York River Watershed Stewardship Plan

Prepared by the York River Study Committee – August 2018

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York River Study Committee
c/o Wells National Estuarine Research Reserve
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The York River Watershed Stewardship Plan was developed by the York River Study Committee as part of the York River Wild and Scenic Study, which was authorized by the US Congress and funded through the National Park Service Wild and Scenic Rivers Program.

This plan is available on the York River Wild and Scenic Study website: www.YorkRiverMaine.org.

Cover photo credit: Jerry Monkman, Ecophotography.com

The **York River Study Committee** included town-appointed volunteers and agency representatives who worked on the three-year York River Wild and Scenic Study to gather and share information, learn about the watershed's valuable resources, engage community members and resource experts, provide a forum for discussion of key issues, and build community support for the long-term protection of the York River.

York River Study Committee members and coordinator. *Photo: Robin Cogger*

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Groups, organizations, and agencies represented by individuals listed above include the advisors to the York River Study Committee, Eliot Conservation Commission, Eliot Historical Society, Great Works Regional Land Trust, Groundroot Preservation Group, Kittery Land Trust, Kittery Water District, Lamprey Rivers Advisory Committee, Maine Coast Heritage Trust, Maine Department of Environmental Protection, Maine Department of Inland Fisheries and Wildlife, Maine Department of Marine Resources, Maine Department of Transportation, Maine Natural Areas Program, Mt. Agamenticus to the Sea Conservation Initiative, National Park Service, Northeast Archaeology Research Center, Old York Historical Society, Southern Maine Planning and Development Commission, Southern Maine Stormwater Working Group, Town of Eliot, Town of Kittery, Town of York, US Fish and Wildlife Service, US Forest Service, Wells National Estuarine Research Reserve, York Land Trust, York Lobstermen's Association, York Harbor Board, and York Water District.

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York River Wild and Scenic Study

The three-year York River Wild and Scenic Study was conducted by the locally-led York River Study Committee that included town-appointed members from the four York River watershed communities and agency representatives. The 33 square mile York River watershed in portions of York, Eliot, Kittery and South Berwick is the land area from which water drains to form the network of tributary streams that flows to the York River. The watershed area includes and sustains many critical resources and values that are important to the region's character, economy, and quality of life.

The York River Study Committee evaluated and documented the qualities of the York River watershed that make it special, gauged community support for river stewardship, and assessed whether a Partnership Wild and Scenic River designation into the National Wild and Scenic Rivers System would be beneficial for the York River and watershed communities. Development of the York River Watershed Stewardship Plan (Stewardship Plan) was an essential and culminating part of the study process.

The York River watershed is notable for its historic structures and buildings, archaeological sites, scenic qualities, intact natural habitats, large forested areas, and ecological resilience. It includes extensive salt marshes, rare plants and animals, drinking water supplies, undeveloped conservation lands, working waterfront, and clean water that supports a range of recreational activities and provides high-quality aquatic habitats. This richness of regionally-important values associated with the York River, along with communities' existing support for river protection initiatives, contribute to the river's eligibility and suitability for designation into the National Wild and Scenic Rivers System. While the river and many watershed resources are generally healthy, there are threats to this status such as population growth and development, invasive plant and animal species, increasing numbers of river users, sea level rise and other changing environmental conditions.

The York River Study Committee recommends pursuing a Partnership Wild and Scenic River designation for the York River and its major tributaries. Such designation could provide federal funding, technical assistance, and a local forum for the four watershed communities to collaboratively address long-term river stewardship needs. A Partnership Wild and Scenic River designation does not put land under federal control, require public access to private land, change any existing land uses, force any changes in local land use decision-making processes or objectives, create new federal permits or regulations, prevent access to or use of the river or watershed lands, or affect hunting and fishing laws.

Stewardship Plan

The Stewardship Plan is a non-regulatory, advisory document that outlines a proactive and voluntary approach to protect and maintain the community-supported values of the York River. The plan is watershed-wide in scope, meaning the interconnectedness of the watershed lands and waterways was considered in identifying resources, preservation priorities, and recommended actions. The plan characterizes the many existing valuable watershed resources and identifies wide-ranging protection strategies and opportunities. Recommendations are aimed at preserving and enhancing the historic

resources, ecology, wildlife, water quality, working waterfront, scenic qualities, and other cultural resources that collectively contribute to the region's special character and identity. The Stewardship Plan also outlines a possible structure for a future York River Stewardship Committee if Partnership Wild and Scenic River designation occurs.

To develop the Stewardship Plan, the York River Study Committee engaged the citizens of the four watershed towns, local boards and committees, conservation and preservation groups, local experts, and state agency representatives to identify important watershed resources and develop recommendations for long-term protection. The plan integrates extensive information from sources including: state and regional plans and reports, such as the Maine Wildlife Action Plan; goals and priorities from locally developed and approved plans, such as town comprehensive plans; input solicited by the York River Study Committee on priorities and management needs from experts, river users, and community members; and data and findings from additional studies conducted during the York River Wild and Scenic Study.

The recommendations in this Stewardship Plan complement and support important work already being undertaken by the towns of York, Eliot, Kittery, and South Berwick, as well as local land trusts and conservation organizations, community groups, and public agencies. The stewardship objectives and recommendations developed for this plan are organized under broad resource areas:

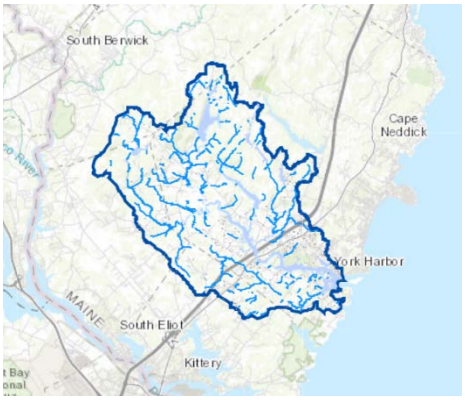
Resource Area	Values and Features	Stewardship Goal
Cultural and Historic Resources	• Cultural landscapes • Archaeological heritage • Historic districts, buildings and structures	Identify and preserve cultural and historic resources of the York River watershed.
Natural Resources	• Watershed lands • Wildlife, habitats, and biodiversity • Water resources • Watershed resilience	Protect valuable natural communities, habitats, biodiversity, and water resources of the York River watershed.
Working Waterfront, Recreational Resources and Community Character	• York Harbor and waterfront • Recreation • Scenic resources	Preserve working waterfront, sustainable recreational uses and scenic qualities of the York River and watershed lands that are important to regional identity and community character.
Community Stewardship	Watershed landowners, citizen volunteers, members of towns' boards and committees, and voters	Strengthen stewardship of watershed resources by river users, watershed landowners and citizens.

Community approvals of the locally-developed Stewardship Plan are part of the process of seeking a Partnership Wild and Scenic River designation for the York River and its tributaries. Approval or endorsement of the plan demonstrates public interest in long-term protection of the river. Such approval does not require watershed communities to subsequently undertake any recommended actions in the plan, nor does it commit them to provide funding to implement the Stewardship Plan.

Photo: Chuck Maranhas

Section I – Introduction

The York River Watershed Stewardship Plan (Stewardship Plan) provides recommendations to protect and enhance the water quality, ecology, historic resources, scenic qualities, and cultural resources that collectively contribute to the region's special character and identity. It provides a framework and strategies for a local York River Stewardship Committee to follow in planning future outreach and conservation work. To help shape this advisory plan, the York River Study Committee engaged citizens of the four watershed towns, local boards and committees, conservation and preservation groups, local experts, and state agency representatives to identify important watershed resources and develop recommendations for long-term protection.



The York River watershed, which includes over 100 miles of rivers and streams, is an exceptional natural and cultural resource. The 33 square mile watershed includes lands in the towns of York, Eliot, Kittery, and South Berwick, Maine. The exemplary biodiversity, large areas of undeveloped habitat, clean water, significant historic resources, vibrant harbor and waterfront area, recreational opportunities, and scenic qualities all make this watershed a special place.

A watershed is an area of land where all the water that is under it or drains from it flows to the same place. The York River watershed includes all the lands that drain to the York River, either directly or first to a smaller tributary stream that eventually flows to the York River.

York River watershed resources are generally in good condition, due in part to existing conservation and outreach actions by watershed towns, conservation organizations, and other community groups and to the existing regulatory and land use management frameworks in place. Communities' regulations,

comprehensive plans, and funding for resource protection initiatives demonstrate commitment to long-term resource stewardship. Because of the area's unique resources, the region and, in particular, the watershed area face increasing demands for development and recreational uses.

A Partnership Wild and Scenic River designation for the York River and tributary streams in the National Wild and Scenic Rivers System could provide the structure and key funding to implement the Stewardship Plan, enable a watershed approach across the four-town area, leverage additional technical and financial resources, engage key partners and citizens in river stewardship, and bolster ongoing initiatives to protect watershed resources.

A. Purposes of the Stewardship Plan

The Stewardship Plan describes community-valued watershed resources and their importance, and it identifies actions intended to protect those resources for the benefit of current and future generations. The plan is based on data, assessments, and information available in state and regional plans and reports; goals and priorities from locally developed and approved plans, such as town comprehensive plans; expert, user, and community member input solicited by the York River Study Committee on priorities and management needs; and data and findings from additional studies conducted during the York River Wild and Scenic Study. The Stewardship Plan is advisory, not regulatory. It sets a vision for resource conservation, and it identifies a range of actions that can be undertaken to protect or improve watershed resources.

Photo: Michael Beland

In addition, the Stewardship Plan describes the approach used by the York River Study Committee to conduct the York River Wild and Scenic Study. It describes the findings and recommendations from the York River Study Committee's evaluation of possible designation of the York River into the National Wild and Scenic Rivers System. The Stewardship Plan documents the eligibility and demonstrates the suitability of a Partnership Wild and Scenic River designation for the York River and its major tributaries. The plan also recommends and describes an administrative framework to enable a watershed approach and implement the plan if there is designation.

B. National Wild and Scenic Rivers System / Partnership Wild and Scenic Rivers

Under the Wild and Scenic Rivers Act, enacted by Congress is 1968, a river that possesses outstandingly remarkable scenic, recreational, geological, fish and wildlife, historic, cultural, or other similar values can be designated into the National Wild and Scenic Rivers System to preserve the river and its special values for the benefit and enjoyment of present and future generations. As of August 2018, there are 209 rivers in the National Wild and Scenic Rivers System, totaling 12,754 miles in 40 US states and Puerto Rico.

Outstandingly Remarkable Values (ORVs), a term taken from the Wild and Scenic Rivers Act, is used to characterize river-related values or features that are unique, rare, or exemplary at a regional or national level. The York River watershed has many ORVs, such as historic structures, archaeology sites, rare wildlife and habitats, and excellent water quality.

A subset called Partnership Wild and Scenic Rivers (PWSRs) are designated rivers that flow through primarily privately-owned, not federally-owned, lands. The PWSR model has been used for over 20 years and was developed to meet the needs of communities with rivers characterized by private land ownership and well-established local processes for governance and stewardship of river resources. Working in partnership through cooperative agreements with the National Park Service and through a local stewardship committee, communities with designated PWSRs preserve their river-related resources. A locally developed stewardship plan that guides conservation activities is developed prior to PWSR designation by Congress. There are currently 13 PWSRs, primarily located in the Northeast region. The nearby Lamprey Rivers Advisory Committee has implemented its local stewardship plan for over twenty years, following designation of the Lamprey River in Lee, Durham, Epping and Newmarket, New Hampshire as a Wild and Scenic River in 1996. Common principles of PWSRs include:

- River and land use is governed by existing local municipalities and state laws and regulations.
- An advisory stewardship plan, which is locally developed and approved by watershed communities prior to federal designation, forms the basis of the designation and guides subsequent voluntary conservation actions.
- Administration is through a local stewardship committee consisting of members from the watershed communities, supported by local partner organizations and state and federal agencies.
- Nationally-designated river status, anchored by National Park Service funding, leverages additional federal, state, local, and private funding to implement the local stewardship plan.
- The National Park Service will not own or manage lands associated with the designation. Other federal agencies such as US Fish and Wildlife Service (USFWS) are unaffected by designation. USFWS owns and manages lands in the York River watershed as part of the Rachel Carson National Wildlife Refuge.
- Partnership Wild and Scenic Rivers are not considered units of the National Park System and are not subject to regulations that govern National Park System properties.
- The National Park Service is responsible for implementing Section 7 of the Wild and Scenic Rivers Act to ensure federal consistency in preserving the river's ORVs that have been identified in the local stewardship plan. This responsibility is coordinated with each river's stewardship committee.

A Partnership Wild and Scenic River designation maintains existing local control. It does not:

- put land under federal control
- require public access to private land
- change any existing land uses
- force any changes in local land-use decision-making processes or objectives
- create new federal permits or regulations
- prevent access to or use of the river or watershed lands
- affect hunting and fishing laws

Photo: David J. Murray, ClearEyePhoto.com

Section II – York River Wild and Scenic Study

Congress passed the York River Wild and Scenic Study Act (P.L. 113-291) in December 2014, which authorized the York River Wild and Scenic Study, to evaluate the York River and its tributaries for potential inclusion in the National Wild and Scenic Rivers System. Wild and Scenic River studies are typically completed over the course of three years, starting from the initial appropriation of funds from the National Park Service's Partnership Wild and Scenic Rivers Program. Federal funding initially was awarded for the York River Wild and Scenic Study in December 2015.

A. Background

Starting in 2009, a group of watershed residents called the Friends of the York River led an exploratory effort to determine if designation of the river as a Partnership Wild and Scenic River in the National Wild and Scenic Rivers System would be an effective way to recognize and protect the York River and its resources. The group garnered widespread support from watershed residents, town leaders, businesses, river users, conservation groups, riverfront landowners, and historic preservation organizations to proceed.

The York River Wild and Scenic River Study Bill was initially introduced in the US House of Representatives by Representative Chellie Pingree in 2011, though the Study Bill failed to make it through the complete legislative process. In 2013, at the request of Representative Pingree, the Northeast Region of the National Park Service (NPS) conducted a reconnaissance survey of the York River as a candidate for potential Wild and Scenic River designation and as a preliminary step toward authorizing a full Wild and Scenic River Study. The preliminary findings were that eligibility and suitability criteria for a PWSR

designation were likely to be met, and that a Wild and Scenic River Study for the York River would be appropriate and productive. In May 2013, Congresswoman Pingree re-introduced the legislation in House Bill 2197, and in September 2013, Senator Angus King introduced it in Senate Bill 1520. This time the bills made it through the full legislative process, with Congress authorizing the York River Wild and Scenic Study in 2014.

If at the end of the York River Wild and Scenic Study, the river is deemed eligible and suitable for designation as a PWSR and there is local support for such a designation, a new bill must be introduced and authorized by Congress to designate the York River and its tributaries into the Wild and Scenic Rivers System.

B. Study Overview

The York River Wild and Scenic Study has consisted of two related components: river designation evaluation and watershed stewardship plan development. Public knowledge, involvement, and support were key to both parts of the study. Eligibility and suitability of a PWSR designation for the rivers in the York River watershed were evaluated. Rivers eligible for designation must be generally free-flowing and possess at least one outstandingly remarkable value (ORV), a feature that is rare, unique, or exemplary at a regional or national scale. Suitability for PWSR designation is demonstrated through existing local capacity and support for river protection and stewardship. Community approvals of the Stewardship Plan further substantiate suitability by demonstrating local commitment to long-term river conservation.

The York River Wild and Scenic Study provided the opportunity for the four watershed towns to work together for their shared resources at a regional scale. It provided the structure and forum to help identify key issues and goals for long-term river and watershed resource protection. The process was entirely voluntary and locally determined. This Stewardship Plan is a key product resulting from this collaborative effort.

If the York River and its major tributaries are designated by the US Congress into the National Wild and Scenic Rivers System, this York River Watershed Stewardship Plan would serve as the "comprehensive management plan" required for all congressionally designated rivers. It provides the implementation framework and recommended actions that can be voluntarily undertaken whether or not there is PWSR designation for the watershed rivers and streams.

C. York River Study Committee

The York River Study Committee was formed in mid-2015 to conduct the York River Wild and Scenic Study. Representatives for the committee were sought from York, Eliot, Kittery, and South Berwick through a public application process open to all communities' residents. Town officials appointed committee members from their respective towns. The Study Committee includes voting members (individuals

Photo: Emma Lord

appointed by town boards/councils) and non-voting members (representatives of public agencies). The Committee hired a part-time Study Coordinator in early 2016.

The Wells National Estuarine Research Reserve (Wells Reserve) served as fiscal agent for the York River Study Committee. Funding from the National Park Service Wild and Scenic Rivers Program to conduct the York River Wild and Scenic Study was awarded through a Cooperative Agreement with the Wells Reserve. The Study Committee developed and approved annual budgets and authorized expenditures of all funds used in conducting the study.

Study Committee members represent a broad range of knowledge and interests related to the York River and its watershed. From the start, there was agreement among Study Committee members around key aspects that helped guide their approach to the York River Wild and Scenic Study: the York River and its watershed resources have great value worthy of protection for current and future generations; a watershed focus, rather than river focus, would best achieve overall resource protection; and community support and involvement was critical to implementing a successful study.

D. Study Area

A key decision was made early on by the York River Study Committee to pursue a watershed-based approach, rather than a narrower river or river corridor focus, for the overall York River Wild and Scenic Study and for Stewardship Plan development, in particular. Therefore, the study area was the full watershed area, though Partnership Wild and Scenic River designation would apply to specific river segments.

York Pond in Eliot is the headwaters for the York River. *Photo: Michael Cuomo*

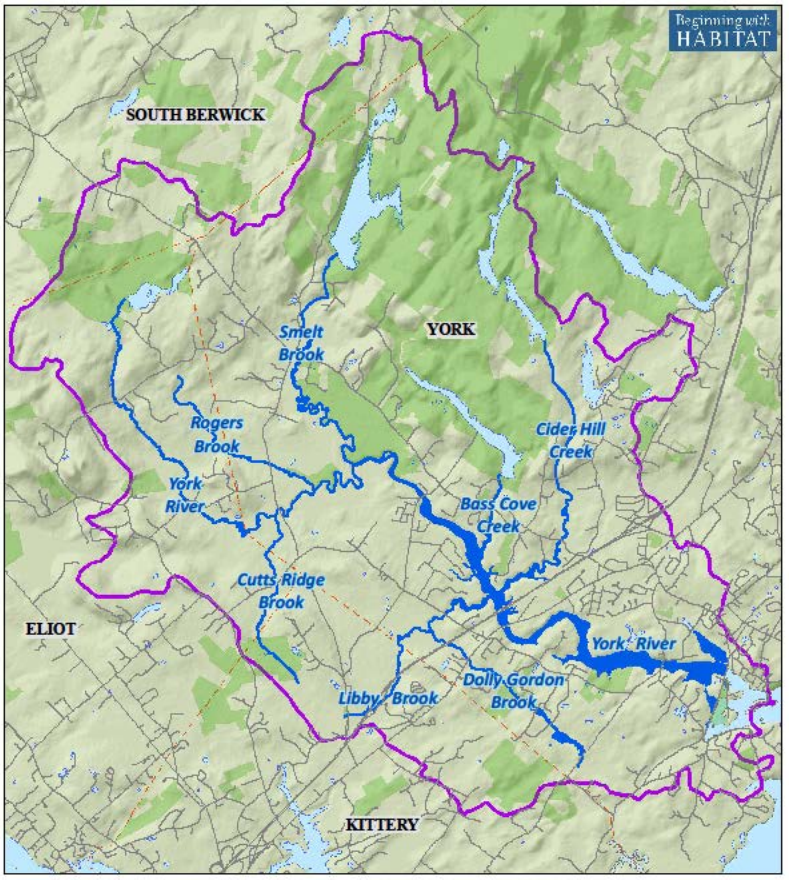
The Stewardship Plan identifies protection strategies for all important watershed resources located from the headwaters of all watershed streams to York Harbor, and across all the land areas that are part of the York River watershed. Key resource areas addressed in this plan are: historic resources; working waterfront; scenic and recreational resources; water quality; open spaces and large unfragmented habitats; headwater streams and riparian habitat; and biodiversity, including rare and threatened species and natural habitats. Not all the community-valued resources included in this Stewardship Plan meet the ORV definition for PWSR designation eligibility. Some locally important watershed resources are not directly river-related, and some are not unique, rare, or exemplary at a regional or national scale.

The scope of the York River Watershed Stewardship Plan is watershed-wide. Its implementation will help preserve all outstanding watershed resources identified in the plan, not only the ORVs associated with designated river segments.

E. PWSR Designation Recommendation

The York River Study Committee recommends designating the York River and its major tributaries into the National Wild and Scenic Rivers System. A PWSR designation would provide key financial resources, technical assistance, and a local structure to best enable implementation of the York River Watershed Stewardship Plan.

River segments recommended for designation are the York River from the York Pond outlet in Eliot to the Route 103 bridge in York and portions of its major tributaries including Cutts Ridge Brook in Kittery, Eliot, and York; Rogers Brook in Eliot and York; Smelt Brook in York; Bass Cove Creek in York; Cider Hill Creek in York; Libby Brook in Kittery and York; and Dolly Gordon Brook in York. The Study Committee voted to recommend designation of these river segments, subject to community approvals, at its November 28, 2017 meeting.



Stream Reaches Recommended for PWSR Designation	Length (miles)
Bass Cove Creek, from Boulter Pond outlet to York River	0.95
Cider Hill Creek, from Middle Pond dam to York River	3.77
Cutts Ridge Brook, in entirety	2.15
Dolly Gordon Brook, in entirety	3.17
Libby Brook, in entirety	1.65
Rogers Brook, in entirety	2.43
Smelt Brook, from Bell Marsh Reservoir dam to York River	4.54
York River, from York Pond outlet to 103 Bridge, including Barrell Mill Pond	12.14
Total length:	**30.80**

Summary of Eligibility and Suitability Findings

The York River and its major tributaries meet the eligibility and suitability criteria for PWSR designation. Additional information on the eligibility and suitability of the York River and its tributaries for PWSR designation are described elsewhere in the plan, as noted below.

There are many ORVs present throughout the watershed rivers and streams, including:

- Historic resources: numerous archaeological sites, historic properties including National Register sites, and structures such as bridges and tidal mill dams
- Water quality: clean water supporting many uses and providing an important source of drinking water and high quality aquatic habitats for fish and other species
- Biodiversity and natural communities: exceptional biodiversity including many rare, threatened and endangered species; high value habitats identified as regionally important conservation priorities
- Working waterfront preservation: unique approach involving the purchase of a conservation easement to sustain future dock use for commercial fishing
- Scenic views: visual qualities and scenic viewsheds created by a combination of historic resources, traditional uses of the river and watershed lands, natural resources, and the built environment
- Watershed ecosystem: undeveloped headwater streams and riparian buffers, large forested areas, good stream connectivity, and quality salt marsh habitat throughout much of the watershed create a natural system that provides ecological services and can likely adapt to sea level rise and other environmental changes

Volunteers at Punkintown archaeology dig *(photo: Northeast Archaeology Research Center)*, bald eagle in nest along shores of York River *(photo: Chuck Maranhas)*, and lobster boats *(photo: Jennifer Hunter)*

John Hancock Warehouse, built in the mid-1700s. *Photo: Jennifer Hunter*

Some ORVs are located at discrete points – for example, the John Hancock Warehouse, one of eight National Register sites in the watershed area. Some are associated with different river segments or habitats throughout the watershed – for example, rainbow smelt, a threatened diadromous fish species that uses tidal water habitats and freshwater habitats in several watershed tributaries. York River resources have been documented as unique and exemplary at regional and national levels. *[See Section VII – Partnership Wild and Scenic River Designation for a list of ORVs for the York River and tributary streams.]*

The York River and its tributaries that are recommended for PWSR designation are generally free-flowing. Designated reaches begin below the drinking water supply dams. Historic dams and structures still present in or along the rivers do not impede overall river flow. Similarly, while there are many opportunities to improve fish passage and tidal river flows, culverts at road crossings of streams are not severely restricting or altering river flow.

There are over 100 miles of waterways in the York River watershed. Though not part of the recommended designation areas, streams such as Southside Brook, Johnson Brook, Moulton Brook, and Macintire Junkins Brook provide key aquatic habitats, contain ORVs or directly support ORVs in designated stream segments, and contribute to overall health of the watershed ecosystem.

Watershed communities' regulatory and non-regulatory approaches to resource protection were documented and reviewed by the Southern Maine Planning and Development Commission (SMPDC). *[See SMPDC's York River Watershed Study: Regulatory and Non-Regulatory Recommendations Report, included as a separate volume.]* The communities have policies and management frameworks in place that demonstrate the capacity for and commitment to river and watershed resource conservation. Some examples include:

- Community developed and approved comprehensive plans set the vision, priorities, and recommended policies for resource protection through land use regulation and other measures, including protection of water quality, marine resources, historic and archaeological resources, natural resources, open spaces and recreation. Comprehensive plan policies support undertaking regional and watershed approaches for resource conservation.
- Communities' existing zoning and ordinances that regulate land use provide the framework to protect water resources and ORVs. Site plan and subdivision regulations, stormwater management regulations, and harbor use ordinances are some of the local ordinances that protect and govern management of resources. Recommendations for further protections are identified in the Stewardship Plan. The four watershed towns maintain capacity through code enforcement offices, planning departments or planning staff, planning boards, a harbor board, and harbor masters to enforce ordinances.
- Three of the four watershed communities' ordinances have requirements that exceed minimum protection requirements set forth in the Maine Mandatory Shoreland Zoning Act that requires municipalities to adopt, administer, and enforce local ordinances that regulate land use activities in the shoreland zone.
- Watershed communities, working in partnership with local land trusts, state agencies, and other state and regional conservation organizations, have helped conserve thousands of acres in the watershed. Voters consistently have approved use of town funds for key land protection projects in the watershed, including recent examples of Rustlewood Farm in Kittery and Eliot, and Fuller Forest in York.

Conservation land along the York River, top *(photo: Chuck Maranhas),* and Rustlewood Farm, bottom *(photo courtesy of Kittery Land Trust)*

Photo: Jennifer Hunter

Section III – Stewardship Plan Development

The Stewardship Plan identifies actionable strategies to protect important community resources for current and future generations. It recommends an implementation framework achieved through Partnership Wild and Scenic River designation to best enable long-term watershed resource protection.

A. Goals and Principles

The stewardship objectives and recommended actions developed for this plan are intended to help achieve broad goals for watershed resource protection:

- Identify and preserve cultural and historic resources of the York River watershed.
- Protect valuable natural communities, habitats, biodiversity, and water resources of the York River watershed.
- Preserve working waterfront, sustainable recreational uses, and scenic qualities of the York River and watershed lands that are important to regional identity and community character.
- Strengthen stewardship of watershed resources by river users, watershed landowners, and citizens.

The York River Study Committee adopted a watershed approach to the York River Wild and Scenic Study and Stewardship Plan development. A watershed approach recognizes the connections between

York River headwaters. *Photo: Northeast Archaeology Research Center*

resources, land use, economy, and a changing environment and that the watershed ecosystem as a whole is greater than sum of its individual parts.

> The York River watershed's ecosystem and resources are outstanding. The overall watershed landscape supports intact natural habitats, large forested areas, and historic and rural contexts that are interrelated. With good water quality, a high degree of stream connectivity throughout most of the watershed, large areas with undeveloped shorelines, and forested wetlands and headwater streams, the watershed rivers and streams provide quality aquatic habitat, support a range of uses, and are resilient to environmental change.

In pursuing a watershed-based approach to plan development, the Study Committee sought to promote greater understanding of the resources to be protected and their importance to community character; to create or support partnerships for long-term stewardship; and to develop proactive recommendations that account for resource status, threats, and protection opportunities. Several principles guided the Study Committee's development of the Stewardship Plan and its recommendations:

The Stewardship Plan is voluntary. The plan is intended to serve as a guidance document that recommends a set of actions and approaches to protect watershed resources. It is not enforceable, and it does not change existing federal, state, or local regulations. Primary responsibility for the river and protection of watershed resources remains with property owners through stewardship of their lands, with local governments through adoption and enforcement of regulations for land use and resource management, and with those who enjoy the scenic and recreational values of the river and watershed lands.

The Stewardship Plan integrates, builds upon, and supports the work of others. Communities (through work of various department staff and the volunteers on town boards, commissions and committees), land trusts and regional conservation organizations, historic societies, other community groups, state agencies and individual landowners are undertaking many successful efforts to raise awareness of watershed resources and to protect those resources. Recommended actions included in the plan are intended to support these ongoing initiatives and demonstrate how actions collectively contribute to watershed scale objectives and goals. The Stewardship Plan does not supersede existing plans.

Recommended actions are proactive. Protection of existing high-quality resources is easier, more efficient, and more cost-effective than restoration of degraded resources. Some resource losses or degradation are irreversible.

The Stewardship Plan and its recommendations are intended to be adaptive. Knowledge of resource threats and status is evolving, and resource conditions can change. Strategies and priorities will need to

be reevaluated as new information becomes available, as resource threats and conditions change, or as new stewardship opportunities occur. Recommended actions may need further development or refinement for implementation to account for changes, and additional actions may be needed.

Watershed resources and stewardship recommendations identified in this plan are consistent with existing community-supported values, priorities, and policies. Voter-approved funding for land conservation and harbor infrastructure projects, priorities identified in towns' comprehensive and open space plans, and local ordinances that have been adopted all demonstrate a public appreciation for and commitment to protecting watershed resources.

Barrell Mill Pond. *Photo: Wayne Boardman*

B. Stewardship Plan Development Approach

The Study Committee identified outstandingly remarkable values (ORVs) for the watershed, characterized resource status and conditions, identified threats and management needs, defined stewardship objectives, and developed key actions to achieve conservation and stewardship objectives. To complete these tasks:

- The committee reviewed the four watershed towns' comprehensive plans and ordinances for goals, priorities, and policies; other local and regional plans; and state agency plans and programs.
- The committee compiled and reviewed existing data, assessments, studies and reports on watershed resources and, for newer studies, sought presentations on findings and recommendations from resource experts.
- The Study Committee's ORV subcommittee convened a series of topic-based meetings that allowed in-depth review of data and discussion of resource status and management needs. These meetings provided a forum to bring together local stakeholders, state agencies, resources experts, local groups, and interested citizens for discussion and helped identify opportunities for regional collaboration and partnerships.

ORV subcommittee meetings included presentations and discussions on key topics: salt marsh habitat, sea level rise, and marsh migration; water quality; infrastructure and opportunities for improved fish passage; working waterfront and harbor use; drinking water supplies; conservation lands; historic resources; fish, wildlife, and habitats; and data from recent assessments of water quality and fish habitat.

- The committee identified several areas where new or updated data were needed to better characterize and document potential ORVs and commissioned several new studies to provide data and inform stewardship recommendations.
- The committee engaged the public and key stakeholders in developing stewardship plan goals, objectives, and strategies to protect valued resources and gathered other input through attending various board meetings, public events, and informal meetings with interested groups and individuals (see outreach activities and public/stakeholder input section below).

C. New Studies

The York River Study Committee identified several priorities for further study in 2017 and awarded or helped secure funding to complete projects:

- *Diadromous Fish Species and Habitat Study* conducted by the Wells National Estuarine Research Reserve. The project was primarily funded with National Park Service York River Wild and Scenic Study funds, with additional funding provided by the Maine Coastal Program, Wells Reserve, and the Laudholm Trust. Wells Reserve conducted surveys to generate up-to-date data on existing fish species in the York River and identify the presence of diadromous fish species of greatest conservation need.
- *Historic Resources Survey of the Upper York River* conducted by Northeast Archaeology Research Center, Inc. and Groundroot Preservation Group, LLC. The project was funded with the National Park Service York River Wild and Scenic Study funds and grant funds awarded to the Study Committee by the New Hampshire Charitable Foundation and the York Community Initiatives Fund of the Maine Community Foundation. Archaeological and architectural history surveys were conducted around the upper York River and York Pond in York and Eliot, an area identified by the York River Study Committee in need of surveys and documentation.
- *York River Watershed Build-out Study and Regulatory Review* conducted by the Southern Maine Planning and Development Commission (SMPDC) and its subcontractor Spatial Alternatives, Inc. This project was primarily funded by a grant from the Maine Coastal Program to SMPDC, with additional matching funds and in-kind support from the York River Study Committee and SMPDC. The project involved two related components: (1) a watershed build-out study to provide an overall assessment of development potential under current zoning provisions, and (2) a comprehensive review of the four towns' existing regulatory and non-regulatory approaches for resource protection, with recommendations for improvements.

Data, findings, and recommendations from these newly commissioned studies were used to help characterize resources, further evaluate PWSR designation eligibility and suitability, and develop stewardship actions.

D. Outreach Activities and Public/Stakeholder Input

Throughout the York River Wild and Scenic Study, the Study Committee sought input from and involvement by citizens, watershed landowners, conservation and preservation groups, town staff, members of town boards and commissions, commercial users and interests, representatives of state agencies, York River Study advisors, and other resource area experts. Outreach conducted by the Study Committee also helped in assessing and building community support for river and watershed resource protection.

All meetings convened by the Study Committee were open to the public and were listed on the York River Study website: www.YorkRiverMaine.org.

- Regular meetings of the York River Study Committee were held monthly for the duration of the study. Meeting notices were posted in all four communities, and meeting agendas and minutes were available on the York River Study website.
- The Study Committee ORV subcommittee's nine resource topic meetings (described above) were held from January 2017 to February 2018. Detailed notes for each meeting, along with presentations given at the meetings, were posted on the York River Study website. In addition, the subcommittee convened three public meetings from October 2017 to April 2018 to discuss the ongoing watershed build-out study. Cumulative attendance at these subcommittee meetings was 245 people.

Presentations and updates to boards and community groups, project activities, and participation in community events provided additional opportunities for the York River Study Committee to gather input, provide information, and answer questions about the York River Wild and Scenic Study, including designation and Stewardship Plan development.

- The Study Committee hosted two community forums in June and October 2016 to introduce the York River Wild and Scenic Study to citizens.
- Presentations and updates were given to town boards and committees, including Eliot Selectmen in December 2016 and December 2017; Kittery Council in October 2016 and December 2017; South Berwick Council in November 2016 and 2017; York Selectmen in October 2016 and 2017; South Berwick Conservation Commission in October 2017; York Harbor Board in December 2017; York Historic District Commission in June 2018, and Eliot, Kittery, South Berwick and York planning boards in May and June 2018.
- The Study Committee conducted two different watershed walks in July 2017 to connect citizens to the history and habitats of the York River watershed. Walks were fully subscribed, with over 25 participants for each event.

Watershed walk on the history of York's waterfront.

- The Study Committee invited hands-on citizen participation in two of the projects it commissioned. York High School students participated in the diadromous fish survey conducted by Wells National Estuarine Research Reserve in spring 2017, and 28 citizen volunteers participated in the June 2017 four-day dig that was part of the archaeological survey conducted by Northeast Archaeology Research Center. The Study Committee and its contractors for the historic resources surveys met with the Eliot Historical Society at three of its monthly meetings from October 2016 to January 2018 to get input and provide results from the surveys.

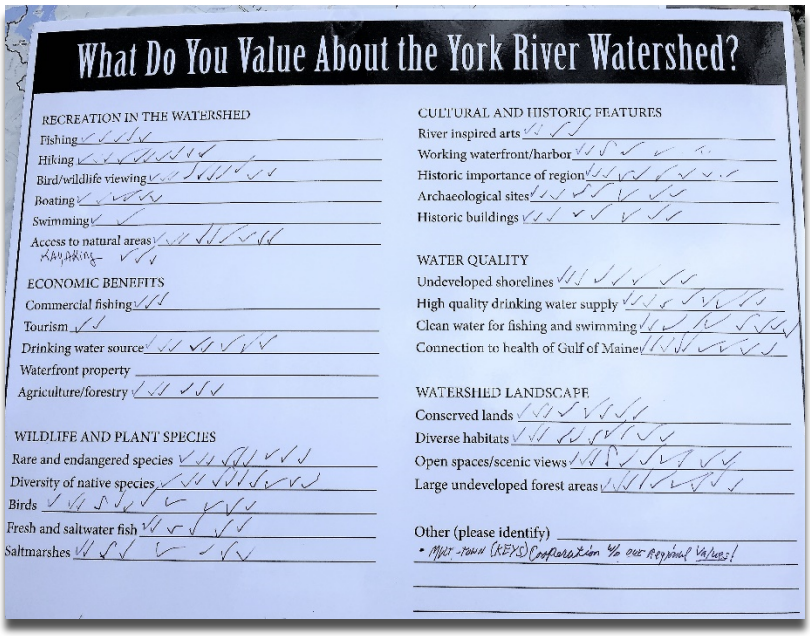
All landowners in the historic resources survey area were mailed a letter and invited to attend an informational meeting about the surveys.

- The Study Committee made presentations to many groups, including the York Lobsterman's Association, Great Works Regional Land Trust, Eliot Historical Society, York Rotary, and York High School students in three marine science classes.
- The Study Committee had informational tables at a number of community events, including York Marketfest, Eliot Festival Days, community markets, and at Eliot and York voting centers.

Information table at York Marketfest 2016.

Information and outreach products developed and used by the York River Study Committee are listed below.

- The York River Study website (www.YorkRiverMaine.org), launched in June 2016, was the primary ongoing outreach tool during the study. News and updates were regularly added; meeting minutes, notes, presentations, and final project reports were posted for review; events and activities were noted in the online calendar; background information was provided; outreach documents and materials were available; an overview video was on the home page; and a Stewardship Plan development page noted updates and provided access to draft documents.
- Outreach products developed over the course of the study included: a three minute video overview, designation overview two-page document (2017-18), York River Study overview two-page document (2016-17), Frequently Asked Questions document, volunteer recruitment flyer for the archaeology dig (2017), landowner letter to residents in the historic resources survey area (2017), Watershed Walks promotional flyer (2017), postcard mailed to all Kittery residents in the York River watershed and to shoreland property owners in York and Eliot (2016), a public input poster used at community events (2016), many presentations, and several project-based online Story Maps.



Public input poster from Eliot Festival Day 2016.

- The York River Study Coordinator maintained an email list with over 300 email addresses. Emails sent generally monthly provided updates on meetings, reports, events, and Stewardship Plan development.
- Media releases were issued by the Study Committee in June 2017, December 2017, and June 2018 to provide updates on the York River Wild and Scenic Study. Separately, 23 stories that provided information on meetings, projects and overall study progress were published by Seacoast Media Group in print and online versions of the York Weekly or Portsmouth Herald from December 2015 to June 2018.

Opportunities for groups and individuals to review and provide input on sections of the Stewardship Plan were provided from October 2017 to July 2018. Stewardship objectives and recommended actions, considered the core part of the plan, were distributed first to allow for more extensive review and input. An initial draft of stewardship objectives and actions developed from ORV topic meetings was developed, posted on the York River Study website, and distributed broadly for review in October 2017.

- Preliminary working drafts of the stewardship objectives and actions were developed, reviewed, and shared with partner groups, resource experts, and municipal boards and staff from October 2017 through April 2018, including groups such as the York River Study advisors, Eliot Historical Society, York Harbor Board, York Lobsterman's Association, Mt. Agamenticus to the Sea Conservation Initiative partner organizations, Maine Department of Inland Fisheries and Wildlife, and York Code Enforcement Office, among others.
- Updated draft stewardship objectives and actions for the three broad resource areas were posted and distributed for public review and comment from May 8-29, 2018. During this time, the draft objectives and actions also were included in meeting packets and publicly posted on town websites for York, Kittery, and Eliot planning board workshops and a York Board of Selectmen meeting. Reviewers were invited to provide feedback by email, phone or in person at the York River Study Committee monthly meeting in May.
- A draft York River Watershed Stewardship Plan that included updated objectives and actions was posted and distributed for public review and comment from June 15-July 6, 2018. Reviewers were invited to learn more or provide feedback by email, phone or in person at the York River Study Committee monthly meeting on June 26, 2018.

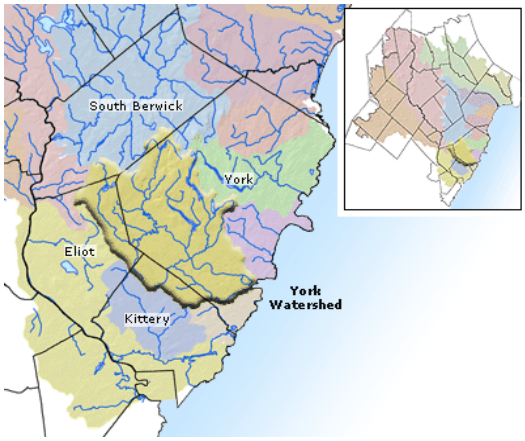
The York River Study Committee approved the Stewardship Plan at its July 24, 2018 meeting, allowing for subsequent additional minor changes during final editorial review, final document design and layout, and the addition of the executive summary for the plan.

Photo: Jennifer Hunter

Section IV – York River Watershed

A. Overview

The York River watershed is located in southern Maine and covers 33 square miles within the towns of York, Eliot, Kittery, and South Berwick. It includes the York River mainstem and numerous tributaries, extensive wetlands, and several ponds, as well as four drinking water supply reservoirs. There are 109 miles of streams and rivers in the watershed. The York River is a tidal river for almost nine of its roughly 12 miles, with smaller, generally non-navigable tributaries feeding into a relatively large tidal basin. The tidal fluctuation can be more than 10 feet. The York River estuary is notable for its extensive intact salt marshes that define much of the upper estuary area.



York River watershed in dark yellow (map from WNERR)

The York River begins at the outlet of York Pond in Eliot flowing southeast through the remnants of the upper and lower Bartlett mill ponds, woodlands, former mill sites and forested wetlands. Before reaching the Eliot-York line, the river becomes tidal. After crossing into York, it is joined by tributary streams starting with Cutts Ridge Brook and Rogers Brook and then by Smelt Brook at an area historically called the Partings. Heading downstream, residential docks begin to appear in the York River near Scotland Bridge, which is also the first public boat launch site. Farther on, the river is joined by Bass Cove Creek, Cider Hill Creek, and Dolly Gordon Brook. Continuing under Interstate 95 and US Highway Route 1, the river makes several sweeping bends as it meanders along its scenic shores, and the first town boat mooring area is encountered. Crossing under historic Sewall's Bridge and continuing to

the harbor, the number of private docks increases, stately waterfront homes and historic buildings can be viewed, and lobster boats and other signs of an active working waterfront contribute to the river's character. York Harbor, with two busy town docks, numerous town moorings and boat slips, a private marina, many docks, and adjacent walking trails, is a vibrant area that supports diverse commercial and recreational uses. From the Harbor, the river continues its journey to the Gulf of Maine after traveling around Stage Neck which creates a protected entrance at the mouth of the river.

The York River and its tributaries have provided a safe harbor and human access to abundant coastal, riverine, and inland natural resources for thousands of years. The protected entrance and navigable harbor area enabled Colonial settlement of the region starting in the early 1600s.

There are six dams throughout the York River watershed that form four public water supply reservoirs, as well as York Pond and Scituate Pond. The drinking water supplies include Folly Pond, Middle Pond, Bell Marsh Reservoir, and Boulter Pond, which are owned and managed by the Kittery Water District. The water district provides drinking water to customers in Kittery and parts of Eliot and York.

B. Land Cover, Development and Population

Based on the National Land Cover Database, forest habitats (deciduous, evergreen and mixed forest types) and shrublands make up 55 percent of the land cover in the watershed. Wetlands and open water make up almost 25 percent of the land area. Developed areas make up 12.3 percent of the land cover, with open space and low intensity development types associated with rural and suburban housing accounting for most of the developed areas. Pasture and hay fields make up 6.4 percent of land cover.

Land Cover Type	Watershed Coverage (%)
Open Water	4.2
Developed, Open Space	7.6
Developed, Low Intensity	3.3
Developed, Medium Intensity	1.1
Developed, High Intensity	0.3
Barren Land (rock/sand/clay)	0.6
Deciduous Forest	14.0
Evergreen Forest	13.7
Mixed Forest	24.7
Shrub/Scrub	2.6
Grassland/Herbaceous	0.3
Pasture/Hay	6.4
Cultivated Crops	0.4
Woody Wetlands	15.3
Emergent Herbaceous Wetlands	5.3

Source: National Land Cover Database, 2011

The watershed area includes large unfragmented forested areas, extensive wetlands, some agricultural lands, rural and suburban residential development, and smaller areas of commercial zones and denser village-type development. There are over 5,500 acres of watershed lands protected from development, representing about 26 percent of the area. This includes approximately 2,500 acres of the Kittery Water District's water supply lands that are maintained as undeveloped conservation lands but do not have permanent protection. The transportation corridor created by Interstate 95 and Route 1 divides the watershed, with generally less developed areas to the northwest, and much of the denser development occurring to the southeast along the coast, in the York Village area, and near the highways, particularly the Route 1 corridor north of the York River.

The large undeveloped forest areas, convergence of southern and northern New England forest types in the watershed area, large intact salt marshes, and high quality estuary and freshwater systems create many important habitat areas that support rare and endangered plants and wildlife and contribute to the region's exceptionally high overall species diversity.

Approximately 70 percent of the watershed area is in York, 15 percent in Eliot, 10 percent in Kittery, and 5 percent in South Berwick. Population of the watershed land area, calculated by the Southern Maine Planning and Development Commission (SMPDC) and based on US Census and American Community Survey data, was estimated at 6,449 people in 2010 and 7,032 people in 2017. **This nine percent population increase in the watershed over the 2010-2017 period is much higher than the percentage increases for any of the individual watershed towns as a whole, indicating that much of the region's population growth is occurring in the parts of towns that are in the York River watershed**. The population living in the York River watershed is predicted to grow to 7,380 people by 2022, about 14 percent greater than the 2010 population level.

Census data for York River watershed municipalities and York County (US Census Bureau)

	York	Kittery	Eliot	South Berwick	York River Watershed	York County
Population **April 1, 2010**	12,529	9,490	6,204	7,220	6,449	197,131
Population **July 1, 2017**	13,088	9,722	6,594	7,464	7,032	204,191
Population percent change **2010 to 2017**	4.5%	2.4%	6.3%	3.8%	9.0%	3.6%

A watershed build-out study conducted by SMPDC and Spatial Alternatives provided a snapshot of current development status. There are an estimated 3,037 buildings in the watershed. Building density per acre in 2017 was about 0.14 unit per acre, or about one building for every seven acres. There are roughly 115 miles of roads in the watershed, and about four percent of the watershed is covered by impervious surfaces (i.e., hard, impermeable surfaces such as roof tops, roads, driveways, parking lots, and other paved or compacted surfaces that don't allow rainwater to seep into the ground).

C. Town and Regional Plans

Existing plans that have been developed through public processes to identify and protect regionally important resources serve as a basis for many of the recommendations in this plan. Protection of water quality, drinking water supplies, wildlife and valuable habitats, archaeological and historic sites, scenic beauty, rural landscapes, working waterfront, and recreational resources are priorities for residents of the watershed communities.

The following brief summaries of town and regional plans provide an overview of priorities and highlight consistencies with the resources and recommendations contained in this plan. For a more complete summary and review of towns' comprehensive plans and open space plans, see Southern Maine Planning and Development Commission's (SMPDC's) *York River Watershed Study: Regulatory and Non-Regulatory Recommendations Report*, included as a separate volume. SMPDC reviewed the towns' plans and summarized strategies and recommendations related to protection and maintenance of water resources, wildlife and habitats, open space and conservation lands, recreational resources, historic resources, working waterfront, and agriculture and forestry uses.

Photo: Chuck Maranhas

Town Comprehensive Plans

All four watershed communities have developed and adopted Comprehensive Plans that set the vision and recommend policies and actions to manage growth; preserve natural, water, historic, and marine resources; and maintain rural, scenic and other qualities important to community character. The towns' comprehensive plans address the state goals identified in Maine's *Growth Management Act*. The towns' plans identify existing practices, policies and capacities to meet the state goals, as well as associated town goals and specific additional or continued actions recommended to achieve the overall goals.

Maine's *Growth Management Act* goals and policies that provide the foundation for watershed communities' comprehensive plans are listed below:

Topic/Resource	State Goal
Growth and Development	To encourage orderly growth and development in appropriate areas of each community, while protecting the state's rural character, making efficient use of public services, and preventing development sprawl.
Water Resources	To protect the quality and manage the quantity of the state's water resources, including lakes, aquifers, great ponds, estuaries, rivers, and coastal areas.
Natural Resources	To protect the state's other critical natural resources, including without limitation, wetlands, wildlife and fisheries habitat, sand dunes, shorelands, scenic vistas, and unique natural areas.
Marine Resources	To protect the state's marine resources industry, ports and harbors from incompatible development and to promote access for commercial fishermen and the public.
Agricultural and Forest Resources	To safeguard the state's agricultural and forest resources from development which threatens those resources.
Archaeological and Historic Resources	To preserve the state's historic and archaeological resources.
Recreation	To promote and protect the availability of outdoor recreation opportunities for all Maine citizens, including access to surface waters.
Economy	Promote an economic climate that increases job opportunities and overall economic well-being.
Housing Opportunities	To encourage and promote affordable, decent housing opportunities for all Maine citizens.
Public Facilities and Services	To plan for, finance and develop an efficient system of public facilities and services to accommodate anticipated growth and economic development.

For coastal communities, the *Growth Management Act* further requires that comprehensive plans address the state's coastal management policies:

- To promote the maintenance, development, and revitalization of the state's ports and harbors for fishing, transportation and recreation;
- To manage the marine environment and its related resources to preserve and improve the ecological integrity and diversity of marine communities and habitats, to expand our understanding of the productivity of the Gulf of Maine and coastal waters, and to enhance the economic value of the state's renewable marine resources;
- To support shoreline management that gives preference to water-dependent uses over other uses, that promotes public access to the shoreline, and that considers the cumulative effects of development on coastal resources;
- To discourage growth and new development in coastal areas where, because of coastal storms, flooding, landslides or sea-level rise, it is hazardous to human health and safety;
- To encourage and support cooperative state and municipal management of coastal resources;
- To protect and manage critical habitat and natural areas of state and national significance and maintain the scenic beauty and character of the coast even in areas where development occurs;
- To expand the opportunities for outdoor recreation and to encourage appropriate coastal tourist activities and development;

- To restore and maintain the quality of our fresh, marine and estuarine waters to allow for the broadest possible diversity of public and private uses; and,
- To restore and maintain coastal air quality to protect the health of citizens and visitors and to protect enjoyment of the natural beauty and maritime characteristics of the Maine coast.

The towns' plans all include extensive inventories of resources and documentation of existing conditions that provide much of the background and context for this Stewardship Plan. That voluminous information is not replicated or reproduced in this plan. The Stewardship Plan, in this section and in Section V, does provide resource data and information to complement and update data contained in comprehensive plan inventories and to show features at a watershed scale. The towns' comprehensive plans are listed below, with links provided to digital copies.

- Town of Eliot. *Celebrating Our Past While Planning for Our Future: Eliot Comprehensive Plan 2009*, Eliot, Maine, 2009. https://www.eliotmaine.org/sites/eliotme/files/uploads/comprehensive_plan_2009_0.pdf
- Town of Kittery. *Kittery Comprehensive Plan 2015-2025* (draft pending town adoption in 2018), Kittery, Maine, 2017. The different volumes of the plan are available on the Town of Kittery website: http://www.kitteryme.gov/kittery-2015-2025-comprehensive-plan

- Town of South Berwick. *South Berwick Draft Comprehensive Plan*, 2006 update to 1991 plan, approved in May 2008, South Berwick, Maine 2006. https://digitalcommons.library.umaine.edu/towndocs/998
- Town of York. *York Comprehensive Plan*, adopted May 22, 1999 and as amended through November 7, 2017; includes separate chapters such as Adaptation to Sea Level Rise Chapter (adopted 2013), Stormwater Chapter (adopted 2015), and the Conservation Plan by Mount Agamenticus to the Sea Conservation Initiative (adopted by reference in the Regional Coordination Program section of Volume 1).
  The Town of York web page for its Comprehensive Plan includes links to all volumes, chapters, and maps: http://me-york.civicplus.com/188/Comprehensive-Plan

Open Space Plans

Open space plans create frameworks to identify and prioritize areas for local land conservation efforts. Within the York River watershed, the towns of Eliot and South Berwick have open space plans that were developed with public input. For both plans, existing conservation lands and open spaces were inventoried, priorities from state, regional, and local conservation initiatives were identified, and local knowledge and priorities were added to identify locally important resources and areas of focus. The plans include strategies and possible funding options to help achieve conservation goals. In addition, each plan shows the connections to its town's comprehensive plan goals and strategies.

The 2010 Eliot Open Space Plan identifies geographic regions in town that were found to be the most critical for maintaining local natural resource values. The York Pond area and the length of the York River in Eliot were two of the highest priorities identified. In addition, working farmland was a priority for open space preservation. The plan identified 18 working farms throughout Eliot that are over 10 acres each, eight of which are at least partially in the York River watershed. The *Eliot Open Space Plan* is available on the Maine Farmland Trust website: http://www.mainefarmlandtrust.org/wp-content/uploads/2013/10/EliotOpenSpacePlan.pdf

The planning process that developed priorities for the 2012 South Berwick Conservation/Open Space Plan involved using a co-occurrence model of resources and features. Several primary areas clustered around regions where significant conservation efforts are already underway, including the Mount Agamenticus and York Pond regions, were identified as priorities. The York River watershed lands in South Berwick overlap with these priority regions. The *South Berwick Conservation/Open Space Plan* currently is available on the town's website: http://www.southberwickmaine.org/boards&committees/conservation%20commission/OpenSpacePlan_2012.pdf

Regional Conservation Plans

The Mount Agamenticus to the Sea Conservation Initiative (MtA2C) is a coalition of ten organizations working together to conserve the most important forests, fields, wetlands and marshes in a regional focus area that includes parts of Kittery, Eliot, York, Ogunquit, Wells, and South Berwick. Most of the York River watershed is within the MtA2C focus area. *[See Stewardship Plan Appendix A for the MtA2C focus area map.]* MtA2C's work is guided by a 2005 conservation plan designed to protect unique and important features of the region. The MtA2C Conservation Plan identifies six broad areas as conservation targets:

- Significant contiguous forestlands, unfragmented forested uplands and freshwater wetlands
- Water quality and quantity, coastal and tidal communities
- Rare or sensitive habitat patches
- Early successional habitat, Blanding's turtles, vernal pools
- Working farms, forests and waterfronts and traditional sustainable uses of the land and waterways
- Cultural landscape and historic structures, features and viewsheds

Blanding's turtle. *Photo: Keith Fletcher*

For all the conservation targets, the MtA2C plan identifies threats, resource values, goals, and strategies. Priority habitats, landscape features, and other watershed resources identified in the York River Watershed Stewardship Plan are consistent with those in the MtA2C Conservation Plan. The strategies and recommendations from the MtA2C Conservation Plan served as a guide in developing some of the stewardship objectives and key actions for the Stewardship Plan. See the *MtA2C Conservation Plan*, available on the MtA2C website: http://www.mta2c.org/01/wp-content/uploads/2015/09/mta2c_conservation_plan.pdf

The Great Works Regional Land Trust (GWRLT) works with landowners and communities of Eliot, South Berwick, Berwick, North Berwick, Wells and Ogunquit to conserve important resources including clean water, working landscapes (farmland and woodlots), unfragmented forests, wildlife habitats, cultural and historic features, recreational opportunities, and scenic views. GWRLT developed a plan, *Piecing Together the Puzzle: Farms, Forests & Water – A Conservation Plan for the Communities of Wells, Ogunquit, Eliot, South Berwick, Berwick and North Berwick,* to guide its conservation activities through the year 2025. The plan is available on the GWRLT website: http://www.gwrlt.org/index.php/our-work/priorities/strategic-conservation-plan

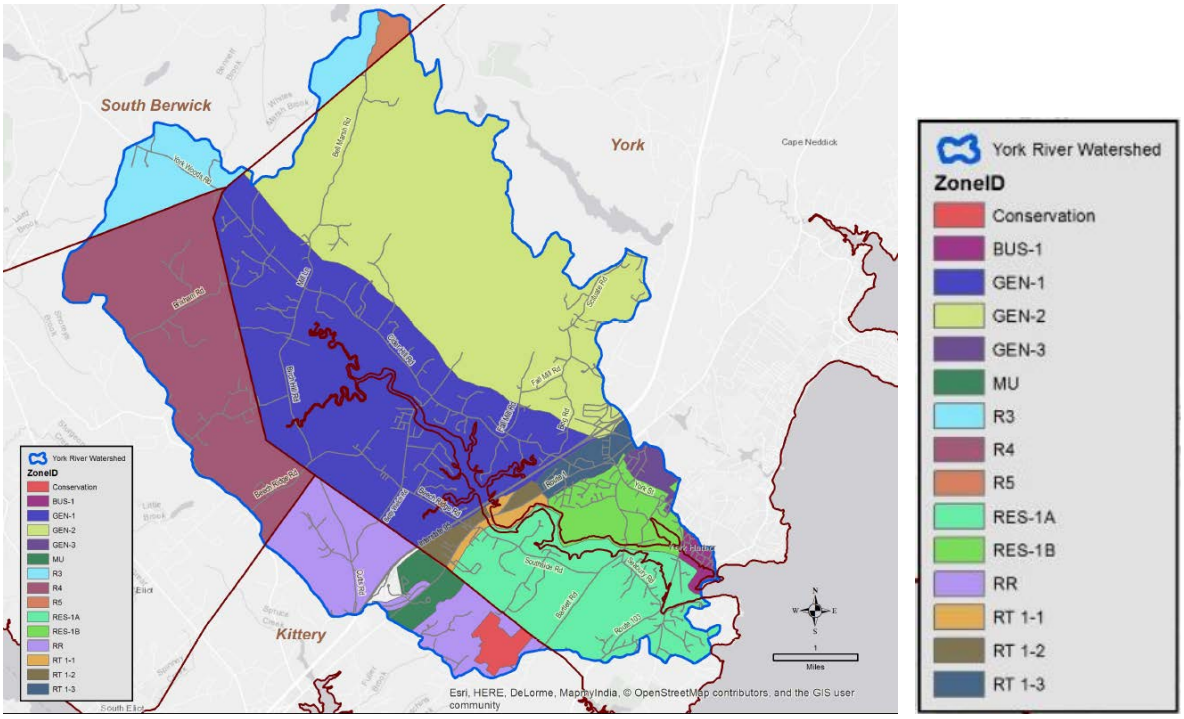
The GWRLT Conservation Plan identifies key resources and features to help prioritize and compare conservation opportunities. The plan also identifies five geographic focus areas where continued, proactive conservation efforts will preserve multiple resources. Two of the five areas include York River watershed lands. GWRLT's Mount Agamenticus Focus Area includes an area of the watershed in South Berwick, and GWRLT's York Pond/York River Focus Area includes an area of the watershed in South Berwick and Eliot. *[See Stewardship Plan Appendix B for maps and descriptions of GWRLT's two focus areas that contain York River watershed lands.]* The recommendations in this Stewardship Plan are consistent with many of the implementation actions, conservation strategies, and funding options identified in the GWRLT Conservation Plan.

D. Local Regulatory Framework

A comprehensive plan, which must be adopted by the voters, establishes the policies of the town. State law requires a town's zoning, growth control, and impact fee ordinances to be consistent with its comprehensive plan. Other regulations affecting land use and development, most notably the site plan and subdivision regulations, limit approval of development applications to those that are consistent with the comprehensive plan.

> *"Zoning and subdivision review is probably the most critical part in assessing how and where development takes place within the watershed. While subdivision activity is governed principally by state statute, zoning within the watershed varies considerably by town. Fifteen zoning districts, a watershed overlay district, and four different shoreland overlay districts can be found in the watershed."* – SMPDC's York River Watershed Study report

All watershed towns have zoning to divide sections of each town into districts to which different restrictions or requirements apply. The York River watershed includes 15 different zoning districts (nine in York, one in Eliot, three in Kittery, and two in South Berwick). Each zone may have different allowable uses and different development requirements such as minimum lot sizes or maximum coverage per lot. The minimum lot sizes for development vary widely across the different zones. For example, York and Eliot have three-acre minimum lot size in their rural zones northwest of Interstate 95 (zones GEN-1, GEN-2, and R4). Kittery's adjacent rural zone (zone RR) has a minimum lot size of 40,000 square feet, or just under one acre, which is comparable to the minimum lot sizes of York's more densely populated zones that are served by public water and/or public sewer (zones RES-1A and RES-1B).

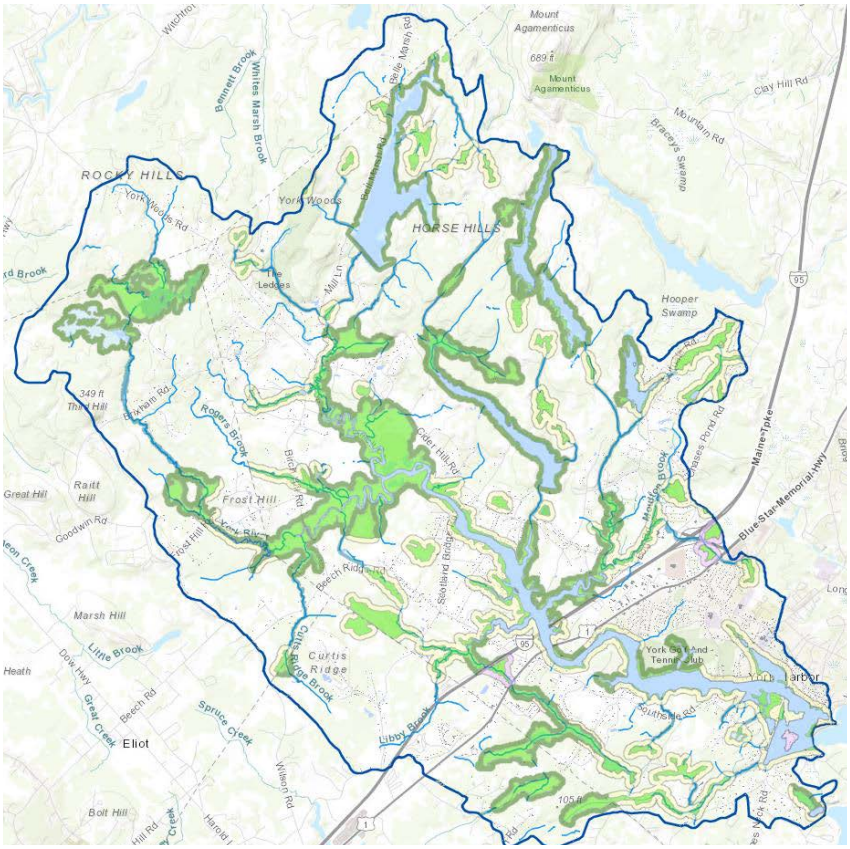


General zoning in the York River watershed (map by Spatial Alternatives)

To limit development and land use impacts on water quality, aquatic habitats, and other resources, watershed towns have implemented various regulatory measures by adopting and enforcing shoreland zoning ordinances, resource protection districts and ordinances, a watershed overlay district for water supply protection, and subdivision and site plan review standards, among others. Maine's Mandatory Shoreland Zoning Act (MSZA) requires municipalities to adopt, administer, and enforce local ordinances that regulate land use activities in the shoreland zone. The purposes of the MSZA are to:

- prevent and control water pollution;
- protect fish spawning grounds, bird and wildlife habitat;
- protect freshwater and coastal wetlands;
- protect buildings and lands from flooding and accelerated erosion;
- protect archeological and historic resources;
- protect commercial fishing and maritime industries;
- control building sites, placement of structures and land uses;
- conserve shore cover, and visual as well as actual points of access to inland and coastal waters;
- conserve natural beauty and open space; and
- anticipate and respond to the impacts of development in shoreland areas.

Tominy Pond – inland waterfowl habitat in the York River watershed. *Photo: Jennifer Hunter*



Shoreland zoning in the York River watershed (map by Spatial Alternatives)

The shoreland zone is comprised of all land areas within 250 feet of the normal high-water line of any pond over 10 acres or of any river, the upland edge of a coastal wetland including all areas affected by tidal action, and upland edge of defined freshwater wetlands; and all land areas within 75 feet of the normal high-water line of certain streams. Shoreland zoning regulations are administered and enforced by each municipality through its ordinances.

As part of its data synthesis and analysis for the build-out study, SMPDC conducted a zoning review for the four towns, including shoreland zoning and ordinances. SMPDC's zoning review, contained in its *York River Watershed Study: Regulatory and Non-Regulatory Recommendations Report*, includes narrative descriptions of the zones as well as general descriptions of the shoreland zones by town, and a tabular summary comparing various requirements and applicability of towns' shoreland zoning. Protections provided by Kittery, South Berwick, and York's shoreland ordinances exceed the minimum standards set by the state. Eliot's shoreland protections meet the state minimum requirements.

SMPDC reviewed regulatory and non-regulatory approaches used by the towns to protect resources. Its analysis, presented in a matrix of strategies by town, also indicates where strategies are recommended in comprehensive plans. *[See Stewardship Plan Appendix C for the Watershed Protection Strategies Matrix from SMPDC's report.]*

E. Major Threats

Two major threats that have the potential to impact all watershed resources are described below: Development Impacts and Climate Impacts. Additional threats are listed or described in Section V – Watershed Resources.

Development Impacts

One of the most significant threats to watershed resources is the impact of ongoing and future development. In the York River watershed, the threat is largely from residential development and associated road construction, suburban landscaping, and increases in impervious surfaces. At a watershed scale, development can alter and fragment natural habitats, change the visual landscape and historic contexts of watershed lands, increase water pollution and the volume of stormwater runoff with more impervious surfaces, destroy historic resources, affect wildlife with more roads and habitat loss, impact traditional watershed land uses, increase demand for drinking water supplies, and add additional septic systems.

The York River Study Committee was interested in understanding how much additional development could occur in the watershed. The Study Committee worked with Southern Maine Planning and Development Commission (SMPDC) to submit a project proposal to the Maine Coastal Program to conduct a York River watershed build-out study and develop recommendations to minimize development impacts to resources. SMPDC received funding from the Maine Coastal Program and hired subcontractor Spatial Alternatives, Inc. to conduct a GIS-based build-out analysis. SMPDC used the build-out results and its analysis of watershed towns' zoning and other approaches for protecting resources to develop regulatory and non-regulatory recommendations to improve watershed resource protection.

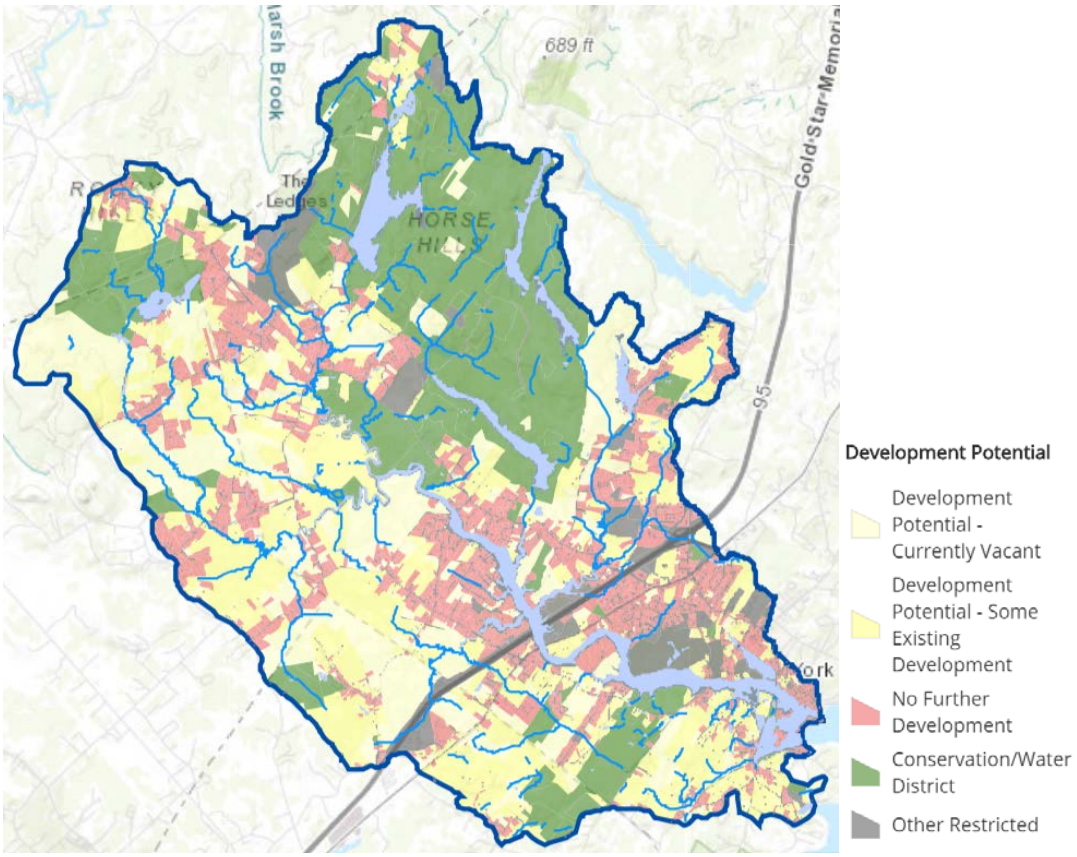
Some watershed build-out results are summarized below. Project results and recommendations are available in two project reports and in an online interactive map and data viewing tool:

- *York Watershed Build Out Scenarios*, Spatial Alternatives, Inc. and SMPDC, June 2018. Available on the York River Study website: www.YorkRiverMaine.org

- *York River Watershed Study: Regulatory and Non-Regulatory Recommendations Report*, SMPDC, May 2018. Available on the York River Study website: www.YorkRiverMaine.org
- York River Watershed Tool, an Esri-based Story Map developed by Spatial Alternatives, Inc. and SMPDC: http://arcg.is/C1e8O

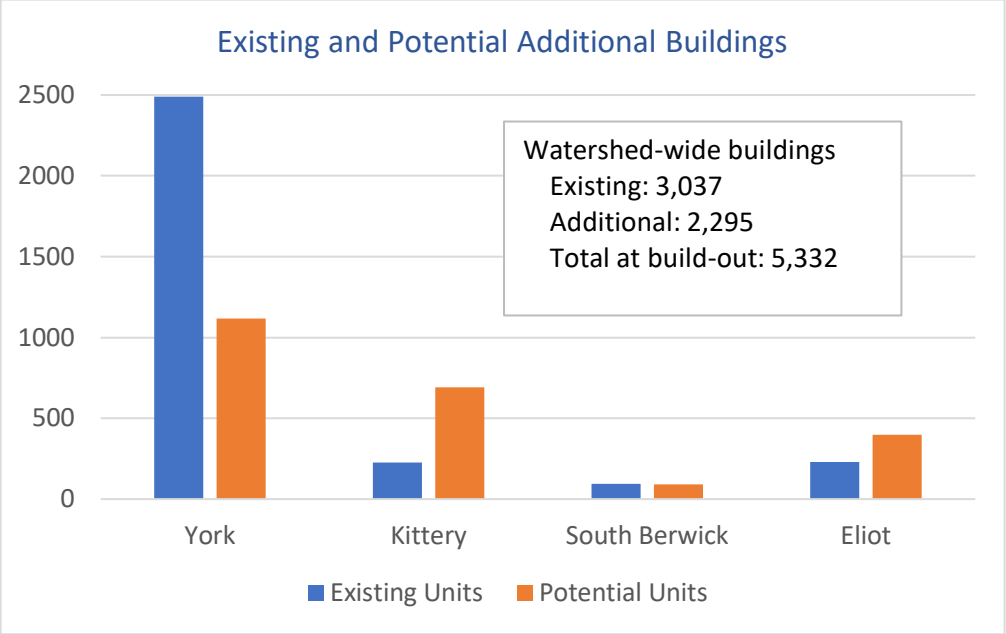
> *"The York Watershed Build Out was designed to provide some baseline information related to potential residential growth within the watershed. It is important to understand that this model developed a numeric value for potential new units, not where or when those units will be developed. This is a basic build out methodology meant to provide a first pass at understanding the implications of current zoning regulations. Indicators were developed to identify potential growth impacts under several scenarios and the base scenario of the current zoning."* – Spatial Alternatives, Inc.

A build-out model was used to calculate the possible number of buildings that could be added in the watershed under current zoning. Development assumptions, site level characteristics, and intricacies of towns' zoning and regulations were simplified in the model for the four-town watershed region. The results do not depict actual development capacity on any given parcel but are intended to reflect the potential for additional development at a watershed scale when all developable parcels are developed (i.e., when the watershed is at maximum "build-out"), subject to current zoning regulations. Developable parcels in the watershed are shown in the figure below – light and dark yellow parcels are developable.



Development potential of parcels in the York River watershed (map by Spatial Alternatives)

Currently there are an estimated 3,037 buildings in the watershed, with the possible addition of 2,295 buildings at full build-out using existing zoning regulations. Existing and potential buildings by town are shown in the chart below, and additional information is provided in the following table.



Conservation lands, existing and potential new buildings, and building density in watershed towns

	Watershed Area (acres)	Watershed Area (% total)	Conservation Lands (acres)	Conservation Lands (% watershed lands)	Existing Buildings	Existing Buildings (%)	Existing Density (DU/Acre)	Potential Buildings	Potential Buildings (%)	Total Buildings	Total Buildings (%)	Build-out Density (DU/acre)
York	15,172	71%	4,344	29%	2,489	82%	0.16	1,116	49%	3,605	68%	0.24
Eliot	3,032	14%	387	13%	230	8%	0.08	399	17%	629	12%	0.21
Kittery	1,981	9%	322	16%	225	7%	0.11	690	30%	915	17%	0.46
South Berwick	1,099	5%	531	48%	93	3%	0.08	90	4%	183	3%	0.17
Watershed total	21,284		5,584	26%	3,037		0.14	2,295		5,332		0.25

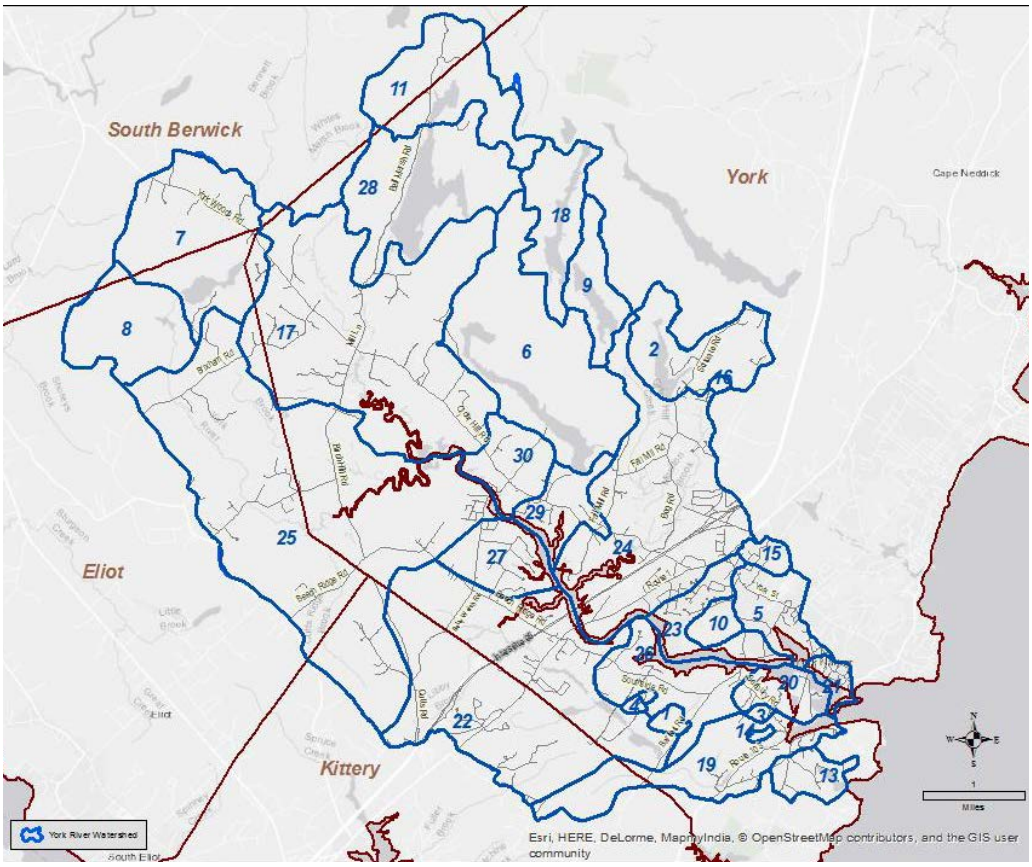
Building density, measured as dwelling units per acre, increases for the watershed from 0.14 under current conditions to 0.25 at build-out. Stated another way, currently there is one house for about every seven acres of watershed land, and at build-out, there would be one house for every four acres of land. The density change is most extreme for the Kittery part of the watershed that is currently a largely rural area but has a minimum lot size for development of about one acre (Kittery's density is 0.11 units per acre currently and would be 0.46 units per acre at build-out).

The watershed currently has an impervious cover level of 3.9 percent of the area. At build-out, 5.2 percent of the watershed is covered by impervious surfaces. The table below shows current and build-out impervious cover by town zones. About 35 miles of additional roads would be added to the existing 115 miles of roadways in the watershed.

Impervious area in each of the towns' zoning districts in the York River watershed

Town	Zone	Acres	% Impervious Area (current)	% Impervious Area (build-out)
York	GEN-1	5,363	4.2%	5.0%
	GEN-2	6,063	1.5%	1.9%
	GEN-3	150	12.6%	15.9%
	RT 1-1	143	6.9%	8.2%
	RT 1-2	162	10.6%	12.3%
	RT 1-3	268	29.3%	30.0%
	RES-1A	2,172	5.3%	7.7%
	RES-1B	729	11.1%	11.9%
	BUS-1	117	20.1%	20.6%
Kittery	RR-S	478	4.8%	9.2%
	RR-N	983	3.5%	7.8%
	MU	271	6.9%	9.7%
South Berwick	R3	991	1.7%	2.8%
	R5	108	4.0%	5.1%
Eliot	R4	3,032	1.9%	3.5%
Watershed Total		**21,284**	**3.9%**	**5.2%**

Sub-watershed areas are depicted in the following figure (next page). Much of the potential development is in area south of the York River in York and Kittery and heading northwest through Eliot, including the subwatershed areas for Southside Brook, Dolly Gordon Brook, Libby Brook, Cutts Ridge Brook, and Rogers Brook, and the York River heading northwest of Scotland Bridge. These streams are included in sub-watershed areas 19 (Southside Brook), 22 (Dolly Gordon Brook and Libby Brook), and 25 (upper York River, Cutts Ridge Brook and Rogers Brook), where there is potential for 201, 523, and 702 additional houses, respectively, in each sub-watershed. **These three sub-watersheds account for about 33 percent of the watershed land area and 62 percent of the potential additional houses that could be built**, according to the model. Most of these potential new houses would be in rural areas of the watershed not currently served by public sewer.



Approximate sub-watershed boundaries for watershed ponds and streams (map by Spatial Alternatives)

Recommendations

Using information from the watershed build-out study and its summary of town regulatory and non-regulatory approaches to protecting resources, SMPDC provides additional analysis and recommendations focused on several areas:

- Shoreland zoning
- Land conservation
- Open space subdivisions
- Stormwater management/low impact development
- Sea level rise and marsh migration
- Watershed-wide approaches

Photo: Jerry Monkman, Ecophotography.com

Many of the recommendations from SMPDC's *York River Watershed Study: Regulatory and Non-Regulatory Recommendations Report* are included in the Stewardship Plan as key actions to meet resource protection and stewardship objectives.

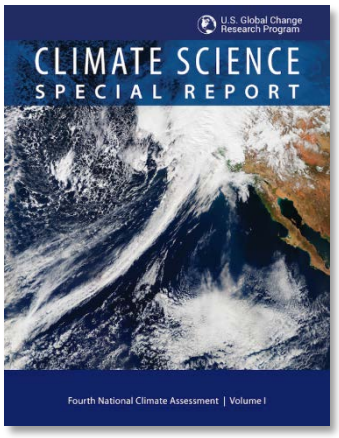
Climate Impacts

Coastal communities throughout the US and beyond are facing threats from climate-related impacts such as sea level rise, coastal storm surge, extreme flooding events and rising temperatures. While the York River watershed is more resilient than many other coastal areas, proactive measures are needed to protect natural resources, historic resources, and the local economy from future climate-related impacts.

US and Global Context

In 2017, the US Global Change Research Program released a *Climate Science Special Report* as part of the Fourth National Climate Assessment. This authoritative assessment draws from the latest scientific research and serves as a foundation for efforts across the United States to assess climate-related risks and inform efforts to mitigate and adapt to climate impacts.

Key findings from the report include:



- Global annual average surface air temperature has increased by about 1.8^{o} F between 1901 and 2016 making this the warmest period in the history of modern civilization.
- The United States has experienced record breaking, climate-related weather extremes, and the last three years have been the warmest on record for the globe.
- Thousands of studies have documented changes in surface, atmospheric, and oceanic temperature; melting glaciers; diminishing snow cover; shrinking sea ice; rising sea levels; ocean acidification and increasing atmospheric water vapor.
- Average sea level has risen by 7 to 8 inches since 1900, with almost half of that increase occurring since 1993. The incidence of daily tidal flooding is accelerating across Atlantic and Gulf Coast communities.
- Global average sea levels are expected to continue to rise by at least several inches in the next 15 years and by 1 to 4 feet by 2100. A rise of as much as 8 feet by 2100 cannot be ruled out. Sea level rise on the East and Gulf Coasts of the United States will be higher than global averages.
- Heavy rainfall is increasing in intensity and frequency across the United States and globally and is expected to continue to increase. The largest observed changes in the United States have occurred in the Northeast.

Regional and Watershed Context

Climate impacts are already being observed in the Gulf of Maine region where seas are rising faster than the global average, and ocean waters are warming at an alarming rate. What was once a startling observation among ecosystem modelers is now common knowledge: over the course of a decade, the Gulf of Maine has warmed faster than 99 percent of the global ocean (Pershing, 2018). Warming waters are impacting fisheries and habitat throughout the region with lobsters migrating to colder waters while invasive species such as green crabs are showing up in increasing numbers.

A 2014 report, *Encroaching Tides: How Sea Level Rise and Tidal Flooding Threaten US East Coast and Gulf Coast Communities over the Next 30 Years*, prepared by the Union of Concerned Scientists, highlighted the potential impacts of sea level rise on tidal flooding events. As sea level rises, many tidal flooding events will shift from being minor to more extensive, with accompanying increases in disruptions and damage. By 2045, many coastal communities are expected to see roughly one foot of sea level rise, which will result in substantial tidal flooding. A growing proportion of these floods could be extensive, and as floods reach farther into communities, they would also last longer.

Photo: Wayne Boardman

The cumulative impact of sea level rise and extreme storms is becoming one of the most significant threats to coastal communities in New England. During the winter of 2017 / 2018, New England experienced multiple back-to-back Nor'easters that caused coastal erosion, damage to infrastructure, and negative impacts on valuable coastal habitat. The January 2018 storm resulted in storm tides at levels that had not been experienced since the Blizzard of '78.

Communities with developed waterfront in low-lying regions are the most at risk, while coastal areas with protected tidal marshes surrounded by natural buffers are in a much better position to be resilient to sea level rise and associated storm surge.

In a 2017 study of resilient coastal sites in the Northeast and Mid-Atlantic US, The Nature Conservancy highlighted the potential threat to tidal habitats from sea level rise. Without proactive protection, an estimated 83 percent of tidal habitat could be lost to severe inundation. At the same time, the study identified uniquely resilient coastal ecosystems, including the York River watershed, that have the capacity to expand through landward migration. With the upper reaches of the York River estuary surrounded by undeveloped blocks of wetlands and forest, salt marshes have the potential to migrate into these adjacent undeveloped lands as sea level rises. Protecting resilient areas such as the York River watershed could significantly offset tidal habitat loss, providing critical habitat for birds and other wildlife, and buffering people from the effects of storms and floods into the future.

Photo: Wayne Boardman

Section V – Watershed Resources

The York River watershed provides a range of important resources that have significant value at local, regional, and/or national scales. Based upon extensive input from residents, public officials, businesses, community groups, environmental agencies, fishermen and other stakeholders, the York River Study Committee identified the following three resource areas that should be protected for future generations:

- **Cultural and historic resources**
- **Natural resources**
- **Working waterfront, recreational resources and community character**

A fourth area – **community stewardship** – was added to recognize the capacity and key role of watershed communities' citizenry in long-term stewardship of the York River and watershed resources.

This Stewardship Plan takes a watershed approach identifying strategies that will protect valuable resources of the York River and its tributaries as well as the surrounding uplands that drain into these water bodies. Many of the community-valued resources included in this Stewardship Plan meet the National Wild and Scenic Rivers Act 'outstandingly remarkable values' definition for river designation eligibility due to their unique, rare or exemplary characteristics at a regional or national scale. Others are locally or regionally important watershed resources that may not be directly river-related.

York River watershed resources summary

Resource Area	Values and Features	Stewardship Goal
Cultural and Historic Resources	• Cultural landscapes • Archaeological heritage • Historic districts, buildings and structures	Identify and preserve cultural and historic resources of the York River watershed.
Natural Resources	• Watershed lands • Wildlife, habitats, and biodiversity • Water resources • Watershed resilience	Protect valuable natural communities, habitats, biodiversity, and water resources of the York River watershed.

Working Waterfront, Recreational Resources and Community Character	• York Harbor and waterfront • Recreation • Scenic resources	Preserve working waterfront, sustainable recreational uses and scenic qualities of the York River and watershed lands that are important to regional identity and community character.
Community Stewardship	Watershed landowners, citizen volunteers, members of towns' boards and committees, and voters	Strengthen stewardship of watershed resources by river users, watershed landowners and citizens.

A separate sub-section is devoted to each watershed resource area. For each, the resources are characterized, their "outstandingly remarkable values" and significance are described, and additional threats or management needs are noted. Following that characterization, stewardship objectives and key actions to meet those objectives are listed. To develop the resource characterizations and stewardship recommendations for this plan, the York River Study Committee reviewed existing watershed reports and data, towns' comprehensive plans, other state and regional plans and programs related to resource areas, and new data and information gained from recent studies. In addition, the Study Committee sought extensive input from resource experts, local boards and committees, conservation and preservation groups, state agency representatives, and local citizens through a series of meetings, presentations, and discussions. A list of reports, information sources, and references related to watershed resources is included at the end of the Stewardship Plan.

The objectives and key actions in this Stewardship Plan complement, reinforce and build upon important work already being undertaken by the towns of York, Eliot, Kittery, and South Berwick, as well as local land trusts and conservation organizations, community groups, and public agencies. Several ongoing actions are included in this plan to emphasize their importance to achieving long-term resource protection goals.

The Stewardship Plan is a voluntary guidance document intended to support and help facilitate the work of communities, conservation organizations, community groups and individuals interested in the long-term protection of the York River and its watershed resources. Wide-ranging strategies and opportunities to protect or enhance key resources and values are identified. Recommended actions in the Stewardship Plan were developed to protect and enhance the water quality, ecology, historic resources, scenic qualities, and cultural resources that collectively contribute to the region's special character and identity. Implementation of key actions is not mandatory.

Watershed communities are not required to undertake any recommended actions, nor are they expected to commit funding to implement the Stewardship Plan.

Photo: Jennifer Hunter

V.1 Cultural and Historic Resources

A. Overview

Native Americans have lived in the York River watershed for thousands of years. Located two miles west of York Pond in Eliot is one of only a handful of known Paleoindian archaeological sites in York County, firmly establishing a Native American presence in the watershed ca. 11,000 BP (Before Present). Coastal and estuarine archaeological sites, such as shell middens, documented by archaeologists along the York River, date to as early as 5,000 BP. A Native American presence in York in more recent times also has been confirmed by archaeological finds such as pottery fragments recovered by scuba divers dating to ca. 1550-1620. Furthermore, historical records document early contacts between Native peoples and European explorers in the region including John Verrazano in 1524 and Bartholomew Gosnold in 1602, both occurring at the Cape Neddick peninsula. As a result of recurring epidemics and a plague in the winter of 1616-1617, no Native peoples were known to be living in the York region at the time of European settlement in the early 1630s.

In 1622, during the reign of England's King James I, Sir Ferdinando Gorges, a military commander and governor of Plymouth, England, and Captain John Mason of Norfolk, England, were given a land grant patent by the Plymouth Council for New England from the Merrimack to the Kennebec River. In 1629, Gorges and Mason divided the grant with Gorges receiving lands north of the Piscataqua River known as the "Province of Maine." Settlements known locally as Agamenticus (subsequently Gorgeana, Bristol, and eventually York) and Piscataqua (Odiorne Point, Strawbery Banke, and Dover) commenced in the immediate years following the grants. Early European settlement within the York River watershed was mostly along the lower reaches of the York River, as settlement was also occurring along the shores of the Piscataqua River. The initial settlements (ca. 1630) in Kittery, the Berwicks, and Eliot were at Quamphegan Falls, Spruce Creek, Sturgeon Creek, and Kittery Point. Kittery submitted to the government of

Massachusetts in 1652, and the Massachusetts Bay Colony purchased the Province of Maine from the Gorges descendants in 1677.

Conflicts between European settlers and Native Americans were heightened during what is referred to as King Philip's War (1675-1678). In the subsequent King William's War (1688-1697), a devastating raid by the Wabanaki and French war parties in the winter of 1692, known as the Candlemas Massacre, destroyed most homesteads in York north of the river. Subsequent raids on fringe settlements killed handfuls of people discouraging settlement along the frontier, but also stimulated the construction of fortified garrison houses. These conflicts and raids led to the near complete abandonment of early Maine settlements until the defeat of the French in the Seven Years' War ca. 1760. As a result, many of the 17th- and early 18th-century buildings have not survived, but their remains are now well preserved and represented as time capsules in the archaeological record. Consequently, the archaeology of the York River region offers a unique glimpse into the lives of some of the earliest European settlers in the country and documents the formative period in the nation's history and development.

The York River watershed possesses numerous unique cultural features, landscapes, archaeological sites, and historic buildings and structures. The watershed is largely a rural landscape with small village communities, pockets of open meadows and fields amongst extensive woodlands, salt marsh, numerous stream tributary corridors, and inland wetlands and ponds. The watershed has well-preserved archaeological resources with some of the earliest known pre-contact Native American sites as well as European settlements in New England. The relatively limited amount of modern development within the watershed allows for the possibility of discovery of many additional intact archaeological sites. Both pre- and post-contact archaeological sites known in the area demonstrate a high degree of integrity.

When compared to other watersheds in Maine and New England, the archaeological resources and historic buildings of the York River and its watershed comprise an outstanding and truly exceptional cultural and historic landscape.

Cultural and historic resources in the York River watershed:

- Cultural landscapes (marsh hay fields, historic and working waterfronts)
- Archaeological resources (Native American, Euro-American, maritime industrial sites)
- National Register of Historic Places (one district, eight individual properties)
- Historic buildings and structures (Colonial-era homesteads, farms, dams)
- Bridges (Sewall's Bridge, Wiggly Bridge, Thermoplastic Bridge)
- Living history (Old York Historical Society, Old Berwick Historical Society, Eliot Historical Society, Kittery Historical and Naval Society and Museum, Gundalow Company)
- Artistic inspiration (visual and literary arts)

B. Cultural Landscapes

Cultural landscapes tell the story of how humans have interacted with their environment over time. Characteristics and features of cultural landscapes can include gardens, trails, roads, rivers, and farmland

with significant historical associations. Built resources and archaeological sites also can contribute to the composition of a cultural landscape. The National Park Service notes that, "in the broadest sense, a cultural landscape is a reflection of human adaptation and use of natural resources and is often expressed in the way land is organized and divided, patterns of settlement, land use, systems of circulation, and the types of structures that are built. The character of a cultural landscape is defined both by physical materials, such as roads, buildings, walls, and vegetation, and by use reflecting cultural values and traditions."

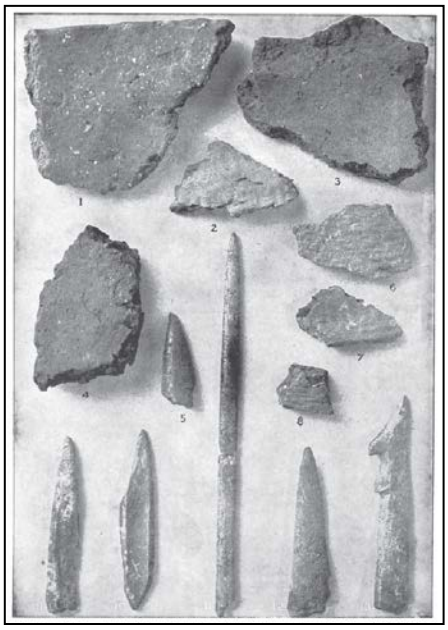
Possible remnants of a staddle, a structure used to stack and dry salt marsh hay. *Photo: Joe Anderson*

The cultural landscapes of the York River watershed include both Native American (pre-contact) and post-contact (or historic) resources that are recognized as nationally and regionally significant. Specifically, historic structures and archaeological sites of past and present human activity found along the watershed streams (e.g., tidal mills and dams) are exceptional examples of Maine's and the New England region's cultural and economic development. These landscape components allow for the interpretation of the initial European settlement as well as their exploitation of the region's natural resources in the early 17th century.

Along the upper portions of the York River between Smelt Brook and the western portion of the river, referred to by English settlers as "the Partings," is a broad saltwater marsh. Salt marsh grasses along the banks of the brook and river were harvested for marsh hay that was cut and transported downriver by small craft and gundalows to support livestock in the winter. Timber harvesting on lands around the upper reaches of Smelt Brook and the York River in the second half of the 17th century resulted in the construction of mills to take advantage of stream power to saw timber into marketable lumber. Among these early upriver mills was one built by Samuel Came by the 1720s in the marsh near what is now Birch Hill Road. Centuries-old stone walls, originally dividing agricultural and pasture lands are visible across these upper river landscapes.

C. Archaeological Heritage

The York River is not only a place of important archaeological sites and resources, but also the site of some of the earliest archaeological investigations that have contributed to the development of the field of archaeology in the northeastern US. The first archaeological study on the river was conducted in 1891 when Henry Mercer, from the University of Pennsylvania, surveyed, recorded, and partially excavated a total of eight groups of pre-contact Native American shell heaps, or middens. The largest midden measured about "80 ft in length by 20 ft wide and 32 inches deep," and although numerous middens



Artifacts from 1891 Mercer survey.

were destroyed to make way for waterfront buildings and cottages, "…the workmen found among the heaps a skeleton buried in a sitting posture, between several large stones; and also, though not with the skeleton, a broken stone-scraper" (Mercer 1897:121).

Prehistoric Archaeology

Despite these early investigations, and until relatively recently, York County has received limited attention from prehistoric archaeologists. However, during a recent archaeological survey (2017) of the upper York River watershed, artifacts including lithic debitage and tools, a projectile point, and a sample of burned bone representing food remains were excavated. The projectile point is a Small Stemmed point of the Late Archaic tradition, and dates to approximately 5,000-4,500 BP. Additionally, other pre-contact sites identified during the survey recovered lithic materials including locally available quartz as well as other materials from greater distances: rhyolites, cherts, and Mistassini quartzite, which together demonstrate a far-reaching network of mobility, trade, and exchange. The archaeologists concluded that "the rate of site identification within tested areas as well as a local record of identified artifacts from the York River watershed implies that the York River possesses potential significant pre-contact cultural resources" (Hudgell et al. 2017:iii). Furthermore, within the 2,000 acres surveyed in 2017, researchers identified many areas with archaeological sensitivity – that is, areas with characteristics that are likely to contain prehistoric (or pre-contact) archaeology sites.

There are 23 documented prehistoric archaeology sites within the York River watershed, including the six identified in 2017. Several of the sites are river-related (e.g., shell middens) and regionally significant, and contribute directly to Partnership Wild and Scenic River (PWSR) designation eligibility for the York River.

Collared pot fragments recovered by diver under Sewall's Bridge; contact period (1500-1620 A.D.). *Photo: Emerson Baker*

Historic Archaeology

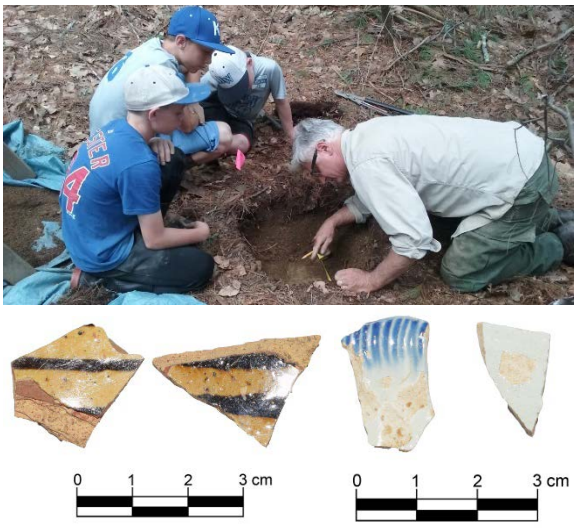
Contrary to the relative dearth of prehistoric archaeological investigations in the watershed, the towns of York and South Berwick, in particular, have witnessed numerous archaeological surveys and excavations (including several in the 1980s) to locate and document 17th-century homesteads and garrison sites. There are currently 94 historic period archaeological sites within the watershed, including the six

Hearth of the Point Christian manor house, ca. 1634-1643, the home of the first governors of the Province of Maine, along Cider Hill Creek. *Photo: Emerson Baker*

identified in 2017. Given early settlement patterns along waterways and early use of water resources, salt marshes, and riparian habitats, many of the sites are river-related and contribute directly to PWSR designation eligibility.

These archaeological studies have filled a gap in our collective understanding of early European lifeways, settlement patterns, and trade that cannot be interpreted or gleaned from existing historical documents and literature. It is only through the study of artifacts, architectural remains, and their archaeological contexts that archaeologists and historians can piece together the stories of the region's earliest settlers, and a narrative for racial and ethnic groups or communities that are not well represented in the historical record. While 17th-century New England remains an important focus of research and preservation, there are contemporaneous and later period archaeological sites throughout the watershed lands, in tidal flats, and underwater that merit further research and documentation, including brick and shipyards, mills, dams, and shipwrecks.

A recent archaeological survey (2017) of the upper York River, conducted by Northeast Archaeology Research Center for the York River Study Committee, identified numerous historic Euroamerican sites including the remnants of 18th- and 19th-century dwellings, dams, and mills, and a small 20th-century hydroelectric facility. These sites are representative of some of the earliest post-contact Euroamerican settlement of the upper watershed. The 19th-century community and architectural remains of Punkintown at the outlet of York Pond were surveyed, and a variety of domestic artifacts uncovered. Based on survey findings, the researchers recommend nomination of Punkintown as an archaeological district to the National Register of Historic Places.



Punkintown artifacts: Staffordshire Slipware, 1665-1770 (left); Pearlware, 1780-1840s (right). *Photos: Northeast Archaeology Research Center*

D. Historic Districts, Buildings, and Structures

For more than 100 years, the Town of York has undertaken efforts to preserve its built environment. The historic buildings and structures of York Village and the many extant historic buildings that line the shoreline of York River are representative of nearly 300 years of national, regional, and state architectural heritage. York Village was established as a National Register Historic District in 1973. The district encompasses approximately 1,700 acres and includes the Old York Gaol, one of the oldest public buildings in the State of Maine and a National Historic Landmark since 1968. There are eight individual sites in the York River watershed that are listed in the National Register of Historic Places, in addition to the historic district listing.

York River watershed sites listed in the National Register of Historic Places

National Register Listing	Significance	Type	Other information
York Historic District	Architecture	Historic district	River-related
John Hancock Warehouse	Commerce	Warehouse	River-related
Old York Gaol	Politics/government	Correctional facility	National historic landmark
Old Schoolhouse	Education	School	
Isabella Breckinridge House	Architecture	Single dwelling	River-related
Barrell Homestead	Politics/government	Single dwelling	River-related
John Sedgley House	Architecture	Single dwelling	
McIntire Garrison House	Architecture	Single dwelling	River-related; National historic landmark
Frost Garrison and House	Architecture	Single dwelling	River-related

Established in 1985, the York Historic District Commission manages and provides preservation incentives within three designated local historic districts: Village Center, Lindsay Road, and York Harbor, with a total of 76 individual historic properties and landmarks in the three districts. These buildings and properties represent some of the finest examples of Colonial, Georgian, Federal, Classical and Colonial Revival, Victorian, and Shingle-style architecture in the region and nation. The York River watershed area includes the entire Lindsay Road and York Harbor districts and part of the Village Center districts.

Beyond the core of York Village and Harbor, numerous historic buildings from the 18th and 19th centuries remain on the landscape. Particularly notable are the McIntire Garrison (ca. 1709) on Cider Hill Road in York and the Frost Garrison and House (ca. 1732-1734) off Frost Hill Road in Eliot. The Frost Garrison is a unique historic resource constructed during the threat of Indian raids and a period of long-term political instability. It retains its original exposed log-and-plank construction and survives in largely unaltered condition. Although the Frost Garrison is a single-story structure, its log construction is similar to the nearby McIntire Garrison – a two-story blockhouse. The Colonel John Frost House, re-built ca. 1778 and

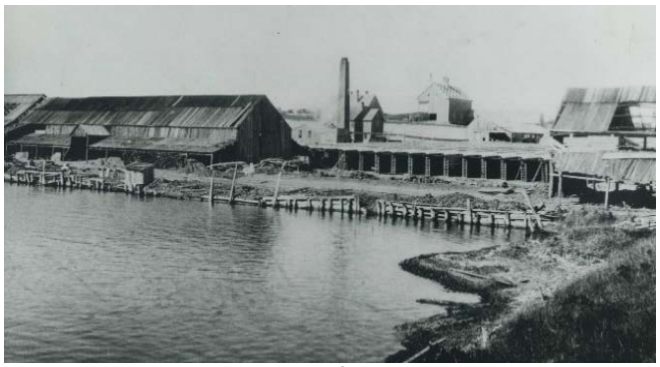
adjacent to the Frost Garrison, is one of the finest examples of Georgian architecture in York and Eliot. A two-and-one-half-story, five-bay, two-room-deep, double-pile Georgian building, it retains its original proportions, exterior wooden architectural details, and windows. The only surviving comparable local structure from this period is the Captain John Bulman House (built ca. 1719) in the heart of York Village.

Frost Garrison (left) and Frost House (above). *Photos: National Register of Historic Places, #71000045 (left) and Groundroot Preservation Group (above)*

The York River region is notable for its many early industrial and milling sites. The earliest known tidal powered mill site in New England was established on Old Mill Creek (now Dolly Gordon Brook) as early as 1634. The remains of numerous historic dam and tide or water-powered mills are still visible on the river landscape today at the headwaters of the river, on major tributaries, and pond outlets. These dams and saw and grist (or corn) mills date as early as the mid-17th century, but also include an example of a unique 20th-century, small-scale, hydro-electric facility and saw mill at the headwaters of the York River.

Remains of tidal mill dam on Dolly Gordon Creek (left and center). This dam was first constructed by 1705 by John Pickering and is slightly downriver from the site of the 1634 mill, which is believed to be the earliest tidal mill site in the English colonies. Remnants of dam and mill site of former Bartlett-Briggs grist mill on York River (right). *Photos: Emerson Baker (left), Stefan Claesson (center), and Northeast Archaeology Research Center (right)*

Other historic industries on the river include brick making and shipbuilding yards. Brickyards located along the river include the Blaisdell Yard in operation until ca. 1870, the Norton & Leavitt Yard ca. 1868-1902, and the early 20th-century York Harbor Brick Company, which was located near the mill pond on the grounds of the current York Golf and Tennis Club. Shipbuilding of small vernacular watercraft occurred at numerous shipyards as far north as Smelt Brook beginning in the 17th century, and ships of larger burthen were built at sites on the lower river banks through the late 19th century.



Norton brickyard on shores of York River. *Photo: courtesy of Old York Historical Society*

The York River is also notable for its innovative historic and modern bridges. Sewall's Bridge, a historic civil engineering landmark, was originally a wooden trestle draw bridge that crossed the York River. It was designed and constructed in 1761 and remained in use as a river crossing until 1934, when it was replaced by a similarly designed wooden pile bridge. Although the more recent reconstruction of the bridge in 2013 removed all its historic wooden elements, the historic character of the bridge has been retained. Built in the 1930s, Wiggly Bridge, a pedestrian bridge, is one of the smallest suspension bridges in the US. Additionally, the Birch Hill Road Bridge, which spans Rogers Brook, a tributary of the York River, is one of the world's first thermoplastic bridges built entirely from recycled plastic bottles.

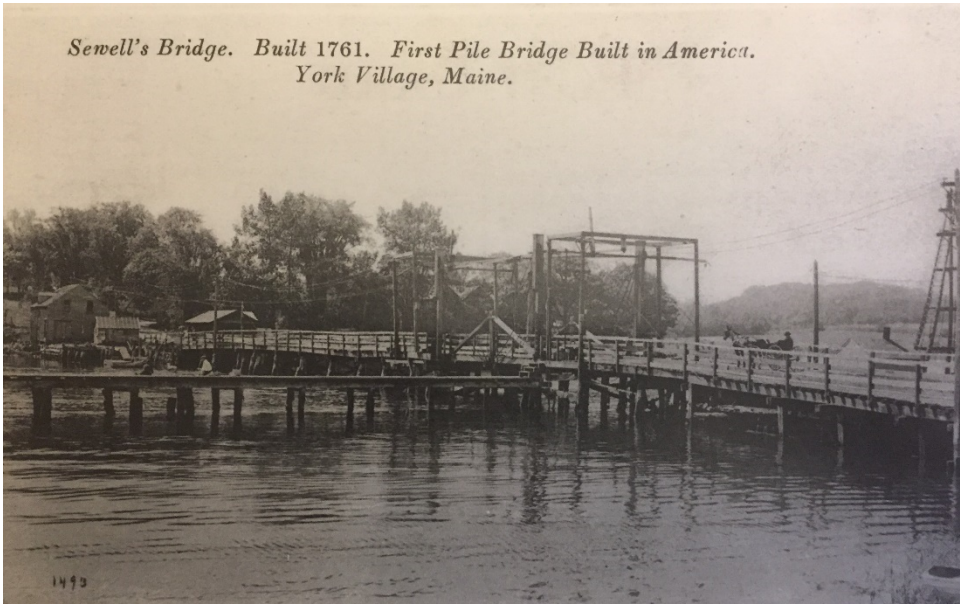


Photo: courtesy of Cindy Donnell

As of 2017, more than 200 historic structures in the York River watershed are inventoried in the Maine Historic Preservation Commission's Cultural and Architectural Resource Management Archive (CARMA). They are notable both for the sheer number and for the diversity of sites. Clusters of the many well-preserved historic structures – largely found in the local historic districts, around water resources, or as part of the rural landscape – contribute to the region's scenic qualities, character, and identity. Many historic structures in the watershed are directly river-related, are nationally or regionally significant, and contribute to Partnership Wild and Scenic River eligibility for the York River.

E. Resource Threats

The historic, cultural, and archaeological resources of the York River watershed remain in a relatively high state of integrity due in large part to limited development in many areas. Consequently, one of the most significant threats to these resources comes from the effects of ongoing and future development, including residential and commercial development projects, road and utility corridor construction, increases in impervious surfaces, filling in and altering of wetlands, and increases in suburban landscaping. These activities also have the potential to significantly change the character and integrity of the area's cultural landscapes and can impact traditional uses of the river corridor such as farming, timbering, fishing, and recreational activities. Historic farms and pasture fields may be lost to development, road construction may destroy important archaeological sites, and removal or alteration of historically significant buildings may result in the loss of historic views and vistas of rural agricultural landscapes and loss of economic vibrancy in historic town centers. Furthermore, the removal and disappearance of stone walls and old-growth trees can affect the sense of place associated with historic communities and landscapes.

The following list identifies a wide range of activities that threaten historic and cultural resources, some of which have potential to impact York River watershed resources:

- Coastal development (coastal residential and commercial development, port and harbor facilities)
- Transportation and infrastructure projects (roads, bridges, rail, culverts, dams, discharge outlets, under-river cables and pipelines, overhead power lines, geological testing)
- Coastal/riverine engineering (sea walls, dams, dikes, breakwaters, storm barriers, flood bank protection, flood control projects, beach recharge/nourishment)
- Natural hazards (flood and storm damage, sea level rise, responses to natural disasters including cleanup and reconstruction, erosion of river banks and intertidal flats or sandbars)
- Habitat restoration (environmental remediation activities including dam removal, wetland restoration, dune and beach replenishment, stream enhancement, riverbank stabilization, vegetation planting, infilling of historic wetland ditches)
- Pollution (oil and chemical spills including chemical/physical alteration, recreational/tourism impacts, sewage outfall pipes, waste water treatment facilities, acidic rain or poor air quality)
- Overuse or misuse (looting, vandalism, development of facilities for access, parking lots, foot paths, boat ramps, wave erosion from recreational boating, noise pollution, off-road recreational vehicles, scuba diving)
- Emergency response (boating accidents, oil and chemical spills, removal of contaminated soils)

In the coming decades, sea level rise and coastal erosion may eclipse population increases and associated development pressures as the primary threat to coastal cultural and historic resources. Based on local tide gauge data, sea levels in southern Maine and New Hampshire have been rising on average 0.7 inches each decade since 1900. This rate has increased to approximately 1.3 inches per decade since 1993. Seacoast sea levels are expected to rise 0.6-2.0 feet by 2050, and 1.6-6.6 feet by 2100.

Numerous archaeological sites as well as historic buildings and structures located along the York River are threatened with sea level rise. Already, most of the York River archaeological sites recorded by Henry Mercer in 1891 have been destroyed due to shoreline erosion. In 1986, one York River landowner interviewed during an archaeological survey had remarked that about 10 feet of shoreline had washed away in his lifetime.

Wiggly Bridge and causeway overtopped by storm surge. *Photo: Wayne Boardman*

A secondary threat is the general lack of available and accessible information about cultural and historic resources – what makes them unique and valuable, where they are found in the watershed, and what can be done to protect them. Consequently, this plan includes a comprehensive set of stewardship objectives and key actions to mitigate threats to resources. The wide-ranging recommendations can be used to help inform and support local communities, boards, town staff, and preservation groups in land use planning and permitting activities, resource stewardship, outreach, and information sharing.

F. State and Federal Protections and Preservation Programs

In the 1960s, the efforts of the burgeoning community-based preservation movement, with the aid of archaeologists and architectural historians, resulted in a national historic preservation program and the US Congress enacting the National Historic Preservation Act (NHPA) in 1966. The federal government, acknowledging the need to protect the human and natural environment, also passed the National Environmental Policy Act (NEPA) in 1969. NHPA and NEPA form the foundation of heritage preservation today and require that federal agencies: 1) consider the effects of all their actions on cultural resources, 2) inventory, evaluate, and nominate all significant cultural resources under their jurisdiction to the National Register of Historic Places, and 3) mitigate adverse effects upon significant cultural resources.

The legislative umbrella of NHPA, in particular, shapes how state and federal governments interact, and how state and federal agencies are funded for the management of cultural resources. NHPA mandates that a State Historic Preservation Office (SHPO) administer the national historic preservation program at the state level. The state provides matching funds and designates a state office to promote and administer preservation activities. The Maine Historic Preservation Commission (MHPC) is the agency within the Executive branch of Maine's state government that functions as the SHPO.

The National Park Service (NPS) provides funding, technical support and tools for SHPOs to develop statewide preservation programs. Through Sections 106 and 110 of NHPA (16 U.S.C. § 470 et seq.), all federal agencies and SHPOs are mandated to consider the impacts of government activities upon historic and cultural resources and to manage historic properties. The MHPC programs include the nomination of

properties to the National Register of Historic Places, review and comment on the effect of federal undertakings on historic properties, assistance to property owners to obtain federal and state rehabilitation tax credits, inventory and evaluation of archaeological sites as well as historic buildings, objects and districts, and promotion of historic preservation through planning and public education.

Photos from the Punkintown area archaeology survey conducted in 2017 with funding from the National Park Service Partnership Wild and Scenic Rivers Program for the York River Wild and Scenic Study. Stone-lined well associated with the former Plaisted house (left); volunteers excavating along transcect adjacent to Plaisted cemetery and the York River (center); and crew and volunteers at test pit (right). *Photos: Northeast Archaeology Research Center*

The US Army Corps of Engineers (USACE), Federal Highway Administration (FHWA), and Department of Transportation (DOT) are bound by Sections 106 and 110 to consider the effect of any proposed federal, federally assisted, or federally licensed "undertaking" on a historic property that is eligible for the National Register of Historic Places. NEPA also necessitates that federal agencies consider the effects of their actions on cultural resources (42 U.S.C. § 4321 et seq.). Such actions include USACE-licensed projects such as dredging and seawall construction, DOT bridge construction, and waterfront maintenance and development projects. Other Section 106 projects reviewed by the MHPC may include:

- Maine DOT projects funded by the FHWA
- Community development and housing rehabilitation projects that utilize US Department of Agriculture Rural Development and/or US Housing and Urban Development funding
- Department of Defense base closures or military construction projects
- Residential and commercial pier and dock projects requiring permits from USACE
- Projects undertaken by the NPS at Acadia National Park and elsewhere in the state
- Telecommunication tower and antennae installations

Furthermore, Maine's *Site Location of Development* (Site Law) (Title 38, Chapter 3, §§ 481-490) is significant as it protects cultural resources in the state by requiring MHPC consultation on projects larger than 20 acres, large structures and subdivisions, and oil terminal facilities, and their associated infrastructure activities (e.g., stormwater management), that may not come under Section 106 jurisdiction. The MHPC reviews approximately 300-500 projects under this law each year.

G. Local Protections and Preservation Programs

Shoreland zoning ordinances are the primary and currently the only consistent means of protecting historic and archaeological sites throughout all the watershed communities. *[See Stewardship Plan Appendix D for a list of the four towns' historic preservation-related ordinances and codes.]* However,

these protections exclude areas that are generally more than 250 feet from the normal high-water line of great ponds, rivers, tidal waters, and the upland edge of some wetlands. Additionally, local protection of historic resources is non-existent for small developments and construction of single-family homes. This poses a significant risk especially to some of the very early historic archeological sites and historic buildings that are not within a designated historic district – sites which may be of importance to towns and the State of Maine but remain unprotected.

Each town has codified some ordinances or regulations that require properties to be evaluated for the presence of archeological or historic resources for larger planned residential and mixed-use developments, cluster and multifamily developments, subdivisions, and mobile home parks. Applicants are required to obtain an opinion from the local historic district commission, MHPC, or other experts as to the impact of the proposed development upon historic and archaeological resources, and where significant resources are highly likely to be present. Planning boards are then empowered to act to help conserve these resources.

Historic and archeological resources in South Berwick and York also can be protected by designating local historic districts, historic landmarks and historic sites. Designation in York requires approval of the voters in the form of an ordinance amendment, and the resources listed are then afforded regulatory protection by the town. Kittery and Eliot currently do not have any ordinances or regulatory framework for designating local historic districts, landmarks, or sites. York is one of only ten communities in Maine, and the only one in the watershed, to be designated a Certified Local Government (CLG). The CLG program has funded over 20 archeological and architectural inventories in York over the past three decades.

Since the early 1900s, the York River watershed communities have recognized the importance of their towns' history to local, regional, and national history. This is reflected in their commitment to historic resources preservation through the formation of numerous preservation groups and organizations including the Old York Historical Society, Old Berwick Historical Society and Counting House Museum, Eliot Historical Society, and the Kittery Historical and Naval Society and Museum. These mostly volunteer organizations play a significant role in the development, institutionalizing, and sharing of local culture, history, art, and educational programming. The historical societies are responsible, in a large part, for the preservation of the historic character and resources found in these communities today, and equally important, the cultivation of public interest in historic preservation.

John Hancock Warehouse (right), a National Register site, and George Marshall Store Gallery (left). Both sites are owned by Old York Historical Society.

Gaps in Cultural and Historic Resource Protection

Despite state and federal protections, local ordinances and regulations vary from town to town, lack uniformity, and apart from those adopted by the Town of York, are generally inadequate to protect the historic built environment, cultural landscapes, and archaeological resources that are important to the economy, character, and identity of local communities. Examples of regulations, policies and tools that are in use in some towns, but not in others, include nomination and protection of local historic districts and landmarks, reviews as part of renewable energy development projects (solar, wind, tidal), regulations that address adaptive reuse of historic buildings or waterfronts, and regulations that protect traditional uses such as fishing, timbering, and agriculture.

The comprehensive plans of all watershed towns recommend conducting complete inventories of their historic and cultural resources. Although the Town of York has benefitted considerably from its CLG status to conduct inventories of buildings and archaeological sites, the other watershed towns have been unable to implement these recommendations due to a lack of funding and organizational or governmental support. Consequently, despite best intentions, local governments often must make ad hoc and uninformed decisions regarding preservation of historic and cultural resources within their communities.

Stewardship Goal, Objectives, and Key Actions – Cultural and Historic Resources

Goal: Identify and preserve cultural and historic resources of the York River watershed.

Objective 1.1: Enhance funding and financial incentives for historic resources protection in the watershed.

Key Actions:

- Stimulate wider community participation in the Certified Local Government (CLG) program to help promote and fund historic resources preservation.
- Promote federal and state rehabilitation and tax incentive programs and historic preservation grant programs.
- Promote historic districts, highlighting the importance of maintaining clusters of historic resources.
- Explore opportunities and help identify funding sources to implement local financial incentives for historic resource preservation, such as reduced or waived permitting fees.
- Implement education and advocacy efforts to inform citizens of the importance of protecting historic resources for economic values, scenic views, community character, and tourism.

Objective 1.2: Improve understanding and coordination of activities under the National Historic Preservation Act and Maine's preservation laws.

Key Actions:

- Foster collaboration and exchange of information with municipalities, transportation and housing agencies, National Park Service and Army Corps of Engineers, as well as other state agencies.
- Expand network of preservation partners by engaging select boards and town councils, land trusts, historical societies, regional planning commissions, and other community officials.
- Provide toolkits, support, and guidance to community partners and landowners on the importance of surveys and on advantages of designation to the State and National Registers of Historic Places and the associated review processes.

Objective 1.3: Identify and document watershed archaeological, architectural, and historic resources.

Key Actions:

- Assess gaps in surveys and nominations to State or National Registers.
- Update and expand historic context information, including archaeologically sensitive areas, for use in identifying and evaluating archaeological and historic resources in watershed.
- Conduct new and update existing surveys to identify and document archaeological and historic architectural resources throughout the watershed, including updated locational information for historic structures in the Maine Historic Preservation Commission's (MHPC's) CARMA database.
- Utilize state and federal preservation practices to ensure proper documentation and showcase application of the MHPC and Secretary of the Interior's standards and guidelines.
- Maintain up-to-date inventories of historic resources, historic contexts, and scenic values in towns' comprehensive plans.

- Increase nominations of eligible archaeological and historic resources to the State and National Registers of Historic Places, with an emphasis on those associated with underrepresented regions and resource types. For example, work with stakeholders to investigate and pursue Punkintown Historic District/National Register of Historic Places nomination.
- Undertake new research and scholarship at historic sites to improve understanding of the significance of the archaeological and historic resources in the watershed.

Objective 1.4: Improve ability to respond to impacts of sea level rise and other natural disasters on historic resources, including documentation, management and protection actions.

Key Actions:

- Create pre- and post-disaster resiliency and recovery plans that include efficient review and compliance efforts.
- Work with the National Park Service, Federal Emergency Management Agency, and Maine Historic Preservation Commission to develop guidance for historic property owners to address scenarios such as disaster recovery and how to navigate government assistance.
- Establish effective communication methods to ensure information sharing with stakeholders and reviewers at all levels.

Objective 1.5: Improve towns' abilities to identify and protect historic resources through local regulatory and non-regulatory approaches.

Key Actions:

- Amend site plan and subdivision regulations, as needed, to ensure that historic and archaeological resources are identified and protected through the review process.
- Provide training to planning board members on ways to protect historic resources through the site plan and subdivision review process, and to code enforcement officers to assist in identifying and protecting historic resources with single-family home construction projects.
- Adopt building codes that allow flexibility in building renovation to accommodate important design features of historic buildings.
- Review options for tax abatement or other financial incentives for home and business owners and developers that undertake efforts to preserve historic resources.

Objective 1.6: Improve public access to information on local historic resources and facilitate research and exchange of historic preservation information.

Key Actions:

- Update and maintain existing state and local databases and create a single online archive for collecting and sharing information for identification and documentation purposes (e.g., ArcGIS online maps). Seek funding for an integrated online database of historic resources and associated archives.
- Collaborate with the Maine Historic Preservation Commission on the sharing of historic resource data.
- Provide links to photographs, histories, drawings, and other research and documentation.
- Develop training materials and programs on preservation techniques.
- Conduct or coordinate consultant and preservation partner trainings and workshops.

- Work with historic district commissions and historic societies to create a forum for the dissemination of information on key issues and opportunities related to historic preservation.
- Create and promote a network of local homeowners that have completed historic preservation or restoration efforts that are willing to share their experiences with others interested in preserving historic properties and building features.

Objective 1.7: Raise the profile of historic preservation through promotion and stewardship of historic resources.

Key Actions:

- Partner with state agencies (Maine Historic Preservation Commission and Maine Department of Transportation), Maine Archaeological Society, town departments and commissions, historical societies, local museums and land trusts to implement local programs that emphasize history, archaeology, and historic preservation, including Maine Archaeology Month activities.
- Celebrate designations to the State and National Registers of Historic Places, and successful rehabilitation projects to encourage other historic preservation efforts.
- Work with organizations that support historic preservation-related tourism, including the York Region Chamber of Commerce, Maine Humanities Council, and state agencies involved in tourism and marketing, to promote the region's historic resources.
- Compile local summaries of historic properties, including notable features and preservation techniques, to facilitate self-guided walking tours in areas that have clusters of historic resources along the York River or within a historic district.

Photo: Jerry Monkman, Ecophotography.com

V.2 Natural Resources

The overall quality, abundance, and diversity of the York River watershed's natural resources make it an exemplary watershed that provides clean water and diverse habitats for key species. It is one of the most biodiverse regions of Maine, and with continued proactive stewardship and preservation, the watershed ecosystem is likely to provide important habitat functions under changing environmental conditions. The York River watershed includes part of the largest intact coastal forest in the area between Acadia and the New Jersey Pine Barrens, as well as one of the largest intact salt marsh areas in southern Maine. The presence of both saltwater and freshwater ecosystems and the convergence of those systems in an estuary also contribute to the wide range of special habitats and species that are present.

Natural Resources for the York River watershed are characterized in four sub-sections:

- Watershed landscape
- Habitats, wildlife, and biodiversity
- Water resources
- Watershed resilience

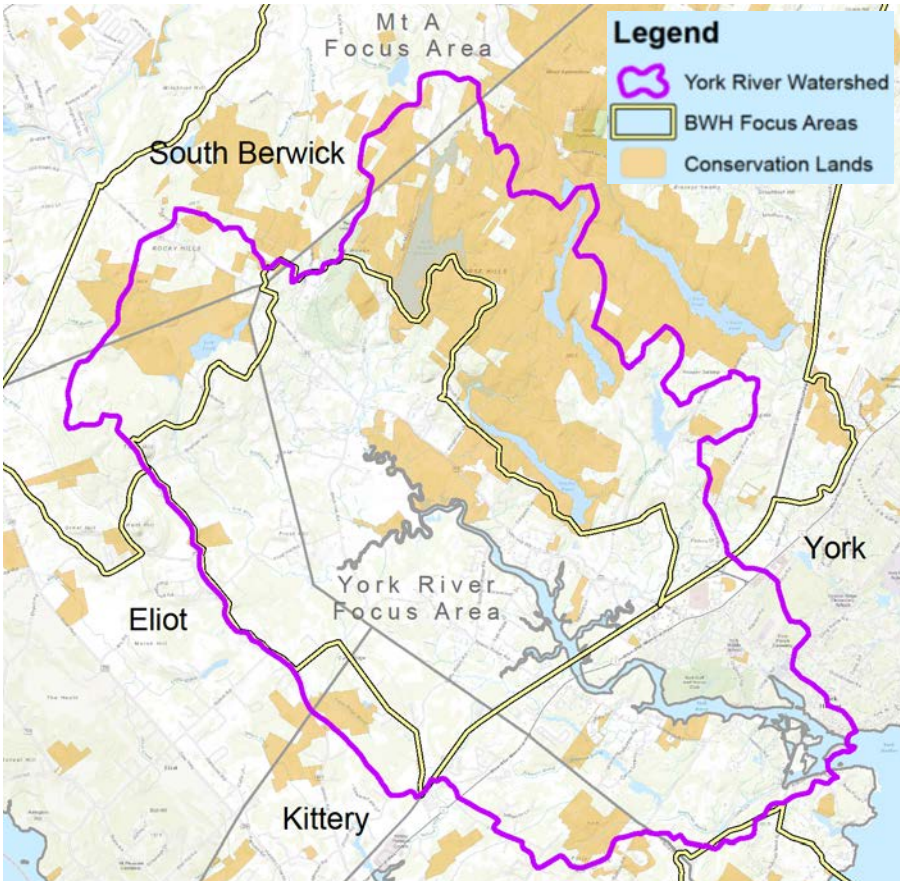
Statewide Ecological Significance

The Maine Department of Inland Fisheries and Wildlife (MDIFW) Beginning with Habitat Program identifies focus areas of statewide ecological significance based on an "unusually rich convergence of rare plant and animal occurrences, high value habitats, and relatively intact natural landscapes." The York River watershed includes two adjacent state focus areas: the York River Focus Area and part of the Mount Agamenticus Focus Area.

The **York River Focus Area** of statewide ecological significance covers 8,750 acres of watershed lands in York, Eliot, and Kittery, including the uplands and wetlands surrounding the upper York River and its tributaries. The focus area includes extensive salt marshes and the upper estuary system where fresh and saltwater mix. The area is mapped as important tidal wading bird and waterfowl habitat and provides habitat for many diadromous fish species. Rare plant and animals and other high value habitats are found throughout this focus area.

The York River focus area is notable for the tidal marsh estuary ecosystem that includes the intertidal bays and one of the largest unprotected Spartina salt marshes, a rare community type, in the state. The extensive York River Estuary is one of the Gulf of Maine's least disturbed marsh-estuarine ecosystems and may be the most ecologically diverse coastal drainage for its size in the Gulf of Maine. – Maine Department of Inland Fisheries and Wildlife, Beginning with Habitat Program

The York River watershed also includes 7,170 acres in the much larger **Mount Agamenticus Focus Area** that extends from the York Pond region in Eliot and South Berwick northeast through the Tatnic Hills area in Wells and includes the drinking water supply ponds and surrounding lands in York. This focus area includes rugged terrain, several lakes and ponds, and numerous small wetlands that together comprise the largest contiguous block of lightly developed land in southern York County and one of the largest remaining areas of undeveloped forest in coastal New England. The focus area has one of the richest concentrations of vernal pool habitat in the state, supporting state-listed Blanding's and spotted turtles in concentrations rarely encountered elsewhere. The uplands and wetlands in this focus area provide habitat for 12 animal species and 21 plant species that are considered rare in Maine.



York River watershed and Statewide Focus Areas (map by Wells Reserve)

The MDIFW Beginning with Habitat Program provided data to and produced maps for the York River Study Committee in 2017. The maps show a number of important natural resources at the watershed scale:

- Undeveloped habitat blocks, connectors, and conservation lands
- High value plant and animal habitats
- Wetlands characterization
- Water resources and riparian habitats
- Natural resources co-occurrence

Maps are best viewed electronically or in a printed format too large to include in this plan. All maps are on the York River Study website: www.YorkRiverMaine.org.

A. Watershed Landscape

Forests and Undeveloped Habitat Blocks

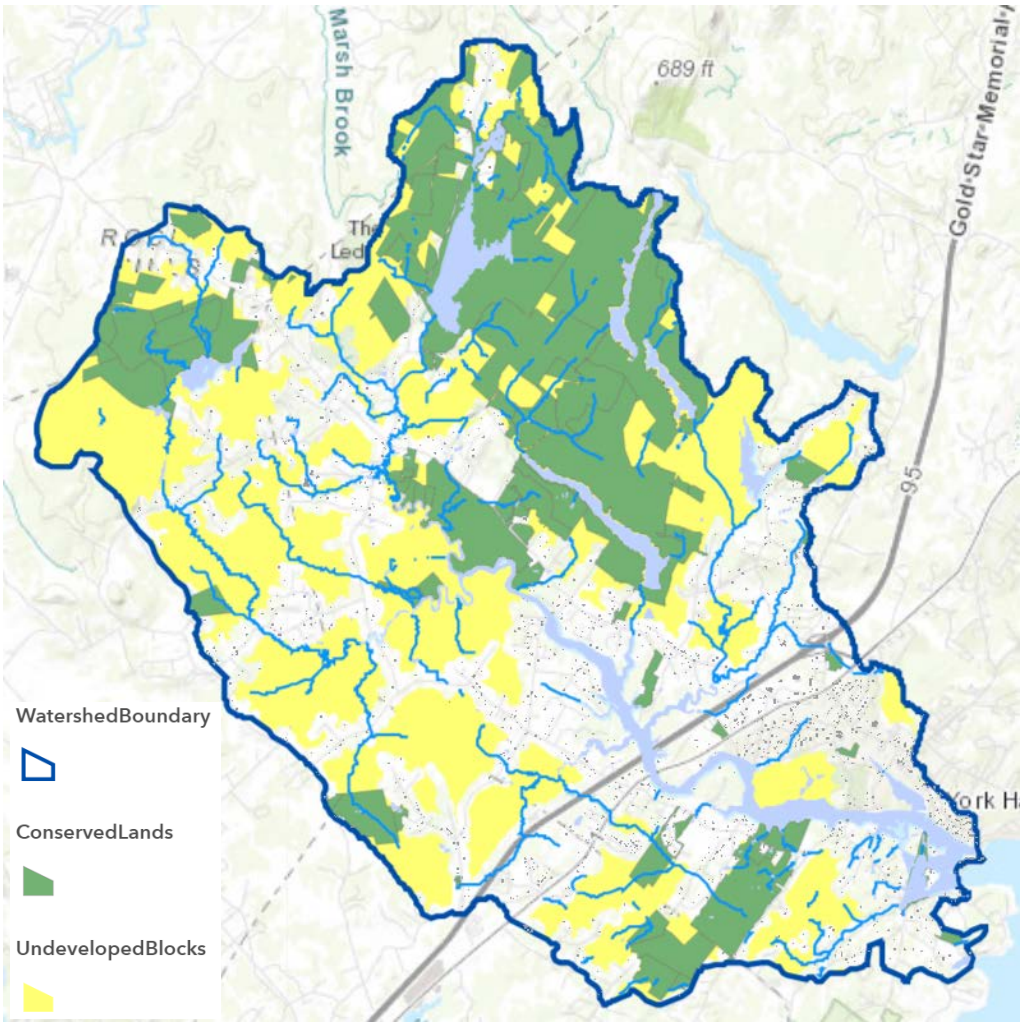
Over 50 percent of the York River watershed includes forested areas, some of which are part of one of the largest remaining areas of undeveloped forest in coastal New England. Southern and northern New England forest types converge in the watershed area, and this biome transition is another factor contributing to the area's rich biological diversity. Many of the headwater streams in the York River watershed overlap with forested areas, and the forested wetlands and riparian areas along these streams play a key role in providing good water quality and aquatic habitats for species farther downstream.

Bald eagles along the York River. *Photo: Chuck Maranhas*

Much of the watershed's forestlands occur in large, unfragmented blocks. Certain species need these large undeveloped blocks for habitat including many of Maine's iconic species, as well as its more common native species. Bobcat, coyote, fisher, black bear, moose, bald eagle, goshawk, raven, and red-tail hawk all need undeveloped habitat blocks greater than 500 acres. Species such as hare, porcupine, beaver, mink, weasel, woodchuck, deer, sharp-shinned hawk, cooper's hawk, harrier, broad-winged hawk, kestrel, horned owl, barred owl, osprey, turkey vulture, turkey, garter snake, ringed neck snake, and wood frog need habitat blocks in the range of 100-500 acres.

Over 11,000 acres of York River watershed lands, which is just over half of the total area, are in unfragmented blocks greater than 100 acres (see figure on next page). The watershed lands contribute to several large undeveloped blocks in the greater region, including a 2,800-acre block around York Pond, a 3,800-acre area west of Bell Marsh Reservoir and into South Berwick, and the 6,460-acre block around the Kittery and York water districts' water supply ponds. Habitat connections, wildlife migration areas, riparian corridors, and road crossing areas for wetland dependent species moving between waterways are important to identify and preserve or improve, especially as habitat blocks are further developed and fragmented.

Kittery Water District's Middle Pond. *Photo: Gary Stevens*



Undeveloped habitat blocks and conservation lands (map by Spatial Alternatives)

Conservation Lands

The significant natural resources of the York River watershed have made this region a priority area for many local and regional conservation initiatives. There are roughly 5,600 acres of conserved lands, which is about 26 percent of the watershed area. This includes about 2,500 acres of the Kittery Water District's water supply lands that do not have permanent protection from development. Local land trusts (York Land Trust, Kittery Land Trust and Great Works Regional Land Trust) own or hold conservation easements on roughly 2,000 acres in the watershed. Maine Department of Inland Fisheries and Wildlife, municipalities, US Fish and Wildlife Service, and The Nature Conservancy own the balance of protected lands. The water district lands, many of the larger land trust holdings, and all the publicly-owned lands allow public access and use, enabling varied recreational opportunities.

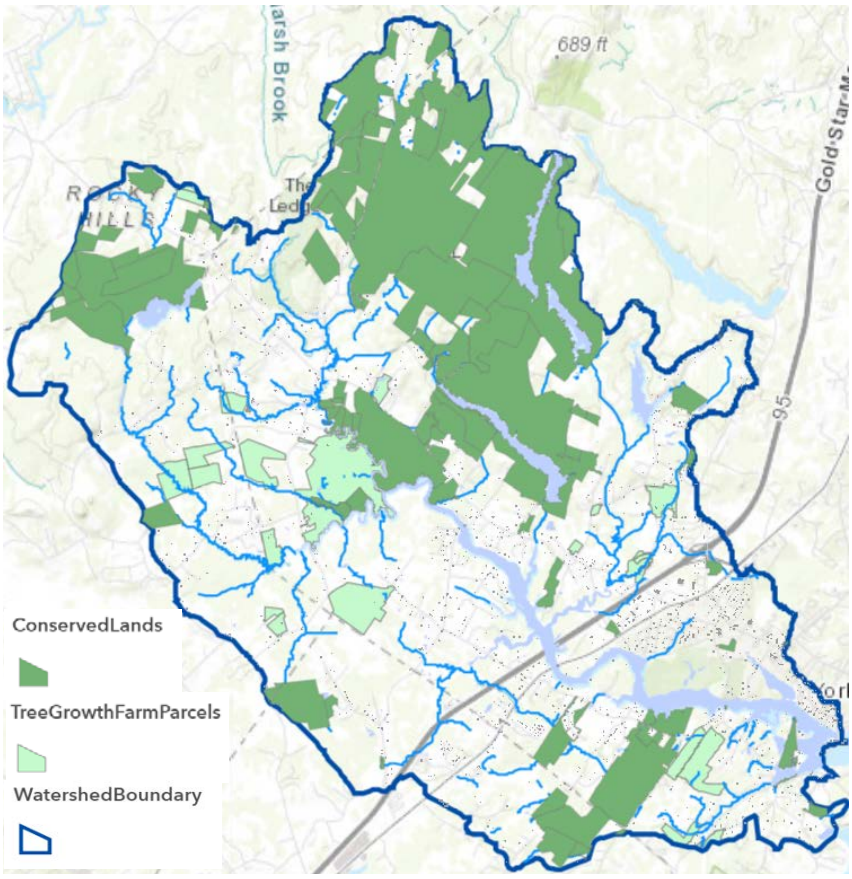
Local land trusts and regional conservation organizations have a long history of successfully completing proactive land conservation initiatives, building community support for conservation, and working collaboratively with towns and other partners to facilitate conservation projects. Planning and funding for

additional priority projects and for management of existing conservation lands are needed to protect important habitats, water quality, and rare species found in the watershed.

Conservation plans for the Mount Agamenticus to the Sea Conservation Initiative and the Great Works Regional Land Trust, as well as open space plans for the towns of Eliot and South Berwick, are described in Section IV – York River Watershed. Some of the land trusts' sizable preserves are described later in this section under recreational resources.

Working Landscapes / Traditional Uses

Agricultural and forestry uses of watershed lands, once a large part of the landscape, still have a role in providing open spaces and scenic views, maintaining traditional uses of lands, and contributing to the local economy. These lands also can provide important wildlife habitat and connections between habitat blocks. All of the towns' comprehensive plans note the importance of maintaining local working farmlands and forests. Maintaining a working waterfront, also an economically and culturally important traditional use, is further addressed in the next sub-section of the Stewardship Plan.



Conservation lands and parcels enrolled in current use programs (data compiled by Spatial Alternatives)

To encourage farming and forestry, as well as working waterfronts and open spaces for public recreation, the State of Maine has four "current use" taxation programs that offer the property owner a reduction in assessed value: Farmland, Open Space, Tree Growth, and Working Waterfront. These programs establish valuation of property at its current use, rather than at market value or development value. All four current use programs are available to property owners through an application process with the local municipality.

Within the York River watershed, parcels enrolled in tree growth or farmland programs account for about 930 acres (approximately 4.4 percent of the watershed area).

B. Habitats, Wildlife and Biodiversity

The diverse habitats and natural communities in the watershed make it rich with plant and animal species, including many that are rare or of special concern. The presence of both salt and freshwater ecosystems and the convergence of those systems in an estuary contribute to the wide range of special habitats present – including fringing marshes, salt marshes, tidal flats and the nutrient-rich tidal marsh estuary. The York River estuary and its salt marshes provide critical habitat for many fish and bird species. An estimated two-thirds of commercially valuable fish, shellfish, and bait species in the Gulf of Maine depend on estuaries and salt marshes at some point in their life cycles.

Natural Communities and Wildlife Habitats

The Beginning with Habitat Program and the Maine Natural Areas Program (MNAP) provide information on rare and exemplary natural communities, significant wildlife habitats, and species of special concern that are present in the watershed. MNAP has classified 104 different natural community types that cover the state's landscape and has assigned a rarity rank of 1 (rare) through 5 (common) within Maine and globally. MNAP is interested in natural community types with state ('S') rankings of S1 (critically imperiled, with 5 or fewer occurrences statewide), S2 (imperiled, with 6-20 occurrences statewide), or S3 (rare, with 20-100 occurrences statewide), as well as exemplary examples of S4 (apparently secure) and S5 (demonstrably secure) community types.

Rare and exemplary natural communities in the York River watershed, with state rarity ranking:

- Tidal marsh estuary ecosystem (S3)
- Spartina salt marsh (S3)
- Oak-pine forest (S4)
- White oak-red oak forest (S3)
- Oak-hickory forest (S1)
- Pitch pine bog (S2)

Photo: Gary Stevens

Significant wildlife habitats are defined under Maine's Natural Resources Protection Act, which is administered by the Maine Department of Environmental Protection. Five types of significant wildlife habitats exist in the York River watershed. **Deer wintering areas** are forested areas where snow accumulation is less than surrounding areas, thereby facilitating deer movement and access to food. **Inland wading bird and waterfowl habitat** are mapped wetland complexes with specific characteristics and the 250-foot upland zone surrounding them**. Shorebird feeding and roosting areas** consist of intertidal mudflats and adjacent areas used by high concentrations of shorebirds for feeding and staging, often during migration. **Significant vernal pools** are natural, temporary to semi-permanent bodies of water occurring in shallow depressions that typically fill during the spring and may dry during the summer. Vernal pools provide the primary breeding habitat for species such as wood frogs, spotted salamanders, and fairy shrimp, as well as valuable habitat for other rare and endangered species. **Tidal wading bird and waterfowl habitat** can include mapped eelgrass beds, mussel beds, emergent wetlands, and mudflats.

Significant wildlife habitats in the York River watershed:

- Deer wintering areas (460 acres)
- Inland wading bird and waterfowl (2,870 acres)
- Shorebird feeding and roosting (60 acres)
- Significant vernal pools (30 acres, mapping incomplete)
- Tidal wading bird and waterfowl (2,490 acres)

Salt Marsh Habitat

Salt marshes provide critical feeding, migrating, wintering and breeding habitat for many fish and bird species. They are important nesting habitat for Nelson's sharp-tailed sparrow and the rare saltmarsh sharp-tailed sparrow. These tidal wetlands provide foraging habitat for numerous wading birds and shorebirds, including rare species such as the black-crowned night-heron and least tern. Salt marshes provide important nursery and spawning habitat for many fish species, and they protect aquatic habitat for migratory fish such as American eel, rainbow smelt, and alewife. Salt marshes provide water quality benefits and flood protection. Threats to this important habitat and the wildlife species associated with it include pollution, human disturbance, sea level rise, invasive species, and predation.

The York River estuary ecosystem includes about 500 acres of salt marsh habitat, most of which is in the upper reaches of the estuary surrounding the confluence of the York River and Smelt Brook to near head of tides. Smaller salt marsh complexes exist in other parts of the estuary such as the tidal portions of Dolly Gordon Brook, Libby Brook, and Cider Hill Creek. The York River salt marsh is one of the largest, intact tidal marshes in southern Maine. Many of the remaining high quality salt marshes in Maine are on public lands or private conservation lands; however, the majority of the York River salt marshes and the adjacent uplands are not protected.

Salt marshes around Smelt Brook. *Photo: David J. Murray, ClearEyePhoto.com*

Rare and Endangered Species

The greater Mount Agamenticus region, which includes the York River watershed, has the greatest diversity of threatened and endangered species of any Maine region. The estuary system provides valuable roosting and feeding area for tidal wading birds and waterfowl. The estuary and watershed streams provide excellent spawning habitat for 28 species of estuarine and freshwater fish, including many diadromous fish species that are of conservation concern. The marshes provide habitat for rare bird species such as the saltmarsh sharp-tailed sparrow. The estuary and waterways provide extensive habitat and a migration corridor within the Atlantic flyway for many threatened birds. Some endangered and threatened species inhabiting the wetland-upland areas include the Blanding's turtle, spotted turtle and ringed boghaunter dragonfly, one of the rarest dragonflies in North America. Rare plant species include saltwater false-foxglove, spongy-leaved arrowhead, and water pimpernel, among many others.

Saltmarsh sharp-tailed sparrow *(photo: MDIFW),* and spongy-leaved arrowhead *(photo: MNAP, DACF)*

The 2015-2025 Maine Wildlife Action Plan, developed by the Maine Department of Inland Fisheries and Wildlife in coordination with other agencies and conservation partners, identifies **species of greatest conservation need** (SGCN) – those species under greatest threat from primarily human induced habitat loss or change and requiring direct conservation actions to restore or sustain their populations. SGCN prioritization (ratings of 1, 2, or 3, with 1 being most at risk) is based on factors such as risk of extirpation, population trend, endemicity, and vulnerability to changing climate conditions. SGCN include endangered and threatened species and species of special concern, among other species. A **species of special concern** does not meet the criteria of an endangered or threatened species but is particularly vulnerable, and could easily become an endangered, threatened, or extirpated species due to restricted distribution, low or declining numbers, specialized habitat needs or limits, or other factors.

Within the watershed there are numerous endangered, threatened, and special concern species (ETSC species). The watershed towns of York, Eliot, Kittery, and South Berwick have 185 different wildlife species of greatest conservation need (SGCN). *[See Stewardship Plan Appendix E for lists of priority 1, 2, and 3 SGCN found in each watershed town.]*

ETSC wildlife species in the York River watershed:

Great blue heron	Little brown bat
Northern spring salamander	Northern long-eared bat
Spicebush swallowtail	Eastern small-footed bat
Ringed boghaunter	Juniper hairstreak
New England cottontail	Eastern ribbon snake
Scarlet bluet	Northern black racer
Blanding's turtle	Saltmarsh tiger beetle
Spotted turtle	Harlequin duck
Eastern box turtle	Swamp darter
Saltmarsh sparrow	Brook stickleback

Diadromous fish SGCN in the watershed:

- Atlantic sturgeon (priority 1)
- Shortnose sturgeon (priority 1)
- American eel (priority 2)
- Blueback herring (priority 1)
- Alewife (priority 2)
- American shad (priority 1)
- Rainbow smelt (priority 1)
- Brook trout (priority 3)

Mapped habitats in the York River watershed supporting some of these species of special concern include 700 acres of New England cottontail habitat, 100 acres of ringed boghaunter habitat, and about 1,200 acres of habitat for endangered and threatened turtles. Additional species surveys and habitat mapping are needed for the full watershed area.

New England cottontail *(photo: John Depue);* ringed boghaunter dragonfly *(photo courtesy of York Land Trust);* and rainbow smelt measured and released during 2017 fish survey *(photo: Wells Reserve).*

Thirty-six **plant species of special concern** that have state rarity ranks of S1 (critically imperiled in Maine), S2 (imperiled in Maine), and S3 (rare in Maine) have been documented in the watershed.

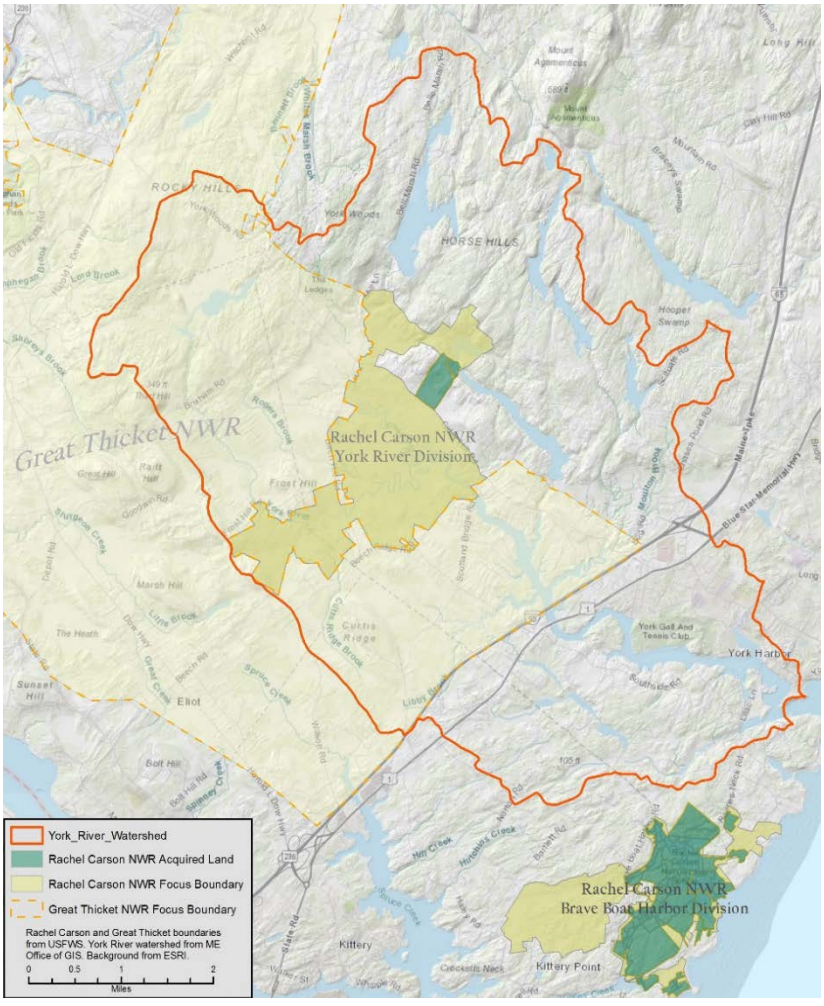
Plant species found in the York River watershed that have state rarity rankings of S1, S2, or S3:

American sea-blite	Flowering dogwood	Sassafras	Spreading sedge
Atlantic white cedar	Horned pondweed	Scarlet oak	Summer grape
Awned sedge	Lilaeopsis	Sharp-scaled manna-grass	Swamp white oak
Bottlebrush grass	Mudwort	Small reed grass	Sweet pepper-bush
Broad beech fern	Muhlenberg sedge	Small salt-marsh aster	Tall beak-rush
Chestnut oak	Northern wild comfrey	Smooth winterberry holly	Upright bindweed
Dwarf glasswort	Pale green orchis	Spicebush	Water pimpernel
Eaton's bur-marigold	Pendulous bulrush	Spongy-leaved arrowhead	Wild coffee
Featherfoil	Saltmarsh false-foxglove	Spotted wintergreen	Wild garlic

Federal Priority Species and Wildlife Habitats

Convergence of quality wildlife habitats, natural communities and rare species in the region makes the York River watershed lands and surrounding landscape priorities for the US Fish and Wildlife Service in protecting federally-listed and threatened wildlife species and migratory birds. The 2,200-acre York River Division of the Rachel Carson National Wildlife Refuge includes the extensive salt marsh habitat around the York River and Smelt Brook, as well as adjacent shrublands and uplands, providing key habitat for New England cottontail, saltmarsh sharp-tailed sparrow, American eel, alewife, and other species. US Fish and Wildlife Service only acquires lands within its focus boundary from willing sellers. It currently owns about 90 acres in its York River Division.

The Great Thicket National Wildlife Refuge includes several areas across New England, including York River watershed lands in all four watershed towns and extending northwest outside of the watershed boundary. The Great Thicket focus area includes shrubland and young forest/early successional habitats intended to support declining shrubland wildlife, such as New England cottontail, prairie warbler, blue-winged warbler, field sparrow, American woodcock, and brown thrasher.



US Fish and Wildlife Service National Wildlife Refuge boundaries that overlap with the York River watershed.

Fisheries

The York River watershed provides habitat for a diverse community of fish, especially for a watershed of its size. Research conducted in 2001 by the Wells National Estuarine Research Reserve identified 28 fish species including marine, anadromous, catadromous, estuarine and freshwater species. Important migratory species include rainbow smelt, alewife, and American eel. The study also documented a range of fish habitats, including marine and estuarine rocky and sandy substrates, salt marsh, cold water streams, and a natural headwater pond. Results were published in a 2006 report, *Fish Communities and Habitats of the York River Watershed*.

2017 Fish Assessment

The York River Study Committee contracted with Wells National Estuarine Research Reserve to update and expand information about fisheries in the York River watershed by conducting a fish assessment during 2017. The study focused primarily on surveying rainbow smelt and alewives, two fish species designated in the Maine Wildlife Action Plan as Species of Greatest Conservation Need. These important species may require conservation actions to restore or sustain their populations from threats associated with habitat loss or other impacts.

The Wells Reserve study focused on assessing adult rainbow smelt and alewives during their respective spring migration periods. Based on historic presence of fisheries or potential spawning habitat, fyke nets were placed at four sites - the main stem of the York River, Smelt Brook, Bass Cove Creek, and Dolly Gordon Brook. Water quality monitoring stations were deployed near each fyke net to measure water temperature, depth and salinity during sampling.

Fyke net deployed in Smelt Brook. *Photo: Wells Reserve*

Findings from the 2017 assessment show that the York River provides productive habitat for multiple fish species, including at least five Maine Species of Greatest Conservation Need: alewife, American eel, brook trout, rainbow smelt, and winter flounder. Three of these species, alewife, American eel, and rainbow smelt, have also been designated as Species of Concern by the National Marine Fisheries Service. Other fish species identified during the study included striped bass, Atlantic silversides, Atlantic tomcod, banded killifish, common sea robin, common shiner, fourspine stickleback, grubby sculpin, mummichog, ninespine stickleback, pumpkinseed sunfish, threespine stickleback, white perch, and white sucker. Invasive or non-native species included European green crab, bluegill, and yellow perch.

The presence of spawning populations of rainbow smelt and alewives indicates that the York River watershed provides productive habitat for anadromous species. These fish provide an important seasonal forage base for many aquatic, avian, and terrestrial species, including larger recreational and commercial fish, marine and freshwater dependent mammals, and fishing birds. The presence of a sizable run of

rainbow smelt in the York River has regional significance as populations in other areas have been in decline.

Key findings from the assessment include:

- The 2017 fisheries assessment identified a significant population of rainbow smelt in the York River watershed. Relative abundance of smelt in the York River appears to be higher than other areas that have been recently studied in the region including Great Bay in New Hampshire and Casco Bay in Maine.
- Despite lack of access to upstream ponds and lakes, alewives are present in the watershed and may be spawning in low velocity pools, riparian wetlands, and backwatered stream reaches. Because spawning by alewives was not documented as part of this study, further investigations would be needed to document alewife spawning habitat and activity. Also, because the fyke net design is more effective for catching rainbow smelt than alewives, additional study would be needed to estimate the size of alewife populations in the watershed.
- Brook trout were found in the upper reaches of the York River as well as in the estuary and migrating between the tidal and freshwater reaches of Smelt Brook. Size, location, and timing of the catch indicate that the trout were likely from a wild population and they may represent an anadromous population, a rarity in coastal ecosystems today.
- Priorities for ensuring long-term protection of rainbow smelt and other anadromous fisheries include conserving riparian corridors, ensuring adequate streamflow, and providing unimpeded fish passage by improving road-stream crossings with natural substrate and adequately sized structures, including structure improvements to allow passage at all tide stages for tidal stream crossings.

Gravel and riffle spawning habitat in Smelt Brook. *Photo: Wells Reserve*

Detailed results from the study have been published in *An Assessment of Spring Fish Communities in the York River, Maine: Report to the York River Study Committee, 2018* that is available on the York River Study website.

York River Smelt Spawning and Riparian Habitat

As a companion study, Wells Reserve staff also conducted a field assessment of rainbow smelt spawning habitat in study reaches and a GIS desktop assessment of riparian habitat condition in the York River. Field reviews identified potential rainbow smelt spawning areas in the upper York River, Smelt Brook, and Bass Cove Creek. Diversity of spawning habitat for rainbow smelt found in multiple tributaries of the York River will likely enhance resiliency of the species. While the study included some field observations about the productivity of spawning habitat, further assessment is needed to identify the location and extent of spawning habitat being utilized in the York River and tributary streams.

Riparian habitat in the York River watershed is largely undeveloped with forest and wetlands making up 78 percent of the natural areas bordering the York River and its tributaries. Almost a third of the riparian buffer is conservation land. Development along the riparian buffer is concentrated primarily in the southern area of the watershed near the center of York and along the Route 1 and I-95 corridors. Protecting riparian habitat from future development was identified as a top priority for long-term conservation of rainbow smelt habitat in the York River watershed.

Riparian Habitat in the York River		
Type of land	Acres	% of total
Forest (deciduous, evergreen, mixed)	2,025	40%
Wetlands (emergent, woody, herbaceous)	1,926	38%
Developed (high, medium, low, open)	559	11%
Open Water	233	4%
Crop / Pasture	225	4%
Scrub-Shrub	85	2%
Barren Land (gravel pit)	51	1%

Stream Connectivity

Maintaining and enhancing stream connectivity is crucial to supporting healthy migratory fish populations in any watershed. The Maine Stream Connectivity Work Group, a partnership of dozens of state, federal, industry and non-government organizations, has been working to improve Maine's stream restoration efforts. Together the partners developed the Maine Stream Habitat Viewer, an innovative tool that displays stream habitats for species important to Maine's economy, ecology and way of life and provides information about dams and road crossings that can act as barriers to fish passage and stream health.

Using information from the Maine Stream Habitat Viewer, Wells National Estuarine Research Reserve analyzed stream barriers in the York River watershed to help prioritize locations with high habitat and infrastructure value. The analysis was conducted using a spatial Decision Support Tool to assign a score to stream crossings in the watershed. Rankings are now helping to guide maintenance and restoration efforts in the watershed that will benefit both habitat connectivity and public safety.

The perched outlet of the Route 91 culvert on Smelt Brook blocks upstream fish passage. *Photo: Wells Reserve*

Overall, 95 stream crossing structures including bridges, culverts, and other road crossings have been identified in the York River watershed. Five of these crossings have been placed in the top two highest categories of priority for needing action to improve both stream connectivity and ensure adequate capacity for tidal flows. One such priority site is the crossing of Route 91 and Smelt Brook where the culvert design creates a barrier to aquatic passage at low and mid tides and may restrict tidal flow during certain conditions.

Watershed communities are working in partnership with state and federal agencies to improve stream crossings in the York River watershed and throughout the state.

Invasive Species

The Maine Wildlife Action Plan identifies invasive non-native species/diseases as a primary threat to species of greatest conservation need (SGCN) and to key habitats throughout Maine. Invasive plant and animal species degrade habitats and directly displace native species through competition or predation. Invasive species impacts are expected to become more problematic with changing climate conditions, and native species whose habitats are increasingly threatened by invasive species are more vulnerable to impacts from a changing environment.

> *"[Invasive species impacts] tend to be more prevalent in southern Maine, where higher human populations and a moderate climate facilitate expansion of non-native species. In the marine environment, green crabs are a prevalent invasive species with deleterious impacts on a variety of habitats and SGCN. In some cases, non-native diseases, such as white-nosed syndrome in bats, have also had devastating impacts on SGCN. Impacts from 'Invasive Non-native/Alien Species/Diseases' can be severe, and in many cases it is extremely difficult to reverse the spread of invasive species or diseases; prevention is often the only feasible solution."* – 2015 Maine Wildlife Action Plan

Actions to address invasive species include monitoring, containment, and control measures. Maine Department of Agriculture, Conservation and Forestry (DACF), which includes the Department of Inland Fisheries and Wildlife and Maine Natural Areas Program (MNAP), provides training for landowners in appropriate methods to address invasive species and provides support for invasive pest preparedness and response efforts. DACF coordinates education and outreach on soil and water conservation practices by Maine's local Soil & Water Conservation Districts. Conservation Districts provide ongoing technical assistance and education on invasive species management along with many other topics such as soil health, nutrient management, erosion control, water conservation, sustainable agriculture and forestry, and other locally-identified natural resource management issues.

Sunrise over the York River, with the invasive common reed (*Phragmites australis*) in foreground. *Photo: Derek Fieldsend*

MNAP provides outreach and education services to help share information about invasive plants in Maine. MNAP administers *iMapInvasives*, a free web-based map and database that shows where invasive species are on Maine's landscape. iMap can be an effective tool for citizen groups, landowners, and land managers to help track invasive species infestations and control efforts. Thirty-one invasive species from the four watershed towns have been identified and mapped in iMap. Invasive species reported in iMap include plant and animal species that affect terrestrial, freshwater, and estuarine habitats in the York River watershed. Reported species do not represent all the invasive species present in the watershed that pose threats to native species and habitats.

Invasive species found in York, Eliot, Kittery and/or South Berwick and reported in iMap:

- Hemlock woolly adelgid
- Asiatic bittersweet
- Cypress spurge
- Glossy false buckthorn
- Red alga
- Japanese honeysuckle
- Variable-leaf milfoil
- Common reed
- Curly-leaf pondweed
- Rugosa rose
- Japanese barberry
- February daphne
- Leafy spurge
- Asian shore crab
- Yellow iris
- Morrow's honeysuckle
- European naiad
- Japanese knotweed
- Buckthorn
- Climbing nightshade
- Green crab
- Burning bush (Winged euonymus)
- Elongate hemlock scale
- Giant hogweed
- Privet, species unknown
- Purple loosestrife
- Reed canary grass
- Giant knotweed
- Multiflora rose
- Perennial pepperweed (Tall pepperwort; Broad-leaved pepperweed; Broadleaf pepper-grass)
- Japanese fuki (Japanese sweet-coltsfoot; Japanese butter-bur)

C. Water Resources

The rivers, streams, ponds and wetlands that make up the York River watershed provide valuable habitat for wildlife, support a wide range of recreational opportunities, and provide an important source of drinking water to local communities. The headwaters region of the York River is comprised of unfragmented forested areas that have helped to preserve natural landscape, wildlife habitat and excellent water quality conditions in the watershed. The York River system is further protected by extensive fringing salt marshes and naturally vegetated buffers found throughout the watershed.

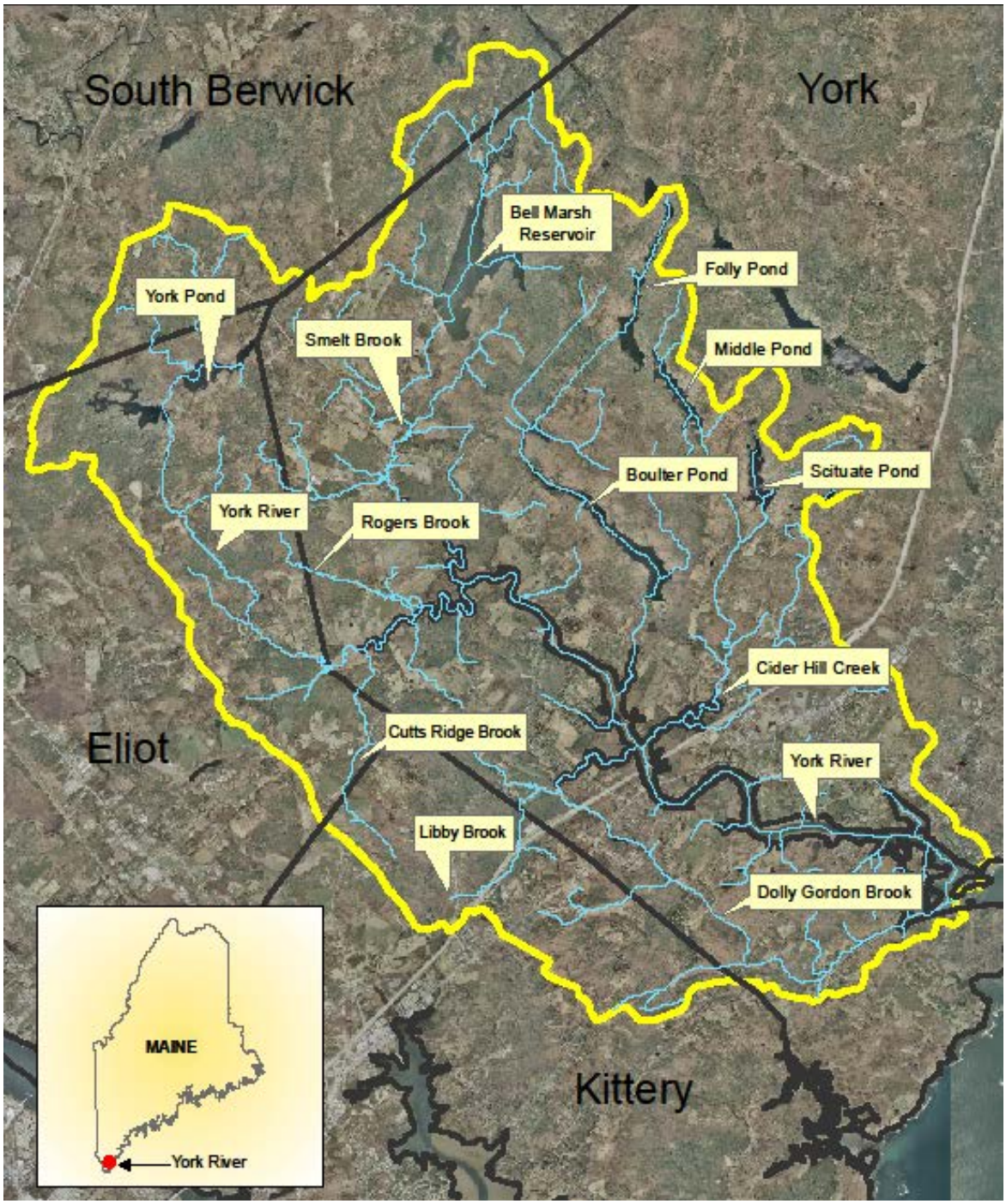
The 33 square mile watershed includes approximately 109 miles of rivers and streams and 568 acres of ponds. The York River begins at York Pond and travels through Eliot and York before emptying into York Harbor and the Gulf of Maine. The 12-mile York River is a predominantly estuarine system with tidal influence extending just upstream of the York-Eliot town boundary. The following streams and their tributaries feed into the main stem of the York River:

- Cutts Ridge Brook – Eliot, Kittery and York
- Rogers Brook – Eliot and York
- Smelt Brook – York
    - Macintire Junkins Brook (tributary to Smelt Brook)
- Bass Cove Creek - York
- Cider Hill Creek – York
    - Moulton Brook (tributary to Cider Hill Creek)
- Libby Brook – Kittery and York
- Dolly Gordon Brook – York
    - Johnson Brook – York and Kittery (tributary to Dolly Gordon Brook)
- Southside Brook – Kittery and York

The York River watershed includes York Pond and Scituate Pond as well as a series of man-made ponds and reservoirs that make up the Kittery Water District water supply system that provides drinking water for Kittery, the Portsmouth Naval Shipyard, and portions of York and Eliot.

Bell Marsh Reservoir, Middle Pond, Folly Pond and Boulter Pond are all part of the drinking water supply system.

Folly Pond. *Photo: Gary Stevens*



Major streams and waterbodies in the York River watershed (map by Wells Reserve)

Water Quality

The York River estuary is often considered a reference site by Maine state environmental agencies as its rivers and streams exhibit very good water quality conditions. In addition to protections afforded by its largely preserved natural landscape, the York River and its tributaries are not impaired by major industrial or wastewater discharges that often impact rivers of similar size in Maine and New England.

Preserving the quality of water resources in the York River watershed is crucial to sustaining many of the other watershed values. Recreational swimming, kayaking and other water activities all rely on clean water. Commercial and recreational fishing depend upon healthy ecosystems that support diverse fisheries. And finally, the watershed's rich wildlife, biodiversity, and riverine habitat are all supported by rivers and streams that meet or exceed water quality standards. Maine's water classification program and results from monitoring programs underscore the condition and value of water resources in the York River watershed.

Water Quality Classification

The Maine Department of Environmental Protection (Maine DEP) established a water quality classification system to help guide management of surface waters, protect the quality of those waters for their intended management purposes, and where standards are not achieved, direct the state to enhance water quality to achieve those purposes. The classification standards establish designated uses, related characteristics of those uses, criteria necessary to protect the uses, and specific conditions for certain activities such as the discharge of wastewater.

The York River watershed is categorized by the State of Maine as Class B for freshwater and Class SB for marine and estuarine waters that attain fishable, swimmable standards established by the federal Clean Water Act. Class B / SB waters maintain high water quality criteria even though they may not have the most stringent restrictions on activities. Class SB marine waters support all indigenous estuarine and marine species.

ME DEP Integrated Water Quality Monitoring and Assessment

In February 2018, Maine DEP finalized its 2016 Integrated Water Quality Monitoring and Assessment Report (Report), also known as the 305(b) report and the 303(d) list of impaired waters. The Report utilizes water quality assessments and other available information to describe the health, status, and trends of waters in Maine. Water bodies are assigned categories based upon whether or not designated uses and the narrative and numeric criteria established to assess those uses are being met. Report category assignments for 2016 were based on prior report listings, and where new data were available, water quality assessments were primarily based upon data collected in 2013 and 2014.

Water Quality – Assessment Categories	
Category 1	Attaining all designated uses and water quality standards, and no use is threatened.
Category 2	Attains some of the designated uses; no use is threatened; and insufficient data or no data and information is available to determine if the remaining uses are attained or threatened (with presumption that all uses are attained).
Category 3	Insufficient data and information to determine if designated uses are attained (with presumption that one or more uses may be impaired).
Category 4	Impaired or threatened for one or more designated uses but does not require development of a TMDL (Total Maximum Daily Load) report.
Category 5	Waters impaired or threatened for one or more designated uses by a pollutant(s), and a TMDL report is required.

In the 2014 Report, Maine DEP removed the York River from the state's Impaired Coastal Watershed / Priority Coastal Watershed 305(b) / 303(d) list as nonpoint source pollution was not believed to be a cause of dissolved oxygen non-attainment in the watershed. In the Class B portion of the 2016 assessment, Smelt Brook is listed as a Category 2 water body to reflect updated mapping and a revised length. In March 2017, Maine DEP issued an updated Nonpoint Source Priority Watersheds Lists identifying 71 impaired streams and 77 threatened streams in the state. In the York River watershed, there were no priority impaired streams on the list. However, Moulton Brook and an unnamed tributary were included on the priority threatened streams list due to potential development threats associated with highway access.

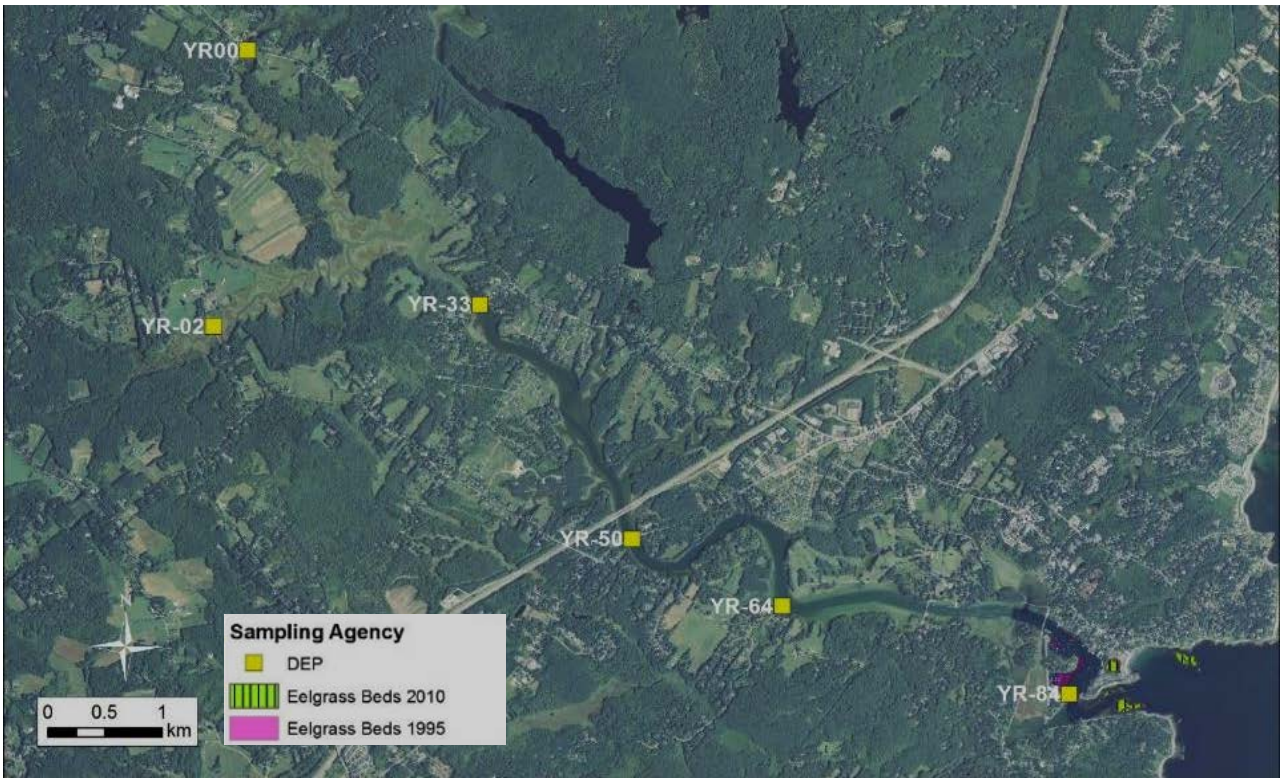
Water Quality Characterization of the York River Estuary

In 2017, Maine DEP's Marine Unit conducted field monitoring to characterize water quality conditions in the York River estuary. Maine DEP's Marine and Engineering Units conduct regular monitoring throughout marine waters to determine whether water quality standards are being met. Historically, monitoring in the tidal portions of York River watershed was limited as conditions were suspected be meeting water quality standards. Maine DEP included the York River estuary in 2017 monitoring efforts with the expectation that water quality would be closer to reference condition as compared to impaired estuaries in southern Maine.

The York River Study Committee worked in collaboration with Maine DEP staff to help inform monitoring plans and identify specific sampling locations so that the study could serve the dual purpose of functioning as a suspected reference waterbody, while also providing additional baseline information about water quality conditions in the York River watershed.

Maine DEP staff conducted water quality monitoring at six sites in the York River estuary every three weeks from June through September 2017. Sites were selected to characterize conditions at the head of tides, middle and lower estuary, and to match sites previously monitored in 1996 and / or 2009. Data parameters included salinity, dissolved oxygen, pH, chlorophyll, total suspended solids and nitrogen. Continuously recording sondes were placed at two locations along the York River. The monitoring program also gathered information about underwater light quantity as eelgrass beds have been mapped in the York River estuary during 1995 and 2010.

DEP monitoring team prepares to collect York River water samples. *Photo: Jennifer Hunter*



2017 York River sampling stations (yellow squares)

Preliminary results from 2017 sampling indicate that overall water quality conditions are appropriate to consider the estuarine portions of the York River unimpaired and a suitable reference as compared to other southern Maine estuaries. Dissolved oxygen and pH data were consistent with a healthy and productive estuarine environment. Sites at head of tides showed intermittent, elevated turbidity indicative of marsh sediment export. Light attenuation values met guidance thresholds suitable to support and protect eelgrass at two-meter restoration depth within York Harbor.

Maine DEP staff also identified the following issues that may warrant further assessment: 1) investigate higher than expected nutrient levels at Smelt Brook as this site provides valuable spawning habitat for rainbow smelt, and 2) evaluate sedimentation to determine if total suspended solids affecting clarity at head of tides are due to natural sediment export associated with this marsh dominated system (Maine Department of Marine Resources may be conducting related research in 2019 as part of a marsh elevation study). Information from Maine DEP's 2017 sampling program will be used to inform the 2020 Integrated Report for Maine rivers.

Water Quality Monitoring for Maine's Shellfish Program

The Maine Department of Marine Resources monitors bacteria levels at seven stations in the York River six times per year to help inform decisions about classifying shellfish growing areas. Samples are tested for fecal coliform on a regular basis and each site is assigned a P90 score which factors in sampling results over five years. To be eligible for shellfish harvesting without needing depuration, sampling sites must have a P90 score below 31.

Based upon sampling results and other information, the state designates shellfish harvesting areas with one of the following classifications.

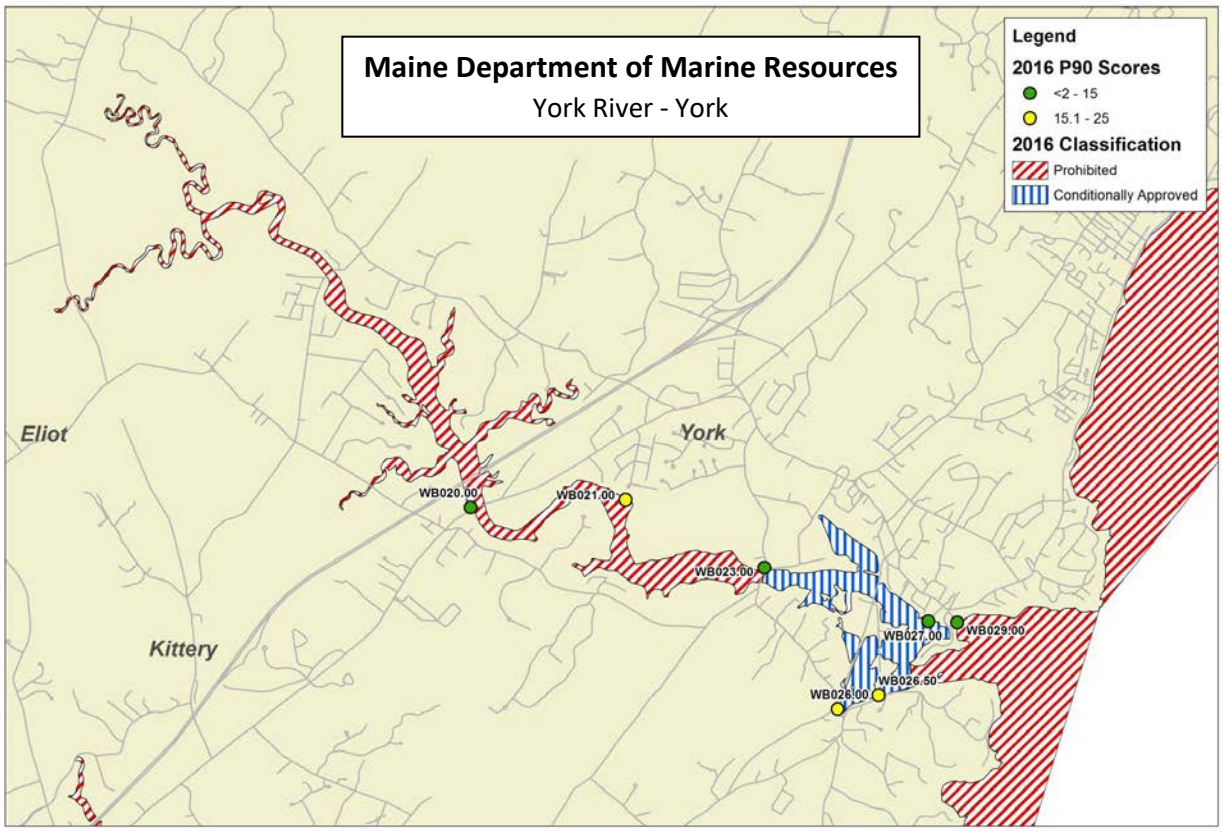
Maine Shellfish Harvesting Classifications		
Classification	**Status**	**Description**
Approved	Open	Meets water quality criteria / harvesting allowed for direct marketing
Conditionally Approved	Open / Closed	Meets approved water quality criteria but only during seasonal or other manageable times
Restricted	Open	Does not meet water quality criteria due to limited pollution / shellfish must be cleansed via depuration before marketing
Conditionally Restricted	Open / Closed	Meets restricted criteria, but only during predictable and manageable periods
Prohibited	Closed	Does not meet water quality criteria, pollutants may be present in concentrations that pose a health risk to shellfish consumers

Results from the Department of Marine Resources monitoring program indicate that the York River has very good water quality conditions with little impairment from bacteria as all of sampling stations located in the York River had P90 scores lower than 31.

2016 DMR Bacteria Monitoring Results – York River Sampling Stations			
Station	**Classification**	**Geometric Mean**	**P90 Score**
WB020.00	P	3.8	13.1
WB021.00	P	3.8	17
WB023.00	CA	2.3	5
WB026.00	CA	4.8	23.1
WB026.50	CA	3.1	20.2
WB027.00	CA	2.2	4.5
WB029.00	P	2.7	7.7

The state's classification for shellfish growing areas goes beyond results from bacteria monitoring by conducting shoreline surveys and evaluating potential sources of pollution that could have a negative impact on shellfish beds even if problems are not showing up in monitoring results. The state has classified the segment of the York River from Sewall's Bridge downstream to Stage Neck as conditionally approved for shellfish harvesting, with closures from May through November due to potential sources of pollution associated with marina and boating activity. Other areas of the York River are classified as prohibited or closed to shellfish harvesting.

Clammers in the Seabury Gut area of York Harbor.



During the past decade, segments of the York River have been reopened to shellfish harvesting as a direct result of water quality improvements. The area designated as conditionally approved for shellfishing in the York River was most recently expanded in 2014.

Stormwater Management and Nonpoint Source Pollution

Protecting water resources from negative impacts of stormwater pollution is a high priority for the York River watershed. With population and associated development on the rise, forests and other natural habitats are being replaced with residential development and associated infrastructure. New development increases potential sources of pollutants from roadways and other human uses while also increasing impervious surfaces. This situation is exacerbated by the potential loss of forests, vegetated buffers and other natural habitats with pervious surfaces that protect waterways by filtering pollutants and reducing stormwater volume.

Maine DEP's stormwater laws and regulations were developed to protect and restore surface water and groundwater impacted by stormwater flows. Stormwater runoff from developed areas carries pollutants and affects the rate and volume of flows in natural waterbodies in ways that can cause damage. Maine regulates stormwater pollution through the following three laws:

- Site Location of Development. Requires review of environmental standards, including potential stormwater impacts from proposed developments for larger commercial and residential projects that create more than three acres of new impervious area or occupy more than 20 acres of land.

- Stormwater Management. Requires stormwater standards for quality and quantity of runoff for projects that propose more than one acre of disturbed area. Disturbed area generally includes areas that are stripped, graded, excavated, or filled during construction.
- Stormwater Waste Discharge. Maine DEP administers several general permits, including the Multi-Sector General Permit, the Municipal Separate Storm Sewer Systems (MS4) General Permit, and the Maine Construction General Permit.

All four watershed communities are working together to ensure compliance with Maine's stormwater standards to address the quantity and quality of stormwater runoff associated with developments of an acre or more. These standards require treatment for the first inch of runoff from 95 percent of a site's impervious area to reduce polluted runoff. The total volume of stormwater runoff must also be controlled to retain predevelopment levels and reduce erosion.

Communities in the York River watershed are also responsible for implementing a Stormwater Management Program to comply with the MS4 General Permit required under the Clean Water Act. The program requires the following six minimum control measures for Urbanized Areas in the watershed, including some portions of York and Kittery in the York River watershed.

1. Conduct public education on stormwater issues
2. Ensure public participation in implementation of the stormwater program
3. Conduct illicit discharge detection and elimination programs
    - map the storm drain system
    - inspect and correct illegal discharges
4. Require construction site runoff controls for sites that disturb one or more acres of land
5. Require post construction site runoff control for sites that disturb one or more acres of land
6. Implement pollution prevention good housekeeping for municipal operations
    - street sweeping
    - catch basin cleaning
    - maintenance of the storm drain system
    - good housekeeping at municipally owned properties

Kittery storm drain inspection. *Photo: Kristie Rabasca*

Although nonpoint source pollution is not currently causing significant impairment to water quality in the York River watershed, proactive steps are being taken to ensure that the York River and its tributaries continue to exhibit healthy water quality conditions despite projected increases in development. Ongoing efforts to identify and address nonpoint source pollution have been informed by previous plans and studies including the *York River Watershed Nonpoint Pollution Survey and Watershed Management Plan* prepared by the Wells National Estuarine Research Reserve for Maine DEP in 2005. This report includes

information gathered during nonpoint source pollution surveys of the York River conducted from 2001 to 2003, along with other identified water quality issues.

Native plants in this new biofilter outside Kittery Town Hall will help treat stormwater runoff. *Photo: Kristie Rabasca*

Local communities are working with residents, businesses and non-governmental organizations to ensure long-term protection of water quality in the York River watershed. Many of these efforts go beyond working to comply with state and federal water quality regulations. For example, the Town of York has developed a Shoreland Overlay District that calls for a 250-foot resource protection zone to limit development in sensitive resource areas. The towns of Kittery, South Berwick and Eliot have also implemented local protections and programs to protect water quality in the ponds and streams in the watershed.

In 2015, York adopted a Stormwater Chapter for inclusion in the York Comprehensive Plan. The document provides background about stormwater issues and an inventory of York's existing infrastructure, policies and management practices, ordinances, development regulations, and approach to financing stormwater related expenses.

Watershed communities are implementing creative outreach and education programs such as Lawns to Lobsters in York and YardScaping in Eliot, Kittery and South Berwick that educate residents about the importance of reducing the use of harmful pesticides and fertilizers. Other efforts include promoting 'low impact development' techniques to minimize the negative impact of development on natural resources and water quality.

The York River Study Committee commissioned a build-out study that included an assessment of existing local zoning aimed at protecting shoreland and other natural resources in the watershed. The study also identifies opportunities and recommendations that would enhance existing protective measures.

Along with local zoning strategies, land conservation efforts have been targeted toward protecting valuable undeveloped lands in the upper reaches of the watershed and extensive natural buffers to the York River and its tributaries. Thanks to collaborative conservation efforts among watershed communities, public agencies and conservation groups such as the York Land Trust and the Mt. Agamenticus to the Sea Conservation Initiative, approximately 26 percent of all land in the York River watershed is currently protected from development. These proactive land conservation strategies have

been critical to protecting water resources that will provide wildlife habitat, ensure clean drinking water supply, and support recreational uses for future generations.

Drinking Water Supply

The York River watershed provides a valuable source of public drinking water for local communities. The Kittery Water District provides water supply service to the Town of Kittery, the Portsmouth Naval Shipyard, and portions of York and Eliot. During 2016, the Kittery Water District provided 910 million gallons of water for residential and commercial customers in the region.

Reservoirs and Dams

The Kittery Water District's water supply area encompasses 2,500 acres of reservoirs surrounded by forested land in the upper portions of the York River watershed. With four major surface water sources, the water supply system provides a maximum total safe yield of 5.6 million gallons per day. The water supply is serviced by four reservoirs and associated dams.

Middle Pond and Dam

About the Impoundment

- 321 MG total available storage capacity
- 1.33 square mile drainage area (combined with Folly Pond)
- 77-acre surface area (combined with Folly Pond)
- Impounds Cider Hill Creek downstream from Folly Pond

About the Dam

- Stone masonry, rock-filled embankments
- 31-foot maximum dam height
- Built in 1901, renovated in 1989

Folly Pond and Dam

About the Impoundment

- 273 MG total available storage capacity
- 1.33 square mile drainage area (combined with Middle Pond)
- 77-acre surface area (combined with Middle Pond)
- Impounds Cider Hill Creek upstream of Middle Pond

About the Dam

- Concrete spillway, gravity dam with earth embankments
- 21-foot maximum dam height
- Built in 1942

Boulter Pond and Dam

About the Impoundment

- 400 MG total available storage capacity
- 2.4 square mile drainage area
- 102-acre surface area
- Impounds headwaters of Bass Cove Creek

About the Dam

- Earth with concrete core wall
- 1,045 feet long
- 31-foot maximum dam height
- Built in 1951, upgrades in 2001, 2006, 2007

Bell Marsh Reservoir and Dam

About the Impoundment

- 1,200 MG total available storage capacity
- 2.8 square mile drainage area
- 280-acre surface area
- Impounds headwaters of Smelt Brook

About the Dam

- Engineered earth embankment dam
- 1,480 feet long
- 62-foot maximum dam height
- Built in 1987

Minimum water flows and dissolved oxygen requirements must be maintained to support habitat in downstream Smelt Brook

Water Treatment and Distribution

The Francis L. Hatch Water Treatment Facility constructed in 1960 is located on Boulter Pond in York. The facility provides treatment for rapid mix, flocculation, sedimentation, filtration, disinfection and corrosion control. Treated drinking water is then pumped to the distribution system by the Boulter Pond Pumping Station. Kittery Water District owns and operates two distribution storage systems; the Rogers Road standpipe with a storage capacity of 3 million gallons and the Eliot Tank with a total storage volume of 1.9 million gallons. The Kittery Water District operates approximately 96 miles of water mains for distribution. Plans to renovate the water filtration plant are underway. During construction, Kittery Water District will purchase treated water from the York Water District and the Kennebunk, Kennebunkport and Wells Water District.

Quality of Drinking Water Supply

During 2016, drinking water from the Kittery Water District met or exceeded all federal and state health safety requirements. While population growth in the region may increase residential demand for water supply, development is not expected to have a major impact on water quality in the reservoirs as about 90 percent of the land in the water supply area is protected, owned and managed by the Kittery Water District. The undeveloped land surrounding Kittery Water District reservoirs provides an important barrier to sources of nonpoint source pollution. This protected source of surface water supply has significant value in the watershed as development of municipal scale water supplies via groundwater is not feasible due to the absence of major stratified drift deposits.

Activity in the water supply area is also closely managed and regulated to protect water quality. Water related activities are strictly prohibited. No swimming, fishing, boating, ice skating, or ice fishing are allowed on any of the water supply reservoirs. Foot travel only is allowed within 250 feet of the normal high-water mark of any of the reservoirs, unless on an approved trail. Other prohibited activities include tree cutting, burning of fires of any kind at any time, camping, and any other activity that could degrade the land or water supply. There is also a no littering 'carry in, carry out' policy.

Middle Pond. *Photo: Gary Stevens*

Water quality conditions in Bell Marsh Reservoir are sometimes poor during the summer months due to wood debris and tree stumps that were not removed during construction in the 1980s. As a result, Bell Marsh Reservoir is not routinely used during the summer months as its use during this period could prevent the district from complying with regulations and managing aesthetic water quality issues.

Maine Sustainable Water Use Program

Maine DEP has established minimum river and stream flows and lake and pond water levels to protect aquatic life and other designated uses in surface waters threatened by significant water withdrawals pursuant to Chapter 587, In-stream Flows and Lake and Pond Water Levels. The rule applies to direct or indirect withdrawal, removal, diversion or other activity or use that alters the natural flow or water levels of a non-tidal fresh surface water of the state. These waters include rivers, streams, brooks, lakes and ponds that are classified as state waters. To ensure protection of habitat values, Kittery Water District is required to monitor and maintain water flows from Bell Marsh Reservoir into Smelt Brook. Water flows into the brook are adjusted to meet dissolved oxygen standards.

Existing and Projected Use

Future growth in the service area is anticipated to be primarily residential growth directly related to increases in population. While industrial development is more difficult to predict, there are no major

industrial developments currently under consideration in the service area. Population trends and projections were reviewed in the Kittery Water District's Master Plan Update in 2010.

Water supply for the Portsmouth Naval Shipyard makes up a significant portion of the total water demand. From 2002 through 2008, the Portsmouth Naval Shipyard demands accounted for approximately 1.36 million gallons per day out of the entire system average use of 2.54 million gallons per day. Average water consumption in the system is approximately 59 gallons per capita per day for residential users.

Kittery Water District estimated residential demand during the planning period could increase from 670,000 gallons per day in 2008 to about 800,000 gallons per day by 2020. Projections for commercial / industrial water use called for about 260,0000 gallons per day in 2020 as demand in this category was declining. Water demand for the Portsmouth Naval Shipyard was expected to be flat but use will be monitored closely to inform water demand and planning projections. Actual water consumption and number of users since 2010 indicates that capacity of the water supply source, filtration, and distribution system is sufficient as actual service needs were significantly lower than those projected in the 2010 Master Plan Update.

Flow and Hydrology

Historic Dams and Impoundments

Historically, water flow for the York River and several of its tributaries was impeded by a series of dams, impoundments and mill ponds to power grist, saw and dairy operations. While some remnants of historic tide and water-powered mills are still visible, these structures no longer restrict or impede flow in the York River watershed. The York River has benefited from being in a free-flowing state for a long period of time. For purposes of this Stewardship Plan, the term free-flowing means having flows that sustain the resources and values of the York River. The existence of historically significant migratory fisheries such as rainbow smelt, alewives, herring and American eel are a good indicator that the York River is functioning as a healthy ecosystem with adequate water flow needed to support these important species.

Existing Dams

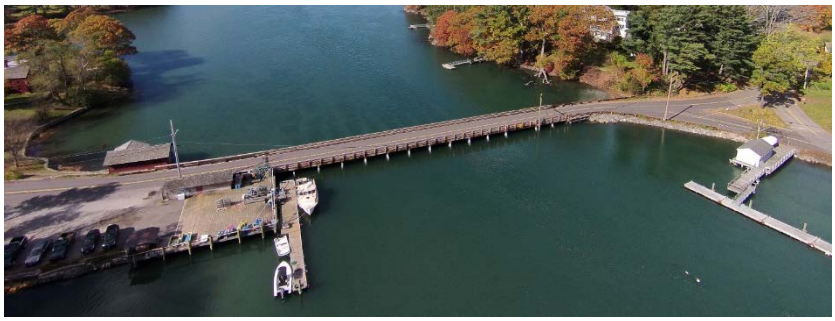
The Kittery Water Districts owns and operates Folly Pond, Middle Pond, Bell Marsh Reservoir and Boulter Pond dams as part of the water supply / reservoir system that provides drinking water to portions of Kittery, Eliot and York. With their location in the upper portions of the York River watershed (outside of the proposed designation area), these dams do not impede free-flowing characteristics of the York River. In addition to these publicly owned dams, there are three small privately owned dams in the watershed. The Scituate Pond dam is located on Cider Hill Creek and the Upper Bartlett Dam and York Pond Dam are in the upper reaches of the watershed in Eliot. The only dams linked to the mainstem of the York River are the Upper Bartlett Mill Dam and York Pond Dam located at the headwaters for the York River.

York River Bridge Crossings and Shoreline Hardening

With its largely undeveloped river banks, vegetated buffers and system of fringing marshes, much of the York River system maintains its natural characteristics and ecological functions. Hardened shoreline areas along the York River are primarily limited to the southern portions of the estuary.

In support of the York River Study Committee's recommendation to designate the York River and its major tributaries upstream of the Route 103 Bridge as a Partnership Wild and Scenic River, this Stewardship Plan provides information about the extent of artificially hardened shoreline within this area of the watershed. Details about the type and extent of hardened shoreline in York Harbor area downstream of the Route 103 Bridge are not included in this plan.

Hardened shoreline areas along the York River include rip rap, abutments and retaining walls associated with the Route 103 Bridge, Sewall's Bridge, Rice's Bridge (Route 1), I-95 Bridge, Scotland Bridge, and Birch Hill Road Bridge. These bridge crossings allow free-flowing water for fish passage as well as access for recreational boating along the navigable portions of the York River.



Aerial view of Sewall's Bridge and adjacent shoreline, looking upriver. *Photo: David J. Murray, ClearEyePhoto.com*

Rocky rip rap extends along the length of the pedestrian causeway connecting Fisherman's Walk at Route 103 to the Wiggly Bridge and then extending from Wiggly Bridge to Steedman Woods. This pedestrian access route separates the main stem of the York River from Barrell Mill Pond while allowing water to flow under the Wiggly Bridge between the river and pond.

Wiggly Bridge and adjacent pedestrian causeway viewed from the York River.

Heading upstream, the northerly shore from John Hancock Wharf to Sewall's Bridge includes timber and rock retaining walls as well as rip rap abutting portions of Lindsay Road. On the south side of the river, a stone retaining wall associated with Sewall's Bridge extends onto a portion of the Elizabeth Perkins House property which also contains another much smaller segment of retaining wall just upstream.

Rip rap along Lindsay Road extending to John Hancock Wharf. *Photo: Joan LeBlanc*

Retaining wall extending from Sewall's Bridge onto Elizabeth Perkins House property. *Photo: Joan LeBlanc*

Approximate Linear Feet of Hardened Shoreline for York River **Measurements for bridges include associated abutments, rip rap and retaining walls*		
Description	Northerly Shore	Southerly Shore
Route 103 Bridge	405'	340'
Pedestrian causeway connecting Fisherman's Walk on Route 103 to Wiggly Bridge and then Wiggly Bridge to Steedman Woods	620'	
Shoreline area from John Hancock Wharf to Sewall's Bridge	1,050'	
Sewall's Bridge	265'	470'
Rice's Bridge (Route 1)	220'	150'
I-95 Bridge (Maine Turnpike)	240'	500'
Scotland Bridge	310'	300'
Birch Hill Road Bridge (Thermoplastic Bridge)	50'	60'

Stream Crossings

Overall, 95 stream crossing related structures are documented within the York River watershed. These structures include culverts and bridges previously described as well as other smaller road crossings impacting some of the tributaries to the York River. Many of these crossings were surveyed by the Maine Stream Connectivity Work Group to identify those that could be improved to enhance wildlife and fish passage. The Wells National Estuarine Research Reserve conducted an analysis of the stream crossings in the York River watershed to rank and prioritize locations with high habitat and infrastructure value. These rankings will help guide maintenance and restoration efforts in the watershed.

While these crossings generally do not impede water flow in the York River watershed, opportunities to improve fish passage at these crossings may also increase the ability of tidal portions of the river and its tributaries to flow into upstream tidally influenced wetlands. These improvements will enhance the watershed's overall ability to become more resilient to sea level rise in the future.

D. Watershed Resilience

The York River watershed has been identified as one of the most resilient coastal ecosystems in the Northeast Atlantic region. As coastal communities throughout the US struggle to adapt and respond to development pressures combined with anticipated rises in sea level, it is more important than ever to identify and protect coastal wetlands that are the most likely to be resilient in the face of rising seas and extreme climate impacts. The York River watershed plays a critical role in the productivity and diversity of natural ecosystems as well as the regional economy.

Because of its topographic features, extensive undeveloped natural areas, high quality habitat, and water quality conditions, the York River is uniquely positioned to adapt to extreme sea level rise while sustaining productive coastal habitats and ecosystem services. Preserving the York River watershed's ability to be resilient into the future will require continued conservation and protection of valuable uplands, unique and diverse habitats, marsh migration areas, and water quality conditions.

Regional Significance

Photo: Jerry Monkman, Ecophotography.com

A 2017 report from The Nature Conservancy, Resilient Coastal Sites for Conservation in the Northeast and Mid-Atlantic US, found that the York River's salt marshes and tidal habitats were in the top 1 percent of over 1,500 northeastern coastal sites surveyed for resiliency – that is, most likely to support biological diversity and ecological functions under extreme scenarios of sea level rise.

In 2017, The Nature Conservancy conducted a study, *Resilient Coastal Sites for Conservation in the Northeast and Mid-Atlantic US*, to assess coastal regions throughout nine Northeast states. US Fish and Wildlife Service provided funding for the study as part of coastal resiliency grants made available following Hurricane Sandy. The study estimated the relative resilience or vulnerability of over 10,000 coastal sites and identified the ones most likely to support biological diversity and ecological functions under multiple scenarios of sea level rise.

Ecological resilience was estimated and mapped by analyzing region-wide data on factors that influence a site's vulnerability or resilience to sea level rise and other climate driven changes. Tidal habitats were evaluated to estimate their ability to migrate landward with sea level rise based on the size, shape, condition and context of their available migration space. Relative resilience of each site was determined by comparing it to other sites within the same coastal shoreline region.

The York River watershed was evaluated as part of the Northeast region that encompassed over 1,500 river systems in Maine, New Hampshire, Vermont, Massachusetts, New York, Connecticut, Rhode Island,

Pennsylvania, New Jersey and Delaware. Resiliency scoring was based on a 6-foot sea level rise scenario to identify sites most able to adapt to extreme coastal changes.

Key findings for the York River watershed:

- The York River was identified as one of the top 10 tidal river systems with the highest estimated resilience score for river dominated systems in this study area.
- The York River is one of very few coastal ecosystems with potential to adapt to extreme impacts associated with six feet of sea level rise.
- The York River's tidal river system has approximately 245 acres of potential space for marsh migration, the area of adjacent low-lying land that is potentially suitable for supporting tidal habitats that could migrate in the future as sea levels rise.
- Resiliency of the York River watershed is enhanced by good water quality conditions and the fact that there are no hardened shoreline areas along the upper marsh system.

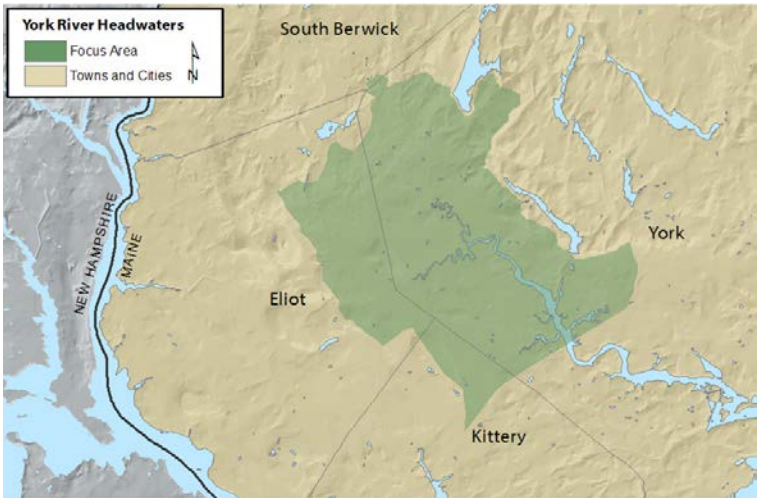
Attributes Used to Estimate Resilience of Coastal Sites	
Tidal Marsh System and Migration Space	Buffer Area
Physical Attributes • Amount of migration space • Number of tidal height classes • Amount of shared edge • Complexity of current shoreline • Size of current tidal complex • Dynamic coastal response *Condition* • Percent hardened shoreline • Amount of nitrogen (water quality) • Amount of sediment inputs • Amount of freshwater inputs	*Physical Attributes* • Amount of buffer area • Diversity of relevant landforms • Diversity of soil types *Condition* • Connectedness of wetlands • Percent natural cover

Integrating Conservation Planning with Future Resilience

In Maine and throughout the Northeast region, several planning efforts are underway to improve understanding about the relationship between conservation planning and climate impacts such as sea level rise. A 2015 report, *Conservation Planning for Climate Change and Resilience at Multiple Scales in Maine*, began developing methods for integrating climate resiliency science into conservation planning throughout the state and at the smaller landscape scale. The study was a collaborative effort of the Maine Department of Agriculture, Conservation and Forestry, Maine Department of Inland Fisheries and Wildlife, Mt. Agamenticus to the Sea Conservation Initiative (MtA2C), and the Nature Conservancy with results published in a Final Report to the Open Space Institute.

Research was targeted to valuable landscape-scale areas identified by Maine agencies as Focus Areas of Statewide Ecological Significance. As described in other parts of this Stewardship Plan, the upper York River watershed is part of the MtA2C region and overlaps with two State Focus Areas due to its extremely valuable habitat, rich biodiversity, and largely intact natural landscape. This important region of the York

River watershed was also looked at as a pilot study to increase understanding about factors that contribute to climate resilience.



The report to the Open Space Institute noted that this region of the York River watershed and other sites that are part of Maine's network of Focus Areas were generally more resilient than comparable landscapes across the Northeast region from Maine to Virginia. Resilience was supported by landscape connectivity – the ability of an unfragmented landscape to allow movement of wildlife from one place to another.

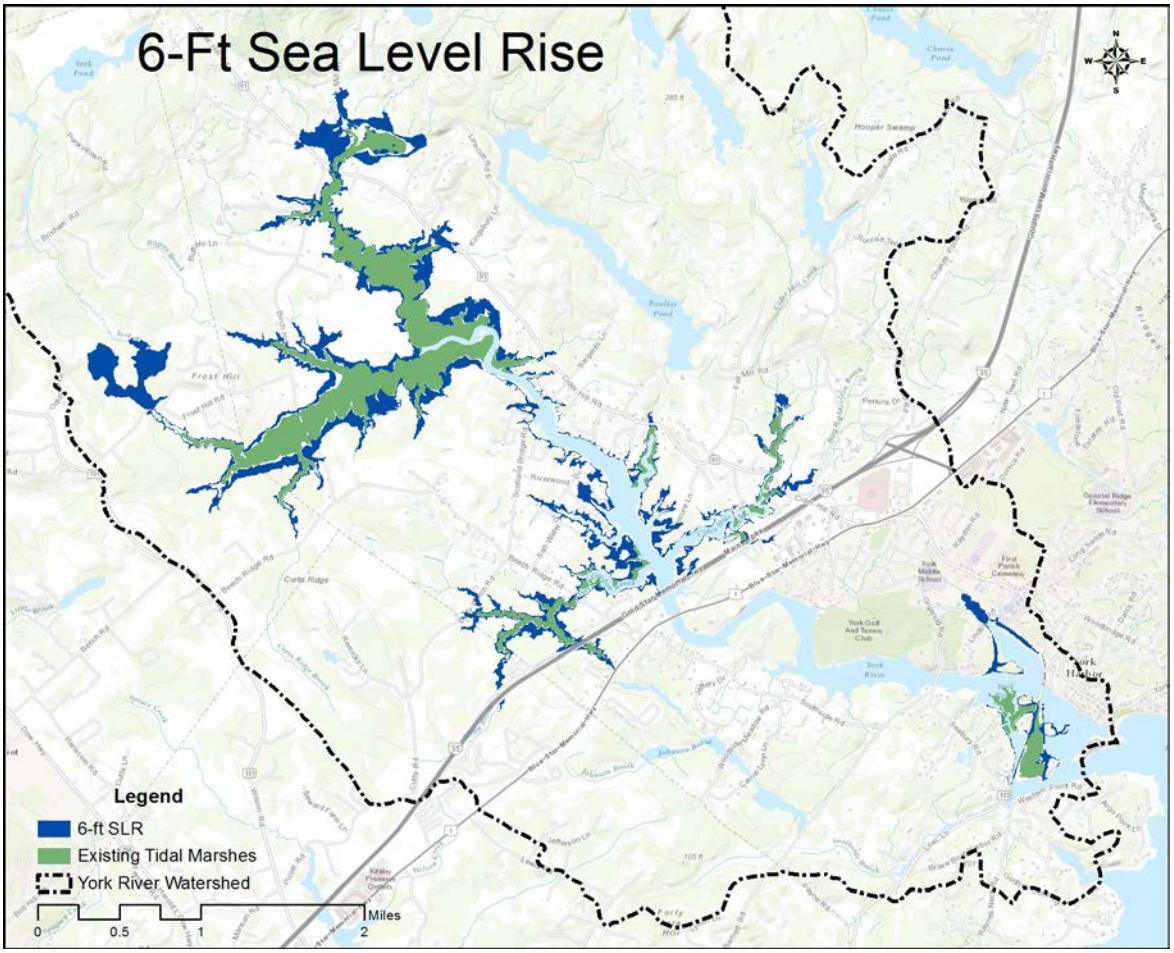
Key findings specific to York River watershed resiliency:

- Results of the study highlighted the importance of the MtA2C area for its biological value, habitat connectivity, and long-term resilience.
- The benefits to resiliency of large unfragmented habitat blocks were affirmed.
- In the York River watershed, several areas with concentrations of rare and threatened species, important areas for marsh migration, and valuable undeveloped coastal blocks were identified.
- The MtA2C area (encompassing much of the York River watershed) remains highly important for conservation as it is the most biodiverse region in the state, and it contains important habitat features and large, connected blocks of intact forest.
- In contrast to the largely intact upper York River watershed, it is a challenge across the entire eastern seaboard to find other similar large blocks of undeveloped habitat in a coastal setting.

"Climate change-related stressors will likely amplify the effects of landscape stressors, such as habitat loss, habitat fragmentation, invasive species, pollution, and alterations to natural disturbance patterns. Hence, existing strategies for maintaining habitat integrity and connectivity will become increasingly important to implement as adaptation strategies." – *Climate Change and Biodiversity in Maine: Vulnerability of Habitats and Priority Species* report

The importance of protecting salt, brackish and freshwater tidal marsh habitats from potential impacts of accelerated sea level rise was further assessed by a 2014 NOAA Project of Special Merit, *Potential for Tidal Marsh Migration in Maine*, conducted by the Maine Natural Areas Program and the Maine Geological Survey. This study was aimed at enabling communities, conservation entities, and public agencies to plan for the preservation of those areas of Maine's coastal landscape where tidal marshes are likely to migrate as sea level rises. This effort included extensive tidal marsh mapping and identification of marshes with relatively greater ecological significance. This data was then used to inform coastwide sea level rise simulations for 1-foot, 2-foot, 3-foot and 6-foot sea level rise above the existing highest annual tide.

One key aspect of the study considered the intersection of marsh migration areas under sea level rise scenarios with conserved lands. Modeling indicates that the greater the depth of sea level rise, the greater the proportion of lands impacted that are not conservation lands. Under a 1-foot simulation of sea level rise, only 2,030 acres of land impacted by marsh migration in Maine would not be already conserved, while a 6-foot sea level change would impact 10,198 acres of land that is not conserved. Resilience in the York River watershed is supported by large blocks of undeveloped lands that coincide with potential marsh migration areas. Conserving these important areas is a priority for sustaining watershed resiliency.



Potential change in highest annual tide with 6 feet of sea level rise. (Fringing marsh habitat and the smaller marshes from York Harbor to I-95 were not mapped in this modeling study.)

Stewardship Goal, Objectives, and Key Actions – Natural Resources

Goal: Protect valuable natural communities, habitats, biodiversity, and water resources of the York River watershed.

WATERSHED LANDSCAPE

Objective 2.1: Preserve large undeveloped habitat blocks and wildlife corridors.

Key Actions:

- Conduct surveys and research to help identify and define highly valued natural resources and important large habitat blocks for priority conservation efforts.
- Prioritize the protection of large undeveloped habitat blocks, wildlife corridors, and salt marsh migration areas in local planning documents and regulatory and non-regulatory approaches to protect natural resources.
- Utilize existing information and conservation planning resources, such as Beginning with Habitat Focus Areas, habitat areas identified as supporting Maine Species of Greatest Conservation Need, or priorities from local conservation plans, to guide conservation and protection efforts.

Objective 2.2: Support land conservation and stewardship efforts by communities, land trusts, and other conservation organizations to protect and maintain important resource values.

Key Actions:

- Develop and implement stewardship plans for conservation lands that address resource protection measures, public access, sustainable recreational uses, invasive species management, and monitoring.
- Help facilitate opportunities for land conservation projects located in Beginning with Habitat Focus Areas, and in areas likely to provide key functions and support biodiversity in the future.
- Promote the Mt. Agamenticus to the Sea Conservation Initiative to implement public-private approaches to preserve large undeveloped habitat blocks, wildlife corridors and regional biodiversity and build public interest and support for habitat conservation.
- Assist towns, land trusts, and conservation organizations in implementing priority actions and achieving the goals and targets included in open space plans and local and regional land conservation plans.

Objective 2.3: Encourage continued agriculture and forestry uses of suitable watershed lands, using practices that help maintain and preserve natural resources, scenic resources and rural character.

Key Actions:

- Maintain town policies and practices that promote enrollment in current use tax incentive programs such as Tree Growth, Farmland and Open Space.
- Promote workshops, training, and resources that encourage landowners to utilize sustainable forestry and agricultural practices that enhance wildlife habitat and minimize negative impacts on natural resources.

Objective 2.4: Promote local planning and zoning strategies to protect shoreland buffer zones, wildlife corridors, large undeveloped habitat areas, and predicted marsh migration and flooding areas.

Key Actions:

- Assist towns with evaluating and implementing recommendations from the Southern Maine Planning and Development Commission's report, *York River Watershed Study: Regulatory and Non-Regulatory Recommendations Report* related to conservation subdivisions, land conservation, general zoning, shoreland zoning, and stormwater management.
- Promote conservation subdivision design or cluster development through local ordinances to reduce overall development footprint, reduce impervious surfaces, and protect natural resource values.
- Review and enhance Shoreland Zoning strategies to ensure protection of water quality, wildlife habitat, vegetated buffers, and future marsh migration areas. Promote provisions that go beyond Maine's Mandatory Shoreland Zoning Act.
- Review and update local zoning to ensure lot sizes are large enough to minimize the potential negative impacts of development on water quality and other natural resources in rural areas.
- Consider creating a 'watershed' based overlay among the four York River watershed communities to promote regional conservation strategies while still allowing each town to determine specific land-use regulations within their community.
- Consider creating a Sea Level Rise / Marsh Migration Overlay and associated standards to accommodate future conditions, direct development away from areas at risk from future inundation, reduce density in those areas, promote open space, and enhance resource protection.

HABITATS, WILDLIFE, AND BIODIVERSITY

Objective 2.5: Maintain, improve and restore habitat to support unique, rare, endangered and threatened wildlife and plants.

Key Actions:

- Target habitat conservation and protection efforts toward:
    - Endangered and Threatened Species
    - Maine Species of Greatest Conservation Need
    - Federal Trust Species
    - Rare plants and exemplary natural communities identified by the Maine Natural Areas Program
- Utilize the Maine Department of Inland Fisheries and Wildlife's Beginning with Habitat resources to ensure that the most up to date information about valuable wildlife and plants in the watershed is incorporated into open space, conservation, and comprehensive planning efforts.
- Conduct species and habitat surveys and integrate information into local regulatory and non-regulatory resource protection approaches.
- Identify suitable habitat for viable populations of key species and work with landowners to maintain habitats and connectivity.

- Evaluate options for requiring specific plantings in ordinances governing shoreland permits for vegetation removal. Create educational materials to promote use of native plants and removal of invasive plants to achieve habitat restoration priorities when revegetating areas.
- Maintain and improve protections for tidal and inland wading bird and waterfowl habitat through shoreland zoning.
- Encourage communities to seek botanical review by biologists at the Maine Natural Areas Program when a development proposal potentially conflicts with a mapped resource.
- Conduct a survey of the lower York River estuary to determine the presence and extent of eelgrass beds. Identify and pursue conservation strategies as needed.

Objective 2.6: Maintain habitat and water quality to support fish Species of Greatest Conservation Need as well as the overall diversity of native fish species in the York River and its tributaries.

Key Actions:

- For Species of Greatest Conservation Need, further assess populations, spawning habitat locations, habitat quality, and stream flow conditions, and identify opportunities to improve habitat conditions and access to spawning habitats.
- Protect riparian habitat surrounding alewife and rainbow smelt spawning habitat from development impacts through land conservation, preservation of natural buffer areas, and low impact development measures.
- Integrate known spawning habitat for Species of Greatest Conservation Need as a priority resource in local planning and regulatory approaches to protect natural resources.
- Implement additional recommendations outlined in the Wells National Estuarine Research Reserve's report, *An Assessment of Spring Fish Communities in the York River, Maine.*

Objective 2.7: Protect, enhance and restore high quality salt marsh habitats to preserve ecological functions.

Key Actions:

- Identify salt marsh habitat and adjacent buffers and uplands as priorities for land conservation.
- Maintain limits to development, building expansion, clearing activities, and habitat alterations in salt marsh buffer areas through town zoning and shoreland ordinances.
- Monitor and control invasive species that are degrading salt marsh habitat.
- Improve stormwater management practices to minimize impacts to salt marshes adjacent to developed areas.
- Identify and pursue opportunities for salt marsh restoration projects to improve habitat and functions.
- In coordination with the watershed towns and Maine Department of Transportation, integrate tidal flow considerations into road-stream crossing designs to maintain and improve salt marsh habitats.
- Evaluate impacts to salt marsh habitats from sea level rise and increasingly intense storm events.
- Determine whether sediment being exported from marsh is indicative of erosive processes or a healthy marsh.

Objective 2.8: Improve conditions for aquatic organism passage and tidal flow at road-stream crossings and other man-made structures.

Key Actions:

- Identify and prioritize improvements and/or replacement of road-stream crossings that are potential barriers to flow and aquatic organism passage. Use road-stream crossing data from the Maine Stream Habitat Viewer with habitat data, Maine Department of Transportation work plans, and community culvert-related plans and needs.
- In coordination with the watershed towns and Maine Department of Transportation, integrate tidal flow considerations into road-stream crossing designs to promote improved fish passage.
- Update ordinance language to require consideration of more extreme storm events, tidal flows, and aquatic organism passage in planning for local development projects.
- Integrate data on the cumulative impact of sea level rise scenarios, storm surge, and increased freshwater flows from stronger precipitation events into infrastructure designs.
- Integrate design improvements for terrestrial and riparian species passage in conjunction with aquatic organism passage, when feasible.
- Work with Maine Department of Inland Fisheries and Wildlife fisheries biologists to determine potential impacts of enhanced passage opportunities on aquatic habitats and native species, including impacts of invasive species.
- Explore opportunities with Kittery Water District and other large landowners in the watershed to enhance fish passage and spawning habitat.

Objective 2.9: Protect valuable wildlife and habitat by addressing invasive species in the watershed.

Key Actions:

- Provide information and workshops for landowners on how to identify, control, and remove invasive species.
- Encourage site-based research, removal, and monitoring projects to improve invasive species detection, control, and eradication methods, and encourage landowner coordination with neighboring landowners to undertake larger-scale projects for greater success and effectiveness.
- Promote awareness of invasive species, efforts to manage their spread, and reporting opportunities through the Maine Natural Areas Program.

WATER RESOURCES

Objective 2.10: Evaluate and track water quality and quantity conditions in the York River watershed.

Key Actions:

- Develop and implement a water quality monitoring program in the York River watershed to build upon the 2017 survey conducted by the Maine Department of Environmental Protection. Ensure dry and wet weather sampling to capture impacts during varied weather conditions (coordinate with monitoring conducted through local stormwater management programs).
- Coordinate with the Maine Department of Environmental Protection Marine Unit to identify potential future opportunities to collaborate with state water quality sampling efforts.
- Evaluate nutrient levels and nutrient-related impacts such as algal blooms in the York River watershed. Monitor nutrient characteristics of Smelt Brook to investigate the extent and sources of potential pollution issues identified during 2017 water quality sampling.
- Install additional stream gages to expand understanding about in-stream flow in the York River.
- Promote adequate stream flow by evaluating and addressing the impacts of unregulated water withdrawals from streams in the York River watershed.
- Ensure that results from monitoring programs are used to help identify problems and inform efforts to resolve them.

Objective 2.11: Protect and maintain natural vegetated buffers and forested areas around water resources to sustain water quality, instream habitat, and riparian habitat.

Key Actions:

- Continue to identify the protection of headwater streams, forested wetlands, and riparian zones as high priorities for conservation.
- Identify and pursue opportunities to restore or enhance degraded shoreline or buffer areas through replanting, shoreline stabilization, and reducing stormwater runoff.
- Maintain or enhance shoreland zoning requirements that include protective measures for water resources including all streams, wetlands and vernal pools.
- Review shoreland zoning approaches for buffers and setbacks from all waterbodies to identify gaps in protection and opportunities for additional protections.
- Maintain local capacity of town code enforcement offices to proactively implement shoreland protection regulations.

Objective 2.12: Promote sustainable practices by property owners to help protect natural resources and water quality.

Key Actions:

- Support implementation of the Lawns to Lobsters program (York) and YardScaping program (Eliot, Kittery, and South Berwick) to increase the number of watershed property owners taking action to reduce the use and impacts of pesticides and fertilizers on water quality and wildlife in the York River

watershed. These programs also encourage low impact techniques such as rain gardens and vegetated buffers to reduce runoff from lawns and yards into the river.
- Conduct outreach and education to provide landscaping companies with resources and information about sustainable landscaping practices.
- Provide training and information on best management practices such as low-impact landscaping, stream/wetland buffer management and plantings, septic system maintenance, and proper disposal options for household hazardous waste and pharmaceuticals.
- Conduct outreach to increase understanding of existing regulations that govern vegetated buffers, setbacks from wetlands, and septic system maintenance.

Objective 2.13: Maintain and improve water quality to support shellfish harvesting in the York River watershed.

Key Actions:

- Work in collaboration with the York Shellfish Commission to consider opportunities for expanding shellfish harvesting in the York River.
- Continue working with the Maine Department of Marine Resources to conduct inspections and surveys to identify and resolve any additional potential direct discharges into the York River.
- Identify and pursue opportunities to prevent stormwater pollution from faulty septic systems in shellfish growing areas and throughout the watershed.
- Explore potential for designating the York River estuary and nearby coastal areas as a federally designated No Discharge Area for boater waste. This initiative would enhance local protections and increase funding resources for boat pumpout services.
- Conduct boater outreach to increase awareness about the importance of eliminating boater discharges.

Objective 2.14: Protect and improve water quality in the York River and its tributaries by preventing and reducing sources of stormwater pollution.

Key Actions:

- Support and enhance capacity for York, Eliot, Kittery, and South Berwick to implement the following six minimum control measures required by the US Environmental Protection Agency's MS4 General Permit:
    - Conduct public education on stormwater issues
    - Ensure public participation in the implementation of the stormwater program
    - Conduct illicit discharge detection and elimination programs (storm drain mapping, inspecting and correcting illegal discharges)
    - Require construction site runoff controls for sites that disturb one or more acres of land
    - Require post construction site runoff control for sites that disturb one or more acres of land
    - Implement pollution prevention good housekeeping for municipal operations (street sweeping, catch basin cleaning, maintenance of the storm drain system, good housekeeping at municipal properties)

- Consider implementing measures required by the MS4 program and expanding stormwater management ordinances to all areas of the York River Watershed, not just in designated Urbanized Areas / MS4 areas.
- Utilize results from the York River Watershed Build-Out Study to increase understanding about how future development could impact water quality and other natural resource values in the watershed.
- Implement proactive strategies to minimize polluted stormwater runoff by reducing impervious surfaces such as paved parking and roads associated with new development *(see Key Actions related to sustainable development, cluster development and shoreland zoning under section on Watershed Lands: Land Use, Conservation and Stewardship).*
- Ensure compliance with Maine's stormwater standards to address both the quantity and quality of stormwater runoff associated with developments of an acre or more.
    - Require treatment of the first inch of runoff from 95% of a site's impervious area to reduce polluted runoff
    - Control the total volume of stormwater runoff to retain predevelopment levels in order to reduce erosion and scouring
- Consider adopting a Fertilizer and Pesticide Ordinance or regulations to control and reduce use within the watershed.
- Evaluate road salt application and storage practices to ensure protection of water resources.

Objective 2.15: Promote low impact development strategies to manage stormwater while protecting water quality and other natural resource values.

Key Actions:

- Promote low impact development stormwater management strategies that meet Maine state standards by incorporating the following protections to the maximum extent possible:
    - Protect as much undisturbed land as possible to maintain pre-development hydrology and allow rainfall infiltration
    - Protect natural drainage systems such as wetlands, watercourses, ponds and vernal pools
    - Minimize land disturbance including clearing and drainage
    - Minimize the decrease in the time of concentration from pre-construction to post-construction
    - Minimize soil compaction
    - Utilize low-maintenance landscaping that encourages the retention and planting of native vegetation, and minimizes the use of lawns, fertilizers and pesticides
    - Minimize impervious surfaces and break up or disconnect the flow of runoff over impervious surfaces
    - Provide vegetated open-channel conveyance systems discharging into and through stable vegetated areas
    - Provide other source controls to prevent or minimize the use or exposure of pollutants at the site in order to prevent or minimize the release of those pollutants into stormwater runoff
- Require operation and maintenance plans for low impact development infrastructure for projects that exceed a specified threshold.
- Create standards and criteria for developers to implement low impact development stormwater management techniques, and incorporate into site plan and subdivision regulations.

- Develop guidance documents for developers to promote understanding of best practices for low impact development stormwater management strategies.

Objective 2.16: Protect quantity and quality of drinking water supply in the York River watershed.

Key Actions:

- Support proactive watershed conservation strategies being implemented by both the Kittery Water District and the York Water District.
- Support funding and implementation of recommendations outlined in the Kittery Water System Master Plan to ensure adequate management, treatment and transport of drinking water.
- Support Kittery Water District ownership of lands, or other organizations' land conservation efforts, in the water supply watershed (currently about 90%).
- Support and ensure continued enforcement of recreational restrictions to protect watershed supplies from risks such as fires or negative water quality impacts from swimming.
- Monitor algal blooms and other potential aquatic invasive plants to ensure they don't cause future problems for drinking water supply.
- Ensure continuation of York watershed protection ordinance.
- Continue ongoing efforts for regional cooperation among water suppliers in the York River watershed to ensure clean, adequate and resilient water supplies during periods of drought or other water supply stressors.
- Conduct outreach to promote sustainable water conservation strategies for homes, businesses and landscaping practices in the watershed.

WATERSHED RESILIENCE AND CLIMATE ADAPTATION

Objective 2.17: Increase understanding of current and potential future sea level rise and climate impacts on natural resources in the York River watershed.

Key Actions:

- Support continued research and studies to enhance understanding of potential impacts from sea level rise, temperature changes, storm surge, and increasingly intense and unpredictable storm events on natural resources in the York River watershed.
    - Conduct regular updates of watershed resilience studies to ensure climate adaptation efforts are informed by up to date sea level rise and storm surge projections.
    - Evaluate how climate conditions will impact key habitats, species and natural communities, and implement measures that protect or enhance habitat resiliency.
- Promote awareness and use of National Oceanic and Atmospheric Administration's Digital Coast interactive trainings and web-based tools to help coastal communities assess vulnerabilities and plan for sea level rise, extreme flooding and other anticipated climate impacts.
- Host technical workshops among community planning and emergency response agencies to increase understanding of innovative tools such as National Oceanic and Atmospheric Administration's National Water Model to help anticipate potential flooding and other impacts associated with increasingly intense coastal storms.

Objective 2.18: Identify and implement climate adaptation measures to help protect natural resources in the watershed.

Key Actions:

- Host workshops to increase awareness among local boards, property owners, and developers about innovative strategies to incorporate coastal resilience strategies into site and building designs for new developments in vulnerable areas.
- Incorporate information about storm surge, sea level rise, and increasingly intense rainstorms into community-based resiliency planning efforts. Implement ordinance changes or other strategies to limit development in areas most vulnerable to future coastal flooding.
- Explore potential for participating in Federal Emergency Management Agency's Community Rating Program by implementing proactive steps to improve floodplain management while reducing flood insurance rates.
- Utilize the latest information from the Northeast Regional Climate Center about intensity / duration / frequency of rainfall related to extreme precipitation events to inform local ordinances, stormwater management planning and design criteria.
- Regularly update design criteria for infrastructure projects to utilize most recent Federal Emergency Management Agency flood insurance maps.
- Support funding for major stormwater infrastructure improvement projects to correct existing flooding problems and reduce stormwater pollution and sediment transport associated with major flooding events.

Objective 2.19: Protect marsh migration corridors and adjacent wetlands to support future salt marsh areas.

Key Actions:

- Periodically update mapping and analysis to identify priority areas where salt marshes are predicted to migrate or expand into adjacent upland areas as a result of sea level rise.
- Integrate likely future salt marsh areas as priority habitats in watershed resource protection measures and conservation planning. Consider updating shoreland zone boundaries to include marsh migration areas and amending ordinance language for protection of future marsh areas and buffers.
- Explore regulatory and non-regulatory options to conserve uplands that are expected to become future salt marshes or provide critical buffer areas for future salt marsh habitat *(see Key Actions highlighted under section on Watershed Lands: Land Use, Conservation and Stewardship).*

FUNDING OPPORTUNITIES TO PROTECT NATURAL RESOURCES

Objective 2.20: Identify and pursue funding opportunities, in-kind support, local revenue strategies, and landowner incentives to promote stewardship of natural resources in the York River watershed.

Key Actions:

- Support Partnership Wild and Scenic River designation for the York River and major tributaries to expand financial resources for coordination and implementation of the York River Watershed Stewardship Plan.

- Identify and pursue opportunities for grant funding and in-kind technical support from state and federal programs.
- Explore and identify potential opportunities for funding from private foundations.
- Identify and pursue potential partnerships with local businesses, waterfront property owners, and marine industry to collaborate on site-specific and watershed wide efforts to protect and restore habitat and water quality.
- Create partnerships with local schools and regional universities to enhance environmental research and studies related to understanding and protecting natural resources in the watershed.
- Explore potential for stormwater user fees or other funding mechanisms to support ongoing implementation of stormwater management services.
- Establish and support annual funding for conservation / open space funds in each watershed town through annual appropriations, dedicated revenues, or other means.
- Create financial incentives for landowners to promote restoration and conservation, e.g., tax credits, cost-sharing of native plants for habitat restoration, and reduced or waived permitting fees.

Photo: Jerry Monkman, Ecophotography.com

Photo: D.H. Osborne

V.3 Working Waterfront, Recreational Resources, and Community Character

A. York Harbor and Waterfront

The York Harbor and waterfront areas support many recreational and commercial activities and are critical components that define the community's character and contribute to the local economy. The combination of commercial fishing boats, pleasure boats, maritime infrastructure, preserved historic buildings and sites, stately homes, natural resources, and shoreline walking paths creates unique scenic qualities and special recreational opportunities, drawing visitors from near and afar. From the York Comprehensive Plan:

> *A 1990 study of York's waterfront estimated that nearly 8% of persons working year-round in York earn their livelihood from the marine resources industry. Some are commercial fishermen, but others are just as likely to be a tour boat operator, a boat repairman or involved with the sale of lobsters/fish. York's ties to the sea helps establish its character as a coastal marine community.*
>
> *The major change in the waterfront over the last century has been the increasing amount of use by recreation enthusiasts. Many choose to live in or visit York because of the access it offers to the ocean and the York River. Despite an increasing amount of recreational pressure, York has a stable waterfront; one that is heavily used but is not completely overcrowded. Natural constraints limit the number of moorings that can be located in the York River, and the Town, nearly 20 years ago, adopted strict regulations regarding the size and number of new docks. Managing York's limited active waterfront area will be a growing challenge as the population of the Town continues to increase and more tourists eye it as a convenient get-away from Boston.*

The other watershed towns have identified maintaining waterfront access and protecting marine resources as priorities. However, their harbors, moorings, and recreational waterfront areas are outside of the York River watershed (e.g., Kittery's Pepperell Cove) and therefore are not specifically included in this Stewardship Plan.

Management

The Town of York Comprehensive Plan identifies a number of recommendations to meet town goals to support commercial fishing operations, to sustain a harbor that supports a diversity of uses, and to provide public access to coastal areas, while limiting the number of new docks to be added to the York River. The key actions included in this plan reinforce and support those recommendations.

The Town of York has adopted a harbor ordinance, most recently amended in November 2017, to regulate the use of the town's harbors, channels and tidal waters. The town employs a Harbormaster to enforce town rules and regulations, including assignment of mooring spaces. The town utilizes a Harbor Board to manage harbor planning and operations, including consideration of applications for new and existing structures such as docks. The town collects harbor usage fees for mooring and town float assignments, as well as waiting list fees, winch fees, and bait fees. This revenue, as outlined in the harbor ordinance, is used for improvements to the harbor, channels, and tidal waters including capital improvements, wharf construction and repair, dredging equipment and land acquisitions. Currently harbor usage fees are assigned to a capital improvement fund (55 percent of fee revenue) and a dredging fund (45 percent of fee revenue).

Town Dock #1. *Photo: courtesy of York Land Trust*

Infrastructure

The built infrastructure, consisting of docks, piers, moorings, slips and boat launch sites, that supports commercial fishing, recreational boating, and public access to the York River is described below.

- The Town of York owns and manages two large docks to support commercial and recreational activities. Town Dock #1 supports recreational and commercial uses with a pier, wharf, two hoists, and two bait sheds. It is rated for commercial vehicles and has three ramps to floats for roughly 100 dinghies. Town Dock #2 supports recreational and limited (primarily winter) commercial uses. It has a pier and floats accommodating about 50 dinghies, and it houses the Harbormaster shack.
- There are 45 docks on record from the mouth of the river to the Scotland Bridge area. The town has strict guidelines for construction of new docks or renovations to existing docks, so the number of docks has changed little in many years.
- The Town of York manages 311 moorings and 198 slips to accommodate boat types of various lengths, with high demand for these mooring and slip assignments. In 2017, there were 178 people on the power boat mooring waitlist and 79 on the sailboat mooring waitlist. There also is a temporary mooring list each year so that moorings not used by mooring holders can be utilized temporarily by a person on the waitlist. *[See Stewardship Plan Appendix F for a map of the designated mooring areas].*

- Public boat launches on the York River include sites at Strawberry Island for kayaks and other non-motorized boats; Rice's Bridge/Route 1 boat ramp for small motorized and non-motorized boats; and Scotland Bridge boat ramp for small motorized and non-motorized boats. A launch suitable for paddle craft is being installed in 2018 from the new walkway connecting Fisherman's Walk to the Wiggly Bridge causeway. At all sites, parking is very limited; though parking is available for Rice's Bridge at the Grant House parking lot, across busy Route 1.
- There are two private boat launch sites: Coite/Donnell's site and York Harbor Marine Service, a full-service marina with dockage, storage, and boat service. There are several additional privately-owned dockage sites, with limited numbers of spaces available.

York River Federal Navigation Project / Dredging

The original Federal Navigation Project (FNP) for York River was authorized in 1886 and provided for widening of the river's entrance channel largely around Stage Neck. The existing FNP, completed in 1961, provided for the widening of two sections of the inner channel to a depth of 10 feet and construction of two anchorage basins, each about 5 acres, to depths of 8 feet. Maintenance dredging has been needed, and projects were completed in 1975, 1996, and 2018. The most recent project involved the removal of about 45,000 cubic yards of silt and sand from the channel and anchorage areas to return the FNP to its authorized dimensions. Natural river processes had resulted in shoals that hindered navigation and created safety concerns for commercial fishing boats and recreational boats in the river. As much as 80 percent of the anchorage areas had shoaled in before the 2017-18 dredging project. It is anticipated that future dredging will be needed to maintain the FNP over time, to allow for safe use and continued access to the river and anchorage areas. Designation of the York River into the Wild and Scenic River System would not preclude maintenance dredging of the existing York Harbor FNP.

> *York depends on its harbor located within the York River to support its commercial fishing industry and recreational boating. The harbor regularly silts in from upriver activities and maintenance dredging is a critical issue to enable its on-going use*.
> – Town of York Comprehensive Plan

Working Waterfront

York Harbor and waterfront areas support an estimated 30-35 commercial fishing boats, primarily lobster boats. The Town of York's policies and practices, including administration of its harbor ordinance, give priority for use and access to commercial fisherman, when possible. The two town docks support fishing operations, particularly Town Dock #1, which is the only access many of the commercial fisherman have to the waterfront. In addition to the town docks, there currently are four privately owned docks that support working waterfront and commercial fishing, including docks at John Hancock Wharf

John Hancock Wharf, a commercially important site for over 300 years. *Photo: Karen Young*

and adjacent to Sewall's Bridge. Unique partnerships and conservation approaches have maintained access for commercial fishermen at these two privately-owned docks. The Old York Historical Society restored the John Hancock Wharf as a commercial fishing facility in 2011 and now leases the wharf to local fisherman, helping to preserve a historic site and a traditional waterfront use.

Maintaining commercial access at the Sewall/Donnell dock at Sewall's Bridge was a unique, first of its kind approach to working waterfront preservation. The York Land Trust partnered with local fisherman in 2003 to maintain access and save the dock as working waterfront. The dock is located in a particularly scenic area of the York River that includes lobster boats and many historic buildings and structures. The dock and adjacent land was on the market for sale, at a time when other local working waterfront sites were being converted to private docks for personal recreational uses. The York Land Trust purchased an easement on the dock and the adjacent 0.15 acre of land, making the dock purchase more affordable for the fishermen. The conservation easement protected the land from future development, and it required that the property be used only as working waterfront, provided for public access to a portion of the property, and protected its scenic beauty. It was the first time a conservation tool for land preservation was used to protect a commercial dock supporting working waterfront.

The York Land Trust's successful partnership with local fishermen to protect Sewall's Bridge Dock through a first in the nation working waterfront conservation easement was a unique approach that has served as a model for preserving working waterfront elsewhere.

Commercial fishing is important to the local economy. The value of commercial landings in York Harbor, primarily from lobster, was $4.24 million in 2016 and $3.67 million in 2017. There are many other economic aspects associated with the lobster fishery including the supporting industries providing bait, fuel, boat repairs, dockage, and trap repairs. Additionally, the local lobster dealers employ many people at their facilities. The total economic impact of this fishery is far reaching and would be difficult to estimate.

2014-2017 York/York Harbor Commercial Landings

Year	Species	Live Pounds	Value
2014	Lobster	694,657	$2,904,404
2015	Lobster	681,854	$3,078,361
2015	Other species**	24,883	$151,654
2016	Lobster	888,925	$4,076,532
2016	Other species**	478	$16,874
2016	Tuna	20,483	$142,990
2017*	Lobster	721,899	$3,556,544
2017*	Other species**	20,075	$109,564

Source: Maine Department of Marine Resources, Landings Program

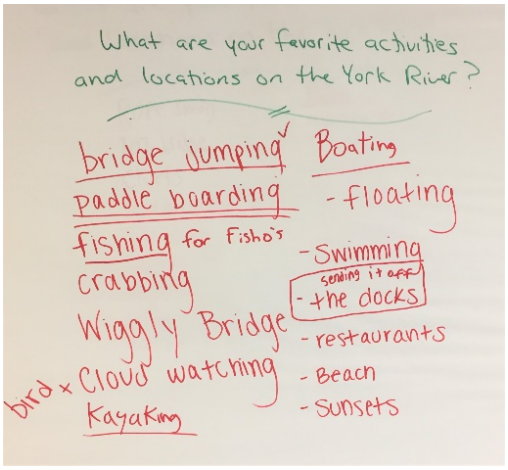
**Data are preliminary. ** Other species cannot be identified on a species level.*

Other business operations that utilize the harbor and waterfront areas include charter boat companies, paddle craft touring companies, marinas, several inns and restaurants, and other riverfront businesses. A

non-profit, private yacht club also uses and provides access to the harbor. A 2012 US Army Corps of Engineers Harbor Information and Navigation Metrics Form, completed by the York Harbormaster and Harbor Board as part of the dredging proposal and documentation, indicated over $5,000,000 in economic activity is directly related to York Harbor, with over 100 jobs dependent upon the harbor and another 100 jobs indirectly dependent on the harbor.

B. Recreational Resources

There are diverse and varied recreational opportunities provided by the York River. Popular recreational uses include boating (motorized and sailboats), as well as paddle boards, kayaks and canoes. Personal watercraft such as jet skis are not allowed in the river. The Town of York's system of moorings and slips in the river provides seasonal sites for roughly 500 boats, the majority of which are recreational. River access for smaller motorized boats is possible at Scotland Bridge and Rice's Bridge boat ramps. The York Harbormaster enforces all town and state rules and regulations for boat use in tidal waters.



Favorite river activities of York High School students.

Paddle craft use of the river has increased in the last several decades, though exact numbers of users and their extent of use are largely unknown. Popular access points for paddle craft are Strawberry Island and Scotland Bridge. Demand for parking overwhelms existing capacities at both sites on many summer days. With increasing numbers of users, there are more concerns around issues of boater safety, particularly in the busy harbor area, and of potential impacts on sensitive resources such as tidal flats and salt marsh habitats. The York Harbor Board conducted a paddler survey in the summer of 2017 to better understand the number, type and location of paddle craft users. The surveys were conducted at Strawberry Island on five Saturdays and involved counts of vehicles and paddle craft, as well as paddler interviews to collect data on location and frequency of use and other user information. Mooring holders were sent a survey to capture information on their paddling uses. The 2017 survey information will help in forming a baseline of paddle craft use. The Harbor Board intends to conduct additional future surveys.


Fishing in the York River. *Photo: Chuck Maranhas*

The York River's good water quality allows for recreational activities including swimming, fishing, and harvesting shellfish. There are no river beach areas, however swimming is popular especially around bridges. Recreational saltwater fishing requires individuals over 16 years old to register and hold a saltwater fishing license. Sewall's Bridge, Rice's Bridge, and Scotland Bridge are popular fishing spots, especially when striped bass are present in the estuary. Data for the number of recreational fishermen using the York River, or for the types and amounts of fish caught, are not available.

Recreational shellfish harvesting of soft-shell clams is allowed in certain areas of the York River, as defined by Maine Department of Marine Resources (DMR), on Sundays from December through April. Commercial harvest is prohibited. Waters must meet strict water quality standards to allow for the harvest and safe consumption of shellfish. Maine DMR regularly tests waters from shellfish growing areas for bacteria and determines which areas are approved for harvest. The Town of York, through administration of its Shellfish Conservation Ordinance by the Shellfish Conservation Committee, manages the recreational shellfish harvest. The Shellfish Conservation Ordinance, most recently amended in May 2017, establishes the licensing requirements and sets the days, clam size and amounts allowed for harvest. The Shellfish Conservation Committee, with Maine DMR approval, sets an annual number of licenses that can be issued. For 2017, licenses were available for 75 resident and 25 non-resident adults; 22 resident and 3 non-resident seniors; and 22 resident and 3 non-resident juniors. Generally, about half the total available licenses are issued in a given year.

York Pond and Scituate Pond provide additional water recreation options for the public. Both ponds have public access points and limited parking. Non-motorized boating, swimming, and fishing are permitted at both ponds.

The public can enjoy views of the York River from walking paths and trails along its shoreline. York's Fisherman's Walk and Wiggly Bridge provide unique recreational and visual experiences along the York River and are part of a roughly two-mile scenic shoreline walk through the heart of the harbor and some of York's historic areas. York's Cliff Path traverses the rocky Atlantic Ocean shoreline from Milbury Lane to the Harbor Beach area where the Fisherman's Walk begins, taking pedestrians along a river path to the Wiggly Bridge. The Town of York manages the Fisherman's Walk and has an ordinance governing its use that aims to promote safe, responsible use and to protect the privacy of citizens that own property along the walk.

> *The Town should preserve public use and access to the entire length of Fisherman's Walk. York's coastal walk is a jewel that few coastal communities enjoy and warrants preservation.* – York Comprehensive Plan

Wiggly Bridge from Steedman Woods. *Photo: Wayne Boardman*

Iconic Wiggly Bridge, perhaps the nation's smallest suspension bridge, was built in the 1930s and connects the Fisherman's Walk to Steedman Woods. Steedman Woods, a 17-acre woodland preserve given to the Old York Historical Society in 1978 by C. Richard Steedman for public enjoyment, provides scenic walking trails along the shoreline and is part of the Town of York's Lindsay Road Local Historic District.

Farther upriver, the 33-acre town-owned Goodrich Park provides shoreline views and passive recreation along the York River.

Goodrich Park, which includes the Grant House, was donated to the Town of York by Mary Marvin Breckinridge Patterson in the 1970s. The park includes picnic areas, short walking trails, and parking, and is adjacent to the Rice's Bridge public boat ramp. Grant House is home to York's Parks and Recreation Department. The Town of York owns and manages recreational fields within the York River watershed at its Bog Road recreational facility and at the Village Elementary School and York Middle School.

Most watershed lands that provide public access and recreational opportunities are owned by private landowners, including local land trusts and the Kittery Water District. Some of these private lands connect to the York Water District's water supply lands and to the Mount Agamenticus conservation lands, creating an expansive network of undeveloped lands, trails and recreation opportunities. Several of the land trusts' larger preserves in the York River watershed that provide public recreational opportunities and connect users to the region's natural resources and history are listed below:

- Kittery Land Trust's Norton Preserve: 170 acres that include trails through hemlock, beech, oak and maple woodlands. The site includes stone walls, vernal pools, and wetlands that form the headwaters of Southside Brook.
- Great Works Regional Land Trust's Rocky Hills Preserve/York Pond (Eliot and South Berwick): several trails go through this 200-acre preserve that features an old quarry, vernal pools, and a variety of woodlands. GWRLT's preserve connects to other land conservation projects it helped facilitate, including the Eliot Town Forest and Maine Department of Inland Fisheries and Wildlife lands. Collectively there are over 500 acres of conservation lands that provide several recreation trails along parts of York Pond and Bartlett Mill Pond. The area protects water quality for the headwaters of the York River, and it includes abundant natural resources and historic resources such as cellar holes, wells, and cemeteries from the early Punkintown settlement.
- York Land Trust's (YLT's) Smelt Brook Preserve: roughly 300 acres with trails through forests and along the salt marsh and shoreline. The Preserve trails provide outstanding views of vast salt marshes along the York River and Smelt Brook. The habitat provides exceptional bird-watching opportunities for shorebirds such as great blue herons, night herons, white egrets and kingfishers. The Preserve also has a quarter-mile "landing trail" that is accessible via boat, starting from Scotland Bridge on the York River.
- YLT's Highland Farm Preserve: trails in this 150-acre preserve provide views of the York River watershed, diverse wildlife habitats, and remnants from early settlement including stone walls, a cellar hole and centuries-old cemeteries. The undeveloped lands help protect the drinking water supply of Boulter Pond. The Preserve provides key habitat for native wildlife including seven rare and endangered species, and it contains a 30-acre habitat restoration project to support the return of New England cottontail.

Group outing to explore vernal pools.
Photo: courtesy of York Land Trust

- YLT's McIntire Highlands Preserve: 420-acre site that connects to Kittery Water District lands and is part of an unfragmented landscape large enough to support such animals as moose, bobcat, and fisher. The Preserve helps maintain regional water quality and contains some of the region's oldest trees. Part of the "Horse Hills" region, the area was historically used for forestry and sheep farming.
- YLT's Fuller Forest Preserve: the newly acquired 220-acre preserve will provide future trail access and recreational opportunities. The Preserve includes forested areas, wetlands, vernal pools, and the headwaters of Dolly Gordon Brook.

The land trusts typically limit recreational use to trails and allow hiking, nature viewing, skiing, and snowshoeing, but don't allow motorized vehicles. Hunting is allowed on many of the land trusts' larger preserves.

The Kittery Water District (KWD) allows public access and recreation on its water supply lands trails. The KWD owns approximately 2,500 acres that include an extensive trail network that connects to the York Water District's lands and trails. The water districts allow use of trails for hiking, biking, and skiing, and by all-terrain vehicles (ATVs) by permit. Use is limited to trails only. No recreational uses are allowed on the water supply ponds. Hunting is allowed on the water districts' lands. The water districts have a Resource Protection/Watershed Patrol Program that utilizes patrols, largely by ATV, to enforce regulations, observe activities, and interact with users. The outreach and education piece of the patrol officer's job has been instrumental in protecting the water supply resources and keeping lands open for public recreation. Over the last 25 years, the number of recreational users using water district lands has remained about the same, though types of recreational activities have changed. In recent years, there is more passive recreation and fewer ATVs, and the overall number of hunters has declined.

C. Scenic Resources

The combination of exceptional natural, cultural, and historic resources in the York River watershed creates distinctive scenic views that help define community character and create unique visual experiences. The exemplary scenic values of the river and shoreland areas are documented in the 1987 nomination of the York River/Harbor Heritage Coastal Area (HCA) for inclusion in the Maine Heritage Coastal Areas Program. The state program sought to identify and seek voluntary protection of coastal areas that had natural, historic, and scenic importance. The York River/Harbor HCA included about 9,700 acres in York and Eliot. A scenic assessment conducted by the Maine State Planning Office documented the state significance of the area and found it to be the single largest scenic area in southern Maine. Twenty-one significant points for views of the York River were included in the HCA. Despite the state's repeal of the overall HCA Program in 1993, the nomination demonstrates the unique concentration of so many significant resources in and along the York River and how the natural, historic, and built environment contribute to the overall scenic character of the York River. The scenic qualities that contributed to the York River/Harbor HCA nomination and to the high ranking in the state's scenic assessment largely still exist today.

Preserving scenic views helps maintain the region's historic and rural contexts. Much of the upper watershed area north and west of Interstate 95 possesses rural qualities that relate to traditional forestry and agricultural uses of the lands that defined early settlement and development patterns in the region. Early farming families fished, pastured cattle, and harvested marsh hay from adjacent salt marsh areas starting in the 1700s. Timber was harvested from lands around Smelt Brook and the upper reaches of the York River. The construction of river mills allowed early settlers to produce marketable lumber. In the 1800s this region's land area was increasingly used for family farms to support livestock and crops. Centuries-old stone walls, originally dividing agricultural and pasture lands, are visible across these landscapes. In conducting its surveys of historic buildings in the upper York River area in York and Eliot in 2017, Groundroot Preservation Group found that the historic context of many buildings has eroded, as much of late 19th-century agricultural landscapes were transformed by reforestation and residential development.

All the communities' comprehensive plans note the importance of scenic resources, as well as the need to conduct more thorough inventories and develop strategies to improve long-term protection of important views. Scenic resources generally have not been protected through towns' ordinances. The Town of York's Comprehensive Plan includes an inventory of scenic points and scenic routes, including many locations in and around the York River. The inventory is intended to serve as a "starting point for the development of policies to address protection of scenic resources." The scenic resources inventory includes viewsheds seen from all the bridges that cross the York River, including the Route 103 Bridge, Sewall's Bridge, Rice's Bridge, Interstate 95 Bridge, Scotland Bridge, and Cooks Bridge, as well as Southside Road toward the York River. Scenic routes identified in the inventory that provide York River views from multiple locations include Route 103, Route 91, and the Fisherman's Walk. The York River itself, from the Atlantic Ocean to the head of tide, is identified as a scenic route.

View of York River from Route 91 at the McIntire Garrison site. *Photo: Chuck Maranhas*

In its comprehensive plan, the Town of Eliot notes the contribution of its agricultural and forestry resources to the town's scenic and cultural values. The areas of Eliot that are part of the York River watershed still maintain scenic farms and forests that are part of the rural landscape important to community character. Protecting scenic views and rural qualities were important factors used in developing the Eliot Open Space Plan. Similarly, South Berwick's Comprehensive Plan notes the importance of conserving its rural landscapes including farms and forests to preserve scenic vistas, among other values. It recommends amending the town's subdivision ordinance to require scenic view preservation as one option to preserve scenic resources. Specific scenic resources identified in the Kittery

Comprehensive Plan are largely outside the York River watershed, with the exception of views associated with the Johnson/Rustlewood Farm, one of the few remaining farms in Kittery, and scenic roads including Cutts Road, Betty Welch Road, Bartlett Road, and Norton Road.

The scenic Johnson / Rustlewood Farm that includes 300 acres of farmland and forestlands protected from development through conservation easements. *Photo: courtesy of Kittery Land Trust*

Stewardship Goal, Objectives, and Key Actions – Working Waterfront, Recreational Resources, and Community Character

Goal: Preserve working waterfront, sustainable recreational uses and scenic qualities of the York River and watershed lands that are important to regional identity and community character.

Objective 3.1: Promote and sustain activities that support commercial fishing operations and an active working waterfront.

Key Actions to be developed and undertaken in coordination with the Town of York, including its Harbor Board:

- Support development of a York Harbor Management Plan that evaluates infrastructure, uses, needs, and current and future capacities for working waterfront and river-dependent businesses; identifies management needs and priorities; and identifies funding needs and possible sources.
- Continue to support and implement maintenance dredges.
- Develop and maintain necessary infrastructure to support commercial and public access, including commercial docks, moorings, boat launch sites, and parking. Support efforts to identify, evaluate and pursue opportunities to enhance commercial fishing dock access and sustainable paddle craft access and parking.
- Evaluate and plan for sea level rise impacts on working waterfront.
- Maintain town policies and practices that provide financial incentives, such as current use tax incentive programs, to maintain working waterfront.
- Help maintain commercial fishing as a viable option for future generations and explore ways to diversify operations.

Objective 3.2: Encourage sustainable recreational uses and foster user stewardship of river resources.

Key Actions to be developed and undertaken in coordination with the Town of York, including its Harbor Board and Parks and Recreation Department:

- Evaluate options for developing a "river steward" position to help support resource management, education, and stewardship initiatives, including engagement of a citizen corps to help with outreach and promote a culture of self-monitoring and stewardship.
- Evaluate options to implement a sticker/registration program for paddle craft use to provide important safety and resource protection information to boaters and to help track the extent and location of users.
- Support development of a Town of York Recreation Plan that identifies river recreation opportunities, infrastructure needs, and management issues, including river access points, parking, launching, and sanitary facilities.
- Develop and maintain safe and sustainable boat launch sites including those at Scotland Bridge, Goodrich Park, Rice's Bridge, Route 103, and Strawberry Island. Support installation and maintenance of permanent stormwater and erosion control measures at sites.

- Develop and implement boater education programs using a range of existing and new opportunities (e.g., Harbor Masters, ramp/dockside/launch signage, sticker program, river stewards, boater and water safety classes, online resources, etc.) on topics including responsible, safe boating and paddling practices, wildlife and habitat protection, speed zones, no wake zones, etc.
- Promote opportunities for recreational shellfish harvesting.

Objective 3.3: Maintain and support sustainable public recreation opportunities on watershed lands.

Key Actions:

- Support public access and recreation opportunities on publicly-owned lands.
- Encourage and provide support for large private landowners, including land trusts and water districts, to continue to provide public access and recreation opportunities consistent with resource protection goals.
- Identify opportunities to promote public access points, trail maps and networks, river walks, and trail connections to scenic and cultural resources.

Objective 3.4: Identify and help protect important scenic views, including those contributing to historic contexts and rural character, throughout the watershed.

Key Actions:

- Support communities' efforts to undertake scenic resources inventories and integrate information into comprehensive plans, open space plans, recreation plans, or other planning initiatives or documents.
- Identify threats, protection priorities and opportunities to integrate scenic resource protection measures into existing conservation planning, development review processes, and other resource protection strategies.

Photo: Jerry Monkman, Ecophotography.com

V.4 Community Stewardship

The York River flows through predominantly privately-owned lands. As such, achieving successful resource preservation outcomes will be largely dependent on voluntary actions by river users and private landowners, as well as a shared understanding of the amounts and kinds of public use that can be accommodated without degrading river values. There is an overall awareness and appreciation of the history, natural habitats and scenic landscapes of the York River region, as well as concern for their preservation. Throughout the process to identify watershed resources and management needs, the York River Study Committee heard overwhelming support for protecting the values of the York River. Concerns of resources being "loved to death" – whether through overuse or misuse – was a recurring theme. At the same time, there are countless examples of community and individual stewardship actions and successful resource preservation initiatives.

The citizens of York, Eliot, Kittery, and South Berwick have demonstrated great interest in and capacity for resource preservation and stewardship – as volunteers serving on town boards and committees, as landowners committed to conserving resources, as volunteers with local land trusts and historical societies, as educators sharing their interests and knowledge with others, and as voters supporting policies and funding for resource protection.

The qualities and values that make the York River watershed special and worthy of protection also make it a valued recreational resource. A number of issues related to recreational river use, in particular, were noted throughout the York River Wild and Scenic Study, including:

- shoreline landowner concerns (e.g., trespass, litter, and lack of respect for their private property)
- user impacts to sensitive natural resources

- adequate and appropriately-located access to the river, and access to sanitary facilities
- commercial recreational uses
- parking and traffic issues
- safety of river users
- potential intensification of these issues and other user conflicts as recreational use increases in the future

Proactive consideration and planning is needed to balance resource protection and recreational use of the river and watershed lands. This Stewardship Plan describes many of the current conditions and uses of the York River. Better documentation and understanding of the extent, types and locations of recreational uses of the river and developing strategies to minimize user conflicts and user impacts to resources will be increasingly important as demand for recreational opportunities increases.

The following stewardship objectives and key actions recognize the capacity and key role of the watershed communities' citizenry in the long-term preservation of the York River and watershed resources. Implementation will help achieve the stewardship goals for all the resource areas – cultural and historic resources, natural resources, working waterfront, and scenic and recreational resources. Connecting people to watershed resources, educating them about how their actions can affect resources and why resource protection matters, and providing access to information and training will help sustain and strengthen citizen stewardship of the York River watershed.

Photo: courtesy of York Land Trust

Stewardship Goal, Objectives, and Key Actions – Community Stewardship

Goal: Strengthen stewardship of watershed resources by river users, watershed landowners and citizens.

Objective 4.1: Build appreciation for and create connections to watershed resources.

Key Actions:

- Create or support volunteer opportunities to engage residents in watershed projects, research, and citizen science initiatives. Activities could include water quality or other environmental monitoring, storm drain stenciling, habitat restoration projects, archaeology surveys, and archives research and organization.
- Promote, organize or conduct events and activities that showcase resources to the towns' residents.
- Collaborate with educators in developing lesson plans, presentations, and school programs that incorporate the region's history, historic preservation and archaeology, the natural environment, and/or other watershed resources; provide technical assistance and outreach materials; and develop and support field trips and other activities to engage school children.
- Create educational materials on a variety of subjects related to the watershed and its resources, and disseminate through websites, printed materials, presentations, mobile applications, and signage such as historic markers or trailhead kiosks.
- Develop opportunities for visual artist appreciation of watershed resources through activities such as photo contests and plein air painting and drawing.

Objective 4.2: Educate the public about the cultural and financial benefits of resource protection.

Key Actions:

- Demonstrate and promote the value of historic resources, working waterfront, natural resources, open spaces, scenic views, and recreational opportunities to the region's economy and identity.
- Help facilitate resource stewardship by developing outreach materials and programs that describe specific resources, threats and management needs, as well as proactive actions and behaviors to protect resources.

Objective 4.3: Build capacity and knowledge among the towns' board and committee members and staff to identify and protect resources.

Key Actions:

- Encourage regular site visits and provide training opportunities and workshops for board and committee members on:
    - State and local regulations that protect natural and historic resources
    - Available data, maps and other information on local watershed resources
    - State agency technical assistance through Maine Natural Areas Program, Maine Department of Inland Fisheries and Wildlife, Maine Historic Preservation Commission, and others
    - General best management practices for protecting resource values
    - Case studies or other examples of successful approaches to resource protection

- Improve data availability and access, as well as consistency in formats, for watershed resource information.
    - Ensure that updated watershed resource data is available in GIS formats and in other formats for viewing.
    - Attempt to standardize watershed towns' boundaries and shoreline boundary data, including a standard set of attributes.
    - Encourage towns to examine the representation of shoreland zoning in their ordinances and on official shoreland zoning maps for consistency.
    - Support efforts to archive and expand access to local historic resources information.

Objective 4.4: Improve landowner knowledge of resources and stewardship opportunities.

Key Actions (compiled from other resource-specific objectives):

- Improve landowners' knowledge of historic resources, archaeologically sensitive areas, and important habitats and species on their properties.
- Create a network of local homeowners who have completed historic preservation or restoration efforts and are willing to share their experiences with others interested in preserving historic properties and building features.
- Promote workshops, training, and resources that encourage landowners to utilize sustainable forestry and agricultural practices that enhance wildlife habitat and minimize negative impacts on natural resources.
- Provide information and workshops for landowners on how to identify, control and remove invasive species and restore native vegetation.
- Support implementation of the Lawns to Lobsters and YardScaping outreach programs, and other training and outreach on best management practices for low-impact landscaping, stream/wetland buffer management and plantings, septic system maintenance, and proper disposal options for household hazardous waste and pharmaceuticals; and conduct outreach to increase understanding of existing regulations that govern vegetated buffers, setbacks from wetlands, and septic system maintenance.

Objective 4.5: Develop and review strategies to minimize impacts of recreational uses on river resources and address other user conflicts.

Key Actions:

- Provide a forum to identify and discuss potential user conflicts and activities or uses that have the potential to impact river-related values and other watershed resources.
- Consider the need for and options to conduct a river use study to examine current river use patterns, conflicts, potential growth in recreational or other uses, and existing regulations and policies governing uses.
- Support the development of baseline metrics and/or indicators to capture additional information on river use, user capacities, conflicts, and resource impacts. Use information to identify stewardship needs and to develop recommendations.
- Identify levels of public use that may warrant implementation of management strategies and work with key partners to develop and implement management strategies, as needed.

Section VI – Summary of Stewardship Objectives and Key Actions for Watershed Resource Protection

The Stewardship Plan includes over 170 recommended actions to meet 36 stewardship objectives. The key actions identified in the Watershed Resources subsections of the plan are listed below.

	Objectives	Key Actions (Recommendations)
CULTURAL AND HISTORIC RESOURCES	1.1 Enhance funding and financial incentives for historic resources protection in the watershed	Stimulate wider community participation in the Certified Local Government program to help promote and fund historic resources preservation.
		Promote federal and state rehabilitation and tax incentive programs and historic preservation grant programs.
		Promote historic districts, highlighting the importance of maintaining clusters of historic resources.
		Explore opportunities and help identify funding sources to implement local financial incentives for historic resource preservation, such as reduced or waived permitting fees.
		Implement education and advocacy efforts to inform citizens of the importance of protecting historic resources for economic values, scenic views, community character, and tourism.
	1.2 Improve understanding and coordination of activities under the NHPA and Maine's preservation laws	Foster collaboration and exchange of information with municipalities, transportation and housing agencies, National Park Service and Army Corps of Engineers, as well as other state agencies.
		Expand network of preservation partners by engaging select boards and town councils, land trusts, historical societies, regional planning commissions, and other community officials.
		Provide toolkits, support, and guidance to community partners and landowners on the importance of surveys and on advantages of designation to the State and National Registers of Historic Places and the associated review processes.
	1.3 Identify and document watershed archaeological, architectural, and historic resources	Assess gaps in surveys and nominations to State or National Registers.
		Update and expand historic context information, including archaeologically sensitive areas, for use in identifying and evaluating archaeological and historic resources in watershed.
		Conduct new and update existing surveys to identify and document archaeological and historic architectural resources throughout the watershed, including updated locational information for historic structures in the Maine Historic Preservation Commission's CARMA database.
		Utilize state and federal preservation practices to ensure proper documentation and showcase application of the MHPC and Secretary of the Interior's standards and guidelines.
		Maintain up-to-date inventories of historic resources, historic contexts, and scenic values in towns' comprehensive plans.
		Increase nominations of eligible archaeological and historic resources to the State and National Registers of Historic Places, with an emphasis on those associated with underrepresented regions and resource types. For example, work with stakeholders to investigate and pursue Punkintown Historic District/National Register of Historic Places nomination.
		Undertake new research and scholarship at historic sites to improve understanding of the significance of the archaeological and historic resources in the watershed.

	Objectives	Key Actions (Recommendations)
CULTURAL AND HISTORIC RESOURCES	1.4 Improve ability to respond to impacts of sea level rise and other natural disasters on historic resources	Create pre- and post-disaster resiliency and recovery plans that include efficient review and compliance efforts.
		Work with the National Park Service, Federal Emergency Management Agency, and Maine Historic Preservation Commission to develop guidance for historic property owners to address scenarios such as disaster recovery and how to navigate government assistance.
		Establish effective communication methods to ensure information sharing with stakeholders and reviewers at all levels.
	1.5 Improve towns' abilities to identify and protect historic resources through local regulatory and non-regulatory approaches	Amend site plan and subdivision regulations, as needed, to ensure that historic and archaeological resources are identified and protected through the review process.
		Provide training to planning board members on ways to protect historic resources through the site plan and subdivision review process, and to code enforcement officers to assist in identifying and protecting historic resources with single-family home construction projects.
		Adopt building codes that allow flexibility in building renovation to accommodate important design features of historic buildings.
		Review options for tax abatement or other financial incentives for home and business owners and developers that undertake efforts to preserve historic resources.
	1.6 Improve public access to information on local historic resources and facilitate research and exchange of historic preservation information	Update and maintain existing state and local databases and create a single online archive for collecting and sharing information for identification and documentation purposes. Seek funding for an integrated online database of historic resources and associated archives.
		Collaborate with the Maine Historic Preservation Commission on the sharing of historic resource data.
		Provide links to photographs, histories, drawings, and other research and documentation.
		Develop training materials and programs on preservation techniques.
		Conduct or coordinate consultant and preservation partner trainings and workshops.
		Work with historic district commissions and historic societies to create a forum for the dissemination of information on key issues and opportunities related to historic preservation.
		Create and promote a network of local homeowners that have completed historic preservation or restoration efforts that are willing to share their experiences with others interested in preserving historic properties and building features.
	1.7 Raise the profile of historic preservation through promotion and stewardship of historic resources	Partner with state agencies, Maine Archaeological Society, town departments and commissions, historical societies, local museums and land trusts to implement local programs on history, archaeology, and historic preservation, including Maine Archaeology Month activities.
		Celebrate designations to the State and National Registers of Historic Places, and successful rehabilitation projects to encourage other historic preservation efforts.
		Work with organizations that support historic preservation-related tourism, including the York Region Chamber of Commerce, Maine Humanities Council, and state agencies involved in tourism and marketing, to promote the region's historic resources.
		Compile local summaries of historic properties, including notable features and preservation techniques, to facilitate self-guided walking tours in areas that have clusters of historic resources along the York River or within a historic district.

	Objectives	Key Actions (Recommendations)
NATURAL RESOURCES	2.1 Preserve large undeveloped habitat blocks and wildlife corridors	Conduct surveys and research to help identify and define highly valued natural resources and important large habitat blocks for priority conservation efforts.
		Prioritize the protection of large undeveloped habitat blocks, wildlife corridors, and salt marsh migration areas in local planning documents and regulatory and non-regulatory approaches to protect natural resources.
		Utilize existing information and resources such as habitat areas designated for Maine Species of Great Conservation Need and Beginning with Habitat Focus Areas to guide conservation and protection efforts.
	2.2 Support land conservation and stewardship efforts by communities, land trusts, and other conservation organizations	Develop and implement stewardship plans for conservation lands that address resource protection measures, public access, sustainable recreation uses, invasive species management, and monitoring.
		Help facilitate opportunities for land conservation projects located in Beginning with Habitat Focus Areas, as well as habitat areas likely to provide key functions and support biodiversity in the future.
		Promote the Mt. Agamenticus to the Sea Conservation Initiative to implement public-private approaches to preserve large undeveloped habitat blocks, wildlife corridors and regional biodiversity and build public interest and support for habitat conservation.
		Assist towns, land trusts, and conservation organizations in implementing priority actions and achieving the goals and targets included in open space plans and local and regional land conservation plans.
	2.3 Encourage agriculture and forestry uses of watershed lands, using sustainable practices	Maintain town policies and practices that promote enrollment in current use tax incentive programs such as Tree Growth, Farmland and Open Space.
		Promote workshops, training, and resources that encourage landowners to utilize sustainable forestry and agricultural practices that enhance wildlife habitat and minimize negative impacts on natural resources.
	2.4 Promote local planning and zoning strategies to protect shoreland buffer zones, wildlife corridors, large undeveloped habitat areas, and predicted marsh migration and flooding areas	Assist towns with evaluating and implementing recommendations from the Southern Maine Planning and Development Commission's 2018 *York River Watershed Study: Regulatory and Non-regulatory Recommendations Report*.
		Promote conservation subdivision design or cluster development through local ordinances to reduce overall development footprint, reduce impervious surfaces, and protect natural resource values.
		Review and enhance Shoreland Zoning strategies to ensure protection of water quality, wildlife habitat, vegetated buffers, and future marsh migration areas. Promote provisions that go beyond the state of Maine's Mandatory Shoreland Zoning Act.
		Review and update local zoning to ensure lot sizes are large enough to minimize the potential negative impacts of development on water quality and other natural resources in rural areas of the watershed.
		Consider creating a 'watershed' based overlay among the four York River watershed communities to promote regional conservation strategies while still allowing each town to determine specific land-use regulations within their community.
		Consider creating a Sea Level Rise / Marsh Migration Overlay and associated standards to accommodate future conditions, direct development away from areas at risk from future inundation, reduce density in those areas, promote open space, and enhance resource protection.

	Objectives	Key Actions (Recommendations)
NATURAL RESOURCES	2.5 Maintain, improve and restore habitat to support unique, rare, endangered and threatened wildlife and plants	Target habitat conservation and protection efforts toward: Endangered and Threatened Species, Maine Species of Greatest Conservation Need, Federal Trust Species, and rare plants and exemplary natural communities identified by the Maine Natural Areas Program.
		Utilize the Maine Department of Inland Fisheries and Wildlife's Beginning with Habitat resources to ensure that the most up to date information about valuable wildlife and plants is incorporated into open space, conservation, and comprehensive planning efforts.
		Conduct species and habitat surveys and integrate information into local regulatory and non-regulatory resource protection approaches.
		Identify suitable habitat for viable populations of key species and work with landowners to maintain habitats and connectivity.
		Evaluate options for requiring specific plantings in ordinances governing shoreland permits for vegetation removal. Create educational materials to promote use of native plants and removal of invasive plants to achieve habitat restoration priorities when revegetating areas.
		Maintain and improve protections for tidal and inland wading bird and waterfowl habitat through shoreland zoning.
		Encourage communities to seek botanical review by biologists at the Maine Natural Areas Program when a development proposal potentially conflicts with a mapped resource.
		Conduct a survey of the lower York River estuary to determine the presence and extent of eelgrass beds. Identify and pursue conservation strategies as needed.
	2.6 Maintain habitat and water quality to support fish Species of Greatest Conservation Need and native fish species in the York River and its tributaries	For Species of Greatest Conservation Need, further assess populations, spawning habitat locations, habitat quality, and stream flow conditions, and identify opportunities to improve habitat conditions and access to spawning habitats.
		Protect riparian habitat surrounding alewife and rainbow smelt spawning habitat from development impacts through land conservation, preservation of natural buffer areas, and low impact development measures.
		Integrate known spawning habitat for Species of Greatest Conservation Need as a priority resource in local planning and regulatory approaches to protect natural resources.
		Implement additional recommendations outlined in the Wells National Estuarine Research Reserve's report, *An Assessment of Spring Fish Communities in the York River, Maine*.
	2.7 Protect, enhance and restore high quality salt marsh habitats to preserve ecological functions	Identify salt marsh habitat and adjacent buffers and uplands as priorities for land conservation.
		Maintain limits to development, building expansion, clearing activities, and habitat alterations in salt marsh buffer areas through town zoning and shoreland ordinances.
		Monitor and control invasive species that are degrading salt marsh habitat.
		Improve stormwater management practices to minimize impacts to salt marshes adjacent to developed areas.
		Identify and pursue opportunities for salt marsh restoration projects to improve habitat and functions.
		Integrate tidal flow considerations into road-stream crossing designs to maintain and improve salt marsh habitats.
		Evaluate impacts to salt marsh habitats from sea level rise and increasingly intense storm events.
		Determine whether sediment being exported from marsh is indicative of erosive processes or a healthy marsh.

	Objectives	Key Actions (Recommendations)
NATURAL RESOURCES	2.8 Improve conditions for aquatic organism passage and tidal flow at road-stream crossings and other man-made structures	Identify and prioritize improvements and/or replacement of road-stream crossings that are potential barriers to flow and aquatic organism passage. Use road-stream crossing data from the Maine Stream Habitat Viewer with habitat data, Maine Department of Transportation work plans, and community culvert-related plans and needs.
		In coordination with the watershed towns and Maine Department of Transportation, integrate tidal flow considerations into road-stream crossing designs to promote improved fish passage.
		Update ordinance language to require consideration of more extreme storm events, tidal flows, and aquatic organism passage in planning for local development projects.
		Integrate data on the cumulative impact of sea level rise scenarios, storm surge, and increased freshwater flows from stronger precipitation events into infrastructure designs.
		Integrate design improvements for terrestrial and riparian species passage in conjunction with aquatic organism passage, when feasible.
		Work with Maine Department of Inland Fisheries and Wildlife fisheries biologists to determine potential impacts of enhanced passage opportunities on aquatic habitats and native species, including impacts of invasive species.
		Explore opportunities with Kittery Water District and other large landowners in the watershed to enhance fish passage and spawning habitat.
	2.9 Protect valuable wildlife and habitat by addressing invasive species in the watershed	Provide information and workshops for landowners on how to identify, control, and remove invasive species.
		Encourage site-based research, removal, and monitoring projects to improve invasive species detection, control, and eradication methods, and encourage landowner coordination with neighboring landowners to undertake larger-scale projects for greater success and effectiveness.
		Promote awareness of invasive species, efforts to manage their spread, and reporting opportunities through the Maine Natural Areas Program.
	2.10 Evaluate and track water quality and quantity conditions in the York River watershed	Develop and implement a water quality monitoring program in the York River watershed to build upon the 2017 survey conducted by the Maine Department of Environmental Protection. Ensure dry and wet weather sampling to capture impacts during varied weather conditions (coordinate with monitoring conducted through local stormwater management programs).
		Coordinate with the Maine Department of Environmental Protection Marine Unit to identify potential future opportunities to collaborate with state water quality sampling efforts.
		Evaluate nutrient levels and nutrient-related impacts such as algal blooms in the York River watershed. Monitor nutrient characteristics of Smelt Brook to investigate the extent and sources of potential pollution issues identified during 2017 water quality sampling.
		Install additional stream gages to expand understanding about in-stream flow in the York River.
		Promote adequate stream flow by evaluating and addressing the impacts of unregulated water withdrawals from streams in the York River watershed.
		Ensure that results from monitoring programs are used to help identify problems and inform efforts to resolve them.

	Objectives	Key Actions (Recommendations)
NATURAL RESOURCES	2.11 Protect and maintain natural vegetated buffers and forested areas around water resources to sustain water quality, instream habitat, and riparian habitat	Continue to identify the protection of headwater streams, forested wetlands, and riparian zones as high priorities for conservation.
		Identify and pursue opportunities to restore or enhance degraded shoreline or buffer areas through replanting, shoreline stabilization, and reducing stormwater runoff.
		Maintain or enhance shoreland zoning requirements that include protective measures for water resources including all streams, wetlands and vernal pools.
		Review shoreland zoning approaches for buffers and setbacks from all waterbodies to identify gaps in protection and opportunities for additional protections.
		Maintain local capacity of town code enforcement offices to proactively implement shoreland protection regulations.
	2.12 Promote sustainable practices by property owners to help protect natural resources and water quality	Support implementation of the Lawns to Lobsters program (York) and YardScaping program (Eliot, Kittery, and South Berwick) to increase the number of watershed property owners taking action to reduce the use and impacts of pesticides and fertilizers on water quality and wildlife in the York River watershed. These programs also encourage low impact techniques such as rain gardens and vegetated buffers to reduce runoff from lawns and yards into the river.
		Conduct outreach and education to provide landscaping companies with resources and information about sustainable landscaping practices.
		Provide training and information on best management practices such as low-impact landscaping, stream/wetland buffer management and plantings, septic system maintenance, and proper disposal options for household hazardous waste and pharmaceuticals.
		Conduct outreach to increase understanding of existing regulations that govern vegetated buffers, setbacks from wetlands, and septic system maintenance.
	2.13: Maintain and improve water quality to support shellfish harvesting in the York River watershed	Work in collaboration with the York Shellfish Commission to consider opportunities for expanding shellfish harvesting in the York River.
		Continue working with the Maine Department of Marine Resources to conduct inspections and surveys to identify and resolve any additional potential direct discharges into the York River.
		Identify and pursue opportunities to prevent stormwater pollution from faulty septic systems in shellfish growing areas and throughout the watershed.
		Explore potential for designating the York River estuary and nearby coastal areas as a federally designated No Discharge Area for boater waste. This initiative would enhance local protections and increase funding resources for boat pumpout services.
		Conduct boater outreach to increase awareness about the importance of eliminating boater discharges.

	Objectives	Key Actions (Recommendations)
NATURAL RESOURCES	2.14 Protect and improve water quality in the York River and its tributaries by preventing and reducing sources of stormwater pollution	Support and enhance capacity for York, Eliot, Kittery, and South Berwick to implement the following six minimum control measures required by the US Environmental Protection Agency's MS4 General Permit.
		Consider implementing measures required by the MS4 program and expanding stormwater management ordinances to all areas of the York River Watershed, not just in designated Urbanized Areas / MS4 areas.
		Utilize results from the York River Watershed Build-Out Study to increase understanding about how future development could impact water quality and other natural resource values in the watershed.
		Implement proactive strategies to minimize polluted stormwater runoff by reducing impervious surfaces such as paved parking and roads associated with new development.
		Ensure compliance with Maine's stormwater standards to address both the quantity and quality of stormwater runoff associated with developments of an acre or more.
		Consider adopting a Fertilizer and Pesticide Ordinance or regulations to control and reduce use within the watershed.
		Evaluate road salt application and storage practices to ensure protection of water resources.
	2.15 Promote low impact development strategies to manage stormwater and protect water quality and other natural resource values	Promote low impact development stormwater management strategies that meet Maine state standards by incorporating key protections to the maximum extent possible (see additional details in Natural Resources / Water Resources section).
		Require operation and maintenance plans for low impact development infrastructure for projects that exceed a specified threshold.
		Create standards and criteria for developers to implement low impact development stormwater management techniques, and incorporate into site plan and subdivision regulations.
		Develop guidance documents for developers to promote understanding of best practices for low impact development stormwater management strategies.
	2.16 Protect quantity and quality of drinking water supply in the York River watershed	Support proactive watershed conservation strategies being implemented by both the Kittery Water District and the York Water District.
		Support funding and implementation of recommendations outlined in the Kittery Water System Master Plan to ensure adequate management, treatment and transport of drinking water.
		Support Kittery Water District ownership of lands, or other organizations' land conservation efforts, in the water supply watershed.
		Support and ensure continued enforcement of recreational restrictions to protect watershed supplies from risks such as fires or negative water quality impacts from swimming.
		Monitor algal blooms and other potential aquatic invasive plants to ensure they don't cause future problems for drinking water supply.
		Ensure continuation of York watershed protection ordinance.
		Continue ongoing efforts for regional cooperation among water suppliers in the York River watershed to ensure clean, adequate and resilient water supplies during periods of drought or other water supply stressors.
		Conduct outreach to promote sustainable water conservation strategies for homes, businesses and landscaping practices in the watershed.

	Objectives	Key Actions (Recommendations)
NATURAL RESOURCES	2.17 Increase understanding of current and potential future sea level rise and climate impacts on natural resources in the York River watershed	Support continued research and studies to enhance understanding of potential impacts from sea level rise, temperature changes, storm surge, and increasingly intense and unpredictable storm events on natural resources in the York River watershed. • Conduct regular updates of watershed resilience studies to ensure climate adaptation efforts are informed by up to date sea level rise and storm surge projections. • Evaluate how climate conditions will impact key habitats, species and natural communities, and implement measures that protect or enhance habitat resiliency.
		Promote awareness and use of National Oceanic and Atmospheric Administration's (NOAA's) Digital Coast interactive trainings and web-based tools to help coastal communities assess vulnerabilities and plan for sea level rise, extreme flooding and other anticipated climate impacts.
		Host technical workshops among community planning and emergency response agencies to increase understanding of innovative tools such as NOAA's National Water Model to help anticipate potential flooding and other impacts associated with increasingly intense coastal storms.
	2.18 Identify and implement climate adaptation measures to help protect natural resources in the watershed	Host workshops to increase awareness among local boards, property owners, and developers about innovative strategies to incorporate coastal resilience strategies into site and building designs for new developments in vulnerable areas.
		Incorporate information about storm surge, sea level rise, and increasingly intense rainstorms into community-based resiliency planning efforts. Implement ordinance changes or other strategies to limit development in areas most vulnerable to future coastal flooding.
		Explore potential for participating in Federal Emergency Management Agency's (FEMA's) Community Rating Program by implementing proactive steps to improve floodplain management while reducing flood insurance rates.
		Utilize the latest information from the Northeast Regional Climate Center about intensity / duration / frequency of rainfall related to extreme precipitation events to inform local ordinances, stormwater management planning and design criteria.
		Regularly update design criteria for infrastructure projects to utilize most recent FEMA flood insurance maps.
		Support funding for major stormwater infrastructure improvement projects to correct existing flooding problems and reduce stormwater pollution and sediment transport associated with major flooding events.
	2.19 Protect marsh migration corridors and adjacent wetlands to support future salt marsh areas	Periodically update mapping and analysis to identify priority areas where salt marshes are predicted to migrate or expand into adjacent upland areas as a result of sea level rise.
		Integrate likely future salt marsh areas as priority habitats in watershed resource protection measures and conservation planning. Consider updating shoreland zone boundaries to include marsh migration areas and amending ordinance language for protection of future marsh areas and buffers.
		Explore regulatory and non-regulatory options to conserve uplands that are expected to become future salt marshes or provide critical buffer areas for future salt marsh habitat.

	Objectives	Key Actions (Recommendations)
NATURAL RESOURCES	2.20 Identify and pursue funding opportunities, in-kind support, local revenue strategies, and landowner incentives to promote stewardship of natural resources in the York River watershed	Support Partnership Wild and Scenic River designation for the York River and major tributaries to expand financial resources for coordination and implementation of the York River Watershed Stewardship Plan.
		Identify and pursue opportunities for grant funding and in-kind technical support from state and federal programs.
		Explore and identify potential opportunities for funding from private foundations.
		Identify and pursue potential partnerships with local businesses, waterfront property owners, and marine industry to collaborate on site-specific and watershed wide efforts to protect and restore habitat and water quality.
		Create partnerships with local schools and regional universities to enhance environmental research and studies related to understanding and protecting natural resources in the watershed.
		Explore potential for stormwater user fees or other funding mechanisms to support ongoing implementation of stormwater management services.
		Establish and support annual funding for conservation/open space funds in each watershed town through annual appropriations, dedicated revenues, or other means.
		Create financial incentives for landowners to promote restoration and conservation, e.g., tax credits, cost-sharing of native plants for habitat restoration, and reduced or waived permitting fees.

	Objectives	Key Actions (Recommendations)
WORKING WATERFRONT, RECREATIOANAL RESOURCES AND SCENIC RESOURCES	3.1 Promote and sustain activities that support commercial fishing operations and an active working waterfront	Support development of a York Harbor Management Plan that evaluates infrastructure, uses, needs and current and future capacities for working waterfront and river-dependent businesses; identifies management needs and priorities; and identifies funding needs and sources.
		Continue to support and implement maintenance dredges.
		Develop and maintain necessary infrastructure to support commercial and public access, including commercial docks, moorings, boat launch sites, and parking. Support efforts to identify, evaluate and pursue opportunities to enhance commercial fishing dock access and sustainable paddle craft access and parking.
		Evaluate and plan for sea level rise impacts on working waterfront.
		Maintain town policies and practices that provide financial incentives, such as current use tax programs, to maintain working waterfront.
		Help maintain commercial fishing as a viable option for future generations and explore ways to diversify operations.
	3.2 Encourage sustainable recreational uses and foster user stewardship of river resources	Evaluate options for developing a "river steward" position to help support resource management, education, and stewardship initiatives, including engagement of a citizen corps to help with outreach and promote a culture of self-monitoring and stewardship.
		Evaluate options to implement a sticker/registration program for paddle craft use to provide important safety and resource protection information to boaters and help track the extent and location of users.
		Support development of a Town of York Recreation Plan that identifies river recreation opportunities, infrastructure needs, and management issues, including river access points, parking, launching, and sanitary facilities.
		Develop and maintain safe and sustainable boat launch sites including those at Scotland Bridge, Goodrich Park, Rice's Bridge, Route 103, and Strawberry Island. Support installation and maintenance of permanent stormwater and erosion control measures at sites.
		Develop and implement boater education programs using a range of existing and new opportunities (Harbor Masters, ramp/dockside/launch signage, sticker program, river stewards, boater and water safety classes, online resources, etc.) on topics including responsible and safe boating and paddling practices, wildlife and habitat protection, speed zones and no wake zones, etc.
		Promote opportunities for recreational shellfish harvest.
	3.3 Maintain and support sustainable public recreation opportunities on watershed lands	Support public access and recreation opportunities on publicly-owned lands.
		Encourage and provide support for large private landowners, including land trusts and water districts, to continue to provide public access and recreation opportunities consistent with resource protection goals.
		Identify opportunities to promote public access points, trail maps and networks, river walks, and trail connections to scenic and cultural resources.
	3.4 Identify and help protect important scenic views throughout the watershed	Support communities' efforts to undertake scenic resources inventories and integrate information in comprehensive plans, open space plans, recreation plans, or other planning initiatives or documents.
		Identify threats, protection priorities and opportunities to integrate scenic resource protection measures in existing conservation planning, development review processes, and other resource protection strategies.

	Objectives	Key Actions (Recommendations)
COMMUNITY STEWARDSHIP	4.1 Build appreciation for and create connections to watershed resources	Create or support volunteer opportunities to engage residents in watershed projects, research, and citizen science initiatives. Activities could include water quality or other environmental monitoring, storm drain stenciling, habitat restoration projects, archaeology surveys, and archives research and organization.
		Promote, organize or conduct events and activities that showcase resources to the towns' residents.
		Collaborate with educators in developing lesson plans, presentations, and school programs that incorporate the region's history, historic preservation and archaeology, the natural environment, and/or other watershed resources; provide technical assistance and outreach materials; and develop and support field trips and other activities to engage school children.
		Create educational materials on a variety of subjects related to the watershed and its resources, and disseminate through websites, printed materials, presentations, mobile applications, and signage such as historic markers or trailhead kiosks.
		Develop opportunities for artist appreciation of watershed resources through activities such as photo contests or plein air painting / drawing.
	4.2 Educate the public about the cultural and financial benefits of resource protection	Demonstrate and promote the value of historic resources, working waterfront, natural resources, open spaces, scenic views, and recreational opportunities to the region's economy and identity.
		Help facilitate resource stewardship by developing outreach materials and programs that describe specific resources, threats and management needs, as well as proactive actions and behaviors to protect resources.
	4.3 Build capacity and knowledge among towns' board and committee members and staff to identify and protect resources	Encourage regular site visits and provide training opportunities and workshops for board and committee members on: • State and local regulations that protect natural and historic resources • Available data, maps and other information on local watershed resources • State agency technical assistance through Maine Natural Areas Program, Maine Department of Inland Fisheries and Wildlife, Maine Historic Preservation Commission, and others • General best management practices for protecting resource value • Case studies or other examples of successful approaches to resource protection
		Improve data availability and access, as well as consistency in formats, for watershed resource information. • Ensure that updated watershed resource data is available in GIS formats and in other formats for viewing. • Attempt to standardize watershed towns' boundaries and shoreline boundary data, including a standard set of attributes. • Encourage towns to examine the representation of shoreland zoning in their ordinances and on official shoreland zoning maps for consistency. • Support efforts to archive and expand access to local historic resources information.

	Objectives	Key Actions (Recommendations)
COMMUNITY STEWARDSHIP	4.4 Improve landowner knowledge of resources and stewardship opportunities	Improve landowners' knowledge of historic resources, archaeologically sensitive areas, and important habitats and species on their properties.
		Create a network of local homeowners who have completed historic preservation or restoration efforts and are willing to share their experiences with others interested in preserving historic properties and building features.
		Promote workshops, training, and resources that encourage landowners to utilize sustainable forestry and agricultural practices that enhance wildlife habitat and minimize negative impacts on natural resources.
		Provide information and workshops for landowners on how to identify, control and remove invasive species and restore native vegetation.
		Support implementation of the Lawns to Lobsters and YardScaping outreach programs, and other training and outreach on best management practices for low-impact landscaping, stream/wetland buffer management and plantings, septic system maintenance, and proper disposal options for household hazardous waste and pharmaceuticals; and conduct outreach to increase understanding of existing regulations for vegetated buffers, wetlands setbacks, and septic system maintenance.
	4.5 Develop and review strategies to minimize impacts of recreational uses on river resources and address other user conflicts	Provide a forum to identify and discuss potential user conflicts and activities or uses that have the potential to impact river-related values and other watershed resources.
		Consider the need for and options to conduct a river use study to examine current river use patterns, conflicts, potential growth in recreational or other uses, and existing regulations and policies governing uses.
		Support the development of baseline metrics and/or indicators to capture additional information on river use, user capacities, conflicts, and resource impacts. Use information to identify stewardship needs and to develop recommendations.
		Identify levels of public use that may warrant implementation of management strategies and work with key partners to develop and implement management strategies, as needed.

Photo: David J. Murray, ClearEyePhoto.com

Section VII – Partnership Wild and Scenic River Designation

A Partnership Wild and Scenic River (PWSR) designation for the York River and tributary streams in the National Wild and Scenic Rivers System would provide an administrative structure and crucial funding needed to implement the Stewardship Plan, enable a watershed approach across the four-town area, leverage additional technical and financial resources, engage key partners and citizens in river stewardship, and bolster ongoing initiatives to protect important watershed resources.

A. River Segments and Classification

The York River Study Committee recommends designating the York River and its major tributaries in the National Wild and Scenic Rivers System as a PWSR. River segments recommended for designation include the York River from the York Pond outlet in Eliot to the Route 103 bridge in York and some or all portions of Cutts Ridge Brook in Kittery, Eliot, and York; Rogers Brook in Eliot and York; Smelt Brook in York; Bass Cove Creek in York; Cider Hill Creek in York; Libby Brook in Kittery and York; and Dolly Gordon Brook in York. *[See Section II – York River Wild and Scenic Study for a list of stream reaches and mileages.]*

Designated rivers are classified as wild, scenic, or recreational based on level of development and shoreline alteration. A "recreational river" classification is best suited for the York River and its tributaries based on the river's characteristics and history of use and development.

Paddling on the York River. *Photo: Wayne Boardman*

From the National Wild and Scenic Rivers System website, https://www.rivers.gov/wsr-act.php:

Wild River Areas – *Those rivers or sections of rivers that are free of impoundments and generally inaccessible except by trail, with watersheds or shorelines essentially primitive and waters unpolluted. These represent vestiges of primitive America.*

Scenic River Areas – *Those rivers or sections of rivers that are free of impoundments, with shorelines or watersheds still largely primitive and shorelines largely undeveloped, but accessible in places by roads.*

Recreational River Areas – *Those rivers or sections of rivers that are readily accessible by road or railroad, that may have some development along their shorelines, and that may have undergone some impoundment or diversion in the past.*

Regardless of classification, each river in the National System is administered with the goal of protecting and enhancing the values that caused it to be designated. Designation neither prohibits development nor gives the federal government control over private property.

B. Outstandingly Remarkable Values

There are many outstandingly remarkable values (ORVs) present throughout the watershed's rivers and streams, including historic resources, scenic qualities, unique working waterfront preservation, water quality, biodiversity, exemplary natural communities, rare and endangered species, and watershed ecosystem resilience. ORVs are river-related features or resources that are unique, rare, or exemplary on a regional or national scale. A summary of ORVs present in the portions of the York River and major tributaries proposed for designation is provided on the following pages.

Snowy egrets. *Photo: Wayne Boardman*

Photo: Jerry Monkman, EcoPhotography.com

River Segment	Values	ORV Resource or Feature	Region of Comparison	Example(s) of Unique, Rare, or Exemplary Status
York River watershed rivers and streams (system-wide)	Ecological	• Water quality • Watershed connectivity • Unique and diverse habitats / overall biodiversity • Concentration of rare, threatened and endangered species/species of greatest conservation need • Unfragmented forest areas protecting headwater streams, wetlands, drinking water supplies, and riparian areas	State of Maine	• One of largest intact coastal wetlands in southern Maine • Greatest diversity of threatened and endangered species of any Maine region • Regional reference site for water quality • 28 species of estuarine and freshwater fish and excellent fish habitat, including diadromous fish and habitat
		• Part of largest intact coastal forest between Acadia and the New Jersey Pine Barrens • Salt marsh habitat / coastal ecosystem resiliency	Northeastern United States	Top 1% of sites surveyed for resiliency – most likely to support biological diversity and ecological functions with sea level rise
	Historical and Cultural	• Diverse, well-preserved and documented sites; important to regional culture and identity • Early industry and settlement (Euroamerican) • Formative events and settlement for colonization and early governance (Province of Maine) • Many archaeological sites (pre-contact and colonial)	New England	• High concentration of notable historic structures along river • Early tidal dams and mill structures • Three local historic districts (York) and many local historic landmarks • Native American archaeology sites, including middens
		Historic sites: National Register of Historic Places	United States	National Historic District and 5 river-related individual National Register sites
York River	Ecological	• Diadromous fish and fish habitat • Salt marsh habitat • Coastal ecosystem resiliency • Tidal wading bird habitat • Inland waterfowl/wading bird habitat	State of Maine	Identified as State Focus Area for ecological significance
	Historical	• Archaeological sites (pre-contact and colonial) • Numerous historic buildings, National Register sites and district, Scotland area settlement, Punkintown, mill and dam sites • Early industry and settlement, importance to early European colonization and early Maine government	State of Maine & United States	• Contributes to York National Historic District and three local historic districts • NRHP sites: John Hancock Warehouse, Isabella Breckinridge House, McIntire Garrison, Frost Garrison and House • Punkintown settlement archaeology
	Cultural and Scenic	• Working waterfront: Sewall's Bridge dock easement • Iconic bridges: Wiggly Bridge and Sewall's Bridge – America's first wooden pile drawbridge built in 1761	State of Maine & United States	• First in nation conservation easement to maintain working waterfront • Sewall's Bridge - National Historic Civil Engineering Landmark

River Segment	Values	ORV Resource or Feature	Region of Comparison	Example(s) of Unique, Rare, or Exemplary Status
		• Unique river views combining history, natural resources and built environment		• York River/Harbor Heritage Coastal Area • Findings from State Coastal Scenic Landscape Assessment (1987)
Cutts Ridge Brook, and **Rogers Brook**	Ecological	• Diadromous fish and fish habitat • Salt marsh habitat • Coastal ecosystem resiliency • Tidal wading bird habitat • Forested stream habitat/forested wetlands	State of Maine	Identified as State Focus Area for ecological significance
Smelt Brook	Ecological	• Diadromous fish and fish habitat • Salt marsh habitat • Coastal ecosystem resiliency • Tidal wading bird habitat	State of Maine	Identified as State Focus Area for ecological significance
	Historical	• Historic mill and dam sites • Shipbuilding site • Archaeological sites	New England	Sites of early Colonial industry and settlement
Bass Cove Creek	Ecological	• Diadromous fish and fish habitat • Salt marsh habitat • Tidal wading bird habitat	State of Maine	Identified as State Focus Area for ecological significance
Dolly Gordon Brook and **Libby Brook**	Ecological	• Salt marsh habitat • Coastal ecosystem resiliency • Tidal wading bird habitat • Inland waterfowl/wading bird habitat (Dolly Gordon Brook)	State of Maine	Identified as State Focus Area for ecological significance
	Historical	• Historic tidal saw mill and dam sites • Archaeological sites • Historic site: Barrell Homestead (National Register site)	New England & United States	• One of the earliest known tidal powered saw mills in Colonial America (1634) • National Register of Historic Places site
Cider Hill Creek	Ecological	• Diadromous fish and fish habitat • Salt marsh habitat • Coastal ecosystem resiliency • Tidal wading bird habitat • Forested stream habitat/forested wetlands	State of Maine	Identified as State Focus Area for ecological significance
	Historical	• Historic archaeology site: Point Christian remains • Historic mill and dam sites • Other archaeological sites	New England	Remains of the 1634-35 Point Christian manor house (home of Thomas Gorges, colony governor)

C. River Free-flow Conditions

The York River and its tributaries that are recommended for PWSR designation are generally free-flowing and support the York Rivers' ORVs. Recommended stream reaches begin below the drinking water supply dams. Historic dams and structures still present in or along the rivers do not impede overall river flow. Similarly, while there are many opportunities to improve fish passage and tidal river flows, culverts at road crossings of streams are not severely restricting or altering river flow. The few areas of hardened shoreline are primarily limited to the lower York River estuary and do not have any negative impact on the extensive natural marsh systems and valuable habitats of the upper York River watershed. *[See Section V – Watershed Resources for more information on free-flow qualities of watershed rivers and streams.]*

D. Local Support and Capacity for River Resource Protection

The York River and its major tributaries meet the suitability criteria for PWSR designation. The watershed towns have policies, management frameworks, ordinances and regulations in place that demonstrate the capacity for and commitment to river and watershed resource conservation. Watershed towns' regulatory and non-regulatory approaches to resource protection were reviewed and documented by the Southern Maine Planning and Development Commission (SMPDC). *[See SMPDC's York River Watershed Study: Regulatory and Non-Regulatory Recommendations Report, available as a separate volume.]* Additional information on communities' approaches for protection and management of specific ORVs are described in Section IV – York River Watershed and Section V – Watershed Resources. SMPDC's tabular matrix of towns' zoning and a table of towns' ordinances related to historic resource preservation are included in the Stewardship Plan appendices.

Community support for designation is an important step in the process. Watershed communities will vote on whether to endorse pursuing a PWSR designation in the National Wild and Scenic Rivers System for the York River and major tributaries. The York River Study Committee is aiming for votes in November and December 2018. Citizens in Eliot and York will vote on a warrant article on their town's ballot, and town councils in Kittery and South Berwick will vote on resolutions.

E. Outreach Activities and Public/Stakeholder Input

Throughout the York River Wild and Scenic Study to evaluate a PWSR designation and develop the Stewardship Plan, the Study Committee sought input from and involvement by citizens, watershed landowners, conservation and preservation groups, town staff, members of town boards and commissions, commercial users and interests, representatives of state agencies, York River Study advisors and other resource area experts. Outreach conducted by the Study Committee also helped in assessing and building community support for river and watershed resource protection. Presentations and updates to boards and community groups, project activities, and participation in community events provided additional opportunities for the Study Committee to gather input, provide information, and answer questions about the York River Wild and Scenic Study, including possible designation into the National Wild and Scenic Rivers System. The outreach, citizen involvement, and public input activities conducted for the York River Wild and Scenic Study are described in Section III – Stewardship Plan Development.

F. Next Steps

Following the town votes on whether to accept this Stewardship Plan and endorse PWSR designation, the National Park Service (NPS) summarizes the research and findings from the York River Wild and Scenic Study in a Study Report to Congress. The NPS Study Report is a separate document from this Stewardship Plan and is presented to Congress. The NPS Study Report will draw on information included in the Stewardship Plan. It will summarize the suitability and eligibility of the York River and major tributaries for PWSR designation, including the ORVs. The Study Report also will include sections required in the York River Wild and Scenic Study Act that authorized the study. Upon completion of the NPS Study Report, anticipated in early 2019, there is a 90-day public comment period as part of the process to finalize the NPS Study Report to Congress.

If there is community support to pursue designation, a new bill must be introduced by Congress to designate the York River and its tributaries into the National Wild and Scenic Rivers System. The bill, which would include the enabling legislation to amend the Wild and Scenic Rivers Act to add the rivers to the National Wild and Scenic Rivers System, must be passed by Congress and signed by the President to achieve designation. If the York River and its major tributaries are designated into the National Wild and Scenic Rivers System by US Congress, this York River Watershed Stewardship Plan would serve as the "comprehensive management plan" required for all congressionally designated rivers, providing the framework and priorities for PWSR designation implementation and long-term protection of the river's values and watershed resources.

Photo: Chuck Maranhas

Photo: Stefan Claesson

Section VIII – Administrative Framework for the York River Stewardship Committee and Stewardship Plan Implementation

This section describes the suggested administrative structure for the ongoing coordination, implementation, and oversight of the York River Watershed Stewardship Plan (Stewardship Plan) if the York River and its major tributaries are designated into the National Wild and Scenic Rivers System. A York River Stewardship Committee (Stewardship Committee) would be created to continue the efforts of the York River Study Committee to ensure there is a cooperative and participatory management framework in place to advance the goals of the Stewardship Plan. Protecting and enhancing the outstandingly remarkable values (ORVs) identified in the Stewardship Plan will be the Stewardship Committee's highest priority. The suggested structure has been developed by the York River Study Committee to help facilitate a smooth transition once the Study Committee sunsets following completion of the York River Wild and Scenic Study. This proposed framework is similar to structures of committees that have been established for existing Partnership Wild and Scenic Rivers.

The Stewardship Committee would be responsible for implementing the Stewardship Plan, including identifying and undertaking the highest priority actions; encouraging collaboration and coordination among the watershed communities and partner groups; and raising public awareness of the watershed's importance, threats to resources, and the challenges faced in balancing protection, access and use. Where possible, the Stewardship Committee would seek to encourage local, state, and federal efforts to study, develop, and implement options to protect watershed ORVs.

A. Core Responsibilities

The core responsibilities and functions of the Stewardship Committee would be as follows:

- Coordinate implementation of the Stewardship Plan;
- Promote public understanding, awareness, and appreciation of the York River watershed;

- Encourage stewardship of the watershed through public engagement;
- Ensure ongoing communication and collaboration with public officials and local decision-making boards, councils and committees from each watershed community;
- Convene periodically those parties interested in, and responsible for, activities in the watershed;
- Provide a forum for communities in the York River watershed to identify and address issues important to the York River and its ORVs;
- Facilitate projects and agreements to enhance watershed stewardship and protection;
- Encourage cooperation and coordination among the watershed communities and partners;
- Monitor activities related to the York River;
- Foster responsible use of the York River watershed;
- Review and comment on proposed projects and activities that might potentially affect the York River and its ORVs;
- Receive, manage, and account for funds from the National Park Service to implement the Stewardship Plan;
- Coordinate fund-raising for watershed-related projects and make funding decisions;
- Disburse funding for activities that advance the goals of the Stewardship Plan;
- Review periodically and update the Stewardship Plan, incorporating local community, partner and public comments;
- Prepare and distribute regular reports on the status of the goals of the Stewardship Plan to communities, key partners, and representatives from state and federal agencies and the Congressional delegation; and
- Decide on staffing arrangement and structure, if any, to coordinate Stewardship Plan implementation and to assist the Stewardship Committee, and oversee the hiring and management of any staff.

The Stewardship Committee can advise local, state and federal management and regulatory agencies/institutions on issues concerning the stewardship and use of the York River and its primary tributaries, and their ORVs. The Stewardship Committee has no regulatory power. Rather, it would seek to coordinate and communicate with local, state and federal authorities on potential threats to the watershed's ORVs, as well as opportunities to maintain or enhance ORVs. The Stewardship Committee would not be responsible for and would have no authority for the following:

- Enforcement of local ordinances
- Enforcement of state or federal regulations
- Acquiring and/or owning title to land
- Requiring adoption of specific local ordinances

B. Membership

The Stewardship Committee would include members appointed by the four watershed communities and representatives of state agencies and the National Park Service. In addition, the Stewardship Committee would include members appointed by key local partner organizations or groups that could include

landowners, land trusts, historical societies, regional conservation organizations, certain town boards or committees, businesses, commercial interests, or user groups, among others.

Agency representatives to the Stewardship Committee may be sought from Maine Department of Marine Resources, Maine Department of Environmental Protection, Maine Department of Agriculture, Conservation and Forestry, Maine Department of Transportation, or other state agencies. Representatives of other organizations identified by the Stewardship Committee that demonstrate an interest in and capacity for achieving goals from the Stewardship Plan may be appointed as well.

Appointments: The Town of York appoints four representatives, the Town of Eliot and the Town of Kittery each appoint two representatives, and the Town of South Berwick appoints one representative. Each town shall be able to appoint an alternate member. Key partner groups appoint one representative and an alternate.

Terms: The community and key partner appointees will have three-year terms. Representatives may serve additional consecutive three-year terms with the agreement of the appointing entity. To accommodate staggered terms, in the initial appointments to the Stewardship Committee, half of the appointees from York, Eliot and Kittery, will have a four-year term of appointment. All subsequent appointments will be for three-year terms.

Voting: Only representatives (not alternates) appointed by the towns have voting rights. Representatives of local partners organizations and state and federal agencies do not have voting status.

Conflicts of interest: All members must complete a conflict of interest form and follow conflict of interest guidelines as applicable.

C. Procedures to Establish the Stewardship Committee

Actions identified below will guide the establishment and provide the foundation for operating procedures of the Stewardship Committee. Ultimately, the committee will develop and adopt bylaws, as described below. The procedures adopted in the bylaws would replace procedures outlined in this section of the Stewardship Plan.

Establishment: The Stewardship Committee will be established following approval of designation of the York River and its major tributaries into the National Wild and Scenic Rivers System by local communities and the US Congress. The York River Study Committee and its coordinator will work with towns to solicit members for appointment, providing support as requested by the town boards that would make appointments. The York River Study Committee members will make initial determinations of key local partner organizations and groups, as well as state agency representatives, to include on the Stewardship Committee and will seek appointments of representatives from those organizations or agencies.

Decision-making: As much as possible the Stewardship Committee operates by consensus. In those cases where consensus is unachievable, decisions are made based on majority vote.

Officers: Each year, the Stewardship Committee members elect from its membership a chair, vice chair, treasurer, and secretary.

Quorum: A majority of the voting membership must be present for the Stewardship Committee to deliberate and take binding action.

Bylaws: Bylaws will be developed and adopted by the Stewardship Committee to guide conduct of the committee. Bylaws cover membership (including the ongoing identification of key partner organizations and groups), decision-making and voting, meeting frequency and location, frequency and scope of reviews of Stewardship Plan implementation and associated reporting, processes for updating and revising the Stewardship Plan, and other procedural matters. The voting membership of the Stewardship Committee adopts the bylaws and, with notice, may amend them.

Team building: In addition to adhering to the committee's bylaws and committing to a cooperative and collaborative approach to the stewardship of the York River watershed, Stewardship Committee members can periodically participate in team building activities intended to facilitate improved decision-making, communications, and group effectiveness.

D. Stewardship Plan Review and Updates

The Stewardship Committee will annually review its progress in achieving the Stewardship Plan's goals and outcomes, identifying challenges and opportunities, and adjusting priorities where necessary. The Committee will provide a brief report on those accomplishments and challenges to the communities in the watershed, partner organizations, the public, appropriate state and federal agencies, and the Congressional delegation.

Every five years, the Stewardship Committee will conduct a more extensive review, seeking broad input from watershed communities, partnership groups, the public, appropriate state and federal agencies, and the Congressional delegation. The review may result in recommendations on changes to the Stewardship Plan. Any proposed changes, as well as review of overall progress and Stewardship Committee activities, will be documented in a five-year review report. Minor changes to the Stewardship Plan are to be approved by the Stewardship Committee. Changes determined to be major by the Stewardship Committee are subject to full review and comment by the communities, key partners, the public, and state and federal agencies. Major changes that substantially alter the characterization of ORVs or the stewardship recommendations to meet resource protection goals would require Stewardship Committee approval and approvals by town governing bodies.

E. Funding and Expenses

Funding for the Stewardship Committee operations, including a Coordinator or other staff, is anticipated to come from annual Congressional appropriations through the National Park Service's Partnership Wild and Scenic River Program. In addition, funds from other sources (private foundations, private trusts, and other government agencies) may be pursued by the Stewardship Committee for operations, projects, and outreach activities.

Fiscal management will be outlined in a cooperative agreement between the National Park Service and a government or non-profit organization or agency identified and approved by the Stewardship Committee. The appointed entity will serve as the fiscal agent for the Stewardship Committee, and it will disburse funds at the direction of the committee. Expenses could include costs associated with administration, such as a Coordinator or other staff, and any projects that advance the goals and the protection or enhancement of watershed resources outlined in the Stewardship Plan.

Watershed communities, partner organizations, state agencies and any other members or representatives on the committee are under no obligation to provide funding or other resources for the Stewardship Committee's operations or for the implementation of the Stewardship Plan.

F. Review of Proposed Projects

The Stewardship Committee requests notification and opportunity to comment from town boards and the state on activities that might impact the watershed's outstandingly remarkable values (ORVs). Those activities may include zoning changes, major development projects or other land use activities, changes to state programs or policies (such as statewide water quality standards), and applications for state permits. The Stewardship Committee will provide comments as appropriate.

Federally assisted projects

The National Park Service (NPS) will represent the Secretary of the Interior in fulfilling the legislative mandates under the Wild and Scenic Rivers Act. The NPS will review proposed federally assisted projects, including those that require a federal permit or use federal funding, for consistency with the Wild and Scenic Rivers Act. Applicable projects are those involving construction below the ordinary high water mark in designated stream reaches. Any such projects will be evaluated by the NPS to ensure protection of the ORVs, water quality and free-flowing condition, which caused the river to be designated as a component of the National Wild and Scenic Rivers System. The Stewardship Committee also can comment on federally assisted projects and provide local input into the design and outcome of such projects; however, the determination regarding consistency with the Wild and Scenic Rivers Act rests solely with the NPS.

There are no new regulatory permits associated with the designation. NPS conducts its reviews through existing federal regulatory programs such as permitting under Section 404 of the Clean Water Act by the US Army Corps of Engineers or the US Environmental Protection Agency, and through the processes required by the National Environmental Policy Act, which provides for environmental impact reviews of proposed federal actions. There is no new land use regulatory authority associated with designation; the towns and the state retain their existing land use authority and responsibility.

PLANS, STUDIES, AND REFERENCES

Studies, data, plans, and other information sources that were used in developing the Stewardship Plan are listed below.

Local and Regional Plans

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Watershed Towns:

Town of Eliot, https://www.eliotmaine.org/

Town of Kittery, http://www.kitteryme.gov/

Town of South Berwick, http://www.southberwickmaine.org/

Town of York, https://www.yorkmaine.org/

Historical Societies:

Eliot Historical Society, http://www.eliothistoricalsociety.org/

Kittery Historical and Naval Museum, http://www.kitterymuseum.com/

Old Berwick Historical Society, http://www.oldberwick.org/

Old York Historical Society, http://oldyork.org/

Land Trusts and Regional Conservation Organizations:

Great Works Regional Land Trust, http://www.gwrlt.org/

Kittery Land Trust, http://kitterylandtrust.org/

Mt. Agamenticus to the Sea Conservation Initiative, http://www.mta2c.org/

Wells National Estuarine Research Reserve, https://www.wellsreserve.org/

York Land Trust, https://yorklandtrust.org/

APPENDICES

Appendix A. Mt. Agamenticus to the Sea Conservation Initiative Focus Area

Appendix B. Great Works Regional Land Trust's focus areas that include York River watershed lands: Mt. Agamenticus Focus Area and York Pond/York River Focus Area

Appendix C. Watershed Protection Strategies Matrix from Southern Maine Planning and Development Commission's *York River Watershed Study: Regulatory and Non-Regulatory Recommendations Report*

Appendix D. Historic preservation-related ordinances and codes for the towns of York, Eliot, Kittery, and South Berwick, compiled by York River Study Committee

Appendix E. Priority 1, 2, and 3 Species of Greatest Conservation Need by town – York, Eliot, Kittery, and South Berwick, from Maine Department of Inland Fisheries and Wildlife

Appendix F. Boat mooring areas in the York River, map from Town of York Harbor Ordinance

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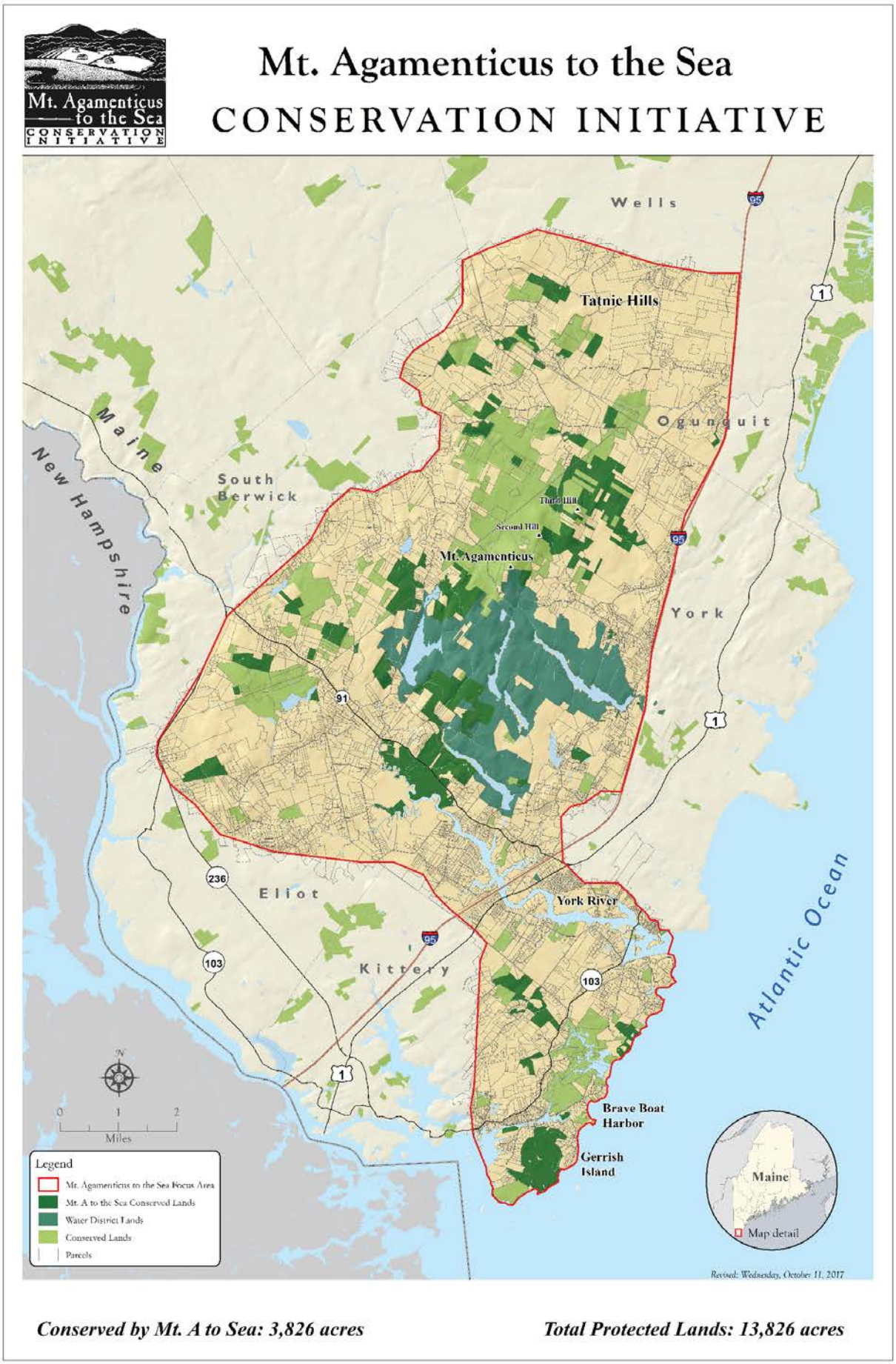

Mt. Agamenticus to the Sea
CONSERVATION INITIATIVE
Wells
Tatnic Hills
Ogunquit
Maine
New Hampshire
South Berwick
Third Hill
Second Hill
Mt. Agamenticus
York
Eliot
York River
Kittery
Atlantic Ocean
Brave Boat Harbor
Gerrish Island
N
0 1 2
Miles
Legend
Mt. Agamenticus to the Sea Focus Area
Mt. A to the Sea Conserved Lands
Water District Lands
Conserved Lands
Parcels
Maine
Map detail
Revised: Wednesday, October 11, 2017
Conserved by Mt. A to Sea: 3,826 acres
Total Protected Lands: 13,826 acres

Appendix B – Great Works Regional Land Trust (GWRLT) focus areas that include York River watershed lands. Excerpts from the GWRLT Conservation Plan, available from www.gwrlt.org.

Second Hill and Mt. Agamenticus seen from Tatnic Ledges.

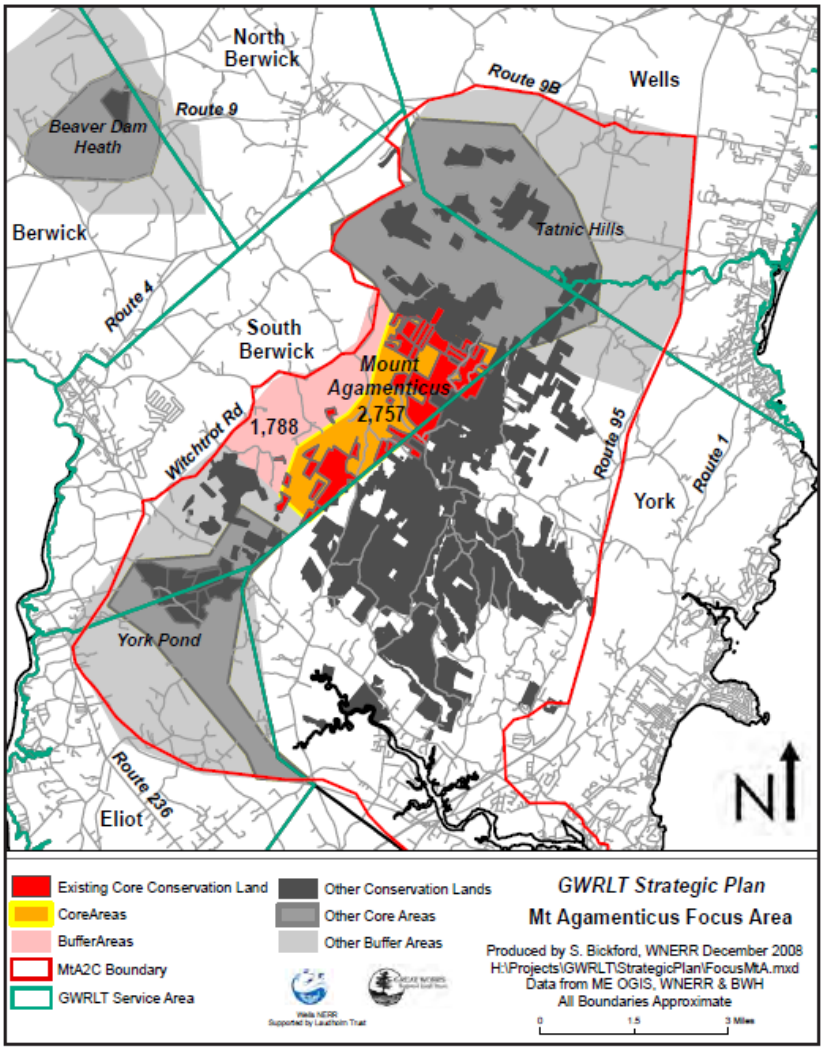
4. Mt. Agamenticus Focus Area

Located in South Berwick and abutting the Tatnic Focus Area to the north, the Mt. Agamenticus Focus Area runs from Thurrell and Emery's Bridge Roads southeast to the York town line as part of the larger Mt. Agamenticus to the Sea Conservation Initiative (see appendix 8.1).

Natural resources include: farmland, forests, water quality, rare or endangered species, wetlands and vernal pools, riparian buffers, natural undeveloped block/contiguous habitat, working landscape, public access/trails and scenic views from public vantage points. The Core Area consists of 2,757 with a Buffer area of 1,788 acres. Currently, 1,320 acres are conserved in the Core Area and 18 acres in the Buffer Area.

The greater Mt. Agamenticus area includes rugged terrain, several ponds and wetlands that comprise the largest contiguous block of undeveloped coastal land between Acadia and the Pine Barrens in New Jersey. In addition to the 680 foot Mt. Agamenticus, there are Second and Third Hills, Horse Hill, Chicks Brook, Warren Pond and water district reservoirs (in York).

The area's numerous upland and wetland complexes are ecologically significant because they contain plant and animal assemblages that are at their northern range limits. At least three animal and twenty plant species are restricted to this extreme southern portion of Maine and many other common species in this area occur only sparingly further northward. This pattern extends to natural communities as well. The Atlantic White Cedar swamp, hemlock-hardwood pocket swamp and pitch pine bog that occur in this area are all restricted to southern Maine, and the oak-pine-hickory forest that extends from Mt. Agamenticus north through Third Hill includes the only remaining intact chestnut oak woodland community in the entire state. Of the 21 rare plant species known to occur in the Mt. Agamenticus area, fourteen are considered rare because Maine is the northeastern limit of their range, meaning they are more common further southward and westward. For a few of these species, this place supports the furthest northeastern occurrences in their range.



5. York Pond/York River Focus Area

Located in Eliot and South Berwick, beginning north of Route 91 with the "Dragonfly Wetlands" and south to the lands surrounding both York and Upper Bartlett Mill Ponds, the property continues down the main stem of the York River to the town boundary with York. This area is also part of the Mt. Agamenticus to the Sea Conservation Initiative – see Appendix 8.1.

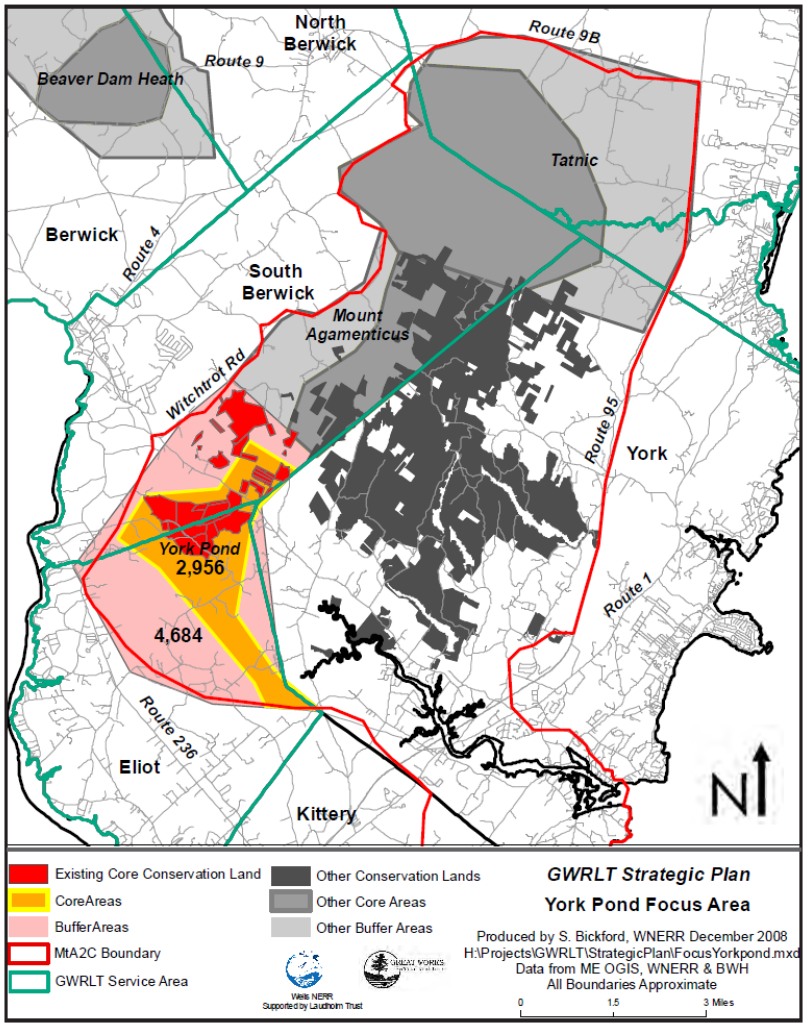
Natural resources include: unfragmented forests, water quality, rare and endangered species, wetlands and vernal pools, riparian buffers, natural undeveloped block/contiguous habitat, public access and trails as well as historical and cultural sites. The Core Area consists of 2,956 acres and the Buffer Area has 4,684 acres. There are currently 638 fee-protected acres of the Core Area (owned by the Town, GWRLT and the State of Maine) and 118 acres protected in the Buffer Area.

Outlet of York Pond.

This is part of a 2,949-acre block of unfragmented forest surrounding York Pond and Upper Bartlett Mill Pond representing the headwaters of the York River down to where it enters York. The Trust has completed six acquisitions (York Pond I-VI) plus Parent (50 acres) for a total of 520 protected acres (May 2009).

The "Parson Property" in Eliot (York Pond I) was the first municipal partnership effort by the Trust (1995). It protected 107 acres between York Pond and the Upper Bartlett Mill Pond. Partnerships with Maine Department of Inland Fisheries and Wildlife (through the Maine Outdoor Heritage Fund), The Nature Conservancy and the Town of South Berwick have followed.

Hikers along Rookery Pond in York Pond Focus Area.



Watershed Protection Strategies Matrix

The following matrix attempts to provide a framework for decision making on regulatory and non-regulatory strategies for the York River Watershed. Parsed out by individual community, it highlights many existing strategies that the four watershed towns currently employ for resource protections, proposes additional strategies that may be considered "best practices" for watershed protection, and presents recommendations on whether those strategies should be more fully developed and implemented by the communities.

Strategies that denote "see recommendations" are more fully described in the detailed recommendation section that follows. If a strategy states "should consider", it is considered more of a long-term concept or idea and is listed as such in the recommendations section. Other land use or non-regulatory ideas are listed primarily as a way to document and highlight some of the important practices that may have been adopted either in the four-town watershed region or in other geographies.

The matrix also attempts to highlight whether a recommendation has been found in a Comprehensive Plan for the community. If so, it is denoted by "***(CP)***" (see Attachment 3 *Non-Regulatory Plan Review* for specific watershed protection strategies referenced in towns' Comprehensive Plans).

Regulatory				
Strategy	**York**	**Eliot**	**South Berwick**	**Kittery**
Increase minimum lot sizes in watershed area (Minimum lot sizes greater than 3 acres)	Gen-1 & Gen-2 Zones ***(CP)***	Yes	Yes ***(CP)***	No **See recommendations** ***(CP)***
Shoreland zoning beyond state minimum	Yes, all wetlands are shoreland zoned, mitigation allowed for disturbance ***(CP)***	No **See recommendations** ***(CP)***	Yes, for certain streams in Mt A area and high rated wetlands ***(CP)***	Yes, 100 ft for tributary streams
Shoreland zoning provisions beyond water/habitat protection	Yes, for certain archaeological sites ***(CP)***	No **See recommendations**	Yes, for certain archeological sites and scenic resources	Yes, need archeologist for any excavation. Special setbacks for certain uses.

Regulatory				
Strategy	**York**	**Eliot**	**South Berwick**	**Kittery**
Cluster/Open Space provisions for subdivisions that protect key resources.	Yes, not mandatory **See recommendations** ***(CP)***	Yes, mandatory in Critical Rural Area **See recommendations** ***(CP)***	Yes, not mandatory **See recommendations** ***(CP)***	Yes, not mandatory **See recommendations** ***(CP)***
Septic pump out ordinance	Yes • General: ≥1x per 5 years • Rented by week during summer: ≥1x per year • Homes occupied by ≤2 people: ≥1x per 10 years • Tanks with advanced treatment: ≥1x per 10 years	No **Should consider**	No **Should consider**	No, considered a few years ago **Should consider**
Growth cap	No, rescinded a few years ago	Yes, 30(?) per year	No, rescinded a few years ago	No
Differential growth cap (fewer permits in rural areas)	No	No	No	No
Net residential density calculation (subtracting wetlands, slopes, etc.)	Yes, for subdivisions **See recommendations** ***(CP)***	No **See recommendations**	Yes, for any division **See recommendations**	Yes, for subdivisions **See recommendations**
Resource Protection areas removed for lot area calculations	Yes	No **See recommendations**	Yes	No, but wetlands yes
Beginning with Habitat (BWH) criteria in ordinances	Only in cluster subdivisions but not required	No **See recommendations** ***(CP)***	No **See recommendations** ***(CP)***	No **See recommendations**

Regulatory				
Strategy	**York**	**Eliot**	**South Berwick**	**Kittery**
Watershed protection regulations/overlay including more restrictive use table	Yes, but not for the York River Watershed specifically **See recommendations** ***(CP)***	No **See recommendations** ***(CP)***	No **See recommendations** ***(CP)***	No **See recommendations** ***(CP)***
Phosphorous loading analysis required for fresh water bodies	No **Should consider** ***(CP)***	No **Should consider**	Can require in subdivision	No **Should consider**
Nitrogen loading analysis required for estuarine/salt water bodies	No **Should consider**	No **Should consider**	No **Should consider**	No **Should consider**
Low impact development (LID) requirements and standards	General statement, no criteria **See recommendations** ***(CP)***	No **See recommendations**	No, but encouraged **See recommendations**	No **See recommendations**
Uses detrimental to water quality not permitted	Only for shoreland zones ***(CP)***	Only for shoreland zones ***(CP)***	Only for shoreland zones ***(CP)***	Only for shoreland zones ***(CP)***
Fertilizer and/or pesticide ordinance	No **Should consider** ***(CP)***	No **Should consider**	**No** **Should consider**	**No** **Should consider** ***(CP)***
Enhanced vegetative buffer requirements and vegetation cutting standards	No **Should consider** ***(CP)***	No **Should consider**	No **Should consider** ***(CP)***	No **Should consider**
On-site stormwater retention requirement more stringent than minimum	**See recommendations** ***(CP)***	**See recommendations**	**See recommendations** ***(CP)***	**See recommendations** ***(CP)***

Regulatory				
Strategy	**York**	**Eliot**	**South Berwick**	**Kittery**
Storm frequency for design standards more stringent than minimum	No **Should consider** ***(CP)***	No **Should consider**	No **Should consider**	No **Should consider** ***(CP)***
Sea level rise overlay zone and associated development standards	No **See recommendations** ***(CP)***	No **See recommendations**	No **See recommendations**	No **See recommendations** ***(CP)***
Future marsh migration overlay zone and associated development standards	No **See recommendations** ***(CP)***	No **See recommendations**	No **See recommendations**	No **See recommendations** ***(CP)***

Revenue Raising for Conservation				
Strategy	York	Eliot	South Berwick	Kittery
Development Transfer Overlay District or other transfer of development rights strategies	No ***(CP)***	No ***(CP)***	No ***(CP)***	No ***(CP)***
Conservation impact fees	No, considered six years ago **Should consider** ***(CP)***	No **Should consider**	No, considered eight years ago **Should consider**	No **Should consider**
Wetland mitigation fund	No **Should consider** ***(CP)***	No **Should consider**	No **Should consider**	Yes
Fee in lieu of land dedication	No, but set aside required ***(CP)***	No	Yes	No
Stormwater utility district	No	No	No	No

Revenue Raising for Conservation				
Strategy	York	Eliot	South Berwick	Kittery
	Should consider ***(CP)***	**Should consider**	**Should consider**	**Should consider**
Open Space Fund	No **See recommendations** ***(CP)***	Yes	No **See recommendations** ***(CP)***	Yes
Watershed TIF	No **Should consider** ***(CP)***	No **Should consider**	No **Should consider**	No **Should consider**

Regional Approaches				
Strategy	**York**	**Eliot**	**South Berwick**	**Kittery**
Regional Watershed District	No **See recommendations** ***(CP)***	No **See recommendations**	No **See recommendations** ***(CP)***	No **See recommendations** ***(CP)***
Regional reviews/comment of larger scale projects in watershed	No **See recommendations** ***(CP)***	No **See recommendations**	No **See recommendations**	No **See recommendations** ***(CP)***
Regional open space/conservation plan	No **See recommendations** ***(CP)***	No **See recommendations** ***(CP)***	No **See recommendations** ***(CP)***	No **See recommendations** ***(CP)***
Regional and/or local prioritization scheme for conservation of key watershed parcels	No **See recommendations** ***(CP)***	No **See recommendations** ***(CP)***	No **See recommendations** ***(CP)***	No **See recommendations** ***(CP)***

Non-Regulatory Approaches				
Strategy	**York**	**Eliot**	**South Berwick**	**Kittery**
Open Space Plan	No **See recommendations** ***(CP)***	Yes, includes York River headwaters as priority	Yes, includes Mt Agamenticus areas as priority	Sort of **See recommendations** ***(CP)***
State-approved Comprehensive Plan	No	Yes	Yes	In process
Incentive-based programs for voluntary LID implementation	No **See recommendations** ***(CP)***	No **See recommendations**	No **See recommendations**	No **See recommendations**
Incentive-based programs for stormwater reduction efforts	No **See recommendations** ***(CP)***	No **See recommendations**	No **See recommendations**	No **See recommendations**
Conservation Commission / York River Stewardship Committee review of development applications	No **See recommendations** ***(CP)***	No **See recommendations**	No **See recommendations**	Conservation Commission review **See recommendations**
Incentivize and/or encourage property owners to implement LID stormwater practices (rain gardens, planting native plants, etc.)	No **Should consider** ***(CP)***	No **Should consider**	No **Should consider**	No **Should consider**
Encourage relevant property owners to put land into farmland/or tree growth programs	No **Should consider**	No **Should consider**	No **Should consider** ***(CP)***	No **Should consider** ***(CP)***

Appendix D - Historic preservation-related ordinances and codes for the towns of York, Eliot, Kittery, and South Berwick, compiled by the York River Study Committee

Town	Municipal Code	Description
York	Article 1, General Provisions	1.3.3 Concerning the Shoreland Overlay District
York	Article 1, General Provisions	1.3.11 Concerning Historic Buildings and Sites
York	Article 1, General Provisions	1.3.12 Concerning Cluster Subdivisions
York	Article 1, General Provisions	1.3.13 Concerning Village Zones
York	Article 6, Supplemental Use Requirements	6.1.8 Setbacks and Screening
York	Article 6, Supplemental Use Requirements	6.1.12 Relation of Proposed Building to Environment
York	Article 7, Special Provisions	7.5 Conversion of Historic Buildings
York	Article 8, Shoreland Overlay District	8.3.7 Archeological Site
York	Article 12, Historic and Archeological Resources	12.1 Definitions
York	Article 12, Historic and Archeological Resources	12.2 Creation and Organization of Historic District Commission
York	Article 12, Historic and Archeological Resources	12.3 Duties, Functions, and Powers of The Commission
York	Article 12, Historic and Archeological Resources	12.4 Qualifications
York	Article 12, Historic and Archeological Resources	12.5 Establishment of Historic Districts, Historic Sites, or Historic Landmarks
York	Article 12, Historic and Archeological Resources	12.6 Historic Districts, Sites, and Landmarks Designated
York	Article 12, Historic and Archeological Resources	12.7 Application of Zoning Ordinances
York	Article 12, Historic and Archeological Resources	12.8 Improvements Not Requiring Historic District Commission Review
York	Article 12, Historic and Archeological Resources	12.9 Improvements Requiring Historic District Commission Review
York	Article 12, Historic and Archeological Resources	12.10 Applications for Certificates or Appropriateness or Demolition
York	Article 18, Administration	18.6 Historic Overlay District
Eliot	Chapter 41, Subdivisions, Article IV. General Requirements	Sec. 41-216. Preservation of historical features and traditional land use pattern
Eliot	Chapter 44, Shoreland Zoning, Article I. General	Sec. 44-1. Purposes
Eliot	Chapter 44, Shoreland Zoning, Article III. Land Use Regulations	Sec. 44-32. Nonconformance

Eliot	Chapter 44, Shoreland Zoning, Article III. Land Use Regulations	Sec. 44-35. Land use standards. (t) Archaeological sites
Eliot	Chapter 44, Shoreland Zoning, Article IV. Administration	Sec. 44-44. Procedure for administering permits
Eliot	Chapter 45, Zoning, Article IX. Standards for Specific Activities	Sec. 45-460. New construction of telecommunication structures less than 70 feet, expansion of an existing structure or collocation of antenna on an existing structure or alternate tower structure
Kittery	Title 16, Land Use and Development Code, Article II. Zone Definitions, Uses, Standards	16.3.2.17 Shoreland Overlay Zone
Kittery	Title 16, Land Use and Development Code, Article III. Nonconformance	16.7.3.4.4 Nonconforming Use Change – Review Authority and Evaluations
Kittery	Title 16, Land Use and Development Code, Article XI. Cluster Residential and Cluster Mixed-Use Development	16.8.11.1 Purpose
Kittery	Title 16, Land Use and Development Code, Article II. Retention of Open Spaces and Natural or Historic Features	16.9.2.4 Landscape Plan for Preservation of Natural and Historic Features; 16.9.2.5 Archaeological or Historic Sites
Kittery	Title 16, Land Use and Development Code, Article X. Shoreland Development Review	16.10.10.2 Procedure for Administering Permits
South Berwick	Chapter 84, Historic Districts, Articles I-V	
South Berwick	Chapter 110, Shoreland Zoning, Article II: Nonconformance	§ 110-14: Reconstruction of nonconforming buildings. E. Change of use of a nonconforming structure
South Berwick	Chapter 110, Shoreland Zoning, Article IV: Administration	§ 110-38 Administration officials; permit procedure
South Berwick	Chapter 140, Zoning, Article VA: Performance Standards for Specific Uses	§ 140-47: Planned residential development, cluster development (including modular and industrial housing), multifamily development and mobile home parks

Appendix E – Priority 1, 2, and 3 Species of Greatest Conservation Need (SGCN) by town – York, Eliot, Kittery, and South Berwick, from Maine Department of Inland Fisheries and Wildlife

YORK – Species of Greatest Conservation Need

22 Priority 1s	51 Priority 2s	61 Priority 3s
Arctic Charr (Salvelinus alpinus oquassa)	American Redstart (Setophaga ruticilla)	American Bittern (Botaurus lentiginosus)
Bank Swallow (Riparia riparia)	Ashton's Cuckoo Bumble Bee (Bombus ashtoni)	American Coot (Fulica americana)
Barrow's Goldeneye (Bucephala islandica)	Atlantic Puffin (Fratercula arctica)	American Kestrel (Falco sparverius)
Blanding's Turtle (Emydoidea blandingii)	Barn Swallow (Hirundo rustica)	Appalachian Brown (Satyrodes appalachia)
Grasshopper Sparrow (Ammodramus savannarum)	Big Brown Bat (Eptesicus fuscus)	Baltimore Oriole (Icterus galbula)
Great Cormorant (Phalacrocorax carbo)	Black-and-white Warbler (Mniotilta varia)	Belted Kingfisher (Megaceryle alcyon)
Harlequin Duck (Histrionicus histrionicus)	Black-crowned Night-heron (Nycticorax nycticorax)	Black Saddlebags (Tramea lacerata)
Least Bittern (Ixobrychus exilis)	Blue-spotted Salamander (Ambystoma laterale)	Black-bellied Plover (Pluvialis squatarola)
Lesser Yellowlegs (Tringa flavipes)	Blue-winged Warbler (Vermivora cyanoptera)	Black-billed Cuckoo (Coccyzus erythropthalmus)
Little Brown Bat (Myotis lucifugus)	Bridle Shiner (Notropis bifrenatus)	Black-throated Blue Warbler (Setophaga caerulescens)
New England Cottontail (Sylvilagus transitionalis)	Brown Thrasher (Toxostoma rufum)	Black-throated Green Warbler (Setophaga virens)
Northern Black Racer (Coluber constrictor constrictor)	Canada Warbler (Cardellina canadensis)	Blackburnian Warbler (Setophaga fusca)
Northern Long-eared Myotis (Myotis septentrionalis)	Chestnut-sided Warbler (Setophaga pensylvanica)	Bobolink (Dolichonyx oryzivorus)
Purple Sandpiper (Calidris maritima)	Chimney Swift (Chaetura pelagica)	Broad-winged Hawk (Buteo platypterus)
Red Knot (Calidris canutus rufa)	Common Gallinule (Gallinula galeata)	Brook Stickleback (Culaea inconstans)
Ringed Boghaunter (Williamsonia lintneri)	Common Tern (Sterna hirundo)	Brook Trout (Salvelinus fontinalis)
Saltmarsh Sparrow (Ammodramus caudacutus)	Eastern Box Turtle (Terrapene carolina carolina)	Burbot (Lota lota)
Sedge Wren (Cistothorus platensis)	Eastern Kingbird (Tyrannus tyrannus)	Citrine Forktail (Ischnura hastata)
Spotted Turtle (Clemmys guttata)	Eastern Meadowlark (Sturnella magna)	Cliff Swallow (Petrochelidon pyrrhonota)
Upland Sandpiper (Bartramia longicauda)	Eastern Ribbon Snake (Thamnophis sauritus)	Cobweb Skipper (Hesperia metea)
Wood Thrush (Hylocichla mustelina)	Eastern Towhee (Pipilo erythrophthalmus)	Common Eider (Somateria mollissima)
Wood Turtle (Glyptemys insculpta)	Eastern Whip-poor-will (Antrostomus vociferus)	Common Loon (Gavia immer)
	Eastern Wood-Pewee (Contopus virens)	Common Nighthawk (Chordeiles minor)
	Great Blue Heron (Ardea herodias)	Coral Hairstreak (Satyrium titus)
	Greater Scaup (Aythya marila)	Creek Chubsucker (Erimyzon oblongus)
	Indiscriminate Cuckoo Bumble Bee (Bombus insularis)	Dunlin (Calidris alpina)
	Lake Whitefish (Coregonus clupeaformis)	Eastern Red Bat (Lasiurus borealis)
	Northern Brownsnake (Storeria dekayi dekayi)	Field Sparrow (Spizella pusilla)
	Northern Leopard Frog (Lithobates pipiens)	Greater Yellowlegs (Tringa melanoleuca)
	Northern Spring Salamander (Gyrinophilus porphyriticus porphyriticus)	Hoary Bat (Lasiurus cinereus)
	Olive-sided Flycatcher (Contopus cooperi)	Horned Grebe (Podiceps auritus)
	Penobscot Meadow Vole (Microtus pennsylvanicus shattucki)	Horned Lark (Eremophila alpestris)
	Prairie Warbler (Setophaga discolor)	Least Flycatcher (Empidonax minimus)
	Purple Martin (Progne subis)	Least Sandpiper (Calidris minutilla)
	Razorbill (Alca torda)	Leonard's Skipper (Hesperia leonardus)
	Redfin Pickerel (Esox americanus americanus)	Little Blue Heron (Egretta caerulea)
	Round Whitefish (Prosopium cylindraceum)	Long-eared Owl (Asio otus)
	Ruddy Turnstone (Arenaria interpres)	Longnose Dace (Rhinichthys cataractae)
	Salt Marsh Tiger Beetle (Cicindela marginata)	Louisiana Waterthrush (Parkesia motacilla)
	Sanderling (Calidris alba)	Monarch (Danaus plexippus)
	Scarlet Bluet (Enallagma pictum)	Needhams Skimmer (Libellula needhami)
	Semipalmated Sandpiper (Calidris pusilla)	Northern Flicker (Colaptes auratus)
	Silver-haired Bat (Lasionycteris noctivagans)	Northern Harrier (Circus cyaneus)
	Solitary Sandpiper (Tringa solitaria)	Northern Parula (Setophaga americana)
	Swamp Darter (Etheostoma fusiforme)	Northern Rough-winged Swallow (Stelgidopteryx serripennis)
	Tree Swallow (Tachycineta bicolor)	Painted Skimmer (Libellula semifasciata)
	Tri-colored Bat (Perimyotis subflavus)	Pearl Dace (Margariscus margarita)
	Veery (Catharus fuscescens)	Pied-billed Grebe (Podilymbus podiceps)
	Whimbrel (Numenius phaeopus)	Purple Finch (Haemorhous purpureus)
	Yellow Rail (Coturnicops noveboracensis)	Red Crossbill (Loxia curvirostra)
	Yellow-billed Cuckoo (Coccyzus americanus)	Red-throated Loon (Gavia stellata)
		Rose-breasted Grosbeak (Pheucticus ludovicianus)
		Scarlet Tanager (Piranga olivacea)
		Short-billed Dowitcher (Limnodromus griseus)
		Snowy Egret (Egretta thula)
		Sora (Porzana carolina)
		Spicebush Swallowtail (Papilio troilus)
		Swamp Darner (Epiaeschna heros)
		White-throated sparrow (Zonotrichia albicollis)
		Willet (Tringa semipalmata)
		Yellow Warbler (Setophaga petechia)

ELIOT – Species of Greatest Conservation Need

22 Priority 1s	56 Priority 2s	66 Priority 3s
Bank Swallow (Riparia riparia)	A Noctuid Moth (Chaetaglaea cerata)	Acadian Swordgrass Moth (Xylena thoracica)
Barrow's Goldeneye (Bucephala islandica)	American Bumble Bee (Bombus pensylvanicus)	Alewife Floater (Anodonta implicata)
Blanding's Turtle (Emydoidea blandingii)	American Redstart (Setophaga ruticilla)	American Bittern (Botaurus lentiginosus)
Eastern Small-footed Myotis (Myotis leibii)	Ashton's Cuckoo Bumble Bee (Bombus ashtoni)	American Coot (Fulica americana)
Grasshopper Sparrow (Ammodramus savannarum)	Barn Swallow (Hirundo rustica)	American Kestrel (Falco sparverius)
Least Bittern (Ixobrychus exilis)	Big Brown Bat (Eptesicus fuscus)	American Woodcock (Scolopax minor)
Least Tern (Sternula antillarum)	Black-and-white Warbler (Mniotilta varia)	Appalachian Brown (Satyrodes appalachia)
Lesser Yellowlegs (Tringa flavipes)	Black-crowned Night-heron (Nycticorax nycticorax)	Baltimore Oriole (Icterus galbula)
Little Brown Bat (Myotis lucifugus)	Blue-spotted Salamander (Ambystoma laterale)	Barn Owl (Tyto alba)
New England Cottontail (Sylvilagus transitionalis)	Blue-winged Warbler (Vermivora cyanoptera)	Barrens Chaetaglaea (Chaetaglaea tremula)
Northern Black Racer (Coluber constrictor constrictor)	Bridle Shiner (Notropis bifrenatus)	Belted Kingfisher (Megaceryle alcyon)
Northern Long-eared Myotis (Myotis septentrionalis)	Brown Thrasher (Toxostoma rufum)	Black-billed Cuckoo (Coccyzus erythropthalmus)
Peregrine Falcon (Falco peregrinus)	Canada Warbler (Cardellina canadensis)	Black-throated Blue Warbler
Red Knot (Calidris canutus rufa)	Chestnut-sided Warbler (Setophaga pensylvanica)	Black-throated Green Warbler (Setophaga virens)
Ringed Boghaunter (Williamsonia lintneri)	Chimney Swift (Chaetura pelagica)	Blackburnian Warbler (Setophaga fusca)
Rusty-patched Bumble Bee (Bombus affinis)	Common Gallinule (Gallinula galeata)	Bobolink (Dolichonyx oryzivorus)
Saltmarsh Sparrow (Ammodramus caudacutus)	Common Tern (Sterna hirundo)	Bold-based Zale Moth (Zale lunifera)
Sedge Wren (Cistothorus platensis)	Eastern Box Turtle (Terrapene carolina carolina)	Broad Sallow (Xylotype capax)
Spotted Turtle (Clemmys guttata)	Eastern Kingbird (Tyrannus tyrannus)	Broad-winged Hawk (Buteo platypterus)
Upland Sandpiper (Bartramia longicauda)	Eastern Meadowlark (Sturnella magna)	Brook Stickleback (Culaea inconstans)
Wood Thrush (Hylocichla mustelina)	Eastern Ribbon Snake (Thamnophis sauritus)	Brook Trout (Salvelinus fontinalis)
Wood Turtle (Glyptemys insculpta)	Eastern Towhee (Pipilo erythrophthalmus)	Brown-belted Bumble Bee (Bombus griseocollis)
	Eastern Whip-poor-will (Antrostomus vociferus)	Burbot (Lota lota)
	Eastern Wood-Pewee (Contopus virens)	Cliff Swallow (Petrochelidon pyrrhonota)
	Great Blue Heron (Ardea herodias)	Common Loon (Gavia immer)
	Greater Scaup (Aythya marila)	Common Nighthawk (Chordeiles minor)
	Indiscriminate Cuckoo Bumble Bee (Bombus insularis)	Coral Hairstreak (Satyrium titus)
	Juniper Hairstreak (Callophrys gryneus)	Creek Chubsucker (Erimyzon oblongus)
	Nelson's Sparrow (Ammodramus nelsoni)	Eastern Pearlshell (Margaritifera margaritifera)
	New England Bluet (Enallagma laterale)	Eastern Red Bat (Lasiurus borealis)
	Northern Brownsnake (Storeria dekayi dekayi)	Fernald's Cuckoo Bumble Bee (Bombus fernaldae)
	Northern Leopard Frog (Lithobates pipiens)	Field Sparrow (Spizella pusilla)
	Northern Spring Salamander	Graceful Clearwing (Hemaris gracilis)
	Olive-sided Flycatcher (Contopus cooperi)	Hoary Bat (Lasiurus cinereus)
	Penobscot Meadow Vole	Horned Lark (Eremophila alpestris)
	Pink Sallow (Psectraglaea carnosa)	Huckleberry Sphinx (Paonias astylus)
	Prairie Warbler (Setophaga discolor)	Least Flycatcher (Empidonax minimus)
	Purple Martin (Progne subis)	Lemon Cuckoo Bumble Bee (Bombus citrinus)
	Redfin Pickerel (Esox americanus americanus)	Leonard's Skipper (Hesperia leonardus)
	Ruddy Turnstone (Arenaria interpres)	Little Blue Heron (Egretta caerulea)
	Salt Marsh Tiger Beetle (Cicindela marginata)	Long-eared Owl (Asio otus)
	Sanderling (Calidris alba)	Longnose Dace (Rhinichthys cataractae)
	Scarlet Bluet (Enallagma pictum)	Louisiana Waterthrush (Parkesia motacilla)
	Semipalmated Sandpiper (Calidris pusilla)	Monarch (Danaus plexippus)
	Short-eared Owl (Asio flammeus)	New England Silt Snail (Floridobia winkleyi)
	Silver-haired Bat (Lasionycteris noctivagans)	Northern Flicker (Colaptes auratus)
	Solitary Sandpiper (Tringa solitaria)	Northern Harrier (Circus cyaneus)
	Southern Pygmy Clubtail (Lanthus vernalis)	Northern Parula (Setophaga americana)
	Swamp Darter (Etheostoma fusiforme)	Northern Rough-winged Swallow
	Tree Swallow (Tachycineta bicolor)	Pearl Dace (Margariscus margarita)
	Tri-colored Bat (Perimyotis subflavus)	Pied-billed Grebe (Podilymbus podiceps)
	Twilight Moth (Lycia rachelae)	Purple Finch (Haemorhous purpureus)
	Veery (Catharus fuscescens)	Red Crossbill (Loxia curvirostra)
	Whimbrel (Numenius phaeopus)	Red-winged Sallow (Xystopeplus rufago)
	Yellow Rail (Coturnicops noveboracensis)	Rose-breasted Grosbeak (Pheucticus ludovicianus)
	Yellow-billed Cuckoo (Coccyzus americanus)	Scarlet Tanager (Piranga olivacea)
		Snowy Egret (Egretta thula)
		Sora (Porzana carolina)
		Spartina Borer Moth (Spartiniphaga inops)
		Spatterdock Darner (Rhionaeschna mutata)
		Spicebush Swallowtail (Papilio troilus)
		Triangle Floater (Alasmidonta undulata)
		White-throated sparrow (Zonotrichia albicollis)
		Yellow Bumble Bee (Bombus fervidus)
		Yellow Warbler (Setophaga petechia)
		Yellowbanded Bumble Bee (Bombus terricola)

KITTERY – Species of Greatest Conservation Need

21 Priority 1s	46 Priority 2s	62 Priority 3s
Bank Swallow (Riparia riparia)	American Redstart (Setophaga ruticilla)	A Moth (Cucullia speyeri)
Barrow's Goldeneye (Bucephala islandica)	Ashton's Cuckoo Bumble Bee (Bombus ashtoni)	A Moth (Lepipolys perscripta)
Blanding's Turtle (Emydoidea blandingii)	Atlantic Puffin (Fratercula arctica)	American Bittern (Botaurus lentiginosus)
Grasshopper Sparrow (Ammodramus savannarum)	Barn Swallow (Hirundo rustica)	American Coot (Fulica americana)
Great Cormorant (Phalacrocorax carbo)	Big Brown Bat (Eptesicus fuscus)	American Kestrel (Falco sparverius)
Harlequin Duck (Histrionicus histrionicus)	Black-and-white Warbler (Mniotilta varia)	Appalachian Brown (Satyrodes appalachia)
Least Bittern (Ixobrychus exilis)	Black-crowned Night-heron (Nycticorax nycticorax)	Baltimore Oriole (Icterus galbula)
Lesser Yellowlegs (Tringa flavipes)	Blue-spotted Salamander (Ambystoma laterale)	Belted Kingfisher (Megaceryle alcyon)
Little Brown Bat (Myotis lucifugus)	Blue-winged Warbler (Vermivora cyanoptera)	Black-bellied Plover (Pluvialis squatarola)
New England Cottontail (Sylvilagus transitionalis)	Bridle Shiner (Notropis bifrenatus)	Black-billed Cuckoo (Coccyzus erythropthalmus)
Northern Black Racer (Coluber constrictor constrictor)	Brown Thrasher (Toxostoma rufum)	Black-throated Blue Warbler
Northern Long-eared Myotis (Myotis septentrionalis)	Canada Warbler (Cardellina canadensis)	Black-throated Green Warbler (Setophaga virens)
Peregrine Falcon (Falco peregrinus)	Chestnut-sided Warbler (Setophaga pensylvanica)	Blackburnian Warbler (Setophaga fusca)
Purple Sandpiper (Calidris maritima)	Chimney Swift (Chaetura pelagica)	Bobolink (Dolichonyx oryzivorus)
Red Knot (Calidris canutus rufa)	Common Gallinule (Gallinula galeata)	Broad Sallow (Xylotype capax)
Saltmarsh Sparrow (Ammodramus caudacutus)	Common Tern (Sterna hirundo)	Broad-winged Hawk (Buteo platypterus)
Sedge Wren (Cistothorus platensis)	Eastern Kingbird (Tyrannus tyrannus)	Brook Stickleback (Culaea inconstans)
Spotted Turtle (Clemmys guttata)	Eastern Meadowlark (Sturnella magna)	Brook Trout (Salvelinus fontinalis)
Upland Sandpiper (Bartramia longicauda)	Eastern Ribbon Snake (Thamnophis sauritus)	Burbot (Lota lota)
Wood Thrush (Hylocichla mustelina)	Eastern Towhee (Pipilo erythrophthalmus)	Carolina Saddlebags (Tramea carolina)
Wood Turtle (Glyptemys insculpta)	Eastern Whip-poor-will (Antrostomus vociferus)	Cliff Swallow (Petrochelidon pyrrhonota)
	Eastern Wood-Pewee (Contopus virens)	Common Eider (Somateria mollissima)
	Great Blue Heron (Ardea herodias)	Common Loon (Gavia immer)
	Greater Scaup (Aythya marila)	Common Nighthawk (Chordeiles minor)
	Indiscriminate Cuckoo Bumble Bee (Bombus insularis)	Creek Chubsucker (Erimyzon oblongus)
	Northern Brownsnake (Storeria dekayi dekayi)	Dunlin (Calidris alpina)
	Northern Leopard Frog (Lithobates pipiens)	Eastern Red Bat (Lasiurus borealis)
	Northern Spring Salamander	Field Sparrow (Spizella pusilla)
	Olive-sided Flycatcher (Contopus cooperi)	Greater Yellowlegs (Tringa melanoleuca)
	Penobscot Meadow Vole	Hoary Bat (Lasiurus cinereus)
	Prairie Warbler (Setophaga discolor)	Horned Grebe (Podiceps auritus)
	Purple Martin (Progne subis)	Horned Lark (Eremophila alpestris)
	Razorbill (Alca torda)	Laughing Gull (Leucophaeus atricilla)
	Redfin Pickerel (Esox americanus americanus)	Least Flycatcher (Empidonax minimus)
	Ruddy Turnstone (Arenaria interpres)	Least Sandpiper (Calidris minutilla)
	Sanderling (Calidris alba)	Little Blue Heron (Egretta caerulea)
	Semipalmated Sandpiper (Calidris pusilla)	Long-eared Owl (Asio otus)
	Silver-haired Bat (Lasionycteris noctivagans)	Longnose Dace (Rhinichthys cataractae)
	Solitary Sandpiper (Tringa solitaria)	Louisiana Waterthrush (Parkesia motacilla)
	Swamp Darter (Etheostoma fusiforme)	Monarch (Danaus plexippus)
	Tree Swallow (Tachycineta bicolor)	Northern Flicker (Colaptes auratus)
	Tri-colored Bat (Perimyotis subflavus)	Northern Harrier (Circus cyaneus)
	Veery (Catharus fuscescens)	Northern Parula (Setophaga americana)
	Whimbrel (Numenius phaeopus)	Northern Rough-winged Swallow
	Yellow Rail (Coturnicops noveboracensis)	Orchard Oriole (Icterus spurius)
	Yellow-billed Cuckoo (Coccyzus americanus)	Pearl Dace (Margariscus margarita)
		Pied-billed Grebe (Podilymbus podiceps)
		Purple Finch (Haemorhous purpureus)
		Red Crossbill (Loxia curvirostra)
		Red-throated Loon (Gavia stellata)
		Rose-breasted Grosbeak (Pheucticus ludovicianus)
		Scarlet Tanager (Piranga olivacea)
		Short-billed Dowitcher (Limnodromus griseus)
		Snowy Egret (Egretta thula)
		Sora (Porzana carolina)
		Southern Pine Sphinx (Lapara coniferarum)
		Spartina Borer Moth (Spartiniphaga inops)
		Spicebush Swallowtail (Papilio troilus)
		White-throated sparrow (Zonotrichia albicollis)
		Willet (Tringa semipalmata)
		Yellow Warbler (Setophaga petechia)
		Yellowbanded Bumble Bee (Bombus terricola)

SOUTH BERWICK – Species of Greatest Conservation Need

23 Priority 1s	56 Priority 2s	69 Priority 3s
Arctic Charr (Salvelinus alpinus oquassa)	A Noctuid Moth (Chaetaglaea cerata)	Acadian Swordgrass Moth (Xylena thoracica)
Bank Swallow (Riparia riparia)	American Bumble Bee (Bombus pensylvanicus)	Alewife Floater (Anodonta implicata)
Barrow's Goldeneye (Bucephala islandica)	American Redstart (Setophaga ruticilla)	American Bittern (Botaurus lentiginosus)
Blanding's Turtle (Emydoidea blandingii)	Ashton's Cuckoo Bumble Bee (Bombus ashtoni)	American Brook Lamprey (Lethenteron appendix)
Eastern Small-footed Myotis (Myotis leibii)	Barn Swallow (Hirundo rustica)	American Coot (Fulica americana)
Grasshopper Sparrow (Ammodramus savannarum)	Big Brown Bat (Eptesicus fuscus)	American Kestrel (Falco sparverius)
Least Bittern (Ixobrychus exilis)	Black-and-white Warbler (Mniotilta varia)	American Woodcock (Scolopax minor)
Least Tern (Sternula antillarum)	Black-crowned Night-heron (Nycticorax nycticorax)	Appalachian Brown (Satyrodes appalachia)
Lesser Yellowlegs (Tringa flavipes)	Blue-spotted Salamander (Ambystoma laterale)	Arrowhead Spiketail (Cordulegaster obliqua)
Little Brown Bat (Myotis lucifugus)	Blue-winged Warbler (Vermivora cyanoptera)	Baltimore Oriole (Icterus galbula)
New England Cottontail (Sylvilagus transitionalis)	Bridle Shiner (Notropis bifrenatus)	Barn Owl (Tyto alba)
Northern Black Racer (Coluber constrictor constrictor)	Brown Thrasher (Toxostoma rufum)	Barrens Chaetaglaea (Chaetaglaea tremula)
Northern Long-eared Myotis (Myotis septentrionalis)	Canada Warbler (Cardellina canadensis)	Belted Kingfisher (Megaceryle alcyon)
Peregrine Falcon (Falco peregrinus)	Chestnut-sided Warbler (Setophaga pensylvanica)	Black-billed Cuckoo (Coccyzus erythropthalmus)
Red Knot (Calidris canutus rufa)	Chimney Swift (Chaetura pelagica)	Black-throated Blue Warbler
Ringed Boghaunter (Williamsonia lintneri)	Common Gallinule (Gallinula galeata)	Black-throated Green Warbler (Setophaga virens)
Rusty-patched Bumble Bee (Bombus affinis)	Eastern Box Turtle (Terrapene carolina carolina)	Blackburnian Warbler (Setophaga fusca)
Saltmarsh Sparrow (Ammodramus caudacutus)	Eastern Kingbird (Tyrannus tyrannus)	Bobolink (Dolichonyx oryzivorus)
Sedge Wren (Cistothorus platensis)	Eastern Meadowlark (Sturnella magna)	Bold-based Zale Moth (Zale lunifera)
Spotted Turtle (Clemmys guttata)	Eastern Ribbon Snake (Thamnophis sauritus)	Broad Sallow (Xylotype capax)
Upland Sandpiper (Bartramia longicauda)	Eastern Towhee (Pipilo erythrophthalmus)	Broad-winged Hawk (Buteo platypterus)
Wood Thrush (Hylocichla mustelina)	Eastern Whip-poor-will (Antrostomus vociferus)	Brook Stickleback (Culaea inconstans)
Wood Turtle (Glyptemys insculpta)	Eastern Wood-Pewee (Contopus virens)	Brook Trout (Salvelinus fontinalis)
	Great Blue Heron (Ardea herodias)	Brown-belted Bumble Bee (Bombus griseocollis)
	Greater Scaup (Aythya marila)	Burbot (Lota lota)
	Indiscriminate Cuckoo Bumble Bee (Bombus insularis)	Cliff Swallow (Petrochelidon pyrrhonota)
	Lake Whitefish (Coregonus clupeaformis)	Common Loon (Gavia immer)
	Nelson's Sparrow (Ammodramus nelsoni)	Common Nighthawk (Chordeiles minor)
	New England Bluet (Enallagma laterale)	Creek Chubsucker (Erimyzon oblongus)
	Northern Brownsnake (Storeria dekayi dekayi)	Eastern Pearlshell (Margaritifera margaritifera)
	Northern Leopard Frog (Lithobates pipiens)	Eastern Red Bat (Lasiurus borealis)
	Northern Spring Salamander	Elfin Skimmer (Nannothemis bella)
	Olive-sided Flycatcher (Contopus cooperi)	Fernald's Cuckoo Bumble Bee (Bombus fernaldae)
	Penobscot Meadow Vole	Field Sparrow (Spizella pusilla)
	Pink Sallow (Psectraglaea carnosa)	Graceful Clearwing (Hemaris gracilis)
	Prairie Warbler (Setophaga discolor)	Hoary Bat (Lasiurus cinereus)
	Purple Martin (Progne subis)	Horned Lark (Eremophila alpestris)
	Redfin Pickerel (Esox americanus americanus)	Huckleberry Sphinx (Paonias astylus)
	Round Whitefish (Prosopium cylindraceum)	Least Flycatcher (Empidonax minimus)
	Ruddy Turnstone (Arenaria interpres)	Lemon Cuckoo Bumble Bee (Bombus citrinus)
	Salt Marsh Tiger Beetle (Cicindela marginata)	Little Blue Heron (Egretta caerulea)
	Sanderling (Calidris alba)	Long-eared Owl (Asio otus)
	Scarlet Bluet (Enallagma pictum)	Longnose Dace (Rhinichthys cataractae)
	Semipalmated Sandpiper (Calidris pusilla)	Louisiana Waterthrush (Parkesia motacilla)
	Short-eared Owl (Asio flammeus)	Martha's Pennant (Celithemis martha)
	Silver-haired Bat (Lasionycteris noctivagans)	Monarch (Danaus plexippus)
	Solitary Sandpiper (Tringa solitaria)	New England Silt Snail (Floridobia winkleyi)
	Southern Pygmy Clubtail (Lanthus vernalis)	Northern Flicker (Colaptes auratus)
	Swamp Darter (Etheostoma fusiforme)	Northern Harrier (Circus cyaneus)
	Tree Swallow (Tachycineta bicolor)	Northern Parula (Setophaga americana)
	Tri-colored Bat (Perimyotis subflavus)	Northern Rough-winged Swallow
	Twilight Moth (Lycia rachelae)	Painted Skimmer (Libellula semifasciata)
	Veery (Catharus fuscescens)	Pearl Dace (Margariscus margarita)
	Whimbrel (Numenius phaeopus)	Pied-billed Grebe (Podilymbus podiceps)
	Yellow Rail (Coturnicops noveboracensis)	Purple Finch (Haemorhous purpureus)
	Yellow-billed Cuckoo (Coccyzus americanus)	Red Crossbill (Loxia curvirostra)
		Red-winged Sallow (Xystopeplus rufago)
		Rose-breasted Grosbeak (Pheucticus ludovicianus)
		Scarlet Tanager (Piranga olivacea)
		Snowy Egret (Egretta thula)
		Sora (Porzana carolina)
		Spartina Borer Moth (Spartiniphaga inops)
		Spatterdock Darner (Rhionaeschna mutata)
		Spicebush Swallowtail (Papilio troilus)
		Triangle Floater (Alasmidonta undulata)
		White-throated sparrow (Zonotrichia albicollis)
		Yellow Bumble Bee (Bombus fervidus)
		Yellow Warbler (Setophaga petechia)
		Yellowbanded Bumble Bee (Bombus terricola)

Appendix F – Boat mooring areas in the York River, map from Town of York Harbor Ordinance