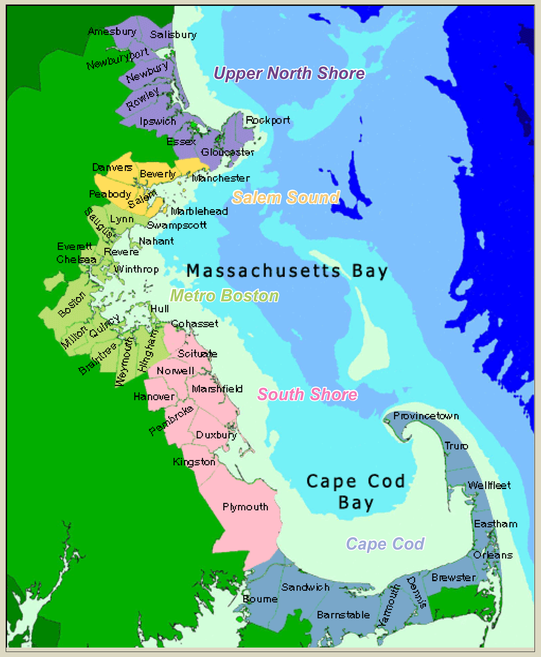
Identifying and Prioritizing Restoration Opportunities for Coastal Aquatic Habitats in the Mass Bays Region

Massachusetts Division of Marine Fisheries | Mark Rousseau, Jillian Carr, Katelyn Ostrikis | July 2012

Project Objectives:

- Identify habitat restoration priorities and information gaps (i.e. underrepresented communities or untargeted habitat types) in the Massachusetts Bay region.
- Generate maps and data that can be useful tools for resource managers and planners to utilize when addressing habitat restoration in the region.
- Develop a sustainable and repeatable project ranking methodology.

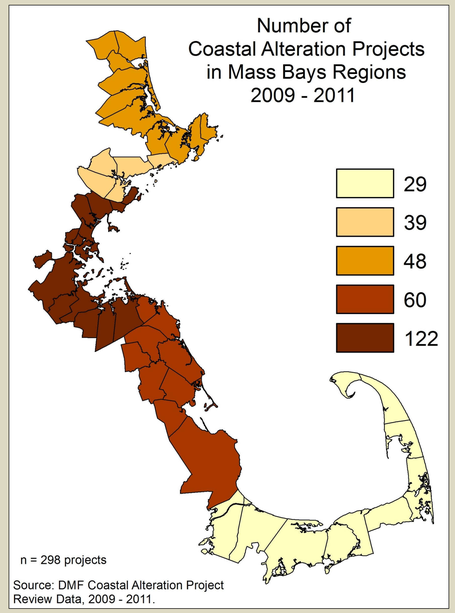
Massachusetts Bays Program Regions

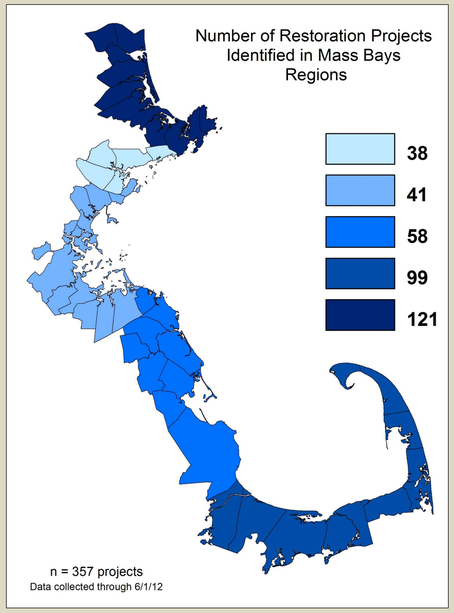


Methods:

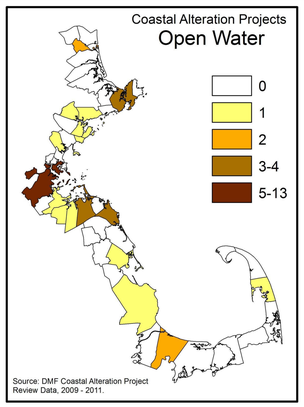
- To quantify recent impacts to coastal habitats within the MBP regions, a query of the *MarineFisheries* environmental review database of coastal alteration projects was carried out for projects submitted between 2009 to 2011.
- Coastal alteration project impacts were grouped into five habitat categories; open water, submerged aquatic vegetation (SAV), intertidal, stream, and salt marsh.
- Using GIS, project impacts data were analyzed and mapped by region, town and habitat type.
- To quantify potential restoration priorities, existing priority lists were gathered by researching and interviewing over 40 local interest groups, non-profits organizations, government agencies, and watershed groups within the Mass Bays Program region.
- Restoration data were compiled into a series of matrices tabulating projects into 5 habitat types, 50 towns comprising the MBP region, and numerous specific project types (i.e. water quality improvement, fish habitat enhancement, coastal fill removal, etc), and mapped using GIS.
- Existing scientific literature and project ranking systems of relevant government agencies were compiled to develop a restoration project prioritization methodology. The resulting spreadsheet tool was presented during two stakeholder workshops and tested in a case study by the MA In Lieu Fee Program to rank and select restoration projects for funding.

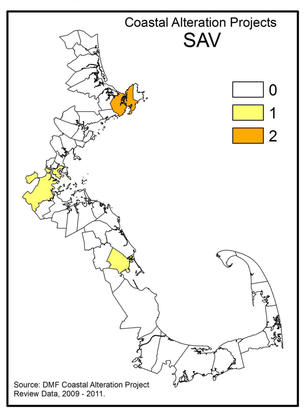
This work was made possible by a grant from the Massachusetts Bays Program.

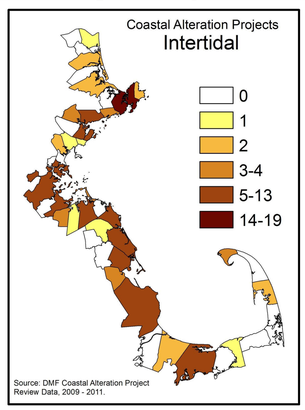


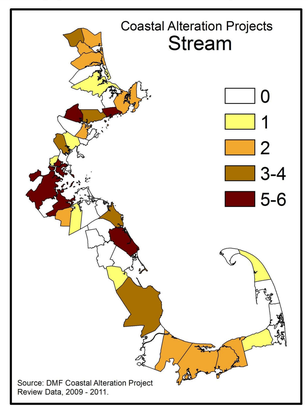


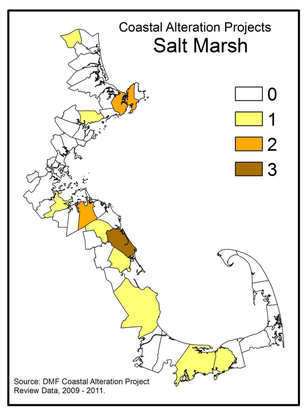
Number of Coastal Alteration Projects by Habitat Type per Town, 2009-2011



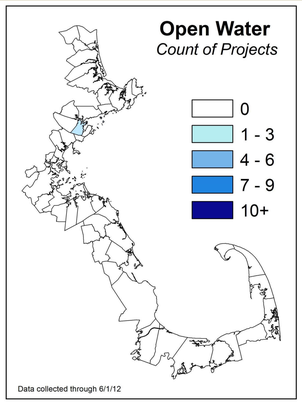


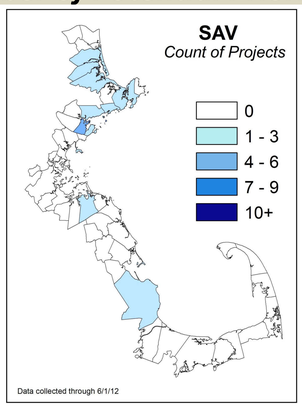


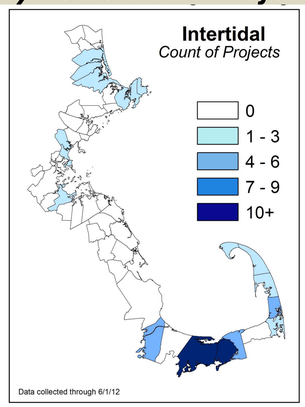


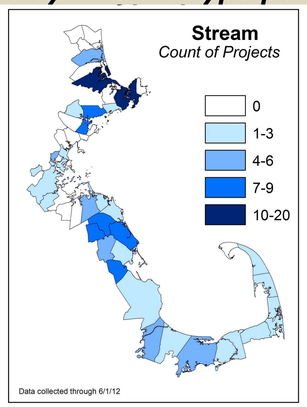


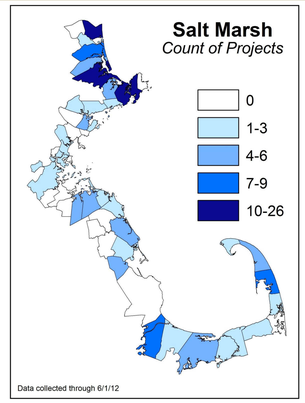
Number of Potential Priority Restoration Projects by Habitat Type per Town











Results:

- Prevalence of coastal alteration projects (i.e. impacts) varies spatially, both by MBP region and by town. The Metro Boston region had the greatest number of reviewed coastal impacts from 2009 to 2011 while Cape Cod had the fewest (figure above, left).
- Certain habitat types may endure more coastal alteration impacts than others in a given period. For example, from 2009 to 2011, projects were identified as impacting intertidal habitat (45% of all projects) more often than stream (30%), open water (14%), salt marsh (8%) and submerged aquatic vegetation (2%) habitats (figures to left, top row).
- Prevalence of identified restoration priorities varies spatially, both by MBP region and by town. The Metro Boston region had the fewest identified potential projects, followed by Salem Sound, South Shore, and Cape Cod. The Upper North Shore region had the most potential projects (figure above, right).
- Certain habitat types occur more frequently than others on regional restoration priority lists. For example, there are far more identified potential stream and salt marsh restoration projects than for any other habitat type. For all towns combined, 1% of identified potential projects restore open water habitat, 4% restore submerged aquatic vegetation, 15% restore intertidal, 38% restore stream, and 42% restore salt marsh habitat (figures to left, bottom row).
- Regions with organizations that have identified coastal restoration as a priority are essential to the restoration efforts in these areas. However, in this assessment, the Metro Boston MBP region was identified as having the highest frequency of reviewed coastal alteration impacts from 2009 to 2011 and the fewest number of identified restoration projects.. This is an obvious gap that requires further attention.
- Restoration managers and planners should consider spatial and temporal trends in impacts resulting from coastal alterations and frequently consult with local stakeholders when prioritizing restoration efforts.
- By developing a project prioritization tool and establishing of a committee of project reviewers to utilize it, organizations can systematically rank and select restoration efforts in a repeatable, meaningful way.