

**Audit of Existing Land Use Planning &  
Local Input on Developing a Management Plan for the  
Hampton Seabrook Estuary**

**October 23, 2020**

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## 1. Introduction

### 1. Introduction

#### 1.1. About this Report

This report contains a summary of planning and regulations that are pertinent to estuary management from the master plans, zoning ordinances, land use regulations of the Towns of Hampton, Hampton Falls, and Seabrook, as well as a summary of information and recommendations from existing local and regional natural resource studies and reports. It also includes input from each municipality on the types of information, deliverables, and recommendations the community would like to see in an estuary management.

This document is intended to:

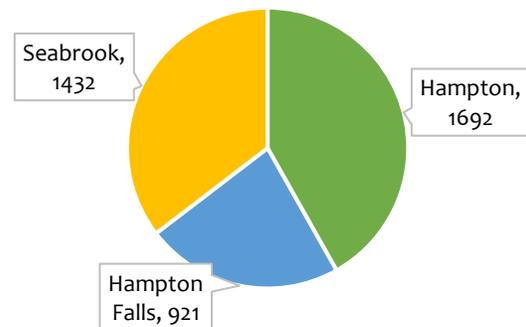
- Provide information about the current extent of estuary management and planning.
- Encourage discussion about estuary planning and land use regulations across municipal boundaries.
- Inform the development of an Estuary Management Plan that provides meaningful guidance and direction to Seabrook-Hamptons Estuary Alliance (SHEA), the Towns of Hampton, Hampton Falls, and Seabrook, and other stakeholders.

#### 1.2. The Hampton-Seabrook Estuary

The Hampton-Seabrook estuary is located within the towns of Hampton, Hampton Falls, and Seabrook (Figure 1-1).

At high tide, the estuary is approximately 475 acres with 72 miles of tidal shoreline.<sup>1</sup> According to New Hampshire Wildlife Action Plan data, the estuary has approximately 4,045 acres of salt marsh (Figure 1-2). The estuary drains a watershed of 46 square miles. Six rivers empty into the estuary: Taylor River, Hampton Falls River, Browns River, Cains Brook/Mill Creek, Hunts Island Creek, and Blackwater River.<sup>1</sup>

Acres of Salt Marsh Habitat by Town  
Source: NH WAP 2015



**Figure 1-2. Map of the Seabrook-Hampton estuary (Data Source: NH GRANIT)**

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<sup>1</sup> PREP (2015) State of Our Estuaries Report.

1. Introduction

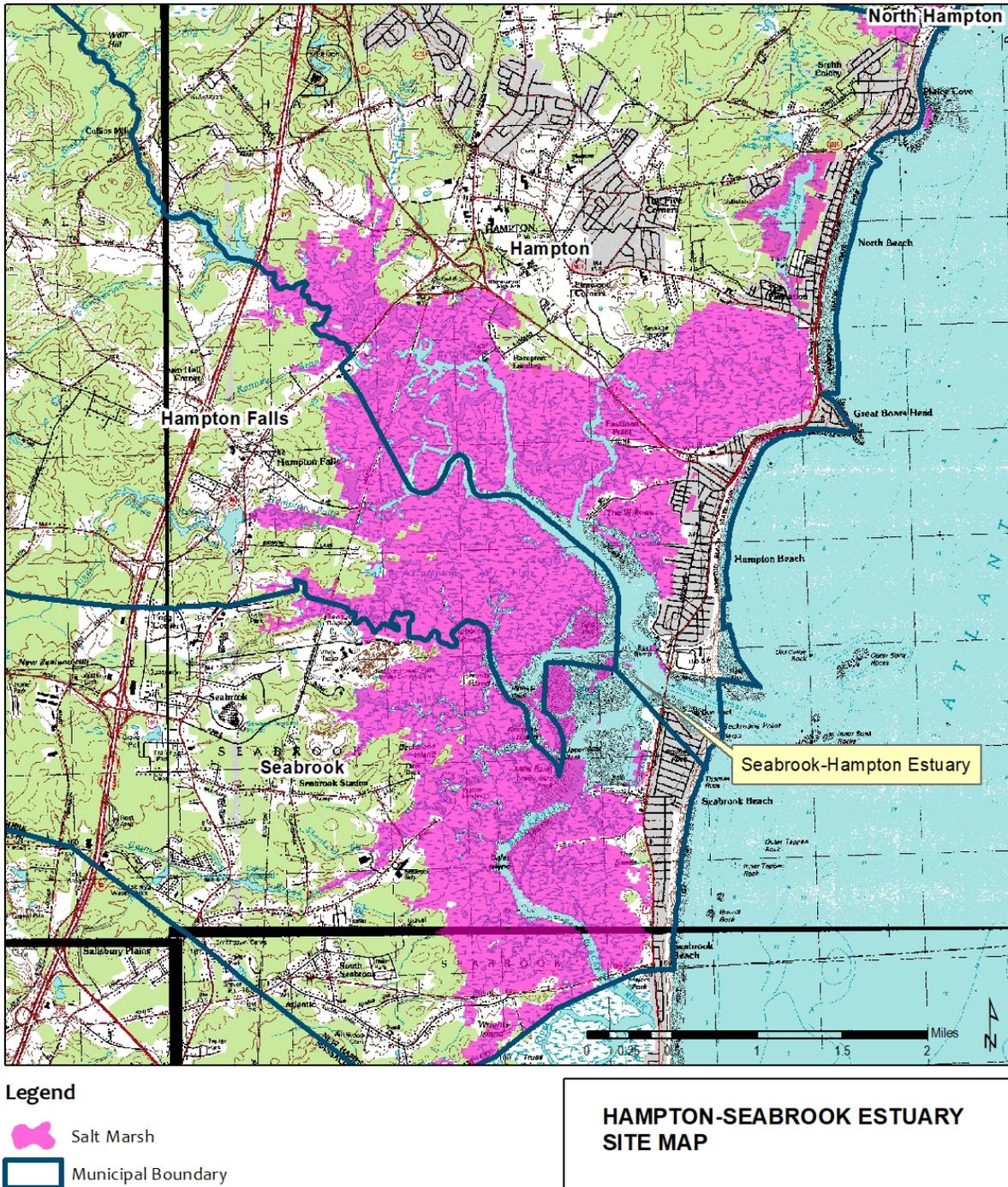


Figure I-1. Map of the Seabrook-Hampton estuary (Data Source: NH GRANIT)

## 2. Planning: Content, Goals, and Strategies in Master Plans

### 2. Planning: Content, Goals, and Strategies in Master Plans

#### 2.1. Overview

There are a number of ways that communities address and plan for natural resources through their municipal master plans. Municipal land use regulations are informed by the vision of the community and expressed through the master plan, zoning, and land use regulations. The master plan is a document that guides the character, growth, and development in a community. The master plan identifies the community's vision for its character, growth, and development and lays out strategies and goals to reach the vision. Many of these strategies and goals are recommended amendments or updates to the local zoning ordinance and land use regulations.

As defined in NH RSA 674:2, the purpose of the master plan is to set down as clearly and practically as possible the best and most appropriate future development of the area under the jurisdiction of the planning board, to aid the board in designing ordinances that result in preserving and enhancing the unique quality of life and culture of New Hampshire, and to guide the board in the performance of its other duties in a manner that achieves the principles of smart growth, sound planning, and wise resource protection.

To evaluate the current state of planning for the Seabrook-Hampton Estuary, the Town of Hampton, Town of Hampton Falls, and Town of Seabrook master plans were reviewed. Content from each plan that pertained to the estuary was extracted into a summary table for each municipality. The master plan goals and strategies were also summarized in a table.

#### 2.2. Town of Hampton Master Plan

The Hampton Master Plan was prepared in 1985 and subsequently amended and supplemented through 2009. The Town of Hampton is in the process of developing a new Vision Chapter and a Coastal Hazards and Adaptation Chapter, as well as seeking voter support for a full comprehensive update of the Plan. This review summarizes the existing chapters as of September 2019. This review includes content in the Hampton Beach Area Master Plan, which was prepared in 2001 and incorporated as a chapter of the Town's Master Plan. Content from the following chapters is included in Appendix A Table 1: Natural Resources; Existing and Future Land Use; and Hampton Beach Area Master Plan. Appendix A Table 2 contains recommendations from the plan.

#### 2.3. Town of Hampton Falls Master Plan

The Hampton Falls Master Plan was adopted in 2004. Content from the following chapters is included in Appendix A Table 3: Community Vision and Goals; Water Resource Management and Protection Plan; Conservation and Preservation Plan; Recreation; Future Land Use. Appendix A Table 4 contains recommendations from the plan.

#### 2.4. Town of Seabrook Master Plan

## 2. Planning: Content, Goals, and Strategies in Master Plans

The Seabrook Master Plan was adopted in 2011. In 2016, the Town adopted an additional, new chapter: Coastal Hazards and Adaptation. Content from the following chapters is included in Appendix A Table 5: Natural Resources and Coastal Hazards and Adaptation. Goals that are directly or indirectly related to the estuary are included in Appendix A Table 6.

### 2.5. Summary of Master Plan Review

To better understand the scope, commonalities, and gaps of estuary planning in the local master plans, a set of screening criteria was developed. The criteria reflect the types of information that can be expected to be included in a master plan about a local asset or natural resource. This set of criteria is organized into seven categories in Table 2-1: location of information about the estuary in the plan; physical description of the estuary; vision for the estuary; connection of land use and estuary health; ecosystem services; threats; and recommendations.

The summary in Table 2-1 provides an overview of the types of information related to the estuary that is included in each master plan, as well as where that information is located. A check mark (✓) indicates that the criteria is addressed, but does not necessarily mean that the item is sufficiently addressed or that no additional information, discussion, or goals are needed. An (x) indicates that the item is not addressed.

**Table 2-1. Screening of Estuary Planning in Hampton, Hampton Falls, and Seabrook Master Plans**

Master Plan Screening Criteria	Hampton	Hampton Falls	Seabrook
<b>Where is information about the estuary located?</b>			
Natural resources chapter(s)	✓	✓	✓
Recreation chapter	x	✓	x
Hazards or climate adaptation chapter	x	x	✓
Existing land use chapter	✓	x	x
Future land use chapter	✓	✓	✓
Other chapter(s)	✓	x	x
<b>What information is included to describe the physical characteristics of the estuary?</b>			
Description (narrative/text)	✓	✓	✓
Maps and photos	✓	x	✓
Calculations of the area of marsh and wetlands	✓	✓	✓
Existing local, regional, and state data sets and studies	✓	x	✓
<b>Is the estuary referenced in the plan's vision?</b>			
Community's vision for the estuary is documented in vision chapter and/or integrated into the vision statement(s)	x	✓	✓

## 2. Planning: Content, Goals, and Strategies in Master Plans

Master Plan Screening Criteria	Hampton	Hampton Falls	Seabrook
<b>How does the plan draw connections between land use and estuary health?</b>			
Document connection between land use and the estuary (i.e. impacts of certain land uses and activities on the health of estuary; land use change)	✓	✓	✓
Discuss regional nature of estuary planning and/or cross-boundary issues	x	✓	x
Discuss exclusion of estuary and buffer from areas targeted for development in the future land use chapter	x	✓	✓
<b>Are ecosystem services described in the plan?</b>			
Include information about the value of the estuary and the types of ecosystem services it provides (i.e. water filtration, flood storage, aesthetic/cultural, recreation)	✓	✓	✓
Draw connections between the estuary and economy	✓	x	x
<b>Does the plan identify threats to the estuary?</b>			
Identify existing threats	✓	✓	✓
<b>What types of recommendations are included in the plan?</b>			
Include policy, regulatory, and educational goals and strategies that pertain to the estuary			
Land use regulation	✓	✓	✓
Land conservation	✓	✓	✓
Point and nonpoint source pollution	✓	✓	✓
Flood storage and storm surge buffering	✓	x	✓
Education/ public outreach	✓	✓	x
Research	✓	x	x

### 2.5.1. Commonalities

This comparison of master plans revealed several commonalities across the three plans:

- o Outdated plans and data – Master plans that are not regularly updated often contain outdated information and/or fail to reference or incorporate the latest, most pertinent data and findings of local, regional, and state reports and studies. New studies and reports may contain relevant information and data that should be included in the master plan. Having this information in the master plan can also be helpful for grant writing purposes.

### 3. Zoning and Land Use Regulations

- Minimal emphasis on regional planning – The estuary is a regional resource that spans multiple political boundaries. Very little discussion was found within the master plans on the need for land use and estuary planning across municipal boundaries.
- Ecosystem services – The master plans generally address key ecosystem services that the estuary provides but there is opportunity for improvement in this area, particularly with regard to the economic value of the estuary. Documenting this information can be helpful for justifying the need for better protection through conservation or land use regulation. It is also critical to draw explicit connections between the resource and quality of life in the community.
- Lack of discussion of unanticipated threats, such as new invasive species or sources of water pollution. When planning for the future of the community, it is important to seek out this information.
- Presence of a distinct estuary chapter – The master plans incorporated content related to the estuary but did not include a separate and distinct chapter dedicated to the Seabrook-Hampton Estuary.

#### 2.5.2. Gaps

Several gaps in estuary planning within the master plan were also identified. Examples of opportunities to address these gaps are summarized below.

#### Hampton Master Plan

- Strengthen discussion of the estuary’s role in mitigating flooding and storm surge.
- Assess and map surrounding land use and buffers.
- Provide specific land use recommendations for the Zoning Ordinance, Site Plan Regulations, and Subdivision Regulations.
- Incorporate the estuary into the vision.

#### Hampton Falls Master Plan

- Include a discussion of the coastal water resources’ in the water resources management and protection plan chapter.
- Address climate change and hazards.
- Incorporate maps and images.

#### Seabrook Master Plan

- Enhance discussion of ecosystem services.
- Identify opportunities to educate the public about estuary health and how land use management impact the estuary.
- Identify additional research and data needs.

### 3. Zoning and Land Use Regulations

#### 3.1. Overview

### 3. Zoning and Land Use Regulations

Municipalities have the opportunity to protect the estuary through their zoning ordinance and land use regulations. The zoning ordinance is the community’s tool to implement recommendations from its master plan. The zoning ordinance establishes base zoning and overlay districts, and dimensional and performance standards for these districts. NH RSA 647:16 gives municipalities the power to adopt innovative land use controls, such as environmental characteristics zoning, contained in RSA 674:21. In towns with traditional, Board of Selectmen/open town meeting form of government — including Hampton, Hampton Falls, and Seabrook, each of which has an SB-2 form of government — the legislative body, or voters, approve amendments to the Zoning Ordinance at Town Meeting. Municipalities may authorize the Planning Board to develop and administer site plan review and subdivision regulations. These land use regulations establish standards and procedures for development, division, and protection of land.

#### 3.2. Summary of Review of Zoning and Land Use Regulations

A screening of the zoning ordinances, site plan, and subdivision regulations of the Towns of Hampton, Hampton Falls, and Seabrook was conducted to compare the regulatory protection of the estuary across these communities (Table 3-1).

The screening included a review of wetland, shoreland, and watershed protection districts, floodplain ordinances, stormwater regulations, and regulations for impervious surfaces, landscaping, and conservation subdivisions. This section also includes a summary of results from the 2015 Piscataqua Region Estuaries Partnership (PREP)’s Environmental Planning Audit (PREPA).

**Table 3-1. Documents reviewed**

	Zoning Ordinance	Site Plan Review	Subdivision Regulations
Town of Hampton	Adopted 1949, as last amended March 2019	Last amended February 2018	Last amended July 2015
Town of Hampton Falls	Adopted in 1952, as last amended March 2019	Last amended December 2016	Last amended 2015
Town of Seabrook	Last amended March 2019	Last amended April 2019	Last amended June 2019

#### 3.3. Wetland Overlay Districts

### 3. Zoning and Land Use Regulations

Wetland overlay districts include provisions to prevent or limit impacts to wetlands and their buffers. This is accomplished through defining no-disturbance vegetative buffers, establishing managed buffers that protect habitat and water quality, and prohibiting development or activities that threaten wetlands.

#### Buffers

Buffer areas, the upland areas adjacent to wetlands, are essential to maintenance and protection of wetland functions and values. These buffer areas protect wetlands from degradation by:

1. Stabilizing soil and preventing erosion.
  2. Filtering suspended solids, nutrients, and harmful or toxic substances.
  3. Moderating impacts of stormwater runoff.
  4. Moderating system microclimate.
  5. Providing habitat and protecting wetland wildlife habitat from adverse impacts.
  6. Maintaining and enhancing habitat diversity and/or integrity.
  7. Supporting and protecting wetland plant and animal species and biotic communities.
  8. Reducing disturbances to wetland resources caused by intrusion of humans and domestic animals.
- The size of buffers needed varies by the function and the site-specific conditions.

*Source: Innovative Land Use Planning Techniques: A Handbook for Sustainable Development*

Elements of the wetland overlay districts in each municipality — the Hampton Wetland Conservation District (WCD), Hampton Falls Wetland Ordinance, and Seabrook Surface Water Protection article — are summarized in Appendix B Table 1. Permitted uses in wetland overlay districts are included in Appendix B Table 2. Examples of some of the commonalities and differences of these wetland protection regulations are summarized below. Additional information about wetland regulations is available in the PREPA.

#### Commonalities:

- Inclusion of a purpose statement.
- Hampton and Hampton Falls have designated prime wetlands using a regional Prime Wetland Inventory Report developed for both towns.
- Establishment of buffers. Buffer size ranges from 25 to 100 feet depending on the resource and municipality.
- Hampton and Hampton Falls allow structures such as fences, seawalls, and wharves by permit.

#### Differences:

### 3. Zoning and Land Use Regulations

- The types of uses that are allowed or allowed by permit are somewhat variable across the three municipalities.
- In Hampton, buffers are subject to the same regulations as the wetland or resource, whereas in Hampton Fall and Seabrook, there are distinct standards for wetlands and for wetland buffers.
- Hampton Falls allows a structure to be built by special exception (granted by the Zoning Board) if no reasonable use of the property exists, whereas the Planning Board has the authority to approve development within the overlay.
- Seabrook and Hampton have minimum lot size requirements for lots with wetlands.
- Seabrook has smaller setback requirements than Hampton and Hampton Falls.
- Seabrook does not have designated prime wetlands.

Several sections of each municipalities' regulations require interpretation and clarification from the respective Planning Board. Items that require clarification include:

- Hampton: The definition of tidal wetlands and the permitted uses in different areas of the Hampton WCD are not clearly written or presented in a consistent, user-friendly way. It is also unclear what the prime wetlands buffer is.
- Hampton Falls: The Wetland Ordinance contains minimum setback and vegetated buffer requirements but it is not explicit what the setback applies to.
- Seabrook: It is not clear what geographic extent or features Seabrook's Surface Water Protection applies to. Seabrook's ordinance also lacks information on prohibited and permitted uses. It is unclear by what mechanism new construction and redevelopment are permitted.

These items, along with findings in this draft audit, will be reviewed with each municipality.

#### **3.4. Shoreland Overlay Districts**

Shorelands include the area adjacent to bodies of water. Vegetated shorelands provide benefits including habitat, bank stabilization, flood storage capacity, and nutrient retention.

The state regulates development and activities within 250 feet of protected water bodies through the Shoreland Water Quality Protection Act (SWQPA). Protected water bodies include: lakes, ponds, and impoundments greater than 10 acres; 4<sup>th</sup> order and greater streams and rivers; all designated river and river segments under RSA 483 The Rivers Management & Protection Act; and all water subject to the ebb and flow of the tide, including tidal marshes, rivers, and estuaries.

Municipalities have the ability to enforce local shoreland regulations. According to the NH Office of Strategic Initiatives (OSI) 2018 Municipal Land Use Regulation Annual Survey,<sup>2</sup> 136

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<sup>2</sup> Survey results are available at: <https://www.nh.gov/osi/planning/services/mrpa/land-use-survey.htm#tables>

### 3. Zoning and Land Use Regulations

municipalities (out of 234 municipalities and 9 village districts with zoning authority) have a shoreland protection ordinance. Hampton Falls is listed as one of these municipalities, however, this ordinance was not found. Hampton Falls does use the buffers identified in the State's Shoreland Water Quality Protection Act buffers for its prime and tidal wetlands. Hampton and Seabrook do not have a shoreland protection ordinance.

#### **3.5. Floodplain Ordinance**

Floodplain regulations benefit the water quality and health of the estuary and surrounding shoreland by reducing the development in proximity to the estuary. All three municipalities permit development and septic systems within the floodplain. With the State's adoption of the 2015 International Building Code in September 2019, all municipalities must comply with the flood-related provisions of the 2015 code, including elevation of new buildings to one foot above base flood elevation (BFE). Prior to this, local regulations in Hampton required one foot above BFE, while Seabrook and Hampton Falls only required that new construction and substantial improvement be elevated to the BFE.

#### **3.6. Watershed Protection Ordinance**

Neither Hampton, Hampton Falls, nor Seabrook have a watershed protection ordinance. Municipal land use survey results from OSI indicate that there are 60 municipalities in the state, including 16 in Rockingham County, that have a watershed protection ordinance.

#### **3.7. Stormwater Regulations**

Stormwater runoff causes water quality impairment. Stormwater regulations are imposed on development to manage rain and snowmelt, prevent flash floods, and reduce pollutant loading of water bodies. Appendix B Table 3 summarizes stormwater management and erosion and sedimentation control provisions from each municipality's subdivision and site plan review regulations. A brief summary of commonalities and differences follows. Additional information about stormwater regulations is included in summary of PREPA results in Section 3.9.

##### **Commonalities**

- Hampton and Seabrook require that standards of the NH Stormwater Manual be met, while Hampton Falls references the 1992 Stormwater management and erosion control for urban and developing areas in NH.
- Hampton and Seabrook require inspection/operation and maintenance plans.
- Neither Hampton, Hampton Fall, nor Seabrook have adopted the Southeast Watershed Alliance model stormwater ordinance.

##### **Differences**

- Seabrook requires low impact development (LID). Hampton only requires this to the maximum extent practicable. Hampton Falls does not require LID.

### 3. Zoning and Land Use Regulations

- Seabrook requires that stormwater designs use Northeast Regional Climate Center precipitation data, which is more current than that of the NH Stormwater Manual.
- A stormwater management plan required for all site and subdivisions in Seabrook. In Hampton, a plan is required for any use that will include an impervious area that is more than 15% or 10,000 sf of any lot.
- Seabrook specifies stormwater redevelopment standards for redevelopment.

#### **3.8. Other Ordinances and Regulations**

##### **3.8.1. Impervious Surface Thresholds**

Impervious surfaces contribute to runoff and carry pollutants into the estuary and its tributaries. Municipalities can establish thresholds for the percent of a lot that is impervious in order to reduce the negative impacts of impervious surfaces on water quality and water bodies.

Hampton and Seabrook have similar definitions for impervious surfaces. The Hampton Falls ordinance does not define impervious surfaces. Seabrook contains a maximum open space requirement and a maximum building footprint, whereas Hampton and Hampton Falls do not contain these limitations.

Table 4 in Appendix B contains a summary of the definitions and standards for impervious surfaces for each municipality.

##### **3.8.2. Landscaping Requirements**

Vegetated landscapes filter and slow runoff and are an important component of the design of disturbed sites. Landscaping regulations can encourage or require native plants, which typically provide better habitat than non-native or ornamental species.

The Site Plan Review Regulations of Hampton and Hampton Falls contain provisions for landscaping for the primary purpose of screening, rather than enhancing habitat.<sup>3</sup> The Site Plan Review Regulations of Seabrook explicitly reference the support of wildlife and enhancement of habitat in the purpose statement. Seabrook encourages use of indigenous plants that provide natural habitat and food sources and maintain ecological diversity and prohibits plants that the NH Department of Agriculture identifies as invasive. Seabrook also provides incentives for retaining and utilizing existing vegetation.

##### **3.8.3. Conservation Subdivisions**

Conservation subdivisions are residential subdivisions characterized by protected open space on a portion of the site. These regulations often offer an incentive to the developer, such as allowing a smaller lot size than the minimum required, in exchange for condensing the

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<sup>3</sup> Note: Hampton Falls Site Plan Review Appendix V not yet reviewed.

### 3. Zoning and Land Use Regulations

developed portion of the lot to allow for the preservation of the undeveloped portion of the lot.

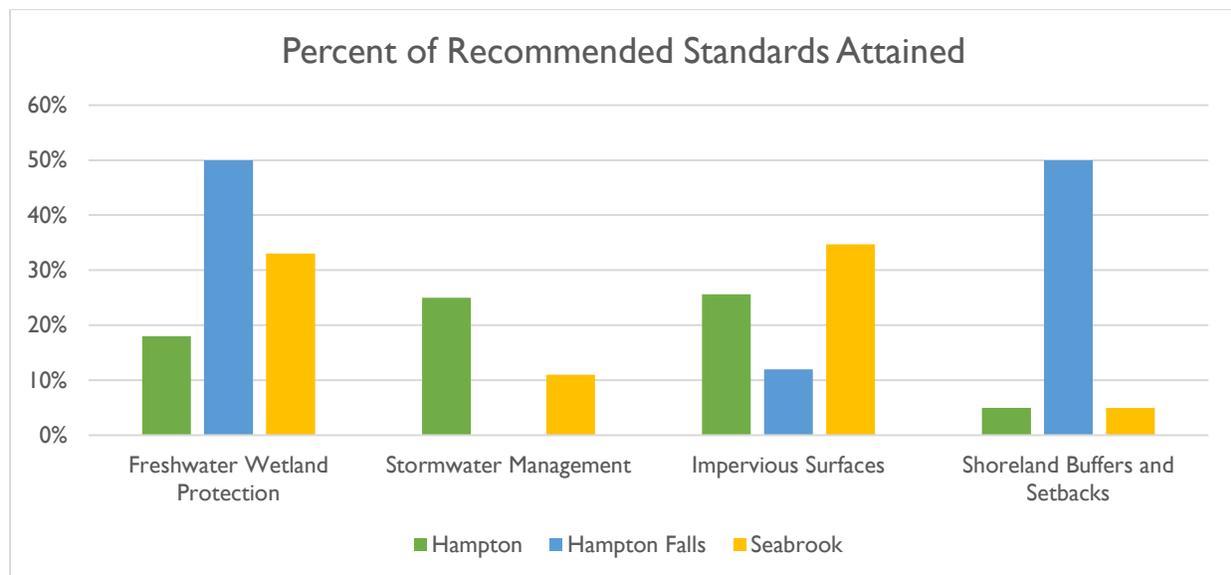
Hampton Falls’s Zoning Ordinance contains provisions for residential open space-conservation subdivisions.

#### 3.9. PREPA

The Piscataqua Region Estuaries Partnership (PREP) prepares and regularly updates an environmental planning audit of municipal regulations, the Piscataqua Region Environmental Planning Assessment (PREPA). The PREPA includes a set of standards for four key areas: freshwater wetland protection, stormwater management, shoreland buffers and setbacks, and climate change.

The PREPA evaluates the extent to which municipalities manage resources through their local land use regulations. The information about each municipality’s regulations is self-reported by the municipality to PREP. A summary of results from the 2015 PREPA for Hampton, Hampton Falls, and Seabrook follows. When available, information from the 2020 PREPA will be incorporated into this document. For more information, see: [https://prepestuaries.org/02/wp-content/uploads/2019/06/PREPA\\_subwatersheds\\_Hampton.pdf](https://prepestuaries.org/02/wp-content/uploads/2019/06/PREPA_subwatersheds_Hampton.pdf).

The PREPA contains a number of recommended standards for freshwater wetland protection, stormwater management, impervious surfaces, and shoreland buffers and setbacks. Figure 3-1 displays an overview of the percent of recommended standards that have been attained by each municipality. The percent of standards met varies significantly by type of standard and municipality.



**Figure 3-1 Percent of PREP’s recommended standards attained by municipality**

### 3. Zoning and Land Use Regulations

A selection of the review criteria along with the results for Hampton, Hampton Falls, and Seabrook is included in Table 3-2. Discrepancies between the results reported in the PREPA and the current regulations are possible. This data is from the 2015 assessment and may not reflect the current plans and regulations. Furthermore, Hampton and Seabrook’s land use regulations appear to require that the standards of the NH Stormwater Manual be met. However, the PREPA findings for minimum design criteria suggest that neither municipality meets the criteria.

**Table 3-2 Summary of PREPA results**

	Hampton		
	Hampton	Falls	Seabrook
Completed a Natural Resources Inventory (NRI)?	Yes	No	Yes/No
Natural Resource Chapter in Master Plan	Yes	Yes	Yes
Open Space Plan or land conservation protection strategy?	Yes	Yes	No
Coastal Land Conservation Overlay District	No	No	No
Mandatory Conservation Subdivision Regulations	No	No	No
Designated Prime Wetlands	Yes	Yes	No
Explicit Protection of Vernal Pools	No	No	Yes
Defined Fluvial Erosion Hazard (FEH) Zone Overlay	No	No	No
Minimum Area of Soil Disturbance that Triggers Stormwater Management Regulations	None stated	None stated	40,000 sf
Cap of 10% Effective Impervious Cover for New Development in Residentially Zoned Lots of 1 acre+	No	No	No
Require LID	Yes	No	No
Do Stormwater Management Regulations reflect the minimum design criteria as defined in the NH Stormwater Manual Volume 2 for:			
Water quality volume/flow (WQV/WQF)	No	No	No
Groundwater recharge volume (GRV)	No	No	No
Peak Flow	No	No	No

The 2015 PREPA contains a set of prioritized actions for each municipality. The top recommendation for Hampton is to increase buffers on 1<sup>st</sup>-4<sup>th</sup> order streams to 100 feet. This standard appears to be met. Similarly, in Hampton Falls, the top recommendation is to adopt 100-foot buffers on all waterbodies, including wetlands. While prime wetlands, coastal waters, and tidally influenced wetlands are subject to a 100 ft setback, other wetlands have a smaller buffer requirement ranging from 10 to 75 feet. The top priority action for Seabrook is to increase buffers to 100 feet for all water bodies. This buffer distance is not required by the Town at this time. The top four actions for each municipality are included in Appendix C.

#### 4. Summary of Existing Reports, Studies, and Plans.

### 4. Summary of Existing Reports, Studies, and Plans

There are a range of existing reports, studies, and plans with information about the Hampton-Seabrook Estuary's natural resources, threats to those natural resources, as well as objectives for the estuary. Information, GIS data, goals, and objectives from these resources may inform and be incorporated into an estuary management plan for the Hampton-Seabrook Estuary. This section includes a brief overview of the content available within the resources below:

#### Estuary Management and Plans

- State of the Estuary Report (2018)
- Cains Brook and Mill Creek Watershed Management Plan (2006)
- Hampton-Seabrook Estuary Restoration Compendium (2009)

#### Habitats and Conservation Value

- Land Conservation Plan for New Hampshire's Coastal Watersheds (2006)
- New Hampshire Wildlife Action Plan (2015)
- Evaluation of Restorable Salt Marshes in New Hampshire

#### Field Research and Data

- Distribution of Winter Flounder, *Pseudopleuronectes americanus*, in the Hampton-Seabrook Estuary, New Hampshire: Observations from a Field Study (2004)
- Audubon Society's Hampton-Seabrook Estuary Important Bird Area Report (2008)
- New Hampshire Coastal Spatial Data Management Plan and Inventory (2014)
- NHDES Resilient Tidal Crossings (2019)

#### Sea-level Rise and Storm Surge Vulnerability

- Preparing New Hampshire for Projected Storm Surge, Sea-Level Rise, and Extreme Precipitation Final Report and Recommendations (2016)
- Tides to Storms Vulnerability Assessment (2015)
- Sea Level Affecting Marshes Model (SLAMM) for NH (2014)

#### 4.1. State of the Estuary Report

The 2018 [State of Our Estuaries](#) report, prepared by PREP, documents the environmental condition of the Great Bay and Hampton-Seabrook Estuaries. The 2018 report ranks and describes the status of 23 indicators of estuarine health. Goals are also included for each indicator.<sup>4</sup>

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<sup>4</sup> PREP (2018) State of Our Estuaries.

#### 4. Summary of Existing Reports, Studies, and Plans.

The 2018 report documents trends of a variety of parameters. For example:

- Between 10-15% of the three subwatersheds (HUC-12) surrounding the estuary were impervious in 2015.
- The acre-days (number of open acres multiplied by the number of days those acres were open for harvest) decreased in recent years, in part due to prolonged discharge of raw sewage from a broken force main in 2017 and 2018.
- The clam population has declined most years since 1997; in 2015, the population was 25% of the PREP goal.<sup>4</sup>

#### Stressors to the Estuary:

- Changing precipitation patterns
- Increasing colored dissolved organic matter
- Increased impacts of coastal acidification
- Increasing sea-level rise and storm surge
- Increasing human population
- Spread of impervious surfaces
- Increased nitrogen loading

A range of data is summarized in the report. Some of this data is only available for the Great Bay Estuary; however, Hampton-Seabrook Estuary-specific information is available for certain indicators. For example, the report presents green crab population data as well as beach advisory data, which provides information about concentration of polycyclic aromatic hydrocarbons (PAHs). The percent of conserved land by subwatershed and municipality is quantified. The report also includes social indicators, such as housing permit approvals, stormwater management effort, stewardship behavior, along with a list of other social ecological values from 38 stakeholder interviews.<sup>4</sup>

PREP identifies the need to continue to increase monitoring and expand sites and parameters in the Hampton-Seabrook Estuary, building on the 2017 addition of an automated datasonde in the Hampton River.<sup>4</sup>

#### 4.2. Cains Brook and Mill Creek Watershed Management Plan, Town of Seabrook

The [Cains Brook and Mill Creek Watershed Management Plan](#) was prepared for the Town of Seabrook in 2006 by Waterfront Engineers, Inc.. The management plan identifies management strategies that are alternatives to regulatory programs. It includes a watershed action plan that “allows for development that is sensitive to the natural resources of the watershed while protecting and enhancing its critical resource area and recreational opportunities.”<sup>5</sup> The plan includes resources and data, species lists, and maps of the watershed, as well as identifies six key goals and objectives for each goal.

#### 4.3. Hampton-Seabrook Estuary Restoration Compendium

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<sup>5</sup> Waterfront Engineers, Inc. (2006) Cains Brook and Mill Creek Watershed Management Plan, Town of Seabrook.

#### 4. Summary of Existing Reports, Studies, and Plans.

The [Hampton-Seabrook Estuary Restoration Compendium](#), prepared in 2009, is a compilation of information on the historic and current distribution of salt marsh and sand dune habitats and diadromous fishes.<sup>6</sup> It includes a [map set](#) that is available through NHDES.

The compendium quantifies the extent of salt marsh impacts (tidal restrictions, invasive vegetation, direct loss, ditches) as well as areas of low, medium, and high feasibility of restoration. Similarly, it quantifies dune extent from 1776 to 2005 and the impact and restoration potential of dunes through dune creation, planning, education, and conservation. The report includes a stream network analysis on Tide Mill Creek-Meadow Pond, Drakes River, Taylor River, Hampton Falls River, Cains Brook-Mill Creek, Black and Little River. It maps the historic and current distribution of the following species: alewives and blueback herring, American shad, rainbow smelt, American eel, Atlantic Salmon, and Atlantic sturgeon. Restoration feasibility and methods to benefit diadromous fish, such as dam removal, nature-like fishways, fish ladders, culvert enhancement or replacement, stocking, and habitat restoration are described.<sup>6</sup>

Prominent restoration opportunities are mapped and summarized by subwatershed. The implementation status of these opportunities was not evaluated as part of this report; these opportunities could be reviewed during the development of a management plan for the estuary.

In addition to assessing restoration feasibility, the compendium also identifies monitoring protocols and methodologies for salt marsh restoration approaches, dam removal, and dune restoration that could be used to evaluate outcomes of a management plan.

#### **4.4. Land Conservation Plan for New Hampshire's Coastal Watersheds**

The 2006 [Land Conservation Plan for New Hampshire's Coastal Watersheds](#) continues to serve as a guide for land conservation in rapidly developing coastal areas. Prepared by The Nature Conservancy, Society for the Protection of New Hampshire Forests, Rockingham Planning Commission, and Strafford Regional Planning Commission, the plan was developed to support the protection of the ecological services provided by undeveloped land.<sup>7</sup>

The Hampton-Seabrook Estuary is located within one of 75 Conservation Focus Area – Core Areas (see Appendix D, Map 1), signifying that it is an area that is considered to be “of exceptional significance for the protection of living resources and water quality in the coastal watersheds.”<sup>7</sup> Among the reasons for this is that it is home to the state’s largest remaining clam beds, the rare saltmarsh sharp-tailed sparrow, and other species of concern. The plan describes natural resource values, development history and trends in coastal watersheds, land use change, sprawl, and the status of conservation land. Documentation of plant and

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<sup>6</sup> Eberhardt, A. and Burdick, D. (2008). Hampton-Seabrook Estuary Restoration Compendium.

<sup>7</sup> Zankel, M. et al. (2006), The Land Conservation Plan for New Hampshire's Coastal Watersheds.

#### 4. Summary of Existing Reports, Studies, and Plans.

##### Purposes of the Land Conservation Plan:

1. Identify and describe a portfolio of areas that represent the best remaining opportunities to conserve the critical ecological, biological, and water resources of New Hampshire's coastal watersheds.
2. Identify and describe a set of voluntary and regulatory land conservation strategies available for protecting the important areas.

animal species of conservation concern and exemplary natural communities known to occur in the coastal watersheds are included in the plan's appendices.<sup>7</sup>

Both the Core Focus Areas and Water Resource Focus Areas — areas likely to provide pollution attenuation and/or flood storage and risk mitigation — are available as GIS data through [NH GRANIT](#). The Land Conservation Plan for New Hampshire's Coastal Watersheds provides information about habitat that can be incorporated into a management plan for the estuary. Because the estuary is located in a Conservation Focus Area, projects and land conservation projects within the estuary are more likely to receive funding from certain state funding sources.

#### 4.5. New Hampshire Wildlife Action Plan

The 2015 [NH Wildlife Action Plan](#) (WAP) provides extensive information and spatial data on the state's habitats and species. The plan identifies 169 Species of Greatest Conservation Need (SGCN) and 27 habitats that support the SGCN.<sup>8</sup>

The Seabrook-Hampton Estuary is characterized by estuarine and salt marsh habitat. A list of species found in these habitats is included in Appendix E. A map of habitat types is included in Appendix D. According to the WAP there are 11,101 acres of estuarine habitat in New Hampshire. The Hampton-Seabrook estuary is designated as an Important Bird Area and is home to osprey and waterfowl. Species such as smelt, American shad, blueback herring, and horseshoe crabs use the state's estuaries for spawning and nursery habitat. The plan's appendix documents information about the habitat type and its threats.<sup>8</sup>

Actions to conserve estuary habitat that are included in the plan are:

- Supporting a multi-agency oil spill response plan.
- Reducing the amount of nitrogen entering estuarine habitat by improving vegetated buffers.
- Upgrading maintenance of septic systems and treatment plants.<sup>8</sup>

Salt marshes are among the most productive ecosystems in the world. It is estimated that 30-50% of original salt marsh in New Hampshire has been replaced by development.

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<sup>8</sup> NH Fish & Game (2015). New Hampshire Wildlife Action Plan.

#### 4. Summary of Existing Reports, Studies, and Plans.

Approximately 6,039 acres, or the area equivalent to about 2/3 of the Town of Hampton's land area, remain as salt marsh. In addition to loss of habitat to development, excessive nutrient input and invasive species threaten the integrity of salt marshes. Information about this habitat and reason for concern in the state is included in the WAP's appendix.

Conservation strategies for salt marshes include restoring and protecting the remaining habitat and surrounding upland buffer habitat.<sup>8</sup>

The WAP also includes a spatial dataset identifying the highest ranked habitat in NH (Tier 1), highest ranked habitat in the biological region (Tier 2), and supporting landscapes that are critical to highest ranked habitat. The Seabrook-Hampton estuary consists of predominantly Tier 1 habitat (refer to Appendix D, Map 3).<sup>8</sup>

#### Protection and Regulatory Status For Estuarine and Salt Marsh Habitats

- Harvest regulated by NH Fish and Game Department Marine Fisheries Division
- Protected under the CZMA and focus of NHDES Coastal Program
- Part of EPA's National Estuary Program, coordinated by PREP
- Regulatory Protections (for estuary and salt marsh): Fill and Dredge in Wetlands (NHDES), Comprehensive Shoreland Protection Act (NHDES), Clean Water Act Section 404, NH NHB Database

Source: NH WAP

#### 4.6. Evaluation of Restorable Salt Marshes in New Hampshire

The Hampton Master Plan references the 1994 [Evaluation of Restorable Salt Marshes in New Hampshire](#) study. This report was prepared by the United States Department of Agriculture (USDA) National Resources Conservation Service (NRCS) and reissued in 2001. The report summarizes previous restoration efforts, benefits and values of salt marshes, cause and effects of salt marsh deterioration.

#### 4.7. Distribution of Winter Flounder, *Pseudopleuronectes americanus*, in the Hampton-Seabrook Estuary, New Hampshire: Observations from a Field Study

A [field study on the distribution of winter flounder](#) in the estuary was conducted in 2004. This study was undertaken by the University of New Hampshire Department of Biological Sciences. The study consisted of sampling and analysis of fish and macroinvertebrates from July through October 2004. During the sampling season, a total of 14 species, excluding sevenspine bay shrimp and hermit crabs, were caught. The greencrab was most abundant, followed by winter flounder.<sup>9</sup> The study was limited in scope but does provide some

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<sup>9</sup> Distribution of Winter Flounder, *Pseudopleuronectes americanus*, in the Hampton-Seabrook Estuary, New Hampshire: Observations from a Field Study

#### 4. Summary of Existing Reports, Studies, and Plans.

information on species that were present in the estuary 15 years ago. This study is referenced in Seabrook’s Master Plan.

#### 4.8. Audubon Society Hampton-Seabrook Estuary Important Bird Area Report

The [Audubon Society](#) recognizes the global significance of the Hampton-Seabrook estuary as the largest area of salt marsh in New Hampshire and an area that supports a majority of the state’s salt marsh breeding birds. Table 4-1 displays species that were viewed on the marsh in the 2008 study period.

**Table 4-1. Bird species documented at the estuary by the Audubon Society in 2008**

Seaside sparrow	Whimbrel	Dunlin
Semipalmated plover	Willet	Greater yellowlegs
Black-bellied plover	Common tern	Horned lark
Hudsonian godwit	Lesser yellowlegs	Piping plover
Purple sandpiper	Sanderling	

#### 4.9. New Hampshire Coastal Spatial Data Management Plan and Inventory

In 2014 NHDES prepared a [coastal spatial data management plan and inventory](#) that coordinates information in order to improve coastal and estuarine management. This resource provides information on available spatial data sets related to coasts and estuaries, such as water quality, bathymetry, subtidal and terrestrial habitats, fish and wildlife, human uses, and potential impacts from climate change.<sup>10</sup> The plan includes a list and links to local, regional, and national data that may be used for coastal and estuarine mapping as part of a management plan for the Hampton-Seabrook Estuary.

#### 4.10. Resilient Tidal Crossings

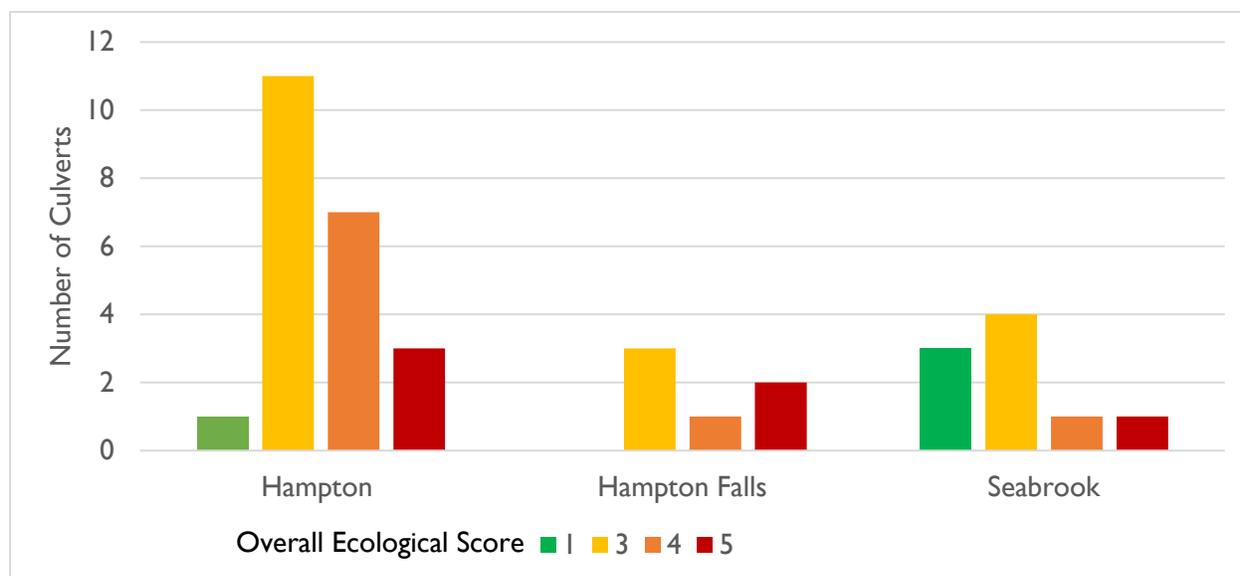
NHDES completed the [Resilient Tidal Crossings](#) assessment in 2019. The assessment data was used to rank and prioritize sites based on structure condition, flood risk, and ecosystem health. A total of 37 sites in Hampton, Hampton Falls, and Seabrook were assessed. Based on a number of criteria, overall scores for infrastructure, ecological, and a combined score were developed. The overall ecological score is based of scores for tidal restriction overall, tidal aquatic organism passage, salt marsh migration, and vegetation comparison evaluation. Each culvert was assigned an ecological score of 1, 3, 4, or 5, with 1 representing a *Limited Tidal Restriction* and 5 representing *Very Severe Tidal Restriction, No Tidal Aquatic Organism Passage Barrier, Very High Salt Marsh Migration Potential if Tidally Restricted, OR Vegetation Very Different if Tidally Restricted*. Figure 4-1 displays a summary of the overall ecological scores for each municipality.<sup>11</sup>

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<sup>10</sup> NHDES (2014). NH Coastal Spatial Data Management Plan and Inventory.

<sup>11</sup> NHDES (2019). Resilient Tidal Crossings.

#### 4. Summary of Existing Reports, Studies, and Plans.



**Figure 4-1 Overall ecological score of tidal culverts in Hampton, Hampton Falls, and Seabrook (Source: NHDES Resilient Tidal Crossings)**

#### 4.11. Preparing New Hampshire for Projected Storm Surge, Sea-Level Rise, and Extreme Precipitation Final Report and Recommendations

NH Coastal Risk and Hazards Commission released the Commission's [final report](#) on storm surge, sea-level rise, and extreme precipitation in 2016. This report summarizes anticipated sea-level rise impacts on species and habitats, as well as storm surge impacts to dunes, salt marshes, and estuaries.<sup>12</sup> A number of recommendations and actions are included in the report. Examples that are directly related to the estuary include:

- Gather baseline data to improve analysis of coastal and riverine flood risks resulting from a combination of storm surge, sea-level rise, and extreme precipitation events in coastal areas directly exposed to the Atlantic Ocean and inland areas with tidal rivers, bays and marshes.
- Conduct additional applied research to better understand the capacity of natural resources like salt marshes and eelgrass beds to respond to projected changes in storm surge, sea level, and extreme precipitation.
- Utilize marsh migration modeling to identify and prioritize marsh migration areas for conservation and restoration.
- Evaluate and apply sediment application techniques, where feasible, to maintain tidal marsh systems.

<sup>12</sup> NH Coastal Risk and Hazards Commission (2015) Preparing New Hampshire for Projected Storm Surge, Sea-Level Rise, and Extreme Precipitation Final Report and Recommendations.

#### 4. Summary of Existing Reports, Studies, and Plans.

- Protect future marsh migration areas identified by marsh migration modeling.<sup>12</sup>

#### 4.12. Tides to Storms Vulnerability Assessment

The [Tides to Storms Vulnerability Assessment](#) is a region-wide assessment that contains maps and data about potential impacts associated with sea-level rise and storm surge. The assessment was prepared in 2015 by the Rockingham Planning Commission. The report identifies potential impacts of sea-level rise and storm surge on a range of natural and built assets, including natural resources.<sup>13</sup> The following information is mapped and quantified: the area and location of freshwater and tidal wetlands, aquifers and wellhead protection areas, the Land Conservation Plan for NH's Coastal Watershed-Core Focus Areas, and WAP Tier 1 and Tier 2 habitats that are projected to be impacted. The assessment also includes data on culverts and Federal Emergency Management Agency (FEMA) flood hazard areas that may be impacted.<sup>13</sup>

The assessment includes recommendations that may be added to local Natural Hazards Mitigation Plans, Master Plans, and other planning and policy documents that are intended to strengthen land use development standards, resource protection, municipal policy and plans, and public support to create more resilient infrastructure and natural systems are provided in the assessment. These recommendations include, for example: coastal buffers and tidal marshes; targeted land conservation, wetlands mitigation site inventory, living shorelines and landscaping; and partnerships with SHEA, each of which is pertinent to a management plan for the estuary.<sup>13</sup>

#### 4.13. Sea Level Affecting Marshes Model (SLAMM) for NH

[SLAMM](#) is a model that simulates inundation, erosion, accretion, soil saturation, and barrier island over-wash under different sea level rise scenarios. SLAMM is a spatial dataset that was developed as part of NHDES Coastal Program's Resilient Coasts Project in 2014 and is available through NH GRANIT. SLAMM maps show current and future areas of tidal water, mud flats,

#### Application of SLAMM

The New Hampshire Fish and Game ran a Sea Level Affecting Marshes Model (SLAMM) in 2014 to determine how coastal habitats, and specifically salt marshes, might respond to different sea-level rise scenarios. The model demonstrates where marshes have the ability to migrate landward, and if they will have the chance to do so before being drowned by rising water levels. Model results indicate that if sea level rises 6.6 feet by 2100, 240 acres of existing salt marsh will likely be lost by 2025 and only 300 acres will likely remain by 2100, amounting to a 95 percent loss of salt marsh.

Source: Excerpted from NH Coastal Risk and Hazards Commission

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<sup>13</sup> Rockingham Planning Commission (2015) Tides to Storms Vulnerability Assessment, Regional and Municipal Vulnerability Assessment Reports.

## 5. Stakeholder Input on the Draft Estuary Management Plan Scope

salt marsh, transitional salt marsh, tidal wetland, freshwater, and freshwater wetland. The model also displays outcomes if tidal restrictions are removed. This dataset can be incorporated into a management plan for the estuary to evaluate the future extent and location of salt marsh under different sea level rise scenarios.

### 5. Stakeholder Input on the Draft Estuary Management Plan Scope

A draft outline for the full Estuary Management Plan was developed and shared with the Planning Boards and Conservation Commissions in Hampton, Hampton Falls, and Seabrook. Six public meetings were held to review the audit and collect input from each community. The presentations served to:

- 1) Provide each town with a brief overview of this audit and some of the findings of the audit.
- 2) Inform the town about SHEA's intention to develop an Estuary Management Plan and desire to develop a document that will serve as a useful resource to each of the communities.
- 3) Involve the community early on in the development of the plan and engage representatives in a discussion about their interests and concerns related to estuary health and management.
- 4) Provide SHEA with input on the draft Estuary Management Plan outline (included in Appendix and scope).

The project team determined that it was necessary to hold six separate meetings with each board due to the 2020 pandemic, which made it challenging to hold the large, in-person joint meetings across municipalities that the project team originally intended to host.

#### 5.1. Public Presentations to Planning Boards

Following a presentation about this audit, the project team engaged boards in a discussion about the Estuary Management Plan. A brief summary of input during these meetings follows:

##### Hampton Planning Board Meeting (2/19/20) Input

- There was some confusion over the differences between a management plan and a master plan, and how the plans interact. Naming the document something other than management plan might be helpful.
- Planning board was receptive to the concept of an estuary management plan as long as it does not conflict with the town's master plan, especially the Coastal Hazards chapter.

##### Seabrook Planning Board Meeting (3/3/20) Feedback

- There were general questions about what an estuary is and what the plan is for.

## 5. Stakeholder Input on the Draft Estuary Management Plan Scope

- There was some confusion and concern about requesting funds from the Town.
- There are open space development provisions in section 9 of the zoning ordinance.
- No specific requests pertaining to the content or focus of the plan (data, maps, research) were shared.

### Hampton Falls (6/30/20) Meeting Feedback

- General interest in the plan.
- The town has an updated master plan.
- Depot road is the primary access point.
- Interested in learning more about impacts of recreation and use on wildlife and saltmarsh, especially with the proposed rail trail.
- Interested in water quality data, soil testing, and impacts of residential fertilizer application on nutrient loading in the estuary. Would like to see more education, awareness, and potentially regulation of fertilizer use. General concern about impacts of upland uses and activities on the estuary.

### 5.2. Public Presentations to Conservation Commissions

A second round of presentations and discussions was conducted in each municipality at Conservation Commission meetings. The focus of this set of presentations was to solicit input on what content and topics the Commission was most interested in seeing included in the Estuary Management. A brief summary of input from each town follows:

#### Hampton Conservation Commission Meeting (2/19/20) Input

- Interest in improving education about the estuary
- Question about migratory bird data
- Stormwater control a management issue
- Interest in residential education about fertilizer and trash,
- Interest in education about sea level rise and storm surge
- Discussion about how management plan will bridge each town

#### Hampton Falls Conservation Commission Meeting (6/23/20) Input

- Interest in fertilizer impacts
- Compiling and integrating data on fish runs, herring, alewives
- Attention to aquatic invasives
- Data on water temperatures and tracking change over time, including climate change impacts on water temperatures
- Incorporate climate change impacts on estuary
- Interest in learning about input from community about values

#### Seabrook Conservation Commission Meeting (9/14/20) Input

## 5. Stakeholder Input on the Draft Estuary Management Plan Scope

- Good to include residents in the visioning portion of the development of the Plan
- Interested in learning more about the overall health of the estuary, and in the condition of clam flats
- Would like to know more about recreational impacts, particularly those associated with jet skis in the channels
- Include, or inform, at a minimum, Salisbury, MA in the Estuary Management Plan.
- How will the Greenway across the estuary from Hampton Falls to Hampton impact/improve water flow in the estuary?

## APPENDIX A

**Table 1. Summary of content pertaining to the Hampton-Seabrook Estuary in Hampton’s Master Plan**

Natural Resources Chapter	
<b>Introduction</b>	
Page	Content
2	Documents land use/land cover change over time in table and maps
5	Recommendation: Consider evaluating development regulations to address impervious surface coverage by requiring site design standards and stormwater measures to mitigate any future potential effects to water quality
<b>Surface Water</b>	
Page	Content
12	Recognizes that surface waters are important because they provide flood retention and groundwater recharge functions, and ecological, scenic, and recreational value to the community as a whole
18	Describes effects of development (nonpoint source pollution, impervious surface coverage, stormwater) on surface water quality
21	Identifies and prioritizes the following mitigation projects for natural resource protection: <ul style="list-style-type: none"> <li>o Reduction and removal of phragmites populations as part of salt marsh restoration</li> <li>o Minimize residential dumping in the salt marshes through public outreach and programs including enhanced leaf and yard waste collection, spring clean-up, and hazardous waste collection</li> </ul>
<b>Wetlands</b>	
Page	Content
27-28	Identifies threats to wetlands: The Planning Board and Conservation Commission recognize the ongoing need to protect wetlands in Hampton. Although state and local protection exists, valuable wetlands are nonetheless lost to development each year. Land development and other human activities that require dredging, filling, and construction in wetland and surface water resources can result in significant impacts to the environment. These impacts affect the functions and values of wetlands and surface waters, such as wildlife habitat, water quality renovation, or flood storage.
25	Documents area of tidal marshes: Tidal marshes cover 2,241 acres or nearly 25% of total land areas of Hampton
26	Identifies the Hampton Salt Marsh Complex Prime Wetland: The Hampton Salt Marsh Complex is approximately 1,745 acres in size and is associated with the mouth of the Blackwater and Hampton Rivers where they enter the Atlantic Ocean. The wetland complex consists of a braided network of flats, channels and <i>Spartina</i> spp. plains. The sheer size of this wetland complex, coupled with the rarity of salt marsh in New Hampshire, greatly elevates the value of this wetland. Many other wetlands in Hampton drain to this wetland system. This wetland supports abundant populations of wading birds and other waterfowl, serves as a breeding ground and habitat for many species of baitfish and crustaceans, and is important habitat for larger fish species such as striped bass. Additionally, this wetland complex (contiguous with the Hampton Falls Salt Marsh Complex) provides significant flood storage and protection from tidal storm surges. While the Hampton Salt Marsh Complex is protected by a state-regulated tidal buffer zone, it is also protected by additional local regulations in the 10 Wt-202.90 "Tidal Buffer Zone" means the area extending landward 100 feet from the highest observable tide line. This area can contain wetlands, transitional areas, and natural and developed upland areas.

<b>Coastal Resources</b>	
<b>Page</b>	<b>Content</b>
38	Describes the marsh and estuary and notes the value of the estuary for habitat provisioning, flood protection, water quality, open space, recreation, etc: The Hampton-Seabrook marsh and estuary lie within the Taylor River and Hampton River subwatershed of the greater Coastal watershed. The marsh and estuary comprise 5,000 acres, of which 1,554 acres are in Hampton, and is the largest tidal resource in New Hampshire. The marsh and estuary represent nearly 20 percent of Hampton's total area and contains several water courses and waterbodies including Hampton River, Tide Mill Creek, Nudds Canal, Blind Creek, Nilus Brook, Eel Ditch, Meadow Pond and Old Mill Pond (fresh water). The marsh estuarine system provides habitat for several rare and endangered plants and animal species, migratory birds and other wildlife. It is an important fish and shellfish production area. The marsh provides flood protection for adjacent uplands and protects water quality by trapping and removing pollutants from runoff. The tidal waterbodies and watercourses are also highly valued for open space, recreation, educational, historical and archeological purposes.
39	Recognizes sweeping salt marsh as an area of scenic importance
39-40	Describes past salt marsh restoration projects
<b>Wildlife and Ecological Resources</b>	
<b>Page</b>	<b>Content</b>
42	References NH Wildlife Action Plan, including the following habitats: <ul style="list-style-type: none"> <li>o Peatlands. Peatlands have water with low nutrient content and higher acidity caused by limited groundwater input and surface runoff. Conservation of the 11 different natural communities that comprise peatlands is vital to the continued existence of many rare plant and wildlife species in New Hampshire. The most challenging issues facing peatlands habitat are development; altered hydrology (amount and flow of water); non-point source pollutants such as road salt, lawn fertilizers, and pesticides; and unsustainable forest harvesting.</li> <li>o Salt Marsh. Salt marshes are grass-dominated tidal wetlands existing in the transition zone between ocean and upland. They are among the most productive ecosystems in the world and are nurseries for several fisheries. Salt marshes also help protect coastal areas from storm surges.</li> <li>o Wet Meadow/Shrub Wetland. Emergent marsh and shrub swamp systems have a broad range of flood regimes, often controlled by the presence or departure of beavers. This system, which is an important food source for many species, is often grouped into three broad habitat categories: wet meadows, emergent marshes, and scrub-shrub wetlands. Marsh and wetlands filter pollutants, preventing them from getting into local streams, and help hold water to reduce flooding.</li> </ul>
43	Lists (in appendix) threatened and endangered species and species of concern identified by the NH Natural Heritage Bureau, including 6 estuarine natural communities, and many plants, birds, fish, insects
43	Notes fishing (shellfish and fin) opportunities in the estuary and tidal waters
<b>Open Space</b>	
<b>Page</b>	<b>Content</b>
48	Notes development pressure and encroachment on areas with marginal soils, adjacent to wetlands and aquifers, and other environmental constraints.
48	Recognizes that the preservation of open space should be viewed as an asset to the town, an investment in the future sustainability of land and resources, and a balance to the demands of growth.
	Presents consideration of a transfer of development rights program to encourage voluntary open space preservation

49	References wetland buffer
<b>Existing and Future Land Use Chapter</b>	
<b>Page</b>	<b>Content</b>
76	Recognizes the importance of preserving wetlands and importance of buffers when evaluating future development potential: The importance of preserving and protecting wetlands is well established. Hampton’s large wetland areas are discussed in the Water Resource section and the Open Space and Land Conservation section. Aside from the importance of preserving wetlands, it is equally important to prevent building in such area because of the potential impact on water quality and public health. Wetlands exist where groundwater is at or near the surface of the ground for seven months or more of the year. Failed septic systems constructed in or near wetlands can readily cause groundwater contamination. All septic systems must be located at a safe minimum distance from wetlands, surface waters, and groundwater. Even if municipal sewer is available, a reasonable buffer zone should be maintained.
25	Notes desire for protection of open space: another strength of Area 4 (northeast) is the open space, especially Meadow Pond and the “White’s Land” and “12-Shares” areas located north of Barbour Road. Residents fear the pressure to develop may destroy these precious areas; therefore, there is a strong desire for stronger protection of the remaining open spaces.
28	Recognizes that the lack of buildable area within the vicinity of the marsh is a strength and a weakness. The vast open spaces are a predominate feature, which most citizens value and wish to protect... The salt marshes also provide a significant wildlife habitat, and may be used by hunters, fishers, and non-motorized watercraft. Stated preferences include: Protected open space and wetlands, perhaps with passive and active recreation facilities.
<b>Hampton Beach Area Master</b>	
<b>Page</b>	<b>Content</b>
III-3	Notes access points along Hampton Harbor to other waterside uses
III-21- III-23	Discusses Hampton Seabrook Marsh and Estuary, including its physical description, function (flood protection, water quality filtration, etc.), habitat (flora and fauna), hydrology, and open space and educational uses.
III-24	Describes regulation of tidal marsh activity (local, state, federal).
	Discusses concerns including intertidal flow, water quality, and point and non-point source pollution, which degrade the marsh. Notes that there are approximately 200 untreated stormwater or other discharge pipes that enter directly into the marsh and estuary. Also describes the negative impact of 2-cycle outboards that discharge unburnt fuel directly into the water, potential impacts of the marina day-to-day operations and potential threat of spills and/or dumped sewage from boats. Mapped stormwater discharge points data from the NHDES Shellfish Program. Recognizes the impact of activity on private property.
III-29	Analyses health of estuary and impacts of development, pollution, recreation, habitat protection.
III-33, III-42 – III-43	Includes discussion of Hampton Harbor and waterfront. Discusses state and local assets and amenities, public access.
III-94	Discusses stormwater drainage and runoff into tidal wetlands.
III-95	States that flooding in the Hampton Beach area occurs for two reasons: 1) High tides caused by storm and lunar events; 2) runoff from rainstorms that collects in low areas which have been covered with high amounts of impervious surfaces such as parking lots, roads, driveways, and buildings.

**Table 2. Summary of pertinent recommendations from the Hampton Master Plan**

Chapter/Section	Recommendations
Wetlands	<ul style="list-style-type: none"> <li>○ Conduct an evaluation of freshwater wetlands to identify potential mitigation opportunities that will enhance water quality and habitat and other wetland functions. These pre-identified sites could be considered by the NHDES to fulfill the requirement for compensatory mitigation as part of wetland permits issues for sites in Hampton.</li> <li>○ Develop a public outreach and awareness program aimed at residents to promote stewardship on private property.</li> <li>○ Conduct and audit of ordinances and regulations to identify conflicting requirements and recommend revisions that would improve or strengthen protection of wetlands and their buffers.</li> </ul>
Coastal Resources	<ul style="list-style-type: none"> <li>○ Conduct an adaptation planning study to identify existing and potential flood hazards and measures to mitigate the effects of sea level rise and storm events.</li> </ul>
Wildlife and Ecological Resources	<ul style="list-style-type: none"> <li>○ Evaluate the extent and distribution of invasive species of plants, insects and animals in town including but not limited to Phragmites, Pepperweed, Japanese Knotweed, Purple Loosestrife, and Japanese Shore Crab.</li> <li>○ Continue educational and outreach efforts to increase awareness of the public and others about the negative effects of invasive species.</li> </ul>
Open Space	<ul style="list-style-type: none"> <li>○ Consider adopting innovative land use controls, both in the zoning ordinance and subdivision and site plan regulations, to promote open space preservation.</li> <li>○ Consider implementation a transfer of development rights (TDR) program to further encourage voluntary open space preservation.</li> </ul>
Existing and Future Land Use	<ul style="list-style-type: none"> <li>○ Maintain and strengthen, as appropriate, the Town’s ordinances and regulations to protect wetlands</li> </ul>
Hampton Beach Area Master Plan	<ul style="list-style-type: none"> <li>○ Convene a new harbor committee that coordinates activities in Hampton Harbor</li> <li>○ To ensure the continued health of the marsh and estuarine system, invasive species, such as phragmites, need to be monitored and controlled through restoration or mitigation projects. The impacts from development activity in the watershed, such as stormwater runoff, also need to be regulated and monitored. Additional initiatives will provide a long-term benefit to this ecosystem that will ensure its health, a suitable habitat for fish, shellfish, and birds, and additional opportunities for the residents of and visitors to Hampton Beach. Low impact recreational activities from kayaking to bird watching can occur with minimal effect on this outstanding resource.</li> <li>○ Continue with and enhance existing environmental programs and regulations:             <ul style="list-style-type: none"> <li>○ Continue to fund the state’s shellfish restoration program.</li> <li>○ Continue to require conservation easements on projects that may impact the marsh-estuarine system.</li> <li>○ Enhance the local school program on dune protection.</li> <li>○ Ensure appropriate use of Best Management Practices (BMP) for stormwater management. BMPs are techniques for controlling non-point source pollution. These techniques can be the addition of physical features such as swales and detention basins, or maintenance procedures such as periodic sweeping of parking lots.</li> <li>○ Encourage an appropriate balance between actual use and protection of the area’s natural and marine environment. Preserve and enhance scenic areas, including: designated viewing and scenic areas, non-designated public and private viewing locations.</li> </ul> </li> </ul>

Chapter/Section	Recommendations
Hampton Beach Area Master Plan	<ul style="list-style-type: none"> <li>○ Plan bicycle paths along the marsh and pier extensions that connect to main routes.</li> <li>○ Encouraging a balanced use of harbor for commercial and recreational boaters.</li> <li>○ Establish a dune management program.</li> <li>○ Promote marine education programs.</li> <li>○ Work closely with non-profit agencies, such as The Nature Conservancy or Rockingham Land Trust, to acquire properties with high natural value through easement or purchase.</li> <li>○ Seek local, state, and federal funding for acquisition in-fee or by easement of strategic properties within or adjacent to the marsh.</li> <li>○ Continue to ensure that the Marine Patrol of the NH Department of Safety maintains an active presence in Hampton Harbor and the estuary to control jet skis.</li> <li>○ Continue to fund and implement the state’s shellfish restoration project including the water quality monitoring and sanitary shoreline survey programs.</li> <li>○ Continue to work in partnership with the Natural Resources Conservation Services (NRCS) and NH DES to control invasive species such as phragmites through restoration work. One specific marsh project, "Area 210" (NRCS <i>Evaluation of Restorable Salt Marshes, 1994</i>), is located south of Island Path. Improvements would include a culvert clean out and the repair of the headwall.</li> <li>○ Design and construct a salt marsh observation platform and pathway on Hampton Conservation Commission land adjacent to the salt marsh on Island Path.</li> </ul>

**Table 3. Summary of content pertaining to the Hampton Seabrook Estuary in Hampton Falls Master Plan**

Community Vision and Goals	
Page	Content
1-1	Preserve open space, including wetlands and forests, for ecological and aesthetic reasons
1-2	Protect from degradation important natural areas, water resources and coastal zone areas
Water Resources Management and Protection Plan Chapter	
Page	Content
12-1	Recognizes that the protection and wise use of water resources are of critical concern to the community. With the entire population dependent on groundwater, from both private wells and public water systems, the quantity and quality of this resource must be protected from excessive depletion and/or contamination. Other water resources such as swamps, ponds, rivers, streams, and wetlands are important not only because of their hydrological connection to groundwater resources, but also because they provide ecological, scenic, and recreational value to the community as a whole. In general, there is a direct relationship between land use and water quality. It is the responsibility of the Town to take reasonable precautions to protect all water resources from incompatible uses and, in so doing, protect the health and general welfare of the community
12-2	Describes what non-point and point source pollution are
12-2 - 12-6	Includes a general description of watersheds
12-7 - 12-8	Describes wetland functions and values and types of wetlands in Hampton Falls
12-10	States that development should be located away from floodplains

12-11	Notes that the town has a mix of important coastal water resources but does not provide any additional information.
<b>Conservation and Preservation Plan Chapter</b>	
<b>Page</b>	<b>Content</b>
<b>Saltmarshes</b>	
10-9	Describes the importance of preserving the coastal ecosystem and the role of saltmarshes as transition zones and habitat. Recognizes the aesthetic and stabilizing qualities of saltmarshes
<b>Shorelands</b>	
10-9	Describes functions of river corridors and shoreline areas, including floodwater storage in low-lying areas, wildlife habitat, aesthetic quality, recreation, pollution abatement and filtration, and unique natural features.
<b>Recreation Chapter</b>	
<b>Page</b>	<b>Content</b>
8-4	Notes the recreation opportunities (fishing, canoeing, pleasure boating) of the Hampton Falls River and Harbor, as well as the uninterrupted views of the salt marsh from the Depot Road Boat Launch
<b>Future Land Use Chapter</b>	
<b>Page</b>	<b>Content</b>
3-4	Describes land not suited for development (wetlands, buffer areas around wetlands and shoreland buffer areas), and the significance of these areas: Wetlands contribute vital natural resource and ecological functions, have aesthetic value, provide passive recreation. Development should be directed away from wetlands. Buffers around wetlands provide protection and should be maintained or restored via natural vegetation to the extent possible. Buffers along river corridors helps preserve wetlands, reduces flooding damage, serves to maintain important wildlife travel corridors and preserve scenic beauty of the river.

**Table 4. Summary of pertinent recommendations from the Hampton Falls Master Plan**

<b>Chapter/Section</b>	<b>Recommendations</b>
<b>Water Resources Management and Protection Plan</b>	<p>Non-regulatory</p> <ul style="list-style-type: none"> <li>○ Develop educational and informational programs</li> <li>○ Continue agreement with the Town of Hampton for septic effluent disposal at the Hampton wastewater treatment facility</li> <li>○ Continue to participate in regional or inter-community household hazardous waste collection programs</li> <li>○ Work with owners of properties containing critical water resources to obtain such areas by gift, grant, or bequest and/or obtain covenants or easements</li> <li>○ Appropriate money for land conservation</li> <li>○ Work with planning boards/departments of surrounding towns to promote land use planning practices that are mutually beneficial to protect common watersheds, wetlands, and aquifers</li> <li>○ Develop a program to reduce road salt</li> <li>○ Continue inspecting and maintaining drainage control facilities</li> <li>○ Encourage farms to employ BMPS for fertilizer, pesticides, manure storage</li> </ul> <p>Regulatory</p>

	<ul style="list-style-type: none"> <li>o Consider establishing a shoreland protection district and ordinance along major watercourses such as Taylor River, Hampton Falls River, Brown’s River and along other smaller brooks. The ordinance could address: Setbacks for buildings and septic systems; Cutting restrictions for timber removal; Minimum shoreland frontage requirements; a Prohibition on certain high-risk land uses.</li> <li>o Consider adopting an ordinance that allows a development to concentrate higher density of dwelling units in exchange for committing an adjacent area to be common open space in perpetuity to direct development away from shorelands, flood zones, wetlands.</li> <li>o Update erosion and sedimentation control regulations</li> <li>o Consider a maximum coverage percentage for commercial and industrial lots</li> <li>o Require environmental impact study for large subdivisions</li> <li>o Amend subdivision and site plan review regs:             <ul style="list-style-type: none"> <li>1) Promoting the use of catch basins designed to trap oil and sediments;</li> <li>2) Encouraging road designs which require less use of de-icing chemicals (e.g. roads with minimal slope and/or turning radius, etc.);</li> <li>3) Requiring that additional runoff created by a development be retained on-site and that no degradation of water quality shall occur. This will provide for groundwater recharge through the infiltration of retained water. This provision will also safeguard abutting properties from increased flows which can cause flooding and erosion damage.</li> </ul> </li> </ul>
Conservation and Preservation	<ul style="list-style-type: none"> <li>o Continue to review resource information when assessing development plans</li> <li>o Periodically review and recommend changes to zoning and land use regulations</li> <li>o Develop local open space plan that prioritizes conservation land</li> <li>o Designate prime wetlands</li> </ul>

**Table 5. Summary of content pertaining to the Hampton Seabrook Estuary in Seabrook Master Plan**

Introduction & Vision	
Page	Content
iv	Seabrook should also recognize its unique and diverse geography of high quality coastal and estuarine resources
Natural Resources Chapter	
Page	Content
2-1	Recognizes that natural resources such as slope, soils, forest resources, beaches and dunes, wildlife and water and estuarine resources add to Seabrook’s character, provide recreational opportunities and contribute to the quality of life for Seabrook residents
2-2	Notes that wetlands are best suited to natural open space or limited development because wetland soils provide several natural functions that are beneficial to the community. These functions include: absorbing excess flood waters preventing downstream flooding; providing valuable habitat for fish and wildlife; providing groundwater recharge to local aquifers; and trapping sediment and other pollutants, thus acting as a surface water filter
2-5	Discusses NH WAP habitats, including salt marsh and marsh-shrub wetland complex
2-9	References the wetland article of the zoning ordinance
2-10 – 2-11	Describes the estuary size, shellfish and marine finfish, role of the estuary as a nursery ground, birds identified in a 2006-2007 Audubon report and recommended conservation strategies from this report:

	<ul style="list-style-type: none"> <li>o Restoration of currently ditched portions of the salt marsh,</li> <li>o Preservation of marsh pools used by roosting or foraging shorebirds,</li> <li>o Protection of both marsh and adjacent upland to maintain habitat connectivity, minimize external man-made impacts and allow for adaption to sea level rise</li> </ul>
2-15	Describes classes of surface water and recent sampling
2-12	Incorporates by reference a 2009 Adaptation Strategies Pilot Project conducted by the Rockingham Planning Commission (RPC) to provide technical assistance to the Town of Seabrook to prepare a report—Adaptation Strategies to Protect Areas of Increased Risk from Coastal Flooding Due to Climate Change. This report recommended adaptation strategies and methods to identify and protect areas of increased risk from coastal flooding due to climate change
2-16	Identifies threats to water resources, including non-point source pollution associated with storm water runoff from developments and roadways that is not properly managed or treated. This runoff may contain sediment and other pollutants such as fertilizer and herbicides from lawns and gardens, as well as oils, greases and heavy metals from parking areas which enter the ponds, lakes, streams and groundwater aquifers of the town. Non-point source contamination may also come from individual septic systems that may discharge E. coli bacteria
2-16	Identifies underground storage tanks as a threat
2-16	References land conservation strategy for salt marsh and uplands abutting salt marsh (transition zones) that RPC is assisting with conservation of
2-17	Includes a section on dimensional requirements and buffers for disturbance and cutting, surface water protection, aquifer protection, regulatory programs for natural resource protection in the Cains Brook and Mill Creek Watershed Management Plan
<b>Coastal Hazards and Adaptation Chapter</b>	
<b>Page</b>	<b>Content</b>
2	Identifies issues of local and regional significance, including: <ul style="list-style-type: none"> <li>o Maintaining stormwater systems</li> <li>o Control flooding and protect natural resources with sound land use and development standards, implementing sound land development standards needs to consider a wide range of issues and how natural and development landscapes can complement one another, not at the detriment to either one. Additional challenges are present in that, although the Master Plan applies to the entire town, the Seabrook Beach Village District has a separate zoning ordinance and administration.</li> </ul>
8-9	Discusses the significance of salt marsh migration and protecting land where salt marsh can migrate

**Table 6. Summary of pertinent recommendations from the Seabrook Master Plan**

Chapter/Section	Recommendations/Actions
<b>Natural Resources</b>	
<b>Beach, Dunes, Estuary</b>	<ul style="list-style-type: none"> <li>o Balance the competing demands for the use of Seabrook’s beach, dune and estuarine system in a manner that protects the physical integrity and sensitive habitats of the beach and dune system while providing for appropriate recreational uses <ul style="list-style-type: none"> <li>• Actions: implement recommendations for beach and dune management, continue to coordinate with state agencies and natural resource non-profit entities to support fish and wildlife assessment and monitoring projects</li> </ul> </li> <li>o Minimize storm and flood damage to existing developed properties in the dune and estuarine area <ul style="list-style-type: none"> <li>• Actions: adopt recommendations of the study on adaptation strategies for coastal flooding; protect key municipal infrastructure; establish floodplain area as an overlay district</li> </ul> </li> </ul>

<p><b>Tidal and Fresh Water Wetland Protection</b></p>	<ul style="list-style-type: none"> <li>○ Protect and maintain the valuable functions of both tidal and fresh water wetlands and associated buffer areas by minimizing the impact of development and allowing appropriate multiple use of these resources for recreation, wildlife habitat and limited timber harvest             <ul style="list-style-type: none"> <li>● Actions: work with landowners in upland buffer to preserve and protect these resources areas; amend the Wetlands article of the ZO: Incorporate protection of vernal pools, Define permitted, prohibited and conditional uses, Include provision for a buffer area adjacent to tidal wetlands that limits allowable uses and activities to minimize any impact to tidal wetlands and salt marsh.</li> </ul> </li> </ul>
<p><b>Fresh and Tidal Water Quality</b></p>	<ul style="list-style-type: none"> <li>○ Maintain and upgrade the water quality of Seabrook’s streams in order to meet the state standards for water quality             <ul style="list-style-type: none"> <li>● Actions: implement recommended actions from Cains Brook/Tide Mill Creek Watershed Management Plan, and apply recommendations to other small watersheds in Seabrook as appropriate</li> <li>● Adopt a local shoreland protection overlay district that is consistent with the state’s.</li> </ul> </li> </ul>
<p><b>Open Space Conservation</b></p>	<ul style="list-style-type: none"> <li>○ Objective: Protect and manage Seabrook’s valuable open space resources by providing an integrated network of open space areas and recreation facilities             <ul style="list-style-type: none"> <li>● Actions: Develop a Comprehensive Open Space Protection Plan that would reserve key natural features such as ponds, streams, rivers, quality viewscapes, freshwater and tidal wetlands, and other valuable open space areas that contribute to Seabrook’s character.</li> <li>● Improve, protect, and encourage public access to Seabrook’s surface waters and open space lands.</li> <li>● Establish a list of key properties and areas suitable for purchase or easement to protect shoreline areas.</li> </ul> </li> </ul>
<p><b>Coastal Hazards and Adaptation</b></p>	
	<ul style="list-style-type: none"> <li>○ Begin discussions with elected officials, planning board and zoning board of adjustment about long term land use development standards, building code, and zoning options in areas at high risk for flooding and erosion.</li> <li>○ Adopt land development regulations aimed at minimizing impervious surfaces and stormwater flooding, and reducing or preventing non-point source pollution</li> <li>○ Maintain or restore critical natural systems such as saltmarsh and sand dunes to ensure greater protection from storm surge and long-term impacts of sea-level rise. Employ best management practices for shoreline development such as bank stabilization techniques and vegetation restoration as alternatives to shoreline hardening</li> <li>○ Encourage adoption of buffers and setbacks that restore and maintain ecosystem services (e.g. flood storage, storm surge protection, habitat, recreation).</li> <li>○ Protect future marsh migration areas identified by marsh migration modeling.</li> <li>○ Improve designs for dams, culverts and bridges to maintain existing function and reconnect fragmented surface waters (wetlands, lakes, ponds, rivers and streams) and protect high quality habitat for aquatic organisms.</li> <li>○ Preserve open space and recreational areas that serve to minimize climate change impacts.</li> </ul>

## APPENDIX B

**Table I. Summary Wetland Overlay District Elements and Standards**

	Town of Hampton Zoning Ordinance Article H Section 2.3 Wetland Conservation District (WCD)	Town of Hampton Falls Zoning Ordinance Article III Section 8 Wetlands Conservation District	Town of Seabrook Zoning Ordinance Section 15 Surface Water Protection
Purpose Statement	✓	✓	✓
Area/ Boundaries	Section 2.3.2(H)	Section 8.3	Undefined
Tidal wetlands	✓		
Inland wetlands	✓		
Prime wetlands	✓	✓	
Surface water		✓	
Poorly drained soils and very poorly drained soils	✓	✓	
Buffers of the above resource areas	✓		
Digitized map	✓		
Description of the Resource	✓		
<b>Buffer &amp; Setback</b>	<p>50 feet out from the boundary of any tidal or inland wetland, and/or areas of very poorly drained soils, poorly drained soils, and/or vernal pools</p> <p>100 feet from edge of 1<sup>st</sup> – 4<sup>th</sup> order streams or rivers: Ash Brook, Drakes River, Little River, Nilus Brook, Old River, Taylor River, Winnicut River</p>	<p>Prime wetlands, coastal waters, and tidally influenced wetlands: 100 ft setback</p> <p>Surface waters not subject to SWQPA: 100 ft setback, 10 ft vegetative buffer</p> <p>Vernal pools: 100 ft setback, 10 ft vegetative buffer</p> <p>Non-tidal wetlands, poorly and very poorly drained soils, any size and contiguous with surface waters not subject to SWQPA: 75 ft setback, 10 ft vegetative buffer</p> <p>Non-tidal wetlands, poorly and very poorly drained soils greater than 5,000 sf and not contiguous with surface waters: 50 ft setback, 0 ft vegetative buffer</p> <p>Non-tidal wetlands, poorly and very poorly drained soils, less</p>	<p>25 ft limited-cut buffer for vernal pools and wetlands &gt; 5,000 sf, and ponds and streams</p> <p>10 ft setback from wetlands &lt; 5,000 sf</p> <p>25 ft setback from vernal pools of any size and wetlands &gt;5,000 sf</p> <p>50 ft setback and 25 ft limited-cut from pond and streams</p>

	Town of Hampton Zoning Ordinance Article H Section 2.3 Wetland Conservation District (WCD)	Town of Hampton Falls Zoning Ordinance Article III Section 8 Wetlands Conservation District	Town of Seabrook Zoning Ordinance Section 15 Surface Water Protection
		<p>than 5,000 sf, not contiguous with surface waters: 25 ft setback, 0 ft vegetative buffer</p> <p>Man-made wetlands: ponds, detention basins, drainage ways and treatments swales, not contiguous with surface waters: 10 ft setback, 0 ft vegetative buffer</p>	
<b>Designated Prime Wetlands</b>	Yes, including Hampton Salt Marsh Complex, identified in <i>Prime Wetland Inventory Report, Hampton and Hampton Falls, New Hampshire, February 2006</i> (Section 2.3.2(H)), Atlantic Ocean and Hampton Harbor and their associated tidal waters (Section 2.3.2(A))	Yes, there are 10 mapped prime wetland complexes, boundaries illustrated on tax map dated Oct 2007 along with accompanying report <i>Prime Wetland Inventory Report, Hampton and Hampton Falls, New Hampshire, February 2006</i> .	No
<b>New construction and redevelopment</b>	<p>Not permitted within 50 ft of any tidal or inland wetland, or any area of very poorly drained soils and poorly drains soils or vernal pool, or within 75 ft of certain 1<sup>st</sup>-4<sup>th</sup> order streams.</p> <p>Existing building within the buffer zone may be repaired or replace but cannot extend further into the buffer area than original foundation</p> <p>Construction Standards: New construction or substantial improvement in Tidal Wetland Conservation District shall comply with FEMA's Guidelines that the Town has adopted for the VE Special Flood Hazard Areas</p>	By special exception	Unknown

	Town of Hampton Zoning Ordinance Article H Section 2.3 Wetland Conservation District (WCD)	Town of Hampton Falls Zoning Ordinance Article III Section 8 Wetlands Conservation District	Town of Seabrook Zoning Ordinance Section 15 Surface Water Protection
<b>Prohibited Uses</b>	Septic fields within 75 ft of the edge of any wetland, area of very poorly drained soils and poorly drained soils; structures, impervious surface, parking, building activity, fertilizer, pesticides, herbicide application in WCD or buffers, storage of yard waste, wood, snow	Any structure, impermeable surface, or parking space; waste, septage, manure, or sludge disposal; storage of gasoline, fuel, oil, road salt, pesticides, herbicides, or other hazardous materials; excavation except in the case of maintenance of man-made detention basins, drainage ways and treatment swales	Removal of natural herbaceous vegetation and >50% trees, saplings, shrubs
<b>Minimum Lot size</b>	30,000 sf per dwelling unit contiguous and outside of WCD		Wetlands shall not be utilized to satisfy >20% of min lot size of district; Lots <5 ac as of 1/1/98 are exempt; Min of 7,500 sf of contiguous uplands required for single family homes; min of 15,000 sf of contiguous uplands required for duplexes
<b>Setback</b>	In districts RAA, RA, RB, RSC, G, and I, a 12ft setback is required for dwellings and attached garages from the WCD	Prime wetlands, coastal waters, and tidally influenced wetlands: 100 ft prime wetland buffer	10 ft from wetlands <5,000 sf; 25 ft for vernal pools and wetlands>5,000 sf; 50 ft from ponds and streams; parking lots shall be set back a minimum of 25 ft

**Table 2. Permitted Uses in Wetland Overlay Districts**

	Hampton				Hampton Falls	Seabrook
	Tidal wetlands and their buffers, except for certain 1 <sup>st</sup> -4 <sup>th</sup> order streams (Section 2.3.3 (A))	Inland wetlands and their buffers, except for certain 1 <sup>st</sup> -4 <sup>th</sup> order streams (Section 2.3.3 (B))	Poorly and very poorly drained soils and their buffers (Section 2.3.3 (C))	100 ft buffer of the following 1 <sup>st</sup> -4 <sup>th</sup> order streams: Ash Brook, Drakes River, Litter River, Nilus Brook, Old River, Taylor River, Winnicut River	Wetlands and Surface Waters Overlay District (Section 8.4.2)	Surface Water Protection (Section 15)
Forestry and tree farming, with BMPs	✓	✓	✓	✓	✓	N/A
Cutting of live trees with DBH of 4.5 ft or less	✓	✓	✓	✓	N/A	N/A

	Hampton				Hampton Falls	Seabrook
	Tidal wetlands and their buffers, except for certain 1 <sup>st</sup> -4 <sup>th</sup> order streams (Section 2.3.3 (A))	Inland wetlands and their buffers, except for certain 1 <sup>st</sup> -4 <sup>th</sup> order streams (Section 2.3.3 (B))	Poorly and very poorly drained soils and their buffers (Section 2.3.3 (C))	100 ft buffer of the following 1 <sup>st</sup> -4 <sup>th</sup> order streams: Ash Brook, Drakes River, Litter River, Nilus Brook, Old River, Taylor River, Winnicut River	Wetlands and Surface Waters Overlay District (Section 8.4.2)	Surface Water Protection (Section 15)
Cutting of invasive species with hand tools only	N/A	N/A	N/A	0-25 ft of stream	N/A	N/A
Cutting of invasive species	N/A	N/A	N/A	25-100 ft of stream	N/A	N/A
Application of lime	N/A	N/A	N/A	0-75 ft of stream	N/A	✓
Application of low phosphate, slow release nitrogen fertilizers	N/A	N/A	N/A	75-100ft of stream	N/A	N/A
Removal of dead, diseased or unsafe trees	✓	✓	✓	✓	N/A	✓
Agriculture, with BMPs	✓	✓	✓	✓	✓	N/A
Wildlife refuge/habitat management, conservation areas, and nature trails, with BMPs	✓	✓	✓	✓	✓	N/A
Education and recreational uses	✓	N/A	N/A	N/A	N/A	N/A
Construction of wells for water supply and water impoundments	N/A	✓	✓	✓	N/A	N/A
Parks and passive recreation uses	N/A	✓	✓	✓	✓	N/A
Residential and/or Commercial uses by Special Exception	N/A	N/A	N/A	N/A	✓*	N/A
Seawalls, fences, footbridges, catwalks, wharves on posts and pilings that do not obstruct flow of tide and preserve natural vegetation and contour or the tidal wetland	✓*	N/A	N/A	N/A	✓*	N/A

	Hampton				Hampton Falls	Seabrook
	Tidal wetlands and their buffers, except for certain 1 <sup>st</sup> -4 <sup>th</sup> order streams (Section 2.3.3 (A))	Inland wetlands and their buffers, except for certain 1 <sup>st</sup> -4 <sup>th</sup> order streams (Section 2.3.3 (B))	Poorly and very poorly drained soils and their buffers (Section 2.3.3 (C))	100 ft buffer of the following 1 <sup>st</sup> -4 <sup>th</sup> order streams: Ash Brook, Drakes River, Litter River, Nilus Brook, Old River, Taylor River, Winnicut River	Wetlands and Surface Waters Overlay District (Section 8.4.2)	Surface Water Protection (Section 15)
Drainage ways as paths for normal runoff	✓*	✓*	N/A	✓*	N/A	N/A
Roads, driveways, access ways, utilities and power lines, conditions apply	✓*	✓*	✓*	✓*	N/A	N/A
Landscaping, conditions apply	✓*	✓*	✓*	✓*	N/A	N/A

\* By permit

**Table 3. Stormwater Management and Erosion and Sedimentation Control**

	Hampton Subdivision Section VII(C) and VII(E); Site Plan Review Section VII(E) and VII(F)	Hampton Falls Subdivision Section 7.7 Erosion and Sediment Control Regulations; Site Plan Review Section 7.3; 8.6	Seabrook Subdivision Section 7 and Appendix A (applies to Site Plans)
Applicability	Stormwater management required for all site plans and subdivision; Planning Board can exempt requirement	Soil erosion and sedimentation control required for certain subdivisions and site development (see Sediment and erosion control Regulations, below);	Appears to apply to all subdivisions and site plans
On-Site Stormwater Management Required	Development shall have no downstream impacts	Not required for undisturbed areas; Site plan regs require that storm drainage be carried to existing water courses or drainageways; no increase in runoff permitted if runoff passes beyond property lines unless in approved public system	Landscaping should facilitate reintegration of stormwater runoff on site.
References and/or Consistent with NH Stormwater Manual BMPS	NH Stormwater Manual	Erosion and Sediment Control Design Handbook	Low-Impact Development Design Strategies and Integrated Design Approach, NH Stormwater Manual
Encourages or Requires LID	LID required to the extent practicable		LID required

	Hampton Subdivision Section VII(C) and VII(E); Site Plan Review Section VII(E) and VII(F)	Hampton Falls Subdivision Section 7.7 Erosion and Sediment Control Regulations; Site Plan Review Section 7.3; 8.6	Seabrook Subdivision Section 7 and Appendix A (applies to Site Plans)
Stormwater Management Plan	Required for any use that will render an area impervious for more than 15% or 10,000 sf of any lot		Yes
Operation & Maintenance (O&M) Plan	Annual report required		Inspection & Maintenance Plan
Erosion and Sediment Control Regulations	Required at the discretion of the Planning Board and if disturbance is greater than or equal to one acre	Erosion and sediment control plan required if cumulative disturbed area exceeds 20,000 sf, or construction of a street or road, or subdivision of 3 or more building lots, or disturbed critical areas	Site plans: Required per NH Stormwater Manual Vol 2
Redevelopment Standards			Disconnection or treatment of at least 50% of the existing impervious cover and 100% of additional proposed impervious surfaces and pavement areas through LID; Redevelopment includes disturbance of 5,000 sf or more of existing impervious area (excluding single or two family residential use), removal of parking lot and road materials down to the erodible soil surface
Design storm	The post-development peak flow rate shall not exceed the pre-development flow rate for the 2-year, 10-year, 25-year, 50-year and 100-year storm events for all flows leaving the site.	Site plans: storm sewers and drainage facilities must be designed for 10yr/24 hr storm, retention structures must be designed to 50yr/24hr storm standards.	2-year, 10-year, 25-year, 50-year and 100-year; Northeast Regional Climate Data Center precipitation data required to be used for sizing and design of all stormwater management infrastructure and plans
Adopted Southeast Watershed Alliance Model Ordinance?	No	No	No

**Table 4. Impervious Surfaces Definitions and Standards**

	Hampton	Hampton Falls	Seabrook
Definition of Impervious	Any modified surface that cannot effectively absorb or infiltrate water. Ex: roofs, decks less than six feet off the ground, patios, and asphalt, gravel, crushed		Any area that is paved, compacted, or otherwise modified to prevent or restrict the infiltration of stormwater (Ex. roofs, decks, patios, pavement, walkways)

Appendix B

	Hampton	Hampton Falls	Seabrook
	stone, or concrete driveways, parking areas, or walkways (Section 2.3.3)		
Maximum Impervious Cover	75%	15-30%, varies by district and lot size	N/A, LID encouraged
Maximum sealed surface per lot in aquifer protection zone	0 or 60%, varies by district		
Minimum Percent Open Space			20-100%, varies by district
Maximum Building Footprints			7,500-20,000 sf, varies by location

## APPENDIX C

### PREPA 2015 Priority Actions for Hampton, Hampton Falls, and Seabrook

# Actions by Community

The 2015 PREPA provides a comprehensive review of the current state of municipal regulations in the 52 communities in the Piscataqua Region watershed. Although most communities haven't taken some steps to protect their natural resources, more work is needed by **every community** in the Hampton-Seabrook Estuary.

**Community Summary** For each of the communities in the Hampton-Seabrook Subwatershed, buffers should be the first priority. Hampton and Seabrook have existing buffers for 1st through 4th order streams, but should work to increase those buffers. All towns within the Hampton-Seabrook Subwatershed should work to increase setbacks for both septic and primary structures.

- 1** Top Priority Action
- 2** Second Priority Action
- 3** Third Priority Action
- 4** Fourth Priority Action

HAMPTON			
<b>1</b> Increase buffers on 1st-4th order streams to 100'	<b>2</b> Increase septic and structure setbacks to 100' on surface waters	<b>3</b> Adopt fertilizer application setbacks for all water bodies	<b>4</b> Adopt mandatory conservation subdivision regulations
HAMPTON FALLS			
<b>1</b> Adopt 100' buffers on all waterbodies, including wetlands	<b>2</b> Increase septic and structure setbacks to 100' on 1st and 2nd order streams	<b>3</b> Adopt model stormwater regulations	<b>4</b> Adopt mandatory conservation subdivision regulations
SEABROOK			
<b>1</b> Increase buffers to 100' for all waterbodies	<b>2</b> Increase septic and structure setbacks to 100' for all waterbodies	<b>3</b> Adopt fertilizer application setbacks for all water bodies	<b>4</b> Adopt model stormwater management regulations

## APPENDIX D

### Map I Land Conservation Plan Focus Areas



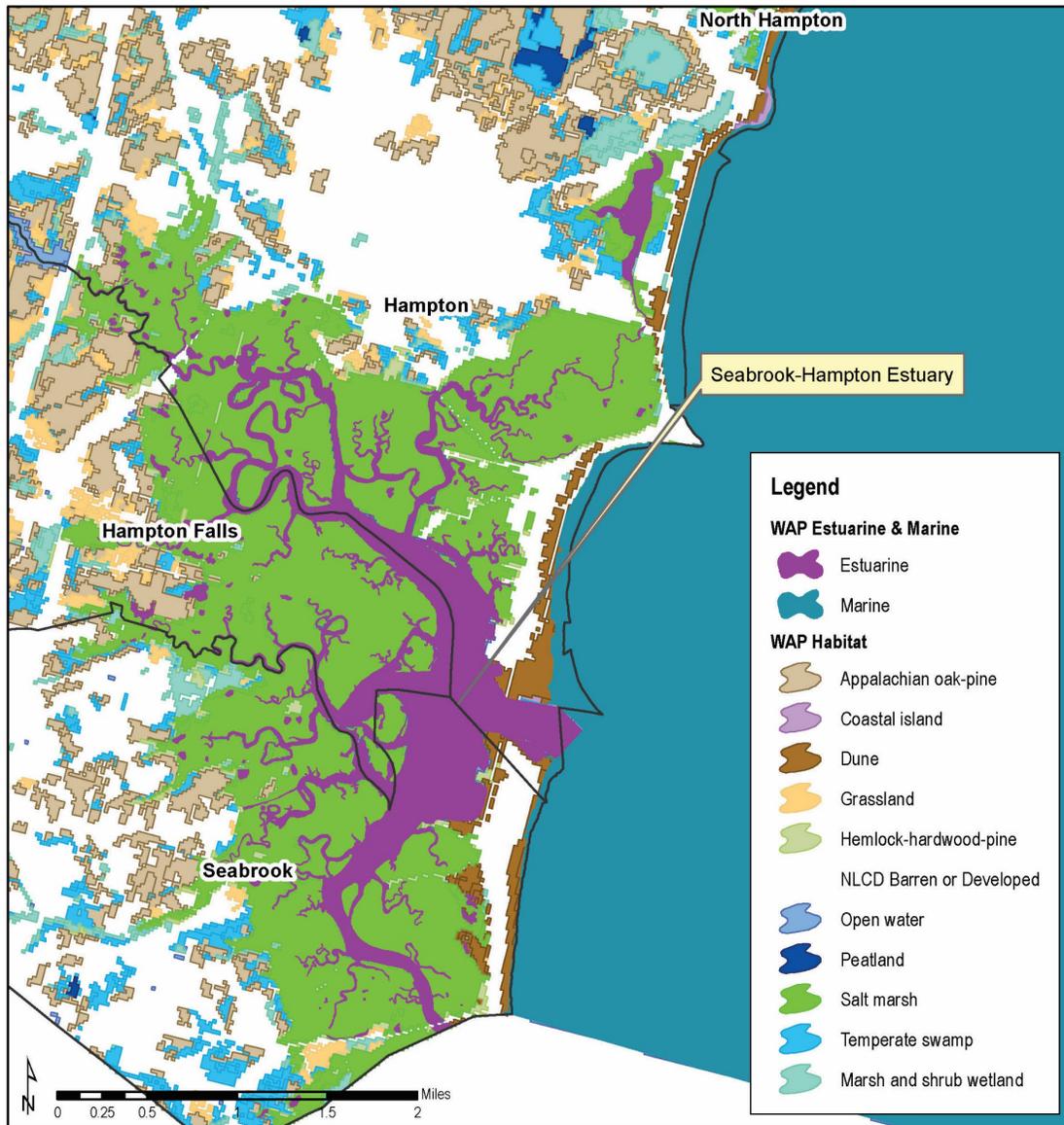
#### Legend

- Conservation Land
- Land Conservation Plan Focus Areas**
  - Core Area
  - Supporting Natural Landscape

**SEABROOK-HAMPTON ESTUARY  
LAND CONSERVATION PLAN FOCUS  
AREAS & CONSERVATION LAND MAP**

Map prepared September 2, 2019 by EF | Design & Planning, LLC for the Seabrook-Hampton's Estuary Alliance. Data Source: NH GRANIT.

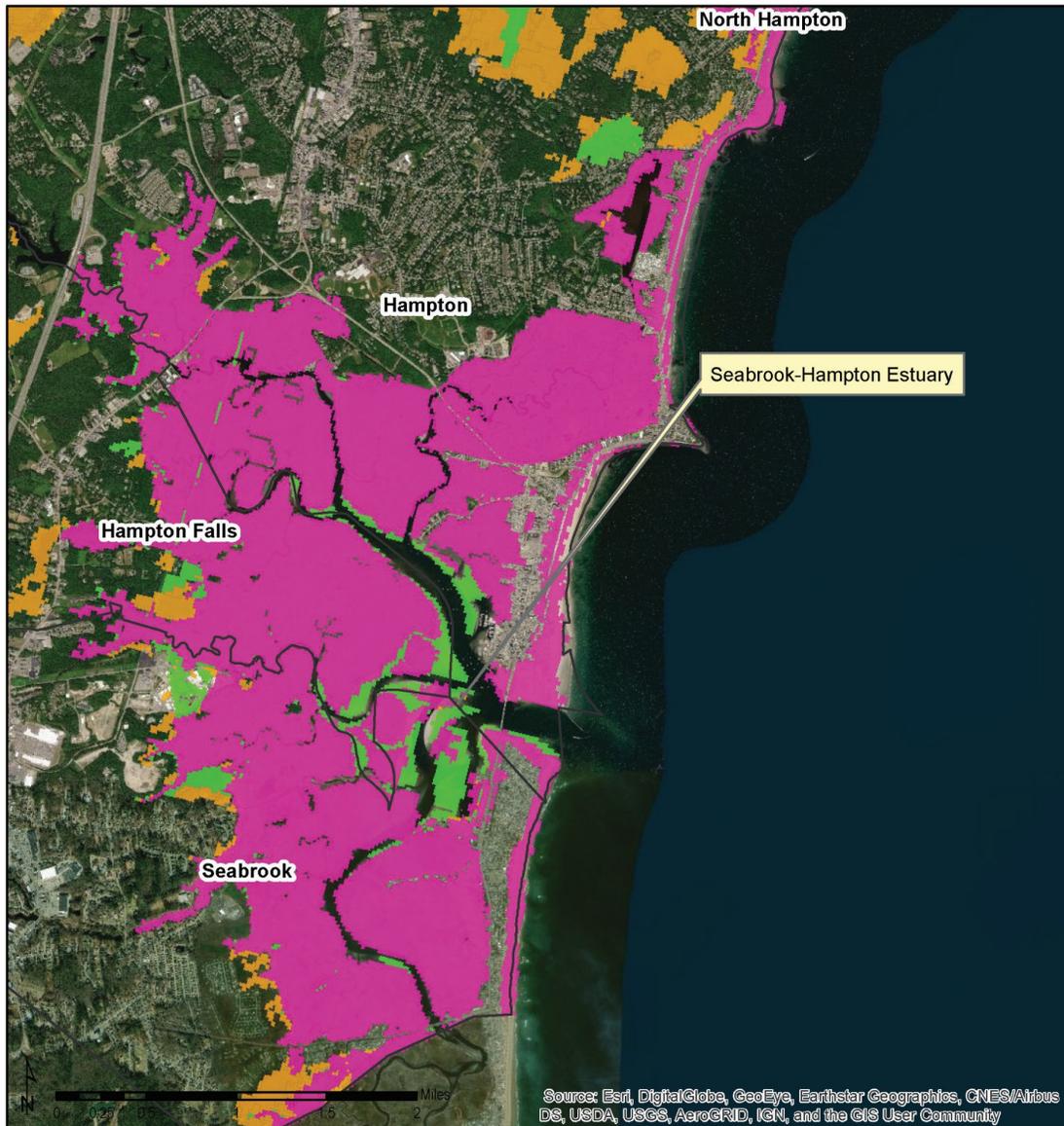
### Map 2 NH WAP Habitat



**SEABROOK-HAMPTON ESTUARY  
WILDLIFE ACTION PLAN HABITAT MAP**

Map prepared September 2, 2019 by EF | Design & Planning, LLC for the Seabrook-Hampton Estuary Alliance. Data Source: NH GRANIT.

### Map 3 NH WAP Tiers



#### Legend

##### WAP Tier

-  1 Highest Ranked Habitat in New Hampshire
-  2 Highest Ranked Habitat in Biological Region
-  3 Supporting Landscapes

#### SEABROOK-HAMPTON ESTUARY WILDLIFE ACTION PLAN HIGHEST RANKING HABITAT MAP

Map prepared September 2, 2019 by EF | Design & Planning, LLC for the Seabrook-Hampton's Estuary Alliance. Data Source: NH GRANIT.

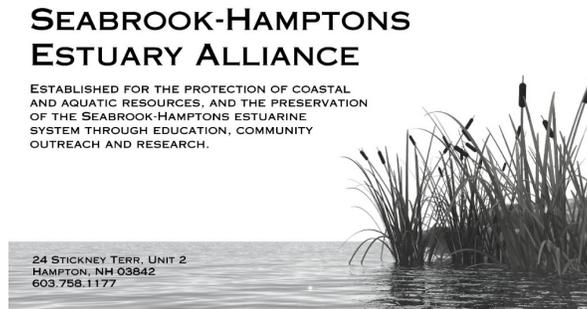
## APPENDIX E

**Table 1. New Hampshire Wildlife Action Plan (WAP) Species Found in Estuarine and Salt Marsh Habitats**

Estuarine Species	Salt Marsh Species
American Black Duck	Common Tern
American Oyster	Marsh Wren
American Shad	Nelson's Sparrow
Atlantic Sturgeon	Purple Martin
Blueback Herring	Red Knot
Rainbow Smelt	Roseate Tern
Red Knot Ruddy Turnstone	Saltmarsh Sparrow
Sanderling	Saltmarsh Tiger Beetle
Sea Lamprey	Sanderling
Semipalmated Sandpiper	Seaside Sparrow
Shortnose Sturgeon	Semipalmated Sandpiper
Whimbrel	Whimbrel
Willet	Willet

## **APPENDIX F**

### Estuary Management Plan Outline



## Hampton-Seabrook Estuary Management Plan Outline – Draft

1. Executive Summary
2. List of Acronyms
3. Table of Contents
4. Introduction
  - a. Why is this plan necessary
  - b. What are the primary objectives/goals
  - c. The process used to develop the plan
  - d. Partners/stakeholders – who did we work with
  - e. Relationship to other local plans
5. Vision for the Estuary
6. Existing Protection Policies and Regulations
  - a. State regulations and policies
  - b. Location regulations and policies
    - i. Outcome of 3-community audit
7. Estuary Description/Location
8. Current Environmental Condition of the Estuary
  - a. Climate
  - b. Land use – human impacts
  - c. Tides – current and projected
  - d. Floods
  - e. Water quality

- f. Biodiversity – aquatic, avian, and terrestrial
  - g. Commercial and recreational uses
  - h. Conservation areas
- 9. Estuary Values and Issues – community stakeholder input**
- a. Estuary Values
    - i. Ecological value
    - ii. Scenic values
    - iii. Heritage/cultural value
    - iv. Recreational value
      - 1. Active recreation
      - 2. Passive recreation
    - v. Socio-economic value
    - vi. Educational value
  - b. Estuary Issues/concerns
    - i. Issues raised through the Estuary Management Committee
    - ii. Issues raised through the stakeholder consultation
    - iii. Issued raised through the community consultation
- 10. Future Threats**
- a. Climate Change
  - b. Future Development
- 11. Management Objectives – what do we want to protect**
- a. Ranking objectives
    - i. Short-term
    - ii. Long-term
- 12. Management Strategies for Estuaries**
- a. Ecological management strategies (restoring buffers, accommodating marsh migration)
  - b. Water quality management strategies (including stormwater management)
  - c. Bank erosion and sedimentation strategies (monitoring bank erosion, identifying areas where erosion control methods could be implemented)
  - d. Social strategies (examples – creating walking trails to promote the value and provide passive recreation, upgrade the boat ramp access)
- 13. Description of Preferred Management Strategies for Hampton-Seabrook Estuary**
- a. Management strategy implementation summary
  - b. Funding opportunities/strategies

**14. Monitoring**

- a. Data/monitoring deficiencies
- b. Short term
- c. Long term

**15. Estuary Management Plan Evaluation**

- a. How we measure performance/success
- b. Update frequency

**16. References and Appendices**