Dam.

***Describe any provisions for fish passage monitoring or effectiveness determinations that are part of the agency recommendation, and how these are being implemented.***

Pursuant to Article 401 of the FERC License and WQC condition 4B, S.D. Warren filed with FERC an Upstream American Eel Passage Design and Operations Plan on September 30, 2016. The final Plan was approved by FERC on November 23, 2016 and includes provisions for passage monitoring. The upstream passage facilities were installed and operational by April 28, 2017. Ongoing monitoring and reporting as outlined in the Upstream American Eel Passage Design and Operations Plan is as follows:

- Effectiveness testing during year 1 of operation:

- Over the course of a 4-hour period just after sunset during the last week of June, 24 photographs of the entrance ramp will be taken;
  - Visual observation of the entrance and exit of ramp during the month of July, including an infra-red camera set-up at the entrance that will take photos starting after sunset for a four-week period at pre-determined intervals, in an effort to monitor success of eels using the ladder;
  - Photos will be analyzed within a few days to determine timing of migration;
  - If photos indicate eel activity during July inspection of the left and right embankments will be conducted for a length of 50 feet downstream to determine if eels are congregating in any location other than at the ramp entrance. This inspection will be conducted for a period of 2 to 3 hours on two (2) nights during July; and
  - During the month of July eels will be collected in a temporary trap over the course of four (4) 24-hour periods. At the end of each 24-hour period, the eels will be measured and counted.
- If there are no eels observed during year one, the above effectiveness study will be conducted triennially until eels are observed;
  - By September 15 of each year with effectiveness testing a report on the effectiveness testing will be submitted to MDMR and MDIFW for comment; and
  - By November 1 of each year with effectiveness testing the above discussed effectiveness testing report with comments from MDMR and MDIFW will be submitted to MDEP and FERC.



C	1	<p><u>Not Applicable / De Minimis Effect:</u></p> <ul style="list-style-type: none"> <li>• 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).</li> <li>• 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.</li> <li>• Document available fish distribution data and the lack of migratory fish species in the vicinity.</li> <li>• If migratory fish species have been extirpated from the area, explain why the facility is or was not the cause of this.</li> </ul>
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***Explain why the facility does not impose a barrier to upstream fish passage in the designated zone, considering both physical obstruction and increased mortality relative to natural downstream movement (e.g., entrainment into hydropower turbines).***

Once a migrating fish has entered this zone, there is no direct connection to any facility that causes a physical barrier to upstream passage, and it therefore has no effect on upstream fish passage. The barrier to upstream passage within the confines of the Eel Weir Project occurs at the upstream end of zone 1, and is discussed further in the standards discussion for that zone.

***For riverine fish populations that are known to move upstream, 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.***

Once a migrating fish has entered this zone, there is no direct connection to any facility that causes a physical barrier to upstream passage, and it therefore has no effect on upstream fish passage. The barrier to upstream passage within the confines of the Eel Weir Project occurs at the upstream end of zone 1, and is discussed further in the standards discussion for that zone.

***Document available fish distribution data and the lack of migratory fish species in the vicinity.***

Sebago Lake is a nationally recognized lake trout and landlocked Atlantic salmon fishery. Recent management goals for Sebago Lake include improving the salmon fishery, as they are native to the lake, and decreasing pressure on the salmon population by regulating the numbers of lake trout (introduced to the lake in 1972). Current lake trout populations are self-sustaining. Additionally, Sebago Lake supports a warm water fishery that includes smallmouth and largemouth bass. In total, 28 fish species have been identified in Sebago Lake. Game species not listed above include:

- Burbot
- White perch
- Brook trout
- Chain pickerel
- Lake whitefish
- Pumpkinseed
- Brown bullhead
- Redbreast sunfish
- Yellow perch
- Black crappie

Non-game species in the lake include:

- Rainbow smelt
- Common shiner
- White sucker
- Creek chub
- Blacknose dace
- Golden shiner
- Three-spined stickleback
- Nine-spined stickleback
- Banded killfish
- Fallfish
- Longnose sucker
- Slimy sculpin
- American eel

***If migratory fish species have been extirpated from the area, explain why the facility is or was not the cause of this.***

Barriers to habitat caused by dams in the Presumpscot River – constructed over 250 years ago – may have contributed to the extirpation of some migratory fish species. The current license requirements for anadromous fish passage and the installation of upstream American eel passage are steps that have been taken to increase access to habitat necessary for these species. Protection for upstream and downstream passage of American eels is already in place. Downstream dams present the first impediments to upstream fish passage, and resources to facilitate upstream fish passage are being focused on the Saccharappa Dam at river mile 11.3.

## Downstream Fish Passage and Protection

## Zone 1 – Tailrace AND Zone 2 – Bypassed Reach

D	1	<p><u>Not Applicable / De Minimis Effect:</u></p> <ul style="list-style-type: none"> <li>• 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).</li> <li>• 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.</li> <li>• Document available fish distribution data and the lack of migratory fish species in the vicinity.</li> <li>• If migratory fish species have been extirpated from the area, explain why the facility is or was not the cause of this.</li> </ul>
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***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).***

Once a migrating fish has entered this zone, there is no direct connection to any facility that causes a physical barrier to downstream passage, and it therefore has no effect on downstream fish passage. The barrier to downstream passage occurs at the downstream end of Zone 3, impoundment, and is discussed further in the standards discussion for that zone.

***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.***

The 6,700 foot-long bypass reach of the Eel Weir Project extends from the Project dam to the head of the North Gorham Project impoundment and consists of riffle/run habitat for roughly half of its length with a substrate of gravel, cobble, and boulders, providing instream cover, while the remaining length is characterized by pool habitat, with sand and silt substrates. Within the bypass there are multiple seeps providing cool spring water, serving as refugia for cold water species such as trout and landlocked Atlantic salmon. S.D. Warren provides year-round minimum flows to the bypass in an effort to maintain quality aquatic habitat for the fish species of the bypass. Additionally, the bypass does not connect directly to a physical barrier to downstream passage; therefore this zone does not impact access to habitat or the sustainability of resident fish populations.

The 32-foot-wide tailrace of the Eel Weir Project extends from the powerhouse 200 feet downstream to its confluence with the Presumpscot River. The habitat is characterized as pool, with sand and silt substrates. S.D. Warren provides year-round minimum flows to the tailrace in the form of total project minimum flows required by the WQC in an effort to maintain quality aquatic habitat for the fish species

of the river. Additionally, the tailrace does not connect directly to a physical barrier to downstream passage; therefore this zone does not impact access to habitat or the sustainability of resident fish populations.

***Document available fish distribution data and the lack of migratory fish species in the vicinity.***

The Eel Weir bypassed reach is maintained by MDIFW as a high quality brook trout fishery, although landlocked Atlantic salmon and brown trout are also important fishery resources in this area. According to the Supplemental EA (2014) the bypass of the Eel Weir Project is one of the most heavily fished areas in southern Maine. Additional fish distribution data are available in the Draft Fishery Management Plan (2001) for the Presumpscot River. That Plan lists the following as resident inhabitants of the Presumpscot River:

- Chain pickerel
- Smallmouth bass
- Largemouth bass
- Pumpkinseed
- Black crappie
- Yellow perch
- Brown bullhead (hornpout)
- Golden shiner
- Bridle shiner
- American eel
- Common shiner
- Fallfish
- Banded killfish
- Fourspine stickleback
- White sucker
- Brook trout
- Brown trout
- Landlocked Atlantic salmon

Although there are tributaries of the Presumpscot that support wild and self-sustaining populations of brook trout, there are no self-sustaining populations of landlocked Atlantic salmon in the Presumpscot River (Wippelhauser, Brautigam, and Dube, 2001). Of the migratory species listed above, only the American eel is present in this zone due to upstream passage facilities at all of S.D. Warren’s hydro projects downstream of and including the Eel Weir Project.

***If migratory fish species have been extirpated from the area, explain why the facility is or was not the cause of this.***

This zone at the Eel Weir Project is a free-flowing riverine zone; the structures which may be responsible for any extirpation are located at the downstream end of Zone 3, and are discussed further in that section.

D	2	<p><u>Agency Recommendation:</u></p> <ul style="list-style-type: none"> <li>• 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).</li> <li>• Explain the scientific or technical basis for the agency recommendation, including methods and data used. This is required regardless of whether the recommendation is part of a Settlement Agreement or not.</li> <li>• Describe any provisions for fish passage monitoring or effectiveness determinations that are part of the agency recommendation, and how these are being implemented.</li> </ul>
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**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).**

The most environmentally stringent agency recommendation is the Section 401 Water Quality Certification (WQC) issued by the Maine Department of Environmental Protection (MDEP) during the most recent relicensing proceedings for the Eel Weir Project, dated August 30, 2011. A link to the complete WQC can be found in Appendix A of this application.

With regard to downstream fish passage, the WQC conditions are summarized as follows:

- Within 2 years of license issuance downstream eel passage facilities shall be installed and/or operational measures to provide downstream eel passage shall be implemented<sup>37</sup>;
- Anadromous species passage is not required at this time. The MDEP does reserve the right to reopen the WQC for Eel Weir if the circumstances change and fish passage becomes necessary<sup>38</sup>.

The downstream eel passage facility was installed and was put into operation on August 15, 2017. S. D. Warren is currently monitoring that facilities operation in accordance with the approved “Operation and Effectiveness Testing Plan.”

**Explain the scientific or technical basis for the agency recommendation, including methods and data used. This is required regardless of whether the recommendation is part of a Settlement Agreement or not.**

The requirement for downstream eel passage facilities at the Eel Weir Project was based on the Environmental Assessment (2005; supplemented in 2014), as well as the occurrence of eels in the river above the Eel Weir Dam. Although there is currently no American eel passage at the immediately downstream North Gorham Project (P-2519, owned by Brookfield), operational downstream passage

<sup>37</sup> WQC Condition 5 – this condition also requires provisions for effectiveness studies and reporting.

<sup>38</sup> WQC Condition 6

measures at each of S.D. Warren's downstream stations will result in higher numbers of American eels successfully migrating downstream.

The Environmental Assessment (EA) was also used to determine a recommendation for anadromous fish passage at the Eel Weir Project Dam, as well as consultation with MDIFW. MDIFW does not support downstream anadromous fish passage at the Eel Weir Project because of the potential impact it would have on the managed fishery in the lake. A downstream passage facility would mean that landlocked Atlantic salmon could pass out of the lake and into the Presumpscot River to spawn in the bypass instead of spawning in the Jordan River, their current spawning grounds, and the location of MDIFW's broodstock for their Atlantic salmon hatchery program. Decreasing the broodstock for the Atlantic salmon hatchery program would have effects on the fishery within the project area as well as other locations throughout Maine. It was indicated in the Supplemental EA that the potential benefits of providing anadromous fish passage at Eel Weir do not outweigh the potential risks, and therefore, S.D. Warren is not required to provide downstream fish passages facilities at this time.

***Describe any provisions for fish passage monitoring or effectiveness determinations that are part of the agency recommendation, and how these are being implemented.***

Pursuant to Article 401 of the FERC License and WQC condition 5B, S.D. Warren filed with FERC a Downstream American Eel Passage Design and Operations Plan on September 30, 2016. The final Plan was approved by FERC on November 9, 2016<sup>39</sup> and includes provisions for passage monitoring, an implementation schedule for installation, and effectiveness testing. Once the facilities are installed monitoring and reporting as outlined in the Downstream American Eel Passage Design and Operations Plan will be as follows (during year 1 of operation):

- A one-time visual observation following installation to ensure that the facilities were constructed and are operating correctly;
- Four times during the downstream migration season, after sunset, and for a period of four hours, sub-surface visual observations will be made at the east-side entrance to determine if adult eels are able to successfully use the passage facilities;
- Four times during the downstream migration season, after sunset, and for a period of four hours, sub-surface visual observations will be made at the west-side fish screen and river gates; and
- Four times during the downstream migration season, after sunset, and for a period of four hours, visual observations will be made to determine if eels are successfully able to enter and exit the transition tank.

If Year 1 of effectiveness reveals that modifications are needed to the facilities, and if those modifications are completed prior to September 1 of Year 2, then the above effectiveness testing will be repeated. If no eels are observed during Year 1, effectiveness testing will not occur during Year 2. Finally, if during Year 1 no eels are observed, sub-surface observations will be made four times during the

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<sup>39</sup> 157 FERC ¶ 62,103

downstream migration season in Year 3 of operation. If eels are present and attempting use of the facilities, the above listed effectiveness testing will be completed. If no eels are observed during Year 1 and Year 3, effectiveness testing will be suspended for 3 additional years.

E	2	<p><u>Agency Recommendation:</u></p> <ul style="list-style-type: none"> <li>• Provide copies or links to any agency recommendations or management plans that are in effect related to protection, mitigation, or enhancement of shoreline surrounding the facility (e.g., Shoreline Management Plans).</li> <li>• Provide documentation that indicates the facility is in full compliance with any agency recommendations or management plans that are in effect.</li> </ul>
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***Provide copies or links to any agency recommendations or management plans that are in effect related to protection, mitigation, or enhancement of shoreline surrounding the facility (e.g., Shoreline Management Plans).***

A Shoreline Management Plan is not required for the Eel Weir Project, as it was determined by the supplemental EA to be redundant based on state and local zoning laws and shoreline permitting. In lieu of a formal SMP, Article 407 of the license requires the development of a Land Use and Recreation Management Plan (LRMP). Additionally, Article 409 of the Project license allows for regulation by S.D. Warren of project land and water for specific uses and occupancies, such as boat docks, landings, and other structures to enhance the scenic, recreational, and environmental value of the project lands. A link to the approved LRMP is available in Appendix A.

The approved LRMP required in Article 407 includes provisions for maintaining aesthetic character, and maintaining recreational uses including angling and public access. S. D. Warren’s ownership and control of lands on the project impoundment is limited to lands to the elevation of 267.15 (flowage rights) and those lands surrounding the project dam and structures. Any development on the impoundment or river reaches requires conformance with local zoning and Maine’s Mandatory Shoreland Zoning Act (MSZA), which regulates uses within 250 ft. from the impoundment high water mark<sup>40</sup>. The MSZA provides that municipalities are responsible to adopt, administer, and enforce ordinances that include protections for ecological, aesthetic, access, and archeological concerns. S. D. Warren consults with municipalities regarding permitting or zoning changes. It was in light of the MSZA that the Commission elected not to require a Shoreland Management Plan.

Article 409 stipulates that the licensee must have the authority to grant permission for certain types of uses only if the proposed use and occupancy is consistent with the purposes of protecting and enhancing the scenic, recreational, and other environmental values of the project. For those purposes, the licensee must also have continuing responsibility to supervise and control the use and occupancies for which it grants permission, and to monitor the use of, and ensure compliance with the covenants of the instrument of conveyance for, any interests that it has conveyed under this article. At this time S. D.

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<sup>40</sup> The purposes of the MSZA include: to prevent and control water pollution, to protect fish spawning grounds, bird and wildlife habitat, to protect buildings and lands from flooding and accelerated erosion, to protect archeological and historic resources, to protect commercial fishing and maritime industries, to protect freshwater and coastal wetlands, to control building sites, placement of structures and land uses, to conserve shore cover, and visual as well as actual points of access to inland and coastal waters, to conserve natural beauty and open space, and to anticipate and respond to the impacts of development in shoreland areas.



Warren is not entertaining issuing any permits for uses of the project lands adjacent to the power canal or bypass reach within the project boundary. Prior to the issuance of any permit, lease, or easement, S. D. Warren conducts an internal review with its hydro facility management staff, legal staff, and senior management. This review includes compliance with License Article 409, Article 407, S.D. Warren's approved Land Use Recreation Management Plan. ***Provide documentation that indicates the facility is in full compliance with any agency recommendations or management plans that are in effect.***

The LRMP was filed by S.D. Warren on September 13, 2016 and approved by FERC on January 30, 2017<sup>41</sup>. As noted above, S.D. Warren is in compliance with this plan.

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<sup>41</sup> 158 FERC ¶ 62,061

## Threatened and Endangered Species Protection

## All Zones

F	1	<p><u>Not Applicable / De Minimis Effect:</u></p> <ul style="list-style-type: none"> <li>• Document that there are no listed species in the facility area or affected riverine zones downstream of the facility.</li> <li>• 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.</li> <li>• If the facility is making significant efforts to reintroduce an extirpated species, describe the actions that are being taken.</li> </ul>
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**Document that there are no listed species in the facility area or affected riverine zones downstream of the facility.**

The USFWS filed a letter on November 1, 2011 that stated there are no threatened or endangered species in this zone at the Eel Weir Project. Additionally, the supplemental EA indicated that there would be no effect to threatened or endangered species, or critical habitat, by the relicensing of this Project.

Recognizing that the letter only provides information on federally listed species, the information below includes a description of target species studied as part of the relicensing process. The 2002 Rare, Threatened, and Endangered Species Study included in the application for new license identified ten target species for study, as follows:

Common Name	Federal Listing (2002)	State Listing (2002)	MNAP Rank (2002)	Federal Listing (2017)	State Listing (2017)	MNAP Rank (2017)
<b>TARGET SPECIES FOR STUDY</b>						
Small whorled pogonia	T	E	S2	T	E	S2
Nodding pogonia		T	S1	Not Listed	T	S2
Great rhododendron		T	S1	Not Listed	T	S1
Spicebush		SC	S3	Not Listed	Rare	S3
Brook floater mussel		SC		Not Listed	T	
Creeper mussel		SC		Not Listed	Not Listed	
Blanding's turtle		E		Not Listed	E	
Eastern box turtle		E		Not Listed	E	
Bald eagle	T	T		Not Listed	Not Listed	
Peregrine falcon	E	E		Not Listed	E	
<b>NON-TARGET SPECIES DOCUMENTED BY STUDY</b>						
Swamp white oak				Not Listed	T	S1
Slender water nymph				Not Listed	Not Listed	
Nova Scotia flat-topped goldenrod				Not Listed	Not Listed	

The table above incorporates a state designated ranking system for rare, threatened, and endangered species as follows:

- S1 – Critically imperiled in Maine
- S2 – Imperiled in Maine (6 – 20 occurrences)
- S3 – Rare in Maine (20 – 100 occurrences)
- S4 – Apparently secure in Maine
- S5 – Demonstrably secure in Maine
- SH – Known historically from Maine, but not verified in the past 20 years
- SX – Apparently extirpated from Maine
- SU – Under consideration for assigning rarity status

None of the above listed target species was found to occur in the study area, but two rare plant species tracked by the Maine Natural Areas Program (MNAP) as well as one not tracked by the MNAP were documented. Of the three species of concern documented, none was found on S.D. Warren owned land, and normal project operation does not adversely impact any of them. Additionally, the Environmental Report, Exhibit E of the License Application, indicated that both the USFWS and MDIFW were consulted for the report, and there are no state or federally listed species in the vicinity of the Eel Weir Project.

***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.***

There are no threatened or endangered species in this zone as stated in the November 1, 2011 USFWS letter, and no state listed target species were found to occur in the study area.

***If the facility is making significant efforts to reintroduce an extirpated species, describe the actions that are being taken.***

There are currently no efforts being taken by the facility to reintroduce an extirpated species in this zone. There are no threatened or endangered species in this zone as stated in the November 1, 2011 letter filed by the USFWS.

G	2	<p><u>Approved Plan:</u></p> <ul style="list-style-type: none"> <li>• <i>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.</i></li> <li>• <i>Document that the facility is in compliance with all such plans.</i></li> </ul>
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***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.***

License Article 408 requires S.D. Warren to implement the Programmatic Agreement (PA) that was executed on September 14, 2005. As required by the PA, the licensee was to file a Historic Properties Management Plan (HPMP) within one (1) year of license issuance. Appendix A includes hyperlinks to the Programmatic Agreement and Historic Properties Management Plan (filed March 24, 2016).

***Document that the facility is in compliance with all such plans.***

The HPMP was filed with FERC on March 24, 2016<sup>42</sup>; FERC has yet to approve the HPMP. Given that the Plan requires an annual report to be filed with FERC and MSHPO by January 31<sup>st</sup> each year. S.D. Warren has not filed its first annual report.

S.D. Warren has contracted a pre-historic archeologist to conduct a Phase 0 archeological report, also required by License Article 408. S. D. Warren’s consultant, Dr. Richard Will of TRC Solutions, is doing the field work to complete the Phase 0. The study requires extensive field survey as many properties are owned by seasonal residents; per the HPMP the work is scheduled to be completed in 2021.

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<sup>42</sup> Accession No. 201603245116, 201603245117

## Recreational Resources

## Zone 1 – Tailrace

H	2	<p><u>Agency Recommendation:</u></p> <ul style="list-style-type: none"> <li>• Document any comprehensive resource agency recommendations and enforceable recreation plan that is in place for recreational access or accommodations.</li> <li>• Document that the facility is in compliance with all such recommendations and plans.</li> </ul>
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***Document any comprehensive resource agency recommendations and enforceable recreation plan that is in place for recreational access or accommodations.***

FERC License Article 407 requires a Land Use and Recreation Management Plan (LRMP). The recreation requirements of Article 407 as they pertain to the Eel Weir tailrace are as follows:

- A description of how project lands will be managed, including aesthetic character;
- measures for maintaining angling access to the Eel Weir bypassed reach including:
  - a description of existing parking areas, paths, access areas, and signage to support angling access to the bypassed reach, including operation and maintenance measures; and
  - maps showing and labeling all recreation facilities and areas used by anglers to access the bypassed reach;
- measures for improving public boat access to Sebago Lake based on the results of the public boat access study required by water quality certification condition 8; and
- revised Exhibit G drawing(s) showing a project boundary enclosing the recreation facilities and areas identified in items 2 and 3.

***Document that the facility is in compliance with all such recommendations and plans.***

The LRMP was submitted to FERC on September 13, 2016 and approved on January 30, 2017<sup>43</sup>. Paragraph E of that Order requires S.D. Warren to file a recreation facility amenity table that shows an accurate account of installed recreation facilities. The recreation facility amenity table was filed with FERC on February 24, 2017. There are no requirements for recreation facility construction at the Eel Weir tailrace.

Additionally, S.D. Warren is required to file a Form 80 on a 6-year cycle, as required by the FERC Guidelines, detailing the recreation uses at the Project. The most recent Form 80 for Eel Weir Project

<sup>43</sup> 158 FERC ¶ 62,061

was filed on April 1, 2015<sup>44</sup>.

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<sup>44</sup> Submission ID: 563539

H	2	<p><u>Agency Recommendation:</u></p> <ul style="list-style-type: none"> <li>• Document any comprehensive resource agency recommendations and enforceable recreation plan that is in place for recreational access or accommodations.</li> <li>• Document that the facility is in compliance with all such recommendations and plans.</li> </ul>
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***Document any comprehensive resource agency recommendations and enforceable recreation plan that is in place for recreational access or accommodations.***

FERC License Article 407 requires a Land Use and Recreation Management Plan (LRMP). The recreation requirements of Article 407 as they pertain to the Eel Weir bypass are as follows:

- A description of how project lands will be managed, including aesthetic character;
- Measures for maintaining angler access to the bypass reach, including:
  - Existing parking areas, access areas, paths, signage, and maintenance measures to support bypass angling; and
  - Maps showing recreational facilities and angler access points to the bypass; and
- Revised Exhibit G drawings showing the project boundary enclosing all recreation facilities.

***Document that the facility is in compliance with all such recommendations and plans.***

The LRMP was submitted to FERC on September 13, 2016 and approved on January 30, 2017<sup>45</sup>. Paragraph E of that Order requires S.D. Warren to file a recreation facility amenity table that shows an accurate account of installed recreation facilities. The recreation facility amenity table was filed with FERC on February 24, 2017 and includes proof of completion of the requisite angler bypass access.

Additionally, S.D. Warren is required to file a Form 80 on a 6-year cycle, as required by the FERC Guidelines, detailing the recreation uses at the Project. The most recent Form 80 for Eel Weir was filed on April 1, 2015<sup>46</sup>.

Eel Weir has not had an Environmental Public Use Inspection EPUI, in recent years, however due to the issuance of the 2015 license; an EPUI is expected to occur in the near future. See Appendix B email from Joseph Enrico of FERC for confirmation.

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<sup>45</sup> 158 FERC ¶ 62,061

<sup>46</sup> Submission ID: 563539

H	2	<p><u>Agency Recommendation:</u></p> <ul style="list-style-type: none"> <li>• Document any comprehensive resource agency recommendations and enforceable recreation plan that is in place for recreational access or accommodations.</li> <li>• Document that the facility is in compliance with all such recommendations and plans.</li> </ul>
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***Document any comprehensive resource agency recommendations and enforceable recreation plan that is in place for recreational access or accommodations.***

FERC License Article 407 requires a Land Use and Recreation Management Plan (LRMP). The recreation requirements of Article 407 as they pertain to the Eel Weir impoundment are as follows:

- A description of how project lands will be managed, including aesthetic character;
- Measures for improving public boat access to Sebago Lake; and
- Revised Exhibit G drawings showing the project boundary enclosing all recreation facilities and areas.

WQC condition 8 requires a Public Boat Access Study to be conducted on Sebago Lake detailing the boating resources in the project area, the results of which have been incorporated into the LRMP in an effort to achieve the requisite public boat access improvements.

***Document that the facility is in compliance with all such recommendations and plans.***

The LRMP was submitted to FERC on September 13, 2016 and approved on January 30, 2017<sup>47</sup>. Paragraph E of that Order requires S.D. Warren to file a recreation facility amenity table that shows an accurate account of installed recreation facilities. The recreation facility amenity table was filed with FERC on February 24, 2017. Additionally, the Public Boat Access Study was completed by DM Roma Consulting Engineers on behalf of S.D. Warren and submitted to FERC by S.D. Warren on March 3, 2016.

Finally, S.D. Warren is required to file a Form 80 on a 6-year cycle, as required by the FERC Guidelines, detailing the recreation uses at the Project. The most recent Form 80 for Eel Weir was filed on April 1, 2015<sup>48</sup>, and therefore not due again until 2021.

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<sup>47</sup> 158 FERC ¶ 62,061

<sup>48</sup> Submission ID: 563539



## V. SWORN STATEMENT AND WAIVER


As an Authorized Representative of S.D. Warren Company, 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 certification of the applying facility is issued, the LIHI Certification Mark License Agreement must be executed prior to marketing the electricity product as LIHI Certified.

The undersigned Applicant 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.

DATE: September 1, 2017



Brad Goulet

Hydrostation Manager

Sappi North America

**VI. CONTACTS**

Project Name: Eel Weir FERC Project No.: P-2984 LIHI Cert. No.:     

**Project Owner/Operator:**

Name and Title: S.D. Warren Company d/b/a Sappi North America (Owner)  
Company: S.D. Warren Company dba Sappi North America  
Phone: 207-856-4083  
Email address: brad.goulet@sappi.com  
Mailing Address: PO Box 5000, 89 Cumberland Street, Westbrook, ME 04092

**Consulting firm that manages LIHI program participation (if applicable):**

Name and Title: Peter Drown, President  
Company: Cleantech Analytics LLC  
Phone: 207-951-3042  
Email address: peter.drown@cleantechanalytics.com  
Mailing Address: 6717 Cub Run Court, Centreville, VA 20121

**Party responsible for compliance with LIHI program requirements:**

Name and Title: Brad Goulet/Hydrostation Manager  
Phone: 207-856-4083  
Email address: brad.goulet@sappi.com  
Mailing Address: PO Box 5000, 89 Cumberland St, Westbrook, Me 04092

**Party responsible for accounts payable:**

Name and Title: Brad Goulet/Hydrostation Manager  
Phone: 207-856-4083  
Email address: brad.goulet@sappi.com  
Mailing Address: PO Box 5000, 89 Cumberland St, Westbrook, Me 04092

*Brad Goulet*

September 1, 2017

**Project Owner/Authorized Representative Signature**

**Date**

## VII. REFERENCES

Acheron Engineering. (2015). Final Study Plan Upstream American Eel Passage Facilities Siting Study – Eel Weir Project, FERC 2984, Version 2. Prepared for S.D. Warren Company, Westbrook, Maine. June 19, 2015.

Acheron Engineering. (2016). Bypass Reach Monitoring Plan Refugia Study. Prepared for S.D. Warren Company, Westbrook, Maine. November 4, 2016.

Acheron Engineering, and Lakeside Engineering. (2016). Design, Operations and Effectiveness Testing Plan, Upstream American Eel Passage Facilities, Eel Weir Project, FERC 2984, Presumpscot River, Windham, Maine. Prepared for S.D. Warren Company, Westbrook, Maine. June 30, 2016.

Acheron Engineering, and Lakeside Engineering. (2016). Design, Operations and Effectiveness Testing Plan, Downstream American Eel Passage Facilities, Eel Weir Project, FERC Project No. 2984, Presumpscot River, Windham, Maine. Prepared for S.D. Warren Company, Westbrook, Maine. July 29, 2016.

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Federal Energy Regulatory Commission (FERC). (2005). Programmatic Agreement Between the Federal Energy Regulatory Commission and the State Of Maine, State Historic Preservation Officer, for Managing Historic Properties That May Be Affected By a License Issuing to S.D Warren Company for the Continued Operation of the Eel Weir Hydropower Project in Cumberland County, Maine. Executed on September 14, 2005.

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Federal Energy Regulatory Commission. (2014). Supplemental Environmental Assessment for Hydropower License. April 8, 2014.

Kleinschmidt Associates (2002). Eel Weir Bypass Reach Instream Flow Study Final Report. Prepared for S.D. Warren Company, Westbrook, Maine. January, 2002.

Kleinschmidt Associates. (2002). Eel Weir Project (FERC NO. 2984) Application for New License for Major Water Power Project Under 5 MW, Volume III – Appendix D. Prepared for S.D. Warren Company, Westbrook, Maine. March, 2002.

- Kleinschmidt Associates. (2016). Eel Weir Project (FERC No. 2942-ME) Supporting Technical Information Document, Revision 1. Prepared for S.D. Warren Company, Westbrook, Maine. April, 2006. (*Revision 7, November, 2016*).
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- S.D. Warren Co. (d/b/a Sappi North America). (2015). Operations and Flow Monitoring Plan – Eel Weir Project (FERC No. 2984). September, 2015.
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- TRC. (2016). Historic Properties Management Plan – Eel Weir Project (FERC No. 2942). Prepared for S.D. Warren Company, Westbrook, Maine. March 2016.
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- Wippelhauser, G. S., Brautigam, F. C., and Dube, N. R. (2001). Draft Fishery Management Plan for the Presumpscot River Drainage. December, 2001.
- Woodlot Alternatives, Inc. (2002). Rare, Threatened and Endangered Species Surveys Final Report, S.D. Warren Company Eel Weir Project (FERC No. 2984). Prepared for S.D. Warren Company, Westbrook, Maine. January, 2002.

## **Appendix A**

### **FERC Document Links**

Bypass Reach Monitoring Plan FERC Approval:

[https://elibrary.ferc.gov/idmws/file\\_list.asp?document\\_id=14417296](https://elibrary.ferc.gov/idmws/file_list.asp?document_id=14417296)

- Bypass Reach Monitoring Report (filed as privileged, See Non-Public Appendix):  
[https://elibrary.ferc.gov/idmws/file\\_list.asp?document\\_id=14519440](https://elibrary.ferc.gov/idmws/file_list.asp?document_id=14519440)
- Order Approving Bypass Reach Monitoring Report and EOT for Min. Flows:  
[https://elibrary.ferc.gov/idmws/file\\_list.asp?document\\_id=14546168](https://elibrary.ferc.gov/idmws/file_list.asp?document_id=14546168)

Form 80:

[https://elibrary.ferc.gov/idmws/file\\_list.asp?document\\_id=14320174](https://elibrary.ferc.gov/idmws/file_list.asp?document_id=14320174)

Programmatic Agreement:

[https://elibrary.ferc.gov/idmws/file\\_list.asp?document\\_id=4344663](https://elibrary.ferc.gov/idmws/file_list.asp?document_id=4344663)

- Historic Properties Management Plan (filed as privileged, See Non-Public Appendix):  
[https://elibrary.ferc.gov/idmws/file\\_list.asp?document\\_id=14441481](https://elibrary.ferc.gov/idmws/file_list.asp?document_id=14441481)

Land Use and Recreation Management Plan (LRMP):

[https://elibrary.ferc.gov/idmws/file\\_list.asp?document\\_id=14496267](https://elibrary.ferc.gov/idmws/file_list.asp?document_id=14496267)

- FERC Approval LRMP:  
[https://elibrary.ferc.gov/idmws/file\\_list.asp?document\\_id=14534063](https://elibrary.ferc.gov/idmws/file_list.asp?document_id=14534063)
- Sebago Lake Public Boat Access Study:  
[https://elibrary.ferc.gov/idmws/file\\_list.asp?document\\_id=14435081](https://elibrary.ferc.gov/idmws/file_list.asp?document_id=14435081)

License and Water Quality Certification:

[https://elibrary.ferc.gov/idmws/file\\_list.asp?document\\_id=14314956](https://elibrary.ferc.gov/idmws/file_list.asp?document_id=14314956)

- License Errata Notice:  
[https://elibrary.ferc.gov/idmws/file\\_list.asp?document\\_id=14322667](https://elibrary.ferc.gov/idmws/file_list.asp?document_id=14322667)
- S.D. Warren's Request for License Clarification:  
[https://elibrary.ferc.gov/idmws/file\\_list.asp?document\\_id=14327728](https://elibrary.ferc.gov/idmws/file_list.asp?document_id=14327728)
  - MDEP Response to Request for Clarification:  
[https://elibrary.ferc.gov/idmws/file\\_list.asp?document\\_id=14336745](https://elibrary.ferc.gov/idmws/file_list.asp?document_id=14336745)
  - FERC Order and Response to Request for Clarification:  
[https://elibrary.ferc.gov/idmws/file\\_list.asp?document\\_id=14337935](https://elibrary.ferc.gov/idmws/file_list.asp?document_id=14337935)

Operations and Flow Monitoring Plan:

[https://elibrary.ferc.gov/idmws/file\\_list.asp?document\\_id=14375933](https://elibrary.ferc.gov/idmws/file_list.asp?document_id=14375933)

- FERC Approval OFMP:  
[https://elibrary.ferc.gov/idmws/file\\_list.asp?document\\_id=14502514](https://elibrary.ferc.gov/idmws/file_list.asp?document_id=14502514)
- 2016 OFMP Report:  
[https://elibrary.ferc.gov/idmws/file\\_list.asp?document\\_id=14533332](https://elibrary.ferc.gov/idmws/file_list.asp?document_id=14533332)
- Order Approving Flood Management Communication Protocol pursuant to Article 405 re SD Warren Company under P-2984.  
[http://elibrary.FERC.gov/idmws/file\\_list.asp?accession\\_num=20161006-3027](http://elibrary.FERC.gov/idmws/file_list.asp?accession_num=20161006-3027)

2005 Final Environmental Assessment:

[https://elibrary.ferc.gov/idmws/file\\_list.asp?document\\_id=4358792](https://elibrary.ferc.gov/idmws/file_list.asp?document_id=4358792)

- 2014 Supplemental Environmental Assessment:  
[https://elibrary.ferc.gov/idmws/file\\_list.asp?document\\_id=14202898](https://elibrary.ferc.gov/idmws/file_list.asp?document_id=14202898)

Upstream American Eel Siting Study:

[https://elibrary.ferc.gov/idmws/file\\_list.asp?document\\_id=14350053](https://elibrary.ferc.gov/idmws/file_list.asp?document_id=14350053)

Upstream and Downstream American Eel Passage Plans:

[https://elibrary.ferc.gov/idmws/file\\_list.asp?document\\_id=14501115](https://elibrary.ferc.gov/idmws/file_list.asp?document_id=14501115)

- FERC Approval Upstream Plans:  
[https://elibrary.ferc.gov/idmws/file\\_list.asp?document\\_id=14514680](https://elibrary.ferc.gov/idmws/file_list.asp?document_id=14514680)
- FERC Approval Downstream Plans:  
[https://elibrary.ferc.gov/idmws/file\\_list.asp?document\\_id=14510868](https://elibrary.ferc.gov/idmws/file_list.asp?document_id=14510868)
- EOT Consultation:  
[https://elibrary.ferc.gov/idmws/file\\_list.asp?document\\_id=14548837](https://elibrary.ferc.gov/idmws/file_list.asp?document_id=14548837)
- March 24, 2017 EOT for US Eel Passage:  
[https://elibrary.ferc.gov/idmws/file\\_list.asp?document\\_id=14551335](https://elibrary.ferc.gov/idmws/file_list.asp?document_id=14551335)

USFWS 2011 Letter Regarding Endangered Species:

[https://elibrary.ferc.gov/idmws/file\\_list.asp?document\\_id=13968083](https://elibrary.ferc.gov/idmws/file_list.asp?document_id=13968083)

## **Appendix B**

### **Agency Support Letters**





# United States Department of the Interior



## FISH AND WILDLIFE SERVICE

Ecological Services  
Maine Field Office  
P.O. Box A  
306 Hatchery Road  
East Orland, Maine 04431  
207/469-7300 Fax: 207/902-1588

31 May 2017

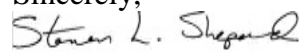
Mr. Brad Goulet  
S.D. Warren Company  
P.O. Box 5000  
Westbrook, ME 04098

**REF: LIHI Certification – S.D. Warren Hydroelectric Projects P-2984 Eel Weir, P-2942 Dundee, P-2932 Gambo, P-2941 Little Falls, and P-2932 Mallison Falls, Cumberland County, Maine**

Dear Mr. Goulet,

I write in regard to S.D. Warren's (Warren) application for certification of the referenced Presumpscot River hydroelectric projects by the Low Impact Hydropower Institute. The U.S. Fish and Wildlife Service's efforts to restore migratory fishes to the Presumpscot River have spanned more than a decade. In that time, we have worked closely with Warren staff to achieve safe, timely and effective fish passage on the Presumpscot River.

Four of these Projects are included in a Presumpscot River Settlement Agreement. Warren approached the Service and the State of Maine in November 2012 to explore Saccarappa Dam removal as an alternative to installation of certain fish passage structures required by the Service's 2008 Fish Passage Prescription. Warren, the Service, and other Stakeholders have worked tirelessly to negotiate the terms of a Settlement Agreement (Agreement) affecting fish passage at four of the Projects noted herein. We are now implementing this Agreement. The Agreement addresses issues of concern to the Stakeholders, gives Warren some certainty regarding the requirements for decommissioning and removal of the Saccarappa Project, and extends the time when Warren must comply with fish passage requirements at the other four Projects. S.D. Warren Company has been very cooperative with the Service regarding issues and concerns relating to these projects and we support their application for certification.

Sincerely,  
  
Steven Shepard  
Senior Fish and Wildlife Biologist

Maine Field Office



STATE OF MAINE  
DEPARTMENT OF ENVIRONMENTAL PROTECTION



PAUL R. LEPAGE  
GOVERNOR

PAUL MERCER  
COMMISSIONER

May 31, 2017

S.D. Warren Company  
P.O. Box 5000  
89 Cumberland St.  
Westbrook, ME 04908  
ATTN: Brad Goulet

RE: Letter of Support for LIHI Certification for Eel Weir (FERC No. 2984), Dundee (FERC No. 2942), Gambo (FERC No. 2931), Little Falls (FERC No. 2941), and Mallison Falls (FERC No. 2932) Hydropower Projects

Dear Mr. Goulet,

On May 17, 2017, you requested a letter of support for Low Impact Hydropower Institute (LIHI) certification from the Maine Department of Environmental Protection (Department) for the Eel Weir, Dundee, Gambo, Little Falls, and Mallison Falls hydropower projects located on the Presumpscot River. Specifically, you wanted a statement from the Department confirming compliance with conditions required in the Water Quality Certifications (WQC) issued for the projects referenced above.

The Department reviewed the respective project files and finds that S.D. Warren is currently in compliance with WQC conditions.

The Department does note that the Gambo impoundment has historically been the primary water quality concern on the Presumpscot River, with dissolved oxygen (DO) concentrations consistently not meeting Maine Water Quality Standards. In response to these concerns, S.D. Warren implemented an augmented flow regime in 2016 to prevent DO non-attainment from recurring in the Gambo impoundment. The first year of water quality data from the new flow regime did not show any non-attainment of DO criteria, despite challenges associated with local drought conditions. Based on data from the first year of the new flow regime, the Department expects to see continued attainment of DO criteria. S.D. Warren will continue monitoring water quality to verify this expected trend.

Therefore, based on the Department's review of the referenced Presumpscot River hydropower project files and available water quality data, the Department concludes that S.D. Warren is currently in compliance with its WQC conditions and the projects attain Maine Water Quality Standards. The Department supports your application for LIHI certification.

AUGUSTA  
17 STATE HOUSE STATION  
AUGUSTA, MAINE 04333-0017  
(207) 287-7688 FAX: (207) 287-7826

BANGOR  
106 HOGAN ROAD, SUITE 6  
BANGOR, MAINE 04401  
(207) 941-4570 FAX: (207) 941-4584

PORTLAND  
312 CANCO ROAD  
PORTLAND, MAINE 04103  
(207) 822-6300 FAX: (207) 822-6303

PRESQUE ISLE  
1235 CENTRAL DRIVE, SKYWAY PARK  
PRESQUE ISLE, MAINE 04769  
(207) 764-0477 FAX: (207) 760-3143

Letter to S.D. Warren  
May 31, 2017  
Page 2 of 2

Please contact me at [Michael.OConnor@maine.gov](mailto:Michael.OConnor@maine.gov) or (207) 441-1732 if you have any questions regarding this letter.

Sincerely,

A handwritten signature in blue ink that reads "Michael O'Connor". The signature is written in a cursive style with a long horizontal flourish at the end.

Michael O'Connor  
Licensing Project Manager

Cc: Shannon Ames (LIHI)  
Michael Sale (LIHI)  
File



STATE OF MAINE  
DEPARTMENT OF AGRICULTURE, CONSERVATION & FORESTRY  
MAINE GEOLOGICAL SURVEY  
93 STATE HOUSE STATION  
AUGUSTA, MAINE 04333

PAUL R. LEPAGE  
GOVERNOR

WALTER E. WHITCOMB  
COMMISSIONER

30 May 2017

Mr. Brad Goulet  
S.D. Warren Company  
P.O. Box 5000  
Westbrook, ME 04098

Dear Mr. Goulet,

I write in support of S.D. Warren Company's certification process under the Low Impact Hydropower Institute for five projects on the Presumpscot River in Cumberland County: FERC P-2984 Eel Weir, P-2942 Dundee, P-2932 Gambo, P-2941 Little Falls, and P-2932 Mallison Falls. These projects are all in compliance with conditions stipulated in the applicable FERC licenses. Furthermore, S.D. Warren Company has been extremely cooperative with Maine's resource agencies regarding issues and concerns relating to these projects.

Sincerely,

A handwritten signature in black ink that reads 'Robert G. Marvinney'.

Robert G. Marvinney  
State Geologist and Director

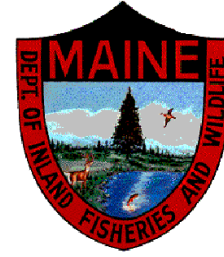
ROBERT MARVINNEY, STATE GEOLOGIST  
MAINE GEOLOGICAL SURVEY



PHONE: (207) 287-2801  
FAX: (207) 287-2353  
[www.maine.gov/dacf/mgs](http://www.maine.gov/dacf/mgs)



Maine Department of Inland  
Fisheries and Wildlife  
358 Shaker Road  
Gray, Maine 04039



Telephone: 207-657-2345 ext.111  
Fax: 207-657-2980  
Email: james.pellerin@maine.gov

Paul R. Lepage  
Governor

Chandler E. Woodcock  
Commissioner

June 6, 2017

S.D. Warren Company  
d/b/a Sappi North America  
P.O. Box 5000  
89 Cumberland St.  
Westbrook, ME 04908

ATTN: Brad Goulet

RE: Letter of Support for LIHI Certification for Eel Weir (FERC No. 2984), Dundee (FERC No. 2942), Gambo (FERC No. 2931), Little Falls (FERC No. 2941), and Mallison Falls (FERC No. 2932) Hydropower Projects

Dear Mr. Goulet,

On May 17, 2017, you requested a letter of support for Low Impact Hydropower Institute (LIHI) certification from the Maine Department of Inland Fisheries and Wildlife (MDIFW) for the Eel Weir, Dundee, Gambo, Little Falls, and Mallison Falls hydropower projects located on the Presumpscot River. Specifically, you requested a statement from the MDIFW that the projects are in compliance with conditions stipulated in the applicable Water Quality Certificates, FERC Licenses, as well as the licensee's ongoing cooperation with resource agencies.

The MDIFW is not directly responsible for regulatory compliance issues, so I will defer comments regarding compliance to the appropriate agencies. S.D. Warren Company has worked very cooperatively with the MDIFW to study and address various inland fishery resource concerns for the above named projects including: minimum flows, fish passage, and recreational issues. In addition, correspondence from S.D. Warren Company with our agency has been timely, professional, accurate, and thorough. MDIFW supports your application for LIHI certification. Please contact me at james.pellerin@maine.gov or (207) 592-2775 if you have any questions regarding this letter.

Sincerely,

A handwritten signature in black ink that reads 'James Pellerin'.

James Pellerin  
Regional Fisheries Biologist  
Sebago Lake Region



PAUL R. LEPAGE  
GOVERNOR

STATE OF MAINE  
DEPARTMENT OF MARINE RESOURCES  
21 STATE HOUSE STATION  
AUGUSTA, MAINE  
04333-0021

PATRICK C. KELIHER  
COMMISSIONER

June 8, 2017

Mr. Brad Goulet  
S.D. Warren Company  
P.O. Box 5000  
Westbrook, ME 04098

RE: Letter of Support for LIHI Certification for Eel Weir (FERC No. 2984), Dundee (FERC No. 2942), Gambo (FERC No. 2931), Little Falls (FERC No. 2941), and Mallison Falls (FERC No. 2932) Hydropower Projects

Dear Brad:

I am writing in support of S.D. Warren Company's certification process under the Low Impact Hydropower Institute (LIHI) for the Eel Weir, Dundee, Gambo, Little Falls, and Mallison Falls Hydropower Projects, which are located on the Presumpscot River, Cumberland County, Maine. S.D. Warren Company has worked cooperatively with the Maine Department of Marine Resources (MDMR) to address our issues and concerns relating to these projects. The five projects are in compliance with conditions in the applicable FERC licenses that are related to fish passage for diadromous fishes and minimum flows.

MDMR supports your application for LIHI certification. Please contact me at [gail.wippelhauser@maine.gov](mailto:gail.wippelhauser@maine.gov) or (207) 624-6349 if you have any questions regarding this letter.

Sincerely,

Gail Wippelhauser  
Marine Resources Scientist



## Appendix C

### Contact Information for State and Federal Resource Agencies

Resource Agency	Name of Contact	Title	Address	Phone Number	Email
Maine Department of Environmental Protection (MDEP)	Kathy Howatt	Hydropower Coordinator, Bureau of Land Resources - Land Division	17 State House Station 28 Tyson Drive Augusta, ME 04333-0017	(207) 446-2642	<a href="mailto:kathy.howatt@maine.gov">kathy.howatt@maine.gov</a>
Maine Department of Marine Resources (MDMR)	Gail Wippelhauser	Marine Resource Scientist	172 State House Station Augusta, ME 04333	(207) 624-6349	<a href="mailto:gail.wippelhauser@maine.gov">gail.wippelhauser@maine.gov</a>
Maine Department of Inland Fisheries and Wildlife (MDIFW)	Francis Brautigam	Director of Fisheries & Hatcheries	284 State Street Augusta, Maine 04333	(207) 287-5263	<a href="mailto:francis.brautigam@maine.gov">francis.brautigam@maine.gov</a>
United States Fish and Wildlife Service (USFWS)	Steven Shepard	C.F.P.	17 Godfrey Drive, Suite 2 Orono, Maine 04473	(207) 866-3344 ext. 1116	<a href="mailto:steven_shepard@fws.gov">steven_shepard@fws.gov</a>
Maine State Historic Preservation Office (MSHPO)	Kirk Mohney	Director, and State Historic Preservation Officer	55 Capitol Street 65 State House Station Augusta, ME 04333-0065	(207) 287-3811	<a href="mailto:kirk.mohney@maine.gov">kirk.mohney@maine.gov</a>
Federal Energy Regulatory Commission (FERC)	Kimberly Bose	Secretary of the Commission	888 First Street N.E. Washington, DC 20426	(202) 502-8400	
Federal Energy Regulatory Commission New York Regional Office (FERC NYRO)	John Spain	Regional Engineer, FERC Division of Dam Safety and Inspections	19 W 34th Street, Suite 400 New York, NY 10001	(212) 273-5954	<a href="mailto:john.spain@ferc.gov">john.spain@ferc.gov</a>