



Massachusetts Bays

NATIONAL ESTUARY PARTNERSHIP

Margherita Pryor
U.S. Environmental Protection Agency, Region 1
5 Post Office Square
Boston MA 02109

August 5, 2024

Dear Margherita:

We are pleased to submit Massachusetts Bays National Estuary Partnership (MassBays') application for funding to implement our Federal Fiscal Year 2024 Section 320 Workplan. MassBays' Management Committee reviewed and endorsed the tasks and budget included here as important steps toward implementing our CCMP.

Please do not hesitate to contact us if you have any comments, suggestions, or concerns regarding the workplan.

Sincerely,

Pam DiBona
Executive Director
Massachusetts Bays National Estuary Partnership
pamela.dibona@umb.edu
339-368-0608 (cell)

Juliet Simpson
Management Committee Chair

cc: Carol Thornber Dean, UMass Boston School for the Environment

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Acronyms and Abbreviations

ANEP	Association of National Estuary Programs
APCC	Association to Preserve Cape Cod
BCG	Biological Condition Gradient
BHEN	Boston Harbor Ecosystem Network
BU	Boston University
CC	Cape Cod (MassBays Region)
CCC	Cape Cod Commission
CCCD	Cape Cod Conservation District
CCMP	Comprehensive Conservation and Management Plan
CCS	Center for Coastal Studies
CCWRRP	Cape Cod Water Resources Restoration Project
CPR	Coastal Pollution Remediation (CZM Grant Program)
CS	Central Staff (MassBays Boston Office)
CSO	Coastal States Organization <i>or</i> Combined Sewer Overflow
CWA	Federal Clean Water Act
NEPCWG	National Estuary Program Coastal Watershed Grant Program
CZM	MA Office of Coastal Zone Management
DCR	MA Department of Conservation and Recreation
DEP	MA Department of Environmental Protection
DER	MA Department of Fish and Game, Division of Ecological Restoration
DMF	MA Department of Fish and Game, Division of Marine Fisheries
DPW	Department of Public Works
ED	Executive Director, MassBays
EDA	Estuary Delineation and Assessment
EJ	Environmental Justice
EPA	U.S. Environmental Protection Agency
ENHC	Essex Natural Heritage Commission
ESG	Ecosystem Services Gradient
ETT	Ecohealth Tracking Tool
FTE	Full-time Equivalent
GOMC	Gulf of Maine Council on the Marine Environment
IRWA	Ipswich River Watershed Association
ISA	Interagency Service Agreement
LGC	Local Governance Committee
LID	Low Impact Development
LNS	Lower North Shore (MassBays Region)
LOE	Level of Effort
MC	Management Committee
Mass Audubon	Massachusetts Audubon Society
MassBays	Massachusetts Bays National Estuary Partnership
MassDOT	MA Department of Transportation
MassDPH	MA Department of Public Health
MB	Metro Boston (MassBays Region)
MCCA	Massachusetts Coastal Condition Assessment
MET	Massachusetts Environmental Trust
MIT Sea Grant	MIT Sea Grant College Program
MMC	Massachusetts Marine Collective
MOTN	Marine & Oceanographic Technology Network
MME	Massachusetts Marine Educators
MS4	Municipal Separate Storm Sewer Systems
MVP	Municipal Vulnerability Preparedness
MVPC	Merrimack Valley Planning Council

Acronyms and Abbreviations, continued

MWRA	Massachusetts Water Resources Authority
MRWC	Merrimack River Watershed Council
MyRWA	Mystic River Watershed Association
NECC	Northern Essex Community College
NEP	National Estuary Program
NEPORT	NEP On-line Reporting Tool
NERACOOS	Northeast Regional Association of Coastal and Ocean Observing Systems
NHDES	New Hampshire Department of Environmental Services
NOAA	National Oceanic and Atmospheric Administration
NPS	National Park Service
NRCS	Natural Resources Conservation Service
NS	North Shore (LNS + UNS MassBays regions)
NSRWA	North and South Rivers Watershed Association
NU	Northeastern University
NUMSC	Northeastern University Marine Science Center
NWF	National Wildlife Federation
NWR	National Wildlife Refuge
O&M	Operations and Management Plan
ORD	Office of Research and Development, EPA
OST	Office of Science and Technology, EPA Headquarters
PFAS	Per- and PolyFluoroAlkyl Substances
PIE-Rivers	Parker-Ipswich-Essex Rivers Restoration Partnership
PRNWR	Parker River National Wildlife Refuge
QA/QC	Quality Assurance/Quality Control
QAPP	Quality Assurance Project Plan
RC	Regional Coordinator
RCC	Restoration Coordination Center (Cape Cod)
RPA	Regional Planning Agency
RSP	Regional Service Provider
SLL	Stone Living Lab
SLR	Sea Level Rise
SS	Staff Scientist, MassBays OR South Shore (MassBays Region)
SSCW	Salem Sound Coastwatch
SSL	Sustainable Solutions Lab
SSU	Salem State University
STAC	Science and Technical Advisory Subcommittee, MassBays
TNC	The Nature Conservancy
UHI	Urban Harbors Institute
UMB	University of Massachusetts Boston
UNH	University of New Hampshire
UNS	Upper North Shore (MassBays Region)
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey
WAA	Watershed Action Alliance
WBNERR	Waquoit Bay National Estuarine Research Reserve
WHOI	Woods Hole Oceanographic Institution
WWTP	Wastewater Treatment Plant

A. Summary

2023-2024 Progress and Accomplishments

In our annual **NEPORT reporting** to EPA for October 2021 through September 2022, MassBays submitted documentation of *1,092 acres of habitat restored*, including eelgrass and salt marsh, and *leveraged funding of more than \$3.2 million* during the NEPORT reporting period of October 1, 2021, through September 30, 2022. This translates to nearly \$4 cash and in-kind support secured for every \$1 invested by EPA. Leveraged funds are in addition to the 1:1 non-federal resource committed as direct match to EPA's funding under CWA §320.

A significant accomplishment in the last year, following closely on submission of our CCMP in Spring 2023, was our **Program Evaluation**, including a site visit in June 2023. MassBays was pleased to receive a finding of Proficient in the final letter dated September 13, 2023, from the Acting Chief of the Partnerships Branch, Christine Lewicki.

In October 2023 MassBays marked one year as a Center in the School for the Environment at University of Massachusetts Boston, a **change in our host setting** which has opened new opportunities for us regarding fundraising, communications, and staffing. For example, MassBays:

1. Submitted a successful proposal to Restore America's Estuaries under the National Estuary Program Grants. The \$239,298 award will be applied over three years to evaluate and prioritize existing tide gates in the Bays for repair or replacement, based on the potential for improving salt marsh health, as well as technical assistance to municipal staff.
2. Launched new social media accounts for MassBays on Facebook, Instagram, and LinkedIn.
3. Prepared and circulated a MassBays-branded Press Release announcing awardees under our Healthy Estuaries small-grant program.
4. Increased our Boston staffing to 3 FTE, by converting our Coastal Data Scientist Jill Carr to full time. With University support we were able to retain the Urban Harbors Institute to carry out tasks previously assigned to MassBays' Director, who has worked part-time beginning in August 2023 due to medical issues.
5. Convened Management Committee members to revise our Structure and Operating Procedures, Communications Strategy, and Finance Strategy to reflect our new setting and increased access to communications outlets and private funding.

In addition, Central Staff and Regional Service Providers (RSPs) advanced innovative, model projects aligned with our CCMP goals:

- Central staff secured a grant from Woods Hole Sea Grant to pilot test seed-based restoration of eelgrass, an effort that will inform a multi-NEP regional initiative to evaluate the feasibility of seed sharing up the East Coast.
- Central staff initiated a contract with MassDEP to carry out ground-truthing of aerial photographs to support mapping of eelgrass extent and density along the Massachusetts coast.
- The Cape Cod RSP successfully established a pond monitoring program under a three-year contract with Barnstable County, with a monitoring QAPP in place and programs for 50 freshwater ponds underway.
- The Metro Boston RSP engaged 82 scientists, decision-makers, and community volunteers in Boston Harbor Ecosystem Network meetings: "Invasive and Range-Expanding Species" and "Tools in the Nature-Based Toolkit for Coastal Resilience."
- Based on observations during Summer 2023, the South Shore RSP revised its approach to restoring mussel beds at the mouth of the North and South Rivers, to support migrating shorebird populations, to be implemented this year. (<https://www.nsrwa.org/2023-blue-mussels-report/>)
- The Lower North Shore RSP provided critical support to the Commonwealth's MEPA (Massachusetts Environmental Protection Act) Program, engaging local EJ community members in public review of "Marblehead Shipyard Project; Collins Cove to Willows Coastal Resilience

- Study.” (<https://publicinput.com/CollinsCove2Willows>)
- The Upper North Shore RSP led finalization of an Early Alert tool for public notice of CSO releases into the Merrimack. (<https://mvpc.org/the-early-alert-tool/>)

See **Section B, Completed Major Projects**, for more detail on these and other accomplishment

2024-2025 Proposed Work

Highlights of proposed new work for the coming year include:

- Update MassBays' Ecosystem Delineation & Assessment (EDA) and develop a new public interface to share the information with researchers, decisionmakers, and public audiences. (Central Staff)
- Co-host a Gulf of Maine Science Symposium with MWRA to highlight and foster greater support for coastal resource management and restoration in the ecosystem. (Central Staff)
- Launch continuous water quality monitoring systems in Duxbury and Danvers. (Central Staff using BIL funds; Lower North Shore participation with S.320 monies)
- Pursue funding to expand seed-based restoration of eelgrass regionally (building on pilot studies funded by WHOI Sea Grant) and examine interactions between aquaculture and eelgrass condition (expanding on a study co-led with MIT Sea Grant). (Central Staff, Metro Boston)
- Develop a process for identifying impaired ponds in need of restoration for the purpose of identifying potential new restoration projects. Ponds that are not impaired will be identified for protection measures. (Cape Cod)
- Initiate diversity, equity, and inclusion planning for the South Shore region. (South Shore)
- Complete a three-pronged approach to improve monitoring of coastal systems using UAV technology. (Upper North Shore)

Specific proposed MassBays-wide and regional tasks are described in ***Section C, New and Ongoing Projects***.

Staffing and Management

MassBays' Management Committee sets priorities for the program, and fosters partnerships for diverse engagement in our work. Committee members for the period July 1, 2023 through June 30, 2024 are listed below:

Harlan	Doliner	Marine & Oceanographic Technology Network
Rebecca	Dupont-Coutu	Salem Sound Coastwatch
Kate	Frew	Massachusetts Division of Marine Fisheries
Cece	Gerstenbacher	Merrimack Valley Planning Commission
Kylie	Abouzeid	Massachusetts Department of Transportation
Andrew	Gottlieb	Association to Preserve Cape Cod
Jon	Grabowski	Northeastern University Marine Science Center
Steve	Kirk	The Nature Conservancy
Denise	Ellis-Hibbett	Massachusetts Water Resources Authority
Elizabeth	Gorrill	Massachusetts DFG/Division of Ecological Restoration
Beth	Lambert	Massachusetts DFG/Division of Ecological Restoration
Wendy	Leo	Massachusetts Water Resources Authority
Lealdon	Langley	Massachusetts Department of Environmental Protection
Regina	Lyons	U.S. Environmental Protection Agency
Danielle	Boudreau	NOAA
Vandana	Rao	Executive Office of Energy and Environmental Affairs
Juliet	Simpson	MIT Sea Grant
Tyler	Soleau	CZM
Kristin	Uiterwyk	Urban Harbors Institute
Marissa	Gutierrez	Anderson & Kreiger
Samantha	Woods	North and South Rivers Watershed Association

Director Pam DiBona is responsible for the overall management of the program, including reports to EPA and other funders, and staff supervision, including oversight of Regional Service Providers in line with contracts. In the coming year she will oversee implementation of the revised Communications and Finance Plans, including pursuing new monies for CCMP implementation from private funding sources.

Senior Scientist Prassede Vella is leading development of our first continuous water quality monitoring program. She staffs the Science and Technical Advisory Subcommittee to our Management Committee and collaborates with institutional partners to generate data critical to MassBays CCMP implementation. This year she will mentor a *Graduate Student Assistant* to help establish a new Massachusetts Bays Water Quality Science Advisory Panel, a successor to the long-standing Outfall Monitoring Science Advisory Panel previously hosted by EPA and MWRA.

Coastal Data Scientist Jill Carr leads MassBays' eelgrass monitoring and restoration program, and MassBays' Monitoring Coordinators Network which provides resources, tools and communications to water quality and habitat monitoring program managers. While her salary is not included in this year's budget (her efforts are assigned to BIL and other funded projects), she will continue to provide critical technical assistance to community-based monitoring groups to make more high-quality data available for State of the Bays reporting.

Regional Service Providers (RSPs) connect MassBays with planning area communities organized into five regions: Upper North Shore, Lower North Shore, Metro Boston, South Shore, and Cape Cod. Under cooperative grants from MassBays, each RSP designates a Regional Coordinator, in turn responsible for identifying regional priorities consistent with the outcomes articulated in the CCMP and implementing an annual workplan at the local level. For FFY2024, the following organizations will serve in this capacity:

- Merrimack Valley Planning Commission (MVPC)/MassBays Upper North Shore Region
- Salem Sound Coastwatch (SSCW)/MassBays Lower North Shore Region
- Northeastern University Marine Science Center (NUMSC)/MassBays Metro Boston Region
- North and South Rivers Watershed Association (NSRWA)/MassBays South Shore Region
- Association to Preserve Cape Cod (APCC)/MassBays Cape Cod Region

FFY2024 Budget Overview

A detailed budget request and narrative are included in **Section D**; a summary is included here:

Salary & fringe	\$ 210,043
Travel	\$ 0
Supplies	\$ 0
Contractual	\$ 0
Other Direct Costs	
RSPs	\$ 523,715
Healthy Estuaries Grant	\$ 29,169
Indirect	\$ 87,073
Total Request	\$ 850,000

B. Completed Major Projects and Activities (July 1, 2023 to June 30, 2024)

MassBays' work for FFY2023 advanced the Goals and Strategies of our CCMP:

Goal 1. MassBays provides new resources to support research and management in the Bays.

Strategy 1.1 Make new data available, especially to address gaps in knowledge

Strategy 1.2 Support valid (QA/QC) data collection and use

Strategy 1.3. Analyze and present existing data in multiple formats to document baselines and trends

Goal 2. MassBays reaches all planning-area municipalities with actionable information about coastal habitats

Strategy 2.1 Support and conduct research to address gaps in knowledge and inform policy and actions regarding ecosystem conditions and functions

Strategy 2.2 Provide education, training, and technical support; share case studies (successful and not); and support collaboration and cooperation on specific topics

Strategy 2.3 Facilitate access to decision making forums, and increase influence on decision making by underserved communities

Goal 3. MassBays provides regular and locally informed State of the Bays reporting that reflects the unique characteristics of MassBays assessment units (embayments, rocky shore, barrier beach), and documents progress to inform local action and progress toward target conditions.

Strategy 3.1 Establish target (improved) water quality and habitat conditions tied to desired uses and ecosystem services, and document progress toward those targets.

Strategy 3.2 Guide local action to expand habitat and improve water quality according to targets

Strategy 3.3 Maintain MassBays' National Estuary Program status

Our work is closely aligned with the Clean Water Act Core Programs, which are:

- (1) establishing water quality standards
- (2) identifying polluted waters and developing plans to restore them (total maximum daily loads)
- (3) permitting discharges of pollutants from point sources (National Pollutant Discharge Elimination System permits)
- (4) addressing diffuse, nonpoint sources of pollution
- (5) protecting wetlands
- (6) protecting coastal waters through the National Estuary Program
- (7) protecting Large Aquatic Ecosystems.

The following list of accomplishments is organized according to the CCMP Strategies included in our CCMP and completed by June 30, 2024. Each project description includes the following:

Title

CWA core program: Per list (1-7) above

Objective: project-specific objective

Partners: Collaborators not directly funded by MassBays/\$320 funds

Status: as of June 2024

Accomplishments and Deliverables: completed products

Strategy 1.1 Make new data available, especially to address gaps in knowledge

Title	Implement MassBays Monitoring Plan (Central Staff)
CWA Core Program	Protecting coastal waters through the National Estuary Program
Objective	Compile data sets for MassBays’ delineated embayments, toward the goal of comprehensive and specific State of the Bays reporting.
Partners	STAC, DEP, SSCW, SSU, CCS, CZM, ACASAK Technologies
Status	Year 3 completed; contract renewed for the final monitoring year: 25 sites in the Nantucket Sound, Vineyard Sound, Buzzards Bay and around the Islands.
Accomplishments and deliverables	
Implemented Year 4 of the MA Coastal Conditions Assessment (Year 2023)	Coordinated fieldwork including monthly survey (June-August 2023) of Region C (Buzzards Bay and Nantucket Sound) to assess coastal conditions. During Year 4, work included water quality monitoring, sediment quality monitoring and taxonomic identification of benthic macroinvertebrates from 25 sites. Data have all been analyzed. Benthic infauna analysis was funded by the Massachusetts Ocean Trust Fund. Planning for A final meeting was conducted between partners to wrap up the project. MassBays will be working on a technical report in FFY24.
Host and manage #MassWrack iNaturalist challenge	Continue monitoring citizen science data entries, present to groups interested in participating, collect data.
Explore eelgrass-aquaculture interactions	Host regional workshop and communications with industry, regulators and scientists to document perceptions of the nature of eelgrass-aquaculture interactions. Work in partnership with MIT Sea Grant. Pursue NOAA funding to conduct research to address knowledge gaps.
Causes of eelgrass loss in Wellfleet, MA	Kicked off National Parks Service grant (in-kind partnership) to study causes of eelgrass loss and potential for recovery along the outer cape shoreline around Wellfleet. MassBays component will include analysis of water quality data and investigation of historic stressors.

Strategy 1.2 Support valid (QA/QC) data collection and use

Title	Support for Citizen Science Monitoring Efforts (Central Staff)
CWA Core Program	Identifying polluted waters and developing plans to restore them
Objective	Increase the value and use of citizen monitoring data for decision making across the region.
Partners	Monitoring Coordinators Network, CSA Data Quality and Metadata Working Group, MassRivers Alliance, DEP, EPA EN, EPA Region 1, Eastern Research Group, UMCES-IAN
Status	One-on-one assistance was provided to community-based groups and watershed organizations, as well as engagement in regional and national efforts. Training, outreach and technical support continues to promote use of AquaQAPP and MassWaterR, and the submission of data to WQX.
Accomplishments and deliverables	
Provide AquaQAPP outreach & track use	Presented at local and regional venues to demonstrate AquaQAPP and promote its use in developing Quality Assurance Project Plans. Apply for new funding to support necessary revisions to bring tool up to date with new EPA QAPP guidance (released July 2023).
EPA Exchange Network project: MassWaterR	Provide training, outreach and CoP support for MassBays' popular R package, <i>MassWaterR</i> , as part of Exchange Network funding for the project <i>Building Technical Capacity for Data Analysis & Visualization</i> . MassWaterR is a robust R-based package developed for analyzing and organizing surface water monitoring data collected by watershed associations and citizen science groups. The objective of the package is to automate and streamline quality control and exploratory analysis of data, and to format data for upload to the national Water Quality Portal via EPA's Water Quality Exchange (WQX).
One-on-one tech support & training	Continued to provide training and technical assistance to dozens of water quality and habitat monitoring programs coastwide.
Communication with Monitoring Coordinators	Revamped the Monitoring Coordinators Network from a static newsletter to an interactive web-based forum.

Title	Support state-wide eelgrass mapping (Central Staff)
CWA Core Program	Identifying polluted waters and developing plans to restore them
Description/Objective	Conduct field work to ground-truth aerial surveys of eelgrass extent and density via an ISA with DEP.
Partners	DEP, SSCW
Status	First year of a three-year effort completed on schedule; recommendations for streamlining Year 2 effort submitted to DEP.
Accomplishments and deliverables	
Implemented year 1 of statewide eelgrass mapping	Boat-based fieldwork for ground truthing of eelgrass maps generated by DEP with aerial imagery. Species presence and condition assessed at approximately 1100 stations from Salisbury to Marshfield.

Strategy 2.1 Support and conduct research to address gaps in knowledge and inform policy and actions regarding ecosystem conditions and functions

Title	Increasing agency confidence in eelgrass maps used for project review and ocean planning (Central Staff)
CWA Core Program	Protecting coastal waters through the National Estuary Program
Objective	Investigate eelgrass remote sensing techniques to quantify mapping and edge detection accuracy. (NOAA Project of Special Merit Grant funding)
Partners	Massachusetts Office of Coastal Zone Management (co-PI), Massachusetts Department of Environmental Protection, Massachusetts Division of Marine Fisheries, NSRWA, SSCW, MIT Sea Grant, NUMSC
Status	Field surveys, training, image interpretation, and data analysis have been completed. Reporting is in progress.
Accomplishments and deliverables	
Data Analysis & Reporting	Final technical report completed and manuscript in review. https://www.mass.gov/doc/increasing-agency-confidence-in-eelgrass-maps-used-for-project-review-and-ocean-planning/download
Outreach	https://www.mass.gov/news/story-map-a-comparison-of-eelgrass-mapping-methods). Results presented at scientific conferences and among local working groups.

Title	Assess Coastal Acidification in Massachusetts (Central Staff, South Shore)
CWA Core Program	Protecting coastal waters through the National Estuary Program
Objective	Assess coastal acidification conditions in Duxbury Bay.
Partners	EPA, UMB, Town of Duxbury
Status	MassBays' coastal acidification monitoring system was deployed for the third year in 2022 to collect continuous pH and pCO ₂ data. Central Staff and RCs continue engagement with state and regional entities investigating potential impacts and responses.
Accomplishments and deliverables	
Ocean acidification monitoring system developed and deployed in Duxbury Harbor	Following further testing of the prototype system, the system was deployed in Duxbury Harbor in May 2022. Data were collected from May through September with very few interruptions. The data gathered over three summers are being analyzed and results will be published during this fiscal year. The system is waiting to be serviced prior to redeployment. This depends on funding (which MassBays continue to seek) as well as the results of a feasibility assessment. At the same time, MassBays will continue seeking opportunities to expand coastal acidification research, monitoring, outreach and education.

Strategy 2.2 Provide education, training, and technical support; share case studies (successful and not); and support collaboration and cooperation on specific topics

Title	Presentations & Publications
CWA Core Programs	All
Objective	Share MassBays’ findings, projects, and expertise with multiple audiences
Partners	multiple
Status	MassBays continues to share case studies, products, and findings with local, regional, and national audiences.
Accomplishments and deliverables	
Central Staff outputs	<p><i>Presentations</i></p> <p>Beck, M.W., Wetherill, B., Carr, J. 2023. <i>MassWateR: Improving Quality Control, Analysis, and Sharing of Water Quality Data</i>. PLOS ONE. 18(11):e0293737. https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0293737</p> <p>Attended CERF and ANEP conferences in Portland, OR (Nov 2023). At ANEP, co-led session titled Data Analysis and Visualization with Tampa Bay NEP and presented MassWateR. At CERF, presented an eelgrass method comparison study.</p> <p><i>MassWateR demo</i> at the NEIWPCC R Exchange Workshop (11/29/23)</p> <p>Presented MassBays eelgrass initiatives at the MA Seagrass Working Group fall meeting (11/29/23)</p> <p><i>Eelgrass mapping method comparison study</i>, Long Island Sound Eelgrass Collaborative (12/12/23)</p> <p>Lecture for Brandeis University undergraduate students: “<i>The role of participatory science in natural resource management: a focus on our estuaries and coastal watersheds</i>” 3/19/24.</p> <p>Plaisted et al. 2023 <i>Recovery of eelgrass Zostera marina following conversion of conventional block and chain moorings to conservation mooring systems in Massachusetts: context dependence, challenges, and management</i>. https://rdcu.be/dwWK8</p> <p>Contribute to manuscript draft: Residential Floats Reduce Light Availability for Eelgrass (<i>Zostera marina</i>) in Salem Harbor, MA, USA (with DMF and SSCW)</p> <p>“<i>Science and Sustainability at the MassBays National Estuary Partnership</i>” presented to the UMass Professional Staff Union Lunch & Learn on Sustainability and Climate, 4/11/24</p> <p>“<i>Seagrass Restoration: an undervalued underwater nature-based solution</i>” Boston Harbor Ecosystem Network (BHEN) spring meeting, 4/24/24</p> <p>“<i>Eelgrass-Aquaculture interactions: Perceptions, management, and data gaps across New England</i>” presented at the East Coast SAV Collaborative Spring meeting, 4/26/24</p> <p>“<i>Water Quality & Habitat Sampling in the Merrimack</i>” presentation at the 3rd annual Merrimack River Water Quality Monitoring Roundtable meeting, 4/30/24</p>

	<p><i>“MassWateR: an open-source data tool for water quality monitoring groups”</i> presented at national Exchange Network Forum meeting as part of an EPA Region 1 highlight, 5/9/24</p> <p><i>“Seagrass in Duxbury, MA: A look back and ahead”</i> presented to residents of Duxbury, 5/14/24</p> <p><i>“AquaQAPP, MassWateR, and eelgrass initiatives”</i> presentation to MassBays STAC, 5/30/24</p> <p><i>“Modeling & field studies to prepare for large-scale eelgrass restoration in Massachusetts”</i> WHOI Sea Grant funded PI’s meeting, Woods Hole, 5/31/24</p>
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Strategy 2.2 Provide education, training, and technical support... continued

Title	Mystic River Urban Waters Activities (MyRWA)
CWA Core Programs	Improved water quality
Objective	Coordinate with federal, regional, and local contributions and activities in the Mystic River Watershed, providing communications and outreach support to Merrimack River communities, and assisting MassBays with EJ program development.
Partners	Coordinate federal, regional, and local contributions and activities in the Mystic River Watershed, providing communications and outreach support to Merrimack River communities, and assisting MassBays with EJ program development.
Status	Mystic River Ambassador was hired and established as a key point person in the network connecting Urban Waters activities in the watershed and beyond.
Accomplishments and deliverables	
Maintained operations of the Mystic River Urban Waters Federal Partnership	<ul style="list-style-type: none"> • Led 3 Steering Committee meetings on 1) Habitat in the Watershed 2) Green Infrastructure and 3) Street Sweeping, Leaf Litter, and Phosphorus Control including working with the coordination team to draft agendas, lead the planning meetings, and one-to-one meetings with possible presenters. (agenda, slides, and recordings of the meeting can be found here) • Produced and distributed regular email updates and alerts; maintained regular check-ins with the EPA Program Officer. • Scheduled introductory meetings with possible local CBOs (Everett Community Growers, Trees Medford, Friends of the Malden River, and State agencies like DCR, DEP, and MWRA.
Coordinated Federal input to Mystic River initiatives	<ul style="list-style-type: none"> • Conducted fact-finding interviews with other Urban Waters sites and met with federal partners to learn about case studies and regional efforts, while sharing ideas for collaboration at the state level. • Schedule bi-annual one-to-one check-in meetings with 5 federal partners (NPS, USGS, NOAA, USFS, and FEMA) and identify areas of collaboration in the watershed. • Organized the Canoe Mobile Program in two cities by coordinating with the City of Cambridge, the City of Somerville, Wilderness Inquiry, and the US Forest Service, engaging 307 youths.
Implemented local actions related to the “Trash Free Mystic” project	<ul style="list-style-type: none"> • Produced 12 stormwater education materials for Stormwater collaboration. • Applied for numerous grants for Trash Free Mystic such as the National Sea Grant Marine Debris Community Action Coalitions Competition and NOAA Ocean Odyssey • Launched the Adopt a Drain program through the Mystic Stormwater Collaborative in 12 municipalities so far, we have 1034 residents participating in this program adopting 1463 storm drains.
Assisted with river stewardship events	<ul style="list-style-type: none"> • Organized 12+ trash cleanup and 2 Invasive Species removal events, engaging 347 volunteers, and collected 236 bags of Trash and 137 baskets or water chestnut.

Strategy 3.3 Maintain MassBays’ National Estuary Program status

Title	Complete Program Evaluation (Central Staff)
CWA Core Program	All
Description/Objective	MassBays provided documentation of programmatic and planning successes and challenges during the period of July 1, 2017 through September 30, 2022, according to EPA PE Guidance dated December 12, 2021.
Partners	All
Status	All documentation provided as required, EPA staff and <i>Ex Officio</i> NEP Director convened for a site visit June 13 – June 16, 2023, and final Findings dated September 13, 2023. MassBays received a rating of Proficient, and thus qualifies for continued funding under Section 320 of the CWA.
Accomplishments and deliverables	
PE Narrative submitted	Complete documentation provided to the EPA-NEP Review Team April 18, 2023. Contents included description of key accomplishments over the period of review, including completion of a Revised CCMP, Habitat Target-setting, and establishment of programs and tools to ensure quality-assured data for State of the Bays reporting.
Site visit hosted	<ol style="list-style-type: none"> (1) Management Committee Meeting with a welcome from the new Host Institution, presentations from each Regional Coordinator, descriptions of key accomplishments from Central Staff, and a lunch/poster session highlighting Healthy Estuaries Grant projects. (2) STAC meeting to look ahead at plans for Bays-wide monitoring and seed-based eelgrass restoration. (3) Site visits, at which key partners, including federal, state, municipal, and community-based participated (a) Hull: tide gate upgrade/salt marsh restoration; (b) Boston: Harborwalk tour, multi-jurisdictional coastal resilience efforts; (c) Hingham: public ferry trip for a van-based tour of salt marsh monitoring programs underway in South Shore region; (d) East Boston: EJ community-based efforts to protect Belle Isle Marsh, Boston’s last remaining salt marsh, underway with financial and technical assistance from MassBays.
Responded to Review Committee questions	Director corresponded with the Review Team as they prepared the Findings.

C. New and Ongoing Projects and Activities (July 1, 2023 to June 30, 2024)

Strategies and Outcomes

MassBays' work over the coming year will implement components of our Interim CCMP and contribute to the following Outcomes:

- A. Sustainable NEP
- B. Improved habitat continuity and restored hydrology
- C. Improved water quality
- D. Resilient coastal habitat, including nature-based coastal protection
- E. Restored natural communities
- F. Robust interagency and interdisciplinary collaboration and partnerships
- G. Well-informed, multisector input to decision making which includes underserved communities

Our proposed work with funding under Federal Fiscal Year 2022 is aligned with and driven by the following Goals and Strategies described in the CCMP:

Goal 1. MassBays provides new resources to support research and management in the Bays.

Strategy 1.1 Make new data available, especially to address specific gaps in knowledge

Strategy 1.2 Support valid (QA/QC) data collection and use

Goal 2. MassBays reaches all planning-area municipalities with actionable information about coastal habitats

Strategy 2.1 Support research to inform policy and actions

Strategy 2.2 Technical support and communications

Strategy 2.3 Increase influence of underserved communities on decision making

Goal 3. MassBays provides regular and locally informed State of the Bays reporting that reflects the unique characteristics of MassBays assessment units (embayments, rocky shore, barrier beach), to document progress and inform local action and progress toward target conditions.

Strategy 3.1 Establish target (improved) water quality and habitat conditions tied to desired uses and ecosystem services, and document progress toward those targets

Strategy 3.2 Guide local action for expanded habitat and improved water quality

Strategy 3.3 Maintain MassBays' National Estuary Program status

Our proposed tasks are also closely related to the Clean Water Act Core Programs, which are:

- (1) establishing water quality standards
- (2) identifying polluted waters and developing plans to restore them (total maximum daily loads)
- (3) permitting discharges of pollutants from point sources (National Pollutant Discharge Elimination System permits)
- (4) addressing diffuse, nonpoint sources of pollution
- (5) protecting wetlands
- (6) protecting coastal waters through the National Estuary Program
- (7) protecting Large Aquatic Ecosystems.

The tables of proposed activities below, organized according to MassBays' CCMP Strategies, include the following:

Title (Region), Budget/LOE: Activity name and MassBays geographic region in which it will be carried out, and non-s.320 funding and/or LOE (hours) to be committed by Central Staff or RSP (for region-specific projects)

Description: Status (New or Ongoing), project activities and objectives

CWA Core Program: Per list (1-7) above

CCMP Outcome: Per list (A-G) above

Partners: Collaborators not directly funded by MassBays/§320 funds

Timeline & Deliverables: Product(s) expected, and the quarter (Q1-Q4) projected for their completion

Strategy 1.1: Make new data available, especially to address specific gaps in knowledge

Title (Region), Budget + LOE	Description	CWA core program CCMP outcome	Partners	Timeline & Deliverables
Revise Monitoring Framework (Central Staff) 100h CS	New Revise and update the monitoring framework to reflect habitat targets. Reframe as a Monitoring Framework and Science Plan that includes research needs.	(6) Protecting coastal waters through the National Estuary Program (C) Improved water quality	STAC	(Q2) Draft revised and updated Monitoring Framework and Science Plan; (Q3) Final revised document incorporating input from STAC and others as needed.
Research eelgrass-shellfish interactions (Central Staff, Metro Boston) 120h CDS 400h MB	Scope, develop, and submit a collaborative proposal for research funding on interactions between eelgrass and recreational/commercial shellfish species to inform policies that may enhance synergies among eelgrass restoration efforts, fisheries, and/or the aquaculture industry. Begin conducting eelgrass research.	(6) Protecting coastal waters through the National Estuary Program (B) Improved habitat continuity and restored hydrology	MIT Sea Grant, DMF	(Q1) Submit grant proposal on eelgrass-bivalve interactions; (Q3) Host regional workshop and communications with industry, regulators and scientists to document perceptions of the nature of eelgrass-aquaculture interactions.
Coastal Acidification Monitoring and Management (Central Staff) 20h Senior Scientist	Ongoing Monitor coastal acidification conditions in Duxbury Bay, a hotspot for shellfish aquaculture industry in Massachusetts. The system needs to be serviced, and the pH sensor examined to address a mechanical issue (pending funding and capacity). Once available, the system will be redeployed. New Incorporating the measurement of pCO ₂ and pH as part of a continuous monitoring network. pCO ₂ sensors funded by NROC.	(6) Protecting coastal waters through the National Estuary Program (C) Improved water quality	Town of Duxbury, UMB, EPA ORD, USGS, NROC (funder)	(Q2-Q3) Outcome of viability assessment of continuing sampling with this system; (Q2) Report of findings from water quality sampling and assessment and list of outreach events/number of participants; (Q2) Doctoral thesis data analysis by UMass Boston student and first technical report (Q1) pCO ₂ sensors procured and deployed near the mouth of the Danvers River and in DKP.

Strategy 1.1 continued

Title (Region), Budget + LOE	Description	CWA core program CCMP outcome	Partners	Timeline & Deliverables
Outfall Monitoring Science Advisory Panel (Central Staff) 100h Senior Scientist 40h Director	New (pending permit) Convene a Science Advisory Panel that evolves from the existing OMSAP to incorporate WWTP and other NPDES permit discharges and has a wider purview. The panel would track monitoring program required in permit and provide MassBays with data to address gaps.	(6) Protecting coastal waters through the National Estuary Program (C) Improved water quality	SAP members (TBD)	(Q1) outcome of discussion with current OMSAP; develop SoW for SAP defining structure, goals, and expected outcomes; (Q3-Q4) SAP set up; graduate student hired (Timing depends on the issuance of the dual EPA/MassDEP permit)
Massachusetts Coastal Condition Assessment (Central Staff) 50h Senior Scientist	Ongoing Results of the MCCA will be compiled to develop a technical report. The data serve to inform MassBays' State of the Bays reporting under CWA §320 and DEP's required reporting under CWA §109.	(2) Identifying polluted waters and developing plans to restore them (C) Improved water quality	STAC	(Q3) Technical report with findings, recommendations and next steps distributed to STAC for review; (Q4) Final report developed.

Strategy 2.1 Support research to inform policy and actions

Task Title (Region) Budget + LOE	Description	CWA core program CCMP outcome	Partners	Timeline & Deliverables
Health Estuaries Grant Program (Central Staff) 200h Senior Scientist	Ongoing Coordination of the five projects funded by the 2024-2026 Healthy Estuaries Grants will be conducted including technical, administrative and management support as needed.	(6) Protecting coastal waters through the National Estuary Program (E) Restored natural communities (C) Improved water quality	EPA, Town of Harwich, MPVC, IRWA, SSU, UMB	(Q1-4) Review progress reports and track deliverables and invoicing.
Investigating eelgrass conditions, water quality, and sediment characteristics in Duxbury-Kingston-Plymouth Bays (Central Staff, South Shore) 240h Senior Scientist, Coastal Data Scientist \$7000 + 140h SS	Ongoing Implement the annual eelgrass rapid assessment with citizen scientists to monitor eelgrass extent and condition and inform efforts to determine the causes of local eelgrass loss. Conduct water quality monitoring and sediment core analysis to collect information on physical conditions that may be contributing to the losses.	(6) Protecting coastal waters through the National Estuary Program (7) Protecting large aquatic ecosystems (E) Restored natural communities (C) Improved water quality	DMF, Duxbury Bay, Town of Plymouth, Volunteers, EPA Region 1 (Chelmsford Lab), SSU, STAC	Eelgrass rapid assessment survey (Q1, Q3) Actions and highlights of steering committee meetings (CS); (Q1-Q2) Number of volunteers trained, training materials, photo documentation (SS), (Q2) Technical report; 2024 data shared; (Q3-Q4) consider development of a seven-year assessment of eelgrass conditions and recommendations Water and sediment quality (Q1-Q2) Conduct bi-monthly water quality monitoring and sediment sampling; Sample analysis;(Q2) Data analysis and meetings to discuss findings from 2022 and 2023; (Q4) Report of 2022-2024; Plan for 2025.

Strategy 2.2 Provide education, training, and technical support; share case studies (successful and not); and support collaboration and cooperation on specific topics

Title (Region), Budget + LOE	Description	CWA core program CCMP outcome	Partners	Timeline & Deliverables
MassBays Gulf of Maine Science Forum (Central Staff) 200h ED 100h SS	New Convene scientists etc., work with partners, to convene a GOM science forum on science in the GOM	All CWA core programs All CCMP outcomes	MWRA, others TBD	(Q1) location, objectives finalized (Q2) speakers, agenda finalized (Q3) forum hosted

Strategy 3.1 Establish target (improved) water quality and habitat conditions for each embayment tied to desired uses and ecosystem services

Title (Region), Budget + LOE	Description	CWA core program CCMP outcome	Partners	Timeline & Deliverables
Develop targets for diadromous fish habitat extent and condition (Central Staff) 80h Senior Scientist	Ongoing Establish 2050 habitat goals to support diadromous fish migration, spawning, and feeding for MassBays embayments.	(6) Protecting coastal waters through the National Estuary Program All CCMP outcomes	EPA ORD, STAC, DMF, River Herring Network, MIT Sea Grant, Comprehensive Environmental	(Q1) Develop draft targets; Two meetings with Diadromous Fish subgroup with subject matter experts to discuss proposed targets and metrics; (Q2) Diadromous fish habitat data layer, including targets, incorporated into the ETT
Review, update and expand utility of EDA (Central Staff, Metro Boston) 200h Senior Scientist	New Conduct comprehensive revision and update of EDA to develop EDA 3.0. Add new variables to support examining relationships among stressor, resource, and socio-economic factors, and identify priorities for environmental justice and restoration	(6) Protecting coastal waters through the National Estuary Program All CCMP outcomes	STAC, EPA ORD	(Q1) Produce scope of work for EDA 3.0; (Q2) List of stressor, resource and socioeconomic metrics and associated datasets, new and existing that need updating; (Q3) Shapefiles and characterization of each by EDA assessment area; STAC review; (Q4) Revise/Develop new MassBays EDA Story Map; List of potential areas for restoration

				to benefit EJ communities; Resource-stressor category statistical analysis.
Develop Data Visualization Tool (Central Staff) 100h	New (pending funding) Select a platform for better visualization of embayments at the ecotype, habitat, and stressor level for internal and external users.		STAC, EPA OST	(Q2) Plan outline including tools that need to be included for cleaning up visuals additional data, and optional platforms; (Q4) Final Data Visualization Tool launched and linked to ETT.

Strategy 3.3 Maintain MassBays’ National Estuary Program Status

Title (Region), Budget + LOE	Description	CWA core program CCMP outcome	Partners	Timeline & Deliverables
Review and update MassBays SOPs (Central Staff) 80h Director	ongoing Work with Nominating and Governance Subcommittee to update MassBays’ SOPs according to needs under the new host setting and CCMP Goals.	(6) Protecting coastal waters through the National Estuary Program All CCMP Goals	MC members	(Q1) Convene Subcommittee to draft changes, (Q2) present proposed updates to MC at the December meeting, (Q3) finalize SOPs and take actions as directed.
Update and implement MassBays’ 2018 Strategic Communications Plan (Central Staff) 60h Director	Ongoing Work with Communications Subcommittee to review and revise the 2018 Plan according to needs under the new host setting and CCMP Goals.	(6) Protecting coastal waters through the National Estuary Program All CCMP Goals	MC members, UMB Communications team	(Q1) Share draft changes with staff; (Q2) present to the MC at the March meeting and finalize.
MassBays Communications implementation (Cape Cod) 372h	Ongoing APCC Communications staff person will assist MassBays Central Staff with communications plan implementation	(6) Protecting coastal waters through the NEP All CCMP Goals	MassBays program partners	(Q1-Q4) Quarterly e-newsletters; social media posts; expand and grow website

Strategy 3.3 continued

Title (Region), Budget + LOE	Description	CWA core program CCMP outcome	Partners	Timeline & Deliverables
MassBays Regional Coordinator Workshop (Metro Boston, Central Staff) 160h MB 40h Director	Ongoing Organize regular workshop day featuring the MassBays Regional Coordinators and central staff to facilitate extended information exchange on current projects and identify potential cross-region collaborations and/or joint proposals	(6) Protecting coastal waters through the National Estuary Program All CCMP Goals	RSPs	(Q2, Q4) List of potential collaborations and/or joint proposals, including grant program and project partners
Convene and support the Local Governance Committees for input on MassBays workplans and provide input for reporting to EPA. (All Regions)	Ongoing Meet the requirements of S.320 Funding Guidance provided by EPA, soliciting community stakeholder input to prioritize yearly workplans to implement the CCMP.	(6) Protecting coastal waters through the National Estuary Program All CCMP Goals	LGCs	(Q1-4) Updates on activities and progress, attendance at quarterly MC meetings; (Q2-3) NEPORT submissions to MassBays; (Q1-4) Acknowledgement of EPA/ MassBays support noted on RSP websites and (as relevant) outreach materials and publications; (Q4) End-of-year reports on progress and proposed ongoing and new activities for FFY23 developed with input from EJ/underserved communities, and LGCs
Convene STAC and support the Chair and committee that provides input and assistance to MassBays on science and research matters. 40h (Senior Scientist)	Ongoing Convene quarterly meetings of STAC and topic subgroups as needed to provide discussion and input on topics that support MassBays work in its estuaries.	(6) Protecting coastal waters through the National Estuary Program All CCMP Goals	STAC	(Q1-Q4) Meeting summaries, agenda and materials; List of participants.

Strategy 3.3 continued

Title (Region), Budget + LOE	Description	CWA core program CCMP outcome	Partners	Timeline & Deliverables
Represent MassBays on relevant networks (Central Staff, all RCs)	Ongoing Lead and/or provide input to existing working groups and networks conducting work on topics relevant to MassBays’ desired outcomes and/or with the potential to advance CCMP implementation.	(6) Protecting coastal waters through the National Estuary Program 7) Protecting large aquatic ecosystems All CCMP Goals		(Q4) List of networks that include MassBays as a member, along with specific outputs of those networks

D. Budget

MassBays is requesting reimbursement of pre-award costs, up to 90 days, for the work included in this plan.

Narrative

These notes refer to **Table 1, MassBays National Estuary Program Proposed Budget, FFY2024.**

Assumptions

Section 320 funding allocation to MassBays will be \$850,000.

Proposed Spending

Salaries for three staff: Director (0.7754FTE), Staff Scientist (0.277FTE), and an Academic Year Graduate Program Assistant (9h/week x 36 weeks). The remainder of staff salaries will be funded under BIL, as described in a separate workplan, and other supplemental funding (RAE, WHOI Sea Grant, and an ISA from DEP, as well as pending grants under the DEP S.319 grant).

Fringe benefits: Fringe benefits are negotiated annually between the Commonwealth of MA, UMB and the Department of Health and Human Services (DHHS). Fringe benefits are costs associated with employee related expenses including health plan, pension plan, and workman's compensation expenses among others. UMB has four fringe rates in accordance with the University's FY2024 Fringe Benefits and Payroll Tax Rates memorandum and NICRA.

Rate #1 General Fringe, 43.20%

Rate #2 Health and Welfare, \$33 Bi-weekly/FTE

Rate #3 Payroll Tax, 2.11%

Rate #4 Worker's Compensation Insurance, 0.26%

We expect these rates to change for FY25 and will provide an updated budget and narrative as needed.

These rates are applied based on the personnel appointment type, benefitted/non-benefitted status, period of service and salary rates. In this case the appointment, benefits status, period of service and applicable rates are as follows:

Personnel	Appointment	Period of service	Applicable Rates
PI Pam DiBona	Professional Benefitted	Calendar	Rates 1, 2, 3, 4
Senior Scientist Prassede Vella	Professional Benefitted	Calendar	Rates 1, 2, 3, 4
Coastal Data Scientist Jill Carr	Professional Benefitted	Calendar	Rates 1, 2, 3, 4
Program Assistant	Graduate Student	School Calendar	none

Travel

No funds requested.

Supplies

No funds requested.

Contractual

No funds requested.

Other Expenses

- Regional Service Providers. This year we request \$100,000 to fund each Regional Coordinator, and \$23,715 for communications assistance from APCC, or a total of \$523,715. These funds will be expended by the RSPs over 15 months, from July 1, 2024 to September 30, 2025. Future subawards will run from October 1 through September 30, to avoid gaps in reimbursements during the summer. Subawardee budgets and justifications are included in Table 2.
- Healthy Estuaries Grants. MassBays is setting aside \$29,169 for the next round of our small-grant program. Our FFY2025 workplan will add to that to fund awards scheduled for early 2026.

Indirect Charges

The University of Massachusetts Boston has a Facilities and Administrative overhead rate of 36.4%, which is a federally negotiated indirect cost rate agreement between University of Massachusetts Boston and the Department of Health and Human Services effective 10/02/2020. The indirect rate is charged to expenditures relating to direct costs. For FFY24, no indirect costs are charged against the RSP subawards, as they will be continuing under this supplemental award. Funds set aside for Healthy Estuaries Program awardees will be subject to indirect because they will most likely be to new partners and will be for amounts less than \$25,000 each.

Matching Funds

Grantee match. MassBays will apply \$30,005 matching funds to cover the following expenses:

- Travel, including boat lease and truck rental for transporting the boat to field sites; travel to conferences, including the National Estuary Program Tech Transfer Conference in New York in Fall 2024 and the annual Spring meeting in DC; and regional conferences.
- Supplies, especially meeting supplies and light refreshments to host a Gulf of Maine Science Forum.
- Web-based services, including web application hosting, website content management system, and tools to support monitoring communities of practice.

Subawardees. Regional partners, in their scopes of work to serve as RSPs to MassBays, identify sources of match for the program. A match of at least 50% is required; this year a total of \$739,995 is offered by the RSPs (Table 3). Sources of match offered include revenue from membership, state and local grants, private foundations, etc., as well as the work of staff within these organizations on projects specifically related to our estuarine restoration and conservation efforts.

In addition, MWRA has offered \$80,000 in-kind match from their own expenditures in Massachusetts Bay.

Total match offered is \$850,000, or 100% match, comprised of the following non-Federal categories:

Match amount	Source
\$ 30,005	applicant
\$ 200,759	state
\$ 495,336	other (incl. in-kind labor)
\$ 123,900	local
\$ 850,000	total

Table 1. MassBays National Estuary Program Proposed Budget, FFY2024

FFY24 Section 320 Grant Application Massachusetts Bays National Estuary Program Proposed Expenditures	
Personnel	
Executive Director, 77.54%	\$ 103,574
Staff Scientist, 27.7%	\$ 33,105
Academic Year Graduate Project Assistant (36wk x 9h/wk)	\$ 10,176
subtotal, salaries	\$ 146,855
Fringe benefits (<i>see narrative</i>)	\$ 63,188
subtotal, fringe	\$ 63,188
subtotal, salaries + fringe	\$ 210,043
Travel, Supplies	
<i>None requested</i>	\$ -
subtotal, travel + supplies	\$ -
Contractual	
<i>None requested</i>	\$ -
subtotal, contractual	\$ -
Other (Subawards)	
Healthy Estuaries Grant Program	\$ 29,169
Regional Service Providers (5 subawards, through 9/30/25)	\$ 523,715
subtotal, other	\$ 552,884
Total Direct	\$ 762,927
Indirect	
36.4% (salaries+fringe, subawards <\$25K, travel, supplies, contracts)	\$ 87,073
subtotal, indirect	\$ 87,073
Total Request	\$ 850,000
Matching funds	
Direct match (Travel, Supplies, MWRA match)	\$ 110,005
Subawardees' match	\$ 739,995
Total Match, FY22	\$ 850,000

Table 2. Regional Service Provider (Subawardee) budgets with justification

Merrimack Valley Planning Commission				
Line Item	Requested	Match	Total	Detail/Justification
Salaries	\$ 41,059	\$ 21,165	\$ 62,214	RC salary, no fringe charged
Travel	\$ 1,500		\$ 1,500	standard-rate mileage, travel throughout the Upper North Shore Region
Supplies	\$ 1,500		\$ 1,500	printing photos and maps; PVC transect frames, microplastics sampling supplies
Indirect	\$ 55,941	\$ 28,835	\$ 84,776	136.24% applied to Salaries
Total	\$ 100,000	\$ 50,000	\$ 150,000	

Salem Sound Coastwatch				
Line Item	Requested	Match	Total	Detail/Justification
Salaries	\$ 100,000	\$ 50,000	\$ 150,000	RC salary, no fringe incurred
Travel		\$ 500	\$ 500	standard-rate mileage, travel throughout the Lower North Shore Region
Supplies		\$ 500	\$ 500	water quality monitoring supplies
Indirect		\$ 33,000	\$ 33,000	22% on Salaries
Total	\$ 100,000	\$ 84,000	\$ 184,000	

North and South Rivers Watershed Association				
Line Item	Requested	Match	Total	Detail/Justification
Salaries	\$ 69,608	\$ 42,120	\$ 111,728	Match includes 2 summer interns
Fringe	\$ 7,920	\$ 4,377	\$ 12,297	11% on RC salaries; 8% on intern salaries
Travel	\$ 1,264	\$ 542	\$ 1,806	standard-rate mileage, travel throughout the region
Other Direct	\$ 1,240	\$ 531	\$ 1,771	professional development, conference registrations, miscellaneous expenses
Indirect	\$ 19,968	\$ 8,558	\$ 28,526	23% on salaries and fringe (rate approved by Commonwealth of Massachusetts 2021-2022)
Total	\$ 100,000	\$ 56,128	\$ 156,128	

Association to Preserve Cape Cod				
Line Item	Requested	Match	Total	Detail/Justification
Salaries	\$ 83,119		\$ 83,119	RC salary, Communications staff
Fringe	\$ 18,286		\$ 18,286	22% on salaries
Indirect	\$ 22,309		\$ 22,309	22% on salaries and fringe
Total	\$ 123,715	\$ -	\$ 123,715	

Table 2, continued

Northeastern University Marine Science Center				
Line Item	Requested	Match	Total	Detail/Justification
Salaries & Fringe	\$ 98,000	\$ -	\$ 98,000	Fringe rate 25.9% on Salaries
Travel	\$ 800		\$ 800	
Supplies	\$ 100		\$ 100	
Other	\$ 1,100	\$ -	\$ 1,100	meeting refreshments, GIS support
Indirect		\$ 60,000	\$ 60,000	unrecovered indirect costs, 60% of direct costs
Total	\$ 100,000	\$ 60,000	\$ 160,000	

Table 3. Subawardee match offered

APCC Task	Amount	Type of match (non-federal)
Monitor cyanobacteria	\$ 136,031	Grants and contracts with local organizations & towns, APCC dues and donations
Monitor herring	\$ 39,190	in-kind volunteer labor
Chase Garden Creek salt marsh, sediment assessments	\$ 38,163	Foundation funding
Sesuit Creek salt marsh restoration	\$ 10,000	Foundation funding
total APCC match	\$ 223,384	
NSRWA Task	Amount	Type of match (non-federal)
Operations (<i>refer to Table 2</i>)	\$ 56,128	salaries, indirect, travel, supplies
South Shore salt marsh restoration prioritization	\$ 37,897	CZM grant
eelgrass monitoring in Duxbury Bay	\$ 2,862	DMF funding
North River Commission	\$ 50,000	DCR funding
Watersmart South Shore	\$ 49,900	town funding
Program volunteers (eelgrass monitoring, horseshoe crabs, Riverwatch, herring)	\$ 21,824	in-kind
total NSRWA match	\$ 218,611	

MVPC Task	Amount	Type of match (non-federal)
Operations (<i>refer to Table 2</i>)	\$ 50,000	MVPC salaries, indirect
Microplastic Sampling	\$ 5,000	Saltmarsh Restoration Funds
Salt marsh restoration	\$ 5,000	Saltmarsh Restoration Funds
total MVPC match	\$ 60,000	

Table 3, continued		
SSCW Task	Amount	Type of match (non-federal)
Operations (<i>refer to Table 2</i>)	\$ 84,000	indirect, operating
Greenscapes	\$ 74,000	Essex County municipalities
Greening Gateway City Program	\$ 20,000	DCR grant
total SSCW match	\$ 178,000	
NUMSC Task	Amount	Type of match (non-federal)
Indirect (<i>refer to Table 2</i>)	\$ 60,000	indirect fees not charged
total NUMSC match	\$ 60,000	