New Hampshire

Nonpoint Source Management Program Plan 2020-2024

Cover image: Kimpton Brook wetland area, Wilmot, NH. Credit: Sandt Michener

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September 30, 2019

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RE: 2019 NHDES Nonpoint Source Management Plan Update Approval

Dear Mr. O'Donovan:

I am pleased to approve the Nonpoint Source (NPS) Management Program Plan for New Hampshire (NH), dated October 2019, which we received on September 27, 2019, and that your staff developed in response to guidelines for the Clean Water Act (CWA) Section 319 grant program.

New Hampshire's NPS program incorporates the key components for effective state NPS management programs referenced in the Nonpoint Source Program and Grants Guidelines (April 2013). We believe New Hampshire's program includes meaningful goals and milestones; establishes and continues effective partnerships; and contains a framework that ensures CWA Section 319 funding, technical support, and other resources will be directed to the state's highest priority water quality issues and NPS watershed projects.

We would especially like to acknowledge New Hampshire Department of Environmental Services' (NHDES) use of their Resource Potential Screening Tool (RPST) and the related Protection Potential Screening Tool (PPST) for new outputs and priorities to prioritize work on NH waters impaired by nonpoint source pollution.

We commend the fine work of your staff—particularly Barbara McMillan, Wendy Waskin, and Steve Landry—along with everyone else who contributed to updating New Hampshire's NPS management program. My staff in the Watersheds and Nonpoint Source Management Section look forward to assisting the state with your ongoing efforts to control and prevent NPS pollution.

Sincerely,

Mitchell P. Cole, Jr.

for Ken Moraff, Director
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CC: Erik Beck, MaryJo Feuerbach (EPA)

R-WD-19-22

NEW HAMPSHIRE
NONPOINT SOURCE MANAGEMENT PROGRAM PLAN – 2020-2024

Prepared by the
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October, 2019

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ACRONYMS

ACRONYM	DEFINITION
ACEC	American Council of Engineering Companies
ACOE	United States Army Corp of Engineers
AOP	Aquatic Organism Passage
AoT	Alteration of Terrain
ARM	Aquatic Resource Mitigation
AU	Assessment Unit
AUID	Assessment Unit Identification
BMP	Best Management Practice
CALM	Consolidated Assessment and Listing Methodology
CWA	Clean Water Act
CWNS	Clean Watershed Needs Survey
CWSRF	Clean Water State Revolving Fund
CZMA	Coastal Zone Management Act
DBE	Disadvantaged Business Enterprise
DOT	New Hampshire Department of Transportation
EMD	Environmental Monitoring Database
EPA	United States Environmental Protection Agency
FEH	Fluvial Erosion Hazards
GBNNPSS	Great Bay Nitrogen Nonpoint Source Study
GIS	Global Information Systems
GRTS	Grants Tracking and Reporting System
GSDI	Granite State Designers and Installers
HUC	Hydrologic Unit Code
IPM	Integrated Pest Management
LAC	Local Advisory Committee
LCHIP	Land and Community Heritage Investment Program
LID	Low Impact Development
LLMP	Lakes Lay Monitoring Program
MBE	Minority Owned Business
MCL	Maximum Contaminant Level
MOA	Memorandum of Agreement
MS4	Municipal Separate Storm Sewer System
MTRS	Measures Tracking and Reporting System
NEIWPCC	New England Interstate Water Pollution Control Commission
NHACD	New Hampshire Association of Conservation Districts
NHBOA	New Hampshire Building Officials Association
NHD	National Hydrography Dataset
NHDAMF	New Hampshire Department of Agriculture, Markets and Food
NHDES	New Hampshire Department of Environmental Services
NHDES P2	NHDES Pollution Prevention Program
NHGS	New Hampshire Geological Survey
NHHOA	New Hampshire Health Official Association

NHMA	New Hampshire Municipal Association
NOAA	National Oceanic and Atmospheric Administration
NPDES	National Pollutant Discharge Elimination System
NPS	Nonpoint Source
NRCS	Natural Resource Conservation Service
NROC	Natural Resource Outreach Coalition
NWQI	National Water Quality Initiative
OCRM	Ocean and Coastal Resource Management
PDA	Pease Development Authority
PPA	Performance Partnership Agreement
PPG	Performance Partnership Grant
PPST	Protection Potential Screening Tool
PREP	Piscataqua Region Estuaries Partnership
PTAP	Pollution Tracking and Accounting Project
QAPP	Quality Assurance Project Plan
REPP	Regional Environmental Planning Program
RFP	Request for Proposal
RMPP	Rivers Management and Protection Program
RPC	Regional Planning Commission
RPST	Recovery Potential Screening Tool
RSA	Revised Statutes Annotated (i.e., New Hampshire State Laws)
SADB	Supplemental Assessment Database
SNHRPC	Southern New Hampshire Regional Planning Commission
SOAKNH	Soak Up the Rain New Hampshire Program
SRF	State Revolving Fund
SSPP	Site Specific Project Plan
SWA	Southeast Watershed Alliance
SWQPA	Shoreland Water Quality Protection Act
TMDL	Total Maximum Daily Load
TSP	Technical Service Provider
UNH	University of New Hampshire
UNH CE	UNH Cooperative Extension
UNH T^2	UNH Technology Transfer program
UNHSC	UNH Stormwater Center
USDA	United States Department of Agriculture
USFS	United States Forest Service
VLAP	Volunteer Lake Assessment Program
VRAP	Volunteer River Assessment Program
WAS	Watershed Assistance Section
WMB	Watershed Management Bureau
WMNF	White Mountain National Forest
WQS	Water Quality Standards

INTRODUCTION

New Hampshire's Nonpoint Source (NPS) Management Program was developed in response to the Federal Water Pollution Control Act, commonly called the Clean Water Act (CWA), Section 319 provisions to address water quality problems caused by pollution from NPSs. Unlike point source pollution, which comes from pipes or other easily identifiable sources, NPS pollution comes from many different sources that are spread across the landscape and are often difficult to identify and quantify.

NPS pollution contributes to approximately 90% of the water pollution problems in New Hampshire (NHDES, 2018). Statewide management of NPS problems relies on a mix of regulatory and voluntary programs that focus on protecting clean water where it currently exists, and restoring it where development and other environmental stressors have made the water unsuitable for fishing, swimming or other designated uses. Major sources of NPS pollution in New Hampshire include developed lands, septic systems, lawns and turf grass management activities, chlorides and winter road maintenance activities, hydrologic and habitat modification, and agriculture. The problems caused by these sources are compounded by the changing climatic conditions that the state is currently facing.

New Hampshire has been getting warmer and wetter over the last century, and the rate of change has increased over the last four decades. Annual precipitation has already increased 5-20% and is projected to increase an additional 12-20% by the end of the century. Larger temperature and precipitation increases are expected for winter and spring, raising the concerns of rapid snowmelt, high peak stream flows and flood risk. Extreme precipitation events have also increased, the impact of which is evident in the several large floods that have occurred across New Hampshire over the last several decades. These extreme events are expected to occur more frequently. Of greatest concern is the projected increase in storm events that drop more than four inches of precipitation in 48 hours (Wake, et al., 2014). Local and state stormwater-related infrastructure planning needs to address potential impacts from these events including: stream crossings, erosion control, and stormwater treatment and storage. In addition to increases in precipitation, as sea levels rise, groundwater levels rise too. Groundwater rise has the potential to increase NPS pollution from septic systems, landfills, basements and failing stormwater infrastructure or best management practices (BMPs). Existing stormwater infrastructure and BMPs are not designed to accommodate these increases in precipitation and inundation from groundwater, or the associated increase in runoff and pollution. Adaptation strategies to build community resiliency and reduce the impacts of these changes are essential to achieving continued success of the NPS Program in New Hampshire.

While there is more work to be done to address impacts of NPS pollution, successful programs in New Hampshire continue to reduce pollution to New Hampshire's surface waters. For example, since 2000, restoration activities funded under the Watershed Assistance Grants Program with federal Section 319 funds have led to eight EPA NPS Success Stories of documented water quality improvements and removal of designated use impairments. Additional New Hampshire Section 319-funded projects have resulted in 10 more waterbodies removed from the 2018 Draft Impaired Waters (303(d)) List and are eligible for EPA NPS Success Stories. It is essential that resources and funding for NPS programs continue in order to maintain and achieve additional success in protecting and restoring water quality in New Hampshire. The work of our partner organizations and individuals is important to achieving NPS Program goals.

The NPS Program, described in this Plan, updates the 2014 NPS Management Plan goals, objectives and measurable milestones to reduce the water quality impacts of major NPS Pollutant Categories, and sets a schedule for planning and implementation over the next five years.

Nonpoint Source Management Program Overview

The mission of the New Hampshire Department of Environmental Services (NHDES) is to help sustain a high quality of life for all citizens by protecting and restoring the environment and public health in New Hampshire. New Hampshire's Nonpoint Source (NPS) Management Program contributes to that mission by protecting and restoring clean water in the state's rivers, lakes, estuaries and other waters from the negative impacts of nonpoint source pollution. Specifically, the NPS Management Program works toward improving land management practices, such that water quality in impaired watersheds is restored and water quality in healthy watersheds is not degraded.

The goals of this updated New Hampshire NPS Management Program Plan (Plan) are to:

- Inform visitors, residents and NPS Management Program partners about the causes and impacts of NPS pollution in New Hampshire.
- Set priorities for addressing NPS pollution sources in New Hampshire.
- Identify long-term goals for protecting and restoring waters and watersheds from NPS pollution.
- Establish specific, short-term objectives and measurable milestones to be accomplished over the next five years to work toward attaining long-term NPS program goals.

This current Plan serves as a non-regulatory road map to address NPS pollution problems and to guide communication, outreach, collaboration, and NPS planning and implementation projects over the next five years. The Plan documents progress that has been made to address priority NPS pollutant categories since the 2014 program plan update. A key component developed in the 2014 program plan update to address priority NPS pollutant categories was the NHDES Recovery Potential Screening Tool (RPST) and the Protection Potential Screening Tool (PPST). The RPST and PPST identify watersheds in the state with the greatest likelihood of water quality restoration or protection project success, respectively. NHDES Water Quality Section Personnel updated the RPST and PPST queries of the NHDES Supplemental Assessment Database (SADB) for all current 2018 assessment units (AUs) per the New Hampshire 2018 Section 305(b) and 303(d) Consolidated Assessment and Listing Methodology (CALM) for this current Plan. This methodology, NPS pollutant parameters, and priority watershed listings can be found in the Appendices. In addition, each section of this current Plan has been updated to reflect past progress, current status and projected efforts relative to the NPS management efforts associated with major NPS pollutant categories. Changes in programs, projects, personnel and regulations are also reflected in these sections. Most importantly, the Plan identifies goals, objectives, milestones and measures of success with a five-year schedule for completion.

Who Implements the NPS Management Program?

The NPS Program is formally managed by the Watershed Assistance Section (WAS) in the Watershed Management Bureau (WMB), in the Water Division at the NHDES; however, NHDES is just one of many stakeholders working to keep the state's waters clean. Individual homeowners, businesses, municipalities, non-governmental organizations, universities and state and federal agencies all have a role to play in protecting and restoring this valuable resource.

Description of Program Components – EPA Key Components

The 2013 EPA guidance (USEPA, 2013b) characterizes the essential Key Components of an Effective State Nonpoint Source Management Program.

Table 1: Location of EPA NPS Program Key Components

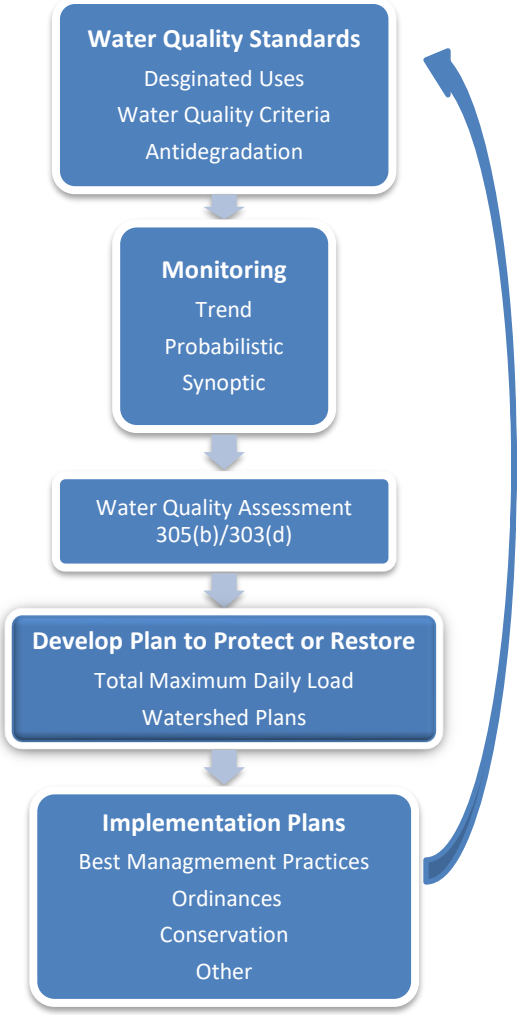
1	The state program contains explicit short- and long-term goals, objectives and strategies to restore and protect surface water and ground water, as appropriate. PAGE 1-99: New Hampshire's NPS Management Program
2	The state strengthens its working partnerships and linkages to appropriate state, interstate, tribal, regional and local entities (including conservation districts), private sector groups, citizens' groups and federal agencies. PAGE 4-5: New Hampshire's Watershed Management Framework, PAGE 11-17: Partnerships and Public Participation, PAGE 23-34: Priority Watersheds, PAGE 35-91: Priority NPS Pollutant Categories
3	The state uses a combination of statewide programs and on-the-ground projects to achieve water quality benefits; efforts are well-integrated with other relevant state and federal programs. PAGE 1-99: New Hampshire's NPS Management Program
4	The state program describes how resources will be allocated between abating known water quality impairments from NPS pollution and protecting threatened and high-quality waters from present and future NPS impacts. PAGE 23-34: Priority Watersheds
5	The state program identifies waters and watersheds impaired by NPS pollution as well as priority unimpaired waters for protection. The state establishes a process to assign priority and progressively address identified watersheds by conducting more detailed watershed assessments, developing and implementing watershed-based plans. PAGE 23-34: Priority Watersheds
6	The state implements all program components required by section 319(b) of the Clean Water Act, and establishes strategic approaches and adaptive management to achieve and maintain water quality standards as quickly as practicable. The state reviews and upgrades program components as appropriate. The state program includes a mix of regulatory, non-regulatory, financial and technical assistance, as needed. PAGE 1-99: New Hampshire's NPS Management Program
7	The state manages and implements its NPS program efficiently and effectively, including financial management. PAGE 10: NPS Management Program Evaluation, PAGE 18-22: Section 319 Program Administration
8	The state reviews and evaluates its NPS management program using environmental and functional measures of success, and revises its NPS management program at least every five years. PAGE 10: NPS Management Program Evaluation

New Hampshire's Watershed Management Framework

The WMB uses an integrated approach to achieve clean water goals. Both regulatory and non-regulatory programs work together within the WMB to integrate science, policy, planning and education to address point and NPS pollution, stormwater and exotic species. There are 22 programs and activities within the WMB that form the basis for watershed management in New Hampshire.

The NPS Management Program utilizes the data and assessments from WMB programs that make up the Watershed Management Framework (Figure 1) to prioritize the development and implementation of watershed plans, coordinate on Total Maximum Daily Load (TMDL) implementation, and develop and provide additional NPS resources and assistance to internal and external stakeholders and partners.

Figure 1: NHDES Watershed Management Framework



New Hampshire's Water Quality Standards

Water quality standards are used to protect the state's surface waters. Water quality standards consist of three parts:

1. Designated Uses, such as fish consumption, swimming or other recreational uses, or aquatic life integrity.
2. Numerical or Narrative Criteria to protect the designated uses.
3. An Antidegradation Policy, which maintains existing high quality water that exceeds the criteria.

Criteria are established by statute (RSA 485-A:8) and Administrative Rules (Env-Wq 1700). Surface waters are routinely sampled and assessed on a biennial basis for compliance relative to water quality standards as part of the Surface Water Quality Assessments 305(b) and 303(d) Program.

The Water Quality Standards Advisory Committee (WQSAC) was established in the fall of 2000 to advise NHDES in drafting revised water quality regulations. The purpose of the committee is to facilitate public input, solicit advice and provide a forum for the discussion of focused issues. Membership in WQSAC is open to any stakeholder and all WQSAC meetings are open to public.

WATER QUALITY MONITORING

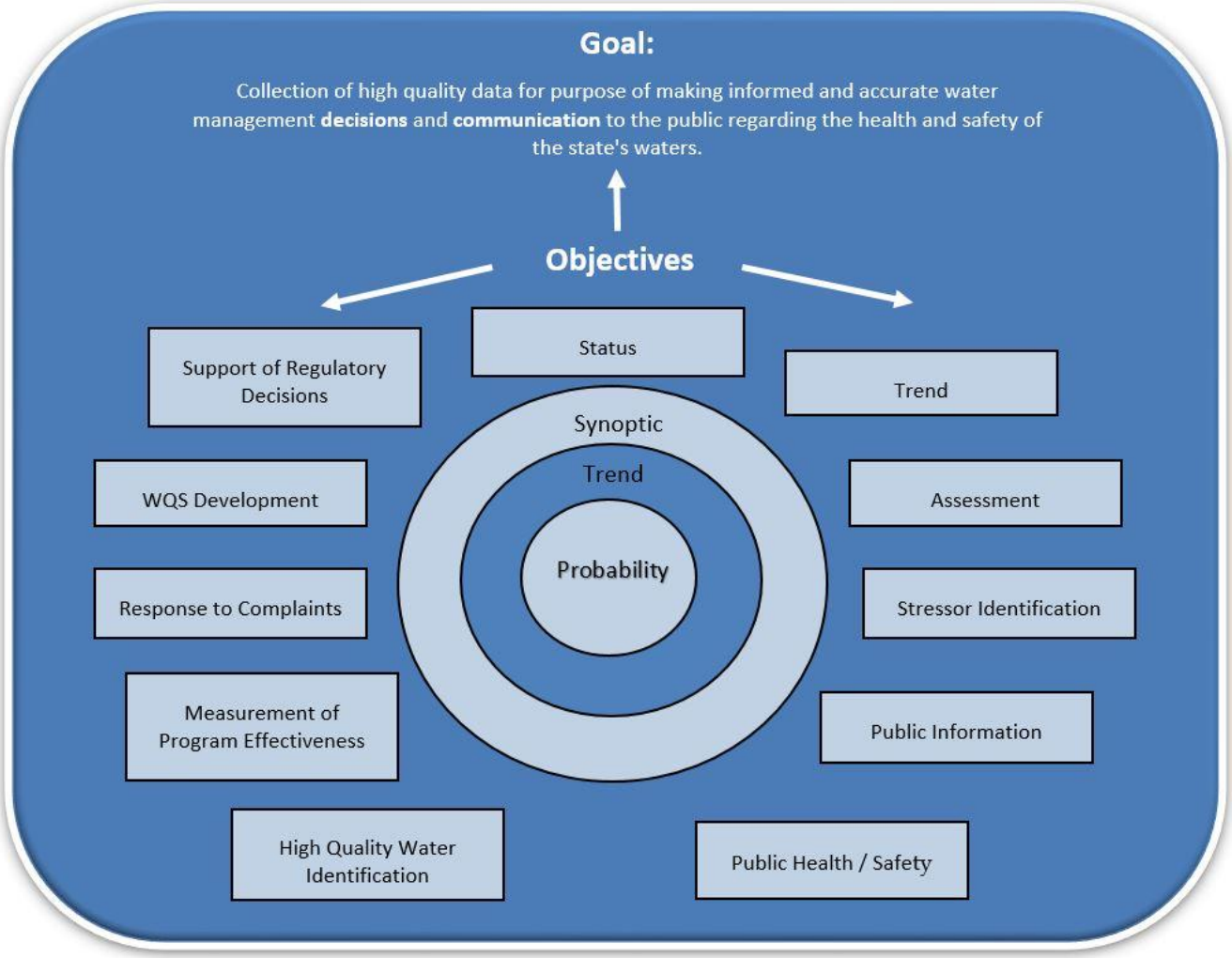
The WMB is responsible for many active water quality monitoring programs, including volunteer-based efforts like the Volunteer Lake Assessment Program (VLAP) and the Volunteer River Assessment Program (VRAP). In 2017, over 100,000 data records were collected from the state's surface waters through WMB programs. Volunteer monitoring programs like VLAP and VRAP are operated through the WMB under the guidance and requirements of Programmatic Quality Assurance Project Plans (QAPPs). The data is stored in the NHDES Environmental Monitoring Database (EMD) for use by the NHDES Water Quality Section to assess surface waters for the 305(b) and 303(d) Assessments. Relative to this Plan, the data collected by volunteer monitoring programs are an integral component for identifying NPS pollutant sources and for the development of the RPST and PPST. In addition to the data collected through WMB programs, the WMB utilizes data from other organizations and NHDES programs not administered through the WMB.

The WMB Water Monitoring Strategy covers a 10-year time frame (2014-2024) and is designed to fulfill the dual purpose of satisfying the requirements of the 2003 EPA guidance document, *Elements of a State Water Monitoring and Assessment Program* (EPA-841-B-03-003), and serving as a "manual" to NHDES in implementing surface water monitoring programs. The latter was recognized by NHDES staff as an important need in order to maximize program efficiency and accountability.

The primary outcome of the strategy is high-quality data that can be used to meet a variety of surface water management objectives. To this end, the revised strategy is organized around a basic conceptual model (Figure 2). The strategy is based on the goal of the collection and usage of water quality data for water management decisions and communication of waterbody conditions to the public.

The model relies on three primary monitoring program design components (for example: probabilistic, trend and synoptic). **Probabilistic water quality surveys** allow NHDES to report on the overall status of surface water quality through intensive sampling of a subset of randomly chosen sample locations within each lake, pond, stream or river. **Trend-based monitoring** tracks the trajectory of important water quality indicators over time through repetitive sampling at fixed monitoring stations. **Synoptic monitoring** maintains a statewide repository of data from lakes, ponds, streams and rivers using a standardized rotational watershed approach to maintain current records of water quality conditions where information is needed for assessment purposes or from waters that would otherwise not be sampled. Trend and synoptic monitoring of estuarine and ocean water is addressed through cooperation with state partners (for instance, The Piscataqua Region Estuaries Partnership and the University of New Hampshire). Collectively, the strategy makes efficient use of limited monitoring resources to sample New Hampshire's surface waters, analyze data and provide timely reporting.

FIGURE 2: WMB WATER MONITORING STRATEGY CONCEPTUAL MODEL



SURFACE WATER QUALITY ASSESSMENTS

New Hampshire's rigorous surface water quality assessment process identifies whether or not surface waters in the state support their designated uses. With few waters being fully assessed for all designated uses, and in the absence of a documented impairment, it is assumed that water quality standards are achieved in other surface waters, making them eligible for protection activities that may include applying for NHDES Source Water Protection Grants or NPS Program Watershed Assistance Grants to develop watershed-based plans. Surface water quality assessments operate on a lowest common denominator hierarchal framework. Therefore, a waterbody may be listed as impaired based upon a single parameter (for instance, dissolved oxygen) that fails to meet state water quality standards despite any number of other parameters (for instance, pH, bacteria or chlorophyll-a) that are fully attaining water quality standards.

The CWA requires each state to submit two surface water quality documents to EPA every two years.

1. Section 305(b) of the CWA requires submittal of a report (commonly called the "305(b) Report"), that describes the quality of a state's surface waters and an analysis of the extent to which waters provide

for the protection and propagation of a balanced population of shellfish, fish and wildlife, and support recreational activities in and on the water.

2. Section 303(d) of the CWA requires the submittal of a report (commonly called the "303(d) List"), that includes surface waters that are:
   a) Impaired or threatened by a pollutant or pollutant(s).
   b) Not expected to meet water quality standards within a reasonable time, even after application of best available technology standards for point sources, or BMPs for nonpoint sources.
   c) Require development and implementation of a comprehensive water quality TMDL study, which is designed to meet water quality standards.

The NHDES Surface Water Quality Assessment Program produces an Integrated Surface Water Quality Report (Integrated Report) every two years, containing the 305(b) Report and the 303(d) List. The Integrated Report contains five categories of waters. While all categories are included in the Integrated Report, categories 4 and 5 represent all impaired waters, with category 5 representing the "303(d) Listed" waters that require a TMDL. Categories include:

Category 1: Attaining all designated uses and no use is threatened.

Category 2: Attaining some of the designated uses; no use is threatened; and insufficient or no data and information are available to determine if the remaining uses are attained or threatened (i.e., more data are needed to assess some of the uses).

Category 3: Insufficient or no data and information are available to determine if any designated use is attained, impaired or threatened (i.e., more monitoring is needed to assess any use).

Category 4: Impaired or threatened for one or more designated uses but does not require development of a TMDL because;

4a: A TMDL has been completed, or

4b: Other pollution control requirements are reasonably expected to result in attainment of the water quality standard in the near future, or

4c: The impairment is not caused by a pollutant.

Category 5: Impaired or threatened for one or more designated uses by a pollutant(s), and requires a TMDL (this is the 303(d) List).

CALM describes, in detail, the process used to make surface water quality attainment decisions for 305(b) reporting and 303(d) listing purposes from available data. The term "listing" refers to the process of placing a waterbody on the Section 303(d) List of impaired waters. CALM also includes descriptions and definitions of the many terms used in the presentation of assessment results; consequently, reviewing CALM prior to reviewing the assessments helps with the understanding and interpretation of assessment results.

It is important to understand that assessment methodologies are dynamic and change as new information and assessment techniques become available. This is why CALM is updated every two years. Such changes can also impact monitoring strategies designed to determine if waterbodies are attaining water quality standards.

Periodic updates of the methodology should result in more accurate and reliable assessments and, therefore, better management of water resources in the future.

Total Maximum Daily Load (TMDL) Studies

Under the federal CWA, NHDES must develop TMDL studies for waterbodies impaired by a pollutant. A TMDL refers to a detailed plan that identifies the pollutant reductions needed to meet New Hampshire's water quality standards for a particular waterbody and develops a restoration strategy to implement those reductions. The general process by which TMDLs are developed includes identifying the problem pollutant, establishing the water quality goals or target values needed to achieve water quality standards, identifying the specific sources contributing the pollutant of concern, and assigning a specific load allocation to each of the sources. Follow-up monitoring is needed to ensure that the TMDL results in the attainment of the water quality standards.

Watershed-Based Plans

Watershed-based management or restoration plans are tools for managing existing and future watershed conditions, including land use planning and confirmed and/or potential NPS impacts on water quality. Plans identify existing pollution contributions and sources, establish water quality goals, estimate the reductions or limits of pollutants needed to meet water quality goals, and identify the actions needed, regulatory or non-regulatory, to achieve pollutant reductions sufficient to maintain or restore existing designated uses. Watershed-based management and restoration plans prioritize recommended actions based on cost/benefit analyses and set an implementation time line. They also describe potential sources of funding that may be available to carry out components of the plan, identify responsible partners relative to carrying out implementation actions and maintenance of BMPs, measures to document success of implementation actions, etc., according to the nine ((a) through (i)), mandatory elements for watershed-based planning required by EPA and NHDES. Although many different components may be included in a watershed-based plan, EPA has identified a minimum of nine elements that are critical for achieving improvements in water quality. EPA requires that these nine elements be addressed for watershed plans funded using Section 319 funds and strongly recommends that they be included in all other watershed-based plans that are intended to remediate water quality impairments.

> **(a)** An identification of the causes and sources or groups of similar sources that will need to be controlled to achieve the load reductions estimated in this watershed-based plan (and to achieve any other watershed goals identified in the watershed-based plan), as discussed in item (b) immediately below. Sources that need to be controlled should be identified at the significant subcategory level with estimates of the extent to which they are present in the watershed (e.g., numbers of dairy cattle feedlots needing upgrading, including a rough estimate of the number of cattle per facility; acres of row crops needing improved nutrient management or sediment control; or linear miles of eroded streambank needing remediation).
>
> **(b)** An estimate of the load reductions expected for the management measures described under paragraph (c) below (recognizing the natural variability and the difficulty in precisely predicting the performance of management measures over time). Estimates should be provided at the same level as in item (a) above (e.g., the total load reduction expected for dairy cattle feedlots; row crops; or eroded streambanks).

(c) A description of the NPS management measures that will need to be implemented to achieve the load reductions estimated under paragraph (b) above (as well as to achieve other watershed goals identified in this watershed-based plan), and an identification (using a map or a description) of the critical areas in which those measures will be needed to implement this plan.

(d) An estimate of the amounts of technical and financial assistance needed, associated costs, and/or the sources and authorities that will be relied upon, to implement this plan. As sources of funding, states should consider the use of their Section 319 programs, State Revolving Funds, USDA's Environmental Quality Incentives Program and Conservation Reserve Program, and other relevant federal, state, local and private funds that may be available to assist in implementing this plan.

(e) An information/education component that will be used to enhance public understanding of the project and encourage their early and continued participation in selecting, designing and implementing the NPS management measures that will be implemented.

(f) A schedule for implementing the NPS management measures identified in this Plan that is reasonably expeditious.

(g) A description of interim, measurable milestones for determining whether NPS management measures or other control actions are being implemented.

(h) A set of criteria that can be used to determine whether loading reductions are being achieved over time and substantial progress is being made towards attaining water quality standards and, if not, the criteria for determining whether this watershed-based plan needs to be revised or, if a NPS TMDL has been established, whether the NPS TMDL needs to be revised.

(i) A monitoring component to evaluate the effectiveness of the implementation efforts over time, measured against the criteria established under item (h) immediately above.

The New Hampshire NPS Management Program solicits projects to address NPS pollution through the implementation of watershed-based plans in priority watersheds. Projects must comprehensively address NPS problems, and must have a quantitative way to assess progress and determine success. The watershed-based plan must have a clear water quality goal and include the nine, minimum elements (a) through (i) required by the United States Environmental Protection Agency (EPA). Funded projects must make reasonable progress toward achieving the water quality goal established in the watershed-based plan.

The solicitation process for Watershed Assistance Grant funds administered by the New Hampshire NPS Management Program stipulates that projects must not use grant funds to implement requirements of a Small Municipal Separate Storm Sewer System (MS4) Permit, the Multi-Sector General permit, or the Construction General Permit. EPA guidance clarifies that Section 319 funds may be used to fund any urban stormwater activities that do not directly implement a final MS4 permit. Municipal applicants to the Watershed Assistance Grant program sign their full proposals acknowledging that their project location is within a regulated MS4, and they certify that the actions undertaken through the project do **not** implement requirements of a MS4 Permit, the Multi-Sector General permit, or Construction General Permit. Additionally, the municipality will not claim work completed through this project for credit toward implementation of MS4 requirements.

Therefore, collaboration between the New Hampshire NPS Management Program and New Hampshire MS4 communities remains strong as we work together to go beyond what is required under municipal MS4 permits while simultaneously implementing watershed-based plans.

New Hampshire's NPS Management Program website provides links to completed watershed-based plans and guidance for the development of watershed-based plans to promote the development and implementation of plans designed to address EPA's key elements for watershed management planning and implementation. More information on how the New Hampshire NPS Program prioritizes development and implementation of watershed-based plans is described in the Priority Watersheds section of this Plan.

NPS Management Program Evaluation

The NPS Management Program staff review and, as appropriate, work with partners to revise and update the Plan every five years to ensure that Section 319 funding, technical support and other resources are directed in an effective and efficient manner to support state efforts to address water quality issues on a priority watershed-scale basis. This allows for periodic revision to update program goals, objectives, milestones and measures as existing activities are completed and new activities develop.

Section 319 provisions require that the states report on progress in meeting annual milestones to demonstrate NPS Management Program success and track satisfactory performance and progress. The following evaluation measures are used to determine NPS Management Program success.

- Tracking of completed measurable milestones and other NPS activities in the NHDES Measures Tracking and Reporting System (MTRS).
- Annual reporting of completed goals, objectives, and measurable milestones in the NPS Management Program Annual Report. Annual reports are available on the Watershed Assistance Section's publication web page.
- Annual financial and performance reports are completed for each Section 319 grant, as required under the grant's terms and conditions.

In addition, each Section 319 Watershed Assistance Grant implementation project is required to follow an EPA approved, "(a) through (i)" watershed-based plan. Implementation projects are required to report pollutant load reductions achieved and to track these reductions against the total reduction goal in the watershed-based plan. Most projects also measure water quality improvement through long-term monitoring, typically through the NHDES VLAP, VRAP or UNH Lakes Lay Monitoring Program (LLMP). These data are tracked and reported in the following ways:

Annual reporting of pollutant load reduction estimates as a result of Watershed Assistance Grant implementation projects in the Grants Reporting and Tracking System (GRTS). GRTS is the primary tool for management and oversight of the Nonpoint Source Pollution Control Program by EPA. Additional information about GRTS is available on the EPA website.

Post-implementation water quality monitoring of restoration project sites is conducted in accordance with the NHDES CALM to determine whether or not an impaired waterbody AU has been restored and can be removed from the State's 303(d) list of impaired waters. New Hampshire's Surface Water Quality Assessment reporting, including the 303(d) list is updated and reported to EPA every two years.

PARTNERSHIPS

New Hampshire's NPS Program partners with many organizations using a variety of formal and informal mechanisms. These partners are identified, by milestone, in the Goals, Objectives and Milestones section of each NPS category of this Plan.

NHDES seeks involvement and solicits comment on significant proposed program changes from NPS program partners and stakeholders through a variety of ways, depending upon the change and the specific audiences involved. When soliciting input for programmatic changes, NHDES may form expert advisory groups, host informal meetings, attend stakeholder meetings and solicit input via email social media. When announcing programmatic changes, NHDES may use social media, the NHDES Environmental Newsletter, press releases, stakeholder email, NH Municipal EcoLink or other outreach venues to inform stakeholders.

Additional funding from partners may also be available to supplement or leverage Section 319 or 604(b) funds. These funds are subject to congressional approval or other authority, and may vary in amount from year to year. These include:

CLEAN WATER STATE REVOLVING FUND LOAN PROGRAM

The 1987 amendments to the Clean Water Act created the Clean Water State Revolving Fund (CWSRF) Loan Program, which provides below-market interest rates on loans to assist communities with the planning, design and construction of eligible water pollution control infrastructure projects. EPA capitalizes the CWSRF with annual grants which are used to provide loans to eligible entities. Borrowers are typically municipal or other local government entities. CWSRF funding is also available for water pollution control, watershed protection and restoration, and estuary management projects that contribute to the protection of public health and water quality. Projects that address stormwater or NPS pollution problems are also encouraged. Each year, New Hampshire sets aside a portion of the CWSRF for "green infrastructure" projects. In addition, the NHDES CWSRF currently offers additional subsidy for projects funded from the Project Priority List in the form of principal forgiveness. NHDES presents the CWSRF Intended Use Plan for the upcoming year's appropriation on an annual basis. Special CWSRF Loan Program initiatives for 2019 include 100% principal forgiveness, up to $75,000, for select wastewater and stormwater planning evaluations, including the development of (a) through (i) watershed-based plans. It also provides up to $30,000 per phase in principal forgiveness on loans for the development of a wastewater asset management program, and a maximum of $30,000 in principal forgiveness on loans for the development of a stormwater asset management program.

NEW HAMPSHIRE DEPARTMENT OF AGRICULTURE, MARKETS AND FOOD

Agricultural Development Mini-Grants, administered through the New Hampshire Department of Agriculture, Markets and Food (NHDAMF), have been established to provide grants for promotional efforts designed to increase the demand for New Hampshire agricultural products in existing markets, as well as to identify new markets and build product demand. Applicants my request up to $1,000 in a fiscal year through a competitive process.

Agricultural Nutrient Management Grant Program – Agricultural nutrient management grants assist agricultural land and livestock owners with efforts to minimize adverse effects to waters of the state by better managing agricultural nutrients including commercial fertilizers, animal manures and agricultural composts. Priority is given to projects that most clearly address protection of surface water and public drinking water sources. Applicants may apply for cost assistance of up to $5,000, with no match required. The majority of funding is

used for on-farm projects that address or prevent water pollution through the implementation of structural and non-structural BMPs. This grant program is administered through the NHDAMF Division of Regulatory Services.

EPA Water Quality Planning Grants

Water Quality Planning Grants are available to New Hampshire Regional Planning Commissions and the Connecticut River Joint Commissions for water quality planning purposes. Funding priority is given to projects developing (a) through (i) watershed-based plans. Preference is also given to projects that address water quality concerns in high-priority impaired or high-quality waters, as identified in the Plan. Between $40,000 to $75,000 is made available each year through a competitive application process managed by the NHDES NPS Program. Funds are made available to NHDES through EPA, pursuant to section 604(b) of the CWA.

New Hampshire Drinking Water and Groundwater Trust Fund Grants

In 2003, the State of New Hampshire brought suit against the manufacturers of the gasoline additive methyl tertiary butyl ether (MtBE) because of its impact on the groundwater and drinking water of the State. All but Exxon-Mobil settled before trial. NHDES won the lawsuit and the State was awarded damages for the harm caused to its groundwater and drinking water. The Legislature used this money plus accumulated interest to establish the Drinking Water and Groundwater Trust Fund (DWGTF) and designated the DWGTF Advisory Commission to manage the loan and grant award program. The Commission awards funding for eligible applicants and projects under three major funding categories: construction projects, source water protection projects (water supply land protection grants) and NHDES Activities. The Commission endeavors to leverage the DWGTF to the greatest extent possible and will only consider grants that are no more than 50% of the eligible project cost and no more than $500,000 per project. Up to two million dollars is available specifically for Source Water Protection Grants in the 2019 funding round.

New Hampshire Local Source Water Protection Grants

Local Source Water Protection Grants, administered through the Drinking Water Source Protection Program, are available to public water systems, municipalities, regional planning commissions and nonprofit organizations for source water protection projects that can include development and implementation of (a) through (i) watershed-based plans to protect public water supply sources. Any eligible project outlined in the application packet for the current grant round may apply for a grant of up to $20,000, with no match required. Approximately $200,000 is available for the 2019 grant round.

Conservation & Heritage License Plate Program (Moose Plate Grant)

The Moose Plate Grant, administered through the State Conservation Committee, funds projects that enhance the environment by promoting the sustainability of the state's public and private land, air, water and cultural resources to prevent their pollution or degradation.

Eligible applicants include municipalities, County Conservation Districts, qualified nonprofit organizations engaged in conservation programs, public and private schools, County Cooperative Extension natural resource programs, and scout groups. The New Hampshire State Conservation Committee's grant program is funded through the purchase of Conservation License Plates, known as "Moose Plates." All funds raised through the purchase of Moose Conservation and Heritage Plates are used for the promotion, protection and investments in New Hampshire's natural, cultural and historic resources. In 2019, $335,768 was awarded to 16 New Hampshire

municipalities and conservation organizations. Moose Plate funding is entirely non-federal and can be used to match Section 319 Watershed Assistance Grant funds when project goals meet the criteria for each funding program.

AQUATIC RESOURCE MITIGATION (ARM) FUND

The ARM Fund, administered through the NHDES Wetland Bureau, is a Compensatory Mitigation option to permit applicants for impacts to wetlands, streams and other aquatic resources in New Hampshire, and is available once avoidance and minimization of impacts is achieved. NHDES is authorized to collect funds *in-lieu of* other forms of wetland mitigation under RSA 482-A:28 and Env-Wt 800 as part of a wetlands permit application. Using a watershed-based approach, the ARM Fund payments are collected according to nine service areas (HUC 08 watersheds) with funding availability announcements made on an annual or bi-annual basis, depending on fund availability.

Eligible projects include those involving land acquisition; wetland, estuary or stream restoration; culvert or dam repair, replacement or removal; and invasive species management. Any New Hampshire municipality, town conservation commission, county government, regional planning commission, county conservation district, watershed and river association, state agency, institution of higher education, public school district and nonprofit organization with a project located in the service areas is eligible to apply.

NEW HAMPSHIRE COASTAL RESILIENCE MUNICIPAL PLANNING GRANTS

The NHDES Coastal Program is one of 34 federally approved coastal programs authorized under the Coastal Zone Management Act (CZMA) and is administered by NHDES. The NHDES Coastal Program provides funding and staff assistance to towns and cities, and other local and regional groups who protect clean water, restore coastal habitats, and help make communities more resilient to flooding and other natural hazards. The NHDES Coastal Program supports the region's economy by helping to preserve the environmental health New Hampshire's coast and Great Bay and Hampton-Seabrook estuaries for fishing and shellfishing, and assisting with the maintenance of New Hampshire ports, harbors and tidal rivers for commercial and recreational uses.

The NHDES Coastal Program has developed a five-year strategy under Section 309 of the CZMA that was last updated in 2015. The NHDES Coastal Program's current revision of the Section 309 Assessment and Strategy identifies coastal hazards, cumulative and secondary impacts of development, and wetland protection and restoration as high priority issues. The strategy identifies specific projects for addressing these priorities.

Additionally, the NHDES Coastal Program has targeted funds available for municipal projects that can be used to plan for resilience to coastal hazards and build sustained capacity to implement resilience plans. In 2019, approximately $100,000 was available to fund projects ranging from $10,000 to $30,000. Funds for this grant opportunity are provided by the National Oceanic and Atmospheric Administration's (NOAA) Office for Coastal Management, under the Coastal Zone Management Act, in conjunction with the NHDES Coastal Program.

Projects must take place within one of the 17 coastal zone municipalities and have project timeframes between 12 to 18 months. For the purposes of this funding opportunity, coastal resilience is defined as the capacity of a community or system to proactively prepare for and bounce back better from hazardous events such as hurricanes, coastal storms, and long-term sea-level rise and associated impacts, rather than the ability to simply react and respond to events. Eligible applicants include all 17 coastal zone municipalities and/or municipal consultants, including nonprofit, quasi-governmental, or private organizations. A 2:1 federal grant funds to non-federal match through cash or in-kind services is required.

Exotic Species Program Grants

The Exotic Species Grants are funded through boater registration fees and include the following:

Control Grants for Exotic Aquatic Plants – Control Grants are awarded to local lake associations and municipalities for the control and treatment of exotic aquatic weeds, like milfoil and include the development of long-term management plans for each waterbody that requests funding. NHDES Control Grants will cover 100% of the treatment costs for a new infestation, and will match up to 50% for repeat management practices. Approximately $250,000 is awarded each year.

Milfoil and Other Exotic Plant Prevention Grants – Grant monies are available each year for forward-thinking strategies that seek to prevent new infestations of exotic plants, including outreach, education, Lake Host Programs and other activities. Approximately $225,000 to $280,000 is awarded each year.

Research Grants – Grant monies are available for innovative research projects by institutions of higher learning that focus on issues associated with exotic aquatic plant management, control, biology, ecology or prevention. Awards have ranged from around $5,000 to $30,000 depending on the project description and need.

Natural Resources Conservation Service Funding Opportunities

The United States Department of Agriculture, Natural Resource Conservation Service (NRCS) provides technical and financial assistance to private landowners, many of which are agricultural producers. Some of these "working lands programs" address resource concerns associated with agricultural operations. Applications for funding are ranked and prioritized based on the environmental benefits associated with the completion of the BMPs. Applications for program funding are accepted year-round at seven field office locations (Epping, Milford, Walpole, Concord, Conway, Orford and Lancaster).

Conservation Stewardship Program – The Conservation Stewardship Program (CSP) is for working lands. It is the largest conservation program in the United States with more than 70 million acres of agricultural and forest land enrolled. Eligible producers have a single opportunity to enroll in a five-year contract. The 2018 Farm Bill authorizes NRCS to accept new CSP enrollments until 2023. The program provides many benefits including increased crop yields, decreased inputs, wildlife habitat improvements and resilience to weather extremes.

Environmental Quality Incentives Program – EQIP provides financial and technical assistance to agricultural and forestry producers to address natural resource concerns and deliver environmental benefits such as improved water and air quality, conserved ground and surface water, reduced soil erosion and sedimentation, and improved or created wildlife habitat. Financial assistance covers part of the costs from implementing conservation practices. These practices are geared towards working farms, ranches, and forests. Payment rates for conservation practices are reviewed and set each fiscal year. Through the National Water Quality Initiative (NWQI), EQIP funds and Section 319 funds can be targeted to mutually agreed upon priority watersheds.

Emergency Watershed Protection Program – The Emergency Watershed Protection (EWP) Program was set up by Congress to respond to emergencies created by natural disasters. It is designed to relieve imminent hazards to life and property caused by floods, hurricanes, tornadoes, windstorms, fires and other natural occurrences. The purpose of EWP is to help groups of people with a common problem. It is generally not an individual assistance program. All projects undertaken must be sponsored by a political subdivision of the state, such as a city, town, county, or conservation district. The program is administered by NRCS, which provides technical and financial assistance to preserve life and property threatened by excessive erosion and flooding.

PARTNERSHIPS GOAL, OBJECTIVES AND MILESTONES

Partnerships (P) Goal. The NPS Program has strong partnerships with local, state and federal agencies, as well as other organizations in New Hampshire.			**Schedule**				
			2020	**2021**	**2022**	**2023**	**2024**
Objective	**Milestone**	**Measure of Success**					
Objective P-1 Existing and new NPS Program partnerships result in an increased understanding of NPS issues and the importance of clean water.	**Milestone P-1.1** Existing and new NPS partners and stakeholders participate in statewide NPS programs and watershed projects. Partners: NHDES, 319 Grantees, watershed organizations, municipalities, nongovernmental organizations, universities.	**Measure P-1.1a** NPS Program staff represent NPS related issues in two NPS outreach activities per year through planning assistance or presentations.					
		Measure P 1.1b NPS Program staff assist with two watershed project outreach-related activities.					
	Milestone P-1.2 NPS Program partner/stakeholder audiences, including 319 grantees, have access to NPS information and are able to obtain answers to NPS-related questions. *Partners: NHDES, 319 Grantees, municipalities, watershed organizations.*	**Measure P-1.2a** Draft and distribute press releases for all 319 grant projects when awarded.					
		Measure P-1.2b Environmental indicators are updated annually on the NHDES website.					
		Measure P-1.2c Monthly updates provided to the Watershed Protection and Restoration Forum.					

Partnerships (P) Goal. The NPS Program has strong partnerships with local, state and federal agencies, as well as other organizations in New Hampshire.			Schedule				
			2020	2021	2022	2023	2024
Objective	**Milestone**	**Measure of Success**					
Objective P-1 (cont.)	**Milestone P-1.3** New Hampshire municipalities are familiar with low-impact development practices, local stormwater regulations, technical assistance and other technical and financial resources. *Partners: NHDES, Natural Resource Outreach Coalition, municipalities, Nashua, Manchester and Seacoast Stormwater Coalitions.*	**Measure P-1.3a** NPS staff provide and facilitate at least one NPS program agenda item for and participate in four Natural Resource Outreach Coalition meetings per year.					
		Measure P-1.3b Coordinate and facilitate at least twenty meetings with New Hampshire stormwater coalitions.					
		Measure P-1.3c Coordinate one activity per year with Small Municipal Separate Storm Sewer Systems (MS4) municipalities to meet water quality goals					
		Measure P-1.3d Coordinate with MS4 Stormwater Coalition Chairs to convene a regional stormwater coalition meeting.					
		Measure P-1.3e maintain New Hampshire MS4 Stormwater Coalition Blog with meeting, resource or calendar updates.					
	Milestone P-1.4 Align priority watersheds with the TMDL Program. *Partners: NHDES Watershed Assistance Section, NHDES TMDL Program.*	**Measure P-1.4a** TMDL program consults the watershed priority list to identify priority watersheds for TMDL development.					
		Measure P-1.4b Watersheds with TMDLs are priorities for watershed-based plan development.					

Partnerships (P) Goal. The NPS Program has strong partnerships with local, state and federal agencies, as well as other organizations in New Hampshire.			**Schedule**				
			2020	**2021**	**2022**	**2023**	**2024**
Objective	**Milestone**	**Measure of Success**					
Objective P-1 (cont.)	**Milestone P-1.5** The CWSRF Program regularly funds stormwater and nonpoint source projects, including development of watershed-based plans. *Partners: NHDES Watershed Assistance Section, NHDES SRF Program.*	**Measure P-1.5** At least six eligible CWSRF loans available for stormwater and nonpoint source projects are on the project priority list to be funded.					
	Milestone P-1.6 Explore the feasibility of dividing the single lake Winnipesaukee AUID into a separate AUID for each bay. *Partners: NHDES Watershed Management Bureau, NHDES Water Quality Section, Lake Winnipesaukee Watershed Association.*	**Measure P-1.6** Moultonborough inlet is assigned an individual AUID. (*Note: base on Lake Champlain model.*)					

SECTION 319 PROGRAM ADMINISTRATION

The 1987 amendments to the CWA established the Section 319 NPS Management Program. Under Section 319, EPA provides funding to states, territories and tribes to implement a wide variety of activities including technical assistance, financial assistance, education, training, technology transfer, demonstration projects and monitoring to assess the success of specific NPS implementation projects.

The NHDES WAS of the Watershed Management Bureau administers New Hampshire's NPS Program. In addition to collaborating with NPS partners to implement statewide programs, WAS administers the Watershed Assistance Grants Program. Funding for NPS activities and for Watershed Assistance Grants in New Hampshire comes primarily from EPA under Section 319 of the CWA. Under the grant program, WAS staff work with municipalities, universities, state agencies, nonprofits, watershed associations, regional planning commissions and other organizations to develop and implement watershed-based plans in priority watersheds as well as collaborating on other water quality planning (funded under Section 604b of the CWA) and implementation projects. These grants support local projects that generate actions to restore or protect water quality and enhance the designated uses of the state's waters by addressing sources of NPS pollution, hydromodification of rivers and streams, and habitat losses.

The 319 Program in New Hampshire follows EPA's Nonpoint Source Program and Grants Guidelines for States and Territories, issued in April 2013, and operates under the New Hampshire Section 319 Nonpoint Source Program Grant Program Quality Assurance Project Plan, updated August 23, 2013 and under revision in 2019.

NHDES has well-established financial management and programmatic systems to ensure that Section 319 dollars are used efficiently and consistently within the Nonpoint Source Program and Grants Guidelines for States and Territories. All statutory and grant conditions applicable to Section 319 grants received by the State are included in contracts and grant awards made to subgrantees so that all recipients must follow all federal requirements. Further, such requirements are included in grant funding announcements and requests for proposals issued by the WAS so that subgrantees are aware of them prior to commencing a project.

The State of New Hampshire has an integrated accounting system with separate accounts for individual programs. The accounts are reconciled monthly between the State of New Hampshire's accounting System (NHFIRST) and NHDES' Oracle system (NHDES Ledger) to ensure the proper recording of financial transactions. Payment is then received via electronic transfer through the federal Automated Standard Application for Payments (ASAP). Procedure manuals and approval processes are in place to strengthen internal controls and ensure the terms and obligations defined in the grant agreement are met.

Implementation of the NPS Management Program Plan focuses on a combination of internal and partner programs and is based upon a foundation of what is currently practical and resourced. The issue of NPS pollution in New Hampshire is much larger than the program can accomplish with current resources. The current programs to address NPS pollution at the state and local level are oversubscribed. There is need for a much broader tapestry that better integrates the many threads of

increasing pressures of climate change and development throughout New Hampshire. The staff within the NHDES NPS Management Program recognize the necessity to develop a vision that sets ambitious goals beyond the horizons of our traditional partnerships and collaborators within the context of the next five-year New Hampshire NPS Management Program Plan.

To this end, there is clear need to address statewide NPS stressors and to identify the resources and capacity to effectively administer the 319 NPS Management Program to achieve these broader goals in the future. For example, NHDES water quality professionals have documented a statistically significant increase in specific conductivity in rivers and streams across the state. This is associated with the complementary forces of chlorides application and development. This trend has the potential to both destroy natural aquatic organisms as well as limit economic activity. Similarly, the environmental, economic, and even human health impacts from increased nutrient concentrations from phosphorus and nitrogen in our surface waters across the state require an aggressive strategy if New Hampshire water resources are to either maintain or restore their ability to support designated uses of swimming, fishing, and boating. Designing and installing BMPs within the context of implementing watershed-based plans throughout the state needs to incorporate climate change and resiliency elements in order for these practices to continue to generate the pollutant load reductions we expect from them as our watershed management practitioners chase their water quality goals. Finally, funding for stormwater and NPS projects is not sufficient at present to address the statewide, NPS stressors mentioned above. These four elements, chlorides, nutrients, climate change and funding requires a long-term NPS vision that will need to be addressed in subsequent NPS Program Management Plans. A successful vision will hopefully attract other funding and policy improvements beyond the reach of the NHDES NPS Management Program.

Program Goal, Objectives and Milestones

319 Program Administration (319) Goal. The NPS Management Program is managed efficiently and effectively.			Schedule				
			2020	2021	2022	2023	2024
Objective	**Milestone**	**Measure of Success**					
Objective 319-1 The Plan is up-to-date and used to track satisfactory progress.	**Milestone 319-1.1** Completion of annual milestones, objectives and goals in the NPS Management Program Plan are tracked and reported in the NPS Program Annual Report. *Partners: NHDES*	**Measure 319-1.1** Documentation of completed plan elements in the NPS Annual Report, the Measures Tracking and Reporting System (MTRS), and other relevant reports and systems.					
	Milestone 319-1.2 The NPS Management Program is updated every five years to reflect program changes and success toward meeting NPS Program goals and progress is reported annually. *Partners: NHDES, NPS stakeholders to be determined.*	**Measure 319-1.2a** The completed NPS Management Program Plan update for years 2025-2029 is approved by EPA prior to October 1, 2024.					
		Measure 319-1.2b NPS Program Report is submitted to EPA annually.					
	Milestone 319-1.3 Grant work plans are developed, applications for Section 319 funding are submitted, and required reports are completed. *Partners: NHDES, EPA, 319 Grantees, NPS partners TBD*	**Measure 319-1.3a** Annual update of 319 staff work plans in MTRS database with quarterly progress reporting.					
		Measure 319-1.3b Annual update of EPA's Priorities and Commitments List.					
		Measure 319-1.3c Annual grant progress reports are submitted to EPA.					

319 Program Administration (319) Goal. The NPS Management Program is managed efficiently and effectively.			Schedule				
			2020	2021	2022	2023	2024
Objective	**Milestone**	**Measure of Success**					
Objective 319-2 Funding is adequate to fulfill NPS Program Plan objectives and dollars are used efficiently and are consistent with legal obligations.	**Milestone 319-2.1** Apply and manage Section 319 funding from EPA as part of the NHDES Performance Partnership Grant (PPG) and continuing environmental program grant. *Partners: NHDES, EPA*	**Measure 319-2.1** Grant dollars are spent by the grant end date and no later than five years from the start date.					
	Milestone 319-2.2 Streamline the Request for Proposal process. Determine the feasibility of developing an online, iterative grant application. Update review/scoring criteria and project eligibility requirements for 319 and other funded projects managed by the NPS Program. *Partners: NHDES, grantees, New Hampshire Department of Information Technology*	**Measure 319-2.2a** Feasibility determination of online application process.					
		Measure 319-2.2b Annual review and update of grant application scoring and eligibility criteria.					
	Milestone 319-2.3 Requests for Proposal (RFPs) for 319 sub-awards are released to allow ample time for state and EPA approval and the execution of 319 sub-awards by NHDES as soon as feasible after federal 319 dollars are made available. *Partners: NHDES, EPA*	**Measure 319-2.3** 319 sub-awards are obligated within one year after the EPA grant award.					
	Milestone 319-2.4 Coordinate and report on Disadvantaged Business Enterprises (DBEs) *Partners: NHDES*	**Measure 319-2.4** Annual reporting on the utilization of minority and women-owned businesses.					

319 Program Administration (319) Goal. The NPS Management Program is managed efficiently and effectively.			Schedule				
			2020	2021	2022	2023	2024
Objective	**Milestone**	**Measure of Success**					
Objective 319-3 The NPS Program Management Plan for 2024-2028 contains comprehensive NPS management strategies for priority, statewide, NPS stressors and they are integrated into the NPS Plan under appropriate pollutant categories.	**Milestone 319-3.1** A New Hampshire NPS Pollution Planning and Policy (NPSP3) Team is created and convened to develop NPS policy and funding strategy recommendations (a vision) that will be incorporated into the 2025-2029 NPS Management Program Plan. The NPSP3 Team will focus upon septic systems relative to sea level rise and nitrogen reduction, nutrient trading concepts, identifying linkages to resilience planning and funding, stormwater utilities, climate change stressors, dam and culvert policy changes, and integrated watershed management, e.g. *Partners: NHDES, EPA, NPS partners TBD*	**Measure 319-3.1** The completed NPS Management Program Plan for 2025-2029 contains specific Objectives, Milestones, and Measures of Success to enable policy and funding changes that are also practical and appropriately resourced.					

PRIORITY WATERSHEDS

Restoration of NPS-impaired waters remains the primary goal of the New Hampshire NPS Management Program; however, only a small percentage of waters in New Hampshire have sufficient data to determine whether or not water quality impairments exist. As of 2018, about 42% of lakes and 27% of rivers had enough data to be assessed for the Aquatic Life Integrity designated use. This designated use has the strongest correlation with NPS impacts from stormwater-related pollutants in New Hampshire. With the majority of lakes and rivers unassessed, and therefore without a formal high quality or impairment determination, New Hampshire's NPS Management Program provides funding for both restoration and protection activities at the watershed scale. Based upon history and current active projects it is estimated that over the next five years, approximately 80% of the program's time and funding will be expended on restoring impaired waters with the remaining 20% devoted to protecting and improving threatened waters.

TABLE 2: NUMBER OF ASSESSMENT UNITS (AUIDS) IN EACH OF NHDES' ASSESSMENT CATEGORIES FOR THE AQUATIC LIFE INTEGRITY DESIGNATED USE

		Fresh Waters			Salt Waters		Grand Total
NHDES Assessment Category*		**Impoundment**	**Lake**	**River**	**Estuary**	**Ocean**	
2-G	Full Support	-	-	39	-	46	**85**
2-M		-	8	93	-	-	**101**
3-PAS	Insufficient Information	107	211	1,864	8	-	**2,190**
3-ND		4,689	4,650	24,066	431	121	**33,957**
3-PNS		74	319	834	3	-	**1,230**
4A-M	Impairments	12	1,185	17	-	-	**1,214**
4A-P		-	318	16	-	-	**334**
4B-M		-	-	6	-	-	**6**
4B-P		-	-	4	-	-	**4**
4B-T		-	-	57	46	-	**103**
4C-M		35	92	57	-	-	**184**
4C-P		32	30	61	-	-	**123**
5-M		538	1,533	6,503	92	-	**8,666**
5-P		149	511	3,086	1,462	-	**5,208**
5-T		4	-	21	-	-	**25**
	Grand Total	**5,640**	**8,857**	**36,724**	**2,042**	**167**	**53,430**

***** Definitions for Assessment Categories can be found in the 2018 CALM

There are many factors that affect the actual allocation of program resources directed toward restoration versus protection activities in a given year including, but not limited to partner participation, response to project proposal solicitation, existence of an EPA and NHDES-approved, (a) through (i) watershed-based plan, scheduling, and likelihood of success.

New Hampshire's NPS Management Program recognizes that there are still important water quality benefits to be gained from implementing protection projects that prevent further degradation or protect high quality water where it exists. This section describes the process of prioritizing restoration and protection activities to achieve clean watersheds in New Hampshire.

PRIORITY AREAS FOR NPS MANAGEMENT ACTIVITIES

In 2013, NHDES completed a priority analysis, using the Recovery Potential Screening Tool (RPST) developed by EPA, to identify geographic areas of the state where NHDES should focus limited resources among large numbers of waters in need of restoration or protection.

The RPST uses the ecological, stressor and social characteristics of each watershed to identify those places with the greatest likelihood for restoring or maintaining water quality. Representative indicator metrics (shown in Tables 3 and 6), were selected by NHDES and used to calculate a specific recoverability or protection score for each watershed. Depending on the score, each watershed was assigned low, medium, or high recovery or protection potential.

The restoration and protection priorities and rationale are described in their respective sections below. A complete description of the prioritization activity using the RPST, including the geographic scope, AU and hydrologic unit code (HUC) 12 watershed delineation, indicator metrics used, data gathering, sources, ranking and mapping results is described in the *Priority Areas for Nonpoint Source Management Activities in New Hampshire: NHDES Methodology for Prioritizing Water Quality Restoration and Protection Activities* in Appendix A.

Priority watersheds identified in the NPS Plan may also serve as the basis for decision-making with respect to priorities for monitoring, TMDL development and implementation and CWSRF loans for NPS projects and, most importantly, for developing (a) through (i) watershed-based plans in New Hampshire.

TABLE 3: NPS-RELATED INDICATORS

Nonpoint Source Indicator Name
Aluminum
Ammonia (Un-ionized)
BOD, Biochemical oxygen demand
Benthic-Macroinvertebrate Bioassessments (Streams)
Chloride
Chlorophyll-a
Cyanobacteria hepatotoxic microcystins
Dissolved oxygen saturation
Enterococcus
Escherichia coli
Excess Algal Growth
Fishes Bioassessments (Streams)
Habitat Assessment (Streams)
Low flow alterations
Ammonia (Total)
Other flow regime alterations
Oxygen, Dissolved
Sedimentation/Siltation
Fecal Coliform
Total Suspended Solids (TSS)
Turbidity
Nitrogen (Total)
Phosphorus (Total)

PRIORITIES FOR RESTORATION ACTIVITIES

In New Hampshire, impairments are made at the AU level. An AU is the basic unit of record for conducting and reporting the results of all water quality assessments. To provide a finer level of detail for the recoverability analysis, NHDES delineated the watershed boundary of each AU, which includes every stream segment, lake, pond, impoundment or estuary in the state. The recoverability analysis for restoration activities included all AU watersheds that have one or more NPS-related impairments. NHDES determined that NPS-related impairments include those parameters listed in Table 3. The recoverability analysis calculated recovery scores based upon the ecological, stressor and social metrics in Table 4.

RIVERS

New Hampshire has nearly 17,000 stream and river miles that flow through the state. Priority for restoration activities is given to those river AU watersheds that have completed NHDES and EPA-approved watershed restoration plans (a) through (i), or that ranked medium or high priority in the RPST analysis and meet the following river priority criteria:

1. The waterbody has a committed organization, association or other group associated with it (for instance, Designated River Local Advisory Committee, watershed association, etc.).
2. The waterbody has an established water quality monitoring program.
3. The organization has regular interaction with water quality professionals.

The river priority criteria can be met by participating in VRAP. See Appendix B for the River Watersheds Recovery Potential Ranking List and Appendices E, F, and G for associated maps.

LAKES

New Hampshire has over 800 lakes and ponds greater than 10 acres in size. The priority for restoration activities is given to those lake watersheds that have completed NHDES- and EPA-approved watershed restoration plans (a) through (i), or that ranked medium- or high-priority in the RPST analysis and meet the following lake priority criteria:

1. The waterbody has a committed organization, association or other group associated with it.
2. The waterbody has an established water quality monitoring program.
3. The organization has regular interaction with limnology professionals.
4. The waterbody is an impoundment with impairments directly related to an artificial barrier, and a decision has been made to investigate barrier removal.

The lake priority criteria can be met by participating in VRAP or UNH's LLMP. See Appendix C for the Priority Lake and Impoundments Recovery Potential Ranking List and Appendix E for associated maps.

TABLE 4: RECOVERABILITY METRICS

Ecological Metrics	R	P	Stressor Metrics	R	P	Social Metrics	R	P
Watershed size	X		Watershed aquatic barriers	X	X	Watershed size	X	
Stream Order Ratio	X	X	Corridor road crossing density	X	X	Approved TMDL existence	X	
Watershed % In-state area	X		Number of 303(d) listed causes	X	X	Watershed-based plan	X	X
			Watershed % Impervious area	X	X	(a) through (i) Watershed-based Plan	X	X
						Jurisdictional complexity	X	
Watershed % Stream miles unimpaired	X		Watershed % Agriculture	X		Watershed population Number of drinking water intakes	X	X
Watershed % Lake acres unimpaired	X		Watershed % Pasture	X				
Watershed % Natural cover	X	X	Watershed % Developed	X	X	Assessment unit class	X	
Watershed % Forest	X	X	Active River Area % Watershed % Impervious area	X	X	Local River Advisory Committee	X	X
Watershed % Wetlands	X	X						
Watershed % Natural services network	X	X				Watershed % Protected land	X	
			Watershed % Agriculture	X		Watershed % Stream miles assessed	X	
Active River Area % Natural cover	X	X	Watershed % Pasture	X		Watershed % Lake acres assessed		X
Active River Area % Forest	X	X	Watershed % Developed	X	X	Watershed % Agriculture		X
Active River Area % Wetlands	X	X				Watershed % Pasture		X

*** Stream Order Ratio was not included in the ecological metrics for the lakes restoration priority assessment.**

"R" – designates metrics used for recovery potential analysis

"P" – designates metrics used for protection potential analysis

BEACHES

New Hampshire has nearly 400 freshwater and coastal beaches. Priority for restoration activities is given to the nearly 150 public bathing beaches with documented allowable bacteria loadings and associated reductions needed to meet water quality standards, as reported in one of the EPA-approved TMDL studies available on the NHDES website. The list of priority beaches is included in Appendix D. Beach TMDLs include the following:

- *Final Report Total Maximum Daily Load (TMDL) Report for 3 Bacteria Impaired Waters in New Hampshire.* NHDES. September 2015.
- *Final Report Total Maximum Daily Load (TMDL) Report for 44 Bacteria Impaired Waters in New Hampshire.* NHDES. September 2013.
- *Final Report Total Maximum Daily Load (TMDL) Report for 58 Bacteria Impaired Waters in New Hampshire*. NHDES. August 2011.
- *Final Report New Hampshire Statewide Total Maximum Daily Load (TMDL) for Bacteria Impaired Waters*. FB Environmental for NHDES. September 2010.
- *Total Maximum Daily Load (TMDL) Study for Bacteria in Mill Pond Town Beach, Washington, NH. NHDES*. September 2006.
- *Total Maximum Daily Load (TMDL) Study for Bacteria in Sand Dam Village Pond Town Beach, Troy, NH*. NHDES. September 2006.
- *Total Maximum Daily Load (TMDL) Study for Bacteria in Hampton/Seabrook Harbor*. NHDES. May 2004.

ESTUARIES

The Great Bay and Hampton-Seabrook estuaries are the largest, distinct estuarine systems in New Hampshire. The Great Bay Estuary begins at the confluence of the Piscataqua River with the Atlantic Ocean and extends to the head-of-tide dams on the Winnicut, Squamscott, Lamprey, Oyster, Bellamy, Cocheco, Salmon Falls and Great Works Rivers. The Great Bay estuary covers approximately 13,440 acres (21 square miles). The Hampton-Seabrook Estuary starts at the confluence of the Hampton River with the Atlantic Ocean and extends to the head-of-tide on the Taylor, Blackwater, Browns and Hampton Falls Rivers. The Hampton-Seabrook Harbor Estuary covers approximately 1,227 acres (1.9 square miles). Other estuaries of importance include Little Bay, Little Harbor and Rye Harbor, as well as portions of their tidal tributaries. Because of their environmental, cultural and economic significance, NHDES has assigned high priority to all of the state's estuaries and their tidal tributaries.

DAMS AND BARRIERS

Under New Hampshire RSA 482:2, II and Env-Wr 101.12, a dam is any artificial barrier that impounds or diverts water and has a height of 6 feet or more, or is located at the outlet of a great pond, or is an artificial barrier which impounds liquid industrial or liquid commercial wastes, or septage or sewage, regardless of height or storage.

New Hampshire has more than 4,800 active and inactive dams in the state and countless unregistered dams and artificial barriers that impede stream flow and fish passage. Many of these barriers no longer provide a valuable function and instead, contribute to water quality or habitat impairments. Selective barrier removal can restore a river to a healthier, free-flowing condition and can remove barrier-related impairments to water quality and habitat.

According to the New Hampshire NPS Management Program Plan, priority dams and barriers identified for removal must meet the following criteria:

1. The structure impounds or diverts water.
2. The waterbody for which it is located must be on New Hampshire's 303(d) list, as impaired for at least one of the following parameters:
   - Chlorophyll-a
   - Dissolved oxygen
   - Cyanobacteria hepatotoxic microcystins.
3. The dam or barrier owner has contacted the NHDES River Restoration Program to express their interest in removal.

Currently, the following dams and barriers, listed in Table 5 below, meet the criteria. As NHDES becomes aware of additional dams or barriers meeting the criteria, this list will be updated.

TABLE 5: PRIORITY DAMS AND BARRIER SITES

Waterbody Name	Waterbody AUID	Municipality
Oyster River - Beards Creek Dam	NHIMP600030902-06	Durham
Oyster River – Mill Pond Dam	NHIMP600030902-04	Durham
Little Hale Pond – Little Hale Dam	NHRIV600030607-20	Durham
Cocheco River – Gonic Dam Pond	NHIMP600030607-02	Rochester
Peverly Brook - Lower Pond Dam	NHIMP600030904-05	Newington
Bellamy River – Sawyers Mills Upper Dam	NHIMP600030903-02	Dover
Souhegan River – Goldman Dam	NHIMP700060906-07	Milford

PRIORITIES FOR PROTECTION ACTIVITIES

New Hampshire does not have a formal list of high-quality waters and, as noted in the EPA National Water Quality Assessment, tends to have better than average water quality when compared to other states in the U.S. Therefore, in the absence of a documented impairment, water quality is assumed to be high and supporting designated uses. In many cases, an Assessment Unit (AU) impaired for one parameter or designated use ranks high for protection consideration and NPS implementation activities due to generally high quality for other parameters or designated uses. This Plan's protection analysis

was completed at the HUC 12 scale by calculating protection scores based upon the ecological, stressor, and social metrics in Table 6.

TABLE 6: PROTECTION METRICS

Ecological Metrics	Stressor Metrics	Social Metrics
Watershed % Natural Cover	Watershed % Impervious Cover	Watershed % Agriculture
Watershed % Forest	Watershed % Developed	Watershed % Pasture
Watershed % Wetlands	Watershed Aquatic Barriers	Watershed-based Plan
Active River Area % Forest	Corridor Road Crossing Density	a-i Watershed-based Plan
Active River Area % Wetlands	Active River Area % Impervious Cover	Jurisdictional Complexity
Active River Area % Natural Cover	Active River Area % Developed	# of Drinking Water Intakes
Watershed % Natural Services Network	Number of 303(d) Listed Causes	Lake Acres Assessed
Stream Order Ratio		Active Local River Advisory Committee

Priority for protection activities is given to those watersheds that have completed, NHDES and EPA-approved (a) through (i) watershed-based plans, or that ranked medium or high priority in the PPST analysis. See Appendix H for the HUC 12 Protection Potential Ranking List.

Priority Watersheds Goal, Objectives and Milestones

Priority Watersheds (PW) Goal. Water quality in priority watersheds is protected and restored.			Schedule				
			2020	2021	2022	2023	2024
Objective	**Milestone**	**Measure of Success**					
Objective PW-1 Grant Funding is awarded to projects with the greatest likelihood for successful restoration or protection activities.	**Milestone PW-1.1** Annual grant solicitation process utilizes watershed prioritization as the basis for funding projects. *Partner: NHDES Water Quality Section*	**Measure PW-1.1** 100% of grants awarded annually are in priority watersheds.					
Objective PW-2 Watershed-based plans are developed and implemented in priority watersheds.	**Milestone PW-2.1** Restoration and protection projects identified in existing watershed-based plans are implemented. *Partners: NHDES, 319 Grantees*	**Measure PW-2.1** Through a competitive grant award process complete 16 restoration and four protection projects by 2024.					

Priority Watersheds (PW) Goal. Water quality in priority watersheds is protected and restored.			Schedule				
			2020	2021	2022	2023	2024
Objective	**Milestone**	**Measure of Success**					
Objective PW-2 (cont.)	**Milestone PW-2.2** New watershed-based plans are developed and existing watershed-based plans are updated, where needed, to comply with EPA's nine minimum elements; (a) through (i), of watershed-based plans, as part of implementation grants. *Partners: NHDES, 319 Grantees*	**Measure PW-2.2** Develop five new or updated watershed-based plans in restoration or protection priority watersheds that meet EPA's nine minimum elements; (a) through (i), of watershed-based plans or alternative watershed-based plans.					
	Milestone PW-2.3 Progress toward implementing watershed-based plans is efficiently tracked, including action item implementation, condition and maintenance surveying of best management practices, and other relevant information. *Partners: NHDES, 319 Grantees*	**Measure PW-2.3a** Five BMP condition assessments per year to determine general conditions of 319 or CWSRF loan-funded BMP installations.					
		Measure PW-2.3b BMP Operation and Maintenance agreements are required of every BMP implementation project and supports follow-up maintenance for 319 funded or CWSRF loan-funded BMPs to improve performance and life expectancy.					

Priority Watersheds (PW) Goal. Water quality in priority watersheds is protected and restored.			Schedule				
			2020	2021	2022	2023	2024
Objective	**Milestone**	**Measure of Success**					
Objective PW-3 Progress toward water quality improvement is quantified.	**Milestone PW 3.1** Watershed-based plan implementation efforts result in measurable water quality benefits. *Partners: NHDES, 319 Grantees, other monitoring programs*	**Measure PW-3.1a** Estimated annual reductions of nitrogen, phosphorus, sediment and other project-relevant parameters as reported annually into GRTS and the NPS Program Annual Report.					
		Measure PW-3.1b The NPS Program Annual Report includes the number of waterbodies where the concentration of NPS pollutants have been reduced.					
	Milestone PW-3.2 Potential assessment unit delisting, partial delisting and implementation projects are tracked so that success stories may be drafted as soon as possible. Partners: *NHDES, 319 Grantees, EPA, volunteer monitoring groups*	**Measure PW-3.2** Confirmation monitoring is completed annually in watersheds where watershed-based plans have been implemented to determine whether de-listing of impairments is warranted.					

Priority Watersheds (PW) Goal. Water quality in priority watersheds is protected and restored.			Schedule				
			2020	2021	2022	2023	2024
Objective	**Milestone**	**Measure of Success**					
Objective PW-3 (cont.)	**Milestone PW-3.3** EPA NPS Success Stories are approved and published on EPA, NHDES and other websites to demonstrate program success for pollutant-based, non-pollutant-based and partial restoration projects. *Partners: NHDES, 319 Grantees, EPA*	**Measure PW-3.3** Two. EPA-approved NPS Success Stories that document fully or partially restored waterbodies.					
	Milestone PW-3.4 NHDES and agency partners establish a permitting process for in-lake treatments to prevent chronic cyanobacteria blooms and remove related impairments by addressing internal loading of phosphorus to lakes and ponds from benthic sediments. In-lake treatments occur once installations of BMPs to control external nutrient loading have achieved sufficient progress toward meeting pollutant load reduction targets established in watershed-based plans. *Partners: NHDES, New Hampshire Fish and Game Department, 319 Grantees, others as identified.*	**Measure PW - 3.4** Successful treatment of a lake or pond using a permitted in-lake treatment to inactivate internal loading of phosphorus from benthic sediment.					

PRIORITY NPS POLLUTANT CATEGORIES

NPS pollutant sources are divided into minor and major categories. Goals, objectives, and measurable annual milestones are included in this plan for each Major NPS Pollutant Category.

MINOR NPS POLLUTANT CATEGORIES

The 2019 update to the Plan was the second time that pollutant categories have been divided into minor and major categories. In the process of updating the 2019 Plan, a pollutant category remained classified as minor if the category continues to not pose a major threat of NPS pollution due to increased regulatory oversight, enforcement, technical or other assistance programs that continue to reduce the water quality threat from these sources.

In order for these categories to remain minor, funding and support of the programs that protect and restore water quality from these pollutant sources must be maintained. A general goal of the New Hampshire NPS Program is to collaborate with and provide support to these programs as appropriate and as needed to continue their effectiveness.

MARINAS AND RECREATIONAL BOATING

BACKGROUND

For the last five years, the number of recreational boats registered in New Hampshire increased each year, from around 92,000 to over 95,000 (Parry, 2019). The environmental impacts associated with boats require continuous attention.

The following programs and methods all work toward minimizing water quality impacts from marinas and recreational boating activities. NHDES Boat Inspection Program, Lakes Management Advisory Committee, On-site Fuel Storage requirements for marinas, New Hampshire Clean Lakes Program, Clean Vessel Act Program, Federal No Discharge Areas for New Hampshire waters, the New Hampshire Department of Transportation (NHDOT) Marine Patrol, New Hampshire Fish and Game Department, U.S. Fish & Wildlife Service, the New Hampshire Marine Trades Association, and others.

Emerging concerns around the effects of recreational boating on lake shorelines have been identified by multiple stakeholders. Legislation is pending to establish a study commission to evaluate the effects of shoreline erosion caused by wake boats. The study commission will develop information to provide a better understanding of shoreline erosion impacts so that approaches can be developed to minimize NPS from this activity.

RESOURCES

- BMPs for New Hampshire Marinas: Guidelines for Environmentally Proactive Marinas
- The Boater's Guide of New Hampshire: A Handbook of Boating Laws and Responsibilities
- Pollution Prevention Marinas Project

- Clean Vessel Act Program Resources/Links
- NH Clean Lakes Program
- RSA 487: Control of Marine Pollution and Aquatic Growth
- NHDES Marinas - Design Standards Env-Wt 402.16
- Env-OR 300 Petroleum Storage Facilities Above Ground (AST)

RESIDUALS MANAGEMENT

BACKGROUND

Septage

Septage is defined as "material removed from septic tanks, cesspools, holding tanks, or other sewage treatment storage units, excluding sewage sludge from public treatment works and industrial waste and any other sludge. New Hampshire generates over 100 million gallons of septage annually for disposal, which is predominately treated at publicly-owned wastewater treatment plants (86%). Other treatment/disposal methods, such as land application (8%), unlined lagoons (4%), and innovative/alternative facilities (2%), comprise the remaining management options. In 2018, land application of septage was reduced to five active sites where just over three million gallons were land-applied. All septage land application sites in the state are regulated and permitted according to the New Hampshire Code of Administrative Rule, Env-Wq 1600: Septage Management.

Biosolids

The State defines biosolids as any sludge derived from a sewage wastewater treatment facility that meets the standards for beneficial reuse specified by NHDES. In response to legislation, NHDES has been collecting sludge samples from New Hampshire wastewater treatment plants, paper mills generating short paper fiber, residual management facilities, and water treatment facilities for chemical analysis since 1999. NHDES is also monitoring and screening for emerging contaminants in biosolids and working to establish screening standards for these contaminants. This legislation requires NHDES to make an annual report to the legislature by November 1 regarding sludge quality for samples collected during the year. These reports show few violations of State standards and that land-applied sludge is generally of acceptable quality. In November 2002, Dr. Thomas Ballestero of the Environmental Research Group at UNH reported to NHDES and the legislature on a statistical evaluation of the chemical quality of biosolid samples collected by NHDES between 1999 and 2001. Specifically, Dr. Ballestero was evaluating compliance with NHDES biosolids standards and the potential that land-applied sludges would violate state standards. His assessment showed that the majority of regulated contaminants were not detected. Further, those contaminants that were detected generally did not exceed standards.

In 2007, House Bill 699 established a commission to study various aspects of septage and sludge management. One of the charges of the commission was to consider the potential health effects of current disposal practices. The commission concluded that with adequate control and monitoring, current disposal practices allow beneficial reuse of sludges as soil conditioner and fertilizer while

adequately protecting public health. The NHDES Residuals Management Program's sludge management rules (Env-Wq 800) were significantly updated in 2016.

RESOURCES

- NHDES Wastewater Engineering Fact Sheets
- RSA 485-A:4, XVI-a, b Water Pollution and Waste Disposal, Duties of Department
- RSA 485-A:6, X-a Water Pollution and Waste Disposal, Rulemaking
- NHDES Groundwater Discharge Permits and Registrations Rules Env-Wq 402
- NHDES Sludge Management Rules Env-Wq 800
- EPA Standards for the Use or Disposal of Sewage Sludge

RESOURCE EXTRACTION

BACKGROUND

Mining activities that can contribute to water quality degradation in New Hampshire include sand and gravel mining and recreational mining for gold. Sand and gravel excavations are governed by RSA 155-E, which includes both "express" standards – operational standards that all excavations must follow – as well as "minimum" standards that certain excavations subject to local permitting must follow. The operational standards address such issues as setbacks from abutters, maintenance of vegetation, drainage, storage of fuels, and setbacks from waterbodies. Reclamation standards require that, within 12 months of the completion of an excavation operation, the area must be reclaimed, with attention paid to reseeding, disposal of debris, grading of slopes and drainage. The law designates the planning board as the local permitting authority, unless the municipality votes to vest such authority in the selectmen or zoning board of adjustment.

Excavations larger than 100,000 square feet, or 50,000 square feet in the protected shoreland, also require an AoT permit from NHDES. AoT permits govern stormwater and the effects of earth disturbance on water quality.

Gold found in stream gravel is known as a placer deposit. Panning and dredging are methods for separating the heavy gold flakes and nuggets from the stream gravels. Panners may not use a shovel to dig into the stream bottom or stream banks. Scooping gravel up with a gold pan is allowed. Mineral seekers in the White Mountain National Forest (WMNF) need to check out WMNF regulations. New Hampshire state lands, such as state parks, geologic and historic sites, etc., have rules regarding mineral collecting. See: Administrative Rule Res 7301.19 – Res 7301.21.

Dredging and the use of sluice boxes involves disturbing the stream sediments, but on a larger scale than panning. Processing stream gravels in search of placer gold releases fine sediments back into the stream. Sediment-laden streams can be an environmental issue. Therefore, certain regulations apply to this activity in New Hampshire. Dredging and similar operations are regulated by the State under statutes RSA 482-A and RSA 485-A:17 because of the potential for environmental damage. Gold seekers who anticipate dredging, or similar work, in New Hampshire are required to obtain a permit.

RESOURCES

- Vegetating New Hampshire Sand and Gravel Pits.
- Local Regulation Excavations (RSA 155-E).
- NHDES Wetlands Program, Dredge and Fill Permit (RSA 482-A, Env-Wt 700).
- NHDES Terrain Alteration (RSA 485-A:17, Env-Wq 1500).
- NHDES Environmental Fact Sheet CO-GEO-1: Gold in New Hampshire.

TIMBER HARVESTING

BACKGROUND

New Hampshire's rural areas and working forests provide the backdrop for recreation and tourism as well as the foundation for the state's $1.4 billion forest products industry. Additionally, $1.4 billion is generated annually as a result of forest-based recreation (NEFA, 2013). In the late 18th century, land clearing for farms and pastures reduced forest cover to about 45% statewide. By 1998, forest cover had rebounded to an estimated 84%. Of this, 94% (4.5 million acres) is classified as timberland, which is land that is currently producing, or capable of producing, wood crops. Seventy-six percent of the timberland in New Hampshire is privately owned. Among other duties, state Forest Rangers within the New Hampshire Department of Cultural Resources, Division of Forests and Lands (NHDFL) are responsible for enforcing laws pertaining to timber harvesting operations. In 2010, NHDFL produced the New Hampshire Statewide Forest Resources Assessment, an update of the 2006 New Hampshire Forest Resources Plan Revision Assessment Report. The NPS Program works with state partners, including NHDFL and the New Hampshire Timberland Owners Association, to support sustainable forest management and practices that protect water quality.

Despite the large percentage of forested land in New Hampshire, timber harvesting operations are considered a minor category because there are no documented water quality impairments caused by timber harvesting. The BMP manuals in place are referenced in the administrative rules for both the Wetlands and Alteration of Terrain (AoT) bureaus.

RESOURCES

- NH Stream Crossing Guidelines
- NHDES Wetlands Rules Env-Wt 100-900
- NHDES Shoreland Protection Rules Env-Wq 1400
- NHDES AoT Rules, Env-Wq 1500
- New Hampshire Office of Professional Licensure and Certification Board of Foresters
- NH Timber Harvesting Council's Professional Loggers Program
- New Hampshire Best Management Practices for Erosion Control on Timber Harvesting Operations
- Best Management Practices for Forestry: Protecting New Hampshire's Water Quality.
- Good Forestry in the Granite State: Recommended Voluntary Forest Management Practices for New Hampshire
- Guide to New Hampshire Timber Harvesting Laws.

MAJOR NPS POLLUTANT CATEGORIES

Major categories of NPS pollution are those sources that cause the most water quality impairments or threaten water quality degradation in high quality watersheds. The priority restoration and protection activities associated with these major categories include technical and financial assistance, planning, and implementation. A detailed description of the pollutant category, measures to control NPS pollution, key programs and partners, goals, objectives, milestones and measures of success are included for each Major NPS Pollutant Category.

Major NPS Pollutant Categories in New Hampshire include:

- Agriculture
- Chlorides and Winter Road Maintenance
- Developed Land
- Hydrologic and Habitat Modification
- Lawns and Turf Grass Management
- Subsurface (Septic) Systems

AGRICULTURE

BACKGROUND

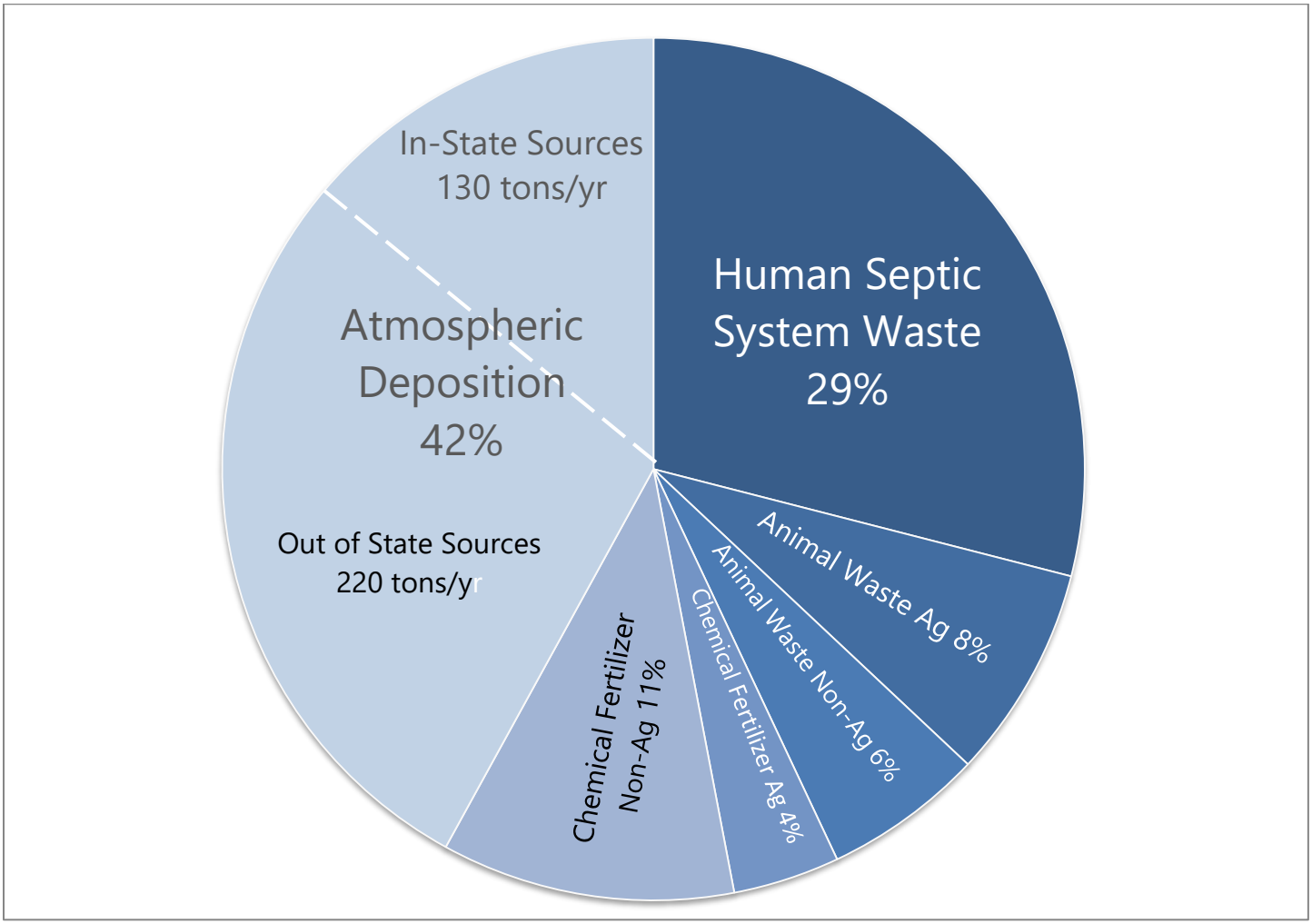
Well-managed agricultural operations are an important part of New Hampshire's working landscape and are integral to maintaining good water quality. In light of changing climate conditions, agriculture best management practices build more resilient farms, help sequester carbon and can save on costs. Agriculture in New Hampshire contributes to the state's economy with farm-related income in 2017 of $29,736,000 (USDA, 2018). Good soil health, use of cover crops, reduced tillage and beneficial use of nutrients, such as those contained in animal manure, are all key components to both healthy water and a healthy agricultural sector.

According to the 2018 New Hampshire cropland data layer (USDA, 2018), 193,914 acres of New Hampshire's land area, or about 3.3%, is used for crops or pasture. Water quality concerns relative to agriculture include nutrients, bacteria, herbicides and pesticides. The 2017 Census of Agriculture (USDA, 2018) counted 48,955 farm acres as being treated with commercial fertilizer, lime and soil conditioners; 24,835 acres treated with manure and 2,599 acres treated with organic fertilizer. The total number of fertilized acres has increased slightly over the past five years.

To understand how agriculture can fit in proportionally with other nonpoint sources, it is helpful to review the Great Bay Nitrogen Nonpoint Source Study (GBNNPSS) report (NHDES, 2014a). The GBNNPSS researched the categories of sources contributing nitrogen to the impaired Great Bay Estuary and determined the contributions of each source category. For agriculture, the study determined fertilizer loading from data available through the US Department of Agriculture, National Agricultural Statistics Service and several other sources. For animal waste, the study analyzed data available from US Census

of Agriculture and the New Hampshire Department of Agriculture Markets and Food (NHDAMF). Figure 3 summarizes the total NPS nitrogen load to the Great Bay estuary.

FIGURE 3: NPS NITROGEN DELIVERED TO GREAT BAY ESTUARY BY SOURCE TYPE (NHDES, 2014A)



The GBNNPSS found that chemical fertilizer on agricultural lands accounts for 58,562 lbs/year, or approximately 4%, of the total NPS nitrogen load. Animal waste from agricultural operations was found to contribute 133,396 lbs/year or about 8% of the total NPS nitrogen load.

The Conservation title of the Agriculture Improvement Act of 2018, aka, 2018 Farm Bill, is implemented by NRCS, which provides assistance to agricultural producers and landowners to adopt conservation activities on agricultural and forest lands to protect and improve water quality and quantity, soil health, wildlife habitat and air quality. Financial assistance for approved conservation practices is provided through the Environmental Quality Incentives Program (EQIP) and the Conservation Stewardship Program, while land is protected via easements with the Agriculture Conservation Easement Program. Several agronomic best management practices, such as cover crops, reduced till, no-till, nutrient

management, manure storage, rotational grazing and riparian buffers provide water quality benefits by reducing sedimentation and excess nutrients to surface and ground water resources. Results from the 2017 Census of Agriculture show a five-year increase of around 69% for cropland under no-till or reduced tillage practices and an increase of approximately 66% in acreage planted to a cover crop (USDA 2018).

As part of the 2018 Farm Bill, NRCS New Hampshire is developing many partnerships and training events to help farmers understand the benefits of implementing conservation practices on their farms. A major challenge in New Hampshire is the lack of Certified Crop Advisors or similar agricultural professionals who are qualified to provide technical assistance to private famers via the Technical Service Provider program. This program provides funds for farmers to hire private consultants to help plan and implement practices on their farms. To help meet this need, three individuals were trained in nutrient management planning in 2016 with the help of the New Hampshire Association of Conservation Districts, NRCS New Hampshire and a Watershed Assistance Grant. In 2018, two more individuals began training in grazing, nutrient management and transition to organic planning. To further improve the technical delivery to private landowners, NRCS New Hampshire, along with UNH Cooperative Extension, Conservation Districts and producer groups, provide a number of trainings to staff, partners and landowners on a variety of topics each year. Specifically, nutrient management, working effectively with organic producers, grazing school, cover cropping and reduced till are some of the topics commonly covered that can help to reduce nonpoint source pollution from farming activities. Under the new Farm Bill, NRCS New Hampshire will also be required to prioritize EQIP applications in source water protection areas and is required to spend at least 10% of the annual allocation on projects that benefit water quality within source water protection areas. NHDES has provided NRCS New Hampshire with GIS information to help prioritize this effort.

NWQI was established in 2012 as a cooperative effort between NRCS, state water quality agencies and the Environmental Protection Agency (EPA) to address agricultural sources, primarily nutrients and sediments, of water pollution in jointly agreed upon priority watersheds. NHDES will work with NRCS New Hampshire to develop watershed assessments or plans and provide in-stream water quality monitoring assistance to track progress in meeting water quality goals through land protection efforts and agricultural BMPs.

The NHDAMF Manual of Best Management Practices (BMPs) for Agriculture in New Hampshire provides agronomic/vegetative and structural practices that allow for economically viable production while achieving the least possible negative impact on the environment, including water quality. The BMPs also decrease possible negative impacts on human, animal and plant health. To help operators with BMP compliance, NHDAMF offers financial assistance through the Agricultural Nutrient Management Grant Program.

The New Hampshire Fertilizer Law, RSA 431, is administered by the Commissioner of NHDAMF. State law requires NHDAMF to investigate complaints of improper handling of manure, agricultural compost and chemical fertilizer. Where improper management is found, NHDAMF is required to provide notice in

writing explaining the specific actions needed to conform with best management practices. If compliance is not met, the local health officer and NHDES shall be notified to take such action as their authority permits.

In 2019, NHDAMF published Best Management Wetlands Practices (BMWPs) for Agriculture as a reference and planning tool for reducing erosion and sedimentation affecting wetlands. The BMWPs are referenced in the NHDES revised Wetlands Rules (Env-Wt) adopted in June, 2019 and effective December 15, 2019.

The NHDAMF, Division of Pesticide Control, in cooperation with federal agencies, works to ensure the safe and proper use of pesticides by enforcing federal and state pesticide laws and regulations impacting the sale, storage and application of all registered pesticides, examining and licensing pesticide dealers and users, and registering pesticides sold and used within the state. In carrying out certain provisions of the federal pesticide program. NHDAMF maintains a federally approved state plan for certification of commercial and private pesticide applicators. The Rules of the New Hampshire Pesticide Control Board require licensing of all commercial and private pesticide applicators as well as pesticide dealers through an examination and recertification process every five years.

Integrated pest management (IPM) combines the use of biological, cultural, physical and chemical tactics in ways that reduce economic, health and environmental risks when controlling pests. New Hampshire's IPM Program is a tool to promote, through education and training, a sustainable approach to managing pests and "to bring about the broadest possible application of the principles of integrated pest management to agriculture, horticulture, arboriculture, landscape and building maintenance, and any other areas in which economic poisons are employed."(RSA 430:50) In 2015, the New Hampshire Legislature increased the percentage of pesticide registration fees that are deposited into the IPM fund from ten to 25%. These sums of money are used to support New Hampshire's IPM Program, including the awarding of IPM grants.

EPA is the permitting authority for concentrated animal feeding operations (CAFOs) in New Hampshire. Once permitted, a CAFO is legally no longer designated as a nonpoint source and becomes regulated under the NPDES program. On December 21, 2018, EPA permitted the first CAFO in New Hampshire, the Forbes Farm Partnership, Inc., located in Lancaster, NH and Guildhall, VT.

Agricultural easements are an important tool for land conservation and the long-term sustainability of agriculture in New Hampshire. There are many programs and land trusts that develop and fund conservation easements, resulting in conservation of farmland in perpetuity. Given the diversity of land conservation programs, it is important to maintain flexibility when adopting conservation easements in order to conserve natural resources as well as meet the needs of current and future farmers.

Improving soil health and protecting water quality are critical to the well-being of both New Hampshire residents and visitors alike. By encouraging agricultural land easements, the development of nutrient management plans, integrated pest management practices, agriculture BMPs and the installation of

riparian buffers to protect water quality, NHDES and its partners will help ensure the viability of a healthy agriculture sector long into the future.

RESOURCES

- Manual of Best Management Practices (BMPs) for Agriculture in New Hampshire
- BMPs for Agriculture
- New Hampshire Pesticide Laws and Administrative Rules (RSA 430 and Pes 100 – 1100)
- USDA Natural Resources Conservation Service

AGRICULTURE GOAL, OBJECTIVES AND MILESTONES

Agriculture (A) Goal. Agricultural land is well managed and demonstrated to be a water quality asset with local agricultural commissions, conservation commissions, regional planning commissions and others working on land use issues.			**Schedule**				
			2020	**2021**	**2022**	**2023**	**2024**
Objective	**Milestone**	**Measure of Success**					
Objective A-1 Foster good agricultural management through education, training and certification programs.	**Milestone A-1.1** Promote nutrient management planning by providing comprehensive nutrient management training. *Partners: Conservation Districts, NRCS, NHDAMF, UNH Cooperative Extension, other partners*	**Measure A-1.1** Training seminar held and technical service providers certified and re-certified.					
	Milestone A-1.2 Promote agriculture BMPs, including wetlands BMPs, through training workshops on BMPs for Agriculture, 2019 Wetland Rules, and 2019 BMWPs for Agriculture. *Partners: NHDAMF, NRCS, UNH Cooperative Extension*	**Measure A-1.2** Two training workshops held.					
	Milestone A-1.3 Continue to support education and technical assistance to agriculture operations, including small scale farmers to promote conservation and improve soil health. *Partners: NHACD, NHDAMF, NRCS, UNH Cooperative Extension*	**Measure A-1.3** Outreach and technical assistance is provided and partners are engaged through one event each year.					

Agriculture (A) Goal. Agricultural land is well managed and demonstrated to be a water quality asset with local agricultural commissions, conservation commissions, regional planning commissions and others working on land use issues.			**Schedule**				
			2020	**2021**	**2022**	**2023**	**2024**
Objective	**Milestone**	**Measure of Success**					
Objective A-2 Implementation of agricultural best management practices.	**Milestone A-2.1** Promote buffers on agricultural lands, including working buffers. *Partners: Conservation Districts, NRCS, UNH Cooperative Extension*	**Measure A-2.1** Riparian buffers installed on 25 properties encompassing 50 acres.					
	Milestone A-2.2 Increase the number of farms with nutrient management plans. *Partners: Conservation Districts, NHDAMF, UNH Cooperative Extension*	**Measure A-2.2** 15 new farms have nutrient management plans.					
	Milestone A-2.3 Encourage IPM practices *Partners: NHACD, NHDAMF, NRCS, UNH Cooperative Extension*	**Measure A-2.3** Establish an IPM workgroup and identify opportunities for advancing IPM in New Hampshire					
Objective A-3 Support conservation easements for Agriculture.	**Milestone A-3.1** Promote farms or farmland parcels under agricultural easements. *Partners: Land and Community Heritage Investment Program (LCHIP), NHDAMF, NH Farm Bureau, NRCS*	**Measure A-2.4** 25 new Agricultural Land Easements (ALE) and Wetland Reserve Easements (WRE) encompassing 5,000 acres.					

Agriculture (A) Goal. Agricultural land is well managed and demonstrated to be a water quality asset with local agricultural commissions, conservation commissions, regional planning commissions and others working on land use issues.			**Schedule**				
			2020	**2021**	**2022**	**2023**	**2024**
Objective	**Milestone**	**Measure of Success**					
Objective A-4 Maximize funding opportunities through partnerships with USDA and local stakeholders to make the best use of available resources to address NPS pollution.	**Milestone A-4.1** Identify barriers and opportunities for leveraging resources to protect and improve water quality in New Hampshire as it relates to agricultural activities. *Partners: State Technical Committee Members*	**Measure A-4.1** Five presentations at State Technical Committee meetings.					
	Milestone A-4.2 Work with NRCS to develop an approved watershed assessment/management plan and provide monitoring support to measure effectiveness of BMPs and conservation efforts within one NWQI priority watershed. *Partners: NRCS, watershed coalitions, conservancies, and commissions.*	**Measure A-4.2** One (a) through (i) watershed-based plan, or alternative watershed-based plan will be developed in a priority watershed, as defined by NWQI.					

CHLORIDES AND WINTER ROAD MAINTENANCE

BACKGROUND

Chloride impairment is a statewide issue. As of 2018, there are currently 48 known chloride-impaired waterbodies across New Hampshire, mostly concentrated in the southeastern region. In several watersheds analyzed in the southern I-93 corridor, more than 50% of the road salt load comes from private roads and parking lots. The other major sources are state and local roads and highways. To address this issue and to reduce the amount of road salt and chloride entering waterbodies, NHDES and affected communities have developed multi-year chloride reduction plans and employed BMPs to improve efficiency in road salt use such that the least amount of road salt is used to ensure safe conditions on surfaces traveled by pedestrians and vehicles in winter conditions.

Guided by RSA 489-C, NHDES began the Green SnowPro Program in November 2013. New Hampshire Certified Green SnowPros are leaders in the snow removal industry who are trained in the most up-to-date technologies and snow management practices. This ensures a high level of service and safety to their customers while improving water quality. The three goals of the program are to improve efficiency in salt use, such that the least amount of salt is used to ensure safe conditions on surfaces traveled by pedestrians and vehicles in winter conditions; reduce the amount of salt used by commercial applicators, as measured in tons of salt per acre, per year, over time while maintaining safe conditions for pedestrians and vehicles in winter conditions; and establish a voluntary system for commercial salt applicators to track their salt use and provide information annually to the salt accounting system.

The program has expanded since its inception in 2013 and has gained traction with applicators, and the legal and insurance communities. Since its inception in 2013, NHDES and UNH's T^2 Center have hosted approximately 45 Green SnowPro Initial Trainings and 20 Green SnowPro Refresher Trainings. In 2017, a new course was introduced, The Power of Salt Brine, which has been presented five times. The increase in projected attendance in the coming years has NHDES hosting monthly trainings, moving forward. On June 1, 2018, the New Hampshire Code of Administrative Rules (Env-Wq 2200) was enacted and added new and revised language to the original rules. One of the most significant changes was the Incorporation of a fee-funded program. This fee structure will provide NHDES the capacity to better provide resources and guidance to the New Hampshire communities and certified salt applicators; the ultimate goal being the reduction of chloride while maintaining safe conditions on roadways, parking lots and sidewalks.

To date, the program has issued over 1,200 certifications to applicators across New Hampshire. NHDES saw an influx of applications in the 2017-2018 season, which required new resources and fine tuning of processes to accommodate the increase in volume. NHDES anticipates the number of certified applicators to continue to grow over the next several years.

Future initiatives include enhanced tracking capabilities, the creation of a reportable database, expanded legislation to recognize municipal participation, and added marketing and outreach of the program to existing and new markets.

In compliance with the provisions of the CWA and in accordance with the NPDES General Permit for Stormwater Discharges from MS4, several New Hampshire communities are required to administer the requirements pertaining to chloride contained within the permit. The permittee shall develop,

implement and enforce a written Stormwater Management Plan (SWMP). The SWMP is the document used by the permittee to describe the activities and measures that will be implemented to meet the terms and conditions of the permit. Four New Hampshire communities are subject to an approved TMDL for chlorides. These permittees have two options in order to comply with the permit:

1. Develop a Chloride Reduction Plan that includes specific actions designed to achieve chloride reduction on municipal roads and facilities, and on private facilities that drain to the MS4; or,
2. Work with NHDES to develop an Alternative Chloride Reduction Plan consistent with the applicable TMDL.

In addition, there are an additional 16 communities that have discharges to water quality limited impaired waterbodies where chloride is the cause of the impairment. These permittees must identify and implement BMPs designed to reduce chloride discharges in the impaired catchment(s). To address chloride discharges they must comply with the requirements outlined in the permit.

RESOURCES

- Salt Applicator Certification Option (RSA 489-C)
- NHDOT Salt Reduction Plan for I-93
- NHDES Road Salt Reduction Program
- UNH T^2 Green SnowPro Trainings
- NHDES Green SnowPro Trainings
- Training Materials for Best Management Practices for Winter Road, Parking Lot, and Sidewalk Maintenance
- NHDES fact sheet WD-DWGB-22-30 Storage and Management of Deicing Materials
- Final 2017 New Hampshire Small MS4 General Permit

CHLORIDES AND WINTER ROAD MAINTENANCE GOAL, OBJECTIVES AND MILESTONES

Chlorides & Winter Road Maintenance (C) Goal. Reduce salt loading while maintaining the current level of services on public and private roads, driveways, sidewalks and parking lots.			**Schedule**				
			2020	**2021**	**2022**	**2023**	**2024**
Objective	**Milestone**	**Measure of Success**					
Objective C-1 New Hampshire commercial salt applicators are trained in winter road maintenance BMPs.	**Milestone C-1.1** Voluntary commercial salt applicators are trained in winter maintenance BMPs each year. *Partners: NHDES, UNH Technology Transfer Center*	**Measure C-1.1a** 500 new, voluntary, commercial salt applicators complete Green Snow Pro certification training within five years.					
	Milestone C-1.2 Commercial salt applicators demonstrate proficiency in and use of salt reduction BMPs through participation in voluntary BMP performance inspections and reporting. *Partners: NHDES, UNH Technology Transfer Center, Green SnowPro certified applicators*	**Measure C-1.2b** Pilot project developed to test voluntary BMP performance reporting tool(s) and/or inspection protocols to demonstrate adherence to BMPs and snow and ice management improvement efficiencies resulting in reduced volumes of salt applied annually.					
Objective C-2 Increased understanding of the amount of road salt applied in New Hampshire.	**Milestone C-2.1** Increase the number of voluntary commercial salt applicators using the online salt accounting database by 2024. *Partners: UNH Technology Transfer Center*	**Measure C-2.1a** Reporting and recertification reminders sent annually.					
		Measure C-2.1b 80% of voluntary commercial salt applicators submit salt usage annual reports using the UNH online accounting database.					

Chlorides & Winter Road Maintenance (C) Goal. Reduce salt loading while maintaining the current level of services on public and private roads, driveways, sidewalks and parking lots.			**Schedule**				
			2020	**2021**	**2022**	**2023**	**2024**
Objective	**Milestone**	**Measure of Success**					
Objective C-2 (cont.)	**Milestone C-2.2** Analyze salt use/salt loading data received from NHDOT and I-93 corridor municipalities and compare to TMDL sector allocation, adjusted for weather severity. *Partners: UNH Technology Transfer Program, NHDOT, I-93 Salt Reduction Work Group*	**Measure C-2.2a** 80% of municipal salt applicators submit salt usage annual reports using the UNH online accounting database.					
		Measure C-2.2b Complete report of salt use data annually.					
Objective C-3 Identify priority watersheds for chloride impairments.	**Milestone C-3** Develop and incorporate priority list of salt reduction watersheds in NPS Management Program Plan by reference. *Partners: NHDES Water Quality Section*	**Measure C-3** Develop priority list of salt reduction watersheds.					
Objective C-4 Educate Small MS4 communities and enable them to implement salt reduction BMPs.	**Milestone C-4** Work with Small MS4 communities and assist with addressing chloride impairments, salt reduction and BMPs.	**Measure C-4** Provide guidance and templates to the Small MS4 communities through the New Hampshire Stormwater Coalitions.					
Objective C-5 Establish a voluntary municipal salt applicator program.	**Milestone C-5** Create a voluntary municipal salt applicator program for New Hampshire municipalities and other governmental organizations that models the voluntary commercial salt applicator program. *Partners: NHDES, UNH Technology Transfer Center and municipalities*	**Measure C-5a** Create enabling legislation to implement the voluntary municipal salt applicator program in New Hampshire.					

Chlorides & Winter Road Maintenance (C) Goal. Reduce salt loading while maintaining the current level of services on public and private roads, driveways, sidewalks and parking lots.			Schedule				
			2020	2021	2022	2023	2024
Objective	**Milestone**	**Measure of Success**					
Objective C-5 (cont.)	**Milestone C-5** (cont.)	**Measure C-5b** Create rules and adopt in statute to implement the voluntary municipal salt applicator program.					
		Measure C-5c Promote the voluntary municipal salt applicator program.					
		Measure C-5d 50 new voluntary municipal salt applicators complete Green Snow Pro certification training within three years.					

DEVELOPED LAND

BACKGROUND

According to the 2018 Draft Surface Water Quality Assessment and Listing Methodology (CALM) completed by NHDES, stormwater runoff from developed lands (for instance, cities, residential neighborhoods and other developed areas) contributes to approximately 90% of the water pollution problems in New Hampshire (NHDES, 2019a). Pollutants are carried by stormwater and are a major concern for water quality. For example, the Great Bay Nitrogen Nonpoint Source Study (NHDES, 2014a) reports that stormwater runoff delivers 34% of the nitrogen load to Great Bay. Without adequately addressing the existing problems associated with stormwater runoff across the state, additional degradation of the state's water resources is likely.

New Hampshire's population is continuing to grow. The Southern New Hampshire Regional Planning Commission (SNHRPC) estimates that the population in their region, which includes the city of Manchester and 13 surrounding communities, will grow by over 45,000 residents by 2035 (SNHRPC, draft 2014). This increase in growth brings pressure to expand and improve housing, roads and services, and inevitably increases impervious surfaces that prevent stormwater runoff from soaking into the ground. The total New Hampshire state population is projected to be 1,432,730 in 2040, which is an increase of 116,260 or 8.8% from the 2010 documented Census population (NHRPC, 2016). In 2013, the UNH Survey Center conducted a survey for New Hampshire's nine Regional Planning Commissions (Granite State Future, 2013). One of the key findings was that residents believed that environmental protection and natural resource protection are a top priority for investing public dollars. Responses from the Southern Region were largely representative to those respondents statewide.

New Hampshire's population continues to grow and impervious surfaces are increasing. In the Piscataqua Region watershed, for example, impervious surfaces have increased to 46,634 acres in 2015 (5.6% of the land area) compared to 45,377 acres in 2010. Population increased by 6% in the watershed while impervious surfaces increased by 2.7% between 2010 and 2015 (PREP, 2018). For every additional person in the watershed, impervious surfaces increased 0.06 acres, however, impervious surfaces are not increasing uniformly across the state. Statewide, land consumption, as measured by urbanized acres per capita, increased from 0.24 to 0.31, for an increase of 29% during the 1990-2010 time period (Granite State Future, 2013).

As New Hampshire communities accommodate this growth, the challenge of climate change impacts compound problems caused by increased imperviousness. In southern New Hampshire, precipitation has already increased 12-20% since 1970 and is expected to increase by an additional 15-20% by 2100. Extreme precipitation events have increased dramatically and are expected to double by 2050. The growing season has lengthened by two to four weeks, on average, and may get even longer (Wake, et al., 2014).

Addressing stormwater runoff from developed lands requires a mix of regulatory and voluntary programs. At the State level, the AoT Program specifies procedures and criteria to protect surface water

quality by controlling soil erosion, and managing, treating and recharging stormwater runoff from development activities. In 2013, NHDES completed an analysis of 10 (four new-development and six redevelopment) approved AoT projects in impaired watersheds using the Simple Method (NHDES, 2008b) to compare pre- and post-construction pollutant loading estimates under the permitted conditions and under an alternate condition using enhanced treatment. Summary observations include:

1. Pollutant loading estimates of new development projects, as permitted, showed an increase in total suspended solids (TSS), total phosphorus (TP) and total nitrogen (TN). While some new development projects had reductions in TSS as permitted, every new development project had an estimated increase in nutrient loading in the permitted condition. A summary of the estimated percent increase in pollutant load, and the highest increase at a single site, is summarized in Table 7.

TABLE 7: SUMMARY OF POLLUTANT LOADING ESTIMATES FOR NEW DEVELOPMENT PROJECTS

PARAMETER	ESTIMATED % INCREASE IN POLLUTANT LOAD	HIGHEST ESTIMATED INCREASE IN LOADING AT SINGLE SITE (POUNDS/YEAR)
TSS	26-70%	9,400
TP	22-440%	108
TN	22-115%	416

2. Even with enhanced treatment using best management practices with the highest pollutant removal efficiencies, two out of four new development projects resulted in increases in nutrient loading.
3. Redevelopment projects more easily achieved reductions in pollutant loading compared to new development, with four of the six redevelopment projects achieving reductions in TSS, TP and TN, as permitted. However, substantial additional reductions were estimated for additional treatment and enhanced treatment for redevelopment projects.

It is important to note that pollutant loading models provide relative estimates with varying degrees of accuracy. The results of this modeling exercise serve to inform the discussion on potential ways to strengthen the AoT Program and assure that stormwater runoff from new and redevelopment projects in New Hampshire is managed in a way that is protective of water quality.

While large-scale new and redevelopment projects are permitted at the state level, smaller disturbances, such as individual lots and small subdivisions, are regulated at the local level. Each municipality has its own set of regulations, procedures and criteria with regard to development and managing stormwater runoff from developed sites. This lack of uniformity in the regulation of stormwater runoff at the municipal level poses challenges for developers and contractors. In an attempt to increase uniformity, in 2008, NHDES and the Regional Planning Commissions created the Innovative Land Use Planning

Techniques: A Handbook for Sustainable Development, which includes, among other techniques, a model ordinance for post-construction stormwater management.

Further encouraging regional approaches to local solutions, New Hampshire legislators passed enabling legislation in 2009 to create the Southeast Watershed Alliance (SWA) to provide a framework for watershed communities to work together to protect and restore their water resources. The SWA encompasses all 42 upstream and downstream communities in the New Hampshire coastal watershed and ten Maine coastal communities located within the Piscataqua and Salmon Falls River watersheds. In 2012, the SWA created the Model Stormwater Standards for Coastal Watershed Communities to again increase uniformity in managing stormwater in coastal communities. As of July 2017, in the 42 New Hampshire municipalities, eight communities have adopted the complete set of stormwater standards; seven communities are in the process of adoption; five communities have partial or a different set of standards; and 22 communities have not adopted standards. Ten neighboring Maine communities are required to adhere to state-level stormwater management regulations. Zero communities have adopted a stormwater utility (PREP, 2018).

Municipalities statewide are under increasing pressure to address water quality issues caused by stormwater runoff, primarily through MS4 general permits administered by EPA under the National Pollutant Discharge Elimination System (NPDES). In New Hampshire, there are three Small MS4 general permits: 1) traditional cities and towns, 2) state, federal, county and other publicly owned properties (non-traditional) and, 3) "State transportation agency (NHDOT)." EPA is the permitting authority for New Hampshire. NHDES provides technical assistance to the Small MS4 entities in complying with the permit requirements and works collaboratively with these communities and non-traditionals to address their needs. Three stormwater coalitions have been formed in New Hampshire and encompass the region of the designated Small MS4 areas, which include southern and southeastern New Hampshire. The following New Hampshire stormwater coalitions are active and meet on a monthly basis: 1) Manchester Stormwater Coalition, 2) Nashua Stormwater Coalition and, 3) Seacoast Stormwater Coalition. Requirements are being met through these collaborative efforts and provide a more efficient and holistic means of addressing New Hampshire's water quality issues.

Addressing the Small MS4 requirements, and other stormwater related issues associated with land development, is financially challenging for communities. The NHDES CWSRF loan program offers low interest loans and Principal Forgiveness for projects relating to stormwater and nonpoint source issues. The CWSRF is a federal-state partnership that provides communities with low-cost financing for a wide range of water quality infrastructure projects.

While specific activities required by MS4 permits are outside the scope of Section 319 funds, regulatory pressure may eventually drive stormwater utility development in New Hampshire, as it has where EPA's proposed use of Residual Designation Authority under the MS4 program resulted in stormwater utilities in cities and towns in Maine, Massachusetts and Vermont. Stormwater utilities would provide a means to collect fees from residents and businesses and used for stormwater resource improvements and implementation of BMPs. Stormwater utilities could provide resources to address the significant

stormwater infrastructure needs documented in the Clean Watershed Needs Survey. This survey, completed in 2012, estimated the cost of managing effective municipal stormwater programs in New Hampshire to be over $272 million (USEPA, 2012). The documented needs occur both in regulated MS4 areas and outside of MS4 areas.

Funding municipal stormwater infrastructure has been an ongoing challenge in New Hampshire. Stormwater competes for funding with services like schools, fire and police, and drinking water. Across the country and in surrounding states, stormwater utilities are increasingly becoming a resource to assist municipalities with meeting costs to manage effective stormwater programs. Despite several attempts to engage municipalities in exploring different stormwater funding mechanisms, no stormwater utilities have been adopted in New Hampshire. Assistance efforts include:

- In 2008 and 2009, the NHDES Watershed Assistance Grants Program provided funding for studies in Manchester, Dover, Portsmouth and Nashua to determine the feasibility of stormwater utilities as a funding source for their municipal stormwater programs. The results of the studies have provided some important background information and lessons learned.
- In 2008, RSA 149-I was adopted to enable municipalities to create municipal stormwater utilities.
- In 2010, the New Hampshire Legislative Committee to Study Issues Related to Stormwater recommended using "stormwater utilities as a means of providing the revenues, as well as the incentives needed to facilitate implementation of stormwater management programs statewide." (HB1295, 2010)
- In 2017, EPA Region 1, UNH Stormwater Center, NHDES, and other partners hosted the New England Stormwater Finance Forum at UNH, Durham, NH.
- NHDES, EPA Region 1, UNH Stormwater Center, New Hampshire Stormwater Coalitions (Manchester & Nashua Regional and Seacoast Stormwater Coalitions), and Great Bay National Research Reserve hosted and/or promoted several stormwater utility related workshops, presentations and webinars.

Moving forward, it has also been recognized how changing precipitation patterns and coastal flooding are causing additional stress on stormwater infrastructure for New Hampshire municipalities. In 2019, the NHDES Coastal Program was awarded a NOAA Coastal Fellow and Project of Special Merit funding to help identify a funding mechanism to address more resilient stormwater infrastructure needs. The project title*, Keeping New Hampshire Coast Afloat: Creative Financing and Policy Making for Resilient Coastal Communities*, will include materials research, stakeholders' assessments, collaborative policy analysis, local project support and workshops related to supporting stormwater and resilience fees. WAS staff will be working closely with the Coastal Program to implement this effort.

In 2012, WAS initiated the Soak Up the Rain New Hampshire (SOAKNH) program, with the goal of reducing stormwater runoff and associated pollutants from residential and small business properties. The program is based on the NHDES 2012 publication *New Hampshire Homeowner's Guide to Stormwater Management Do-It-Yourself Stormwater Solutions for Your Home* which will be updated in 2020 (NHDES, 2016). This statewide, voluntary program, works through outreach and education, technical assistance, and capacity- and partnership building. To date the program has:

- Presented to more than 30 different groups such as watershed/lake associations and at events and conferences.
- Formed more than 20 partnerships with various levels of involvement.
- Assisted in installing 27 residential BMPs, including 13 rain gardens, which capture more than 805,000 gallons of runoff per year.

WAS has been working, and will continue to work, collaboratively and holistically with partners to manage stormwater from newly developed and redeveloped properties. These measures include education and outreach, training opportunities, social media resources, source controls, design techniques, structural practices and construction practices designed to minimize adverse hydrologic and water quality impacts to New Hampshire's landscapes.

RESOURCES

- New Hampshire Alteration of Terrain Permit Program (RSA 485-A:17)
- New Hampshire Alteration of Terrain Permit Program (Env-Wq 1500)
- EPA National Pollutant Discharge Elimination System Programs
- New Hampshire Rivers Management and Protection Program
- New Hampshire 401 Water Quality Certification
- Soak Up the Rain New Hampshire
- New Hampshire Stormwater Coalitions
- New Hampshire Stormwater Manual
- Innovative Land Use Planning Techniques: A Handbook for Sustainable Development (WD-08-19) Section 2.1 Permanent (Post-Construction) Stormwater Management
- Model Stormwater Standards for Coastal Watershed Communities
- Model Stormwater Standards for Coastal Watershed Communities, 2017
- New Hampshire Small MS4 General Permit

DEVELOPED LAND GOAL, OBJECTIVES AND MILESTONES

Developed Land (DL) Goal. Runoff from developed lands is managed in such a way that water quality is not degraded.			Schedule				
			2020	2021	2022	2023	2024
Objective	**Milestone**	**Measure of Success**					
Objective DL-1 NPS Program partners understand the costs associated with managing stormwater from developed lands.	**Milestone DL-1.1** The need for sustainable funding of equitable stormwater programs is understood and supported. *Partners: NHDES, Legislators, municipalities, New Hampshire Municipal Association, New Hampshire Stormwater Coalitions, NHDES Coastal Program, UNH Stormwater Center and Piscataqua Region Estuaries Partnership*	**Measure DL-1.1** Work with NOAA Fellow to convene steering committee to conduct surveys and research regarding the formation of a stormwater utility. Hold stormwater funding roundtables, including steering committee members and stakeholders. Report on progress annually.					
	Milestone DL-1.2 Federal, state and local decision makers understand New Hampshire's stormwater capital needs and associated costs, and identify potential funding sources. *Partners: NHDES, municipalities, New Hampshire Stormwater Coalitions*	**Measure DL-1.2** Identify potential funding sources as they become available and provide announcements to municipalities regarding viable sources.					
	Milestone DL-1.3 The CWSRF Asset Management loans with Principal Forgiveness are used for the development of an Asset Management Program for municipalities. *Partners: NHDES, municipalities, New Hampshire Stormwater Coalitions*	**Measure DL-1.3** At least four CWSRF Asset Management loans are awarded to New Hampshire municipalities specific to stormwater assets.					

Developed Land (DL) Goal. Runoff from developed lands is managed in such a way that water quality is not degraded.			Schedule				
			2020	2021	2022	2023	2024
Objective	**Milestone**	**Measure of Success**					
Objective DL-2 NPS Program partners have access to an array of funding opportunities to implement stormwater-related projects.	**Milestone DL-2.1** The 604(b) Planning Grants are used for NPS and stormwater-related planning projects. *Partners: NHDES, Regional Planning Commissions*	**Measure DL-2.1** At least one 604(b) grant is awarded to NPS and stormwater-related planning projects every year.					
	Milestone DL-2.2 Municipalities pursue the development of individual or regional stormwater utilities in New Hampshire to provide adequate, diverse and sustainable funding of equitable stormwater programs. *Partners: NHDES, legislators, municipalities, New Hampshire Stormwater Coalitions, NHDES Coastal Program, UNH Stormwater Center*	**Measure DL-2.2** Provide assistance to municipalities to complete at least one new stormwater utility feasibility study.					
	Milestone DL-2.3 The CWSRF is used to fund NPS and stormwater projects in New Hampshire. *Partners: NHDES CWSRF Program, New Hampshire municipalities, New Hampshire Stormwater Coalitions*	**Measure DL-2.3a** Meet at least once annually with the NHDES Grants Management Section to identify barriers of the CWSRF funds, and work creatively to increase opportunities for stormwater and nonpoint source projects.					
		Measure DL-2.3b Annual announcement made to New Hampshire Stormwater Coalitions and other New Hampshire municipalities to promote stormwater projects for CWSRF applications.					

Developed Land (DL) Goal. Runoff from developed lands is managed in such a way that water quality is not degraded.			Schedule				
			2020	2021	2022	2023	2024
Objective	**Milestone**	**Measure of Success**					
Objective DL-2 (cont.)	**Milestone DL-2.3** (cont.)	**Measure DL-2.3c** Priority NPS and stormwater, stormwater asset management, stormwater planning and stormwater resiliency planning CWSRF projects are awarded loans.					
	Milestone DL-2.4 EPA 319 grants are used for nonpoint source and stormwater projects that protect or restore water quality in New Hampshire. *Partners: New Hampshire municipalities, regional planning commissions, nonprofit organizations, county conservation districts, state agencies, watershed associations, water suppliers, LACs*	**Measure DL-2.4** At least three priority NPS and stormwater projects that protect or restore water quality are awarded grants every year.					
Objective DL-3 State and local regulatory programs are more fully protective of water quality and minimize the stormwater impacts from developed lands.	**Milestone DL-3.1** Determine whether changes are needed to the AoT Rules (Env-Wq 1500) for the 2017 rules re-adoption to improve water quality protection and climate change preparedness. *Partners: NHDES, NHDES AoT Bureau , New Hampshire Chapter of American Council of Engineering Companies, UNH Stormwater Center*	**Measure DL-3.1** Determination of need for AoT rules containing NPS recommendations, including whether the 1-hour or 10-hour storms should be addressed in design criteria to prevent erosion from more intense, shorter duration storm events.					

Developed Land (DL) Goal. Runoff from developed lands is managed in such a way that water quality is not degraded.			Schedule				
			2020	2021	2022	2023	2024
Objective	**Milestone**	**Measure of Success**					
Objective DL-3 (cont.)	**Milestone DL-3.2** Work with the AoT Bureau to draft redevelopment rules using the Southeast Watershed Alliance's 3-phase criteria as a model. *Partners: NHDES, NHDES AoT Bureau, Southeast Watershed Alliance, UNH Stormwater Center*	**Measure DL-3.2** Progress toward completion of AoT redevelopment rules.					
	Milestone DL-3.3 Update and promote Post Construction Stormwater Management Standards for Site Plan Review Regulations *Partners: Regional Planning Commissions, NHDES AoT Bureau, UNH Stormwater Center, Southeast Watershed Alliance*	**Measure DL-3.3** Document updated and published.					
Objective DL-4 Professional engineers, state and local regulators, and regulated entities have an improved understanding of how stormwater BMPs function and perform over the long term.	**Milestone DL-4.1** Research and determine the appropriateness of using continuous simulation precipitation modeling, as opposed to event-based modeling, to design stormwater practices. *Partners: NHDES AoT Bureau, New Hampshire Municipal Association members, New Hampshire Chapter of American Council of Engineering Companies, UNH Stormwater Center*	**Measure DL-4.1** Concept memo describing potential approaches for model development and use.					

Developed Land (DL) Goal. Runoff from developed lands is managed in such a way that water quality is not degraded.			Schedule				
			2020	2021	2022	2023	2024
Objective	**Milestone**	**Measure of Success**					
Objective DL-4 (cont.)	**Milestone DL-4.2** Update or amend the *New Hampshire Stormwater Manual* Volumes 1-3 to reflect the new science and understanding of stormwater management, system design, installation and maintenance, as well as regulatory changes. *Partners: NHDES AoT Bureau*	**Measure DL-4.2** Update or amend *New Hampshire Stormwater Manual*, Volumes 1-3 published.					
	Milestone DL-4.3 Encourage use of methods as described in Appendix F of the 2017 New Hampshire Small MS4 General Permit to calculate phosphorus and nitrogen load reduction credits for structural and non-structural BMPs. *Partners: NHDES AoT Bureau, CWSRF Program, and ARM Program; UNH Stormwater Center, municipalities and watershed groups*	**Measure DL-4.3** BMP implementation activities are credited using methods outlined in the 2017 New Hampshire Small MS4 General Permit					
	Milestone DL-4.4 Promote tracking and accounting of NPS implementation activities through the Great Bay Pollution Tracking and Accounting Project (PTAP). Encourage use and adoption of PTAP for municipalities beyond the Great Bay watershed. *Partners: UNH Stormwater Center and municipalities*	**Measure DL-4.4** Municipalities use the PTAP database to track implementation and quantify performance of NPS implementation activities.					

Developed Land (DL) Goal. Runoff from developed lands is managed in such a way that water quality is not degraded.			Schedule				
			2020	2021	2022	2023	2024
Objective	**Milestone**	**Measure of Success**					
Objective DL-4 (cont.)	**Milestone DL-4.5** Promote and encourage use of coastal watershed pollution hot spot maps for use in planning and implementing cost effective NPS controls. Encourage use of hot spot mapping methods for other regions of the state. *Partners: UNH Stormwater Center, NH GRANIT, Regional Planning Commissions, municipalities and watershed groups*	**Measure DL-4.5** 42 pollution hot spot maps are produced; regional and municipal partners use maps to plan and implement NPS management actions.					
	Milestone DL-4.6 Update the *Innovative Land Use Planning Techniques: A Handbook for Sustainable Development* based on new technologies, regulations and information. *Partners: NHDES, New Hampshire Association of Regional Planning Commissions, New Hampshire Local Government Center, municipalities*	**Measure DL-4.6** Update and publish *Innovative Land Use Planning Techniques* document.					
Objective DL-5 Stormwater BMPs are adequately maintained and continue to function through their intended design life.	**Milestone DL-5.1** Request and review maintenance records from completed AoT permitted projects to determine effectiveness of a general adherence to maintenance conditions. *Partners: NHDES AoT Bureau*	**Measure DL-5.1** Compilation of a subset of maintenance records and summary report of findings each year.					

Developed Land (DL) Goal. Runoff from developed lands is managed in such a way that water quality is not degraded.			Schedule				
			2020	2021	2022	2023	2024
Objective	**Milestone**	**Measure of Success**					
Objective DL-5 (cont.)	**Milestone DL-5.2** Survey municipalities to determine if they currently require that maintenance records be kept for locally permitted projects. Encourage municipalities to request maintenance records for completed, locally permitted projects to determine compliance with maintenance conditions. *Partners: NHDES AoT Bureau, New Hampshire Municipal Association members, New Hampshire Chapter of American Council of Engineering Companies, UNH Stormwater Center*	**Measure DL-5.2** List of municipalities that require maintenance records. Completed maintenance inspection/reporting recommendations for municipalities.					
	Milestone DL-5.3 Provide hands-on training and technical assistance to municipal public works staff and professional landscapers on the installation and maintenance of low-impact development stormwater practices. *Partners: New Hampshire Municipal Association members, UNH Stormwater Center, New Hampshire Landscape Association, UNH Cooperative Extension, New Hampshire Sea Grant, NHDES*	**Measure DL-5.3** One training every other year.					

Developed Land (DL) Goal. Runoff from developed lands is managed in such a way that water quality is not degraded.			Schedule				
			2020	2021	2022	2023	2024
Objective	**Milestone**	**Measure of Success**					
Objective DL-6 New Hampshire residents understand the connection between land use and water quality, and have access to resources to help manage stormwater on their properties.	**Milestone DL-6.1** Provide resources to local organizations interested in participating in SOAKNH. *Partners: NHDES*	**Measure DL-6.1** SOAKNH resources are updated and made available through a variety of print and social media.					
	Milestone DL-6.2 Work with local organizations to build capacity to create local SOAK groups who work in their communities to spread the "soak up the rain" message and install BMPs. *Partners: NHDES, SOAKNH Program-eligible organizations*	**Measure DL-6.2** At least one new local watershed group is engaged each year.					
	Milestone DL-6.3 Site level best management practices are installed through the SOAKNH program. *Partners: NHDES, SOAKNH-eligible organizations*	**Measure DL-6.3** At least one BMP installation completed each year. Installation information including location and pollutant loading estimates are reported on the SOAKNH website and in the NPS Annual Report.					

HYDROLOGIC AND HABITAT MODIFICATION

BACKGROUND

The management of rivers and streams in New Hampshire has deep historic roots due to persistent human use of these resources for transportation, food, water, power and waste disposal. The benefits provided by flowing waters brought human development to the banks of rivers, and caused conflicts between humans and natural forces in river corridors and their floodplains. Evidence of these conflicts are most noticeable on the valley floors and floodplains of large river basins where river channels were physically moved and straightened across entire valleys to make room for agriculture, transportation and housing. Early management of river channels often worked against natural river processes. When trying to treat a problem in this manner, the typical end result is that the problem gets worse. This has led to costly, long-term commitments to managing rivers in addition to increased risk to public and private infrastructure. In New Hampshire and much of the northeast United States, historic changes to river and stream corridors disrupted natural form and processes, and often lead to increased channel instability, reduced water quality and the impairment of aquatic habitat.

There is a growing movement of managing and restoring rivers to return natural processes whenever and wherever possible within the context and limitations of the current watershed condition. As river restoration project planning has evolved, so to have the principals of design. Scientists and community-based restoration and protection groups are coming together to try and move towards standard design methodologies and monitoring protocols. Every project is different, yet standardization of design protocols, based on problem identification, river type, corridor condition, watershed characteristics and project objectives, advances the practice of river restoration toward a truly natural-process approach.

New Hampshire is fortunate to have a strong river restoration community that thrives on networking, sharing expertise and experiences, and partnering resources to address centuries-old impacts to river and stream form and function. The NPS Management Program has been, and continues to be, an important partner and leader in New Hampshire river and stream protection and restoration. This is only possible with the support from an outstanding network of both external and internal fluvial geomorphologists, natural stream channel design experts, fisheries specialists, NHDES Dam Bureau personnel, wetland scientists, professional engineers who specialize in stream and river restoration project design, permitting, and construction, and various nonprofit organizations throughout the state and region dedicated to the protection and restoration of natural resources. This network of committed river restoration professionals has been integral in generating two of the largest river restoration and stabilization projects in New Hampshire history, multiple river and stream restoration projects through selective dam removal, and a wide array of landmark stream crossing improvement, stream daylighting, and natural channel design and bioengineering applications throughout the state. Hydrologic and habitat restoration efforts supported by the NPS Management Program have restored aquatic organism passage, enabled mobile wood additions, and re-connected tributary and river channels with abandoned floodplains in the Nash Stream watershed. NPS Management Program staff and stakeholders responded to devastating floods and their impacts in the Cold River and Suncook River

watersheds, where implementing in-stream and floodplain restoration goals while simultaneously ensuring the safety of the traveling public were key drivers influencing design, permitting and construction. Improving habitat and restoring stream quality for native populations of eastern brook trout in the heavily urbanized McQuesten Brook watershed in Manchester, NH, and daylighting entire segments of Berry Brook from closed drainage pipes in Dover, NH, are other successful examples of natural systems and built-out landscape conflict resolution. Perhaps the most dramatic examples of successful hydrologic and habitat modification restoration successes in New Hampshire are associated with selective dam removal project sites. Although considered some of the most complex and controversial environmental restoration projects to undertake, river and stream restoration projects through selective dam removal have yielded multiple NPS success stories in New Hampshire. The NPS Management Program and its network of river practitioners have become leaders in the region relative to addressing hydromodification and habitat impacts upon 17,000 river and stream miles. Much work remains to be done and it can only be accomplished with the continued support of committed stream and river restoration professionals from other federal and state agencies, nonprofit organizations and individual property owners who are dedicated to protect, restore and understand the impacts of human activities that alter hydrology and habitat.

RIVERS

One of those partners is the New Hampshire Rivers Management and Protection Program (RMPP). The RMPP was established in 1988 with the passage of RSA-483 to protect certain rivers, called designated rivers, for their outstanding natural and cultural resources, and provide a forum to balance the competing uses of the state's rivers. Currently, there are over 1,000 miles of designated rivers, spanning 125 communities and five unincorporated places and state parks. Twenty-two Local River Management Advisory Committees (LAC), made up of over 200 volunteers, are charged with developing local river corridor management plans and reviewing and commenting on activities affecting the river, including alteration of terrain, wetlands, shoreland, underground storage tank and pesticide permit applications. LAC members also review and comment on Federal Energy Regulatory Commission relicensing processes, and provide valuable outreach and education services to their communities. In many cases, LACs are the first point of contact for community members who notice unusual stormwater discharges into a stream or lake, or who are concerned about erosion and stormwater runoff.

One aspect of the RMPP is the Instream Flow Program, which is designed to ensure that designated rivers continue to flow during periods of drought in order to support the habitat needs of fish and wildlife while also supplying water for drinking, agriculture, industry and recreation. Protected instream flows are developed for each river that reflect the critical magnitude, timing, duration and frequency of flows necessary for the most sensitive uses of the river. Once protected flows are defined, state agency staff work with water users to ensure that critical water needs are met for both humans and wildlife. One of the benefits of the Instream Flow Program is ensuring that water is always available in New Hampshire's rivers to dilute any NPS pollution that may occur.

WETLANDS AND SHORELAND

The Shoreland Water Quality Protection Act (SWQPA) was enacted in 1991 and established minimum standards for the subdivision, use and development of shorelands adjacent to the state's public water bodies. On July 1, 2005, Senate Bill 83 established a commission to study its effectiveness. In 2008, as a result of the commission's recommendations, several changes were made, including limits on impervious surfaces, limitations on the removal of vegetation in water front buffers, shoreland protection along rivers designated under RSA 483 (Designated Rivers), and the establishment of a permit requirement for many new construction, excavation and filling activities within the Protected Shoreland. During the 2011 legislative session, changes to vegetation requirements within the natural woodland and waterfront buffers, the impervious surface limitations and a new shoreland permit by notification process were included within the SWQPA.

In March 2004, the NHDES Wetlands Bureau adopted a set of mitigation rules that establish what is necessary for an applicant to provide for wetland compensation. The rules spell out ratios for wetland creation, restoration and upland preservation, relative to the type of wetland lost through the proposed development. During the 2006 legislative session, the General Court enacted Senate Bill 140, known as Aquatic Resource Mitigation (ARM). The law became effective on August 18, 2006 and NHDES adopted rules for operation of a wetland mitigation fund on June 20, 2007.

In lieu of the traditional forms of mitigation, NHDES adopted a payment option for applicants unable to find other meaningful mitigation. The ARM Fund provides wetland permit applicants the opportunity to make a payment into a watershed account; payments are aggregated on a watershed basis and are then disbursed to significant restoration or land conservation projects through a competitive application process. The ARM Fund program has been very helpful for permit applicants and has resulted in many significant wetland preservation and restoration projects across the state.

The NPS Management Program and sub-grantees have leveraged ARM resources on several occasions, implementing comprehensive restoration projects to address severe degradation of aquatic and shoreland habitats within scopes of work defined in Watershed Assistance Grant project areas. Several of these projects have led to the removal of existing impairments and NPS success stories.

STREAM CROSSINGS AND FLOODING

The New Hampshire Geological Survey (NHGS) at NHDES houses a Flood and Geologic Hazards Program. A key component of the program is stream crossing (culvert) assessments, as data derived from these assessments can inform watershed-based planning and restoration prioritization efforts. Stream crossing protocols have been developed for New Hampshire through the New Hampshire Stream Crossing Initiative, a five-agency cooperative project. For each assessed crossing, final datasets are run through a geomorphic compatibility tool, which provides guidance on crossings that are not fully compatible with river and stream processes, and an aquatic organism passage compatibility tool, which identifies crossings that are partially or completely incapable of aquatic species passage. Additionally, NHGS, with multiple state partners, evaluates assessed culverts for hydraulic vulnerability, or the ability

of a culvert to pass a range of predicted flows. All of these data and outputs are available publicly in the Aquatic Resource Mitigation mapper, which can be found on the NHDES website. The New Hampshire Stream Crossing Initiative Field Manual specifies a total of six photographs be collected at each stream crossing, including the bed and banks upstream and downstream. Given the number of crossings assessed statewide, this provides a robust photographic library of the rivers and streams of New Hampshire that can serve as a resource for a variety of stream diagnostic and restoration purposes. Crossings, typically culverts, that are not fully compatible geomorphologically are those that are undersized compared to the river or stream channel that enters them, or have an entry angle not aligned with the stream. Hydraulic vulnerability evaluations identify culverts that are predicted to overtop the roadway above the culvert during high-flow events. These types of geomorphologic and hydraulic situations can cause water and sediment backup during flood events, increasing the risk of culvert failures and downstream erosion hazards.

RIVER AND STREAM RESTORATION THROUGH SELECTIVE DAM REMOVAL

The New Hampshire River Restoration Task Force, formed in 2000, explores opportunities to selectively remove dams for a variety of reasons, most notably for the purposes of restoring rivers and eliminating public safety hazards. The NPS Management Program works directly with the NHDES Dam Bureau River Restoration Coordinator, consultants, nonprofit organizations and river stakeholders to determine the feasibility of restoring priority river segments throughout the state by removing existing barriers. A list of priority river restoration and barrier removal sites, and the priority criteria behind development of this list, are discussed in the Priority Watersheds section of this Plan.

According to the preliminary 2018 NHDES Water Quality Assessment, impoundments caused 41 water quality impairments, including those for dissolved oxygen and chlorophyll-a. Many of these dams no longer serve the purpose for which they were originally constructed. Often, dam regulations necessitate costly infrastructure and safety-related repairs that dam owners weigh against the diminishing benefits of owning and operating the dam, along with the liability inherent with being a dam owner. Dam removal often becomes an appealing option that can reduce risk and liability, restore designated uses to surface waters that were previously impaired, result in NPS success stories, and eliminate what can often become a long-term economic and liability burden for the dam owner.

CLIMATE CHANGE, RESILIENCE AND SEA-LEVEL RISE

It continues to be important to recognize and adapt to existing and anticipated climate change impacts on river, estuarine and coastal habitats (including wetlands), resulting from more frequent and intense rain events. In New Hampshire coastal communities, the water quality impacts from sea-level rise, and associated groundwater rise, become more evident with each passing year. Coastal resource experts continue to document the existing and predicted changes to hydrology and habitats (salt marsh migration and conversion to mudflats as well as freshwater wetlands emerging due to rising groundwater) associated with sea-level rise. Existing regulations in New Hampshire are likely inadequate to handle the increases in rainfall amounts and extreme precipitation events. It is necessary to begin

thinking about adaptation strategies. For instance, replacement of culverts with full, channel-spanning bridges; dam removals; or installation of living shorelines and nature-based shoreline management can be incorporated into state and municipal regulations, policies and programs.

One of the groups that worked to develop adaptation strategies was the New Hampshire Coastal Risk and Hazards Commission. Established by legislation in 2013, the Commission helped coastal communities and the State prepare for projected sea-level rise and other coastal watershed hazards. In addition, Sea-Level Affecting Marsh Migration models were run for the coastal watershed, which provide additional information about how sea-level rise may impact estuarine river systems and their marsh systems. The Commission completed its work in 2016 with the publication of the Preparing New Hampshire for Projected Storm Surge, Sea-Level Rise, and Extreme Precipitation Final Report and Recommendations. An audit of NHDES rules and regulations was completed in 2018 to determine and recommend needed rule changes. Recommendations generated from the audit are intended to enable NHDES to better manage the precipitation and sea-level rise challenges mentioned in the Final Report. Recommendations are specific for coastal areas but many apply statewide.

Another major effort to address sea-level rise and resiliency in the coastal watersheds of New Hampshire is the NHDES Coastal Program's Resilient Tidal Crossings Initiative. In 2018, the NHDES Coastal Program and its partners assessed all known tidal crossings in New Hampshire's 17 coastal communities, in accordance with the New Hampshire Tidal Crossing Assessment Protocol. Tidal crossing assessment data were used to rank and prioritize sites based upon structure condition, flood risk and ecosystem health. The Resilient Tidal Crossings New Hampshire project was designed to better enable community officials and road managers to enact the strategic repair or replacement of tidal crossing infrastructure, and to identify high-priority restoration and conservation opportunities at tidal crossing sites.

In addition to tidal crossing impacts and strategies to repair, replace or remove them, increasing erosion and inundation of coastal wetlands due to sea-level rise and storms continues to threaten property and natural resources in New Hampshire. Historic shoreline stabilization practices of rip rap, revetments and seawalls can actually make erosion worse, destroy intertidal habitat and alter sediment transport patterns. For these reasons, hard structural solutions are either the least preferred alternative or prohibited in sensitive coastal areas. In suitable areas, living shorelines present a resilient approach to shoreline stabilization that can protect people, property and important coastal habitats.

The NHDES Coastal Program is working with partner organizations to advance understanding, application and success of living shoreline stabilization approaches in coastal New Hampshire. Several initiatives and support networks have been established by the NHDES Coastal Program to inform and support stakeholders interested in design and implementation of living shorelines in New Hampshire.

It is critical to consider the environmental permitting aspects associated with any proposed construction activities associated with jurisdictional wetlands in New Hampshire. The New Hampshire Joint Legislative Committee on Administrative Rules issued final approval of new wetland rules on May 17,

2019. This approval was the culmination of a significant, multiyear initiative to improve the technical review standards and decision-making processes of the NHDES Wetlands Bureau through consensus-based rulemaking, while ensuring consistency with New Hampshire's wetlands statute and NHDES' mission. The initiative engaged a variety of groups and individuals with diverse interest in wetlands rules, including the Associated General Contractors, Local River Advisory Committees (LACs), The Nature Conservancy, New Hampshire Association of Conservation Commissions, New Hampshire Association of Natural Resource Scientists, New Hampshire Farm Bureau, New Hampshire Timberland Owners Association, utility providers, and New Hampshire state agencies such as NHFG, NHDOT, and the Department of Natural and Cultural Resources. NHDES activities included substantial outreach, numerous public meetings, several rulemaking hearings, and response to 2,000 comments on the draft rules. The new wetland rules will become effective December 15, 2019.

Resources

- New Hampshire Rivers Management and Protection Program (RSA 483)
- Designated River Nomination Rules (Env-Wq 1800)
- Instream Flow Rules (Env-Wq 1900)
- Shoreland Water Quality Protection Act (RSA 483-B)
- Shoreland Protection Administrative Rules (Env-Wq 1400)
- Stream Crossings Administrative Rules (Env-Wt 900)
- Aquatic Resource Compensatory Mitigation (RSA 482-A:29)
- Innovative Land Use Planning Techniques: A Handbook for Sustainable Development (WD-08-19), Section 2.4 - Wetland Protection, Section 2.6 - Shoreland Protection and Section 2.7 - Fluvial Erosion Hazard Area Planning
- A Guide to River Nominations (WD-17-01)
- Report of the Instream Flow Pilot Program (WD-15-1)
- Shoreland Water Quality Protection Act, A Summary of the Minimum Standards
- Generic Quality Assurance Project Plan for Fluvial Geomorphology Data Collection – on file with the NHDES Geological Survey
- Generic Quality Assurance Project Plan for Stream Crossing Assessment Data Collection (2017) – on file with the NHDES Geological Survey
- Guidelines for Naturalized River Channel Design and Bank Stabilization
- White Paper – River Restoration and Fluvial Geomorphology

HYDROLOGIC AND HABITAT MODIFICATION GOAL, OBJECTIVES AND MILESTONES

Hydrologic and Habitat Modification (H) Goal. The NPS program works with partners to identify, prioritize and implement projects such as living shorelines, culvert upgrades, and dam removal/stream and river restoration to address hydrologic and habitat modification.			**Schedule**				
			2020	**2021**	**2022**	**2023**	**2024**
Objective	**Milestone**	**Measure of Success**					
Objective H-1 NPS program develops partnerships and capacity to implement living shoreline projects to address hydrologic and habitat modification.	**Milestone H-1.1** Build NPS program capacity for living shoreline projects. NPS program staff develop understanding of living shoreline concepts, current state-of-the-science, existing regional partnerships and on-going local efforts to identify, prioritize and implement living shoreline projects. *Partners: NHDES Coastal Program, NHDES Land Resources Management, NHFG*	**Measures of Success H-1.1** NPS program staff participate in workshops, conferences, living shoreline site tours and partner meetings to learn about living shoreline work. A framework for NPS living shoreline project partnerships is developed.					
	Milestone H-1.2 Identify and prioritize living shoreline projects for NPS funding. NPS program partners identify potential living shoreline projects for funding and implementation through NPS program grants. *Partners: NHDES Coastal Program, NHFG, NOAA Office for Coastal Management, UNH Coastal Habitats Restoration Team*	**Measures of Success H-1.2** A list of potential priority living shoreline projects and partners for NPS funding is developed.					

Hydrologic and Habitat Modification (H) Goal. The NPS program works with partners to identify, prioritize and implement projects such as living shorelines, culvert upgrades, and dam removal/stream and river restoration to address hydrologic and habitat modification.			**Schedule**				
			2020	**2021**	**2022**	**2023**	**2024**
Objective	**Milestone**	**Measure of Success**					
Objective H-1 (cont.)	**Milestone H-1.3** Implement living shoreline project(s). A proposal for NPS funding to implement at least one priority living shoreline project with project partners is submitted for funding and the project is implemented. *Partners: NHDES Coastal Program, NHDES Land Resources Management, NHFG, UNH Coastal Habitats Restoration Team*	**Measures of Success H-1.3** A living shoreline proposal for NPS funding is developed and submitted.					
		Measures of Success H-1.4 If application is selected for NPS funding, the project is implemented and a final report of living shoreline project implementation is on file and available as reference for future NPS living shoreline projects.					
Objective H-2 Stream crossings that do not meet geomorphic integrity thresholds or AOP criteria, are identified within watershed-based plans.	**Milestone H-2.1** Tidal crossings are identified and considered for NPS program funding. Work with regional partners to review existing tidal crossing data, plans and priorities to identify potential priority tidal crossings for replacement funding. *Partners: NHDES Coastal Program, NHDES Geological Survey, NHDES Land Resources Management, NHFG*	**Measures of Success H-2.1** NPS program partners develop partnership and application for NPS funding to replace at least two priority tidal crossings.					
		Measures of Success H-2.2 A tidal crossing project is submitted and selected for WAG NPS project funding. The project is implemented and a final report is submitted to the NPS Management Program.					

Hydrologic and Habitat Modification (H) Goal. The NPS program works with partners to identify, prioritize and implement projects such as living shorelines, culvert upgrades, and dam removal/stream and river restoration to address hydrologic and habitat modification.			**Schedule**				
			2020	**2021**	**2022**	**2023**	**2024**
Objective	**Milestone**	**Measure of Success**					
Objective H-2 (cont.)	**Milestone H-2.2** Freshwater stream crossings not meeting geomorphic or AOP thresholds are identified and prioritized for restoration efforts within watershed-based plans or geomorphic assessments performed at the watershed scale. *Partners: NHDES Coastal Program, Great Bay Stewards, NHDES Geological Survey, watershed organizations, municipalities, NHDOT, The Nature Conservancy*	**Measures of Success H-2.3** The NHDES Stream Crossing Assessment Protocols are fully executed in at least one freshwater watershed undergoing development of a watershed-based plan. Protocol results are then used to develop a priority ranking for culverts, barriers and stream crossings within the watershed in need of removal or upgrade to improve geomorphic equilibrium and/or AOP.					
	Milestone H-2.3 staff become members of the New Hampshire State Stream Crossing Steering Team to become certified stream crossing professionals recognized by the NHDES Geological Survey. *Partners: NHDES Geological Survey, NHFG, NHDOT, Trout Unlimited, U.S. Forest Service*	**Measures of Success H-2.3** One or more New Hampshire NPS Management Program staff are actively serving on the New Hampshire State Stream Crossing Steering Team. The required equipment (iPads, software, topographical survey equipment, etc.) has been procured and utilized to generate stream crossing assessment data suitable for incorporation into the New Hampshire Statewide Asset Data Exchange System.					

Hydrologic and Habitat Modification (H) Goal. The NPS program works with partners to identify, prioritize and implement projects such as living shorelines, culvert upgrades, and dam removal/stream and river restoration to address hydrologic and habitat modification.			**Schedule**				
			2020	**2021**	**2022**	**2023**	**2024**
Objective	**Milestone**	**Measure of Success**					
Objective H-3 Barrier and dam removals in New Hampshire result in NPS Success Stories.	**Milestone H-3.1** Freshwater and tidal barriers that co-occur with impoundments on the 303(d) list have Feasibility Studies completed or are identified within a watershed-based plan as a priority action item. *Partners: New Hampshire River Restoration Task Force, NHDES Geological Survey, NHDES Dam Bureau, NHDES Water Quality Section, dam owners, NHFG*	**Measures of Success H-3.1** At least one barrier removal project receiving partial funding from the NPS Program generates restoration of designated uses and an EPA-approved NPS Success Story that documents a fully or partially restored waterbody. See Milestone CW-3.3.					
	Milestone H-3.2 Investigate the feasibility of incorporating CALM Indicator 13 (benthic sediments) for aquatic life use support as a NPS source related indicator. *Partners: NHDES Coastal Program, NHDES Water Quality Section, New Hampshire River Restoration Task Force.*	**Measures of Success H-3.2** The NHDES Water Quality Section recognizes sediment quality data from impoundments associated with Priority Dam and Barrier Sites table in the NPS Plan. Those data are sufficient for making support decisions according to the CALM.					

LAWNS AND TURF GRASS MANAGEMENT

BACKGROUND

Turf grass – the lawn making up our yards, recreation fields and other landscapes – is the largest "crop" in the United States. It is estimated there are between 225,600 and 330,900 acres of turf, including lawns, municipal fields and golf courses, in New Hampshire, which would cover between 3.8-5.5% of the state (Milesi, et al., 2005). Therefore, another important part of protecting and restoring water quality in New Hampshire is proper management of lawns and turf grass areas. Thoughtful fertilizer use is a key component, given that fertilizer use on turf grass is a source of nitrogen and phosphorus to New Hampshire waters, and both fresh and salt waterbodies are showing signs of excessive nutrient inputs. Further components include ongoing education efforts and guidance for communities wishing to establish turf management guidelines.

Plants will not absorb more phosphorus and nitrogen than they can use. Soil and soil microbes actively absorb and recycle nutrients in the root zone, but excessive amounts of nutrients can be carried by stormwater into nearby waterbodies. Excess phosphorus is of primary concern in New Hampshire's freshwater lakes and rivers, while excess nitrogen is of primary concern because it adversely impacts salt water systems, including estuaries like Great Bay on New Hampshire's seacoast.

NHDES VLAP data from 1990 through 2017 (NHDES, 2019d) show stable median total phosphorus and chlorophyll-a levels, and a decrease in transparency in New Hampshire lakes. In 2009, NHDES published a Lake Nutrient Assessment Study that determined upper thresholds for chlorophyll-a and phosphorus by trophic class using data from 233 lakes in New Hampshire. In the 2018 305(b)/303(d) assessment, (NHDES, 2019a) 65 of the 256 lakes that have current data are considered impaired for aquatic life due to elevated concentrations of chlorophyll-a and phosphorus.

Total annual nitrogen load to the Great Bay Estuary from 2009-2011 was 1,225 tons (PREP, 2013). There is currently no clear trend for total nitrogen in the Great Bay Estuary (NHDES, 2019c). However, parts of the Estuary are exhibiting classic symptoms of too much nitrogen, such as low dissolved oxygen, macroalgae blooms and declining eelgrass. Between 1974 and 2011, data indicate a significant overall increasing trend for dissolved inorganic nitrogen at Adams Point, which is of concern (PREP, 2013).

The GBNNPSS report (NHDES, 2014a) details the following regarding delivered loads of nitrogen to Great Bay Estuary:

- Chemical fertilizer contributed 15% of the total NPS load, or 110-150 tons of nitrogen per year.
- Lawns contributed 70% of the chemical fertilizer load, or about 10.5% of the total NPS load.
- Recreational fields, including golf courses, were responsible for 8% of the chemical fertilizer load, or about 1% of the total NPS load.

The solution to reduce water quality impacts from fertilizer is complicated by many factors. Turf grass nutrient needs vary depending on existing soil conditions, as well as turf use and management objectives. Each turf grass manager will have different goals or objectives based on intensity of use,

desired appearance, environmental impacts, or available funds or time. For example, a school playing field has different requirements than a backyard lawn.

A soil test is an important part of turf grass management. It can be a great first step in identifying existing soil condition and providing recommendations for other amendments needed to support healthy turf grass, for example, pH, phosphorus and organic matter. Soil test results provide standard nitrogen application recommendations based on a range of management objectives for turf grass, but do not provide a measurement of nitrogen in the soil, limiting its site specificity.

While trees and shrubs are considered the optimum vegetation types for promoting filtration and infiltration of stormwater, turf grass that is NOT overly fertilized, growing in soils that are NOT overly compacted, can contribute some degree of filtration and infiltration function (especially when compared to impervious areas). If lawns and other turf grass areas are not properly maintained, bare spots may appear and contribute to erosion issues. Healthy grass roots can hold the soil together, reducing sediment runoff into nearby waterbodies. Additionally, turf areas that are not over fertilized can help absorb nutrients from stormwater.

Various research-based strategies for managing turf grass are available, which provide guidelines as to how much – if any – fertilizer, pesticides and water turf grass needs to meet the users desired objective. When either synthetic or organic fertilizers are needed (as determined by soil testing), and are applied in the proper amounts at appropriate times during the growing season, in conjunction with good cultural practices and water management, lawns can thrive and the threats to water quality can be minimized. Reduced mowing schedules and allowing turf grass areas to revert to more natural mixtures of wildflowers, weeds and grasses, where appropriate, can save money and energy and eliminate the potential for fertilizer and pesticides in runoff. Choosing ground covers or planting groups of perennials, shrubs and/or trees in home landscapes is another strategy to reduce turf areas and reduce fertilizers, pesticides and other inputs, as well as promote filtration and infiltration to reduce harmful effects of stormwater runoff.

UNH Cooperative Extension and New Hampshire Sea Grant work with local partners to incorporate the latest science into outreach and education efforts. Educational programs/resources include Landscaping for Water Quality, Green Grass & Clean Water and continuing education for licensed pesticide applications. Extension specialists regularly advise clients from homeowners (through the call-in center) to landscapers, municipalities and other land managers on best management practices for lawns and landscapes. The Extension also partners with Master Gardeners, Natural Resource Stewards, New Hampshire Landscapers' Association, New Hampshire Plant Growers' Association and other interested stakeholders to promote ecologically sound landscape and turf management practices.

In 2013, the New England Interstate Water Pollution Control Commission (NEIWPCC) worked closely with states and EPA to facilitate the Northeast Voluntary Turf Fertilizer Initiative – a turf fertilizer stakeholder process to develop Regional Clean Water Guidelines for Fertilization of Urban Turf aimed at protecting water quality. The guidelines provide consistent recommendations to potentially alleviate the

need for legislation in states that have not passed laws on turf fertilizer, to supplement laws in states that have passed legislation and to serve as a basis for public education and outreach.

Local and state regulations can complement or reinforce voluntary efforts to reduce nutrient pollution from fertilizer. RSA 483 B: Shoreland Water Quality Protection Act, July, 2008, states that no fertilizer, except limestone, can be used within 25 feet of the reference line. Between 25 and 100 feet, slow or controlled release fertilizer may be used. Local town ordinances in several New Hampshire towns and cities have restrictions that are more stringent than the SWQPA.

In 2014, New Hampshire adopted legislation limiting the nitrogen and phosphorus application rates in instructions on fertilizer bags sold at retail and intended for use on home lawns.

- RSA 431:4-a: Nitrogen Content of Fertilizer, Jan, 2014 - No turf fertilizer sold at retail shall exceed 0.7 pounds per 1,000 square feet of soluble nitrogen per application when applied according to the instructions on the label. No turf fertilizer sold at retail shall exceed 0.9 pounds per 1,000 square feet of total nitrogen per application when applied according to the instructions on the label. No turf fertilizer shall exceed an annual application of 3.25 pounds per 1,000 square feet of total nitrogen when applied according to the instructions on the label. No enhanced efficiency fertilizer shall exceed a single application rate of 2.5 lbs. per 1,000 square feet of total nitrogen and an annual application rate of 3.25 pounds per 1,000 square feet of total nitrogen nor release at greater than 0.7 pounds per 1,000 square feet per month when applied according to the instructions on the label.
- RSA 431:4-b: Phosphorus Content of Fertilizer, Jan, 2014 - No fertilizer sold at retail that is intended for use on turf shall exceed a content level of 0.67% available phosphate unless specifically labeled for establishing new lawns, for repairing a lawn, for seeding, or for use when a soil test indicates a phosphorus deficiency. No fertilizer sold at retail that is intended for use on newly established or repaired lawns, or for lawns testing deficient in phosphorus shall exceed an application rate of one pound per 1,000 square feet annually of available phosphate. No natural organic turf fertilizer shall exceed a per application rate of one pound of available phosphate per 1,000 square feet when applied according to the instructions on the label.

NHDES, along with many of our partners, is moving forward on outreach and education efforts related to turf management and water quality. Consistent science-based information is more important than ever as many New Hampshire municipalities, watershed organizations, professional landscapers, and residents are looking at organic or other alternative methods to reducing impacts to water quality from turf management. Sharing the results of research and the appropriate best management practices will continue to be a focus of the milestones related to maintaining lawns and commercial turf grass.

RESOURCES

- UNH Cooperative Extension and NHDES SOAKNH: 2018 Landscaping for Water Quality Workshop
- UNH Cooperative Extension:
    - Spring Landscape Conferences Workshop for professional landscape and turf businesses
    - Pesticide Safety Education Training
    - New Hampshire Master Gardener Course
    - Natural Resource Stewards Volunteer Training
- New England Regional Nitrogen and Phosphorus Fertilizer and Associated Management Practice Recommendations for Lawns Based on Water Quality Considerations
- Changing Homeowner's Lawn Care Behavior to Reduce Nutrient Losses in New England's Urbanizing Watersheds: The Report of Findings from Social Science Research
- Proper Lawn Care within the Protected Shoreland (Fact Sheet WD-SP-2)
- Green Grass and Clear Water: Environmentally Friendly Lawn Care Recommendations for Northern New England
- Landscaping for Water Quality
- Landscaping at the Water's Edge
- New Hampshire's Turf Fertilizer Law: What You Should Know
- Northeast Voluntary Turf Fertilizer Initiative
- Best Management Practices for Pesticide-Free, Cool-Season Athletic Fields
- Environmental Management for Golf Courses

LAWNS AND TURF GRASS MANAGEMENT GOAL, OBJECTIVES, AND MILESTONES

Lawns & Turf Grass Management (L) Goal. Pollutants from turf management and landscaping practices do not run off or leach to surface or groundwater.			**Schedule**				
			2020	**2021**	**2022**	**2023**	**2024**
Objective	**Milestone**	**Measure of Success**					
Objective L-1 Fertilizer from lawns and turf grass management practices does not degrade water quality.	**Milestone L-1.1** NPS partners and stakeholders have access to and understanding of current soil, turf, water quality and social sciences in order to reduce water quality impacts from lawns and turf grass management practices related to fertilizer and pesticide application. *Partners: UNH Cooperative Extension, New Hampshire Sea Grant, NHDES Coastal Program, Conservation Districts, New Hampshire Department of Agriculture, NEIWPCC, Master Gardeners, garden clubs, 319 Grantees, Natural Resource Stewards, opinion leaders, professional landscapers, other turf and landscapers*	**Measure L-1.1a** Track and document current science, research and outreach resources, and BMPs related to fertilizer and pesticide impacts to water quality and lawns and turf grass management. Information to be obtained from Department of Agriculture, UNH Cooperative Extension and Sea Grant, and NEIWPCC.					
		Measure L-1.1b Post current water quality and landscaping/turf management science research, outreach messaging, and events to NHDES social media venues (blogs, Facebook, and Twitter) quarterly.					
		Measure L-1.c Track turf pesticide use reporting for registered pesticide applicators through New Hampshire Department of Agriculture.					

Lawns & Turf Grass Management (L) Goal. Pollutants from turf management and landscaping practices do not run off or leach to surface or groundwater.			**Schedule**				
			2020	**2021**	**2022**	**2023**	**2024**
Objective	**Milestone**	**Measure of Success**					
Objective L-1 (cont.)	**Milestone L-1.1** (cont.)	**Measure L-1.1d** Provide information and present on water quality impacts from lawns and turf grass fertilizer, pesticide management practices and BMPs to protect water resources to partners and other organizations doing outreach in related topics. For example: New Hampshire Coastal Landowner Technical Assistance Program, Natural Resource Stewards, NHDES staff.					
	Milestone L-1.2 New Hampshire residents are aware of BMPs to reduce water quality impacts from lawn care activities including fertilizer and pesticide use. *Partners: UNH Cooperative Extension, UNH Marine Docents, UNH Coastal Research Volunteers*	**Measure L-1.2a** Continue to implement and evaluate existing homeowner outreach program components, focused on fertilizer use.					
		Measure L-1.2b Create, update and implement new outreach messages and methods as identified in Measure L-1.2a evaluations.					
		Measure L-1.2c Track changes in number of non-commercial soil tests completed at UNH Cooperative Extension following outreach effort(s).					
		Measure L-1.2d Include water quality friendly fertilizer and pesticide recommendations in curriculum at secondary and post-secondary education institutions.					

Lawns & Turf Grass Management (L) Goal. Pollutants from turf management and landscaping practices do not run off or leach to surface or groundwater.			**Schedule**				
			2020	**2021**	**2022**	**2023**	**2024**
Objective	**Milestone**	**Measure of Success**					
Objective L-1 (cont.)	**Milestone L-1.3** Landscapers and lawn care professionals are aware of and incorporate BMPs to reduce water quality impacts from fertilizer and pesticide applications. *Partners: New Hampshire Landscape Association, UNH Cooperative Extension, New Hampshire Sea Grant, commercial lawn services*	**Measure L-1.3a** Host "Landscaping for Water Quality Training for Professionals."					
		Measure L-1.3b Track participants in "Landscaping for Water Quality Training for Professionals" and list on UNH Cooperative Extension website.					
		Measure L-1.3c Identify and QAQC additional landscaping and turf management training opportunities about water quality, and fertilizer and pesticide practices that could list attendees on UNH Cooperative Extension website.					
		Measure L-1.3d Track changes in number of commercial soil tests completed at UNH Cooperative Extension following outreach effort(s).					
	Milestone L-1.4 Garden centers and nurseries promote BMPs to reduce water quality impacts from fertilizer and pesticide use. *Partners: UNH Cooperative Extension, New Hampshire Sea Grant, New Hampshire Plant Growers Association, garden centers, plant nurseries*	**Measure L-1.4a** Create and offer best fertilizer practices outreach options to two or more garden centers and nurseries. For example: shelf talkers, videos, mobile applications, fact sheets, brochures, trainings.					
		Measure L-1.4b Include water quality information in Master Gardener training.					

Lawns & Turf Grass Management (L) Goal. Pollutants from turf management and landscaping practices do not run off or leach to surface or groundwater.			Schedule				
			2020	2021	2022	2023	2024
Objective	**Milestone**	**Measure of Success**					
Objective L-1 (cont.)	**Milestone L-1.5** Municipal field managers are aware of and use BMPs to reduce water quality impacts from turf grass management. *Partners: NHDES Coastal Program, New Hampshire Municipal Association, New Hampshire Stormwater Coalitions, UNH Cooperative Extension, New Hampshire Sea Grant*	**Measure L-1.5a** Promote guidance and tools regarding BMPs for municipal turf management and water quality to local decision makers, MS4 permit responsible staff, municipal field managers, and other interested parties. For example: municipal turf conference, UCONN *Best Management Practices for Pesticide-Free, Cool-Season Athletic Fields,* MS4 Good Housekeeping requirement-related presentation, and reflectance meter demonstrations.					

SUBSURFACE SYSTEMS

BACKGROUND

According to the 2000 census, 65% of New Hampshire's housing units, or about 400,000 residences, relied on individual sewage disposal systems (septic systems) for wastewater disposal. For new development, the figure is higher; about 80% of new housing units have septic systems. (NHDES, 2008c)

If a septic system is not functioning properly, it may be because it was either before state standards were in effect (1967), the system was not properly maintained, or the system has simply exceeded its functional life. Current NHDES data indicate that approximately one-third of new septic system approval applications address repair or replacement of existing systems. The Subdivision and Individual Sewage Disposal System Design Rules (Env-Wq 1000) require that if approval for a replacement system is obtained for a septic system in failure, that replacement system must be installed prior to the expiration date of the approval (90 days). Further, since the 2016 re-adoption of Env-Wq 1000, if approval for a replacement system is obtained for any reason other than to address a system in failure, and the system being replaced has never received prior NHDES approval, the system must be installed. This change was intended to address systems installed prior to 1967 and to help ensure that all septic systems in New Hampshire are designed and constructed in accordance with current standards.

As a result of a law (RSA 485-A:39) passed in 1993, a site assessment must be performed on properties served by septic systems and that are within 200 feet of a great pond or fourth order or higher river before the property changes hands. This assessment, which includes an on-site inspection, is done to determine if the site meets the current standards for septic disposal system established by NHDES. The site assessment does not necessarily evaluate the septic system that exists on the site unless there are obvious signs of system failure. If the designer performing the site assessment deems the septic system to be functioning properly, upgrading substandard systems is not required.

New Hampshire's coastal septic systems are at risk of experiencing the impacts of rising seas including more extensive coastal flooding during storms and high astronomical tides. As sea levels rise, groundwater levels rise, potentially increasing threats to septic system functions beyond the immediate New Hampshire coastline. This raises concerns that septic systems could fail, mobilizing contaminants as rising groundwater moves into or close to septic system leaching fields (Wake, et al. 2019). NHDES and its partners are considering these risks in future planning, guidance and regulations for septic system site and design requirements and alternative treatments. The New Hampshire Coastal Flood Risk Summary Part II: Guidelines for Using Scientific Projections (Draft) and the NHDES Audit of Laws Governing the Coastal Region to Enable Authorities to Take Appropriate Actions to Prepare for Coastal Flood Risks provide collaboration opportunities for additional septic system risk analyses.

While direct observable impacts of septic systems on water quality are difficult to quantify, several watershed studies have modeled the impact of septic systems with respect to nutrient contamination. According to the GBNNPSS (NHDES, 2014a), septic systems contribute 29% of the nonpoint source nitrogen load to Great Bay. This calculation was determined from a detailed analysis of the number of

septic systems in the watershed, a nitrogen generation rate of 10.6 pounds per person, and the distance of septic systems from the estuary.

Several recent watershed-based plans estimated phosphorus contributions from septic systems based on a count of septic systems in the watershed, number of people per housing unit, seasonal occupancy, pounds of phosphorus per person using the system (based upon literature estimates of phosphorus values) and soil retention rates. The plans found the following percent contributions of phosphorus from septic systems:

- Baboosic Lake 43% (NHDES, 2008a); note that this has now been reduced through installation of a community septic system serving approximately 30 homes.
- Pawtuckaway Lake 27% (NHDES, 2008d).
- Cobbett's Pond 22% (NHDES, 2010a).
- Province Lake 17% (NHDES, 2014b).

NHDES is responsible for both subsurface system regulation (RSA 485-A:29) and licensing of designers and installers (RSA 485-A:35 and RSA 485-A:36). Septic system design and installation has been regulated since 1967; licensing of designers and installers since 1979. The State's controlling role in subsurface systems has made for consistently high standards throughout the state. As concerns about water quality impacts from septic systems increase, communities, including Rye and Meredith, NH are developing regulations to address septic system management at the local level. These locally-driven regulations often focus on requiring periodic inspection or maintenance of individual disposal systems which are more stringent than state regulations.

Since 1994, RSA 485-A:29 – Submission and Approval of Plans and Specifications has provided a regulatory process for innovative/alternative septic systems, which allows for review and approval of designs that are not specified in Env-Wq 1000. The review process entails submittal of detailed technical specifications and operational data, which NHDES reviews to determine whether the technology will be at least as protective of the environment and will function as reliably as or better than a conventional septic system.

NITROGEN

There has been increased attention nationally on nitrogen loading from septic systems, particularly on Cape Cod due to groundwater contamination and the Chesapeake Bay watershed due to eutrophication of the Bay. In 2013, EPA produced A Model Program for Onsite Management in the Chesapeake Bay Watershed (USEPA, 2013a) that quantifies some of the options for alternative septic systems in terms of nitrogen reduction and costs.

The model program recommends a tiered, risk-based approach for nitrogen management, where nitrogen reduction goals are recommended based on the proximity of a site to a water body of concern, recognizing that there is a greater potential for attenuation of nitrogen for septic systems located farther from the nitrogen-limited water body. Table 11, reproduced from the EPA model program, describes the tiered management system approach. Table 12, also from the EPA model program,

compares conventional systems with advanced treatment systems in terms of nitrogen removal and costs.

With each model, the complexity of requirements and management options increases. The first model is roughly equivalent to the current system of management in New Hampshire. The second model introduces nitrogen removal goals and system maintenance requirements. The third model includes operating permits with operation and maintenance provided by a qualified service provider. The fourth and fifth models require a responsible management entity to operate or own the system, respectively.

TABLE 8: SUMMARY OF SEPTIC SYSTEM MANAGEMENT APPROACHES

Model #	Description	Comments
1	Homeowner Awareness	Homeowner management of existing systems is promoted through outreach and education programs. Appropriate for conventional systems which provide limited nitrogen removal.
2	Maintenance Contracts	A property owner contracts with a qualified service provider to ensure O&M is conducted and nitrogen removal goals are met.
3	Operating Permits	The regulatory agency issues a limited-term operating permit to the property owner that requires sustained performance levels for nitrogen reduction. O&M is performed by a qualified service provider with regular monitoring. This provides a greater level of oversight and accountability compared to Model #2.
4	Responsible Management Entity (RME) O&M	Frequent and highly reliable O&M is the responsibility of a management entity, further increasing the level of accountability. This approach is appropriate for clustered systems or complex treatment systems providing high levels of nitrogen reduction.
5	RME Ownership	Ownership passes to a management entity which is responsible for all management aspects, similar to publicly owned treatment works, providing a high level of assurance that nitrogen removal goals are met.
* Source: U.S. Environmental Protection Agency. *A Model Program for Onsite Management in the Chesapeake Bay Watershed*. June 2013		

TABLE 9: EXAMPLES OF NITROGEN LOAD REDUCTIONS ACHIEVABLE THROUGH ADVANCED TREATMENT

Type of System	Nitrogen Discharge[1] Concentration (mg/L)	Load Reduction Provided	Loading (per person/yr)		Nitrogen Reduction (per person/yr)		Approx. Total System Cost
			kg	lb	kg	lb	
Conventional System	39	0%	4	9	0	0	$8,000 - $10,000[4]
Advanced Treatment[2]	20	49%	2	5	2	4	conventional + $10,000 - $15,000[5]
Advanced Treatment with Denitrification[3]	10	74%	1	2	3	7	conventional + $22,000[5]

* Source: U.S. Environmental Protection Agency. *A Model Program for Onsite Management in the Chesapeake Bay Watershed*. June 2013

[1] This is the concentration of wastewater effluent as it enters the drainfield.

[2] Advanced treatment system refers to a system that includes a septic tank, an aeration system, and a recirculation system into the septic tank, or equivalent.

[3] Advanced treatment system with denitrification refers to a septic tank, an aeration system, and an anoxic environment separate from the septic tank, or equivalent.

[4] Source: NHDES Subsurface Systems staff (August 26, 2014). Personal communication.

[5] Source: Maryland Dept. of Environmental Protection Bay Restoration Fund

The EPA model program recommends varying approaches to septic system management, depending on the distance from the septic system to a bay or to the tidal portion of tributaries to a bay. For septic systems within 200 meters (about 650 feet) of the Great Bay Estuary or large rivers (5th order or greater), the GBNNPSS (NHDES, 2014a) assumes that there is too little distance for denitrification to occur, and therefore assumes that all of the nitrogen discharged from septic systems within 200 meters is delivered to Great Bay. Therefore, any programs developed to promote or finance installation of denitrifying systems should consider this area to be the highest priority for such systems.

Several pilot projects are underway in New Hampshire's coastal watershed to test the performance and feasibility for widespread use of septic system permeable reactive barriers (PRBs) in denitrification of effluent.

Nitrate travels long distances in groundwater where oxygen is abundant. Installing PRBs to intercept and treat septic system effluent is a treatment solution that can reduce groundwater migration of nitrogen to sensitive waterbodies.

A PRB is essentially a trench filled with wood chips, sand and gravel that creates conditions for nitrogen removal. As septic system effluent enters the PRB, it is typically high in nitrate, but after denitrification, it exits the PRB with most of the nitrate removed. The removal of nitrate occurs during denitrification through biological respiration of nitrate by anaerobic bacteria. Nitrate is converted to nitrogen gas as part of this process. In order for sufficient anaerobic bacteria to accumulate in the PRB, the concentration of dissolved oxygen must be significantly reduced and there must be a carbon food source for the bacteria. The nitrogen gas is released to the atmosphere through voids in the PRB media and surrounding soil. PRBs use no electricity and do not have moving parts. Once the PRB is in the ground, it functions on its own.

PHOSPHORUS

For freshwater bodies, phosphorus is the nutrient of concern delivered by septic systems. Phosphorus is not removed by conventional onsite systems, but rather is adsorbed to varying degrees by the soil and plant roots through which the treated effluent passes on its way to surface waters. When the adsorption capacity of the soil is reached, phosphorus export will occur. This problem is typical of densely developed shoreland areas near lakes and ponds. Increasing the distance from the leach field to the waterbody will provide greater adsorption of phosphorus by the soil.

Many of New Hampshire's shorelines were developed prior to regulations regarding septic system design, including setbacks to waterbodies. This lack of regulation contributed to the dense development of small, waterfront lots and allowed for the use of cesspools, dry wells or other disposal systems that were often inadequate in treating waste. Many of these systems, which may be considered failed by statutory definition, remain in place because they have not been brought to the attention of NHDES. RSA 485-A:37 requires that all septic systems be operated and maintained in such a manner as to prevent a nuisance or potential health hazard due to failure of the system. Inadequate or failed systems on these types of waterfront lots may be replaced in accordance with current rules in Env-Wq 1000. While individual lot characteristics may not allow for all standards, including setbacks, to be met, newly approved system designs must meet all requirements to the maximum extent practicable. Additionally, nutrient loading concerns increase in situations where seasonal waterfront homes are converted to year-round housing. Env-Wq 1000 requires that a new application for septic system approval be submitted for conversion from seasonal to year-round use. As discussed above, if the system that served the property at the time of conversion had never received prior NHDES approval, the newly designed system must be constructed. However, if the system is State-approved, the system is not required to be upgraded to accommodate the additional use. In situations where waterfront lots have inadequate systems, a single community system that collects wastewater from multiple residences may be a viable solution to wastewater disposal.

PATHOGENS

Parasites, bacteria and viruses, found in septic wastewater can cause communicable diseases through direct or indirect body contact or ingestion of contaminated water or shellfish. Pathogens can be transported for significant distances in ground water and surface waters (USEPA, 2002). Septic systems in failure can allow untreated, or incompletely treated, septic wastewater to be present at the ground surface, or in surface waters.

RESOURCES

- Design and Installation Criteria: RSA 485-A and administrative rules Env-Wq 1000
- Training: County Conservation Districts, New Hampshire Association of Natural Resource Scientists, Granite State Designers and Installers, provide training opportunities for septic system designers and installers
- NHDES Subsurface Systems Environmental Fact Sheets

SUBSURFACE SYSTEMS GOAL, OBJECTIVES AND MILESTONES

Subsurface Systems (S) Goal. Septic systems are designed, installed and maintained in a way that allows them to function without degrading water quality.			**Schedule**				
			2020	**2021**	**2022**	**2023**	**2024**
Objective	**Milestone**	**Measure of Success**					
Objective S-1 Reduce nitrogen and phosphorus pollution and bacterial contamination from septic systems through system maintenance, system replacement, alternative technologies and the development of community systems.	**Milestone S-1.1** Continue to evaluate and demonstrate alternative technologies that reduce nitrogen export to Great Bay. *Partners: Rockingham County Conservation District, Strafford County Conservation District, Granite State Designers and Installers, Strafford Regional Planning Commission*	**Measure S-1.1a** Building on the success of previous PRB projects, install a permeable reactive barrier system within the Great Bay watershed.					
		Measure S-1.1b Completion of monitoring report documentation showing two years of effectiveness monitoring data from the permeable reactive barrier system.					
		Measure S-1.1c Identification of candidate sites for installation of other types of de-nitrifying systems in the Great Bay watershed.					
	Milestone S-1.3 Collect phosphorus data on Baboosic Lake (volunteer monitoring) to measure the results of a community septic system. *Partners: Town of Amherst, UNH Lakes Lay Monitoring Program (LLMP)*	**Measure S-1.3** Completed analysis of phosphorus trend in LLMP annual reports.					

Subsurface Systems (S) Goal. Septic systems are designed, installed and maintained in a way that allows them to function without degrading water quality.			Schedule				
			2020	2021	2022	2023	2024
Objective	**Milestone**	**Measure of Success**					
Objective S-1 (cont.)	**Milestone S-1.4** Develop capacity to implement a community septic system in a phosphorus-impaired lake watershed that has an approved watershed-based plan. *Partners: Granite State Designers and Installers, New Hampshire Municipal Association, New Hampshire CWSRF, New Hampshire Health Officers Association, New Hampshire Building Officials Association, watershed organizations*	**Measure S-1.4** A **c**andidate community septic system site is identified.					
	Milestone S-1.5 Provide increased opportunities for septic system replacement and development of community systems. *Partners: NHDES, Granite State Designers and Installers, New Hampshire Municipal Association, New Hampshire State Revolving Loan Fund Program CWSRF, New Hampshire Health Officers Association, New Hampshire Building Officials Association, Southeast Watershed Alliance, Piscataqua Region Estuaries Partnership, New Hampshire Housing Authority, US Department of Agriculture Rural Development*	**Measure S-1.5** Annual State Revolving Fund (SRF) loans and State Aid Grants are made available for septic systems.					

Subsurface Systems (S) Goal. Septic systems are designed, installed and maintained in a way that allows them to function without degrading water quality.			**Schedule**				
			2020	**2021**	**2022**	**2023**	**2024**
Objective	**Milestone**	**Measure of Success**					
Objective S-1 (cont.)	**Milestone S-1.6** Encourage septic system evaluation and priority ranking for replacement of older, malfunctioning septic systems in high-quality waters and watersheds with bacteria and nutrient impairments; implement septic system replacement programs for high-priority systems.	**Measure S-1.6** Prioritized list of septic systems in high quality and/or impaired waters for replacement; at least three priority systems are replaced.					
Objective S-2 Research approaches and policies for improved septic system management.	**Milestone S-2.1** Review septic system districts or utilities in California, Connecticut, New York, and Texas. *Partners: Granite State Designers and Installers, New Hampshire Municipal Association, Southeast Watershed Alliance, Piscataqua Region Estuaries Partnership*	**Measure S-2.1** Report evaluating legal structure of septic system authorities in other states.					
	Milestone S-2.2 Track and participate in efforts led by the Shoreland Septic System Study Commission to develop approaches to remediate septic systems. *Partners: New Hampshire legislators and appointed study commission members*	**Measure S-2.2** A final report of the commission's findings is issued and follow-up actions are identified.					

EMERGING NPS ISSUES

Emerging contaminants, or *contaminants of emerging concern*, can refer to many different kinds of chemicals, including those found in medicines, personal care products, pesticides and herbicides, fire suppressants, and household cleaning products. When these chemicals make their way to lakes and rivers, they can have a detrimental effect on fish and other aquatic species. This section provides information about three areas of emerging concern related to New Hampshire's efforts to control NPS pollution:

- Perfluoroalkyl and polyfluoroalkyl substances (PFAS).
- Pharmaceuticals and personal care products.
- Marine debris, trash and microplastics.

Numerous federal and state regulations and programs are being created, updated or are already in place to control the release of toxic substances to the environment and, when needed, to clean up contaminated areas. However, in many cases, more research is needed on potential impacts and threats from PFAS and pharmaceuticals, and marine debris, trash and microplastics. As more information becomes available on the sources of these pollutants, the New Hampshire NPS Management Program may have a future role to help reduce these threats to human health, aquatic life and ground and surface water quality.

PERFLUOROALKYL AND POLYFLUOROALKYL SUBSTANCES (PFAS)

BACKGROUND

Over the past few years, drinking water quality issues related to perfluorinated compounds has become a major focus for NHDES. According to the *Technical Background for the June 2019 Proposed Maximum Contaminant Levels and Ambient Groundwater Quality Standards for Perfluorooctane sulfonic Acid, Perfluorooctanoic Acid, Perfluorononanoic Acid, and Perfluorohexane sulfonic Acid.*, (NHDES, 2019e) related to the establishment of maximum contaminant levels (MCLs) for drinking water:

"*Perfluorooctanesulfonic acid (PFOS), perfluorooctanoic acid (PFOA), perfluorononanoic acid (PFNA), and perfluorohexanesulfonic acid (PFHxS) are individual compounds in a large class of chemicals known as perfluorinated compounds (PFCs) and more broadly as per- and polyfluoroalkyl substances (PFAS). They have been widely used since the 1940s in commercial, industrial, and household products and applications, including production of water, grease, and stain-resistant materials, fire suppression foams, non-stick cookware, wax removers, etc. (ATSDR 2018b).*

All four compounds have been detected in New Hampshire's groundwater and surface water. Their widespread use, persistence and mobility in the environment and bioaccumulative properties has

resulted in the detection of PFAS in blood serum in humans and animals worldwide. This has led to considerable research into their toxicity and health effects. The health effects associated with PFAS exposure are currently being researched extensively by toxicologists and epidemiologists worldwide, resulting in numerous publications being released on a continuous basis." (NHDES, 2019e)

These compounds are a class of so-called "forever chemicals" because they are so persistent in the environment, and as such, have the potential to cause human harm. In addition to developing MCLs, NHDES has also been charged with the development of a plan for, and the eventual adoption of, surface water quality standards for the same four PFAS listed above. This will most likely occur over the next few years.

The implications of these new regulations on stormwater and other NPSs of pollution are unknown at this time. NHDES has data that show that some PFAS contamination comes from airborne sources possibly contaminating our rain and snow. This implies that stormwater runoff could be one means for their transport across the landscape. Agriculture runoff is of concern where PFAS-contaminated soil amendments have been utilized. Septic systems and land application of sludge are other potential sources of contamination. The scientific research on PFAS is showing that these contaminants are wide-spread across the environment. These chemicals are difficult to remove and NPS treatment technologies are only beginning to be developed. Therefore, the likely near future of PFAS regulation and restoration in surface water will need to be focused on controls at the source.

Future NPS management activities could include source identification, watershed-based plans development, BMP and treatment demonstration programs, and outreach to affected communities.

RESOURCES

- EPA's Per- and Polyfluoroalkyl Substances (PFAS) Action Plan.
- Interstate Technology Regulatory Council PFAS Fact Sheets.
- New Hampshire PFAS investigation website.

PHARMACEUTICALS AND PERSONAL CARE PRODUCTS

BACKGROUND

According to the NHDES fact sheet on the subject, "Pharmaceuticals and personal care products (PPCPs) comprise a diverse group of chemicals including, but not limited to, prescription and over-the-counter human drugs, veterinary drugs, diagnostic agents, nutritional supplements and other consumer products, such as fragrances, cosmetics, bug repellant and sun-screen agents. PPCPs include a broad array of synthetic and naturally occurring compounds that are not commonly monitored or regulated in drinking water or aquatic environments." (NHDES, 2010b)

These types of substances find their way into the environment through a variety of pathways, such as spills, wastewater effluent, landfill leachate, and Aquaculture waste. In recent years, concerns about the

effects of PPCPs have led to sampling in surface and groundwater. Many PPCPs can be detected in these waters at low concentrations, often measured in parts per trillion. Research is ongoing as to the health impacts on human and aquatic creatures, however, some of these PPCPs have been implicated in studies of deformities and behavior changes in fish and other organisms.

Many unknowns remain regarding the potential for negative ecological and human health effects from exposure to ingredients in PPCPs once released and accumulated in the environment. For this reason, NHDES strongly supports research on this topic, especially for human health effects on sensitive populations such as children, pregnant women and those with compromised immune systems.

To this end, NHDES has conducted a few small PPCP groundwater studies; and, drinking water systems are required to take annual samples of 10 common PPCPs in there finished product. In addition, U.S. Geological Survey and EPA recently published a nationwide study on PPCPs in surface water that are sources of drinking water for public water systems (Bradley, et al.2019). This study looked at 475 unique chemical compound, including PPCPs.

NHDES has taken some actions on PPCPs. First, New Hampshire adopted a low groundwater standard for 1,4-dioxane, which is associated with personal care products. Next, NHDES is partnering with the New Hampshire of Health and Human Services. Antibiotic Resistance Workgroup. Together, they are broadening the medical community's understanding of sources of antibiotic resistance other than patient or prescribing practices. And finally, in New Hampshire, the biggest success story with PPCP has to do with NHDES spearheading efforts to change State laws and regulations over the last 10 years to enable both police stations and pharmacies to have medicine disposal drop boxes. These were not allowed until NHDES coordinated efforts to change the law. There are now around 80 collection boxes throughout the state. Recently, NHDES coordinated with the Governor's office and the Northeast Waste Management Officials' Association to apply for and receive a grant from USDA to improve medicine disposal practices at long-term health care facilities in rural New Hampshire.

From a NPS pollution perspective, the focus around PPCPs should be on encouraging additional research and educating the public about source control. The effectiveness of medicine drop boxes has been demonstrated. In addition, while conventional wastewater treatment systems are not very effective at removing PPCPs, septic systems appear to remove them fairly well. This is another benefit of promoting septic systems maintenance and replacement. Though little is published on the subject, given the way that septic systems remove PPCPs, other infiltration technologies may also be effective in their treatment. Like other chapters in this document, this demonstrates the need for stormwater BMPs that increase biological treatment and infiltration.

RESOURCES

- NHDES Medicine Disposal Information for New Hampshire

Marine Debris, Trash and Microplastics

Background

When waste is not properly recycled or disposed, it can become NPS pollution by entering oceans, streams, rivers and lakes.

NOAA funding through the NHDES Coastal Program enables Blue Ocean Society for Marine Conservation to organize the annual Coastweek Cleanup. Each year over a thousand participants clear hundreds of miles and thousands of pounds of trash. The amount and types of debris recorded becomes part of the international ocean trash index, which is compiled by Ocean Conservancy. Volunteers have removed over 170,000 pounds of litter from New Hampshire beaches since 2001 (Blue Ocean Society for Marine Conservation 2019).

In 2017-2018, EPA Trash Free Waters convened stakeholders from Maine and New Hampshire, forming Trash Free Waters Piscataqua, to help identify the waste streams of greatest concern to waters in the Piscataqua Region. They identified single-use plastics, derelict fishing gear and pet waste. The Piscataqua Region Estuaries Partnership and partners, including NHDES, are continuing to identify projects and partnerships to work to reduce these waste streams from entering inland and coastal waters in New Hampshire and Maine.

Plastics in the aquatic environment are of increasing concern because of their persistence and effect on the environment, wildlife and human health.

When larger plastics break down, they form microplastics – pieces of plastic between 1-5 millimeters. Microplastics can also enter waterbodies through wastewater from every day use of personal care products and washing of clothes made from synthetic fabrics. When microplastics are ingested by fish, the chemicals they contain can become concentrated in fish tissue and ultimately consumed by humans. Research is ongoing on the extent and impact of microplastics. With funding provided by a New Hampshire Sea Grant development grant, researchers worked with citizen scientists to collect microplastic samples on eight New Hampshire beaches. In addition to raising awareness about microplastics, results compiled in 2014 indicate there are potentially 7.5 million pieces of microplastics present on those beaches (UNH Sea Grant 2017). This research created sampling protocols and provided a baseline estimate of microplastic abundance that will help to inform future studies on the topic.

Resources

- EPA Trash Free Waters Program

REFERENCES

Blue Ocean Society for Marine Conservation, 2019. *Beach Cleanups.* Available at: http://www.blueoceansociety.org/beachcleanup/beach-cleanup-information/

Bradley, P., Journey, C., Berninger, J., Button, D., Clark, J., Corsi, S., DeCicco, L., Hopkins, K., Huffman, B., Nakagaki, N., Norman, J., Nowell, L., Qi, S., VanMetre, P. and Waite, I., 2019. Mixed-chemical exposure and predicted effects potential in wadeable southeastern USA streams. *Science of The Total Environment*, 655, pp.70-83. Available at: https://doi.org/10.1016/j.scitotenv.2018.11.186

Granite State Future, 2013. *Statewide Existing Conditions and Trends Assessment.* Available at: http://www.granitestatefuture.org/files/4813/9178/7683/StatewideExistingConditions.pdf

Milesi, C., Running, S., Elvidge, C., Dietz, J., Tuttle, B., and Nemani, R., 2005. *Mapping and modeling the biogeochemical cycling of turf grasses in the United States*. Environmental Management, 36(3), pp.426–438. Available at: https://www.ncbi.nlm.nih.gov/pubmed/16086109

New Hampshire Department of Environmental Services (NHDES), 2008a. *Baboosic Lake Watershed Based Plan*. Acton, MA: Geosyntec Consultants. Available at: http://des.nh.gov/organization/divisions/water/wmb/was/documents/wbp_baboosic.pdf

New Hampshire Department of Environmental Services, 2008b. *New Hampshire Stormwater Manual: Volume 1, Revision: 1.0*, Available at: https://www.des.nh.gov/organization/commissioner/pip/publications/wd/documents/wd-08-20a.pdf

New Hampshire Department of Environmental Services, 2008c. *New Hampshire Water Resources Primer*, December 2008. Available at: https://www.des.nh.gov/organization/divisions/water/dwgb/wrpp/documents/primer_front_matter.pdf

New Hampshire Department of Environmental Services, 2008d. *Pawtuckaway Lake Watershed Based Plan*. Acton, MA: Geosyntec Consultants. Available at: http://des.nh.gov/organization/divisions/water/wmb/was/documents/wbp_pawtuckaway_lake.pdf

New Hampshire Department of Environmental Services, 2010a. *Cobbett's Pond Watershed Restoration Plan*. Acton, MA: Geosyntec Consultants. Available at: http://projects.geosyntec.com/BW0131/Documents/FINAL%20Cobbetts%20WRP_12102010.pdf

New Hampshire Department of Environmental Services, 2010b. *Pharmaceuticals and Personal Care Products in Drinking Water and Aquatic Environments - Answers to Frequently Asked Questions:*

WD-DWGB-22-28. Available at: https://www.des.nh.gov/organization/commissioner/pip/factsheets/dwgb/documents/dwgb-22-28.pdf

New Hampshire Department of Environmental Services, 2014a. *Great Bay Nitrogen Non-Point Source Study*: R-WD-13-10 Available at: http://des.nh.gov/organization/divisions/water/wmb/coastal/documents/gbnnpss-report.pdf

New Hampshire Department of Environmental Services, 2014b. *Province Lake Watershed-based Plan, FB Environmental.* Available at: https://www.des.nh.gov/organization/divisions/water/wmb/was/documents/province-lake-plan.pdf

New Hampshire Department of Environmental Services, 2016. N*ew Hampshire Homeowner's Guide to Stormwater Management Do-It-Yourself Stormwater Solutions for Your Home*. Available at: https://www4.des.state.nh.us/SoakNH/wp-content/uploads/2016/04/NH-Homeowner-Guide-2016.pdf

New Hampshire Department of Environmental Services, 2019a. *2018 Section 305(b) and 303(d) Consolidated Assessment and Listing Methodology.* Available at: https://www.des.nh.gov/organization/divisions/water/wmb/swqa/2018/documents/r-wd-19-04.pdf

New Hampshire Department of Environmental Services, 2019b. *2018 Status of Each Assessment Unit.* Available at: https://www.des.nh.gov/organization/divisions/water/wmb/swqa/2018/documents/2018-303d.xlsx

New Hampshire Department of Environmental Services, 2019c. *NHDES Environmental Dashboard.* Coastal Waters: Total Nitrogen Concentration. Available at: http://www4.des.state.nh.us/NHEnvironmentalDashboard/

New Hampshire Department of Environmental Services, 2019d. *NHDES Environmental Dashboard.* Lakes and Rivers: Lake Water quality. Available at: http://www4.des.state.nh.us/NHEnvironmentalDashboard/

New Hampshire Department of Environmental Services, 2019e. *Summary of Comments on Initial Proposals with NHDES Responses Attachment 1: Technical Background for the June 2019 Proposed Maximum Contaminant Levels and Ambient Groundwater Quality Standards for Perfluorooctane sulfonic Acid, Perfluorooctanoic Acid, Perfluorononanoic Acid, and Perfluorohexane sulfonic Acid.* Available at: https://www4.des.state.nh.us/nh-pfas-investigation/wp-content/uploads/Summary-of-Comments-Responses-with-Attachments.pdf

New Hampshire Regional Planning Commissions, 2016. *County Populations Projections 2016 by Age and Sex*. RLS Demographics, Inc., Rensselaerville, NY. Available at: https://www.nh.gov/osi/data-center/documents/2016-state-county-projections-final-report.pdf

North East State Foresters Association (NEFA), 2013. *The Economic Importance of New Hampshire's Forest-Based Economy*. Available at: https://extension.unh.edu/resources/files/Resource001848_Rep2650.pdf

Parry, C. (2019). Boat Registration Numbers. [email].

Piscataqua Region Estuaries Partnership, 2013. *State of Our Estuaries*. PREP Reports & Publications. 259. Available at: https://scholars.unh.edu/prep/259

Piscataqua Region Estuaries Partnership, 2018. *State of Our Estuaries Report 2018.* PREP Reports & Publications. 391. Available at: https://scholars.unh.edu/prep/391

Southern New Hampshire Planning Commission, 2014. *Moving Southern NH Forward Volume 1 2015 – 2035 Draft*. Available at: http://www.snhpc.org/pdf/GSFVol1Draft070814.pdf

University of New Hampshire Sea Grant, 2017. *A Microplastics Survey of New Hampshire Beaches: A Citizen Science Pilot Study.* NH Sea Grant Development Project Completion Report M/D-1302. Available at: https://seagrant.unh.edu/sites/default/files/projects/reports/M-D-1302%20Bradt%202014%20CR.pdf

U.S. Department of Agriculture, 2019. *2017 Census of Agriculture, Summary and State Data, Volume 1.* Available at: https://www.nass.usda.gov/Publications/AgCensus/2017/Full_Report/Volume_1,_Chapter_1_US/usv1.pdf

U.S. Department of Agriculture, Forest Service, 2016. *Mineral Collecting Guide: White Mountain National Forest – Gold Panning.* Available at: *https://www.fs.usda.gov/Internet/FSE_DOCUMENTS/fseprd503508.pdf*

U.S. Department of Agriculture, National Agriculture Statistics Service, 2018. *CropScape Cropland Data Layer.* Available at: http://nassgeodata.gmu.edu/CropScape

U.S. Environmental Protection Agency, 2002. *Onsite Wastewater Treatment Systems Manual*. Washington, D.C.: Office of Research and Development. Available at: https://www.epa.gov/sites/production/files/2015-06/documents/2004_07_07_septics_septic_2002_osdm_all.pdf

U.S. Environmental Protection Agency, 2011. *Waters Assessed as Impaired Due to Nutrient-Related Causes*. Available at: http://www2.epa.gov/nutrient-policy-data/waters-assessed-impaired-due-nutrient-related-causes

U.S. Environmental Protection Agency, 2012. *Clean Watersheds Needs Survey 2012 New Hampshire State Fact Sheet*. Available at: https://www.epa.gov/sites/production/files/2015-10/documents/cwns_fs-nh.pdf

U.S. Environmental Protection Agency, 2013a. *A Model Program for Onsite Management in the Chesapeake Bay Watershed*. Available at: https://federalleadership.chesapeakebay.net/130627_Ches_Bay_Tech_Assist_Manual.pdf

U.S. Environmental Protection Agency, 2013b. *Nonpoint Source Program and Grants Guidelines for States and Territories.* Available at: https://www.epa.gov/sites/production/files/2015-09/documents/319-guidelines-fy14.pdf

Wake, C., Knott, J., Lippmann, T., Stampone, M., Ballestero, T., 2019. *New Hampshire Coastal Flood Risk Part 1: Science.* Durham, NH: Institute for the Study of Earth, Oceans, and Space of the University of New Hampshire. Available at: https://scholars.unh.edu/cgi/viewcontent.cgi?article=1209&context=ersc

Wake, C., Burakowski, R., Wilkinson, P., Hayhoe, K., Stoner, A., Keeley, C., LaBranche, J., 2014. *Climate Change in Northern New Hampshire: Past, Present, and Future*. Durham, NH: The Sustainability Institution of the University of New Hampshire. Available at: https://sustainableunh.unh.edu/sites/sustainableunh.unh.edu/files/media/unhsi-csne-northernnh_climateassessment_june_4_2014.pdf.

APPENDIX A: PRIORITY AREAS FOR NONPOINT SOURCE MANAGEMENT ACTIVITIES IN NEW HAMPSHIRE

NHDES METHODOLOGY FOR PRIORITIZING WATER QUALITY RESTORATION AND PROTECTION ACTIVITIES 2020 - 2024

I. About the Recovery Potential Screening Tool

The Recovery Potential Screening Tool (RPST) was developed by EPA as a resource for states to identify areas to focus limited resources among large numbers of NPS-impaired waters. RPST provides a systematic approach for comparing waters or watersheds and identifying differences in how well they may respond to restoration. Using representative ecological, stressor and social characteristics of each watershed, RPST identifies the geographic areas in the state with the greatest likelihood of successful water quality restoration efforts.

NHDES selected the RPST for its availability, ease of use, flexibility and usefulness of results. In addition to using RPST for determining recovery potential, NHDES also used the tool for determining protection potential. Throughout this document, NHDES refers to this protection-related screening as the Protection Potential Screening Tool (PPST), which provides the geographic areas in the state with the greatest likelihood of successful water quality protection projects.

The NHDES methodology for using the RPST/PPST is described in this appendix.

II. Defining a Geographic Scope for Analysis

Screening can take place on any geographic scale that contains multiple smaller units (waters or watersheds) that need to be compared and contrasted. For recovery screening using RPST, NHDES chose to look at the AU level, as it would provide the most useful scale of information to assign priority to waters and watersheds impaired or threatened by NPS pollution. For protection screening using PPST, NHDES chose to look at the HUC12 level, as it would provide the most useful and manageable scale of information. This recovery and protection potential assignment will assist in determining priority geographic areas to guide NHDES work and direct where grant funds and technical resources should be focused to obtain the maximum benefit for restoration and protection activities, as required in key component 5 of the Section 319 Program Guidance: Key Components of an Effective State Nonpoint Source Management Program.

Each waterbody type (lakes, rivers, estuaries, etc.) in New Hampshire is divided into smaller segments called AUs. In general, AUs are the basic unit of record for conducting and reporting the results of all water quality assessments. AUs are intended to be representative of homogenous segments; consequently, sampling stations within an AU can be assumed to be representative of the segment. In general, the size of AUs should not be so small that they result in an unmanageable

number of AUs for reporting. On the other hand, AUs should not be so large that they result in grossly inaccurate assessments.

Many factors can influence the homogeneity of a segment. Factors used to establish homogenous AUs are presented in the following table. Based on the criteria shown in the table, lake, river, impoundment, ocean and estuarine surface waters in New Hampshire were divided into over 8,800 AUs for assessment and reporting purposes.

Factor	Comments
Waterbody Type	Different waterbody types (i.e., river, lake, impoundment, estuary, ocean) have different water quality standards and may respond differently to pollutants. Consequently, to help ensure homogeneity, different AUs are needed for different waterbody types.
HUC-12 Boundaries	HUC stands for hydrologic unit code. Separate AUs were established wherever 12-digit HUC boundaries were crossed to prevent AUs from becoming too large and to facilitate the naming convention for AUs.
Water Quality Standards	All waters represented by an AU should have the same water quality standard; otherwise it's possible that a portion of an AU could meet standards while the other portion is in violation. This would lead to inaccurate assessments.
Pollutant Sources:	The presence of major point and/or nonpoint sources of pollutants can have a significant impact on water quality and, therefore, homogeneity within an AU.
Maximum AU size for rivers and streams	To keep AUs for rivers and streams from becoming too large, the following criteria were applied: AU $\leq$ 10 miles for rivers and streams of 3rd order or less. AU $\leq$ 25 miles for rivers and streams greater than 3rd order.
Major changes in Land Use	Land use can have a significant impact on pollutant loading and quality of surface waters.
Stream Order/Location of Major Tributaries	Stream order and location of major tributaries can have a significant impact on the quantity and quality of water due to the amount of dilution available to assimilate pollutants.
Public Water Supplies	Separate AUs were developed for these surface waters to facilitate reporting.

Factor	Comments
Outstanding Resource Waters	Outstanding Resource Waters are defined in the surface water quality regulations as surface waters of exceptional recreational or ecological significance and include all surface waters of the national forests and surface waters designated as natural under RSA 483:15.
Shellfish Program Categories	Tidal waters were divided into AUs based on the classification system for the shellfish program to facilitate reporting.
Designated Beaches	Designated beaches have more stringent bacteria criteria; consequently, separate AUs were established for these waterbodies.
Cold water fish spawning areas	Coldwater fish spawning areas have different dissolved oxygen criteria than other surface waters. Consequently, separate AUs were established for these waterbodies where information was available from NHFG.

III. Query NHDES' Supplemental Assessment Database (SADB)

NHDES Water Quality Section personnel ran a query of the SADB for all current (2018) AUs that are impaired for a NPS-related parameter, per the CALM. NHDES has chosen the following list of parameters to represent NPS-related parameters. This list only includes parameters that are able to be remediated through BMP implementation, stream restoration/alteration and changes to land use practices. Although copper, lead and zinc are typically considered NPS parameters, they were not chosen for this analysis because of the aforementioned rational.

SADB Impairment ID	SADB Impairment Name
87	Aluminum
91	Ammonia (Un-ionized)
100	BOD, Biochemical oxygen demand
105	Benthic-Macroinvertebrate Bioassessments (Streams)
138	Chloride
150	Chlorophyll-a
170	Cyanobacteria hepatotoxic microcystins
205	Dissolved oxygen saturation
215	Enterococcus

SADB Impairment ID	SADB Impairment Name
217	Escherichia coli
227	Excess Algal Growth
230	Fishes Bioassessments (Streams)
243	Habitat Assessment (Streams)
270	Low flow alterations
308	Ammonia (Total)
319	Other flow regime alterations
322	Oxygen, Dissolved
371	Sedimentation/Siltation
400	Fecal Coliform
403	Total Suspended Solids (TSS)
413	Turbidity
458	Nitrogen (Total)
462	Phosphorus (Total)

Impairments are defined as a NHDES sub-category beginning with a 4 or 5, as defined in the CALM. The definitions of the NHDES sub-categories are presented in the table below.

EPA ATTAINS Category	NHDES Sub-Category	Definition of NHDES Sub-Category for PARAMETERS
4A	4A-M	The parameter is a pollutant which is assessed as an impairment per the CALM, and an EPA-approved TMDL has been completed. However, the impairment is relatively slight or marginal, as defined below: 1. For parameters where the 10% rule applies, the number of exceedances equals or exceeds the number of exceedances needed to assess the parameter as impaired in Table 3-13, however, all of the exceedances are < the MAGEXC criterion; or 2. For bacteria, there are no magnitude of exceedances of the geometric mean and/or no MAGEX of the single sample criterion; 3. the Benthic Index of Biological Integrity (B-IBI) marginal category in under development 4. For trophic class based assessments, the calculated median > criteria.
	4A-P	The parameter is a pollutant which is assessed as an impairment per the CALM, and an EPA-approved TMDL has been completed. However, the impairment is more severe and causes poor water quality conditions, as defined below: 1. For parameters where the 10% rule is violated, at least 1 violation is an exceedance of the MAGEXC criterion; or 2. Non-support is based upon 2 or more exceedances of the MAGEXC criterion; or 3. For bacteria, there is at least one magnitude of exceedance of the geometric mean or 4. there are two or more exceedances of the single sample criterion with at least one exceeding the MAGEX; or 5. the Benthic Index of Biological Integrity (B-IBI) fails the bioregion criteria. 6. For trophic class based assessments, the calculated median > 2X criteria.
4B	4B-M	Parameter is a pollutant that is causing impairment as per the CALM but a TMDL is not necessary since other controls are expected to attain water quality standards within a reasonable time. The impairment is marginal as defined in NHDES sub-category 4A-M above.
	4B-P	Parameter is a pollutant that is causing impairment as per the CALM but a TMDL is not necessary since other controls are expected to attain water quality standards within a reasonable time. The impairment is more severe and causes poor water quality as defined in NHDES sub-category 4A-P above.
4C	4C-M	Parameter is not a pollutant but is causing impairment per the CALM. The impairment is marginal as defined in NHDES sub-category 4A-M above.
	4C-P	Parameter is not a pollutant but is causing impairment per the CALM. The impairment is more severe and causes poor water quality as defined in NHDES sub-category 4A-P above.

EPA ATTAINS Category	NHDES Sub-Category	Definition of NHDES Sub-Category for PARAMETERS
5	5-M	Parameter is a pollutant that requires a TMDL. The impairment is marginal as defined in NHDES sub-category 4A-M above.
	5-P	Parameter is a pollutant that requires a TMDL. The impairment is more severe and causes poor water quality as defined in NHDES sub-category 4A-P above.

IV. Delineate Watersheds for Recovery Potential Screening

All lakes, rivers, impoundments and estuaries impaired for one or more of the NPS parameters described in Section II, had a unique watershed delineated for it. Watersheds were delineated using an automated ArcGIS model developed by Ken Edwardson, NHDES Senior Scientist. The tool uses a flow direction raster, which has been modified with Walls (HUC12 boundaries), Breaches (NHD network) and Sinks (NHD network) for each of the five HUC6 basins (i.e., Androscoggin, Connecticut, Merrimack, Piscataqua and Saco).

After the watersheds were delineated/created, they were clipped to the New Hampshire borders. This allowed for consistent data analysis, as some GIS coverages and data were only available for New Hampshire. The watersheds were also clipped using the HUC12 boundaries that the AUID resides in. For AUs that span multiple HUC12s, the watershed was clipped to include all appropriate HUC12s. This provided a manageable and realistic extent for which watershed organizations might seek grant funding to produce and implement a watershed management plan.

V. Delineate Watersheds for Protection Potential Screening

HUC12 sub-watersheds, which are small watersheds covering typically 10,000 to 40,000 acres were used for the PPST analysis. The USGS has assigned Hydrologic Unit Codes (HUCs) from two to 12 digits long to watersheds across the country. These watersheds were delineated using topographical features and local information. A HUC12 sub-watershed is the smallest watershed unit in the USGS system and is denoted with a unique 12-digit code.

VI. Data Gathering

NHDES personnel used three primary methods to gather information on a variety of ecological, stressor and social metrics (described below) to categorize watersheds by their recovery or protection potential. The primary method used to gather data was through the use of ArcGIS analyses. NHDES also queried data from internal databases, including the EMD and the SADB.

Some of the metrics were calculated at two levels. 1) The watershed level, which includes the area delineated as part of Section III. 2) The Active River Area level, which is a framework based upon dominant processes and disturbance regimes used to identify areas within which important physical and ecological processes of the river or stream occur. The framework identifies five key subcomponents of the active river area: 1) material contribution zones, 2) meander belts, 3) riparian

wetlands, 4) floodplains and 5) terraces. The Active River Area framework was developed by The Nature Conservancy in 2009.

The Active River Area framework was mapped using a 30-meter Digital Elevation Model and 1:100,000 scale hydrography. The AUs were mapped using high resolution aerial imagery and 1:24,000 scale hydrography. Because of this difference in scale there were some AUs that did not have an active river area to associate with. In these instances, the data analysis returned 'no value'. In these and in other instances where 'no values' were obtained (e.g., % stream miles or lake acres in a watershed) the median value for the metric was calculated and used. This allowed for an unbiased look across metrics. When this occurred a note was added to the record in the spreadsheet for posterity.

Ecological Metrics	R	P	Stressor Metrics	R	P	Social Metrics	R	P
Watershed size	X		Watershed aquatic barriers	X	X	Watershed size	X	
Strahler Stream Order ≤ 3*	X	X	Corridor road crossing density	X	X	Approved TMDL existence	X	
Watershed %			Number of 303(d) listed causes	X	X	Watershed-based plan	X	X
Instate area	X		**Watershed %**			(a) through (i) Watershed-based Plan	X	**X**
Stream miles unimpaired	X		Impervious area	X	X	Jurisdictional complexity	X	X
Lake acres unimpaired	X		Agriculture	X		Watershed population	X	
Natural cover	X	X	Pasture	X		Number of drinking water intakes	**X**	**X**
Forest	X	X	Developed	X	X	Assessment unit class	X	
Wetlands	X	X	**Active River Area %**			Local River Advisory Committee	X	X
Natural services network	X	X	Impervious area	X	X	**Watershed %**		
Active River Area %			Agriculture	X		Protected land	X	
Natural cover	X	X	Pasture	X		Stream miles assessed	X	
Forest	X	X	Developed	X	X	Lake acres assessed		X
Wetlands	X	X				Agriculture		X
						Pasture		X

* Strahler Stream Order ≤ 3 was not included in the ecological metrics for the lakes restoration priority assessment.

"R" – designates metrics used for recovery potential analysis

"P" – designates metrics used for protection potential analysis

"**X**" – designates metric was weighted in analysis

Ecological Metrics

- **Watershed Size** – Full size of the watershed delineated for a particular AU, extending to the HUC6 or Basin level.
- **Watershed % In-state Area** – The amount of area used to collect data relative to its full Watershed Size. Full watersheds were clipped to the New Hampshire border and to the HUC12 they resided in, as described in Section III.
- **Watershed % Stream Miles Unimpaired** – All linear AUs that were within a particular watershed were captured and the stream miles were calculated. AUs were then compared to data housed in the SADB to determine their overall status. The sum of stream miles from unimpaired AUs were compared to the total number of stream miles to determine the percent unimpaired. If an AU was impaired for any parameter (not just stormwater), it was considered impaired.
- **Watershed % Lake Acres Unimpaired** – All polygon type AUs (lakes, impoundments and estuaries) that were within a particular watershed were captured and the acres were calculated. AUs were then compared to data housed in the SADB to determine overall status. The sum of acres form unimpaired AUs were compared to the total number of acres to determine the percent unimpaired. If an AU was impaired for any parameter (not just stormwater), it was considered impaired.
- **Watershed % Natural Cover** – Calculated as area of land within the watershed categorized in the 2016 National Land Cover Dataset (NLCD) as class: 52 (Shrub/Scrub), 71 (Grassland/Herbaceous), 90 (Woody Wetlands), 95 (Emergent Herbaceous Wetlands), 41 (Deciduous Forest), 42 (Evergreen Forest) and 43 (Mixed Forest).
- **Watershed % Forest** – Calculated as area of land within the watershed categorized in the 2016 NLCD as class: 41 (Deciduous Forest), 42 (Evergreen Forest) and 43 (Mixed Forest).
- **Watershed % Wetlands** – Calculated as area of wetlands within the watershed categorized in the 2016 NLCD as class: 90 (Woody Wetlands) and 95 (Emergent Herbaceous Wetlands).
- **Watershed % Natural Services Network** – Calculated as area of Natural Services Network areas within the watershed. New Hampshire Audubon Society developed the Natural Services Network dataset, which includes lands that provide important ecological services that are difficult and expensive to replicate. Natural Services Networks include water supply lands, flood storage lands, productive soils and important wildlife habitat.
- **Active River Area % Natural Cover** – Calculated as area of land within the active river area categorized in the 2016 NLCD as class: 52 (Shrub/Scrub), 71 (Grassland/Herbaceous), 90 (Woody Wetlands), 95 (Emergent Herbaceous Wetlands), 41 (Deciduous Forest), 42 (Evergreen Forest) and 43 (Mixed Forest).
- **Active River Area % Forest** – Calculated as area of land within the active river area categorized in the 2016 NLCD as class: 41 (Deciduous Forest), 42 (Evergreen Forest) and 43 (Mixed Forest).
- **Active River Area % Wetlands** – Calculated as area of wetlands within the active river area from the 2016 NLCD categorized as class: 90 (Woody Wetlands) and 95 (Emergent Herbaceous Wetlands).
- **Strahler Stream Order ≤ 3rd** – Yes/No field describing if the river AU is less than or equal to third order. Lakes, impoundments and estuaries were entered as N/A.

Stressor Metrics

- **Watershed % IA** – Calculated as area of land within a watershed from the NLCD 2016 Percent Developed Imperviousness dataset.
- **Watershed % Agriculture** – Calculated as area of land within the watershed categorized in the USDA, National Agricultural Statistics Service (NASS), 2018 New Hampshire Cropland Data Layer as agriculture. Included all classes with the exception of 111-195 (NLCD land use categories) and 62 (Pasture/Grass).
- **Watershed % Pasture** – Calculated as area of land within the watershed categorized in the USDA, NASS, 2018 New Hampshire Cropland Data Layer as 62 (Pasture/Grass).
- **Watershed % Developed** – Calculated as area of land within the watershed categorized in the 2006 NLCD as class: 21 (Developed, Open Space), 22 (Developed, Low Intensity), 23 (Developed, Medium Intensity) and 24 (Developed, High Intensity).
- **Watershed Aquatic Barriers** – A count of the number of dams within the watershed using the NHDES Dam Bureau ArcGIS dataset.
- **Corridor Road Crossing Density** – A count of the number of intersections between the NHDOT road network and the NHD stream network within a watershed, divided by the total number of stream miles within the watershed calculated form the NHD stream network.
- **Active River Area % IA** – Calculated as area of land within the active river area from the statewide 2016 impervious surface coverage dataset.
- **Active River Area % Agriculture** – Calculated as area of land within the active river area categorized in the USDA, NASS, 2018 New Hampshire Cropland Data Layer as agriculture. Included all classes with the exception of 111-195 (NLCD land use categories) and 62 (Pasture/Grass).
- **Active River Area % Pasture** – Calculated as area of land within the active river area categorized in the USDA, NASS, 2018 New Hampshire Cropland Data Layer as 62 (Pasture/Grass).
- **Active River Area % Developed** – Calculated as area of land within the active river area categorized in the 2016 NLCD as class: 21 (Developed, Open Space), 22 (Developed, Low Intensity), 23 (Developed, Medium Intensity) and 24 (Developed, High Intensity).
- **Number of 303(d) Listed Causes** – A count of the number of stormwater related impairments for the AUID. A parameter is only counted once even if it is an impairment for multiple designated uses (e.g., Primary Contact Recreation). An AU can have a maximum of 23 causes/parameters (e.g., dissolved oxygen, pH, Chlorophyll-a).

Social Metrics

- **Watershed % Protected Land** – Calculated as area of land within the watershed located in GRANIT's conservation/public lands layer, 2018 Revision.
- **Watershed % Agriculture –** Calculated as area of land within the watershed categorized in the USDA, NASS, 2018 New Hampshire Cropland Data Layer as agriculture. Included all classes with the exception of 111-195 (NLCD land use categories) and 62 (Pasture/Grass).
- **Watershed % Pasture** – Calculated as area of land within the watershed categorized in the USDA, NASS, 2018 New Hampshire Cropland Data Layer as 62 (Pasture/Grass).
- **Watershed Size** – Full size of the watershed delineated for a particular AUID, extending to the HUC6 or Basin level.

- **Approved TMDLs Existence** – Yes/No field describing if there is a TMDL for one of the 23 stormwater parameters for the AU.
- **Watershed-Based Plan Existence** – Yes/No field describing if a watershed-based plan has been created for the primary HUC12 that the AU is associated with. Looks at all watershed-based plans developed in New Hampshire through a variety of partnerships and funding mechanisms.
- **(a) through (i) Watershed-based Plan Existence** – Yes/No field describing if the watershed-based plan adheres to EPA's (a) through (i), nine, mandatory elements required for watershed-based planning methodology.
- **% of Stream Miles Assessed** – All linear AUs that are within a particular watershed were captured and the stream miles were calculated. AUs were then compared to data housed in the SADB to determine its overall status. The sum of stream miles from all categories except 3-ND (no current data) were compared to the total number of stream miles to determine the percent assessed.
- **% of Lake Acres Assessed** – All polygon type AUs (lakes, impoundments and estuaries) that are within a particular watershed were captured and the acres were calculated. AUs were then compared to data housed in the SADB to determine its overall status. The sum of acres from all categories except 3-ND (no current data) were compared to the total number of acres to determine the percent assessed.
- **Jurisdictional Complexity** – A count of the number of New Hampshire municipalities that intersect the watershed.
- **Watershed Population** – Calculated by intersecting the 2010 US census block population data with the watershed boundaries. Census blocks that were bisected by a watershed boundary were pro-rated using the proportion of area within the watershed. The population from all census blocks within a watershed were summed.
- **# of Drinking Water Intakes** – A count of the number of community wells designated as active systems and having an active source, in the NHDES Drinking Water and Groundwater Bureau's ArcGIS layer.
- **AUID Class** – The designated use of the AU as described in RSA 485-A:8. Class A or B.
- **Watershed % MS4** – Calculated as area of land within the watershed covered by EPA's MS4 General Permit.
- **Local River Advisory Committee** – Yes/No field describing if the watershed intersects with a Designated River as defined under RSA 483. Once a river is designated, a volunteer LAC is formed and tasked with developing and implementing a River Management Plan so that the outstanding qualities of the river may be protected.

VII. Rank Data to Determine Recovery Potential and Protection Potential

In order to determine the recovery or protection potential of each of the watersheds relative to each other, NHDES used a methodology developed by EPA.

The tool uses a semi-automated process/spreadsheet to generate a recovery or protection potential score and rank for each watershed. The process involves:

- Entering the raw data for each metric into the spreadsheet.
- Normalizing indicator values to correct the unintentional weighting that would happen in a multi-metric index when some indicators measure values in thousands while others may be measured in fractions.
- Assigning weights, if desired.

- Calculate ecological, stressor and social indices. Within each of the three classes (ecological, stressor, social), a summary index is calculated for each watershed in the dataset by adding along each row all the normalized indicator values, dividing by the number of indicators you selected in that class, and then multiplying by 100.
- Calculate the Recovery Potential Integrated (RPI) or Protection Potential Integrated (PPI) score. The RPI/PPI score is calculated by adding Ecological, Social and 100 minus the Stressor index values and dividing by three, for each watershed. A higher RPI score implies better recovery potential.

$$\text{RPI or PPI Score} = \frac{\text{Ecological Index} + \text{Social Index} + (100 - \text{Stressor Index})}{3}$$

- Rank-ordering. Rank-ordering organizes screened watersheds from highest to lowest recovery potential based on their RPI scores.

VIII. Mapping the Results

Once the rank order was determined using the RPST, NHDES was able to map the data in ArcGIS by creating a simple join between NHDES' AU coverages and an excel spreadsheet containing the AU and rank. These maps group the RPI rank into three evenly distributed categories: low, medium and high recovery potential. All AUs that were not impaired for a stormwater parameter were grouped into their own category so that the full hydrography network could be shown on the maps at the selected HUC8 scale. Recovery potential ranking maps are presented by HUC8 watersheds, Regional Planning Commission service areas, and by Stormwater Coalitions in Appendices E, F, and G respectively.

Similarly, once the rank order was determined using the PPST, NHDES was able to map the data in ArcGIS by creating a simple join between NHDES' HUC12 coverage and an excel spreadsheet containing the HUC12 and rank. This map, included in Appendix I, groups the Protection Potential rank into three evenly distributed categories: low, medium and high protection potential presented at the statewide scale.

APPENDIX B: RIVER WATERSHEDS RECOVERY POTENTIAL RANKING LIST

Stormwater Impaired Watershed AUID	Watershed Name	Recovery Potential Indicator Score	Recovery Potential Indicator Rank	2020-2024 Recovery Potential
NHRIV600030902-02	OYSTER RIVER - CALDWELL BROOK	76.46	1	High
NHRIV600030902-03	OYSTER RIVER	75.13	2	High
NHRIV700020103-12	SHANNON BROOK - UNNAMED BROOK	73.11	3	High
NHRIV600031002-24	CHAPEL BROOK	73.00	4	High
NHRIV600030601-08	MAD RIVER	72.17	5	High
NHRIV600031002-23	TRIB TO CHAPEL BROOK	72.10	6	High
NHRIV700060904-07	PURGATORY BROOK	71.86	7	High
NHRIV600030902-01	UNNAMED TRIBUTARY - TO WHEELWRIGHT POND	70.85	8	High
NHRIV600030704-07	MOUNTAIN BROOK - UNNAMED BROOKS	70.79	9	High
NHRIV700010603-19	KENDALL BROOK	70.73	10	High
NHRIV801060101-16	CANAAN STREET LAKE-INLET AT FERNWOOD FARMS	70.73	11	High
NHRIV600030903-07	BELLAMY RIVER	70.66	12	High
NHRIV700030403-09	BRADLEY BROOK - UNNAMED BROOK	70.54	13	High
NHRIV802010101-08	ASHUELOT RIVER	70.36	14	High
NHRIV600031002-10	EEL POND OUTLET TO ATLANTIC OCEAN	70.31	15	High
NHRIV600030902-04	OYSTER RIVER - CHELSEY BROOK	70.22	16	High
NHRIV700020103-08	WEED BROOK - UNNAMED BROOK	70.08	17	High
NHRIV801060101-09	UNNAMED BROOK - TO NORTH INLET OF CANAAN STREET LAKE	69.86	18	High
NHRIV600031002-03	PARSONS CREEK EAST	69.86	19	High
NHRIV600030607-16	SCRUTON POND OUTLET BROOK	69.75	20	High
NHRIV700060102-07	TANNERY BROOK - COLD BROOK	69.47	21	High
NHRIV600020201-01	SWIFT RIVER - MEADOW BROOK	69.45	22	High
NHRIV600030902-05	OYSTER RIVER - UNNAMED BROOK	69.42	23	High

Stormwater Impaired Watershed AUID	Watershed Name	Recovery Potential Indicator Score	Recovery Potential Indicator Rank	2020-2024 Recovery Potential
NHRIV600030603-02	POKAMOONSHINE BROOK	69.35	24	High
NHRIV600030904-21	UNNAMED BROOK - TO GREAT BAY	69.17	25	High
NHRIV600030605-14	STONEHOUSE BROOK - HALL BROOK	69.12	26	High
NHRIV600020702-02	DAN HOLE RIVER	69.01	27	High
NHRIV600030603-04	RATTLESNAKE RIVER	68.95	28	High
NHRIV700060901-17	APPLETON-GIBBS BROOK	68.77	29	High
NHRIV600020202-07	FALLS BROOK - CILLEY BROOK	68.76	30	High
NHRIV600030606-06	BERRY RIVER - FROM LONG POND TO ISINGLASS RIVER	68.63	31	High
NHRIV600030902-06	LONGMARSH BROOK - BEAUDETTE BROOK	68.49	32	High
NHRIV600030703-04	DUDLEY BROOK - UNNAMED BROOK	68.45	33	High
NHRIV801070201-08	COLD RIVER - UNDERWOOD BROOK	68.40	34	High
NHRIV600030902-14	HORSEHIDE BROOK	68.38	35	High
NHRIV801010405-01	CONE BROOK - UNNAMED BROOK	68.28	36	High
NHRIV700060906-01	BEAVER BROOK	68.23	37	High
NHRIV700060302-08	HAYWARD BROOK	68.17	38	High
NHRIV600030903-06	BELLAMY RIVER - UNNAMED BROOK	68.16	39	High
NHRIV600030702-06	NORTH BRANCH RIVER - UNNAMED BROOKS	68.09	40	High
NHRIV600031002-01	BERRYS BROOK	68.08	41	High
NHRIV801040204-06	ROBINSON DETENTION POND EAST INLET	68.07	42	High
NHRIV700020101-03	WILEY BROOK	68.02	43	High
NHRIV700010603-01	CILLEY BROOK - FRETTS BROOK	67.87	44	High
NHRIV600030608-16	JACKSON BROOK	67.83	45	High
NHRIV600030401-02	PIKE BROOK	67.80	46	High
NHRIV600030601-09	COCHECO RIVER	67.74	47	High
NHRIV801010102-02	CONNECTICUT R - UNNAMED BRK - BIG BRK - COZZIE BRK - SMITH BRK - DRY BRK	67.66	48	High

Stormwater Impaired Watershed AUID	Watershed Name	Recovery Potential Indicator Score	Recovery Potential Indicator Rank	2020-2024 Recovery Potential
NHRIV600030707-07	LITTLE RIVER	67.65	49	High
NHRIV801040402-04	HEWES BROOK	67.64	50	High
NHRIV700010603-16	CAMP ONAWAY BROOK	67.62	51	High
NHRIV600020902-07	SOUTH RIVER - TO PROVINCE LAKE	67.60	52	High
NHRIV600030605-16	ISINGLASS RIVER	67.47	53	High
NHRIV600030701-01	LAMPREY RIVER - AND HEADWATER TRIBUTARIES	67.42	54	High
NHRIV600030802-10	TOWLE BROOK - TO PANDOLPIN DAM	67.18	55	High
NHRIV600020301-03	EAST BRANCH SACO RIVER - UNNAMED BROOK - GARDINER BROOK - WHITTEN BROOK	67.11	56	High
NHRIV801030701-05	OLIVERIAN BROOK - UNNAMED BROOK - MORRIS BROOK	67.04	57	High
NHRIV700030302-08	DAVIS BROOK	67.00	58	High
NHRIV600030702-07	NORTH BRANCH RIVER - UNNAMED BROOKS	66.98	59	High
NHRIV600030606-04	BERRYS RIVER - UNNAMED BROOK	66.97	60	High
NHRIV700061101-05	TAYLOR BROOK	66.91	61	High
NHRIV700010205-09	MILL BROOK	66.90	62	High
NHRIV801070201-03	UNNAMED BROOK - TO CRESCENT LAKE FROM NORTHEAST INLET	66.72	63	High
NHRIV600020104-03	WILDCAT BROOK	66.69	64	High
NHRIV600030605-05	MOHAWK BROOK	66.68	65	High
NHRIV600030608-02	BLACKWATER BROOK-CLARK BROOK	66.66	66	High
NHRIV801070201-01	COLD RIVER	66.61	67	High
NHRIV700060603-07	PISCATAQUOG RIVER	66.53	68	High
NHRIV600030707-02	HOWE BROOK	66.52	69	High
NHRIV700030502-10	AMEY BROOK	66.46	70	High
NHRIV801010704-04	PHILLIPS BROOK - JODRIE BROOK - NUMBER TWO BROOK - UNNAMED BROOK	66.45	71	High
NHRIV600030806-09	UNNAMED BROOK - TO SQUAMSCOTT RIVER	66.38	72	High

Stormwater Impaired Watershed AUID	Watershed Name	Recovery Potential Indicator Score	Recovery Potential Indicator Rank	2020-2024 Recovery Potential
NHRIV700060606-05	SOUTH BRANCH PISCATAQUOG RIVER	66.38	73	High
NHRIV700010301-04	BAKER RIVER - BATCHELDER BROOK	66.31	74	High
NHRIV700010602-05	FOWLER RIVER - UNNAMED BROOK	66.21	75	High
NHRIV801010704-03	PHILLIPS BRK - W BRANCH PHILLIPS - NELSON - WATKINSON - WELLS BRKS - AND TRIBS	66.19	76	High
NHRIV600020301-04	EAST BRANCH SACO RIVER - UNNAMED BROOK	66.16	77	High
NHRIV600030903-08	BELLAMY RIVER - KELLY BROOK - KNOX MARSH BROOK	66.14	78	High
NHRIV600030401-08	BRANCH RIVER	66.12	79	High
NHRIV600030402-04	JONES BROOK - HART BROOK	66.11	80	High
NHRIV700060503-16	BEAR BROOK	66.05	81	High
NHRIV802010101-20	UNNAMED BROOK - TO SAND POND	66.02	82	High
NHRIV700060501-22	PERRY BROOK - SANBORN BROOK	66.01	83	High
NHRIV700060906-12	GREAT BROOK - OX BROOK	65.98	84	High
NHRIV801010301-02	BISHOP BROOK - POND BROOK	65.97	85	High
NHRIV700010402-09	BEEBE RIVER	65.92	86	High
NHRIV600030802-03	EXETER RIVER	65.92	87	High
NHRIV600031001-03	SAGAMORE CREEK	65.87	88	High
NHRIV700010302-06	ORE HILL BROOK	65.86	89	High
NHRIV801060701-05	CHASE BROOK	65.85	90	High
NHRIV700010403-03	BOG BROOK	65.84	91	High
NHRIV700020201-20	GOVERNORS PARK STREAM	65.82	92	High
NHRIV700060901-08	FURNACE BROOK	65.78	93	High
NHRIV700060901-04	STARK BROOK	65.76	94	High
NHRIV802010303-11	QUARRY BROOK - UNNAMED BROOK	65.76	95	High
NHRIV700030104-29	GRIDLEY RIVER - UNNAMED BROOK	65.75	96	High
NHRIV700060607-15	HARRY BROOK	65.66	97	High

Stormwater Impaired Watershed AUID	Watershed Name	Recovery Potential Indicator Score	Recovery Potential Indicator Rank	2020-2024 Recovery Potential
NHRIV700010404-01	UNNAMED BROOK ALONG MEADOWVIEW DR	65.65	98	High
NHRIV700020101-22	NORTH INLET TO RUST POND	65.63	99	High
NHRIV600020802-05	RED BROOK	65.63	100	High
NHRIV700060901-09	SOUHEGAN RIVER - FURNACE BROOK	65.62	101	High
NHRIV700060604-10	RAND BROOK	65.53	102	High
NHRIV801030401-09	DARTMOUTH BROOK - TO AMMONOOSUC RIVER	65.53	103	High
NHRIV700060905-13	MCQUADE BROOK	65.48	104	High
NHRIV600030904-06	PICKERING BROOK	65.47	105	High
NHRIV700010401-06	SNOWS BROOK	65.47	105	High
NHRIV700020202-18	NORTHERN INLET TO SAWYER LAKE	65.45	107	High
NHRIV801030504-01	WILD AMMONOOSUC R - CLAY - STONY - BLACK - OLESONS - STARK FALLS -UNDERHILL BRKS	65.42	108	High
NHRIV700060301-13	TURKEY RIVER - BOW BROOK	65.42	109	High
NHRIV801070507-01	WEST RIVER - ASH SWAMP BROOK - LILY POND BROOK - UNNAMED BROOK	65.41	110	High
NHRIV801060106-04	BLODGETT BROOK	65.40	111	High
NHRIV801030401-03	SEBOSIS BROOK	65.34	112	High
NHRIV801040204-02	GRANT BROOK	65.29	113	High
NHRIV600030607-03	AYERS POND BROOK	65.25	114	High
NHRIV700060602-06	PISCATAQUOG RIVER - CENTER BROOK	65.19	115	High
NHRIV801010902-02	CONNECTICUT RIVER	65.19	116	High
NHRIV600030901-02	WINNICUT RIVER - BARTON BROOK - MARSH BROOK - THOMPSON BROOK	65.18	117	High
NHRIV600030903-09	BELLAMY RIVER - UNNAMED BROOK	65.18	118	High
NHRIV700060202-09	SHAKER BRANCH	65.12	119	High
NHRIV700030101-37	SUNSET LANE BROOK	65.05	120	High

Stormwater Impaired Watershed AUID	Watershed Name	Recovery Potential Indicator Score	Recovery Potential Indicator Rank	2020-2024 Recovery Potential
NHRIV700060402-03	NIGHTHAWK HOLLOW BROOK - VARNEY BROOK - UNNAMED BROOK	65.05	121	High
NHRIV801010403-01	SIMMS STR - EAST BR SIMMS STR - UNNAMED BRK - URAN BRK - MORAN BRK - BOY BRK	65.04	122	High
NHRIV802020202-07	LAUREL LAKE-KEENE AVE TRIB	65.04	123	High
NHRIV700060801-05-01	BLACK BROOK - HARDY BROOK	65.02	124	High
NHRIV400010502-01	CLEAR STREAM - FLUME BROOK - UNNAMED BROOK - CASCADE BROOK	65.00	125	High
NHRIV600030902-13	JOHNSON CREEK - GERRISH BROOK	64.99	126	High
NHRIV801010803-01	STAG HOLLOW BROOK - UNNAMED BROOK	64.96	127	High
NHRIV801030201-01	CUSHMAN BROOK	64.89	128	High
NHRIV700061001-06	MUDDY BROOK - UNNAMED BROOK	64.85	129	High
NHRIV600030708-07	PISCASSIC RIVER	64.84	130	High
NHRIV700060902-13	SOUHEGAN RIVER	64.83	131	High
NHRIV600020902-06	PROVINCE LAKE-ISLAND INLET	64.78	132	High
NHRIV700020109-01	HAWKINS BROOK - TO PRESCOTT PARK DAM	64.75	133	High
NHRIV801060105-08	LOVEJOY BROOK - SCALES BROOK - UNNAMED BROOK	64.72	134	High
NHRIV700060604-09	BRENNAN BROOK	64.69	135	High
NHRIV801030401-10	MT STICKNEY BROOK - TRIBUTARY TO CRAWFORD BK	64.67	136	High
NHRIV700060201-09	GUES MEADOW BROOK	64.67	137	High
NHRIV700010206-05	WEST BRANCH BROOK - GREAT BROOK	64.66	138	High
NHRIV700010401-17	MAD RIVER	64.60	139	High
NHRIV700010804-18	LAKE AVE TRIB	64.59	140	High
NHRIV801070201-11	DODGE BROOK - UNNAMED BROOK	64.59	140	High
NHRIV700030403-17	BLACKWATER RIVER	64.53	142	High
NHRIV700010804-05	SUCKER BROOK - UNNAMED BROOKS	64.53	143	High
NHRIV700010602-09	BOG BROOK	64.49	144	High

Stormwater Impaired Watershed AUID	Watershed Name	Recovery Potential Indicator Score	Recovery Potential Indicator Rank	2020-2024 Recovery Potential
NHRIV600030603-01	COCHECO RIVER	64.47	145	High
NHRIV700010401-05	TECUMSEH BROOK	64.45	146	High
NHRIV801070503-07	WASES GROVE INLET	64.44	147	High
NHRIV700010804-07	SUCKER BROOK - UNNAMED BROOK	64.43	148	High
NHRIV700060607-20	CATAMOUNT BROOK	64.43	149	High
NHRIV801060105-05	MASCOMA RIVER	64.42	150	High
NHRIV700020202-11	BADGER BROOK	64.40	151	High
NHRIV700060905-18	RIDDLE BROOK	64.38	152	High
NHRIV600020202-05-01	SWIFT RIVER - UNNAMED BROOK	64.34	153	High
NHRIV802010103-22	ASHUELOT RIVER	64.33	154	High
NHRIV802010101-19	UNNAMED BROOK - TO SAND POND	64.33	155	Medium
NHRIV600030904-09	KNIGHT BRANCH	64.28	156	Medium
NHRIV700060607-02	BOG BROOK	64.22	157	Medium
NHRIV600020106-08	MEADOW BROOK - SACO RIVER - UNNAMED BROOK - BARTLETT BROOK - STONY BROOK	64.20	158	Medium
NHRIV600030902-16	WENDYS BROOK	64.15	159	Medium
NHRIV600020203-07	SWIFT RIVER	64.13	160	Medium
NHRIV600030801-05	FORDWAY BROOK - UNNAMED BROOK	64.13	161	Medium
NHRIV801070503-10	SEAMANS INLET	64.11	162	Medium
NHRIV700060502-30	LYNN GROVE BROOK	64.11	163	Medium
NHRIV700060901-05	SOUHEGAN RIVER - WEST SOUHEGAN RIVER	64.10	164	Medium
NHRIV801010303-02	HALLS STREAM	64.09	165	Medium
NHRIV801010806-06	ISRAEL RIVER	64.03	166	Medium
NHRIV801070202-09	CRANE BROOK - UNNAMED BROOK	63.97	167	Medium
NHRIV600030902-08	HAMEL BROOK - LONGMARSH BROOK	63.96	168	Medium
NHRIV700010803-07	WEEKS BROOK	63.95	169	Medium

Stormwater Impaired Watershed AUID	Watershed Name	Recovery Potential Indicator Score	Recovery Potential Indicator Rank	2020-2024 Recovery Potential
NHRIV700060904-13	SOUHEGAN RIVER - STONY BROOK	63.94	170	Medium
NHRIV802010302-06	UNNAMED BROOK - PINE INLET B	63.92	171	Medium
NHRIV700061403-18	BACK RIVER - UNNAMED BROOK	63.88	172	Medium
NHRIV600030709-07	LAMPREY RIVER	63.88	173	Medium
NHRIV700020110-01	FOOTE POND BROOK - TO PICKEREL COVE PAUGUS BAY	63.86	174	Medium
NHRIV801010405-03	CONNECTICUT RIVER	63.84	175	Medium
NHRIV600030805-04	GREAT BROOK - BRICKYARD BROOK - HOBBS BROOK - YORK BROOK	63.83	176	Medium
NHRIV700060502-11	GULF BROOK - UNNAMED BROOK	63.83	177	Medium
NHRIV700060502-05	FLAT MEADOW BROOK	63.79	178	Medium
NHRIV600030701-09	LAMPREY RIVER	63.78	179	Medium
NHRIV600030603-06	COCHECO RIVER	63.73	180	Medium
NHRIV600030608-03	COCHECO RIVER - UNNAMED BROOK	63.73	181	Medium
NHRIV600030805-02	EXETER RIVER	63.70	182	Medium
NHRIV700060905-12	MCQUADE BROOK	63.69	183	Medium
NHRIV802010303-12	SOUTH BRANCH ASHUELOT RIVER	63.68	184	Medium
NHRIV801060102-03	INDIAN RIVER - UNNAMED BROOK	63.66	185	Medium
NHRIV802010102-11	ASHUELOT RIVER - UNNAMED BROOK	63.64	186	Medium
NHRIV600030706-02	NORTH RIVER	63.64	187	Medium
NHRIV700060502-20	UNNAMED BROOK - TO JENNESS POND	63.63	188	Medium
NHRIV700060606-02	SOUTH BRANCH PISCATAQUOG RIVER	63.61	189	Medium
NHRIV600030401-10	UNNAMED BROOK - TO BRACKETT POND	63.61	190	Medium
NHRIV802010402-06	MIREY BROOK - BLACK BROOK	63.57	191	Medium
NHRIV801060106-05	BLODGETT BROOK - UNNAMED BROOK	63.56	192	Medium
NHRIV600020802-07	WEETAMOE BROOK	63.54	193	Medium
NHRIV700020201-22	HUEBER BROOK	63.51	194	Medium

Stormwater Impaired Watershed AUID	Watershed Name	Recovery Potential Indicator Score	Recovery Potential Indicator Rank	2020-2024 Recovery Potential
NHRIV801070202-04	COLD RIVER - BOWERS BROOK	63.49	195	Medium
NHRIV400020102-02	PEABODY RIVER - COWBOY BROOK - NINETEEN BROOK	63.47	196	Medium
NHRIV600030608-10	ROLLINS BROOK	63.46	197	Medium
NHRIV801070201-09	UNNAMED BROOK - DODGE POND NORTH INLET	63.44	198	Medium
NHRIV600030803-01	EXETER RIVER	63.43	199	Medium
NHRIV801060105-11	MASCOMA RIVER - UNNAMED BROOK	63.40	200	Medium
NHRIV700060302-33	UNNAMED BROOK - TO MERRIMACK RIVER	63.38	201	Medium
NHRIV600020604-06	CHOCORUA RIVER	63.35	202	Medium
NHRIV600030708-02	PISCASSIC RIVER - UNNAMED BROOK	63.34	203	Medium
NHRIV801060402-04	BUCKLIN BROOK - TO LITTLE SUNAPEE LAKE	63.33	204	Medium
NHRIV802020102-03	PRIEST BROOK	63.27	205	Medium
NHRIV802010104-08	DART BROOK	63.26	206	Medium
NHRIV802010202-16	MINNEWAWA BROOK - ROBBINS BROOK - UNNAMED BROOK	63.22	207	Medium
NHRIV700061403-05	BARTLETT BROOK - COLBY BROOK - UNNAMED BROOK	63.19	208	Medium
NHRIV600030601-07	DAMES BROOK	63.18	209	Medium
NHRIV802020203-05	TULLY BROOK - UNNAMED BROOKS	63.15	210	Medium
NHRIV700060902-05	SOUHEGAN RIVER - TUCKER BROOK	63.12	211	Medium
NHRIV801010806-09	ISRAEL RIVER	63.11	212	Medium
NHRIV700040301-05	SQUANNACOOK RIVER - WALKER BROOK	63.07	213	Medium
NHRIV600030701-08	HARTFORD BROOK	63.02	214	Medium
NHRIV801030703-02	CLARK BROOK - UNNAMED BROOK	63.02	215	Medium
NHRIV801070203-09	COLD RIVER	63.00	216	Medium
NHRIV600030803-07	LITTLE RIVER - UNNAMED BROOK	63.00	217	Medium
NHRIV600020105-07	ELLIS RIVER - UNNAMED BROOK	62.98	218	Medium
NHRIV700061203-09	BEAVER BROOK	62.96	219	Medium
NHRIV700020107-08	UNNAMED BROOK TO SANDERS BAY	62.91	220	Medium

Stormwater Impaired Watershed AUID	Watershed Name	Recovery Potential Indicator Score	Recovery Potential Indicator Rank	2020-2024 Recovery Potential
NHRIV700020109-02	HAWKINS BROOK - TO MERIDETH BAY	62.86	221	Medium
NHRIV400010405-05	DEAD DIAMOND RIVER	62.84	222	Medium
NHRIV700061001-07	PENNICHUCK BROOK - WITCHES BROOK	62.81	223	Medium
NHRIV600030607-04	AYERS POND BROOK	62.80	224	Medium
NHRIV600020302-05-02	KEARSARGE BROOK - UNNAMED BROOK - ARTIST BROOK	62.80	225	Medium
NHRIV600030607-10	ISINGLASS RIVER	62.79	226	Medium
NHRIV700010802-10	SALMON BROOK	62.76	227	Medium
NHRIV802010403-20	ASHUELOT RIVER - 300FT US OF HINSDALE WWTF TO CONNECTICUT R	62.75	228	Medium
NHRIV700010305-11	BAKER RIVER	62.74	229	Medium
NHRIV801060106-03	HARDY HILL BROOK - UNNAMED BROOK	62.72	230	Medium
NHRIV700030104-02	GRIDLEY RIVER	62.69	231	Medium
NHRIV801030403-09	BAKER BROOK - UNNAMED BROOK	62.68	232	Medium
NHRIV600020602-08	COLD RIVER	62.65	233	Medium
NHRIV700061403-17	POWWOW RIVER - UNNAMED BROOK - GRASSY BROOK	62.62	234	Medium
NHRIV700060905-19	BABOOSIC BROOK - RIDDLE BROOK	62.57	235	Medium
NHRIV802010202-44	ALDRIDGE	62.55	236	Medium
NHRIV700060703-05	COHAS BROOK - LONG POND BROOK	62.54	237	Medium
NHRIV700061001-02	WITCHES BROOK	62.50	238	Medium
NHRIV600030806-01	NORRIS BROOK	62.49	239	Medium
NHRIV700010601-05	COCKERMOUTH BROOK	62.47	240	Medium
NHRIV700010702-02	WILD MEADOW BROOK	62.45	241	Medium
NHRIV600030805-09	EXETER RIVER	62.39	242	Medium
NHRIV600020703-05	POLAND BROOK	62.33	243	Medium
NHRIV700060201-10	GUES MEADOW BROOK	62.29	244	Medium
NHRIV700061203-22	BEAVER BROOK	62.27	245	Medium

Stormwater Impaired Watershed AUID	Watershed Name	Recovery Potential Indicator Score	Recovery Potential Indicator Rank	2020-2024 Recovery Potential
NHRIV700061203-16	BEAVER BROOK	62.22	246	Medium
NHRIV801070502-04	CHICKERING FARM BROOK	62.20	247	Medium
NHRIV600030608-04	REYNERS BROOK	62.15	248	Medium
NHRIV600030708-14	BROWN BROOK - TO PISCASSIC RIVER	62.15	248	Medium
NHRIV700020201-16	JEWETT BROOK	62.12	250	Medium
NHRIV600020203-06	SWIFT RIVER	62.06	251	Medium
NHRIV600030903-13	GARRISON BROOK	62.01	252	Medium
NHRIV700030202-24	NORTH BRANCH - JACKMAN RES TO BEARDS BK	61.99	253	Medium
NHRIV600030901-03	HAINES BROOK	61.92	254	Medium
NHRIV600030901-01	WINNICUT RIVER - UNNAMED BROOK - CORNELIUS BROOK	61.88	255	Medium
NHRIV700040301-03	WALKER BROOK	61.82	256	Medium
NHRIV600020203-01	SWIFT RIVER - UNNAMED BROOK - DEER BROOK - BIG BROOK	61.81	257	Medium
NHRIV600020804-03	PHILLIPS BROOK	61.80	258	Medium
NHRIV700030106-08	CONTOOCOOK RIVER - OTTER BK TO POWDER MILL POND	61.79	259	Medium
NHRIV600030803-05	EXETER RIVER	61.78	260	Medium
NHRIV700040401-04	SCAB MILL BROOK - UNNAMED BROOK	61.75	261	Medium
NHRIV700030304-31	PLEASANT POND BROOK - TO TOM POND	61.73	262	Medium
NHRIV700060801-05-02	BLACK BROOK	61.69	263	Medium
NHRIV802010403-19	ASHUELOT RIVER	61.68	264	Medium
NHRIV700060905-17	BABOOSIC BROOK - MCQUADE BROOK	61.68	265	Medium
NHRIV802010303-13	SOUTH BRANCH ASHUELOT RIVER - UNNAMED BROOK	61.68	266	Medium
NHRIV600030901-05	PACKER BROOK	61.65	267	Medium
NHRIV700060301-11	TURKEY RIVER - UNNAMED BROOK	61.65	268	Medium
NHRIV700060906-13	SOUHEGAN RIVER	61.62	269	Medium
NHRIV801070203-07	GREAT BROOK - UNNAMED BROOK - LITTLE BROOK - UNNAMED TRIB TO TLITTLE BROOK	61.59	270	Medium

Stormwater Impaired Watershed AUID	Watershed Name	Recovery Potential Indicator Score	Recovery Potential Indicator Rank	2020-2024 Recovery Potential
NHRIV600030804-11	LITTLE RIVER - SCAMEN BROOK	61.58	271	Medium
NHRIV600030607-01	ISINGLASS RIVER	61.58	272	Medium
NHRIV801010805-06	OTTER BROOK - UNNAMED BROOK	61.55	273	Medium
NHRIV700030202-06	NORTH BRANCH - BAILEY BROOK	61.52	274	Medium
NHRIV801070203-04	COLD RIVER - WARREN BROOK - UNNAMED BROOK	61.52	275	Medium
NHRIV600031001-09	BORTHWICK AVE TRIBUTARY	61.46	276	Medium
NHRIV801030102-08	JOHNS RIVER - CHASE BROOK	61.44	277	Medium
NHRIV600030608-05	COCHECO RIVER	61.38	278	Medium
NHRIV802010303-23	SOUTH BRANCH ASHUELOT RIVER	61.36	279	Medium
NHRIV700060906-18	SOUHEGAN RIVER	61.35	280	Medium
NHRIV600030804-10	LITTLE RIVER	61.31	281	Medium
NHRIV700060906-16	SOUHEGAN RIVER	61.29	282	Medium
NHRIV600030608-11	FRESH CREEK	61.25	283	Medium
NHRIV600030901-07	WINNICUT RIVER - UNNAMED BROOK	61.24	284	Medium
NHRIV600030703-01	UNNAMED BROOK - TO ONWAY LAKE	61.21	285	Medium
NHRIV700060302-34	UNNAMED BROOK - TO MERRIMACK RIVER	61.17	286	Medium
NHRIV700061401-04	KELLY BROOK - SEAVER BROOK	61.14	287	Medium
NHRIV700030101-16	CONTOOCOOK RIVER - UNNAMED BROOK	61.06	288	Medium
NHRIV600030901-06	NORTON BROOK	61.04	289	Medium
NHRIV600030806-04	PARKMAN BROOK	61.03	290	Medium
NHRIV801060402-17	UNNAMED BROOK - TO HERRICK COVE SUNAPEE LAKE	61.03	291	Medium
NHRIV700061203-11	BEAVER BROOK	61.00	292	Medium
NHRIV600030703-18	LAMPREY RIVER	60.97	293	Medium
NHRIV801030403-01	AMMONOOSUC RIVER - UNNAMED BROOK	60.93	294	Medium
NHRIV600030703-14	PAWTUCKAWAY RIVER - UNNAMED BROOK	60.93	295	Medium
NHRIV400020101-11	MOOSE BROOK	60.92	296	Medium

Stormwater Impaired Watershed AUID	Watershed Name	Recovery Potential Indicator Score	Recovery Potential Indicator Rank	2020-2024 Recovery Potential
NHRIV801010404-02	CONNECTICUT RIVER	60.89	297	Medium
NHRIV801070503-08	CAMP SPOFFORD INLET - UNNAMED BROOK	60.88	298	Medium
NHRIV600030703-15	LAMPREY RIVER	60.82	299	Medium
NHRIV801010603-05	CONNECTICUT RIVER	60.81	300	Medium
NHRIV700030104-17	CONTOOCOOK RIVER - NORTH VILLAGE DAM TO US OF PETERBOROUGH WWTF	60.81	301	Medium
NHRIV700010307-11	BAKER RIVER	60.78	302	Medium
NHRIV700061002-04	NESENKEAG BROOK	60.73	303	Medium
NHRIV700030304-16	WARNER RIVER	60.71	304	Medium
NHRIV801030506-02	PETTYBORO BROOK - UNNAMED BROOK - MOULTON HILL BROOK	60.65	305	Medium
NHRIV600030902-11	LITTLEHOLE CREEK	60.65	306	Medium
NHRIV700060902-21	UNNAMED TRIB. TO THE SOUHEGAN RIVER	60.65	306	Medium
NHRIV700061002-05	NESENKEAG BROOK	60.63	308	Medium
NHRIV600020303-07	PEQUAWKET BROOK	60.55	309	Low
NHRIV700010302-03	BAKER RIVER	60.54	310	Low
NHRIV802010303-20	SOUTH BRANCH ASHUELOT RIVER	60.52	311	Low
NHRIV801030402-04	AMMONOOSUC RIVER - UNNAMED BROOK - CRAWFORD BROOK - DECEPTION BROOK	60.49	312	Low
NHRIV700030101-11	CONTOOCOOK RIVER - UNNAMED BROOK	60.49	313	Low
NHRIV700010603-18	NUTTINGS BEACH BROOK	60.43	314	Low
NHRIV600030608-08	FRESH CREEK - TWOMBLY BROOK	60.40	315	Low
NHRIV801060303-04	WINE BROOK	60.40	316	Low
NHRIV801030403-03	AMMONOOSUC RIVER	60.37	317	Low
NHRIV802010303-18	SOUTH BRANCH ASHUELOT RIVER	60.31	318	Low
NHRIV802010401-19	ASHUELOT RIVER - 3000 FT DS OF SWANZEY WWTF TO OLD WINCHESTER DAM	60.30	319	Low

Stormwater Impaired Watershed AUID	Watershed Name	Recovery Potential Indicator Score	Recovery Potential Indicator Rank	2020-2024 Recovery Potential
NHRIV600030904-05	FOSS BROOK	60.30	320	Low
NHRIV802010401-15	ASHUELOT RIVER - SOUTH BRANCH TO UNNAMED BROOK 3000' US OF THOMPSON BRIDGE	60.28	321	Low
NHRIV801070203-08	GREAT BROOK - RAM BROOK - UNNAMED BROOK	60.23	322	Low
NHRIV802010401-16	ASHUELOT RIVER - ~3000 UPSTREAM OF THOMPSON BRDG TO 300 FT US OF SWANZEY WWTF	60.21	323	Low
NHRIV600031001-01	PICKERING BROOK -FLAGSTONE BROOK	60.17	324	Low
NHRIV801070503-02	PARTRIDGE BROOK - UNNAMED BROOK	60.16	325	Low
NHRIV400010606-02	DEAD RIVER - JERICHO BROOK - UNNAMED BROOK	60.15	326	Low
NHRIV801060404-11	NORTH BRANCH SUGAR RIVER - PERKINS BROOK	60.11	327	Low
NHRIV801060403-12	SOUTH BRANCH SUGAR RIVER - GUNNISON BROOK	60.05	328	Low
NHRIV801030403-11	AMMONOOSUC RIVER	59.98	329	Low
NHRIV801040401-05	MINK BROOK	59.92	330	Low
NHRIV700010203-01	PEMIGEWASSET RIVER	59.90	331	Low
NHRIV802010302-07	PINE INLET A	59.90	331	Low
NHRIV600030603-08	COCHECO RIVER	59.86	333	Low
NHRIV600030608-06	INDIAN BROOK	59.85	334	Low
NHRIV600030804-06	DUDLEY BROOK - UNNAMED BROOK	59.84	335	Low
NHRIV801060703-06	CLAY BROOK - UNNAMED BROOK	59.63	336	Low
NHRIV700010402-12	UNNAMED BROOK - TO BEEBE RIVER	59.56	337	Low
NHRIV700061002-26	NESENKEAG BROOK - UNNAMED BROOK	59.53	338	Low
NHRIV600030904-13	SHAW BROOK	59.50	339	Low
NHRIV802010202-23	BEAVER BROOK - UNNAMED BROOK	59.48	340	Low
NHRIV802010201-18	OTTER BROOK - SPAULDING BROOK - MEETINGHOUSE BROOK - UNNAMED BROOK	59.47	341	Low
NHRIV700060804-05	LITTLE COHAS BROOK - UNNAMED BROOK	59.47	342	Low
NHRIV700061403-14	POWWOW RIVER	59.46	343	Low

Stormwater Impaired Watershed AUID	Watershed Name	Recovery Potential Indicator Score	Recovery Potential Indicator Rank	2020-2024 Recovery Potential
NHRIV700030101-15	CONTOOCOOK RIVER - UNNAMED BROOK	59.43	344	Low
NHRIV802010403-07	ASHUELOT RIVER - 300FT US OF WINCHESTER WWTF TO 3000FT DS OF WWTF	59.41	345	Low
NHRIV801060303-08	BLOW-ME-DOWN BROOK - UNNAMED BROOK - CLAY BROOK	59.38	346	Low
NHRIV700061203-26	LAUNCH BROOK	59.23	347	Low
NHRIV802010201-19	OTTER BROOK - HUBBARD BROOK - UNNAMED BROOK - WHEELER BROOK	59.21	348	Low
NHRIV700040402-03	FLINTS BROOK	59.13	349	Low
NHRIV700060904-14	SOUHEGAN RIVER	59.09	350	Low
NHRIV600030703-11	LAMPREY RIVER	58.98	351	Low
NHRIV801060301-05	BLOODS BROOK - UNNAMED BROOK	58.96	352	Low
NHRIV801060303-10	BLOW ME DOWN BROOK	58.86	353	Low
NHRIV600030405-14	SALMON FALLS RIVER - UNNAMED BROOK	58.86	354	Low
NHRIV801060303-11	BLOW-ME-DOWN BROOK	58.82	355	Low
NHRIV600020305-02	SACO RIVER	58.82	356	Low
NHRIV801060407-16	SUGAR RIVER	58.77	357	Low
NHRIV600030903-11	VARNEY BROOK - CANNEY BROOK	58.74	358	Low
NHRIV801010902-03	CONNECTICUT RIVER - EMERY BROOK - SHERIDAN BROOK - UNNAMED BROOK	58.68	359	Low
NHRIV700060503-03	SUNCOOK RIVER	58.56	360	Low
NHRIV801010903-02	CONNECTICUT RIVER	58.53	361	Low
NHRIV700030108-23	CONTOOCOOK RIVER - 3000 FT DS OF ANTRIM WWTF TO NORTH BRANCH	58.49	362	Low
NHRIV700060503-06	SUNCOOK RIVER	58.43	363	Low
NHRIV600030402-06	BRANCH RIVER	58.33	364	Low
NHRIV802010301-04	ASHUELOT RIVER - ACOE DAM TO ASHUELOT RIVER DAM POND	58.28	365	Low

Stormwater Impaired Watershed AUID	Watershed Name	Recovery Potential Indicator Score	Recovery Potential Indicator Rank	2020-2024 Recovery Potential
NHRIV700030104-23	CONTOOCOOK RIVER - BOGLIE BROOK DAM TO OTTER BROOK	58.10	366	Low
NHRIV600030902-09	COLLEGE BROOK	58.02	367	Low
NHRIV801070503-03	PARTRIDGE BROOK - UNNAMED BROOK	57.97	368	Low
NHRIV600031001-06	GRAFTON DITCH	57.94	369	Low
NHRIV700030108-15	CONTOOCOOK RIVER - MONADANOCK PAPER NPDES TO US OF ANTRIM WWTF	57.91	370	Low
NHRIV700061102-21	UNNAMED BROOK - TO HARRIS BROOK	57.88	371	Low
NHRIV600031001-10	NEWFILEDS DITCH	57.87	372	Low
NHRIV700060607-35	SAINT ANSELM BROOK - TO PISCATAQUOG RIVER	57.86	373	Low
NHRIV801060106-09	GREAT BROOK - UNNAMED BROOK	57.85	374	Low
NHRIV700061001-10	PENNICHUCK BROOK	57.78	375	Low
NHRIV600030603-10	WILLOW BROOK	57.77	376	Low
NHRIV700010502-09	SQUAM RIVER	57.66	377	Low
NHRIV700030104-18	CONTOOCOOK RIVER - US OF PETERBOROUGH WWTF TO BOGLIE BK	57.50	378	Low
NHRIV700060607-22	PISCATAQUOG RIVER	57.36	379	Low
NHRIV802010301-05	BLACK BROOK - DICKINSON BROOK - UNNAMED BROOK	57.32	380	Low
NHRIV700061204-01	DINSMORE BROOK	57.29	381	Low
NHRIV801010305-01	CONNECTICUT RIVER	57.04	382	Low
NHRIV801030403-16	AMMONOOSUC RIVER	56.98	383	Low
NHRIV700060802-09	MESSER BROOK	56.57	384	Low
NHRIV600031004-09	FOLLY MILL BROOK	56.55	385	Low
NHRIV802010301-11	ASHUELOT RIVER - OTTER BR TO KEENE WWTF	56.39	386	Low
NHRIV700061102-23	UNNAMED BROOK TO WESTERN EMBAYMENT	56.28	387	Low
NHRIV801060407-09-02	SUGAR RIVER	56.28	388	Low
NHRIV801030506-10	AMMONOOSUC RIVER	56.26	389	Low

Stormwater Impaired Watershed AUID	Watershed Name	Recovery Potential Indicator Score	Recovery Potential Indicator Rank	2020-2024 Recovery Potential
NHRIV600030806-14	STUART DAIRY FARM BROOK	56.23	390	Low
NHRIV600030405-09	SALMON FALLS RIVER	56.20	391	Low
NHRIV802010301-09	ASHUELOT RIVER - ASHUELOT RIVER DAM POND TO OTTER BR	56.14	392	Low
NHRIV400020101-12	ANDROSCOGGIN RIVER	56.03	393	Low
NHRIV801060405-25	SUGAR RIVER	56.03	394	Low
NHRIV801060406-30	SUGAR RIVER	55.95	395	Low
NHRIV700060302-24	MERRIMACK RIVER	55.95	396	Low
NHRIV700060804-11	MERRIMACK RIVER	55.81	397	Low
NHRIV700061102-18	POLICY BROOK - PORCUPINE BROOK	55.61	398	Low
NHRIV700060703-09	COHAS BROOK	55.54	399	Low
NHRIV700060402-05	SUNCOOK RIVER	55.49	400	Low
NHRIV801060405-10	SUGAR RIVER	55.40	401	Low
NHRIV700061002-13	MERRIMACK RIVER	55.36	402	Low
NHRIV400020103-06	ANDROSCOGGIN RIVER	55.25	403	Low
NHRIV400010605-10	ANDROSCOGGIN RIVER	55.04	404	Low
NHRIV700060803-12	PATTEN BROOK	55.03	405	Low
NHRIV700010502-08	SQUAM RIVER	54.91	406	Low
NHRIV700060302-25-02	MERRIMACK RIVER	54.63	407	Low
NHRIV600031004-10	CAINS BROOK - UNNAMED BROOK	54.60	408	Low
NHRIV700061204-06	CONNIES BROOK	54.52	409	Low
NHRIV801060405-27	SUGAR RIVER	54.51	410	Low
NHRIV600030902-10	RESERVOIR BROOK	54.48	411	Low
NHRIV400010605-11	ANDROSCOGGIN RIVER	54.45	412	Low
NHRIV700060802-07	PETERS BROOK	54.26	413	Low
NHRIV700060302-55	SUGAR BALL OXBOX	54.18	414	Low

Stormwater Impaired Watershed AUID	Watershed Name	Recovery Potential Indicator Score	Recovery Potential Indicator Rank	2020-2024 Recovery Potential
NHRIV700061102-16	POLICY BROOK - FROM CANOBIE LAKE	54.17	415	Low
NHRIV801060401-33	NORTH COVE WEST BROOK	54.14	416	Low
NHRIV700061102-17	POLICY BROOK	54.03	417	Low
NHRIV801030201-02	CONNECTICUT RIVER	53.99	418	Low
NHRIV700060802-14-02	MERRIMACK RIVER	53.90	419	Low
NHRIV700061002-14	MERRIMACK RIVER	53.80	420	Low
NHRIV801060106-15	MASCOMA RIVER	53.69	421	Low
NHRIV801060106-16	MASCOMA RIVER	53.67	422	Low
NHRIV400010606-07	ANDROSCOGGIN RIVER	53.65	423	Low
NHRIV600020104-04	THORN HILL BROOK	53.62	424	Low
NHRIV801060106-17	MASCOMA RIVER	53.53	425	Low
NHRIV801060401-31	TAMARI BROOK	53.39	426	Low
NHRIV801060106-19	MASCOMA RIVER	53.26	427	Low
NHRIV400010606-08	ANDROSCOGGIN RIVER	53.25	428	Low
NHRIV700061001-12	UNNAMED BROOK - ROUND POND TO HOLTS POND	52.82	429	Low
NHRIV700060802-15	RAYS BROOK	52.78	430	Low
NHRIV801060106-20	MASCOMA RIVER	52.71	431	Low
NHRIV802010501-05	CONNECTICUT RIVER	52.64	432	Low
NHRIV400010606-09	ANDROSCOGGIN RIVER	52.59	433	Low
NHRIV801060405-29	SUGAR RIVER	52.49	434	Low
NHRIV600031004-12	CAINS BROOK	52.41	435	Low
NHRIV400010606-10	ANDROSCOGGIN RIVER	52.22	436	Low
NHRIV700030504-14	FRENCH BROOK	51.83	437	Low
NHRIV700061205-01	BEAVER BROOK - TONYS BROOK	51.65	438	Low
NHRIV600030608-15	BERRY BROOK	51.59	439	Low
NHRIV600020304-01-01	SACO RIVER	51.32	440	Low

Stormwater Impaired Watershed AUID	Watershed Name	Recovery Potential Indicator Score	Recovery Potential Indicator Rank	2020-2024 Recovery Potential
NHRIV700060802-13	DORRS POND INLET BROOK	50.90	441	Low
NHRIV700040402-05	NASHUA RIVER	50.65	442	Low
NHRIV801060302-05	CONNECTICUT RIVER	50.14	443	Low
NHRIV700060802-16	DORRS POND-E INLET	49.50	444	Low
NHRIV700040402-09	NASHUA RIVER	49.28	445	Low
NHRIV700040402-08	NASHUA RIVER	49.27	446	Low
NHRIV600031004-21	UNNAMED BROOK - TO CAINS MILL POND	48.55	447	Low
NHRIV600030406-04	SALMON FALLS RIVER	48.51	448	Low
NHRIV600031001-04	LOWER HODGSON BROOK	48.47	449	Low
NHRIV700061201-07	SALMON BROOK	48.15	450	Low
NHRIV600031001-05	UPPER HODGSON BROOK	47.90	451	Low
NHRIV700061206-24	MERRIMACK RIVER	47.84	452	Low
NHRIV700060803-14-02	MERRIMACK RIVER	47.47	453	Low
NHRIV600031001-07	PAULS BROOK - PEASE AIR FORCE BASE	47.16	454	Low
NHRIV700061201-05	SALMON BROOK - HASSELLS BROOK - OLD MAIDS BROOK - HALE BROOK	46.66	455	Low
NHRIV700060804-12	SOUTH PERIMETER BROOK	46.56	456	Low
NHRIV700061001-09	BOIRE FIELD BROOK - TO PENNICHUCK BROOK	46.00	457	Low
NHRIV700060803-16	MCQUESTEN BROOK	45.08	458	Low
NHRIV700060803-15	HUMPHREY BROOK	44.74	459	Low
NHRIV700060803-08	BAKER BROOK	43.87	460	Low
NHRIV801060302-01	CONNECTICUT RIVER	42.74	461	Low
NHRIV600030406-03	SALMON FALLS RIVER	42.32	462	Low

Appendix C: Lake and Impoundment Recovery Potential Ranking List

Stormwater Impaired AUID	AUID Name	Recovery Potential Indicator Score	Recovery Potential Indicator Rank	2020-2024 NPS Plan Rank
NHLAK700010201-03	LONESOME LAKE	70.85	1	High
NHLAK700060804-03-01	SANDY POND - CAMP FOSTER POND	69.35	2	High
NHLAK801010706-01	LITTLE BOG POND	69.30	3	High
NHLAK700010401-04	UPPER GREELEY POND	69.19	4	High
NHLAK600030902-02	WHEELWRIGHT POND	68.36	5	High
NHLAK400010502-06	DUSTAN POND	68.21	6	High
NHLAK700020103-03	GARLAND POND	68.10	7	High
NHLAK700010204-01	EAST POND	68.05	8	High
NHLAK801010706-04	WHITCOMB POND	67.93	9	High
NHLAK700020101-05-01	LAKE WENTWORTH	67.91	10	High
NHLAK802010101-04	LONG POND	67.22	11	High
NHLAK600020602-02	FLAT MOUNTAIN POND (1&2)	67.16	12	High
NHLAK400010502-02	CORSER POND	67.12	13	High
NHLAK600030704-02-01	PAWTUCKAWAY LAKE	67.07	14	High
NHLAK700010306-02	MIDDLE THREE PONDS	67.02	15	High
NHLAK600020102-02	LITTLE SAWYER POND	67.00	16	High
NHIMP700061203-01	HARANTIS LAKE - HARANTIS LAKE DAM	66.75	17	High
NHLAK700010306-03	UPPER THREE PONDS	66.72	18	High
NHLAK700010307-01	LOON LAKE	66.51	19	High
NHLAK600030703-01	GOVERNORS LAKE	66.46	20	High
NHLAK700010203-02	RUSSELL POND	66.37	21	High
NHIMP801030401-02	AMMONOOSUC LAKE	66.36	22	High

Stormwater Impaired AUID	AUID Name	Recovery Potential Indicator Score	Recovery Potential Indicator Rank	2020-2024 NPS Plan Rank
NHLAK801060401-07	HALFMILE POND	66.26	23	High
NHLAK700060601-05-01	WEARE RESERVOIR	66.25	24	High
NHLAK700060905-01-01	BABOOSIC LAKE	66.16	25	High
NHLAK700060302-08	TURTLE POND	66.15	26	High
NHLAK700010104-01	BLACK POND	65.92	27	High
NHLAK700010304-02	DERBY POND	65.86	28	High
NHLAK700020108-02-02	LAKE WINONA	65.84	29	High
NHLAK700020108-04	HAWKINS POND	65.76	30	High
NHIMP600030708-03	PISCASSIC RIVER	65.49	31	High
NHLAK700010402-04	MIDDLE HALL POND	65.43	32	High
NHLAK600030606-01	LONG POND	65.30	33	High
NHLAK600031002-01	EEL POND	65.16	34	High
NHLAK700010402-02	GUINEA POND	65.16	35	High
NHLAK700060302-15	HORSESHOE POND	65.13	36	High
NHLAK700010603-02-01	NEWFOUND LAKE	65.12	37	High
NHIMP700030204-05-01	BEARDS BROOK - EAST WASHINGTON DAM	64.92	38	High
NHLAK801060402-04-01	LITTLE SUNAPEE LAKE	64.86	39	High
NHLAK801030701-01	CONSTANCE LAKE	64.79	40	High
NHLAK600020803-01-02	MIDDLE DANFORTH POND	64.78	41	High
NHLAK700061203-05	RAINBOW LAKE	64.74	42	High
NHLAK700010306-01	STINSON LAKE	64.72	43	High
NHIMP600030903-02	BELLAMY RIVER - SAWYERS MILL DAM POND	64.56	44	High
NHLAK700030403-01	ADDER POND	64.56	45	High
NHLAK700060702-03	MASSABESIC LAKE	64.56	46	High
NHIMP700030503-01-01	HOPKINTON DIKE ELM BROOK	64.54	47	High
NHLAK700030301-01	LAKE SOLITUDE	64.50	48	High

Stormwater Impaired AUID	AUID Name	Recovery Potential Indicator Score	Recovery Potential Indicator Rank	2020-2024 NPS Plan Rank
NHLAK700010205-02	PEAKED HILL POND	64.49	49	High
NHLAK801010706-03	ONE AND TWO TRIO PONDS	64.48	50	High
NHLAK600030602-03	ROCHESTER RESERVOIR	64.40	51	High
NHLAK600030903-03	SWAINS LAKE	64.31	52	High
NHLAK700020110-02-19	LAKE WINNIPESAUKEE	64.30	53	High
NHLAK700060101-02-01	SONDOGARDY POND	64.27	54	High
NHIMP700020203-01	KNOWLES POND - TR WILLIAMS BROOK	64.21	55	High
NHIMP600030902-04	OYSTER RIVER - MILL POND DAM	64.18	56	High
NHLAK700061403-03-01	COUNTRY POND	64.09	57	High
NHLAK802010101-06-01	MILLEN POND	64.04	58	High
NHIMP700010302-03	ORE HILL MINE POND	63.74	59	High
NHIMP600030607-02	COCHECO RIVER - GONIC DAM POND	63.72	60	High
NHLAK700020108-02-01	LAKE WAUKEWAN	63.71	61	High
NHLAK802020103-08	PEARLY LAKE	63.70	62	High
NHIMP600030603-02	COCHECO RIVER - HATFIELD DAM	63.51	63	High
NHLAK700060502-05	HARVEY LAKE	63.45	64	High
NHLAK600031003-02	TAYLOR RIVER REFUGE POND	63.35	65	High
NHLAK700061403-08	HALFMOON POND	63.24	66	High
NHLAK700060605-01-01	DANIELS LAKE	63.20	67	High
NHLAK801060103-01	GOOSE POND	63.09	68	High
NHLAK700010402-01	BLACK MOUNTAIN POND	63.05	69	High
NHLAK700010304-06	ROCKY POND	63.05	70	High
NHLAK700030204-03	ISLAND POND	63.02	71	High
NHLAK700030506-02	WALKER POND	62.98	72	High
NHLAK600030802-02	LILY POND	62.96	73	High
NHLAK700030108-02-01	GREGG LAKE	62.91	74	Medium

Stormwater Impaired AUID	AUID Name	Recovery Potential Indicator Score	Recovery Potential Indicator Rank	2020-2024 NPS Plan Rank
NHLAK801040402-02-01	STORRS POND	62.84	75	Medium
NHLAK400010502-05	SWEAT POND	62.83	76	Medium
NHLAK400010404-01	FOUR MILE POND	62.70	77	Medium
NHLAK802010201-03	CENTER POND	62.62	78	Medium
NHLAK700061403-10	TUXBURY POND	62.62	79	Medium
NHLAK801010103-03	WRIGHT POND	62.48	80	Medium
NHIMP700030101-02	CONTOOCOOK RIVER DAM	62.30	81	Medium
NHLAK801030502-04	ROUND POND	62.29	82	Medium
NHLAK700061102-08	SEAVEY POND	62.26	83	Medium
NHLAK700010804-02-01	WEBSTER LAKE	62.24	84	Medium
NHLAK700030402-02-01	PLEASANT LAKE	62.23	85	Medium
NHIMP700030101-03	CONTOOCOOK RIVER	62.20	86	Medium
NHLAK802010401-01-01	FOREST LAKE	62.19	87	Medium
NHLAK700061403-07	GREENWOOD POND	62.13	88	Medium
NHLAK801060402-05-01	SUNAPEE LAKE	62.12	89	Medium
NHLAK600031001-02	UNKNOWN POND	62.12	90	Medium
NHLAK600030802-03-01	PHILLIPS POND	61.99	91	Medium
NHLAK801030505-03	LOWER MOUNTAIN LAKE	61.85	92	Medium
NHLAK802010303-02	MEETINGHOUSE POND	61.80	93	Medium
NHLAK700061203-02-01	BEAVER LAKE	61.75	94	Medium
NHLAK801060101-05	RESERVOIR POND	61.57	95	Medium
NHLAK700030103-01	BEAVER POND	61.56	96	Medium
NHLAK400010602-14	SIGNAL POND	61.55	97	Medium
NHLAK801060402-02	BAPTIST POND	61.49	98	Medium
NHLAK400010403-02	LITTLE DIAMOND POND	61.49	99	Medium
NHLAK801030502-01	DODGE POND	61.45	100	Medium

Stormwater Impaired AUID	AUID Name	Recovery Potential Indicator Score	Recovery Potential Indicator Rank	2020-2024 NPS Plan Rank
NHLAK700030402-01	CHASE POND	61.39	101	Medium
NHLAK700060503-04	MARSH POND	61.39	102	Medium
NHLAK400010606-01	JERICHO LAKE	61.32	103	Medium
NHIMP700060201-04	GUES MEADOW BROOK	61.31	104	Medium
NHLAK700060605-04-01	HAUNTED LAKE	61.30	105	Medium
NHIMP700061403-04	POWWOW RIVER - POWWOW POND	61.27	106	Medium
NHLAK700060502-09-01	PLEASANT LAKE	61.25	107	Medium
NHLAK700030101-02	CHESHIRE POND	61.17	108	Medium
NHLAK700010501-04-01	SQUAM LAKE	61.15	109	Medium
NHIMP600030901-02	WINNICUT RIVER DAM POND	61.15	110	Medium
NHIMP600030603-01	COCHECO RIVER - CITY DAM 1	61.05	111	Medium
NHIMP700020102-01-01	JONES DAM POND	61.02	112	Medium
NHLAK600030602-01	BAXTER LAKE	61.02	113	Medium
NHLAK700020102-02	DOWNING POND	60.96	114	Medium
NHLAK600030802-04	SHOWELL POND	60.94	115	Medium
NHIMP700020102-01-02	MARSH POND	60.85	116	Medium
NHLAK700060502-08-01	NORTHWOOD LAKE	60.84	117	Medium
NHLAK801030502-03	PARTRIDGE LAKE	60.81	118	Medium
NHLAK700040401-02-01	POTANIPO POND	60.72	119	Medium
NHIMP700060906-08	SOUHEGAN RIVER - MCLANE DAM	60.67	120	Medium
NHLAK700020101-07-01	RUST POND	60.53	121	Medium
NHLAK700061203-06-01	ROBINSON POND	60.40	122	Medium
NHLAK700061101-04	ARLINGTON MILL RESERVOIR	60.27	123	Medium
NHLAK801010203-01-01	BACK LAKE	60.20	124	Medium
NHLAK700060302-05	HOTHOLE POND	60.03	125	Medium
NHLAK700060201-05	SHELLCAMP POND	60.00	126	Medium

Stormwater Impaired AUID	AUID Name	Recovery Potential Indicator Score	Recovery Potential Indicator Rank	2020-2024 NPS Plan Rank
NHLAK700020201-05-01	LAKE WINNISQUAM	59.99	127	Medium
NHIMP700010804-03	SUCKER BROOK-SUCKER BROOK I DAM	59.94	128	Medium
NHLAK700061101-01-01	ISLAND POND	59.92	129	Medium
NHLAK600030605-01	NIPPO POND	59.90	130	Medium
NHLAK700010701-05	WAUKEENA LAKE	59.84	131	Medium
NHLAK700060202-03-01	CLOUGH POND	59.78	132	Medium
NHLAK700030102-01-01	THORNDIKE POND	59.73	133	Medium
NHLAK801070203-01	WARREN LAKE	59.71	134	Medium
NHLAK700040402-01	FLINTS POND	59.63	135	Medium
NHLAK801010701-02	YORK POND	59.59	136	Medium
NHLAK700020201-07	RAILROAD POND	59.54	137	Medium
NHLAK700061001-06	HOLT POND	59.54	138	Medium
NHLAK700030107-03	POWDER MILL POND	59.46	139	Medium
NHLAK700010502-01-01	LITTLE SQUAM LAKE	59.32	140	Medium
NHLAK700060402-03	HALFMOON LAKE	59.22	141	Medium
NHLAK700061204-02	LITTLE ISLAND POND	59.22	142	Medium
NHLAK700060607-02	NAMASKE LAKE	59.18	143	Medium
NHLAK700030304-05	TOM POND	59.00	144	Medium
NHIMP600030405-04	SALMON FALLS RIVER - BAXTER MILL DAM POND	58.97	145	Medium
NHIMP700060906-07	SOUHEGAN RIVER - GOLDMAN DAM	58.91	146	Medium
NHLAK801060105-04-01	MASCOMA LAKE	58.76	147	Low
NHIMP700060904-08	SOUHEGAN RIVER - PINE VALLEY MILL	58.53	148	Low
NHLAK801060401-06	EASTMAN POND	58.51	149	Low
NHIMP700060402-02	WEBSTER STREAM - LOCKE LAKE	58.47	150	Low
NHIMP700060503-02	SUNCOOK RIVER - HUCKINS MILL DAM	58.39	151	Low
NHLAK600020902-01	PROVINCE LAKE	58.12	152	Low

Stormwater Impaired AUID	AUID Name	Recovery Potential Indicator Score	Recovery Potential Indicator Rank	2020-2024 NPS Plan Rank
NHLAK600030601-05-01	SUNRISE LAKE	58.06	153	Low
NHLAK700060502-06	JENNESS POND	58.03	154	Low
NHLAK700030202-02-01	ISLAND POND	57.99	155	Low
NHLAK700061001-02-01	SILVER LAKE	57.96	156	Low
NHLAK600030405-03	WILLAND POND	57.91	157	Low
NHLAK700060201-03	NEW POND	57.83	158	Low
NHLAK700060906-01	HONEY POT POND	57.80	159	Low
NHLAK801070503-01-01	SPOFFORD LAKE	57.78	160	Low
NHLAK802020103-06	LAKE MONOMONAC	57.75	161	Low
NHLAK700061102-03-01	CAPTAIN POND	57.70	162	Low
NHLAK700061002-03	HORSESHOE POND	57.44	163	Low
NHLAK801060402-03	CHALK POND	57.34	164	Low
NHLAK700030105-01-01	ZEPHYR LAKE	57.31	165	Low
NHLAK801030102-02	MARTIN MEADOW POND	57.20	166	Low
NHLAK600030705-03	NORTH RIVER POND	57.19	167	Low
NHLAK802020103-04	EMERSON POND	57.18	168	Low
NHLAK700030303-04	MESSER POND	57.14	169	Low
NHLAK801030302-01-01	ECHO LAKE	56.86	170	Low
NHLAK700061403-01-01	ANGLE POND	56.77	171	Low
NHIMP801010305-01	CONNECTICUT RIVER - CANAAN HYDRO	56.70	172	Low
NHIMP801060406-08	SUGAR RIVER	56.68	173	Low
NHLAK700060804-02	SEBBINS POND	56.64	174	Low
NHLAK801030506-01	LAKE GARDNER	56.62	175	Low
NHIMP802010301-02	ASHUELOT RIVER DAM POND	56.57	176	Low
NHLAK600030608-01	FRESH CREEK POND	56.47	177	Low
NHLAK700061001-04-01	HARRIS POND	56.08	178	Low

Stormwater Impaired AUID	AUID Name	Recovery Potential Indicator Score	Recovery Potential Indicator Rank	2020-2024 NPS Plan Rank
NHLAK700060703-04	PINE ISLAND POND	56.07	179	Low
NHLAK700030504-03	KEYSER POND	56.07	180	Low
NHLAK700061102-02	CANOBIE LAKE	56.05	181	Low
NHLAK700030504-02-01	FRENCH POND	55.87	182	Low
NHLAK700061002-01-01	DARRAH POND	55.57	183	Low
NHIMP801060106-02	MASCOMA RIVER - RIVERMILL	55.46	184	Low
NHIMP600030902-06	BEARDS CREEK	55.33	185	Low
NHIMP700020203-07	WINNIPESAUKEE RIVER - FRANKLIN FALLS HYDRO DAM 2	55.10	186	Low
NHIMP801060106-04	MASCOMA RIVER	54.89	187	Low
NHIMP801060106-05	MASCOMA RIVER - GLEN ROAD DAM	54.79	188	Low
NHIMP801030506-02	AMMONOOSUC RIVER DAM POND	54.76	189	Low
NHLAK700020201-02	HUNKINS POND	54.48	190	Low
NHLAK700061206-02	OTTERNICK POND	54.37	191	Low
NHLAK801060405-03	PERKINS POND	54.32	192	Low
NHIMP400010605-01	ANDROSCOGGIN RIVER - D. C. POWER DAM	54.27	193	Low
NHIMP400010605-02	ANDROSCOGGIN RIVER - RIVERSIDE DAM	54.10	194	Low
NHIMP801030506-03	AMMONOOSUC RIVER - WOODSVILLE DAM	53.82	195	Low
NHIMP400010605-03	ANDROSCOGGIN RIVER - SMITH DAM	53.45	196	Low
NHIMP400010606-02	ANDROSCOGGIN RIVER - CROSS POWER DAM	52.88	197	Low
NHIMP400010606-03	ANDROSCOGGIN RIVER - CASCADE DAM	52.67	198	Low
NHIMP700060902-01	SOUHEGAN RIVER	52.53	199	Low
NHLAK700061204-01-01	COBBETTS POND	52.53	200	Low
NHLAK700020110-02-01	PAUGUS BAY	52.05	201	Low
NHLAK700020102-04	MILL POND	51.57	202	Low
NHLAK700061205-02-01	LONG POND	51.33	203	Low
NHIMP700060802-04	MERRIMACK RIVER - AMOSKEAG DAM	51.31	204	Low

Stormwater Impaired AUID	AUID Name	Recovery Potential Indicator Score	Recovery Potential Indicator Rank	2020-2024 NPS Plan Rank
NHIMP600031004-04	SECORD POND DAM	50.63	205	Low
NHIMP600031004-06	CAINS BROOK - NOYES POND	49.69	206	Low
NHLAK700060802-01	DORRS POND	49.07	207	Low
NHIMP600031004-05	CAINS BROOK	48.81	208	Low
NHIMP700040402-05	NASHUA RIVER - JACKSON PLANT DAM POND	47.75	209	Low
NHIMP600030406-04	SALMON FALLS RIVER - SOUTH BERWICK DAM	46.70	210	Low
NHIMP600030806-08	CLEMSON POND	45.52	211	Low
NHIMP700040402-02	NASHUA RIVER - MINE FALLS DAM POND	45.21	212	Low
NHLAK700060803-02	STEVENS POND	44.23	213	Low
NHLAK700060803-01	NUTT POND	43.10	214	Low
NHLAK700060302-02	HORSESHOE POND	42.69	215	Low
NHIMP600030406-02	SALMON FALLS RIVER - LOWER GREAT FALLS DAM	42.64	216	Low
NHLAK801010902-01	BAKER POND	42.19	217	Low
NHIMP700040402-03	NASHUA RIVER - NASHUA CANAL DIKE	41.85	218	Low

Appendix D: Priority Restoration List for Beaches in New Hampshire

AUID	Name	Rank
NHIMP400020101-01-02	MOOSE BROOK - TOWN POOL-RAVINE BEACH	High
NHIMP400020101-02-02	MOOSE BROOK - MOOSE BROOK STATE PARK BEACH	High
NHIMP600020702-01-02	DAN HOLE RIVER - MILL POND TOWN BEACH	High
NHIMP700010401-01-02	SNOWS BROOK - CORCORAN POND TOWN BEACH	High
NHIMP700030204-05-02	BEARDS BROOK - MILL POND TOWN BEACH	High
NHIMP700030304-04-02	SILVER BROOK - SILVER LAKE RESERVOIR BEACH	High
NHIMP700030503-01-02	STATE PARK BEACH ON ELM BROOK	High
NHIMP700060402-02-05	LOCKE LAKE - COLONY BEACH	High
NHIMP700060501-03-02	CLARKS POND - TOWN BEACH	High
NHIMP801070202-01-02	COLD RIVER - VILAS POOL BEACH	High
NHIMP802010303-04-02	VILLAGE POND DAM - SAND DAM VILLAGE POND TOWN BEACH	High
NHLAK400020102-01	PEABODY RIVER - LIBBY TOWN POOL	High
NHLAK600020801-06-02	SILVER LAKE - MONUMENT BEACH	High
NHLAK600020802-04-05	OSSIPEE LAKE - OSSIPEE LAKE NATURAL AREA	High
NHLAK600030404-01-03	MILTON THREE PONDS - MILTON POND REC AREA BEACH	High
NHLAK600030601-05-02	SUNRISE LAKE - TOWN BEACH	High
NHLAK600030704-02-02	PAWTUCKAWAY LAKE - PAWTUCKAWAY STATE PARK BEACH	High
NHLAK600030802-03-02	PHILLIPS POND - SEELEY TOWN BEACH	High
NHLAK700010603-02-13	NEWFOUND LAKE - CAMP WI-CO-SU-TA BEACH	High
NHLAK700010802-03-02	HERMIT LAKE - TOWN BEACH	High
NHLAK700010804-02-02	WEBSTER LAKE - GRIFFIN TOWN BEACH	High
NHLAK700010804-02-03	WEBSTER LAKE - LAGACE TOWN BEACH	High
NHLAK700020101-05-02	LAKE WENTWORTH - ALBEE BEACH	High
NHLAK700020101-05-03	LAKE WENTWORTH - WENTWORTH STATE PARK BEACH	High
NHLAK700020110-02-04	LAKE WINNIPESAUKEE - MELVIN VILLAGE LAKE TOWN PIER BEACH	High

AUID	Name	Rank
NHLAK700020110-02-07	LAKE WINNIPESAUKEE - PUBLIC BEACH	High
NHLAK700020110-02-09	LAKE WINNIPESAUKEE - BREWSTER BEACH	High
NHLAK700020110-02-10	LAKE WINNIPESAUKEE - ALTON BAY TOWN BEACH	High
NHLAK700020110-02-12	LAKE WINNIPESAUKEE - ELACOYA STATE PARK BEACH	High
NHLAK700020110-02-13	LAKE WINNIPESAUKEE - GILFORD TOWN BEACH	High
NHLAK700020110-02-14	LAKE WINNIPESAUKEE - ENDICOTT PARK WEIRS BEACH	High
NHLAK700020110-02-39	LAKE WINNIPESAUKEE - ELLACOYA RV PARK BEACH	High
NHLAK700020201-05-02	LAKE WINNISQUAM - SANBORNTON TOWN BEACH	High
NHLAK700020201-05-03	LAKE WINNISQUAM - BARTLETTS BEACH	High
NHLAK700020201-05-05	LAKE WINNISQUAM - AHERN STATE PARK	High
NHLAK700020201-06-03	OPECHEE BAY - OPECHEE POINT BEACH	High
NHLAK700020201-06-04	OPECHEE BAY - OPECHEE PARK COVE BEACH	High
NHLAK700030102-01-02	THORNDIKE POND - TOWN BEACH	High
NHLAK700030103-06-02	MACDOWELL RESERVOIR - MACDOWELL RESERVOIR BEACH	High
NHLAK700030105-01-02	ZEPHYR LAKE - TOWN BEACH	High
NHLAK700030105-02-03	OTTER LAKE - GREENFIELD SP PICNIC BEACH	High
NHLAK700030105-02-04	OTTER LAKE - GREENFIELD SP MIDDLE BEACH	High
NHLAK700030105-02-05	OTTER LAKE - GREENFIELD SP CAMPING BEACH	High
NHLAK700030201-03-02	HIGHLAND LAKE-HIGHLAND LAKE BOAT LAUNCH	High
NHLAK700030202-03-02	JACKMAN RESERVOIR - MANAHAN PARK TOWN BEACH	High
NHLAK700030402-03-02	TANNERY POND - BEACH	High
NHLAK700030501-01-02	GOULD POND - EASTMAN PARK BEACH	High
NHLAK700030501-01-04	GOULD POND - EMERALD BEACH	High
NHLAK700030504-02-02	FRENCH POND - PUBLIC ACCESS	High
NHLAK700040401-02-02	LAKE POTANIPO - TOWN BEACH	High
NHLAK700060101-02-02	SONDOGARDY POND - GLINES PARK BEACH	High
NHLAK700060401-02-02	CRYSTAL LAKE-TOWN BEACH	High
NHLAK700060402-10-03	UPPER SUNCOOK LAKE - CAMP FATIMA BEACH	High
NHLAK700060502-08-02	NORTHWOOD LAKE - TOWN BEACH	High

AUID	Name	Rank
NHLAK700060503-02-02	CATAMOUNT POND - BEAR BROOK STATE PARK BEACH	High
NHLAK700060601-01-02	DEERING RESERVOIR - DEERING LAKE BEACH	High
NHLAK700060703-02-02	CRYSTAL LAKE-TOWN BEACH	High
NHLAK700060804-02-02	SEBBINS POND - CAMP KETTLEFORD BEACH	High
NHLAK700060905-01-02	BABOOSIC LAKE - TOWN BEACH	High
NHLAK700060905-01-03	BABOOSIC LAKE - YOUNG JUDAEA BEACH	High
NHLAK700061001-02-02	SILVER LAKE - STATE PARK BEACH	High
NHLAK700061002-04-02	NATICOOK LAKE - WASSERMAN PARK BEACH	High
NHLAK700061101-01-02	ISLAND POND - CHASE'S GROVE	High
NHLAK700061101-03-02	WASH POND - TOWN BEACH	High
NHLAK700061101-04-02	ARLINGTON MILL RESERVOIR-SECOND ST BEACH	High
NHLAK700061101-04-03	ARLINGTON MILL RESERVOIR-ARLINGTON POND IMPROVEMENT ASSOCIATION	High
NHLAK700061102-03-02	CAPTAIN POND - CAPTAIN'S BEACH	High
NHLAK700061102-03-03	CAPTAIN POND - CAMP OTTER SWIM AREA BEACH	High
NHLAK700061102-03-06	CAPTAIN POND - CAMP HADAR	High
NHLAK700061102-06-02	MILLVILLE LAKE - TOWN BEACH	High
NHLAK700061102-13	HEDGEHOG POND - TOWN BEACH	High
NHLAK700061203-02-02	BEAVER LAKE - GALLIEN'S BEACH	High
NHLAK700061203-03-02	HOODS POND - TOWN BEACH	High
NHLAK700061203-05-02	RAINBOW LAKE - KAREN-GENA BEACH	High
NHLAK700061203-06-02	ROBINSON POND - TOWN BEACH	High
NHLAK700061204-01-03	COBBETTS POND - TOWN BEACH	High
NHLAK700061403-03-02	COUNTRY POND - TOWN BEACH	High
NHLAK700061403-03-03	COUNTRY POND - LONE TREE SCOUT RESV. BEACH	High
NHLAK700061403-03-04	COUNTRY POND - TASKER DAY CAMP BEACH	High
NHLAK700061403-06-02	GREAT POND - KINGSTON STATE PARK BEACH	High
NHLAK700061403-06-05	GREAT POND- GREAT POND PARK ASSOCIATION BEACH	High
NHLAK801030302-01-02	ECHO LAKE - FRANCONIA STATE PARK BEACH	High
NHLAK801060101-01-02	CANAAN STREET LAKE - TOWN BEACH	High

AUID	Name	Rank
NHLAK801060402-05-03	SUNAPEE LAKE - DEWEY (TOWN) BEACH	High
NHLAK801060402-05-04	SUNAPEE LAKE - BLODGETT'S LANDING BEACH	High
NHLAK801060402-05-05	SUNAPEE LAKE - SUNAPEE STATE PARK BEACH	High
NHLAK802010104-02-02	SURRY MOUNTAIN RESERVOIR - REC AREA BEACH	High
NHLAK802010201-06-02	OTTER BROOK LAKE - OTTER BROOK PK BEACH	High
NHLAK802010202-07-02	RUSSEL RESERVOIR - CHESHAM BEACH	High
NHLAK802010302-01-02	SWANZEY LAKE - RICHARDSON PARK TOWN BEACH	High
NHLAK802010401-01-02	FOREST LAKE - TOWN BEACH	High
NHLAK802010402-01-02	SANDY POND - CAMP WIYAKA BEACH	High
NHLAK802020103-08-02	PEARLY LAKE-PEARLY LAKE BEACH	High
NHOCN000000000-02-02	ATLANTIC OCEAN - NEW CASTLE BEACH	High
NHOCN000000000-02-09	ATLANTIC OCEAN - STATE BEACH	High
NHRIV600020304-10-02	SACO RIVER - SMITH EASTON REC AREA BEACH	High
NHRIV600030703-07-02	LAMPREY RIVER - CARROLL LAKE BEACH	High
NHRIV700030204-15-02	BEARDS BROOK - TOWN BEACH	High
NHRIV801030402-07-02	TUTTLE BROOK - TWIN MTN REC AREA BEACH	High
NHRIV801040205-02-02	BEAN BROOK-TOWN BEACH	High
NHIMP700060402-02-02	LOCKE LAKE - NORTH BARNSTEAD ROAD BEACH	Medium
NHLAK400010606-01-02	JERICHO MOUNTAIN STATE PARK BEACH	Medium
NHLAK600020605-02-02	WHITE LAKE - STATE PARK BEACH	Medium
NHLAK600020703-01-02	DUNCAN LAKE - TOWN BEACH	Medium
NHLAK600020804-01-05	BROAD BAY - CAMP HUCKINS BEACH	Medium
NHLAK700010303-02-03	UPPER BAKER POND - CAMP MOOSILAUKE BEACH	Medium
NHLAK700010603-02-10	NEWFOUND LAKE - CAMP MOWGLIS BEACH	Medium
NHLAK700020105-02-03	LAKE KANASATKA - CAMP QUINEBARGE BEACH	Medium
NHLAK700020110-02-27	LAKE WINNIPESAUKEE - WINAUKEE ISLAND CAMP BEACH	Medium
NHLAK700020201-05-04	LAKE WINNISQUAM - BELMONT TOWN BEACH	Medium
NHLAK700020201-06-02	OPECHEE BAY - BOND BEACH	Medium
NHLAK700030103-05-02	HARRISVILLE LAKE - SUNSET TOWN BEACH	Medium

AUID	Name	Rank
NHLAK700030401-03-02	EAGLE POND - CAMP KENWOOD-EVERGREEN BEACH	Medium
NHLAK700030501-01-03	GOULD POND - HUMMINGBIRD BEACH	Medium
NHLAK700060401-06-02	MANNING LAKE - CAMP BELL BEACH	Medium
NHLAK700060403-01-02	BIG WILLEY POND - CAMP FOSS BEACH	Medium
NHLAK700060502-08-04	NORTHWOOD LAKE - LYNN GROVE ASSOCIATION BEACH	Medium
NHLAK700060601-05-02	WEARE RESERVOIR - CHASE PARK TOWN BEACH	Medium
NHLAK700061102-03-04	CAPTAIN POND - CAMP Y WOOD BEACH	Medium
NHLAK700061205-02-02	LONG POND - TOWN BEACH	Medium
NHLAK700061403-06-04	GREAT POND - CAMP LINCOLN BEACH	Medium
NHLAK801010701-02-02	YORK POND - BARRY CONSERVATION CAMP BEACH	Medium
NHLAK801040203-01-02	POST POND - CHASE TOWN BEACH	Medium
NHLAK801040402-02-02	STORRS POND - RECREATION AREA BEACH	Medium
NHLAK801060105-04-02	MASCOMA LAKE - SHAKOMA BEACH	Medium
NHLAK801060105-04-04	MASCOMA LAKE - DARTMOUTH COLLEGE BEACH	Medium
NHLAK801060105-04-05	MASCOMA LAKE - LAKEVIEW CONDOMINIUM ASSOCIATION BEACH	Medium
NHLAK802020103-06-02	MONOMONAC LAKE - CAMP MONOMONAC BEACH	Medium
NHRIV600020302-02-02	SACO RIVER - FIRST BRIDGE REC AREA BEACH	Medium
NHRIV600020304-01-02	SACO RIVER - DAVIS PARK REC AREA BEACH	Medium
NHEST600031004-09-05	HAMPTON/SEABROOK HARBOR - SEABROOK HARBOR BEACH	Low
NHEST600031004-09-06	HAMPTON/SEABROOK HARBOR - HAMPTON HARBOR BEACH	Low
NHIMP600030702-01-02	BEAVER POND - BEAVER POND BEACH	Low
NHIMP700030101-04-02	UNNAMED RIVER - ARK POND - MONADNOCK CHRISTIAN CONFERENCE BEACH	Low
NHIMP700030507-02-02	KIMBALL POND - HOPKINTON TOWN BEACH	Low
NHIMP700060402-02-01	LOCKE LAKE - GEORGETOWN BEACH #6	Low
NHIMP700060402-02-03	LOCKE LAKE -N SHORE RD BEACH	Low
NHIMP700060402-02-04	LOCKE LAKE - POINT BEACH	Low
NHIMP700060402-02-06	LOCKE LAKE - VARNEY BEACH	Low
NHIMP700060402-02-07	LOCKE LAKE - WINCHESTER DRIVE BEACH	Low
NHIMP700061403-04-02	POWWOW RIVER - TRICKLIN' FALLS BEACH	Low

AUID	Name	Rank
NHLAK600020302-01-02	ECHO LAKE - STATE PARK BEACH	Low
NHLAK600020304-01-02	CONWAY LAKE - TOWN BEACH	Low
NHLAK600020304-02-02	CRYSTAL LAKE-TOWN BEACH	Low
NHLAK600020304-02-03	CRYSTAL LAKE - WAUKEELA BEACH	Low
NHLAK600020601-01-02	BEARCAMP POND - TOWN BEACH	Low
NHLAK600020604-01-03	LAKE CHOCORUA - TOWN BEACH	Low
NHLAK600020604-01-04	LAKE CHOCORUA - PUBLIC BEACH	Low
NHLAK600020604-03-02	MOORES POND - MOORES POND SKI AND BEACH	Low
NHLAK600020604-03-03	MOORES POND - ASSOCIATION BEACH	Low
NHLAK600020701-02-02	LOWER BEECH POND - WILLIAM LAWRENCE CAMP BEACH	Low
NHLAK600020702-01-02	DAN HOLE POND - CAMP MERROVISTA BEACH	Low
NHLAK600020702-01-03	DAN HOLE POND - CAMP SENTINEL BAPTIST BEACH	Low
NHLAK600020801-06-03	SILVER LAKE - FOOT OF THE LAKE BEACH	Low
NHLAK600020801-06-04	SILVER LAKE - NICHOLS BEACH	Low
NHLAK600020801-06-05	SILVER LAKE - KENNETT PARK BEACH	Low
NHLAK600020802-04-02	OSSIPEE LAKE - CAMP CALUMET BEACH	Low
NHLAK600020802-04-04	OSSIPEE LAKE - CAMP CODY FOR BOYS BEACH	Low
NHLAK600020803-06-02	PURITY LAKE - CAMP TOHKOMEUPOG BEACH	Low
NHLAK600020804-01-04	LEAVITT BAY - CAMP MARIST BEACH	Low
NHLAK600020804-01-06	BROAD BAY - CAMP ROBIN HOOD BEACH	Low
NHLAK600020901-01-02	LOON LAKE - CAMP LUETHI-PETERSON BEACH	Low
NHLAK600020901-01-03	LOON LAKE - CAMP CRAGGED MOUNTAIN FARM	Low
NHLAK600030401-01-02	LOVELL POND - TOWN BEACH	Low
NHLAK600030601-04-02	MARCHS POND - BIRCH HILL SUMMER CAMP BEACH	Low
NHLAK600030604-01-02	BOW LAKE - TOWN BEACH	Low
NHLAK600030604-01-03	BOW LAKE - MARY WALDRON BEACH	Low
NHLAK600030604-01-04	BOW LAKE - BENNETT BRIDGE BEACH	Low
NHLAK600030607-01-02	AYERS POND - CAMP FIRESIDE BEACH	Low
NHLAK600030703-03-03	ONWAY LAKE - CAMP ONWAY BEACH	Low

AUID	Name	Rank
NHLAK600030704-02-03	PAWTUCKAWAY LAKE - TOWN BEACH	Low
NHLAK600030705-02-03	LUCAS POND - CAMP YAVNEH BEACH	Low
NHLAK600030802-05-01	SANDLOT SPORTS SWIMMING AREA	Low
NHLAK700010205-01-01	MIRROR LAKE - MIRROR LAKE BEACH	Low
NHLAK700010303-01-02	LOWER BAKER POND - CAMP PEMIGEWASSET BEACH	Low
NHLAK700010303-02-02	UPPER BAKER POND - CAMP MERRIWOOD BEACH	Low
NHLAK700010306-01-02	STINSON LAKE - CAMP HAPPY T RANCH BEACH	Low
NHLAK700010501-04-02	SQUAM LAKE - LIVERMORE BEACH	Low
NHLAK700010501-04-03	SQUAM LAKE-TOWN BEACH	Low
NHLAK700010501-04-04	SQUAM LAKE - CAMP DEERWOOD BEACH	Low
NHLAK700010501-04-05	SQUAM LAKE - CAMP HALE BEACH	Low
NHLAK700010501-04-06	SQUAM LAKE - WISTER POINT WEST BEACH	Low
NHLAK700010501-04-07	SQUAM LAKE - MOON ISLAND SOUTH BEACH	Low
NHLAK700010501-04-08	SQUAM LAKE - WISTER POINT EAST BEACH	Low
NHLAK700010502-01-02	LITTLE SQUAM LAKE - TOWN BEACH	Low
NHLAK700010601-01-02	SPECTACLE POND - GROTON TOWN BEACH	Low
NHLAK700010601-01-03	SPECTACLE POND - CIRCLE CAMP	Low
NHLAK700010603-02-02	NEWFOUND LAKE - TOWN BEACH	Low
NHLAK700010603-02-04	NEWFOUND LAKE - CUMMINGS BEACH	Low
NHLAK700010603-02-05	NEWFOUND LAKE - WELLINGTON STATE PARK BEACH	Low
NHLAK700010603-02-06	NEWFOUND LAKE - CAMP MASQUEBEC HILL BEACH	Low
NHLAK700010603-02-07	NEWFOUND LAKE - CAMP MAYHEW BEACH	Low
NHLAK700010603-02-09	NEWFOUND LAKE - CAMP BEREA BEACH	Low
NHLAK700010603-02-11	NEWFOUND LAKE - CAMP ONAWAY BEACH	Low
NHLAK700010603-02-12	NEWFOUND LAKE - CAMP PASQUANEY BEACH	Low
NHLAK700010603-02-14	NEWFOUND LAKE - HEBRON TOWN BEACH	Low
NHLAK700010701-02-02	KILTON POND - HUFF BEACH	Low
NHLAK700010804-01-02	HIGHLAND LAKE - TOWN BEACH	Low
NHLAK700020101-05-05	LAKE WENTWORTH - CAMP BERNADETTE BEACH	Low

AUID	Name	Rank
NHLAK700020101-05-07	LAKE WENTWORTH - PIERCE CAMP BIRCHMONT BEACH	Low
NHLAK700020101-07-02	RUST POND - WOLFEBORO CAMP SCHOOL BEACH	Low
NHLAK700020102-03-02	MERRYMEETING LAKE - CAMP CAREFREE/CAMP PRIDE BEACH	Low
NHLAK700020105-02-02	LAKE KANASATKA - DEER HILL BEACH	Low
NHLAK700020106-02-02	MIRROR LAKE - MIRROR LAKE BEACH	Low
NHLAK700020108-02-03	LAKE WAUKEWAN - TOWN BEACH	Low
NHLAK700020110-02-05	LAKE WINNIPESAUKEE - MOULTONBOROUGH TOWN BEACH	Low
NHLAK700020110-02-08	LAKE WINNIPESAUKEE - CARRY BEACH	Low
NHLAK700020110-02-11	LAKE WINNIPESAUKEE - PUBLIC DOCK TOWN BEACH	Low
NHLAK700020110-02-15	LAKE WINNIPESAUKEE - LEAVITT PARK BEACH	Low
NHLAK700020110-02-16	LAKE WINNIPESAUKEE - TOWN BEACH (CENTER HARBOR)	Low
NHLAK700020110-02-17	LAKE WINNIPESAUKEE - STATES LANDING TOWN BEACH	Low
NHLAK700020110-02-21	LAKE WINNIPESAUKEE - BROOKWOOD/DEER RUN BEACH	Low
NHLAK700020110-02-22	LAKE WINNIPESAUKEE - CAMP KABEYUN BEACH	Low
NHLAK700020110-02-23	LAKE WINNIPESAUKEE - CAMP LAWRENCE BEACH	Low
NHLAK700020110-02-24	LAKE WINNIPESAUKEE - CAMP MENOTOMY BEACH	Low
NHLAK700020110-02-25	LAKE WINNIPESAUKEE - CAMP NOKOMIS BEACH	Low
NHLAK700020110-02-26	LAKE WINNIPESAUKEE - GENEVA POINT CENTER BEACH	Low
NHLAK700020110-02-28	LAKE WINNIPESAUKEE - CAMP ROBINDEL FOR GIRLS BEACH	Low
NHLAK700020110-02-29	LAKE WINNIPESAUKEE - CAMP TECUMSEH BEACH	Low
NHLAK700020110-02-30	LAKE WINNIPESAUKEE - CAMP WINAUKEE BEACH	Low
NHLAK700020110-02-31	LAKE WINNIPESAUKEE - CAMP BELKNAP BEACH	Low
NHLAK700020110-02-32	LAKE WINNIPESAUKEE - CAMP NORTH WOODS BEACH	Low
NHLAK700020110-02-33	LAKE WINNIPESAUKEE - CAMP SANDY ISLAND BEACH	Low
NHLAK700020110-02-35	LAKE WINNIPESAUKEE - WANAKEE UNITED METHODIST CHURCH BEACH	Low
NHLAK700020110-02-37	LAKE WINNIPESAUKEE - WAWBEEK CONDO ASSOC BEACH	Low
NHLAK700020110-02-38	LAKE WINNIPESAUKEE - CAMP ADVENCHUR	Low
NHLAK700020110-02-40	PLEASANT VALLEY CAMP BEACH	Low
NHLAK700030101-03-02	CONTOOCOOK LAKE - TOWN BEACH	Low

AUID	Name	Rank
NHLAK700030101-10-02	HUBBARD POND - CAMP WILDWOOD BEACH	Low
NHLAK700030102-01-03	THORNDIKE POND - CAMP WA-KLO BEACH	Low
NHLAK700030102-01-04	THORNDIKE POND - CAMP WANOCKSETT BEACH	Low
NHLAK700030103-04-02	HALFMOON POND - SARGENT CAMP/BOSTON UNIVERSITY BEACH	Low
NHLAK700030104-02-02	CUNNINGHAM POND - TOWN BEACH	Low
NHLAK700030105-02-06	OTTER LAKE - CAMP UNION BEACH	Low
NHLAK700030105-03-02	SUNSET LAKE - TOWN BEACH	Low
NHLAK700030107-02-02	NORWAY POND - TOWN BEACH	Low
NHLAK700030108-01-02	WHITTEMORE LAKE - TOWN BEACH	Low
NHLAK700030108-02-02	GREGG LAKE - TOWN BEACH	Low
NHLAK700030108-02-03	GREGG LAKE - CAMP CHENOA BEACH	Low
NHLAK700030202-02-02	ISLAND POND - PUBLIC BEACH	Low
NHLAK700030203-01-02	BLACK POND - CAMP INTERLOCKEN BEACH	Low
NHLAK700030203-01-03	BLACK POND - WEDIKO BEACH	Low
NHLAK700030203-04-02	WHITE POND - WINDSOR HILLS CAMP SCHOOL BEACH	Low
NHLAK700030302-02-02	BLAISDELL LAKE - CAMP WABASSO BEACH	Low
NHLAK700030302-04-02	LAKE MASSASECUM - MASSASECUM CASINO BEACH	Low
NHLAK700030302-04-03	LAKE MASSASECUM - FRENCH'S PARK TOWN BEACH	Low
NHLAK700030303-03-02	KEZAR LAKE - WADLEIGH STATE PARK BEACH	Low
NHLAK700030401-05-02	WHITE POND - CAMP WILMOT BEACH	Low
NHLAK700030402-02-02	PLEASANT LAKE - ELKINS BEACH	Low
NHLAK700030501-01-05	GOULD POND - HILLSBORO TREATMENT CENTER BEACH	Low
NHLAK700030505-01-02	CLEMENT POND - CAMP MERRIMAC BEACH	Low
NHLAK700030505-04-01	ROLF POND - SANDY BEACH CAMPGROUND BEACH	Low
NHLAK700040401-01-02	MELENDY POND - TOWN BEACH	Low
NHLAK700040401-02-03	POTANIPO POND - CAMP TEVYA BEACH	Low
NHLAK700060201-01-02	LOON LAKE - LOON LAKE BEACH	Low
NHLAK700060201-02-01	LYFORD POND-SHERWOOD FOREST SHORES BEACH 5	Low
NHLAK700060201-03-01	NEW POND-SHERWOOD FOREST SHORES BEACH 1	Low

AUID	Name	Rank
NHLAK700060201-03-02	NEW POND-SHERWOOD FOREST SHORES BEACH 2	Low
NHLAK700060201-03-03	NEW POND-SHERWOOD FOREST SHORES BEACH 3	Low
NHLAK700060202-03-02	CLOUGH POND - TOWN BEACH	Low
NHLAK700060401-09-02	LAKE EILEEN - HIDDEN VALLEY BEACH	Low
NHLAK700060401-12-01	SUNSET LAKE HIDDEN VALLEY BEACH	Low
NHLAK700060402-03-02	HALFMOON LAKE - CAMP MI-TE-NA BEACH	Low
NHLAK700060402-03-03	DALTON DRIVE BEACH	Low
NHLAK700060402-10-04	UPPER SUNCOOK LAKE - TOWN BEACH	Low
NHLAK700060403-01-03	BIG WILLEY POND - PARKER MTN BEACH	Low
NHLAK700060501-01-02	ADAMS POND - CAMP BEACH	Low
NHLAK700060502-08-03	NORTHWOOD LAKE - CAMP WAH-TUT-CA BEACH	Low
NHLAK700060502-09-02	PLEASANT LAKE - VEASEY PARK BEACH	Low
NHLAK700060601-03-02	PLEASANT LAKE - PUBLIC ACCESS BEACH	Low
NHLAK700060602-01-02	EVERETT LAKE - CLOUGH STATE PARK BEACH	Low
NHLAK700060605-04-02	HAUNTED LAKE - TOWN BEACH	Low
NHLAK700060607-01-02	GLEN LAKE - PARK BEACH	Low
NHLAK700060607-04-02	UNCANOONUC LAKE - MOUNTAIN BASE BEACH	Low
NHLAK700060703-02-03	CRYSTAL LAKE - MELODY PINES DAY CAMP BEACH	Low
NHLAK700060703-03-02	LONG POND - CAMP CARPENTER BEACH	Low
NHLAK700061001-02-03	SILVER LAKE - WALLACE GROVE BEACH	Low
NHLAK700061002-01-02	DARRAH POND - TOWN BEACH	Low
NHLAK700061002-04-03	NATICOOK LAKE - NATICOOK DAY CAMP BEACH	Low
NHLAK700061002-04-04	NATICOOK LAKE - CAMP SARGENT BEACH	Low
NHLAK700061101-01-03	ISLAND POND - SANBORN SHORE ACRES	Low
NHLAK700061101-03-03	SUNSET LAKE - SUNSET PARK BEACH	Low
NHLAK700061101-03-04	WASH POND - CAMP TEL NOAR BEACH	Low
NHLAK700061102-09-02	SHADOW LAKE - SHADOW LAKE ASSOCIATION BEACH	Low
NHLAK700061203-05-03	RAINBOW LAKE HILMARK ASSOC	Low
NHLAK700061204-02-02	LITTLE ISLAND POND - CAMP RUNELS BEACH	Low

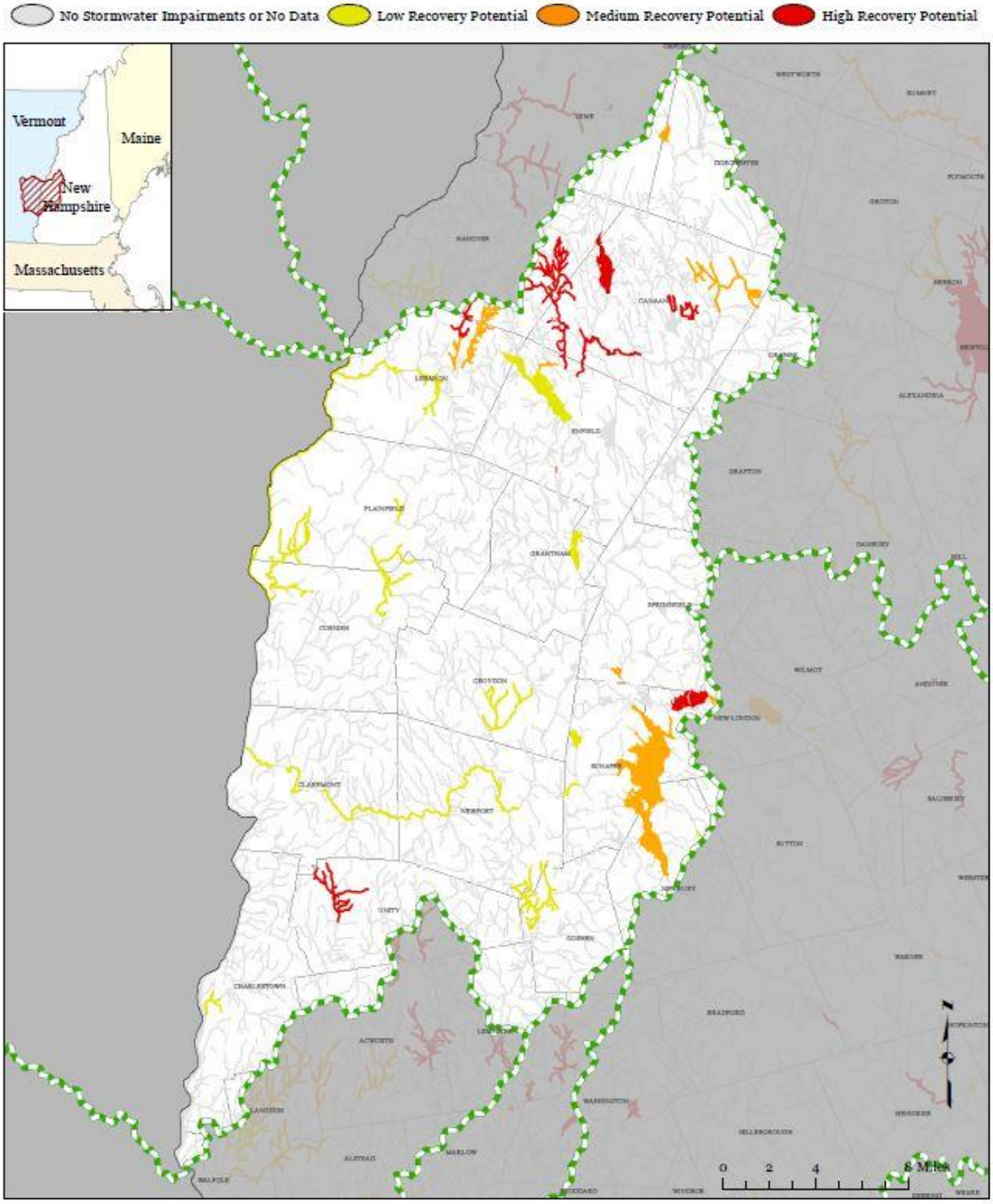
AUID	Name	Rank
NHLAK700061403-01-02	ANGLE POND - ANGLE POND GROVE BEACH	Low
NHLAK700061403-06-03	GREAT POND - CAMP BLUE TRIANGLE BEACH	Low
NHLAK700061403-07-02	GREENWOOD POND - GREENWOOD POND BEACH	Low
NHLAK801010707-04-02	SOUTH POND - REC AREA BEACH	Low
NHLAK801010806-01	WAUMBEK INN BROOK - TOWN BEACH	Low
NHLAK801030101-01-02	BURNS POND - PUBLIC BEACH	Low
NHLAK801030101-02-02	FOREST LAKE - FOREST LAKE STATE PARK	Low
NHLAK801040201-01-02	LAKE ARMINGTON - CAMP WALT WHITMAN BEACH	Low
NHLAK801040201-03-02	LAKE TARLETON - KINGSWOOD CAMP BEACH	Low
NHLAK801040201-03-03	LAKE TARLETON - LAKE TARLETON STATE PARK BEACH	Low
NHLAK801040205-01-02	INDIAN POND - TOWN BEACH	Low
NHLAK801040402-02-03	STORRS POND - ADULT BEACH	Low
NHLAK801060101-01-04	CANAAN ST LAKE - CRESCENT CAMPSITES	Low
NHLAK801060303-03-01	SINGING HILLS	Low
NHLAK801060401-08-02	KOLEMOOK LAKE - TOWN BEACH	Low
NHLAK801060402-02-02	BAPTIST POND - CAMP SUNAPEE	Low
NHLAK801060402-04-02	LITTLE SUNAPEE LAKE - BUCKLIN TOWN BEACH	Low
NHLAK801060402-05-02	SUNAPEE LAKE - GEORGES MILL TOWN BEACH	Low
NHLAK801060402-05-06	SUNAPEE LAKE - DEPOT BEACH	Low
NHLAK801060402-12-02	OTTER POND - MORGAN BEACH	Low
NHLAK801060403-04-02	RAND POND - PUBLIC WAY BEACH	Low
NHLAK801060405-01-02	LAKE CONISTON - CAMP CONISTON BEACH	Low
NHLAK801070201-02-02	DODGE POND - CAMP KIRKHAM BEACH	Low
NHLAK801070503-01-03	SPOFFORD LAKE - N SHORE RD TOWN BEACH	Low
NHLAK801070503-01-04	SPOFFORD LAKE - WARES GROVE TOWN BEACH	Low
NHLAK801070503-01-05	SPOFFORD LAKE - CAMP SPOFFORD BEACH	Low
NHLAK801070503-01-06	SPOFFORD LAKE - ROADS END FARM BEACH	Low
NHLAK802010101-06-02	MILLEN POND - TOWN BEACH	Low
NHLAK802010202-17-02	UNKNOWN POND - CAMP GLEN BROOK BEACH	Low

AUID	Name	Rank
NHLAK802010302-01-03	SWANZEY LAKE - CAMP SQUANTO BEACH	Low
NHLAK802010303-05-02	STONE POND - TOWN BEACH	Low
NHLAK802020101-01-02	PECKER POND - CAMP TOAH NIPI BEACH	Low
NHLAK802020202-02-02	LAUREL LAKE - TOWN BEACH	Low
NHLAK802020202-02-03	LAUREL LAKE - CAMP FLEUR DE LIS BEACH	Low
NHLAK802020203-01-02	CASS POND - CAMP TAKODAH BEACH	Low
NHLAK802020203-01-03	CASS POND BEACH	Low
NHOCN000000000-02-04	ATLANTIC OCEAN - WALLIS SANDS BEACH AT WALLIS ROAD	Low
NHOCN000000000-02-05	ATLANTIC OCEAN - CABLE BEACH	Low
NHOCN000000000-02-06	ATLANTIC OCEAN - SAWYER BEACH	Low
NHOCN000000000-02-07	ATLANTIC OCEAN - JENNESS BEACH	Low
NHOCN000000000-02-10	ATLANTIC OCEAN - HAMPTON BEACH STATE PARK BEACH	Low
NHOCN000000000-02-11	ATLANTIC OCEAN - SEABROOK TOWN BEACH	Low
NHOCN000000000-02-12	ATLANTIC OCEAN - NORTH BEACH	Low
NHOCN000000000-02-13	ATLANTIC OCEAN - NORTHSIDE PARK BEACH	Low
NHOCN000000000-02-14	ATLANTIC OCEAN - FOSS BEACH	Low
NHOCN000000000-02-16	ATLANTIC OCEAN - WALLIS SANDS STATE PARK BEACH	Low
NHOCN000000000-03-02	ATLANTIC OCEAN - BASS BEACH	Low
NHOCN000000000-08-03	ATLANTIC OCEAN - SUN VALLEY BEACH	Low
NHRIV600020602-04-02	COLD RIVER - POT HOLE TOWN BEACH	Low
NHRIV700060601-04-01	THE WILDS OF NEW ENGLAND	Low
NHRIV700060903-16-02	STONY BROOK - TOWN BEACH (GOSS PARK)	Low

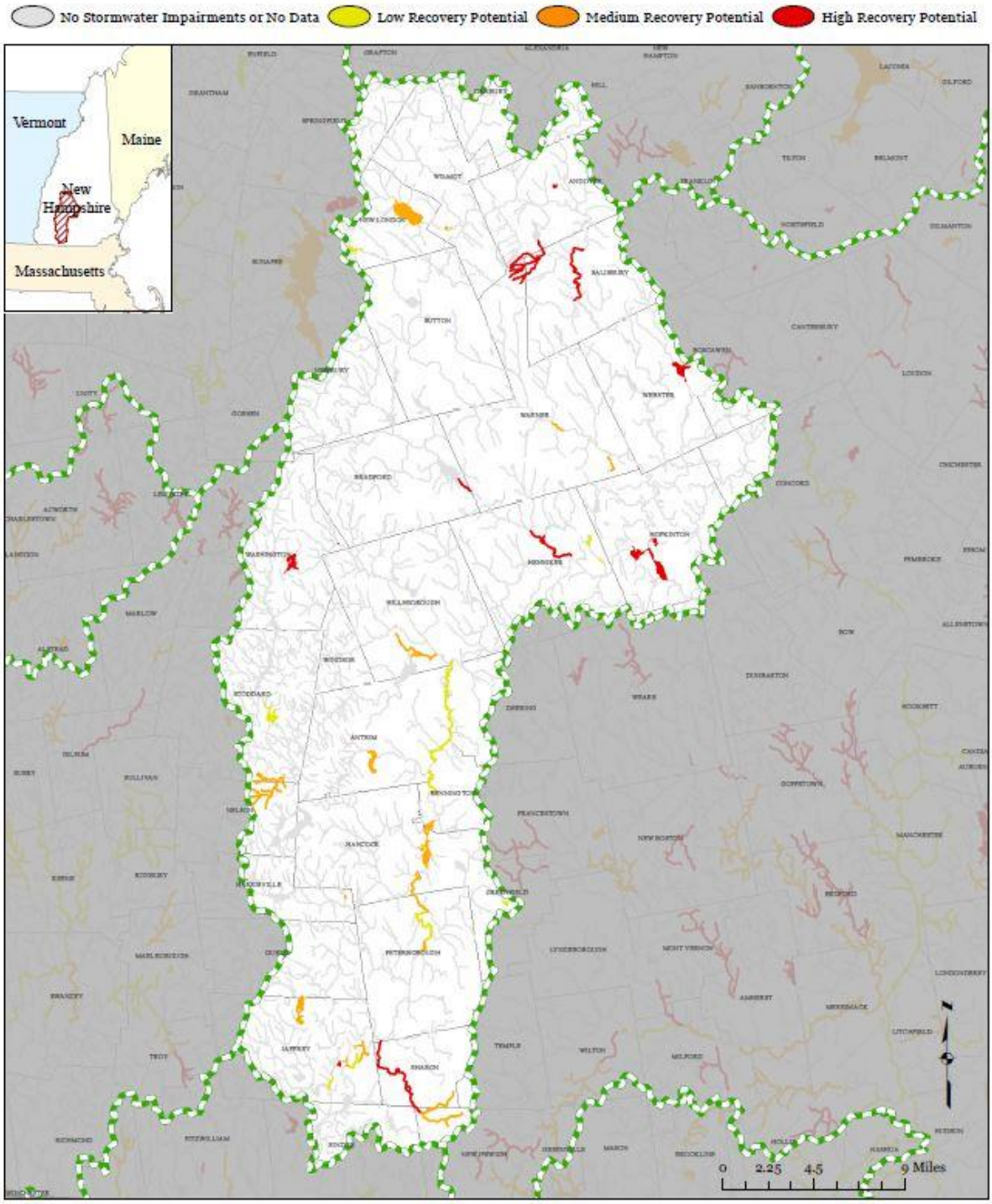
High – Beach that is impaired for one of the stormwater parameters and has a TMDL completed (category 4A)
Medium – Beach that is impaired or potentially not attaining standards for one of the stormwater parameters and does not have a TMDL completed (category 5 or 3-PNS)
Low – Beach that is not impaired for one of the stormwater parameters (category 2 or 3-PAS)

APPENDIX E: RESTORATION RECOVERY POTENTIAL MAPS FOR NEW HAMPSHIRE RIVERS BY HUC8 WATERSHED

2020-2024 NPS Management Plan Recovery Potential
Black-Ottauquechee River Watershed
(HUC8: 01080106)

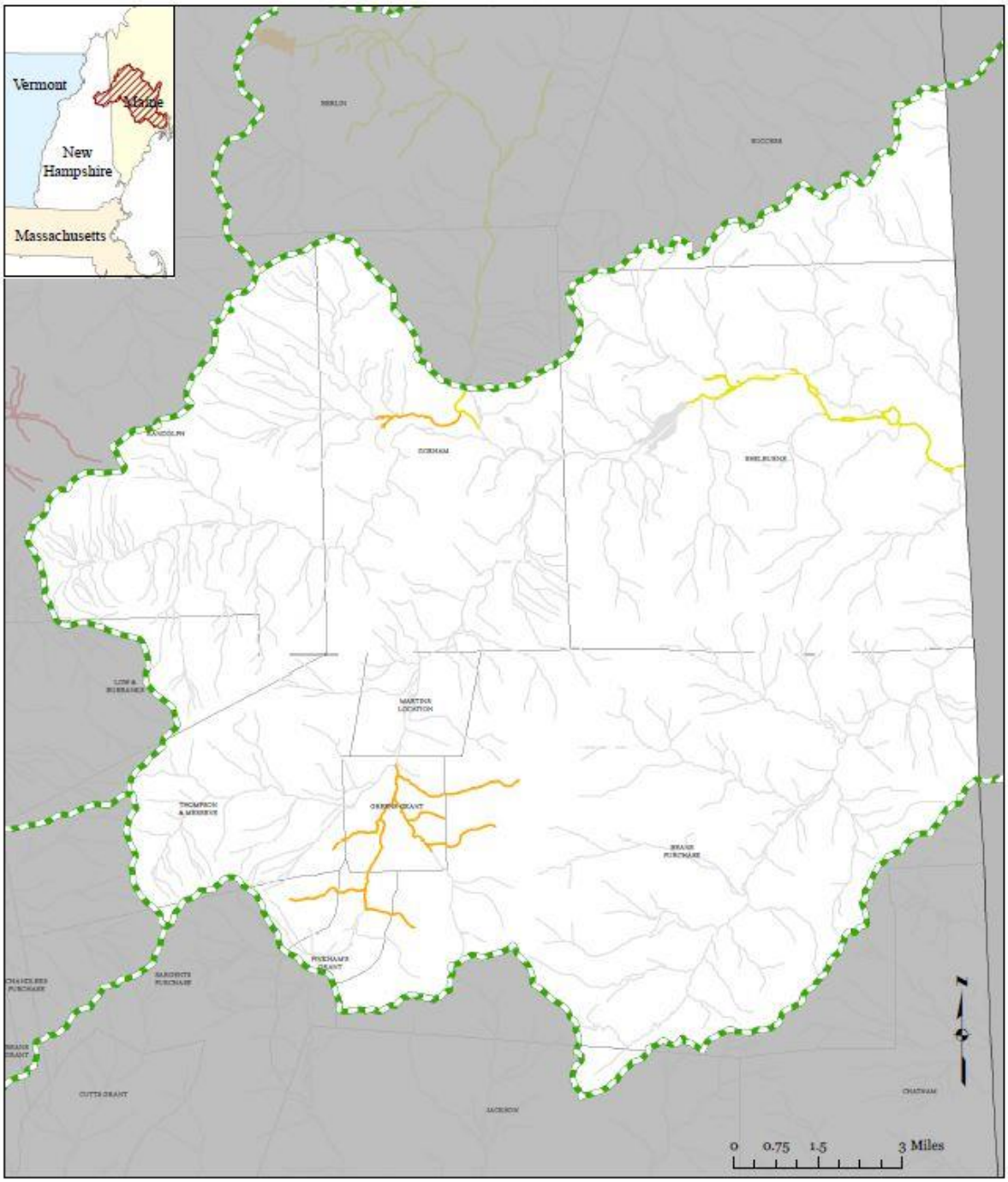


2020-2024 NPS Management Plan Recovery Potential
Contoocook River Watershed
(HUC8: 01070003)

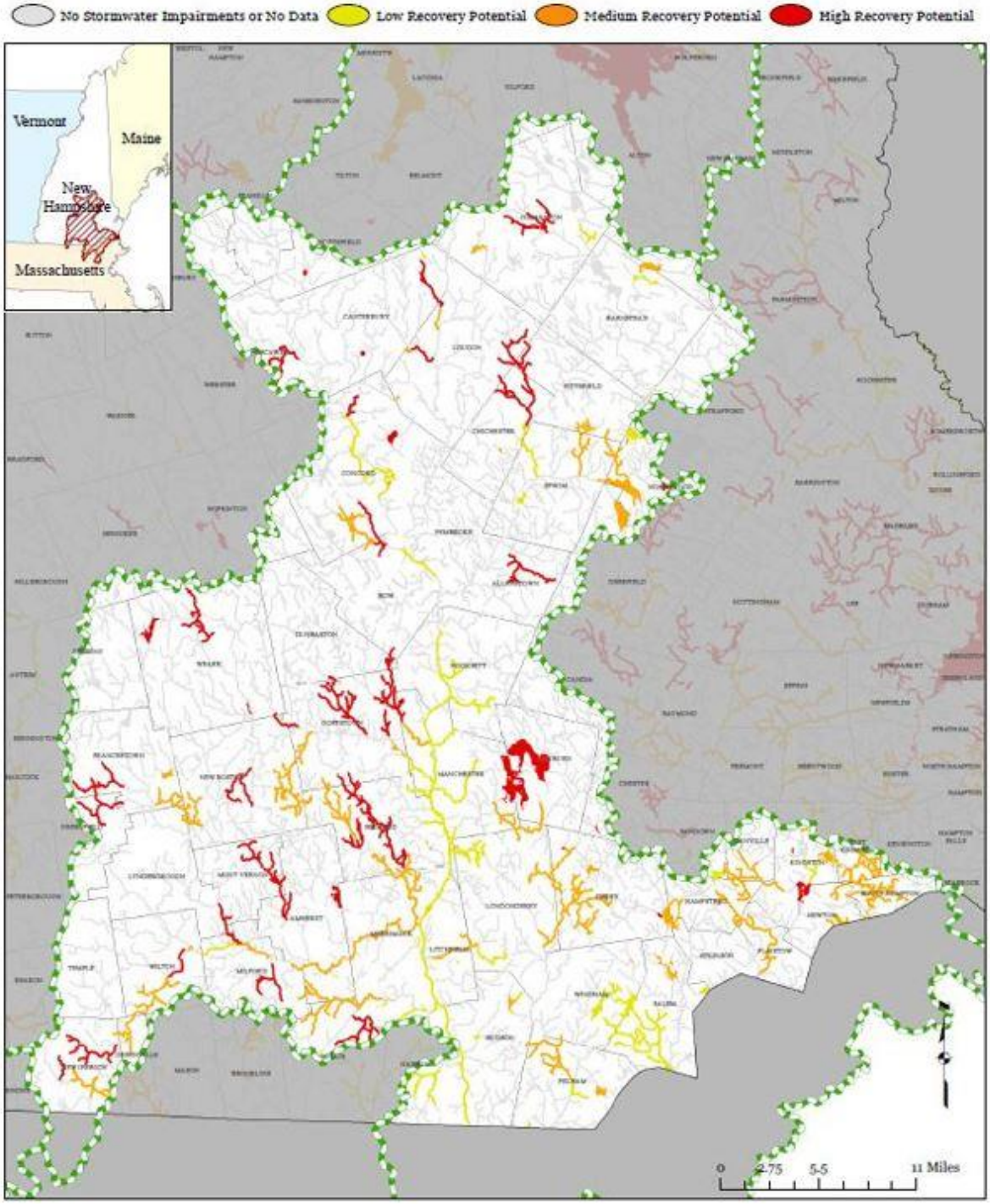


2020-2024 NPS Management Plan Recovery Potential
Lower Androscoggin River Watershed
(HUC8: 01040002)

No Stormwater Impairments or No Data | Low Recovery Potential | Medium Recovery Potential | High Recovery Potential

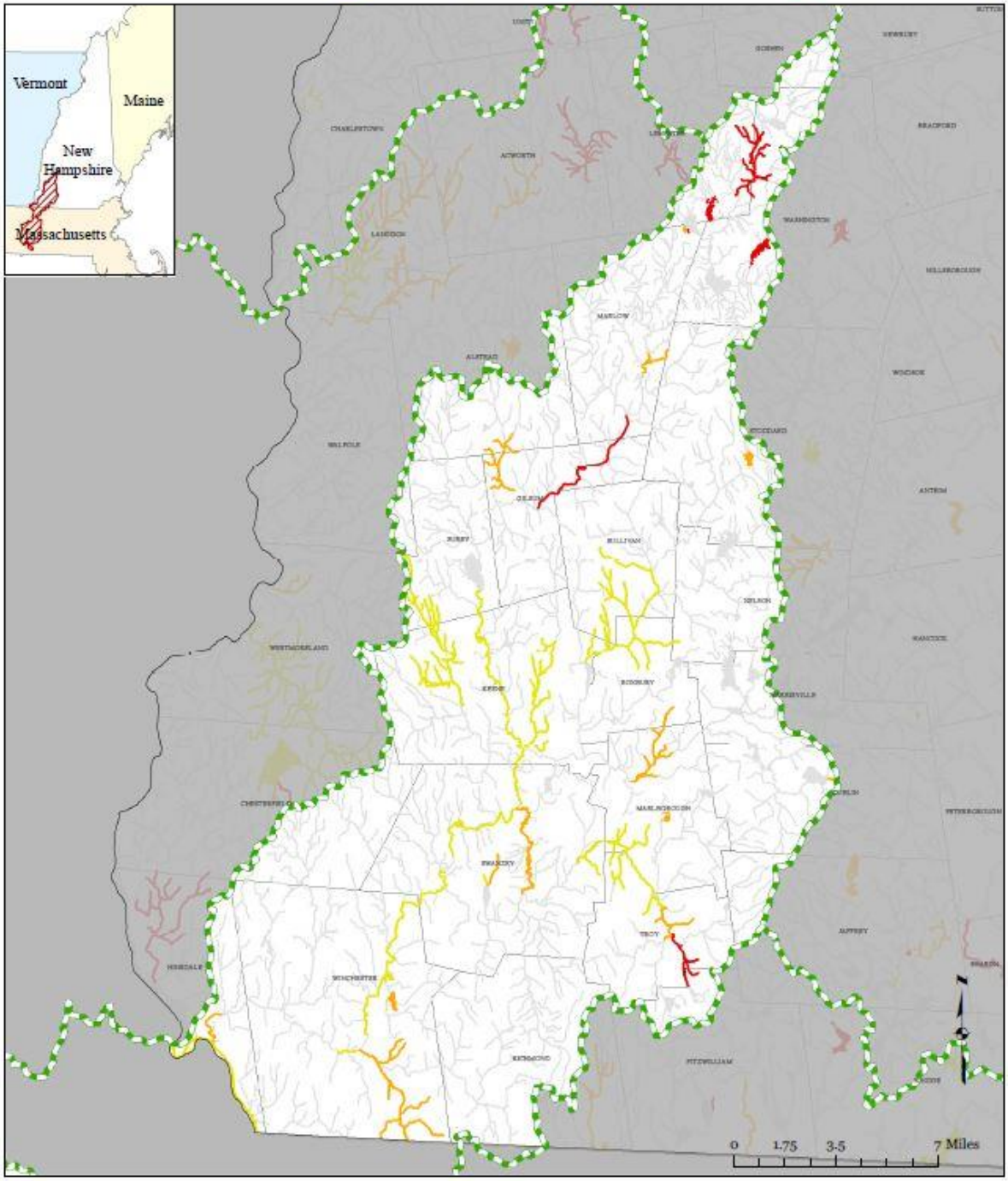


2020-2024 NPS Management Plan Recovery Potential
Merrimack River Watershed
(HUC8: 01070006)

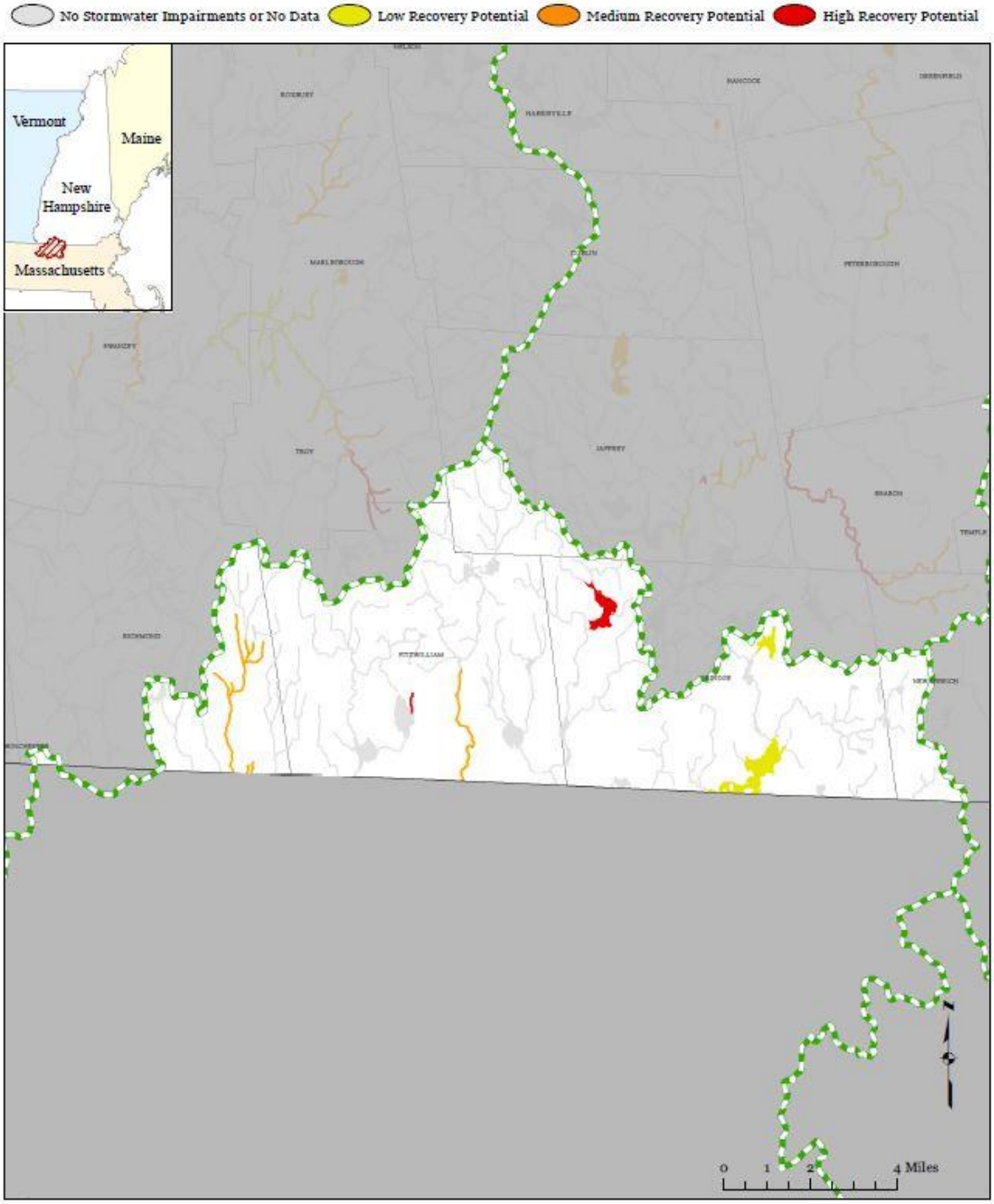


2020-2024 NPS Management Plan Recovery Potential
Middle Connecticut River Watershed
(HUC8: 01080201)

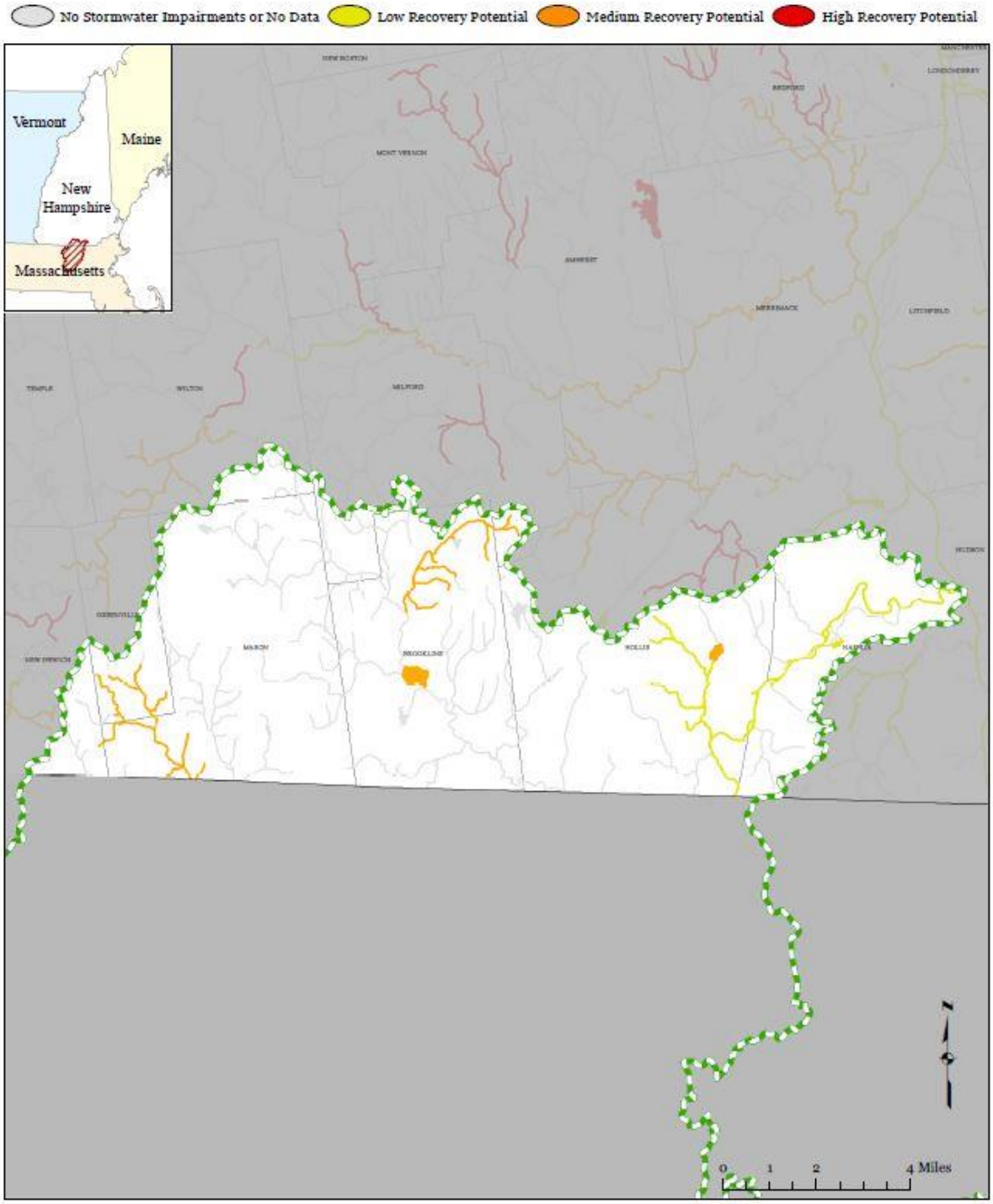
No Stormwater Impairments or No Data | Low Recovery Potential | Medium Recovery Potential | High Recovery Potential



2020-2024 NPS Management Plan Recovery Potential
Miller River Watershed
(HUC8: 01080202)

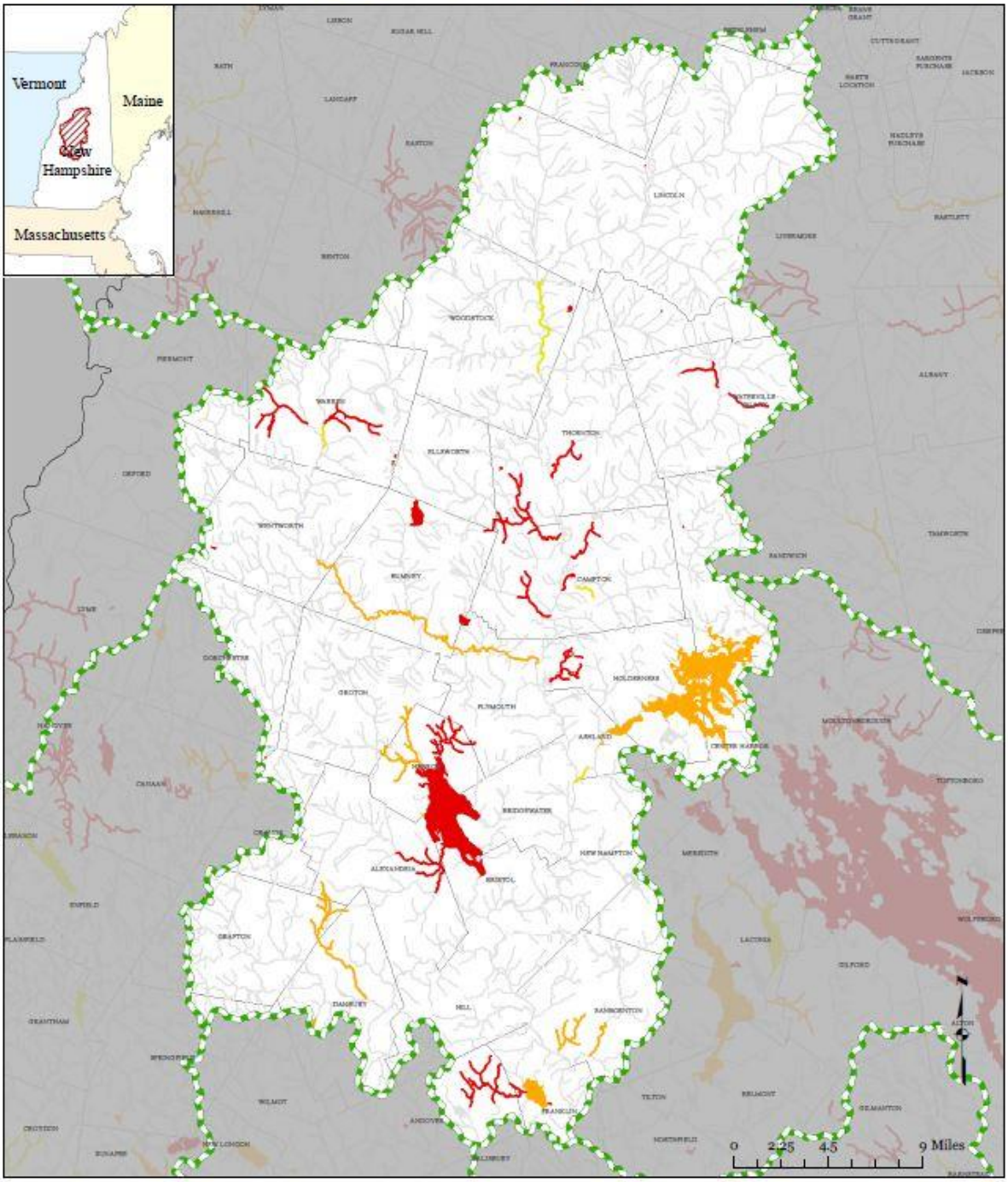


2020-2024 NPS Management Plan Recovery Potential
Nashua River Watershed
(HUC8: 01070004)

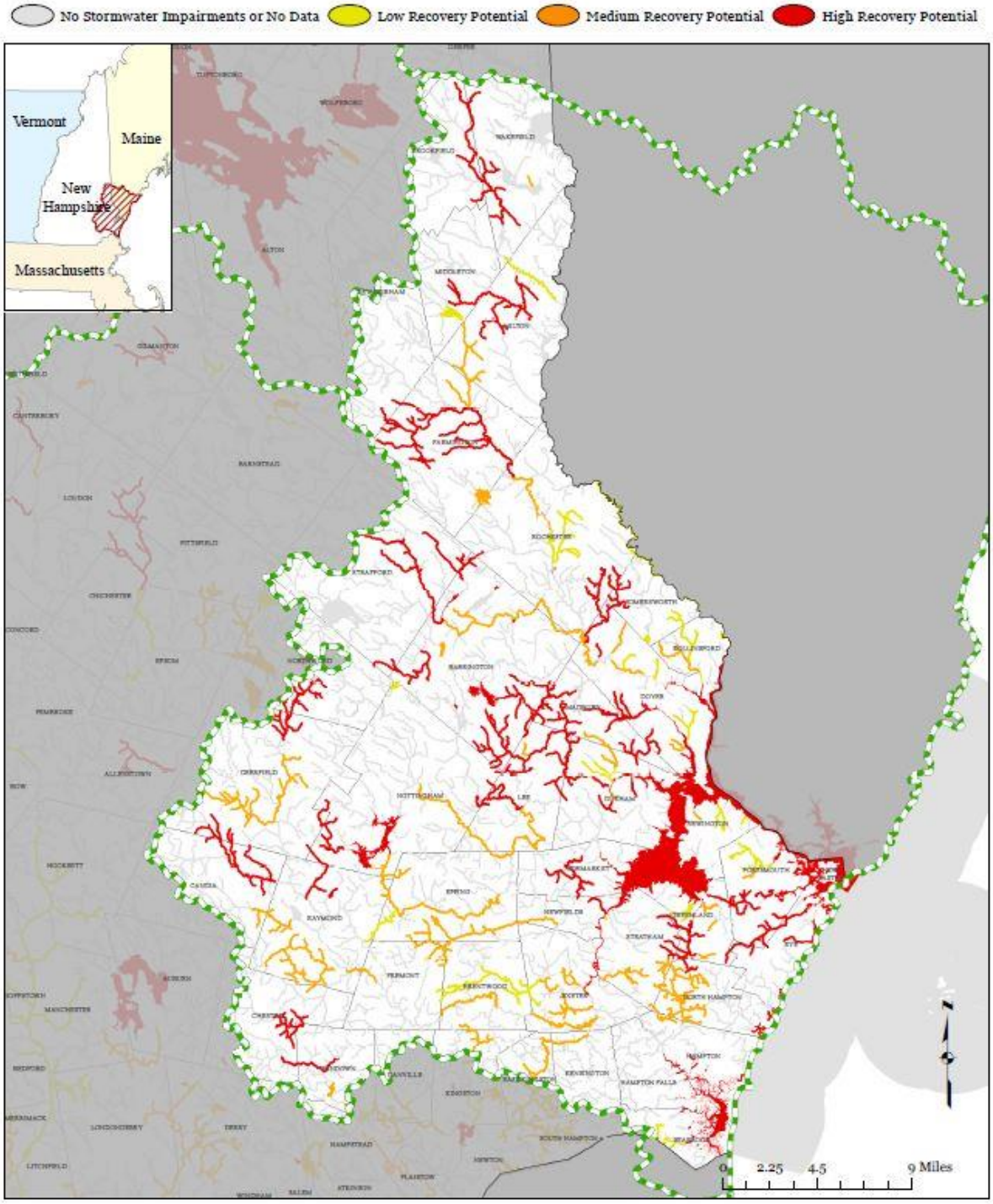


2020-2024 NPS Management Plan Recovery Potential
Pemigewasset River Watershed
(HUC8: 01070001)

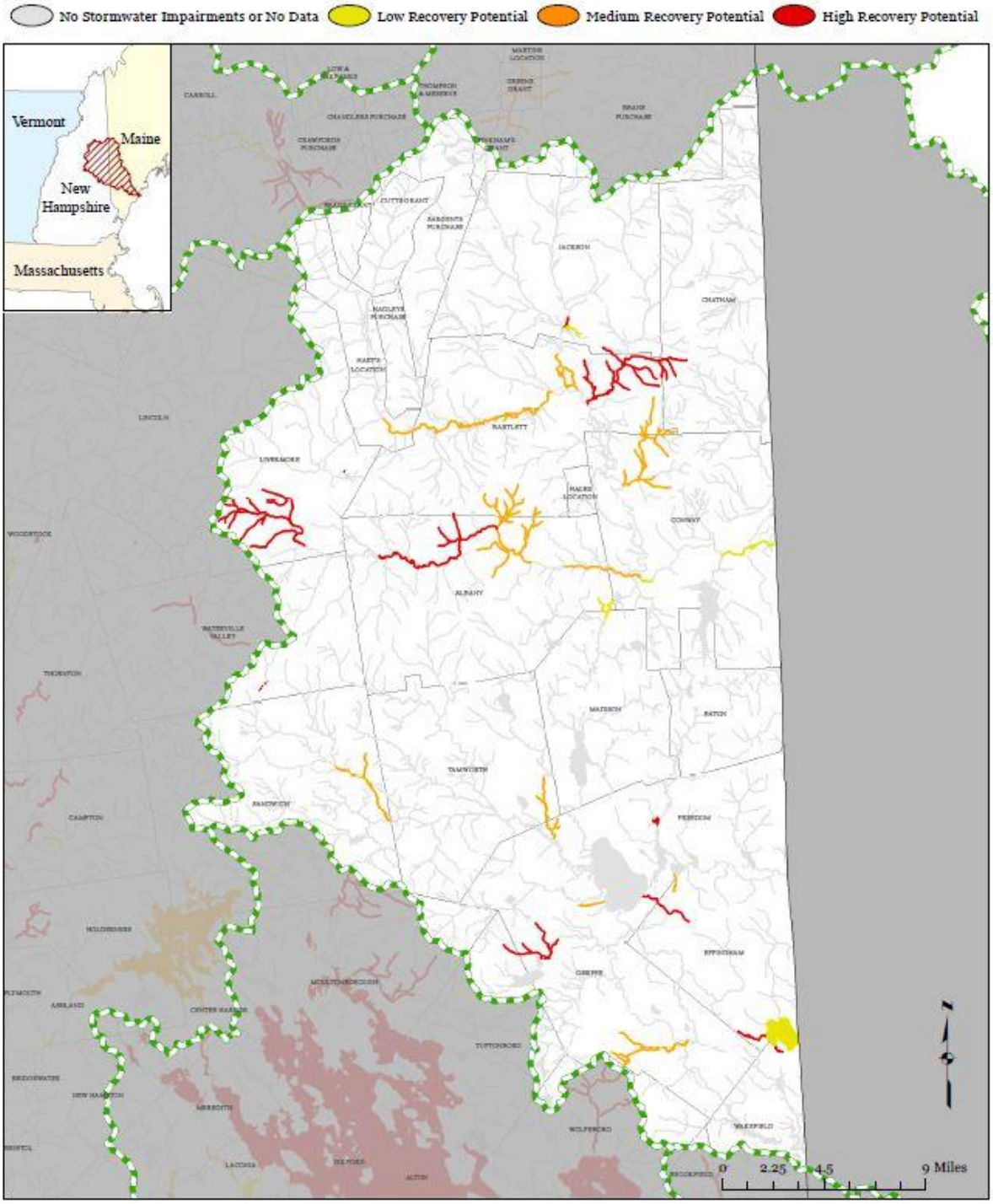
No Stormwater Impairments or No Data | Low Recovery Potential | Medium Recovery Potential | High Recovery Potential



2020-2024 NPS Management Plan Recovery Potential
Piscataqua-Salmon Falls River Watershed
(HUC8: 01060003)

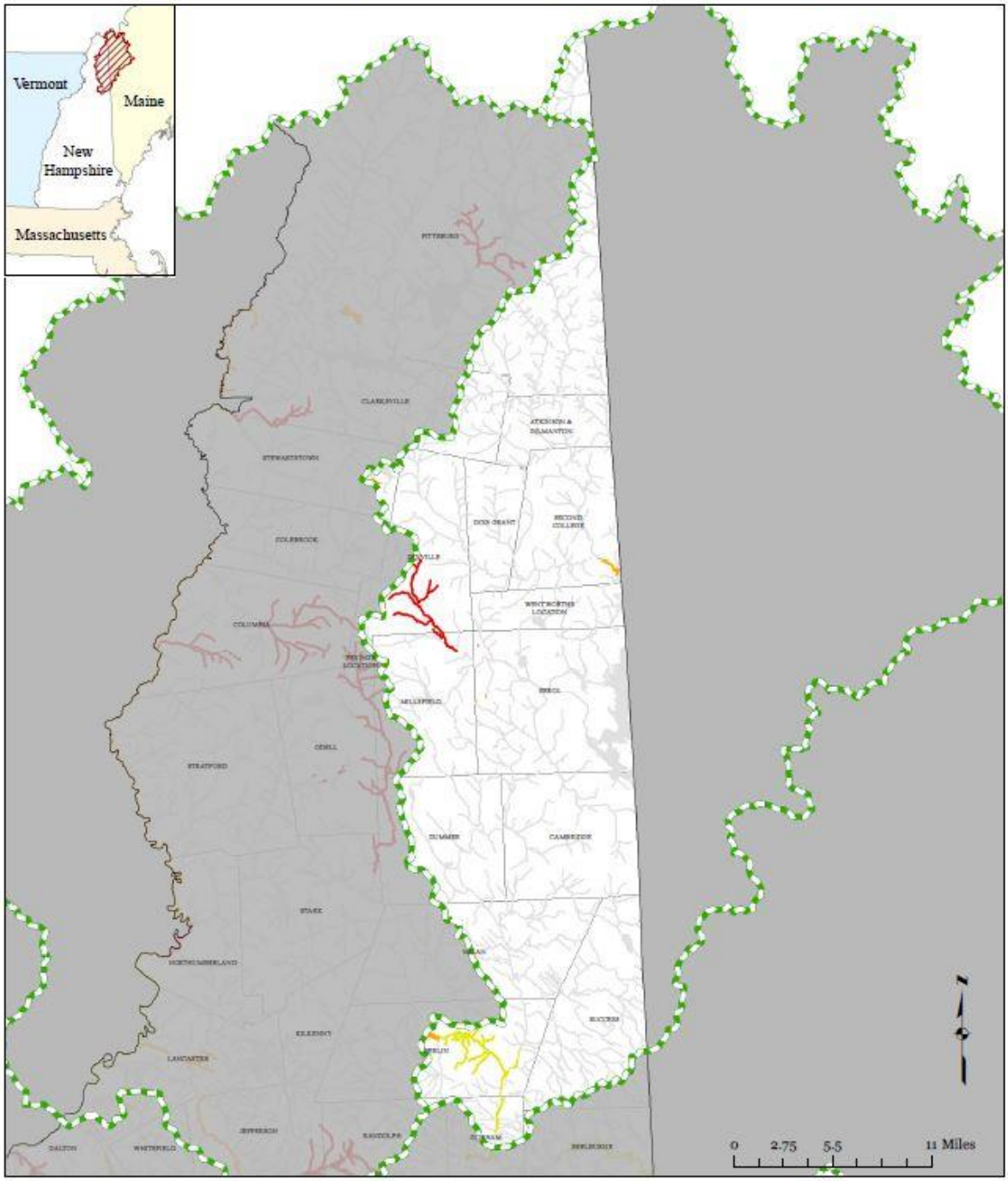


2020-2024 NPS Management Plan Recovery Potential
Saco River Watershed
(HUC8: 01060002)



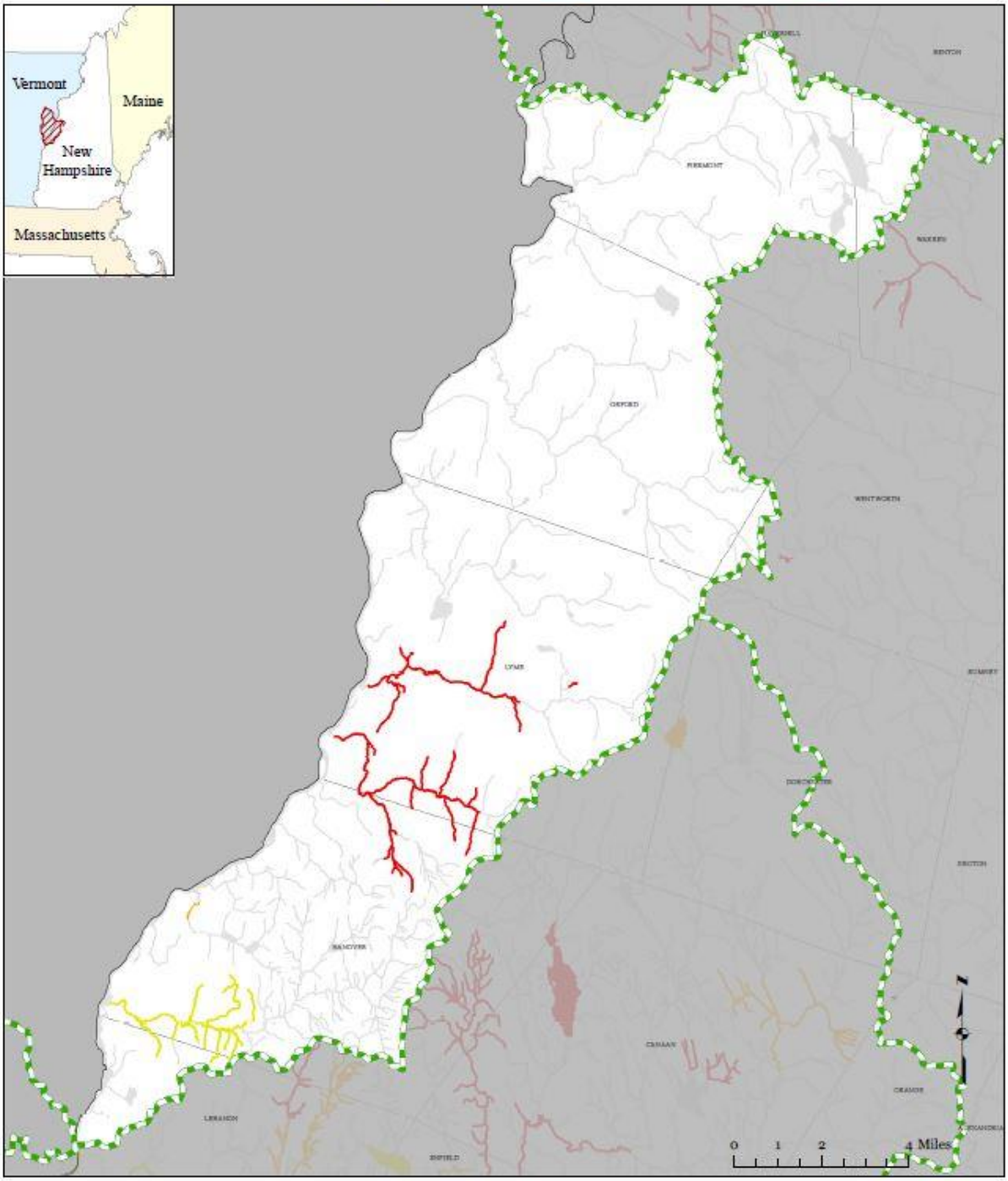
2020-2024 NPS Management Plan Recovery Potential
Upper Androscoggin River Watershed
(HUC8: 01040001)

No Stormwater Impairments or No Data | Low Recovery Potential | Medium Recovery Potential | High Recovery Potential



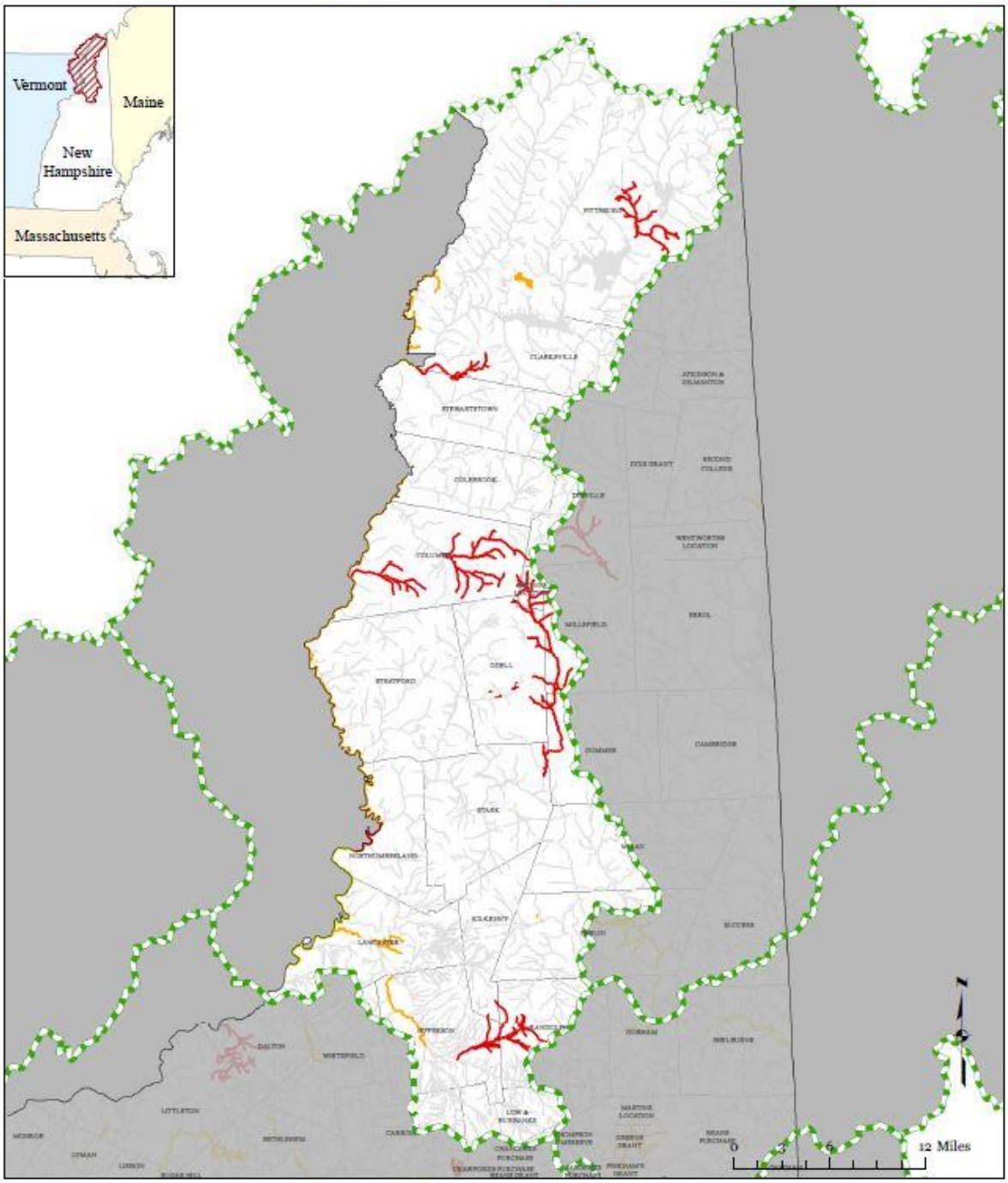
2020-2024 NPS Management Plan Recovery Potential
Upper Connecticut-Mascoma River Watershed
(HUC8: 01080104)

No Stormwater Impairments or No Data | Low Recovery Potential | Medium Recovery Potential | High Recovery Potential



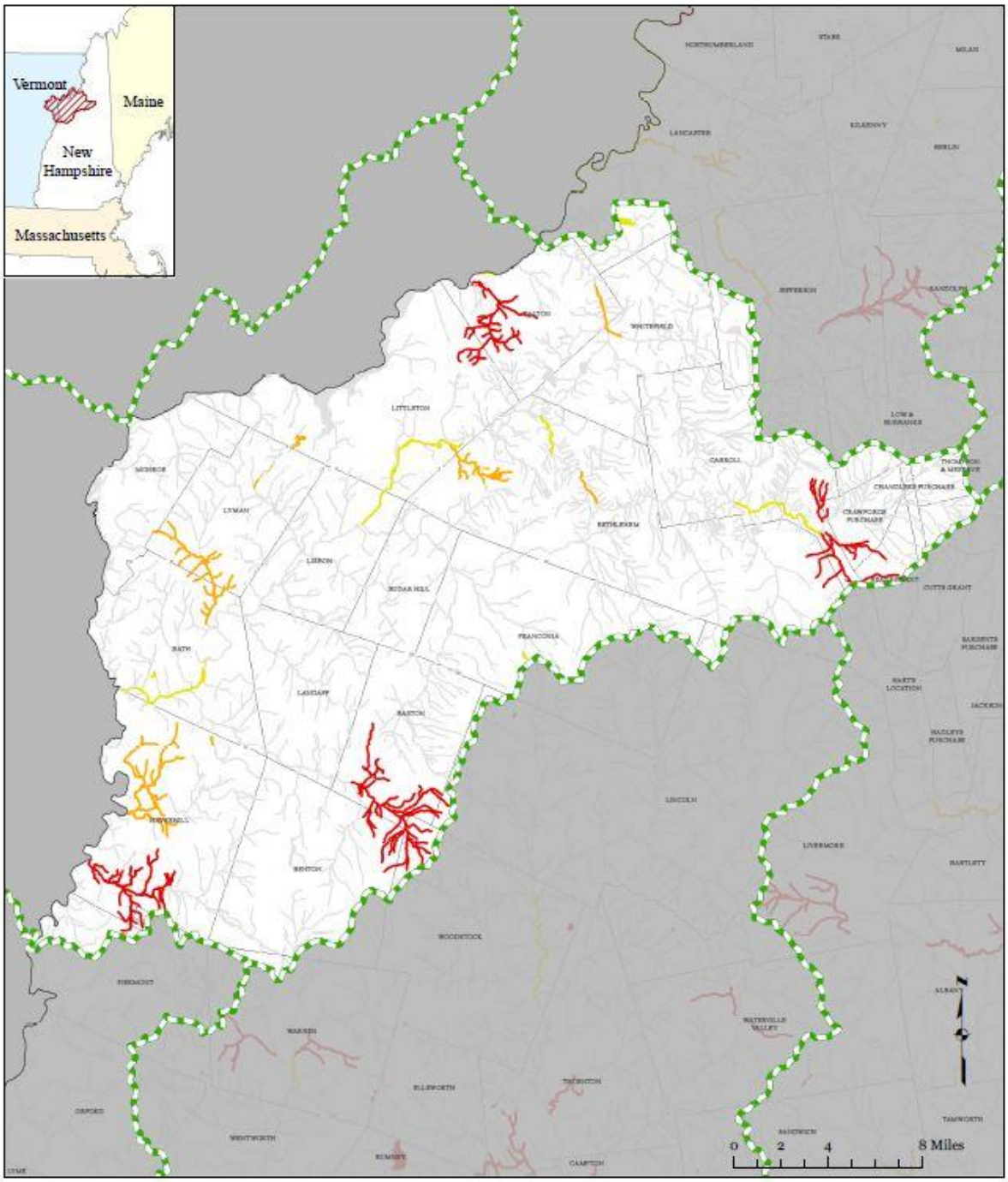
2020-2024 NPS Management Plan Recovery Potential
Upper Connecticut River Watershed
(HUC8: 01080101)

No Stormwater Impairments or No Data | Low Recovery Potential | Medium Recovery Potential | High Recovery Potential

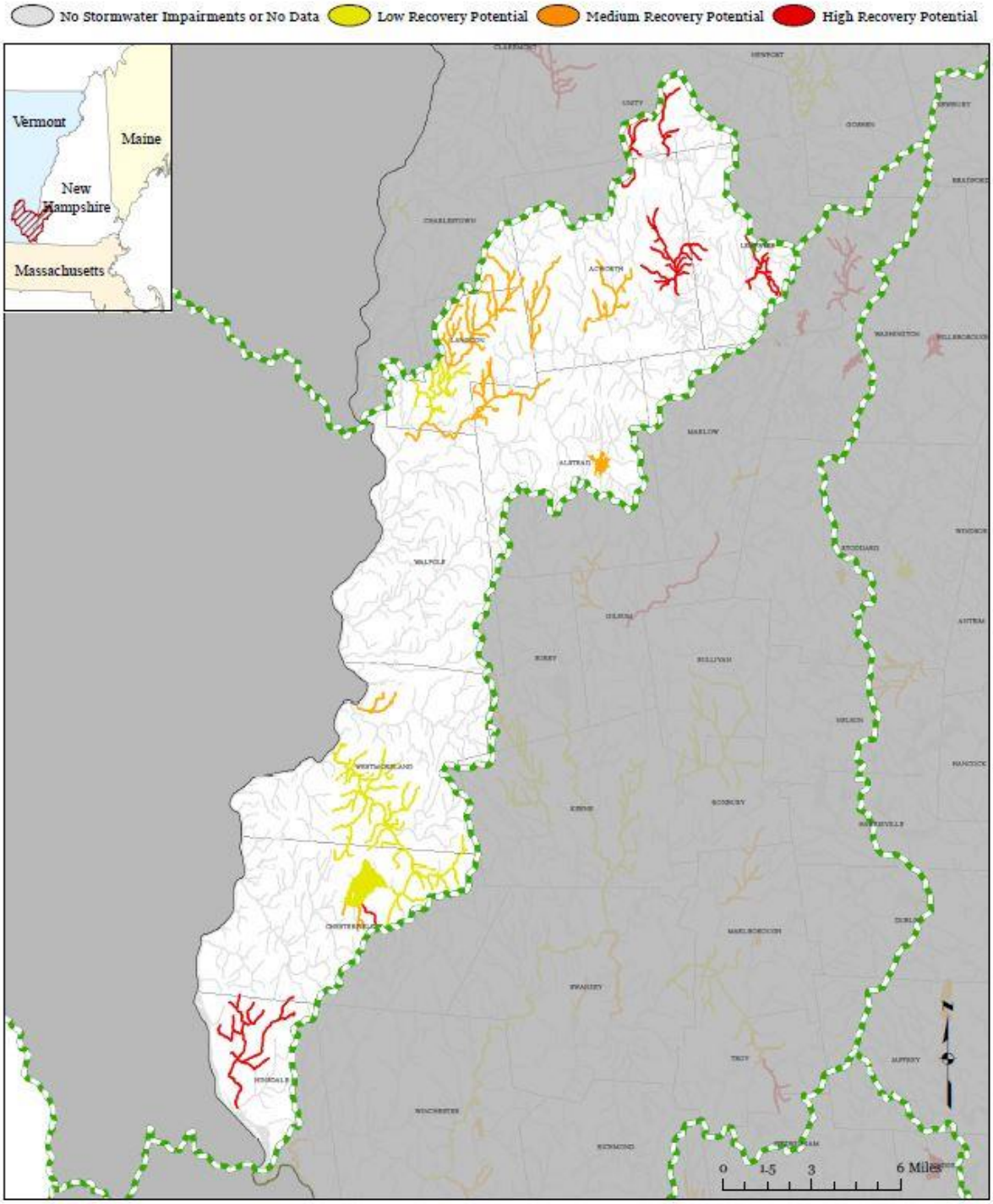


2020-2024 NPS Management Plan Recovery Potential
Waits River Watershed
(HUC8: 01080103)

No Stormwater Impairments or No Data | Low Recovery Potential | Medium Recovery Potential | High Recovery Potential

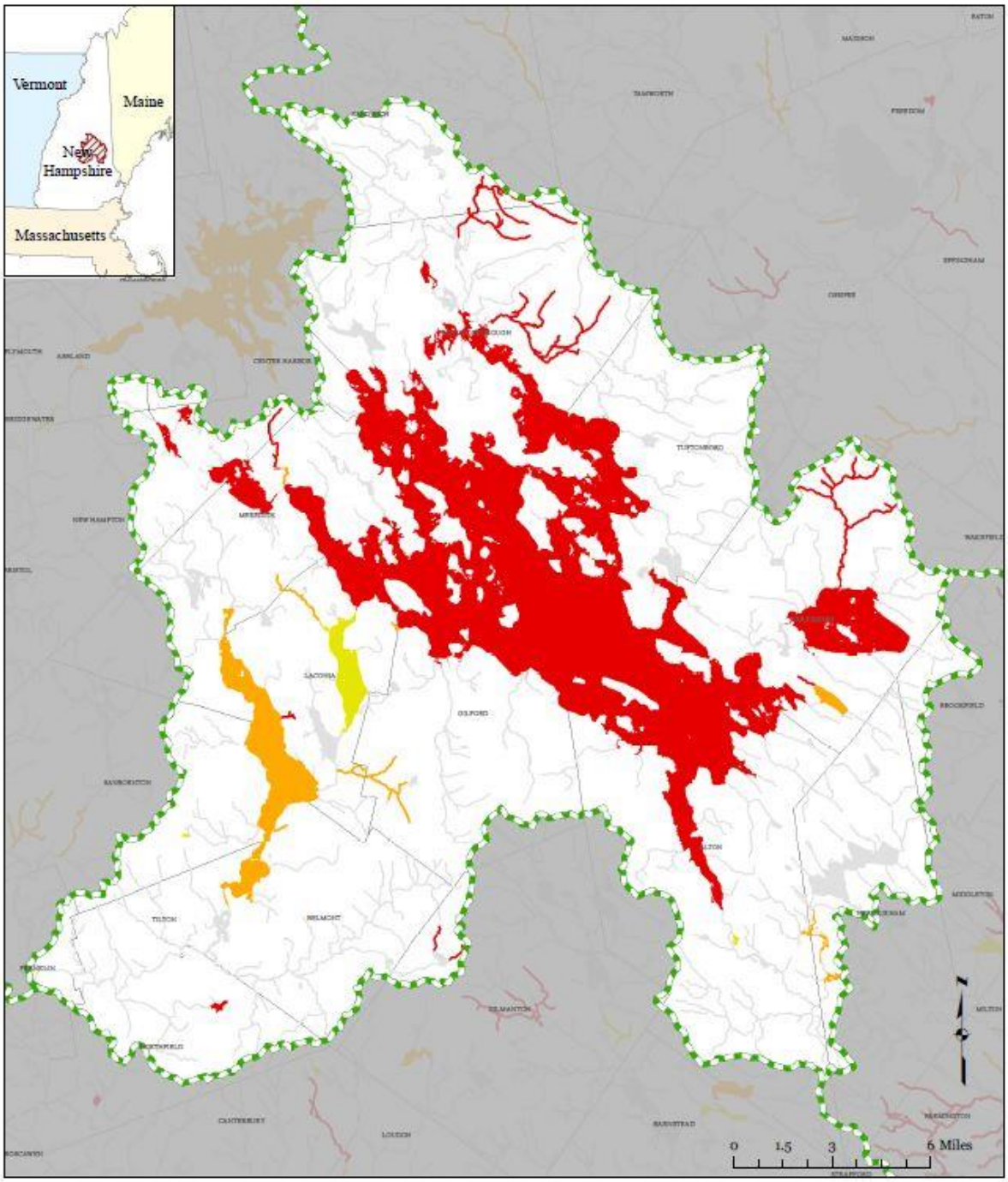


2020-2024 NPS Management Plan Recovery Potential
West River Watershed
(HUC8: 01080107)



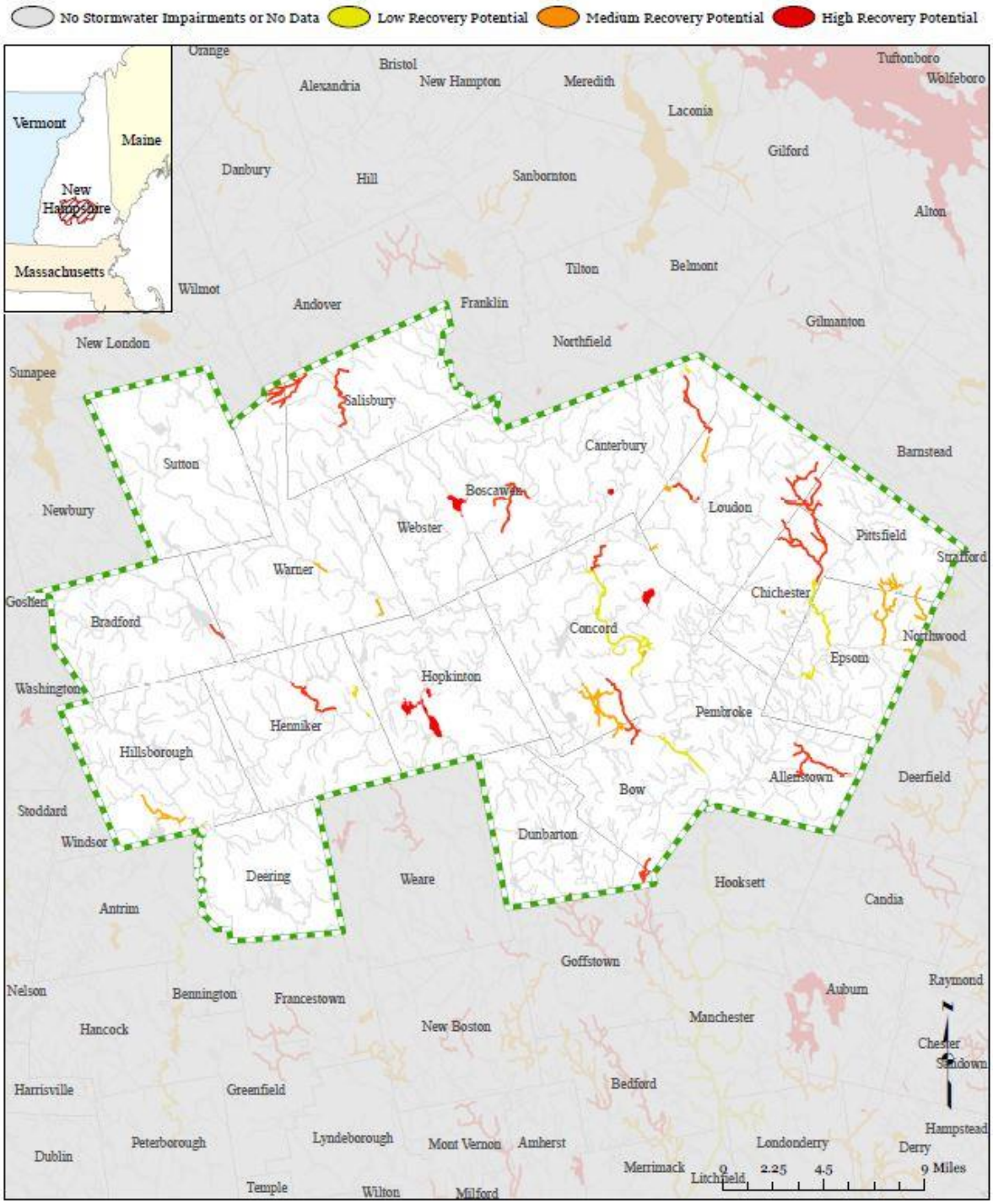
2020-2024 NPS Management Plan Recovery Potential
Winnipesaukee River Watershed
(HUC8: 01070002)

No Stormwater Impairments or No Data | Low Recovery Potential | Medium Recovery Potential | High Recovery Potential

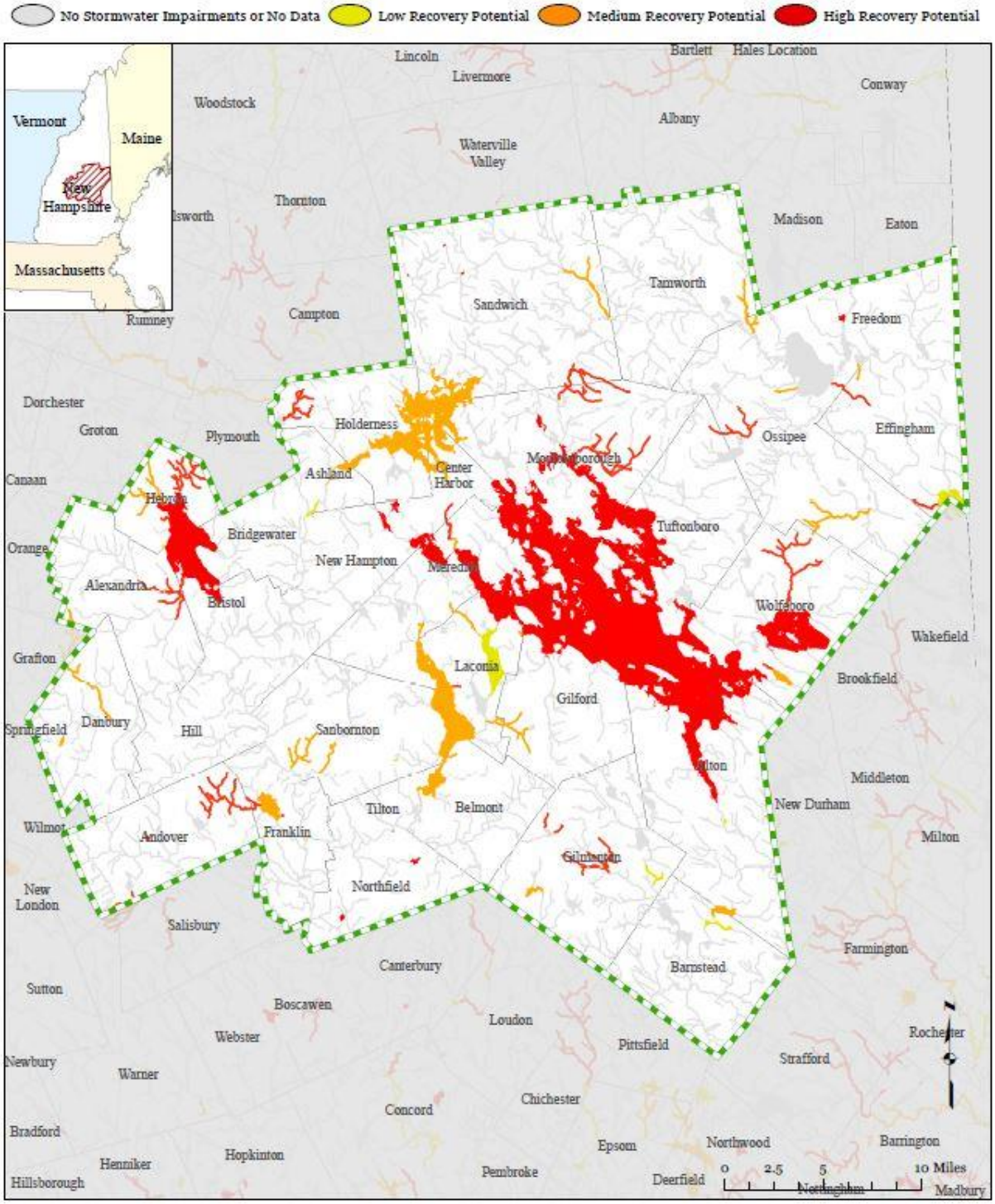


Appendix F: Restoration Recovery Potential Maps by New Hampshire Regional Planning Commission Service Areas

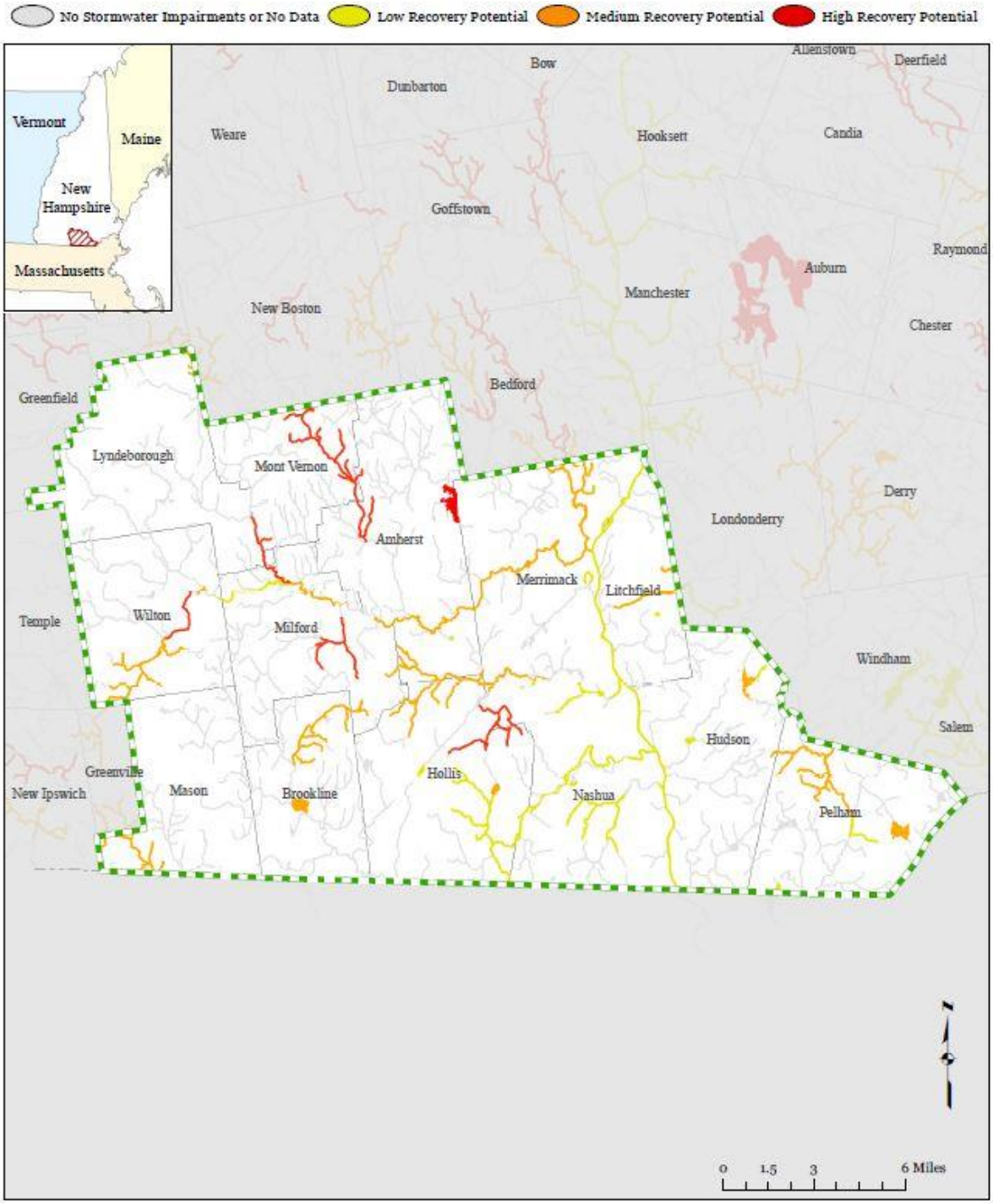
2020-2024 NPS Management Plan Recovery Potential
Central NH Regional Planning Commission



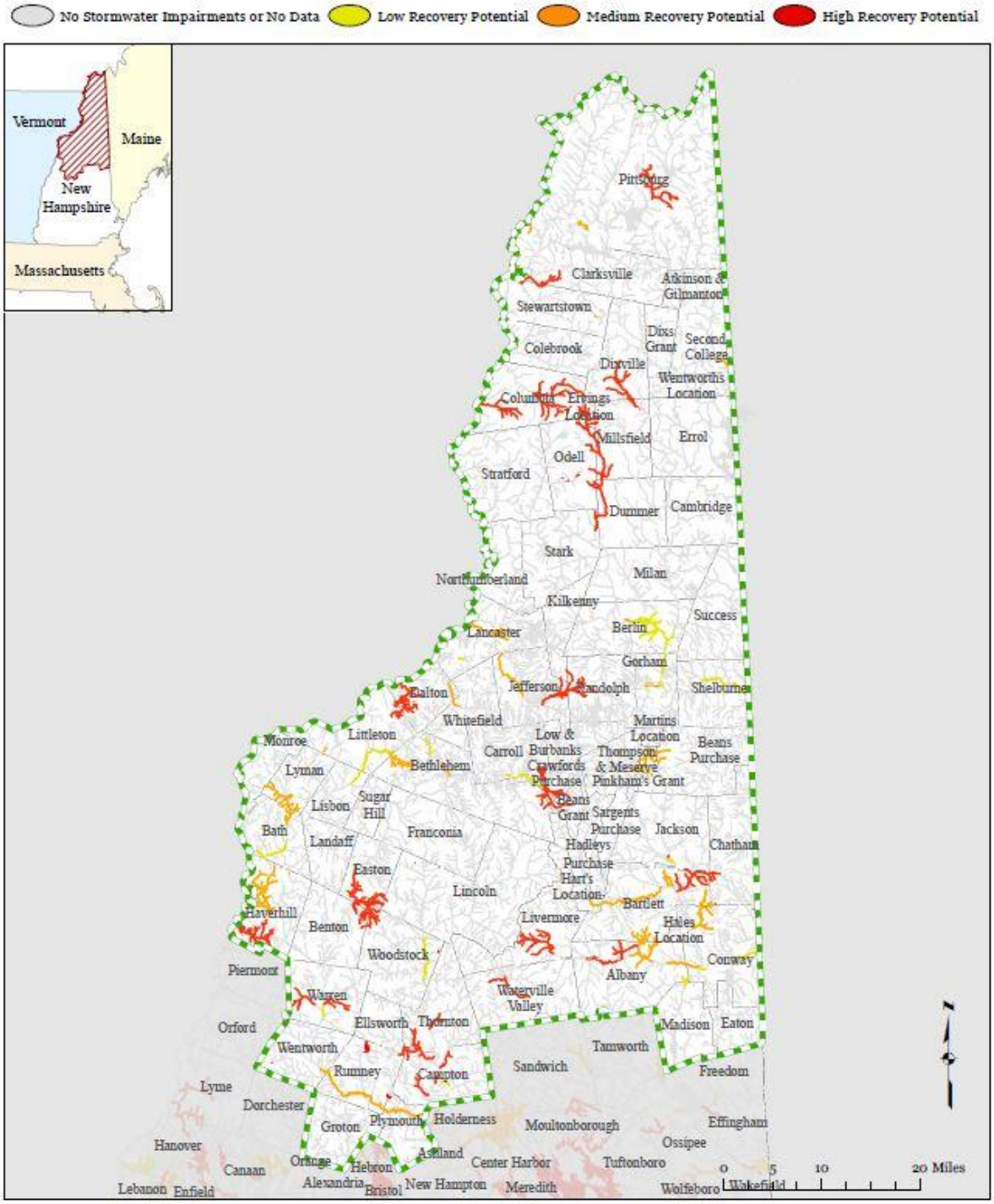
2020-2024 NPS Management Plan Recovery Potential
Lakes Region Planning Commission



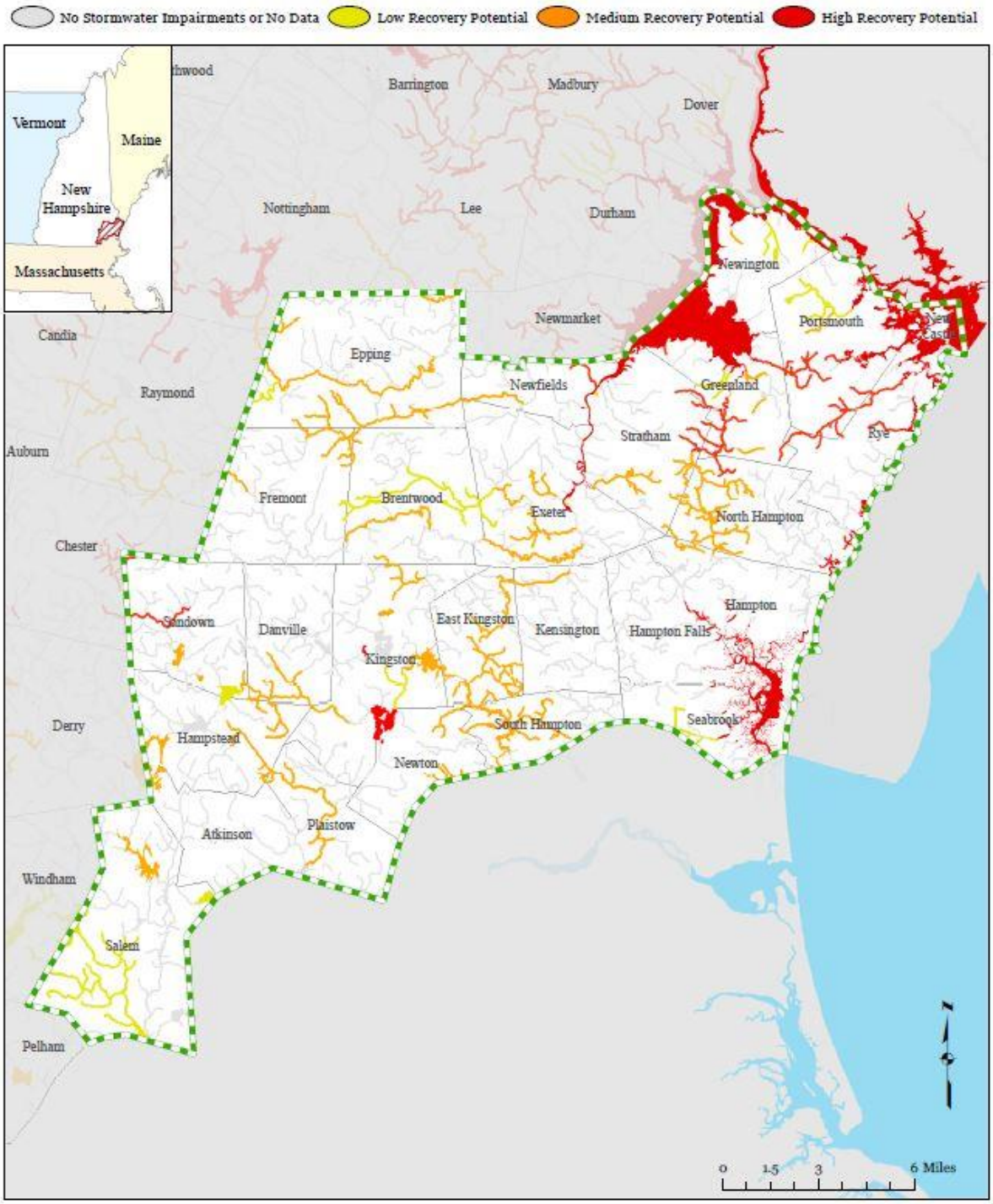
2020-2024 NPS Management Plan Recovery Potential
Nashua Regional Planning Commission



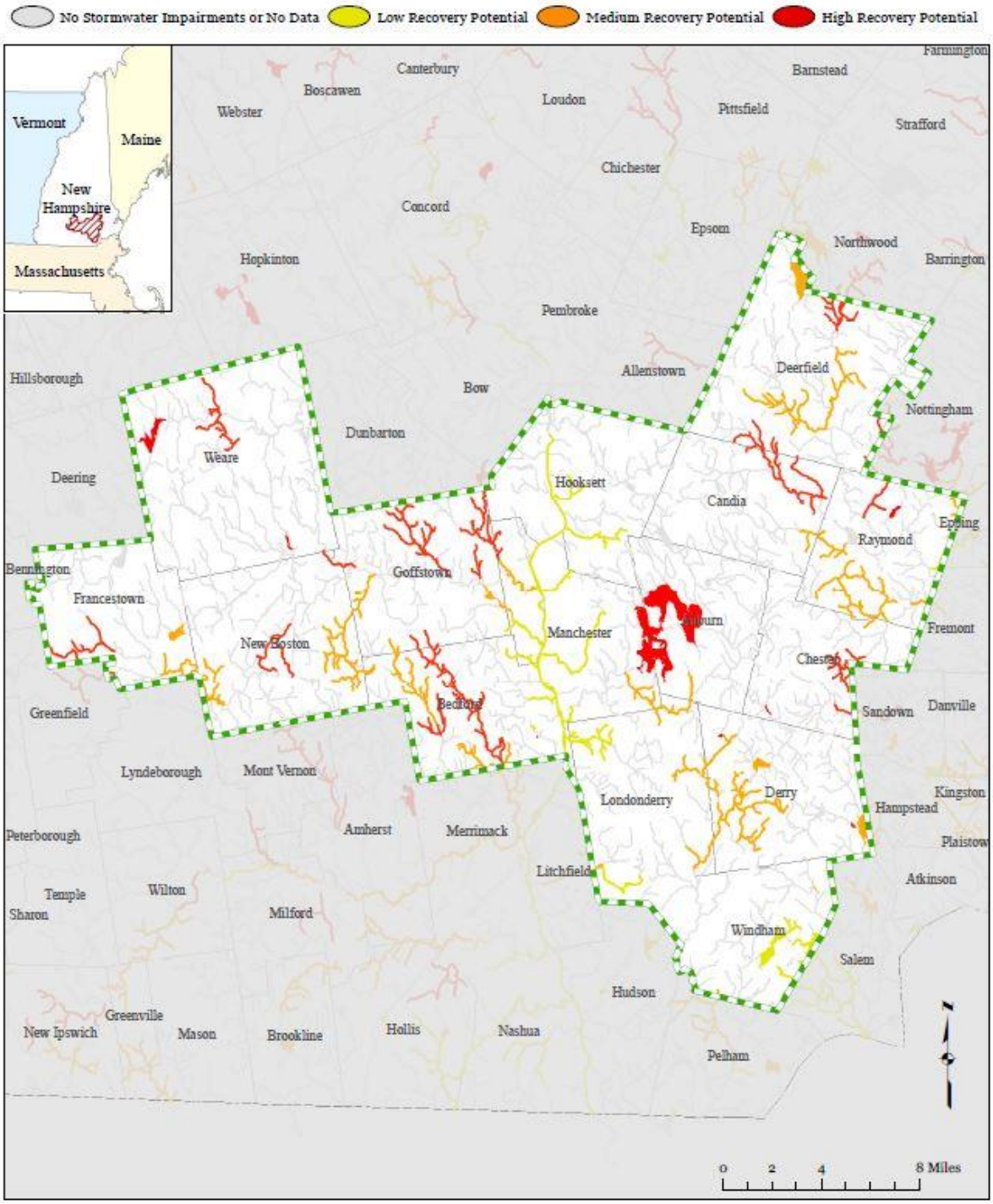
2020-2024 NPS Management Plan Recovery Potential
North Country Council



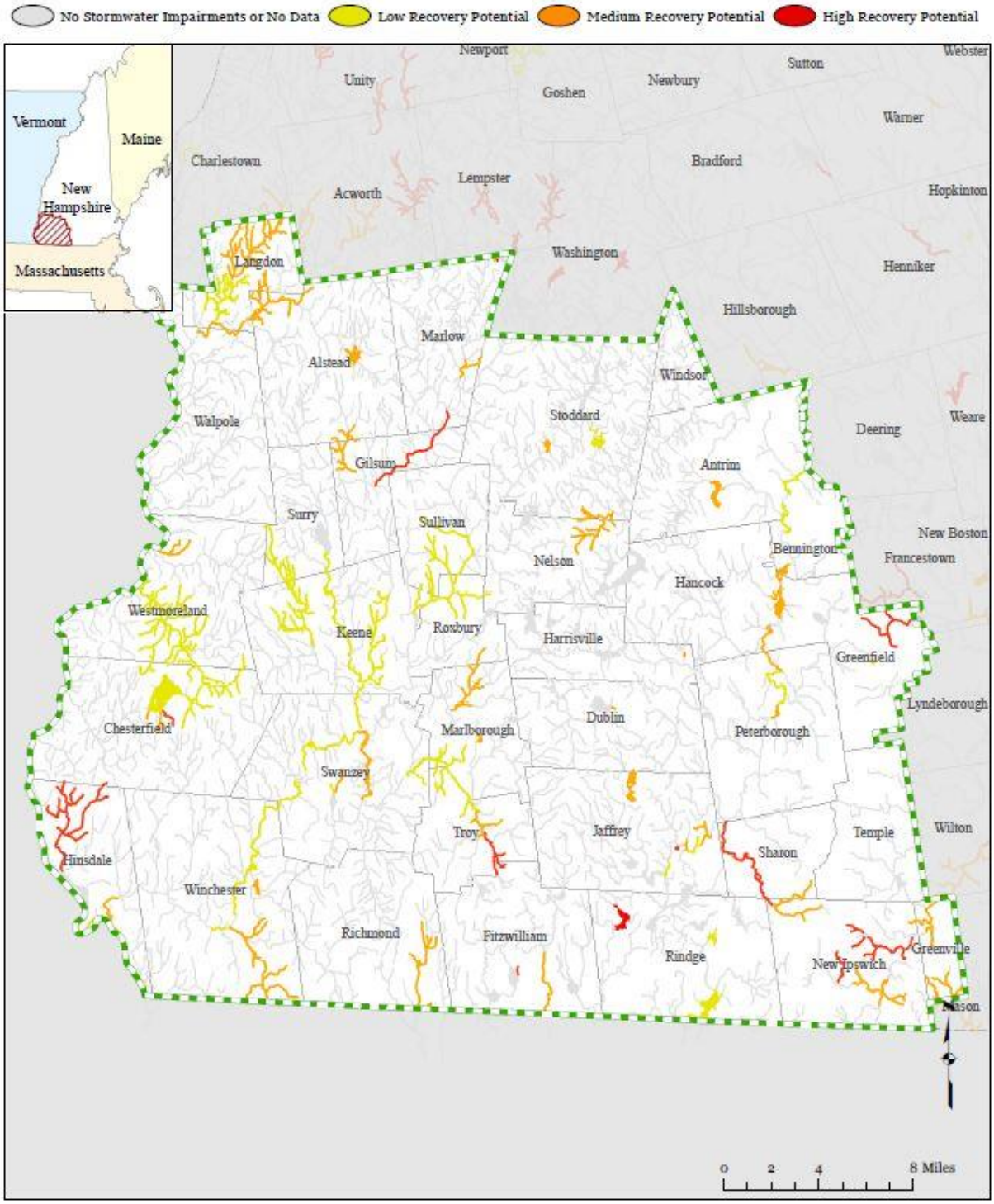
2020-2024 NPS Management Plan Recovery Potential
Rockingham Planning Commission



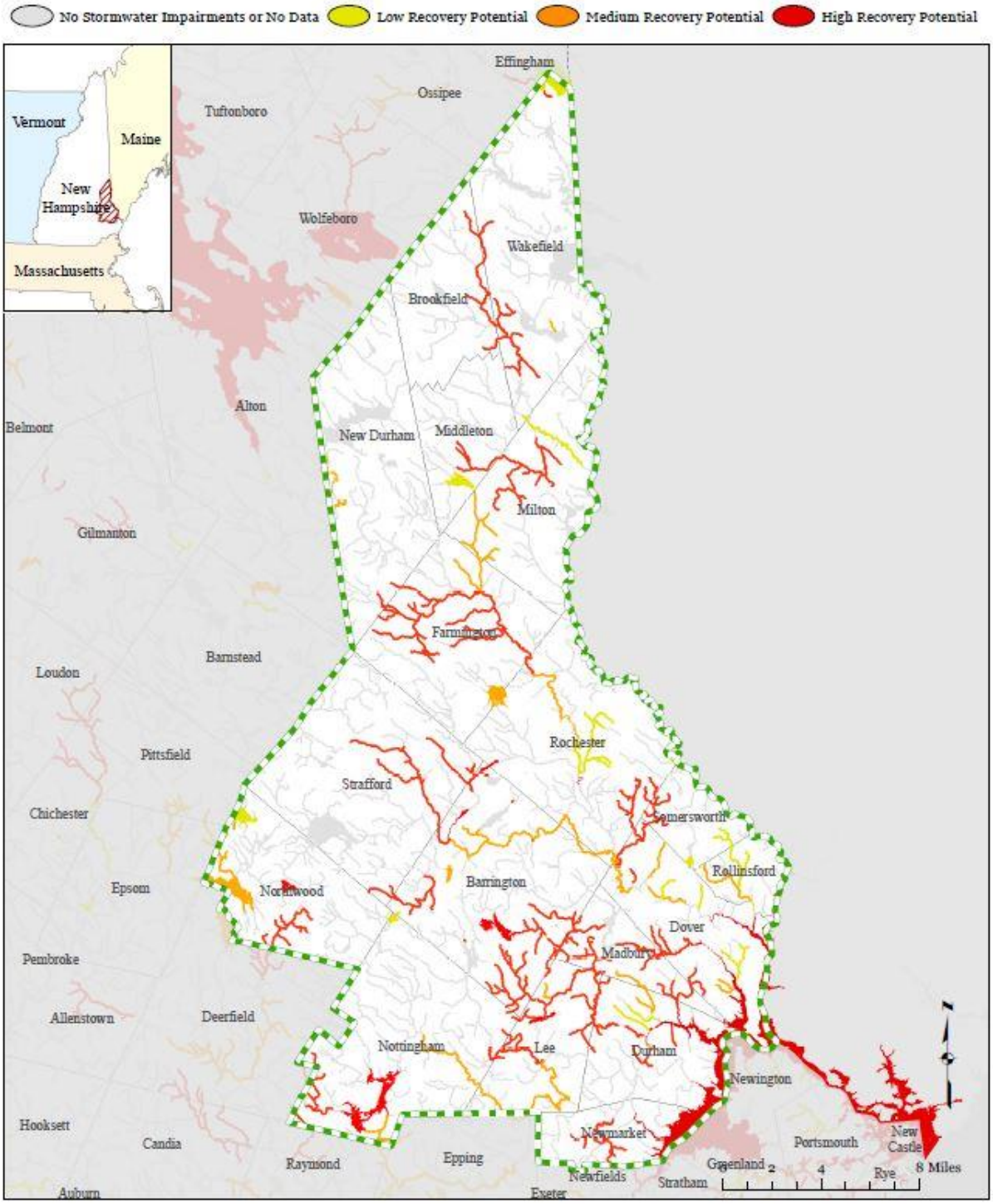
2020-2024 NPS Management Plan Recovery Potential
Southern NH Planning Commission



2020-2024 NPS Management Plan Recovery Potential
Southwest Region Planning Commission

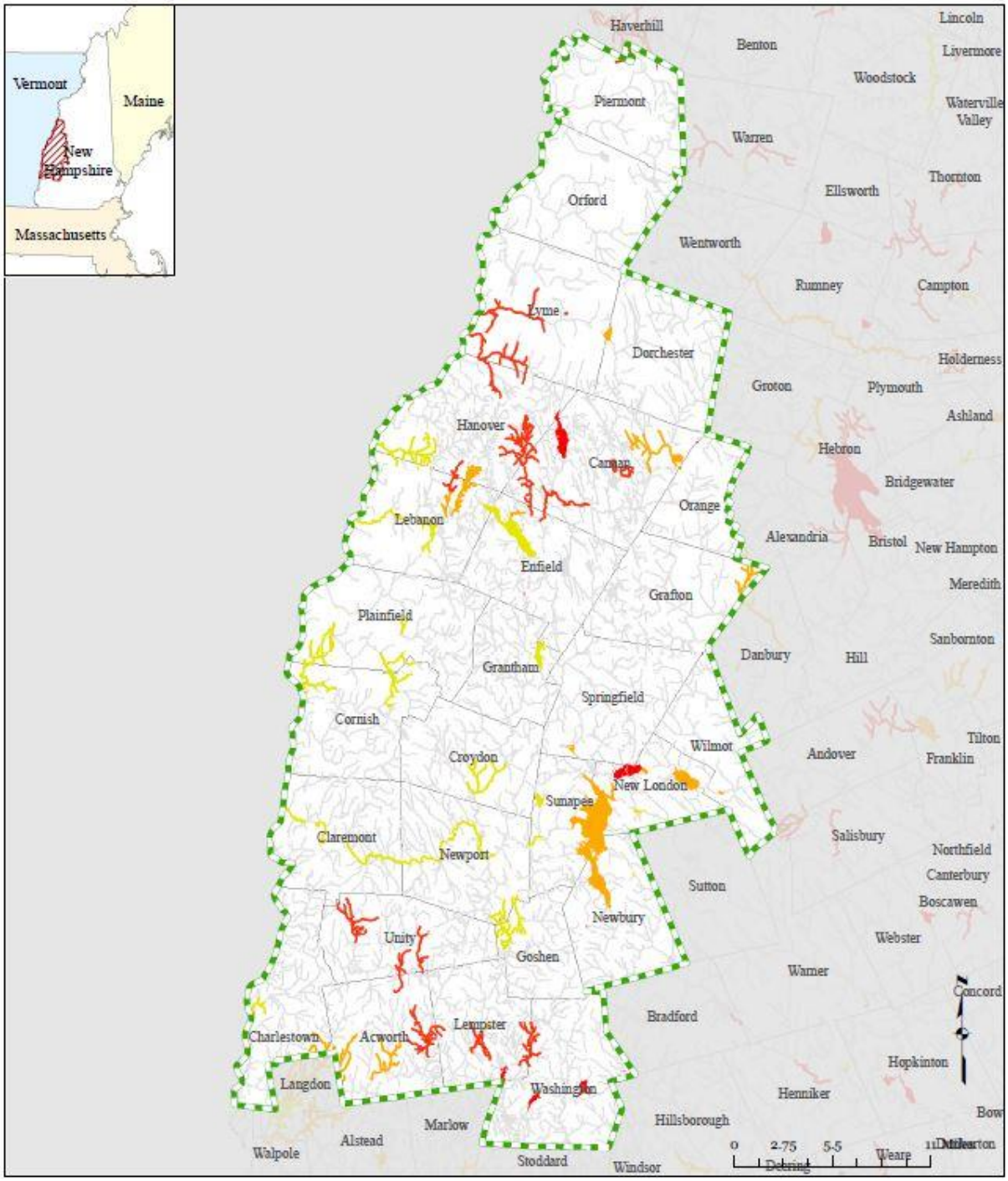


2020-2024 NPS Management Plan Recovery Potential
Strafford Regional Planning Commission



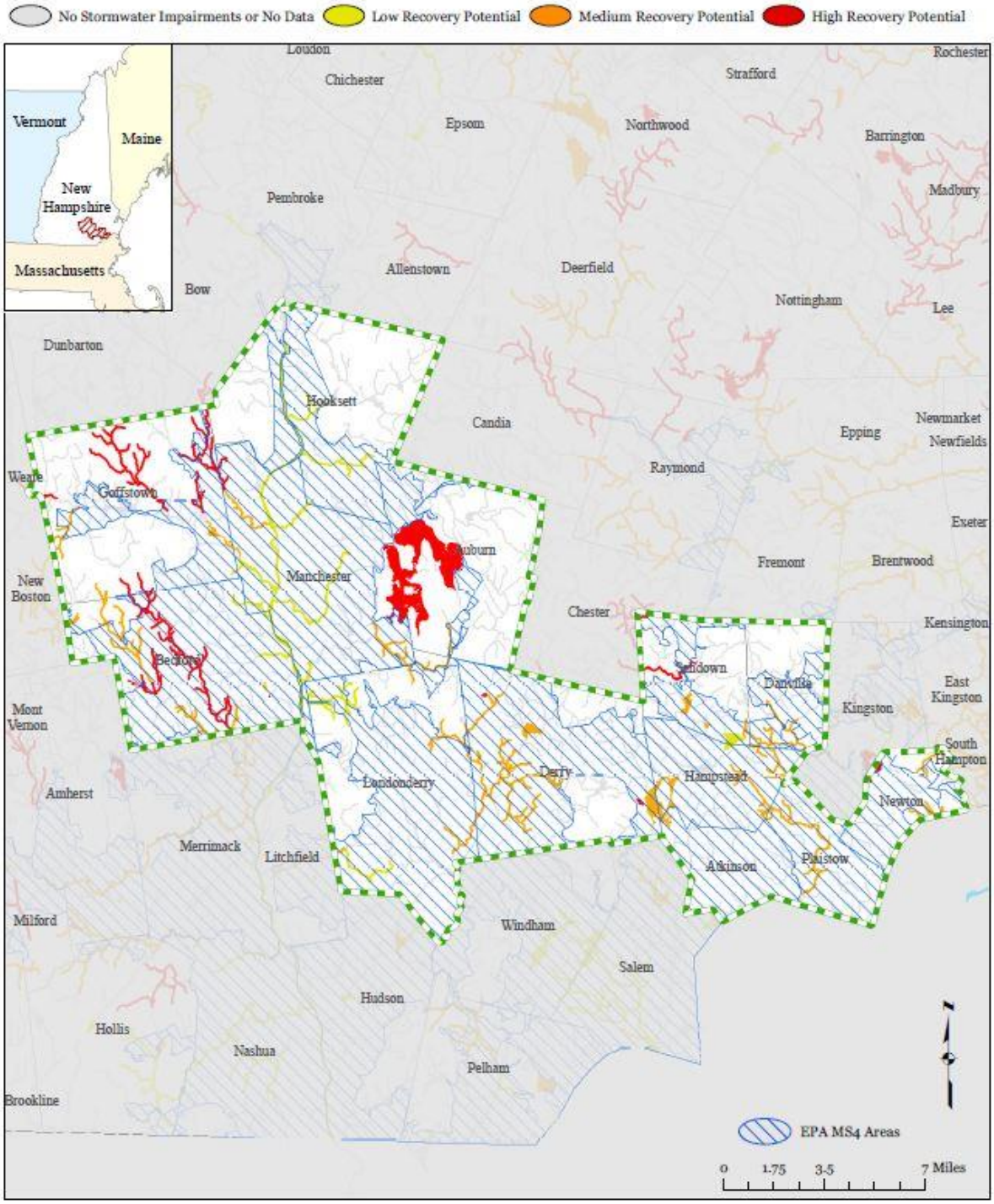
2020-2024 NPS Management Plan Recovery Potential
Upper Valley/Lake Sunapee Regional Planning Commission

No Stormwater Impairments or No Data | Low Recovery Potential | Medium Recovery Potential | High Recovery Potential

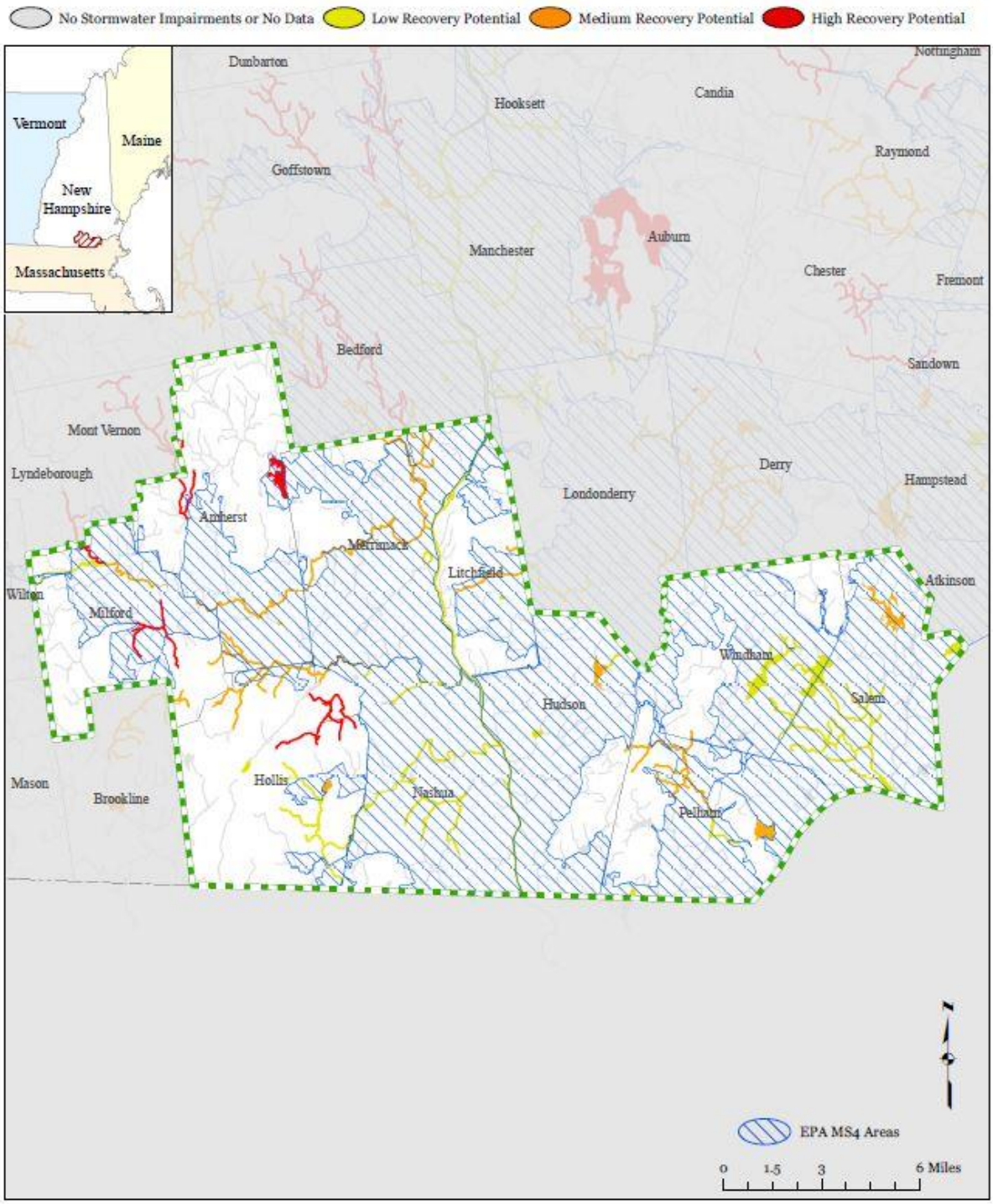


APPENDIX G: RESTORATION RECOVERY POTENTIAL MAPS BY NEW HAMPSHIRE STORMWATER COALITION

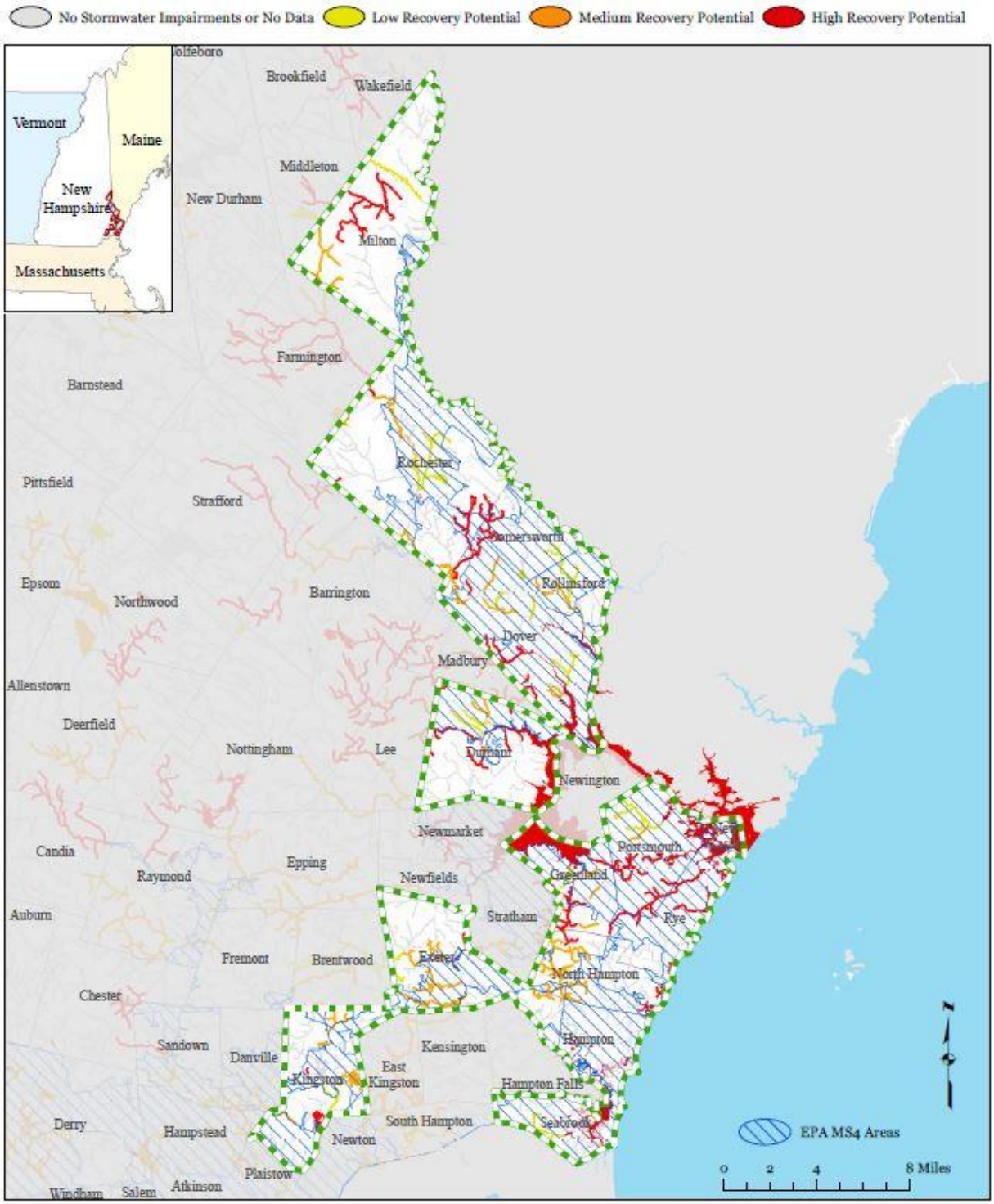
2020-2024 NPS Management Plan Recovery Potential
Manchester Area Stormwater Coalition



2020-2024 NPS Management Plan Recovery Potential
Nashua Area Stormwater Coalition



2020-2024 NPS Management Plan Recovery Potential
Seacoast Stormwater Coalition



APPENDIX H: RANKING FOR PRIORITY PROTECTION POTENTIAL WATERSHEDS (HUC 12)

Watershed ID (HUC 12)	Watershed Name	Priority Potential Indicator Score	Priority Potential Indicator Rank	2020 - 2024 Protection Potential
010600020201	Upper Swift River	66.23	1	High
010600020202	Middle Swift River	65.72	2	High
010600030805	Great Brook-Exeter River	64.87	3	High
010801010602	Bog Brook	63.97	4	High
010801010706	Nash Stream	63.91	5	High
010700060603	Upper Piscataquog River	62.47	6	High
010801010603	Connecticut mainstem-Nulhegan River to Upper Ammonoosuc River	62.45	7	High
010700010301	Baker River Headwaters	62.26	8	High
010600020203	Lower Swift River	61.63	9	High
010700060602	Everett Lake	61.17	10	High
010801010903	Lancaster Tributaries	61.14	11	High
010600030802	Towle Brook-Lily Pond	61.06	12	High
010700020103	Moultonborough Inlet	61.04	13	High
010700060904	Purgatory Brook	61.01	14	High
010801010202	Lower Indian Stream	60.97	15	High
010600030704	Pawtuckaway Pond	60.87	16	High
010700060102	Boscawen-Canterbury Tributaries	60.84	17	High
010600030803	Spruce Swamp-Little River	60.42	18	High
010700060403	Big River	60.32	19	High
010700010103	Franconia Brook	60.26	20	High

Watershed ID (HUC 12)	Watershed Name	Priority Potential Indicator Score	Priority Potential Indicator Rank	2020 - 2024 Protection Potential
010700010101	North Fork	60.21	21	High
010801030301	North Branch Gale River	59.90	22	High
010802010101	Ashuelot Pond	59.81	23	High
010801010704	Phillips Brook	59.66	24	High
010400010402	West Branch Dead Diamond River	59.63	25	High
010801010103	Perry Stream	59.54	26	High
010700060604	Rand Brook-South Branch	59.48	27	High
010400010401	Middle Branch-East Branch	59.47	28	High
010700010306	Stinson Brook	59.47	29	High
010801010902	Northumberland Tributaries	59.44	30	High
010700060601	Weare Reservoir	59.43	31	High
010600031002	Berrys Brook-Rye Harbor	59.40	32	High
010700010302	Wentworth-Warren Tributaries	59.39	33	High
010600020102	Sawyer River	59.38	34	High
010600020101	Headwaters-Saco River	59.31	35	High
010600030605	Nippo Brook-Isinglass River	59.28	36	High
010700060701	Sucker Brook	59.21	37	High
010700060606	South Branch Piscataquog River	59.19	38	High
010700010102	East Branch Pemigewasset Headwaters	59.18	39	High
010801010201	Upper Branches	59.12	40	High
010600030801	Watson Brook	58.92	41	High
010801010101	Second Connecticut Lake	58.91	42	High
010700060605	Middle Branch Piscataquog River	58.82	43	High
010700060901	Headwater Branch Tributaries	58.80	44	High
010801010802	Mill Brook	58.70	45	High
010600020305	Swans Falls	58.58	46	High

Watershed ID (HUC 12)	Watershed Name	Priority Potential Indicator Score	Priority Potential Indicator Rank	2020 - 2024 Protection Potential
010801010404	Stratford Tributaries	58.56	47	High
010801010801	The Mystic-South Branch	58.50	48	High
010400010305	Aziscohos Lake	58.49	49	High
010400020201	Wild River	58.44	50	High
010801030401	Upper Ammonoosuc River	58.41	51	High
010801070201	Headwaters-Dodge Brook	58.34	52	High
010600020103	Rocky Branch	58.33	53	High
010801010403	Simms Stream	58.16	54	High
010400010406	Magalloway River-Sturtevant Stream	58.16	55	High
010700010305	Middle Baker River	58.09	56	High
010600030702	North Branch River	58.07	57	High
010700030204	Beards Brook	58.00	58	High
010400010304	Little Magalloway River	57.86	59	High
010801010401	Upper Mohawk River	57.81	60	High
010600020301	East Branch	57.73	61	High
010600030601	Upper Cocheco River	57.72	62	High
010400010601	Mollidgewock Brook	57.69	63	High
010801010402	Lower Mohawk River	57.68	64	High
010700060101	Webster Place Tributaries	57.68	65	High
010400010405	Dead Diamond River	57.59	66	High
010700030303	Hopkinton Lake	57.46	67	High
010600030606	Long Pond	57.42	68	High
010700030601	Hopkinton-Everett Reservoir	57.41	69	High
010400010306	Magalloway River-Abbott Brook	57.40	70	High
010700010303	Pond Brook/ Tural Brook	57.19	71	High
010700010203	Glover Brook	57.16	72	High

Watershed ID (HUC 12)	Watershed Name	Priority Potential Indicator Score	Priority Potential Indicator Rank	2020 - 2024 Protection Potential
010801070202	Vilas Pool	57.15	73	High
010700030302	Amey Brook	57.08	74	High
010600020601	Upper Bearcamp River	56.99	75	High
010600030706	North River	56.93	76	High
010700060801	Black Brook	56.92	77	High
010801010405	Cone Brook to Nulhegan River	56.91	78	High
010801030504	Upper Wild Ammonoosuc River	56.89	79	High
010700010304	South Branch	56.89	80	High
010700060401	Crystal Lake	56.87	81	High
010600030804	Little River	56.85	82	High
010600020802	Lovell River - Ossipee Lake	56.77	83	High
010802010102	Marlow Tributaries	56.63	84	High
010801030701	Oliverian Brook	56.57	85	High
010801040203	Clay Brook	56.56	86	High
010700060903	Stony Brook	56.47	87	High
010801010702	Middle Tributaries	56.46	88	High
010600030901	Winnicut River	56.44	89	High
010600030705	Bean River	56.44	90	High
010400010404	Swift Diamond River	56.33	91	High
010801030402	Middle Ammonoosuc River	56.32	92	High
010700030603	Blackwater River	56.31	93	High
010600030806	Squamscott River	56.30	94	High
010801070203	Lower Tributaries	56.25	95	High
010801010806	Lower Israel River	56.25	96	High
010802010103	Gilsum Tributaries	56.24	97	High
010700060902	Temple Brook	56.10	98	High

Watershed ID (HUC 12)	Watershed Name	Priority Potential Indicator Score	Priority Potential Indicator Rank	2020 - 2024 Protection Potential
010600020106	Bartlett Tributaries	56.08	99	High
010600031003	Taylor River-Hampton River	56.06	100	High
010700010202	Moosilauke Brook	56.04	101	High
010801010104	Lake Francis	56.04	102	High
010801010705	Mill Brook	55.95	103	High
010802020202	Lawrence Brook	55.95	104	High
010600030902	Oyster River	55.86	105	High
010600020803	Danforth Ponds	55.85	106	High
010600020603	Swift River	55.81	107	High
010700010206	West Branch Brook	55.74	108	High
010801030102	Johns River	55.72	109	High
010700060905	Baboosic Brook	55.65	110	Medium
010801010303	Halls Stream mainstem	55.63	111	Medium
010700060301	Turkey River	55.60	112	Medium
010700010205	Hubbard Brook to Mill Brook	55.60	113	Medium
010600020602	Cold River	55.54	114	Medium
010400010604	Stearns Brook	55.54	115	Medium
010700010204	Eastman Brook	55.45	116	Medium
010400010302	West Branch Magalloway River	55.40	117	Medium
010600030707	Little River	55.38	118	Medium
010700010602	Hornet Cove	55.36	119	Medium
010600030708	Piscassic River	55.36	120	Medium
010700010307	Lower Baker River	55.32	121	Medium
010801060101	Canaan Street Lake	55.30	122	Medium
010600030701	Headwaters-Lamprey River	55.26	123	Medium
010700060501	Pittsfield Tributaries	55.25	124	Medium

Watershed ID (HUC 12)	Watershed Name	Priority Potential Indicator Score	Priority Potential Indicator Rank	2020 - 2024 Protection Potential
010700010403	Campton Tributaries	55.22	125	Medium
010700010201	Upper Pemigewasset Headwaters	55.19	126	Medium
010700010402	Beebe River	55.18	127	Medium
010600020605	Lower Bearcamp River	55.16	128	Medium
010700060503	Lower Suncook River	55.11	129	Medium
010700010601	Cockermouth River	55.11	130	Medium
010700030105	Otter Brook	55.05	131	Medium
010802010104	Surry Dam	55.01	132	Medium
010700061207	Merrimack mainstem-Concord River to Shawsheen River	54.95	133	Medium
010802010403	Hinsdale-Winchester Tributaries	54.91	134	Medium
010600020701	Beech River	54.90	135	Medium
010700061403	Powwow River	54.89	136	Medium
010700030106	Ferguson Brook	54.88	137	Medium
010801030101	Forest Lake-Bog Brook	54.85	138	Medium
010801010701	Headwater Branches	54.84	139	Medium
010600031004	Hampton Harbor	54.73	140	Medium
010801010102	Third Connecticut Lake	54.70	141	Medium
010801030303	Ham Branch	54.64	142	Medium
010801030502	Ogontz Brook	54.64	143	Medium
010600020401	Charles River	54.60	144	Medium
010600030607	Lower Isinglass River	54.58	145	Medium
010801010301	Bishop Brook	54.51	146	Medium
010700030107	Powder Mill Pond	54.50	147	Medium
010801030505	Lower Wild Ammonoosuc River	54.50	148	Medium
010801010703	North Branch	54.40	149	Medium
010801010804	Garland Brook	54.36	150	Medium

Watershed ID (HUC 12)	Watershed Name	Priority Potential Indicator Score	Priority Potential Indicator Rank	2020 - 2024 Protection Potential
010700010401	Mad River	54.34	151	Medium
010700010803	Above Franklin Falls Dam	54.34	151	Medium
010600030709	Lower Lamprey River	54.23	153	Medium
010700010804	Sucker Brook-Webster Lake	54.16	154	Medium
010801040204	Grant Brook	54.15	155	Medium
010700030602	Hopkinton Dam to the Blackwater River	54.02	156	Medium
010700030203	Shedd Brook	53.93	157	Medium
010700030301	Sand Brook	53.86	158	Medium
010801010803	Israel River at Jefferson	53.86	159	Medium
010600020902	South River	53.77	160	Medium
010801040202	Jacobs Brook	53.76	161	Medium
010700060906	Beaver Brook	53.69	162	Medium
010700030404	Lower Warner River	53.52	163	Medium
010600020904	Kezar Falls	53.49	164	Medium
010700020101	Wolfeboro Bay	53.47	165	Medium
010600030602	Axe Handle Brook	53.45	166	Medium
010801030302	Meadow Brook-Middle Tributaries	53.43	167	Medium
010801030206	Bath Tributaries	53.40	168	Medium
010801040201	Eastman Brook	53.34	169	Medium
010600020104	Wildcat Brook	53.33	170	Medium
010700030503	Middle Blackwater River	53.25	171	Medium
010801060701	Little Sugar River	53.25	172	Medium
010801010203	Clarksville Tributaries	53.23	173	Medium
010400010502	Clear Stream	53.22	174	Medium
010600020302	Lower Bartlett-North Conway Tributaries	53.18	175	Medium
010801010805	Otter Brook	53.16	176	Medium

Watershed ID (HUC 12)	Watershed Name	Priority Potential Indicator Score	Priority Potential Indicator Rank	2020 - 2024 Protection Potential
010600030904	Great Bay	53.12	177	Medium
010400010602	Bog Brook	53.11	178	Medium
010801070502	Westmoreland-Putney Tributaries	53.11	179	Medium
010802010302	Perry Brook	53.06	180	Medium
010600020703	Pine River	53.02	181	Medium
010801060102	Indian River	53.01	182	Medium
010700010702	Smith River Lower	52.99	183	Medium
010700010603	Sanborn Bay to Newfound R.	52.98	184	Medium
010700030202	Franklin Pierce Lake	52.97	185	Medium
010801040205	Hanover-Piermont Tributaries	52.96	186	Medium
010600020406	Lovewell Pond-Pleasant Pond	52.95	187	Medium
010700030604	Contoocook River Mouth	52.95	188	Medium
010700030201	Highland Lake	52.93	189	Medium
010600020702	Dan Hole River	52.90	190	Medium
010801060103	Goose Pond Brook	52.88	191	Medium
010700061404	Merrimack River-East Meadow River to mouth	52.87	192	Medium
010700030502	Frazier Brook	52.79	193	Medium
010600020405	Shepards River	52.73	194	Medium
010802020101	Whitney Pond	52.61	195	Medium
010801060104	Crystal Lake Brook	52.60	196	Medium
010700030504	Lower Blackwater River	52.59	197	Medium
010801030205	McIndoe Falls	52.55	198	Medium
010400010603	Chickwolnepy Stream	52.51	199	Medium
010801010707	Lower Tributaries	52.46	200	Medium
010600030903	Bellamy River	52.37	201	Medium
010600020903	Mill Brook	52.36	202	Medium

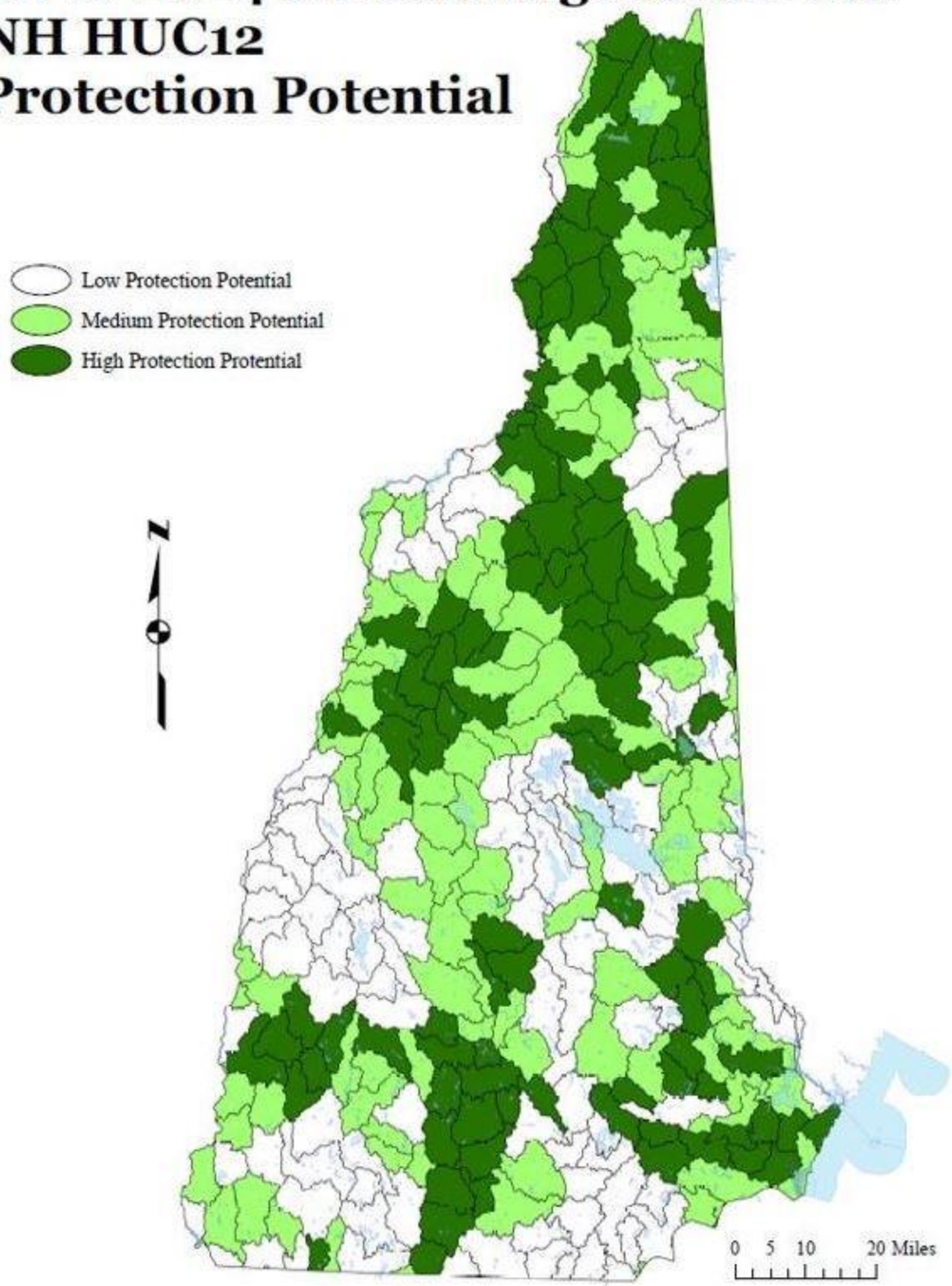
Watershed ID (HUC 12)	Watershed Name	Priority Potential Indicator Score	Priority Potential Indicator Rank	2020 - 2024 Protection Potential
010600030502	Junes Brook-Branch River	52.33	203	Medium
010802010401	Winchester-Swanzey Tributaries	52.25	204	Medium
010400010303	Parmachenee Lake	52.24	205	Medium
010801030703	Haverhill Tributaries	52.24	206	Medium
010700010104	Hancock Brook	52.22	207	Medium
010400010501	Millsfield Pond Brook	52.20	208	Medium
010600020303	Lower Pequawket Brook	52.19	209	Medium
010801060702	North Charlestown Tributaries	52.11	210	Medium
010700020202	Tioga River	52.11	211	Medium
010801070505	Chesterfield Tributaries	52.07	212	Medium
010400010403	Nathan Pond Brook-Swift Diamond	52.06	213	Medium
010801070501	Walpole Tributaries	52.06	214	Medium
010600020105	Ellis River	52.04	215	Medium
010700061401	Little River	52.03	216	Medium
010802020102	Priest Brook	51.93	217	Medium
010700020107	Sanders Bay	51.75	218	Medium
010600021002	Branch Brook	51.71	219	Low
010400020101	Moose River-Moose Brook	51.69	220	Low
010700030402	Upper Warner River	51.68	221	Low
010700040302	Squannacook River	51.60	222	Low
010700030108	Great Brook-Antrim Tributaries	51.55	223	Low
010600030604	Bow Lake	51.45	224	Low
010802020203	Tully River	51.38	225	Low
010600020604	Chocorua River	51.33	226	Low
010700060402	Upper Suncook River	51.30	227	Low
010700060202	Soucook River	51.29	228	Low

Watershed ID (HUC 12)	Watershed Name	Priority Potential Indicator Score	Priority Potential Indicator Rank	2020 - 2024 Protection Potential
010700020104	Moultonborough Bay	51.29	229	Low
010600020901	Maine State Line	51.28	230	Low
010801060305	Cornish Tributaries	51.25	231	Low
010801030503	Pearl Lake Brook-Mill Brook	51.23	232	Low
010700030401	Andrew Brook	51.22	233	Low
010600030608	Lower Cocheco River	51.21	234	Low
010700060607	Lower Piscataquog River	51.17	235	Low
010802010501	Winchester Tributaries	51.15	236	Low
010801060404	North Branch	51.10	237	Low
010802010402	Mirey Brook-Sunny Valley	51.10	238	Low
010600020404	Old Course Saco River	51.01	239	Low
010801070507	Hinsdale Tributaries	50.98	240	Low
010801030506	Pettyboro Brook-Woodsville Tributaries	50.92	241	Low
010801030501	Salmon Hole Brook	50.90	242	Low
010400020103	Shelburne Tributaries	50.88	243	Low
010600020304	Conway Lake-Center Conway Tributaries	50.84	244	Low
010700010701	Smith River Upper	50.80	245	Low
010801060105	Mascoma Lake	50.70	246	Low
010700020106	The Broads	50.69	247	Low
010801030201	Dalton Tributaries	50.62	248	Low
010801040401	Mink Brook	50.56	249	Low
010801060301	Bloods Brook	50.52	250	Low
010700060502	Little Suncook River	50.49	251	Low
010700010801	Bristol-New Hampton Tribs.	50.36	252	Low
010400020102	Upper Peabody River	50.30	253	Low
010700020108	Lake Waukewan	50.26	254	Low

Watershed ID (HUC 12)	Watershed Name	Priority Potential Indicator Score	Priority Potential Indicator Rank	2020 - 2024 Protection Potential
010600030501	Upper Branch River-Lovell Lake	50.15	255	Low
010700060201	Gues Meadow Brook	49.99	256	Low
010700061204	Golden Brook	49.98	257	Low
010700010404	Plymouth/Ashland Tributaries	49.93	258	Low
010700061402	Merrimack River-Shawsheen River to East Meadow River	49.92	259	Low
010600030603	Middle Cocheco River	49.78	260	Low
010801060703	South Charlestown Tributaries	49.76	261	Low
010600020801	West Branch	49.73	262	Low
010400010605	Milan Tributaries	49.62	263	Low
010801030304	Lower Tributaries	49.46	264	Low
010700061101	Arlington Mill Reservoir	49.27	265	Low
010801030203	Comerford Dam Reservoir	49.21	266	Low
010700020102	Alton Bay	49.17	267	Low
010801070503	Partridge Brook	49.13	268	Low
010600020804	Broad Bay-Leavitt Bay	49.12	269	Low
010801060407	Lower Tributaries	49.04	270	Low
010700030104	Peterborough Tributaries	49.03	271	Low
010802010201	Otter Brook Reservoir	48.88	272	Low
010802010303	South Branch Ashuelot River	48.81	273	Low
010600030504	Milton Pond	48.78	274	Low
010700040301	Willard Brook	48.76	275	Low
010700030501	Upper Blackwater River	48.70	276	Low
010700061001	Pennichuck Brook	48.69	277	Low
010700030102	Stanley Brook	48.68	278	Low
010600030503	Headwaters-Great East Lake	48.63	279	Low
010400010205	Lake Umbagog	48.59	280	Low

Watershed ID (HUC 12)	Watershed Name	Priority Potential Indicator Score	Priority Potential Indicator Rank	2020 - 2024 Protection Potential
010801030202	Moore Reservoir	48.58	281	Low
010700061002	Litchfield Tributaries	48.46	282	Low
010801010305	Halls Stream to Mohawk River	48.40	283	Low
010400010203	Swift Cambridge River	48.37	284	Low
010801040402	Connecticut mainstem-Ompompanoosuc River to White River	48.07	285	Low
010700020201	Winnisquam Lake	47.94	286	Low
010700010502	Squam River	47.88	287	Low
010801060403	South Branch	47.84	288	Low
010700061205	Lower Beaver Brook	47.83	289	Low
010801060303	Blow-me-down Brook	47.82	290	Low
010700030101	Town Farm Brook	47.78	291	Low
010700060302	Merrimack River Drainage	47.75	292	Low
010600030703	Middle Lamprey River	47.71	293	Low
010700060702	Massabesic Lake	47.55	294	Low
010700030103	Nubanusit Brook	47.33	295	Low
010700010802	Salmon Brook	47.27	296	Low
010801060401	Sawyer Brook-Stocker Brook-Eastman	47.18	297	Low
010700020109	Meredith Bay	47.02	298	Low
010700061203	Upper Beaver Brook	47.01	299	Low
010801060406	Middle Tributaries	46.97	300	Low
010700040401	Nissitissit River	46.66	301	Low
010802020103	Torbell Brook	46.60	302	Low
010802010202	The Branch	46.59	303	Low
010700020105	Center Harbor	46.34	304	Low
010400010606	Berlin Tributaries	46.25	305	Low
010801030403	Lower Ammonoosuc River	46.17	306	Low

Watershed ID (HUC 12)	Watershed Name	Priority Potential Indicator Score	Priority Potential Indicator Rank	2020 - 2024 Protection Potential
010700020203	Silver Lake to the Merrimack River	45.69	307	Low
010700030403	Lane River	45.36	308	Low
010600030506	Middle Salmon Falls River	45.23	309	Low
010801060302	Plainfield Tributaries	45.12	310	Low
010700010501	Squam Lake Drainage	44.93	311	Low
010700060804	Londonderry Tributaries	44.79	312	Low
010801060106	Lower Mascoma River	44.62	313	Low
010600030507	Lower Salmon Falls River	43.91	314	Low
010600021001	Shapleigh Pond	43.84	315	Low
010801060402	Sunapee Lake	43.55	316	Low
010802010301	Keene Tributaries	43.27	317	Low
010700061102	Lower Spickett River	43.08	318	Low
010700060703	Cohas Brook	42.73	319	Low
010801060405	Newport Tributaries	42.67	320	Low
010700061206	Merrimack mainstem-Nashua River to Concord River	39.24	321	Low
010700020110	Paugus Bay	38.99	322	Low
010700060802	North Manchester Tributaries	38.34	323	Low
010700040402	Nashua mainstem-Squannacook River to mouth	37.17	324	Low
010600031001	Portsmouth Harbor	30.79	325	Low
010700061201	Salmon Brook	26.51	326	Low
010700060803	South Manchester Tributaries	25.08	327	Low

APPENDIX I: STATEWIDE PRIORITY PROTECTION POTENTIAL FOR NEW HAMPSHIRE WATERSHEDS (HUC12)

2020-2024 NPS Management Plan
NH HUC12
Protection Potential