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NHEP 2007 Progress Report

New Hampshire Estuaries Project

NewHampshire EstuariesProject

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Prepared by:

The New Hampshire Estuaries Project
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The New Hampshire Estuaries Project (NHEP) is part of the U.S. Environmental Protection Agency's (EPA's) National Estuary Program, which is a collaborative local/state/federal program established under the Clean Water Act with the goal of protecting and enhancing nationally significant estuaries. The NHEP receives most of its funding from the EPA and is administered by the University of New Hampshire. The mission of the NHEP is to protect, restore, and monitor the environmental quality of the state's estuaries, including the Great Bay Estuary and the Hampton-Seabrook Estuary.

The NHEP study area covers the entire coastal watershed of New Hampshire, including all the freshwater tributaries that flow into the estuaries. Forty-two communities are within the NHEP's area of focus. About 10 percent of the state's land area is in the coastal watershed, and approximately one-third of the state's population and businesses are located here. Although a portion of the watershed lies in Maine, currently the NHEP conducts its activities in the New Hampshire portion only.

Approved in 2001 and updated in 2005, the NHEP's *Comprehensive Conservation and Management Plan* (Management Plan) represents a strategic approach to protect and restore the state's estuaries. Spanning three years, the collaborative process to develop the watershed plan involved the work of resource managers, planners, researchers, concerned citizens, and other coastal stakeholders. The resulting plan describes actions to be undertaken throughout New Hampshire's coastal watershed to achieve and sustain healthy estuarine systems. The Management Plan identifies priority actions in five areas: **1) Water Quality, 2) Land Use, Development, and Habitat Protection, 3) Shellfish Resources, 4) Habitat Restoration, and 5) Public Outreach and Education.**

The NHEP collaborates with partner organizations to identify Management Plan priorities each year. The NHEP either addresses these activities directly or awards grants to communities, conservation organizations, researchers, and government agencies to complete priority projects. From 2001 to 2006, the NHEP awarded approximately $3.5 million to fund projects to improve, protect, or monitor the health of New Hampshire's estuaries.

Production of this report was funded by the U.S. Environmental Protection Agency through an agreement with the University of New Hampshire.

The NHEP strives to:

- Improve the water quality and overall health of New Hampshire's estuaries
- Support regional development patterns that protect water quality, maintain open space and important habitat, and preserve estuarine resources
- Track environmental trends through the implementation of a long-term monitoring program to assess indicators of estuarine health
- Develop broad-based support for the Management Plan by encouraging involvement of the public, local government, and other interested parties in its implementation

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Report Overview

The 2007 Progress Report describes progress made toward implementing the NHEP Management Plan. The report summarizes status of environmental and administrative indicators that correspond to previously defined management objectives and provides completion ratings assigned for each of the Action Plans contained in the Management Plan.

In 2002, the NHEP developed its Monitoring Plan that describes the methods and data for indicators used to determine if specific management objectives and programmatic goals of the Management Plan are being met. The NHEP implements the Monitoring Plan to track environmental indicators, inform management decisions, and report on environmental progress and status. The Monitoring Plan has been updated several times over the last five years. The latest version of the NHEP Monitoring Plan is available on the NHEP website: http://www.nhep.unh.edu/resources/pdf/nhepmonitoringplan-nhep-04.pdf.

The Progress Report is divided into two sections: Section 1 – Environmental and Administrative Indicators, and Section 2 – Action Plan Completion.

Section 1 of the report is a tabular summary of environmental and administrative indicators developed to track progress toward meeting the NHEP's management goals. Goals, management objectives, and corresponding indicators are arranged by focus area: Water Quality, Shellfish Resources, Land Use/Habitat Protection, and Habitat Restoration.

Section 2 of the report summarizes the completion status of the 98 Action Plans contained in the Management Plan. Following an overall summary, completion status is reviewed for each Action Plan grouped by focus area: Water Quality, Land Use/Habitat Protection, Shellfish Resources, Habitat Restoration, and Public Education and Outreach. Completion rankings were assigned based on activities undertaken by the NHEP and its partners since 2000 to address the steps identified in each Action Plan. The NHEP maintains a list of all projects and activities that support Management Plan implementation. Because of its length, this detailed project list is not included in this report. It can be obtained by contacting the NHEP or from the NHEP website at www.nh.gov/nhep/publications/pdf/nhep_progress_report-app-nhep-07.

Section 1: Environmental and Administrative Indicators

The NHEP Monitoring Plan defines environmental and administrative indicators that report on the success of Management Plan implementation in meeting specific NHEP goals and management objectives. The Monitoring Plan describes the methods and data for 34 indicators developed to determine if the environmental goals and objectives of the Management Plan are being met. For each environmental indicator, the Monitoring Plan defines the monitoring objective, management goal, data quality objectives, data analysis and statistical methods, and data sources. Environmental indicators track environmental or ecosystem qualities over time, and are split into three types:

- Environmental Indicators – Parameters for which quantitative data are evaluated based on specific management goals and objectives
- Supporting Variables – Parameters that provide important qualitative environmental information but for which measurable goals could not be set
- Research Indicators – Parameters that are potentially relevant but need greater development before they can be used for interpretation related to management objectives

For some NHEP management objectives, environmental indicators could not be established because the objective was administrative in nature. Administrative objectives describe actions to be taken rather than environmental conditions to be achieved. In such cases, the NHEP's progress is tracked by administrative indicators that document the activities undertaken by the NHEP relative to the objective. Qualitative information for all administrative indicators is included in this report.

NHEP staff compiled information for the environmental and administrative indicators, with data and input from various agencies. The environmental indicator data presented in this report are based on the data collected, analyzed, and presented in the NHEP's most recent set of indicator reports, developed in late 2005 and early 2006. Information on the environmental indicators tracked by the NHEP is provided in the following four reports:

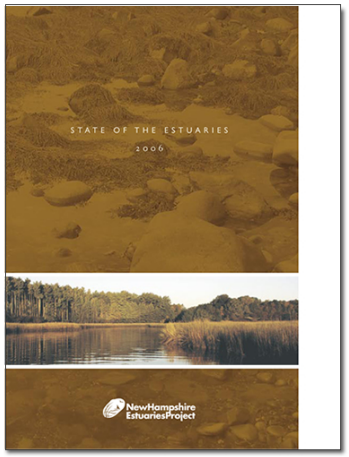
Shellfish Indicator Report
(http://www.nhep.unh.edu/resources/pdf/env-ind-shellfish-nhep-05.pdf)

Water Quality Indicator Report
(http://www.nhep.unh.edu/resources/pdf/env_ind_water_quaity-nhep-06.pdf)

Land Use and Development Indicator Report
(http://www.nhep.unh.edu/resources/pdf/env_ind_land_use-nhep-06.pdf)

Critical Habitats and Species Indicator Report
(http://www.nhep.unh.edu/resources/pdf/env_ind_critical_habitats_and-nhep-06.pdf)

The NHEP's 2006 State of the Estuaries Report highlights 12 indicators that demonstrate environmental status and trends and describes work being done to improve environmental conditions.



Located on the web at www.nhep.unh.edu/resources/pdf/2006_state_of_the-nhep-06.pdf

Environmental Indicators: Management Objectives and Status

WATER QUALITY GOAL #1: Ensure that NH's estuarine waters and tributaries meet standards for pathogenic bacteria including fecal coliform, *E. coli*, and Enterococci.

Management Objective	Monitoring Question	Environmental Indicator	Type	Goal	Status	Comments
WQ1-1: Achieve water quality in Great Bay and Hampton Harbor that meets shellfish harvest standards by 2010	Do NH tidal waters meet fecal coliform standards of the National Shellfish Sanitation Program for 'approved' shellfish areas?	BAC1: Acre-days of shellfish harvesting opportunities in estuarine waters	Environmental	100% of possible acre-days	63% of possible acre days (average of all growing areas)	Data current through 2004
	Have fecal coliform, enterococci, and *E. coli* levels changed significantly over time?	BAC2: Trends in dry weather bacterial indicators concentrations	Environmental	Significantly decreasing trends at tributary stations	Decreasing trends observed	Data current through 2004
	Has dry weather bacterial contamination changed significantly over time?					
	Has wet weather bacterial contamination changed significantly over time?	Trends in wet weather bacterial indicators concentrations	Research	Significantly decreasing trends at tributary stations	Insufficient data to evaluate this indicator	
WQ1-2: Minimize beach closures due to failure to meet water quality standards for tidal waters	Do NH tidal waters, including swimming beaches, meet the state enterococci standards?	BAC4: Tidal bathing beach postings	Environmental	0 postings per year	1 posting	Data current through 2005
		BAC5: Trends in bacteria concentrations at tidal bathing beaches	Environmental	No increasing trends at any beaches	1 beach with an increasing trend (New Castle)	Data current through 2005
		BAC6: Violations of enterococci standard in estuarine waters	Environmental	0% of estuarine area in violation of standard	0.5% of area in violation of standard	Data from 2002-2003
WQ1-3: Increase water bodies in the NH coastal watershed designated 'swimmable' by achieving state water quality standards	Do NH designated freshwater beaches in the coastal watershed meet the state *E. coli* standards?	BAC7: Freshwater bathing beach postings	Environmental	0 postings per year	13 postings	Data current through 2005
	Do NH surface freshwaters meet the state *E. coli* standards?	None. The TAC determined that the monitoring needed to accurately answer this question was not cost-effective.	Not Applicable	Not Applicable	Not Applicable	
WQ1-4: Reduce the number of known illicit connections in the NH coastal watershed by 50% by 2010	See Administrative Indicators page 13.					
WQ1-5: Achieve 50% reduction of known illegal discharges into Great Bay, Hampton Harbor, and the tributaries by 2010	See Administrative Indicators page 13.					
No management objectives but useful for interpreting other indicators for this goal	None	BAC8: Bacteria load from wastewater treatment plants	Supporting	Not Applicable	Not Applicable	
	Do NH tidal waters contain disease causing and biotoxic organisms (pathogenic bacteria, viruses, harmful algal blooms)?	Concentrations of microbial pathogens and harmful algae	Research	Not Applicable	Not Applicable	

WATER QUALITY GOAL #2: Ensure that New Hampshire's estuarine waters, tributaries, sediments, and edible portions of fish, shellfish, other aquatic life, and wildlife will meet standards for priority contaminants such as metals, PCBs, PAHs, and oil and grease.

Management Objective	Monitoring Question	Environmental Indicator	Type	Goal	Status	Comments
WQ2-1A: Develop baseline of toxic impacts on ecological and human health by tracking toxic contaminants in water, sediment, and indicator species: blue mussels, tomcod, lobsters, and winter flounder. Long-term: Reduce toxic contaminants levels in **indicator species** so that no levels persist or accumulate according to FDA guideline levels	Are shellfish, lobsters, finfish, and other seafood species from NH coastal waters fit for human consumption?	TOX1: Shellfish tissue concentrations relative to FDA standards	Environmental	0% of stations with concentrations greater than FDA standards	0% of stations	Data current through 2004
		TOX8: Finfish and lobster edible tissue concentrations relative to risk-based standards	Environmental	Average concentrations of Hg and PCBs in target species less than risk-based standards	Insufficient data to evaluate this indicator	
		TOX2: Public health risks from toxic contaminants in fish and shellfish tissue	Supporting	Not Applicable	Not Applicable	
	Have the concentrations of toxic contaminants in estuarine biota significantly changed over time?	TOX3: Trends in shellfish tissue contaminant concentrations	Environmental	No increasing trends for any toxic contaminants at any locations	No increasing trends	Data current through 2004
		TOX4: Trends in finfish and lobster tissue contaminant concentrations	Environmental	No increasing trends for any toxic contaminants in target species	Insufficient data to evaluate this indicator	
WQ2-1B: Develop baseline of toxic impacts on ecological and human health by tracking toxic contaminants in water, sediment, and indicator species: blue mussels, tomcod, lobsters, and winter flounder. Long-term: Reduce toxic contaminants levels in **water** so that no levels persist or accumulate according to State WQS in Ws 1700	Do NH tidal waters contain heavy metals, PCBs, PAHs, chlorinated pesticides, and other toxic contaminants that are harmful to humans, animals, plant, and other aquatic life?	Toxic contaminants in stormwater runoff and receiving waters	Research	Not Applicable	Not Applicable	
WQ2-1C: Develop baseline of toxic impacts on ecological and human health by tracking toxic contaminants in water, sediment, and indicator species: blue mussels, tomcod, lobsters, and winter flounder. Long-term: Reduce toxic contaminants levels in **sediment** so that no levels persist or accumulate according to ER-M levels	Do NH tidal sediments contain heavy metals, PCBs, PAHs, chlorinated pesticides, and other toxic contaminants that are harmful to humans, animals, plant, and other aquatic life?	TOX5: Sediment contaminant concentrations relative to NOAA guidelines (see footnote)	Environmental	0% of the estuaries with sediment concentrations greater than NOAA ERM values or five times NOAA ERL values	12% of estuarine sediments greater than screening values	Data from 2000-2001
	Have the concentrations of toxic contaminants in sediment significantly changed over time?	TOX6: Trends in sediment contaminant concentrations	Environmental	No increasing trends for any toxic contaminants at any locations	Insufficient data to evaluate this indicator.	
	Is there evidence of toxic effects of contaminants in estuarine biota?	TOX7: Benthic community impacts due to sediment contamination	Environmental	0% of estuarine area with impacts to the benthic community due to sediment contamination	0% of estuarine area with impacts to the benthic community	Data from 2000-2001

Footnote: The goal is for 0% of estuarine area with sediments containing one or more compounds higher than Probable Effect Concentrations (PEC) or five times Threshold Effect Concentrations (TEC) as defined by the DES Sediment Policy. These criteria are different from the management objective which is to keep sediment concentrations less than NOAA Effects Range Medium (ERM) values. The TAC recommended this change because very few of the estuaries' sediments exceed ERM values. Therefore, the percent of estuarine area greater than ERM values would not be a very sensitive indicator. The TEC and PEC values were adopted instead because they are a compilation of screening values from many sources, including ERM values. The TEC and PEC values are updated by DES after new studies have been completed.

WATER QUALITY GOAL #3: Ensure that NH's estuarine waters and tributaries will meet standards for organic and inorganic nutrients, especially nitrogen, phosphorus, chlorophyll-a, dissolved oxygen, and biological oxygen demand.

Management Objective	Monitoring Question	Environmental Indicator	Type	Goal	Status	Comments
WQ3-1: Maintain inorganic nutrients, nitrogen, phosphorus, and chlorophyll-a in Great Bay, Hampton Harbor, and their tributaries at 1998-2000 baseline levels WQ3-2: Maintain organic nutrients in Great Bay, Hampton Harbor, and their tributaries at 1994-1996 baseline levels	Have levels of dissolved and particulate nitrogen and phosphorus significantly changed over time?	NUT1: Annual load of nitrogen to Great Bay from WWTF and watershed tributaries	Environmental	WWTF and tributary loads less than 900 tons/yr (2002-2004 value)	900 tons/yr	Data from 2002-2004
		NUT2: Trends in estuarine nutrient concentrations	Environmental	No increasing trends for any nutrients at any location	59% increase in dissolved inorganic nitrogen over 25 years	Data from 1974-1981 and 1997-2004
		Eelgrass Nutrient Pollution Index	Research	Not Applicable	Not Applicable	
	Do any surface freshwaters exhibit chlorophyll-a levels that do not support swimming standards (partially support: 20-30 ug/l; does not support: >30 ug/l)?	NUT8: Percent of estuary with Chlorophyll-a Concentrations greater than State Criteria	Environmental	0% of estuarine waters listed as impaired for swimming due to chlorophyll-a in 305(b) reports	1.6% of estuarine waters listed	Data from 2002-2003
	Have surface tidal or freshwaters shown a significant change in turbidity (total suspended solids or nephalometric turbidity units) over time?	NUT3: Trends in estuarine particulate concentrations	Environmental	No increasing trends for any particulates at any location	81% increase in total suspended solids over 25 years; 76% increase in chlorophyll-a from 1988 to 2004	Data for TSS from 1976-1981 and 1999-2004; data for chlorophyll-a from 1988-2004
	Have levels of phytoplankton (chlorophyll-a) in NH waters changed significantly over time?					
	Is there evidence of proliferation of nuisance species associated with elevated nutrient loading?	Distribution of nuisance macroalgae	Research	Not Applicable	Not Applicable	
WQ3-3: Maintain dissolved oxygen levels at: >4 mg/L for tidal rivers; >6 mg/L for embayments (Great Bay and Little Bay); >7 mg/L for oceanic areas (Hampton Harbor and Atlantic Coast)	Do any surface tidal or freshwaters show less than 75% saturation of dissolved oxygen? For what period of time?	NUT5: Exceedences of the instantaneous dissolved oxygen standard in tidal waters	Environmental	0 days/year with violations of standard	85 days (all stations combined)	Data current through 2004
		NUT6: Exceedences of the daily average dissolved oxygen standard in tidal waters	Environmental	0 days/year with violations of standard	52 days (all stations combined)	Data current through 2004
WQ3-4: Maintain NPDES permit levels for BOD at wastewater facilities in the NH coastal watershed	Do any surface tidal or freshwaters show a significant change in biological oxygen demand?	NUT7: Trends in BOD loading to Great Bay	Environmental	No significantly increasing trends in BOD loads from WWTF or tributaries	Increasing trends for 3 WWTFs	Data current through 2004

SHELLFISH GOAL #1: Achieve sustainable shellfish resources by tripling the area of shellfish beds that are classified open for harvesting to 75% of all beds, and tripling the quantity of harvestable clams and oysters in NH's estuaries.

Management Objective	Monitoring Question	Environmental Indicator	Type	Goal	Status	Comments
SHL1-1: Maintain an approved National Shellfish Sanitation Program supported by the state	See Administrative Indicators page 14.					
SHL1-2: Increase soft shell clam beds in Great Bay, Little Bay, and Hampton Harbor that are open for harvest to 2500 acres by 2010	Are 75% of all shellfish (oyster, soft-shell clam) beds open for harvesting?	Open shellfish beds in estuarine waters (percent by area)	Research	Not Applicable	Not Applicable	
SHL1-3: No net decrease in acreage of oyster beds from 1997 amounts for Nannie Island, Woodman Point, Piscataqua River, Adams Point, Oyster River, Squamscott River, and Bellamy River	None	SHL1: Area of oyster beds in Great Bay	Environmental	Greater than or equal to 1997 acreage (64 ac)	61 +/-3 ac	Based on surveys conducted in 2001-2003
SHL1-4A: No net decrease in oysters (>80 mm) per square meter from 1997 amounts at Nannie Island, Woodman Point, Piscataqua River, Adams Point, and Oyster River	None	SHL2: Density of harvestable oysters at Great Bay beds	Environmental	Greater than or equal to 1997 density	26% of 1997 levels	Data for 2004
SHL1-4B: No net decrease in adult clams (>50 mm) per square meter from the 1989-1999 10-year average at Common Island, Hampton River, and Middle Ground	None	SHL3: Density of harvestable clams at Hampton Harbor flats	Environmental	Greater than or equal to 1990-1999 10-year average density	23% of 1990-1999 average	Data for 2003
SHL1-5: Survey each major oyster and soft-shell clam bed at a minimum of every 3 years for dimensions, density, and population structure	See Administrative Indicators page 14.					
Indicators not related to specific objectives but useful for interpreting other indicators or directly related to the overall goal	None	SHL4: Area of clam flats in Hampton Harbor	Supporting	Not Applicable	Not Applicable	
	Has the number of harvestable clams and oysters in NH estuaries tripled from 1999 levels?	SHL5: Standing stock of harvestable oysters in Great Bay	Environmental	50,000 bushels	5,460 bushels	Data from 2004
		SHL6: Standing stock of harvestable clams in Hampton Harbor	Environmental	8,500 bushels	3,276 bushels	Data from 2003
	Are NH shellfish healthy, growing, and reproducing at sustainable levels?	SHL7: Abundance of shellfish predators	Supporting	Not Applicable	Not Applicable	
		SHL8: Clam and oyster spatfall	Supporting	Not Applicable	Not Applicable	
	Are NH shellfish being harvested at sustainable levels?	SHL9: Recreational harvest of oysters	Supporting	Not Applicable	Not Applicable	
		SHL10: Recreational harvest of clams	Supporting	Not Applicable	Not Applicable	
	Has the incidence of shellfish diseases significantly changed over time?	SHL11: Prevalence of oyster diseases	Supporting	Not Applicable	Not Applicable	
		SHL12: Prevalence of clam disease	Supporting	Not Applicable	Not Applicable	

SHELLFISH GOAL #2: Assure that shellfish are fit for human consumption and support a healthy marine ecosystem.

Management Objective	Monitoring Question	Environmental Indicator	Type	Goal	Status	Comments
SHL2-1: Achieve water quality in GB and HH that will meet shellfish harvest standards by 2010	None	None. This objective is also listed under Water Quality Goal #1 and is addressed there.	Not Applicable -Duplicate	Not Applicable	Not Applicable	

SHELLFISH GOAL #3: Provide opportunities and strategies for restoration of shellfish communities and habitat.

Management Objective	Monitoring Question	Environmental Indicator	Type	Goal	Status	Comments
SHL3-1: Restore 20 acres of oyster habitat in GB and its tidal tributaries	None	None. This objective is also listed under Habitat Restoration Goal #1 and is addressed there.	Not Applicable	Not Applicable	Not Applicable	

SHELLFISH GOAL #4: Support coordination to achieve environmentally sound shellfish aquaculture activities.

Management Objective	Monitoring Question	Environmental Indicator	Type	Goal	Status	Comments
SHL4-1: Ensure that aquaculture practices do not adversely impact water quality or ecological health of NH's estuaries	See Administrative Indicators page 14.					

LAND USE GOAL #1: NH Coastal watershed has development patterns that ensure the protection of estuarine water quality and preserve the rural quality of the watershed.

Management Objective	Monitoring Question	Environmental Indicator	Type	Goal	Status	Comments
LND1-1A: Minimize the amount of impervious surfaces and assess the impacts of water quality by: (1) Keeping the total impervious surface in each sub-watersheds below 10% of the total land area	Has there been a significant change over time in the number of coastal NH watersheds (first or second order) that exceed 10% impervious cover? Has the rate of creation of new impervious surfaces in coastal NH watersheds significantly changed over time?	LUD1: Impervious surfaces in coastal watersheds	Environmental	0 first or second order sub-watersheds with greater than 10% impervious surface cover	10 second order watersheds (HUC12) with greater than 10% impervious surface cover	Data current through 2005
LND1-1B: Reduce stormwater runoff from future development in all sub-watersheds, especially where impervious surfaces already exceed 10%	See Administrative Indicators page 15.					
LND1-2: Minimize the total rate of land consumption in the NH coastal watershed (as measured by acres of development per capita)	Has the rate of urban sprawl in coastal NH watersheds changed significantly over time?	LUD2: Rate of Sprawl - High Impact Development	Environmental	New development in coastal watershed towns between 2000 and 2010 should add no more than 0.1 acres of impervious surfaces per new resident. (For 2005, watershed average should be 0.193 acres/person)	0.217 acres per person	Data current through 2005
		LUD3: Rate of Sprawl - Low Density, Residential Development	Environmental	New development in coastal watershed towns between 2000 and 2010 should add no more than 0.007 road miles per new resident. (For 2005, watershed average should be 0.012 miles/person)	0.012 road miles per person	Data current through 2005
		LUD4: Rate of Sprawl - Fragmentation	Environmental	New development in coastal watershed towns between 2000 and 2010 should create no more than 1 acre of fragmented land per new resident	Insufficient data to evaluate this indicator	Fragmentation data available for 2001
LND1-3: Encourage 42 coastal watershed municipalities to actively participate in addressing sprawl	See Administrative Indicators page 15.					

LAND USE GOAL #2: Maximize the acreage and health of tidal wetlands in the NH coastal watershed.

Management Objective	Monitoring Question	Environmental Indicator	Type	Goal	Status	Comments
LND2-1: Allow no loss or degradation of 6200 acres of tidal wetlands in the NH coastal watershed and restore 300 acres of tidal wetlands degraded by tidal restrictions by 2010	Has there been any significant net loss or degradation of tidal wetlands in NH?	HAB1: Salt Marsh Extent and Condition	Environmental	6,200 acres	5,554 acres in 2004	Data from 2004 were obtained in a different way from the baseline mapping that was used to establish the goal
	Has the acreage of invasive species (*phragmites*, purple loosestrife) in NH salt marshes and wetlands significantly changed over time?					
	Have restoration efforts resulted in a significant increase in the acreage of tidal wetlands?	None. This question is also listed under Habitat Restoration Goal #1 and is addressed there.	Not Applicable - Duplicate	Not Applicable	Not Applicable	

LAND USE GOAL #3: Protect freshwater and tidal shorelands to ensure estuarine water quality.

Management Objective	Monitoring Question	Environmental Indicator	Type	Goal	Status	Comments
LND3-1: Allow no new impervious surfaces or major disturbances of existing vegetation (except for water-dependent uses) in NH coastal watershed. In addition to state Shoreland Protection Act regulations, encourage additional reductions in shoreland impacts by 2010	See Administrative Indicators page 16.					
LND3-2: Allow no new establishment or expansion of existing contamination sources (such as salt storage, junk yards, solid waste, hazardous waste, etc.) within the shoreland protection area as tracked by the Department of Environmental Services	See Administrative Indicators page 16.					

LAND USE GOAL #4: Protect estuarine water quality by ensuring that groundwater impacts are minimized.

Management Objective	Monitoring Question	Environmental Indicator	Type	Goal	Status	Comments
LND4-1: Determine the extent of groundwater resources and their contaminant load to Great Bay and Hampton Harbor by 2005	See Administrative Indicators page 17.					
LND4-2: Reduce and eliminate groundwater contaminants based on the outcome of Objective 1 by 2010	See Administrative Indicators page 17.					

LAND USE GOAL #5: Allow no net loss of freshwater wetlands functions in the NH coastal watershed.

Management Objective	Monitoring Question	Environmental Indicator	Type	Goal	Status	Comments
LND5-1: Determine indicators for freshwater wetland functions	Has there been any significant net loss or degradation of freshwater wetlands in NH?	Indicators for freshwater wetland functions	Research	Not Applicable	Not Applicable	
	Have restoration efforts resulted in a significant increase in the acreage of freshwater wetlands?	None. Without an assessment of baseline conditions, the effects of wetland restoration efforts cannot be made.	Not Applicable	Not Applicable	Not Applicable	
LND5-2: Establish a state and municipal regulatory framework necessary to prevent introduction of untreated stormwater into tidal and freshwater wetlands by 2010	See Administrative Indicators page 18.					
LND5-3: Increase use of buffers around wetlands in NH coastal watershed	See Administrative Indicators page 18.					

LAND USE GOAL #6: Maintain habitats of sufficient size and quality to support populations of naturally occurring plants, animals, and communities.

Management Objective	Monitoring Question	Environmental Indicator	Type	Goal	Status	Comments
LND6-1: By 2005, determine the existing acres of permanently protected land in the NH coastal watershed in the following categories: tidal shoreland, large contiguous forest blocks, wetlands with high habitat values, freshwater shorelands, rare and exemplary natural communities LND6-2: Increase the acreage of protected land containing significant habitats in the NH coastal watershed through fee acquisition or conservation easements by 2010	Has the acreage of privately owned lands managed to benefit wildlife and natural communities significantly changed over time?	HAB6: Protected conservation lands	Environmental	15% of land area of coastal watershed and coastal communities by 2010	10.7% of land area	Data current through 2005
	Has the acreage of permanently protected important habitats (tidal shorelines, wetlands, rare and exemplary natural communities, large contiguous forest tracts, wetlands with high habitat value, freshwater shorelands) significantly changed over time?	HAB3: Protected, undeveloped shorelands	Supporting	Not Applicable	Not Applicable	
		HAB4: Protected, unfragmented forest blocks	Supporting	Not Applicable	Not Applicable	
		HAB5: Protected rare and exemplary natural communities	Supporting	Not Applicable	Not Applicable	
		Acres of protected wetlands with high habitat values	Research	Not Applicable	Not Applicable	
LND6-3: Support completion of state biomonitoring standards and increase the miles of rivers and streams meeting those standards by 2010	See Administrative Indicators page 18.					
LND6-4: Increase the use of buffers around wildlife areas and maintain contiguous habitat blocks in the NH coastal watershed by 2010	See Administrative Indicators page 18.					
	None	HAB11: Acres of large, contiguous forest blocks	Supporting	Not Applicable	Not Applicable	
No objectives but indicators are relevant to the goal	Has the relative abundance, biology, and species composition of resident finfish changed significantly over time? Do the following indicators show that water quality is suitable for aquatic life: aquatic insects/ invertebrates, wildlife, fish, diatoms/algae, large bivalves, eelgrass, and marshes?	HAB2: Eelgrass distribution	Supporting	Not Applicable	Not Applicable	Eelgrass cover in Great Bay in 2004 was 2008 acres which is 17% below 1996 values
		Eelgrass Biomass	Research	Not Applicable	Not Applicable	Eelgrass biomass in Great Bay in 2004 was 948 metric tons which is 41% below 1996 values
		HAB7: Abundance of juvenile finfish	Supporting	Not Applicable	Not Applicable	
		HAB8: Anadromous fish returns	Supporting	Not Applicable	Not Applicable	
		HAB9: Abundance of lobsters	Supporting	Not Applicable	Not Applicable	
		HAB10: Abundance of wintering waterfowl	Supporting	Not Applicable	Not Applicable	
		Abundance of adult finfish	Research	Not Applicable	Not Applicable	
	Has the acreage of waters supporting designated uses (fishing, swimming, shellfishing, etc.) significantly changed over time?	None. The methods for 305b assessments of designated use support change year-to-year. Therefore, this is not a stable indicator.	Not Applicable	Not Applicable	Not Applicable	

HABITAT RESTORATION GOAL #1: Maintain habitats of sufficient size and quality to support populations of naturally occurring plants, animals, and communities.

Management Objective	Monitoring Question	Environmental Indicator	Type	Goal	Status	Comments
RST1-1A: Increase acreage of restored estuarine habitats by 2010: (1) Restore 300 acres of salt marsh with tidal restrictions	Have restoration efforts resulted in a significant increase in the acreage of tidal or freshwater wetlands?	RST1: Restored salt marsh	Environmental	300 acres by 2010	279 acres	Data current through 2005
RST1-1B: Increase acreage of restored estuarine habitats by 2010: (2) Restore 50 acres of eelgrass in Portsmouth Harbor, Little Bay, and the Piscataqua, Bellamy, and Oyster rivers	None	RST2: Restored eelgrass beds	Environmental	50 acres by 2010	1.75 acres	Data current through 2005
RST1-1C: Increase acreage of restored estuarine habitats by 2010: (3) Restore 20 acres of oyster habitat in Great Bay and the tidal tributaries	Have restoration efforts resulted in a significant increase in the acreage and/or density of softshell clam and oyster beds?	RST3: Restored oyster beds	Environmental	20 acres by 2010	3.18 acres	Data current through 2005

Administrative Indicators: Management Objectives and Status

WATER QUALITY GOAL #1: Ensure that NH's estuarine waters and tributaries meet standards for pathogenic bacteria including fecal *coliform*, E. coli and *enterococci*.

Management Objective	Status
WQ1-4: Reduce the number of known illicit connections in the NH coastal watershed by 50% by 2010	The number of known illicit connections and illegal discharges is constantly changing as new illicit connections and direct discharges are identified and others are removed. The NHEP reports on this objective by tracking: number of illicit connections/direct discharges found, number connections/discharges eliminated, and number of suspected connections remaining. The NHDES Watershed Assistance Section staff provides this information. From 1996 to 2006, 78 illicit connections have been found and eliminated in coastal watershed communities. For the 2003 to 2006 period, the status of illicit connection/direct discharge investigations was: Number of illicit connections/direct discharges found: 37 Number of illicit connections/direct discharges eliminated: 29 Number of suspected connections remaining: 7-15 Over the past four years, 29 of the 37 known illicit connections and direct discharges have been eliminated (78 percent). The goal to remove at least 50 percent of the sources by 2010 is currently being met. However, the number of known illicit connections and direct discharges continually changes as more surveys are conducted and new problems are discovered. From 2000 through 2006, the NHEP, in partnership with NHDES, provided grant funds to municipalities to identify and eliminate illicit connections/discharges into storm sewer systems.
WQ1-5: Achieve 50% reduction of known illegal discharges into Great Bay, Hampton Harbor, and the tributaries by 2010	

SHELLFISH GOAL #1: Achieve sustainable shellfish resources by tripling the area of shellfish beds that are classified open for harvesting to 75% of all beds, and tripling the quantity of harvestable clams and oysters in NH's estuaries.

<table>
<tr><th>Management Objective</th><th>Status</th></tr>
<tr><td>SHL1-1: Maintain an approved National Shellfish Sanitation Program supported by the state</td><td>The NHDES Shellfish Program continues to comply with the National Shellfish Sanitation Program guidelines. The NHEP provided funds to support the work of the NHDES Shellfish Program through 2006. Through a legislative effort led by the NHEP, State general funds in the amount of $175,000 per year were appropriated by the legislature beginning in state fiscal year 2007 to fund the NHDES Shellfish Program. EPA grant funds, as part of the annual Performance Partnership Grant to NHDES, also support the program.</td></tr>
<tr><td>SHL1-5: Survey each major oyster and soft-shell clam bed at a minimum of every 3 years for dimensions, density, and population structure</td><td>The NHEP tracks survey occurrence for each major oyster bed and soft-shell clam flat. The current status of shellfish resource surveys is:

<table>
<tr><th>Shellfish Bed</th><th>Resource</th><th>Last Surveyed for Density and Population</th><th>Last Surveyed for Dimensions</th></tr>
<tr><td>Adams Point Bed</td><td>Oyster</td><td>2006</td><td>2001</td></tr>
<tr><td>Nannie Island Bed (South)</td><td>Oyster</td><td>2006</td><td>2001</td></tr>
<tr><td>Nannie Island Bed (Woodman Point)</td><td>Oyster</td><td>2006</td><td>2001</td></tr>
<tr><td>Oyster River Bed</td><td>Oyster</td><td>2006</td><td>2001</td></tr>
<tr><td>Piscataqua River Bed</td><td>Oyster</td><td>2006</td><td>2003</td></tr>
<tr><td>Squamscott River Bed</td><td>Oyster</td><td>2005</td><td>2003</td></tr>
<tr><td>Common Island</td><td>Clam</td><td>2006</td><td>2002</td></tr>
<tr><td>Hampton-Browns Confluence</td><td>Clam</td><td>2006</td><td>2002</td></tr>
<tr><td>Middle Ground</td><td>Clam</td><td>2006</td><td>2002</td></tr>
</table>
Surveys of shellfish beds are on schedule for density and population, but not for dimensions.</td></tr>
</table>

SHELLFISH GOAL #4: Support coordination to achieve environmentally sound shellfish aquaculture activities.

Management Objective	Status
SHL4-1: Ensure that aquaculture practices do not adversely impact water quality or ecological health of NH's estuaries	NH Fish & Game Department (NHFG) tracks open water, inland, and estuarine aquaculture through a permitting process that is based on enabling legislation RSA-211; 62-e and FIS 807. Aquaculture enterprises are required to submit an application to NHFG, and permits are developed on a case-by-case basis where site, practice, and intent of the enterprise are considered. Public hearings are held to ensure public review and input on all aquaculture permits. Currently NHFG oversees seven aquaculture permits in the coastal watershed: 4 offshore permits (3 mussel long line operations and 1 fish pen) and 3 estuarine permits (urchins, oyster, and a finfish hatchery). No additional aquaculture permits were distributed in 2006. No permit requirements have been violated; however, NHFG reserves the right and authority to terminate permits if violations occur.

LAND USE GOAL #1: NH coastal watershed has development patterns that ensure the protection of estuarine water quality and preserve the rural quality of the watershed.

Management Objective	Status
LND1-1B: Reduce stormwater runoff from future development in all subwatersheds, especially where impervious surfaces already exceed 10%	The NHEP and other partners support a number of projects that seek to limit impervious surface development and mitigate stormwater impacts. The NHEP worked with UNH Complex Systems Research Center to update impervious surface estimates using 2005 data. Impervious surface acreage increased from 4.3% (31,233 acres) in 1990, to 6.3% (45,445 acres) in 2000, to 7.4% (53,408 acres) in 2005. Impervious surface cover exceeds 10% in 14 of 37 subwatersheds in the coastal watershed, up from 6 of the 37 subwatersheds in 2000. The NHEP developed and distributed town maps that showed the location of impervious surfaces for each assessment period and provided summary statistics. The NHEP's Community Technical Assistance Program funds consultants to work with towns on developing new stormwater regulations. Three community projects were implemented in 2005-06 (Kingston, Northwood, and Durham). The UNH Stormwater Center provides data and technical assistance to support communities' efforts to manage stormwater. The Center demonstrates effectiveness of numerous stormwater technologies, including low impact development technologies, and assists communities in implementing local regulations. NHDES Site Specific Regulation (Alteration of Terrain) – New rules implementing the Alteration of Terrain Program were adopted in early 2007. The rules strengthen the program's ability to limit runoff from impervious surfaces. Permits are issued by NHDES pending review of the plans and the documentation submitted by an applicant.
LND1-3: Encourage 43 coastal watershed municipalities to actively participate in addressing sprawl	The NHEP and its partners, in particular the regional planning commissions and the Natural Resources Outreach Coalition, support initiatives to promote smart growth and address sprawl. Some projects conducted in the last three years include: State of the Estuaries Report: Sprawl Indicator – The NHEP, using data from the impervious surface mapping project conducted by the UNH Complex Systems Research Center, calculated the amount of impervious surface per capita to provide one indicator of sprawl. Overall, the average imperviousness per capita for the 42 municipalities grew from 0.152 acres per person in 1990, to 0.201 acres per person in 2000, to 0.217 acres per person in 2005. This information was disseminated through community customized outreach products that accompanied the State of the Estuaries Report. Land Conservation Plan for New Hampshire's Coastal Watersheds – The Nature Conservancy, Society for Protection of New Hampshire Forests, Rockingham Planning Commission, and Strafford Regional Planning Commission developed a comprehensive, science-based land conservation plan for New Hampshire's coastal watersheds. The plan identifies the best remaining opportunities to conserve critical ecological, biological, and water resources and describes voluntary and regulatory strategies to protect these important areas. Conservation Commission Circuit Rider Program – This program addresses an identified need for increased resources and expertise for volunteer municipal conservation commissions in the coastal watershed. The program, implemented by the Rockingham Planning Commission initially with NHEP funding and subsequently NH Coastal Program funds, aims to foster natural resource stewardship and improved communication with planning boards. Circuit riders provided assistance with issues such as land conservation, habitat protection, and revision of land use regulations. Natural Resources Outreach Coalition – NROC team members meet with community representatives about their growth related natural resource concerns and create a customized presentation called Dealing with Growth. The presentation includes information about rates of growth in that community, the effects of development on natural resources, maps of the community's natural resources, ways to protect natural resources, and tools for minimizing impacts of development. NROC works with communities on natural resource-based planning to identify priorities and develop a work plan.

LAND USE GOAL #3: Protect freshwater and tidal shorelands to ensure estuarine water quality.

Management Objective	Status
LND3-1: Allow no new impervious surfaces or major disturbances of existing vegetation (except for water-dependent uses) in NH coastal watershed. In addition to state Shoreland Protection Act regulations, encourage additional reductions in shoreland impacts by 2010	The NHEP supports several initiatives and provides outreach to protect stream buffers and limit impervious surface increases: Buffer Characterization Study & Buffer Data Mapper – The UNH Complex Systems Research Center evaluated and characterized 2nd order and higher streams in the coastal watershed. Anthropogenic factors, including land use, impervious surface coverage, and transportation infrastructure, were analyzed to produce a categorical indicator representing the status of each stream. Results were presented on community-based, large format maps displaying the stream characterizations and the corresponding acreage tables. CSRC developed a shoreline buffer theme for the GRANIT Data Mapper, an online data viewing and query tool. Maps can be made displaying shoreline buffers in increments which include: 50', 100', 150', 200', 250' and 300'. The buffers are available as an overlay to any of the standard base features incorporated in the Data Mapper, including aerial imagery, town bounds, surface water features, road centerlines, watershed boundaries, and elevation/hillshade. There is also online access to supporting summary tables providing acreage, by town, for the selected buffer option, and the ability to include/exclude intermittent streams in the buffer display and the supporting tables. The NHEP funded both Rockingham Planning Commission and Strafford Regional Planning Commission to use the Buffer Data Mapper in assisting towns improve buffer protection ordinances, practices, or outreach. NHEP Buffer Outreach – The NHEP provides information about buffers through community outreach and education. The NHEP presentation can help towns and watershed organizations learn about buffers, their importance, and what towns can do to protect them. Eight presentations were provided in 2006-early 2007. Community Buffer/Wetlands Protection Projects – Through the Local Grants Program and the Community Technical Assistance Program, the NHEP has supported community projects to improve buffer protections and wetlands protections, including new buffer and/or wetlands regulations in Candia, Deerfield, New Durham, and Kingston and prime wetlands designation projects in eight communities from 2004-2007. Comprehensive Shoreland Protection Act – Amendments to the Act were approved in 2007, which will take effect in 2008 after rulemaking is complete. Amendments included increasing permitting fees to build additional enforcement and outreach capacity, developing a more restrictive 50' waterfront buffer, developing a new methodology for measuring and maintaining natural woodland buffers, including impervious surface limits, and encouraging stormwater management. The coverage of the act was not extended to 3rd order streams.
LND3-2: Allow no new establishment or expansion of existing contamination sources (such as salt storage, junk yards, solid waste, hazardous waste, etc.) within the shoreland protection area as tracked by the Department of Environmental Services	New Hampshire's Shoreland Protection Act sets Minimum Shoreland Protection Standards throughout shoreland protection area: "The establishment or expansion of salt storage yards, automobile junk yards, and solid or hazardous waste facilities shall be prohibited." According to NHDES, no new contamination sources have been established in the coastal watershed.

LAND USE GOAL #4: Protect estuarine water quality by ensuring that groundwater impacts are minimized.

Management Objective	Status
LND4-1: Determine the extent of groundwater resources and their contaminant load to Great Bay and Hampton Harbor by 2005	Several projects related to this indicator have been completed or are ongoing: Characterization of Groundwater Discharge to Hampton Harbor – UNH researchers, using NHEP funds, used infrared imagery and field verification to assess groundwater discharges and nutrient contamination in Hampton Harbor. Results suggest that groundwater discharge in Hampton Harbor is extremely limited. Assessing Groundwater Inflow and Loadings to Estuaries – UNH researchers, with funding from CICEET, used infrared imagery coupled with field verification to assess groundwater discharges to Great Bay. Groundwater nutrient loading was calculated to be approximately 5 percent of the total non-point load to the Great Bay Estuary. Sustainability of Groundwater Resources in the Piscataqua River and Coastal Watersheds – This collaborative USGS, NH Geologic Survey, and NHDES project is assessing groundwater use and availability. Data from 2002 that were reported in the NHEP's 2006 Water Quality Indicator Report and 2006 State of the Estuaries Report indicate that groundwater contributes 19.3 tons of nitrogen per year to the Great Bay/Upper Piscataqua Estuary, accounting for ~2% of the total load.
LND 4-2: Reduce and eliminate groundwater contaminants based on the outcome of Objective 1 by 2010	Initially this was a research indicator based on the following question: Has the quality of groundwater entering NH estuaries significantly changed over time? Groundwater loads to the estuary will change very slowly. The NHEP Technical Advisory Committee decided that monitoring these slow changes would not be cost-effective. Instead, the NHEP will report on the results of stand alone studies of groundwater loading to the estuaries. [Related Study] Arsenic Contamination in Private Bedrock Wells in Southeastern NH – This USGS study, completed in 2003, sampled wells throughout Southeastern NH, including those within the coastal watershed. Preliminary findings suggest that approximately 19 percent of bedrock wells contain concentrations of arsenic that exceeded EPA maximum contaminant levels for public water supplies. Fact sheets were distributed to the public in 2003; several media stories were run; and a presentation given at the 2003 State of the Estuaries Conference. The NHEP conducted numerous outreach activities to promote care and maintenance of septic systems to minimize bacteria and nutrient pollution from septic systems. The NHDES Drinking Water Source Protection Program provides assistance to municipalities and other organizations to protect groundwater quality.

LAND USE GOAL #5: Allow no net loss of freshwater wetlands functions in the NH coastal watershed.

Management Objective	Status
LND5-2: Establish a state and municipal regulatory framework necessary to prevent introduction of untreated stormwater into tidal and freshwater wetlands by 2010	Revised rules for the state Alteration of Terrain Program were adopted in early 2007. The rules do specify that natural wetlands cannot be used to treat stormwater. State wetland regulations have not been updated to include restrictions on stormwater introduction to wetlands. Few municipalities have regulations safeguarding wetlands from stormwater impacts.
LND5-3: Increase use of buffers around wetlands in NH coastal watershed	The NHEP supported several initiatives and provides outreach to promote wetlands buffers: Freshwater Wetland Mitigation Inventory – An NHEP-funded inventory of wetlands in 19 communities identified the most promising opportunities for wetland protection, wetland restoration, and wetland buffer protection. NHEP Buffer Outreach – The NHEP provides information about buffers through community outreach and education. The NHEP presentation can help towns and watershed organizations learn about buffers, their importance, and what towns can do to protect them. Eight presentations were provided in 2006-early 2007. Community Buffer/Wetlands Protection Projects – Through the Local Grants Program and the Community Technical Assistance Program, the NHEP has supported community projects to improve buffer protections and wetlands protections, including new buffer and/or wetlands regulations in Candia, Deerfield, New Durham, and Kingston and prime wetlands designation projects in eight communities from 2004-2007. The NHDES Wetlands rules revised in 2004 and 2006 encourages protection of wetlands buffers as part of a wetlands mitigation strategy.

LAND USE GOAL #6: Maintain habitats of sufficient size and quality to support populations of naturally occurring plants, animals, and communities.

Management Objective	Status
LND6-3: Support completion of state biomonitoring standards and increase the miles of rivers and streams meeting those standards by 2010	Biomonitoring criteria were developed by the state and used in wadeable stream/river assessments for the state's 305(b) reports. These criteria are detailed in the Comprehensive Assessment and Listing Methodology. Development of standard protocols for other waterbody types is ongoing. Since 2003, the NH Department of Environmental Services' biomonitoring program has conducted complete biological surveys at only eight sites in the coastal watershed; however volunteer groups participating in biomonitoring programs on the Cocheco, Exeter, and Oyster Rivers sampled a total of 35 sites (30 unique sites) from 2005-2006. NHDES participated in the National Wadeable Streams Assessment completed by EPA. NHDES used the data from this program to determine that 37.9% of wadeable streams in the state met biomonitoring standards for aquatic life use support (3,429 stream miles). The NHEP Coastal Scientist calculated the probabilistic statistics for this study, drawing on experience from the National Coastal Assessment.
LND6-4: Increase the use of buffers around wildlife areas and maintain contiguous habitat blocks in the NH coastal watershed by 2010	The Wildlife Action Plan and Land Conservation Plan for NH's Coastal Watersheds identify wildlife habitats, associated buffers, and large contiguous habitat blocks. Strategies included in the plans (especially the WAP) encourage land use planning, zoning, and private landowner action to protect wildlife habitat and maintain large forested habitat blocks. NH Fish and Game Department is conducting a number of workshops on how to use information from the Wildlife Action Plan, and regional planning commissions are working with select towns to implement planning strategies from the Land Conservation Plan.

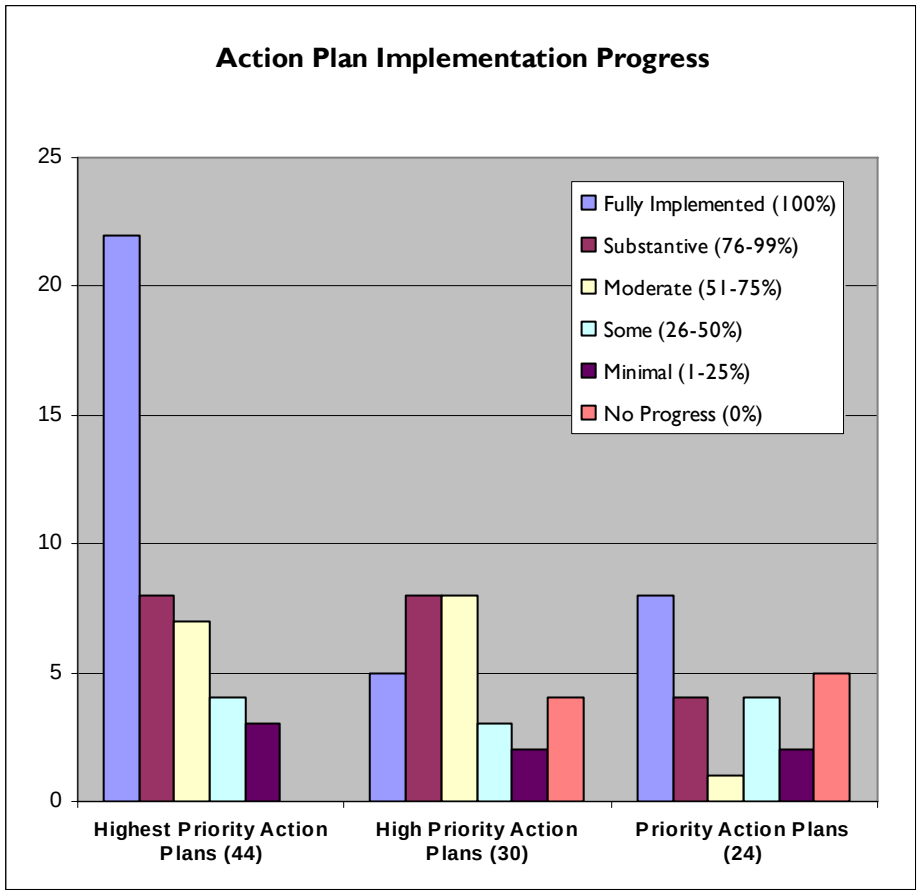
Section 2: Management Plan Implementation Status

The NHEP's Management Plan includes 98 individual Action Plans designed to protect and enhance the environmental quality of the State's estuaries. Nearly all Action Plans contain a detailed series of steps or activities to complete the plan. Each Action Plan was assigned a rating of *Highest Priority*, *High Priority*, or *Priority* at the time the Management Plan was developed.

Each year through its annual work plan, the NHEP, in collaboration with partner organizations, identifies the Action Plans it will address through its initiatives and grant-funded activities. From 2001 through 2006, the NHEP awarded nearly $3.5 million to support projects related to the Management Plan.

The NHEP monitors implementation of the Action Plans through a comprehensive project-tracking database. The database links NHEP grant-funded projects, staff-led activities and partner projects to specific Action Plans. NHEP staff reviewed implementation status and assigned one of the following completion ratings to each Action Plan based on activities and projects completed by the NHEP and its partners: No Progress (0%), Minimal (1-25%), Some (26-50%), Moderate (51-75%), Substantive (76-99%), and Fully Implemented (100%). An Action Plan can be rated as Fully Implemented even though implementation remains ongoing. NHEP staff reviewed the ratings with NHEP Project Teams and adjusted ratings based on feedback from the teams. A rating summary accompanies the rating given each Action Plan. The rating summary describes the major projects that address the Action Plan and the rationale for the rating assignment.

The NHEP and its many agency, community and local partners have made great progress in implementing the Management Plan. Twenty-two (22) of the 44 Highest Priority Action Plans are fully implemented, and 35 of the total 98 Action Plans have been fully implemented. Thirty-seven (37) of the 44 Highest Priority Action Plans show greater than 50 percent completion. Overall, 71 of the 98 Action Plans show greater than 50 percent completion to date. Some level of progress has been made on all of the Highest Priority Action Plans. In general, Action Plans that show no or minimal progress are those that are lower priority Action Plans, represent activities that now are less relevant due to conditions that have changed since the time the Management Plan was initially developed, or are regulatory in nature and required changes to state laws.



Action Plans and Completion Ratings

Action ID	Action Plan Title	Priority	Completion Rating
WQ-01	Evaluate how WWTF effluent affects estuarine water quality, and seek practical options at the state level for secondary and tertiary or alternative treatment where appropriate.	High	Moderate (51-75%)
WQ-02	Evaluate the suitability of UV alternatives to chlorine in wastewater post-treatment for seacoast communities.	High	No Progress (0%)
WQ-03	Prioritize and then upgrade WWTFs to reduce bacterial pollution from hydraulic overloading.	High	Moderate (51-75%)
WQ-04A	Establish ongoing training and support for municipal personnel in monitoring storm drainage systems for illicit connections.	Highest	Substantive (76-99%)
WQ-04B	Assist seacoast communities in completing and maintaining maps of sewer and stormwater drainage infrastructure systems.	Highest	Substantive (76-99%)
WQ-04C	Eliminate sewer and storm drain illicit connections.	Highest	Substantive (76-99%)
WQ-05	Conduct shoreline surveys for pollution sources.	Highest	Substantive (76-99%)
WQ-06	Promote collaboration of state and local officials to locate and eliminate illegal discharges into surface waters.	High	Moderate (51-75%)
WQ-07	Provide incentives, including cost-share funding, to fix or eliminate illegal direct discharges such as grey water pipes, failing septic systems, and agricultural runoff.	Highest	Moderate (51-75%)
WQ-08	Research the effectiveness of innovative stormwater treatment technologies for existing urban areas in NH, and communicate results to developers and communities.	Highest	Fully Implemented (100%)
WQ-09	Ensure that water quality impacts from new development or redevelopment are minimized at the planning board stage of development.	High	Minimal (1-25%)
WQ-10	Research, revise, publish and promote the Stormwater Management and Erosion and Sediment Control Handbook for Urban and Developing Areas in NH.	Highest	Moderate (51-75%)
WQ-11	Revise state industrial discharge permit criteria in response to new processing technology, and re-evaluate existing permits.	Priority	Some (26-50%)
WQ-12A	Acknowledge and support the Oil Spill Response Team of the Piscataqua River Cooperative.	Priority	Fully Implemented (100%)
WQ-12B	Enhance oil spill clean up efforts through pre-deployment of infrastructure and development of high-speed current barriers.	High	Fully Implemented (100%)
WQ-13	Provide septic system maintenance information directly to shoreline property owners, and to other citizens of the coastal watershed to help improve water quality.	Highest	Fully Implemented (100%)
WQ-14	Encourage the use of innovative, alternative technologies for failing septic systems to help improve water quality.	High	Substantive (76-99%)
WQ-15	Support efforts to reduce deposition of atmospheric pollutants through eliminating loopholes in current laws, encouraging the construction of more efficient plants, and encouraging energy conservation.	Priority	Minimal (1-25%)
WQ-16	Find funding sources for key water quality strategies.	Highest	Fully Implemented (100%)
WQ-17	Coordinate public tours of wastewater treatment facilities.	Priority	Minimal (1-25%)
WQ-18	Support and coordinate stormwater workshops.	Priority	Fully Implemented (100%)
WQ-19	Support and expand storm drain stenciling programs.	Highest	Moderate (51-75%)
WQ-20	Conduct an Estuarine Field Day for municipal officials.	Priority	Fully Implemented (100%)
LND-01	Prepare a report of current and future levels of imperviousness for the subwatersheds of the NH coastal watershed.	Highest	Substantive (76-99%)
LND-02	Implement steps to limit impervious cover and protect streams at the municipal level.	Highest	Some (26-50%)
LND-03	Conduct research in coastal NH subwatersheds to examine the relationship between percent impervious cover and environmental degradation.	High	Fully Implemented (100%)
LND-04	Prevent the introduction of untreated stormwater to wetlands by supporting the development of NH Minimum Impact Development Guidelines.	Priority	Moderate (51-75%)
LND-05	Support the Natural Resource Outreach Coalition (NROC), a municipal decision-maker land-use planning outreach method modeled after the University of Connecticut NEMO (Nonpoint Education for Municipal Officials) Program.	Highest	Fully Implemented (100%)
LND-06A	Develop a regional pilot partnership to create a smart growth vision among towns and regional planning commissions in a subwatershed of the NH coastal watershed.	Highest	Some (26-50%)
LND-06B	Conduct a comprehensive review of the 43 towns within the coastal watershed to determine land-use policies that affect sprawl.	High	Some (26-50%)

Action ID	Action Plan Title	Priority	Completion Rating
LND-06C	Develop and maintain a comprehensive database or library of new smart growth funding programs.	High	Substantive (76-99%)
LND-06D	Develop a science-based handbook and video on the nature, causes, and remedies of sprawl for audiences in the coastal watershed.	Priority	Fully Implemented (100%)
LND-06E	Actively participate and contribute to the development of new smart growth planning tools with emphasis on provisions that protect estuarine water quality.	High	Fully Implemented (100%)
LND-06F	Aggressively assist communities that embrace a strong smart growth philosophy to conduct comprehensive reviews, identify sources of funding, provide public education, and implement new land-use tools.	Highest	Moderate (51-75%)
LND-07	Complete rulemaking and begin implementation of the 'Recommended NH Wetlands Mitigation Policy' for NH DES, prepared by the Audubon Society of NH and the Steering Committee on Wetlands Mitigation.	High	Fully Implemented (100%)
LND-08A	Strengthen enforcement and effectiveness of the state tidal buffer zone (TBZ) through outreach to local officials and tidal shoreland property owners.	Priority	Some (26-50%)
LND-08B	Amend state tidal buffer zone (TBZ) regulations to include regulation of deck construction.	Priority	No Progress (0%)
LND-09A	Reduce the quantity, improve the quality, and regulate the timing of stormwater flow into tidal wetlands through policy changes at the NHDES Wetlands Bureau.	Highest	Minimal (1-25%)
LND-09B	Reduce the quantity, improve the quality, and regulate the timing of stormwater flow into tidal wetlands through changes to the NHDES Site Specific Program.	Highest	Fully Implemented (100%)
LND-13	Provide a framework specific and appropriate to the NH Seacoast for defining and delineating urban and nonurban shoreland areas.	High	No Progress (0%)
LND-14	Develop and implement an outreach program to encourage and assist communities in developing and adopting land use regulations to protect undisturbed shoreland buffers.	Highest	Substantive (76-99%)
LND-15	Support land conservation efforts in shoreland areas.	Highest	Fully Implemented (100%)
LND-16	Improve enforcement of the state Comprehensive Shoreland Protection Act and other applicable shoreland protection policies through outreach to local officials and shoreland property owners.	Highest	Moderate (51-75%)
LND-17	Provide incentives for the relocation of grandfathered shoreland uses.	High	No Progress (0%)
LND-18	Locate, quantify and qualify groundwater inflow to the estuaries.	Highest	Substantive (76-99%)
LND-19	Locate, reduce, eliminate, and prevent groundwater contamination.	Highest	Minimal (1-25%)
LND-20	Develop and implement a Wetlands Buffer Outreach Program for planning boards.	High	Substantive (76-99%)
LND-21	Prevent the introduction of untreated stormwater to freshwater wetlands by enacting legislation giving NHDES authority to regulate stormwater discharge to wetlands.	High	No Progress (0%)
LND-22	Prevent the introduction of untreated stormwater to wetlands by strengthening municipal site plan review regulations.	High	Some (26-50%)
LND-23	Prevent the introduction of untreated stormwater to wetlands through an increased understanding of stormwater impacts on wetland ecology.	Priority	No Progress (0%)
LND-24	Work with NHDES to encourage adoption of a state wetlands mitigation policy.	High	Fully Implemented (100%)
LND-25	Encourage municipal designation of Prime Wetlands and 100-foot buffers (or equivalent protection).	High	Substantive (76-99%)
LND-25A	Create a traveling Prime Wetlands display.	Priority	Substantive (76-99%)
LND-25B	Provide training and project assistance for towns interested in utilizing the NH Comparative Method for Wetland Evaluation.	Highest	Moderate (51-75%)
LND-25C	Work with local planning boards and conservation commissions on regulatory approaches to wetlands conservation.	High	Some (26-50%)
LND-25D	Create or enhance local land conservation programs with emphasis on high value wetlands and buffers.	High	Moderate (51-75%)
LND-26	Support implementation of state/federal land protection programs.	Highest	Fully Implemented (100%)
LND-27	Support the efforts of the Great Bay Resource Protection Partnership.	Highest	Fully Implemented (100%)
LND-28	Encourage communities to dedicate current-use tax penalties to conservation commissions for the purpose of natural resource acquisition, easements, restoration, and conservation land management.	Highest	Fully Implemented (100%)
LND-29	Provide technical assistance in land protection and management to regional land trusts and municipal conservation commissions (Ecological Reserve System).	High	Moderate (51-75%)
LND-30	Develop and use biomonitoring standards to evaluate water quality.	High	Substantive (76-99%)
LND-31	Use results of biomonitoring and water quality monitoring to prioritize watershed areas for protection and remediation.	High	Minimal (1-25%)
LND-32	Encourage municipalities to incorporate wildlife habitat protection into local master plans by promoting NH F&G's "Identifying and Protecting Significant Wildlife Habitat: A Guide for Towns."	Highest	Fully Implemented (100%)
LND-33	Develop a model local planning approach to encourage the identification and maintenance of contiguous habitat blocks.	Highest	Fully Implemented (100%)
LND-34	Encourage appropriate buffers around important wildlife areas and rare or exemplary natural communities.	High	Substantive (76-99%)

Action ID	Action Plan Title	Priority	Completion Rating
LND-35	Maintain current use tax program.	Highest	Fully Implemented (100%)
LND-36	Encourage conservation easements.	Highest	Fully Implemented (100%)
LND-37	Support the development and implementation of water resource management plans to determine sustainable groundwater and surface water use in the coastal watershed.	Highest	Some (26-50%)
SHL-01	Implement National Shellfish Sanitation Program guidance to develop an FDA-certified shellfish program.	Highest	Fully Implemented (100%)
SHL-02	Identify sources of and reduce or eliminate contaminants in the coastal watershed.	Priority	Substantive (76-99%)
SHL-03	Institute land-use practices that improve water quality and shellfish habitat.	Priority	Some (26-50%)
SHL-04	Enhance funding to maintain a comprehensive Shellfish Program.	Highest	Fully Implemented (100%)
SHL-05	Regularly collect and monitor water quality to identify sources and reduce or eliminate contaminants.	Highest	Fully Implemented (100%)
SHL-06	Periodically collect and monitor shellfish tissue samples as appropriate for toxins and biotoxins.	Highest	Fully Implemented (100%)
SHL-07	Maintain an ongoing shellfish resource assessment program.	Highest	Fully Implemented (100%)
SHL-09A	Decrease shellfish resource depletion and increase productivity with stricter state penalties for illegal harvesting.	Priority	No Progress (0%)
SHL-09B	Increase outreach and education about methods to control shellfish predators.	Priority	Fully Implemented (100%)
SHL-09C	Explore alternative recreational shellfish harvest methods.	Priority	No Progress (0%)
SHL-09D	Increase productivity by discouraging the harvest of immature shellfish.	Priority	Substantive (76-99%)
SHL-10	Provide information regarding public access to shellfish beds through distribution of maps/booklets.	Highest	Fully Implemented (100%)
SHL-11	Establish Bounty of Bays shellfishing field education program.	Priority	Substantive (76-99%)
SHL-12	Develop and maintain a shellfisher license information database for use in outreach activities.	Priority	Fully Implemented (100%)
SHL-13	Update materials issued with shellfish licenses, improve distribution of information and better utilize the NH F&G "Clam Hotline."	Priority	Fully Implemented (100%)
SHL-14	Provide for direct citizen involvement in NH shellfish management decision-making process.	Highest	Fully Implemented (100%)
SHL-15	Evaluate and address perceived and real institutional barriers to aquaculture and promote environmentally sound aquaculture practices.	Highest	Minimal (1-25%)
RST-01	Develop and implement a plan for shellfish resource enhancement and habitat restoration to achieve a sustainable resource contributing to a healthy environment.	Highest	Some (26-50%)
RST-02	Using the Coastal Method and other techniques, identify and restore tidal wetlands for aspects other than tidal restrictions.	High	Moderate (51-75%)
RST-03	Continue to restore the tidal wetlands listed in the NRCS report, "Method for the Evaluation and Inventory of Vegetated Tidal Marshes in New Hampshire."	Highest	Substantive (76-99%)
RST-04	Identify and implement habitat restoration projects in other important non-tidal habitat areas, such as uplands and freshwater wetlands.	High	Moderate (51-75%)
RST-05	Create a list of potential wetland restoration projects that could be used for wetland mitigation projects, and distribute the list to the state agencies and seacoast municipalities.	High	Substantive (76-99%)
RST-06	Pursue funding for restoration from NH DOT, USDA, NRCS, US F&WS, and other sources.	Highest	Moderate (51-75%)
RST-07	Support the development and implementation of marine aquatic nuisance species management plans for NH's estuaries.	Priority	Some (26-50%)
EDU-01	Use media to highlight estuarine issues.	High	Substantive (76-99%)
EDU-02	Work with Seacoast newspapers to establish a monthly newspaper column devoted to coastal natural resources issues.	Priority	Fully Implemented (100%)
EDU-02A	Develop an agreement with Strafford County UNH Cooperative Extension to enable the NHEP outreach project team to contribute coastal natural resource information to the column in Foster's Daily Democrat.	Priority	No Progress (0%)
EDU-03	Establish and fund a technical assistance grant program to promote and fund projects that support the NHEP Management Plan.	Highest	Fully Implemented (100%)
EDU-04	Maintain and expand the NHEP shoreline property-owner database.	High	Moderate (51-75%)
EDU-05	Support volunteer organizations active in water quality, habitat, or other estuarine watershed natural resource issues.	Highest	Fully Implemented (100%)

Water Quality Action Plans

The Management Plan contains 23 Water Quality Action Plans. Seven of the Action Plans are fully implemented, and eleven others are at least 50 percent complete. All ten of the highest priority Action Plans are over 50 percent complete. Much work has been done in the areas of stormwater management workshops and training, septic system outreach, illicit discharge detection and elimination, and storm sewer system mapping. Five Action Plans are less than 50 percent complete, including one Action Plan for which no progress has been made. This Action Plan (WQ-2) involves evaluating ultraviolet treatment options for wastewater.

Water Quality Action Plan Completion Ratings

	Highest Priority	High Priority	Priority
Fully Implemented (100%)	WQ-08 WQ-13 WQ-16	WQ-12B	WQ-12A WQ-18 WQ-20
Substantive (76-99%)	WQ-04A WQ-04B WQ-04C WQ-05	WQ-14	
Moderate (51-75%)	WQ-07 WQ-10 WQ-19	WQ-01 WQ-03 WQ-06	
Some (26-50%)			WQ-11
Minimal (1-25%)		WQ-09	WQ-15 WQ-17
No Progress (0%)		WQ-02	

The 23 Water Quality Action Plans are listed on the following pages along with completion ratings and summaries for the assigned ratings. In addition, progress on individual steps for each Action Plan is noted as Not Initiated, In Progress, or Complete. For a report of all NHEP activities and partner projects undertaken to implement Action Plans, see www.nh.gov/nhep/publications/pdf/nhep_progress_report-app-nhep-07.pdf or contact the NHEP.

WQ-01 Evaluate how WWTF effluent affects estuarine water quality, and seek practical options at the state level for secondary and tertiary or alternative treatment where appropriate.

Step(s)	Status
1. ID WWTF discharges that are probable causes of nutrients and sediments to the estuaries.	In progress
2. Conduct biological assessments and look for data gaps in chemical analyses of surface waters. Conduct follow-up monitoring to isolate WWTF effluent.	In progress
3. Evaluate design and capacity of WWTFs determined to have negative impact.	In progress
4. Conduct cost-benefit analysis to evaluate upgrade needs for treatment.	In progress
5. Evaluate the monitoring criteria in NPDES permits.	In progress

Completion Rating: Moderate (51-75%)

Priority: High

Rating Summary: The NHEP-funded Bolster study (UNH, 2004) and the ongoing Regional Wastewater Management Study being conducted by Metcalf and Eddy are the primary activities related to this Action Plan.

WQ-02 Evaluate the suitability of UV alternatives to chlorine in wastewater post-treatment for seacoast communities.

Step(s)	Status
1. Meet with WWTF operators to discuss impacts of chlorination.	Not initiated
2. Assess byproducts of chlorination in the post-treatment stream of WWTFs.	Not initiated
3. Evaluate use of UV.	Not initiated
4. Determine costs and benefits of retrofits.	Not initiated
5. Present findings to municipalities.	Not initiated

Completion Rating: No Progress (0%)

Priority: High

Rating Summary: No progress has been made on this Action Plan.

WQ-03 Prioritize and then upgrade WWTFs to reduce bacterial pollution from hydraulic overloading.

Step(s)	Status
1. Understand the impacts of each WWTF on estuarine water quality.	In progress
2. Compile and prioritize real problems at each plant.	In progress
3. Develop long-term regional plan to address WWTF needs.	In progress
4. Develop WWTF recommendation and tracking procedure.	In progress
5. Prioritize funding for plants based on recommendations.	Not initiated

Completion Rating: Moderate (51-75%)

Priority: High

Rating Summary: The NHEP-funded Bolster study (UNH, 2004) and the ongoing Regional Wastewater Management Study being conducted by Metcalf and Eddy are the primary activities related to this Action Plan. In addition, work done by the NHDES Shellfish Program has documented potential and real impacts of WWTF discharges on bacteria levels.

WQ-04A Establish ongoing training and support for municipal personnel in monitoring storm drainage systems for illicit connections.

Step(s)	Status
1. Develop review board.	In progress
2. Train municipal staff in investigatory techniques of identifying illicit connections and enforcement options.	Complete
3. DES help municipalities to develop an illicit connection database.	Complete
4. Create monitoring plans.	In progress
5. ID municipal resource needs for monitoring storm drain outfalls.	In progress
6. Assist communities in securing funds to monitor storm drains as an incentive.	In progress

Completion Rating: Substantive (76-99%)

Priority: Highest

Rating Summary: NHEP grant funds, which are administered by NHDES, have supported a number of training and support programs to assist municipalities with monitoring storm drainage systems. NHDES has conducted several workshops on illicit discharge detection and elimination. Most recently, the City of Portsmouth, on behalf of the Seacoast Stormwater Coalition, hired a consultant with NHEP grant funds to develop a manual and training program to meet this objective.

WQ-04B Assist seacoast communities in completing and maintaining maps of sewer and stormwater drainage infrastructure systems.

Step(s)	Status
1. Determine availability and completeness of infrastructure maps.	Complete
2. Verify existing maps.	Complete
3. Digitize infrastructure information into data layers.	Complete
4. Perform field checks of final maps.	In progress
5. Develop a municipal work station to update maps on ongoing basis.	Not initiated
6. Train staff to access the information and create layers as needed.	In progress

Completion Rating: Substantive (76-99%)

Priority: Highest

Rating Summary: NHEP grant funds, which are administered by NHDES, have supported a number of municipal projects to map storm sewer systems. From 2001-06, seventeen grants were awarded to municipalities. Phase II communities are required to map the systems as part of their stormwater management plans.

WQ-04C Eliminate sewer and storm drain illicit connections.

Step(s)	Status
1. Create database template for municipalities to collate information from storm drainage investigations.	Complete
2. Assist towns in prioritizing and scheduling removal of illicit connections.	In progress
3. Help towns obtain funds.	In progress
4. Remove connections.	In progress
5. Monitor to document water quality change after eliminating illicit connections.	In progress

Completion Rating: Substantive (76-99%)

Priority: Highest

Rating Summary: NHEP grant funds, which are administered by NHDES, have supported a number of municipal projects to identify and eliminate illicit discharges. From 2001-06, fourteen grants were awarded to municipalities. NHDES personnel have provided technical assistance to communities to identify and eliminate additional illicit discharges. Phase II communities' stormwater management plans are required to include plans to identify and eliminate non-stormwater discharges to storm sewer systems.

WQ-05 Conduct shoreline surveys for pollution sources.

Step(s)	Status
1. DES and volunteers conduct shoreline surveys.	In progress
2. Gather survey information from local groups.	In progress
3. Use existing survey database to manage results.	In progress
4. Seek volunteers.	In progress
5. Use GBCW volunteer training.	In progress
6. Delineate area to be surveyed.	In progress
7. Train and assign volunteer groups.	In progress
8. Notify shorefront property owners.	In progress
9. Conduct surveys.	In progress
10. Enter results in database.	In progress

Completion Rating: Substantive (76-99%)

Priority: Highest

Rating Summary: The NHDES Shellfish Program, with substantial financial support from the NHEP, has conducted extensive shoreline surveys as part of its ongoing compliance with the National Shellfish Sanitation Program. Volunteer groups, including the Great Bay Coast Watch's efforts to assist the NHDES Shellfish Program, have also undertaken activities that support implementation of this Action Plan.

WQ-06 Promote collaboration of state and local officials to locate and eliminate illegal discharges into surface waters.

Step(s)	Status
1. Develop public awareness campaign to explain procedure for reporting suspected pollution sources.	In progress
2. DES staff respond promptly to increased reporting.	In progress
3. DES investigate reported illegal discharges.	In progress
4. Create community specific status report to inform all parties of actions and results.	Not initiated

Completion Rating: Moderate (51-75%)

Priority: High

Rating Summary: NHDES routinely responds to reports it receives and investigates any reported illegal discharges in the coastal watershed area. Work undertaken by the NHEP in 2007 to develop a campaign including a field guide, poster, and bookmark, should promote collaboration and proper reporting of water pollution incidents.

WQ-07 Provide incentives, including cost-share funding, to fix or eliminate illegal direct discharges such as grey water pipes, failing septic systems, and agricultural runoff.

Step(s)	Status
1. ID funding sources for illegal discharges.	In progress
2. Encourage DES to market SRL funds for septic systems.	In progress
3. Develop and maintain online directory of financial assistance.	Not initiated
4. Create database of owners of direct discharges.	In progress
6. Advertise success stories.	In progress
5. Send funding directory to owners of direct discharges.	Not initiated

Completion Rating: Moderate (51-75%)

Priority: Highest

Rating Summary: The NHEP, NH Coastal Program and NHDES have provided funding for a number of community projects to eliminate specific pollution problems, including stormwater projects, sewer extension/repair projects, agricultural BMP projects, and septic system projects.

WQ-08 Research the effectiveness of innovative stormwater treatment technologies for existing urban areas in NH, and communicate results to developers and communities.

Step(s)	Status
1. Collate information on stomwater BMPs.	Complete
2. Publish information and make it available to the public.	Complete
3. Monitor effectiveness of two stormwater treatment facilities.	Complete
4. Schedule workshops to demonstrate the success of the two case studies.	Complete
*5. DELETED	Change Suggested

Completion Rating: Fully Implemented (100%)

Priority: Highest

Rating Summary: This Action Plan is fully implemented largely through the UNH Stormwater Center activities, the NHDES Stormwater BMP manual, and several smaller scale projects. The Stormwater Center demonstrates and tests over a dozen stormwater treatment devices, conducts site tours and workshops, and provides performance data. Over a dozen workshops are held each year. Registration fees for planning boards and conservation commission members to attend the workshops are paid for by the NHEP.

WQ-09 Ensure that water quality impacts from new development or redevelopment are minimized at the planning board stage of development.

Step(s)	Status
1. Update and amend documentation of NHEP area ordinances in the Base Programs Analysis.	Not initiated
2. Review strategies and innovative ordinances from other states.	In progress
3. Work with communities that lack erosion and sediment control ordinances.	In progress
4. Coordinate to ensure consistency with State regulations.	In progress
5. Encourage adoption of protective ordinances for projects greater than 20,000 square feet.	In progress

Completion Rating: Minimal (1-25%)

Priority: High

Rating Summary: Previous projects that attempted to address this Action Plan were not completed (Green Book revision, erosion control handbook and certification program). In 2008, the NHEP will hire a consultant to evaluate compliance with existing regulations and make recommendations to improve stormwater management for new development.

WQ-10 Research, revise, publish and promote the Stormwater Management and Erosion and Sediment Control Handbook for Urban and Developing Areas in NH.

Step(s)	Status
1. Compile list of current education activities by organizations.	Complete
2. Research new developments.	In progress
3. Rewrite Green Book.	In progress
4. Distribute and provide education programs on the book.	In progress

Completion Rating: Moderate (51-75%)

Priority: Highest

Rating Summary: The NHDES BMP Guide helps implement this Action Plan. Several NHEP projects that attempted to address this Action Plan were not completed (Green Book revision, erosion control handbook and certification program). In 2008, the NHEP will hire a consultant to evaluate compliance with existing regulations and make recommendations to improve stormwater management for new development.

WQ-11 Revise state industrial discharge permit criteria in response to new processing technology, and re-evaluate existing permits.

Step(s)	Status
1. Review existing small dischargers' permits.	In progress
2. Review municipal pre-treatment program.	In progress
3. ID substances which can be modified to reduce toxic waste.	In progress
4. Re-evaluate permitted discharges.	In progress
5. Establish time table for reduction or remediation of discharges.	In progress

Completion Rating: Some (26-50%)

Priority: Priority

Rating Summary: The NHDES updated its Industrial Pretreatment Program. Dischargers must get NHDES and municipality approval for discharges to WWTFs and cannot contribute to violations of water quality standards, the NPDES permit or sludge quality criteria. The NHDES Pollution Prevention program actively assists a number of businesses and industry sectors each year to reduce pollution.

WQ-12A Acknowledge and support the Oil Spill Response Team of the Piscataqua River Cooperative.

Step(s)	Status
1. NHEP develop relationship with Cooperative.	Complete
2. Assist in publicizing events as relevant.	In progress

Completion Rating: Fully Implemented (100%)

Priority: Priority

Rating Summary: The Piscataqua River Cooperative continues to be supported by the three major energy companies: Sprague Energy, Irving Oil, and Public Service New Hampshire. In addition, the NHDES Oil Spill Response Program has funded activities of the PRC for a number of years. The NHEP supported the development of Environmental Sensitivity Index maps to assist with oil spill response planning, and the NHEP Coastal Scientist participates in oil spill response exercises.

WQ-12B Enhance oil spill clean up efforts through pre-deployment of infrastructure and development of high-speed current barriers.

Step(s)	Status
1. Place mooring at locations for attaching booms.	Complete
2. Support UNH to develop and field test fast-current oil barriers.	Complete

Completion Rating: Fully Implemented (100%)

Priority: High

Rating Summary: This Action Plan was previously fully implemented through several UNH/CICEET projects that demonstrated and field tested oil booms in areas with high current speeds.

WQ-13 Provide septic system maintenance information directly to shoreline property owners, and to other citizens of the coastal watershed to help improve water quality.

Step(s)	Status
1. Examine existing materials on septic system maintence.	Complete
2. Distribute maintenance information to shoreline property owners.	Complete
3. Mail materials to residents.	Complete
4. Give materials to real estate offices for new home owners.	Complete
5. Submit articles to the media.	Complete
6. Distribute materials to town clerks.	Complete
7. Include information on Great Bay Radio.	Complete

Completion Rating: Fully Implemented (100%)

Priority: Highest

Rating Summary: This Action Plan is fully implemented as a result of a number of GSDI workshops for homeowners on septic system operation and maintenance; two workshops for seacoast realtors; GSDI septic system maintenance folders mailed to shoreline residents and town halls; airing of a radio spot on Great Bay Radio; and the NHEP's Septic Scenes Video Contest that generated several media stories and the resulting video that aired on several towns' community access channels.

WQ-14 Encourage the use of innovative, alternative technologies for failing septic systems to help improve water quality.

Step(s)	Status
1. Review innovative and alternative septic systems for NH.	In progress
2. Pursue approval from DES for monitoring new technologies.	In progress
3. Seek approval from DES on technologies.	In progress
4. Conduct workshops on the new systems.	In progress
5. Ensure new systems are used only for failed system replacement of existing structures.	In progress

Completion Rating: Substantive (76-99%)

Priority: High

Rating Summary: A growing number of septic systems approved by NHDES and installed are alternative systems. NHDES has approved a number of alternative devices/processes under the provisions of NH Administrative Rule Env-Ws 1024. GSDI workshops included discussions of alternative septic system technologies.

WQ-15 Support efforts to reduce deposition of atmospheric pollutants through eliminating loopholes in current laws, encouraging the construction of more efficient plants, and encouraging energy conservation.

Step(s)	Status
1. Revise state standards to eliminate Clean Air Act loopholes.	Not initiated
2. Implement tax credits for exceeding BACT standards.	Not initiated
3. Hasten construction of newer, cleaner, plants.	In progress
4. Increase participation in conservation programs.	In progress
5. Support the recommendations of the NH Mercury Reduction Strategy and encourage implementation of the Research and Monitoring recommendation R-35.	In progress

Completion Rating: Minimal (1-25%)

Priority: Priority

Rating Summary: Minimal work has been done to implement this Action Plan. The National Coastal Assessment monitors sediment and fish tissue for toxins, including mercury. Residential trash burning was prohibited by NHDES. A new PSNH plant uses wood for energy and reduces coal-fired plant mercury emissions.

WQ-16 Find funding sources for key water quality strategies.

Step(s)	Status
1. Partners submit list of known funding source information.	Complete
2. NHEP create database.	Complete
3. Research additional sources.	Complete
4. Maintain database.	Complete
5. Upload on a website.	Complete
6. Promote the database.	Complete

Completion Rating: Fully Implemented (100%)

Priority: Highest

Rating Summary: Existing funding databases and other web resources developed and maintained by the Environmental Finance Center and the EPA implement this Action Plan.

WQ-17 Coordinate public tours of wastewater treatment facilities.

Step(s)	Status
1. Coordinate tours of WWTFs.	In progress
2. Plant managers conduct tours.	In progress
3. Provide educational materials to tour participants.	In progress
4. Invite public to the tours.	In progress

Completion Rating: Minimal (1-25%)

Priority: Priority

Rating Summary: Several WWFT tours were conducted to educate the public and the Great Bay Estuary Commission as part of the ongoing Seacoast Regional Wastewater Management Study. Many WWTFs routinely conduct tours for the public and school groups on request.

WQ-18 Support and coordinate stormwater workshops.

Step(s)	Status
1. Conduct training on reducing, treating, and improving quality of stormwater.	Complete

Completion Rating: Fully Implemented (100%)

Priority: Priority

Rating Summary: This Action Plan is fully implemented largely through the UNH Stormwater Center activities, plus several smaller scale projects. The UNH Stormwater Center demonstrates and tests over a dozen stormwater treatment devices, conducts site tours and workshops, and provides performance data. Over a dozen workshops are held each year. Registration fees for planning boards and conservation commission members to attend the workshops are paid for by the NHEP.

WQ-19 Support and expand storm drain stenciling programs.

Step(s)	Status
1. Recruit school groups.	In progress
2. Conduct workshop with each group before event.	In progress
3. Work with DPW to ID locations and obtain supplies.	In progress
4. Inform media contacts.	In progress
5. Prepare handouts.	In progress

Completion Rating: Moderate (51-75%)

Priority: Highest

Rating Summary: UNH Sea Grant staff worked with several communities to complete storm drain stenciling projects coupled with education about nonpoint source runoff. In addition, a number of watershed groups and communities have organized stenciling/storm drain marking projects, especially in communities subject to EPA Phase II stormwater regulations.

WQ-20 Conduct an Estuarine Field Day for municipal officials.

Step(s)	Status
1. Sea Grant invites municipal officials to event.	Complete
2. Introduce innovative technologies and techniques to prevent/reduce contamination to Great Bay.	Complete

Completion Rating: Fully Implemented (100%)

Priority: Priority

Rating Summary: NH Sea Grant Discovery Tours and the NHEP VIP tours (coordinated around National Estuaries Day) implement this Action Plan. The NHEP-organized tours provide municipal officials the opportunity to see the Great Bay Estuary, connect officials with scientists and researchers, and provide updates on recent projects and resources available to assist local decision-making. The UNH Stormwater Center field workshops also help implement this plan by demonstrating innovative stormwater treatment devices.

Land Use and Habitat Protection Action Plans

The Management Plan contains 45 Land Use and Habitat Protection Action Plans. Fifteen Action Plans are fully implemented, including 10 of the 21 highest priority Action Plans. Thirty of the 45 Action Plans are more than 50 percent complete, and 15 are less than 50 percent complete. Many of the Action Plans with the highest completion ratings are related to land conservation and encouraging municipal efforts for wetlands protection and stream buffer protection. The Action Plans with the lowest completion ratings tend to be those that require regulatory changes at the state level, as well as those that call for watershed-wide approaches to resource protection.

Land Use and Habitat Protection Action Plan Completion Ratings

	Highest Priority	High Priority	Priority
Fully Implemented (100%)	LND-05 LND-09B LND-15 LND-26 LND-27 LND-28 LND-32 LND-33 LND-35 LND-36	LND-03 LND-06E LND-07 LND-24	LND-06D
Substantive (76-99%)	LND-01 LND-14 LND-18	LND-06C LND-20 LND-25 LND-30 LND-34	LND-25A
Moderate (51-75%)	LND-06F LND-16 LND-25B	LND-25D LND-29	LND-04
Some (26-50%)	LND-02 LND-06A LND-37	LND-06B LND-22 LND-25C	LND-08A
Minimal (1-25%)	LND-09A LND-19	LND-31	
No Progress (0%)		LND-13 LND-17 LND-21	LND-08B LND-23

The 45 Land Use and Habitat Protection Action Plans are listed on the following pages along with completion ratings and summaries for the assigned ratings. In addition, progress on individual steps for each Action Plan is noted as Not Initiated, In Progress, or Complete. For a report of all NHEP activities and partner projects undertaken to implement Action Plans, see www.nh.gov/nhep/publications/pdf/nhep_progress_report-app-nhep-07.pdf or contact the NHEP.

LND-01 Prepare a report of current and future levels of imperviousness for the subwatersheds of the NH coastal watershed.

Step(s)	Status
1. Define and map second order subwatersheds.	Complete
2. Estimate current amount and percent of impervious surface area by subwatershed.	Complete
3. Project build-out amounts of impervious surface.	Not initiated
4. Distribute completed report to municipalities, partners, and regional planning commissions.	Complete

Completion Rating: Substantive (76-99%)

Priority: Highest

Rating Summary: Data collected in 1990, 2000, and 2005 were presented at town and subwatershed scales. Maps with 1990 and 2000 data were distributed to all the coastal communities in 2004 and the newest maps, including 2005 data, were distributed in 2007.

LND-02 Implement steps to limit impervious cover and protect streams at the municipal level.

Step(s)	Status
1. Develop watershed-based zoning using impervious surface information.	In progress
2. Protect sensitive streams, wetlands, floodplains, shoreland, and critical habitat from development.	In progress
3. Establish a stream buffer network.	In progress
4. Modify subdivision code to reduce impervious surface cover.	In progress
5. Limit disturbance and erosion of soils during construction.	In progress
6. Treat quantity and quality of stormwater runoff using BMPs.	In progress
7. Maintain stream protection infrastructure.	In progress

Completion Rating: Some (26-50%)

Priority: Highest

Rating Summary: Key habitats for protection were identified in the Land Conservation Plan. The UNH Stormwater Center works to improve stormwater BMPs through education, testing, and consultation with towns and other entities. The NHEP has developed a buffer education program and provides grants to municipalities that address this issue. Community assistance provided by the regional planning commissions support several of the steps.

LND-03 Conduct research in coastal NH subwatersheds to examine the relationship between percent impervious cover and environmental degradation.

Step(s)	Status
1. Delineate subwatersheds.	Complete
2. Sample 20-30 subwatersheds to compare stream morphology, water quality, and instream habitat for watersheds of varying development percentage.	Complete
3. Analyze data to quantify the relationship between watershed imperviousness and stream quality.	Complete
4. Disseminate information.	Complete

Completion Rating: Fully Implemented (100%)

Priority: High

Rating Summary: The NHCP/USGS study addressed this action plan, with additional outreach on the study findings being conducted in 2007. The NHEP assesses impervious surfaces and distributes the results every 3-5 years.

LND-04 Prevent the introduction of untreated stormwater to wetlands by supporting the development of NH Minimum Impact Development Guidelines.

Step(s)	Status
1. Prepare documents containing practices and indicators of minimum impact development.	In progress
2. Work with communities and developers to encourage adoption of practices.	In progress

Completion Rating: Moderate (51-75%)

Priority: Priority

Rating Summary: The Jordon Institute's NH Minimum Impact Development Partnership created general principles and key practices, and is now working on pilot projects throughout New Hampshire. Additionally, NHDES is compiling an Innovative Land Use Controls guide with one of the chapters being energy-efficient development.

LND-05 Support the Natural Resource Outreach Coalition (NROC), a municipal decision-maker land-use planning outreach method modeled after the University of Connecticut NEMO (Nonpoint Education for Municipal Officials) Program.

Step(s)	Status
1. Develop Natural Resource Outreach Coalition to coordinate natural resource education for municipalities.	Complete
2. Establish sustainable structure for the group.	Complete
3. Provide programs to communities.	Complete

Completion Rating: Fully Implemented (100%)

Priority: Highest

Rating Summary: NROC has been fully operational for over seven years, with UNH Cooperative Extension serving as the lead coordinating organization for over five years. Programs and assistance are provided to 2-3 new communities each year.

LND-06A Develop a regional pilot partnership to create a smart growth vision among towns and regional planning commissions in a subwatershed of the NH coastal watershed.

Step(s)	Status
1. Conduct community visioning to develop consensus on goals for growth, regional character, and natural resource preservation in a single watershed.	In progress

Completion Rating: Some (26-50%)

Priority: Highest

Rating Summary: Individual watershed plans (e.g., Oyster River watershed plan) have incorporated smart growth elements. Regional planning commissions' regional master plans have recently been developed and/or updated.

LND-06B Conduct a comprehensive review of the 43 towns within the coastal watershed to determine land-use policies that affect sprawl.

Step(s)	Status
1. Comprehensively review the land-use policies of the 42 watershed municipalites to identify policies that affect sprawl.	In progress
2. Use results to develop guidelines for communities to practice smart growth.	In progress
3. Emphasize policies that affect estuarine water quality.	In progress

Completion Rating: Some (26-50%)

Priority: High

Rating Summary: The planning commissions work closely with the communities in the region to review land use regulations relative to sprawl. Recommendations in the Land Conservation Plan for NH's Coastal Watersheds provide model regulations for communities. The NHEP CTAP provides assistance with land use policies and regulations.

LND-06C Develop and maintain a comprehensive database or library of new smart growth funding programs.

Step(s)	Status
1. Regional Planning Commissions develop and maintain a library of smart growth funding programs.	Not initiated
2. Assist communities in acquiring funds for smart growth implementation.	In progress

Completion Rating: Substantive (76-99%)

Priority: High

Rating Summary: No database is maintained, but the planning commissions routinely assist communities in identifying funding and often receive funding to work directly with towns (e.g., REPP funding, NHCP grant funding, NHEP CTAP funding). NROC assists and provides grant funds to communities.

LND-06D Develop a science-based handbook and video on the nature, causes, and remedies of sprawl for audiences in the coastal watershed.

Step(s)	Status
1. Create science-based handbook and video on nature, causes, and remedies of sprawl.	Complete

Completion Rating: Fully Implemented (100%)

Priority: Priority

Rating Summary: Two videos were produced: Livable Landscapes and Growing Together: Consensus Building, Smart Growth and Community Change. Livable Landscapes included a viewer's guide. In 2007 production began on a new video and curriculum highlighting smart growth in the coastal region of New Hampshire.

LND-06E Actively participate and contribute to the development of new smart growth planning tools with emphasis on provisions that protect estuarine water quality.

Step(s)	Status
1. Develop tool kit of model ordinances, regulations, codes, BMPs, and planning concepts.	Complete
2. Promote tools to communities.	Complete

Completion Rating: Fully Implemented (100%)

Priority: High

Rating Summary: The NHOSP Smart Growth Initiative and toolkit implemented this action plan. Planning commissions develop and promote model ordinances and other tools to communities.

LND-06F Aggressively assist communities that embrace a strong smart growth philosophy to conduct comprehensive reviews, identify sources of funding, provide public education, and implement new land-use tools.

Step(s)	Status
1. Work with RPCs to help communities conduct comprehensive reviews.	In progress
2. Identify funding sources.	In progress
3. Provide public education.	In progress
4. Implement new land-use tools.	In progress

Completion Rating: Moderate (51-75%)

Priority: Highest

Rating Summary: This work is being done through direct community assistance from the planning commissions, NROC, and NHEP CTAP.

LND-07 Complete rulemaking and begin implementation of the 'Recommended NH Wetlands Mitigation Policy' for NH DES, prepared by the Audubon Society of NH and the Steering Committee on Wetlands Mitigation.

Step(s)	Status
1. DES to complete state rule making.	Complete
2. Begin implementation of mitigation policy.	Complete

Completion Rating: Fully Implemented (100%)
Priority: High
Rating Summary: NHDES revised wetland rules in 2004 and 2006 implement this action plan.

LND-08A Strengthen enforcement and effectiveness of the state tidal buffer zone (TBZ) through outreach to local officials and tidal shoreland property owners.

Step(s)	Status
1. Strengthen enforcement of the state tidal buffer zone by educating communities.	In progress
2. DES staff inspect activities in the TBZ via field surveys and aerial photographs.	Not initiated

Completion Rating: Some (26-50%)
Priority: Priority
Rating Summary: The NHEP buffer outreach program and work done by the planning commissions address the education component of this action plan.

LND-08B Amend state tidal buffer zone (TBZ) regulations to include regulation of deck construction.

Step(s)	Status
1. Develop and implement changes to DES Wetlands Admin Rules to require a permit for deck construction in the TBZ.	Not initiated

Completion Rating: No Progress (0%)
Priority: Priority
Rating Summary: No change to the rule that permits deck construction with notification.

LND-09A Reduce the quantity, improve the quality, and regulate the timing of stormwater flow into tidal wetlands through policy changes at the NHDES Wetlands Bureau.

Step(s)	Status
1. Convene group to discuss DES policy changes to regulate the timing and flow of stormwater to tidal wetlands.	In progress
2. Runoff rates and impacts should not exceed pre-development rates.	Not initiated
3. Enforce wetland permits to require applicants to fix damage to salt marshes caused by stormwater flow.	Not initiated
4. RPCs encourage rules at the local level.	Not initiated

Completion Rating: Minimal (1-25%)

Priority: Highest

Rating Summary: NHDES convened a group to rewrite the alteration of terrain rules, which are planned for adoption in 2007. According to Env-Ws 415.18- "Criteria for Issuance of AOT Permit", naturally-occurring wetlands cannot be used to treat or detain stormwater runoff from the proposed development. There is nothing that addresses post-development rates not exceeding pre-development rates.

LND-09B Reduce the quantity, improve the quality, and regulate the timing of stormwater flow into tidal wetlands through changes to the NHDES Site Specific Program.

Step(s)	Status
1. Change the DES Site Specific Program to ensure regulation of all appropriate sites even when they employ impact/disturbance partitioning.	Complete

Completion Rating: Fully Implemented (100%)

Priority: Highest

Rating Summary: NHDES convened a group to rewrite the alteration of terrain rules, which are planned for adoption in 2007. The new rule (Env-Ws 415.05 -General Permit by Rule) addresses project phasing and cumulative impacts.

LND-13 Provide a framework specific and appropriate to the NH Seacoast for defining and delineating urban and nonurban shoreland areas.

Step(s)	Status
1. Develop standard definition of urban and non-urban shoreland areas.	Not initiated
2. Seek out existing definitions and tailor definitions to fit coastal NH.	Not initiated
3. Conduct outreach to communities.	Not initiated

Completion Rating: No Progress (0%)

Priority: High

Rating Summary: No work has been done on this Action Plan.

LND-14 Develop and implement an outreach program to encourage and assist communities in developing and adopting land use regulations to protect undisturbed shoreland buffers.

Step(s)	Status
1. Develop clear rationale for protecting shoreland areas.	Complete
2. Develop tools and case studies to illustrate benefits of natural buffers over engineered ones.	Complete
3. Develop outreach strategy to distribute tools to communities.	Complete
4. Review regulations and land-use controls.	Complete
5. Pilot the strategy in one watershed.	Complete
6. Train code enforcement officials.	In progress
7. Develop tax-incentive models to encourage buffer protection.	Not initiated
8. Identify and eliminate incentives to develop shoreland.	Not initiated
9. Pilot the project in single watershed.	Complete

Completion Rating: Substantive (76-99%)

Priority: Highest

Rating Summary: The NHEP implemented a buffer outreach program, including customized presentations, for municipal officials. A buffer demonstration site was developed by City of Portsmouth/GBNERR. Outreach on the USGS/NHCP study has been conducted.

LND-15 Support land conservation efforts in shoreland areas.

Step(s)	Status
1. ID and prioritize shoreland areas for protection.	Complete
2. Promote priorities with conservation groups.	Complete
3. Promote protection through fee simple and easement.	In progress
4. Provide funds for transaction costs associated with key parcels.	In progress

Completion Rating: Fully Implemented (100%)

Priority: Highest

Rating Summary: The Conservation Plan for NH Coastal Watersheds and plans prepared by other conservation organizations highlight important shoreland areas, and other tools such as the CSRC buffer characterization study and GRANIT buffer data mapper support buffer protections. CTAP and NROC programs provide community assistance. Finally, the NHEP provides land conservation transaction grants through CLCA.

LND-16 Improve enforcement of the state Comprehensive Shoreland Protection Act and other applicable shoreland protection policies through outreach to local officials and shoreland property owners.

Step(s)	Status
1. Develop outreach program for code enforcement officers and building inspectors on CSPA and shoreland protection policies.	In progress
2. Conduct project in 17 coastal towns.	Complete
3. Conduct project in rest of watershed.	In progress

Completion Rating: Moderate (51-75%)

Priority: Highest

Rating Summary: Workshops were previously conducted by the NHEP and regional planning commissions. NHDES conducts periodic workshops. Efforts to update the CSPA are underway.

LND-17 Provide incentives for the relocation of grandfathered shoreland uses.

Step(s)	Status
1. Study options for incentives to remove grandfathered uses that adversely affect waters subject to CSPA.	Not initiated
2. Conduct outreach.	Not initiated

Completion Rating: No Progress (0%)

Priority: High

Rating Summary: No progress has been made on this Action Plan.

LND-18 Locate, quantify and qualify groundwater inflow to the estuaries.

Step(s)	Status
1. Quantify characteristics of groundwater flows to the Great Bay and Hampton/Seabrook estuaries.	Complete
2. Assess water chemistry of groundwater inflows.	In progress
3. Assess the impact of water resource use and land uses on groundwater freshwater discharges to the estuaries.	In progress

Completion Rating: Substantive (76-99%)

Priority: Highest

Rating Summary: UNH/CICEET researchers have studied groundwater flows to estuaries. The nearly completed USGS/NHGS/NHCP study will provide additional information on groundwater use and availability.

LND-19 Locate, reduce, eliminate, and prevent groundwater contamination.

Step(s)	Status
1. Eliminate contaminants identified in LND-18.	In progress
2. Communicate results to the public to achieve groundwater protection.	In progress

Completion Rating: Minimal (1-25%)

Priority: Highest

Rating Summary: Outreach on septic system use and maintenance has been conducted, but minimal work has been done targeting other groundwater pollution sources.

LND-20 Develop and implement a Wetlands Buffer Outreach Program for planning boards.

Step(s)	Status
1. Update and focus wetland buffers program.	In progress
2. Distribute buffer guide to municipalities.	Complete
3. Create zoning regulation models for use by all towns in the coastal watershed.	In progress

Completion Rating: Substantive (76-99%)

Priority: High

Rating Summary: The NHEP buffer outreach program and the many projects supported by the NHEP (e.g., NROC, planning commission projects, etc.) have helped develop new zoning regulations and model ordinances. Although it does need to be updated and redistributed, the Buffers for Wetlands and Surface Waters Guidebook is still valuable and was distributed to coastal watershed communities.

LND-21 Prevent the introduction of untreated stormwater to freshwater wetlands by enacting legislation giving NHDES authority to regulate stormwater discharge to wetlands.

Step(s)	Status
1. Pursue legislation to give DES statewide authority to prevent wetlands degration from introduction of stormwater.	Not initiated

Completion Rating: No Progress (0%)

Priority: High

Rating Summary: NH regulations have not been updated.

LND-22 Prevent the introduction of untreated stormwater to wetlands by strengthening municipal site plan review regulations.

Step(s)	Status
1. Develop site plan review regulations to protect wetlands from stormwater degradation.	In progress
2. Conduct outreach to municipal boards.	In progress
3. Implement new regulations locally.	In progress

Completion Rating: Some (26-50%)

Priority: High

Rating Summary: Through regional planning commissions and the NHEP CTAP, communities have received assistance with revising site plan regulations.

LND-23 Prevent the introduction of untreated stormwater to wetlands through an increased understanding of stormwater impacts on wetland ecology.

Step(s)	Status
1. Develop research project to increase understanding of the impacts of stormwater on wetlands.	Not initiated

Completion Rating: No Progress (0%)

Priority: Priority

Rating Summary: No progress has been made on this Action Plan.

LND-24 Work with NHDES to encourage adoption of a state wetlands mitigation policy.

Step(s)	Status
1. Include freshwater wetlands in state mitigation rules outlined in LND-7.	Complete

Completion Rating: Fully Implemented (100%)

Priority: High

Rating Summary: NHDES rules revised in 2004 and 2006 addressed wetlands mitigation, including freshwater wetlands.

LND-25 Encourage municipal designation of Prime Wetlands and 100-foot buffers (or equivalent protection).

Step(s)	Status
1. Assist communities in designating Prime Wetlands or other enhanced protection for exemplary wetlands.	In progress

Completion Rating: Substantive (76-99%)

Priority: High

Rating Summary: The NHEP-funded Wetlands Mitigation Inventory, numerous wetland studies, and Prime Wetland Designations for towns through the local grants and CTAP programs contribute to implementation of this Action Plan.

LND-25A Create a traveling Prime Wetlands display.

Step(s)	Status
1. Develop traveling display and public presentation about Prime Wetlands.	In progress

Completion Rating: Substantive (76-99%)

Priority: Priority

Rating Summary: Instead of a traveling display a poster and bookmark have been created to address the issue of prime wetlands. This was discussed and approved by the outreach team.

LND-25B Provide training and project assistance for towns interested in utilizing the NH Comparative Method for Wetland Evaluation.

Step(s)	Status
1. Provide technical assistance to communities in conducting wetland evaluations to ID exemplary wetlands.	In progress

Completion Rating: Moderate (51-75%)

Priority: Highest

Rating Summary: A number of communities have utilized technical assistance and funding through NHEP grants and assistance from other organizations such as UNH Cooperative Extension.

LND-25C Work with local planning boards and conservation commissions on regulatory approaches to wetlands conservation.

Step(s)	Status
1. Provide communities with land-use regulations for protecting wetland values.	In progress
2. Minimize wetland impacts from proposed development by training conservation commissions to work with the state wetland permit applicants.	Not initiated

Completion Rating: Some (26-50%)

Priority: High

Rating Summary: Some work on identifying and implementing regulatory options has been done with towns through the CTAP program, NROC, and planning commission efforts; however training for conservation commissions on working with permit applicants has been minimal.

LND-25D Create or enhance local land conservation programs with emphasis on high value wetlands and buffers.

Step(s)	Status
1. Train conservation commissions and land trusts in conservation techniques targeting exemplary wetlands.	In progress

Completion Rating: Moderate (51-75%)

Priority: High

Rating Summary: Training and assistance for conservation commissions is being accomplished through the NROC program, CTAP, local grants program, buffer education program, and by planning commissions.

LND-26 Support implementation of state/federal land protection programs.

Step(s)	Status
1. Develop public information campaign for a state conservation program.	Complete
2. Display materials at appropriate locations.	Complete
3. Educate citizens about habitat protection and land conservation.	Complete

Completion Rating: Fully Implemented (100%)

Priority: Highest

Rating Summary: Most recently this Action Plan is being accomplished through outreach for the NHEP-funded Land Conservation Plan for New Hampshire's Coastal Watersheds and the NH Wildlife Action Plan. State funding (LCHIP) and federal funding (CELCP) are pursued as funds are available.

LND-27 Support the efforts of the Great Bay Resource Protection Partnership.

Step(s)	Status
1. Complete up to 3 community habitat assessments to provide the Great Bay Partnership with habitat value information.	Complete
2. Assist partnership is securing funding for the Coordinator position.	Complete
3. Partnership works with land trusts and others to protect land.	Complete

Completion Rating: Fully Implemented (100%)

Priority: Highest

Rating Summary: Fully implemented in 2003 when permanent funding for the GBRPP coordinator was secured. A number of ecological inventories assisted GBRPP's conservation work.

LND-28 Encourage communities to dedicate current-use tax penalties to conservation commissions for the purpose of natural resource acquisition, easements, restoration, and conservation land management.

Step(s)	Status
1. Educate municipal officials about using current-use penalty tax for a conservation fund.	Complete
2. Conduct outreach to all communities.	Complete
3. Create model warrant article for town meeting approval.	Complete

Completion Rating: Fully Implemented (100%)

Priority: Highest

Rating Summary: Assistance has been provided by SPNHF, CLCA, and other land trusts. Many seacoast area communities utilize the LUCT penalty, or at least a portion, for land conservation funding.

LND-29 Provide technical assistance in land protection and management to regional land trusts and municipal conservation commissions (Ecological Reserve System).

Step(s)	Status
1. Encourage support for the guidelines of the NH Ecological Reserve System project.	Complete
2. Develop program to assure land trusts and conservation commissions have access to professional expertise to help them protect and manage lands for biodiversity.	In progress
3. Use the ERSP criteria to evaluate conservation and non-conservation lands for biodiversity features.	In progress
4. Work with academia to evaluate the impacts of land-use change on the capacity to preserve the region's biodiversity.	In progress

Completion Rating: Moderate (51-75%)

Priority: High

Rating Summary: The principles and guidelines of the ERS have been incorporated into the NH Wildlife Action Plan managed by NHFG.

LND-30 Develop and use biomonitoring standards to evaluate water quality.

Step(s)	Status
1. Investigate biomonitoring in the Northeast.	Complete
2. Develop biomonitoring standards for the NH coastal region.	In progress
3. Incorporate standards in water-quality monitoring programs.	In progress

Completion Rating: Substantive (76-99%)

Priority: High

Rating Summary: The classification of streams has been completed and development of standard protocols is ongoing. These criteria are detailed in the Comprehensive Assessment and Listing Methodology. NH Coastal Program and DES also run a Coastal Volunteer Biological Monitoring Program.

LND-31 Use results of biomonitoring and water quality monitoring to prioritize watershed areas for protection and remediation.

Step(s)	Status
1. Complete Action LND-30 and develop plan for assessing the NH coastal watershed.	In progress
2. Evaluate the ecological integrity of the watershed and streams.	In progress
3. Use information to ID and prioritize watershed areas for protection and remediation.	Not initiated

Completion Rating: Minimal (1-25%)

Priority: High

Rating Summary: The NHCP/USGS study examined macroinvertebrate data for sites in watersheds with different development characteristics. A NHDES/USGS project in the Exeter River is evaluating benthic macroinvertebrate data, and the NHCP initiated a project to utilize volunteer-based sampling to assist local watershed organizations in the collection of macroinvertebrate data for "screening" level purposes.

LND-32 Encourage municipalities to incorporate wildlife habitat protection into local master plans by promoting NH F&G's "Identifying and Protecting Significant Wildlife Habitat: A Guide for Towns."

Step(s)	Status
1. Prioritize communities for the wildlife habitat manual.	Complete
2. Provide technical assistance to communities in using the manual.	Complete
3. Develop model wildlife habitat format for local master plans.	Complete
4. Implement training for community boards in using the manual.	Complete

Completion Rating: Fully Implemented (100%)

Priority: Highest

Rating Summary: The NH Wildlife Action Plan replaces the manual, and NHFG is providing extensive outreach and training on implementing the WAP and its many recommendations for habitat protection.

LND-33 Develop a model local planning approach to encourage the identification and maintenance of contiguous habitat blocks.

Step(s)	Status
1. Review region-wide information to ID existing habitat blocks over 500 acreas.	Complete
2. Research how to maintain contiguous blocks practiced in other places.	Complete
3. Develop model approach to habitat protection.	Complete
4. Educate municipal officials about large habitat blocks.	Complete
5. Incorporate habitat model into other smart growth actions.	Complete
6. Review state actions that influence sprawl for compliance with the state sprawl initiative.	Complete

Completion Rating: Fully Implemented (100%)

Priority: Highest

Rating Summary: Outreach on strategies from the Land Conservation Plan for New Hampshire's Coastal Watersheds and the Wildlife Action Plan address local planning.

LND-34 Encourage appropriate buffers around important wildlife areas and rare or exemplary natural communities.

Step(s)	Status
1. Map locations of important wildlife habitat identified in LND-32 and determine appropriate buffers.	Complete
2. Work with conservation commissions to adopt appropriate buffers into local zoning.	In progress
3. Work with private landowners to create adequate buffers to protect priority areas.	In progress

Completion Rating: Substantive (76-99%)

Priority: High

Rating Summary: The Wildlife Action Plan and Land Conservation Plan for NH's Coastal Watersheds include wildlife habitats (and associated buffers). Strategies included in the plans (especially the WAP) encourage zoning and private landowner action to protect wildlife habitat.

LND-35 Maintain current use tax program.

Step(s)	Status
1. Keep state legislators aware of the importance of current-use program.	Complete
2. Track changes to the program.	Complete
3. Assess role of the program in the State's changing tax structure.	Complete

Completion Rating: Fully Implemented (100%)

Priority: Highest

Rating Summary: Outreach has been conducted by CLCA, SPNHF, and SPACE. SPACE tracks potential changes to the program and regularly communicates with legislators.

LND-36 Encourage conservation easements.

Step(s)	Status
1. Collect and distribute fact sheets on easements.	Complete
2. Make land conservation expertise available to municipal conservation commissions at no cost.	Complete
3. Present estate-planning workshop annual in the Seacoast region.	Complete

Completion Rating: Fully Implemented (100%)

Priority: Highest

Rating Summary: Conservation easements are routinely utilized by land trusts and conservation commissions. Assistance, training and estate planning workshops are available from a number of organizations including CLCA, land trusts, MMRG, TNC, and UNH Cooperative Extension.

LND-37 Support the development and implementation of water resource management plans to determine sustainable groundwater and surface water use in the coastal watershed.

Step(s)	Status
1. Support studies of groundwater and surface water quantity and use in the coastal watershed.	In progress
2. Support the development of regional or local water resource plans in the coastal watershed.	In progress
3. Support implementation of regional or local water resource plans in the coastal watershed.	In progress
4. Support public outreach and education regarding Activities 1, 2, or 3 above.	In progress

Completion Rating: Some (26-50%)

Priority: Highest

Rating Summary: The USGS/NHGS/NHCP groundwater sustainability study and Lamprey pilot project address this action.

Shellfish Resources Action Plans

The Management Plan contains 17 Shellfish Resources Action Plans. Ten of the Action Plans are fully implemented, including seven of the eight highest priority Action Plans. Four Action Plans are less than 50 percent complete, including two for which no progress has been made. The Action Plans that are fully implemented or nearly complete are related to implementation of the State Shellfish Program, shellfish monitoring conducted by the NHEP and its partners (New Hampshire Fish and Game Department and Seabrook Station), and shellfish-related outreach activities conducted by the NHEP or the NHDES Shellfish Program. Action Plans with no progress involve changing penalties for illegal shellfish harvesting and encouraging alternative recreational harvesting methods, both of which are lowest priority Action Plans.

Shellfish Resources Action Plan Completion Ratings

	Highest Priority	High Priority	Priority
Fully Implemented (100%)	SHL-01 SHL-04 SHL-05 SHL-06 SHL-07 SHL-10 SHL-14		SHL-09B SHL-12 SHL-13
Substantive (76-99%)			SHL-02 SHL-09D SHL-11
Moderate (51-75%)			
Some (26-50%)			SHL-03
Minimal (1-25%)	SHL-15		
No Progress (0%)			SHL-09A SHL-09C

The 17 Shellfish Resources Action Plans are listed on the following pages along with completion ratings and summaries for the assigned ratings. In addition, progress on individual steps for each Action Plan is noted as Not Initiated, In Progress, or Complete. For a report of all NHEP activities and partner projects undertaken to implement Action Plans, see www.nh.gov/nhep/publications/pdf/nhep_progress_report-app-nhep-07.pdf or contact the NHEP.

SHL-01 Implement National Shellfish Sanitation Program guidance to develop an FDA-certified shellfish program.

Step(s)	Status
1. State agencies address deficiencies in NH Shellfish Program.	Complete
2. Review rules and draft new regulations as necessary for compliance with federal requirements.	Complete
3. Draft MOA required by FDA.	Complete
4. Submit application to FDA for certification of recreational and commercial shellfish program.	Complete
5. Conduct Schedule of Growing Area Work.	In progress

Completion Rating: Fully Implemented (100%)

Priority: Highest

Rating Summary: With NHEP funding, the NHDES Shellfish Program has become an FDA-certified program within the National Shellfish Sanitation Program. The NHEP supported NHDES Shellfish Program activities for over eight years. The NHEP also assisted in obtaining state funding for the NHDES Shellfish Program in 2006.

SHL-02 Identify sources of and reduce or eliminate contaminants in the coastal watershed.

Step(s)	Status
1. Implement water quality actions.	In progress

Completion Rating: Substantive (76-99%)

Priority: Priority

Rating Summary: The NHEP funded a series of microbial source tracking studies to identify sources of bacteria in estuarine waters. The NHEP also assisted NHDES with two bacteria TMDL studies in Hampton Harbor and Little Harbor. Watershed management plans have been developed for the Cains Brook and Cocheco River watersheds. Competitive grants were made available to municipalities for illicit discharge detection and elimination between 2000 and 2006. Finally, the NHDES Shellfish Program conducts sanitary surveys of shellfish growing areas annually to comply with NSSP requirements.

SHL-03 Institute land-use practices that improve water quality and shellfish habitat.

Step(s)	Status
1. Implement land use actions.	In progress

Completion Rating: Some (26-50%)

Priority: Priority

Rating Summary: The NHEP is working with communities to improve buffer protections and works with NROC and the planning commissions to improve local ordinances that will protect water quality. The NHEP developed several tools for municipalities to use to identify and prioritize conservation and restoration areas: impervious surface maps, buffer characterization maps, and the land conservation plan.The NHEP funded several land conservation projects intended to protect water quality. Despite these efforts, much more work is needed to implement protective community ordinances.

SHL-04 Enhance funding to maintain a comprehensive Shellfish Program.

Step(s)	Status
1. Assist DES Shellfish Program in funding activities and securing state program funding.	Complete

Completion Rating: Fully Implemented (100%)

Priority: Highest

Rating Summary: The NHEP facilitated regular state funding for the NHDES Shellfish Program in 2006. State funds in the amount of $175,000 per year are appropriated to NHDES for the Shellfish Program. Appropriations for 2008 and 2009 are slightly less, but program funding was augmented by a federal Performance Partnership Grant.

SHL-05 Regularly collect and monitor water quality to identify sources and reduce or eliminate contaminants.

Step(s)	Status
1. Develop and implement a comprehensive water quality monitoring program to make shellfish harvesting and management decisions.	Complete

Completion Rating: Fully Implemented (100%)

Priority: Highest

Rating Summary: In accordance with National Shellfish Sanitation Program guidelines, the NHDES Shellfish Program developed a water quality monitoring program for ambient bacteria concentrations in the estuaries. The NHEP supported this program through monitoring funding for several years. In 2006, the NHEP helped obtain state funding for the NHDES Shellfish Program. The state funds will support the ongoing ambient monitoring program.

SHL-06 Periodically collect and monitor shellfish tissue samples as appropriate for toxins and biotoxins.

Step(s)	Status
1. Consider additional PSP sample site.	Complete
2. Support development of volunteer biotoxin monitoring program.	Complete
3. Work with Gulf Watch to share permanent monitoring sites.	Complete
4. Consider using other species for PSP monitoring especially before/after a bloom.	Complete
5. Monitor soft shell clams and oysters for toxics.	Complete

Completion Rating: Fully Implemented (100%)

Priority: Highest

Rating Summary: The NHEP core monitoring programs include annual testing of shellfish tissues for toxic contaminants through Gulf Watch and oyster diseases (conducted by NHF&G). The NHDES Shellfish Program regularly tests shellfish tissues for paralytic shellfish poisoning toxins. The PSP testing uses other species for monitoring during bloom events. All aspects of this Action Plan have been fully implemented.

SHL-07 Maintain an ongoing shellfish resource assessment program.

Step(s)	Status
1. F&G develop a strategic plan and assessment schedule.	Complete
2. Establish standardize sampling protocols.	Complete
3. Establish data management and reporting protocol.	Complete
4. Evaluate natural and human influences on population change.	Complete
5. Develop a dissemination plan to report to other agencies.	Complete
6. Update shellfish location database with acreage of the resource, density estimate, and date of most recent inventory.	Complete

Completion Rating: Fully Implemented (100%)

Priority: Highest

Rating Summary: Shellfish resource surveys are completed annually. The NHEP has developed a database for shellfish indicator data. The shellfish resource information is disseminated to interested parties every three years through environmental indicator reports and State of the Estuaries reports. NHF&G has a natural resource strategic plan in place.

SHL-09A Decrease shellfish resource depletion and increase productivity with stricter state penalties for illegal harvesting.

Step(s)	Status
1. Monitor effectiveness of penalties of shellfish harvesting violations.	Not initiated
2. Change penalties if deemed necessary.	Not initiated

Completion Rating: No Progress (0%)

Priority: Priority

Rating Summary: No progress has been made on this Action Plan.

SHL-09B Increase outreach and education about methods to control shellfish predators.

Step(s)	Status
1. Conduct outreach on shellfish predators.	Complete
2. Develop brochure on predators for shellfish license-holders.	Complete
3. Encourage harvest of predators for bait.	Complete
4. Assess need for a program to track abundance of shellfish predators.	In progress

Completion Rating: Fully Implemented (100%)

Priority: Priority

Rating Summary: This Action Plan was addressed with the production and distribution of the "Shellfish Spotlight" brochure that included a section on identification and control of oyster predators, and through press received on the Brian Beal project to exclude green crabs. The NHDES Shellfish Program website includes promotion of oyster drill removal. Seabrook Station's Environmental Monitoring Program tracks green crab abundance in Hampton-Seabrook Harbor and that data is presented in the "NHEP Shellfish Environmental Indicators Report".

SHL-09C Explore alternative recreational shellfish harvest methods.

Step(s)	Status
1. Provide information on obtaining scientific permit for evaluating alternate harvest methods.	Not initiated
2. Evaluate the potential methods.	Not initiated

Completion Rating: No Progress (0%)

Priority: Priority

Rating Summary: No progress has been made on this Action Plan.

SHL-09D Increase productivity by discouraging the harvest of immature shellfish.

Step(s)	Status
1. Educate resource users on returning immature oysters and oyster shells with spat attached.	In progress

Completion Rating: Substantive (76-99%)

Priority: Priority

Rating Summary: The "Shellfish Spotlight" brochure included information on shellfish law enforcement, oyster restoration efforts, and proper methods for harvesting shellfish via the NHDES Shellfish Program website. UNH Oyster Restoration Program has received significant earned media in Seacoast Media Group, Fosters Media, and NHPR on reef building research which includes information on protecting immature shellfish. The UNH Oyster Restoration Project (http://www.oyster.unh.edu/) includes information on Shell Recycling Project, Oyster Conservationist Volunteer Program, and general information on the importance of juvenile oysters in Great Bay.

SHL-10 Provide information regarding public access to shellfish beds through distribution of maps/booklets.

Step(s)	Status
1. Collate shellfish bed maps to show harvestable locations.	Complete
2. Produce map.	Complete
4. Distribute map.	Complete
5. Post information on the web.	Complete
*3. DELETED - MOVED TO SHL-07	Change Suggested

Completion Rating: Fully Implemented (100%)

Priority: Highest

Rating Summary: The "Shellfish Spotlight" brochure included a map and description of newly opened shellfishing areas in the Bellamy River. The NHEP worked with the NHDES Shellfish Program to include access sites on the maps that appear in the NH Fish and Game "Saltwater Digest" and on the NHDES Shellfish Program website.

SHL-11 Establish Bounty of Bays shellfishing field education program.

Step(s)	Status
1. Offer Bounty of the Bay program.	Complete
2. Coordiante with recreational users to assist with the course.	Complete
3. Advertise course.	Complete
4. Establish curriculum.	Complete

Completion Rating: Substantive (76-99%)

Priority: Priority

Rating Summary: Public participation in the clam digging classes conducted by Aquaculture Education and Research Center was high; however, workshops have not been continued.

SHL-12 Develop and maintain a shellfisher license information database for use in outreach activities.

Step(s)	Status
1. Maintain shellfish database and make it available to state agencies involved with shellfish management.	Complete
2. Limit use of database to distribution of educational information.	Complete

Completion Rating: Fully Implemented (100%)

Priority: Priority

Rating Summary: NH Fish and Game maintains a database of shellfish license holders which has been utilized by the NHEP and UNH for outreach purposes.

SHL-13 Update materials issued with shellfish licenses, improve distribution of information and better utilize the NH F&G "Clam Hotline."

Step(s)	Status
1. Provide seasonal mailings to shellfishers.	In progress

Completion Rating: Fully Implemented (100%)

Priority: Priority

Rating Summary: The “Shellfish Spotlight” brochure included a summary of New Hampshire clam and oyster populations, as well as articles on oyster reef restoration, illegal clamming, clam research in Hampton/Seabrook Harbor, oyster predators, the NHDES Shellfish Program, and the recent opening of the Bellamy River harvesting area. The NHEP devoted an Eye On Estuaries article on new shellfishing opportunities in the Hampton/Seabrook Harbor. NHF&G actively maintains the clam hotline with NHDES data.
NHDES updates the Shellfish Program website regularly.

SHL-14 Provide for direct citizen involvement in NH shellfish management decision-making process.

Step(s)	Status
1. F&G inform shellfishing public about the Advisory Committee on Shore Fisheries.	Complete
2. DES inform public about the NHEP Shellfish Team.	Complete
3. Continue support for volunteer participation in shellfish resource management.	Complete

Completion Rating: Fully Implemented (100%)

Priority: Highest

Rating Summary: The NHEP Shellfish & Living Resources Team provides input to the NHDES Shellfish Program and NHEP shellfish restoration projects. The Great Bay Coast Watch provided assistance to the NHDES Shellfish Program. NHF&G conducts public hearings for shellfish rule changes or aquaculture license awards.

SHL-15 Evaluate and address perceived and real institutional barriers to aquaculture and promote environmentally sound aquaculture practices.

Step(s)	Status
1. Evaluate public perceptions and attitudes towards aquaculture.	Complete
2. Streamline the permitting process.	Not initiated
3. ID and correct deficiencies in the State NSSP program.	Complete
5. Review and disseminate information on responsible aquaculture practices.	Not initiated
*4. DELETED	Change Suggested

Completion Rating: Minimal (1-25%)

Priority: Highest

Rating Summary: The NHEP Shellfish & Living Resources Team discussed the matter once. Deficiencies in the State NSSP program were resolved in 2002 following FDA certification of the program. UNH JEL has begun an oyster conservationist project.
NHF&G issued three mussel longline permits for the Atlantic and two oyster aquaculture permits.

Habitat Restoration Action Plans

The Management Plan contains seven Habitat Restoration Action Plans. Two of the Action Plans have completion ratings of substantive, three are rated as moderate, and two show some completion. In general, Action Plans related to salt marsh and wetlands restoration actions have higher completion ratings than other habitats. Despite the NHEP's focus on shellfish resources, the Action Plan related to shellfish restoration is less than 50 percent complete. Oyster and soft-shell clam populations are well below NHEP goals. The Action Plan related to marine invasive species is also less than 50 percent complete; however this represents reasonable progress given that this plan was recently added as part of the NHEP's 2005 Management Plan update.

Habitat Restoration Action Plan Completion Ratings

	Highest Priority	High Priority	Priority
Fully Implemented (100%)			
Substantive (76-99%)	RST-03	RST-05	
Moderate (51-75%)	RST-06	RST-02 RST-04	
Some (26-50%)	RST-01		RST-07
Minimal (1-25%)			
No Progress (0%)			

The seven Habitat Restoration Action Plans are listed on the following pages along with completion ratings and summaries for the assigned ratings. In addition, progress on individual steps for each Action Plan is noted as Not Initiated, In Progress, or Complete. For a report of all NHEP activities and partner projects undertaken to implement Action Plans, see www.nh.gov/nhep/publications/pdf/nhep_progress_report-app-nhep-07.pdf or contact the NHEP.

RST-01 Develop and implement a plan for shellfish resource enhancement and habitat restoration to achieve a sustainable resource contributing to a healthy environment.

Step(s)	Status
1. Develop strategy for shellfish resource enhancement and restoration.	Complete
2. ID restoration needs and priorities.	In progress
3. Implement restoration.	In progress

Completion Rating: Some (26-50%)

Priority: Highest

Rating Summary: Work on this action plan is underway due to several years of shellfish restoration work by UNH and the University of Maine at Machias. Indicators of shellfish populations show declining trends despite restoration efforts, although spat fall in 2006 was higher than normal which is encouraging. The success of the shellfish restoration projects cannot be reliably judged for several years. The Nature Conservancy completed the Great Bay Estuary Restoration Compendium (GBERC) which identified restoration opportunities for salt marsh, eelgrass, anadromous fish, and shellfish. The next steps for this action plan include prioritization of the restoration opportunities from the GBERC, development of specific restoration projects, and continued shellfish restoration.

RST-02 Using the Coastal Method and other techniques, identify and restore tidal wetlands for aspects other than tidal restrictions.

Step(s)	Status
1. Identify restorable tidal wetlands focusing on those affected by other than tidal restrictions.	Complete
2. Work to restore the identified sites.	In progress

Completion Rating: Moderate (51-75%)

Priority: High

Rating Summary: The Nature Conservancy completed the Great Bay Estuary Restoration Compendium (GBERC) which identified restoration opportunities for salt marsh and other habitats. This report included an analysis of historic salt marsh distribution vs 2004 distribution to identify restoration opportunities. The next steps for this action plan are to continue to restore salt marsh habitat. In past years, the restoration focus was on open marsh water management and planting techniques, but other techniques are needed at many tidal wetland sites to control invasive plants, largely due to poor stormwater management.

RST-03 Continue to restore the tidal wetlands listed in the NRCS report, "Method for the Evaluation and Inventory of Vegetated Tidal Marshes in New Hampshire."

Step(s)	Status
1. Investigate and monitor salt marshes to determine potential impacts from restoration to define methodology.	Complete
2. Restore site.	Complete
3. Conduct post-restoration monitoring.	In progress

Completion Rating: Substantive (76-99%)

Priority: Highest

Rating Summary: This action plan is largely complete due to the efforts of the New Hampshire Coastal Program with other partners. All of the large, doable, regionally significant projects have been completed. Remaining projects either have insurmountable political or infrastructure barriers or the projects would be so expensive due to existing infrastructure that the cost far outweighs the expected gain of a few acres of marsh. Therefore, while several tidal restrictions remain in coastal NH, this action plan is substantively implemented. The NHEP goal of restoring 300 acres of salt marsh by 2010 is nearly met (279 acres).

RST-04 Identify and implement habitat restoration projects in other important non-tidal habitat areas, such as uplands and freshwater wetlands.

Step(s)	Status
1. Review NRCS method for identifying non-tidal habitat in need of restoration.	Complete
2. Assist 2 communities per year in analyzing restoration opportunities.	In progress
3. Create a habitat restoration project funding database.	In progress
4. Complete at least one restoration project per year.	In progress

Completion Rating: Moderate (51-75%)

Priority: High

Rating Summary: The "Great Bay Estuary Restoration Compendium" completed by The Nature Conservancy identified key freshwater river reaches for restoration. West Environmental, Inc. prepared an inventory of freshwater wetland mitigation sites in Zone A communities. Several small restoration and conservation easement projects have been completed in upland and non-tidal habitats.

RST-05 Create a list of potential wetland restoration projects that could be used for wetland mitigation projects, and distribute the list to the state agencies and seacoast municipalities.

Step(s)	Status
1. Increase amount of wetland restoration performed as mitigation by developing long-term agreements between NH DOT and other state agencies.	In progress
2. Develop a list of potential wetland mitigation sites for distribution.	Complete
3. Use GIS to identify and illustrate potential sites in the Seacoast.	Complete
4. Monitoring restoration work.	In progress

Completion Rating: Substantive (76-99%)

Priority: High

Rating Summary: The NHEP funded a project by West Environmental, Inc to inventory freshwater wetland mitigation sites in Zone A communities. The "Great Bay Estuary Restoration Compendium" also identified salt marsh and eelgrass restoration sites in the tidal waters.

RST-06 Pursue funding for restoration from NH DOT, USDA, NRCS, US F&WS, and other sources.

Step(s)	Status
1. Pursue restoration funds for various sources.	In progress
2. Keep funding sources informed of potential restoration opportunties.	In progress

Completion Rating: Moderate (51-75%)

Priority: Highest

Rating Summary: The NHEP partnered with other funding agencies to complete restoration projects. A representative from NHDOT was added to the NHEP Management Committee to facilitate cooperation with that agency. Oyster restoration projects have been jointly funded with NRCS and the City of Dover. Salt marsh restoration projects have been funded by Ducks Unlimited and NOAA.

RST-07 Support the development and implementation of marine aquatic nuisance species management plans for NH's estuaries.

Step(s)	Status
1. Support assessments of historical data on marine aquatic nuisance species in NH's estuaries.	In progress
2. Support research and monitoring of marine aquatic nuisance species in NH's estuaries.	In progress
3. Support the development of marine aquatic nuisance species management plans for NH's estuaries.	In progress
4. Support implementation of marine aquatic nuisance species management plans for NH's estuaries.	In progress
5. Support public outreach and education regarding Activities 1, 2, 3, and 4 above.	In progress

Completion Rating: Some (26-50%)

Priority: Priority

Rating Summary: NHEP funding supported monitoring for aquatic nuisance species in the Great Bay Estuary. An ongoing project will compare the current distribution of aquatic nuisance species to the distribution which was documented in the past. The NHEP participated in one regional survey for aquatic nuisance species along the New England coast and will participate in another in 2007. Finally, the NHEP Coastal Scientist has taken the lead role for developing the estuarine section of the "State Aquatic Nuisance Species Management Plan".

Public Outreach and Education Action Plans

The Management Plan contains six Public Outreach and Education Action Plans. Three of the Action Plans are fully implemented and two others are at least 50 percent complete. The Action Plan that shows no progress (EDU-02A) calls for contributing story content for a regular newspaper column that no longer exists, so can not be implemented as written when the Management Plan was developed.

Public Outreach and Education Action Plan Completion Ratings

	Highest Priority	High Priority	Priority
Fully Implemented (100%)	EDU-03 EDU-05		EDU-02
Substantive (76-99%)		EDU-01	
Moderate (51-75%)		EDU-04	
Some (26-50%)			
Minimal (1-25%)			
No Progress (0%)			EDU-02A

The six Public Outreach and Education Action Plans are listed on the following pages along with completion ratings and summaries for the assigned ratings. In addition, progress on individual steps for each Action Plan is noted as Not Initiated, In Progress, or Complete. For a report of all NHEP activities and partner projects undertaken to implement Action Plans, see www.nh.gov/nhep/publications/pdf/nhep_progress_report-app-nhep-07.pdf or contact the NHEP.

EDU-01 Use media to highlight estuarine issues.

Step(s)	Status
1. Develop coordinated approach to utilizing the media, including outdoor recreation, Great Bay Radio, NH Public Radio, television, and print articles.	In progress

Completion Rating: Substantive (76-99%)

Priority: High

Rating Summary: The frequency of the Eye On Estuaries series and press releases has increased. Septic system outreach campaign was covered in all major newspapers, twice in NH Public Radio interviews, and on the CICEET low power radio. State of the Estuaries Report stories ran in all major newspapers in 2006 and was highlighted on radio.

EDU-02 Work with Seacoast newspapers to establish a monthly newspaper column devoted to coastal natural resources issues.

Step(s)	Status
1. Build team of writers to draft natural resource articles for print media.	In progress

Completion Rating: Fully Implemented (100%)

Priority: Priority

Rating Summary: The frequency of the Eye On Estuaries series has increased, while utilizing a diverse team of writers from partnering organizations. Relationship with the Seacoast Media Group continues to improve.

EDU-02A Develop an agreement with Strafford County UNH Cooperative Extension to enable the NHEP outreach project team to contribute coastal natural resource information to the column in Foster's Daily Democrat.

Step(s)	Status
1. Partner with Great Bay Coast Watch to contribute to the Cooperative Extension column with Fosters.	Not initiated
2. Supply articles every five weeks.	Not initiated

Completion Rating: No Progress (0%)

Priority: Priority

Rating Summary: As written, this action is unachievable since the Strafford County UNH Cooperative Extension no longer has a column in Fosters. Effort has been focused on implementing the EOE column in the Seacoast Media Group.

EDU-03 Establish and fund a technical assistance grant program to promote and fund projects that support the NHEP Management Plan.

Step(s)	Status
1. Establish Technical Assistance grant program for local partners.	Complete
2. Award grants through a competitive process.	Complete

Completion Rating: Fully Implemented (100%)

Priority: Highest

Rating Summary: Local Grants continues to be a well-utilized program.

EDU-04 Maintain and expand the NHEP shoreline property-owner database.

Step(s)	Status
1. Update shoreline property-owner database on an ongoing basis.	In progress
2. Expand database to include freshwater portions of the watershed.	In progress

Completion Rating: Moderate (51-75%)

Priority: High

Rating Summary: The NHEP updated and utilized the database for a mailing in 2003. Based on a subsequent evaluation, the use of a shoreline property database has been deemed inefficient and unsustainable. Additional work on this action plan is not planned.

EDU-05 Support volunteer organizations active in water quality, habitat, or other estuarine watershed natural resource issues.

Step(s)	Status
1. Financially assist volunteer monitoring organizations.	In progress
2. Train water-quality monitoring volunteers 4-6 times per year through workshops on issues.	In progress
3. Recognize and support non-profit groups.	In progress
4. Engage 2-3 school groups/year in natural resource hands-on activities.	In progress
5. Assist volunteer groups with speaking commitments.	In progress

Completion Rating: Fully Implemented (100%)

Priority: Highest

Rating Summary: Significant financial assistance and NHEP staff time supported a number of volunteer organizations including Gundalow Company, Seacoast Land Trust, The Nature Conservancy, Great Bay Coast Watch, VRAP monitoring groups, Exeter River Local Advisory Committee's Alewife Festival, and Moose Mountains Regional Greenways Annual Field Day, among others.

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