2023 LONG-TERM MONITORING PLAN

PENOBSCOT ESTUARY REMEDIATION

Prepared for

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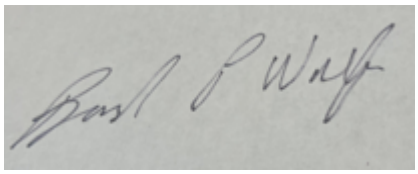

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I certify that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I have no personal knowledge that the information submitted is other than true, accurate, and complete.

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1 INTRODUCTION

WSP USA Environment & Infrastructure, Inc. (WSP) has prepared this Draft 2023 Long-Term Monitoring (LTM) Plan for Long-Term Monitoring of the Penobscot River Estuary located in Hancock, Penobscot, and Waldo counties, Maine (the Site), for the Greenfield Penobscot Estuary Remediation Trust LLC (Remediation Trust). The Remediation Trust was established pursuant to a Consent Decree approved and entered by the U.S. District Court for the District of Maine (Maine People's Alliance and NRDC v. Holtrachem Manufacturing Company LLC, et al., No. 1:00-cv-00069-JAW (D. Maine October 11, 2022)) (the "Consent Decree"), a settlement agreement that resolved two decades of litigation concerning mercury contamination in the Penobscot River Estuary. The Remediation Trust was established to implement the remediation work required under the Consent Decree and to otherwise carry out the important purpose of accelerating recovery of the Penobscot River Estuary.

The Penobscot River Mercury Study (PRMS) monitored mercury concentration in sediment, water, and biota in the Penobscot Estuary (see **Figure 1**) between 2006 and 2014. The Phase III Engineering Study by Wood Environment & Infrastructure, Inc (Wood) now WSP USA Environment & Infrastructure, Inc (WSP) (formerly Amec Foster Wheeler) extended this monitoring in a modified form in 2016 and 2017. The most recent year of monitoring occurred in 2020. The 2020 LTM monitoring plan (Wood, 2020) and resulting data coupled with the Long-Term Monitoring (LTM) recommendations in Section 8.7 of the Final Phase III Engineering Study Report (Amec Foster Wheeler, 2018) informed this LTM plan.

This LTM plan has been prepared to guide sediment, surface water, and biota sampling activities for the Penobscot Estuary in 2023 and early 2024. This document is intended to provide an overview of sampling methodologies, while more specific detail on the methodologies can be found in the Field Sampling Plan (FSP) (WSP, 2023a) and associated Standard Operating Procedures (SOPs). The Quality Assurance Project Plan (QAPP) (WSP, 2023b) should be consulted for analytical procedures. The site-specific Health and Safety Plan (HASP) (WSP, 2023c) should be consulted prior to conducting any of the specific field activities presented in the LTM plan or FSP (WSP, 2023a).

2 OBJECTIVES

The objective of this document is to provide the project field crews with locations and methodologies describing safe collection of sediment, surface water, and biota data of sufficient quality for the Penobscot Estuary 2023 LTM program. The objective of this document, as well as the FSP (WSP, 2023a), is to provide users with guidance to consistently collect reproducible data.

The LTM plan is a summary level document of the following topics, with references to the supporting FSP (WSP, 2023a), QAPP (WSP, 2023b) and HASP (WSP, 2023c) for more detail:

- Project Organization Chart
- Logistics
- Health and Safety
- Sediment Sampling
- Surface Water Sampling
- Biota Sampling
- Sample Identification (ID) Nomenclature
- Sample Management
- Surveys
- Data Quality and Recordkeeping
- Laboratory Deliverables and Data Evaluation

3 LOGISTICS

3.1 LOCAL POINTS OF CONTACT

A list of important contacts for conducting field work on the Penobscot Estuary is included in **Table 1**.

3.2 ACCESS AGREEMENTS

Prior to accessing any sampling locations on private property, WSP will ensure that a signed access agreement between the property owner and the Remediation Trust is in hand. Property rights within the State of Maine extend to the mean low water mark, which requires obtaining permission from property owners to access intertidal and marsh areas along the Penobscot Estuary.

3.3 PERMITS AND APPROVALS

Permits and approvals required before biota sampling activities commence include:

- US Geological Survey Federal Bird Banding Permit
- US Fish and Wildlife Service Migratory Bird Take Permit
- State of Maine DIFW Scientific Collection permit for collection of Nelson's sparrows (*Ammodramus nelsoni*), red-winged blackbird (*Agelaius phoeniceus*), and American black duck (*Anas rubripes*)
- State of Maine Department of Marine Resources (DMR) Special License exempting samplers from regulations 12 M.R.S. and DMR Regulation Chapters pertaining to lobster (*Homarus americanus*), Atlantic tomcod (*Microgadus tomcod*), and rainbow smelt (*Osmerus mordax*)
- State of Maine Department of Inland Fisheries and Wildlife (DIFW) permit allowing for collection of American eels (*Anguilla rostrata*)

WSP will coordinate with the National Oceanic and Atmospheric Administration Fisheries before sampling to confirm that protected species (Atlantic salmon (*Salmo salar*), shortnose sturgeon (*Acipenser brevirostrum*), and Atlantic sturgeon (*Acipenser oxyrinchus oxyrinchus*) would not be disturbed with the planned sampling techniques. WSP will notify the appropriate/necessary agencies prior to sampling events. The required permits will be obtained prior to initiation of sample collection.

3.4 BOATING

The use of boats will be required to obtain sediment, surface water, and biota samples from the Penobscot Estuary. Subcontractors with boating experience on the Penobscot Estuary will be used as much as possible. Boating safety requirements are detailed in the HASP (WSP, 2023c). For activities without subcontractors, boats small enough to be trailered may be launched from boat ramps along the river, the locations of which are shown in **Figure 4**. In addition to launching points, the locations depicted in **Figure 4** are available as locations to put ashore in the event of an emergency, engine trouble, or severe weather. **Figure 5** provides the locations of fuel and/or boat yards.

3.5 FIELD STATION

Previous LTM activities were conducted from a field station located at the Winterport Boat Yard in Winterport, Maine. The boat yard provided access to their dock, floats, and office space for the field station. WSP will work with the Remediation Trust to contact the boat yard in early 2023 to determine if the building used for the field station will be available in 2023 and 2024 for activities associated with the Penobscot Estuary Remediation project.

4 HEALTH AND SAFETY

A Site-specific HASP (WSP, 2023c) will be prepared to provide for the safety of workers. Based on available Site information and past Penobscot Estuary sample collection experience, WSP anticipates that the LTM will be conducted in modified Level D personal protective equipment level. Personal protective equipment for LTM activities will be described in the Site-specific HASP (WSP, 2023c). Criteria for upgrading or downgrading the specified level of protection will also be provided in the Site-specific HASP. Should Site conditions pose a threat to those present on-Site, and/or should Site conditions warrant an upgrade from modified Level D, as defined by the HASP, work will stop, and the situation will be re-evaluated by the WSP Project Manager. Anyone working at the Site has the authority to stop work if they feel that the activities they are observing or are participating in represent a threat to the safety of those on-Site.

5 SEDIMENT SAMPLING

The Penobscot Estuary 2023 LTM Plan includes:

- Sediment cores co-located with biota samples (Section 5.1);
- Sediment cores, which are sediment-only locations, to continue the existing sediment monitoring program (Section 5.2).

5.1 SEDIMENT CORES CO-LOCATED WITH BIOTA SAMPLES

Sediment cores co-located with biota samples will be collected at 22 locations in the Penobscot Estuary and three reference locations, limited to locations at which biota will be collected in 2023 (or 2024 for black ducks). The co-located sampling locations for 2023 monitoring are presented in **Table 2** and **Figures 4** through **9**. WSP will follow the sample collection and processing methodologies described in Section 5.3 of this LTM plan. Sediment cores co-located with biota samples will be collected as short (i.e., 1-foot [ft]) cores. The short cores will be sectioned at intervals of 0.0-0.1, 0.1-0.3, 0.3-0.5, 0.5-0.7, and 0.7-1.0 ft. The top three intervals will be sampled for total mercury, methylmercury, and TOC. The bottom two intervals will be analyzed for total mercury and TOC.

5.2 SHORT CORE SEDIMENT-ONLY SAMPLE LOCATIONS

Sediment cores will be collected at 22 locations in the Penobscot Estuary and one reference site in Addison, Maine. These locations are referenced as short core, sediment-only locations. These sediment-only locations are presented in **Table 2** and **Figures 4** through **9**. WSP will follow the collection and processing methodologies described below. Cores for sediment-only locations will be collected to a depth of 1 foot (ft) below the sediment surface. These short cores will be sectioned at intervals of 0.0-0.1, 0.1-0.3, 0.3-0.5, 0.5-0.7, and 0.7-1.0 ft. The top three intervals will be analyzed for total mercury, methylmercury, and total organic carbon (TOC). The bottom two intervals will be sampled for total mercury and TOC.

5.3 SEDIMENT SAMPLE COLLECTION AND PROCESING METHODOLOGIES

Sediment core collection and processing will be conducted in accordance with procedures described in SOP S-6 of the FSP (WSP, 2023a).

Sediment Core Collection

Sampling devices and boats used to collect cores will depend on the position of the sampling location in the multiple tidal zones of the estuary complex. In general, sediment samples will be collected using one of the following sampling devices following procedures described in SOP S-6 and each of the more specific SOPs of the FSP (WSP, 2023a).

Estuary Tidal Zone	Access Methodology	Sample Device	Applicable SOP
Marsh Platform	• Boat • Overland	Push/hammer core	SOP S-6 SOP S-17 SOP S-23
Intertidal	• Boat	Push/hammer core	SOP S-6 SOP S-17 SOP S-23
		Box Core	SOP S-6
		Gravity Core	SOP S-6

Estuary Tidal Zone	Access Methodology	Sample Device	Applicable SOP
Subtidal	• Subcontracted Coring Pontoon Boat	Box Core	SOP S-6 SOP S-17 SOP S-23
		Gravity Core	SOP S-6

During sample collection, pertinent information including vessel type, weather, sea state, tide, sampling device(s), and sediment core recovery will be recorded on the Sediment Core Log provided in Appendix B of the FSP (WSP, 2023a).

5.4 SAMPLE PROCESSING (EXTRUSION)

After a coring device has been deployed and the core recovered, pertinent information regarding the deployment and recovered sediment will be documented on the Sediment Core Log (WSP, 2023a). Sample photographs will be taken of the recovered sediment within the sample liner. Then, the sample will be extruded from the liner using an incremental extruder device and processed following procedures described in SOP S-23 of the FSP (WSP, 2023a).

During sample extrusion, sediment sample descriptions will be documented on the Sediment Core Log in accordance with procedures described in SOP S-23 of the FSP (WSP, 2023a).

5.5 SAMPLE HANDLING

Sample containers will be labeled, placed in sealable plastic bags, and placed in coolers with ice for transport to the field station in preparation for sample shipment. Samples will be placed in separate coolers depending on the analysis to be performed and the type of ice used for preservation. Sample packing procedures are described in SOP S-20 of the FSP (WSP, 2023a). The following bullets list the type of ice to be used by analytical method:

- Sediment samples analyzed for mercury (low level) by 1631e and TOC by Lloyd-Kahn: wet ice
- Sediment samples analyzed for methylmercury (low level) by EPA 1630: dry ice

5.6 SEDIMENT SAMPLING EQUIPMENT DECONTAMINATION PROCEDURES

Decontamination procedures for sediment sampling equipment are described in SOP S-6 and S-17 of the FSP (WSP, 2023a). In general, the steps to be followed in decontamination of sediment sampling equipment are as follows:

- Remove any solid particles (gross contamination) from the equipment or material by brushing.
- Rinse equipment with potable water.
- Rinse equipment with Formula 409 cleaner solution (50% Formula and 50% potable water).
- Rinse equipment with deionized water.
- Repeat entire procedure or any parts of the procedure, if necessary.
- Place equipment in a decontaminated storage container for transport to other sampling locations.

6 SURFACE WATER SAMPLING

Two surface water sampling events, in Spring and Fall (e.g., April/May and October) 2023, will be conducted at the eight sites recommended in the Final Phase III Engineering Report (Amec Foster Wheeler, 2018). The water sampling and analysis plan is presented on **Table 3** and locations are shown on **Figures 4** through **9**. Collection methods described below in Section 6.1 will be employed during surface water sampling. Surface water sampling and analysis will include total mercury (dissolved and unfiltered), methylmercury (dissolved and unfiltered), TOC, dissolved organic carbon, and total suspended solids, as well as standard water quality parameters that may be required for exposure modeling (e.g., salinity, pH, temperature, conductivity, and dissolved oxygen concentration).

6.1 SURFACE WATER SAMPLING METHODOLOGIES

Surface water sampling will be conducted in accordance with SOP S-3, SOP S-4, and SOP S-5 of the FSP (WSP, 2023a).

Specific surface water sampling methods will depend on accessibility, size and depth of the water body, and type of samples being collected. A peristaltic pump will be used to collect surface water, which is defined as one foot below the water surface. Samples will be collected during out-going (ebbing) tide. Sampling will be performed by at least two people.

Sample Handling

Containers for surface water samples will be labeled and placed in sealable plastic bags and then placed on wet ice in coolers. Sample packaging procedures are included in the FSP as SOP S-20 (WSP, 2023a).

7 BIOTA SAMPLING

The following biota are included as part of the Penobscot Estuary 2023 LTM Plan:

- Avian – songbirds (i.e., Nelson's sparrow, red-winged blackbird) and ducks (i.e., American black duck) – as described in Section 7.1
- Fish (i.e., Atlantic tomcod, rainbow smelt, mummichog, American eel) – as described in Section 7.2
- Polychaetes – as described in Section 7.3
- American lobster – as described in Section 7.4

The biota sample and analysis plan is presented in **Table 4**, and sample locations are shown on **Figures 6** through **11**. WSP will make reasonable efforts to collect the suggested sample sizes for each species indicated on **Table 4**.

7.1 AVIAN SAMPLING

Sampling methods vary depending on the target species (i.e., red-winged blackbird, Nelson's sparrow, American black duck). Equipment and techniques are summarized below. Additional detail for each sampling method can be found in the SOPs referenced below and included in the FSP (WSP, 2023a). With the exception of the opportunistic American black duck tissue samples, birds will be released in a safe location after all measurements and data, blood samples, and photographs (if necessary), have been collected and/or recorded.

Avian sampling will be conducted in accordance with SOPs S-8, S-9, and S-10 in Appendix A of the FSP (WSP, 2023a).

Mist nets will be used to capture Nelson's sparrows and red-winged blackbirds. Mist nets will be set up in accordance with SOP S-8. Non-target species caught in mist nets will be carefully extricated and released. Target species will be handled using approved handling techniques, prioritizing the health and welfare of the birds. Birds will be banded, and samples will be collected as described in SOP S-9 of the FSP (WSP, 2023a).

American black ducks will be captured by WSP staff with support of biologists from the Maine DIFW. Blood samples will be collected from black ducks as described in SOP S-10 of the FSP (WSP, 2023a). No black ducks will be sacrificed for tissue samples. However, breast muscle tissue samples from American black ducks may be collected opportunistically from local duck hunters or from any lethal sampling conducted by the State of Maine. American black ducks will be released in a safe location after all measurements and data, blood samples, and photographs (if necessary), have been collected and/or recorded.

Documentation of avian blood samples collected will be recorded on the following field data records (FDRs), as provided in Appendix B of the FSP (WSP, 2023a):

- Mist Net Coordinate Log
- Songbird Banding Log
- Songbird Sampling Log
- Black Duck Sampling Log

7.1.1 BLOOD SAMPLE COLLECTION

Blood samples will be collected from the brachial vein of songbird wings using methods described in SOP S-9 of the FSP (WSP, 2023a). For ducks, blood will be collected from the inner brachial artery at the base of the wing, or from the femoral vein in the leg, using a 25-gauge needle, using methods described in SOP S-10 of the FSP (WSP, 2023a).

7.1.2 TISSUE SAMPLE COLLECTION

If whole duck samples are available, methods for breast muscle removal for tissue collection, are described in SOP S-10 of the FSP (WSP, 2023a). Tissue collection will either be conducted in the field office/laboratory, or by the analytical laboratory upon receipt of the whole-body sample.

7.1.3 SAMPLE HANDLING

For avian samples, labeled vacuette tubes with blood samples will be stored on dry ice in a cooler prior to shipment to the analytical laboratory for analysis. For ducks, whole body or breast muscle tissue samples will be placed in sealable plastic bags, labeled, and placed in coolers with dry ice. Sample packaging procedures are included in the FSP as SOP S-20 (WSP, 2023a).

7.2 FISH SAMPLING

Summaries of fish sampling methodologies are provided below for the target fish species (i.e., Atlantic tomcod, rainbow smelt, mummichog, American eel). Only the target species will be retained.

Fish sampling will be conducted in accordance with SOPs S-12 and S-13 contained in Appendix A of the FSP (WSP, 2023a). Fish sample collection will be documented on the following FDRs as provided in Appendix B of the FSP (WSP, 2023a):

- Fish Sampling Log
- Eel Sampling Log

7.2.1 FISH COLLECTION

A variety of fish collection techniques will be employed to obtain specimens of Atlantic tomcod, mummichog, and rainbow smelt. SOP S-12 of the FSP (WSP, 2023a) details the use of possible fish collection techniques and sample handling procedures. American eel specimens will be collected using baited eel traps. SOP S-12 details the use of baited eel traps and sample handling procedures of the FSP (WSP, 2023a). Fish and eel will be weighed, measured (length), placed in sealable plastic bags, labeled, and placed in coolers with dry ice. SOP S-13 of the FSP (WSP, 2023a) provides the sample processing, packing, and shipping procedures to be followed.

7.2.2 SAMPLE HANDLING

Sample homogenization and analysis of whole body and fillet portions of fish will be performed at the laboratory. SOP S-20 describing sample packaging procedures are included in Appendix A of the FSP (WSP, 2023a).

7.3 POLYCHAETE SAMPLING

Polychaete sampling will be conducted in accordance with SOP S-15 included in Appendix A of the FSP (WSP, 2023a).

7.3.1 POLYCHAETE COLLECTION

Polychaetes will be collected by hand, utilizing a shovel or clam rake. Polychaetes will be dug when the sediment in the intertidal zone is exposed. Sediment will be excavated where there are holes in the surface of the sediment. Polychaetes will be captured and extracted from the sediment with gloved hands. Polychaetes will be placed in a sample container. SOP S-15 describing polychaete collection is included in Appendix A of the FSP (WSP, 2023a).

7.3.2 SAMPLE HANDLING

Polychaetes will be placed in artificial seawater to depurate for up to 48 hours (remove sediment from inside the body). Samples will be shipped on wet ice for taxonomic identification as described in SOP S-15 included in Appendix A of the FSP (WSP, 2023a). After taxonomic identification the samples will be weighed, packaged, and shipped on dry ice to the laboratory for processing and homogenization. Sample packaging procedures are included in SOP S-20.

7.4 LOBSTER SAMPLING

The sampling methodology for lobster can be found in SOP S-14 in Appendix A of the FSP (WSP, 2023a). Sampling equipment and techniques are summarized below. Collection of lobster samples will be documented on the lobster sampling log provided in Appendix B of the FSP (WSP, 2023a).

7.4.1 LOBSTER COLLECTION

Lobster will be collected by a contracted professional lobster fisherman/boat captain with appropriate state permits, using traps of a type approved by the requisite permits. SOP S-14 in Appendix A of the FSP (WSP, 2023a) details the procedures for collection of lobsters via traps. No lobsters were caught at location ES-02 in 2020Likely due to low salinity, thus location ES-02 has been removed from this sampling plan due to its poor habitat suitability for lobster. GPS locations of collected lobsters will be recorded on FDRs. Field crews will record the carapace length, the weight, and sex of each lobster. After recording data, lobsters will be placed in sealable plastic bags, labeled, and placed in coolers containing dry ice.

7.4.2 SAMPLE HANDLING

Processing and homogenization of the lobster tail will occur at the laboratory. Sample packaging procedures are included in the FSP as SOP S-20 (WSP, 2023A)

8 SAMPLE NOMENCLATURE

Sample nomenclature is described in SOP S-2 of the FSP (WSP, 2023a).

8.1 SEDIMENT AND SURFACE WATER

Sediment and surface water sample nomenclature are as follows.

Station ID_ MMDDYY _ Media Type_ Depth

where:

MMDDYY = Date of sample collection

Media Type = Sediment, Surface Water (SED, SW)

Depth = 2-digit depth below media surface in tenths of feet.

8.2 BIOTA

Biota sample nomenclature are as follows.

Station ID_ MMDDYY _ Species ID _ Tissue Type _ ##

where:

MMDDYY = Sample date of sample

Species ID = Species Abbreviation listed in Table 1 (FSP SOP S-2)

Tissue Type = Tissue Abbreviation listed in Table 2 (FSP SOP S-2)

= 2-digit number to enumerate multiple samples collected at a single location

9 RECORD KEEPING, SAMPLE TRACKING, AND SHIPPING

9.1 FIELD NOTES

The use of a Site Logbook and Field Logbook provides a daily record of significant events, observations, and measurements during field investigations. It is the responsibility of the Field Operation Leader to maintain centralized daily logbook records of all significant field events, observations, and measurements during field investigations. All members of the field team are responsible for maintaining complete records of their actions, observations, and collected data. in their logbooks and providing this information to the team leader at the end of each day. Guidance on procedures to be used in the creation and maintenance of field logbooks is provided in the FSP (SOP S-1) (WSP, 2023a).

The Daily Activity Log FDR may also be used in place of the field logbook.

9.2 FIELD DATA RECORDS

Site-specific Penobscot Estuary 2023-2024 Sediment, Surface Water, and Biota Monitoring FDR forms have been created to be used during this field investigation and are listed below:

1	Daily Tailgate Health and Safety Log
2	Daily Activity Log
3	Sediment Coring log
4	Mist Net Coordinate Log
4a	Songbird Banding Log
4b	Songbird Sampling Log
5	American Black Duck Sampling Log
6	Lobster Sampling Log
7	Fish Sampling Log
8	Eel Sampling Log
9	Polychaete Log
10	Equipment Calibration and Tracking Log
11	Surface Water Sampling Log
12	Daily Float Plan

These FDR forms are included in Appendix B of the FSP (WSP, 2023a).

9.3 PHOTOGRAPHS

Photographs will be taken to document representative field procedures. When a photograph is taken, the date, time, weather conditions (if applicable), subject, purpose for the photograph, and photograph number will be recorded in the field book or on the sample FDR.

9.4 SAMPLE TRACKING

Collected samples will be transported to the field station for processing to COC development. SOP S-18 in FSP (WSP, 2023a) provides specific steps and details or the primary tasks of initial sample creation, label production, pre-sample collection data entry, and creation of a COC for shipping to the laboratory.

9.5 SAMPLE CHAIN OF CUSTODY FORMS

All sample shipments will be accompanied by a COC record. COCs will be completed and sent with the samples for each laboratory and each shipment. If multiple coolers are sent to a single laboratory on a single day, the COC(s) will be completed and sent with the samples in each cooler. The COC form will identify the contents of each shipment and maintain the custodial integrity of the samples. Generally, a sample is considered to be in someone's custody if it is either in someone's physical possession, in someone's view, locked up, or kept in a secured area that can only be accessed by authorized personnel. Until the samples are shipped, the custody of the samples will be the responsibility of WSP. The task lead or designee will sign the COC form in the "relinquished by" box and note date, time, and air bill number. A copy of the COCs will be kept in the WSP project files.

9.6 PACKAGING AND SHIPMENT

Samples will be shipped to the laboratory for analysis as soon as reasonable after sample collection. Procedures to be used when packing and transporting analytical samples to the laboratory are provided in the SOP S-20 Sample Packaging and Shipment of the FSP (WSP, 2023a).

All samples will be shipped via overnight carrier to Eurofins Frontier Global Science and Eurofins Global Science sub labs.

10 SAMPLE LOCATION COORDINATE COLLECTION

Coordinates for sample and trap locations will be collected in the field using a tablet paired with a hand-held Global Positioning System (GPS) device capable of submeter x and y coordinate accuracy (e.g., Trimble R1).

11 PROJECT AND DATA QUALITY

11.1 PROJECT AND DATA QUALITY OBJECTIVES

Project Quality Objectives (PQOs) for the LTM are presented below and Data Quality Objectives (DQOs) in the QAPP (WSP, 2023b). The following bullets present the Project Quality Objectives:

- *Who will use the data?* The Remediation Trust, WSP, their subcontractors, and stakeholder agencies will use the data.
- *What will the data be used for?* Long-term monitoring of mercury concentrations in sediment, surface water, and biota in the Penobscot River Estuary will be conducted to evaluate the results of proposed capping and removal remedies to be performed by the Remediation Trust.
- *What type of data are needed? (target analytes, analytical groups, field screening, on-site analytical or off-site laboratory techniques, sampling techniques)*. Analytical data from sediment, surface water, and biota will be collected from on-site areas. Depending on the media investigated and sampled, samples will be potentially analyzed for low-level mercury, methyl mercury, total organic carbon, dissolved organic carbon, total suspended solids, and suspended sediment concentrations. Specific sampling scope for media and planned analyses are described in the work orders and work plans.
- *How much data are needed? (number of samples for each analytical group, matrix, and concentration)* The number of samples and analyses for each media are summarized in this LTM plan.
- *Where, when, and how should the data be collected/generated?* Surface water, sediment, and biota sampling locations and schedule are documented in this LTM plan. Data will be generated in accordance with USEPA guidelines.
- *Who will collect and generate the data?* WSP will collect the environmental samples. Samples will be analyzed by Eurofins Frontier Global Sciences located in Tacoma, Washington; Eurofins Calscience located in Tustin, California; and Eurofins TestAmerica located in Pittsburgh, Pennsylvania. Field and laboratory data will be managed and reported by WSP.
- *How will the data be reported?* The analytical laboratories will provide a report and electronic data deliverable. Results will be validated and entered into an electronic database as described in Worksheet #14.
- *How will the data be archived?* The Remediation Trust will maintain a Project Database containing all data generated in the performance of remedial actions to address mercury contamination in the Penobscot River Estuary. Validated analytical results will be maintained in the Project SQL server database being developed by WSP for deployment in 2023 on a website for use by the Remediation Trust and authorized contractors.

12 LABORATORY DELIVERABLES AND DATA EVALUATION

12.1 LABORATORY DELIVERABLE

Full data deliverable packages equivalent to a Contract Laboratory Program (CLP) data package will be provided by the analytical laboratories. The full data deliverable package will include forms summarizing sample and QC blank results, all raw data, and forms summarizing all QC measurement parameters. Sample preparation logs will also be included in the data packages.

Hard copy data deliverables are not required for the program. Data packages will be due to WSP in 21 calendar days from sample receipt by the analytical laboratory, unless pre-approval of a delay is granted by WSP. Data packages will include a full deliverable data package in portable document format and an electronic data deliverable.

12.2 DATA VALIDATION

All laboratory data reports will be technically reviewed for accuracy and completeness. Stage 2B data validation will be performed for 90% of project data and Stage 3 validation for the remaining 10% of off-site chemical laboratory deliverable packages. The Stage 2B validation includes review of quality control information and summary forms but does not include review of the raw data. The Stage 3 validation includes review of raw data and supporting documentation. This level of validation will allow the validator to uncover any potential data quality issues pertaining to laboratory analysis. If severe non-compliant quality control issues are identified, the laboratory will be required to correct the problem. The data validation process is outlined in Worksheets #35, #36, and #37 in the QAPP (WSP, 2023b).

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FIGURES

Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors, and the GIS User Community

Former Veazie Dam
Former Holtrachem Facility
Southern Cove
Winterport Boat Yard
Frankfort Flats
Penobscot River
Lawrence Cove
Mendall Marsh
The Narrows
Verona Island
Orland River
Eastern Channel
Odom Ledge
Fort Point Cove
Cape Jellison
Fort Point
Sears Island
Penobscot Bay

Maine

Prepared for: Greenfield Penobscot Estuary Remediation Trust LCC
Trustee of the Penobscot Estuary Mercury Remdiation Trust

Prepared by: WSP USA Environment & Infrastructure, Inc.

Prepared/Date: BRP 11-10-22 | Checked/Date: BPW 11-10-22

0 1 2 3 Miles

N

Legend

- Approximate Limit of Study Area
- Town Boundary

Figure 1
Site Location Map

2023 Long-Term Monitoring Plan
Penobscot Estuary Remediation

Document: P:\Projects\USDC - Penobscot River\4.0_Deliverables\4.5_Databases\GIS\Preliminary Work\MXD\LTM 2023\Project_Location_11x17P_Index.mxd PDF: P:\Projects\USDC - Penobscot River 2023 Monitoring\2023 Monitoring FSP\Figures\Figure 1 - Site Location.pdf 11-10-2022 10:07 AM brian.peters

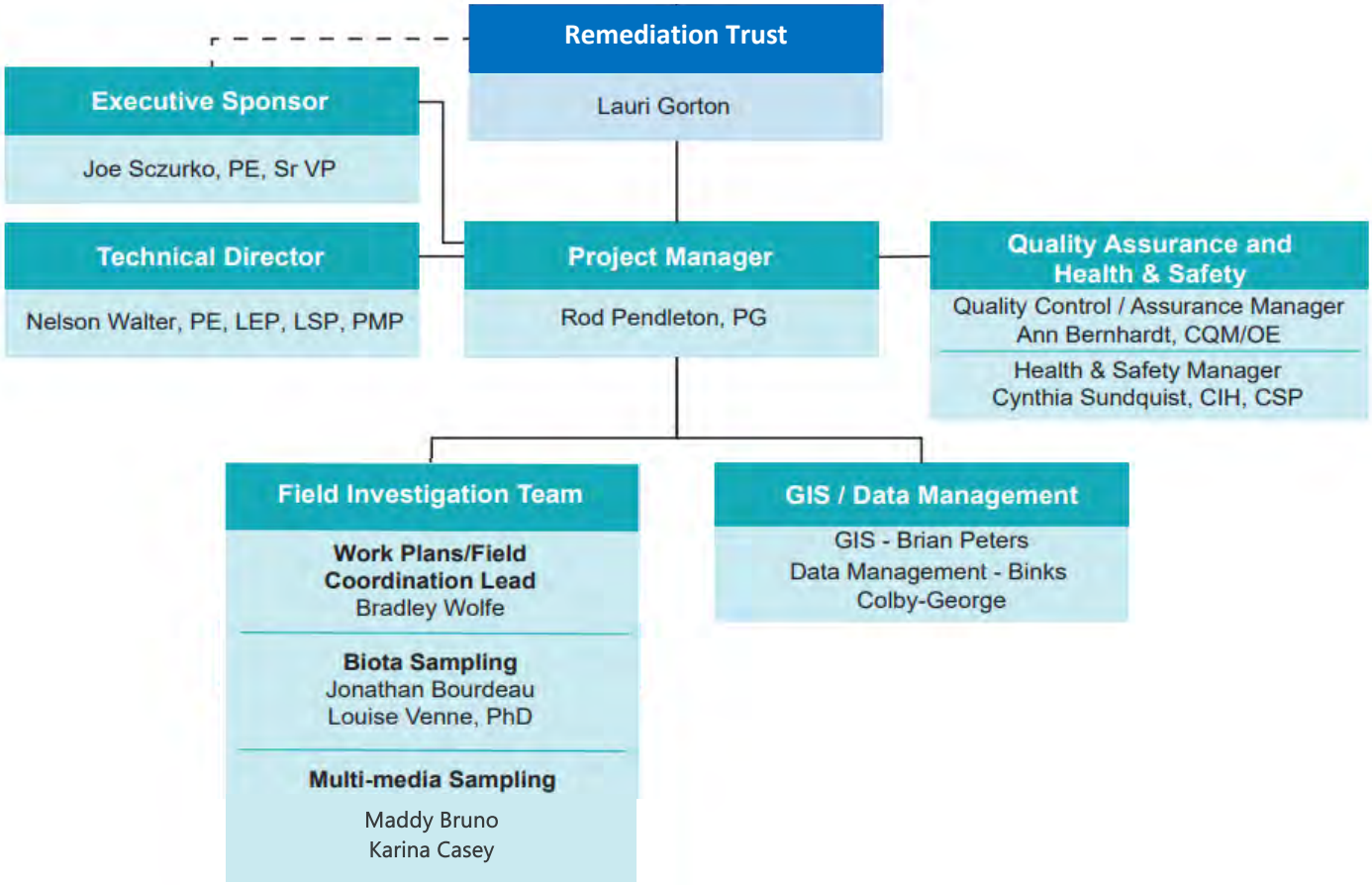

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Figure 2
Project Organization Chart

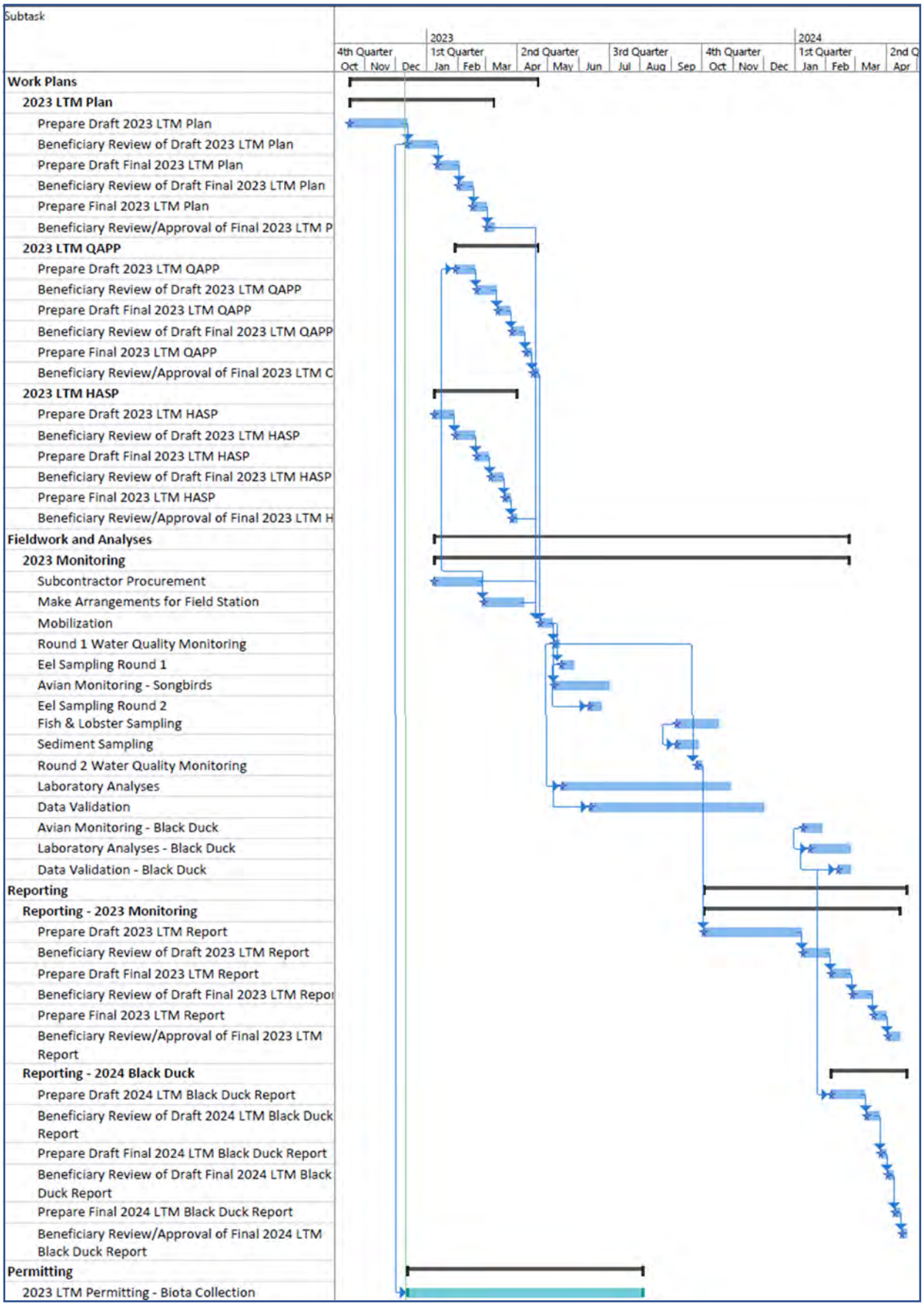

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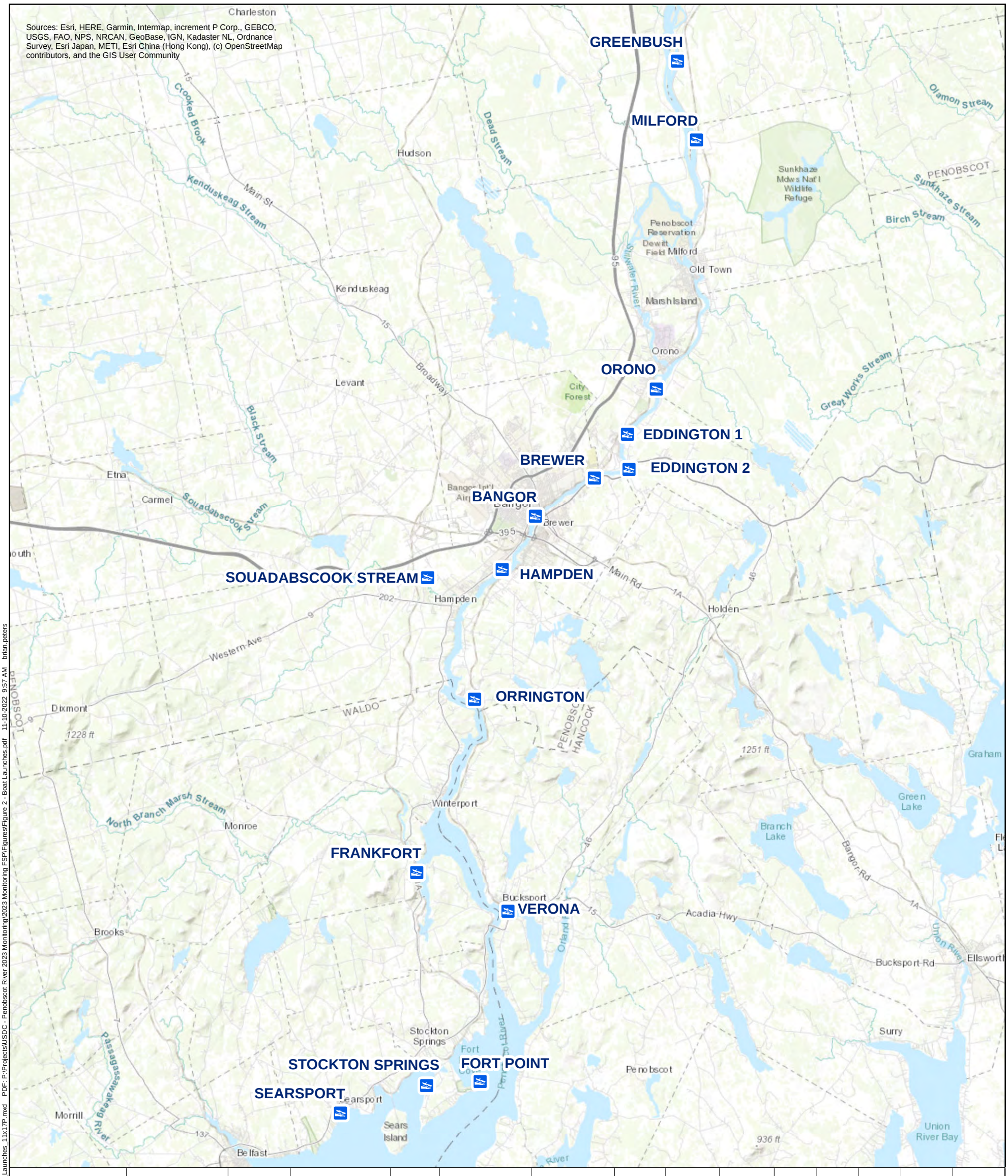
Figure 3
2023 LTM Project Schedule



NAME	TOWN	COUNTY	OWNERSHIP	STATE OR LOCAL	TYPE	WATER TYPE/TIDE	TYPE OF RAMP	LENGTH OF RAMP	WIDTH OF RAMP	GRADE	FLOATS	TOILETS	Latitude	Longitude
GREENBUSH	GREENBUSH	PENOBSCOT	GREENBUSH	Local	Trailer Accessible	Freshwater	Hard	130'	16'	12%	No	No	45.057960	-68.656110
MILFORD	MILFORD	PENOBSCOT	MILFORD	Local	Trailer Accessible	Freshwater	Hard	110'	10'	14%	No	No	45.012710	-68.640660
ORONO	ORONO	PENOBSCOT	PPL-MAINE	Local	Trailer Accessible	Freshwater	Hard		10'	13.5%	No	No	44.869600	-68.672800
EDDINGTON 1	EDDINGTON	PENOBSCOT	PPL-MAINE	Local	Trailer Accessible	Freshwater	Hard		10'	13.5%	No	No	44.843300	-68.696000
EDDINGTON 2	EDDINGTON	PENOBSCOT	EDDINGTON SAL. CL.	Local	Carry-in	Freshwater					No	Yes	44.823400	-68.694700
BREWER	BREWER	PENOBSCOT	BREWER	Local	Trailer Accessible	Freshwater	Hard	120'	20'	14%	No	No	44.818420	-68.722690
BANGOR	BANGOR	PENOBSCOT	BANGOR	Local	Landing Facility	All-Tide					Yes	Yes	44.796170	-68.770120
HAMPDEN	HAMPDEN	PENOBSCOT	HAMPDEN	Local	Trailer Accessible	All-Tide Ramp	Hard	200'	50'	15%	Yes	Yes	44.765400	-68.796900
SOUADABSCOOK STREAM	HAMPDEN	PENOBSCOT	DIFW	State	Carry-in	Freshwater	Gravel				No	No	44.760700	-68.857000
ORRINGTON	ORRINGTON	PENOBSCOT	DOC	State	Trailer Accessible	Part-Tide Ramp	Hard	102'	20'	11%	No	No	44.690940	-68.818780
FRANKFORT	FRANKFORT	WALDO	FRANKFORT	Local	Trailer Accessible	All-Tide Ramp	Hard	160'	20'	13%	No	No	44.590980	-68.864790
VERONA	VERONA	HANCOCK	DOC	State	Trailer Accessible	All-Tide Ramp	Hard	100'	20'	13%	No	No	44.569170	-68.791220
FORT POINT	STOCKTON SPRINGS	WALDO	DOC	State	Landing Facility	All-Tide					Yes	No	44.471000	-68.813100
STOCKTON SPRINGS	STOCKTON SPRINGS	WALDO	STOCKTON SPRINGS	Local	Trailer Accessible	All-Tide Ramp	Hard	160'	20'	8%	Yes	No	44.468600	-68.856100
SEARSPORT	SEARSPORT	WALDO	SEARSPORT	Local	Trailer Accessible	All-Tide Ramp	Hard	110'	24'	14%	Yes	No	44.452550	-68.925130

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Trustee of the Penobscot Estuary Mercury Remdiation Trust

Prepared by: WSP USA Environment & Infrastructure, Inc.

Prepared/Date: BRP 11-10-22 | Checked/Date: BPW 11-10-22

Legend

Boat Launches

0 1 2 3 Miles

N

Figure 4
Boat Launch Locations

2023 Long-Term Monitoring Plan
Penobscot Estuary Remediation

Document: P:\Projects\USDC - Penobscot River\4.0_Deliverables\4.5_Databases\GIS\Preliminary Work\MXD\LTM 2023\Boat_Launches_11x17P.mxd PDF: P:\Projects\USDC - Penobscot River 2023 Monitoring\2023 Monitoring FSP\Figures\Figure 2 - Boat Launches.pdf 11-10-2022 9:57 AM brian.peters

Hamlin's Marine

Mid-Coast Marine

Winterport Boat Yard/Dock Works

Bucksport Marina

Morse Cove Marine

Name	Address	Fuel	Boat Ramp	Telephone	VHF Channel
Hamlin's Marine	581 Main Road North, Hampden, Maine 04444	Yes	Yes	207-907-4385	
Mid-Coast Marine	20 Seabreeze Lane, Winterport, ME 04496	Yes	Yes	207-223-4381	
Bucksport Marina	382 Main Street, Bucksport, ME 04416	Yes	No	207-469-5902	09
Morse Cove Marine	1134 Castine Road, Castine, ME 04421	No	Yes	207-326-4800	
Winterport Boat Yard/Dock Works	49 Water Street, Winterport, ME 04496	Yes	Yes	207-233-8885	09 & 16

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Legend

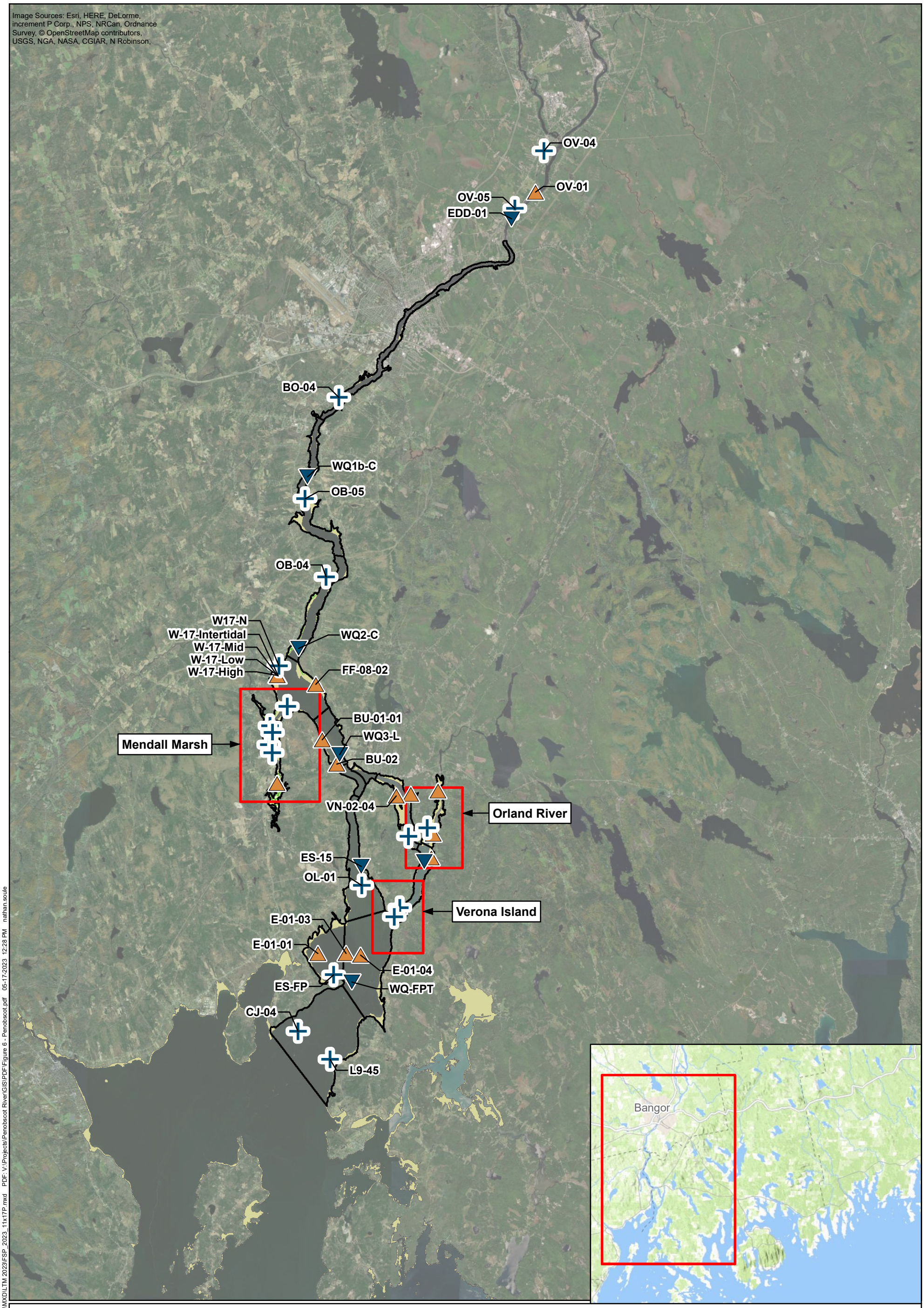
Marine Facilities

0 1 2 3 Miles

N

Figure 5
Marina and Boat Yard Locations

2023 Long-Term Monitoring Plan
Penobscot Estuary Remediation



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Prepared by: WSP USA Environment & Infrastructure, Inc.

Prepared/Date: NES 01-27-23	Revised/Date: NES 03-15-23	Checked/Date: BPW 03-15-23

Legend

- Study Reach Boundary
- Intertidal Zone
- Marsh Platform

Long Term Monitoring Stations:

- Surface Water
- Co-located Biota and Sediment
- Sediment

N

0 8,000 16,000 Feet

Figure 6
2023 Monitoring Stations
- Penobscot Estuary

2023 Long-Term Monitoring Plan
Penobscot Estuary Remediation

Document: V:\Projects\Penobscot River\GIS\MXD\LTM 2023\FSP_2023_11x17P.mxd PDF: V:\Projects\Penobscot River\GIS\PDF\Figure 6 - Penobscot.pdf 05-17-2023 12:28 PM nathan.soule

Image Sources: Esri, HERE, DeLorme, increment P Corp., NPS, NRCan, Ordnance Survey, © OpenStreetMap contributors, USGS, NGA, NASA, CGIAR, N Robinson,

OB-01

MMMC-01

MMSE-01

MMBKD-01

MMSW-C

W-22-Mid

Bangor

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0 700 1,400 Feet

N

Legend

Study Reach Boundary
Intertidal Zone
Marsh Platform

Long Term Monitoring Stations:
Co-located Biota and Sediment
Sediment

Figure 7
2023 Monitoring Stations
- Mendall Marsh

2023 Long-Term Monitoring Plan
Penobscot Estuary Remediation

Document: V:\Projects\Penobscot River\GIS\MXD\LTM 2023\FSP_2023_11x17P.mxd PDF: V:\Projects\Penobscot River\GIS\PDF\Figure 7 - Mendall Marsh.pdf 01-27-2023 11:18 AM nathan.soule

Image Sources: Esri, HERE, DeLorme, increment P Corp., NPS, NRCan, Ordnance Survey, © OpenStreetMap contributors, USGS, NGA, NASA, CGIAR, N Robinson,

PBR-28

OR-T3-C3

OR-01

ES-02

OR-T1-C3

VE-06

WQ-ECH

Bangor

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0 500 1,000 Feet

N

Legend

Study Reach Boundary
Intertidal Zone
Marsh Platform

Long Term Monitoring Stations:
Surface Water
Co-located Biota and Sediment
Sediment

Figure 8
2023 Monitoring Stations
- Orland River

2023 Long-Term Monitoring Plan
Penobscot Estuary Remediation

Document: V:\Projects\Penobscot River\GIS\MXD\LTM 2023\FSP_2023_11x17P.mxd PDF: V:\Projects\Penobscot River\GIS\PDF\Figure 8 - Orland River.pdf 01-27-2023 11:18 AM nathan.soule

Image Sources: Esri, HERE, DeLorme, increment P Corp., NPS, NRCan, Ordnance Survey, © OpenStreetMap contributors, USGS, NGA, NASA, CGIAR, N Robinson,

W-61-High
W-61-Mid
W-61-Low
W-61-Intertidal
ES-13
SVE-01
E-01-04

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0 450 900 Feet

N

Legend

- Study Reach Boundary
- Intertidal Zone
- Marsh Platform
- Long Term Monitoring Stations:
  - Co-located Biota and Sediment
  - Sediment

Figure 9
2023 Monitoring Stations
- Verona Island

2023 Long-Term Monitoring Plan
Penobscot Estuary Remediation

Document: V:\Projects\Penobscot River\GIS\MXD\LTM 2023\FSP_2023_11x17P.mxd PDF: V:\Projects\Penobscot River\GIS\PDF\Figure 9 - Verona Island.pdf 01-27-2023 11:18 AM nathan.soule

Image Sources: Esri, HERE, DeLorme, increment P Corp., NPS, NRCan, Ordnance Survey, © OpenStreetMap contributors, USGS, NGA, NASA, CGIAR, N Robinson,

FRB-01

FRB-02

Bangor

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0 800 1,600 Feet

N

Legend

Study Reach Boundary
Intertidal Zone
Marsh Platform

Long Term Monitoring Stations:
+ Co-located Biota and Sediment

Figure 10
2023 Monitoring Stations - Frenchmans Bay Reference Location

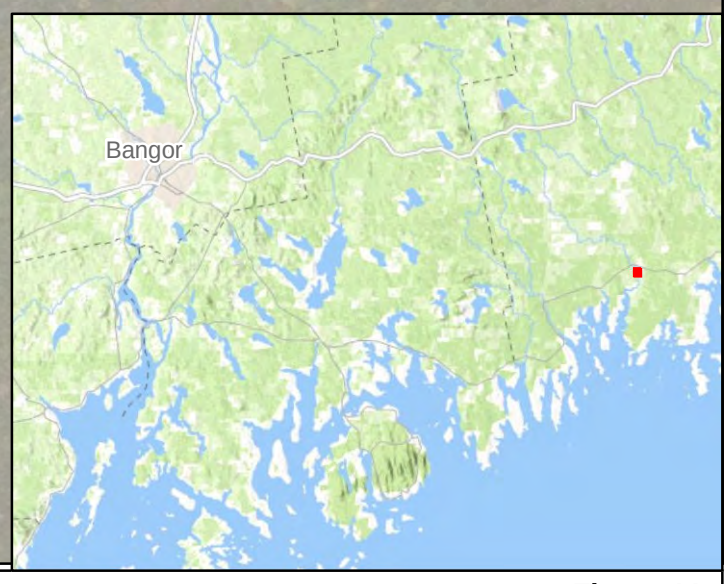
2023 Long-Term Monitoring Plan
Penobscot Estuary Remediation

Document: V:\Projects\Penobscot River\GIS\MXD\LTM 2023\FSP_2023_11x17P.mxd PDF: V:\Projects\Penobscot River\GIS\PDF\Figure 10 - Frenchmans Bay.pdf 01-27-2023 11:18 AM nathan.soule

Image Sources: Esri, HERE, DeLorme, increment P Corp., NPS, NRCan, Ordnance Survey, © OpenStreetMap contributors, USGS, NGA, NASA, CGIAR, N Robinson,

ADD-01

ADD-02



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0 100 200 Feet

N

Legend

- Study Reach Boundary
- Intertidal Zone
- Marsh Platform

Long Term Monitoring Stations:

- Surface Water
- Co-located Biota and Sediment
- Sediment

Figure 11

2023 Monitoring Stations
- Addison Reference Location

2023 Long-Term Monitoring Plan
Penobscot Estuary Remediation

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TABLES

Table 1
Contact List

2023 Long-Term Monitoring Plan
February 2023
Penobscot Estuary Remediation

NAME	TELEPHONE NUMBERS	
	Office	Cell
The Penobscot Regional Communications Center Dispatch/Public Safety Answering Point (PSAP) facility with enhanced 911 capability, operated on a 24-hour basis.	911	
Fire Department	911	
Hospital	911 or 207-973-7000	
Police Department	911	
Ambulance	911	
TriageNow - WSP early injury case management	1-877-311-0038	
WSP Group HSE Manager: Jeff Tweeddale	N/A	860-670-5908
Beth McDonald - WSP contact for incident related drug testing	770-360-0551	N/A
Project Manager: Rod Pendleton	N/A	207-229-0891
Field Operations Manager (FOM): Brad Wolfe	N/A	925-323-4082
Field Operation Lead (FOL): Chuck Lyman	N/A	617-947-6935
Avian and Overall Biota Lead: Louise Venne	N/A	678-622-5559
Aquatic Biota Lead: Jonathan Bourdeau	N/A	678-362-6122
e-FDRs and Records Lead: Lindsey Fales	N/A	207-228-3909
Project Chemist: Denise King	N/A	508-789-1738
Project Technical Director: Nelson Walter	N/A	207-651-0315
Client Contact: Lauri Gorton	Contact via Project Mgr.	
National Response Center (spills, security) - U.S. Coast Guard	800-424-8802 or 202-267-2675	
Clean Harbors 24-hr Spill Response	207-799-8111	
DFW Warden Service (Central Division – Bangor)	207-941-4470	
DMR Marine Patrol (Division II)	207-667-3373	
U.S. Coast Guard Station Rockland, ME	207-596-6667	

Table 2
2023 LTM Sediment Sample and Analysis Plan

2023 Long-Term Monitoring Plan
February 2023
Penobscot Estuary Remediation

Sample Month	Sample Sites	Location				Analyte	Sediment			Co-located Biota
							Eurofins			
		Longitude	Latitude	Maine State Plane East (US Survey Feet)		Method	Total Hg 1631e	Total MeHg 1630	TOC Lloyd-Kahn	
						Preservation	Freeze Dry Ice	Freeze Dry Ice	Freeze Dry Ice	
				X	Y	Sample ID[1]				
September	OV-04	-68.6739630	44.8765920	939156.69	441092.34	OV-04_MMDDYY_SED_01,03,05,07,10	5	3	5	x
September	OV-01	-68.6797300	44.8564000	937645.52	433734.40	OV-01_MMDDYY_SED_01,03,05,07,10	5	3	5	
September	OV-05	-68.6939140	44.8483190	933960.57	430796.69	OV-05_MMDDYY_SED_01,03,05,07,10	5	3	5	x
September	BO-04	-68.8148990	44.7553010	902453.00	396985.00	BO-04_MMDDYY_SED_01,03,05,07,10	5	3	5	x
September	OB-05	-68.8379000	44.7055000	896403.07	378853.82	OB-05_MMDDYY_SED_01,03,05,07,10	5	3	5	x
September	OB-04	-68.8232140	44.6671700	900165.58	364865.14	OB-04_MMDDYY_SED_01,03,05,07,10	5	3	5	x
September	W-17-N	-68.8553000	44.6234010	891749.00	348944.00	W17-N_MMDDYY_SED_01,03,05,07,10	5	3	5	x
September	W-17-High	-68.8566790	44.6187500	891382.58	347250.08	W-17-High_MMDDYY_SED_01,03,05,07,10	5	3	5	
September	W-17-Mid	-68.8563950	44.6187340	891456.37	347243.99	W-17-Mid_MMDDYY_SED_01,03,05,07,10	5	3	5	
September	W-17-Low	-68.8562610	44.6186220	891491.26	347202.94	W-17-Low_MMDDYY_SED_01,03,05,07,10	5	3	5	
September	W-17-Intertidal	-68.8557800	44.6185000	891616.17	347158.17	W-17-Intertidal_MMDDYY_SED_01,03,05,07,10	5	3	5	
September	FF-08-02	-68.8299880	44.6144900	898325.64	345667.82	FF-08-02_MMDDYY_SED_01,03,05,07,10	5	3	5	
September	OB-01	-68.8494220	44.6034990	893248.17	341682.25	OB-01_MMDDYY_SED_01,03,05,07,10	5	3	5	x
September	MMMC-01	-68.8612460	44.5939980	890153.58	338232.39	MMMC-01_MMDDYY_SED_01,03,05,07,10	5	3	5	x
January/February	MMBKD-01	-68.8620660	44.5847070	889924.87	334846.19	MMBKD-01_MMDDYY_SED_01,03,05,07,10	5	3	5	x
September	MMSE-01	-68.8595180	44.5907020	890598.30	337028.91	MMSE-01_MMDDYY _SED_01,03,05,07,10	5	3	5	x
September	MMSW-C	-68.8597090	44.5807170	890532.51	333389.01	MMSW-C_MMDDYY _SED_01,03,05,07,10	5	3	5	x
September	W-22-Mid	-68.8562880	44.5657960	891400.12	327945.67	W-22-Mid_MMDDYY_SED_01,03,05,07,10	5	3	5	
September	BU-01-01	-68.8254350	44.5873040	899471.64	335752.71	BU-01-01_MMDDYY_SED_01,03,05,07,10	5	3	5	
September	BU-02	-68.8152820	44.5753400	902099.93	331381.07	BU-02_MMDDYY_SED_01,03,05,07,10	5	3	5	
September	PBR-28	-68.7644380	44.5607110	915330.47	326001.07	PBR-28_MMDDYY_SED_01,03,05,07,10	5	3	5	
September	VN-02-04	-68.7743620	44.5598320	912742.86	325689.28	VN-02-04_MMDDYY_SED_01,03,05,07,10	5	3	5	
September	ES-02	-68.7659000	44.5399200	914924.80	318423.20	ES-02_MMDDYY_SED_01,03,05,07,10	5	3	5	x
September	OR-01	-68.7530440	44.5441560	918281.32	319956.56	OR-01_MMDDYY_SED_01,03,05,07,10	5	3	5	x
September	OR-T1-C3	-68.7489590	44.5411330	919342.95	318851.53	OR-T1-C3_MMDDYY_SED_01,03,05,07,10	5	3	5	
September	OR-T3-C3	-68.7457480	44.5623600	920203.46	326586.98	OR-T3-C3_MMDDYY_SED_01,03,05,07,10	5	3	5	
September	VE-06	-68.7501970	44.5294920	919007.30	314608.69	VE-06_MMDDYY_SED_01,03,05,07,10	5	3	5	
September	W-61-High	-68.7728950	44.5059300	913059.72	306038.40	W-61-High_MMDDYY_SED_01,03,05,07,10	5	3	5	
September	W-61-Mid	-68.7728290	44.5059640	913076.85	306050.92	W-61-Mid_MMDDYY_SED_01,03,05,07,10	5	3	5	
September	W-61-Low	-68.7728000	44.5058910	913084.41	306024.22	W-61-Low_MMDDYY_SED_01,03,05,07,10	5	3	5	
September	W-61-Intertidal	-68.7724330	44.5056380	913179.84	305931.67	W-61-Intertidal_MMDDYY_SED_01,03,05,07,10	5	3	5	

Prepared for: Greenfield Penobscot Estuary Remediation Trust LLC
Trustee of the Penobscot Estuary Mercury Remediation Trust
Prepared by: WSP USA Environment Infrastructure, Inc.

Table 2
2023 LTM Sediment Sample and Analysis Plan

2023 Long-Term Monitoring Plan
February 2023
Penobscot Estuary Remediation

Sample Month	Sample Sites	Location				Analyte	Sediment			Co-located Biota
							Eurofins			
		Longitude	Latitude	Maine State Plane East (US Survey Feet)		Total Hg	Total MeHg	TOC		
						Method	1631e	1630	Lloyd-Kahn	
						Preservation	Freeze Dry Ice	Freeze Dry Ice	Freeze Dry Ice	
				X	Y	Sample ID[1]				
September and Jan/Feb	ES-13	-68.7717000	44.5049000	913370.18	305662.06	ES-13_MMDDYY_SED_01,03,05,07,10	5	3	5	x
September	SVE-01	-68.7755000	44.5004000	912373.32	304024.97	SVE-01_MMDDYY_SED_01,03,05,07,10	5	3	5	x
September	OL-01	-68.7978000	44.5158000	906575.81	309659.24	OL-01_MMDDYY_SED_01,03,05,07,10	5	3	5	x
September	E-01-01	-68.8278000	44.4823700	898702.14	297502.74	E-01-01_MMDDYY_SED_01,03,05,07,10	5	3	5	
September	E-01-03	-68.8085000	44.4824000	903739.01	297494.07	E-01-03_MMDDYY_SED_01,03,05,07,10	5	3	5	
September	E-01-04	-68.7985600	44.4816300	906332.09	297203.75	E-01-04_MMDDYY_SED_01,03,05,07,10	5	3	5	
September	ES-FP	-68.8169000	44.4719000	901532.00	293675.00	ES-FP_MMDDYY_SED_01,03,05,07,10	5	3	5	x
September	CJ-04	-68.8412000	44.4440900	895146.86	283562.68	CJ-04_ MMDDYY_SED_01,03,05,07,10	5	3	5	x
September	L9-45	-68.8190990	44.4304000	900899.00	278549.00	L9-45_ MMDDYY_SED_01,03,05,07,10	5	3	5	x
September and Jan/Feb	FRB-01	-68.3568870	44.4629890	1021611.40	290298.91	FRB-01_ MMDDYY_SED_01,03,05,07,10	5	3	5	x
September	FRB-02	-68.3395100	44.4419630	1026162.99	282642.69	FRB-02_MMDDYY_SED_01,03,05,07,10	5	3	5	x
September	FRB-EEL	TBD	TBD	TBD	TBD	FRB-EEL_MMDDYY_SED_01,03,05,07,10	5 [2]	3	5 [2]	x
September	ADD-01	-67.7205710	44.6441910	1187099.17	357291.00	ADD-01_MMDDYY _SED_01,03,05,07,10	5	3	5	x
September	ADD-02	-67.7201000	44.6430910	1187225.37	356891.24	ADD-02_MMDDYY _SED_01,03,05,07,10	5	3	5	
							220	135	220	

Notes:

[1]See the Sample Nomenclature SOP for Sample ID generation

[2]A co-located sediment sample will be collected at FRB-EEL (to be established), if eel are collected in the Frenchman Bay area.

Cores are 1 ft long and sectioned into 5 increments (0-0.1ft, 0.1-0.3ft, 0.3-0.5ft, 0.5-0.7ft, 0.7-1.0ft). All sections will be analyzed for Total Hg, Total MeHg, and TOC. The top 3 increments will also be analyzed for MeHg.

Duplicates samples will be collected and analyzed on a 1 per 10 basis. (locations to be determined in the field based on sample volume recovery).

Hg - Mercury

ID - identification

Matrix Spike/Matrix Spike Duplicates (MS/MSD) samples will be collected and analyzed on a 1 per 20 basis (locations to be determined in the field based on sample volume recovery).

MeHg - Methylmercury

MMDDYY - 2 digits for each: MM - month, DD - date, YY - year

SOP - Standard Operating Procedure

TOC - Total Organic Carbon

TBD - to be determined (based on eel collection location)

Prepared by: LSV 3/06/2023

Checked by: BPW 3/06/2023

Table 3
2023 LTM Surface Water Sample and Analysis Plan

2023 Long-Term Monitoring Plan
May 2023
Penobscot Estuary Remediation

									Surface Water							
									Eurofins							
Media	Sample Collection Method	Sample Month	Sample Sites	Location				Analyte	Total Hg	Dissolved Hg	Total MeHg	Dissolved MeHg	TOC	DOC	TSS	SSC
				Longitude	Latitude	Maine State Plane East (US Survey Feet)		Method	1631e	1631e	1630	1630	SW-846/ 9060A	SW-846/ 9060A	2450D	ASTM 3977
								Preservation	4°C	4°C	H2SO4/ 4°C	H2SO4/ 4°C	H2SO4/ 4°C	H2SO4/ 4°C	4°C	4°C
						X	Y	Sample ID[1]		Filtered		Filtered		Filtered		
Surface Water	Peristaltic	Freshet and October	EDD-01	-68.696253	44.843131	933,349.32	428907.11	EDD-01_MMDDYY_SW_10	1	1	1	1	1	1	1	1
		Freshet and October	WQ1b-C	-68.8362500	44.7162500	896848.22	382770.96	WQ1b-C_MMDDYY_SW_10	1	1	1	1	1	1	1	1
		Freshet and October	WQ2-C	-68.8418667	44.6320500	895259.51	352082.13	WQ2-C_MMDDYY_SW_10	1	1	1	1	1	1	1	1
		Freshet and October	WQ3-L	-68.8133500	44.5800000	902609.74	333077.84	WQ3-L_MMDDYY_SW_10	1	1	1	1	1	1	1	1
		Freshet and October	WQ-ECH	-68.7549985	44.5275999	917753.00	313923.00	WQ-ECH_MMDDYY_SW_10	1	1	1	1	1	1	1	1
		Freshet and October	ES-15	-68.7982500	44.5251500	906470.88	313068.09	ES-15_MMDDYY_SW_10	1	1	1	1	1	1	1	1
		Freshet and October	WQ-FPT	-68.8044001	44.4684012	904790.00	292387.00	WQ-FPT_MMDDYY_SW_10	1	1	1	1	1	1	1	1
		Freshet and October	ADD-02	-67.7201004	44.6430908	1187225.37	356891.24	ADD-02_MMDDYY_SW_10	1	1	1	1	1	1	1	1
								TOTAL SAMPLES:	8	8	8	8	8	8	8	8

Notes:

[1]See the Sample Nomenclature SOP for Sample ID generation
Matrix Spike/Matrix Spike Duplicates (MS/MSD) samples will be collected and analyzed on a 1 per 20 basis.
Duplicates samples will be collected and analyzed on a 1 per 10 basis.
DOC - Dissolved organic carbon
Hg - mercury
ID - identification
SOP - Standard Operating Procedure
TSS - Total Suspended Solids
MMDDYY - 2 digits for each: MM - month, DD - date, YY - year
MeHg - methylmercury

Prepared by: BPW 1/27/2023
Checked by: LSV 1/27/2023
Updated by BPW 03/15/2023

Prepared for: Greenfield Penobscot Estuary Remediation Trust LLC
Trustee of the Penobscot Estuary Mercury Remediation Trust
Prepared by: WSP USA Environment Infrastructure, Inc.

Table 4
2023 LTM Biota Sample and Analysis Plan

2023 Long-Term Monitoring Plan
May 2023
Penobscot Estuary Remediation

Species	Sample Collection Method	Sample Month	Number of Samples	Sample Sites	Location				Analyte	Biota Eurofins Hg Total 1631e Instant Freeze	Co-Located Sediment
					Longitude	Latitude	Maine State Plane East (US Survey Feet)		Method / Preservation		
							X	Y	Sample ID[1]		
Eel	Fish Trap	June	20	BO-04	-68.8148990	44.7553010	902453.00	396985.00	BO-04_MMDDYY_EEL_WB	20	x
		June	20	FRB-EEL[2]	TBD	TBD	TBD	TBD	FRB-EEL_MMDDYY_EEL_WB	20 [3]	x [4]
		June	20	OB-01	-68.8494220	44.6034990	893248.17	341682.25	OB-01_MMDDYY_EEL_WB	20	x
		June	20	OB-04	-68.8232140	44.6671700	900165.58	364865.14	OB-04_MMDDYY_EEL_WB	20	x
		June	20	OB-05	-68.8379000	44.7055000	896403.07	378853.82	OB-05_MMDDYY_EEL_WB	20	x
		June	20	OV-04	-68.6739630	44.8765920	939156.69	441092.34	OV-04_MMDDYY_EEL_WB	20 [3]	x
		June	20	OV-05	-68.6939140	44.8483190	933960.57	430796.69	OV-05_MMDDYY_EEL_WB	20 [3]	x
Polychaete	Shovel/Clam Rake	June	5	ES-02	-68.7659000	44.5399200	914924.80	318423.20	ES-02_MMDDYY_POL_WB	5	x
		June	5	ES-13	-68.7717000	44.5049000	913370.18	305662.06	ES-13_MMDDYY_POL_WB	5	x
		June	5	ES-FP	-68.8169000	44.4719000	901532.00	293675.00	ES-FP_MMDDYY_POL_WB	5	x
		June	5	FRB-01	-68.3568870	44.4629890	1021611.40	290298.91	FRB-01_MMDDYY_POL_WB	5	x
		June	5	MMMC-01	-68.8612460	44.5939980	890153.58	338232.39	MMMC-01_MMDDYY_POL_WB	5	x
		June	5	OB-01	-68.8494220	44.6034990	893248.17	341682.25	OB-01_MMDDYY_POL_WB	5	x
		June	5	OR-01	-68.7530440	44.5441560	918281.32	319956.56	OR-01_MMDDYY_POL_WB	5	x
Lobster	Lobster traps (provided by commercial lobster fisherman)	September	20	CJ-04	-68.8412000	44.4440900	895146.86	283562.68	CJ-04_ MMDDYY_LOB_TA	20	x
		September	20	ES-FP	-68.8169000	44.4719000	901532.00	293675.00	ES-FP_MMDDYY_LOB_TA	20	x
		September	20	FRB-02	-68.3395100	44.4419630	1026162.99	282642.69	FRB-02_ MMDDYY_LOB_TA	20	x
		September	20	L9-45	-68.8190990	44.4304000	900899.00	278549.00	L9-45_ MMDDYY_LOB_TA	20	x
		September	20	OL-01	-68.7978000	44.5158000	906575.81	309659.24	OL-01_MMDDYY_LOB_TA	20	x
		September	20	SVE-01	-68.7755000	44.5004000	912373.32	304024.97	SVE-01_MMDDYY_LOB_TA	20	x
Mummichog	Fish Trap	September	20	FRB-01	-68.3568870	44.4629890	1021611.40	290298.91	FRB-01_MMDDYY_MUM_WB	20	x
		September	20	MMMC-01	-68.8612460	44.5939980	890153.58	338232.39	MMMC-01_MMDDYY_MUM_WB	20	x
		September	20	OB-01	-68.8494220	44.6034990	893248.17	341682.25	OB-01_MMDDYY_MUM_WB	20	x
		September	20	OB-04	-68.8232140	44.6671700	900165.58	364865.14	OB-04_MMDDYY_MUM_WB	20	x
		September	20	OB-05	-68.8379000	44.7055000	896403.07	378853.82	OB-05_MMDDYY_MUM_WB	20	x
		September	20	OR-01	-68.7530440	44.5441560	918281.32	319956.56	OR-01_MMDDYY_MUM_WB	20	x
Rainbow Smelt	Seine net (wading), NOAA Fisheries trawls (if available)	September	20	ES-02	-68.7659000	44.5399200	914924.80	318423.20	ES-02_MMDDYY_RAS_WB	20	x
		September	20	ES-FP	-68.8169000	44.4719000	901532.00	293675.00	ES-FP_MMDDYY_RAS_WB	20	x
		September	20	FRB-01	-68.3568870	44.4629890	1021611.40	290298.91	FRB-01_MMDDYY_RAS_WB	20	x
		September	20	OB-01	-68.8494220	44.6034990	893248.17	341682.25	OB-01_MMDDYY_RAS_WB	20	x
		September	20	OB-05	-68.8379000	44.7055000	896403.07	378853.82	OB-05_MMDDYY_RAS_WB	20	x
		September	20	OL-01	-68.7978000	44.5158000	906575.81	309659.24	OL-01_MMDDYY_RAS_WB	20	x
		September	20	SVE-01	-68.7755000	44.5004000	912373.32	304024.97	SVE-01_MMDDYY_RAS_WB	20	x

Prepared for: Greenfield Penobscot Estuary Remediation Trust LLC
Trustee of the Penobscot Estuary Mercury Remediation Trust
Prepared by: WSP USA Environment Infrastructure, Inc.

Table 4
2023 LTM Biota Sample and Analysis Plan

2023 Long-Term Monitoring Plan
May 2023
Penobscot Estuary Remediation

Species	Sample Collection Method	Sample Month	Number of Samples	Sample Sites	Location				Analyte	Biota Eurofins	Co-Located Sediment
					Longitude	Latitude	Maine State Plane East (US Survey Feet)		Method	Hg Total 1631e	
									Preservation	Instant Freeze	
							X	Y	Sample ID[1]		
Atlantic Tomcod	Eel traps or hoop nets baited with salted herring, catfood, or horseshoe crab	September	20	BO-04	-68.8148990	44.7553010	902453.00	396985.00	BO-04_MMDDYY_TOM_WB	20	x
		September	20	ES-02	-68.7659000	44.5399200	914924.80	318423.20	ES-02_MMDDYY_TOM_WB	20	x
		September	20	ES-FP	-68.8169000	44.4719000	901532.00	293675.00	ES-FP_MMDDYY_TOM_WB	20	x
		September	20	FRB-01	-68.3568870	44.4629890	1021611.40	290298.91	FRB-01_MMDDYY_TOM_WB	20	x
		September	20	OB-01	-68.8494220	44.6034990	893248.17	341682.25	OB-01_MMDDYY_TOM_WB	20	x
		September	20	OB-04	-68.8232140	44.6671700	900165.58	364865.14	OB-04_MMDDYY_TOM_WB	20	x
		September	20	OB-05	-68.8379000	44.7055000	896403.07	378853.82	OB-05_MMDDYY_TOM_WB	20	x
		September	20	OL-01	-68.7978000	44.5158000	906575.81	309659.24	OL-01_MMDDYY_TOM_WB	20	x
		September	20	SVE-01	-68.7755000	44.5004000	912373.32	304024.97	SVE-01_MMDDYY_TOM_WB	20	x
Red-Winged Blackbird (Blood)	Mist Net	May/June	15	ADD-01	-67.7196650	44.6437901	1187336.24	357147.24	ADD-01_MMDDYY_RWB_BL	15	x
		May/June	15	MMSE-1	-68.8595180	44.5907025	890598.30	337028.91	MMSE-1_MMDDYY_RWB_BL	15	x
		May/June	15	MMSW-C	-68.8597090	44.5807170	890532.51	333389.01	MMSW-C_MMDDYY_RWB_BL	15	x
		May/June	15	W17-N	-68.8552999	44.6234006	891749.00	348944.00	W17-N_MMDDYY_RWB_BL	15	x
Nelson's Sparrow (Blood)	Mist Net	June	15	ADD-01	-67.7196650	44.6437901	1187336.24	357147.24	ADD-01_MMDDYY _NSS_BL	15	x
		June	15	MMSE-01	-68.8595180	44.5907025	890598.30	337028.91	MMSE-1_MMDDYY_NSS_BL	15	x
		June	15	MMSW-C	-68.8597090	44.5807170	890532.51	333389.01	MMSW-C_MMDDYY _NSS_BL	15	x
		June	15	W17-N	-68.8552999	44.6234006	891749.00	348944.00	W17-N_MMDDYY_NSS_BL	15	x
American Black Duck (Blood)	Wire Traps	January/February	15	ES-13	-68.7717000	44.5049000	913370.18	305662.06	ES-13_MMDDYY_ABD_BL	15	x
		January/February	15	FRB-01	-68.3568870	44.4629890	1021611.40	290298.91	FRB-01_MMDDYY_ABD_BL	15	x
		January/February	15	MMBKD-01	-68.8620660	44.5847070	889924.87	334846.19	MMBKD-01_MMDDYY_ABD_BL	15	x
American Black Duck (Breast)	Hunter	December	5	ES-13	-68.7717000	44.5049000	913370.18	305662.06	ES-13_MMDDYY_ABD_MU	5	x
		December	5	FRB-01	-68.3568870	44.4629890	1021611.40	290298.91	FRB-01_MMDDYY_ABD_MU	5	x
		December	5	MMBKD-01	-68.8620660	44.5847070	889924.87	334846.19	MMBKD-01_MMDDYY_ABD_MU	5	x

TOTAL SAMPLES: 875

Notes:

[1]See the Sample Nomenclature SOP for Sample ID generation.

[2]Sampling eels upstream of Frenchman Bay (e.g., Jordan River) will be considered if no eels are collected at OV-04 or OV-05.

[3]For eel, a total of 20 samples will be collected from the three background locations.

[4]A co-located sediment sample will be collected at FRB-EEL (to be established), if eel are collected in the Frenchman Bay area.

Biota samples are sent to Eurofins Frontier Global Sciences Laboratory for analysis.

Matrix Spike/Matrix Spike Duplicates (MS/MSD) samples will be collected and analyzed on a 1 per 20 basis (locations to be determined in the field based on sample volume recovery).

Shaded cells indicate background sampling location.

BL - blood

Hg - mercury

ID - identification

MMDDYY - 2 digits for each: MM - month, DD - date, YY - year

MU - muscle

SOP - Standard Operating Procedure

TA - tail

TBD - to be determined (based on eel availability)

WB - whole body

Prepared by: LSV 3/06/2023
Checked by: BPW 3/06/2023
Updated by: DMK 05/16/2023

APPENDIX A

BIOTA COLLECTION PERMIT

STATE OF MAINE
DEPARTMENT OF INLAND FISHERIES AND WILDLIFE
Wildlife Division
106 Hogan Road, Suite 1
Bangor, Maine 04401
Phone (207) 941-4597

WILDLIFE SCIENTIFIC COLLECTION PERMIT

Permit #: 2023 - 698

ISSUED TO: Greenfield Penobscot Estuary Remediation Trus
11 Flag Street, Unit 1
Cambridge, MA 02138

DATES:
EFFECTIVE: 3/17/2023
EXPIRATION: 12/31/2025

NAME AND PHONE NUMBER(S) OF PRINCIPAL OFFICER:
Ms. Lauri Gorton (414) 732-4514
LG@G-ETG.COM

THIS PERMIT INVOLVES:
- [x] Bird Banding
- [ ] Endangered or Threatened Species

LOCATION WHERE AUTHORIZED ACTIVITY MAY BE CONDUCTED:

REGION(S):
☐ A ☐ B ☐ C
☐ D ☐ E ☐ F
☐ G

CONDITIONS OF PERMIT:

THIS PERMIT DOES NOT COVER SCIENTIFIC COLLECTION OF ANY FISH SPECIES.

Inland Fish: A separate permit for inland fish scientific collections can be found at http://www.maine.gov/ifw/pdf/scientificcollectorspermit06.pdf and faxed to the Fisheries Division at (207) 287-6395; or for more information, contact the Fisheries Division at (207) 287-5261.

Atlantic Salmon: If you are working on a watershed where Atlantic salmon are listed as Endangered or Threatened, you may need to acquire an additional permit from either National Marine Fisheries Service at (207) 866-7322, or U. S. Fish and Wildlife Service at (207) 827-5938.

Permittee shall comply with all applicable State and Federal laws, rules and regulations. Permittee is not authorized to take Federal trust species without the appropriate Federal permit. Permittee may not take species listed by the State of Maine as state endangered or threatened (http://www.maine.gov/ifw/wildlife/species/endangered_species/state_list.htm) or species listed as "special concern" (http://www.maine.gov/ifw/wildlife/species/endangered_species/specialconcern.htm) unless specifically permitted below.

Species/Trap Authorized

Nelson Sparrow - Mist net - up to 60
Red-Winged Blackbird - Mist net - up to 60
Black Duck - Wire traps, rocket nets - up to 45

See Page 2 for Continuation

SUBPERMITTEE(S) UNDER THIS PERMIT:

Louise Venne, Matthew Basler, Caitlyn Cooper, Michael Newhouse, Christina, Rockwell, Ian Foote, Daniel Reisch, Jonathan Skaggs

REPORTING REQUIREMENTS:

Annually by January 31 on forms provided by the Commissioner.

SIGNATURE OF AUTHORIZED AGENCY REPRESENTATIVE: Nathan Webb

NAME AND TITLE:
Nathan Webb
Wildlife Research Supervisor

DATE: 3/20/2023

STATE OF MAINE
DEPARTMENT OF INLAND FISHERIES AND WILDLIFE
Wildlife Division
106 Hogan Road, Suite 1
Bangor, Maine 04401
Phone (207) 941-4597

WILDLIFE SCIENTIFIC COLLECTION PERMIT

Permit #: 2023 - 698

ISSUED TO: Greenfield Penobscot Estuary Remediation Trus
11 Flag Street, Unit 1
Cambridge, MA 02138

DATES: EFFECTIVE	EXPIRATION
3/17/2023	12/31/2025

NAME AND PHONE NUMBER(S) OF PRINCIPAL OFFICER:
Ms. Lauri Gorton (414) 732-4514
LG@G-ETG.COM

THIS PERMIT INVOLVES:
- [x] Bird Banding
- [ ] Endangered or Threatened Species

CONDITIONS OF PERMIT, CONTINUED:

All state listed Endangered and Threatened species (including HYPERLINK "https://gcc02.safelinks.protection.outlook.com/?url=https%3A%2F%2Fwww.maine.gov%2Fifw%2Ffish-wildlife%2Fwildlife%2Fendangered-threatened-species%2Findex.html&data=05%7C01%7CRobert.Cordes%40maine.gov%7Ce88217ae2ade485d2c5008db49e9893e%7C413fa8ab207d4b629bcdea1a8f2f864e%7C0%7C0%7C638185039614855500%7CUnknown%7CTWFpbGZsb3d8eyJWIjoiMC4wLjAwMDAiLCJQIjoiV2luMzIiLCJBTiI6Ik1haWwiLCJXVCI6Mn0%3D%7C3000%7C%7C%7C&sdata=5FSc5N2yCSihAy06L4TB%2BqPaY%2BumaoaZQzuTLQt7QHQ%3D&reserved=0" Maine's 2023 Endangered and Threatened Candidate Species) captured during anding operations authorized by this permit will be released and reported to MDIFW within 5 business days.

- Authorized to collect blood sample, band (not to exceed 3% total body weight), and release within 12 hours of capture.
- Kenneth Meyer holds federal bird banding permit, 22689 - expires 7/31/2025 & Michael Newhouse, 23561 expires 7/31/26. All banding operations, including blood sample collection, must be directly overseen by either Kenneth Meyer or Michael Newhouse. No others are permitted to operate under this permit independently without one of them present.
- In the event an animal needs to be euthanized due to unplanned injury or illness, or to collect tissue samples, the the permittee will use the methodology outlined in the AVMA guidelines for Euthanaisa of Animals (2020).
- The Permittee will report incidents where they have suspected potential infections of HPAI to our regional wildlife offices to support our statewide surveillance efforts. The Department is particularly concerned with reports of three or more dead birds in a localized area.
- MDIFW recommends avoiding contact with sick and dead wild birds. However, if a dead bird is found on one's property, it can be removed at the property owner's discretion after contacting a regional wildlife biologist. If removing a dead bird, we recommend the following precautions:
Wear a disposable mask, Wear disposable gloves, Double-bag the bird; place the bird within the inner bag and knot or tape the bag closed within the inner bag and knot or tape the bag closed, Remove gloves and mask; place inside the outer bag and knot or tape the outer bag closed, Place the double-bagged bird in the trash, Wash hands with soap and water (or use sanitizer if unable to wash hands)
- For more information please visit: https://www.maine.gov/ifw/fish-wildlife/wildlife/living-with-wildlife/diseases/avian-influenza.html

SUBPERMITTEE(S) UNDER THIS PERMIT, CONTINUED:

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

JANET T. MILLS

PATRICK C. KELIHER
COMMISSIONER

May 1, 2023
SPECIAL LICENSE NUMBER ME 2023-34-01

Acting under the authority vested in the Commissioner of Marine Resources (DMR) by virtue of 12 M.R.S.A. § 6074, I hereby issue subject to renewal, a Special License to **JONATHAN BORDEAU** of WSP. This Special License exempts said Jonathan Bordeau and the individuals listed below from 12 MRSA§6505-C, pertaining to the eel harvesting license, 12 M.R.S.A. §6431(1) lobster size; 12 M.R.S.A. §6433 related to escape vents, 12 M.R.S.A. §6501 commercial fishing license, Chapter 25.65 lobster closure in the Penobscot River, Chapter 40.12(B) method of take for smelt, Chapter 55.59, pertaining to area fishing closures; Chapter 55.06(E) related to net or trap tending. This Special License is issued subject to the following conditions:

1. **Who:** Kenneth Haywood, Brad Wolfe, Thomas Gerhard, Madeline Bruno, Lindsey Fales, Travis Otis, and Stephen Cochrane

Vessels:
Vessel Name: First Team
Owner: Travis Otis
Vessel Safety Issuance: #296524 expires June 30, 2024

2. **What:** The purpose of the proposed Penobscot River monitoring is the further characterization of current conditions in the Penobscot River and Bay. Collection of fish and lobster for tissue sampling as ordered by US District Court. Table 1 describes the biota monitoring, including the list of species and estimated number of specimens per species.
3. **Where:** **Figure 1** shows the sample locations.
4. **When:** Date of issuance-December 31, 2023. Sampling will not occur during the Atlantic salmon spawning season for the Penobscot River.
5. **How:** Collection will be performed using a variety of techniques and gear types described below:

Lobster: Travis Otis (commercial lobsterman) will be deploying DMR provided lobster traps. The traps are 3' single parlor with vents disabled. Undersized lobsters may be sampled.

Eel and tomcod: Approximately 60 commercially purchased eel traps will be deployed to catch eel and tomcod. The traps are 1-foot-square by 3-foot-long wire traps with a 2.5-inch by 2.5-inch "funnel" that runs into the trap. Approximately 30 traps may be deployed each sampling location with soak times of 1 to 2 days. Two hoop nets may also be deployed for tomcod, if the eel traps are not productive. The hoop nets are approximately 3 feet in diameter with 0.5-inch mesh and five metal hoops spanning their 20-foot length. The hoop nets would soak for 1 day (baited with dead herring, horseshoe crab (see condition below), or cat food). Non-target species would be released.

Smelt: The primary sample method will involve wading into shallow water where a seine net will be deployed. The seine net is approximately 6 feet by 50 feet with 0.125-inch mesh. Commercial minnow traps may also be deployed. The traps are two-part mesh and are 9 inches by 17.5 inches long and with a narrow, conical opening on each end. Up to 20 of these traps (four lines of five traps each) may be used and would be soaked for one day (baited with dead herring or cat food).

Specimens not required for tissue samples will be released the same day in the vicinity of capture; specimens used for tissue sampling will be stored on dry ice and transported to the laboratory for analysis. The laboratory will be responsible for final disposition of the specimens

6. **Conditions:**

- **Marine Patrol** Division I office Kittery to Camden, Tel: 633-9595; or the Division II office Lincolnville to Calais area, Tel: 664-2392, *shall* be contacted prior to the startup of collecting activities to make arrangements as to the necessary frequency when to contact Marine Patrol to provide the Special License (SL) number, dates, location(s) of activities, name of special license holder, other persons in the field, and if transporting of specimens will occur who will be transporting specimens, etc.
- **Gear marking:** All buoys must be marked with "DMR."
- **Use of horseshoe crab bait:** horseshoe crab, from the mid-Atlantic, can only be used to bait eel pots. The Special License holder must maintain paperwork that proves the horseshoe crab originated in the mid-Atlantic. The Special License holder is required to produce such documentation upon request.
- encounter any listed Atlantic salmon, Atlantic sturgeon, and shortnose sturgeon, applicant will cease activities and contact NOAA Federal representative Jeff Murphy as soon as possible (jeff.murphy@noaa.gov).
- A report on research results or status (electronic format) may be requested by the Department at the end of each year and prior to renewal. Research personnel of the DMR shall have access to all biological data.
- * SL's are contingent upon all vessels holding current USCG commercial fishing safety inspections [USCG CFVS].
- No marine organism authorized under this SL shall be used for human consumption.
- Any infraction of these conditions or any violation of any Marine Resources laws shall be grounds for the immediate revocation of this Special License.
- Additional conditions may be added at the discretion of the Commissioner.

This Special License ***expires on December 31, 2023*** and has ***one*** renewal.

Deirdre Keliher

Deirdre Keliher
For Commissioner Patrick C. Keliher

cc: Marine Patrol Divisions I & II

Table I: Species, Collection Methods, Sample Months, and Quantity provided by WSP:

TABLE 1
APPLICATION FOR SPECIAL LICENSE
MAINE DEPARTMENT OF MARINE RESOURCES
FISH, SHELLFISH, AND AQUATIC INVERTEBRATE SPECIMENS REQUIRED FOR THE PENOBSCOT ESTUARY LONG-TERM MONITORING PLAN - 2023

	Species					
	American Eel (*Anguilla rostrata*)	Atlantic Tomcod (*Microgadus tomcod*)	Rainbow Smelt (*Osmerus mordax*)	Mummichog (*Fundulus heteroclitus*)	Lobster (*Homarus americanus*)	Polychaetes
	Collection Method					
	fish trap	eel traps or hoop nets baited with salted herring, cat food, or horseshoe crab	seine net (wading), NOAA Fisheries trawls (if available)	fish trap	commercial traps	shovel/clam rake
	Sample Month					
Sample Location	June	September	September	September	September	June
Penobscot River and Bay Location						
BO-04	20	20				
CJ-04					20	
ES-02		20	20			5
ES-13						5
ES-FP		20	20		20	5
L9-45					20	
OB-01	20	20	20	20		5
OB-04	20	20	20	20		5
OB-05	20	20	20	20		
OL-01		20	20		20	
OR-01				20		5
OV-04	20					
OV-05	20					
SVE-01		20	20		20	
Mendall Marsh Location						
MMMC-01				20		5
Reference Location						
FRB-01					20	
FRB-02		20	20	20		5
Total Number of Samples	**120**	**180**	**160**	**120**	**120**	**40**

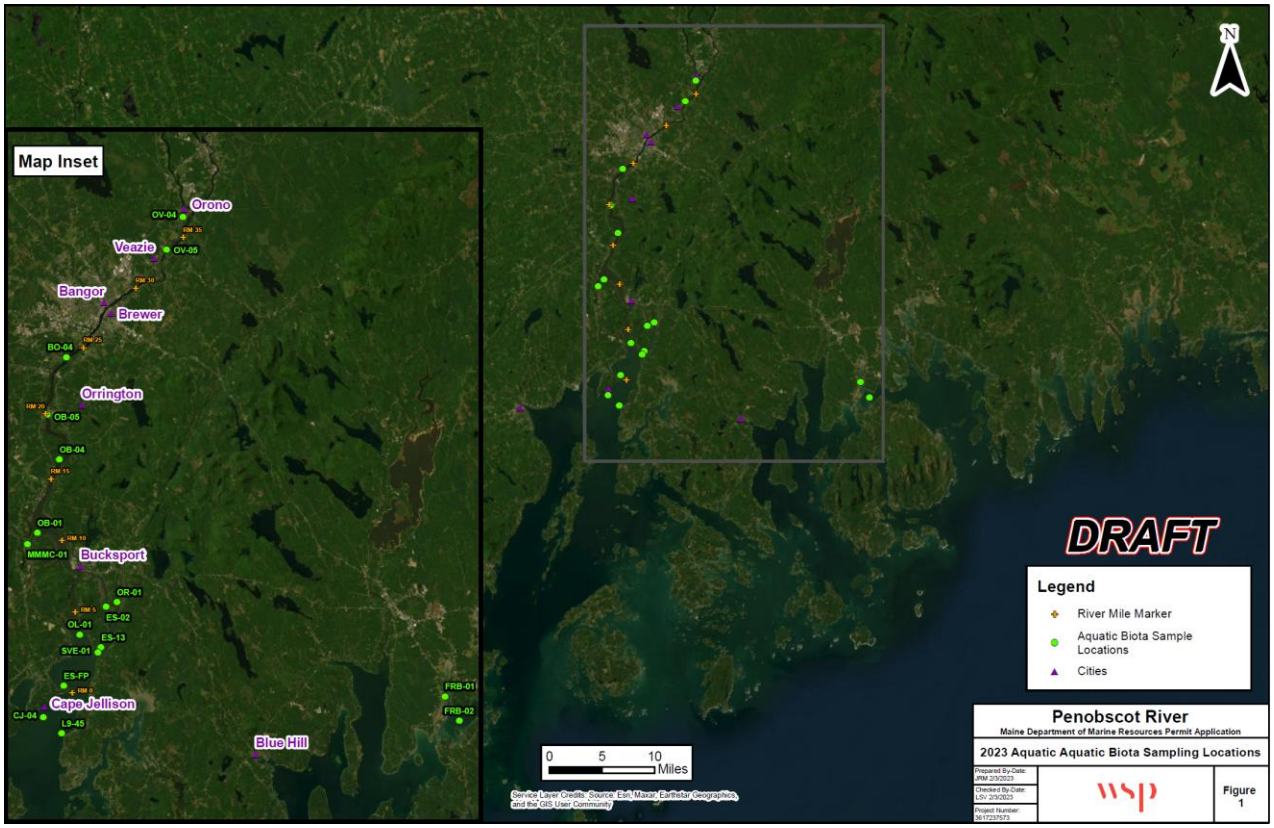

Figure 2: Sampling Locations provided by WSP

United States Department of the Interior
U.S. GEOLOGICAL SURVEY
EASTERN ECOLOGICAL SCIENCE CENTER
AT THE PATUXENT RESEARCH REFUGE
BIRD BANDING LABORATORY
12100 BEECH FOREST ROAD STE-4037
LAUREL, MD 20708-4037
301-497-5790

FEDERAL BIRD BANDING PERMIT

Permittee: Personal	Permit Number:	Action:	Action Date:	Issue Date:	Valid Until:
KENNETH MEYER	22689	Revise	03/20/2023	02/08/1995	07/31/2025
411 NE 7TH ST	Signature of Issuing Official				
GAINESVILLE, FL 32601	Signature of Permittee				

Permittee agrees to band in accordance with the general conditions of this permit and with the specific authorization/s listed below:

Permittee is Authorized To Band:

All Species Except Waterfowl and Eagles
* Threatened and Endangered species are not included in groups unless specified.

Audubon's Crested Caracara
Snail Kite

In the States of:

AL * FL * GA * LA * ME * MS * PR * SC * TX *

With Special Authorization to:

Band
Band Rehabilitated Birds
Take, possess and transport blood samples-not to exceed 1% body mass
Take, possess and transport feather samples
Hand capture
Trap at Cavity, Burrow, or Nest Box
Use Bal-chatris
Use Mist nets
Use Net guns
Use Noose Carpets and Snares
Trap

And Additionally Authorized to Use The Following Auxiliary Marking Authorization/s:

Marker Type	Species	Colors of marker	Locations	Seg #
Radio Transmitter (other) (81G)	Short-tailed Hawk Swallow-tailed Kite		FL GA SC	2
	Comments NTE 3% TOTAL BODY WEIGHT, FREQ = 164-167.999 MHZ; ALSO SATELLITE TRANSM. NTE 4% TBW ON BOTH SPECIES			
Radio Transmitter	Great White Heron		FL	7

Permittee: Personal	Permit Number:	Action:	Action Date:	Issue Date:	Valid Until:
KENNETH MEYER	22689	Revise	03/20/2023	02/08/1995	07/31/2025
411 NE 7TH ST	Signature of Issuing Official				
GAINESVILLE, FL 32601	Signature of Permittee				

Permittee agrees to band in accordance with the general conditions of this permit and with the specific authorization/s listed below:

Marker Type	Species	Colors of marker	Locations	Seg #
(back pack) (81B)	White-crowned Pigeon			7

Comments
NTE 3% TOTAL BODY WT; 164-167.999 MHZ; May also use satellite transmitters. VARIOUS ATTACHMENTS TO BE EVALUATED

Plastic Color Leg Band (01A)	Great White Heron	Blue, Red	Monroe, FL	10

Comments
White Alpha-numeric and Numeric-numeric codes; A,C,E,F,H,J,K,M,N,P,R,T,U,X,Y plus 0 - 9, vertically stacked

Plastic Color Leg Band (01A)	Reddish Egret	Blue, Red	FL	11

Code description(s)
a) 2 char. (576 combos)
1st place: 0123456789ACEFHJKMPRTUXY;
2nd place: 0123456789ACEFHJKMPRTUXY;

Comments
Blue or Red color bands with white codes: Alpha-numeric, using A,C,E,F,H,J,K,M,N,P,R,T,U,X,Y and 0-9

Satellite/ Cell/ GPS Transmitter (back pack) (80B)	Reddish Egret		FL	12

Comments
PTT transmitters NTE 3% total body weight, Back-pack harness, teflon ribbon.

Anodized Color Leg Band (01B)	Audubon's Crested Caracara	Miscellaneous	Brevard, FL	13
Satellite/ Cell/ GPS Transmitter (back pack) (80B)	Audubon's Crested Caracara		Brevard, FL	14

Permittee: Personal	Permit Number:	Action:	Action Date:	Issue Date:	Valid Until:
KENNETH MEYER	22689	Revise	03/20/2023	02/08/1995	07/31/2025
411 NE 7TH ST	Signature of Issuing Official				
GAINESVILLE, FL 32601	Signature of Permittee				

Permittee agrees to band in accordance with the general conditions of this permit and with the specific authorization/s listed below:

Marker Type	Species	Colors of marker	Locations	Seg #

Comments
NTE 3% total body weight. Backpack attachment.

Radio Transmitter (back pack) (81B)	Magnificent Frigatebird		FL	15

Comments
All bands, auxiliary markers and attachment materials not to exceed 3% total body weight.

Satellite/ Cell/ GPS Transmitter (back pack) (80B)	Magnificent Frigatebird		FL	16

Comments
All bands, auxiliary markers and attachment materials not to exceed 3% total body weight.

Radio Transmitter (back pack) (81B)	Great Horned Owl		FL GA SC	17

Comments
All bands, auxiliary markers and attachment materials not to exceed 3% total body weight. May also be collar style attachment.

Satellite/ Cell/ GPS Transmitter (back pack) (80B)	Great Horned Owl		FL GA SC	18

Comments
All bands, auxiliary markers and attachment materials not to exceed 3% total body weight. May also be collar style attachment.

Anodized Color Leg Band (01B)	Snail Kite	Green	Broward, FL Collier, FL Glades, FL Hendry, FL Polk, FL Monroe, FL	19

Permittee: Personal	Permit Number:	Action:	Action Date:	Issue Date:	Valid Until:
KENNETH MEYER	22689	Revise	03/20/2023	02/08/1995	07/31/2025
411 NE 7TH ST	Signature of Issuing Official				
GAINESVILLE, FL 32601	Signature of Permittee				

Permittee agrees to band in accordance with the general conditions of this permit and with the specific authorization/s listed below:

Marker Type	Species	Colors of marker	Locations	Seg #
			Osceola, FL Palm Beach, FL Miami-Dade, FL	19

Code description(s)

a) 2 char. (20 combos)
1st place: 0123456789;
2nd place: AB;
b) 2 char. (5 combos)
1st place: 01234;
2nd place: C;

Comments

Green anodized bands with numeric-alpha codes, 0A to 9A, 0B to 9B and 0C to 4C in upright orientation.

Satellite/ Cell/ GPS Transmitter (other) (80G)	Short-tailed Hawk Swallow-tailed Kite		FL GA SC	20

Comments

NTE 4% TBW ON BOTH SPECIES

Satellite/ Cell/ GPS Transmitter (back pack) (80B)	Snail Kite Swallow-tailed Kite		FL	21

Comments

All markers and attachment materials not to exceed 3% total body weight.

Anodized Color Leg Band (01B)	Limpkin	Black, Green	FL	22

Code description(s)

a) 2 char. (50 combos)
1st place: 0123456789;
2nd place: CEFGJ;

Comments

Acraft Bands; 2 horizontal characters (one letter and one number) side by side, repeated 2 times: 0C to 9C, 0E to 9E, 0F to 9F, 0G to 9G, 0J to 9J

Radio Transmitter (back pack) (81B)	Limpkin		FL	23

Permittee: Personal	Permit Number:	Action:	Action Date:	Issue Date:	Valid Until:
KENNETH MEYER	22689	Revise	03/20/2023	02/08/1995	07/31/2025
411 NE 7TH ST	Signature of Issuing Official				
GAINESVILLE, FL 32601	Signature of Permittee				

Permittee agrees to band in accordance with the general conditions of this permit and with the specific authorization/s listed below:

Marker Type	Species	Colors of marker	Locations	Seg #

Comments
All bands, auxiliary markers and attachment materials not to exceed 3% total body weight.

Satellite/ Cell/ GPS Transmitter (back pack) (80B)	Limpkin		FL	24

Comments
All bands, auxiliary markers and attachment materials not to exceed 3% total body weight.

Satellite/ Cell/ GPS Transmitter (other) (80G)	Great White Heron White-crowned Pigeon		FL	25

Comments
NTE 3% TOTAL BODY WT

Satellite/ Cell/ GPS Transmitter (back pack) (80B)	Mangrove Cuckoo		Charlotte, FL Collier, FL Hillsborough, FL Pinellas, FL Miami-Dade, FL Monroe, FL Lee, FL	26

Comments
All bands, auxiliary markers and attachment materials not to exceed 3% total body weight.

Satellite/ Cell/ GPS Transmitter (back pack) (80B)	White-crowned Pigeon		FL PR	27

Comments
PTT satellite transmitter. All bands, auxiliary markers and attachment materials not to exceed 3% total body weight.

Radio Transmitter	American Kestrel		FL	28

Permittee: Personal	Permit Number:	Action:	Action Date:	Issue Date:	Valid Until:
KENNETH MEYER	22689	Revise	03/20/2023	02/08/1995	07/31/2025
411 NE 7TH ST	Signature of Issuing Official				
GAINESVILLE, FL 32601	Signature of Permittee				

Permittee agrees to band in accordance with the general conditions of this permit and with the specific authorization/s listed below:

Marker Type	Species	Colors of marker	Locations	Seg #
(back pack) (81B)				28

Comments
All bands, auxiliary markers and attachment materials not to exceed 3% total body weight. 164-167.999 MHz

Radio Transmitter (back pack) (81B)	Burrowing Owl		Hillsborough, FL	29

Comments
VHF transmitter. All bands, auxiliary markers and attachment materials not to exceed 3% total body weight.

Radio Transmitter (back pack) (81B)	Barn Owl		Hillsborough, FL Beaufort, SC	30

Comments
VHF transmitter. All bands, auxiliary markers and attachment materials not to exceed 3% total body weight.

Satellite/ Cell/ GPS Transmitter (back pack) (80B)	Great Egret Snowy Egret White Ibis		Highlands, FL Polk, FL Osceola, FL Okeechobee, FL	31

Comments
GSM transmitter. All bands, auxiliary markers and attachment materials not to exceed 3% total body weight.

Plastic Color Leg Band (01A)	American Kestrel	Black, Brown, Dark Blue, Green, Orange, Red, White, Yellow	Citrus, FL Polk, FL Hillsborough, FL Hernando, FL	32

Permittee: Personal	Permit Number:	Action:	Action Date:	Issue Date:	Valid Until:
KENNETH MEYER	22689	Revise	03/20/2023	02/08/1995	07/31/2025
411 NE 7TH ST	Signature of Issuing Official				
GAINESVILLE, FL 32601	Signature of Permittee				

Permittee agrees to band in accordance with the general conditions of this permit and with the specific authorization/s listed below:

The following Subpermittee/s are authorized to band under the direction of the above permittee, in accordance with the same general conditions, and the subpermittee specific authorizations listed below:

22689 - G GINA KENT 1024 NE 9TH AVE GAINESVILLE, FL 32601

Is Authorized To Band:

Diurnal Raptors except Eagles
* Threatened and Endangered species are not included in groups unless specified.

American Kestrel
Barn Owl
Burrowing Owl
Crested Caracara
Great Horned Owl
Great White Heron
Limpkin
Magnificent Frigatebird
Mangrove Cuckoo
Reddish Egret
Short-tailed Hawk
Snail Kite
White-crowned Pigeon

In the States Of:

AL * FL * GA * LA * MS * SC * TX *

With Special Authorization to:

Band
Auxiliary mark
Take, possess and transport blood samples-not to exceed 1% body mass
Take, possess and transport feather samples
Use Bal-chatris
Use Mist nets
Use Net guns
Use Noose Carpets and Snares
Trap

FEDERAL BIRD BANDING PERMIT

Under the provisions of Regulations issued under the Migratory Bird Treaty Act of July 3, 1918 (40 Stat. 755) as amended, or the Bald Eagle Act of June 8, 1940 (54 Stat. 250) as amended, the person named hereon is authorized to capture, for scientific banding or marking purposes, those migratory birds described hereon and to salvage birds accidentally killed during normal banding activities.

This permit is subject to the terms, exceptions and restrictions expressed herein or on the reverse side hereof and is further subject to any applicable Territorial, State, Tribal or Federal Regulations.

This permit is invalid unless accompanied by any required State permits or licenses.

GENERAL CONDITIONS

1. The Permittee is not authorized to capture or possess migratory birds for any reason other than banding, marking or salvage of banding mortalities for scientific purposes. NOR IS THE PERMITTEE ALLOWED TO HOLD MIGRATORY BIRDS FOR A PERIOD OF MORE THAN 24 HOURS. Live birds shall be released as soon as practical after capture.
2. You may donate dead migratory birds or any parts thereof (except bald eagles and golden eagles, and species listed as threatened and endangered) without additional authorization from the migratory bird permit issuing office to public institutions (as specified in 50 CFR 10.12) or individuals or entities authorized by permit to acquire and possess migratory bird specimens for educational purposes. All dead specimens that you do not transfer to another authorized party must be disposed of by such means as are necessary to ensure that they are not exposed to animals in the wild.
3. You may not salvage and must immediately report to the USFWS Office of Law Enforcement any dead or injured migratory birds that you encounter that appear to have been poisoned, shot, electrocuted, have collided with industrial power generation equipment, or were otherwise killed or injured as the result of potential criminal activity. Please contact BBL for more information.
4. All eagle feathers and/or whole eagle carcasses must be shipped to the National Eagle Repository. Contact: U.S. Fish and Wildlife Service, National Eagle and Wildlife Repository, 5650 Havana St., RMA, Building 128, Commerce City, Colorado 80022, (303) 287-2110.
5. The Permittee shall keep RECORDS accounting for the use of all bands received. Periodic RECORDS COVERING THE USE OF THESE BANDS shall be submitted to the Bird Banding Laboratory in accordance with the instructions received there from. Failure to provide data in accordance with the instructions received from the Bird Banding Laboratory is sufficient justification for the revocation of this permit. The Permittee shall keep records of disposition of salvaged banding mortalities for a period of five years and shall be reported to the Bird Banding Laboratory upon request.
6. The holder of this permit shall not sell, exchange, or transfer bands to unauthorized banders or to the general public. All transfers to authorized banders must be communicated to the Bird Banding Laboratory prior to the transfer of bands. Any unused bands remaining when this permit is voluntarily returned, revoked, or expired must be returned to the Bird Banding Laboratory.
7. The Permittee shall, at all reasonable hours, allow any authorized representative of the U. S. Geological Survey or the U.S. Fish and Wildlife Service to ENTER and INSPECT the premises where operations authorized by this permit are being conducted and shall allow such representative to inspect the records relating to such operations.
8. This permit may be SUSPENDED or REVOKED by the Director of the U.S. Geological Survey or authorized representative, if the Permittee violates any of the provisions in the regulations under which this permit is issued or if the Permittee fails to render promptly any reports required. This permit is, at all times, subject to suspension or revocation at the discretion of the Director or representative.
9. This permit is not transferable and must be in possession of the Permittee when exercising the authorizations granted herein.
10. All traps, nets or other capture devices shall bear a TAG or LABEL showing the name, address and permit number of the Permittee; alternatively the trapping area shall be adequately marked with POSTERS provided by the Bird Banding Laboratory. The Permittee's name, address and permit number shall be legibly displayed on such posters.
11. This permit DOES NOT authorize the capture of any birds on any property, public or private without the CONSENT OF THE OWNER OR CUSTODIAN THEREOF.
12. All Banding under this permit is in accordance with the principles, spirit, and intent of the Animal Welfare Act of 1970 and the most recent revision of The Ornithological Council's Guidelines in the Use of Wild Birds in Research.
13. Unless specifically noted on the reverse, the following ARE NOT AUTHORIZED:

a. The taking of blood or feather sampling from any bird.

b. The use of ANY BAND, clip, paint, dye, signal-sending device or any marking device other than the official numbered leg bands issued by the Bird Banding Laboratory.

c. The use of MIST NETS or other nets for the capturing of birds.

d. The use of TRANQUILIZING DRUGS OR OTHER CHEMICALS for the purpose of capturing birds.

e. Trapping or disturbing the nests or nestlings, for the purpose of banding or marking, of species designated by the Secretary of Interior as "ENDANGERED "or "THREATENED."

f. The handling of any PREVIOUSLY BANDED BIRD in any manner which may bias data on file in the Bird Banding Laboratory which pertain to that bird or which may alter that bird's survival potential, behavior or other normal characteristics. This specifically includes adding markers to or removing markers from previously banded birds.

14. If a bird is found injured, the bander must assess the injury to determine if treatment and rehabilitation would lead to the bird's recovery. If it is likely that treatment will allow the bird to recover from it's injuries, the bander should transport the injured bird to an avian rehabilitation facility. If the bander determines that recovery is not likely given the extent of the injuries, they should euthanize the bird using approved euthanasia procedures. Banders operating under IACUC approval should follow their estabished guidelines regarding the application of euthanasia to bird in distress. Other banders should take the most appropriate course of action under the circumstances and consider euthanasia to avoid prolonged distress on birds.

Form 9-475
(February 2018)

United States Department of the Interior
U.S. GEOLOGICAL SURVEY
EASTERN ECOLOGICAL SCIENCE CENTER
AT THE PATUXENT RESEARCH REFUGE
BIRD BANDING LABORATORY
12100 BEECH FOREST ROAD STE-4037
LAUREL, MD 20708-4037
301-497-5790

FEDERAL BIRD BANDING PERMIT

Permittee: Personal	Permit Number:	Action:	Action Date:	Issue Date:	Valid Until:
MICHAEL NEWHOUSE	23561	Revise	04/04/2023	03/12/2008	07/31/2026
18 CAMPWOODS GROUNDS	**Signature of Issuing Official**				
OSSINING, NY 10562	**Signature of Permittee**				

Permittee agrees to band in accordance with the general conditions of this permit and with the specific authorization/s listed below:

Permittee is Authorized To Band:

Passerines and Near-passerines
* Threatened and Endangered species are not included in groups unless specified.

In the States of:

ME *

With Special Authorization to:

Band
Take, possess and transport blood samples-not to exceed 1% body mass
Use Mist nets

FEDERAL BIRD BANDING PERMIT

Under the provisions of Regulations issued under the Migratory Bird Treaty Act of July 3, 1918 (40 Stat. 755) as amended, or the Bald Eagle Act of June 8, 1940 (54 Stat. 250) as amended, the person named hereon is authorized to capture, for scientific banding or marking purposes, those migratory birds described hereon and to salvage birds accidentally killed during normal banding activities.

This permit is subject to the terms, exceptions and restrictions expressed herein or on the reverse side hereof and is further subject to any applicable Territorial, State, Tribal or Federal Regulations.

This permit is invalid unless accompanied by any required State permits or licenses.

GENERAL CONDITIONS

1. The Permittee is not authorized to capture or possess migratory birds for any reason other than banding, marking or salvage of banding mortalities for scientific purposes. NOR IS THE PERMITTEE ALLOWED TO HOLD MIGRATORY BIRDS FOR A PERIOD OF MORE THAN 24 HOURS. Live birds shall be released as soon as practical after capture.
2. You may donate dead migratory birds or any parts thereof (except bald eagles and golden eagles, and species listed as threatened and endangered) without additional authorization from the migratory bird permit issuing office to public institutions (as specified in 50 CFR 10.12) or individuals or entities authorized by permit to acquire and possess migratory bird specimens for educational purposes. All dead specimens that you do not transfer to another authorized party must be disposed of by such means as are necessary to ensure that they are not exposed to animals in the wild.
3. You may not salvage and must immediately report to the USFWS Office of Law Enforcement any dead or injured migratory birds that you encounter that appear to have been poisoned, shot, electrocuted, have collided with industrial power generation equipment, or were otherwise killed or injured as the result of potential criminal activity. Please contact BBL for more information.
4. All eagle feathers and/or whole eagle carcasses must be shipped to the National Eagle Repository. Contact: U.S. Fish and Wildlife Service, National Eagle and Wildlife Repository, 5650 Havana St., RMA, Building 128, Commerce City, Colorado 80022, (303) 287-2110.
5. The Permittee shall keep RECORDS accounting for the use of all bands received. Periodic RECORDS COVERING THE USE OF THESE BANDS shall be submitted to the Bird Banding Laboratory in accordance with the instructions received there from. Failure to provide data in accordance with the instructions received from the Bird Banding Laboratory is sufficient justification for the revocation of this permit. The Permittee shall keep records of disposition of salvaged banding mortalities for a period of five years and shall be reported to the Bird Banding Laboratory upon request.
6. The holder of this permit shall not sell, exchange, or transfer bands to unauthorized banders or to the general public. All transfers to authorized banders must be communicated to the Bird Banding Laboratory prior to the transfer of bands. Any unused bands remaining when this permit is voluntarily returned, revoked, or expired must be returned to the Bird Banding Laboratory.
7. The Permittee shall, at all reasonable hours, allow any authorized representative of the U. S. Geological Survey or the U.S. Fish and Wildlife Service to ENTER and INSPECT the premises where operations authorized by this permit are being conducted and shall allow such representative to inspect the records relating to such operations.
8. This permit may be SUSPENDED or REVOKED by the Director of the U.S. Geological Survey or authorized representative, if the Permittee violates any of the provisions in the regulations under which this permit is issued or if the Permittee fails to render promptly any reports required. This permit is, at all times, subject to suspension or revocation at the discretion of the Director or representative.
9. This permit is not transferable and must be in possession of the Permittee when exercising the authorizations granted herein.
10. All traps, nets or other capture devices shall bear a TAG or LABEL showing the name, address and permit number of the Permittee; alternatively the trapping area shall be adequately marked with POSTERS provided by the Bird Banding Laboratory. The Permittee's name, address and permit number shall be legibly displayed on such posters.
11. This permit DOES NOT authorize the capture of any birds on any property, public or private without the CONSENT OF THE OWNER OR CUSTODIAN THEREOF.
12. All Banding under this permit is in accordance with the principles, spirit, and intent of the Animal Welfare Act of 1970 and the most recent revision of The Ornithological Council's Guidelines in the Use of Wild Birds in Research.
13. Unless specifically noted on the reverse, the following ARE NOT AUTHORIZED:

a. The taking of blood or feather sampling from any bird.

b. The use of ANY BAND, clip, paint, dye, signal-sending device or any marking device other than the official numbered leg bands issued by the Bird Banding Laboratory.

c. The use of MIST NETS or other nets for the capturing of birds.

d. The use of TRANQUILIZING DRUGS OR OTHER CHEMICALS for the purpose of capturing birds.

e. Trapping or disturbing the nests or nestlings, for the purpose of banding or marking, of species designated by the Secretary of Interior as "ENDANGERED "or "THREATENED."

f. The handling of any PREVIOUSLY BANDED BIRD in any manner which may bias data on file in the Bird Banding Laboratory which pertain to that bird or which may alter that bird's survival potential, behavior or other normal characteristics. This specifically includes adding markers to or removing markers from previously banded birds.

14. If a bird is found injured, the bander must assess the injury to determine if treatment and rehabilitation would lead to the bird's recovery. If it is likely that treatment will allow the bird to recover from it's injuries, the bander should transport the injured bird to an avian rehabilitation facility. If the bander determines that recovery is not likely given the extent of the injuries, they should euthanize the bird using approved euthanasia procedures. Banders operating under IACUC approval should follow their estabished guidelines regarding the application of euthanasia to bird in distress. Other banders should take the most appropriate course of action under the circumstances and consider euthanasia to avoid prolonged distress on birds.

Form 9-475
(February 2018)