

Costs for Priority Actions to Restore and Protect Ocean and Coastal Habitats in Maine, New Hampshire and Massachusetts

KEY TO STATE AGENCIES:

MA-DFG	Mass. Department of Fish and Game
MA-DER	Mass. Department of Environmental Restoration
MA-DEP	Mass. Department of Environmental Protection
MA-CZM	Mass. Office of Coastal Zone Management
NH-DES	New Hampshire Dept of Environmental Services
NHCP	New Hampshire Coastal Program
NHGS	New Hampshire Geological Survey
NHF&G	New Hampshire Fish and Game
NHDRED	New Hampshire Department of Resources and Economic Development
ME-DMR	Maine Department of Marine Resources
ME-SPO	Maine State Planning Office
ME-DOT	Maine Department of Transportation
ME-DEP	Maine Department of Environmental Protection
ME-IF&W	Maine Department of Inland Fisheries and Wildlife
MEDOC	Maine Department of Conservation

Goal	Issue	Priority Action		Short-Term Need (5 years)
1: PROTECT AND RESTORE WILDLIFE HABITAT AND POPULATIONS				267,513,000
	1.1: Barriers in Rivers and Streams			62,100,000
	1.1.1: Improve streamflow at road crossings (culverts & bridges).			14,500,000
		ME DMR/SPO	Culvert assessment and prioritization of corrective action	1,250,000
		MA DER	Culvert assessment and replacement for fish passage	2,000,000
		NHCP, other	Culvert assessment and replacement for fish passage	750,000
		ME DMR/SPO/DOT	Municipal and State road crossing upgrades	8,000,000
		ME DMR/SPO/DOT	Stream restoration program	2,400,000
		NHDES-WAS	Stream Restoration	100,000
	1.1.2: Remove unneeded dams or install fish passage.			47,600,000
		MA DER	Dam assessment and removal in coastal watersheds	20,000,000
		NHCP	Dam assessment and removal in coastal watersheds	900,000
		NHDES-Dam bureau	Dam assessment and removal in coastal watersheds	500,000
		ME- DMR/SPO	Dam assessment, removal and fish passage installation	26,200,000
	1.2: Degraded Coastal			84,488,000
	1.2.1: Assess and restore degraded habitat by removing dredge spoils, planting vegetation, removing tidal restrictions, and other methods.			42,750,000
		MA DER	Coastal wetlands restoration	20,000,000
		ME SPO/DOT	Coastal wetland restoration program	9,200,000
		MA DEP	Coastal wetland protection program	250,000
		MA DMF	Eel Grass & Shellfish habitat restoration	1,000,000
		MA DEP Res. Prot.	Coastal Habitat Protection-	500,000
		nhcp	future projects yet to be initiated; Physical habitat restoration program -	200,000
		NHDES	Freshwater wetland restoration in coastal watersheds; Physical habitat	2,300,000
		nhcp	Support for targeted coastal watershed improvement through Southeast	100,000

		nhcp	Habitat Restoration -- coordination	100,000
		prep/nhdes	Assess and map Eel Grass habitat for restoration	50,000
		NH-DES	Habitat Mapping; aerial photo acquisition program (3-5 yr cycle)	650,000
		UNH	Habitat Monitoring & Assessment; change detection	50,000
		MA DER	Freshwater wetland restoration in coastal watersheds; Physical habitat restoration program - wetlands	5,000,000
		MA DER	Riparian and floodplain restoration	2,000,000
		NHCP/TNC	Eel Grass & Shellfish habitat restoration	750,000
		NH F&G	Assessment of habitat throughout a river corridor that would provide habitat for diadromous species and provide an estimate for restoration goals	100,000
		NH F&G	Oyster habitat assessment, substrate restoration, seeding	500,000
		1.2.2: Conduct hydrology studies, remote sensing, mapping, and restoration.		41,738,000
		MA DER	Stream flow assessment and restoration	4,000,000
		MA DEP	Eel Grass monitoring & assessment	1,800,000
		MA DEP	Coastal Wetlands Habitat Mapping, Monitoring and Assessment inc. Loss Identification	2,750,000
		MA DMF	Anadromous Fish Program	30,000,000
		ME DMR/DOC	Develop/implement water quality and quantity plans for diadromous fish pops	3,187,500
		1.3: Decline of Shoreland Habitats		47,000,000
		1.3.1: Prioritize, acquire, and protect key parcels of coastal land.		47,000,000
		MA-CZM	Coastal Land Acquisition CELP	15,000,000
		nhcp	Coastal Land Acquisition CELP	3,000,000
		ME IFW	Strategic Coastal Land Acquisition	8,500,000
		Multi state	Protection of river corridors/riparian open space via purchase or CR	20,000,000
		nhcp	Protection of river corridors/riparian buffers	500,000
		1.4: Lost Fishing Gear		2,850,000
		1.4.1: Locate and remove ghost fishing gear and lobster traps.		2,850,000
		NHCP/ BOS	Ghost gear, ghost fishing gear, lobster gear; Lobster Program	100,000
		MA DMF	Ghost gear, ghost fishing gear, lobster gear	2,500,000
		ME DMR	Assess scope of derelict lobster gear issue	250,000
		1.5: Habitat Mapping		21,550,000
		1.5.1: Conduct mapping of seafloor habitats in the Gulf of Maine and make the maps available for resource management and restoration.		21,550,000
		MA CZM	Mapping & characterization; Ocean Management Planning	1,000,000
		MA CZM & DMF	Ocean Observing Systems Buoys/ instrumentation	5,000,000
		ME DMR/NH	Sub tidal benthic mapping & benthic habitat delineation	2,000,000
		ME DOC	Intertidal mapping/natural community delineation	500,000
		ME IF&W	Beginning w/ Habitat coastal habitat mapping, planning and data	1,250,000
		MA DMF	Estuarine Monitoring Program	5,000,000
		NHCP/ NHGS	Mapping & characterization; Ocean Management Planning	300,000
		NHCP/ NHGS	Bottom mapping & benthic habitat delineation	1,500,000
		MA DFG-DMF	Nearshore ocean/estuarine observing system	5,000,000
		1.6: Monitoring Fish and Wildlife Populations		49,525,000
		1.6.1: Implement a regional, coordinated monitoring program for species of interest for management and restoration. Integrate the results into adaptive management processes.		49,525,000

		MA DMF	Demersal and pelagic species; coastal trawl surveys; commercial and recreational fishing pressure; anadromous fish management	12,000,000
		MA DMF	Marine mammals & sea turtle assessments; Protected Species Program	2,500,000
		MA CZM	Monitoring of Critical Biological Resources to Support Ocean Management Plan	500,000
		ME DMR	Acoustic surveys for pelagic species pop assessments	10,000,000
		ME DMR	Trawl Survey population assessments & trophic dynamics	10,000,000
		ME IF&W	Stewardship of coastal management areas/lands	875,000
		ME DMR	Large River System diadromous fish population monitoring	10,000,000
		ME DMR	Conservation Hatchery & Stocking	2,800,000
		NHF&G	Conservation Hatchery & Stocking	50,000
		NHF&G/ME	Marine systems; Coastal Trawl Survey	50,000
		NHF&G	Estuarine systems; Estuarine Monitoring Program; water quality, bio-monitoring, juvenile finfish, horseshoe crab survey, Oyster survey	100,000
		NHF&G	Anadromous Fisheries Program; also ID, monitor & restoration, rainbow smelt monitoring, American eel monitoring	200,000
		NHF&G	Marine systems, invertebrates; GOM Northern Shrimp Survey; Lobster survey and sampling	50,000
		NH F&G	Smelt habitat restoration	50,000
		NHF&G	Assessment of commercial & recreational fishing pressure; Fisheries	350,000
GOAL 2: PROVIDE CLEAN AND HEALTHY COASTAL WATERS				2,689,626,000
2.1: Outdated Sewage Treatment Facilities				2,504,011,000
2.1.1: Upgrade municipal and industrial sewage treatment systems and combined sewer overflow systems to meet ecologically appropriate standards, including nutrient standards.				2,504,011,000
		MA DEP	Nutrient reduction & discharge elimination to Coastal Waters; SRF prog.	1,800,000,000
		NHDES	Nutrient reduction & discharge elimination to Coastal Waters; SRF prog.	380,000,000
		NHDES	Identify & repair non-compliant point sources of pollution; Shellfish	200,000
		ME-DEP	Waste Water Treatment Upgrades	400,000,000
		ME-DEP	Combined Sewer Overflow Abatement Program	133,000,000
		ME-DEP	Upgrades for three 301 waiver facilities from primary to secondary	14,811,000
		ME-DEP	Nutrient criteria/standards development and monitoring	1,000,000
		ME-DEP	Overboard (Untreated) Discharge Removal Grant Program	5,000,000
		NHDES	Combined sewage overflow remediation	10,000,000
2.2: Non-Point Source Pollution				140,430,000
2.2.1: Locate, prioritize, resolve, and prevent causes of non-point source pollution through an integrated program of data collection, mitigation projects, and proactive management practices.				96,510,000
		MA DEP	Curtail NPSP to coastal waters; 319	35,000,000
		NHDES	Upgrading Stormwater Infrastructure	50,000,000
		NHDES	Curtail NPSP to coastal waters; 319 and 6217	1,000,000
		NHDES-WAS	Coastal water quality assessment; 604b program	200,000
		NHDES	Coastal water quality improvement; 401 program	60,000
		NH F&G/DES	Implement recommendations as outline in coastal sedimentation study	200,000
		NH F&G/ME	Water quality/quantity (diadromous fish); Anadromous Fisheries Program	50,000
		MEDEP	NPSP program expansion and upgrades	10,000,000
2.2.2: Reduce the impact of stormwater by upgrading stormwater systems and by identifying, correcting, and preventing stormwater sources.				43,920,000
		MA CZM	Coastal Stormwater Control	7,500,000
		MA DMF	Shellfish Sanitation Program	10,000,000
		NHDES	Assistance to communities	1,000,000

		MEDEP	Maine Municipal Stormwater Program upgrade and expansion	4,740,000
2.3: Pollution Discharge from Vessels				3,060,000
	2.3.1: Designate no-discharge zones in the ocean and provide port facilities for boats and ships to dispose all of their waste streams (wastewater, solid waste, oil).			3,060,000
		NHDES	Increase infrastructure of vessel sewage disposal; Clean Vessel Act	60,000
		MA CZM	Commercial Boat Pumpouts	1,500,000
		MA CZM	Marina Technical Assistance	750,000
		MA DMF	Recreational vessel sewage disposal	750,000
		ME		
2.4: Toxic Sediment				11,500,000
	2.4.1: Remediate contaminated sediment at priority sites in coastal waters and rivers.			11,500,000
		MA DER	Remediation of contaminated sediments in association with river restoration projects	10,000,000
		NHCP	Remediation of contaminated sediments in association with river	1,500,000
2.5: Water Testing				30,625,000
	2.5.1: Expand the frequency and geographic coverage of water testing and implement state-of-the-art monitoring protocols.			30,625,000
		ME-DMR	Hydrographic studies at wastewater treatment plants	1,250,000
		ME DEP	Coastal / estuarine Biological Condition Gradient (BCG) development and	1,000,000
		ME-DMR	Watershed monitoring and coordination, including nutrient monitoring	5,000,000
		NHDES-WAS	Coastal water quality assessment; 604b program	600,000
		NHDES	Coastal water quality improvement; 401 program	300,000
		NH F&G/DES	Implement recommendations as outline in coastal sedimentation study	400,000
		NHDES	Coastal Wetland & Water Quality Research and Development; 104b	250,000
		ME/MA/NH/CA	GulfWatch toxic contaminant monitoring using blue mussels	1,250,000
		ME-DEP	Surface Water Ambient Toxics Program (SWAT) expansion and upgrades	2,500,000
		ME-DMR	Toxic monitoring of shellfish resources around marinas	2,500,000
		ME-DMR	Red Tide/HAB work, including use of new approved testing methods	5,000,000
		ME-DMR	Virus monitoring	1,000,000
		NHDES	Red Tide	75,000
		MA DEP	Coastal Wetland & Water Quality Research and Development; 104b	1,500,000
		MA DEP	Coastal water quality assessment; 604b program	2,500,000
		MA DFG-DMF	Virus monitoring	1,250,000
		MA DEP	Coastal water quality improvement; 401 program	2,500,000
		MA DMF	Red Tide/HAB work, including use of new approved testing methods; Biotxin Monitoring Program	1,000,000
		MA CZM	Emerging Pollutants Assessment	750,000
GOAL 3: PROVIDE SCIENCE, PLANNING, AND COMMUNICATION REQUIRED FOR REGIONAL OCEAN MANAGEMENT, MARINE SPATIAL PLANNING, AND ECOSYSTEM-BASED MANAGEMENT				29,700,000
3.1: Regional Integration of Habitat Restoration, Conservation, and Management Actions				16,500,000
	3.1.1: Conduct a regional planning process for implementation of the Priority Actions that (a) engages diverse stakeholders and decision-makers, (b) accurately reflects their values and priorities, (c) integrates across management sectors and geographies, and (d) is based on sound science.			16,500,000
		NHCP	Support to regional planning commissions for ecologically based decision	250,000
		ME IFW	Coastal Wildlife Species of Greatest Conservation Need Monitoring and	7,500,000
		ME IFW	Maine Endangered Species Act, coastal species management/recovery	7,500,000
		ME IFW	Wildlife Concentration areas update flights for Oil Spill Preparedness	250,000
		MA	regional planning stakeholder involvement	1,000,000

	3.2: Analysis of Ecosystem Changes				1,750,000
	3.2.1: Fully implement the Habitat Monitoring Partnership, the Ecosystem Indicator Partnership, and a socioeconomic monitoring program to provide essential information for adaptive management.				1,750,000
		Multi state agencies (MA)	Scientific research, assessment and monitoring at watershed/ecosystem scale of ecological integrity & stressors; Multi-state agencies		100,000
		MA CZM	Ocean Indicators; Ocean Mgt Planning		500,000
		NH Multiple state agencies	Scientific research, assessment and monitoring at watershed/ecosystem scale of ecological integrity & stressors; Multi-state agencies		300,000
		NHCP	Ocean Indicators; Ocean Mgt Planning		300,000
		MA CZM	Monitoring of Critical Biological Resources to Support Ocean Management		500,000
		NHDES/UNH	Monitoring of critical biological resources to support ocean planning		50,000
	3.3: Communication of Policy- and Management-Relevant Science				3,400,000
	3.3.1: Establish a regional communications program that provides (a) educational and outreach opportunities and materials to increase public and decision-maker understanding of coastal resources (e.g, findings from regional habitat monitoring programs and ecosystem indicators), the economic values associated with restoration and conservation, and scientifically sound methods for restoring and sustaining the Gulf of Maine, and (b) a mechanism for stakeholders and decision-makers involved in regional planning to interact meaningfully on an ongoing basis.				3,400,000
		MA DER	Provide educational & outreach opportunities to increase public & decision		500,000
		ME DOC	Interpretive program for State Parks incorporating climate change &		500,000
		ME DOC	Development of an Interpretive Center at Ferry Beach State Park to		1,500,000
		NHDES	pollution load reduction modeling and communication -- especially for		400,000
		ME IFW	Div. of Public Information and Education outreach efforts		500,000
	3.4: Data and Decision Support for Ecosystem-Based Management and Marine Spatial Planning				4,300,000
	3.4.1: Develop an integrated, regional data management network that is robust with searchable metadata, user friendly, and interoperable with existing state, federal, and non-government data management investments.				4,300,000
		MA CZM	Data Server to Assist with Ocean Planning		500,000
		ME IFW	Off-shore Energy Review Data Development		1,000,000
		NHCP	Ocean Atlas		200,000
		MA DFG-DER	Develop holistic, ecological restoration approach/program for targeted coastal watershed		500,000
		GBNERR	Ocean Mgt Planning		100,000
		ME DMR	Bay-scale, ecosystem-based resource management		2,000,000
	3.5: Oversight, Coordination, and Evaluation of Regional Priority Actions				3,750,000
	3.5.1: Establish a program office or other administrative framework and designate personnel for managing, coordinating, and evaluating the regional initiative.				3,750,000
		Various Agencies	2 FTEs (\$250k) per state (x3) per 5 years (x5)		3,750,000
GOAL 4: PROMOTE RESILIENCE TO CLIMATE CHANGE					33,800,000
	4.1: Understanding Impacts of Climate Change on Habitats				8,500,000
	4.1.1: Conduct regional scientific monitoring and assessment of climate change impacts on habitats.				8,500,000
		NHDES	Conduct studies focused on assessing impacts related to climate change; Climate Adaptation Workgroup		400,000
		ME DOC	Ecological climate change monitoring at coastal parks & ecological		100,000
		MA DER	Assess habitat impacts related to climate change and implement		2,000,000
		MA DMF	Conduct studies focused on assessing impacts related to Climate Change		2,000,000
		MA DER	Freshwater aquatic habitat adaption assessment/ planning/facilitation		2,000,000
		MA CZM	Risk and Vulnerabilities: delineations, assessments, and planning		2,000,000

4.2: Preparing for Climate Change				5,000,000
4.2.1: Facilitate a regional climate-smart planning initiative for promoting habitat resilience and adaptation.				5,000,000
	MA-CZM	Coastal Development and Re-development: mapping, training, and		2,500,000
	MA-CZM	Landscaping and Rolling Easement Initiatives, and planning guidance		2,000,000
	ME DOC	Regional planning efforts with focus on RPCs and local communities		500,000
4.3: Mitigate Erosion of Shoreline Habitats				7,800,000
4.3.1: Mitigate erosion and restore dune habitats.				7,800,000
	ME DOC	Erosion mitigation & dune restoration		2,500,000
	ME DOC	Continued beach/dune monitoring with MBMAP		300,000
	NH DRED	Erosion mitigation & dune restoration to protect coastal habitat &		2,000,000
	MA CZM	Erosion mitigation & dune restoration to protect coastal habitat &		3,000,000
4.4: Assess and Mitigate Impact of Sea Level Rise on Salt Marshes				12,500,000
4.4.1: Identify and prioritize suitable areas of adjacent uplands as buffers for marsh migration; acquire and/or protect priority sites.				12,500,000
	MA multiple	Tidal wetland adaptation & migration buffer		10,000,000
	ME IFW	Identification and Prioritization of undeveloped uplands for Tidal Significant		500,000
	ME DOC	Marsh elevation monitoring to determine resiliency to SLR		500,000
	NHCP	Tidal wetland adaptation & migration buffer		1,500,000
GOAL 5: PREVENT AND DETECT INVASIVE SPECIES, AND RESTORE AFFECTED HABITATS				8,870,000
5.1: Early Detection of Invasive Species				4,960,000
5.1.1: Establish a comprehensive monitoring program in the Gulf of Maine and its watershed with the capacity to detect invasive species soon after their arrival and to disseminate the information to rapid-response teams.				4,960,000
	ME DEP	Maine Marine Invasives Efforts coordination & development		1,375,000
	ME IFW	Track non-native invertebrates per findings of Climate Change Vulnerability		910,000
	MA CZM	Marine Monitoring and Early Detection		2,500,000
	NHCP	CWIPP Support		75,000
	NH F&G/DES	Coastal NH assessment of plant and marine animal invasives affecting natural communities and habitat		100,000
5.2: Removal and Prevention of Invasive Species				2,510,000
5.2.1: Establish a regional network of rapid-response teams that control populations of invasive species immediately after detection.				2,510,000
	MA CZM	Implement Priority Aquatic Invasive Species Management Plan Tasks		500,000
	ME DEP	Inland waters Courtesy Boat Inspection Program for invasive aquatic		400,000
	ME DEP	Invasive Aquatic Plant Control Program:		400,000
	ME IFW	Efforts to prevent further spread of non-native FW fish spp.		910,000
	NHDES	Aquatic Control		300,000
5.3: Restoration of Habitats Degraded by Invasive Species				1,400,000
5.3.1: Identify, prioritize, and restore habitats adversely affected by invasive species.				1,400,000
	MA DER	Wetland invasive species control/management: phragmites, pepperweed, purple loosestrife, etc		1,000,000
	NHCP	Wetland invasive species control/management: phragmites, pepperweed,		100,000
	NHCP	Identify & restore adversely impacted habitat		300,000
	ME	(numbers included under item 1.2.1 above)		
OVERALL TOTAL (GOALS 1-5):				3,029,509,000