2023

2023 SOOE Municipal Guide

Piscataqua Region Estuaries Partnership (PREP)

MUNICIPAL GUIDE

STATE OF OUR ESTUARIES 2023

Photo by Jerry Monkman

GUIDE FOR MUNICIPAL LEADERS AND DECISION-MAKERS

PREP™
Piscataqua Region Estuaries Partnership

About This Guide

The Piscataqua Region Estuaries Partnership (PREP) proudly presents to you the 2023 Municipal Guide, a complementary piece to the full *2023 State of Our Estuaries* report. Intended for municipal decision-makers and leaders, the Municipal Guide provides recommendations for actions and informed decision-making to support the health of our estuaries, rivers, lakes, wetlands, and natural resources across the Piscataqua Region Watershed.

The Piscataqua Region Watershed encompasses 1,086 square miles, two beautiful estuaries, 52 municipalities and more than 400,000 residents. Since 1995, PREP, as part of the United States Environmental Protection Agency's National Estuary Program, has been committed to monitoring, protecting, and preserving these nationally significant lands and waters. As part of PREP's commitment to the Piscataqua Region estuaries, every five years we develop and release a *State of Our Estuaries* report.

"There has been tremendous conservation progresses in the Piscataqua Region Watershed over the past 15 years, but more is needed. Communities can participate by partnering with land trusts, engaging in land use planning with conservation in mind, advocating for public funding support, and implementing best management practices on public lands and more. Collectively these community actions will provide an enduring legacy of conservation."

DEA BRICKNER-WOOD
Great Bay Coordinator, Great Bay Resource Protection Partnership

The *2023 State of Our Estuaries* report sends a clear message: the challenges we face are significant and so is our power to bring about positive change. The report reinforces a message we all know: we can make a difference in the health of our estuaries. In fact, you'll find that we are making a difference as you read some highlights of our shared success. Even though we continue to make progress, the stressors and challenges we collectively face are complicated. It will take an adaptive and collaborative approach to continue to see improvements. We can't do it alone and ask you as decision-makers and leaders in your communities to help us continue to make a difference.

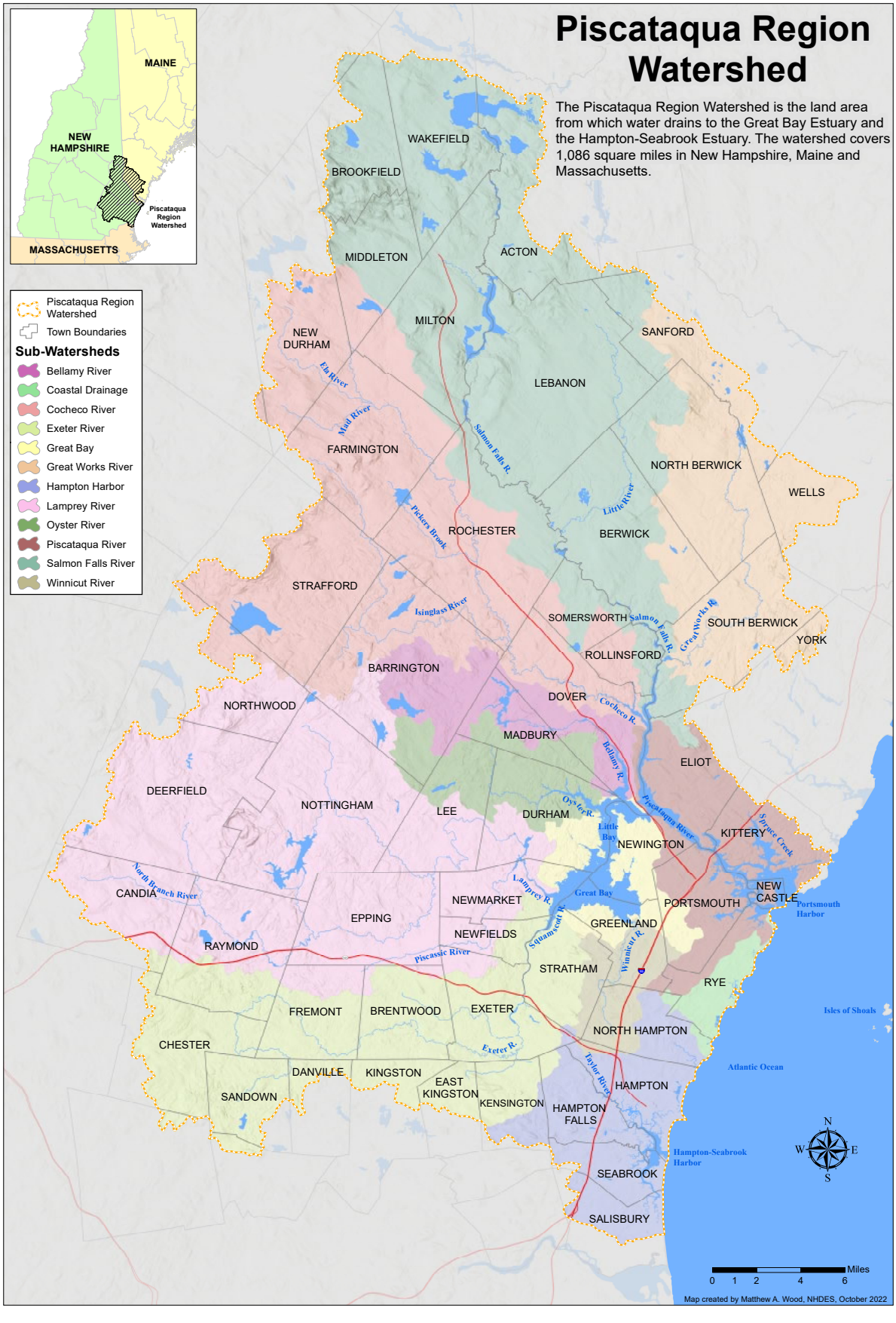
The Municipal Guide lays out the most effective actions decision-makers and local leaders can take to improve water quality and environmental conditions in our estuaries and watershed. These recommendations represent an aggregation of actions from across several state and regional management and restoration plans. The recommendations are intended to provide significant impact at reasonable financial cost in recognition of the challenges municipal decision-makers face.

"SHEA's recent commitment to creating a holistic, multi-community management plan for the Hampton-Seabrook Estuary has been an energizing and exciting project. We are grateful for the active support and participation of several state, regional, and federal partners, all vested in making this a robust, comprehensive, and actionable plan. We look forward to its positive impacts on the estuary's health."

RAYANN DIONNE
Director, Seabrook-Hamptons Estuary Alliance (SHEA)

The Municipal Guide provides targeted recommendations for actions in five priority focus areas: buffers, land conservation, septic systems, stormwater management, and climate resilience.

As a region, we have accomplished a lot, including improvements in infrastructure, buffer and wetland protections, and conserving lands that help protect water quality. As we continue our collective good work, we also have an opportunity to narrow our focus on solutions that work both for our communities and our environment.


Piscataqua Region Watershed
The Piscataqua Region Watershed is the land area from which water drains to the Great Bay Estuary and the Hampton-Seabrook Estuary. The watershed covers 1,086 square miles in New Hampshire, Maine and Massachusetts.
MAINE
NEW HAMPSHIRE
MASSACHUSETTS
Piscataqua Region Watershed
Piscataqua Region Watershed
Town Boundaries
Sub-Watersheds
Bellamy River
Coastal Drainage
Cocheco River
Exeter River
Great Bay
Great Works River
Hampton Harbor
Lamprey River
Oyster River
Piscataqua River
Salmon Falls River
Winnicut River
WAKEFIELD
BROOKFIELD
MIDDLETON
ACTON
MILTON
NEW DURHAM
SANFORD
LEBANON
Ela River
Mad River
FARMINGTON
Salmon Falls R.
NORTH BERWICK
WELLS
Little River
Pickers Brook
ROCHESTER
BERWICK
STRAFFORD
Isinglass River
SOMERSWORTH
Salmon Falls R.
Great Works R.
SOUTH BERWICK
YORK
ROLLINSFORD
BARRINGTON
NORTHWOOD
DOVER
Cocheco R.
MADBURY
Bellamy R.
ELIOT
DEERFIELD
NOTTINGHAM
LEE
DURHAM
Oyster R.
Little Bay
Piscataqua River
Spruce Creek
KITTERY
NEWINGTON
North Branch River
CANDIA
NEWMARKET
Lamprey R.
Great Bay
NEW CASTLE
PORTSMOUTH
Portsmouth Harbor
EPPING
NEWFIELDS
Squamscott R.
GREENLAND
Winnicut R.
RAYMOND
Piscassic River
STRATHAM
RYE
FREMONT
BRENTWOOD
EXETER
Isles of Shoals
NORTH HAMPTON
CHESTER
Exeter R.
Taylor River
Atlantic Ocean
DANVILLE
KINGSTON
EAST KINGSTON
HAMPTON
SANDOWN
KENSINGTON
HAMPTON FALLS
Hampton-Seabrook Harbor
SEABROOK
SALISBURY
N
W
E
S
0 1 2 4 6 Miles
Map created by Matthew A. Wood, NHDES, October 2022

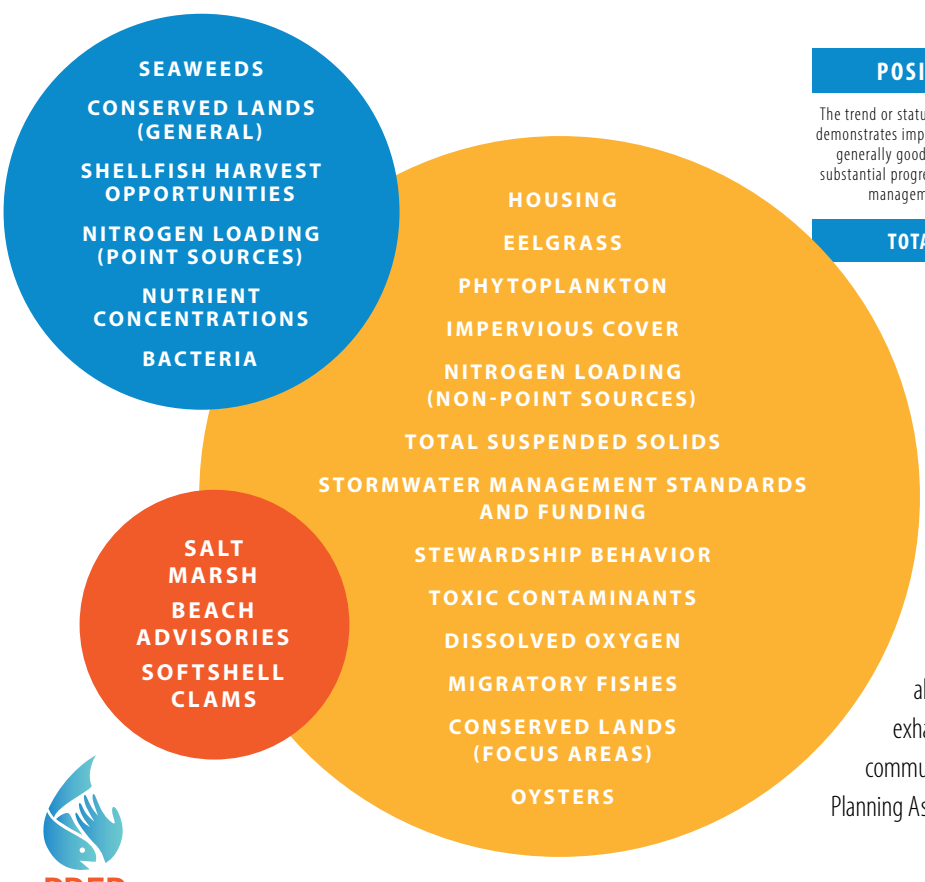
What can cities and towns do to protect clean water?

Photo by Walter Jalbert

Display this poster in your office to help protect estuarine and watershed health.

COMMUNITIES ACTION PLAN

2023 STATE OF OUR ESTUARIES INDICATOR SUMMARY



POSITIVE	CAUTIONARY	NEGATIVE
The trend or status of the indicator demonstrates improving conditions, generally good conditions, or substantial progress relative to the management goal.	The trend or status of the indicator demonstrates possibly deteriorating conditions, a mixture of positive and negative trends, or moderate progress relative to the management goal.	The trend or status of the indicator demonstrates deteriorating conditions, generally poor conditions, or minimal progress relative to the management goal.
TOTAL: 6	TOTAL: 13	TOTAL: 3

The Action Table outlines actions related to buffers and setbacks, land conservation, septic systems, stormwater management, and climate resilience that communities can take to positively impact indicators of watershed health. Improving the condition of individual indicators will positively impact the Piscataqua Region Watershed from the water quality of our streams to the health of our communities. For more information and data on each of the indicators, please visit the *2023 State of Our Estuaries* report. The actions below are intended for all communities in the Piscataqua Region Watershed, and although not exhaustive, provide a place to start or build off continued progress. For community specific recommendations visit the Piscataqua Region Environmental Planning Assessment (PREPA) at PREPEstuaries.org.

PREP Piscataqua Region Estuaries Partnership

ACTION TABLE

Focus Area	Actions – Municipalities Can...	Resources
BUFFERS & SETBACKS		
Buffers are naturally vegetated strips of land directly upslope of a water resource, such as a lake, stream, river, pond, estuary, or other wetland type[1]. Setbacks are a regulatory tool used to protect water resources from future encroachment[2]. Buffers used in conjunction with setbacks provide the most protection. Adopting and enforcing buffers and setbacks will improve the condition of Nutrient Loading, Nutrient Concentration, Total Suspended Solids, and Migratory Fish.	Assess and prioritize where increased buffer protection is important to your community based on flood risk, drinking and surface water quality, open space, and habitat goals. Increase naturally vegetated buffers adjacent to all streams, rivers, lakes, ponds, estuaries, and wetlands to a minimum of 100 feet from the water resource[1]. Utilize local and regional outreach programs to educate landowners about the importance of managing buffers.	• Landscaping at the Waters' Edge • Protecting Water Resources and Managing Stormwater • NH LAKES • Buffer Options for the Bay (BOB) • PREPA
LAND CONSERVATION		
Permanent land conservation is a critical tool used to protect water resources and wildlife habitat. It is often the most effective action regarding the prevention of water pollution and support of healthy ecosystems. Conserving land will support reductions in Nutrient Loading, Nutrient Concentration, Total Suspended Solids, and future Impervious Surfaces while also supporting key habitat for Migratory Fish.	Incorporate the Conservation Focus Areas and Priority Agricultural Resources from the 2021 NH Coastal Watershed Conservation Plan into local conservation planning. Continue to actively conserve land and work to prioritize conservation targets that address key functions on the landscape (e.g., salt marshes and wetlands for storm surge buffering, flood storage, pollutant removal, drinking water protection, etc.). Update municipal natural resource inventories and consider findings when identifying lands for conservation and reviewing development applications. Update Master or Comprehensive Plans to incorporate conservation priorities into your community's long-term vision. Consider including a conservation checklist for prioritizing parcels in your community. Establish a dedicated fund to support land conservation and stewardship through local bonds, impact fees, and/or transfer of development rights. Work with your local land trust or Conservation Commission/Open Lands Committee to educate residents and landowners about conservation priorities.	• NH Coastal Viewer • The Nature Conservancy 2021 NH Coastal Watershed Conservation Plan • Connect-Protect.org • Your local land trust • Great Bay Resource Protection Partnership • NH Association of Conservation Commissions: Establishing Land Protection Criteria • PREPA
SEPTIC SYSTEMS		
An estimated 50% of the population in the Piscataqua Region Watershed is served by onsite septic systems.[3] These systems, whether failing or properly sited and maintained, contribute a considerable amount of nutrient loading into freshwater and estuarine water bodies[4]. Improved septic system siting and maintenance will support reductions in Nutrient Loading, Nutrient Concentration, Bacteria, Beach Advisories, and Toxic Contaminants.	Map locations of septic systems to better understand their impacts on local water quality and prioritize structural and nonstructural management approaches. Develop, adopt, and promote municipal regulations to require routine septic system pumping or inspection and upgrades of older systems upon property transfer (especially those systems within 250 feet of a freshwater resources)[3]. Provide educational and technical assistance for community members regarding proper maintenance of septic systems, such as workshops or cost sharing for replacement and/or design. Increase setback requirements for septic systems and primary structures to at least 100 feet from all streams, rivers, lakes, ponds, estuaries, and wetlands.	• NH DES Water Quality Planning funding for prioritization & ordinance development • Granite State Designers and Installers: materials, workshops, outreach • ME Center for Disease Control and Prevention • UNH Stormwater Center • NH DES OneStop • NH Shoreland Septic System Study Commission • PREPA
STORMWATER MANAGEMENT		
Stormwater runoff is a significant source of non-point source pollution that contributes to poor water quality. Investing in upgraded stormwater infrastructure and local regulations to better manage stormwater on existing and future development projects will support reductions in Nutrient Loading, Nutrient Concentration, Toxic Contaminants, and Total Suspended Solids, and will also minimize Impervious Surfaces associated with new development.	Adopt stormwater management standards that include thresholds for applicability, performance measures, groundwater recharge, and redevelopment criteria, such as the Southeast Watershed Alliance model. Identify and prioritize locations with high non-point source and stormwater pollutant loads for restoration and retrofit opportunities. Promote and employ best management practices and low impact development approaches in new, existing, and redevelopment to minimize stormwater runoff impacts and limit changes to pre-development site hydrology. Adopt a cap of no more than 10% on impervious cover for any development efforts coming before town planning boards. Utilize local and regional outreach and training programs that promote BMPs for stormwater and LID for commercial and residential properties, such as rain gardens or permeable pavement.	• Great Bay Pollution Tracking and Accounting Project (PTAP) • UNH Stormwater Center • Southeast Watershed Alliance Model Stormwater Standards • Southern Maine Planning and Development Commission Model Ordinance Language for Stormwater Management: Low Impact Development • Soak Up the Rain • Seacoast Stormwater Coalition • PREPA
CLIMATE RESILIENCE		
Climate change poses an immediate and increasing risk to all aspects of life including public health and safety, natural resources, infrastructure, and more. Proactive planning for climate impacts is essential to offsetting future impacts while also adapting to the changes we already see today. By integrating mitigation and adaptation considerations into existing planning and zoning we can expect to see increased resilience for both people and the environment. The time to act is now.	Incorporate projected climate impacts like precipitation, freshwater flooding, high heat days, sea-level rise, and others into planning, design, construction, and conservation practices to reduce exposure to these hazards. Adopt a sea-level rise scenario to be used in future development and planning efforts in your community. Strengthen local regulations to better protect streams, rivers, wetlands, and groundwater resources. Protect and utilize natural flood mitigation features like buffers and wetlands. Adopt higher standards from the State's Menu of Higher Floodplain Standards. Support greenhouse gas reduction policies that avoid the worst risks.	• 2019-2020 NH Coastal Flood Risk Summary Part I: Science and Part II: Guidance for Using Scientific Projections • NH Coastal Adaptation Workgroup • NHCAW: Path to Resilience • NH Office of Strategic Initiatives Menu of Higher Floodplain Standards 2018 • Clean Energy NH • Community Power • PREPA • Maine Climate Council and Community Resilience Partnership

These actions were compiled from the following publications: Comprehensive Conservation and Management Plan (2010), Piscataqua Region Environmental Planning Assessment (2020), The 2021 NH Coastal Watershed Conservation Plan, 2019-2020 NH Coastal Flood Risk Summary Part I: Science and Part II: Guidance for Using Scientific Projections, Wildlife Action Plan, Coastal Zone Management Act Section 309 Assessment and Strategy (2016), and the following Watershed Management Plans: Bog Brook, Little River, Parsons Creek, Exeter River Main, Cocheco River, Hodgson Brook, Province Lake, Pawtuckaway, Willand Pond, Willow Brook and the Winnicut River. To delve deeper into these actions, communities can utilize the Key Resources column to locate relevant materials and organizations that can help.

[1] Buffer Options for the Bay https://bufferoptionsnh.org/
[2] 2020. Piscataqua Region Environmental Planning Assessment (PREPA) https://prepestuaries.org/resources/prepa/
[3] 2020. New Hampshire Shoreland Septic System Study Commission Final Report
[4] Trowbridge, Philip; Wood, Matthew A.; Burack, Thomas S.; Quiram, Vicki V.; and Forbes, Eugene J., "Great Bay Nitrogen Non-Point Source Study" (2014). PREP Reports & Publications. 381. https://scholars.unh.edu/prep/381

Shared Successes and What's Ahead

Over the past five years we have continued to make steady and significant progress in several measurable ways. We have progressed towards goals that have substantial impact on water quality, and we have many reasons to celebrate. This is due in no small part to committed municipal leaders, dedicated land use boards, and collaborative technical, educational, and policy partners.

Some Highlights Include…

- **Communities across the watershed continue to upgrade wastewater infrastructure and we are starting to see the impact.** Nitrogen loading from point sources such as wastewater treatment facilities is at its lowest level since we began regular monitoring in 2003!

- **Communities are adopting improved stormwater management regulations** including seven more communities since 2017. Additionally, communities are beginning to explore dedicated stormwater funding options to support improved stormwater management programs and proactively prepare for increases in flooding.

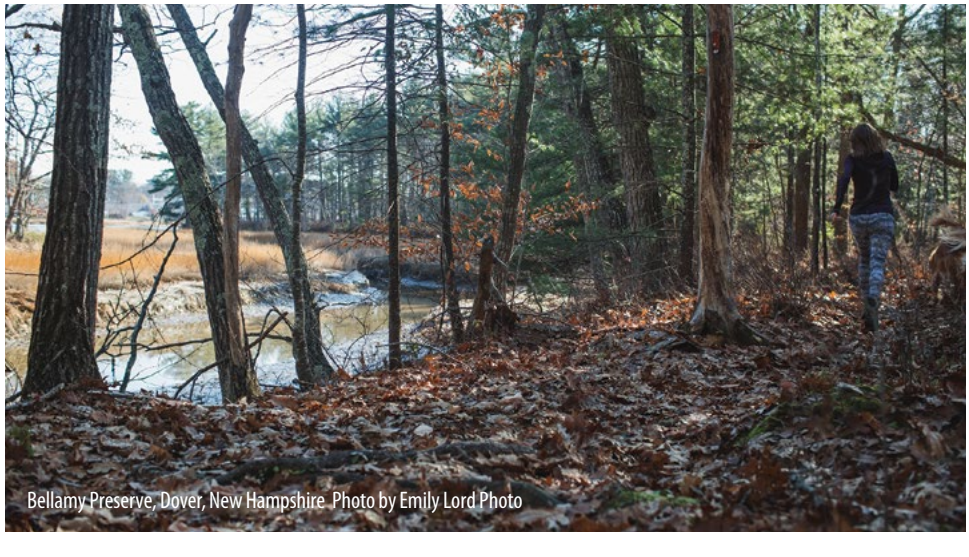
- **A total of 151,978 acres of land has been conserved** representing an increase of 2.6% or 21,676 acres of new land coming under conservation since 2017.

- **Protecting our water resources takes communities and projects at multiple scales.** The Acton Wakefield Watersheds Alliance, in partnership with residents along key headwater resources at the northern reaches of the Piscataqua Region Watershed, installed 175 best management practices to reduce pollution in 2022!

- **In 2021 Kittery, ME and Hampton, NH were awarded PREPA grant projects** to identify and map areas vulnerable to flooding and to increase flood protections by updating floodplain ordinance language.

And there's so much more!

View of the Lamprey River from the Raymond Elementary School Eco Trail



Bellamy Preserve, Dover, New Hampshire. Photo by Emily Lord Photo

We are fortunate as members of our communities and in our roles as professionals to be stewards of this region – a place we love. PREP will continue to convene partners around these important issues and facilitate opportunities for partnership.

Don't know where to start? PREP is here to be your partner in protecting and enhancing the Piscataqua Region Watershed.

"Epping has long sought to better protect its water resource – the Lamprey River in particular. The PREPA grant Epping received in 2021, along with the technical assistance from Rockingham Planning Commission, helped the Epping Planning Board to reduce stormwater pollution, bring their local stormwater regulations up to current standards and better protect their local water resources."

JENNIFER ROWDEN
Land Use Program Manager, Rockingham Planning Commission

"Headwater lake and river communities are the first line of defense in protecting the health of the coastal watershed as a whole. AWWA is excited to work with PREP to create a cohesive watershed community from the headwaters all the way to the sea and preserve our estuary for future generations."

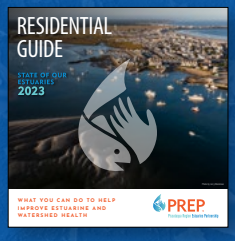
JON BALANOFF
Executive Director, Acton Wakefield Watersheds Alliance (AWWA)

Photo by Jerry Monkman

LOOK FOR OUR OTHER PUBLICATIONS

Visit StateofOurEstuaries.org to view and download.

A full 108-page *State of Our Estuaries 2023* report that has deeper explanations, tables, graphs, and future priorities.



A short guide for residents that has examples and tips on simple things everyone can do to help prevent pollution and protect the places we love.

For more information, contact:

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