Brookfield
Renewable

April 12, 2021

**Brunswick Project**
**FERC No. 2284-ME**

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

*Via eFiling*

**Subject: Brunswick Project FERC No. 2284-ME**
**Fishway Operation and Maintenance Plan**

Dear Secretary Bose,

Brookfield White Pine Hydro LLC (BWPH), owner and operator of the Brunswick Project on the Androscoggin River in Brunswick, Maine, hereby submits for your records the 2021 Brunswick Fishway Operation and Maintenance (FO&M) Plan for the Brunswick Project.

This FO&M Plan will provide guidelines on the critical procedures necessary to operate the Brunswick fish passage facilities in accordance with our FERC license and Interim Species Protection Plan, filed with the FERC on December 31, 2019. The FO&M Plan defines what fish passage facilities currently exist, the period in which the facilities are to be operated, guidance on the annual start-up and shut-down procedures, routine operating guidelines, safety rules and procedures that are in place. Along with these defined procedures and guidelines, the FO&M Plan includes the Handling Plan for Shortnose and Atlantic Sturgeon as well as necessary supporting information such as contact information, daily inspection forms, drawings and spare parts available on-site. This Plan is intended to be dynamic and will likely evolve as best practices are identified, changes in contact information are made, and so forth.

BWPH submitted a draft of the Brunswick FO&M Plan to the United States Fish and Wildlife Service (USFWS), the National Marine Fisheries Service (NMFS), the Maine Department of Marine Resources (MDMR), the Maine Department of Inland Fisheries and Wildlife (MDIFW) and the Maine Department of Environmental Protection (MDEP) for review and comment on September 25, 2020. A meeting was held on December 3, 2020 to discuss substantive comments and edits received on this draft. The FO&M Plan was revised based on these comments and the issues discussed during the December 3, 2020 meeting and a revised FO&M Plan was distributed to the agencies for review on March 2, 2021. Minor comments were received from the NMFS and MDMR and were addressed in the final FO&M Plan submitted herein. The consultation record for the development of the FO&M Plan is likewise attached.

Please contact Adam Brown at (207) 313-1173 or at Adam.Brown@brookfieldrenewable.com with any questions.

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Brookfield
Renewable

Sincerely,

Kelly Maloney,
Manager, Compliance – Northeast

Enclosures: Brunswick Fishway Operations and Maintenance Plan
Agency Correspondence

Cc: N. Stevens, M. LeBlanc, S. Michaud, P. McDonough, E. Thone; BWPH

HSSE Managed System: 2284|01

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# Brunswick Fishway Operations and Maintenance Plan

# BRUNSWICK HYDROELECTRIC PROJECT

## FERC NO. 2284

## FISH PASSAGE OPERATIONS & MAINTENANCE PLAN

**Version 3.0**

**Revised: April 7, 2021**

**Operated by:**

**Brookfield White Pine Hydro, LLC**

**An indirect subsidiary of**

**Brookfield Renewable Energy Group**

**Lewiston, ME**

# BRUNSWICK FISH PASSAGE OPERATIONS & MAINTENANCE PLAN

# BRUNSWICK FISH PASSAGE OPERATIONS & MAINTENANCE PLAN

## 1.0 - INTRODUCTION

This Fish Passage Operations and Maintenance Plan (the "Plan") is intended to define how Brookfield White Pine Hydro, LLC (BWPH, an indirect subsidiary of Brookfield Renewable (Brookfield)), owner and Licensee of the Brunswick Hydroelectric FERC Project No. 2284 ("Brunswick Project" or the "Project") will operate and maintain the fish passage facilities in cooperation with the Maine Department of Marine Resources (MDMR). This Plan is part of Brookfield's commitment to our environmental principles that are based on the fundamental values of accountability, partnership and open communication. As such, we have accepted the responsibility entrusted to us to manage natural resources in ways to ensure sustainable development.

The Plan will define what fish passage facilities (the "Facilities") currently exist at the Brunswick Project, the period in which the Facilities are to be operated, guidance on the annual start-up and shut-down procedures, routine operating guidelines, debris management, and safety rules and procedures that are in place. Along with these defined procedures and guidelines, the Plan includes the necessary supporting information such as contact information, daily inspection forms, drawings, and spare parts on-site.

## 2.0 - BACKGROUND

The Brunswick Project is located at river mile 6 (head of tide) and is the first dam on the main stem of the Androscoggin River. The Project is equipped with a vertical slot upstream fish way and a downstream bypass fish way that were installed in 1983. The fish passage facilities were designed and installed in consultation with the U.S. Fish and Wildlife Service (USFWS) and MDMR for passage of American shad, alewife, and Atlantic salmon. The facilities are currently operated in cooperation with federal and state fishery resource agencies.

The dam and powerhouse span the Androscoggin River immediately above the U.S. Route 201 Bridge, connecting Topsham and Brunswick, along a site originally known as Brunswick Falls. The Brunswick Project includes a 4.5 mile long 300 acre impoundment, a 605 foot concrete gravity dam approximately 39.4 feet high, a gate section containing two Taintor gates and an emergency spillway and a powerhouse and associated intake structure. In addition, the project has one upstream and one downstream fish way, a 21 foot high fish barrier wall between the dam and Shad Island in the tailrace, and a 3 foot high 20 foot long concrete fish barrier weir across the spillway ledges on the Topsham side of the river.

The concrete gravity dam consists of two ogee overflow spillway sections separated by a pier and barrier wall. The two Taintor gates, each measuring 32.5 feet wide by 22 feet high, and an

emergency spillway are located at the left abutment on the Topsham shoreline. The intake structure and powerhouse are integral with the dam and located adjacent to the Brunswick shoreline. The 3.5 inch clear spacing trashracks, which are situated in front of the unit gate slots, are cleaned using a motor-operated trash rake from a concrete deck. The 1983 powerhouse contains one vertical propeller unit and two horizontal propeller units having an installed capacity of 19 MW and a flow of 7,800 cfs. The project's tailrace is excavated river bed. The normal tailwater elevation is 2.5 feet mean sea level (msl).

## 3.0 - DESCRIPTION OF FISH PASSAGE FACILITIES

### 3.1 - UPSTREAM FISH PASSAGE - DESCRIPTION

Upstream fish passage at Brunswick is provided via a vertical slot fish way and is parallel to the tailrace and adjacent to the south side of the powerhouse. The fishway and associated trap and sort facility were installed in 1983. The fish way is 570 feet long and consists of 42 individual pools, each pool is eight feet six inches wide and ten feet long, with a one-foot drop between each and a 1:10 in a switchback configuration. The fish way is designed to pass American shad, river herring, and Atlantic salmon. The trapping facility, located at the upstream end of the fish way, provides MDMR or BWPH staff the opportunity to trap and truck river herring, sort undesirable fish and also to collect data on migratory and resident fish species that use the fish way. As fish swim to the top of the fish way, fixed grating guides them past a viewing window and into a 500-gallon capacity fish hoist (trap). The hoist elevates the fish to overhead sorting tanks where MDMR or BWPH staff sort and pass fish upstream. Fish can be trucked and can also be passed above the Brunswick Project via a concrete exit flume leading to the headpond.

The fishway flows consists of approximately 30 cfs passing downstream through the fishway with an additional 70 cfs passed via an attraction water system (AWS) consisting of a gravity fed pipe from the headpond to a diffusion area at the lower end of the fishway for a total flow of 100 cfs. An electric Rotork operator located at the fishway entrance is automated to pass all fishway flows (~100 cfs) over the entrance gate with an approximate 0.75 foot drop during all tidal levels with a .25 foot deadband so as to not operate inside of every 10 minutes. Although the vertical slot fish way is designed to run volitionally, the Brunswick fish way will not operate in a volitional manor as to prevent the passage of invasive species.

The Brunswick upstream fish way is owned and maintained by Brookfield and, under prior agreement; MDMR personnel also operate the fish way each season. A formal agreement for shared operations of the fishway was in existence since December 1977 but was terminated by MDMR letter dated November 21, 2016. Brookfield and MDMR have an

interim informal agreement where MDMR voluntarily operates the fishway from May 1 to July 31.

A direct feed remote video monitoring system will be installed in 2021. The camera will observe all activity passing the viewing window and will be monitored by fish passage technicians located at the Lockwood fish passage facility. The live-time video will allow technicians to determine if a salmon is present and react as needed (i.e. have onsite or NSCC staff open the gate to allow fish to pass volitionally once the lack of invasive species in the vicinity is confirmed).

### 3.2 - DOWNSTREAM FISH PASSAGE - DESCRIPTION

A downstream fish way consists of a 12 foot six inch high by 4 foot 8 inch wide weir and associated intake chamber leading to an eighteen inch pipe located in between Units 1 and 2. The pipe passes through the powerhouse and discharges into the tailrace.

## 4.0 - OPERATION AND MAINTENANCE OF FISH PASSAGE FACILITIES

### 4.1 - UPSTREAM FISH PASSAGE – OPERATIONS & MAINTENANCE

### OPERATIONAL PERIOD

- The opening date of the Brunswick fishway is May 1, as conditions allow.
- From May 1 through June 15:
    - MDMR or BWHP staff will monitor the fishway seven days per week daily from 07:00 to 19:00[1].
    - Brookfield seasonal staff and operational staff will provide supplement coverage as needed.
- From June 15 through July 31:
    - MDMR or BWHP staff will monitor the fishway seven days per week daily from 09:00 to 19:00[2].
    - Brookfield seasonal staff and operational staff will provide supplement coverage as needed.
- August 1 to November 15:
    - A brief August shutdown for maintenance and inspection is typically undertaken during the first two weeks of August.
    - Brookfield seasonal staff and operational staff will be on site several hours a day to conduct daily checks and cleaning.

[1] Trapping and trucking activities are dictated by river herring run and count numbers within the 7 am to 7 pm work window.

[2] Sorting and passage activities are dictated by shad run and count numbers within the 9 am to 7 pm work window.

    - A direct feed remote video monitoring system will be installed in 2021. The camera will observe all activity passing the upper flume viewing window to determine if a salmon is present. The video feed will be monitored by fish passage technicians stationed at the Lockwood facility during the times that seasonal or operational staff are not onsite and actively monitoring the fishway, 09:00 to 19:00.
    - The upstream fishway gate will be automated in 2021 to ensure timely passage of salmon. The gate will be operated by onsite staff when they are present or remotely by the NSCC. The camera feed will be checked for invasive species prior to opening the gate and a riser will be placed in the floor of the flume in front of the window to prevent blind spots.
- The closing date of the Brunswick fishway is November 15, as conditions allow[3].
- 20,000 cfs is the operational shutdown river flow, as conditions allow. The fishway may be closed earlier pending high river flows, debris loading and/or safety concerns. Agencies are notified of operational fish passage changes.
- The first Brookfield point of contact for all fishway related issues is the local Supervisor of Operations

**OPENING METHODS**

- LOTO (Lock out Tag Out) and set up fall arrest/fall retrieval devices and rescue boat and if necessary install handrails along the lower section of the fish way as soon as tailwater levels allow safe access to this area
- De-water lower section of fishway and clear all debris from fish way pools and attraction water diffusion chamber. Inspect for any damaged components and repair as necessary
- Inspect and repair as necessary wooden baffles in pools 1-7
- Inspect and repair as necessary staff gauges in the lower fishway and outside of entrance
- Clear debris from attraction water upper flume intake grating and upper fish way flume
- Inspect attraction water intake grating and air cleaning system and repair as necessary
- Install entrance gate actuator
- Inspect and grease upper flume baffle slide gates, test float switch and place in auto position
- Re- connect fish tank water pump piping

[3] Given prevailing river conditions and debris loading, the Brunswick Project upstream fishway is rarely operational past October 31.

- Install tent cover over fish holding tanks
- Activate and test upper flume water level alarm
- Water up fish way by opening upper flume exit gate and adjust entrance gate via PLC for approximately 0.75 differential between entrance gate and tailrace with a 0.25 foot deadband.
- Verify entrance gate differential using both staff gates
- Place exit gate in hand position
- Place entrance gate in auto position
- Place AWS valve in auto position
- Place downstream migrant weir in auto position
- Verify that no vertical slot weirs are overtopping

**SPARE PARTS**

- 2 entrance gate actuator drive bushings
- 1 exit gate actuator drive bushing
- 2 upper flume water level weir gate actuator drive bushings
- 1, fish tank water pump
- 1 blowback solenoid valve

**WORKFORCE PLANNING AND ROLES AND RESPOSIBILITIES**

The fishway is currently operated by MDMR or BWPH in May, June and July and by BWPH seasonal fishway technicians and compliance specialists in cooperation with BWPH hydro technicians during the other periods of the fish migration season. The day to day operation and general cleaning of the fishway is conducted by the MDMR or BWPH seasonal fishway technicians and compliance specialists and the hydro technicians assist as needed for resolution of mechanical, electrical and major debris issues. From May 1 through July 1, Brookfield technicians will operate the public viewing room area Wednesday through Sunday from 12:00 to 17:00 and be available to assist MDMR staff daily if needed.

MDMR and BWPH staff trap and sort all fish species, including Atlantic salmon. MDMR trucks alewife from the Brunswick facility and collects biological information and samples of Atlantic salmon (length, scales, genetic punch and condition) when river temperatures are below 21 degrees C. Above 21 degrees C. all Atlantic salmon are passed directly to the headpond without handling and length and condition are recorded from the viewing window. BWPH staff will not handle Atlantic salmon. BWPH staff will take a picture and get an estimated length and pass the fish into the headpond. All Atlantic salmon, shad and portions of the alewife run are released to the Brunswick headpond to continue their upstream migration.

The vertical slot fish way is designed to run volitionally but will not operate in a volitional manor unless the passage of invasive species can be prevented. To that end, during the river herring and shad season (prior to August 1), all fish are lifted to the sorting facility and all invasive species are returned to the tailrace. Following the river herring and shad season, for the timely passage of Atlantic salmon, the fishway may be operated volitionally (such as when river temperatures exceed 21 degrees C) but only if it can be confirmed that an invasive species is also not in the upper flume in the vicinity of the upstream gate. Should an invasive species be present, that fish will be dip netted from the upper flume and returned to the tailrace prior to opening the upstream gate and allowing the Atlantic salmon to pass.

- Staffing Requirements:
    - Start Up (May 1, as conditions allow) - Crew of 4 plus crane operator
    - Trapping and Trucking Operations – Crew of 2 to 3 (generally May 1 to June 15)
    - Routine Operations – Crew of 1 to 2 (generally June 16 to Shut Down)
    - Routine Maintenance – Crew of 2 for standard maintenance, crew of 4 for fish way entry for cleaning
    - Shut Down – Crew of 4 (November 15, as conditions allow)
    - From May 1 through July 1, Brookfield technicians will operate the public viewing room area Wednesday through Sunday from 12:00 to 17:00 and be available to assist MDMR staff daily if needed from 07:00 to 19:00.

- Daily Basis:
    - The fishway is inspected for debris accumulation. If debris is found, MDMR or BWPH staff remove debris from fishway. If debris is not manageable by MDMR, BWPH hydro operations crew remove debris and dewater fishway, if necessary.
    - The vertical slot weirs are inspected for proper flow
    - The fish tank pumps are inspected for proper operation
    - The supplemental attraction water valve is open 100%
    - The entrance gate is confirmed as providing proper outflow
    - The fishway daily log sheets and the daily inspection sheets are completed by MDMR/BWPH utilizing Appendix A and B form.
    - Check live video feed and verify communications

- Weekly Basis:
    - Facility's lead fishway technician to provide via email a completed Fishway Operations Report consistent with Appendix C to resource agencies generally by Tuesday COB.

- Facility's lead fishway technician to complete weekly Fishway Operations inspection consistent with Appendix D.

- Fishway Dewatering Process:
  - LOTO (Lock Out Tag Out) and set up fall arrest/fall retrieval device, inspect fall harness
  - Fully close attraction water gate and slowly close exit gate and slowly de-water fish way
  - Enter upper fish way when it is approximately ½ foot deep and inspect for and collect fish. Use long handle dip net to collect fish from lower fish way pools and return fish to tailrace.
  - Open attraction water valve after all fish are removed.

- Preventative Maintenance Process:
  - Monthly :
    - Grease entrance, exit and upper flume water level weir gate actuators
    - Inspect and repair hopper mechanical (cotter pins, turn buckles, cable, limit switches, crowder, etc.) as necessary
    - Dewater fish way for up to two weeks in August for inspection, cleaning and repairs
  - Yearly:
    - Inspect fish tank water pumps
    - Inspect the entrance, exit and upper flume water level weir gate drive mechanisms
    - Inspect hopper hoist
    - Inspect trash gate hoist

**WINTERIZING METHODS**

- LOTO (Lock Out Tag Out) and set up fall arrest/fall retrieval devices
- Close attraction water gate and slowly close; exit gate and slowly de-water fish way, and seal gate if necessary to minimize leakage
- Enter upper fish way when it is approximately ½ foot deep and inspect for and collect fish. Use long handle dip net to collect fish from lower fish way pools and return fish to tailrace
- Open attraction water valve
- Disconnect fish tank pump piping
- Disconnect and drain water to fish way rest room
- Remove tent cover from fish way tanks
- Remove entrance gate operator

- Remove handrails from lower section of the fish way that may be damaged by ice

## 4.2 - DOWNSTREAM FISH PASSAGE – OPERATIONS & MAINTENANCE

### OPERATIONAL PERIOD

- The downstream fish way is operated between April 1 and December 31, as river conditions allow
- During the month of May, unit operational scenarios as described below are implemented. Night time is considered to be 20:00 until 07:00.
- Smolt studies between 2013-2018 have determined that these unit prioritization scenarios provided the most successful smolt passage.

| Total River Discharge (cfs) | Unit Operations |
|---|---|
| <7,615 | Unit 1 - online day; offline night |
| | Unit 2/3 - both online day; one offline night |
| 7,615 - 18,275 | Unit 1 - online day; offline night |
| | Unit 2/3 - both online day; both online night |
| >18,275 | Unit 1 - online day and night |
| | Unit 2/3 - online day and night |

It is expected that Brunswick units #2 and unit #3 will be required to be shut down for three or four nights each year in late September or early October to accommodate downstream passage of out migrating juvenile herring from the upstream Sabattus Lake. The Brookfield compliance team will coordinate this timing with operations.

### OPENING METHODS

- Inspect the fish way for debris and remove debris as necessary
- Make sure the fish way weir is in the wide open position and then completely open the 18 inch valve

### SPARE PARTS

Due to the design of the downstream fishway, it has been determined that spare parts are not necessary at this time.

## WORKFORCE PLANNING AND ROLES AND RESPOSIBILITIES

The downstream fishway is generally maintained by BWPH hydro operations crew.

- Staffing Requirements:
    - Start Up – Crew of 2
    - Routine Operations – Crew of 1
    - Routine Maintenance – Crew of 2 for standard maintenance, crew of 4 for fish way entry for cleaning
    - Shut Down – Crew of 2

- Daily Basis:
    - Inspect the fish way entrance for debris. If debris is present, hydro operations crew will use trash rake to remove debris.
    - If debris becomes lodged in the fishway and can't be removed by the trash rake, dewater fishway and manually remove debris. Notify agencies if fishway cannot be cleaned the same day. Fishway shall remain closed during this time frame.
    - Verify proper outflow of fishway. If flow is reduced, clear debris as necessary.
    - The fishway daily inspection log sheets are completed by Brookfield operations staff consistent with Appendix B and emailed to the compliance group by Monday morning.

- Weekly Basis:
    - Facility's lead fishway technician to provide via email a completed Fishway Operations Report consistent with Appendix C to resource agencies Tuesday COB

- Cleaning Process:
    - Use trash rake or de-water fishway and manually clear debris and inspect fishway for stranded fish
    - LOTO (Lock out Tag Out) and set up fall arrest/fall retrieval device. Inspect fall harness
    - Prep chainsaw for operation, inspect all chainsaw PPE
    - Inspect all rigging for hoisting debris

- Fishway Dewatering Process:
    - Close 18 inch pipe valve
    - Allow fishway pipe to fully drain

- Preventative Maintenance Process:
  - Yearly:
    - Inspect 18 inch pipe valve

**WINTERIZING METHODS**

- Close 18 inch pipe valve
- Allow fish way pipe to fully drain

### 4.3 - ENDANGERED SPECIES REQUIREMENTS

- Contact NMFS within 24 hours of any interactions with Atlantic salmon, Atlantic sturgeon or shortnose sturgeon, including non-lethal and lethal take and follow sturgeon handling plan
- In the event of any lethal takes, any dead specimens or body parts must be photographed, measured, and preserved (refrigerate or freeze) until disposal procedures are discussed with NMFS[4]
- Notify NMFS of any changes in project and fishway operations (including maintenance activities such as flashboard replacement and draft tube dewatering)[5]
- Refer to Section 8.0 for contact information

## 5.0 – FISH MORTALITY DISPOSAL PLAN

Should a mortality event in excess of 500 river herring occur at the Project, the following actions will be taken:

- Fish mortalities can be picked up by a local bait dealer (Wild things Bait Shop) located in Oakland. Contact is Scott Horne at 207-313-9741.
- Mortalities shall be noted on the daily fish way log sheet.
- Mortality events in excess of 1,500 river herring will be reported to the MDMR, NMFS, USFWS and MDIFW within 24 hours. Mortality events for Atlantic salmon are discussed above under Section 4.3.

[4] This would typically include date collected, species, measurements, photographs, etc.…

[5] *This does not include typical operational changes such as generator load swings, putting generators online and offline, normal impoundment and flow fluctuations, and opening/closing gates to control spillage. NMFS should be notified for any fishway dewatering's or maintenance issues, problems meeting fishway operational dates, impoundment drawdowns for flashboard or other maintenance, or any other atypical project operations such as dewatering of tunnels, conduits, or penstocks*

## 6.0 – OPERATING AGREEMENTS WITH STATE AND FEDERAL AGENCIES

A formal written operating agreement with MDMR was signed in 1977 that basically stipulated that MDMR was solely responsible for operations of the fishway including capture, counting, sorting, trucking and general light maintenance and that the owner of the Brunswick dam would be responsible for opening and closing the fishway and electrical and mechanical repair and large debris removal. In 2016, MDMR formally notified Brookfield that as per the 1977 agreement, MDMR did not have the necessary funding to operate the fishway for the entire season. At that time, BWPH and MDMR terminated that agreement and reached an informal agreement that stipulated that MDMR would operate the fishway during the months of May, June and July and BWPH would operate the fishway during the other months of the fish migration season. This agreement is subject to change, with ultimate responsibility of fishway operations being those of BWPH. In 2020, BWPH and MDMR entered into an access agreement to provide for the seasonal operation of the fishway by MDMR staff.

Brookfield staff will notify the MDMR, National Marine Fisheries Service (NMFS), US Fish and Wildlife (USFWS) and operators at the Pejepscot and Worumbo fishways once the Brunswick fishway is open for the season and within 24 hours after the first river herring are passed at the Brunswick fishway.

## 7.0 – SAFETY RULES AND PROCEDURES

Pursuant to Brookfield's Safety Procedure SP9, Job Safety and Environmental Plans are completed prior to, and ideally, well in advance of any work at the various fish ways are started. Job Safety and Environmental Plans are to be completed using the standard form which may be updated from time to time. Review of prior Job Safety and Environmental Plans for similar work is encouraged to help capture all safety risks that may be present at the site.

## 8.0 - CONTACT INFORMATION

### BROOKFIELD CONTACTS

- Eli Thone, Operations Manager, Brookfield
  - (c) 207-747-8650
  - Eli.thone@brookfieldrenewable.com

- Patrick McDonough, Senior Operations Manager, Brookfield
  - (c) 207-376-7063
  - Patrick.McDonough@brookfieldrenewable.com

- Matthew Leblanc, Compliance Specialist, Brookfield
  - (c) 207-252-4870
  - Mattew.Leblanc@brookfieldrenewable.com

- Adam Brown, Compliance Specialist, Brookfield
  - (c) 207-313-1173
  - Adam.Brown@brookfieldrenewable.com

**AGENCY CONTACTS**

- Matt Buhyoff, NMFS
  - (w) 207-866-4238
  - Matt.Buhyoff@noaa.gov

- Don Dow, Hydro Engineer, NMFS
  - (w) 207-866-3758
  - (c) 207-416-7510
  - Donald.Dow@noaa.gov

- Julianne Rosset, Migratory Fish/Hydropower, USFWS
  - (c) 603-309-4842
  - Julianne_Rosset@fws.gov

- Bryan Sojkowski, Fish Passage Engineer, USFWS
  - (w) 413-253-8645
  - Bryan_Sojkowski@fws.gov

- Paul Christman, MDMR
  - (w) 207-577-5780
  - paul.christman@maine.gov

- John Perry, Environmental Coordinator, MDIFW
  - (w) 207-287-5254
  - (c) 207-446-5145
  - John.Perry@maine.gov

- James Pellerin, Fishery Biologist, MDIFW
  - (w) 207-732-4131
  - James.pellerin@maine.gov

- Kathy Howatt, Hydropower Coordinator, MDEP
  - (w) 207-446-2642
  - Kathy.Howatt@maine.gov

## 9.0 - APPENDICES

# Appendix A:

# Daily Fishway Operations Data Sheet

BRUNSWICK FISHWAY

DAILY LOG

DATE:_____ TENDER'S

TIME OPEN:_____ ____ INITIALS ____ TIME CLOSED:_____

| | | |
|---|---|---|
| _____ | AIR TEMP | _____ |
| _____ | $H_2O$ TEMP | _____ |
| _____ | HEADPOND LEVEL | _____ |
| _____ | TAILRACE LEVEL | _____ |
| _____ | $H_2O$ HEIGHT | _____ |
| _____ | USG | _____ |
| _____ | AWG | _____ |
| _____ | BSG #1 | _____ |
| _____ | BSG #2 | _____ |
| _____ | FPWH | _____ |
| _____ | FWH | _____ |

RUNNING | NOT RUNNING - BIG UNIT (CIRCLE ONE) - RUNNING | NOT RUNNING

| TIME | ACTIVITIES/OBSERVATIONS |
|---|---|
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(OVER)

USG-Upstream Sluice Gate, AWG-Attraction Water Gate, BSG #1- Baffle Slide Gate #1, BSG #2- Baffle Slide Gate #2, FPWH- Fish Passage Weir Hoist, FWH-Fishway Weir Hoist

# Appendix B:

## Brunswick Daily Fishway Inspection Form

# DAILY FISHWAY INSPECTION FORM

Date: _____ Time: _____ Inspector: _____

## Upstream Fishway

Flow adequate _____

Entrances not blocked by debris _____

## Downstream Fishway

Flow adequate _____

Entrances not blocked by debris _____

Comments _____

**Please provide completed inspection forms to the Compliance Group every Monday morning.**

# Appendix C:

# Fishway Operations Weekly Report

# FISHWAY OPERATIONS WEEKLY REPORT

**Fishway Operations Weekly Report**

**Project Name:** _____
**Fishway Facility:** _____
**Date:** _____

| Species | #'s Detected |
|---|---|
| *Atlantic Salmon (MSW):* | |
| *Atlantic Salmon (1SW):* | |
| *River Herring:* | |
| *American Shad:* | |
| *Striped Bass:* | |
| *Sea Lamprey:* | |

***Weekly Operational Status:***

# Appendix D:

# Fishway Weekly Inspection Sheet

## Weekly Fishway Inspection Sheet.

| | Date | Time | Comments |
|---|---|---|---|
| Check all cotter pins on hopper | | | |
| Hopper cables | | | |
| Isolation Screens | | | |
| V-gates | | | |
| Entrance gate. | | | |
| Grease tubes on entrance and attraction gates. | | | |
| Hopper door | | | |
| Test e-stops | | | |
| Hopper wheels | | | |
| Cable drum | | | |
| Hopper shackles | | | |

**Inspectors Signature:**

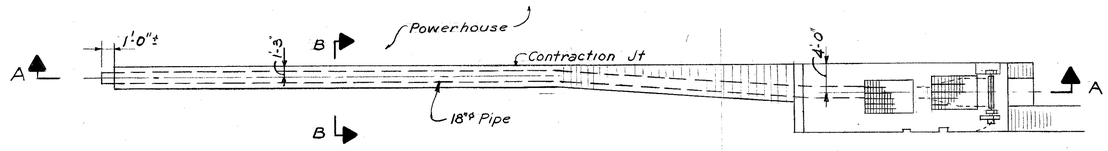
# Appendix E:

## Fishway Operations Manual (original)

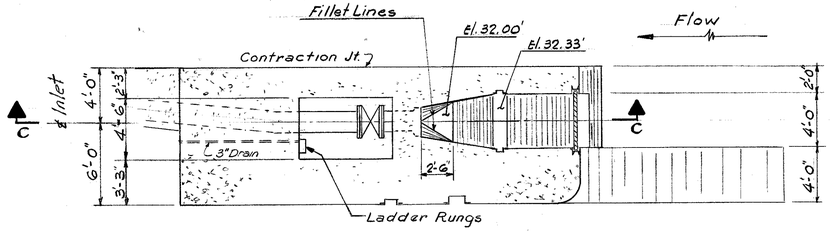
*Operational curves are being developed and will be available 2022.*

# Appendix F:

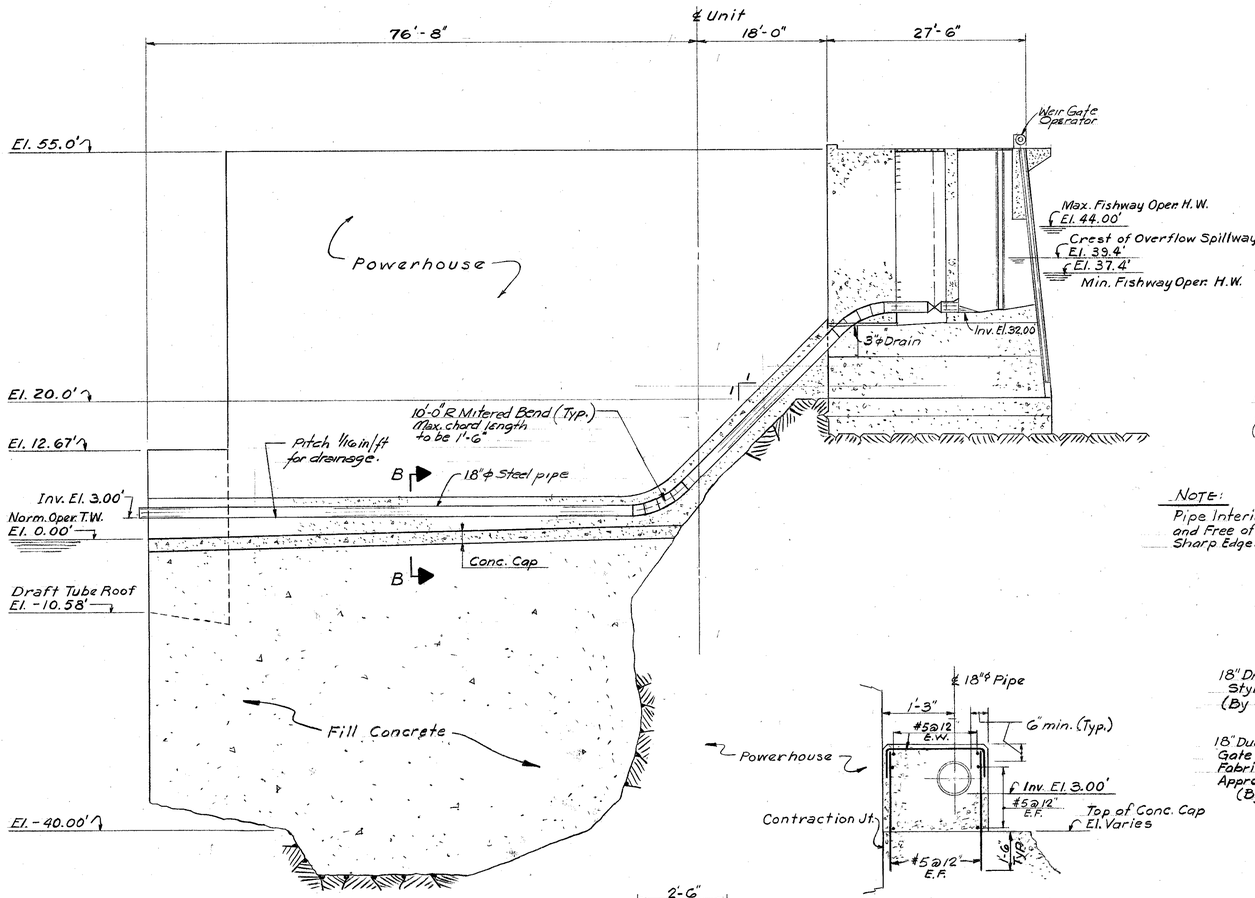
# Fishway Design Drawings




PLAN
Scale : 1"=10'



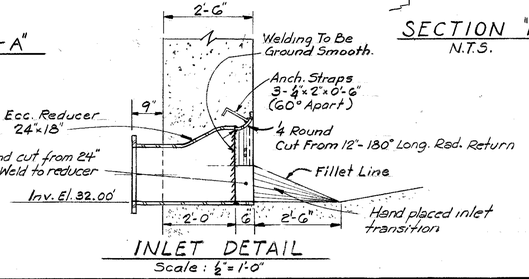

PLAN ELEV. 34.00'
PIER No 1 - STANCHION SPILLWAY
Scale: 3/16" = 1'-0"



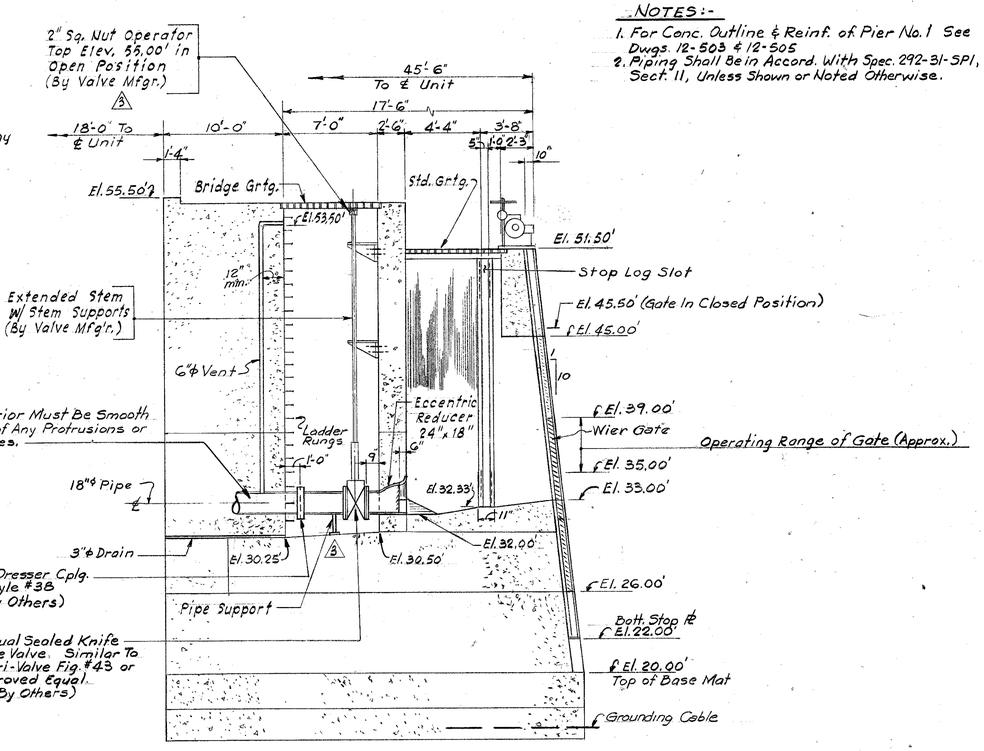

SECTION "A-A"
Scale: 1"=10'




SECTION "B-B"
N.T.S.




INLET DETAIL
Scale: ½"=1'-0"




SECTION "C-C"
Scale: 3/16" = 1'-0"

NOTE:
Pipe Interior Must Be Smooth and Free of Any Protrusions or Sharp Edges.

NOTES:-
1. For Conc. Outline & Reinf. of Pier No. 1 See Dwgs. 12-503 & 12-505
2. Piping Shall Be in Accord. With Spec. 292-31-SP1, Sect. 11, Unless Shown or Noted Otherwise.

# FISHWAY GENERAL ARRANGEMENT DOWNSTREAM FISH PASSAGE

**BRUNSWICK PROJECT**
CENTRAL MAINE POWER COMPANY
BRUNSWICK – TOPSHAM, MAINE

| NO. | REVISION | DATE | CHKD |
|---|---|---|---|
| – | As Built | | |
| 3 | Stem, Pipe Supp's Brkt. | 2/11/81 | MJO |
| 2 | Inlet & 18" Pipe Dets Rev'd | 10/3/80 | MJO |
| 1 | 18"ϕ Pipe Relocated | 9/24/80 | MJO |
| 0 | Issued For Constr. | 7/16/80 | |

DESIGNED M.O. CHKD VT
DRAWN J.k. APPR. MJO

MAIN CHAS. T. MAIN, INC.
BOSTON • NEW YORK • CHARLOTTE • DENVER • PORTLAND

RECOMMENDED _____
SCALE As Noted DATE _____

607-49-550-

TM-4/30/84

| No. | DATE | COPIES | REV. NO. | SENT TO | No. | DATE | COPIES | REV. NO. | SENT TO | No. | DATE | COPIES | REV. NO. | SENT TO |
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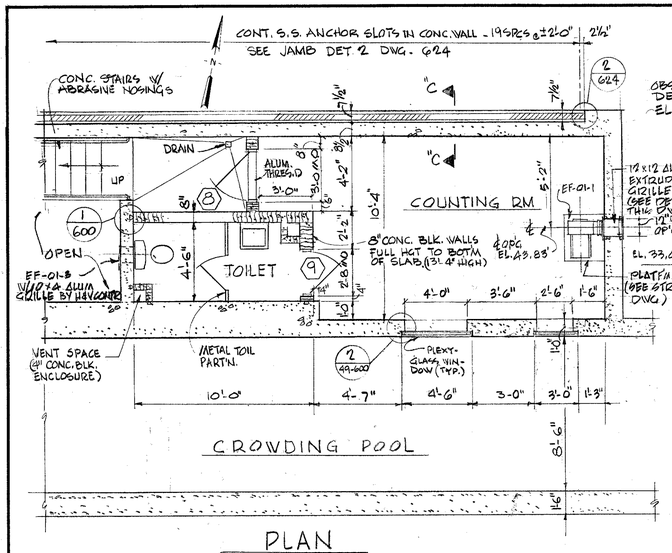
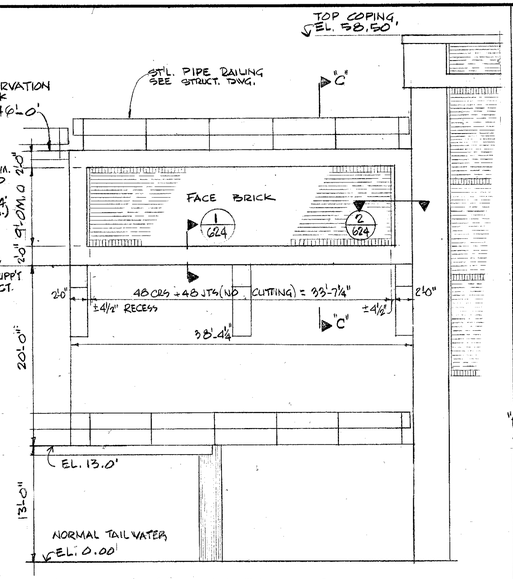
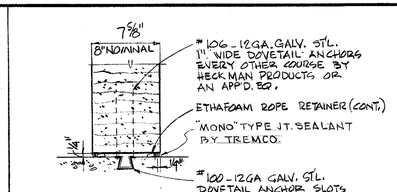


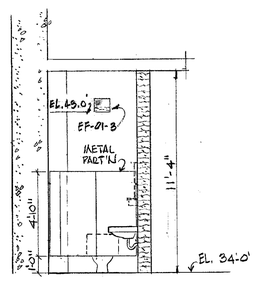

PLAN
SCALE 1/4" = 1'-0"



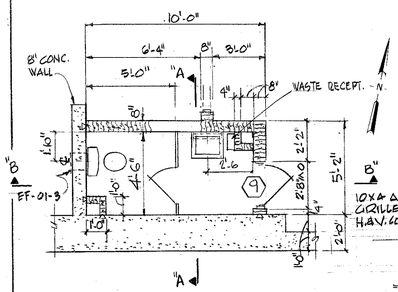

NORTH ELEVATION
SCALE 1/8" = 1'-0"



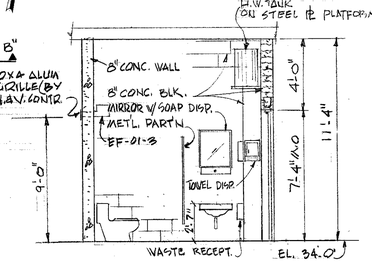

DETAIL 1/49-600
SCALE 1½" = 1'-0"
(TYPICAL @ ALL CONC. BLK. WALLS)




SECT. A-A
SCALE 1/4" = 1'-0"




TOILET PLAN AT EL. 34.0'
SCALE 1/4" = 1'-0"




SECT. "B-B"
SCALE 1/4" = 1'-0"

TOILET ROOM DETAILS

## TOILET ROOM FIXTURES & ACCESSOIRES
AMERICAN STANDARD PLUMBING & HEATING

| | |
|---|---|
| W.C. (FLOOR MOUNTED | #2053-791 |
| VOLUME REGULATOR CONTROL | 3116 SERIES |
| FLUSH VALVE | 3158 " |
| TANK LEVER | 3525.011 |
| SUPPLY PIPE | 3405.016 |
| ROXALYN LAVATORY 18" x 20" (WALL SUPPORTED) | 0194.076 |
| FAUCET | 2248.284 |
| DRAIN | 2248.243 |

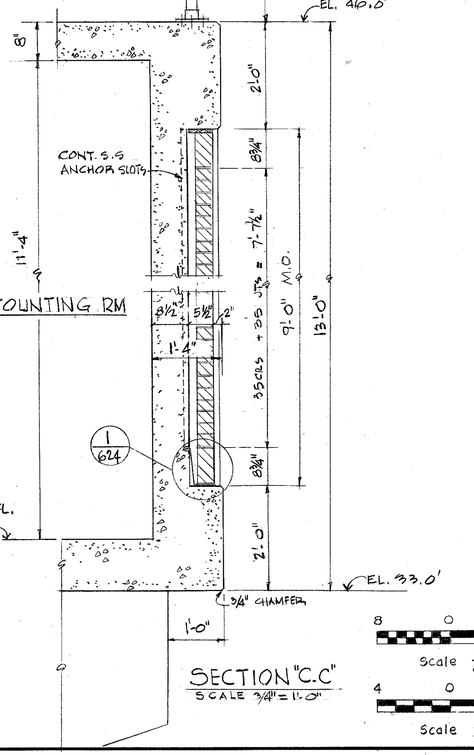
ACCESSORIES BY BRADLEY WASHFOUNTAIN CO.

| | |
|---|---|
| TOWEL DISPENSER | #230-C |
| WASTE RECEPTACLE (WALL TYPE) | 35BT-EW |
| TISSUE DISPENSER | 305 |
| SOAP DISPENSER/SHELF/MIRROR COMBINATION | 671 |
| PAPER CUP DISPENSER | #949 |
| HOOK & BUMPER (ON TOIL RM. DOOR) | #916 |

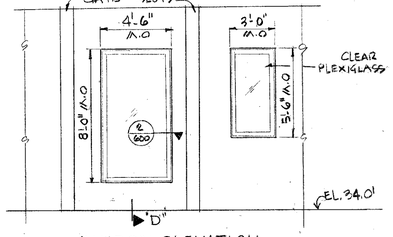
METAL TOILET PARTITION

ACADEMY TYPE MELA-MATE (S-1-16 ORANGE PEEL) TOIL. PART'N. & DOOR WITH ALL REQ'D. ACCESSORIES & HARDWARE AS MFR'D. BY SANYMETAL PRODUCTS CO. INC. OR AN APP'D. EQUAL.

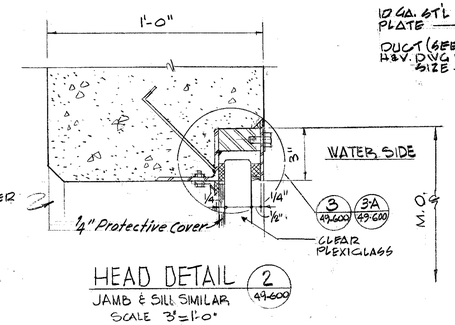
THE ABOVE MANUFACTURERS INDICATE THE QUALITY OF ITEMS REQUIRED, ALTERNATE MANUFACTURERS MAY BE USED PROVIDING THEIR FIXTURES ARE EQUAL TO THOSE NOTED.



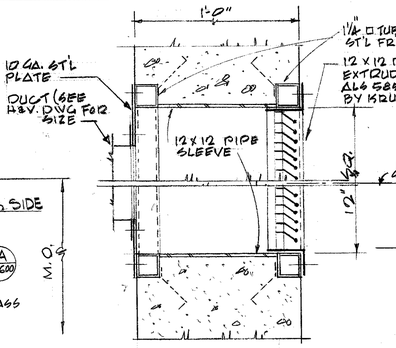

SECTION "C.C"
SCALE 3/4" = 1'-0"



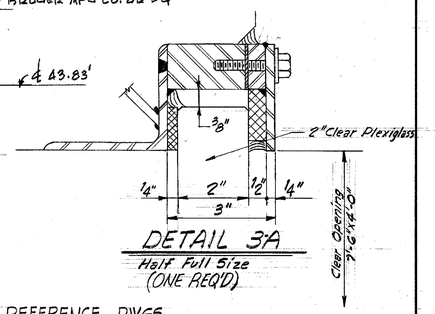

WINDOW ELEVATION
(CROWDING POOL SIDE)
SCALE 1/2" = 1'-0"




HEAD DETAIL 2
JAMB & SILL SIMILAR
SCALE 3" = 1'-0"
49-600

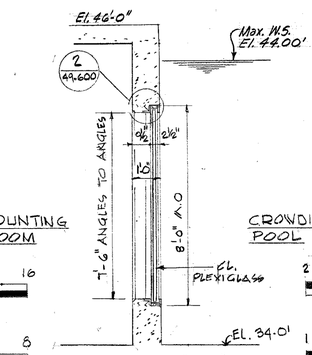



DETAIL 4
½" SCALE 3" = 1'-0"
47-600

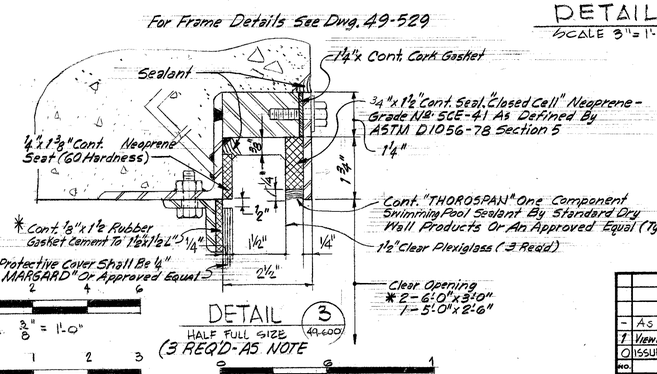



DETAIL 3A
Half Full Size
(ONE REQ'D)

For Frame Details See Dwg. 49-529




SECTION "D-D"
SCALE 3/8" = 1'-0"




DETAIL 3
HALF FULL SIZE
(3 REQ'D-AS NOTE)
49-600

REFERENCE DWGS.
607-42-G23 - POWERHOUSE - EXTERIOR ELEVATIONS
607-42-G26 - POWERHOUSE - DOOR & FINISH SCHEDULES

Notes:
1. Neoprene Shall Be Butt Jointed As Recommended By The Manufacturer.
2. * Items Req. At Two (2) Visitors Viewing Windows Only

Scale 1/8" = 1'-0"
Scale 1/4" = 1'-0"
Scale 3/8" = 1'-0"
Scale 3/4" = 1'-0"
Scale 3" = 1'-0"

| NO. | REVISION | DATE | CHK'D |
|---|---|---|---|
| - | As Built | | |
| 1 | Viewing Windows Rel. | 11/24/80 | MJO |
| 0 | Issued For Constrn | 8/26/80 | FF |

DESIGNED FF CHK'D FF
DRAWN M.C APP'R. [illegible]

# FISHWAY
# PLAN, ELEVATIONS & DETAILS

**BRUNSWICK PROJECT**
CENTRAL MAINE POWER COMPANY
BRUNSWICK - TOPSHAM, MAINE

MAIN CHAS. T. MAIN, INC.
BOSTON • NEW YORK • CHARLOTTE • DENVER • PORTLAND

RECOMMENDED [illegible]
SCALE AS SHOWN DATE

607-49-600

M-4/26/84

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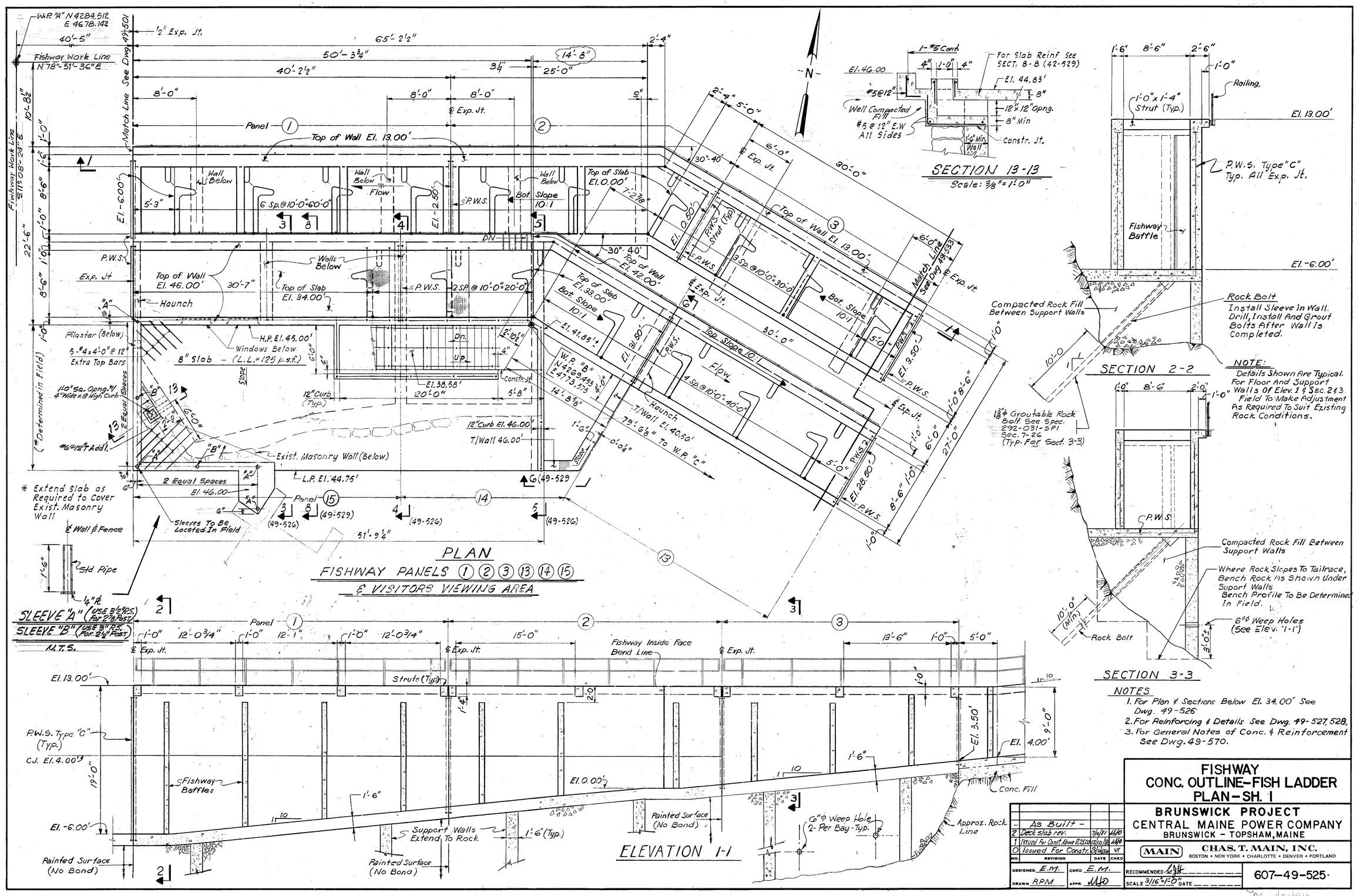


| No. | REVISION | DATE | CHKD |
|---|---|---|---|
| – | As Built – | | |
| 2 | Deck slab rev. | 7/16/81 | MJO |
| 1 | Issued for Const. Above El. 25.00 | 12/10/80 | MJO |
| 0 | Issued For Constr. | 8/14/80 | VT |

DESIGNED E.M. CHKD E.M. RECOMMENDED _____

DRAWN RPM APPR. MJO SCALE 3/16"=1'-0" DATE _____

# FISHWAY CONC. OUTLINE–FISH LADDER PLAN–SH. 1

## BRUNSWICK PROJECT

CENTRAL MAINE POWER COMPANY
BRUNSWICK – TOPSHAM, MAINE

MAIN CHAS. T. MAIN, INC.
BOSTON • NEW YORK • CHARLOTTE • DENVER • PORTLAND

607–49–525

M-42484

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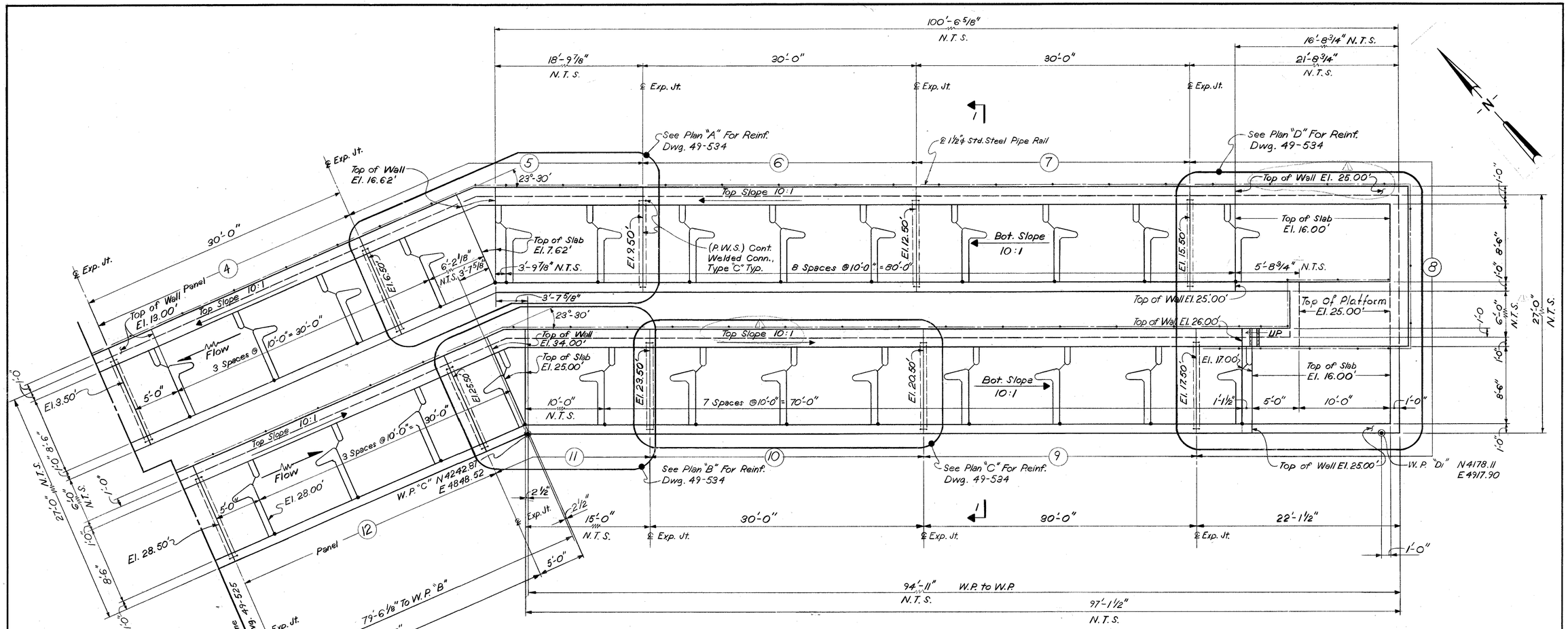
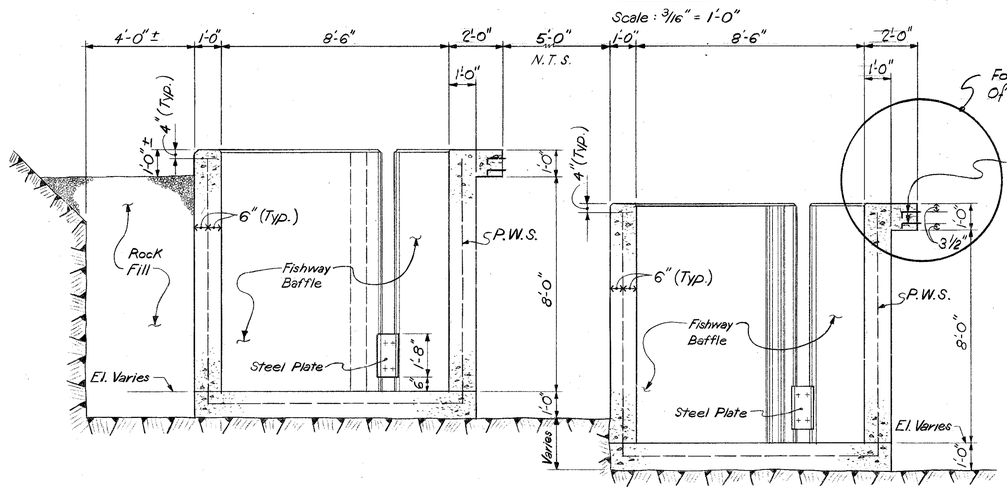
| 4 | | | | | 8 | | | | | 12 | | | | |




## PLAN

Scale : 3/16" = 1'-0"




## SECTION 1-1

Scale : 3/8" = 1'-0"

**NOTE:**

For General Notes See Dwg. 49-525

# FISHWAY CONC. OUTLINE - FISH LADDER PLAN - SH. 2

**BRUNSWICK PROJECT**

CENTRAL MAINE POWER COMPANY

BRUNSWICK - TOPSHAM, MAINE

| NO. | REVISION | DATE | CHKD |
|---|---|---|---|
| - | As Built | | |
| 1 | Rev. Dim. Noted "NTS." | 5/29/80 | |
| 0 | Issued for Constr. | 4-11-80 | |

DESIGNED E.M. CHKD

DRAWN R.P.M. APPR.

MAIN CHAS. T. MAIN, INC.
BOSTON • NEW YORK • CHARLOTTE • DENVER • PORTLAND

RECOMMENDED

SCALE As Noted DATE

607-49-533-

M-4/29/87

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| 3 | | | | | 7 | | | | | 11 | | | | |
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# Appendix G:

# Shortnose and Atlantic Sturgeon Handling Plan

# Handling Plan for Shortnose and Atlantic Sturgeon, Brunswick Project (FERC No. 2284)

**March 18, 2021**

The Brunswick Project is a run-of-river project located on the Androscoggin River at river mile 6, at the head of tide, in Brunswick, Maine. The dam and powerhouse span the Androscoggin River immediately above the U.S. Route 201 bridge, at a site originally known as Brunswick Falls. The Brunswick Project includes a 300-acre headpond; a 605 ft long and 40 ft high concrete gravity dam; a gate section containing two Taintor gates and an emergency spillway; and a powerhouse and intake.

Shortnose sturgeon (*Acipenser brevirostrum*) and Atlantic sturgeon (*Acipenser oxyrhynchus*) are federally listed species. Both species of sturgeon can migrate upstream from the ocean to the vicinity of the Brunswick Project, and both have the potential to interact with the project in several ways. In May 2010, several sturgeon were attracted to the internal portions of Unit #1 when the unit was shut down for annual inspection. Since that time, the Licensee has put in place procedures to locate and remove sturgeon during annual unit inspections.

In 1983, a vertical slot fishway was constructed at the Brunswick Project. The fishway is 570 ft long and consists of 42 individual pools, with a one-foot drop between each pool. The fishway includes a trapping facility, located at its upstream end, that provides biologists the opportunity to collect data on migratory and resident fish species that use the fishway. The fishway is operated between May 1 and October 31 for Atlantic salmon, American shad, river herring. American eel, and other species. Although no sturgeon have ever been observed, there is a slight possibility that sturgeon could enter the fishway. This plan includes provisions in the unlikely event that a sturgeon were to become trapped in the fishway.

Brunswick Dam is located at the head of a natural falls. As a result, downstream of the Brunswick dam spillway, the riverbed consists of broad ledges interspersed with several deep pools and many smaller pools. Immediately to the south of the spillway is a barrier dam situated along the ledge, which separates the tailwater area from the spillway ledge area. This barrier serves to prevent fish from being drawn up into the ledges near the dam during periods of spill. This barrier also limits foot access to this area, thereby limiting any inspections of the spillway or downstream habitat. However, during unregulated spill periods, river herring have been observed on the ledges below the barrier dam; thus, there is a slight possibility that sturgeon could find their way onto the ledges and become stranded in pools after spill events.

This plan addresses how Atlantic and shortnose sturgeon will be handled should they be encountered in the project works, in the fishway, or in the area of ledges/pools downstream of the spillway. Procedures for handling fish and documenting these interactions are outlined below, along with contact information and the appropriate reporting form. All personnel counting fish at the fish lift or otherwise handling Atlantic or shortnose sturgeon will be trained to properly handle sturgeon by NOAA Fisheries or a NOAA Fisheries designated representative.

## Unit Inspection and Maintenance

Periodically, the Brunswick Project units are shut down for routine inspection and maintenance, which may require dewatering all or portions of the units. For routine inspections and maintenance, the Licensees will reduce the potential for sturgeon interaction with the project by scheduling such activities to occur outside the sturgeon spawning season. There is a known shortnose sturgeon spawning location in the area immediately below the Brunswick Project. At this site, spawning adult shortnose sturgeon are typically present when water temperatures range from 8.5 to 14.5 degrees C (Squiers, 1983). In other northeast rivers, spawning has been documented between 9 and 15 degrees C. These temperatures generally coincide with the months of April and May. By late May, river water temperatures are typically above 15 degrees C, so it is unlikely that sturgeon will be present in the spawning area after June 1. Therefore, to minimize the potential for sturgeon being attracted into the project units during unit inspection and maintenance activities, the Licensee will not schedule routine inspections or maintenance during the months of April and May. If unit maintenance is of an emergency nature, the Licensee shall immediately notify NMFS of the nature of the emergency and the maintenance required. For both scheduled and emergency unit inspection or repairs that require dewatering of any of the three project generating units, the Licensee will implement the following measures.

1. Prior to dewatering, areas upstream of the turbine tailrace tail logs and inside the scroll case that are accessible to the maintenance crew and/or divers, will be inspected. Divers with lights will inspect the tailrace area upstream of the tail logs before they are lowered into place. The tail logs may need to be alternately raised or lowered depending on sturgeon encountered. Flexible fencing may need to be deployed to coral the sturgeon out of the tailraces. Upon lowering the tail logs, an inspection inside of the tail logs will be conducted to confirm that no sturgeon are present prior to dewatering.

2. After the tail logs are in place and the unit dewatered, the scroll case will be inspected by maintenance crews for sturgeon. If sturgeon are found to be present, fish rescue operation procedures will be implemented:
    a. Removal of individuals from scroll case via dip net or other appropriate equipment;
    b. For each fish removed from the scroll case, record the weight, length, condition and collect fin clips as described below in 2. under fishway operations Fish should also be scanned for PIT tags. River flow, bypass reach minimum flow, and water temperature will be recorded. All relevant information will be recorded on the reporting sheet (*Sturgeon Reporting Sheet for the Brunswick Project*, see attached)

3. Any live, uninjured sturgeon will immediately be returned to the Androscoggin River safely downstream of the project. A long handled net outfitted with non-abrasive knotless mesh will be used to place the sturgeon back into the river downstream of the dam. The fish should be properly supported during transport in the net to ensure that it is not injured.

4. If any injured sturgeon are found in the units, the Licensee shall report them immediately to NOAA Fisheries (see contact information below). Injured fish must be photographed and measured, if possible, and the reporting sheet must be submitted to NOAA Fisheries within 24 hours. If the fish is badly injured, the fish should be retained by the Licensee, if possible, until obtained by a NOAA Fisheries recommended facility for potential rehabilitation.

5. If any dead sturgeon are found in the units, they should be recovered and immediately placed in a freezer if possible. NMFS should then be contacted immediately, following the contact procedures outlined below.

## Fishway Maintenance, Inspection, and Operations

Should any sturgeon be found in the fishway, the licensee shall implement the procedures and reporting requirements outlined below:

1. If sturgeon are observed in the fishway pools, the Licensee should remove individuals via dip net or other appropriate equipment.

2. For each sturgeon detected, the licensee shall record the weight, length, and condition of the fish. Fish should also be scanned for PIT tags. Fin clips will be taken and submitted to the NOAA repository in Charleston, SC for genetic analysis. A 1 cm2 fin clip from one of the pelvic fins from living sturgeon should be taken and placed in a labeled vial with an o-ring caps containing 95% nondenatured ethyl alcohol (EtOH) for genetic analysis (the pelvic fin is regarded at the least intrusive, particularly for small individuals) (following the procedures described in Damon-Randall et al.2010). River flow, bypass reach minimum flow, and water temperature will be recorded. All relevant information will be recorded on the reporting sheet (*Sturgeon Reporting Sheet for the Brunswick Project*, see attached).

3. For each sturgeon removed from the fishway, the Licensee shall record the weight, length, and condition of the fish. Fish should also be scanned for PIT tags. River flow, unit operation flow, fishway flow, and water temperature will be recorded. All relevant information will be recorded on the reporting sheet (*Sturgeon Reporting Sheet for the Brunswick Project,* see attached*)*

4. The Licensee shall follow the contact procedure outlined below to obtain a contact with the appropriate ESA permit/approval for handling shortnose and Atlantic sturgeon.

5. If alive and uninjured, the sturgeon will be immediately returned to the Androscoggin River downstream of the project. A long handled net outfitted with non-abrasive knotless mesh will be used to place the sturgeon back into the river downstream of the dam The fish should be properly supported during transport in the net to ensure that it is not injured.

6. If any injured sturgeon are found in the fishway, the Licensee shall report immediately to NOAA Fisheries (see contact information below). Injured fish must be photographed and measured, if possible, and the reporting sheet must be submitted to NOAA Fisheries within 24 hours. If the fish is badly injured, the fish should be retained by the Licensee, if possible, until obtained by a NOAA Fisheries recommended facility for potential rehabilitation.

7. If any dead sturgeon are found in the fishway, the Licensee must report immediately to NOAA Fisheries (see contact information below). Any dead specimens or body parts should be photographed, measured, scanned for tags, and all relevant information should be recorded on the Salvage Form included below. Specimens should be stored in a refrigerator or freezer by the Licensee until they can be obtained by NOAA Fisheries for analysis.

## Sturgeon Stranding

It is unlikely, but possible that a shortnose or Atlantic sturgeon becomes stranded on the ledges or in pools below the spillway section of the dam following spill events. Generally, the ledges and pools below the dam spillway are not accessible on foot or by boat. However, it is possible that Licensee personnel or others may observe fish stranded on the ledges and in the pools. If the Licensee becomes aware of such an occurrence, every effort should be made by the Licensee to determine if the stranded fish(es) are sturgeon. If a sturgeon of either species is thought to be among the stranded fish, the Licensee will make every effort, as river and crew safety conditions allow, to access the area where the fish is stranded. If, it is determined that one or more of the stranded fish is a sturgeon, the Licensee will undertake the following measures:

1. The Licensee shall follow the contact procedure outlined below to obtain a contact with the appropriate ESA permit/approval for handling sturgeon.

2. If conditions allow, the Licensee should remove individuals from the ledges and/or pools via dip net or other appropriate equipment.

3. For each fish removed from the pool, the licensee shall record the weight, length, condition and fin clips as described above in 2. under fishway operations. Fish should also be scanned for PIT tags. River flow, bypass reach minimum flow, and water temperature will be recorded. All relevant information will be recorded on the reporting sheet (*Sturgeon Reporting Sheet for the Brunswick Project,* see attached).

4. If stranded fish are found alive and uninjured, the sturgeon will be moved to an area of the Androscoggin River below the Brunswick Falls that will provide egress out of the area.

5. If any injured sturgeon are found on the ledges or in pools, the Licensee shall report immediately to NOAA Fisheries (see contact information below). Injured fish must be photographed and measured, if possible, and the reporting sheet must be submitted to NOAA Fisheries within 24 hours. If the fish is badly injured, the fish should be retained by the licensee, if possible, until obtained by a NOAA Fisheries recommended facility for potential rehabilitation.

6. If any dead sturgeon are found on the ledges or in the pools, the licensee shall report the dead fish immediately to NOAA Fisheries (see contact information below). Any dead specimens or body parts should be photographed, measured, scanned for tags, and all relevant information should be recorded on the Salvage Form included below. Specimens should be stored in a refrigerator or freezer by the licensee until they can be obtained by NOAA Fisheries for analysis.

## Contact Information

If any sturgeons are detected at the Brunswick project, the following BWPH personnel should be contacted immediately:

- Adam Brown (207) 313-1173 or Matthew Leblanc (207) 252-4870

- If neither of the Licensee representatives can be reached, contact the Maine Department of Marine Resources (207- 624-6349).

- Within 24 hours of any stranding event or contact with an injured or dead sturgeon, contact NOAA Fisheries Maine Field Office Matt Buhyoff, 207-866-4238 and fax any reporting sheets to 207-866-7342.

**Reporting Sheets and Annual Reports**

At the end of the upstream and downstream passage seasons, copies of all reporting sheets will be sent to:

Matt Buhyoff
NOAA Fisheries
Maine Field Office
17 Godfrey Drive, Suite 1
Orono, Maine 04473
Matt.Buhyoff@NOAA.Gov
207-866-4238

Adam Brown
Brookfield White Pine Hydro LLC
28 Weston Avenue
Skowhegan, Maine, 04976
Adam.Brown@brookfieldrenewable.com
207-313-1173

**STURGEON REPORTING SHEET FOR THE BRUNSWICK PROJECT**

Date:_____ Time:_____

*Physical conditions*

Is spill being released over the dam? YES NO

What is the approximate gaged river flow?_____ (Ex. 45,000 cfs)

What is the approximate gaged minimum flow in the bypass reach?_____

Water temperature (ºC): _____

Is the fishway operating (circle) YES NO

Is project generating? YES NO

If yes, what units are currently being operating?

Location from where species was recovered (circle): FISHWAY / LIFT / BYPASS POOLS

OTHER _____

If fish lift, estimate condition of lift: EMPTY / FEW FISH / MODERATE FULL / VERY FULL

*Species information*:

Total Length_____ Fork length:_____ Weight:_____

Condition of fish: _____

Does the sturgeon have visible injuries or abrasions: YES NO

If Yes, circle and code area of abrasions on sturgeon diagram on back side of sheet.

Comments/other: _____

_____

_____

_____

_____

_____

_____

_____

_____

_____

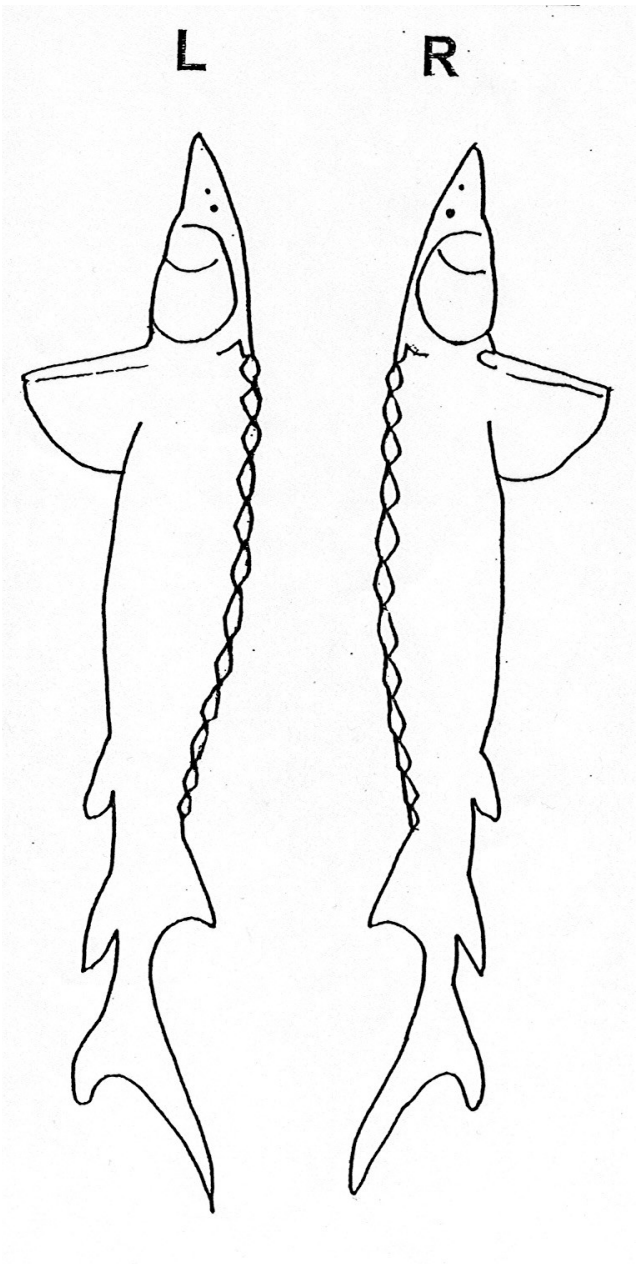
Name of watch observer:_____

Observer's Signature:_____

## Abrasion Codes

**None**

| | |
|---|---|
| **Light** | Whitening or smoothed scutes,<br>Early sign of skin abrasion. |
| **Moderate** | Early sign of redness on skin, scutes or fins, Erosion of skin over bony structures,<br>Loss of skin pigment |
| **Heavy** | Large portion of skin red, scutes excessively worn,<br>Damaged, or missing; patches of skin missing,<br>Boney structures exposed; flaccid musculature. |


L
R

# STURGEON SALVAGE FORM

For use in documenting dead sturgeon in the wild under ESA permit no. 1614 (version 07-20-2009)

**INVESTIGATORS'S CONTACT INFORMATION**
Name: First _____ Last _____
Agency Affiliation _____ Email _____
Address _____
_____
Area code/Phone number _____

UNIQUE IDENTIFIER (Assigned by NMFS)

**DATE REPORTED:**
Month ☐☐ Day ☐☐ Year 20☐☐
**DATE EXAMINED:**
Month ☐☐ Day ☐☐ Year 20☐☐

**SPECIES: (check one)**
☐ shortnose sturgeon
☐ Atlantic sturgeon
☐ Unidentified *Acipenser* species
*Check "Unidentified" if uncertain .*
**See reverse side of this form for aid in identification.**

**LOCATION FOUND:** ☐ Offshore (Atlantic or Gulf beach) ☐ Inshore (bay, river, sound, inlet, etc)
River/Body of Water _____ City _____ State ____
Descriptive location (be specific) _____
_____
_____
Latitude _____ N (Dec. Degrees) Longitude _____ W (Dec. Degrees)

**CARCASS CONDITION at time examined: (check one)**
☐ 1 = Fresh dead
☐ 2 = Moderately decomposed
☐ 3 = Severely decomposed
☐ 4 = Dried carcass
☐ 5 = Skeletal, scutes & cartilage

**SEX:**
☐ Undetermined
☐ Female ☐ Male
How was sex determined?
☐ Necropsy
☐ Eggs/milt present when pressed
☐ Borescope

**MEASUREMENTS:** Circle unit
Fork length _____ cm / in
Total length _____ cm / in
**Length** ☐ actual ☐ estimate
Mouth width (inside lips, see reverse side) _____ cm / in
Interorbital width (see reverse side) _____ cm / in
**Weight** ☐ actual ☐ estimate _____ kg / lb

**TAGS PRESENT?** Examined for external tags including fin clips? ☐ Yes ☐ No Scanned for PIT tags? ☐ Yes ☐ No

| Tag # | Tag Type | Location of tag on carcass |
|---|---|---|
| _____ | _____ | _____ |
| _____ | _____ | _____ |

**CARCASS DISPOSITION: (check one or more)**
☐ 1 = Left where found
☐ 2 = Buried
☐ 3 = Collected for necropsy/salvage
☐ 4 = Frozen for later examination
☐ 5 = Other (describe) _____

**Carcass Necropsied?**
☐ Yes ☐ No
Date Necropsied: _____
Necropsy Lead:
_____

**PHOTODOCUMENTATION:**
Photos/vide taken? ☐ Yes ☐ No
Disposition of Photos/Video: _____
_____
_____

**SAMPLES COLLECTED?** ☐ Yes ☐ No

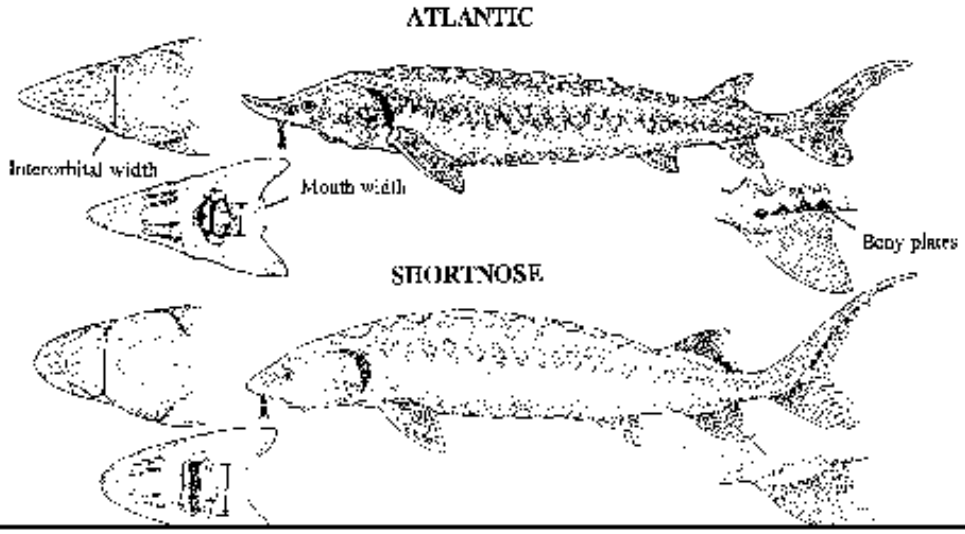
| Sample | How preserved | Disposition (person, affiliation, use) |
|---|---|---|
| _____ | _____ | _____ |
| _____ | _____ | _____ |
| _____ | _____ | _____ |
| _____ | _____ | _____ |
| _____ | _____ | _____ |
| _____ | _____ | _____ |
| _____ | _____ | _____ |
| _____ | _____ | _____ |

**Comments:**
_____
_____
_____

Distinguishing Characteristics of Atlantic and Shortnose Sturgeon (version 07-20-2009)

| Characteristic | Atlantic Sturgeon, *Acipenser oxyrinchus* | Shortnose Sturgeon, *Acipenser brevirostrum* |
|---|---|---|
| Maximum length | > 9 feet/ 274 cm | 4 feet/ 122 cm |
| Mouth | Football shaped and small. Width inside lips < 55% of bony interorbital width | Wide and oval in shape. Width inside lips > 62% of bony interorbital width |
| *Pre-anal plates | Paired plates posterior to the rectum & anterior to the anal fin. | 1-3 pre-anal plates almost always occurring as median structures (occurring singly) |
| Plates along the anal fin | Rhombic, bony plates found along the lateral base of the anal fin (see diagram below) | No plates along the base of anal fin |
| Habitat/Range | Anadromous; spawn in freshwater but primarily lead a marine existence | Freshwater amphidromous; found primarily in fresh water but does make some coastal migrations |

* From Vecsei and Peterson, 2004




Describe any wounds / abnormalities (note tar or oil, gear or debris entanglement, propeller damage, etc.). **Please note if no wounds / abnormalities are found.**

_____

_____

_____

_____

_____

Data Access Policy: Upon written request, information submitted to National Marine Fisheries Service (NOAA Fisheries) on this form will be released to the requestor provided that the requestor credit the collector of the information and NOAA Fisheries. NOAA Fisheries will notify the collector that these data have been requested and the intent of their use.

Submit completed forms (within 30 days of date of investigation) to: Jessica Pruden, Shortnose Sturgeon Recovery Coordinator, NOAA Fisheries Northeast Region, 55 Great Republic Drive, Gloucester, MA 01930 Phone: 978-282-8482; Fax: 978-281-9394; E-Mail Jessica.Pruden@noaa.gov

# Agency Correspondence

## Seyfried, Jason

**From:** Leblanc, Matthew
**Sent:** Friday, September 25, 2020 8:32 AM
**To:** Wippelhauser, Gail; Mark Pasterczyk; Christman, Paul; Brown, Michael; Donald Dow; Dan Tierney; matt.buhyoff@noaa.gov; Jeff Murphy; Bryan Sojkowski (Bryan_Sojkowski@fws.gov); Oliver Cox (oliver_cox@fws.gov); Howatt, Kathy; Chris Sferra (sferra.chris.o@gmail.com); Anna Harris (anna_harris@fws.gov); Bentivoglio, Antonio; 'Sean Mcdermott'; 'Bill Mcdavitt'
**Cc:** Brown, Adam; Thone, Eli; Mcdonough, Patrick; Maloney, Kelly; Seyfried, Jason
**Subject:** Brunswick Fishway O&M plan
**Attachments:** 20200921 Brunswick Fish Passage OM Plan.docx

Attached please find the updated 2021 Brunswick Fishway O&M plan. Please review and provide any comments you may have back to me by October 25, 2020.

Thanks,
Matt

## Seyfried, Jason

**From:** Ledwin, Sean M <Sean.M.Ledwin@maine.gov>
**Sent:** Wednesday, September 16, 2020 5:25 PM
**To:** Maloney, Kelly; Leblanc, Matthew; Brown, Michael; Wippelhauser, Gail; Christman, Paul
**Cc:** Brown, Adam
**Subject:** RE: Brunswick O&M plan 2021
**Attachments:** 20200819 Brunswick Fish Passage OM Plan_9_16.docx

Hi Kelly,

Sorry for delay. See our comments attached. Sean

---

**From:** Maloney, Kelly <Kelly.Maloney@brookfieldrenewable.com>
**Sent:** Wednesday, September 16, 2020 3:49 PM
**To:** Leblanc, Matthew <matthew.leblanc@brookfieldrenewable.com>; Brown, Michael <Michael.Brown@maine.gov>; Wippelhauser, Gail <Gail.Wippelhauser@maine.gov>; Ledwin, Sean M <Sean.M.Ledwin@maine.gov>; Christman, Paul <Paul.Christman@maine.gov>
**Cc:** Brown, Adam <Adam.Brown@brookfieldrenewable.com>
**Subject:** RE: Brunswick O&M plan 2021


Any thoughts, all before we file this with FERC?

Thank you!
Kelly

---

**From:** Leblanc, Matthew
**Sent:** Thursday, September 03, 2020 8:28 AM
**To:** Brown, Michael <Michael.Brown@maine.gov>; Wippelhauser, Gail <Gail.Wippelhauser@maine.gov>; Ledwin, Sean M (Sean.M.Ledwin@maine.gov) <Sean.M.Ledwin@maine.gov>; Christman, Paul <Paul.Christman@maine.gov>
**Cc:** Maloney, Kelly <Kelly.Maloney@brookfieldrenewable.com>; Brown, Adam <Adam.Brown@brookfieldrenewable.com>
**Subject:** Brunswick O&M plan 2021

We would like to give MDMR an opportunity to review the 2021 Brunswick fishway O&M plan before we send it out to everyone. If you could get me any comments you may have back by September 10 that would be great.

Thanks,
Matt

## Seyfried, Jason

**From:** Maloney, Kelly
**Sent:** Friday, January 8, 2021 2:43 PM
**To:** Dan Tierney - NOAA Federal; Leblanc, Matthew; Donald Dow; Howatt, Kathy; Sferra, Christopher; Perry, John; Pellerin, James; Brown, Michael
**Cc:** Thone, Eli; Mcdonough, Patrick; Brown, Adam; Seyfried, Jason; Leblanc, Matthew
**Subject:** 20201204 Brunswick OM Plan Meeting Notes
**Attachments:** 20201204 Brunswick OM Plan Meeting Notes.docx

Hi, all!

Apologies for the delay…end of year filings had me waylaid. Attached are the meeting notes from our Brunswick O&M Plan discussion. Please take a look and let me know if there are any edits/comments.

We are drafting up the latest iteration and will circulate for another round of review shortly.

Much obliged!

**Kelly Maloney**
*Manager, Compliance – Northeast*

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kelly.maloney@brookfieldrenewable.com
www.brookfieldrenewable.com

Brookfield
Renewable U.S.

**Brunswick Project (FERC No. 2284)**

**O&M Plan Review Meeting**

**December 3, 2020 @ 1:30 pm**

**Microsoft Teams Meeting**

**Attendees:**

- Brookfield – Kelly Maloney, Matt Leblanc, Eli Thone, Pat McDonough, Adam Brown, Jason Seyfried
- National Marine Fisheries Service (NMFS) – Dan Tierney, Matt Buyoff, Don Dow
- Maine Department of Environmental Protection (MDEP) – Kathy Howatt, Chris Sferra
- Maine Department of Inland Fisheries and Wildlife (MDIFW) – John Perry, Jim Pellerin
- Maine Department of Marine Resources (MDMR) – Mike Brown

**Introduction:**

The purpose of the meeting is to discuss comments received on the draft O&M Plan for the Brunswick Fish Passage from the NMFS and USFWS considering the collaborative approach between the MDMR and Brookfield for the operation of the upstream fishway.

Discussions began with USFWS comments:

> Comment: "The PLC needs to be programmed so that it only activates every 10 min or so. Also, to determine the entrance gate differential two staff gages should be installed."

Eli indicated that the PLC reprogramming had been completed. Matt indicated that there are two staff gages at the entrance. This will be reflected in the revised O&M Plan.

> Comment: "gate at the fishway exit and…AWS system providing extra attraction water at the fishway entrance…need to be included in this sections and descriptions of how flow in the fishway can be adjusted."

Kelly indicated that this will be reflected in the revised O&M Plan.

> Comment: "It appears that Appendix A: Daily Fishway Operations Data Sheet, might collect these data but it is unclear what many of the abbreviations (USG, AWG, BSG, FPWH, FWH) stand for. Please explain further."

Kelly indicated that this will be reflected in the revised O&M Plan.

> Comment: "…explain how the fishway is operated, all the moving parts that can adjust flows (entrance gate, AWS, Rotork), what the recommended flows are, how they can be adjusted, and the process of adjusting them."

Matt indicated that the AWS is always on or off and there is 0.7 ft that is maintained over entrance gate that tracks with the tide. Matt indicated that Kelly indicated that this information will be included in the revised O&M Plan.

Discussion continued to NMFS comments:

> Comment: "For each date range identified in section 4.1, please indicate the number of hours a day the fishway is being operated to pass fish. If it is not operated so that fish can volitionally pass, indicate how often the fish trap is tended, or if it is monitored continuously. This information is not provided consistently across all four date ranges identified in this section."
>
> And

Comment: “Similarly, in some date ranges, you indicate that the fishway will be monitored “at least once per day” and in other date ranges you say that it will be monitored “daily”. Please explain the difference, and describe what occurs during a monitoring event.”

Matt indicated that the fishway is not operated so the fish can volitionally pass. Discussion for each of the operating seasons ensued:

- From April 15 to April 30, BWPH fisheries staff monitor the fishway seven days per week at least once per day.

  Matt indicated that the Brunswick fishway is rarely open before May 1 and, if it is, staff are on site only a few hours to check operations. Matt indicated staff typically go in checking and cleaning and spend a few hours. Don asked if a fish came in at 3 pm after staff was gone that time of year, how would anyone know? Matt clarified that we wouldn’t but that time of year there is very little running and the fishway is often not opened up due to high flows, ice and debris.

  Kelly asked about delaying the opening to May 1. Don indicated that Milford is April 15 but there are so many more fish; Don does not have a problem with May 1. Dan doesn’t recall how April 15 was established but doesn’t have an issued with May 1. Jim indicated that MDIFW does not either. Kelly indicated that the revised O&M Plan will reflect a May 1 opening date.

- From May 1 through June 15, MDMR (and/or BWPH) staff monitor the fishway seven days per week daily from 07:00 to 19:00.

  Mike indicated that MDMR is there between 10 and 12 hours per day; MDMR has one person that remains onsite so other staff are trucking. Mike indicated that MDMR doesn’t typically see salmon that early in the season. Dan asked whether staff are consistently monitoring? Mike indicated that staff do not leave the site but may have other tasks that take them away from the window for short blocks at a time such as tailrace checks and gate cleaning.

- From June 15 through July 31, MDMR (and/or BWPH) staff monitor the fishway seven days per week daily from 09:00 to 19:00[1].

  Mike indicated that as trucking slows down and shad come up the fishway a little later; MDME staff generally come on site a little later. Mike stated that MDMR generally has staff onsite for those hours and seven days/week but will not stay onsite for the full shift on the weekends.

  Don asked whether fish are typically waiting for lifting after the overnight hours; Mike indicated that they don’t see that with alewife; but sometimes do with shad. Mike indicated that they would pass a salmon if one were holding.

  Kelly asked about Brookfield needing to be there from June 15 to July 31. Dan indicated that NMFS expectation is someone is onsite to move fish during those hours.

[1] Sorting and passage activities are dictated by shad run and count numbers within the 9 am to 7 pm work window.

- After the two week August shutdown, Brookfield staff monitor and clean the fish way at least once per day until November 15.

  Matt indicated that we wait until the racks are raked at the headpond which releases a lot of debris, and then are onsite around 9 or 10 am, to clean the fishway and spend several hours (generally 3 to 5 hours a day) waiting to see if any fish show up. Adam clarified that coverage also is dictated by the demands of Lockwood; Brookfield staff may not do a consecutive 4 hours as they may check Pejepscot and tailrace checks in between. Matt clarified that the fishway gates are not left open. Adam indicated that debris is a problem in the fall so it requires more time on site; more coverage later in the fall (4 to 5 hours/day) less time onsite in late summer (2 to 3 hours).

  Kelly asked about coverage during the 12 hour shift; is the expectation that someone needs to be sitting in front of the window for 12 hours/day? Or is it reasonable that staff checks on the window periodically while doing other things.

  Don indicated that other sites have some preventative measures for fall back; Lockwood is done by monitoring video and capturing them. Brunswick does not have anything preventing that fish from falling back unless someone can put their finger on the button and lock it in the trap.

  Dan indicated that MDMR indicates there is someone always on site and regularly checking the window a few times an hour or whatever is reasonable; but what Adam was talking about (i.e. driving up to Pejepscot) is not sufficient.

  Kelly asked whether gates were open for volitional passage and Matt and Mike indicated that no but are left open when gates are being cleaned and some fish can pass – about 15 minutes.

  Kelly asked about operating Brunswick remotely from Lockwood; Don indicated it is possible but may be complicated; could be a safety issue.

  Mike asked about installing a funnel; Mike indicated that if Brookfield were onsite, MDMR would not want it passed until they could come onsite and collect biological samples. Don indicated that funnels are not 100% but would be better than no funnel. Don indicated that Conte lab is doing a study on staggered gates that overlap one another – according to Nate Gray, no fish come back down through the staggered gates at Benton Falls.

  “During all date ranges for the hours indicated (7am to 7pm), we recommend that the fishway be continuously monitored or else Atlantic salmon should be allowed to free swim into the headpond.”

Mike is concerned about invasive species so volitional passage is not desirable; white catfish and carp in particular that would have effects to watershed restoration. Jim indicated that MDIFW is concerned with invasives as well.

Comment: “You indicate that “biological..samples” are taken from every Atlantic salmon that is trapped at the project. Are you referring to scale samples? Please specify.”

Mike indicated that MDMR collects length, weight, genetic punch and scale samples; Mike indicated that there is a portion of fish that come back to the Andro that are wild. MDMR wants to make sure that whatever fish that come back, MDMR can determine grilse, 2SW, etc.. MDMR

puts the salmon in a sock and doesn't collect samples if the water temps are too high. Biological sampling takes 10 to 15 minutes at most.

Comment: "You indicate that information and samples are only taken when river temperatures are below 24.5°C. Does this mean that salmon are allowed to swim through without being handled when the temperature exceeds this threshold, or that you block their passage? Please make this clear. We recommend that the fishway should be operated to allow salmon to pass volitionally if temperatures are too warm for safe handling.

Adult Atlantic salmon are extremely stressed at temperatures ≥23.0°C. Maine DMR's *Atlantic Salmon Trap Operating and Fish-Handling Protocols* (2018) indicate that in order "...to minimize handling stress, scale sampling and tagging will cease when the river temperature ≥23.0°C; however, DMR would continue to measure fork length and fin punch each salmon." Please clarify whether this protocol is being followed at the Brunswick fish trap."

Mike clarified that if MDMR saw a salmon at temperatures above 21 C, they would open the gates and let the salmon swim freely upstream. MDMR would open the downstream gate, upstream gate and trashrack and wouldn't even lift them into the sorting facility. Mike clarified that shad are passed that way as well because the shad don't do well in the square tanks. If MDMR sees a white catfish, they would make sure to pass the salmon and prevent passage of the catfish.

Adam clarified that salmon are allowed to be lifted until 24.5 C but then the tanks are required to be cooled to 22 C to allow MDMR to collect biological samples and then the salmon are trucked at the Lockwood Project. Mike said this was different than how things are done at Brunswick.

Kelly indicated that the O&M Plan will be updated to correct the temperature to 21 C. Matt indicated that Brookfield employees would not handle Atlantic salmon. Kelly asked whether Brookfield staff in the fall would pass the fish volitionally. Matt and Adam indicated that that has never happened but the protocol would be to get a length from the window and snap a photo. Kelly asked whether MDMR should be called ahead of time; Mike indicated that passing it without calling MDMR and taking photos, etc. would be fine. Mike indicated that if it was an unusual looking salmon (hatchery escapee), that Brookfield staff close the downstream gate and hold it and call MDMR.

Comment: "As the operation of the fish lifts at the upstream dams (i.e., Pejepscot and Worumbo) is contingent on fish first passing into the Brunswick headpond, we request that you add language that indicates how, when, and to whom notification of this occurrence will be provided. At a minimum, the upstream operators and the relevant agencies (MDMR, NMFS, USFWS) should be notified within 24 hours."

Matt indicated that we start Pejepscot up and call Worumbo; and include the passage information in the weekly report. Kelly asked whether the agencies need to know within 24 hours and Dan and Matt had indicated that they are comfortable with getting notifications in the weekly report but to make sure the language is clear that Worumbo is notified within 24 hours. Kelly indicated that the O&M Plan would be revised to reflect this update.

Comment: "Please describe briefly how passage of invasive fish species is managed at the project and how that management affects the protocol described for passing native diadromous fish into the Brunswick headpond. Our understanding is that this is a volitional fishway that is run as a trapping facility due to the need to prevent invasive species from moving upstream. This should be made clear."

Mike clarified that during the alewife trapping season, everything is run through the tanks so separation can be done as well as monitoring the fish. White catfish pick up at the end of the

alewife run. As MDMR goes up and down the fishway, they are observing for catfish and dip net and drop them back into the tailrace. When they are sorted from the tanks, they are tagged and returned to the tailrace. The purpose is to learn about growth, size and behavior with returning to the fishway – MDMR has not had any tagged returns. MDMR also has captured carp and keep an eye out for rock bass (present in Merrymeeting Bay – have seen them in the fishway but not in the trap).

Dan indicated that we need to be clear about the fact that this fishway is not operated volitionally because of the invasive issues.

Matt indicated that we have never seen an invasive after the August shut-down and Mike confirmed he has never seen one in the fall either. Matt wondered if there was a way to provide a drop at the entrance gate that everyone could get on board with to prevent invasives, and if so, could we operate volitionally in the fall? Don indicated that it's possible that rock bass, carp and white catfish would reject a jump and a jump might improve the passage of salmon. Matt and Eli have discussed this; not entirely sure we could get the type of drop needed at the entrance with the AWS, might be pushing too much water.

Jim indicated that the trials conducted on site did not give a lot of comfort; but it is possible that there could be a velocity barrier. Jim could consider looking into it but would want a better comfort level that those species would not pass. Don indicated that some of the baffles could be removed. Jim indicated that the gate at the entrance was lifted when they did it as a trial. Matt indicated the entrance gate was lifted but there is a maintenance gate that could be done and indicated that removing baffles is a great idea. Don indicated that enough depth would be needed for the salmon to make the jump and the jump shouldn't be too high – just a few feet. Mike indicated that the bottom pools where the baffles would be removed are affected by the tide. Mike also indicated that debris might be an issue and Jim indicated that there could be more of a maintenance issue with managing the debris in the fishway when it is open volitionally then operating the fishway staffed. Jim asked when debris is the most problematic; Matt clarified that October is when it starts to get bad and it's the screens up top. Matt asked whether we could put some stop logs into the slots above the high tide mark; but Don indicated that the tide could be too low. Kelly asked whether we could pursue this with the agencies further. Matt indicated that the O&M Plan will state business as usual but could pursue with the agencies further.

Kelly asked whether a change from trapping to volitional passage in the fall would necessitate a new BiOP. Dan indicated that since the expectation would be less take and higher efficiency, a new BiOP is unlikely.

Comment: "Please include: 1. downstream passage operational curve, i.e. headpond elevation vs gate opening vs flow 2. upstream entrance gate operational curve, i.e. tailrace elevation vs gate opening vs headloss 3. attraction flow curve, i.e. headpond elevation vs flow (and possibly gate opening if adjustable) 4. Fishway Conveyance flow curve, i.e. flow vs headpond vs gate openings."

Kelly indicated that the information would be provided in the revised O&M Plan.

Comment: "A two-week August shutdown is not mandatory. The fishway can be closed for up to two weeks in August to allow Brookfield to clean and maintain the fishway. However, the fishway should be back on-line in the shortest possible timeframe."

Kelly acknowledged this comment.

Comment: "At what flow is the entrance gate actuator in danger of being submerged? If the fishway is still capable of operating at flows above 25,000 cfs, it should not be shut down unless there is a risk to life or property."

Matt asked at what flows the entrance is submerged; Eli indicated it was about 20,000 cfs, it floods over the entrance pool. At flows that high, Matt clarified that we would shut the top gate and dewater. Eli clarified that there is a lot of debris that piles up in the corner at flows that high.

Comment: “What is "LOTO"?

Kelly clarified that this stands for Lock Out, Tag Out and will be clarified in the revised O&M Plan.

Comment: "Check for and collect fish and return to tailrace" This needs more definition.

Matt confirmed that this was incorrect and would be deleted from the O&M Plan.

Comment: “What is the purpose of the Unit operational periods?”

Kelly clarified that table is specifically for smolt passage. Kelly indicated that the memo explaining the purpose of unit prioritization would be added to the appendix of the O&M Plan.

The meeting ended with a commitment on Brookfield’s part to revise the O&M Plan and distribute it for another round of 30 day review and comment.

## Brown, Adam

**From:** Brown, Michael <Michael.Brown@maine.gov>
**Sent:** Wednesday, March 03, 2021 10:47 AM
**To:** Brown, Adam; Ledwin, Sean M; Howatt, Kathy; Rosset, Julianne; donald.dow; matt.buhyoff; Pellerin, James; corbin_hilling@fws.gov
**Cc:** Maloney, Kelly; Thone, Eli; Mcdonough, Patrick; Leblanc, Matthew
**Subject:** RE: For your Review | Brookfield Renewable - Brunswick Operation and Maintenance Plan

Adam,

Thank you for sending along. We do have a couple of comments regarding the upstream passage of Atlantic salmon after the August closed period.

Remote operation of the fishway to pass salmon should include the pneumatic gates and trash racks to provide the best protection from passing invasive fish species upstream. Cameras set up to observe fish present at the window will miss fish that are between the trap gates and the trash rack – a distance of several feet. Unless there was a way to record and review the video from dusk until the salmon appeared there would not be any reasonable way to determine if invasive species were present in the unmonitored location. Making both gates operational would solve this issue.

The other concern is that the trash rack will not close through the force of gravity. There will need to be a motor driven power supply to close the gate or the rails to the trash rack will need to be rebuilt. We currently use a metal bar to drive the rack the last 2 feet until the rack securely seals to the fishway floor.

Thanks,
Mike

---

**From:** Brown, Adam <Adam.Brown@brookfieldrenewable.com>
**Sent:** Tuesday, March 02, 2021 12:25 PM
**To:** Ledwin, Sean M <Sean.M.Ledwin@maine.gov>; Brown, Michael <Michael.Brown@maine.gov>; Howatt, Kathy <Kathy.Howatt@maine.gov>; Rosset, Julianne <julianne_rosset@fws.gov>; donald.dow <Donald.Dow@noaa.gov>; matt.buhyoff <matt.buhyoff@noaa.gov>; Pellerin, James <James.Pellerin@maine.gov>; corbin_hilling@fws.gov
**Cc:** Maloney, Kelly <Kelly.Maloney@brookfieldrenewable.com>; Thone, Eli <Eli.Thone@brookfieldrenewable.com>; Mcdonough, Patrick <Patrick.McDonough@brookfieldrenewable.com>; Leblanc, Matthew <matthew.leblanc@brookfieldrenewable.com>
**Subject:** For your Review | Brookfield Renewable - Brunswick Operation and Maintenance Plan


Please see the attached Brunswick Operation and Maintenance Plan for your review. Please let me know if you have any questions or comments by April 1, 2021.

As discussed, Brookfield seasonal fishway staff and/or operational staff will be onsite daily for several hours from May 1 through July 31 to augment and assist MDMR crew. From August 1 to November 15, seasonal fishway staff and/or operational staff will be onsite daily but for limited hours. Given the low numbers of migratory fish at the Project this time of year, it would be inefficient to have staff onsite for the full 12 hours passage day. Instead, Brookfield will install a camera/remote monitoring equipment that will be monitored by seasonal fishway staff at the Lockwood facility. Brookfield will also automate the upstream gate so that, in the event that a fish is detected in the upper flume

and Brookfield seasonal fishway staff or operational staff are not onsite, the gate can be remotely operated by the NSCC to volitionally pass fish once a check for invasives has been conducted. These details are outlined in the attached Plan.

Thank you,

**Adam Brown**
Compliance Specialist

**Brookfield Renewable**
28 Weston Avenue, Skowhegan, ME 04976
Mobile (207) 313-1173
adam.brown@brookfieldrenewable.com
www.brookfieldrenewable.com

Brookfield

## Brown, Adam

**From:** Dan Tierney - NOAA Federal <dan.tierney@noaa.gov>
**Sent:** Friday, April 02, 2021 5:06 PM
**To:** Maloney, Kelly
**Cc:** Brown, Adam; Leblanc, Matthew; Matt Buhyoff - NOAA Federal; Donald Dow
**Subject:** Re: Project Operations Compliance Report submitted in FERC P-2284-000 by Brookfield Renewable Energy Group,et al.

Hi Kelly, This looks good. I think it adequately reflects our earlier comments and discussions. I just have a few comments. Thanks. Dan

- Section 4.1, pg 3: For the August to November timeframe you do not specifically indicate the number of days per week that the fishway will be monitored, nor do you indicate the hours of operation. You do indicate staff will be "onsite several hours a day", and that "The video feed will be monitored by fish passage technicians stationed at the Lockwood facility during the times that seasonal or operational staff are not onsite and actively monitoring the fishway." Is the intention that the fishway will be monitored 7 days a week from 9am to 7 pm (as proposed for June 15-July 31), either by onsite staff or by staff at the Lockwood Dam? Or will it be monitored on some other schedule?
- Section 4.1, pg 3: Footnote 1. You are not proposing to operate the fishway prior to May 1, so this footnote appears to be unnecessary.
- Section 4.3, pg 10: Incidental Take Statement Requirements. The ITS this references is expired and is therefore no longer valid. I realize that these requirements are still conditions on the project license. To avoid confusion with the new ITS that will be issued as part of our consultation, I would suggest changing the name of this section to "Endangered Species Requirements", "Additional License Requirements", or something similar. Also, the last two bullets in this section were not included in the 2013 ITS. I assume they are meant to be elsewhere in the document.
- Agency contacts, pg 12: Please remove me as a contact for this project.
- Appendix G, Sturgeon Handling Plan: The date on this plan is February 11, 2019. The date on the plan you filed with FERC on December 31, 2019 is May 1, 2018. Please ensure that it is clear to FERC which plan you wish to submit as part of the SPP.

On Thu, Apr 1, 2021 at 2:15 PM Maloney, Kelly <Kelly.Maloney@brookfieldrenewable.com> wrote:

> Perfect, Dan. Thanks! And again, I'm so sorry and greatly appreciate your consideration.
>
> **From:** Dan Tierney - NOAA Federal <dan.tierney@noaa.gov>
> **Sent:** Thursday, April 01, 2021 2:12 PM
> **To:** Maloney, Kelly <Kelly.Maloney@brookfieldrenewable.com>
> **Cc:** Brown, Adam <Adam.Brown@brookfieldrenewable.com>; Leblanc, Matthew <matthew.leblanc@brookfieldrenewable.com>
> **Subject:** Re: Project Operations Compliance Report submitted in FERC P-2284-000 by Brookfield Renewable Energy Group,et al.
>
> Thanks Kelly. These things happen. I should be able to give it a review over the next few days. I will shoot to get you comments by the middle of next week.

Dan

On Thu, Apr 1, 2021 at 2:08 PM Maloney, Kelly <Kelly.Maloney@brookfieldrenewable.com> wrote:

> Hi, Dan…we circulated the O&M Plan to the agencies a month ago and asked for comments by today. But it looks like you were left off the distribution list inadvertently. I am so very sorry. I have forwarded that email to you. Clearly, you'll need more time to review so please let me know what works for you.
>
> The only comments/questions received were from Mike Brown regarding not being able to see invasives on the camera but that would be easy to remedy by putting a small steel bump on the floor of the flume to be sure there is no blindspot. Other than that, no other comments.
>
> **From:** Dan Tierney - NOAA Federal <dan.tierney@noaa.gov>
> **Sent:** Thursday, April 01, 2021 1:50 PM
> **To:** Maloney, Kelly <Kelly.Maloney@brookfieldrenewable.com>
> **Subject:** Fwd: Project Operations Compliance Report submitted in FERC P-2284-000 by Brookfield Renewable Energy Group,et al.
>
> Hi Kelly, This reminds me. Do you plan on sending around the O&M plan for Brunswick for review? I think that was the next step in getting the SPP consultation rolling?
>
> Dan
>
> ---------- Forwarded message ---------
> From: **FERC eSubscription** <eSubscription@ferc.gov>
> Date: Thu, Apr 1, 2021 at 1:05 PM
> Subject: Project Operations Compliance Report submitted in FERC P-2284-000 by Brookfield Renewable Energy Group,et al.
> To:
>
> On 3/31/2021, the following Filing was submitted to the Federal Energy Regulatory Commission (FERC), Washington D.C.:

Filer: Brookfield Renewable Energy Group
Brookfield Renewable Energy Group (as Agent)

Docket(s): P-2284-000
Lead Applicant: FPLE Maine Hydro, LLC
Filing Type: Project Operations Compliance Report
Description: 2020 annual Brunswick fish passage report Brookfield Renewable Energy Group under P-2284.

To view the document for this Filing, click here
https://elibrary.ferc.gov/eLibrary/filelist?accession_num=20210331-5573

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