



MASSACHUSETTS BAYS PROGRAM

FY13 Annual Work Plan

July 1, 2012 - June 30, 2013



June 8, 2012

Commonly Used Acronyms

8T&GM	Eight Towns & the Great Marsh Committee
APCC	Association to Preserve Cape Cod
CCMP	Comprehensive Conservation and Management Plan
CRC	Coastal Resources Committee (Barnstable County)
CRE	Climate Ready Estuaries
CZM	Office of Coastal Zone Management
DCR	Department of Conservation and Recreation
DEP	Department of Environmental Protection
DER	Department of Ecological Restoration
DMF	Division of Marine Fisheries
DNR	Department of Natural Resource
EEA	Executive Office of Energy & Environmental Affairs
EIS	Environmental Impact Statement
EPA	Environmental Protection Agency
GOM	Gulf of Maine
GOMC	Gulf of Maine Council
LID	Low Impact Development
MAPC	Metropolitan Area Planning Commission
MAS	Massachusetts Audubon Society
MBP	Massachusetts Bays Program
MET	Massachusetts Environmental Trust
MIT	Massachusetts Institute of Technology
MORIS	Massachusetts Ocean Resources Information System
MVPC	Merrimack Valley Planning Commission
MWRA	Massachusetts Water Resources Authority
NDA	No Discharge Area
NEANS	Northeast Aquatic Nuisance Species
NEP	National Estuary Program
NOAA	National Oceanic and Atmospheric Administration
NPDES	National Pollutant Discharge Elimination System
NRCS	Natural Resources Conservation Service
NPS	Non-point source pollution
NSRWA	North and South Rivers Watershed Association
QAPP	Quality Assurance Project Plan
RPA	Regional Planning Agency
RSP	Regional Service Provider
SSCW	Salem Sound Coastwatch
TNC	The Nature Conservancy
UHI	Urban Harbors Institute
UNH	University of New Hampshire
USFWS	United States Fish & Wildlife Service

Cover photo: Norwell boat ramp during “King Tide” by Sara Grady

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I. Introduction

The Massachusetts Bays Program (MBP), its staff, and Management Committee, are pleased to submit this application for funding for implementation of our State FY13 Work Plan (July 1, 2012 - June 30, 2013). This Work Plan builds on a successful year of implementation in FY12, which included a second year of the Massachusetts Bays Research and Planning Grants, the addition of a new staff member, Lisa Engler, and initiation of the development of an updated Comprehensive Conservation and Management Plan (CCMP) for the Program, to name just a few achievements. The funding support and partnership with EPA has been vital to the success of these efforts, and we greatly look forward to continued collaboration with EPA and all of our partners.

The next year will be one of transition for the program, as MBP seeks a new Executive Director. We (MBP staff and Management Committee members) have every confidence that we are positioned to make great strides in the protection and restoration of the health of our estuaries over the coming year in spite of this transition.

It is our pleasure to submit this Work Plan for your review, and we appreciate any thoughts or comments you might have. We thank you for your support and look forward to a continued, productive partnership.

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II. Objectives for the Coming Year

As part of the ongoing effort to update the CCMP, the MBP Management Committee, staff, and Regional Service Providers (RSPs) have begun to develop updated program priorities. These priorities are in keeping with the 2009-2012 Strategic Plan and the current CCMP. However, each Regional Service Provider (RSP), working in conjunction with their local governance committee or board, was challenged in FY 2012 to articulate the top five management objectives for each of MBP's five regions. These management objectives have been coupled with indicators of ecosystem health and overall success in making progress on each of these objectives. The management objectives for each region are listed below.

Cape Cod

- 1) Expand temporal and spatial extent of open shellfish beds and enhance protection and restoration efforts.
- 2) Restore tidally-restricted salt marshes and protect salt marsh habitat.
- 3) Restore and protect diadromous fish habitat to help rebuild threatened fish populations.
- 4) Improve water quality in order to protect and restore the habitat of important coastal species.
- 5) Prepare for and understand the potential impacts of climate change and sea level rise on coastal ecosystems and communities and enhance education and adaptation efforts.

South Shore

- 1) Expand temporal and spatial extent of open shellfish beds.
- 2) Improve continuity and habitat quality in freshwater and estuarine systems.
- 3) Restore and protect diadromous fish habitat to help rebuild threatened fish populations.
- 4) Manage impacts of invasive species to intertidal habitats.
- 5) Improve local understanding and acceptance of the potential impacts of climate change and sea level rise on ecosystems.

Boston Harbor

- 1) Understand the estuarine habitat restoration needs for the region and develop habitat specific restoration targets for Boston Harbor.
- 2) Protect and restore eelgrass habitat.
- 3) Restore degraded salt marsh and protect salt marsh habitat.
- 4) Protect and restore diadromous fish habitat.
- 5) Prepare for and understand the potential impacts to estuarine habitats associated with climate change.

Salem Sound

- 1) Reduce bacterial contamination in Salem Sound.
- 2) Protect and restore eelgrass habitat.
- 3) Enhance understanding of the transport, population dynamics, and impacts of invasive species.
- 4) Prepare for and understand the potential impacts of climate change and sea level rise on coastal ecosystems and communities, and enhance education and adaptation efforts.
- 5) Protect and restore emergent wetland habitats.

Upper North Shore

- 1) Protect and restore native vegetation in the Great Marsh.
- 2) Increase local understanding and acceptance of the impacts of climate change and sea level rise.
- 3) Restore degraded salt marsh and protect salt marsh habitat.

- 4) Mitigate negative impacts to water quality and water quantity affecting the habitats of the Great Marsh.
- 5) Identify and preserve the “traditional, sustainable uses” of the Great Marsh region.

These objectives can be summarized in the overarching (preliminary) objectives for the Program.

- 1) Expand temporal and spatial extent of shellfish beds.
- 2) Improve estuarine water quality.
- 3) Protect and restore estuarine habitats.
- 4) Enhance the understanding of the transport, population dynamics and impacts of invasive species.
- 5) Prepare for and understand the potential impacts of climate change and sea level rise.

During FY13, MBP will continue the process of updating its CCMP. However, the path forward will be determined in cooperation with the new Executive Director for the Program.

III. Highlights of Successes from the Past Year

MBP and its partners have had continued success in improving the health and condition of estuarine habitats in the MBP planning area. More specifically, the program has succeeded over the past year in engaging local communities through the Research and Planning Grants and other local initiatives, elevating the profile of the organization, and making progress on an update of its CCMP with the support of local communities. Some examples of our successes and program highlights include:

Coastal America Partnership Award for Stony Brook

A [Coastal America Partnership Award](#) was bestowed upon the Stony Brook Salt Marsh Restoration Project team, which included Jo Ann Muramoto, MBP's Cape Cod RSP. Only awarded to a few projects each year, this national honor goes to "outstanding collaborative projects and excellence in leadership for protecting, preserving and restoring the nation's coastal resources."

Research and Planning Grants, Year 2

The second annual Massachusetts Bays Program (MBP) Research and Planning Grants initiative funded eight projects totaling \$135,000 located along the coasts of Massachusetts and Cape Cod Bays. The selected projects address the Priority Actions of the CCMP while targeting a wide range of issues that identify the causes of coastal habitat degradation, develop plans to address coastal water quality pollution issues, and/or build local capacity to protect coastal resources. MBP provided funding to:

- **The Town of Danvers** to identify a sustainable funding mechanism for stormwater management (\$20,000).
- **The Cape Cod Commercial Hook Fishermen's Association** to enhance and expand the River Herring Warden Network, which was created thanks to a 2011 MBP Research and Planning Grant (\$7,441).
- **The Saugus River Watershed Council** to conduct a smelt spawning habitat assessment in the Saugus River (\$10,000).
- **The University of New Hampshire** to create an eelgrass habitat suitability model in Plum Island Sound and identify potential restoration sites (\$25,000).
- **The Wildlands Trust** to develop a plan for the South River Greenway and establish a walking trail along the South River (\$6,749).
- **The Provincetown Center for Coastal Studies** to conduct research on the sources and persistence of pharmaceuticals in Cape Cod Bay (\$22,119).
- **Salem State University** to explore the nature and causes of reduced water clarity in Salem Harbor that may exacerbate eelgrass degradation (\$24,992).
- **The Massachusetts Division of Marine Fisheries** to identify and prioritize restoration opportunities for coastal aquatic habitats in the MBP planning area (\$20,000).

Conservation Mooring Project Completed

In January, MBP submitted a final report on the Conservation Mooring/Eelgrass Restoration project funded by the Association of National Estuary Programs (ANEP) Community Based Restoration Partnership. This project resulted in the installation of 16 conservation moorings as well as a significant eelgrass transplanting effort. In the spirit of the National Estuary Program, this was a truly collaborative project that included nine partner organizations and municipalities. More work on conservation moorings is planned for FY13.

Metro Boston Habitat Atlas

In the winter of 2012, MBP, in partnership with the Urban Harbors Institute and CZM, completed the first phase of the Boston Harbor Habitat Atlas project. Funded by a grant from the Massachusetts

Environmental Trust, the project partners developed the Boston Harbor Habitat Atlas, which describes the extent, condition, and protection/restoration potential of seven priority habitats: diadromous fish, intertidal flats, near shore submerged, rocky intertidal, salt marsh, seagrass beds, and shellfish beds found in the Boston Harbor region. There are two primary components of the Atlas: the Atlas website and the online data viewer (the Atlas's own version of CZM's [MORIS](#)). The Atlas website acts as a gateway to the spatial and non-spatial data found in the data viewer. The two parts of the Atlas allow the user to read about or view spatial information depicting resources in the Boston Harbor region, depending on their level of interest. The Atlas will be released to the public later in 2012.

Great Marsh Legislative Task Force

The unique collaboration of legislators and local stewards, known as the Great Marsh Revitalization Task Force, is making strides towards its goal of managing invasive species in the Great Marsh. The Task Force met multiple times this winter to discuss 2011's accomplishments and set goals for 2012.

Coordinated by the MBP's North Shore RSP and chaired by State Senator Minority Leader Bruce Tarr (R-Gloucester) and former State Senator Steven Baddour (D-Methuen) with State Representative Michael Costello (D-Newburyport), the Task Force meeting in January was attended by over 40 federal, state, local, not-for-profit, academic, and private stakeholders concerned with the spread of invasive *Phragmites* in the Great Marsh. Actions recommended by the Task Force include:

- developing a hydrodynamic model of the Merrimack River Estuary and Plum Island River to better understand the tidal flushing and sediment transport patterns of the system;
- mapping the current extent of *Phragmites* to establish a baseline condition;
- treating and mowing the most robust and emergent stands of *Phragmites*;
- developing a five-year *Phragmites* Management Plan;
- hiring an education coordinator; and
- identifying possible funding sources for *Phragmites* management.

Publications

In FY 2011-2012, MBP provided resources and cooperative assistance to produce a number of publications related to estuarine resources Management and Access. They include:

- *The Pepperweed Control Handbook*: A guide to mapping and managing the salt marsh invader, perennial pepperweed (*Lepidium latifolium*).
- *North and South Rivers Stream Prioritization Project*: An atlas of impediments to stream flow in the North and South Rivers Watershed developed with MBP funding.
- *Salem Sound to Boston Kayaking Guide*: A guide to paddling access and trails developed by the MBP Salem Sound RSP, Salem Sound Coastwatch.
- *Cooperative Resource Management Plan for the Great Marsh*: A lead-up to developing a comprehensive Resource Management Plan for the Great Marsh Area of Critical Environmental Concern.

IV. Budget

A. Proposed Expenditures (FY13 Grant)

Personnel	
Total Personnel (Director, Scientist, SPC)	\$155,000
Fringe	
Fringe @ 29.09%	\$45,090
Travel	
Total Travel	\$5,000
Contractual - Subcontracts	
CCMP Update	\$10,000
Total Contractual - Subcontracts	\$10,000
Contractual - Sub-grants	
Regional Coordinators (61,000 x 4)	\$244,000
FY12 Research and Planning Grants	\$100,000
Total Contractual - Sub-grants	\$344,000
Indirect	
Indirect Charges @ 20.05% (personnel and sub-contracts)	\$33,083
Total Other Charges	\$33,083
Other Expenses	
Other (printing, IT, admin, supplies, etc.)	\$5,027
Total Other Expenses	\$5,027
Total	\$597,200

B. Proposed Expenditures (Carryover)

Contractual - Subcontracts	
Conservation Moorings Education and Outreach	\$6,000
Total Contractual - Subcontracts	\$6,000
Indirect	
Indirect Charges @ 20.05% (personnel and contractual)	\$1,203
Total	\$7,203

C. Budget Narrative (FY13 Grant)

Personnel and Fringe: MBP will continue to support the salary of one full-time (Executive Director) and two part-time staff (Staff Scientist and Special Projects Coordinator). Fringe and payroll taxes bring the total budget for personnel to \$200,090.

Travel: The travel budget of \$5,000 will support, at a minimum, travel of the Director to the Annual NEP Director’s meeting as well as the Association of National Estuary Program’s fall meeting. Other travel to conferences, workshops, and meetings will be considered on a case by case basis.

Contractual-subcontracts: MBP has allocated \$10,000 to contract support for the CCMP update.

Contractual-subgrants: MBP will continue to support four Regional Service Providers in our Upper North Shore, Salem Sound, South Shore, and Cape Cod Regions. Funding for these positions will be \$61,000. This includes a modest increase of \$1,250/region from last year.

MBP has budgeted \$100,000 for the FY13 Research and Planning Grant Program. We anticipate selecting 8-10 projects ranging from \$10,000-20,000 per project.

Indirect: The state indirect rate of 20.05% will be assessed against all personnel and contractual budget items for a total of \$33,083. Sub-grants are exempt from indirect charges.

Other Expenses: MBP has budgeted the remaining funds (\$5,028) for printing, supplies and the maintenance of server space for the MBP web page.

D. Budget Narrative (Carryover)

Contractual-Subcontracts: \$6,000 of carryover funds will be used to evaluate the ecological, functional, and economic aspects of conservation moorings.

Indirect: The state indirect rate of 20.05% will be assessed against the conservation mooring project for a total of \$7,203.

E. Match

Source (by MBP Region)	Description	Cash or In-Kind	Match Amount
Cape Cod Region			
Private foundation grant	APCC 2012 Maggie Geist Internship – conduct survey of stormwater practices and needs in Cape Cod towns for Stormwater Report Cards for municipalities	Cash	\$7,000
Town of Brewster contract	Conduct monitoring for Stony Brook Salt Marsh and Fish Passage Restoration Project	Cash	\$12,800

Source (by MBP Region)	Description	Cash or In-Kind	Match Amount
Cape Cod Conservation District	Facilitate Herring River (Wellfleet) Restoration EIS	Cash	\$15,000
APCC	Cape Cod Water Resources Restoration Project	In-kind	\$14,000
Private foundation grant; datalogger donation from Onset Computer	Equipment for monitoring fish runs, salt marsh and water quality (e.g., dataloggers, computer tablet for data entry, digital camera, YSI multiprobe for water quality, herring counting kits, etc. APCC personnel time and intern to support monitoring.	Equipment In-kind cash	\$21,000 \$2,000 \$6,000
Private foundation grant	Prepare Cape Cod Regional Wastewater Management Plan	Cash	\$50,000
Massachusetts Environmental Trust/Private Foundation	Build regional marine aquatic invasive species monitoring program for Cape Cod	Cash	\$15,000
APCC membership dues and donations	Other projects (e.g., zoning reform, environmental coalition support, etc.), general administrative support; information technology support; materials, supplies and communication.	Cash and in-kind	\$18,500
APCC	APCC Share for RC	Cash	\$28,200
South Shore Region			
NSRWA/towns/DEP (lab testing)	Bacterial Source Tracking and Remediation	In-kind	\$105,500
NSRWA/teachers/town officials	Municipal Stormwater Outreach	In-kind	\$33,800
NSRWA/partners	Restoration and Maintenance of Shellfish Bed Habitat	In-kind	\$4,950
NSRWA/DER	Salt Marsh Restoration Monitoring	Cash and in-kind	\$7,200
NSRWA/partners	Coastal Stream Restoration Planning	In-kind	\$9,250
NSRWA/towns	Duxbury Bay Management Plan	In-kind	\$3,400
NSRWA/partners	Anadromous Fish Run Monitoring	In-kind	\$6,925
NSRWA/DER/towns	First Herring Brook Restoration	Cash and in-kind	\$16,250
NSRWA/partners	Third Herring Brook Restoration	In-kind	\$1,150
NSRWA/partners	Coastal Invasive Species Outreach, Monitoring, and Management	In-kind	\$4,625
NSRWA/partners	Municipal Climate Outreach	In-kind	\$3,750
NSRWA	NSRWA share for RC	Cash	\$23,764
Salem Sound Region			
SSCW	Clean Beaches & Streams Program	Cash	\$8,000

Source (by MBP Region)	Description	Cash or In-Kind	Match Amount
SSCW	Low Impact Development Outreach	In-kind	\$4,000
SSCW	Conservation Moorings to Restore Eelgrass	In-kind	\$6,000
SSCW/volunteers	Adopt a Beach Program	In-kind	\$2,000
SSCW/DER/Friends of Good Harbor	Salt Marsh Monitoring	Cash and in-kind	\$7,327
SSCW/UMass/DEP	Conservation Assessment and Prioritization System (CAPS)	Cash and in-kind	\$25,000
SSCW	Examine issues that have closed all shellfish beds in Salem Sound to harvesting	In-kind	\$2,000
SSCW	SSCW Share for RC	cash	\$22,784
Upper North Shore Region			
MVPC/partners	Upper Great Marsh <i>Phragmites</i> Control	In-kind	\$28,000
MVPC/Merrimac College and MVPC	Great Marsh <i>Phragmites</i> Mapping and Control	Cash and in-kind	\$64,400
MVPC/Volunteers	Coordinate the Efforts of the Great Marsh Revitalization Task Force (GMRTF)	In-kind	\$6,100
MVPC	Merrimack River Estuary Circulation Proposal	In-kind	\$1,440
MVPC/Metropolitan Planning Organization	Upper North Shore Climate Change Adaptation Workshop(s)	Cash/In-kind	\$28,300
MVPC/Metropolitan Planning Organization	Climate Change Impacts to Regional Transportation Networks	Cash/in-kind	\$26,440
MVPC	Anadromous Fish Monitoring	In-kind	\$3,940
MVPC	Coastal Marsh Restoration Projects	In-kind	\$3,600
MVPC	Great Marsh Promotion and Outreach Effort	In-kind	\$9,360
MVPC/Upper North Shore Communities	Stormwater Outreach and Assistance to Communities	In-kind	\$26,600
MVPC/Eight Towns and the Great Marsh	Inventory Historic and Current Oyster Resources on the Upper North Shore	In-kind	\$6,160
MVPC/volunteers	Determine and Inventory Other Significant "Traditional Sustainable Marsh Uses"	In-kind	\$10,600
MVPC	MVPC Share for RC	Cash	\$66,792
Bays Wide			
Regional Coordinators/Various partners	Pepperweed monitoring and control	Cash and in-kind	\$22,226
Regional Coordinators/Volunteers	Marine invasive species monitoring	In-kind	\$3,440

Source (by MBP Region)	Description	Cash or In-Kind	Match Amount
Regional Coordinators/Municipalities/volunteers/school teachers	Greenscapes	In-kind	\$83,560
TNC	Conservation Mooring Assessment Project	Cash	\$4,000
Grant Recipients	Non-federal match from Research and Planning Grant Program	Cash and in-kind	\$33,333
		Total	\$915,466

F. Budget Narrative (Match)

MBP has worked closely with its regional partners to identify sources of match for the program. These funding sources are linked directly to the implementation of the CCMP as well as the 2009-2012 Strategic Plan. Each of our RSPs has identified a substantial cash and in-kind match as detailed above. Funding sources from the RSPs include revenue from membership, state and local grants, local donors, etc., as well as the work of staff within these organizations on projects specifically related to our estuarine restoration and conservation efforts.

The Research and Planning Grant Program requires a minimum 25% match of the total project cost (or 33.3% of the MBP contribution) and will leverage a minimum of \$33,333 in match, though matching contributions are typically 50% or more. An additional \$4,000 in match has been contributed by The Nature Conservancy (TNC) for a total of \$915,466 in qualifying matching funds.

V. Staff and Key Partner Responsibilities

Executive Director

The MBP Executive Director (the Director), is responsible for the overall management of the program, including administration of grants and contracts, staff supervision, and general program operations. The Director works with the MBP Management Committee and program staff to set priorities for the program and facilitates development of the three year Strategic Plan as well as an annual Work Plan and grant application to EPA. The Director coordinates with EPA and the host agency, the Office of Coastal Zone Management (CZM), on administrative and programmatic issues, and provides oversight to the RSPs. The Director also develops and leads MBP technical and policy initiatives as needed, and will work with staff, the Management Committee, and partners to seek additional resources for MBP.

Staff Scientist

The MBP Staff Scientist, Prassede Vella, works half time with MBP and half time with our host agency, CZM, as an Ocean Management Specialist. The staff scientist is primarily responsible for the development of ecosystem indicators, which will serve as the foundation for our CCMP update. Development of subsequent State of the Bays Reports will be led by the Staff Scientist. The Staff Scientist is also primarily responsible for coordination of the MBP Research and Planning Grant Program.

Special Projects Coordinator

The Special Projects Coordinator position is a new one for MBP (replacing the outreach coordinator position), and was filled by Lisa Engler late in FY11. The Special Projects Coordinator will have primary responsibility for MBP communications, such as weekly reports, newsletters, and web management. The Special Projects Coordinator will also be the lead on initiatives in the Metro Boston Region, and will work closely with RSPs on community specific initiatives.

Regional Service Providers

MBP's four Regional Service Providers (RSPs) serve as our primary means of communication with the communities of the MBP planning area. RSPs are responsible for identifying regional priorities that are consistent with the CCMP and the Strategic Plan, and for developing strategies for implementing the annual Work Plan at the local level. RSPs are hosted by regional planning agencies or nonprofit organizations that currently include:

- The Merrimack Valley Planning Commission: Upper North Shore Region
- Salem Sound Coastwatch: Salem Sound Region
- The North and South Rivers Watershed Association: South Shore Region
- The Association to Preserve Cape Cod: Cape Cod Region.

RSPs are responsible for coordinating the activities of MBP with these organizations. MBP will renew the four existing RSP contracts in FY13.

VI. Proposed New and Ongoing Projects

For FY13, MBP staff, RSPs, and Management Committee members have developed an ambitious programmatic work plan that includes a third year of Research and Planning Grants, a number of outreach initiatives, and the continuing effort to update MBP's CCMP. Programmatic priorities for FY13 are described in more detail below.

A. Programmatic Activities (P)

- **Task P1: Update CCMP.** In FY13, MBP will continue the effort to update its CCMP. MBP will build on the draft goals outlined in section II, above, as well as the results of an ongoing Estuarine Assessment and Delineation project (to be completed in June 2012), which will collect baseline information on the 47 estuaries and embayments that make up the MBP planning area. Work in FY13 will focus on a series of regional listening sessions, which will be designed to present the results of the assessment and vet the draft goals with the informed stakeholders. Up to five listening session will be held early in 2013. A draft CCMP will be developed by the end of the fiscal year. Funding has been set aside to secure the services of a facilitator for regional listening sessions and contract assistance with compilation and drafting.
 - Responsible Parties: Central Staff, RSPs, and Management Committee Members.
 - Partners: MBP Communities
 - Budget: \$10,000 MBP Cash
 - Outputs/Deliverables: Five listening sessions; draft CCMP update
 - Short-Term Outcome: Concise plan for improving and tracking estuarine condition and health in the MBP planning area
 - Intermediate Outcomes: Action taken to implement plan
 - Long-Term Outcomes: Improved habitat and water quality condition within Massachusetts Bay
 - Region: Bays-wide
 - Time-Line: Throughout FY13; Regional listening sessions, Winter 2013; Draft CCMP presented by end of FY13
 - CCMP Action Item: NA
 - CWA Core Program Area: NA

- **Task P2. FY12 Massachusetts Bays Program Research and Planning Grants (ongoing).** FY12 was the second year for the MBP Research and Planning Grant Program. The program continues to be successful in expanding the reach and visibility of the program. MBP received 23 applications for over \$400,000 in response to the grant offering. The eight projects funded in FY12 will be completed during the first half of FY13 (by the end of the calendar year).
 - Responsible Parties: Mass Bays Director and Staff Scientist will administer the grant program. RSPs will manage projects located in their respective regions.
 - Partners: Award Recipients
 - Budget: A total of \$135,000 was awarded in FY12
 - Outputs/Deliverables: Products are detailed in individual project Scopes of Work
 - Intermediate Outcomes: Road map for future initiatives in MBP priority program areas; increased partnerships among MBP communities and non-profits
 - Long Term Outcomes: Improved habitat and water quality conditions within Massachusetts Bay
 - Region: Bays-wide

- Time Line: RFP issued in Fall of 2011, Projects will be completed in calendar year 2012
 - CCMP Action item: This activity will cover many areas of CCMP including Action items including #3-Protection and enhancing coastal habitat and #4-Reducing and preventing stormwater pollution.
 - CWA Core Program Area: 2, 4, 5, 6
- **Task P3. FY13 Massachusetts Bays Program Research and Planning Grants (new).** Building on the success of the Research and Planning Grant Program, MBP will run this program again in FY13. Priority projects will include those that build upon or are redeveloped from FY11 and FY12 applications and projects, as well as those that support ongoing MBP initiatives. Individual grants will likely range from \$10K to \$20K.
 - Responsible Parties: MBP Director and Staff Scientist will administer the grant program. Regional Service Providers will manage projects located in their respective regions
 - Partners: Grant recipients
 - Budget: \$100,000 MBP cash for FY13; \$33,333 required for FY13 grant round match.
 - Outputs/Deliverables: To be determined based on RFP Process
 - Intermediate Outcomes: Road map for future initiatives in MBP priority program areas; increased partnerships among MBP communities and non-profits
 - Long-Term Outcomes: improved habitat and water quality condition within Massachusetts Bay
 - Region: Bays-wide
 - Time Line: RFP issued in summer 2012, projects completed in calendar year 2013
 - CCMP Action item: This activity will cover many areas of the CCMP including Action items #3-Protection and enhancing coastal habitat and #4-Reducing and preventing stormwater pollution.
 - CWA Core Program Area: 2, 4, 5, 6
- **Task P4: Communications (ongoing).** Outreach priorities for FY13 include the continued publication of the MBP Quarterly Newsletter, promotion of activities related to the CCMP update process, contributions to the state's "Great Outdoors Blog" and otherwise promoting the overall mission of the program, as well as local initiatives. MBP will scope the use of web mapping technologies such as the Massachusetts Ocean Resource Information System (MORIS) to develop a web tracking tool for MBP initiatives.
 - Responsible Parties: Special Projects Coordinator
 - Partners: NA
 - Budget: \$0 MBP cash
 - Outputs/Deliverables: Quarterly newsletters, updated web page, CCMP tracking tool, miscellaneous outreach products
 - Short-Term Outcome: Greater awareness of MBP initiatives
 - Intermediate Outcomes: Improved visibility and support for MBP Initiatives
 - Long-Term Outcomes: Improved stewardship of the MBP Planning Area
 - Region: Bays-wide
 - Time Line: Newsletter Quarterly. Remaining items TBD.
 - CCMP Action item: This action item promotes overall implementation of the CCMP
 - CWA Core Program Area: NA

B. Expand temporal and spatial extent of open shellfish beds (SF)

- **Task SF1. Inventory and identify opportunities for shellfish restoration and protection on Cape Cod.** The Cape Cod Regional Coordinator will continue to work with local and

- regional partners to identify opportunities for shellfish restoration and protection in the region. Subtasks include identifying opportunities that can be addressed by the Cape Cod Water Resources Restoration Project; Promoting continued operation of regional shellfish seed production facilities; and supporting regional efforts to improve water quality to open or improve the status of shellfish beds that are critically important to ensuring the Cape's future shellfish aquaculture and stocking programs; and provide outreach to local, regional, state and federal agencies and legislators to encourage support for such a facility on Cape Cod.
- Responsible Parties: Cape Cod RSP
 - Partners: DMF, Natural Resources Conservation Service (NRCS), Cape Cod LGC (Barnstable County Coastal Resources Commission); local shellfish constables
 - Budget: \$0 MBP cash
 - Outputs/Deliverables: inventory of potential shellfish bed restoration sites, pollution sources, and approaches for addressing pollution to open or upgrade the classification status of shellfish beds.
 - Short-term Outcome: Improved understanding of shellfish bed remediation needs
 - Intermediate Outcomes: Action taken to open beds
 - Long-Term Outcome: Increased acreage of harvestable shellfish beds
 - Region: Cape Cod
 - Time Line: Ongoing through FY13
 - CCMP Action item: Action Plan #2-Protecting and Enhancing Shellfish Resources
 - CWA Core Program Area: 4-6
- **Task SF2. Restoration and Maintenance of South Shore Shellfish Bed Habitat.** The South Shore RSP and host, NSRWA will partner with The Nature Conservancy to investigate the potential for restoring shellfish habitat in the North and South Rivers and Plymouth. The RSP will also assist the Division of Marine Fisheries and the Towns of Scituate and Marshfield with seeding the shellfish beds of the North and South Rivers.
 - Responsible Parties: South Shore RSP and Regional Host
 - Partners: NSRWA staff, teachers, volunteer educators, town officials in-kind time
 - Budget: \$0 MBP cash; \$4,950 in-kind contributions NSRWA
 - Outputs/Deliverables: Initial surveys of existing and potential shellfish habitat; Seeding of North and South Rivers shellfish beds
 - Short-term Outcome: Improved understanding of South Shore Shellfish bed enhancement/restoration priorities
 - Intermediate Outcomes: Increased population of select shellfish species
 - Long-Term Outcome: Increased acreage of harvestable shellfish beds
 - Region: South Shore
 - Time Line: Ongoing through FY13
 - CCMP Action item: Action Plan #2-Protecting and Enhancing Shellfish Resources
 - CWA Core Program Area: 4-6
 - **Task SF3: Identifying issues that have closed all shellfish beds in Salem Sound to harvesting.** The Salem Sound RSP will continue to explore contamination issues that have left closed all shellfish beds in the Salem Sound Region to harvesting.
 - Responsible Parties: South Shore RSP
 - Partners: DMF, Salem sound communities
 - Budget: \$0 MBP cash; \$2,000 in-kind contribution Salem Sound Coastwatch
 - Outputs/Deliverables: Strategy for opening at least one shellfish bed in Salem Sound and identification of focused actions

- Short-term Outcome: Improved understanding of Salem Sound Shellfish bed enhancement/restoration priorities
 - Intermediate Outcomes: Action taken to open at least one shellfish bed
 - Long-Term Outcome: At least one open shellfish bed in the Salem Sound Region
 - Region: Salem Sound
 - Time Line: Ongoing through FY13
 - CCMP Action item: Action Plan #2-Protecting and Enhancing Shellfish Resources; Action Plan # 4 Reducing and Preventing Stormwater Pollution
 - CWA Core Program Area: 4-6
- **Task SF4: Inventory of Historic and Current Oyster Resources on the Massachusetts Upper North Shore.** The Upper North Shore RSP will identify historic and current oyster resources in the coastal waters of the Upper North Shore.
 - Responsible Parties: Upper North Shore RSP
 - Partners: Eight Towns and the Great Marsh (formerly Eight Towns and the Bay); Great Marsh Communities
 - Budget: \$0 MBP cash; \$6,160 In-kind contributions of MVPC and Great Marsh Communicates
 - Outputs/Deliverables: A review of past and present oyster resources in the Upper North Shore Region (the Great Marsh)
 - Short-term: Improved understanding of historic oyster beds on the Upper North Shore
 - Intermediate Outcomes: Plan for restoring oyster beds on the Upper North Shore.
 - Long-Term Outcome: Improve oyster bed resources on the Upper North Shore.
 - Region: Upper North Shore
 - Time Line: Inventory completed by June 2013
 - CCMP Action item: Action Plan #2-Protecting and Enhancing Shellfish Resources
 - CWA Core Program Area: 4-6

C. Improve estuarine water quality

- **Task WQ1: Greenscapes.** Greenscapes will continue to be a feature program in the Upper North Shore, Salem Sound, and South Shore Regions. The Upper North Shore and Salem Sound Regional Coordinators will incorporate the eco-friendly landscaping and stormwater management practices into municipal stormwater management plans as they relate to the revised (forthcoming) NPDES MS4 permits. The South Shore Region has expanded its Greenscapes efforts to include the elementary school “Water All around You” program.
 - Responsible Parties: MBP RSPs
 - Partners: RSP host organizations, over 20 Greenscapes communities
 - Budget: \$0 MBP cash; \$49,760 cash contribution of participating municipalities; \$33,800 in-kind contributions of local volunteers and schools teachers
 - Outputs/Deliverables: Education and outreach components of municipal MS4 permits. “Wetter is All Around You” educational materials, Greenscapes publications
 - Short-term: improved local understanding of eco-friendly landscaping practices/stormwater mitigation best management practices (BMPs)
 - Intermediate Outcomes: Decreased stormwater runoff
 - Long-Term Outcomes: Improved estuarine water quality
 - Time Line: ongoing through FY13
 - CCMP Action item: Action Plan #4-Reducing Stormwater Pollution; 7-Managing Municipal Wastewater; 15-Public Education and Partnership
 - CWA Core Program Area: 5, 6

- **Task WQ2: Promote stormwater management in Cape Cod Bay communities.** The Cape Cod Regional Coordinator will promote stormwater management through outreach, evaluation of municipal stormwater management programs (e.g., “Stormwater Report Card for Cape Cod Municipalities”), technical assistance, and grant-writing support. Proposed sub-tasks included developing a “Stormwater Report Card for Cape Cod Municipalities” and evaluating towns’ programs for stormwater management, and providing outreach on the results, and assisting municipalities to obtain support and funding for stormwater remediation projects.

 - Responsible Parties: Cape Cod RSP
 - Partners: Cape Cod Communities
 - Budget: \$0 MBP cash; \$7,000 APCC (cash and in-kind)
 - Outputs/Deliverables: Stormwater Report Card
 - Short-term Outcome: Improved understanding of Cape Cod stormwater management needs
 - Intermediate Outcomes: Action taken to address deficiencies
 - Long-Term Outcome: Improved water quality due to effective stormwater management
 - Region: Cape Cod
 - Time Line: Ongoing through FY13
 - CCMP Action Item: Action Plan #4-Reducing Stormwater Pollution
 - CWA Core Program Area: 4-6

- **Task WQ3: Promote science-based evaluation of nitrogen-uptake capabilities of natural or restored coastal ecosystems on Cape Cod.** Many communities on Cape Cod are interested in using restored and natural ecosystems (e.g., shellfish beds, salt marshes, wetlands) to provide nitrogen uptake to mitigate nitrogen loading from septic systems. Public policies and actions should be based on sound science, and the scientific validity of using shellfish and wetlands to take up nitrogen needs to be better documented. Proposed subtasks are to:

 - 1) Support efforts to scientifically quantify nitrogen uptake by shellfish by conducting a literature review and providing outreach. A comprehensive literature review of shellfish uptake of nitrogen so far appears to be lacking, yet there is widespread interest in using shellfish for nitrogen uptake to alleviate the costs of sewerage in several Cape Cod communities (e.g., Barnstable, Wellfleet, Eastham, Falmouth, Mashpee, etc.). APCC will investigate the need for such a comprehensive review by consulting with shellfish scientists and managers and if it is lacking, the RSP will compile and evaluate references and information provided these are from documentable and credible sources. Once the review is completed, the RSP will work with the CRC to provide outreach on the results. One possible venue is a workshop sponsored by the CRC, which in 2008 co-sponsored with the County Shellfish Advisory Committee a workshop on the science of nitrogen uptake by shellfish.
 - 2) Investigate the need for and feasibility of conducting a similar review concerning use of restored and natural salt marshes and other wetlands for nitrogen uptake. Work with restoration partners to determine whether there is a need to provide outreach on this subject.
 - Responsible Parties: Cape Cod RSP and Regional Host, APCC
 - Partners: Cape Cod Communities
 - Budget: \$0 MBP cash; \$50,000 cash match from APCC and private foundations for the development of a Cape Cod Regional Wastewater Management Plan
 - Outputs/Deliverables: Literature review of nutrient attenuation options;
 - Short-term Outcome: Improved understanding of nutrient attenuation options
 - Intermediate Outcomes: Action taken to implement management options
 - Long-Term Outcome: Reduced nutrient loading to Cape Cod Bay embayments

- Time Line: Ongoing through FY13
- CCMP Action Plan #11-Protecting Nitrogen Sensitive Embayments
- CWA Core Program Area: 4-6

- **Task WQ4: South Shore Bacterial Source Tracking and Remediation.** The South Shore RSP will assist stakeholders with testing for and finding sources of bacterial pollution, and support local efforts to reduce bacterial pollution through stormwater management. In particular, the RSP will help the Town of Marshfield follow through with previous bacterial tracking and remediation efforts on the South River and help Kingston and Duxbury in moving forward with implementation of BMPs, and assist Scituate in identifying the source of bacterial pollution to Sandhills Beach.
 - Responsible Parties: South Shore RSP
 - Partners: NSRWA, communities, DEP
 - Budget: \$0 MBP cash; \$105,500 in-kind contribution from NSRWA, community volunteers, and DEP lab support
 - Outputs/Deliverables: Sampling plan for Sandhill Beach, CPR grants application for stormwater remediation
 - Short-term Outcome: improved understanding of sources of contaminated runoff
 - Intermediate Outcomes: Action taken to reduce contamination
 - Long-Term Outcome: Improved water quality in affected areas
 - Region: South Shore
 - Time Line: Ongoing through FY13
 - CCMP Action item: Action Plan #4-Reducing Stormwater Pollution
 - CWA Core Program Area: 4-6

- **Task WQ5: South Shore Stormwater Outreach.** The South Shore RSP will work with communities to pursue stormwater management opportunities through installation of BMPs, identification of critical areas of impervious surface, and technical assistance related to stormwater utilities and stormwater bylaws. The RSP and host, NSRWA will continue to promote the Greenscapes program and associated 5th Grade “Water All around You” program as a way to provide outreach to South Shore communities on water conservation, stormwater and ecologically friendly landscaping.
 - Responsible Parties: South Shore RSP and Regional Host
 - Partners: NSRWA staff, teachers, volunteer educators, town officials in-kind time
 - Budget: \$0 MBP cash; \$33,800 in-kind contribution from NSRWA staff, teachers, volunteer educators, town officials in-kind time
 - Outputs/Deliverables: BMP installation, progress towards stormwater utilities and bylaws, outreach to communities/public
 - Short-term Outcome: Improved local understanding of stormwater remediation options
 - Intermediate Outcomes: Action taken to implement stormwater remediation options
 - Long-Term Outcome: Reduced stormwater contamination to Cape Cod Bay
 - Region: South Shore
 - Time Line: Ongoing through FY13
 - CCMP Action item: Action Plan #4-Reducing Stormwater Pollution
 - CWA Core Program Area: 4-6

- **Task WQ 6: Cape Cod Bay No Discharge Area Follow-up.** The Cape Cod RSP will conduct a survey of pumpout use and provide boater outreach to Cape Cod Bay boaters. APCC will work with CZM, EPA Region 1, DMF, and local coastal managers and

harbormasters to develop and conduct a suitable survey and provide the results to the public and decision-makers to encourage use of pumpouts.

- Responsible Parties: Cape Cod RSP
 - Partners: CZM, EPA Region 1, DMF, Cape Cod communities
 - Budget: \$0 MBP cash
 - Outputs/Deliverables: Inventory of pumpouts and usage based on interviews with harbormasters, pumpout managers and pumpout-funding agencies.
 - Short-term Outcome: Improved understanding of boat pump out usage and issues
 - Intermediate Outcomes: Increased boat pumpout usage/reduced boat waste discharge
 - Long-Term Outcome: Reduced overall pollutant loading to Cape Cod Bay
 - Time Line: Summer/Fall 2012
 - CCMP Action Plan #8-Manage Boat Waste and Marine Pollution
 - CWA Core Program Area: 4-6
- **Task WQ7: Clean Beaches & Streams Program.** The Salem Sound RSP will identify bacterial non-point pollution sources throughout Salem Sound through its volunteer based Clean Beaches and Streams Program.
 - Responsible Parties: Salem Sound RSP
 - Partners: Salem Sound Communities/Volunteers
 - Budget: \$0 MBP cash; \$8,000 cash contribution of SSCW; the Salem Sound RSP will be seeking grant funding from MET as part of the Rockmore Settlement (potential \$75,000)
 - Outputs/Deliverables: Bacterial analysis for 20 outfalls to Salem Sound, updated QAPP, and list of bacterial hot spots in Salem Sound and remediation efforts
 - Short-term Outcome: Improved understanding of stormwater/illicit discharge remediation priorities and opportunities
 - Intermediate Outcomes: Action taken to remediate discharge
 - Long-Term Outcome: Open shellfish beds in Salem Sound
 - CCMP Action Plan #4-Reducing and preventing stormwater pollution
 - CWA Core Program Area: 4-6
 - **Task WQ8: Sewer Connection Title 5.** The Salem Sound RSP and partners will identify opportunities to minimize illicit connections of home sanitary waste systems to sewer lines and other connections to ground and surface water. The RSP will evaluate regulatory opportunities to require sewer line inspections at the time of home transfer such as Title 5 of the state environmental code and Illicit Discharge Detection and Elimination Requirements of the NPDES MS4 Program.
 - Responsible Parties: Salem Sound RSP
 - Partners: TBD
 - Budget: \$0 MBP cash
 - Outputs/Deliverables: Review of regulatory requirements such as NPDES Phase II MS4 Illicit Discharge Detection and Elimination requirements and Title 5 of the Massachusetts Environmental Code.
 - Short-term Outcome: Improved understanding of the related regulatory environment
 - Intermediate Outcomes: Movement on bolstering regulations or enforcement
 - Long-Term Outcome: Increased inspection of sewer line connections in Salem Sound
 - CCMP Action Plan #7-Managing Municipal Wastewater
 - CWA Core Program Area: 4-6
 - **Task WQ 9: Stormwater Outreach and Assistance to Communities.** The Upper North Shore RSP will work with local communities and community stormwater committees to

increase awareness and understanding of the forthcoming NPDES Phase II Stormwater permit, low impact development, and progressive stormwater BMPs through workshops, presentations, or personal discussions.

- Responsible Parties: Upper North Shore RSP
- Partners: Upper North Shore Communities
- Budget: \$0 MBP cash; \$3,000 in-kind local communities; \$23,600 MVPC cash and in-kind
- Outputs/Deliverables: Stormwater funding workshop, presentations on forthcoming NPDES Phase II requirements in all Upper North Shore Communities and up-to-date community stormwater plans. Model Phase II MS4 permits outreach education and outreach requirements.
- Short-Term Outcome: Increased local understanding of regulatory requirements and best management proactive related to stormwater
- Intermediate Outcomes Full compliance with Phase II requirement on the Upper North Shore; Increased local acceptance of principals of low impact development
- Long-Term Outcome: Improved water quality in the great marsh and Upper North Shore contributing surface waters
- CCMP Action Plan #4-Reducing and preventing stormwater pollution
- CWA Core Program Area: 4-6

D. Protect and Restore Estuarine Habitats (EH)

- **Task EH1: Conservation Mooring Assessment Report:** As a follow-up to the ANEP funded conservation mooring eelgrass restoration project completed in 2011 (see below), MBP will partner with TNC and the Urban Harbors Institute (UHI) to assess the current state of knowledge and barriers to the large scale installation of conservation moorings.
 - Responsible Parties: MBP Central Staff
 - Partners: Urban Harbors Institute; TNC
 - Budget: \$6,000 MBP cash; \$4,000 cash contribution from TNC; \$6,000 in-kind contribution SSCW
 - Outputs/Deliverables: Conservation mooring assessment report
 - Short-term: Understanding of barriers to the installation of conservation moorings
 - Intermediate Outcomes: conservation mooring education and outreach plan.
 - Long-Term Outcome: Large scale installation of conservation moorings
 - Region: Bays-wide
 - Time Line: Report completed December, 2012
 - CCMP Action item: Action Plan #3-Protecting and Enhancing Coastal Habitat
 - CWA Core Program Area: 5, 6
- **Task EH2: Pepperweed Detection, Monitoring, and Control.** MBP RSPs continue to lead efforts throughout our planning area to monitor and control existing populations of pepperweed (*Lepidium latifolium*) and detect incipient populations. Each region will utilize the management practices in the Perennial Pepperweed Control Handbook, developed in FY12, to detect and monitor pepperweed populations. The Upper North Shore and Salem Sound Region will continue to actively control existing populations.
 - Responsible Parties: MBP RSPs
 - Partners: RSP host organizations, local volunteers, Mass Audubon
 - Budget: \$0 MBP cash; \$22,226 in-kind contribution of partners
 - Outputs/Deliverables: Data reports on pepperweed populations.

- Short-term Outcome: Improved understanding of pepperweed distributions; improved public awareness of threats from pepperweed to estuarine systems
 - Intermediate Outcomes: decreased populations of pepperweed
 - Long-Term Outcome: Complete eradication of pepperweed from the MBP planning area
 - Time Line: Report ongoing through FY13
 - CCMP Action item: Action Plan #3-Protecting and Enhancing Coastal Habitat
 - CWA Core Program Area: 5, 6
- **Task EH3: Cape Cod Water Resources Restoration Project.** The Cape Cod Regional Coordinator will continue to support the Cape Cod Water Resources Restoration Project and project partners by identifying and evaluating potential salt marsh restoration projects, writing grants, and providing other technical assistance and outreach.
 - Responsible Parties: Cape Cod RSP
 - Partners: NRCS; Cape Cod communities
 - Budget: \$0 MBP Cash; \$14,000 in-kind from APCC
 - Outputs/Deliverables: Memo identifying potential salt marsh restoration sites
 - Short-term Outcome: Improved understanding of salt marsh restoration opportunities on Cape Cod
 - Intermediate Outcomes: Action taken to restore salt marshes
 - Long-Term Outcome: Improved quality of salt marsh habitat
 - Region: Cape Cod
 - Time Line: Ongoing through FY13
 - CCMP Action item: Action Plan #3-Protecting and Enhancing Coastal Habitat
 - CWA Core Program Area: 5, 6
- **Task EH4: Stony Brook Salt Marsh and Fish Passage Restoration Project.** The Cape Cod Regional Coordinator will continue to support the Stony Brook Salt Marsh and Fish Passage Restoration Project in Brewster by providing assistance with project management and monitoring.
 - Responsible Parties: Cape Cod RSP
 - Partners: NOAA, Town of Brewster; DER; others
 - Budget: \$0 MBP Cash; \$12,800 cash match APCC/Town of Brewster
 - Outputs/Deliverables: American Recovery and Reinvestment Act (ARRA)/NOAA compliant monitoring reports; year-end monitoring reports
 - Short-term Outcome: Improved understanding of success of restoration efforts
 - Intermediate Outcomes: NA
 - Long-Term Outcome: NA
 - Time Line: ongoing through FY2012
 - CCMP Action item: Action Plan #3-Protecting and Enhancing Coastal Habitat
 - CWA Core Program Area: 5, 6
- **Task EH5: Herring River Restoration Project, Wellfleet.** The Cape Cod RSP will support the Herring River Restoration Project, Wellfleet by assisting with project management, monitoring, outreach or other activities, as requested by the Herring River Restoration Committee and project partners including possible development of an Environmental Impact Statement.
 - Responsible Parties: Cape Cod RSP
 - Partners: Herring River Restoration Committee; Cape Cod Conservation District
 - Budget: \$0 MBP Cash; \$15,000 cash contribution of the Cape Cod Conservation District
 - Outputs/Deliverables: TBD after working with the Herring River Restoration Committee and project partners.

- Short-term Outcome: Environmental Impact Statement for Herring River
 - Intermediate Outcomes: Action taken to restore Herring River
 - Long-Term Outcome: Improved Herring River fish run/habitat quality.
 - Time Line: ongoing through FY2013
 - CCMP Action item: Action Plan #3-Protecting and Enhancing Coastal Habitat
 - CWA Core Program Area: 5, 6
- **Task EH6: Support local and regional efforts to restore diadromous fish habitat and populations.** The Cape Cod RSP is a member of the Steering Committee for the River Herring Warden Network, a MBP-funded project to coordinate, train, and provide outreach to herring wardens, awarded to the Cape Cod Commercial Hook Fishermen’s Association. The Cape Cod RSP will continue to work with partners to support this project and other similar initiatives.
 - Responsible Parties: Cape Cod RSP
 - Partners: Cape Cod Hook Fisherman’s Association; Cape Cod Herring Wardens
 - Budget: \$0 MBP Cash; (funded by an MBP FY12 Research and Planning Grant)
 - Outputs/Deliverables: Updated BMP manual for herring run management; updated Herring Warden Network web page
 - Short-term Outcome: Improved awareness of BMPs for diadromous fish runs
 - Intermediate Outcomes: Improved management of herring runs
 - Long-Term Outcomes: Increased herring populations
 - Time Line: Ongoing through FY13
 - CCMP Action item: Action Plan #3-Protecting and Enhancing Coastal Habitat
 - CWA Core Program Area: 5, 6
- **Task EH7: Coordinate volunteer monitoring of diadromous fish runs to support restoration projects.** The Cape Cod RSP will continue an ongoing program to support volunteer herring counts along streams where restoration work is desired, underway, or completed (e.g., Stony Brook/Lower Mill Pond in Brewster; Bound Brook in Dennis, a new site; and Upper Shawme Pond in Sandwich). The RSP plans to build self-sufficiency of partners who are already conducting herring counts along streams in their towns where restoration work is still some years in the future or where restoration has been completed (e.g., Herring River in Wellfleet, Pilgrim Lake in Orleans). Proposed sub-tasks are to:
 - 1) Work with partners to train/retrain existing volunteer groups and encourage use of the new DMF software program (“Visual Counts”) that would enable individual organizations to enter and report their own count data to DMF. Partners for this sub-task include the River Herring Warden Network; Friends of Herring River in Wellfleet; Orleans Shellfish, Waterways and Herring Advisory Committee; and herring wardens and volunteers in Wellfleet and Orleans. In the spring of 2012, APCC provided training to organizations in Wellfleet and Orleans on using the DMF software to enter their own count data. In FY13, APCC proposes to provide follow-up training and/or assistance in inputting spring 2013 count data into the DMF software program.
 - 2) Provide count data management for new partners (e.g., Dennis) and current restoration partners and projects (e.g., Stony Brook/Lower Mill Pond in Brewster; Mill Creek/Upper Shawme Pond in Sandwich where DMF may restock herring in spring 2012 to restart the run after a fish ladder was installed in 2009).
 - 3) Investigate methods of streamlining count procedures and reporting (e.g., look into development of on-line, Web-based data entry systems for use by volunteers).
 - Responsible Parties: Cape Cod RSP
 - Partners: Cape Cod MBP communities and volunteers

- Budget: \$0 MBP Cash; \$2,000 in-kind and \$6,000 cash (internship) contribution of APCC
 - Outputs/Deliverables: Herring count data and run estimates for Stony Brook/Lower Mill Pond in Brewster; Mill Creek/Upper Shawme Pond in Sandwich; and Bound Brook in Dennis (new). Assessment of use of free or low-cost available on-line data entry systems and if feasible, development of prototype system for testing in Spring 2013. Data reports.
 - Short-term Outcome: Improved understanding of condition/status of diadromous fish runs
 - Intermediate Outcomes: Improved management of herring runs
 - Long-Term Outcomes: Increased herring populations
 - Time Line: Winter 2012/Spring 2013.
 - CCMP Action item: Action Plan #3-Protecting and Enhancing Coastal Habitat
 - CWA Core Program Area: 5, 6
- **Task EH8: South Shore Salt Marsh Restoration Monitoring:** The South Shore RSP will oversee and train students and volunteers in vegetation, nekton, and benthic invertebrate monitoring for the Division of Ecological Restoration (DER) wetlands program and conduct monitoring at sites around the South Shore. Sites may include Green Harbor River in Marshfield, Mushquashcut Pond in Scituate, Tussock and Stony Brook in Kingston, Broad Cove in Hingham, and Straits Pond in Hull. We will also assist the Cohasset Center for Student Coastal Research and DER with data management and reporting. The RSP will conduct a survey of the *Phragmites* transects near the Green Harbor tide gate.
 - Responsible Parties: South Shore RSP
 - Partners: DER, CSCR student and faculty in-kind time, Derby Academy in-kind time, Mass Audubon staff time, volunteers, NSRWA staff
 - Budget: \$0 MBP Cash; \$7,200 in-kind contributions of various partners
 - Outputs/Deliverables: Wetland monitoring training for CSCR students/volunteers; Vegetation, nekton, and invertebrates monitoring data; *Phragmites* survey data; Summary reports on 2012 monitoring season
 - Short-term Outcome: Improved understanding of effectiveness of restoration efforts. Identification of restoration needs
 - Intermediate Outcomes: Action taken following on monitoring efforts
 - Long-Term Outcomes: Improved quality of salt marsh habitat
 - Time Line: Ongoing through FY2013
 - CCMP Action item: Action Plan #3-Protecting and Enhancing Coastal Habitat
 - CWA Core Program Area: 5, 6
- **Task EH9: Coastal Stream Restoration Planning.** The South Shore RSP will work with stakeholders to initiate and plan local in-stream restoration projects using NSRWA's 2010-2011 stream restoration in the North and South Rivers Watershed planning effort as a guide, at locations like Iron Mine Brook and Cross Street Dam in Hanover and Pudding Brook in Pembroke. The South Shore RSP and host organization, NSRWA, will expand the data collected for the North and South Rivers Watershed and seek to pilot a similar project outside of this watershed within the South Shore region. In addition, we will provide technical support for initial planning and grant seeking efforts to improve continuity through potential dam removals at locations like Hunter's Pond Dam on Bound Brook in Scituate, Chandlers Pond on the South River in Marshfield, and Foundry Pond on the Weir River in Hingham.
 - Responsible Parties: South Shore RSP
 - Partners: NSRWA; South Shore Communities
 - Budget: \$0 MBP Cash; \$9,250 in-kind contributions of various partners

- Outputs/Deliverables: Report refining and collecting additional culvert assessment data using volunteers in the North and South Rivers watershed and another pilot watershed (to be determined); Hunter's Pond Dam feasibility study technical report
 - Short-term Outcome: Improved understanding of restoration opportunities related to stream continuity
 - Intermediate Outcomes: Action taken on restoration targets
 - Long-Term Outcome: Improved stream habitat quality/continuity on the South Shore
 - Time Line: Ongoing through FY2013
 - CCMP Action item: Action Plan #3-Protecting and Enhancing Coastal Habitat
 - CWA Core Program Area: 5, 6
- **Task EH10: Duxbury Bay Management Plan.** The South Shore RSP will continue to assist the Duxbury Bay Management Committee with implementation of the Management Plan, including research and outreach relevant to the plan on eelgrass, invasive species, and horseshoe crabs.
 - Responsible Parties: South Shore RSP
 - Partners: Duxbury Bay communities
 - Budget: \$0 MBP Cash; \$3,400 in-kind contributions of town staff and volunteers
 - Outputs/Deliverables:
 - Invasive species data, including data related to aquaculture impacts in Duxbury Bay
 - Horseshoe crab spawning survey data in Duxbury Bay
 - Technical support for conservation mooring – provide post-installation monitoring of eelgrass survival (technical memo)
 - Short-term outcome: Improved monitoring and management of the Duxbury Bay system
 - Intermediate Outcomes: Increased local support for environmentally sensitive technologies
 - Long-Term Outcome: Improved overall health of the system
 - Time Line: ongoing through FY2013
 - CCMP Action item: Action Plan #3-Protecting and Enhancing Coastal Habitat
 - CWA Core Program Area: 5, 6
- **Task EH11: South Shore Anadromous Fish Run Monitoring.** The South Shore RSP will provide support to recruit, train and coordinate volunteers to count anadromous fish in streams within the South Shore and manage count data, including analysis of populations using the Mass DMF database when appropriate. The RSP will maintain and collect data from water level and temperature data loggers in anadromous fish streams in the South Shore. The RSP will also work with the Cape Cod region to expand the herring warden network established there in 2011 to the South Shore.
 - Responsible Parties: South Shore RSP
 - Budget: \$0 MBP Cash; \$6,925 In-kind
 - Partners: NSRWA, Herring Warden Network, South Shore Communities
 - Outputs/Deliverables:
 - Volunteer fish count data (and population analysis where appropriate)
 - Temperature and water level data
 - Herring warden network expansion and support
 - Short-term Outcome: Improved understanding of diadromous fish populations and possible management actions
 - Intermediate Outcomes: Actions taken to restore populations
 - Long-Term Outcome: Increased diadromous fish populations

- CCMP Action item: Action Plan #3-Protecting and Enhancing Coastal Habitat
- CWA Core Program Area: 5, 6

- **Task EH12: First Herring Brook Restoration.** The South Shore RSP will assist the Town of Scituate with efforts to restore the First Herring Brook, including in-stream and impoundment habitat supportive of diadromous fish and other resident organisms. The RSP and NSRWA will work with DER and the Town to evaluate potential steps towards restoration such as modification of fish ladders and installation of weirs. The South Shore RSP will also assist with the implementation and evaluation of watering restrictions and minimum stream flow releases. We will conduct supplemental monitoring as needed.
 - Responsible Parties: South Shore RSP
 - Partners: Town and NSRWA staff in-kind time and funds from DER and Town of Scituate, volunteers
 - Budget: \$0 MBP Cash; \$16,250 in-kind contribution of the Town of Scituate and local volunteers
 - Outputs/Deliverables:
 - Evaluation of watering restriction
 - Stream flow data in context of water system operations plan
 - Volunteer fish count data (and population analysis where appropriate)
 - Temperature and water level data
 - Herring warden network expansion and support
 - Short-term Outcome: Improved understanding of diadromous fish populations and possible management actions
 - Intermediate Outcomes: Actions taken to restore populations
 - Long-Term Outcome: Increased diadromous fish populations
 - CCMP Action item: Action Plan #3-Protecting and Enhancing Coastal Habitat
 - CWA Core Program Area: 5, 6

- **Task EH13: Third Herring Brook Restoration.** The South Shore RSP will work to improve habitat and water quality and quantity in the Third Herring Brook by pursuing stream restoration and dam removal where possible. The RSP will also continue to monitor in stream flow through the River Instream Flow Stewards (RIFLS) program to evaluate any impacts from water withdrawals.
 - Responsible Parties: South Shore RSP
 - Partners: Town and NSRWA, DER, Town of Scituate, volunteers
 - Budget: \$0 MBP Cash; \$1,150 in-kind NSRWA
 - Outputs/Deliverables:
 - In-stream flow data
 - Completion of design and engineering work at Tack Factory Pond Dam – pre-dam removal habitat data collection
 - Building public support for Tack Factory dam removal and assisting dam owner in applying for funding and providing technical assistance throughout the process
 - Dam removal at Mill Pond Dam – pre and post dam removal habitat monitoring
 - Short-term Outcome: Improved understanding of first herring brook restoration opportunities; removal of obstructions
 - Intermediate Outcomes: Improved migratory and spawning habitat in First Herring Brook.
 - Long-Term Outcome: Increase anadromous fish populations in First Herring Brook
 - CCMP Action item: Action Plan #3-Protecting and Enhancing Coastal Habitat
 - CWA Core Program Area: 5, 6

- **Task EH14: Coastal Invasive Species Outreach, Monitoring, and Management on the South Shore.** The South Shore RSP will provide support for initial efforts to identify and if found, efforts to remove patches of pepperweed on the South Shore, particularly in Cohasset. The RSP will also provide technical support for efforts to remove and monitor the success of the removal of Japanese Knotweed on the banks of the South River in Marshfield
 - Responsible Parties: South Shore RSP
 - Partners: Local in-kind time, volunteers, and town staff, NSRWA staff, CSCR students and staff in-kind time
 - Budget: \$0 MBP Cash; \$4,625 in-kind partners
 - Outputs/Deliverables: Japanese Knotweed removed at South River Park
 - Short-term Outcome: improvised understanding of the distribution of select invasive species
 - Intermediate Outcomes: Action taken to remove invaders
 - Long-Term Outcome: Decreased population of salt marsh invaders
 - CCMP Action item: Action Plan #3-Protecting and Enhancing Coastal Habitat
 - CWA Core Program Area: 5, 6

- **Task EH15: Boston Harbor Habitat Atlas (ongoing).** MBP and UHI received funding in 2011 from the Massachusetts Environmental Trust to develop a digital atlas of habitat protection and restoration opportunities for the Metro Boston Region. MBP will continue to lead a coalition of environmental groups to identify habitat data sources and prioritize restoration opportunities.
 - Responsible Parties: Executive Director, Special Projects Coordinator
 - Partners: UHI
 - Budget: \$0 MBP Cash
 - Outputs/Deliverables: Digital atlas of prioritized habitat protection and restoration opportunities within the Metro Boston Region
 - Intermediate Outcomes: Shared understanding of habitat protection and restoration opportunities, increased success in securing funding for identified projects, increased habitat protection partnerships in the region
 - Long-Term Outcome: Increased acreage and quality of priority habitats within the Metro Boston Region
 - Region: Metro Boston
 - Time Line: Draft on-line Atlas, October, 2011; Atlas completed, December, 2011.
 - CCMP Action Item: Action Plan #3-Protecting and Enhancing Coastal Habitat
 - CWA Core Program Area: 5, 6

- **Task EH16: Salem Harbor Turbidity Study.** The Salem Sound RSP will continue the Salem Sound Water Quality Assessment with a study of the nature and causes of reduced water clarity in Salem Harbor and its potential impact on eelgrass habitat. The Salem Sound RSP will work with Salem State University Geological Sciences Department to complete the project. The project is supported by an FY12 MBP Research and Planning Grant.
 - Responsible Parties: Salem Sound RSP
 - Partners: Salem State University
 - Budget: \$0 MBP Cash; (funds were awarded in FY12 as reported below)
 - Outputs/Deliverables: Final report identifying causes of turbidity in Salem Sound
 - Short-term Outcome: Improved understanding of causes of turbidity in Salem Sound
 - Intermediate Outcomes: Plan for addressing potential causes such as stormwater runoff or boating infrastructure
 - Long-Term Outcome: Improved water clarity of Salem Harbor

- Region: Salem Sound
 - Time Line: Study and report will be completed December, 2012
 - CCMP Action Item: Action Plan #4-Reducing and Preventing Stormwater Pollution
 - CWA Core Program Area: 4, 5, 6
- **Task EH17: Salem Sound Salt Marsh Monitoring.** The Salem Sound RSP will monitor emergent wetland at Thissell Marsh (Beverly), Salem marshes (Old Creek , Pickman Park and Lead Mills tidal restoration), Good Harbor Marsh (Gloucester), and at other salt marshes to be determined with DER through a Master Service Agreement.
 - Responsible Parties: Salem Sound RSP
 - Partners: Salem State University
 - Budget: \$0 MBP Cash; \$7,327 cash and in-kind contribution of DER SSCW, and Friends of Good Harbor (FOGH)
 - Outputs/Deliverables: post-restoration monitoring data and reports to DER; trained local stewards at Good Harbor and report for FOGH to apply for DER wetland priority status; technical assistance to Salem Conservation agent
 - Short-term Outcome: Improved understanding of condition of Salem Sound salt marshes, restoration opportunities, and restoration results
 - Intermediate Outcomes: Action taken to implement restoration activities
 - Long-Term Outcome: Improved habitat quality of Salem Sound salt marshes
 - Region: Salem Sound
 - Time Line: Study and report will be completed December, 2012
 - CCMP Action Item: Action Plan #3-Protecting and Enhancing Coastal Habitat
 - CWA Core Program Area: 4, 5, 6
- **Task EH18: Conservation Assessment and Prioritization System (CAPS):** The Salem Sound RSP will support state agencies' efforts to assess wetland condition through the development of the CAPS model by collecting and identifying macroinvertebrates from coastal wetlands.
 - Responsible Parties: Salem Sound RSP
 - Partners: CZM, DEP UMass
 - Budget: \$0 MBP Cash; \$30,000 cash DEP grant
 - Outputs/Deliverables: data report on macroinvertebrates collected from 45 salt marshes
 - Short-Term Outcome: Improved understanding of wetland condition in the context of environmental stressors
 - Intermediate Outcome: TBD based on results of the study and resulting regulatory action
 - Long-Term Outcome: TBD
 - Region: Salem Sound
 - Time Line: Ongoing through 2013
 - CCMP Action Item: Action Plan #3-Protecting and Enhancing Coastal Habitat
 - CWA Core Program Area: 5, 6
- **Task EH19: Great Marsh *Phragmites* Mapping and Control:** The Upper North Shore RSP has laid out an ambitious agenda for continuing to map, monitor, and lead efforts to control invasive *Phragmites* in the Great Marsh system, These efforts include: Controlling *Phragmites* in the upper great marsh; mapping open *Phragmites* stands in the mid and lower Great Marsh; mapping *Phragmites* in northern Salisbury marshes; and developing a five year *Phragmites* management and treatment plan.
 - Responsible Parties: Upper North Shore RSP

- Partners: U.S. Northeast Mosquito Control, and Parker River National Wildlife Refuge; Merrimack College; DER
 - Budget: \$0 MBP Cash; \$64,400 in-kind contribution of partners including DER, Merrimack College, Northeast Mosquito Control, and MVPC
 - Outputs/Deliverables: Five-year *Phragmites* Control Management Document, vetted by Massachusetts state agencies. Maps of *Phragmites* stands covering the entire Great Marsh System
 - Short-term Outcome: Unified approach to controlling *Phragmites* in the Great Marsh
 - Intermediate Outcome: Decreased acreage of *Phragmites*
 - Long-Term Outcome: *Phragmites* has little ecological impact on the Great Marsh System
 - Region: Upper North Shore
 - Time Line: Ongoing through 2013
 - CCMP Action Item: Action Plan #3-Protecting and Enhancing Coastal Habitat
 - CWA Core Program Area: 5, 6
- **Task EH20: Coordinate the Efforts of the Great Marsh Revitalization Task Force (GMRTF).** The Upper North Shore RSP will organize, coordinate, and develop projects for the GMRTF and the four committees to ensure Great Marsh stakeholders are engaged in ongoing short-term and long-term *Phragmites* management and treatment efforts.
 - Responsible Parties: Upper North Shore RSP
 - Partners: U.S. Fish and Wildlife, Merrimack College
 - Budget: \$0 MBP Cash; \$3,600 in-kind contribution of MVPC; \$2,500 in-kind contribution of various volunteers/partners
 - Outputs/Deliverables: Maps of *Phragmites* stand locations in the entire Great Marsh for the period of 2008 -2012
 - Short-term Outcome: Improved understanding of *Phragmites* spread and distribution rates
 - Intermediate Outcome: Action taken to control the spread of *Phragmites*
 - Long-Term Outcome: Decreased acreage of *Phragmites*
 - Region: Upper North Shore
 - Time Line: Ongoing through 2013
 - CCMP Action Plan #3-Protecting and Enhancing Coastal Habitat
 - CWA Core Program Area: 5, 6
- **Task EH21: Upper North Shore Anadromous Fish Monitoring.** The Upper North Shore RSP will continue to organize volunteers to monitor alewife passage in the Essex River.
 - Responsible Parties: Upper North Shore RSP
 - Partners: Eight Towns and the Great Marsh (8T&GM) Committee and local volunteers (Chebacco Lake Association and others) will also be providing additional support and funding to the project
 - Budget: \$0 MBP Cash; \$1,440 in-kind MVPC; \$2,500 in-kind volunteers
 - Outputs/Deliverables: data report on fish run observations
 - Short-term Outcome: Improved understood/tracking of the fish run in the Essex River
 - Intermediate Outcome: Action taken to improve Upper North Shore Fish runs
 - Long-Term Outcomes: Increased herring population
 - Region: Upper North Shore
 - Time Line: Spring, 2013
 - CCMP Action Item: Action Plan #3-Protecting and Enhancing Coastal Habitat
 - CWA Core Program Area: 5, 6

- **Task EH22: Great Marsh Restoration Projects.** The Upper North Shore RSP will coordinate with communities and partner organizations to advance ongoing coastal restoration projects in the Great Marsh, including Town Creek, Larkin Mill Dam, Mill Pond flood gates, Castle and Neck Creek.
 - Responsible Parties: Upper North Shore RSP
 - Partners: MA Division of Ecological Restoration, NOAA Restoration Center, regional not-for-profit organizations, community partners, and private landowners will contribute significantly to these projects
 - Budget: \$0 MBP Cash
 - Outputs/Deliverables: Deliverables to include project milestones for each phase of the individual projects. Castle Neck Creek: agreement by Northeast Massachusetts Mosquito Control to perform work under their authorization; Mill Pond: tide gates installation; Town Creek: flood control structure design
 - Short-term Outcome: Strategies for advancing ongoing restoration initiatives
 - Intermediate Outcome: Action taken on restoration initiatives
 - Long-Term Outcomes: Improved salt marsh habitat quality of the Great Marsh
 - Region: Upper North Shore
 - Time Line: Ongoing through FY2013
 - CCMP Action Item: Action Plan #3-Protecting and Enhancing Coastal Habitat
 - CWA Core Program Area: 5, 6

- **Task EH 23 Inventory Significant Traditional, Sustainable uses of the Great Marsh.** The Upper North Shore RSP will work with the Eight Towns and the Great Marsh local governance committee to identify and map pertinent sustainable and traditional uses of the Great Marsh. These uses may include fishing, fowling, and hunting, salt marsh haying, fruit and vegetable harvesting, mussel harvesting, etc.
 - Responsible Parties: Upper North Shore RSP
 - Partners: Eight Towns and the Great Marsh
 - Budget: \$0 MBP Cash; \$10,600 cash and in-kind contribution of MVPC and Eight Towns and the Great Marsh
 - Outputs/Deliverables: Listing and maps of identified traditional marsh uses.
 - Short-term Outcome: Sustainable uses of the Great Marsh identified
 - Intermediate Outcome: Plan for preserving traditional uses is developed
 - Long-Term Outcomes: Traditional uses are preserved in perpetuity
 - Region: Upper North Shore
 - Time Line: ongoing through FY2013
 - CCMP Action Plan #3-Protecting and Enhancing Coastal Habitat
 - CWA Core Program Area: 5, 6

E. Manage Marine Invasive Species (MIS)

- **Task MIS1: Support the Marine Invasive Species Monitoring and Information Collaborative.** MBP will continue to support the Marine Invader Monitoring and information Collaborative (MIMIC) by organizing volunteers to monitor for marine invasive species in the Upper North Shore, Salem Sound (see Task MIS 2, below), South Shore, and, most recently, Cape Cod Regions (see Task MIS2, below). RSPs will coordinate monitoring at a minimum of 20 sites throughout the MBP planning area.
 - Responsible Parties: RSPs
 - Partners: Massachusetts Office of Coastal Zone Management; MIT Sea Grant
 - Budget: \$0 MBP Cash; \$3,440 contribution of volunteers

- Outputs/Deliverables: Data reports for a minimum of 20 locations; data uploaded to MIMIC web site and database
 - Short-Term Outcome: Improved understanding of invasive species colonization, transport, dispersal and distributions in Massachusetts and Cape Cod Bays
 - Intermediate Outcomes: Reduced rate of invasive species colonization
 - Long-Term Outcome: Reduced or stabilized impact of invasive species on Massachusetts and Cape Cod Bay habitats
 - Region: Bays-wide
 - Time Line: Sampling from May-November 2012; Data Reports/entry into MIMIC database, Fall-Winter, 2013.
 - CCMP Action Plan #16-Preventing Marine Invasive Species
 - CWA Core Program Area: 5, 6
- **MIS2: Regional Aquatic Invasive Monitoring Program for Cape Cod.** In FY12, APCC initiated a new regional aquatic invasive monitoring program for Cape Cod. In this fiscal year, APCC will continue to solidify this program, building a small but knowledgeable volunteer monitoring group, and providing outreach to marina operators, boaters, natural resource managers and the public on the threats to native ecosystems posed by marine invasive species and simple control measures. Preliminary reconnaissance of potential survey sites in Cape Cod Bay includes Sandwich Marina, Sandwich tide pools, and Barnstable Harbor. APCC plans to reconnoiter two more sites, and to begin regular monitoring in 2012.
 - Responsible Parties: Cape Cod RSP
 - Partners: Massachusetts Office of Coastal Zone Management; MIT Sea Grant
 - Budget: \$0 MBP Cash; \$15,000 cash match APCC (through Massachusetts Environmental Trust Grant)
 - Outputs/Deliverables: Completed reconnaissance of two additional Cape Cod Bay sites and monitoring data on aquatic invasive species at a total of five Cape Cod Bay sites, using the MIMIC protocol.
 - Short-Term Outcome: Improved understanding of marine invasive species colonization, transport, dispersal and distributions in Massachusetts and Cape Cod Bays
 - Intermediate Outcome: Reduced rate of marine invasive species colonization
 - Long-Term Outcome: Reduced or stabilized impact of marine invasive species on Cape Cod Bay habitats
 - Region: Bays-wide
 - Time Line: Summer/Fall 2012; Spring 2013
 - CCMP Action Plan #16-Preventing Marine Invasive Species
 - CWA Core Program Area: 5, 6

F. Adapt for projected impacts of climate change (CC)

- **Task CC1: Evaluate impacts of sea level rise on wastewater management and coastal water quality.** The Cape Cod RSP will work with Barnstable County, the Cape Cod Commission, DEP and other partners to evaluate and publicize potential impacts of sea level rise on septic systems and subsequent impacts on water quality and coastal ecosystems. APCC, the Cape Cod Regional Host, has already held preliminary discussions with potential partners to plan this project and will apply for grant funding to conduct this project.
 - Responsible Parties: Cape Cod RSP
 - Partners: APCC, Barnstable County, the Cape Cod Commission, DEP
 - Budget: \$0 MBP Cash

- Outputs/Deliverables: MET grant proposal, project plan, inventory of data sources, literature review.
 - Short-Term Outcome: Improved understanding of potential impacts of sea level rise on wastewater infrastructure
 - Intermediate Outcomes: TBD
 - Long-Term Outcome: TBD
 - Region: Cape Cod
 - Time Line: Summer 2012; Winter 2012/2013.
 - CCMP Action item: Objective A8 of the 2009-2012 Strategic Plan
 - CWA Core Program Area: 4-6
- **Task CC2: Compile examples of impacts of sea level rise and climate change affecting coastal communities on Cape Cod.** The goal of this task is to utilize the collected information to support outreach on adaptation measures for coastal ecosystems and coastal communities.
 - Responsible Parties: Cape Cod RSP
 - Partners: APCC
 - Budget: \$0 MBP Cash
 - Outputs/Deliverables: Compiled examples of the impacts of sea level rise and climate change affecting coastal communities on Cape Cod.
 - Short-Term Outcome: Improved understanding of the impacts of Sea Level Rise on Cape Cod
 - Intermediate Outcome: TBD
 - Long-Term Outcome: TBD
 - Region: Cape Cod
 - Time Line: Winter 2012/Spring 2013
 - CCMP Action item: Objective A8 of the 2009-2012 Strategic Plan
 - CWA Core Program Area: 4-6
- **Task CC3: South Shore Municipal Climate Outreach.** The South Shore RSP will assist communities by providing outreach on the ecological impacts of climate change and sea level rise, and support ongoing efforts by other partners (CZM, MAPC) in local communities to educate citizens and town officials about climate change impacts.
 - Responsible Parties: South Shore RSP
 - Partners: NSRWA
 - Budget: \$0 MBP Cash; \$3,750 contribution of NSRWA
 - Outputs/Deliverables: Presentation on ecological impacts to conservation commissions; Outreach on sea level rise vulnerability assessments for Marshfield, Scituate, and Duxbury
 - Short-Term Outcome: Greater awareness of potential climate change impacts
 - Intermediate Outcomes: Action taken to address vulnerabilities
 - Long-Term Outcome: TBD
 - Region: South Shore
 - Time Line: Ongoing through FY2013
 - CCMP Action item: Objective A8 of the 2009-2012 Strategic Plan
 - CWA Core Program Area: 4-6
- **Task CC4: Adopt a Beach Program.** Through its popular Adopt a Beach Program, SSCW and the Salem Sound RSP train volunteers to collect long-term beach profile data. The data

will be used to document impacts of sea-level rise and storms at Salem Sound Beaches and associated infrastructure.

- Responsible Parties: Salem Sound RSP
 - Partners: SSCW, CZM
 - Budget: \$0 MBP Cash; \$2,000 in-kind contribution of volunteers
 - Outputs/Deliverables: Graphs of beach profiles at 4 beaches to establish trend analysis and reporting to CZM's Coastal Storm Damage Reporting Program
 - Short-Term Outcome: Improved understanding of the impacts of climate change to Salem Sound beaches; local volunteers engaged in climate science and monitoring
 - Intermediate Outcome: TBD
 - Long-Term Outcome: TBD
 - Region: Salem Sound
 - Time Line: Ongoing through FY2013
 - CCMP Action item: Objective A8 of the 2009-2012 Strategic Plan
 - CWA Core Program Area: 4-6
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- **Task CC5: Great Marsh Sea Level Rise Adaptation Workshop (s).** The Upper North Shore RSP will develop and host one (possibly two) Sea Level Rise/Climate Change Adaptation Workshop(s). The goals of the workshop will be to inform Great Marsh community officials and municipal board members of the local threat from sea level rise to both natural systems and transportation infrastructure and potential mitigation measures.
 - Responsible Parties: Upper North Shore RSP
 - Partners: The Trustees of Reservation, Essex Country Greenbelt Association, Massachusetts Audubon Society, DER, Metropolitan Area Planning Council, CZM, and Great Marsh communities
 - Budget: \$0 MBP cash; \$25,000 cash and in-kind contribution of the Metropolitan Area Planning Organization, \$3,300 in-kind contribution of MVPC
 - Outputs/Deliverables: Sea level rise workshop and proceedings; local sea level rise maps (based on LiDAR), projected future SLR scenarios, climate change impact areas depicted on region-wide transportation infrastructure, and a one day outreach workshop displaying community level sea level rise impacts.
 - Short-Term Outcome: Great marsh community leaders informed on potential climate impacts
 - Intermediate Outcome: Action taken to address potential impacts/vulnerabilities
 - Long-Term Outcome: TBD
 - Region: Salem Sound
 - Time Line: Ongoing through FY2013
 - CCMP Action item: Objective A8 of the 2009-2012 Strategic Plan
 - CWA Core Program Area: 4-6
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- **Task CC6: Merrimack River Estuary Circulation Proposal.** The Upper North Shore RSP will work with area stakeholders to initiate a modeling effort to determine riverine and tidal circulation patterns in the Merrimack River Estuary/Plum Island Sound for improved management of anthropogenic response to climate change events.
 - Responsible Parties: Upper North Shore RSP
 - Partners: Merrimack College, UNH, MVPC, DCR
 - Budget: \$0 MBP Cash; Army Corps of Engineers has committed \$200,000 to the project (about 50% of the projected cost-non-qualifying match). \$1,440 In-kind contribution of MVPC
 - Deliverables: Scope of services and early tasks completed toward the development of a hydrodynamic model

- Short-Term Outcome: Improved understanding of Merrimack River Estuary circulation patterns and implications for its response to climate stressors
- Intermediate Outcome: TBD
- Long-Term Outcome: TBD
- Region: Upper North Shore
- Time Line: Ongoing through FY2013
- CCMP Action item: Objective A8 of the 2009-2012 Strategic Plan
- CWA Core Program Area: 4-6

VII. Previous Year Activities

The following section provides a description of major activities undertaken by MBP during FY12 beginning with Bays-wide initiatives and moving through estuarine protection and restoration efforts specific to each region. The following list represents highlights of major program focus areas, and does not represent the full range of project management, technical assistance, and capacity building efforts undertaken by MBP staff and RSPs. Note that previous years activities correspond with the FY2009-2012 Strategic Plan Action Items.

Programmatic Priorities (P)

P1: Update CCMP. In FY12, MBP embarked on an effort to update its CCMP, which was last revised in 2003. FY12 activities focused on developing indicators at the regional or embayment scale and characterizing local estuarine systems. Findings and draft management priorities will be presented to local constituents in FY13. MBP contracted with Geosyntec Consultants, Inc. to conduct delineation and assessment of 47 subembayments within Massachusetts and Cape Cod Bays and to begin gathering information on select ecosystem and socioeconomic indicators specific to each region and subembayment. MBP anticipates completing its revisions of the CCMP during FY13.

- Lead: MBP
- 320 Budget: \$50,000 MBP cash
- Project deliverable(s): Draft management goals; delineation of embayment boundaries and gathering data for indicators
- Environmental results: Projected results are improved water quality and estuarine habitat
- Role: Primary

P2: FY11 Massachusetts Bays Program Research and Planning Grants. FY11 was the inaugural year for the MBP Research and Planning Grant Program. The program successfully expanded the reach and visibility of the program. MBP received 21 applications totaling over \$550,000. The eight projects funded in FY11 were completed during the first half of FY12 (by end of the calendar year).

- Lead: MBP
- 320 Budget: \$200,000 MBP cash
- Project deliverable(s): Products are detailed in individual project Scopes of Work
- Environmental results: Restoration and protection activities supporting goals of the CCMP
- Role: Primary

P3: FY12 Massachusetts Bays Program Research and Planning Grants. Building on the success of its 2011 Research and Planning Grant Program, MBP is running this program again in FY12. MBP received 23 applications for over \$400,000. The eight projects funded in FY12 will be completed during the first half of FY13 (by the end of the calendar year).

- Lead: MBP
- 320 Budget: \$135,000 MBP cash
- Project deliverable(s): Products are detailed in individual project Scopes of Work
- Environmental results: Projected results are improved water quality and estuarine habitat and ecosystem health
- Role: Primary

P4: Communications (ongoing). The Special Projects Coordinator continued to produce quarterly MBP newsletters, post relevant resources to the MBP web site, and seek other opportunities to promote and build support for MBP initiatives.

- Lead: MBP
- 320 Budget: \$0 MBP Cash
- Project deliverable(s): Quarterly newsletter; updated web page (ongoing); outreach products
- Environmental results: NA
- Role: Primary

MBP Strategic Plan Objectives

Objective A1: *Protect and enhance coastal habitat*

A1a. Eelgrass Restoration and Conservation Moorings. MBP, in partnership with APCC and SSCW, was awarded \$30,000 by the Association of National Estuary Programs to undertake eelgrass restoration initiatives in the Massachusetts towns of Manchester-by-the-Sea and Provincetown. The project replaced eight traditional block and chain moorings with low-impact conservation mooring systems in both Manchester and Provincetown harbors. The project is expected to improve up to four acres of heavily impacted eelgrass.

- Lead: MBP
- 320 Budget: \$0MBP Cash; \$30,000 ANEP Grant (non-qualifying)
- Project deliverable(s): Installation of 14 conservation moorings
- Environmental results: About 0.5 acres of direct eelgrass habitat restoration; improvement of approximately four acres of eelgrass habitat
- Role: Primary

A1b. Boston Harbor Habitat Atlas. In 2010, MBP and the Urban Harbors Institute (UHI) at UMass Boston received funding from the Massachusetts Environmental Trust (MET) to develop a digital atlas of habitat protection and restoration opportunities for the Metro Boston Region. The project, which was completed at the end of calendar year 2011, established a coalition of environmental groups to identify habitat data sources and restoration priorities and increase the visibility of MBP in this region.

- Lead: MBP
- 320 Budget: : \$13,881.17 MBP Cash (carryover); \$12,309 UHI (qualifying match)
- Project deliverable(s): Digital atlas of prioritized habitat protection and restoration opportunities within the Metro Boston Region
- Environmental results: Increased acreage and quality of priority habitats within the Metro Boston Region
- Role: Primary

A1c. Pepperweed Monitoring, Mapping, and Eradication: During FY11, MBP in collaboration with Mass Audubon developed a guide to identifying, mapping, and monitoring pepperweed along New England salt marshes. The handbook was published and distributed in the fall of 2011. During FY12, MBP conducted training sessions in each of its regions to show conservation agents, volunteer monitors, and other local organizations how to track the spread and distribution of pepperweed. Since pepperweed has yet to be documented on Cape Cod, early detection efforts are focused in that region. Salem Sound continued with its pepperweed removal program and developed a map of these locations.

- Lead: MBP RSPs
- 320 Budget: \$0 MBP Cash; \$10,000 qualifying match Mass Audubon; \$3625 in qualifying in-kind match from SSCW and APCC

- Project deliverable(s): Perennial Pepperweed (*Lepidium latifolium*) Control Handbook (Fall 2011); map of pepperweed locations in Salem Sound
- Environmental results: eight acres of pepperweed eradicated
- Role: Primary

A1d. Diadromous Fish Run Monitoring. MBP RSPs continued to lead efforts to monitor diadromous fish populations throughout the MBP planning area. Over 20 impacted and restored fish passage locations were monitored in runs on the Upper North Shore, Cape Cod, and South Shore. The Cape Cod RSP conducted visual counts and used DMF software to store and manage data for the first time. During spring FY12, 30 monitoring kits were obtained and volunteer training was conducted at six runs in five towns on the Cape.

- Lead: MBP RSPs
- 320 Budget: \$0 MBP Cash; \$14,600 in qualifying in-kind match from NSRWA and APCC
- Outputs/Deliverables: Volunteer fish count data reports provided to NOAA
- Environmental results: Increased spawning success of anadromous fish in the MBP planning area increased survivorship of diadromous fish
- Role: Primary

A1e. Cape Cod NRCS Water Resources Restoration Project. MBP provided the Cape Cod Local Governance Committee (Barnstable County Coastal Resources Committee (CRC), with technical assistance and coordination for the Cape Cod Water Resources Restoration Project (CCWRRP). The sum of \$6.5 million has been allocated through American Recovery and Reinvestment Act of 2009 (ARRA) for 17 stormwater remediation projects, six salt marsh restoration projects, and four fish run restoration projects. At least four stormwater and one salt marsh restoration projects were completed. MBP provided support through advocacy, legislative outreach, salt marsh monitoring, and CRC / LGC coordination. MBP also assisted with coordination, reviewing and selection of salt marsh and fish run restoration projects to be funded for the second round of funding, review of the status and success of the first round of projects, and coordination of outreach events.

- Lead: Cape Cod RSP
- 320 Budget: \$0 MBP Cash
- Outputs/Deliverables: List of recommended projects for funding.
- Environmental results: Improved water quality, and salt marsh habitat in a number of Cape Cod communities
- Role: Supporting

A1f. Stony Brook (Brewster) Watershed Restoration Project. The Stony Brook watershed and marsh complex encompasses 386 acres of salt marsh and anadromous fish habitat. An undersized culvert was replaced in the fall of 2010, and the project is now in the post-restoration monitoring stage. MBP lead monitoring activities that include rare species surveys, salt marsh monitoring, fish counts, water quality, water flow, and photo-monitoring of physical and biological conditions. This project was funded by a grant to the town of Brewster from NOAA and ARRA. The Stony Brook Team received the Coastal American Partnership Award for this effort.

- Lead: MBP Cape Cod RSP
- 320 Budget: \$0 MBP Cash; \$25,000 qualifying town match
- Outputs/Deliverables: Report on the recovery of the Stony Brook Salt Marsh
- Environmental results: 20 acres of salt marsh habitat restored
- Role: Primary

A1g. Lower Mill Pond, Brewster, Fish Passage Improvement. The town of Brewster developed plans to improve fish passage at the upper end of Stony Brook where it flows out of Lower Mill Pond. This project is partially supported by the town's NOAA-ARRA grant for salt marsh restoration described in

Task A1f (above). MBP provided assistance to the town with permitting, project management, monitoring, and grant writing to obtain funding for implementation which is currently underway.

- Lead: Cape Cod RSP
- 320 Budget: \$0 MBP Cash
- Outputs/Deliverables: Design plans and permits for the Lower Mill Pond fish passage
- Environmental results: Increased success of herring migration and spawning in the Stony Brook System; increased adult herring population in the watershed
- Role: Primary

A1h. Critical Habitats Atlas of Cape Cod. The goal of this project is to update APCC's Critical Habitats Atlas of Cape Cod, which identifies sensitive and critical habitats throughout this region. The original Atlas was published in 1990 and has been used by towns as well as the Cape Cod Commission as a tool for evaluating potential ecological impacts of proposed development projects. Since 1990, much new information has become available, calling for an update of the Atlas. This is a multi-year project, which requires information collection and obtaining input and technical services from local and regional experts familiar with Cape Cod's coastal habitats, ecology, botany, wildlife, and natural resources. This project also supports the update of the CCMP through collection of information on locations and conditions of coastal habitats. In the last months of FY12 APCC engaged an intern to conduct survey work for Atlas update during the first half of FY13.

- Lead: MBP Cape Cod RSP
- 320 Budget: \$0 MBP Cash;\$20,000 qualifying match from a private foundation
- Outputs/Deliverables: Information on natural communities on Cape Cod, updated maps, and revised roadmap for completing the Atlas.
- Environmental results: Improved protection of sensitive habitat; improved management of sensitive habitats; improved quality of priority habitats on Cape Cod
- Role: Primary

A1i. Habitat Restoration Technical Assistance. The Cape Cod RSP is providing ongoing support for salt marsh and fish run restoration initiatives. Specific projects advanced during FY12 year include the Mayo Creek Salt Marsh Restoration Feasibility Study (Wellfleet), Upper Shawme Pond Fish Run Restoration (Sandwich), and Cedar Pond Management Plan (Orleans).

- Lead: MBP Cape Cod RSP
- 320 Budget: \$0 MBP Cash
- Outputs/Deliverables: Restoration feasibility studies and post-restoration monitoring reports
- Environmental results: Improved fish passage and spawning habitat in Cape Cod watersheds
- Role: Supporting

A1j. Monitor the Condition of Salt Marshes in the South Shore Region. The South Shore RSP continued supervising and training of Cohasset Center for Student Coastal Research (CSCR) students in vegetation, nekton, and benthic invertebrate monitoring for the Division of Ecological Restoration (DER) wetlands program. Monitoring was conducted at sites around the South Shore including Mushquashcut Pond, Broad Cove, Green Harbor, and Parker Avenue. MBP assisted CSCR and DER with data management and reporting.

- Lead: MBP South Shore RSP
- 320 Budget: \$0 MBP Cash
- Outputs/Deliverables: Vegetation, nekton, and invertebrates monitoring data; summary reports on 2011 monitoring season
- Environmental results: Improved understanding of the condition of South Shore salt marshes, effectiveness of restoration activities, and priorities for restoration
- Role: Primary

A1k. First Herring Brook Restoration. The South Shore RSP and host, the North and South Rivers Watershed Association provided support and assistance to the Town of Scituate with efforts to restore First Herring Brook, including in-stream and impoundment habitat initiatives supportive of diadromous fish and other resident organisms. MBP worked closely with DER and the town to evaluate potential steps towards restoration efforts. This included installation of fish ladders (with DMF) and implementation of a new water management and conservation strategy.

- Lead: MBP South Shore RSP; NSRWA
- 320 Budget: \$0 MBP Cash; \$11,550 in qualifying in-kind match from NSRWA
- Outputs/Deliverables: Report on evaluation of water conservation strategies
- Environmental results: Improved water levels and streamflow of First Herring Brook; herring starting to return during spawning season 2012
- Role: Primary

A1l. Third Herring Brook Restoration. The South Shore RSP conducted work to improve habitat, water quality, and quantity in the Third Herring Brook by pursuing stream restoration and dam removal opportunities. Grant applications were submitted to MET and ARRA. In-stream flow monitoring to evaluate any impacts from water withdrawals was continued. Funding of \$33,000 was received from NAA/CLF. In addition \$10,000 cash and \$8,000 in-kind (from private donor) and \$2,000 from DER were obtained. An additional \$22,000 in funding is pending from MET.

- Lead: MBP South Shore RSP; NSRWA
- 320 Budget: \$0 MBP Cash
- Outputs/Deliverables: Feasibility study for Tack Factory Pond Dam removal
- Environmental results (projected): Improved habitat quality of Third Herring Brook; improved spawning success of anadromous fish
- Role: Primary

A1m. Monitor Pre and Post Restoration Conditions of Salem Sound Salt Marshes. The Salem Sound RSP continued salt marsh monitoring at three salt marshes including Thissell Marsh (Beverly) and Old Creek and Pickman Park (Salem).

- Lead: MBP Salem Sound RSP
- 320 Budget: \$0 MBP Cash; \$12,235 qualifying cash contribution from SSCW and DER
- Outputs/Deliverables: Data reports documenting marsh condition provided to DER
- Environmental results (projected): Improved quality of salt marsh habitats within Salem Sound
- Role: Primary

A1n. Development of the Conservation Assessment and Prioritization System. The Salem Sound RSP conducted collection, sorting, and identification surveys of coastal wetland macroinvertebrates to assist CZM, DER and the Department of Natural Resources Conservation at UMass Amherst to adapt an existing UMass Conservation Assessment and Prioritization System (CAPS) model to support state agency efforts in the assessment of wetland condition. MBP provided data on macroinvertebrate populations at randomly selected coastal wetland sites for validation of the conceptual CAPS model.

- Lead: MBP Salem Sound RSP
- 320 Budget: \$0 MBP Cash; \$10,000 qualifying cash match
- Outputs/Deliverables: Field data were provided to CZM and DER
- Environmental results: Improved ability to assess condition of coastal wetlands and develop enforceable protection and restoration strategies
- Role: Significant

A1o. Upper Great Marsh *Phragmites* Control. The Upper North Shore RSP continued to coordinate the effort to control and eradicate stands of the common reed (*Phragmites australis*) in the Newbury and Newburyport sections of the Great Marsh system through physical (burning) and chemical treatments.

Approximately 300 stands were mapped and 25 stands treated. MBP coordinated follow up monitoring activities.

- Lead: MBP Upper North Shore RSP
- 320 Budget: \$0 MBP Cash; \$75,000 North American Wetland Conservation Act Grant;
- Outputs/Deliverables: Monitoring report on success of treatment efforts
- Environmental results: Thirty-three acres of *Phragmites* removed
- Role: Primary

A1p. Map and Control *Phragmites* in Salisbury. The Upper North Shore RSP started mapping *Phragmites* stands located within the Black Rock Creek marshes in Salisbury and identified landowners. Approximately 1,000 acres of salt marsh were mapped and 125 stands were identified for treatment.

- Lead: MBP Upper North Shore RSP; Merrimac Valley Planning Commission
- 320 Budget: \$0 MBP Cash; \$25,000 qualifying grant from the MA Department of Conservation and Recreation
- Outputs/Deliverables: Map of *Phragmites* stands in Black Rock Creek marsh; identified parcels and property owners
- Environmental results: nine acres of *Phragmites* removed
- Role: Primary

A1q. Great Marsh Pepperweed (*Lepidium latifolium*) Monitoring and Control. The Upper North Shore RSP continued in-the-field monitoring and control of pepperweed in those estuarine areas that have not yet been evaluated. An estimated 100 additional stands were mapped and up to 75 stands were controlled/eradicated during the summer field sampling season.

- Lead: MBP Upper North Shore RSP
- 320 Budget: \$0 MBP Cash; \$10,000 in-kind contribution of the Mass Audubon Society; \$10,000 in-kind from Parker River National Wildlife Refuge
- Outputs/Deliverables: Map of pepperweed stands and report on control efforts
- Environmental results: eight acres of pepperweed removed
- Role: Primary

Objective A2: Reduce and prevent stormwater pollution

A2a. Greenscapes. Communities in three MBP Regions, Upper North Shore, Salem Sound, and South Shore, continued to participate in the Greenscapes Program by providing outreach information, materials, and training to participating communities on the impacts of stormwater from residential properties on the marine environment, and on mitigation options. In FY12, a Notice of Intent tailored to the educational requirements of the NPDES Phase II permit was drafted for participating communities. The Greenscapes Coalition proceeded with evaluation of the new draft EPA Phase II Stormwater Permit to determine the best outreach messages for member communities.

- Lead: MBP
- 320 Budget: \$0 MBP Cash; \$27,500 cash and in-kind contribution of Greenscapes Communities
- Outputs/Deliverables: Greenscapes website, Greenscapes workshop, dissemination of three Greenscapes flyers; NPDES Education and Outreach Notice of Intent (NOI) for participating communities
- Environmental result: Improved water quality in three of the MBP regions
- Role: Primary

A2b. Cape Cod Stormwater Outreach. The Cape Cod RSP continued working with project partners on Cape Cod to provide stormwater outreach to communities through a variety of media and outreach workshops. APCC teamed with the consulting firms of Vanasse Hangen Brustlin and Horsley Witten Group and held a stormwater workshop in October 2011. A pre-workshop survey identified specific

stormwater topics of interest to Cape Cod communities and results were used to select future stormwater outreach topics.

- Lead: MBP Cape Cod RSP
- 320 Budget: \$0 MBP Cash
- Outputs/Deliverables: Workshop agenda, materials and attendance list
- Environmental results: Improved water quality
- Role: Primary

A2c. Cape Cod NRCS Watershed Action Plan (ongoing; see A1e)

A2d. South River Bacterial Source Tracking. The South Shore RSP used water quality data and BMPs designed as part of 2011's DEP grant to assist the town of Marshfield in pursuing funding for BMP installation. MBP coordinated with DEP to use human marker testing to further identify bacterial sources discovered as part of 2010 sampling.

- Lead: MBP South Shore RSP
- 320 Budget: \$0 MBP Cash; \$4945 in qualifying in-kind contribution of state and local officials and volunteers
- Outputs/Deliverables: Bacterial sampling data; design of BMPs; identification of sites for installation of appropriate stormwater BMPs
- Environmental results: Improved water quality of the South River
- Role: Primary

A2e. Salem Sound Clean Beaches and Streams Program. As part of this ongoing program, the Salem Sound RSP trains and coordinates volunteers to conduct biweekly sampling of 20 stormwater outfalls throughout the watershed during the field season. The program identified numerous sources of bacteria, informed the public about the risk of swimming and wading in contaminated waters, and resulted in the initiation of important stormwater remediation projects. Planning for outreach and education efforts on the new NPDES permit went on within Salem Sound communities

- Lead: MBP Salem Sound RSP
- 320 Budget: \$0 MBP Cash; \$8,000 qualifying cash and in-kind match from Salem Sound Coastwatch
- Outputs/Deliverables: Bacterial analysis and reports for 20 stormwater outfalls in Salem Sound
- Environmental results: Improved water quality in Salem Sound
- Role: Primary

Objective A3: *Protect and enhance shellfish resources*

A3a: Cape Cod NRCS Watershed Action Plan Technical assistance (ongoing; see A1e)

Objective A4: *Manage local land use and growth*

MBP and its RSPs continued to provide technical assistance on Low Impact Development and Smart Growth within the MBP Planning area through programs such as Greenscapes. Staff and RSPs were active on local boards and committees related to local land use and growth. MBP and the Salem Sound RSP also started working on developing strategies to encourage sustainable reuse of Brownfield sites.

Objective A5: *Manage municipal wastewater*

MBP staff and RSPs have played a crucial role in the designation of Massachusetts and Cape Cod Bay as a boat waste No Discharge Area. RSPs provided outreach and technical assistance related to boat waste issues in conjunction with CZM and EPA, and during FY12 the last part of Massachusetts and Cape Cod Bays was declared an NDA. In addition, the Cape Cod RSP continued to provide local technical

assistance on the development of Municipal Wastewater Management Plans, which are critical for the successful implementation of nutrient TMDLs on Cape Cod.

Objective A6: *Manage marine invasive species*

A6a. Support Marine Invasive Species Monitoring and Information Collaborative: MBP continued to support the Marine Invader Monitoring and information Collaborative (MIMIC) by organizing volunteers to monitor for marine invasive species in the Upper North Shore, Salem Sound, and South Shore regions. During FY12, the Cape Cod RSP received a grant from the MET and initiated a comprehensive marine invasive species monitoring effort. The Cape Cod RSP developed a list of sampling stations and conducted a survey of these locations in preparation for field work during the early part of FY13. Salem Sound developed a lobster trap survey website for the public.

- Lead: MBP RSPs
- 320 Budget: \$0 MBP Cash; \$2100 in-kind NSRWA; \$30,000 grant from MET
- Outputs/Deliverables: Data uploaded to MIMIC web site and database; lobster trap survey website developed; list of sampling locations on Cape Cod.
- Environmental results: Improved understanding of invasive species colonization, transport, dispersal and distributions in Massachusetts and Cape Cod Bays
- Role: Significant

Objective A7: *Monitor marine waters*

As part of the CCMP update process, MBP continued to gather information on the health and characteristics of marine and estuarine waters throughout the MBP planning area. Results will be used to develop priorities for the monitoring of marine waters for the forthcoming CCMP. This Action item may also be incorporated into other focus areas, such as “Reducing and preventing stormwater pollution” and “Protecting and enhancing shellfish resources.” MBP is exploring efforts to enhance marine monitoring efforts beginning with the development of indicators of ecosystem health for each region.

Objective A8: *Adapt for projected impacts of climate change*

A8a. Climate Ready Estuaries. A final report on the Expert Elicitation Workshop was published in 2011 for the EPA/MBP Climate Ready Estuaries Partnership.

- Lead: MBP Director, EPA
- 320 Budget: \$0 MBP Cash
- Outputs/Deliverables: Final Report
- Environmental results: Support in management of salt marsh and estuarine systems in the context of climate change and sea level rise
- Role: Significant

A8b. Adopt a Beach. The Salem Sound Adopt a Beach program continued to train volunteers to collect long-term data documenting the impacts of sea level rise to beaches as well as to coastal streams and infrastructure. Volunteers were trained to conduct beach profiling exercises and coastal surveys to document accretion and erosion rates and other indicators of change related to climate stressors.

- Lead: Salem Sound RSP
- 320 Budget: \$0 MBP Cash; \$2,000 qualifying cash match from Salem Sound Coastwatch
- Outputs/Deliverables: Beach profile data, coastal surveys
- Environmental results: Baseline and trend data for accretion and erosion rates on some Salem Sound beaches
- Role: Primary

VIII. Impacts of External Factors

FY12 was a very productive year for the Massachusetts Bays Program. We continued to make great strides in implementing our existing CCMP, while laying the groundwork for a new, comprehensive management plan. The program is fully staffed (though with minimalist central staffing levels of two FTEs have been maintained in order to conserve funds for the Research and Planning Grant Program). The program has an engaged Management Committee and an experienced team of Regional Service Providers, ensuring a very positive outlook for the coming year.

As outlined above, the forthcoming change in leadership in the Executive Director position may cause some delays in implementing major programmatic initiatives, such as the CCMP update. However, this shift also presents a significant opportunity for MBP to select a Director who lead the program through the CCMP update process and develop strategies for its effective implementation. MBP is on firm footing to make such a selection for the benefit of the program.

Unfortunately, the program was sidetracked by a specific personnel issue early in calendar year 2012. State union seniority rules allow state employees who are laid off to replace or “bump” employees with less seniority. This rule resulted in the targeting of the MBP Special Projects Coordinator position for bumping. Fortunately, the Special Projects Coordinator selected by the MBP Management Committee (Lisa Engler) was not displaced. However, a significant amount of resources were expended in navigating the process, not to mention the negative impact on morale of affected staff.

We would also like to note that the EPA Program Evaluation required a significant amount of staff time and Programmatic Resources during FY12. While we understand the value and benefits of such comprehensive reporting we would encourage our colleagues at EPA to find efficiencies in the written reporting requirements, particularly where there is redundancy with annual work plan reporting and NEPORT.

IX. CWA Funds Used for Travel and National Meeting Attendance

Date of Travel	Person Travelling	Location	Purpose of Travel	Amount
7/25/2011	Staff Scientist	Salem, MA	Meeting with Salem Sound Coastwatch	\$27.00
8/3/2011	Special Projects Coordinator & Staff Scientist	Barnstable MA Norwell MA	Discuss Mass Bays Program Regions Goals for CCMP update	\$64.80
8/10/2011	Special Projects Coordinator & Staff Scientist	Haverhill, MA	Discuss Mass Bays Program Regions Goals for CCMP update	\$32.85
9/12/2011	Special Projects Coordinator	Falmouth, MA	WBNERR CTP Advisory group Meeting	\$63.45
9/22/2011	Staff Scientist	Barnstable, MA	Q&A Sessions for grant program	\$69.30
9/23/2011	Staff Scientist	Kingston, MA Norwell, MA	Q&A Sessions for grant program	\$41.40
9/29/2011	Staff Scientist	Danvers, MA	Q&A Sessions for grant program	\$26.10
12/14/2011	Staff Scientist	Kingston, MA	Meeting with Kingston Conservation Agent	\$58.60
1/11/2012	Executive Director	Barnstable, MA	Meeting with NSRWA and APCC	\$67.50
2/26/2012	Executive Director	Plymouth, MA	Meeting with The Nature Conservancy	\$38.70
2/27/2012- 2/29/2012	Executive Director	Washington DC	National Estuary Program National Meeting	\$920.18
3/22/2012	Special Projects Coordinator	Belchertown, MA	Diversity Training	\$71.10
6/12/2012	Executive Director, Special Projects Coordinator, & Staff Scientist	Cape Cod and South Shore Regions	EPA Program Evaluation Site Visits (Anticipated)	\$300.00
			Total Actual	\$1,480.98
			Total Anticipated	\$300.00