LOW-IMPACT RECERTIFICATION APPLICATION

Byron Weston Hydroelectric Project
LIHI # 133

(FERC No. 13583, exempt)

November 2021

Table of Contents

1. FACILITY DESCRIPTION

The Byron Weston No. 2 project is located at river mile 7.97 on the East Branch of the Housatonic River (Figure 1). The project is owned by Crane & Company (Crane), a manufacturer of various types of fine quality paper, including paper supplied to the US Bureau of Printing and Engraving for use in printing US currency.

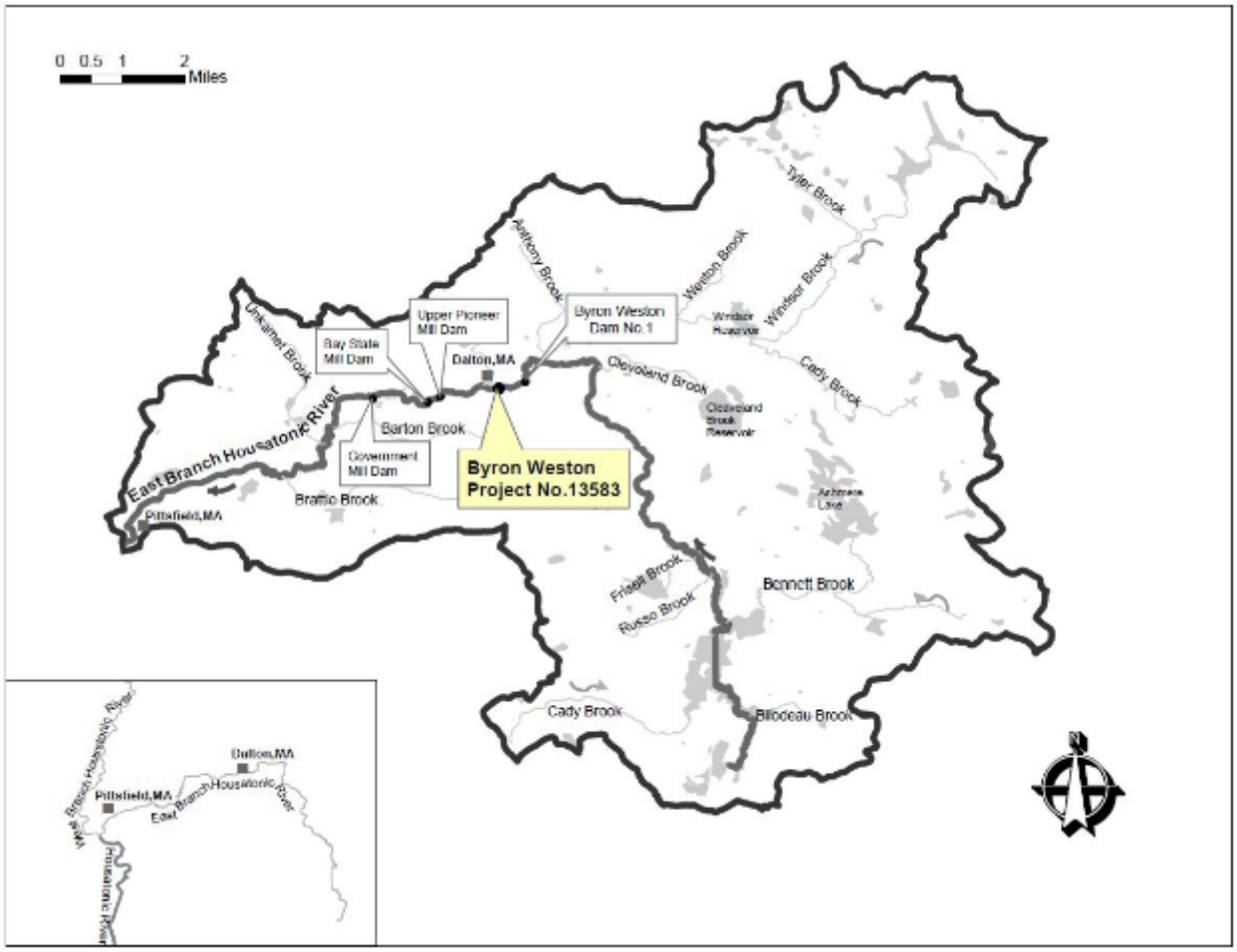


Figure 1. Project Locus

The multi-building facility is adjacent to the river, in the Town of Dalton, in Berkshire County, Massachusetts. The mill buildings which comprise the majority of the facility (Figure 2) were originally constructed to harness the potential energy of the water. The dam was originally constructed in 1887. Crane owns five dams along the East Branch of the Housatonic River, all of which were originally used in the manufacture of paper, supplying power, process water, or both. During the early 1900s, at least one of the dams, Byron Weston No. 2, was retrofitted with generators to produce hydroelectric energy. Crane's records indicate that hydroelectric power generation at the Byron Weston No. 2 site continued until sometime after 1942. The project resumed operation in 2013 after re-powering.

The East Branch headwaters begin at the outlet of Muddy Pond near Washington, Massachusetts. The East Branch flows approximately 17 miles, dropping 480 feet in elevation to its confluence with the Housatonic River in Pittsfield, Massachusetts.

Directly upstream is the Bryon Weston Dam No. 1 approximately 700 feet above Byron Weston Dam No. 2. Downstream are the breached Old Berkshire Mill Dam, Upper Pioneer Dam, Bay State Pond Dam, and the Government Dam. None of these dams currently include hydropower.

Figure 2. Crane & Co. Mill Buildings

The project was first certified by LIHI in 2017 for a 5-year period effective December 29, 2016 through December 29, 2021. The current certification included the following condition:

> **Condition 1**. The owner shall complete the Wheel Turbine Relocation Plan and notice FERC and LIHI of that action within 90 days after LIHI certification.

The condition was satisfied in 2017 with notice to FERC and LIHI documenting relocation of the turbine to the Crane Museum of Papermaking.

The main Project components (Figures 3 – 5) are:

- A 30-foot-high, 90-foot-long, stone-masonry dam which includes a 23-foot high, 75-foot-long spillway that comprises the majority of the dam. The reservoir extends 700 feet upriver where it meets the Byron Weston Dam No.1. The headpond has a total surface area of 0.94 acres at the normal maximum reservoir elevation of 1,116.7 feet mean sea level with a gross storage of 3.1 acre-feet.
- An intake structure equipped with 1-inch spaced trashracks and a headgate. The water passes through the headgate to a 50-foot-long, 9.5-foot-wide headrace canal located inside the Defiance Mill building that conveys flow to a 15-foot-long, 4.4-foot-diameter penstock leading to the 250-kW turbine-generating unit within the Byron Weston Defiance Mill building. The unit is a vertically oriented double regulated Kaplan turbine manufactured by Canadian Hydro Components Ltd. The turbine can operate from flows of 20 cfs to 170 cfs, with a rated flow rate of 133 cfs.
- A 12-inch low-level outlet pipe diverts flow from the headrace during times when the turbine is

out-of-service.

- Water is discharged through a stone masonry arched opening at the base of the Defiance Mill building immediately downstream of the dam into the tailrace.
- A bypassed reach approximately 35 feet long configured to create a backwater at the toe of the spillway.

The remains of a pre-cursor timber crib dam are buried within the sediment immediately upstream of the masonry dam. The project operates in a run-of-river mode. While grid interconnected, the project is intended to supply energy primarily for on-site use to partially offset the existing electricity demands of the Crane manufacturing facilities.

Figure 3. Dam and Spillway

Figure 4. Intake Structure

Figure 5. Stone/Masonry Discharge Arch

Table 1. Facility Information Table

Item	*Information Requested*	*Response (include references to further details)*
Name of the Facility	Facility name (use FERC project name or other legal name)	Byron Weston No. 2
Reason for applying for LIHI Certification	• To participate in state RPS program and specify the state and the total MW/MWh associated with that participation (value and % of facility total Mw/MWh). • To participate in voluntary REC market (e.g., Green-e) • To satisfy a direct energy buyer's purchasing requirement • To satisfy the facility's own corporate sustainability goals • For the facility's corporate marketing purposes • Other (describe)	• To participate in voluntary REC market (e.g., Green-e)
	If applicable, amount of annual generation (MWh and % of total generation) for which RECs are currently received or are expected to be received upon LIHI Certification	2021 thru 10/31 494.6 MWh
Location	River name (USGS proper name)	Housatonic River, East Branch
	Watershed name - Select region, click on the area of interest until the 8-digit HUC number appears. Then identify watershed name and HUC-8 number from the map at: https://water.usgs.gov/wsc/map_index.html	Housatonic HUC 8: 01100005
	Nearest town(s), county(ies), and state(s) to dam	Dalton, Berkshire County, MA
	River mile of dam above mouth	7.97
	Geographic latitude of dam	42.47255
	Geographic longitude of dam	-73.158167
Facility Owner	Application contact names (Complete the Contact Form in Section B-4 also):	David Boino, Manager of Engineering
	Facility owner company and authorized owner representative name. **For recertifications: If ownership has changed since last certification, provide the effective date of the change.**	Crane and Company
	FERC licensee company name (if different from owner)	n/a
Regulatory Status	FERC Project Number (e.g., P-xxxxx), issuance and expiration dates, or date of	P-13583 exemption issued February 29, 2012 no expiration

Item	*Information Requested*	*Response (include references to further details)*
	exemption	
	FERC license type (major, minor, exemption) or special classification (e.g., "qualified conduit", "non-jurisdictional")	5 MW exemption
	Water Quality Certificate identifier, issuance date, and issuing agency name. Include information on amendments.	Massachusetts Dept. of Environmental Protection (no identifier) issued September 23, 2011 https://elibrary.ferc.gov/eLibrary/filedownload?fileid=0192047D-66E2-5005-8110-C31FAFC91712
	Hyperlinks to key electronic records on FERC e-library website or other publicly accessible data repositories	2012 FERC exemption https://elibrary.ferc.gov/eLibrary/filedownload?fileid=01CF0750-66E2-5005-8110-C31FAFC91712
Powerhouse	Date of initial operation (past or future for pre-operational applications)	2013
	Total installed capacity (MW) **For recertifications: Indicate if installed capacity has changed since last certification**	0.25 MW No change
	Average annual generation (MWh) and period of record used **For recertifications: Indicate if average annual generation has changed since last certification**	246 MWh for 2015 thru 2020
	Mode of operation (run-of-river, peaking, pulsing, seasonal storage, diversion, etc.) **For recertifications: Indicate if mode of operation has changed since last certification**	Run of river No change
	Number, type, and size of turbine/generators, including maximum and minimum hydraulic capacity and maximum and minimum output of each turbine and generator unit	One double regulated, axial flow Kaplan turbine, 250 kW. 20-170 cfs hydraulic capacity
	Trashrack clear spacing (inches) for each trashrack	1 inch
	Approach water velocity (ft/s) at each intake if known	1.1 ft/second
	Dates and types of major equipment upgrades **For recertifications: Indicate only those since last certification**	None
	Dates, purpose, and type of any recent operational changes **For recertifications: Indicate only those since last certification**	N/A
	Plans, authorization, and regulatory activities	

Item	*Information Requested*	*Response (include references to further details)*
	for any facility upgrades or license or exemption amendments	
Dam or Diversion	Date of original dam or diversion construction and description and dates of subsequent dam or diversion structure modifications	1887
	Dam or diversion structure length, height including separately the height of any flashboards, inflatable dams, etc. and describe seasonal operation of flashboards and the like	90 ft long, 30 ft high including 75 ft long spillway that is 23 ft high
	Spillway maximum hydraulic capacity	6,700 cfs
	Length and type of each penstock and water conveyance structure between the impoundment and powerhouse	50 ft long headrace canal 15 ft long penstock
	Designated facility purposes (e.g., power, navigation, flood control, water supply, etc.)	Power supply
Conduit Facilities Only	Date of conduit construction and primary purpose of conduit	n/a
	Source water	n/a
	Receiving water and location of discharge	n/a
Impoundment and Watershed	Authorized maximum and minimum impoundment water surface elevations **For recertifications: Indicate if these values have changed since last certification**	1116.7 ft msl No change
	Normal operating elevations and normal fluctuation range **For recertifications: Indicate if these values have changed since last certification**	1116.7 ft msl, run of river No change
	Gross storage volume and surface area at full pool **For recertifications: Indicate if these values have changed since last certification**	13 acre-feet storage 1.3 acres surface area at maximum surface elevation No change
	Usable storage volume and surface area **For recertifications: Indicate if these values have changed since last certification**	3.1 acre-feet 0.9 acres No change
	Describe requirements related to impoundment inflow and outflow, elevation restrictions (e.g., fluctuation limits, seasonality) up/down ramping and refill rate restrictions.	Refill rate restrictions of 90% passed downstream, 10% used for refill
	Upstream dams by name, ownership and river mile. If FERC licensed or exempt, please provide FERC Project number of these dams. Indicate which upstream dams have downstream fish passage.	Bryon Weston Dam No. 1, Crane and Co. RM 8.08, non-hydro
	Downstream dams by name, ownership, river mile and FERC number if FERC licensed or exempt. Indicate which downstream dams have	Old Berkshire Mill, Crane and Co. RM 7.37, breached, non-hydro

Item	*Information Requested*	*Response (include references to further details)*
	upstream fish passage	Upper Pioneer Dam, Crane and Co. RM 6.87, non-hydro Bay State Pond, Crane and Co. RM 6.67, non-hydro Government Dam, Crane and Co. RM 5.67, non-hydro Coltsville Flow Control Station, City of Pittsfield MA RM 5.5 FERC No. 13658, exempt No fish passage On the Housatonic mainstem in MA: Willow Mill, Patricia Bergowicz FERC No. 2985, license surrendered in 2018, non operational since 2012. Fish passage unknown. Glendale, Gravity Renewables RM 122, FERC No. 2801 licensed. No fish passage
	Operating agreements with upstream or downstream facilities that affect water availability and facility operation	None
	Area of land (acres) and area of water (acres) inside FERC project boundary or under facility control. Indicate locations and acres of flowage rights versus fee-owned property.	1.7 acres
Hydrologic Setting	Average annual flow at the dam, and period of record used	84.9 Cu Ft/Sec for 01/01/20 to 12/31/20 data from USGS 0119700
	Average monthly flows and period of record used	01/01/20 to 12/31/20 data from USGS 0119700 January = 151.48 February = 74.90 March = 194.54 April = 166.14 May = 89.96 June = 24.89 July = 21.18 August = 30.69 September = 15.38 October = 39.43 November = 61.97

Item	*Information Requested*	*Response (include references to further details)*
		December = 160.59
	Location and name of closest stream gaging stations above and below the facility	Upstream: none Downstream: USGS #01197000 East Branch Housatonic River at Coltsville, MA
	Watershed area at the dam (in square miles). Identify if this value is prorated from gage locations and provide the basis for proration calculation.	51.3 square miles prorated from the downstream gage having a drainage area of 57.6 square miles.
	Other facility specific hydrologic information	None
Designated Zones of Effect	Number of zones of effect	2
	Type of waterbody (river, impoundment, bypassed reach, etc.)	Zone 1 – impoundment Zone 2 – de minimis bypass reach, tailrace, and downstream reach
	Upstream and downstream locations by river miles	Zone 1: RM 8.04 - 7.97 Zone 2: RM 7.97 – 6.87
	Delimiting structures or features	Byron Weston No. 1 is top of impoundment Upper Pioneer Dam is bottom of downstream reach

2. STANDARDS MATRICES

Table 2. Standard selections

	Zone:	**1: Impoundment**	**2 and 3. De minimis bypassed reach, tailrace, downstream reach**
River Mile Extent:		RM 8.04 – 7.97	RM 7.97 – 6.87
Criterion		**Standard Selected**	
A	**Ecological Flows**	1	1
B	**Water Quality**	3	3
C	**Upstream Fish Passage**	1	1
D	**Downstream Fish Passage**	2	1
E	**Shoreline and Watershed Protection**	1	1
F	**Threatened and Endangered Species**	2	2
G	**Cultural and Historic Resources**	2	2
H	**Recreational Resources**	1	1

The zones of effect are shown in Figure 6. The impoundment, Zone 1 extends from the dam upstream to the Byron Weston No. 1 dam. The bypassed reach is very short, only 35 feet long from the dam to the powerhouse discharge and is included in Zone 2 with the tailrace/downstream reach which extends downstream approximately 1.1 river miles to the Upper Pioneer Dam. The upper portion of the reach is shown in Figure 6.

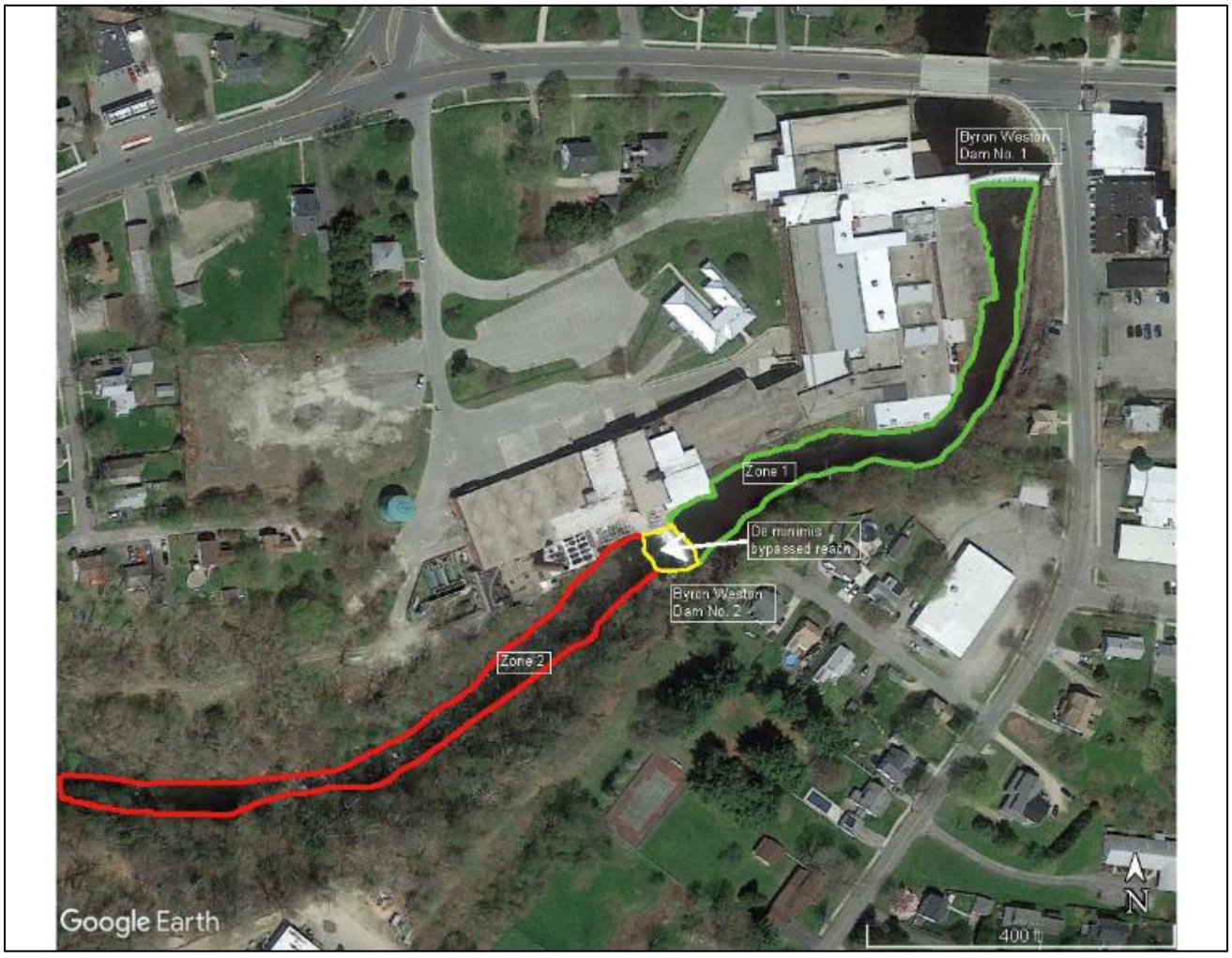


Figure 6. Zones of Effect

3. SUPPORTING INFORMATION

a. Ecological Flow Regimes

Criterion	*Standard*	*Instructions*
A	1	Not Applicable / De Minimis Effect: • Confirm the location of the powerhouse relative to dam/diversion structures and demonstrate that there are no bypassed reaches at the facility. • For run-of-river facilities, provide details on operations and describe how flows, water levels, and operations are monitored to ensure such an operational mode is maintained. In a conduit facility, identify the source waters, location of discharge points, and receiving waters for the conduit system within which the hydropower facility is located. This standard cannot be used for conduits that discharge to a natural waterbody. • For impoundment zones only, explain water management (e.g., fluctuations, ramping, refill rates) and 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.

Both Zones qualify for Standard A-1, given that the bypassed reach is 35 feet long, de minimis in length, and the tailrace backwaters to the base of the dam, maintaining a wetted channel in the bypassed reach. No agencies requested a minimum flow in the bypassed reach at the time of licensing and FERC determined that no minimum flow was needed to maintain aquatic habitat in the reach.

The project operates in an instantaneous run-of-river mode. Article 18 of the FERC exemption requires run-of-river operation and a Run-of-River Operation Maintenance, and Monitoring Plan for maintaining and monitoring run-of-river operation at the project was developed. The plan, dated October 9, 2012, was developed in order to comply with the Terms and Conditions of the FERC exemption provided by the U.S. Fish and Wildlife Service (USFWS) and Massachusetts Department of Fish and Wildlife (MDFW) Conditions 1 and 4; and the Massachusetts Department of Environmental Protection (MADEP) Water Quality Certification (WQC), Conditions 13 and 17. MADEP reviewed the ROR Operations Plan and found it satisfactory.[1]

Project flow control is provided automatically through a Programmable Logic Controller (PLC) unit connected to a water level sensor in the impoundment just upstream of the trashrack. The turbine wicket gates are adjusted automatically based on a signal sent from the impoundment water level (pressure) sensor to the controller. If the controller senses a decrease in the impoundment level, the wicket gates will be closed to reduce flow to the turbine and stabilize the impoundment level. If the controller senses an increase in the impoundment level, the wicket gates will be opened to permit increased flow to be passed through the turbine. Wicket gate physical actuation and adjustment is hydraulic with pressure provided by a hydraulic power unit inside the powerhouse and linked to the PLC. The normal pool / stable level of the impoundment is set at the spillway crest elevation of 1116.7 feet.

The impoundment is kept at a stable elevation so there is no impact on impoundment fish and wildlife

[1] The ROR Plan and MADEP letter are found in Appendix C of the original LIHI application https://lowimpacthydro.org/wp-content/uploads/2020/07/19349.81-LIHI-Revised-Application-Package-FINAL-12-29-2016-reduced.pdf

resources or their habitats. Drawdown of the impoundment below the spillway elevation of 1,116.7 ft would occur only under extraordinary circumstances such as a dam safety emergency, for unusual extensive dam repair activities, or for temporary bypassing of flow around to the spillway to allow for inspection of the spillway "in the dry". MADFW, USFWS, MADEP and FERC would all be notified in advance of any planned extensive repair activities requiring drawdown.

Any temporary drawdown for the purpose of dry spillway inspection would typically be performed for less than one hour and occurs approximately one time per year. Following an impoundment drawdown, the refill procedure passes approximately 90 percent of inflow through the turbine or low-level outlet to maintain downstream flows while the impoundment refills using the remaining 10 percent of the inflow, per USFWS and MDFW Condition 5, and WQC Condition 16. The PLC maintains this procedure until spillway flow begins, at which time standard normal run of river operation is resumed.

b. Water Quality

Criterion	*Standard*	*Instructions*
B	3	Site-Specific Studies: • Document consultation with appropriate water quality agency to determine what water quality parameters and sampling methods are required. • Present recent water quality data from the facility or from other sources in the vicinity of the facility (e.g., data collected from the state, watershed associations, or others who collected data under generally accepted sampling protocols and quality assurance procedures) and explain and demonstrate how it satisfies current applicable water quality standards including designated uses, or provide a letter from the appropriate state or other regulatory agency accepting the data.

Both zones qualify for Standard B-3. While MADEP issued a WQC in September 2011, that is now just over 10 years old. Under article 18 of the FERC exemption, USFWS and MDFW Condition 3 and the WQC Condition 18 required a post-construction water quality monitoring study conducted in an identical manner to the pre-operational baseline study conducted in 2010 which was a very dry year and represented worst-case conditions according to USFWS.[2] However, the data confirmed that the state's Class B warmwater fisheries standards applicable to the river were met, with the exception of a short period with a total of three low dissolved oxygen readings.

Class B designated uses include habitat for fish, other aquatic life, and wildlife, including for their reproduction, migration, growth and other critical functions, and for primary and secondary contact recreation. Where designated in Massachusetts 314 CMR 4.06, they shall be suitable as a source of public water supply with appropriate treatment ("Treated Water Supply"). Class B waters shall be suitable for irrigation and other agricultural uses and for compatible industrial cooling and process uses. These waters shall have consistently good aesthetic value.

The post-operation water quality study was conducted from September 4, 2015 through November 5, 2015 (Appendix A) to record parameters including flow rate, water temperature, water barometric pressure, and dissolved oxygen, every 15 minutes at locations upstream and downstream of the dam. Additionally, precipitation and daily high and low air temperatures were recorded. Based on the study results, the project is in compliance with the water quality standards for Class B warm water fisheries for temperature (not above 83 °F) and dissolved oxygen (not below 5.0 mg/L) between and downstream of

[2] https://elibrary.ferc.gov/eLibrary/filedownload?fileid=017F6821-66E2-5005-8110-C31FAFC91712

the two dams (Byron Weston Dams No. 1 and No. 2).[3] Since project operations have not changed since the study was conducted, there is no likelihood that the project is adversely affecting water quality.

According to the Massachusetts draft 2018/2020 Integrated Waters List[4], the East Branch of the Housatonic River in the project vicinity (MA21-02, from Center Pond formed by the Byron Weston No. 1 dam to the confluence with the mainstem) is classified as a "Water Requiring a TMDL." Specifically, the cause of impairment is from e coli, fecal coliform, and PCB in fish tissue. The source of the PCB discharges has been identified as originating from the General Electric facilities in downstream Pittsfield which has been undergoing remediation activities for many years. The cause of e coli and coliform bacteria is also not due to the hydro project operations. Appendix 16 of the draft report[5] designates this river segment as "fully supporting fish, other aquatic life and wildlife use" but with an alert based on some fathead minnow survival estimates made between 2008 and 2016.

c. Upstream Fish Passage

Criterion	*Standard*	*Instructions*
C	1	Not Applicable / De Minimis Effect: • Explain why the facility does not impose a barrier to upstream fish passage in the designated zone. Typically, impoundment zones will qualify for this standard since once above a dam and in an impoundment, there is no facility barrier to further upstream movement. • Document available fish distribution data and the lack of migratory fish species in the vicinity. • If migratory fish species have been extirpated from the area, explain why the facility is not or was not the cause of the extirpation.

Both Zones qualify for Standard C-1. There are no migratory fish species in the project vicinity. Numerous dams downstream on the mainstem Housatonic River block passage into the East Branch.

Letters from the MDFW and the USFWS, dated January 29 and February 3, 2010, respectively, reported that anadromous and catadromous fish were not present within the project vicinity. Both letters acknowledged that fish passage was not required at the time but could be in the future. Both letters also acknowledged that a migratory fish restoration program targeting American eel, American shad, and river herring was underway on the portion of the Housatonic River in Connecticut and that there were no plans to extend the project to the Massachusetts portion of the river.

Both letters stated: "According to the Connecticut Department of Environmental Protection's (CT DEP) Diadromous Fisheries Plan for the Upper Housatonic River Basin (2000), the Housatonic River from Derby Dam in the towns of Derby and Shelton, upstream to the base of Bulls Bridge Dam in the Town of Kent, has been targeted for anadromous fish restoration. The catadromous American eel is to be restored up to the base of the Falls Village Dam in the towns of Salisbury and Canaan, Connecticut. The new license issued for the Housatonic River Project (FERC No. 2576) requires fish passage facilities at the

[3] Data summary is found in Appendix D of the original LIHI application https://lowimpacthydro.org/wp-content/uploads/2020/07/19349.81-LIHI-Revised-Application-Package-FINAL-12-29-2016-reduced.pdf
[4] p. 173 in https://www.mass.gov/doc/draft-massachusetts-integrated-list-of-waters-for-the-clean-water-act-20182020-reporting-cycle/download
[5] p. 34 in https://www.mass.gov/doc/20182020-draft-integrated-list-of-waters-appendix-16-housatonic-river-watershed-assessment-and-listing-decision-summary/download

Stevenson, Shepaug, and Bulls Bridge dams."[6,7]

The restoration program has not yet expanded beyond Connecticut. The Housatonic River Project fish passage installation has been delayed due to delays in passage installation at the next downstream project, Derby (FERC No. 6066).[8]

Under the FERC exemption standard article 2, USFWS and MDFW Condition 6, and the WQC Condition 20 require construction, operation, and evaluation of upstream and downstream fish passage facilities when notified by USFWS and/or MDFW that such fishways are needed. No notification has been received to date. In addition, USFWS and MDFW Condition 9 reserves authority of each agency "to add to and alter terms and conditions for this exemption as appropriate to carry out its responsibilities with respect to fish and wildlife resources", and to file with FERC within 30 days "any additional terms and conditions imposed" by either agency. No new terms and conditions have been imposed to date.

d. Downstream Fish Passage and Protection

Criterion	*Standard*	*Instructions*
D	2	Agency Recommendation: • Identify the proceeding and source, date, and specifics of the agency recommendation applied (NOTE: there may be more than one; identify and explain which is most environmentally protective). • 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. • Describe any provisions for fish passage monitoring or effectiveness determinations that are part of the agency recommendation, and how these are being implemented. • Provide evidence that required passage facilities are being operated and maintained as mandated (e.g., meets season, coordination with agencies)

Zone 1 qualifies for Standard D-2 and Zone 2 qualifies for Standard D-1 since once fish have passed below the dam there is no further project-related barrier to continued passage.

The fishery in the project vicinity is classified as a warm water fishery with common species including pumpkinseed, bluegill, largemouth and smallmouth bass, white sucker, chain pickerel, yellow perch, brown and black bullhead, fallfish, longnose dace, northern pike, common carp, and brook, brown and rainbow trout. None of these species require passage to complete their life cycles.

All river flow from bank to bank (other than that withdrawn for hydropower production) passes over the spillway and drops vertically approximately 20-23 feet. The area at the toe of the dam consists of a shallow pool over bedrock and exposed bedrock. As noted above, FERC standard article 2, Conditions 6 and 9 of the USFWS and MDFW terms and conditions, and Condition 20 of the WQC require fish passage when notified by the agencies. USFWS and MDFW Condition 2 and WQC Condition 19 required full-depth trashracks with no more than 1-inch spacing and an approach velocity no more than 2 ft/second. The required trash racks were installed when the project was constructed, and maximum estimated approach velocity is less than 1.1 ft/second.

[6] https://elibrary.ferc.gov/eLibrary/filedownload?fileid=01652984-66E2-5005-8110-C31FAFC91712
[7] https://elibrary.ferc.gov/eLibrary/filedownload?fileid=01656B47-66E2-5005-8110-C31FAFC91712
[8] https://elibrary.ferc.gov/eLibrary/filedownload?fileid=02094EEA-66E2-5005-8110-C31FAFC91712

e. Shoreland and Watershed Protection

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

All zones qualify for Standard E-1. There are no lands of significant ecological value or critical habitats for threatened and endangered species, especially given the highly developed nature of the project area. No shoreline management plan or similar plan is required under the FERC exemption.

The western edge of the impoundment and the East Branch immediately downstream of the project consist of vertical bedrock escarpments and the foundations and retaining walls of Crane's mill buildings. The eastern shoreline of the impoundment consists of a steep wooded slope and a 30- to 80-foot-wide corridor between the East Branch and a few residential structures, parking areas, and roads in the Town of Dalton. The steep wooded slope continues immediately downstream of Byron Weston Dam No. 2 separating the East Branch from an adjacent residential area. The industrial and residential development and steep slopes along the East Branch limit the establishment of vegetation and wetlands in the project vicinity. With the Crane mill complex encompassing the western edge of the project area, vegetative cover is primarily located along the eastern edge of the East Branch.

FERC exemption article 18 and WQC Condition 9 required submittal of a construction related erosion and sediment plan filed in 2012. WQC Condition 10 required the Facility to dispose of debris and remove sediments in a manner that will not impair water quality, and Condition 8 requires any work to comply with the Massachusetts Wetlands Protection Act. A Request for Determination of Applicability related to project construction was filed with the DCC on April 25, 2011. The DCC issued a negative determination On June 7, 2011, approving the project. The determination indicated that while the proposed work was within an area subject to protection under the WPA, the work did not involve removing, filling, dredging, or altering the area and that, therefore, filing a Notice of Intent was not required.

In 2015, the Crane family donated a 685-acre parcel that the company had held since the 19th century to the Berkshire Natural Resources Council. The undeveloped land including the Crane Conservation Projects adjacent to the 6,400 acre Chalet Wildlife Management Area and "The Boulders" is located in parts of Dalton, Lanesborough, Windsor, and Pittsfield[9].

[9] https://www.bnrc.org/wp-content/uploads/2018/11/Regional_Chalet_WMA_Boulders.jpg

f. Threatened and Endangered Species

Criterion	*Standard*	*Instructions*
F	2	<u>Finding of No Negative Effects:</u> • Identify all federal and state listed species that are or may be in the immediate facility area based on current data from the appropriate state and federal natural resource management agencies. • Provide documentation that there is no demonstrable negative effect of the facility on any listed species in the area from an appropriate natural resource management agency or provide documentation that habitat for the species does not exist within the ZoE or is not impacted by facility operations.

Both Zones qualify for Standard F-2.

An online USFWS IPaC listed species report was generated on November 8, 2021 (Appendix B) that shows the Northern long-eared bat (federally threatened and state endangered) could be present in the project vicinity. The monarch butterfly, a federal candidate species could also be present, as could a variety of migratory birds including bald eagle. No bird species are state-listed.

Additionally, a review of the Massachusetts Natural Heritage and Endangered Species Program (NHESP) GIS data layers show Estimated or Priority Habitat areas mapped within the project area of the river and adjacent lands. The Priority Habitat (PH) area, PH 1564 extends along the entire river in Dalton and into Pittsfield (Figure 7).

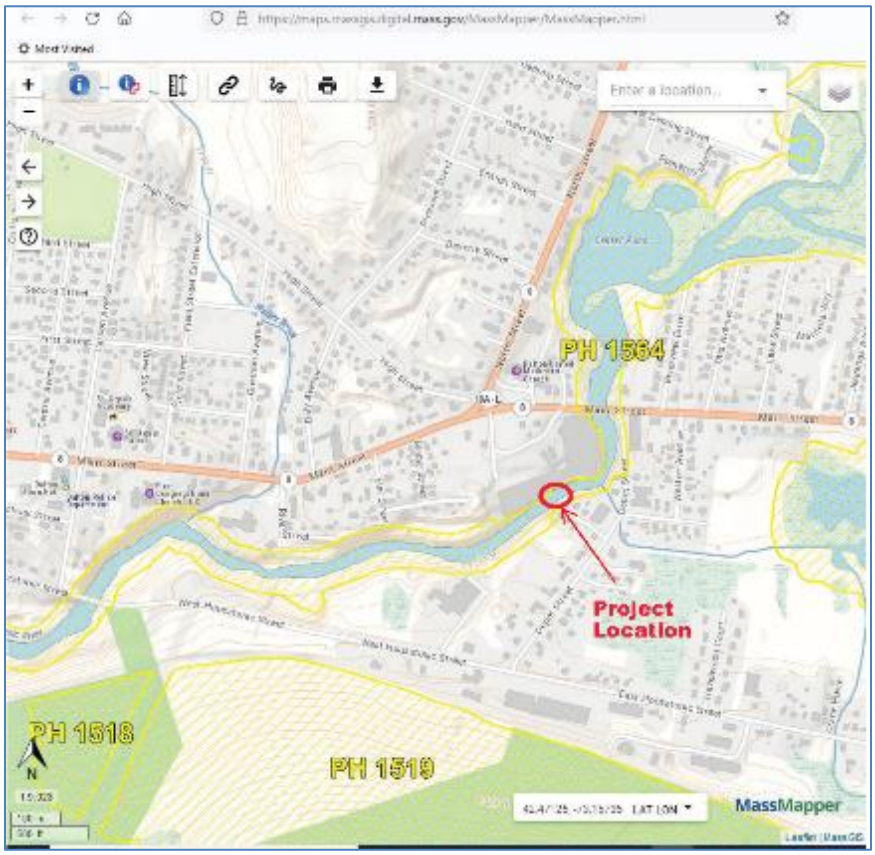


Figure 7. Estimated or Priority Habitat

The Dalton BioMap2 town report[10] lists core habitat number 2215 within the project area as being an "Aquatic Core" with one dragonfly species of conservation concern, ocellated darner, and the state-endangered American bittern bird potentially present along with the unlisted zebra clubtail and smooth green snake.

According to the report, Aquatic Cores are intact river corridors within which important physical and ecological processes of the river or stream occur. They delineate integrated and functional ecosystems for fish species and other aquatic Species of Conservation Concern.

Ocellated darners are dragonflies whose nymphs inhabit clear, shallow, rocky, swift-flowing streams and large, rocky, poorly vegetated lakes. Adults also inhabit nearby uplands, often forests with mixed coniferous and deciduous trees. The zebra clubtail dragonfly inhabits sand-bottomed streams and small rivers with riffles as larvae. Adults feed over the same streams. Surrounding upland forests provide protection while adults reach sexual maturity.

A small to medium-sized snake, adult smooth green snakes are 14-20 inches long with a uniform light green back and yellow to white venter. The species is found in moist open or lightly forested habitat where grasses and shrubs are abundant (edges of marshes, wet meadows, fields, and forest edges or open forests, grasslands, blueberry barrens, pine barrens) and prefers to forage on the ground with activity in the daytime. Smooth Green Snake overwinter in rodent burrows, ant mounds and rock crevices, either singly or communally.

American Bitterns are heron-like birds that nest primarily in large cattail, tussock or shrub marshes and are very sensitive to disturbance.

The 4(d) Rule for bats focuses on minimizing tree cutting near critical bat habitat. Due to the developed nature of the project and the availability of other wooded areas along portions of the East Branch of the Housatonic River, it is unlikely that this species would roost at the project. Furthermore, since operations do not include tree cutting, it is unlikely that these activities would adversely impact habitat for the northern long-eared bat. Likewise, run-of-river operations are unlikely to impact the dragonfly species, snake, or bittern even if they are present.

g. Cultural and Historic Resources

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

Both Zones qualify for Standard G-2. The Massachusetts Historical Commission (MHC, or SHPO) and the Dalton Historical Commission (DHC) were consulted during the FERC permitting process. In a letter dated December 15, 2009, the MHC acknowledged the project and recommended consultation with the DHC. In a letter dated July 20, 2010, the DHC indicated its support of the project and that it believed the Byron Weston Defiance Mill building is eligible for listing in the Register of Historic Places. These comments indicated that the project has no significant effects on cultural resources although no formal

[10] http://maps.massgis.state.ma.us/dfg/biomap/pdf/town_core/Dalton.pdf

determination was made by MHC who did not respond to FERC's determination of a no effect finding in an October 17, 2011 letter to MHC.

Exemption article 25 required consultation with the SHPO prior to conducting any maintenance activities, land-clearing or land-disturbing activities, or changes to project operation or facilities that do not require FERC approval but could affect cultural resources. Article 26 requires work to stop and consultation to commence with the SHPO if previously unidentified cultural resources are discovered during project construction or operation.

Article 27 of the FERC exemption required a Wheel Turbine Relocation Plan (Relocation Plan) be submitted to the SHPO and DHC for the relocation and refurbishment of the old McCormick Hercules wheel turbine. These letters, the Relocation Plan, and a subsequent letter from the DHC approving of the plan are included in the original LIHI application.[11] The wheel turbine was relocated and placed on display at the Crane Museum of Papermaking[12] in August 2017.

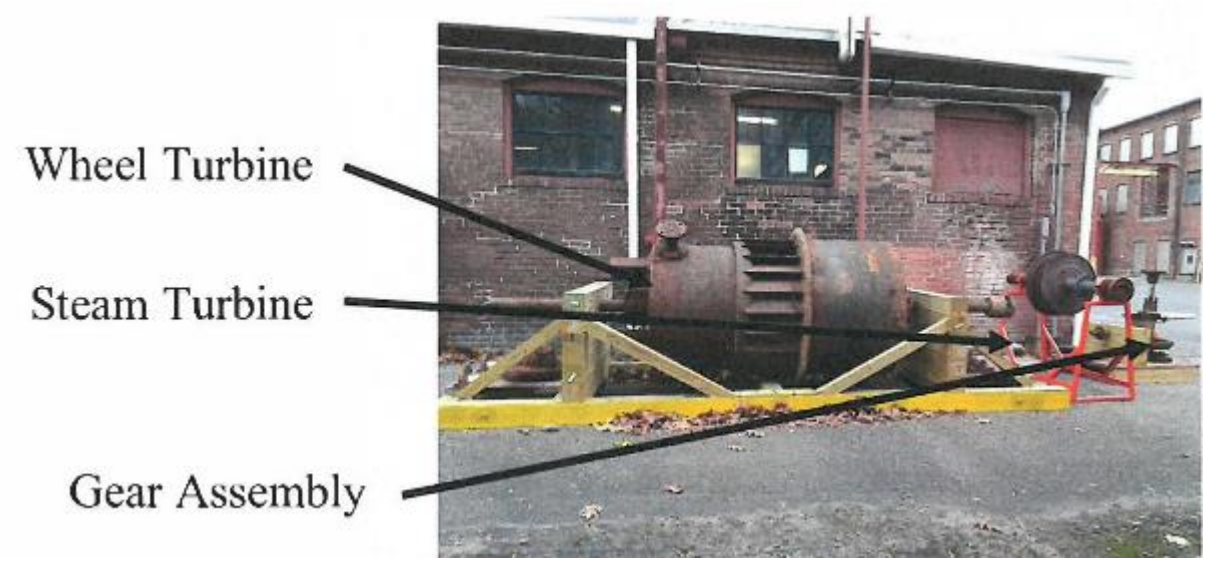


Figure 8. Relocated Turbine

The museum is located in what was the rag room of Crane's Old Stone Mill, dating back to 1844. This was the first mill built by the second generation of Crane papermakers in Dalton, Massachusetts - Zenas Marshall and James Brewer Crane, following the retirement of the pioneer papermaker Zenas Crane.

The Museum opened in 1930 after an extensive renovation, making it one of the oldest corporate museums in the country. The grounds were designed by the F.L and J.C Olmsted firm. Exhibits in the Museum trace the 250-year history of Crane papermaking from The Liberty Paper Mill in Milton, Mass., which operated from 1770 to 1793, to the present. The Liberty Mill was indeed a cradle of the American Revolution, serving such revolutionary luminaries as Paul Revere, Henry Knox, John Hancock and a host of others responsible for today's freedom.

[11] Appendix H https://lowimpacthydro.org/wp-content/uploads/2020/07/19349.81-LIHI-Revised-Application-Package-FINAL-12-29-2016-reduced.pdf
[12] https://cranemuseum.org/

h. Recreational Resources

Criterion	*Standard*	*Instructions*
H	1	Not Applicable / De Minimis Effect: • Document that the facility does not occupy lands or waters to which public access can be granted and that the facility does not otherwise impact recreational opportunities in the facility area.

Both Zones qualify for Standard H-1.

The FERC exemption does not include recreation requirements. Due to the steep shoreline slopes, adjacent manufacturing facilities, small impoundment size, difficult accessibility, and presence of the dam, the impoundment is not a favorable or safe location for recreation. Therefore, there is no public access to the impoundment between Dam No. 1 and Dam No. 2. However, exemption article 24 required a Public Safety Plan which includes "an evaluation of public safety concerns at the project site, including any designated recreation areas, and assess the need for the installation of safety devices or other safety measures. The submitted plan shall include a description of all public safety devices and signage, as well as a map showing the location of all public safety measures."

There are no formal recreation facilities in the project area and there is no history of any significant recreational use of the impoundment or immediate downstream areas. The Appalachian National Scenic Trial (AT), a 2,181-mile long public footpath that follows the Appalachian Mountains from Georgia to Maine, passes through the Town of Dalton in the immediate project vicinity. The trail passes along Depot Street on river-left of the project impoundment and continues onto Main Street where it crosses the river upstream of the impoundment. The impoundment created by the Byron Weston No. 2 Dam is visible from the trail. However, the dam, its spillway, the area immediately downstream of the dam and the tailrace discharge area are not visible from the trail due to the obstructed view created by private properties and vegetation.

Boating is allowed in the East Branch upstream of the Byron Weston No. 1 Dam, and a paddling guide was created by the Housatonic Valley Association.[13]

13 https://www.townoflenox.com/sites/g/files/vyhlif3341/f/uploads/a_paddling_guide_to_the_housatonic_river_in_berkshire_county.pdf

4. FACILITY AND STAKEHOLDER CONTACTS FORMS

Project Owner:	
Name and Title	David Boino, Manager of Engineering
Company	Crane & Co., Inc.
Phone	413-684-6502
Email Address	David.Boino@cranecurrency.com
Mailing Address	30 South Street Dalton, MA 01226
Project Operator (if different from Owner):	
Name and Title	Michael Higgins, Environmental Manager
Company	Crane & Co., Inc.
Phone	413-684-6268
Email Address	Michael.Higgins@cranecurrency.com
Mailing Address	30 South Street Dalton, MA 01226
Consulting Firm / Agent for LIHI Program (if applicable):	
Name and Title	
Company	
Phone	
Email Address	
Mailing Address	
Compliance Contact (responsible for LIHI Program requirements):	
Name and Title	David Boino, Manager of Engineering
Company	Crane & Co., Inc.
Phone	413-684-6502
Email Address	David.Boino@cranecurrency.com
Mailing Address	30 South Street Dalton, MA 01226
Party responsible for accounts payable:	
Name and Title	Crane Accounts Payable
Company	Crane & Co., Inc.
Phone	413-684-2600
Email Address	AP@cranecurrency.com
Mailing Address	30 South Street Dalton, MA 01226

Current and relevant state, federal, and tribal resource agency contacts with knowledge of the facility (copy and repeat the following table as needed).

Agency Contact		***Area of Responsibility***
Agency Name	US Fish and Wildlife Service	_x__ Flows ___ Water Quality _x__ Fish/Wildlife ___ Watershed _x__ T&E Species ___ Cultural/Historic ___ Recreation
Name and Title	Melissa Grader	
Phone	(413) 548-9138	
Email address	Melissa_Grader@fws.gov	
Mailing Address	US FWS/New England Field Office c/o CT River Coordinator's Office 103 East Plumtree Road Sunderland, MA 01375	
Agency Contact		***Area of Responsibility***
Agency Name	Massachusetts Department of Environmental Protection Division of Watershed Management	_x__ Flows _x__ Water Quality ___ Fish/Wildlife ___ Watershed ___ T&E Species ___ Cultural/Historic ___ Recreation
Name and Title	Derek Standish	
Phone	(339) 225-5084	
Email address	derek.standish@mass.gov	
Mailing Address	627 Main Street Worcester, MA 01608	
Agency Contact		***Area of Responsibility***
Agency Name	Massachusetts Division of Fisheries & Wildlife	___ Flows ___ Water Quality ___ Fish/Wildlife ___ Watershed _x__ T&E Species ___ Cultural/Historic ___ Recreation
Name and Title	Eve Schlüter, Assistant Director	
Phone	(508) 389-6346	
Email address	eve.schluter@mass.gov	
Mailing Address	1 Rabbit Hill Road, North Drive Westborough, MA 01581	
Agency Contact		***Area of Responsibility***
Agency Name	Massachusetts Division of Fisheries and Wildlife	_x__ Flows ___ Water Quality _x__ Fish/Wildlife ___ Watershed ___ T&E Species ___ Cultural/Historic ___ Recreation
Name and Title	Steven Mattocks	
Phone	(508) 389-6339	
Email address	steven.mattocks@state.ma.us	
Mailing Address	100 Hartwell Street, Suite 230 West Boylston, MA 01583	

Current stakeholder contacts that are actively engaged with the facility (copy and repeat the following table as needed).

None

B.3 Attestation and Waiver Form

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

ATTESTATION

As an Authorized Representative of Crane & Co., Inc, the Undersigned attests that the material presented in the application is true and complete.

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

The Undersigned further acknowledges that if LIHI Certification of the applying facility is granted, the LIHI Certification Mark License Agreement must be executed prior to the final certification decision and prior to marketing the electricity product as LIHI Certified® (which includes selling RECs in a market that requires LIHI Certification).

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

FOR PRE-OPERATIONAL CERTIFICATIONS:

The Undersigned acknowledges that LIHI may suspend or revoke the LIHI Certification should the impacts of the facility, once operational, fail to comply with the LIHI program requirements.

Authorized Representative:

Name: David Boino

Title: Principal Project Engineer

Authorized Signature: David Boino

Date: January 27, 2022

APPENDIX A – WATER QUALITY STUDY REPORT

TABLE 5: POST CONSTRUCTION WATER QUALITY STUDY RESULTS SUMMARY

Byron Weston Hydroelectric Project
Dalton, Massachusetts

Sensor ID:	Sensor 1			Sensor 2[3]			Sensor 3			Sensor 4			Class B Water Quality Benchmarks[5]
Study Parameter	Minimum	Maximum	Arithmetic Mean	Minimum	Maximum	Arithmetic Mean	Minimum	Maximum	Arithmetic Mean	Minimum	Maximum	Arithmetic Mean	
Flow Rate (CFS avg)[a]	14.7	284	48.7	15.5	43.6	25.5	14.7	284	48.7	14.7	284	52.5	NA
Water Temp (Deg F)[b]	41.0	72.4	55.3	59.4	71.9	66.5	40.3	71.0	54.4	41.0	68.3	53.5	≤83 Deg F
Water Barometric Pressure (in Hg)[b]	27.2	28.8	27.9	27.6	28.4	28.0	27.1	29.0	28.0	26.6	29.3	27.7	NA
DO (% Saturation)[b]	69.8	107	99.8	89.9	106	97.7	94.4	111	104	97.4	111	104	NA
DO (mg/L)[c]	8.40	13.2	10.6	8.10	9.90	9.00	9.10	14.1	11.3	11.0	14.1	11.4	≥5.0 mg/L
Precipitation (Inches)[d]	0.000	1.17	0.093	0.000	0.680	0.148	0.000	1.17	0.093	0.000	1.17	0.098	NA
Max Daily Air Temp (Deg F)[d]	41.0	92.0	67.3	67.0	92.0	82.8	41.0	92.0	67.3	41.0	85.0	65.0	NA
Min Daily Air Temp (Deg F)[d]	17.0	63.0	41.0	47.0	62.0	54.7	17.0	63.0	41.0	17.0	63.0	39.1	NA

Notes:

1. Calculations are derived from the Crane & Company Byron Weston Dam #2 Post Contruction Water Quality Study Data for FERC License Exemption Project 13583. The study was carried out at Low Flow High Temperature conditions from 9/4/2015 thorugh 11/5/2015 using four in-situ water quality measuring instruments (In-Situ Roll 9500) set to automatically record every 15 minutes.
2. The four sensors were positioned across the site as follows:
   - Sensor 1: Deployed at Toe of Dam #1 in Upstream of Impoundment for Dam #2
   - Sensor 2: Deployed at Deep Location in Impoundment for Dam #2
   - Sensor 3: Deployed at Toe of Dam #2 in Tailrace of Hydro
   - Sensor 4: Deployed Downstream of Dam #1
3. Sensor 2 malfunctioned on 9/15/2015, so data for this sensor is limited to the 9/4/2015 through 9/15/2015 portion of the study.
4. Data is from the following sources:
   - a All Water Sensors
   - b USGS Flow Data from station 1197000. East Branch Housatonic
   - c Converted from water sensor readings
   - d Weather information from station GHCND:USC00194131 in LENOX DALE, MA.
5. Water Quality Benchmarks are from 314 CMR 4 as presented for Class B, Warm Water Fisheries at: http://www.mass.gov/eea/docs/dep/service/regulations/314cmr04.pdf
6. CFS = Cubic feet per second; DO = Dissolved oxygen; NA = Not applicable/Not available

APPENDIX B – USFWS SPECIES REPORT

IPaC Information for Planning and Consultation **U.S. Fish & Wildlife Service**

IPaC resource list

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

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

Location

Berkshire County, Massachusetts

Local office

New England Ecological Services Field Office

(603) 223-2541
(603) 223-0104

70 Commercial Street, Suite 300
Concord, NH 03301-5094

http://www.fws.gov/newengland

Endangered species

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

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

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

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

1. Draw the project location and click CONTINUE.
2. Click DEFINE PROJECT.
3. Log in (if directed to do so).
4. Provide a name and description for your project.
5. Click REQUEST SPECIES LIST.

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

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

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

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

Mammals

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

Insects

NAME	STATUS
Monarch Butterfly Danaus plexippus Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/9743	Candidate

Critical habitats

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

THERE ARE NO CRITICAL HABITATS AT THIS LOCATION.

Migratory birds

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

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

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

Additional information can be found using the following links:

- Birds of Conservation Concern http://www.fws.gov/birds/management/managed-species/birds-of-conservation-concern.php
- Measures for avoiding and minimizing impacts to birds http://www.fws.gov/birds/management

/project-assessment-tools-and-guidance/conservation-measures.php

- Nationwide conservation measures for birds http://www.fws.gov/migratorybirds/pdf/management/nationwidestandardconservationmeasures.pdf

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

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

NAME	BREEDING SEASON (IF A BREEDING SEASON IS INDICATED FOR A BIRD ON YOUR LIST, THE BIRD MAY BREED IN YOUR PROJECT AREA SOMETIME WITHIN THE TIMEFRAME SPECIFIED, WHICH IS A VERY LIBERAL ESTIMATE OF THE DATES INSIDE WHICH THE BIRD BREEDS ACROSS ITS ENTIRE RANGE. "BREEDS ELSEWHERE" INDICATES THAT THE BIRD DOES NOT LIKELY BREED IN YOUR PROJECT AREA.)
Bald Eagle Haliaeetus leucocephalus This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/1626	Breeds Dec 1 to Aug 31

Black-billed Cuckoo *Coccyzus erythropthalmus* — Breeds May 15 to Oct 10

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/9399

Bobolink *Dolichonyx oryzivorus* — Breeds May 20 to Jul 31

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Canada Warbler *Cardellina canadensis* — Breeds May 20 to Aug 10

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Cape May Warbler *Setophaga tigrina* — Breeds Jun 1 to Jul 31

This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA

Evening Grosbeak *Coccothraustes vespertinus* — Breeds May 15 to Aug 10

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Golden Eagle *Aquila chrysaetos* — Breeds Jan 1 to Aug 31

This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.
https://ecos.fws.gov/ecp/species/1680

Lesser Yellowlegs *Tringa flavipes* — Breeds elsewhere

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/9679

Olive-sided Flycatcher *Contopus cooperi* — Breeds May 20 to Aug 31

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/3914

Prairie Warbler *Dendroica discolor* — Breeds May 1 to Jul 31

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Wood Thrush *Hylocichla mustelina* Breeds May 10 to Aug 31

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Probability of Presence Summary

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

Probability of Presence (▪)

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

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

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

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

Breeding Season (▪)

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

Survey Effort (|)

Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps. The number of

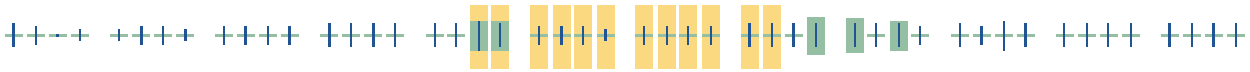
surveys is expressed as a range, for example, 33 to 64 surveys.

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

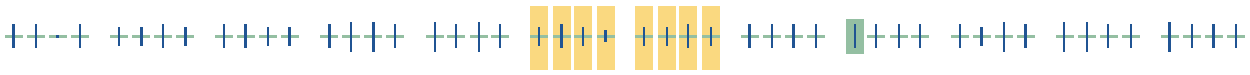
No Data (–)
A week is marked as having no data if there were no survey events for that week.

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

Canada Warbler BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)



Cape May Warbler BCC - BCR (This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA)

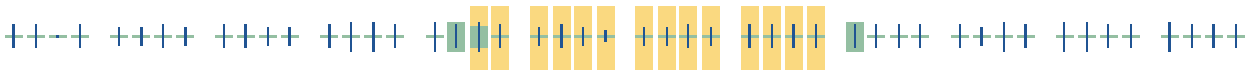


Evening Grosbeak BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)

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

Lesser Yellowlegs BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)

Olive-sided Flycatcher BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)



Prairie Warbler BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)

Wood Thrush BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)

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

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

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

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

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

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

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

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

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

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

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

What are the levels of concern for migratory birds?

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

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

Although it is important to try to avoid and minimize impacts to all birds, efforts should be made, in particular, to avoid and minimize impacts to the birds on this list, especially eagles and BCC species of rangewide concern. For

more information on conservation measures you can implement to help avoid and minimize migratory bird impacts and requirements for eagles, please see the FAQs for these topics.

Details about birds that are potentially affected by offshore projects

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

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

What if I have eagles on my list?

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

Proper Interpretation and Use of Your Migratory Bird Report

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

Facilities

Wildlife refuges and fish hatcheries

REFUGE AND FISH HATCHERY INFORMATION IS NOT AVAILABLE AT THIS TIME

Wetlands in the National Wetlands Inventory

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

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

WETLAND INFORMATION IS NOT AVAILABLE AT THIS TIME

This can happen when the National Wetlands Inventory (NWI) map service is unavailable, or for very large projects that intersect many wetland areas. Try again, or visit the NWI map to view wetlands at this location.

Data limitations

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

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

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

Data exclusions

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

Data precautions

Federal, state, and local regulatory agencies with jurisdiction over wetlands may define and describe wetlands in a different manner than that used in this inventory. There is no attempt, in either the design or products of this inventory, to define the limits of proprietary jurisdiction of any Federal, state, or local government or to establish the geographical scope of the regulatory programs of government agencies. Persons intending to engage in

activities involving modifications within or adjacent to wetland areas should seek the advice of appropriate federal, state, or local agencies concerning specified agency regulatory programs and proprietary jurisdictions that may affect such activities.