FIFTH FIVE-YEAR REVIEW REPORT FOR NEW BEDFORD HARBOR SUPERFUND SITE CITY OF NEW BEDFORD BRISTOL COUNTY, MASSACHUSETTS

Prepared by

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9/22/25

Date

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LIST OF ABBREVIATIONS & ACRONYMS

ARAR	Applicable or Relevant and Appropriate Requirement
AWQC	Ambient Water Quality Criteria
BERA	Baseline Ecological Risk Assessment
CAD	Confined Aquatic Disposal
CalEPA	State of California Environmental Protection Agency
CEDC	New Bedford Community Economic Development Center
CDE	Cornell-Dubilier Electronics, Inc.
CDF	Confined Disposal Facility
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	Code of Federal Regulations
CIC	Community Involvement Coordinator
CIP	Community Involvement Plan
CSO	Combined Sewer Overflow
cy	cubic yard(s)
DPA	Designated Port Area
EPA	United States Environmental Protection Agency
ESD	Explanation of Significant Differences
FDA	Food and Drug Administration
FS	Feasibility Study
FYR	Five-Year Review
ICs	Institutional Controls
IRIS	Integrated Risk Information System
IUR	Inhalation Unit Risk
LEDPA	Least Environmentally Damaging Practicable Alternative
LHCC	Lower Harbor CAD Cell
LTM	Long Term Monitoring
MassDEP	Massachusetts Department of Environmental Protection
MassDMF	Massachusetts Department of Marine Fisheries
MassDPH	Massachusetts Department of Public Health
MCP	Massachusetts Contingency Plan
NAUL	Notice of Activity and Use Limitation
NBH	New Bedford Harbor
NCP	National Oil and Hazardous Substances Pollution Contingency Plan
NOAA	National Oceanic and Atmospheric Administration
NPL	National Priorities List
NTU	Nephelometric Turbidity Units
NWS	North of Wood Street
O&F	Operational and Functional
O&M	Operation and Maintenance
OU	Operable Unit
PAH	Polyaromatic Hydrocarbon
PCB	Poly-chlorinated Biphenyl
ppm	parts per million
PRP	Potentially Responsible Party
RAO	Remedial Action Objectives
RfD	Reference Dose
RI/FS	Remedial Investigation/Feasibility Study
ROD	Record of Decision
RPM	Remedial Project Manager

SER	State Enhanced Remedy
SFO	Oral Cancer Slope Factor
TCL	Target Cleanup Level
TEF	Toxicity Equivalency Factor
TOC	Total Organic Carbon
TSCA	Toxic Substances Control Act
UCL	Upper Confidence Limit
USACE	U.S. Army Corps of Engineers
USC	United States Code
UU/UE	Unlimited Use/Unrestricted Exposure
VOC	Volatile Organic Compound

I. INTRODUCTION

The purpose of a Five-Year Review (FYR) is to evaluate the implementation and performance of a remedy in order to determine if the remedy is and will continue to be protective of human health and the environment. The methods, findings, and conclusions of reviews are documented in FYR reports such as this one. In addition, FYR reports identify issues found during the review, if any, and document recommendations to address them.

The U.S. Environmental Protection Agency (EPA) is preparing this FYR pursuant to the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA)(commonly referred to as "Superfund"), Section 121, 42 United States Code (USC) § 9621, consistent with the National Contingency Plan (NCP) (40 Code of Federal Regulations (CFR) § 300.430(f)(4)(ii)) and considering EPA policy.

This is the fifth FYR for the New Bedford Harbor Superfund Site (the Site), which borders the Massachusetts cities and towns of New Bedford, Acushnet, Fairhaven, and Dartmouth. The triggering action for this statutory review is the completion of the fourth FYR on September 22, 2020. This FYR has been prepared because hazardous substances, pollutants, or contaminants remain at the Site above levels that allow for unlimited use and unrestricted exposure (UU/UE).

The Site currently consists of two operable units (OUs), however, only OU1 will be evaluated in this FYR. OU1 addresses polychlorinated biphenyl (PCB)-contaminated sediment in the Upper and Lower Harbor above the selected cleanup levels and includes the remedy for the Outer Harbor portion of the Site. OU2 is discussed in this FYR from a historical perspective because following the completion of associated Response Actions in 2000, the Remedial Action Objectives (RAOs) for OU2 were satisfied. All Response Actions undertaken since 2000, including requirements for implementing institutional controls (ICs), are currently addressed by OU1 (the OU1 Remedy). Historically, the Site was divided into three OUs, however, a 2017 Explanation of Significant Differences (ESD)[1] merged OU3 (the Outer Harbor Area) into OU1. The 2017 ESD did not alter any remedial components of the OU1 Remedy.

EPA Remedial Project Manager (RPM) Christopher Kelly led the FYR. Additional participants included EPA human health risk assessor Courtney Carroll, EPA community involvement coordinator (CIC) Aaron Shaheen, EPA legal counsel Maximilian Boal and David Peterson, and Massachusetts Department of Environmental Protection (MassDEP) project manager Paul Craffey. The review began on March 16, 2025.

Site Background

The Site is located in Bristol County, Massachusetts and extends from the shallow northern region of the Acushnet River estuary south through the commercial harbor of New Bedford and into 17,000 adjacent acres of Buzzards Bay. The Site is divided into three areas: Upper, Lower, and Outer Harbor. Each area is characterized by unique geographical features and gradients of contamination. The Upper Harbor comprises approximately 200 acres. The boundary between the Upper and Lower Harbor is the Coggeshall Street bridge where the width of the harbor narrows to approximately 100 feet. The Lower Harbor comprises approximately 750 acres. The boundary between the Lower and Outer Harbor is the 150-foot-wide opening of the New Bedford hurricane barrier, which was constructed in the mid-1960s. The Outer Harbor's southern extent is formed by a mapped boundary drawn from Rocky Point (the southern tip of West Island in Fairhaven), southwesterly to Negro Ledge, and then southwesterly to

[1] An ESD is a document issued by EPA that describes changes to a selected remedy that are significant but do not fundamentally alter the overall scope, performance, or cost of the cleanup. The 2017 ESD was the sixth modification to the original remedy.

Mishaum Point in Dartmouth. The Site is also defined by three fishing closure areas promulgated in regulations issued by the Massachusetts Department of Public Health (MassDPH) in 1979, extending approximately 6.8 miles north to south and encompassing approximately 18,000 acres in total. Refer to **Figure 1** and **Figure 2** included in **Appendix B** to view the *Site Location Map* and the *Three New Bedford Harbor Fishing Closure Areas Map*, respectively.

Historical industrial and urban development surrounding the harbor resulted in sediment contamination, notably PCBs and heavy metals, with a contaminant gradient decreasing from north to south. From the 1940s into the 1970s, two electrical capacitor manufacturing facilities, one located near the northern boundary of the site (Aerovox), and one located slightly south of the New Bedford Harbor hurricane barrier (Cornell-Dubilier Electronics, Inc., known as CDE) discharged PCB-wastes either directly into the harbor or indirectly via discharges to the City of New Bedford's sewerage system.

The Site was proposed for the Superfund National Priorities List (NPL) in 1982 and finalized on the NPL in September 1983. The Lower Harbor includes a State Designated Port Area with commercial fisheries and marine industries along the shoreline, particularly on the New Bedford shore. Land use changes have occurred along the Upper Harbor shoreline, specifically, the conversion of shoreline mills into residential use and will continue with the City of New Bedford's planned shoreline recreational River Walk.

CERCLA pilot dredging and disposal studies began in the late 1980s, and "hot spot" dredging (OU2) occurred in 1994 and 1995. Subtidal OU1 dredging was completed in 2020 and remaining intertidal cleanups were completed in 2024. Sitewide long-term monitoring (LTM) activities have occurred since 1993 to assist in the evaluation of the remedy over time.

FIVE-YEAR REVIEW SUMMARY FORM

SITE IDENTIFICATION		
Site Name: New Bedford Harbor Superfund Site		
EPA ID: MAD980731335		
Region: 1	**State:** MA	**City/County:** New Bedford/Bristol County
SITE STATUS		
NPL Status: Final		
Multiple OUs? Yes	**Has the site achieved construction completion?** No	
REVIEW STATUS		
Lead agency: EPA		
Author name: Christopher Kelly		
Author affiliation: EPA		
Review period: 3/16/2025 - 9/22/2025		
Date of site inspection: 6/23/2025		
Type of review: Statutory		

Review number: 5
Triggering action date: 9/22/2020
Due date *(five years after triggering action date)*: 9/22/2025

II. RESPONSE ACTION SUMMARY

Basis for Taking Action

Hazardous substances detected at the Site in various media are identified in Table 1 below. A more complete discussion can be found in Section V of the *Record of Decision (ROD) for the Upper and Lower Harbor Operable Unit*, further referred to as the OU1 ROD (EPA, 1998).

Table 1
Hazardous Substances Detected at the Site by Media Type

Sediment	Surface Water	Biota	Air
PCBs	PCBs	PCBs	PCBs
Polyaromatic hydrocarbons (PAHs)	Copper		
Cadmium			
Chromium			
Copper			
Lead			

A baseline public health risk assessment was performed in 1989 to estimate the probability and magnitude of potential adverse health effects, both carcinogenic and non-carcinogenic, from exposure to Site contaminants. In addition to PCBs, this evaluation also identified cadmium, copper and lead as contaminants that could potentially contribute to significant adverse health effects (Ebasco Services Incorporated, 1989). EPA recognized that other contaminants, especially metals, contribute to sediment toxicity and factored this information into the remedial action decision making process. However, cleanup standards were only developed for PCBs. The dredging-based remedy removed or sequestered the highest levels of metals that were co-located with the highest levels of PCBs (Nelson *et al*., 1996; Averett *et al*., 1989; and United State Army Corps of Engineers [USACE], 1997). The exposure pathways for PCBs found to be of highest concern were:

- ingestion of contaminated seafood;
- direct contact with contaminated shoreline sediment; and
- incidental ingestion of contaminated shoreline sediment for children between the ages of 1-5.

Ecological risk studies have concluded that aquatic organisms are at significant risk due to exposure to PCBs in New Bedford Harbor. A more complete discussion of the human health and ecological risks identified at the Site can be found in Section VI of the OU1 ROD.

Response Actions

This section describes the selected remedies for the two operable units that currently encompass the Site.

The *Record of Decision Summary New Bedford Harbor/Hot Spot Operable Unit*, further referred to as the OU2 ROD, was signed on April 6, 1990 (EPA, 1990). The RAOs were as follows:

- Significantly reduce PCB migration from the hot spot area sediment, which acts as a PCB source to the water column and to the remainder of the sediments in the harbor;
- Significantly reduce the amount of remaining PCB contamination that would need to be remediated in order to achieve overall harbor cleanup;
- Protect public health by preventing direct contact with hot spot sediments; and
- Protect marine life by preventing direct contact with hot spot sediments.

The ROD-selected remedy for OU2 consisted of the following components:

- Dredging approximately 10,000 cubic yards (cy) of hot spot sediment (PCB concentrations ranging from a minimum of 4,000 parts per million (ppm) to over 100,000 ppm);
- Treatment of the large volume of water co-dredged along with the sediment;
- Passive dewatering of the dredged sediment;
- On-site incineration of the dewatered sediment;
- Stabilization of the incinerator ash (if determined to be necessary); and
- Temporary on-site disposal of the incinerator ash, then off-site disposal.

The OU1 ROD was signed on September 25, 1998 (EPA, 1998). The RAOs are as follows:

- To reduce risks to human health by reducing PCB concentrations in seafood, by lowering PCB concentrations in sediment and in the water column;
- To ensure that contact with shoreline sediment does not present excessive risks to human health as a result of dermal contact or accidental ingestion of PCB-contaminated sediment in areas prone to beach combing or in areas where residences abut the Harbor; and
- To improve the quality of the seriously degraded marine ecosystem by:
    - reducing marine organisms' exposure to PCB contaminated sediment while minimizing consequent harm to the environment; and
    - reducing surface water PCB concentrations to comply with chronic Ambient Water Quality Criteria (AWQC) by reducing PCB sediment concentrations.

The ROD-selected remedy for OU1 consisted of the following components:

- Construction of four confined disposal facilities (CDFs) and water treatment facilities;
- Removal of approximately 450,000 cubic yards (cy) of sediment contaminated with PCBs (plus approximately 126,000 cy of additional PCB-contaminated sediment to be addressed by the construction of the CDFs);
- Operation of the CDFs and water treatment;
- Saltmarsh excavation, restoration and monitoring;
- Preliminary capping and sediment consolidation within the CDFs;
- Final capping, long-term monitoring and maintenance, and beneficial reuse of the CDFs;
- Long term site-wide monitoring (LTM);
- Seafood advisories and other ICs; and
- Review of the Site every five years to assure the remedy continues to protect human health and the environment.

OU3 was created in response to comments received from the OU1 Proposed Plan issued in January of 1992 (EPA, 1992). OU3 did not include two Outer Harbor areas that were retained to be addressed as part of the OU1 Remedy where two localized areas of PCB-contaminated sediment exceeded OU1 cleanup standards (near the CDE facility south of the hurricane barrier). The southwesterly CDE area was capped

as part of a pilot study in 2005, and a Remedial Investigation (RI) of the Outer Harbor was performed from 2009 through 2017. As part of the investigations, it was determined that sediments northeast of the capped CDE area did not exceed cleanup standards and therefore were not capped. Through the 2017 ESD (ESD 6), EPA determined that there was an unacceptable risk to human health based on potential consumption of PCB-contaminated seafood in OU3; however, EPA also determined that the PCBs identified in the seafood samples from OU3 were primarily due to the exposure to PCBs originating in surface water flowing from OU1. Based on this knowledge, EPA modified the OU1 remedy to expand the OU1 area to encompass the OU3 area, thus dissolving the Outer Harbor "OU3" designation.

Response Action Modifications

OU2 ESDs and ROD Amendment

EPA issued an ESD to the OU2 ROD in April 1992 to modify the OU2 remedy component for the disposal of the incinerator ash generated by the OU2 remedial action from temporary on-site disposal to permanent on-site disposal (EPA, 1992). In October 1995, EPA issued a second OU2 ESD (EPA, 1995) to document the necessity for interim storage of the dredged hot spot sediments in the Sawyer Street CDF while treatment alternative studies excluding on-site incineration were conducted. EPA issued the *EPA Superfund Record of Decision Amendment: New Bedford Harbor Site Hotspot OU* in April 1999, which replaced the incineration component of the OU2 remedy with dewatering and off-site landfill disposal as the final component for the hot spot sediments. Transportation of the hot spot sediment to an offsite Toxic Substances Control Act (TSCA), 42 USC §§ 2601 *et. seq*. permitted landfill began in December 1999 and concluded in May 2000, which completed the OU2 remedial action.

OU1 ESDs

As the OU1 ROD remedial actions were performed, the discovery of new information prompted a refinement of the cleanup strategy. Since the issuance of the OU1 ROD, EPA has issued six ESDs modifying the OU1 remedy to address the evolving conditions (collectively referred to as the OU1 Remedy). A summary of the actions authorized by each ESD is provided below:

- ESD 1 (2001):
    - Incorporation of mechanical dewatering of dredged sediment into the remedial action (including construction of desanding and sediment dewatering facilities);
    - Construction of a rail spur to the dewatering facility;
    - Revision of the dike design at CDF D;
    - Documentation of the creation and continuous use of a Pilot CDF at EPA's Sawyer Street facility (Sawyer Street Pilot CDF);
    - Identification of additional intertidal cleanup locations in residential zones; and
    - Refining of the total volume of *in-situ* PCB-contaminated sediment to be addressed (EPA noted that based on the post-OU1 ROD sampling and an assessment of sediment volume calculation estimating the PCB concentrations at actual sediment sampling locations, the total *in-situ* contaminated sediment requiring remediation for OU1 could be as high as approximately 800,000 cy).
- ESD 2 (2002):
    - Elimination of CDF D; and
    - Modification of the sediment disposal destination from CDF D to off-site disposal.

- ESD 3 (2010):

    - Documentation of the temporary storage of PCB and volatile organic compound (VOC) contaminated sediments (dredged near the Aerovox facility) in the former hot spot sediment disposal cell #1 at EPA's Sawyer Street facility.

- ESD 4: (2011)

    - Modification of the remedy to include the construction and use of a confined aquatic disposal (CAD) cell in the Lower Harbor (the Lower Harbor CAD cell or LHCC) for disposal of approximately 300,000 cy of dredged sediments with PCB concentrations above the OU1 ROD action levels; and
    - Refining of the total volume of *in-situ* PCB-contaminated sediment above the OU1 ROD cleanup levels (EPA noted that based on a post-OU1 ROD assessment of sediment volume performed in 2003 and refined in 2009/2010, and including an allowance for over-dredging, the total *in-situ* sediment volume above the OU1 ROD cleanup standards was estimated to be approximately 900,000 cy).

- ESD 5 (2015):

    - Elimination of CDFs A, B and C in the Upper Harbor;
    - Modification of the sediment disposal destination from CDF A, B and C to off-site disposal; and
    - Confirmation that the Sawyer Street Pilot CDF is protective and the designation of the location as a permanent TSCA disposal facility.

- ESD 6 (2017):

    - Modification the OU1 remedy to expand the OU1 area to include the OU3 area and eliminate the designation of "OU3".

The PCB sediment cleanup levels for protection of human health and ecological receptors are presented in Table 2 below. The selected remedies and cleanup levels are designed to be protective of human health and the environment through a combination of remedial actions, including ICs. Numerous investigations have been completed at the Site to determine the nature and extent of PCB contamination, the location and functional values of the saltmarsh areas, the fate and transport of PCBs in the environment, and the ecological and human health risks resulting from the Site contamination. For a detailed account of the baseline human health risk assessment, the reader is encouraged to review the *Draft Final Baseline Public Health Risk Assessment; New Bedford Harbor Feasibility Study*, the *Draft Final Feasibility Study of Remedial Alternatives for the Estuary and Lower Harbor/Bay*, and the *Draft Final Supplemental Feasibility Study Evaluation for Upper Buzzards Bay* (Ebasco Services Incorporated, 1989; 1990; 1992).

Table 2
OU1 PCB Cleanup Levels in Sediment

Dredge Classification	Cleanup Level (mg/Kg)
Subtidal	
Upper Harbor including mudflats	10
Lower Harbor including mudflats[1]	50
Intertidal	
Residential	1
Recreational	25
Minimal public access (includes remote saltmarshes)	50

[1]In contrast to the Upper Harbor, a majority of the Lower Harbor is a Designated Port Area (DPA).

Status of Implementation

From 1991 to 1992, the United States and the Commonwealth of Massachusetts entered into three separate consent decrees recovering approximately $100 million from five potentially responsible parties ("PRPs"): (1) AVX; (2) Belleville Industries, Inc.; (3) Aerovox Incorporated; (4) CDE; and (5) Federal Pacific Electric Company. The total amount allocated for the Remedial Action work was about $57.3 million. The remainder of the settlement proceeds were used to reimburse EPA and State past response costs, Natural Resource Trustee assessment costs, and Natural Resources restoration projects.

From 1999 through 2004, EPA performed remedial design and remedial action activities using settlement funds received from the 1990s settlements to finance this work. The funds were depleted in 2004. In 2004, EPA began "full scale dredging" (dredging, desanding, dewatering, wastewater treatment, and disposal of PCB-contaminated sediment). From 2004 to 2012, EPA Region 1 implemented the OU1 Remedy with the typical annual funding rate from the EPA Hazardous Substance Superfund of approximately $15 million, allowing for the operation of approximately 2.5 to 3 months per year (or an average of about 40 - 45 days of dredging), resulting in the off-site disposal of approximately 20,000 to 25,000 cubic yards of contaminated sediment per year. In 2009, $30 million in supplemental funds from the American Recovery and Reinvestment Act allowed for 120 days of EPA dredging in 2009 and 59 days in 2010. In 2011, EPA estimated that at the $15 million-per-year funding rate and pace, the OU1 Remedy would take an additional 40 years to complete and would cost $1.2 billion (with a net present value cost of roughly $362 million).

In 2013, EPA entered into a Supplemental Consent Decree to a previous 1992 Consent Decree with AVX Corporation, whose corporate predecessor, Aerovox Corporation, owned and operated the former Aerovox facility and was the primary source of PCB contamination in the harbor (Supplemental Consent Decree with Settling Defendant AVX Corporation, 2013). In September 2013, the U.S. District Court approved a $366.25 million cash-out settlement, the proceeds of which were only permitted to be expended on future response costs. As previously noted, due to prior limitations in Superfund funding, the project had been expected to take approximately 40 additional years to complete. In 2022, the Site received an additional $72.7 million in funding from the Infrastructure Investment and Jobs Act of 2021. On May 4, 2023, an additional cash-out settlement with CDE for $4 million became effective, through a reopener in the 1992 settlement with CDE. The settlement with CDE for New Bedford Harbor was part of a simultaneous global $8 million settlement with CDE for both New Bedford Harbor and for the Woodbrook Road Dump Superfund Site in New Jersey. With these settlements and the additional federal funding, the harbor cleanup was accelerated substantially during the period between 2014 and 2025.

Consistent with the OU1 ROD and the respective six ESDs, the following remedial actions have occurred during this FYR period (2020 – 2025):

- Completion of subtidal dredging in the New Bedford Harbor (except for a limited area under 10 interim sediment caps): in total, approximately 1 million cy of contaminated sediment was dredged from the Upper and Lower Harbor, as illustrated in **Figure 3** of **Appendix B**. Subsequently, this completion of this remedial action allowed for operations to cease at the desanding building at Sawyer Street and the dewatering facility at Hervey Tichon Avenue.
- Completion of the filling and capping of the LHCC where lower-level PCB-contaminated Superfund subtidal sediments were disposed;
- Completion of sediment excavation/dredging from the remaining intertidal remediation zones (except for a limited area under seven interim sediment caps); in total approximately 102,000 cy of intertidal PCB-contaminated sediments removed;
- Completion of a an interim sediment cap abutting the former Aerovox facility, as illustrated in **Figure 4** of **Appendix B**. The three-acre multi-layer intertidal and subaqueous cap is designed to contain potential releases from the adjacent former Aerovox Mill State cleanup site until the final sediment remedy is implemented;
- Installation of interim caps on seven other small areas in the Upper Harbor where dredging was determined to be impracticable for the time being, until the final sediment remedy is implemented.
- Completion of demobilization from the Area D dewatering facility on Hervey Tichon Ave in New Bedford. This facility was transferred to the City of New Bedford in December 2020.
- Ongoing decontamination and demobilization from the Sawyer Street support facility in New Bedford including removal of PCB-contaminated material and backfilling in Cells 1, 2 and 3, with additional site assessment work;
- Initiating the process for transferring remaining properties acquired or created by EPA to implement the CERCLA remedy to the City of New Bedford.
- Ongoing implementation of community involvement efforts and ICs, including public education about fish consumption advisories and coordination with the three municipalities abutting New Bedford Harbor to obtain notice of any development proposals that may be inconsistent with the remedy;
- Site-wide monitoring including long-term benthic, seafood, and marsh restoration monitoring.

Prior to the issuance of the OU1 ROD, consistent with CERCLA and its implementing regulations, the Commonwealth of Massachusetts requested that EPA include State Enhanced Remedy (SER) actions in the remedy for OU1. The SER, enacted into the OU1 Remedy, consists of navigational dredging and disposal activities within the Lower Harbor, with MassDEP designated as the lead agency for the Commonwealth. MassDEP supervises and reviews the conduct of the enhancement work at the Site pursuant to § 300.515(f)(1)(ii)(A) and (B) of the NCP (EPA, 2015). Among other things, the SER benefits the remedy and the health of the Harbor because navigational dredging removes additional sediment in the Lower Harbor contaminated with PCB concentrations up to 50 ppm that are below EPA's cleanup levels (concentrations greater than 50 ppm) and that would not be otherwise addressed. This removal contributes to attaining the remedy's RAOs by further reducing overall PCB concentrations in seafood and the marine environment in the New Bedford Harbor, beyond the PCB removal carried out by the Superfund remedy. The sediments were placed in five CAD cells (designated "Borrow Pit", "CAD1", "CAD2", "CAD3" and "CAD4") constructed under the SER. The most recent SER work included the construction and partial filling of CAD4.

The complete chronology of major site investigations, remedy selection events, and major remedial actions from 1976 – 2025 are listed in **Table A-1** and **A-2** of **Appendix A**.

Table 3
Summary of Planned and/or Implemented ICs

Media, engineered controls, and areas that do not support UU/UE based on current conditions	ICs Needed	ICs Called for in the Decision Documents	Impacted Parcel(s)	IC Objective	Title of IC Instrument Implemented and Date (or planned)
Seafood	Yes	Yes	State Seafood Areas 1, 2, and 3	Prevent consumption of PCB-contaminated seafood above risk-based levels	1979 MassDPH fishing restriction: *Completed*
					Site-specific seafood consumption advisories by EPA: *Completed with ongoing public education.*
					Signage: *Completed with ongoing maintenance.*
					Community Involvement Plan: *Completed with ongoing revisions over time.*
Sediment (intertidal)	Yes	Yes	Land parcels abutting intertidal sediment remediation areas	Prevent dermal contact/incidental ingestion of PCB-contaminated sediment	Signage: *Completed with ongoing maintenance.*
					Land use controls: • The Town of Acushnet, Town of Fairhaven, and the City of New Bedford coordinate with EPA via the wetland coastal permitting process to identify proposed development that may conflict with the remedy. *Fairhaven and New Bedford have established by-laws/ memorializing this process. EPA and MassDEP will coordinate with Acushnet to formalize an appropriate arrangement through local regulations.*

Media, engineered controls, and areas that do not support UU/UE based on current conditions	ICs Needed	ICs Called for in the Decision Documents	Impacted Parcel(s)	IC Objective	Title of IC Instrument Implemented and Date (or planned)
					• Massachusetts Waterways Permitting Office ("Chapter 91") – Potential coordination with the State's Chapter 91 Office to provide EPA notice of proposed State permit applications for work in the intertidal zone (also for work in the subtidal zone, discussed below): *Being considered in consultation with the State*. • *Additional ICs may be established post-completion of intertidal/shoreline remediation if proposed development will disturb sediments that the remediation left in place above unrestricted use/unrestricted exposure standards.*
Sediment (subtidal)	Yes	Yes	All subtidal areas of the Site	Maintain the protectiveness of subtidal remedy	Land use controls: • The Town of Acushnet, Town of Fairhaven, and the City of New Bedford coordinate with EPA via the wetland coastal permitting process to identify proposed development that may conflict with the remedy. *Fairhaven (2022) and New Bedford (2017) have established by-laws/ordinances memorializing this process. EPA and MassDEP will coordinate with Acushnet to formalize an appropriate arrangement through local regulations.*

Media, engineered controls, and areas that do not support UU/UE based on current conditions	ICs Needed	ICs Called for in the Decision Documents	Impacted Parcel(s)	IC Objective	Title of IC Instrument Implemented and Date (or planned)
					• Massachusetts Waterways Permitting Office ("Chapter 91") - Potential coordination with the State's Chapter 91 Office to provide EPA notice of proposed State permit applications for work in the subtidal zone: *Being considered in consultation with the State.*
Sediment/Soil	Yes	Yes	Filled Tideland adjacent to City of New Bedford Tax Parcel 93-120 (103 Sawyer Street)	Maintain the protectiveness of the Pilot CDF cap	Land use controls in the form of a recorded Notice of Activity and Use Limitation (NAUL): *NAUL is currently being drafted.*
Sediment/Soil	Yes	Yes	City of New Bedford Tax Parcel 93-265 ("Parcel 265")	Prevent dermal contact/incidental ingestion of PCB-contaminated sediment; Maintain the protectiveness of interim subtidal caps until the final sediment remedy is implemented	Potential land use controls such as a NAUL: *NAUL is currently being drafted.*

Media, engineered controls, and areas that do not support UU/UE based on current conditions	ICs Needed	ICs Called for in the Decision Documents	Impacted Parcel(s)	IC Objective	Title of IC Instrument Implemented and Date (or planned)
Interim Pilot Cap Outside Hurricane Barrier, Sub-aqueous Cap	Yes	Yes	Outer Harbor Pilot Cap	Maintain the protectiveness of the Outer Harbor Pilot Cap until the final sediment remedy is implemented	Regulated navigation: in 2011, the U.S. Coast Guard and National Oceanic and Atmospheric Administration (NOAA) established a regulated navigational area prohibiting activities that could disturb the seabed within the Outer Harbor cap area and delineate the Outer Harbor cap footprint on marine navigational charts for the New Bedford Harbor area. These charts note anchorage restrictions for mariners in the harbor: *Completed.*
LHCC Cap, Sub-aqueous Cap	Yes	Yes	LHCC	Maintain the protectiveness of the LHCC cap	• Regulated navigation: Coordinate with the U.S. Coast Guard and National Oceanic and Atmospheric Administration (NOAA) to establish a regulated navigational area prohibiting activities that could disturb the seabed within the LHCC cap area and delineate the LHCC cap footprint on marine navigational charts for the New Bedford Harbor area. These charts note anchorage restrictions for mariners in the harbor: *Current status: Ongoing.* • Install marking buoys along the edge of the cap: *Completed*. • Coordinate with harbor stakeholders to develop guidelines for mooring and anchor designs that will ensure the integrity of the cap is not damaged; assist stakeholders in developing and

Media, engineered controls, and areas that do not support UU/UE based on current conditions	ICs Needed	ICs Called for in the Decision Documents	Impacted Parcel(s)	IC Objective	Title of IC Instrument Implemented and Date (or planned)
					implementing regulations requiring designs are used within cap area: *The feasibility of permitting mooring within the cap area is to be assessed.*[2]
Interim Upper Harbor Sediment Caps[3]	Yes	Yes	Coggeshall East Cap Coggeshall West Cap Crib Cap O-711 Cap L-014 Cap L-114 Cap Area C Shoreline Cap Aerovox Sediment Cap Parcel 265 Cap	Maintain the protectiveness of the nine interim Upper Harbor sediment caps until the final sediment remedy is implemented	Land use controls: • The Town of Acushnet, Town of Fairhaven, and the City of New Bedford coordinate with EPA via the wetland coastal permitting process to identify proposed development that may conflict with the remedy. *Fairhaven and New Bedford have established by-laws memorializing this process. EPA and MassDEP will coordinate with Acushnet to formalize an appropriate arrangement through local regulations.* • Massachusetts Waterways Permitting Office ("Chapter 91") - Potential coordination with the State's Chapter 91 Office to provide EPA notice of proposed State permit applications for work in the subtidal zone: *Being considered in consultation with the State.*

[2] Currently, the LHCC is part of the SER construction zone and is surrounded by boom as an interim protective measure to prevent mooring and/or anchoring.
[3] Refer to **Figure 4** of **Appendix B** to view the nine interim Upper Harbor sediment caps.

Media, engineered controls, and areas that do not support UU/UE based on current conditions	ICs Needed	ICs Called for in the Decision Documents	Impacted Parcel(s)	IC Objective	Title of IC Instrument Implemented and Date (or planned)
					• *Additional potential NAULs may be recorded for properties where sediment caps extend into the intertidal zone.*
Sawyer Street Facility	TBD	Not currently.	City of New Bedford Tax Parcel 93-120 (103 Sawyer Street)	None established yet – ongoing site assessment to determine if ICs may be needed.	None required yet.

Due to the historical PCB contamination throughout New Bedford Harbor, the Commonwealth of Massachusetts established a regulation in 1979 prohibiting the taking and/or selling of certain fish species in certain areas of New Bedford Harbor. The regulation identified three Fishing Closure Areas (I, II, and III) within New Bedford Harbor and a portion of Buzzards Bay. Beginning in 2009, EPA Region 1 published fish consumption advisories for Recreational Fishermen/Shellfishermen (and those who consume their take) with respect to the three Fishing Closure Areas. Since the fish consumption recommendations were first published, EPA has periodically evaluated and updated those recommendations as appropriate according to available data. The latest recommendations can be found at https://www.epa.gov/new-bedford-harbor/fish-consumption-regulations-and-recommendations#FactSheetsPublicDocs.

Systems Operations/Operation & Maintenance

The Site is currently in the remedial action phase; however, a final long-term operation and maintenance (O&M) plan has been drafted. Below is a brief description of major remedial action monitoring activities that have been implemented at the Site to monitor various aspects of the remedy over time. For additional information on the major remedial action monitoring activities, please refer to historical decision-making documents (*e.g.* OU1 ROD, OU1 ESDs 1 through 7). A data review of the monitoring activities throughout this FYR is discussed in Section IV of this document.

1. Interim Sediment Cap Monitoring: EPA periodically collects data to monitor any changes to the bathymetry of each interim sediment cap and conducts visual surveys at low tide events. EPA periodically performs polyethylene device (PED) sampling to monitor the level of dissolved PCBs in sediment pore water at the Aerovox sediment cap. This PED monitoring has shown orders of magnitude decreases in porewater dissolved PCB levels post-capping compared to pre-capping. Conduct any O&M of the caps that may be required.

2. LHCC Monitoring: Monitoring of the LHCC includes physical inspection (including bathymetric surveys), chemical sampling, and biological quality surveys.

3. North of Wood Street Monitoring: EPA periodically collects sediment PCB data north of the Wood/Slocum Street Bridge (an area first remediated in 2004-2005) to assess any potential recontamination from tidal sediment transport from nearby heavily contaminated sediment areas that underwent remedial dredging ending in 2020.

4. Pilot CDF Monitoring: EPA continues to collect groundwater data around the perimeter of the Pilot CDF at the Sawyer Street support facility to monitor for any potential contamination migration from the Pilot CDF, and conducts visual monitoring to ensure the cap remains protective and ICs are complied with. EPA conducts any O&M of the CDF cap (including vegetation management) that may be required.

5. Airborne PCB Monitoring: EPA continues to measure airborne PCB concentrations around remedial activities. As of 2025, this activity is now limited to the Sawyer Street support facility and includes the Pilot CDF capping activities. Compared to historical data, airborne PCB concentrations have decreased significantly. In 2020, EPA updated the air monitoring plan for the project to reflect changing Site conditions (Jacobs Engineering, 2020).

6. Seafood and Water Quality Monitoring: MassDEP and the Massachusetts Division of Marine Fisheries (MassDMF) perform annual seafood monitoring to evaluate the levels of PCBs in the edible seafood species in the three MassDPH fish consumption closure areas. Consistent with the OU1 ROD, this seafood monitoring program will aid in the evaluation of the overall effectiveness of the harbor cleanup, as well as assist in the implementation of ICs (*i.e.,* seafood advisories). As part of this seafood monitoring program MassDEP has added annual sampling and analyses of water column PCB levels at all of the quahog sampling locations. This water column data shows that all locations in Area II and Area III, as well as some locations in Area I, are meeting the 0.03 ppb ambient water quality criteria for PCBs.

7. Saltmarsh Monitoring and Maintenance: Saltmarsh segments remediated as part of the OU1 remedy will be inspected until EPA and MassDEP determine whether additional monitoring is needed. Each inspection will be used to monitor these areas for maintenance of the following three site-specific performance standards for the remediated saltmarsh subunit of the remedy

achieved during the Operational and Functional (O&F) period: 1) coverage with native vegetation of at least 75% of each segment; 2) no significant erosional areas; and 3) control of invasive species.

8. Long-Term Monitoring (LTM): Since 1993, EPA continues to collect LTM data approximately every five years across all 18,000 acres of the Site to assess sediment/benthic conditions and quantify the long-term environmental effects and effectiveness of remediation efforts in New Bedford Harbor. This LTM program includes identifying and counting of all benthic species collected in each sample.

III. PROGRESS SINCE THE LAST REVIEW

This section includes the protectiveness determinations and statements from the last FYR as well as the recommendations from the last FYR and the current status of those recommendations.

Table 4
Protectiveness Determinations/Statements from the 2020 FYR

OU #	Protectiveness Determination	Protectiveness Statement
1	Will be Protective	The remedy for OU1 is expected to be protective of human health and the environment upon completion, and in the interim, remedial actions completed to date have addressed exposure pathways that could result in unacceptable risks. These risks have been or are in the process of being controlled to the maximum extent practicable.
2	Protective	The remedy for OU2 is protective of human health and the environment because the sediment with high concentrations of PCBs (greater than 4,000 ppm) was dredged from the Upper Harbor and safely transported to an off-site TSCA landfill. All future work in the area where the hot spot sediment was removed, including ICs, are within the scope of OU1.

The fourth FYR did not identify any issues or recommendations that could impact the protectiveness of the remedy.

IV. FIVE-YEAR REVIEW PROCESS

Community Notification, Involvement & Site Interviews

A public notice was made available by press release on February 12, 2025 stating that there was a FYR, which is available as **Appendix C**. The results of the review and the report will be made available on the New Bedford Harbor Superfund Site Profile Page: https://www.epa.gov/new-bedford-harbor.

During the FYR process, interviews were conducted by Aaron Shaheen, EPA Community Involvement Coordinator, to document any perceived problems or successes with the remedy that has been implemented to date. Interviewees included representatives from MassDEP, the City of New Bedford, Community Economic Development Center (CEDC), and the Buzzards Bay Coalition. Responses were generally positive and recognized EPA's information sharing and investments in remediating PCB contamination throughout New Bedford Harbor. Known challenges related to subsistence fishing, funding limitations, PCB cleanup levels, and the comprehensiveness of sediment remediation were reiterated to EPA.

Completed interview forms are included as **Appendix D**.

Data Review

Intertidal Remediation Post-Excavation Confirmatory Sampling
Following the completion of dredging/excavation activities within Upper Harbor intertidal remediation areas *Parcel 265, Pierce Mill Cove, Marsh Island, North Street, Between the Bridges, East Zones 1 through 5, and West Zones 1 through 5*, confirmatory sediment samples were collected to verify that PCB TCLs of 1 ppm, 25 ppm, or 50 ppm for residential, recreational, and remote/limited access areas, respectively, were achieved. Through Remedial Action Completion Memoranda issued between 2021 and 2024, EPA certified the following:

Parcel 265, Pierce Mill Cove, and West Zones 1 through 5: The TCLs of 25 ppm for the top one foot of sediment (95% upper confidence limit [UCL] of the mean concentration) and 50 ppm below the first foot of sediment landward of the mudflats were attained. The 25 ppm TCL was selected due to the anticipated construction of a recreational public walking path along the western shoreline of the Upper Harbor.

East Zones 1 through 5: The TCL of 50 ppm for all depths below the sediment surface was attained. The 50 ppm TCL was selected due to the remoteness and inaccessibility of intertidal remediation areas along the eastern shoreline of the Upper Harbor.

Marsh Island: The TCL of 25 ppm for the top one foot of sediment (95% UCL of the mean concentration) and 50 ppm below the first foot of sediment landward of the mudflats were attained. The 25 ppm TCL was selected due of continued public access to the shoreline at this remediation area.

Between the Bridges: The TCLs of 1 ppm and 25 ppm for the top one foot of sediment (95% UCL of the mean concentration) and 50 ppm below the first foot of sediment landward of the mudflats were attained. The 1 ppm TCL was selected for residential properties within this remediation area; the 25 ppm TCL was selected due of continued public access to the shoreline at certain locations within this remediation area; and the 50 ppm TCL was selected due to the remoteness and inaccessibility of certain locations within this remediation area.

North Street: The residental use TCL of 1 ppm for the top one foot of sediment (95% UCL of the mean concentration) was attained throughout the remediation area.

The TCL for all remediated mudflats and subtidal areas is 10 ppm, which was attained as an average across the entirety of the Upper Harbor.

North of Wood Street Sediment Sampling
At various times between 2020 and 2022, sediment PCB data from the North of Wood Street (NWS) remedial area was collected to assess PCB concentration trends and monitor potential recontamination (AECOM, 2020a; AECOM, 2020b; AECOM, 2021a; AECOM, 2021b; AECOM, 2021c; AECOM, 2022a and AECOM, 2022b). These monitoring events revealed the presence of PCB concentrations exceeding the Remedial Action Limit of 30 mg/kg in various locations throughout the NWS remedial area, up to a depth of 2.5 feet below the riverbed. These results ranged from non-detectable to 188 mg/kg. Portions of this area were re-excavated in 2023 and 2024, and EPA is awaiting additional data to be collected north of the Wood Street Bridge in fall 2025 before determining if further remedial actions are necessary at NWS.

Pilot CDF Groundwater Monitoring
The objective of the groundwater monitoring program is to provide data that can be used to evaluate the integrity of the Sawyer Street Pilot CDF, as well as assess trends in groundwater concentrations of PCBs as Aroclors, selected metals (cadmium, chromium, copper, and lead), VOCs, and total suspended solids (TSS). Historically, six groundwater monitoring locations have been sampled on an annual basis, as illustrated in **Figure 5** of **Appendix B**. Following capping of the Pilot CDF, four monitoring wells will be available to assess long-term trends in groundwater. Throughout this FYR period, groundwater concentrations of constituents of concern were not detected above established laboratory reporting limits or Massachusetts Contingency Plan (MCP) GW-3 standards, to which groundwater data has historically been compared (AECOM, 2020; EPA, 2021; EPA, 2022; EPA, 2023 and EPA, 2024). Groundwater PCB concentrations observed during the most recent monitoring event in 2024 were not detected above the laboratory reporting limit of 0.5 ppb. Current and historical groundwater monitoring reports are available on the New Bedford Harbor Superfund Site website.[4]

Ambient Air Monitoring
EPA performed air monitoring throughout the subtidal dredging operations to confirm the dredging, de-sanding, de-watering and water treatment operations did not cause elevated levels of airborne PCBs that could pose an unacceptable risk to public health. **Figure 6** of **Appendix B** illustrates the numerous ambient air sampling station locations utilized throughout past dredging operations. During this FYR period, land-based air monitoring results during the dredging and intertidal operations were below non-cancer receptor risk-based levels of concern for a child resident (110 ng/m^3 and 330 ng/m^3). Air monitoring will continue to occur throughout demobilization and Pilot CDF capping operations at the Sawyer Street support facility. Current and historical air monitoring data is available on the New Bedford Harbor Superfund website.

MassDEP Annual Seafood Monitoring Program
The annual seafood monitoring program is part of the ongoing PCB cleanup program for the Site, and is a collaborative effort involving the MassDMF, MassDEP, and the EPA. Based on previous investigations and risk assessments performed for the Site, a variety of species were selected for this monitoring program that are considered locally caught seafood; are generally available for field collection; and which bracket potential worst-case tissue levels (MassDEP and MassDMF, 2025). Prior to 2015, these species include channeled whelk (*Busycon canaliculatum*) and knobbed whelk (*Busycon carica*), lobster (*Homarus americanus*), blue crabs (*Carcinus maenas*), quahog (i.e., hard shelled clam, *Mercenaria mercenaria*), alewife (*Alosa pseudoharengus*), American eel (*Anguilla rostrata*), black sea bass

[4] www.epa.gov/new-bedford-harbor/new-bedford-harbor-cleanup-plans-technical-documents-and-environmental-data#EnvironmentalMonitoringData

(*Centropristes striatus*), winter flounder (*Pseudopleuronectes americanus*), and scup (*Stenotomus chrysops).* From 2015 to 2024, only shellfish species were collected each year; bluefish, striped bass, and conch were collected for several years; and all the other species were collected only in the fifth year of the cycle: 2019 and 2024. The goal of this seafood monitoring program is to acquire collections of these species in sufficient numbers from all three closure areas, identified in **Figure 2** of **Appendix B**, to enable statistical comparisons between the species, but with the understanding that some species may not necessarily be caught in sufficient numbers during each collection event.

The data sets from 2020-2024 demonstrate a generally decreasing trend (north to south) of PCB levels in locally caught seafood across the Upper, Lower, and Outer Harbor. Tissue PCB levels decrease proportionally with the distance from the primary source of PCBs to the Upper Harbor, the former Aerovox facility). Since the 2003, a significant decrease in PCB concentrations in several species of fish and shellfish including alewife, blue crab, lobster, and quahog have been observed following the start of the remedy (MassDEP, 2025). Overall, the current data sets indicate continued levels of PCBs in most NBH area seafood above the 1998 ROD's site-specific target level of 0.02 ppm as illustrated in **Figures 7** through **20** of **Appendix B** (MassDEP and MassDMF, 2021; MassDEP and MassDMF, 2022; MassDEP and MassDMF, 2023; MassDEP and MassDMF, 2024; MassDEP and MassDMF, 2025).[5]

In addition to collecting seafood samples, MassDEP and MassDMF now collect water column samples at all quahog monitoring locations. This water column data shows that all monitoring locations in Fishing Closure Areas II and III, as well as some locations in Fishing Closure Area I, are meeting the 0.03 ppb ambient water quality criteria for PCBs in saltwater (see **Figures 19** and **20** of **Appendix B**).

An updated risk evaluation related to seafood consumption is included as **Appendix E**.

Water Quality Monitoring Programs

Historically, the seafood monitoring program was augmented by the deployment and sampling of blue mussels (*Mytilus edulis*) for mean total PCBs (as the sum of 18 congeners) as part of the comprehensive long-term monitoring program for the Site. Mussel deployments have generally been conducted twice annually between 1993 and 2018 by EPA's Office of Research and Development Atlantic Coastal Environmental Sciences Division (ACESD Narragansett, RI) at three stations: NBH-2-Coggeshall Street, NBH-4-Hurricane Barrier, and a control site NBH-5-West Island.

The blue mussel data set indicates that in the period between 1993 and 2018, no net change in PCB water column concentration and subsequent mussel bioaccumulation has occurred, primarily because the exposure to PCBs has not been altered dramatically along this gradient over time. These results demonstrate that while the overall mass of PCBs removed from the harbor has been substantial, the average water column PCB concentration increases near the mussel stations were transient. Due to changing research priorities, the EPA Blue Mussels Monitoring Program has been discontinued. This change in approach to long-term monitoring at the Site is not expected to impact EPA's ability to evaluate the performance of the remedy, as MassDEP conducts annual monitoring for total and dissolved water column PCBs in the Upper, Lower, and Outer Harbor. Although the size of the MassDEP water column PCB monitoring data set limits the performance of a formal statistical trend analysis across all monitoring locations, results indicate that surface water PCB concentrations across the Site have decreased since 2011 and that surface waters south of the Coggeshall Street Bridge (Lower and Outer Harbor) generally attain the AWQC of 0.3 ppb for PCBs (MassDEP, 2025).

[5] For additional information, annual and multi-year seafood monitoring reports are available for public inspection at the following web address: www.epa.gov/new-bedford-harbor/new-bedford-harbor-cleanup-plans-technical-documents-and-environmental-data#AnnualSeafoodMonitoring.

Site Wide Long-Term Monitoring (LTM)
The LTM program includes enumeration of all benthic fauna collected, grain size analysis, and sediment chemistry (total organic carbon and PCB concentrations) in the top two centimeters of sediment. LTM round VII was collected in 2020. Results from this monitoring round show similar metrics for the physical, chemical, and benthic community makeup in Site sediments as prior LTM rounds. This is likely because subtidal dredging was not completed until late 2020 and intertidal remediation was not completed until 2024.

Surface sediments collected during the LTM Round VII event from the Upper Harbor were generally more fine-grained, with mean values of 66.9% fines (silt + clay), 30.9% sand, and 2.19% gravel. The Lower Harbor surface sediments were comparable to the Upper Harbor sediments with mean values of 60.1% fines, 36.8% sand and 3.13% gravel. The Outer Harbor sediments were more evenly distributed, with the mean values of 52.28% fines, 43.2% sand, and 4.5% gravel. Total organic carbon levels ranged from 0.098% to 6.67% and total PCB concentrations ranged from 0.004 to 161 ppm in surface sediment (top 2 cm). A total of 65,945 individual organisms were identified from 158 samples from 79 stations (two replicates per station) in the three areas: 41% of the total organism abundance was present in the Upper Harbor, 34% in the Lower Harbor, and 25% in the Outer Harbor. 238 discrete taxa were recognized across all three Harbor areas.

LTM round VIII is planned for 2026 or 2027. The results from this LTM round will be evaluated in the sixth Five-Year Review cycle in 2030.

Aerovox Sediment Cap Polyethylene Device (PED) Sampling
PED sampling is performed at the Aerovox sediment cap to compare pre-capping sediment pore water PCB levels to post-capping pore water levels. Three rounds of post-cap PED monitoring have been performed, and these continue to show orders of magnitude decrease in pore water PCB levels compared to the pre-cap base line (Battelle, 2024).

Aerovox Stormwater Sampling
EPA commissioned several rounds of stormwater to be sampled at the former Aerovox site, both before and after the State-overseen remediation of the upland portion of the site. This monitoring targets first flush samples as well as steady flow samples. In general, this monitoring shows decreases in stormwater PCB levels at most, but not all sampling locations compared to pre-remediation results. Some locations continue to show storm water PCB levels above the 0.03 ppb PCB ambient water quality criteria.

Site Inspection

The site inspection was conducted on June 23, 2025. In attendance were EPA RPM Chris Kelly, EPA human health risk assessor Courtney Carroll, EPA ecological risk assessor Bart Hoskins, and MassDEP Project Manager Paul Craffey. The purpose of the inspection was to assess the protectiveness of the remedy. **Appendix F** includes photographs from the site inspection.

The site inspection began in the Town of Acushnet where the attendees inspected and photographed saltmarsh restoration within the North of Wood Street and East Zone 1 remediation areas. Saltmarsh restoration areas at the West Zone 1, West Zone 2/3, and Parcel 265 remediation areas within the City of New Bedford were inspected and photographed in a north-to-south traverse along the shoreline of the Acushnet River. The inspection continued at EPA's Sawyer Street Facility, where capping activities for the Pilot CDF were underway. Intertidal sediment caps along the western side of the Acushnet River were inspected and photographed to the extent feasible at low tide. The inspected sediment caps included the Aerovox Sediment Cap, Crib Cap, Pilot CDF Shoreline Cap, and Coggeshall Street Bridge East/West Caps.

The inspection continued south to New Bedford North Terminal and included an exterior survey of the former EPA Dewatering Facility as well as the navigational markers and silt curtain associated with the LHCC. The final inspection location was the Pilot Underwater Cap and Massachusetts Clean Energy Center Habitat Mitigation Area (constructed under the SER) south of the Hurricane Barrier. Along the inspection route signage related to fish consumption advisories was identified and photographed.

During the Five-Year Review site inspection, EPA and MassDEP noted that in some locations fish consumption signage was inconsistent or outdated. EPA, though its Interagency Agreement with USACE will replace these signs on an as-needed basis.

V. TECHNICAL ASSESSMENT

QUESTION A: Is the remedy functioning as intended by the decision documents?

Yes. Review of available documents, evaluation of compiled data, and the results of frequent site inspections indicate that the remedy is functioning as intended in the OU1 ROD and subsequent OU1 ESDs. The hot spot remedy selected by the OU2 ROD and subsequent OU2 ESDs and OU2 ROD Amendment has been successfully completed.

Subtidal dredging (approximately 1 million cy removed) and excavation of intertidal remedial areas (approximately 102,000 cy removed) in the Upper and Lower Harbor is now complete, except for areas under the 10 interim sediment caps. The LHCC has been capped, and following repairs to the CAD cell berm is expected to be deemed Operational and Functional. Capping of the Pilot CDF was completed in August 2025. While computer modeling estimates a lag time of approximately ten years post-sediment removal/capping before wide-scale PCB reductions in locally caught seafood will be observed (mid-2030s), data from the MassDEP annual seafood monitoring program generally shows a decreasing trend between 2003 and 2024. Similarly, the MassDEP water quality monitoring shows attainment of the 0.03 ppb PCB water quality criteria in closure Areas 2 and 3, as well as in certain sampling locations in Area 1.

The implementation of ICs and other measures, including LTM and seafood advisories, are in progress and are proving to be effective in preventing exposure based on fish consumption survey responses collected in partnership with the New Bedford Community Economic Development Center (CEDC). Previous FYRs identified the ongoing consumption of local PCB-contaminated seafood as having the potential to impact the short-term protectiveness of the remedy to human health. EPA continues to work to control this risk to the maximum extent practicable through educational and outreach efforts and with institutional controls such as signage, pursuant to the 1998 ROD and subsequent ESDs. To better address this concern, EPA first issued a CIP and a Seafood IC Plan in 2015 that documents the actions EPA has and will continue to take to implement public education and institutional controls to minimize ingestion of local PCB contaminated seafood, as well as new actions it will take to augment existing controls. The CIP is a living document and is updated as conditions change; the CIP was last updated in 2025.

In 2017, the City of New Bedford amended Chapter 15, Article VII, Sections 15-103 and 15-104 of the Code of City Ordinances in accordance with provisions of Chapter 43 of the Massachusetts General Laws (City Charters) to state the following:

> "…For any work proposed to the north of the southernly terminus of the hurricane barrier, and within one hundred (100) feet of a coastal wetland resource area protected under the Massachusetts Wetlands Protection Act and corresponding regulations, a copy of the notice shall also be sent to the United States Environmental Protection Agency, which is implementing the cleanup of the New Bedford Harbor Superfund Site…"

In 2022, the Town of Fairhaven amended Town Bylaws Chapter 192 (Wetlands), § 192-3B(3) and § 192-5(A) to state the following:

> "…For any work proposed to the north of the eastern terminus of the New Bedford Harbor hurricane barrier, and within 100 feet of a wetland resource area protected under the Massachusetts Wetlands Protection Act and corresponding regulations and this chapter and corresponding regulations, notice shall also be provided to the United States Environmental Protection Agency (EPA), which is implementing the cleanup of the New Bedford Harbor Superfund Site. This notice to EPA shall enclose a copy of the application or request, with plans.…"

Additionally, the Town of Acushnet has agreed to voluntarily notify EPA of any wetland permit application requests are made to build along the shoreline within the New Bedford Harbor Site boundaries. Additional means to coordinate with the Town to get notice of development along the Harbor shoreline will be discussed

Finally, the Outer Harbor Pilot Cap is protected by an IC in the form of a Regulated Navigation Area (RNA) established by the U.S. Coast Guard. The Pilot Cap is identified on navigational charts, and the RNA lists prohibited actions that have the potential to impact the integrity of the cap. EPA and MassDEP are currently in the process of developing a similar RNA for the LHCC, with discussions with the State and the Port of New Bedford as to whether to include the five current SER CAD cells in the RNA application to the Coast Guard.

QUESTION B: Are the exposure assumptions, toxicity data, cleanup levels, and remedial action objectives (RAOs) used at the time of the remedy selection still valid?

No. There have been changes in exposure assumptions, toxicity factors, and risk methodologies since the time of remedy selection; however, the RAOs specified in the RODs, are still valid.

As explained in more detail in the third FYR (2015), the sediment cleanup levels established are still valid, and at the time of the OU1 ROD, EPA noted the following:

- For seafood to meet both the FDA and site-specific levels at the end of 10 years, EPA believes that a TCL for sediment dredging of 1 ppm would be necessary. However, dredging to this level would cause severe adverse environmental impacts to the harbor;
- Although the ecological risk assessment pointed to a 1 ppm sediment PCB threshold for protection of marine organisms, achieving the TCL was believed to cause more harm than good due to the radical alterations to the harbor and adverse environmental impacts that would result given the widespread nature of the PCB contamination;
- In order to balance both protection of human health and the environment, EPA has determined that using a slightly higher TCL together with ICs on seafood consumption allows the remedy to remain protective to human health yet does not impose as severe adverse impacts to the harbor ecosystem; and
- The selected remedy includes various ICs and a long-term seafood monitoring program to keep the consumption of contaminated local seafood below safe levels.

At this time, there are no known problems with the remedy that would affect its long-term protectiveness.

The following sections describe changes that have occurred since the 2020 FYR.

Changes in Standards and TBCs

New standards (federal or state statutes and/or regulations), as well as new TBC guidances, should be considered during the five-year review process as part of the protectiveness determination. Under the National Contingency Plan (NCP), if a new federal or state statute and/or regulation is promulgated or a new TBC guidance is issued after the ROD is signed, and, as part of the five-year review process it is determined that the standard needs to be attained or new guidance procedures followed to ensure that the remedy is protective of human health and the environment, then the five-year review should recommend that a future decision document be issued that adds the new standard as an ARAR or guidance as a TBC to the remedy.

EPA guidance states:

> "Subsequent to the initiation of the remedial action new standards based on new scientific information or awareness may be developed and these standards may differ from the cleanup standards on which the remedy was based. These new … [standards] should be considered as part of the review conducted at least every five years under CERCLA §121(c) for Sites where hazardous substances remain on-Site. The review requires EPA to assure that human health and the environment are being protected by the remedial action. Therefore, the remedy should be examined in light of any new standards that would be applicable or relevant and appropriate to the circumstances at the Site or pertinent new [standards], in order to ensure that the remedy is still protective. In certain situations, new standards or the information on which they are based may indicate that the Site presents a significant threat to health or environment. If such information comes to light at times other than at the five-year reviews, the necessity of acting to modify the remedy should be considered at such times." (See CERCLA Compliance with Other Laws Manual: Interim Final (Part 1) EPA/540/G-89/006 August 1988, p. 1-56.)

There have been no changes in ARARs or To Be Considered guidance since the 2020 FYR that would impact the protectiveness of the remedy.

Regulations promulgated under TSCA at 40 CFR § 761.61(c) that were identified as an ARAR in the 1998 ROD required a determination that the remedy selected in the ROD did not pose an unreasonable risk of injury to health or the environment. The determination was modified in ESD1 (Section III.C); ESD2 (Appendix A); ESD3 (Section III); ESD4 (Attachment B); and ESD5 (Attachment A) to revise the determination and find that each modification made to the remedy through the ESDs did not pose an unreasonable risk of injury to health or the environment from PCBs.

The 1998 ROD included an ARAR requirement under Section 404 of the Clean Water Act, 33 USC § 1313, that the remedy selected in the ROD was the Least Environmentally Damaging Practicable Alternative (LEDPA) to prevent contaminated sediment from impairing wetlands and aquatic habitats at the New Bedford Harbor Superfund Site. Each subsequent ESD modification of the remedy that impacted the aquatic/wetland environment has been determined to be the revised LEDPA.

Changes in Toxicity and Other Contaminant Characteristics

Since the original risk assessment, changes have occurred to the toxicity values for PCBs used for the fish consumption and inhalation exposure pathways, which are described in previous risk assessments. As explained in more detail in the third FYR at pages 30-32, EPA evaluated the impact of the exposure factor and oral toxicity value changes for PCBs on the risk-based fish tissue target level of 0.02 ppm. Recalculation

of cancer and non-cancer risks resulted in confirmation that the 0.02 mg/kg total PCB seafood tissue target level remains protective for both cancer and non-cancer effects of total PCBs.

In addition to PCBs, EPA recognized that while other contaminants such as metals and PAHs contribute to sediment toxicity and factored this information they were not factored into the remedial action decision making process, since PCBs were the dominant contaminant at the Site. Updates in toxicity values for these other contaminants, as described below, do not impact remedy protectiveness because PCBs are the sole risk driver for the Site and the measures being used to remediate PCBs in sediment and other media would also address other co-located contaminants. Additionally, EPA continues to use ICs such as land use controls and public education to minimize potential for exposure to PCBs and other contaminants.

- ***2024 Hexavalent Chromium cancer and non-cancer toxicity values***

In August 2024, EPA finalized a non-cancer oral reference dose (RfD) and a non-cancer inhalation reference concentration (RfC) for hexavalent chromium (Cr(VI)) based on new IRIS toxicity values. Additionally, EPA finalized a new oral slope factor and inhalation risk unit for Cr(VI) based on new IRIS cancer toxicity values.

The new IRIS values for oral slope factor and inhalation unit risk indicate that hexavalent chromium is less toxic from cancer effects compared to previous values. The oral cancer slope factor, previously 5.0 x 10^{1} $[mg/kg/day]^{-1}$, now is 1.6 x 10^{1} $[mg/kg/day]^{-1}$. The carcinogenic inhalation unit, risk previously 8.4 x 10^{-2} $[\mu g/m^3]^{-1}$, now is 1.1 x 10^{-2} $[\mu g/m^3]^{-1}$. These toxicity changes would result in a decreased cancer risk from exposure to hexavalent chromium.

The new IRIS values for non-cancer indicate that hexavalent chromium is more toxic from non-cancer effects compared to previous values. Previously, the oral RfD was 3.0 x 10^{-3} (mg/kg/day and now is 9.0 x 10^{-4} mg/kg/day). The inhalation RfC, previously 1.0 x 10^{-4} (mg/m^3), now is 3.0 x 10^{-5} (mg/m^3). These toxicity changes would result in increased non-cancer risk from exposure to hexavalent chromium.

Chromium and other metals were identified by EPA as potentially contributing to risk in sediment in addition to PCBs. However, as stated above, these updates would not be expected to impact remedy protectiveness because PCBs are the sole risk driver for the Site and the remedial measures being implemented to address PCBs will also address other co-located contaminants. Additionally, EPA continues to use ICs such as land use controls and public education to minimize potential exposure to contaminants in sediment.

Changes in Risk Assessment Methods and Exposure Pathways

There have been no notable changes in risk methodologies since the previous FYR.
The environmental media which were considered in the OU1 ROD include surface water, harbor sediment, marine biota and ambient air in the Site area. Direct contact with and incidental ingestion of shoreline sediment and ingestion of contaminated seafood were identified as the human health exposure pathways of primary concern.

The original human health risk assessment in 1989 evaluated the cancer and non-cancer risks of PCBs, in adults, young children (age 0-5 years), and older children (age 6-16 years) exposed via sediment contact, sediment ingestion, ingestion of aquatic biota, and inhalation of airborne contaminants. Screening results performed under conservative exposure conditions indicated that exposure to PCBs in surface water and air did not represent a significant exposure pathway. However, EPA established water quality and ambient air monitoring programs to ensure that the remediation efforts did not cause unacceptable

impacts to surface water and air and to confirm ambient air levels remained below levels protective of human health. Though there have been some changes in recommended exposure parameters since the original risk assessment, the risk assessment scenarios evaluated remain valid.

EPA has observed an overall trend towards a more publicly accessible shoreline in the Upper Harbor (*e.g.* parks, walkways near the Acushnet river, boat houses, observation decks) as well as the conversion of former shoreline mills into residential dwellings. Future development of shoreline properties, including possible changes to zoning may require landowners to comply with land use controls established by EPA for the purposes of protecting the remedy and reducing and/or eliminating unacceptable risk exposure pathways. Currently, these risk assessment scenarios remain valid.

Ecological Risk Considerations

EPA completed the baseline ecological risk assessment (BERA) for the Site in 1990 (Ebasco Services Incorporated, 1990). It concluded that there was significant risk to aquatic biota from site contaminants present in sediment and sediment porewater throughout the Site. These determinations were the basis for EPA's decision to select a remedy that reduced the exposure of marine organisms to both PCB-contaminated sediment and chronic surface water PCB concentrations. The ecological risk assessment scenarios evaluated by the 1990 BERA remain valid.

Expected Progress Towards Meeting the RAOs

The OU1 ROD RAOs reduce risk to human health by reducing PCB concentrations in seafood, ensure contact with shoreline sediment does not present excessive risk via dermal or ingestion, and improve the quality of seriously degraded marine ecosystems are progressing as expected. The completion of the remaining intertidal zone remediation in the Upper Harbor is expected to increase the protectiveness of the remedy and make significant progress in satisfying the RAOs.

QUESTION C: Has any **other** information come to light that could call into question the protectiveness of the remedy?

No other information has come to light that could call into question the protectiveness of the remedy. Additional contaminant assessment is being done at EPA's former Sawyer Street facility to determine if further remedial action may be required before the property is returned to the City.

VI. ISSUES/RECOMMENDATIONS

Issues/Recommendations
OU(s) without Issues/Recommendations Identified in the Five-Year Review:
OU1, OU2

OTHER FINDINGS

The following recommendations that were identified during the FYR may reduce costs, improve management of O&M, and/or accelerate site close out, but do not affect current and/or future protectiveness:

- Replace fish consumption advisory signage with outdated information where appropriate. Continue using GIS tools to monitor signage locations for damage and general wear.
- Continue evaluating and implementing institutional controls. Develop an Institutional Controls Implementation and Assurance Plan (ICIAP).
- Finish contaminant assessment at the former Sawyer Street facility property to determine if any additional remedial measures are required before returning the property to the City of New Bedford.
- Review 2025 data from North of Wood Street to confirm whether any additional remedial action may be required.
- Continue implementing the final remedy for contaminated sediments in the Upper and Outer Harbor.
- Complete transfers of remaining properties acquired or created as part of the remedial action to the City of New Bedford.

VII. PROTECTIVENESS STATEMENT

Protectiveness Statement(s)	
Operable Unit: OU1	*Protectiveness Determination:* Will be Protective
Protectiveness Statement: The remedy for OU1 is expected to be protective of human health and the environment upon completion, and in the interim, exposure pathways that could result in unacceptable risks have been or are in the process of being controlled through operation and maintenance of interim sediment caps and permanent disposal sites and implementation and maintenance of Institutional Controls.	
Operable Unit: OU2	*Protectiveness Determination:* Protective
The remedy for OU2 protected human health and the environment because the sediment with the highest concentrations of PCBs (ranging from 4,000 ppm to over 100,000 ppm) were dredged from the Upper Harbor and safely transported to an off-site TSCA landfill. All future work in the area where the hot spot sediments were removed, including institutional controls, are within the scope of OU1. Pursuant to CERCLA, no future Five-Year Reviews of the OU2 remedy are required.	

VIII. NEXT REVIEW

The next five-year review report for the New Bedford Harbor Superfund Site is required five years from the completion date of this review.

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APPENDIX A: SITE CHRONOLOGY

Table A-1

Chronology of Major Site Investigations and Remedy Selection Events

Date	Major Site Investigation and Remedy Selection Event
1976 - 1982	Discovery of widespread contamination of PCBs and heavy metals in sediment and marine life throughout the New Bedford Harbor
1983	Site added to the NPL
1988-89	EPA performed pilot dredging and disposal study
1989	EPA issued the Proposed Plan for the hot spot OU2
April 1990	EPA issued the ROD for the hot spot OU2
August 1990	EPA issued a FS and risk assessment for the entire harbor
January 1992	EPA issued a Proposed Plan for the Upper and Lower Harbor OU1
April 1992	EPA issued ESD 1 for the 1990 hot spot OU2 ROD
May 1992	EPA issued an addendum proposed plan for OU1
1993	EPA suspended the incineration component of the hot spot remedy in response to community opposition. The New Bedford Harbor Community Forum was established to develop alternatives to on-site incineration
1995	EPA issued ESD 2 for the 1990 hot spot ROD
1996	EPA issued a revised proposed plan for the Upper and Lower Harbor OU1. The Outer Harbor was separated into OU3
1997	EPA issued FS addendum report for the hot spot OU2
August 1998	EPA issued the proposed plan to amend the 1990 hot spot OU2 ROD
September 1998	EPA issued the 1998 OU1 ROD for the Upper and Lower Harbor OU1
1999	EPA issued the amended ROD for the hot spot OU2
2001	EPA issued ESD 1 for the 1998 OU1 ROD
2002	EPA issued ESD 2 for the 1998 OU1 ROD
2005	EPA completed first FYR
2010	EPA issued ESD 3 for the 1998 OU1 ROD and second FYR
2011	EPA issued ESD 4 for the 1998 OU1 ROD
2012	EPA issued the final determination for the South Terminal Project, which was modified in 2013 and 2014
2013	Supplemental Consent Degree with AVX
2015	EPA issued ESD 5 for the 1998 OU1 ROD and third FYR
2017	EPA issued ESD 6 for the 1998 OU1 ROD
2020	EPA completed the fourth FYR

Table A-2
Chronology of Major Remedial Action Events

Date	Major Remedial Action Event
1988 – 1999	Completed pilot dredging and disposal study.
1994 – 1995	Dredged 14,000 cy of hot spot sediment (PCB concentrations up to 200,000 ppm) from the harbor.
2001	Completed the early action cleanup of highly contaminated residential properties (PCB concentrations up to 20,000 ppm), relocated the Sawyer Street combined sewer overflow (CSO), and constructed a clean corridor for the relocation of submerged power lines near the hot spot sediment.
2002	Eliminated CDF D in favor of shipping dredged material off-site (ESD 2) and removed thirteen derelict commercial fishing vessels to allow for remedial dredging and commercial barge pier relocation.
2003	Completed the six-acre North of Wood Street cleanup (PCB concentrations up to 46,000 ppm), remedial dredging at the former Herman Melville shipyard, and the construction of the marine bulkhead for the Area D dewatering facility.
2004	Completed the first season of full-scale dredging, the construction of the dewatering facility, and the relocation of two CSOs at Area D.
2005	Completed the second season of full-scale dredging, the construction of relocated commercial barge pier and associated navigational channel, and the pilot underwater cap near the Cornell-Dubilier mill.
2006	Completed the third season of full-scale dredging.
2007	Completed the fourth season of full-scale dredging.
2008	Completed the fifth season of full-scale dredging.
2009	Completed the sixth season of full-scale dredging.
2010	Completed the seventh season of full-scale dredging.
2011	Completed the eighth season of full-scale dredging.
2012	Completed the ninth season of full-scale dredging.
2013	Completed the tenth season of full-scale dredging and began construction of the Lower Harbor CAD cell (LHCC) Phase I. Received the proceeds of the $366.25M settlement with AVX to allow for accelerated cleanup actions during subsequent years.
2014	Completed the eleventh season of full-scale dredging and the construction of the Lower Harbor CAD cell (LHCC) Phase I and began construction of the LHCC Phase II.
2015	Completed the twelfth season of full-scale dredging. The construction of the South Terminal under the State Enhanced Remedy (SER) was completed.
2016	Completed the thirteenth season of full-scale dredging: dredging was accomplished in the Lower Harbor, followed by disposal in the LHCC. Remediation in Area 265 was completed.
2017	Completed the fourteenth season of full-scale dredging: final pass hybrid dredging commenced in the Upper Harbor with off-site disposal; mechanical dredging continued in the Lower Harbor, followed by LHCC disposal. Remediation in the Pierce Mill Cove (Riverside Park) area of New Bedford was completed.
2018	Completed the fifteenth season of full-scale dredging: Subtidal Dredging in the Lower Harbor was completed. Final pass hybrid dredging continued in the Upper Harbor with off-site disposal. Remediation of the North Street Salt Marsh, Between the Bridges and Marsh Island intertidal areas in Fairhaven were completed.

2019	Completed the sixteenth season of full-scale dredging: Final pass dredging continued with both hybrid (off-site disposal) dredging and mechanical dredging followed by LHCC disposal.
2020	Completed all Superfund sub-tidal dredging of New Bedford Harbor (except for areas under 10 interim sediment caps) and began the intertidal excavation in two intertidal zones (East Zone-1 and West Zone-1).
2021	Completed decommissioning of EPA's Dewatering Facility located on Hervey Tichon Avenue. The facility was transferred to the City of New Bedford for future developement.
2021	Partial completion of active remediation of intertidal areas East Zone-1 and West Zone-1; constructed interim sediment caps in areas not dredged.
2022	Completed active remediation of intertidal areas East Zone-4, East Zone-5, West Zone-4 and West Zone-5; constructed interim sediment caps in areas not dredged.
2024	Completed active remediation of intertidal areas East Zone-2, East Zone-3, West Zone-2 and West Zone-3; constructed interim sediment caps in areas not dredged. Capping of the LHCC was completed. Off-site disposal of contaminated sediments temporarily disposed of at Cell 1 at EPA's Sawyer Street facility and closure to unrestricted use standards.
2025	Completed capping of the Pilot CDF and began decommissioning of the Sawyer Street support facility.

APPENDIX B: FIGURES

Figure 1
Site Location Map

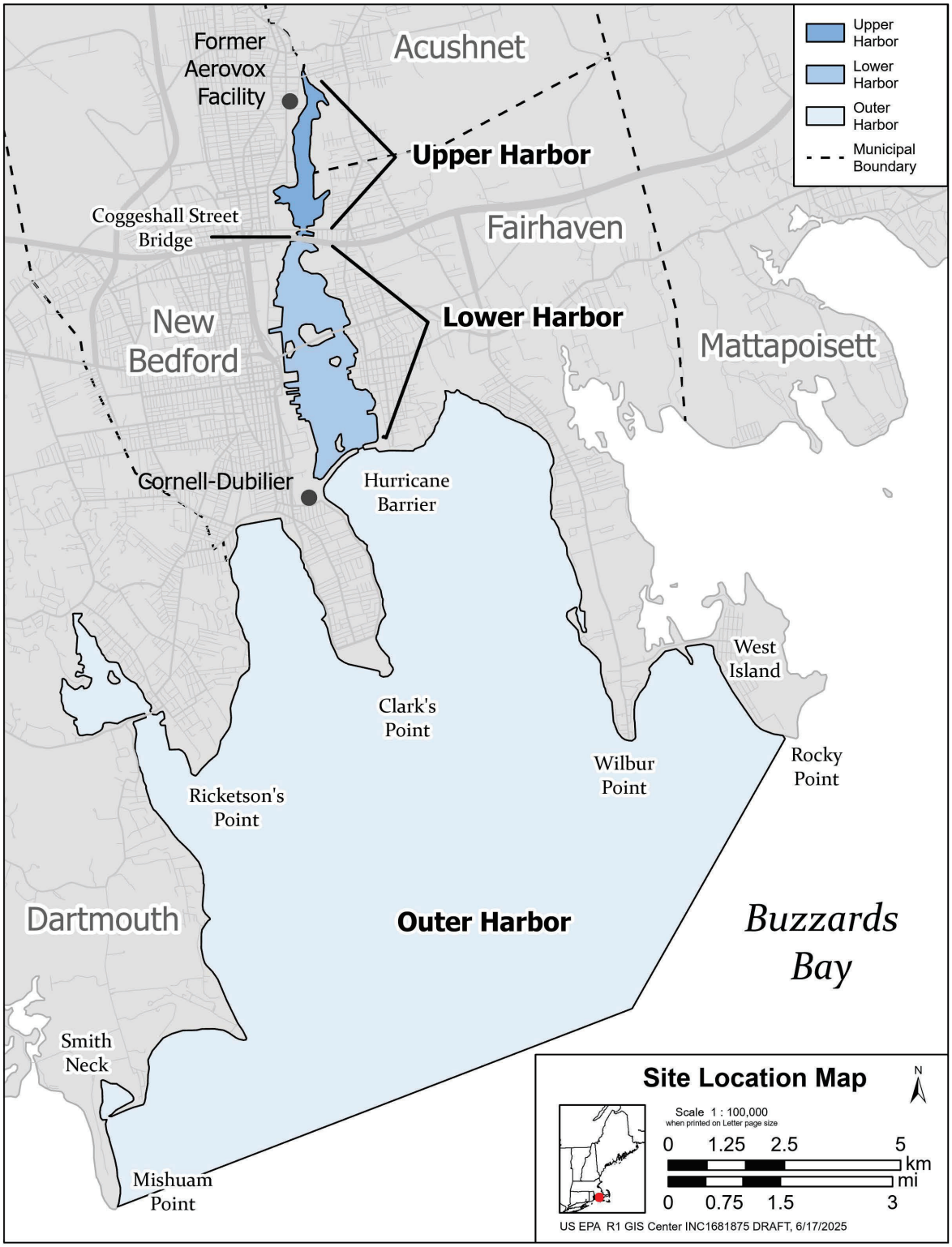


Figure 2

Three New Bedford Harbor Fishing Closure Areas Map

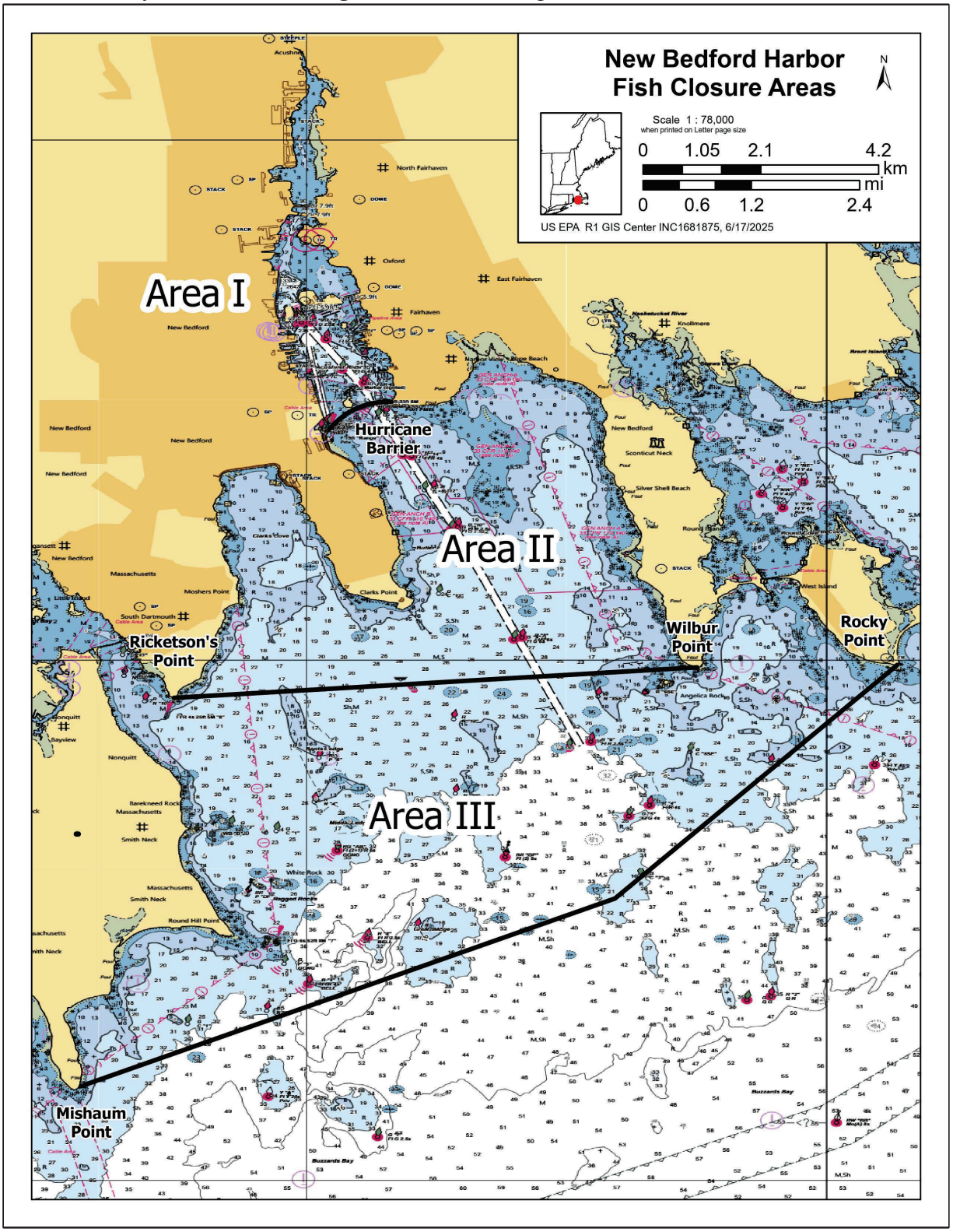


Figure 3
Remediation Progress Map

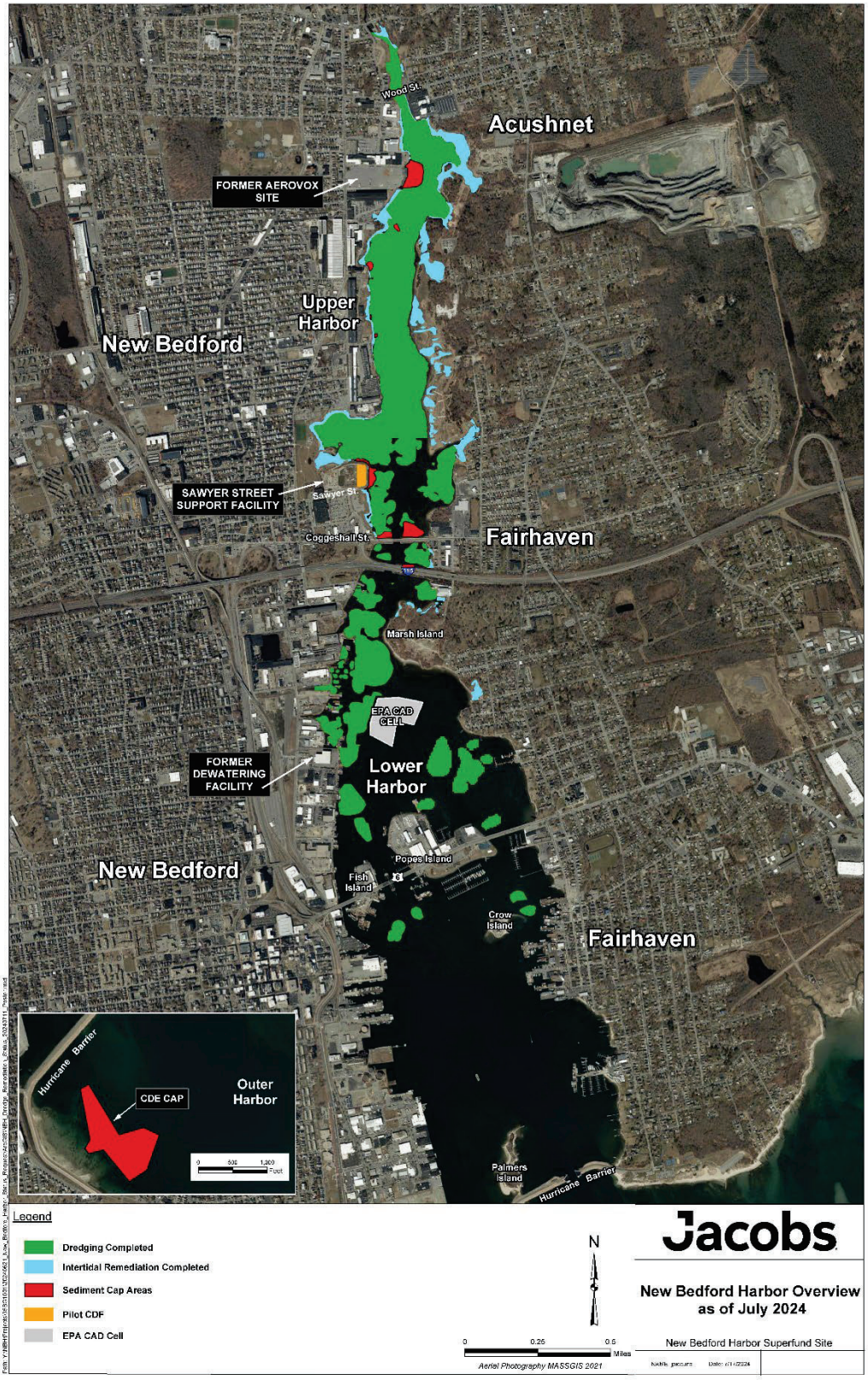


Figure 4
Upper Harbor Interim Capping Locations

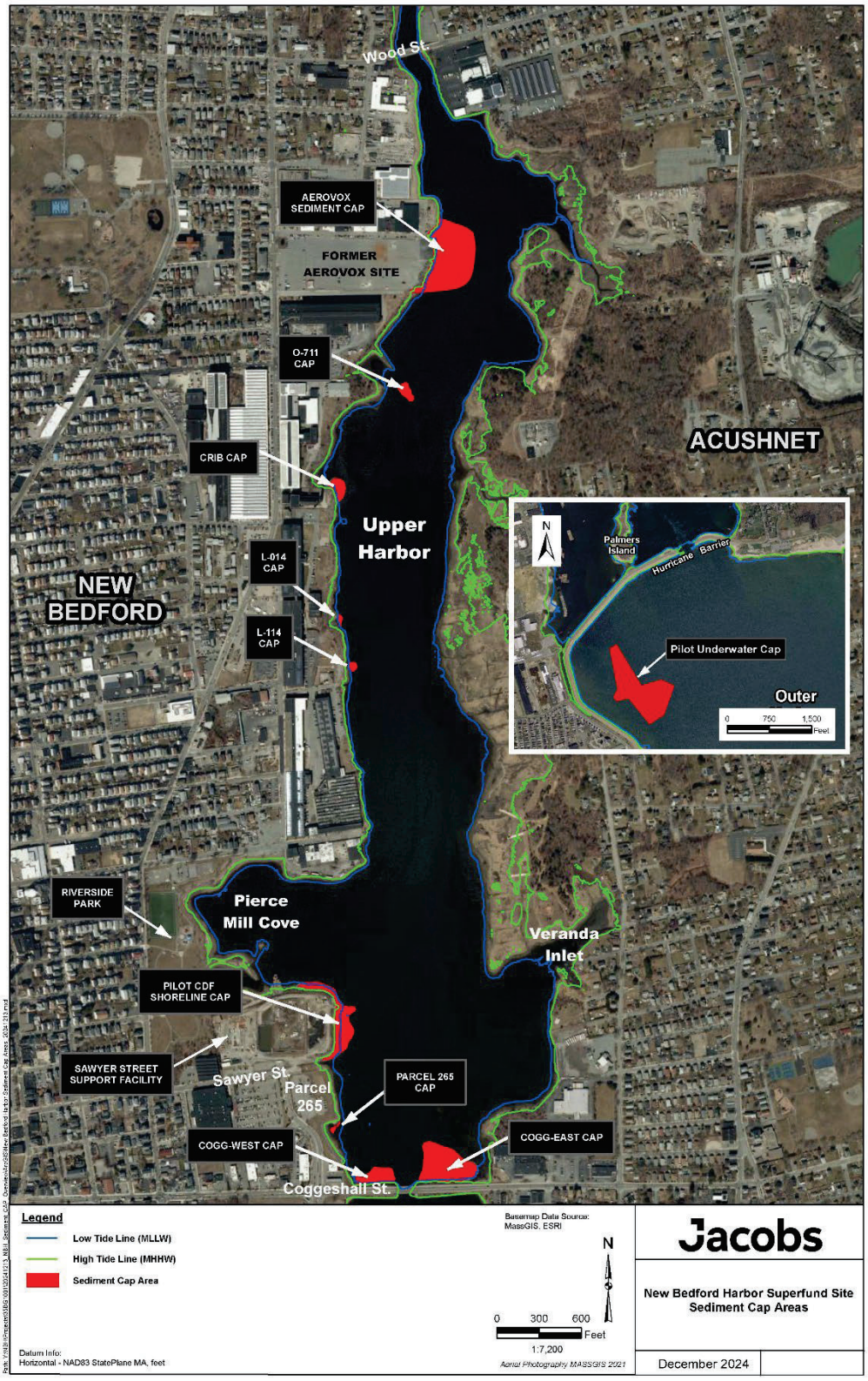


Figure 5
Sawyer Street CDF Groundwater Well Locations Map

Figure 6
Available Ambient Air Sampling Station Locations Map

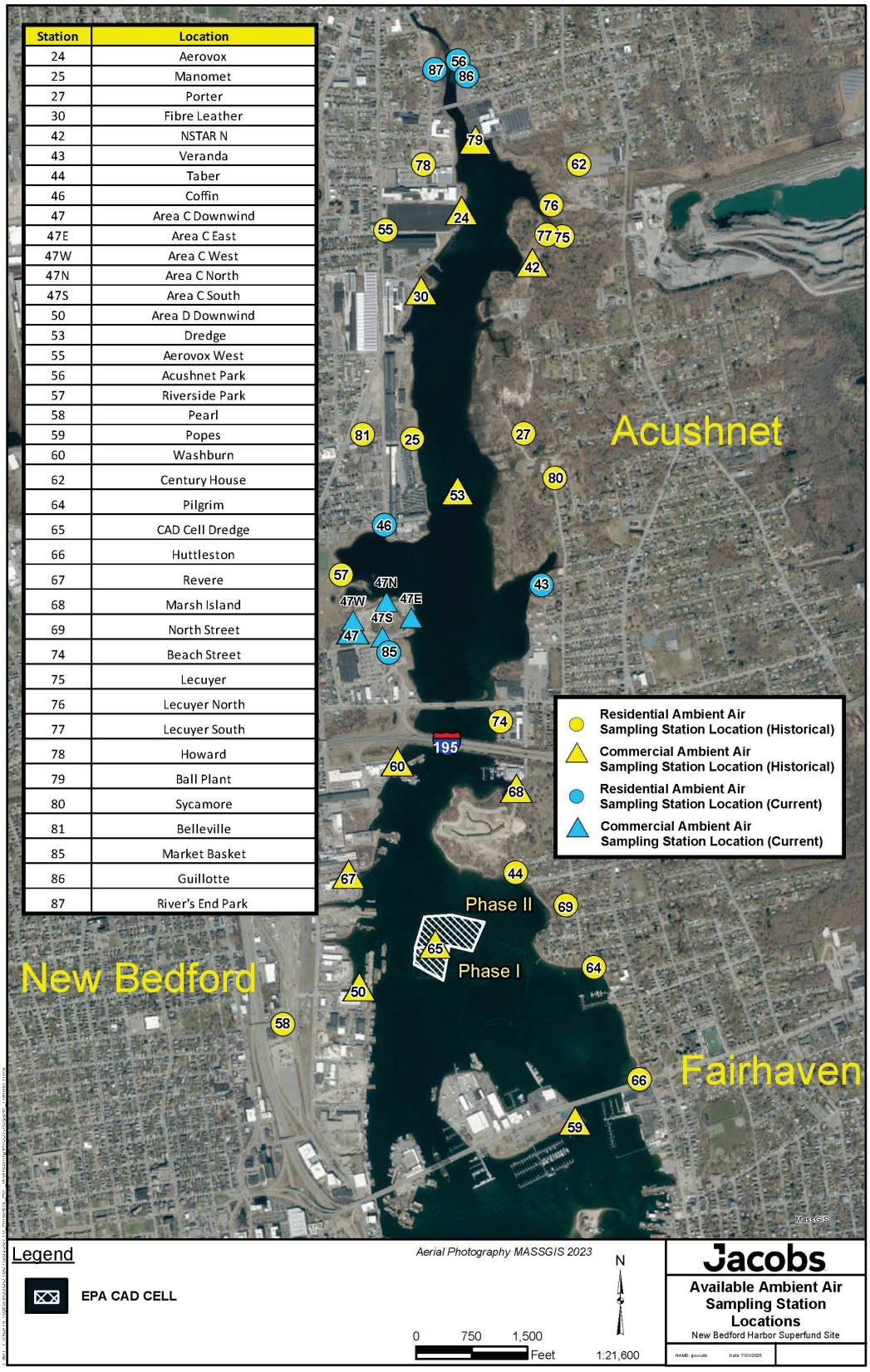
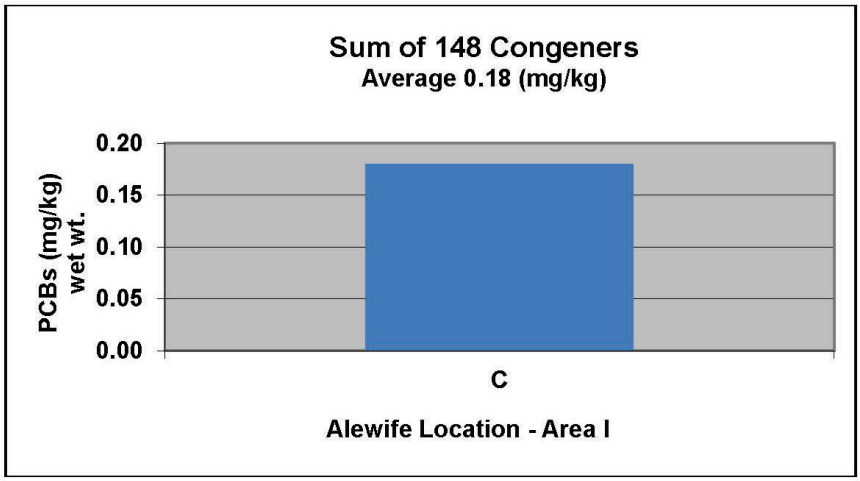
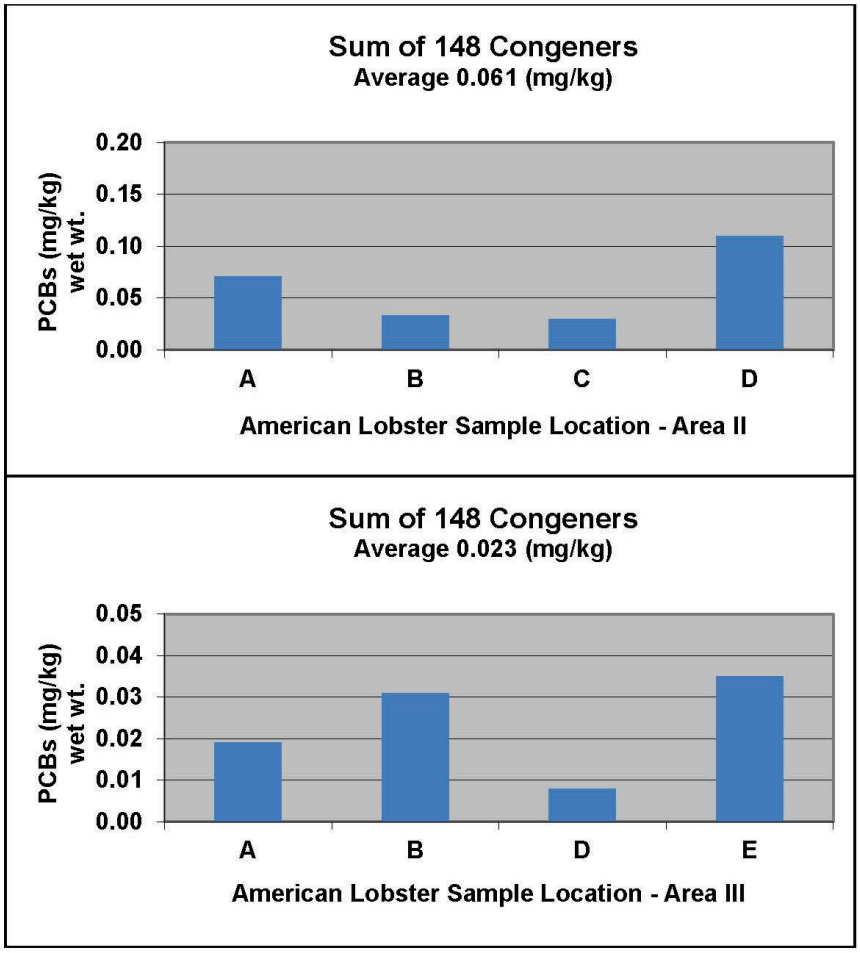


Figure 7
PCB Concentrations in Alewife – Area I – 2024 Data



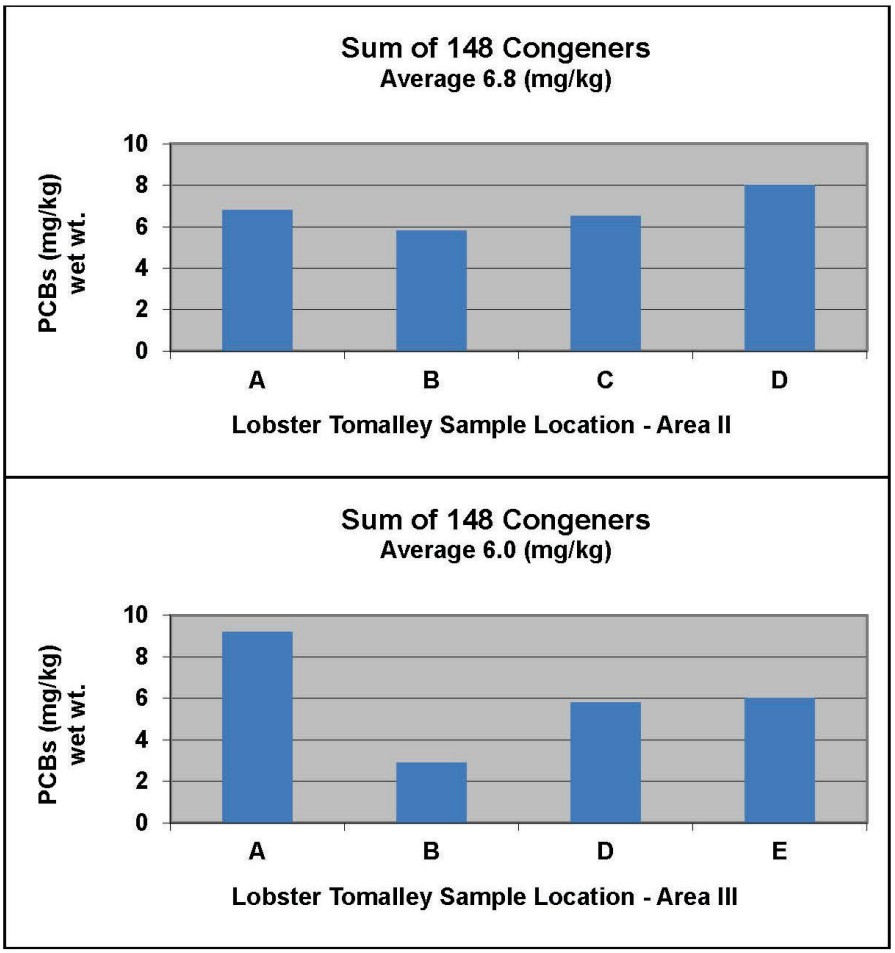
Note: The PCB concentrations shown in this figure are the detected values only.

Figure 8
PCB Concentrations in American Lobster Meat – Areas II and III – 2024 Data



Note: The PCB concentrations shown in this figure are the detected values only.

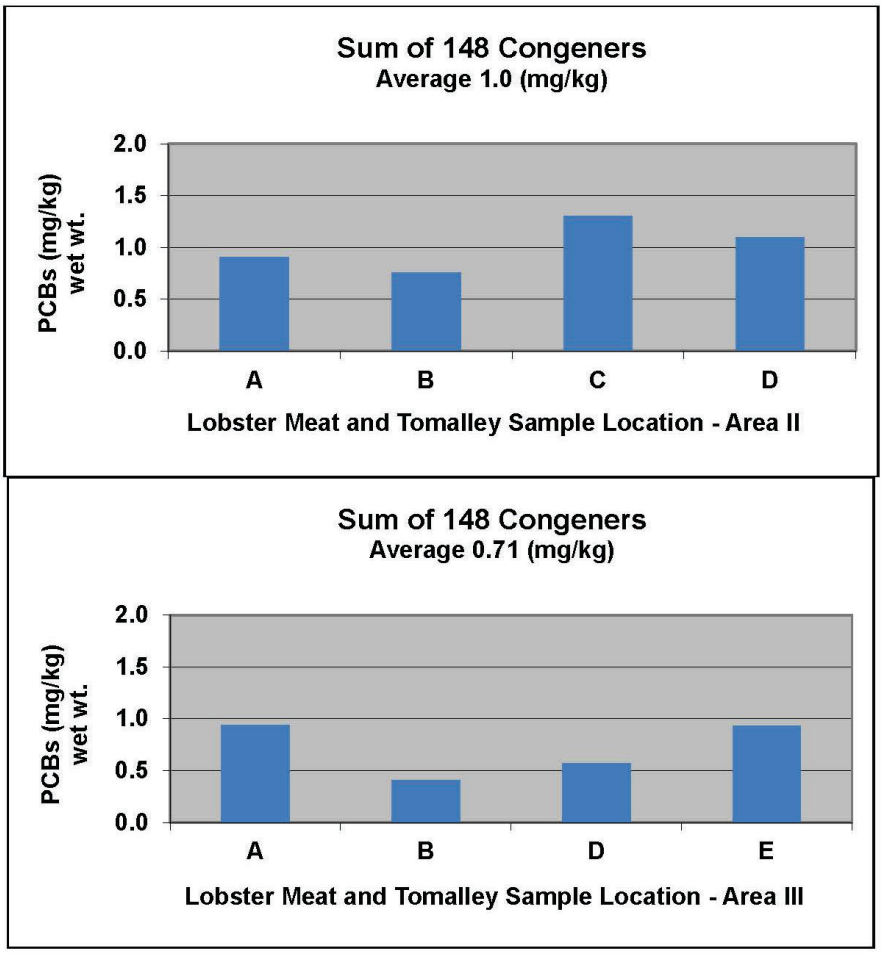
Figure 9
PCB Concentrations in American Lobster Tomalley – Areas II and III – 2024 Data



Note: The PCB concentrations shown in this figure are the detected values only.

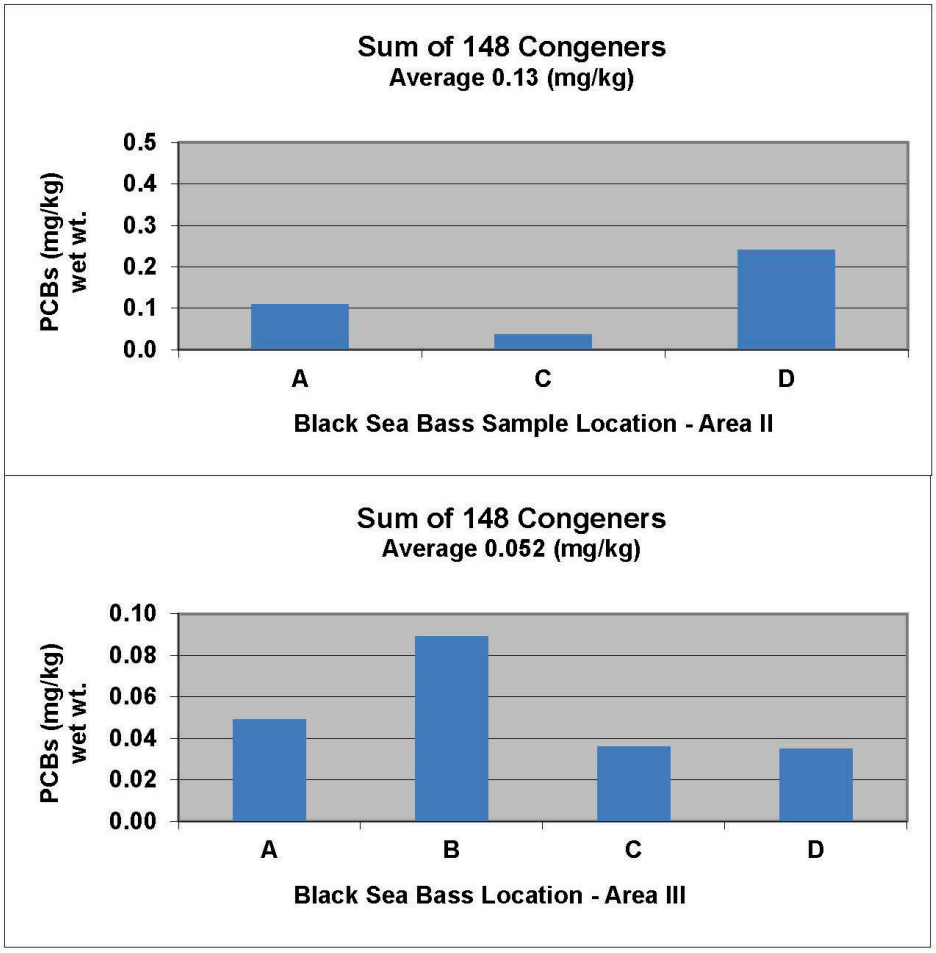
Figure 10

PCB Concentrations in American Lobster Meat and Tomalley – Areas II and III – 2024 Data



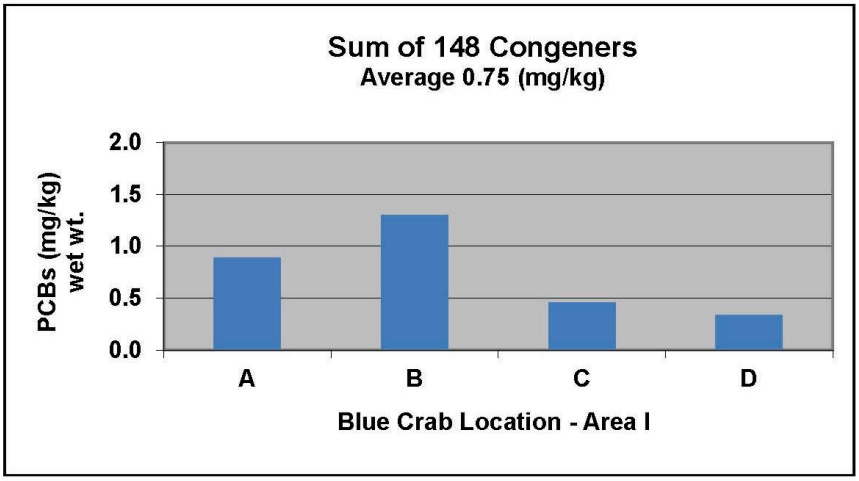
Note: The PCB concentrations shown in this figure are the detected values only.

Figure 11
PCB Concentrations in Black Sea Bass – Areas II and III – 2024 Data



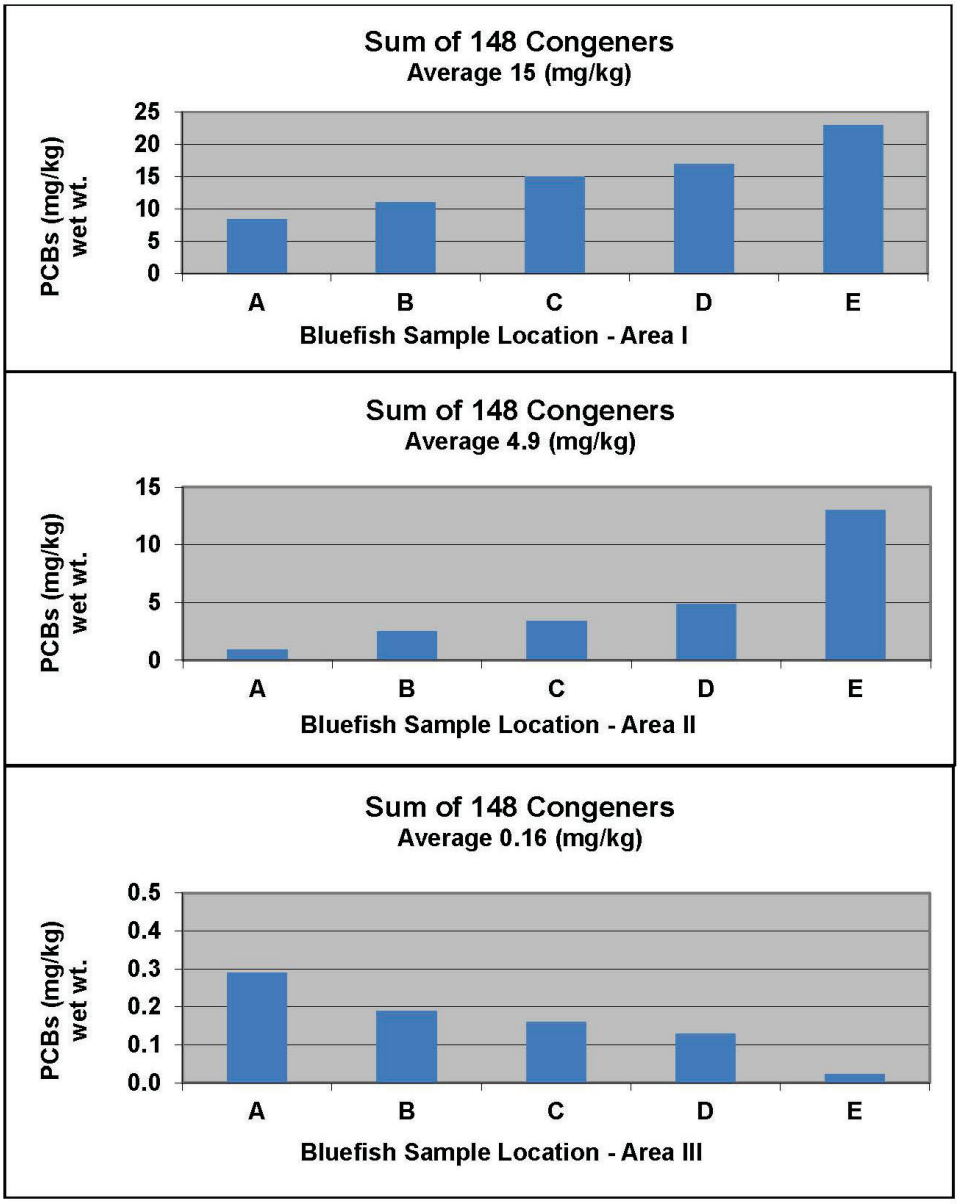
Note: The PCB concentrations shown in this figure are the detected values only.

Figure 12
PCB Concentrations in Blue Crab – Area I – 2024 Data



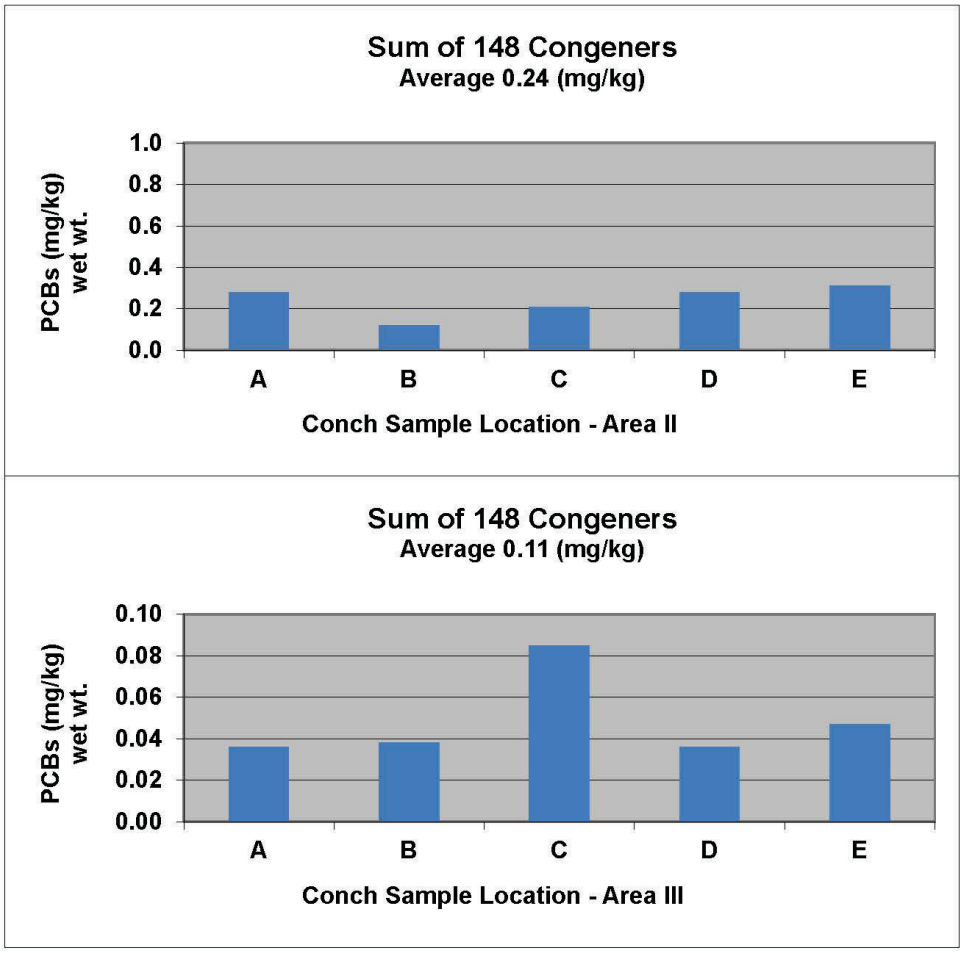
Note: The PCB concentrations shown in this figure are the detected values only.

Figure 13
PCB Concentrations in Bluefish – Areas I, II, and III – 2024 Data



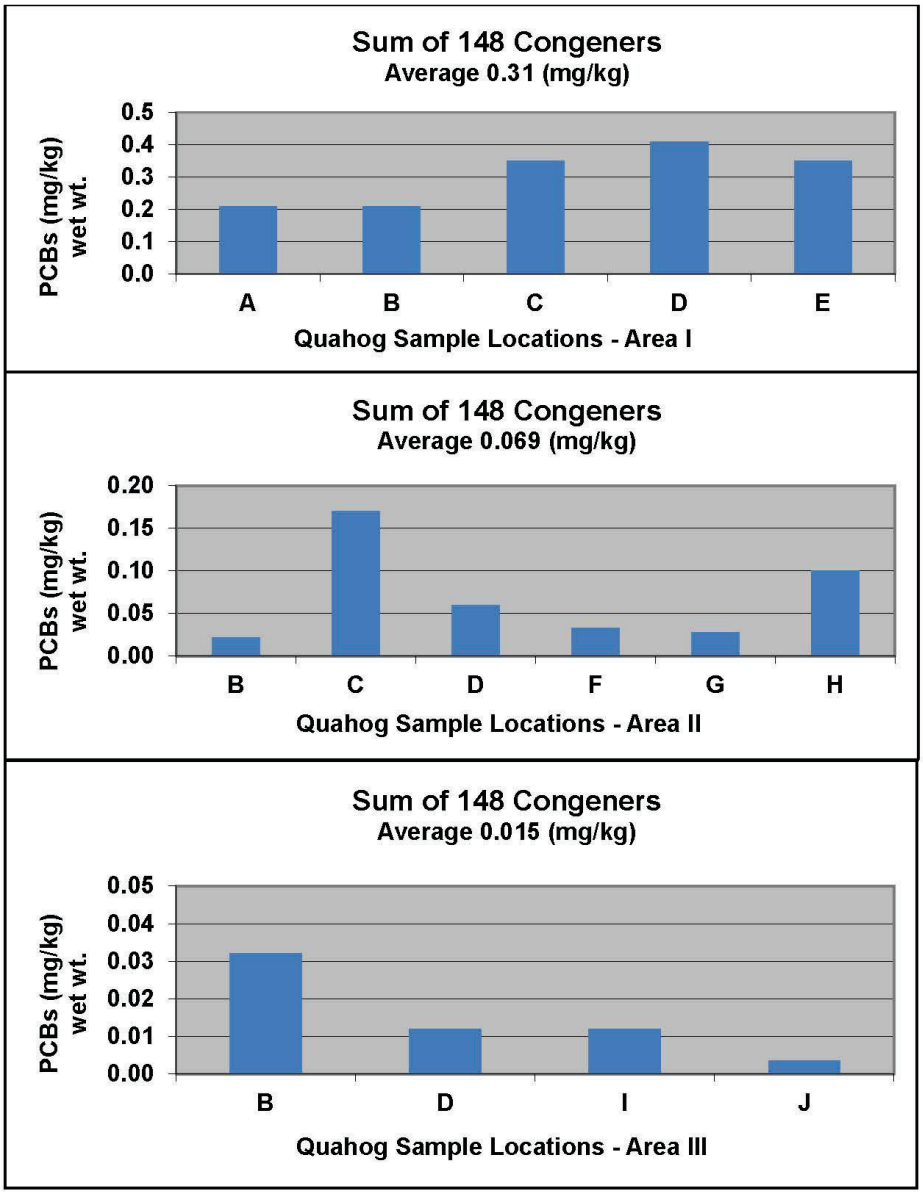
Note: The PCB concentrations shown in this figure are the detected values only.

Figure 14
PCB Concentrations in Conch – Areas II and III – 2024 Data



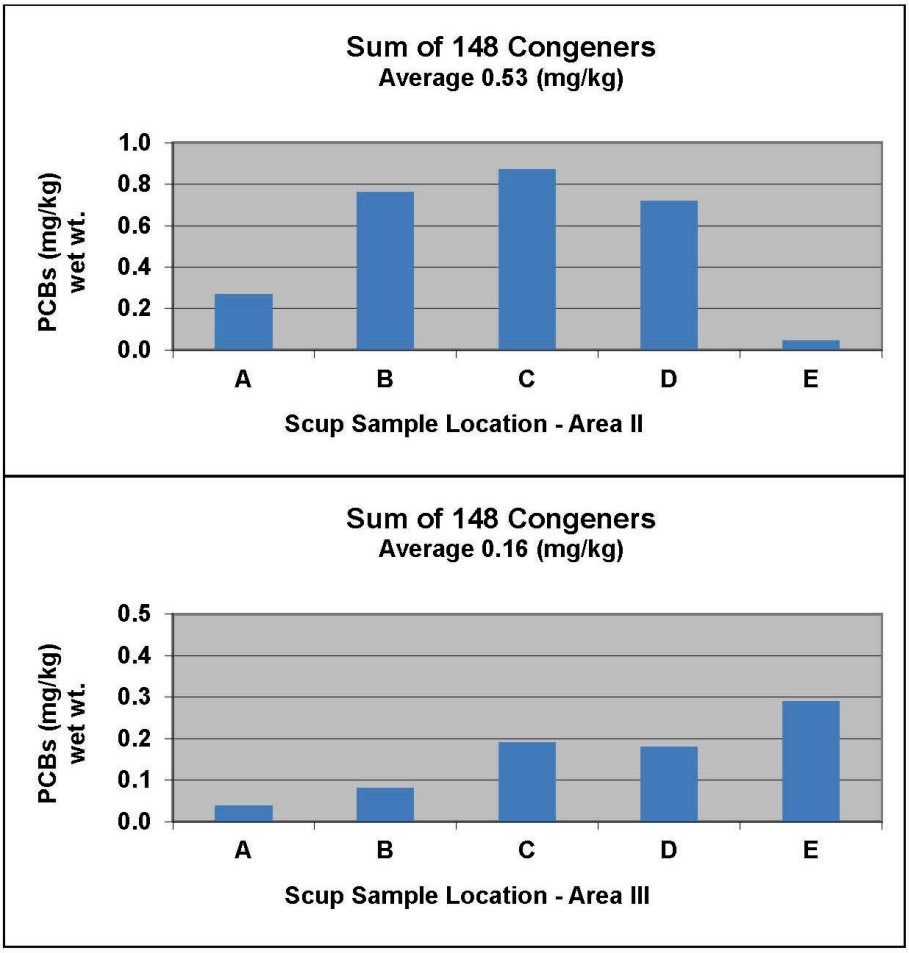
Note: The PCB concentrations shown in this figure are the detected values only.

Figure 15
PCB Concentrations in Quahog (Pre-Spawn) – Areas I, II, and III – 2024 Data



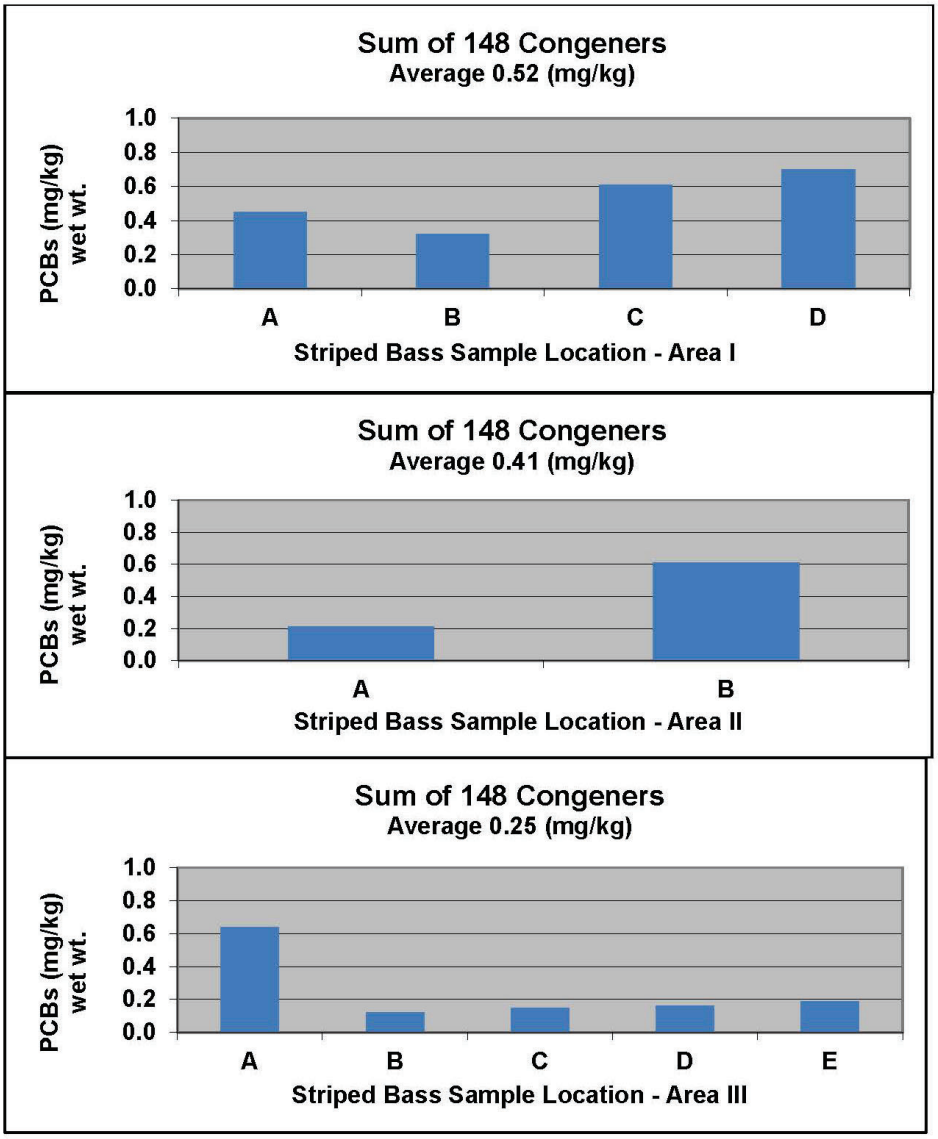
Note: The PCB concentrations shown in this figure are the detected values only.

Figure 16
PCB Concentrations in Scup – Areas II and III – 2024 Data



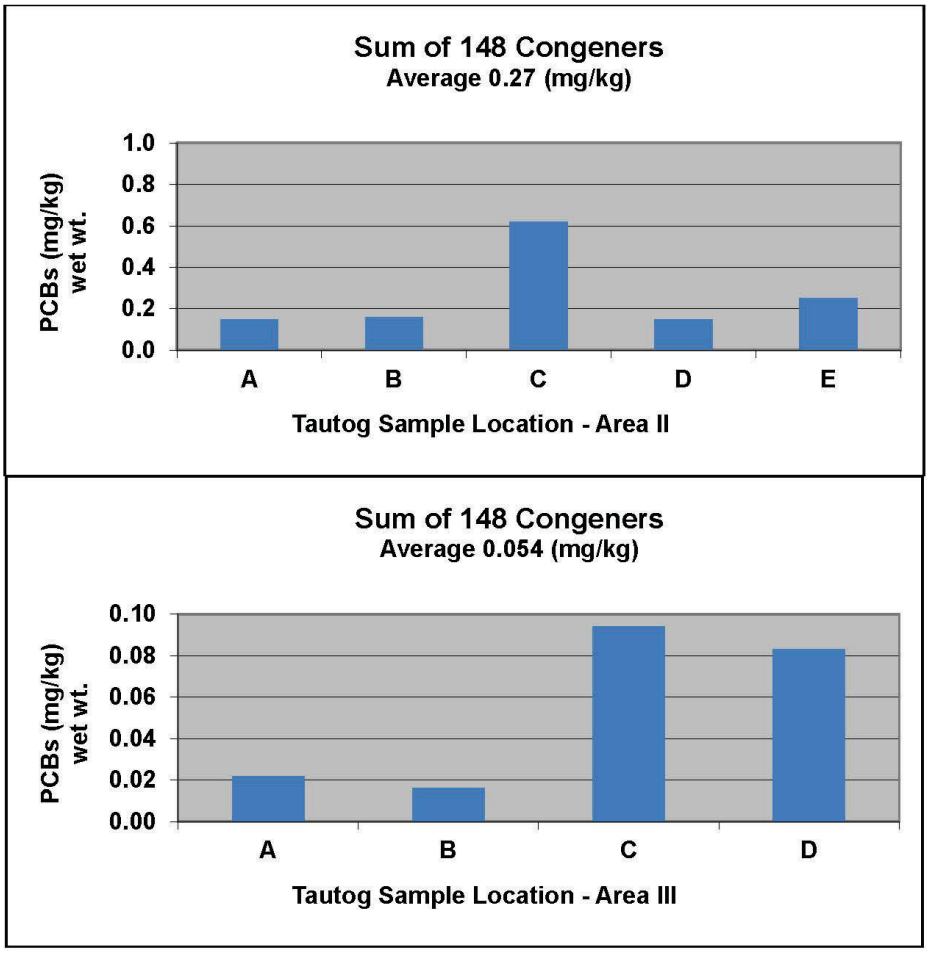
Note: The PCB concentrations shown in this figure are the detected values only.

Figure 17
PCB Concentrations in Striped Bass – Areas I, II, and III – 2024 Data



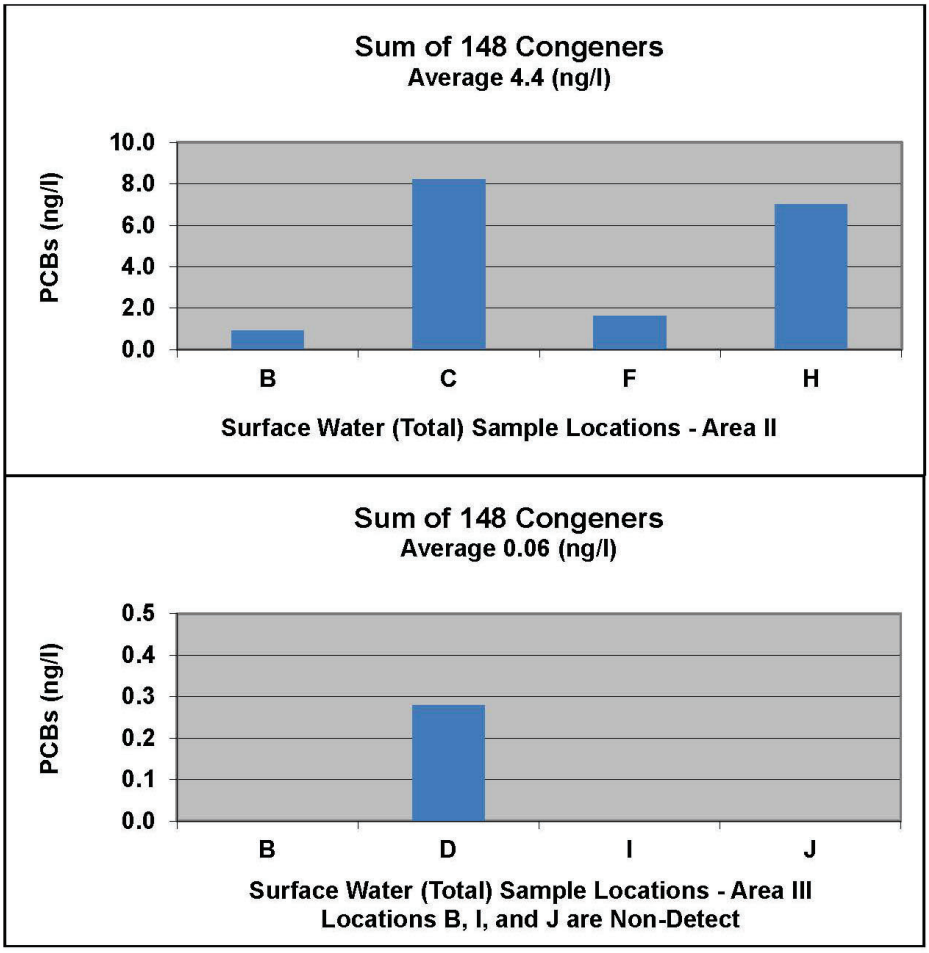
Note: The PCB concentrations shown in this figure are the detected values only.

Figure 18
PCB Concentrations in Tautog – Areas II and III – 2024 Data



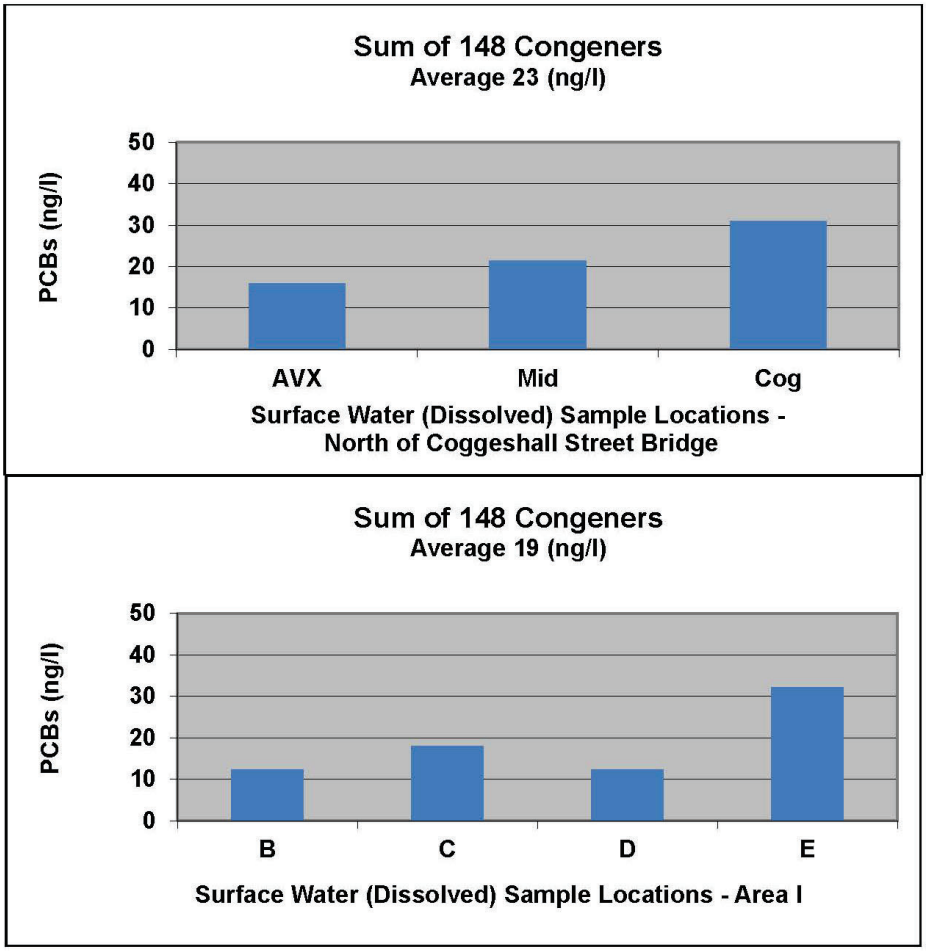
Note: The PCB concentrations shown in this figure are the detected values only.

Figure 19
PCB Concentrations in Surface Water (Total) – North of Coggeshall Street Bridge, Areas I, II, and III – 2024 Data



Note: The PCB concentrations shown in this figure are the detected values only.

Figure 20
PCB Concentrations in Surface Water (Dissolved) – North of Coggeshall Street Bridge, Areas I, II, and III – 2024 Data



Note: The PCB concentrations shown in this figure are the detected values only.

APPENDIX C: PRESS RELEASE

EPA to review cleanups at ten Massachusetts Superfund sites this year

February 12, 2025

Contact Information
Jo Ann Kittrell (Kittrell.Joanne@epa.gov)
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R1 Press Office (R1_Press@epa.gov)

BOSTON (Feb. 12, 2025) – The U.S. Environmental Protection Agency (EPA) will conduct comprehensive reviews of completed cleanup work at ten National Priorities List (NPL) Superfund sites in Massachusetts this year.

Each individual site will undergo a legally required Five-Year Review to ensure that previous remediation efforts continue to protect public health and the environment. Upon completion of the Five-Year Review, the report will be available on each site's individual EPA site profile.

This year, EPA will conduct Five-Year Reviews for the sites listed below. The web links provided include detailed information on the status of each site, previous assessments and cleanup activities.

Five-Year Reviews of Superfund sites in Massachusetts to be completed in 2025:

Atlas Tack Corporation (Fairhaven)
Blackburn and Union (Walpole)
Cannon Engineering Corp. (Bridgewater)
Charles George Reclamation Trust Landfill (Tyngsborough)
Groveland Wells (Groveland)
New Bedford Harbor <https://epa.gov/new-bedford-harbor> (New Bedford)
Norwood PCBs (Norwood)
PSC Resources (Palmer)
Fort Devens (Fort Devens)

2023 Five-Year Review Addendum to be completed in 2025:

Sullivan's Ledge (New Bedford)

A Five-Year Review for Sullivan's Ledge was completed in 2023. EPA is issuing an Addendum to the report in 2025.

More information:

The Superfund program, a federal program established by Congress in 1980, investigates and cleans up the most complex, uncontrolled, or abandoned hazardous waste sites in the country and EPA endeavors to facilitate activities to return them to productive use. In total, there are 123 Superfund sites across New England.

Superfund and other cleanup sites in New England (pdf) <https://epa.gov/system/files/documents/2024-02/urls-ssp-chart-508.pdf> (91.36 KB)

EPA's Superfund program <https://epa.gov/superfund>

Last updated on February 14, 2025

APPENDIX D: INTERVIEW FORMS

NEW BEDFORD HARBOR SUPERFUND SITE FIVE-YEAR REVIEW INTERVIEW FORM	
Site Name: New Bedford Harbor	
EPA ID: MAD980731335	
Interviewer name: Aaron Shaheen	**Interviewer affiliation:** EPA Community Involvement Coordinator
Subject name: Paul Craffey	**Subject affiliation:** MassDEP
Subject contact information: paul.craffey@state.ma.us	
Interview date: 3/15/2025	**Interview time: N/A**
Interview location: N/A	
Interview format (circle one): In Person Phone Mail Email Other:	
Interview category: State Agency	

1. What is your overall impression of the project, including cleanup, maintenance and reuse activities (as appropriate)?

   The project work is remediating the Site. EPA is performing the required site maintenance.

2. What is your assessment of the current performance of the remedy in place at the Site?

   The current remedial performance at the Site is fine.

3. Are you aware of any complaints or inquiries regarding site-related environmental issues or remedial activities from residents in the past five years?

   I do not know of any additional concerns that EPA does not know about.

4. Has your office conducted any site-related activities or communications in the past five years? If so, please describe the purpose and results of these activities.

   MassDEP is the State Lead for the navigational dredging at the Site. The purpose of this dredging is to enhance the remedy by removing additional contaminated sediments. The result of this additional dredging is a reduction of the contamination at the Site.

5. Are you aware of any changes to state laws that might affect the protectiveness of the Site's remedy?

   No.

6. Are you comfortable with the status of the institutional controls at the Site? If not, what are the associated outstanding issues?

   The institutional controls at the Site have not been established yet.

7. Are you aware of any changes in projected land use(s) at the Site?

The Site is mostly underwater. There has been some change to the shoreline properties from mills to residential use over the years.

8. Do you have any comments, suggestions or recommendations regarding the management or operation of the Site's remedy?

   EPA should continue to remediate the Site.

NEW BEDFORD HARBOR SUPERFUND SITE FIVE-YEAR REVIEW INTERVIEW FORM	
Site Name: New Bedford Harbor	
EPA ID: MAD980731335	
Interviewer name: Aaron Shaheen	**Interviewer affiliation:** EPA Community Involvement Coordinator
Subject name: Michele Paul	**Subject affiliation:** City of New Bedford staff
Subject contact information: michele.paul@newbedford-ma.gov; 508-979-1487	
Interview date: 4/11/25	**Interview time:** N/A
Interview location: N/A	
Interview format (circle one): In Person Phone Mail Email Other:	
Interview category: Local Government	

1. Are you aware of the former environmental issues at the Site and the cleanup activities that have taken place to date?

   Yes

2. Do you feel well-informed regarding the Site's activities and remedial progress? If not, how might EPA convey site-related information in the future?

   Yes – we have monthly meetings with the Remedial Project Team. The Team is very responsive to all city questions and requests.

3. Have there been any problems with unusual or unexpected activities at the Site, such as emergency response, vandalism or trespassing?

   None.

4. Are you aware of any changes to state laws or local regulations that might affect the protectiveness of the Site's remedy?

   No.

5. Are you aware of any changes in projected land use(s) at the Site?

No.

6. Has EPA kept involved parties and surrounding neighbors informed of activities at the Site? How can EPA best provide site-related information in the future?

   To my knowledge, absolutely. There are periodic status meetings which have been in person and virtual. I believe that the communication with the public and neighbors has been robust.

7. Do you have any comments, suggestions or recommendations regarding the project?

   We will miss our EPA Remedial Team as the project winds down, but we are very happy to be getting to the finish line!

NEW BEDFORD HARBOR SUPERFUND SITE FIVE-YEAR REVIEW INTERVIEW FORM	
Site Name: New Bedford Harbor	
EPA ID: MAD980731335	
Interviewer name: Aaron Shaheen	**Interviewer affiliation:** U.S. EPA Community Involvement Coordinator
Subject name: Corinn Williams	**Subject affiliation:** Community Economic Development Center
Subject contact information: corinn@cedcnewbedford.org	
Interview date: 5/21/2025	**Interview time:** 12:30PM
Interview location: 235 N Front St, New Bedford, MA	
Interview format (circle one): In Person Phone Mail Email Other:	
Interview category: Resident/NGO	

1. Are you aware of the historic environmental issues at the Site and the cleanup activities that have taken place to date?

   Yes.

2. What is your overall impression of the project, including cleanup, maintenance and reuse activities (as appropriate)?

   CEDC feels it is important the parcel is brought back to reuse for the community. They are glad the project is at the end of the road and hopes for a positive community impact.

3. What have been the effects of this Site on the surrounding community, if any?

   The community is looking forward to the completion of the remediation.

4. Have there been any problems with unusual or unexpected activities at the Site, such as emergency response, vandalism or trespassing?

   No.

5. Has EPA kept involved parties and surrounding neighbors informed of activities at the Site? How can EPA best provide site-related information in the future?

   Continue to do outreach in multiple languages. Utilized social media, smaller posts, and public radio.

6. Do you have any comments, suggestions or recommendations regarding any aspects of the project?

   CEDC feels the cleanup and seafood surveys are an important initiative for the community and they are glad to be a part of it.

NEW BEDFORD HARBOR SUPERFUND SITE FIVE-YEAR REVIEW INTERVIEW FORM	
Site Name: New Bedford Harbor	
EPA ID: MAD980731335	
Interviewer name: Aaron Shaheen	**Interviewer affiliation:** EPA Community Involvement Coordinator
Subject name: Mark Rasmussen	**Subject affiliation:** Buzzards Bay Coalition
Subject contact information: rasmussen@savebuzzardsbay.org	
Interview date: 5/5/2025	**Interview time:** N/A
Interview location: N/A	
Interview format (circle one): In Person Phone Mail Email Other:	
Interview category: Resident/NGO	

1. Are you aware of the former environmental issues at the Site and the cleanup activities that have taken place to date?

   The wording of this question, "former environmental issues" presumes that there are no longer environmental PCB issues. The Buzzards Bay Coalition is aware of the on-going environmental issues at the Site and the cleanup activities that have taken place to date. This site will not be completed until the public's right to fish and swim in the Harbor are restored. These rights were taken from this community by the Responsible Party and have yet to be adequately restored by EPA. We are not aware of any data that indicates that seafood from Inner New Bedford Harbor meets both FDA and site-specific levels determined by EPA and as required by the Record of Decision. In fact, EPA prohibits consumption of fish or shellfish of any kind north of the hurricane barrier as discussed in EPA's April 2024 Update on Fish/Shellfish PCB Testing. Therefore, on-going PCB issues exist at the Site.

These conditions remain due to the fact that the EPA is not removing PCBs to the standards required to meet safe levels for human consumption as set by the FDA. Instead of dredging sediment to a concentration of 1ppm, a concentration that would have met FDA standards within 10 years, the EPA established less stringent standards including 50 ppm for sediments in the Lower Harbor and salt marshes; 25ppm for sediments in certain shoreline areas used for beach combing; 10 ppm for the Upper Harbor sediments, and 1ppm only in areas where homes abut the Harbor or otherwise where human contact with sediment is expected.

2. What is your overall impression of the project, including cleanup, maintenance and reuse activities (as appropriate)?

The cleanup levels and methodology fall far short of providing fishable waters to the community.

a. <u>The Cleanup Levels are Inadequate.</u>

As stated above, the 1998 Record of Decision ("ROD") stated that, "[f]or seafood to meet both the FDA and site specific levels at the end of 10 years, EPA believes that a TCL [standard] for sediment dredging of 1 ppm would be necessary."[11] EPA has yet to provide an estimated time for a cleanup sufficient to allow for the safe consumption of fish from the Inner Harbor.

b. <u>Questionable Use of CAD Cells for Disposal</u>

In an effort to cut costs and expedite the cleanup timeframe, the EPA sought alternative disposal options for PCB contaminated material. In March 2011, EPA proposed that, in lieu of disposing of sediment off-site as previously planned, it would place 300,000 cy of contaminated sediment in a CAD cell to be dug in the bottom of the Lower Harbor. This new plan called for excavating a 47-foot pit deep into the Harbor floor; mechanically dredging contaminated sediment; de-watering it in the open air; then dumping it into the cell and covering it with a layer of sand. The long-term stability and safety of these 'left behind' PCBs remains uncertain.

3. What have been the effects of this Site on the surrounding community, if any?

The overall reduction in volume and concentration of PCBs due to EPA cleanup operations has reduced the background ambient concentrations of PCBs in the surrounding community. This is clearly a positive result and the Coalition supports all efforts to adequately remove and fund a full PCB cleanup as quickly as possible. However, the multi-generational timeframe this cleanup continues to take has had adverse impacts. First and foremost, so long as the Harbor continues to be contaminated with PCBs above a concentration of 1 ppm, consumption of fish continues to be a health risk. To date, under the current cleanup standards, the EPA has yet to provide the community with a timeframe where the Harbor will be fishable.

4. Have there been any problems with unusual or unexpected activities at the Site, such as emergency response, vandalism or trespassing?

A persistent challenge facing the site is that of subsistence fishing. While it is true that EPA has posted no fishing signs in various locations around the Harbor, subsistence fishing still takes place. Consumption of fish containing PCBs provides the most significant health risk to the community.

5. Has EPA kept involved parties and surrounding neighbors informed of activities at the Site? How can EPA best provide site-related information in the future?

   The EPA does provide suitable outreach to provide information to the community regarding the activities at the site. Too often, however, these communications are focused on touting the success of EPA's dredging operations and do not discuss the contamination that EPA is leaving behind and the severe limitation such contamination will continue to have on the community. In order to improve on outreach, EPA may consider holding more frequent public meetings, provide stakeholders with links to updated information on the website, or provide social media updates.

6. Do you have any comments, suggestions or recommendations regarding any aspects of the project?

   The level of cleanup established by the ROD significantly restricts the future reuse of the Harbor. The Coalition and its members have long advocated that the clean-up levels established 27 years ago, which are as high as 50 ppm, will prove to be insufficient to reduce PCB concentrations to a level that permits fishing in the Harbor. As stated above, the ROD itself found that, "[f]or seafood to meet both the FDA and site specific levels at the end of 10 years, EPA believes that a TCL [standard] for sediment dredging of 1 ppm would be necessary." Without an improved cleanup, the community surrounding the harbor will never be able to avail itself of all their rights and benefits.

[1] Record of Decision for the Upper and Lower Harbor Operable Unit New Bedford Harbor Superfund Site New Bedford, Massachusetts, September 1998 ("1998 ROD") at 35.

APPENDIX E: EPA RISK ASSESSMENT TECHNICAL MEMORANDUM

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Region 1

5 Post Office Square, Suite 100

BOSTON, MA 02109-3912

TECHNICAL MEMORANDUM

To: Christopher Kelly

From: Courtney Carroll

Date: June 11, 2025

RE: PCB concentrations in fish/shellfish collected near the New Bedford Harbor Superfund Site in New Bedford, MA and human health risks for recreational fishers

Background:

The purpose of this technical memorandum is to assess polychlorinated biphenyl (PCB) concentrations in fish and shellfish collected near the New Bedford Harbor (NBH) Superfund Site, located in New Bedford, MA, and to evaluate the potential human health risks due to ingestion by recreational fishers. A seafood monitoring program has been an ongoing part of the PCB cleanup program for the NBH Site to aid in the evaluation of the overall effectiveness of the harbor cleanup, as well as assist in the implementation of institutional controls and seafood recommendations. The data for PCB concentrations in fish collected by Massachusetts Department of Marine Fisheries (DMF) and analyzed for PCB congeners by Massachusetts Department of Environmental Protection (MassDEP) were obtained from report tables maintained by the state agencies which contain all available fish tissue data from 2003 to 2024. This evaluation uses fish tissue data collected between 2013 and 2024 to have sufficient data for risk calculations and reflect more recent Site conditions.

Due to PCB contamination in NBH, currently there is a Commonwealth of Massachusetts regulation prohibiting the taking and/or selling of certain fish species in certain areas of NBH. The regulation identified three Fishing Closure Areas (1, 2 and 3) in NBH and surrounding Buzzards Bay (**Figure 1**). Additionally, starting in 2009 and 2010, EPA Region 1 published fish consumption recommendations for Recreational Fishermen/Shell fishermen (and/or their families/friends who consume their take) with respect to the three Closure Areas. Institutional controls in the form of seafood consumption advisories are necessary since it could take many years before PCB levels in seafood reach safe levels for consumption. Since they were first published the seafood recommendations have been evaluated periodically and updated as appropriate according to available data. The latest recommendations can be found at https://www.epa.gov/new-bedford-harbor/fish-consumption-regulations-and-recommendations#FactSheetsPublicDocs. This memorandum will evaluate whether these recommendations remain protective or whether further updates are appropriate.

Methodology:

Fish species that have been collected as part of the seafood monitoring program from NBH and surrounding areas include the following: alewife, eel, flounder, black sea bass, blue crab, bluefish, conch, lobster, quahog, scup, striped bass and tautog. Tables 1 and 2 below are provided for reference and define the terms and formulas used for the human health risk calculations. Data for total PCB congeners, including non-detect results, were used to calculate the Exposure Point Concentrations (EPCs) for those species which had sufficient data to calculate a 95% Upper Confidence Limit (UCL) of the arithmetic mean. These included: black sea bass (Area 2, Area 3), bluefish (Area 2, Area 3), conch (Area 2, Area 3), lobster (Area 2, Area 3), quahog (Area 2, Clark's Cove, Area 3), scup (Area 2, Area 3), striped bass (Area 2, Area 3), and tautog (Area 2, Area 3). UCLs were calculated by using EPA's ProUCL Version 5.2 software (UCL calculations provided by Jacobs). The software selects the most statistically appropriate UCL type based on the sample size and distribution of the data. The EPCs are summarized below in Table 3.

Table 1. Definitions

Acronym	Definition	Units
IR	Ingestion Rate	kg/meal
FI	Fraction ingested	unitless
EF	Exposure Frequency	meals/year
ED	Exposure Duration	years
BW	Body Weight	kg
AT- C	Averaging Time - cancer	days
AT- NC	Averaging Time - non-cancer	days
CF	Concentration in Fish	mg/kg
ADD	Average Daily Dose	mg/kg/day
LADD	Lifetime Average Daily Dose	mg/kg/day
RfD	Reference Dose	mg/kg/day
SF	Oral Slope Factor	per mg/kg/day
HQ	Hazard Quotient	unitless
ELCR	Elevated Lifetime Cancer Risk	unitless
RME	Reasonable Maximum Exposure (4 meals/month)	

CTE	Central Tendency Exposure (1 meal/month)	
EPC	Exposure Point Concentration	mg/kg
UCL	Upper Confidence Limit	

Table 2. Formulas

Term	Formula
ADD	CF*IR*FI*ED*EF*1/BW*1/AT-nc
LADD	CF*IR*FI*ED*EF*1/BW*1/AT-c
HQ	ADD/RfD
ELCR	LADD*SF

Table 3. Seafood Exposure Point Concentrations - New Bedford Harbor

Seafood Type	Area 2	Area 3	Clark's Cove
Black sea bass	0.407	0.117	NA
Bluefish	4.599	0.476	NA
Conch	0.55	0.17	NA
Quahog	0.135	0.0441	0.0586
Lobster meat	0.145	0.0629	NA
Lobster tomalley	15.53	6.333	NA
Scup	0.592	0.328	NA
Striped bass	1.838	0.652	NA
Tautog	0.548	0.0969	NA

1. EPCs calculated for total PCB congeners using ProUCL Version 5.2
2. Units are in mg/kg
3. NA = not applicable
4. NC = not calculated due to insufficient data

Risk calculations for seafood consumption were performed for Areas 2 and 3, and for Clark's Cove for quahog. Area 1 was not further evaluated because the existing advisory is to not eat any seafood from Area 1, and the available data indicate that PCB concentrations in seafood from this area remain above acceptable risk levels for all receptors. Due to challenges related to collecting samples of each marine species, eel and flounder have not been collected in the last 10+ years and therefore were not included in this evaluation. Additionally, due to challenges related to collecting samples of each marine species, alewife and blue crab tissue samples were only collected from Area 1, therefore risk calculations could not be performed for Areas 2 and 3 for these species.

The methodology used to calculate the health risks of PCB concentrations in fish in this memorandum is the same methodology that was used for the Remedial Investigation for OU3 of the New Bedford Harbor Superfund Site (Woods Hole Group, 2017). Cancer and non-cancer risks were calculated for adult, older child, and young child receptors. Elevated Lifetime Cancer Risks (ELCR) are quantified as a probability (e.g. 1 in 1 million, or 1E-06) of getting cancer over a lifetime due to exposure related to the Site. An ELCR of 1E-04 (1 in 10,000) is the upper EPA cancer risk limit at Superfund sites. Non-cancer risk is quantified as a Hazard Quotient (HQ) which is the ratio of the exposure dose divided by the oral non-cancer toxicity value, known as the oral Reference Dose (RfD). An HQ greater than one indicates a potential adverse risk of non-cancer effects and is the EPA upper limit for non-cancer risk at Superfund sites.

The exposure and toxicity assumptions used in the risk calculations are presented in Table 4 below. The fraction ingested (FI) was conservatively assumed to be 1, meaning that 100% of the total seafood consumption of the specified seafood species was assumed to be from the specified area of New Bedford Harbor. The Exposure Frequency (EF) was assumed to be either 12 events per year (i.e. once per month) or 52 events/year (once per week, or about 4 times per month), as was assumed in the OU3 Remedial Investigation. The EF of 12 events/year was designated as the Central Tendency Exposure (CTE), and the EF of 52 events/year was designated as the Reasonable Maximum Exposure (RME). The exposure duration (ED) was assumed to be 55 years for the adult (age 16 to 70 years), 10 years for the older child (age 6 to 15 years), and 5 years for the young child (age 1-6 years). Body weight (BW) was assumed to be 80 kg for the adult, 40 kg for the older child, and 15 kg for the young child. The averaging time for cancer risk was 25,550 days (70 years x 365 days/year) for each receptor. The averaging time for non-cancer risk was 20,075 days (55 years x 365 days/year) for the adult, 3,650 days (10 years x 365 days/year) for the older child, and 1,825 days (5 years x 365 days/year) for the young child. Meal size was assumed to be 0.227 kg for the adult and older child, and half of that (0.114 kg) for the young child, which are the assumptions that were used in the OU3 Remedial Investigation. The larger meal size was designated as the CTE and RME for the adult and the older child. The smaller meal size was designated as the CTE and RME for the young child.

The toxicity factors for total PCBs were those for "high-risk" PCBs as designated in EPA's Integrated Risk Information System (IRIS). These toxicity factors are the same as those recommended for Aroclor 1254. The oral cancer slope factor (SF) was 2.0 per mg/kg/day. The oral Reference Dose (RfD) was 2.0×10^{-5} mg/kg/day for chronic exposure adults and older

child) and 5.0 x 10^{-5} mg/kg/day for sub-chronic exposure (young child). These values are current as of 2025.

Table 4. Exposure and Toxicity Assumptions

Receptor	Exp.	IR	FI	EF	ED	BW	AT-C	AT-NC	RfD	SF
Adult	CTE	0.227	1	12	55	80	25,550	20,075	2.0E-05	2.0E+00
	RME	0.227	1	52	55	80	25,550	20,075	2.0E-05	2.0E+00
Older Child	CTE	0.227	1	12	10	40	25,550	3,650	2.0E-05	2.0E+00
	RME	0.227	1	52	10	40	25,550	3,650	2.0E-05	2.0E+00
Young Child	CTE	0.114	1	12	5	15	25,550	1,825	2.0E-05	2.0E+00
	RME	0.114	1	52	5	15	25,550	1,825	5.0E-05	2.0E+00

Results:

Available data indicate that PCB tissue levels in sampled species continue to be above the site-specific goal of 0.02 ppm for PCB concentrations in seafood. Human health risk results for seafood consumption are presented in Tables 5 through 13 below. Based on uncertainty inherent in the risk assessment process, HQ and ELCR values should be rounded to the nearest whole number. For example, HQ values of 1.2 should be rounded to 1, and an HQ of 1.6 would be rounded to 2. Values highlighted in green are within EPA human health risk criteria while those in red exceed the risk criteria.

Table 5. Young Child Risk Summary – Area 2

Young Child Risk Summary Area 2					
Seafood type	**EPC (mg/kg)**	**HQ CTE**	**HQ RME**	**ELCR CTE**	**ELCR RME**
Black sea bass	0.407	5	9	1E-05	6E-05
Bluefish	4.599	57	100	2E-04	7E-04
Conch	0.550	7	12	2.0E-05	9E-05
Lobster meat	0.145	2	3	5E-06	2E-05
Lobster tomalley	15.53	194	336	6E-04	2E-03
Quahog	0.135	2	3	5E-06	2E-05
Scup	0.592	7	13	2E-05	9E-05
Striped Bass	1.838	23	40	7E-05	3E-04
Tautog	0.548	7	12	2E-05	8E-05

1. EPC is based on the 95% UCL for total PCB congeners
2. NC = not calculated due to insufficient data

Table 6. Young Child Risk Summary – Area 3

Young Child Risk Summary Area 3					
Seafood type	**EPC (mg/kg)**	**HQ CTE**	**HQ RME**	**ELCR CTE**	**ELCR RME**
Black sea bass	0.117	1	3	4E-06	2E-05
Bluefish	0.476	6	10	2E-05	7E-05
Conch	0.17	2	4	6E-06	3E-05
Lobster meat	0.0629	0.8	1	2E-06	1E-05
Lobster tomalley	6.333	79	137	2E-04	1E-03
Quahog	0.0441	0.6	1	2E-06	7E-06
Scup	0.328	4	7	1E-05	5E-05
Striped Bass	0.652	8	14	2E-05	1E-04
Tautog	0.0969	1	2	3E-06	1E-05

1. EPC is based on the 95% UCL for total PCB congeners

Table 7. Young Child Risk Summary – Clark's Cove

Young Child Risk Summary Clark's Cove					
Seafood type	**EPC (mg/kg)**	**HQ CTE**	**HQ RME**	**ELCR CTE**	**ELCR RME**
Quahog	0.0969	0.7	1	2E-06	9E-06

1. EPC is based on the 95% UCL for total PCB congeners

Table 8. Older Child Risk Summary – Area 2

Older Child Risk Summary Area 2					
Seafood type	**EPC (mg/kg)**	**HQ CTE**	**HQ RME**	**ELCR CTE**	**ELCR RME**
Black sea bass	0.407	4	16	2E-05	9E-05
Bluefish	4.599	43	186	2E-04	1E-03
Conch	0.550	5	22	3E-05	1E-04
Lobster meat	0.145	1	6	8E-06	3E-05
Lobster tomalley	15.53	145	628	8E-04	4E-03
Quahog	0.135	1	5	7E-06	3E-05
Scup	0.592	6	24	3E-05	1E-04
Striped Bass	1.838	17	74	1E-04	4E-04
Tautog	0.548	5	22	3E-05	1E-04

1. EPC is based on the 95% UCL for total PCB congeners
2. NC = not calculated due to insufficient data

Table 9. Older Child Risk Summary – Area 3

Older Child Risk Summary Area 3					
Seafood type	**EPC (mg/kg)**	**HQ CTE**	**HQ RME**	**ELCR CTE**	**ELCR RME**
Black sea bass	0.117	1	5	6E-06	3E-05
Bluefish	0.476	4	19	3E-05	1E-04
Conch	0.17	2	7	9E-06	4E-05
Lobster meat	0.0629	0.6	3	3E-06	1E-05
Lobster tomalley	6.333	59	256	3E-04	1E-03
Quahog	0.0441	0.4	2	2E-06	1E-05
Scup	0.328	3	13	2E-05	8E-05
Striped Bass	0.652	6	26	3E-05	2E-04
Tautog	0.0969	1	4	5E-06	2E-05

1. EPC is based on the 95% UCL for total PCB congeners

Table 10. Older Child Risk Summary – Clark's Cove

Older Child Risk Summary Clark's Cove					
Seafood type	**EPC (mg/kg)**	**HQ CTE**	**HQ RME**	**ELCR CTE**	**ELCR RME**
Quahog	0.0969	0.5	2	3E-06	1E-05

1. EPC is based on the 95% UCL for total PCB congeners

Table 11. Adult Risk Summary – Area 2

Adult Risk Summary Area 2					
Seafood type	**EPC (mg/kg)**	**HQ CTE**	**HQ RME**	**ELCR CTE**	**ELCR RME**
Black sea bass	0.407	2	8	6E-05	3E-04
Bluefish	4.599	21	93	7E-04	3E-03
Conch	0.550	3	13	9E-05	4E-04
Lobster meat	0.145	1	3	2E-05	9E-05
Lobster tomalley	15.53	72	314	2E-03	1E-02
Quahog	0.135	1	3	2E-05	9E-05
Scup	0.592	3	12	9E-05	4E-04
Striped Bass	1.838	9	37	3E-04	1E-03
Tautog	0.548	7	12	2E-05	8E-05

1. EPC is based on the 95% UCL for total PCB congeners
2. NC = not calculated due to insufficient data

Table 12. Adult Risk Summary – Area 3

Adult Risk Summary Area 3					
Seafood type	**EPC (mg/kg)**	**HQ CTE**	**HQ RME**	**ELCR CTE**	**ELCR RME**
Black sea bass	0.117	1	2	2E-05	7E-05
Bluefish	0.476	2	10	7E-05	3E-04
Conch	0.17	1	3	2E-05	1E-04
Lobster meat	0.0629	0.3	1	9E-06	4E-05
Lobster tomalley	6.333	30	128	9E-04	4E-03
Quahog	0.0441	0.2	1	6E-06	3E-05
Scup	0.328	2	7	5E-05	2E-04
Striped Bass	0.652	3	13	1E-04	4E-04
Tautog	0.0969	0.5	2	1E-05	6E-05

1. EPC is based on the 95% UCL for total PCB congeners

Table 13. Adult Risk Summary – Clark's Cove

Adult Risk Summary Clark's Cove					
Seafood type	**EPC (mg/kg)**	**HQ CTE**	**HQ RME**	**ELCR CTE**	**ELCR RME**
Quahog	0.0969	0.3	1	9E-06	4E-05

1. EPC is based on the 95% UCL for total PCB congeners

Discussion:

The EPA seafood consumption recommendations categorize receptors as either "sensitive receptors" or "other" receptors. Sensitive receptors include pregnant women, nursing mothers, children under age 12, and women who may become pregnant. Since both the young child receptor (age 1-6 years) and older child receptor (age 6-15 years) include ages below 12 years, both types of child receptors are considered "sensitive" receptors for comparison of risks with advisories. The "other" receptor advisory category therefore includes adults but not children.

Tables 14 through 19 below compare the current seafood recommendations for adult receptors and sensitive receptors with the latest risk results to determine if changes in the recommendations may be appropriate. Rows that are highlighted indicate a potential change in the recommendations based on the latest risk calculations. These changes will be reviewed along with other Site information to make final determinations on updates to the seafood recommendations. It is noted that there continues to be uncertainty for migratory species such as Striped Bass and to what extent PCB load is derived from the PCBs in NBH or from other PCB sources.

Table 14. Adult Receptors Area 2

Seafood Type	Current Advisory	Risk for RME (1 meal per week)	Risk for CTE (1 meal per month)	Recommended Changes	Rationale
Black Sea Bass	Do not consume	Yes	Yes	No change	Unacceptable risk for RME and CTE
Eel	Do not consume	n/a	n/a	No change	No new data
Flounder	Do not consume	n/a	n/a	No change	No new data
Scup	Do not consume	Yes	Yes	No change	Unacceptable risk for RME and CTE
Tautog	Do not consume	Yes	Yes	No change	Unacceptable risk for RME and CTE
Striped Bass	Do not consume	Yes	Yes	No change	Unacceptable risk for RME and CTE
Bluefish	Do not consume	Yes	Yes	No change	Unacceptable risk for RME and CTE
Lobster (meat or tomalley)	Do not consume	Yes	Yes	No change	Unacceptable risk for tomalley for

					RME and CTE
Quahog (not Clark's Cove)	Acceptable to consume once per month	Yes	No	No change	Acceptable risk for adult consuming 1 meal per month; unacceptable risk for RME
Conch	Do not consume	Yes	Yes	No change	Unacceptable risk for RME and CTE

Table 15. Adult Receptors Area 3

Seafood Type	**Current Advisory**	**Risk for RME (1 meal per week)**	**Risk for CTE (1 meal per month)**	**Recommended Changes**	**Rationale**
Black Sea Bass	Acceptable to consume once per month	Yes	No	No change	Acceptable risk for adult consuming 1 meal per month; unacceptable risk for RME
Eel	EPA does not have a recommendation	n/a	n/a	No change	No new data
Flounder	EPA does not have a recommendation	n/a	n/a	No change	No new data
Scup	Acceptable to consume once per month	Yes	Yes	Do not consume	Unacceptable risk for RME and CTE
Tautog	Acceptable to consume once per week	Yes	No	Acceptable to consume once per month	Acceptable risk for adult consuming 1

					meal per month; unacceptable risk for RME
Striped Bass	Do not consume	Yes	Yes	No change	Unacceptable risk for RME and CTE
Bluefish	Do not consume	Yes	Yes	No change	Unacceptable risk for RME and CTE
Lobster (meat or tomalley)	Do not consume	Yes	Yes	No change	Unacceptable risk for tomalley for RME and CTE
Quahog	Acceptable to consume once per week	No	No	No change	Acceptable risk for adult consuming 4 meals per month

Table 16. Adult Receptors Clark's Cove

Seafood Type	Current Advisory	Risk for RME (1 meal per week)	Risk for CTE (1 meal per month)	Recommended Changes	Rationale
Quahog	Acceptable to consume once per week	No	No	No change	Acceptable risk for adult consuming 4 meals per month

Table 17. Sensitive Receptors Area 2

Seafood Type	Current Advisory	Risk for RME (1 meal per week)	Risk for CTE (1 meal per month)	Recommended Changes	Rationale
Black Sea Bass	Do not consume	Yes	Yes	No change	Unacceptable risk for RME and CTE
Eel	Do not consume	n/a	n/a	No change	No new data
Flounder	Do not consume	n/a	n/a	No change	No new data
Scup	Do not consume	Yes	Yes	No change	Unacceptable risk for RME and CTE
Tautog	Do not consume	Yes	Yes	No change	Unacceptable risk for RME and CTE
Striped Bass	Do not consume	Yes	Yes	No change	Unacceptable risk for RME and CTE
Bluefish	Do not consume	Yes	Yes	No change	Unacceptable risk for RME and CTE
Lobster (meat or tomalley)	Do not consume	Yes	Yes	No change	Unacceptable risk for tomalley for RME and CTE
Quahog	Do not consume	Yes	Yes	No change	Unacceptable risk for RME and CTE
Conch	Do not consume	Yes	Yes	No change	Unacceptable risk for RME and CTE

Table 18. Sensitive Receptors Area 3

Seafood Type	Current Advisory	Risk for RME (1 meal per week)	Risk for CTE (1 meal per month)	Recommended Changes	Rationale
Black Sea Bass	Do not consume	Yes	No	Can be consumed once per month	Acceptable risk to consume 1 meal per month; unacceptable risk for RME
Eel	EPA does not have a recommendation	n/a	n/a	No change	No new data
Flounder	EPA does not have a recommendation	n/a	n/a	No change	No new data
Scup	Do not consume	Yes	Yes	No change	Unacceptable risk for RME and CTE
Tautog	Do not consume	Yes	No	Can be consumed once per month	Acceptable risk to consume 1 meal per month; unacceptable risk for RME
Striped Bass	Do not consume	Yes	Yes	No change	Unacceptable risk for RME and CTE
Bluefish	Do not consume	Yes	Yes	No change	Unacceptable risk for RME and CTE
Lobster (meat or tomalley)	Do not consume	Yes	Yes	No change	Unacceptable risk for tomalley for

					RME and CTE
Quahog	Acceptable to consume once per week	Yes	No	Can be consumed once per month	Acceptable risk to consume 1 meal per month; unacceptable risk for RME
Conch	Acceptable to consume once per month	Yes	Yes	Do not consume	Unacceptable risk for RME and CTE

Table 19. Sensitive Receptors Clark's Cove

Seafood Type	Current Advisory	Risk for RME (1 meal per week)	Risk for CTE (1 meal per month)	Recommended Changes	Rationale
Quahog	Area 2 – do not consume any fish/shellfish	Yes	No	No change	Risk acceptable for consuming 1 meal per month, however, current recommendation is to avoid all fish/shellfish in Area 2 for sensitive receptors

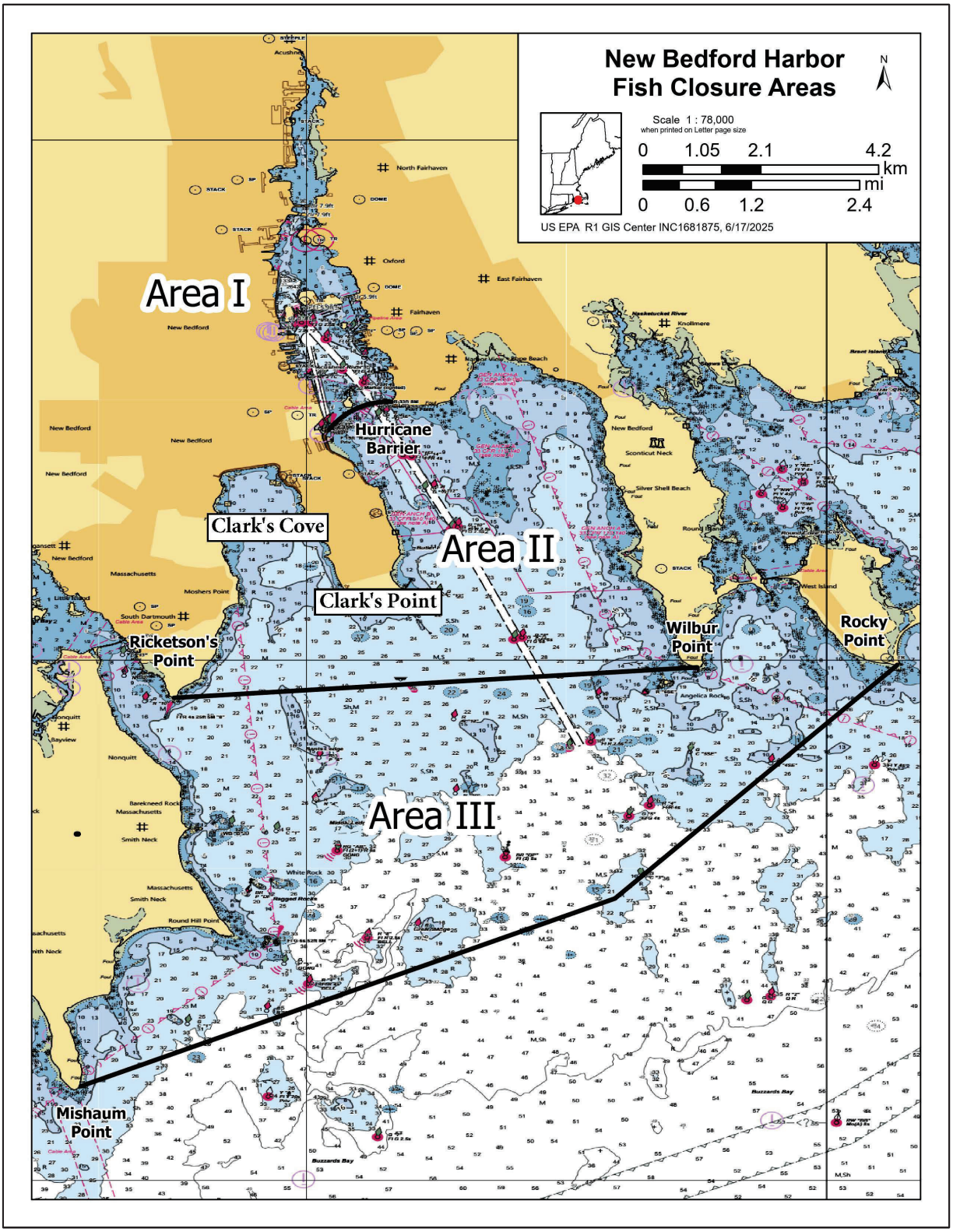
References

Massachusetts Department of Environmental Protection (MassDEP). 2025. PCB Concentration Trends Report for Seafood Sampled between 2003 to 2024 from New Bedford Harbor Superfund Site by Massachusetts Department of Environmental Protection. April 2025.

Woods Hole Group. 2017. Remedial Investigation Operable Unit 3 New Bedford Harbor Superfund Site. June.

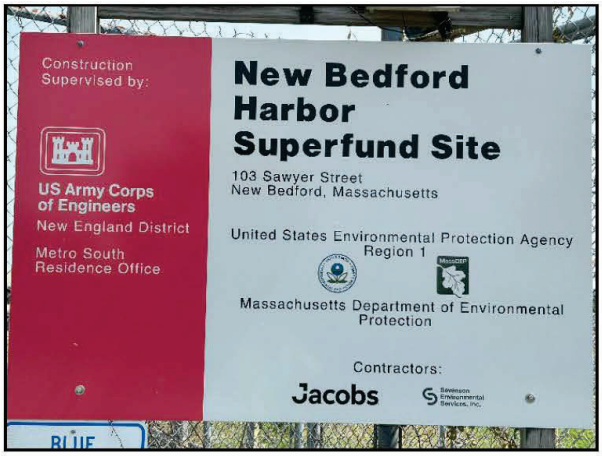
Figure 1

Three New Bedford Harbor Fishing Closure Areas Map



APPENDIX F: SITE INSPECTION PHOTOS

PHOTODOCUMENTATION LOG
NEW BEDFORD HARBOR SUPERFUND SITE
FIVE-YEAR REVIEW SITE VISIT – JUNE 23, 2025
NEW BEDFORD, MASSACHUSETTS



SCENE: Signage posted at the entrance of the Sawyer Street Facility.

SCENE: Seafood consumption advisory signage posted at East Zone 1 in the Town of Acushnet.

SCENE: Seafood consumption advisory signage posted at West Zone 2/3 in the City of New Bedford.

SCENE: Seafood consumption advisory signage posted at the Hurricane Barrier in the City of New Bedford.

SCENE: Saltmarsh restoration area – North of Wood Street, Town of Acushnet.

SCENE: Saltmarsh restoration area – East Zone 1, Town of Acushnet.

PHOTODOCUMENTATION LOG
NEW BEDFORD HARBOR SUPERFUND SITE
FIVE-YEAR REVIEW SITE VISIT – JUNE 23, 2025
NEW BEDFORD, MASSACHUSETTS

SCENE: Saltmarsh restoration area – West Zone 1, City of New Bedford.

SCENE: Saltmarsh restoration area – West Zone 2/3, City of New Bedford.

SCENE: Armor stone covering the "Crib Cap" sediment cap, City of New Bedford.

SCENE: Saltmarsh restoration area – Parcel 265, City of New Bedford.

SCENE: Armor stone covering the Pilot Confined Disposal Facility (CDF) sediment cap, City of New Bedford.

SCENE: Pilot Underwater Cap and Massachusetts Clean Energy Center (MassCEC) Habitat Caps south of the Hurricane Barrier, City of New Bedford.

PHOTODOCUMENTATION LOG
NEW BEDFORD HARBOR SUPERFUND SITE
FIVE-YEAR REVIEW SITE VISIT – JUNE 23, 2025
NEW BEDFORD, MASSACHUSETTS

SCENE: View of the former sediment processing Cells located at the Sawyer Street Facility.

SCENE: Heavy equipment constructing a portion of the Pilot CDF cap.

SCENE: Staging area for geotextile liners to be installed as part of the Pilot CDF cap.

SCENE: Heavy equipment excavating fill material used for shaping and grading the Pilot CDF cap.

SCENE: View from the southern portion of North Terminal facing south, City of New Bedford.

SCENE: View of the former EPA Dewatering Facility, including the purpose-built rail spur, City of New Bedford.