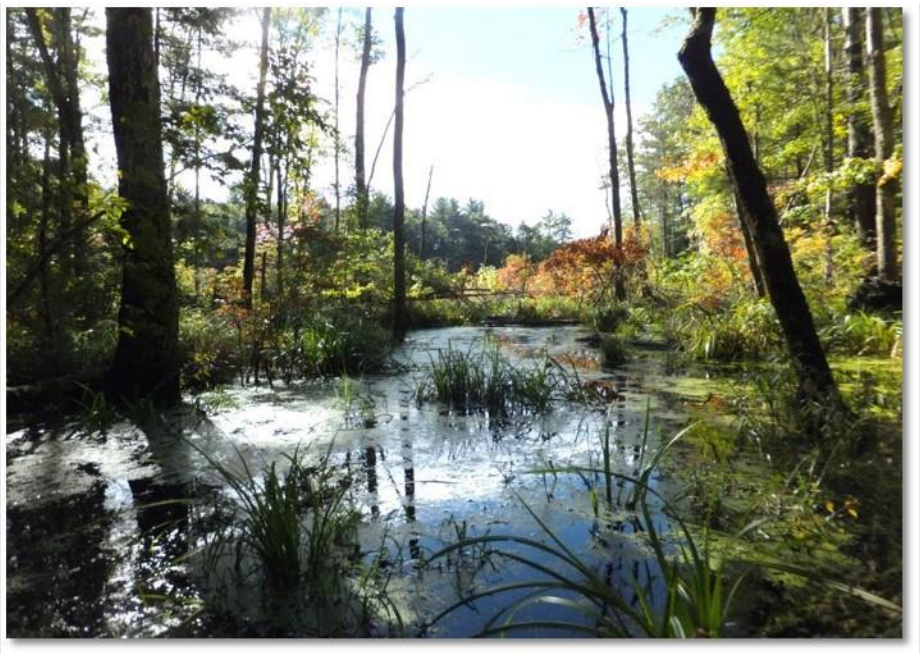
New Hampshire Aquatic Resource Mitigation Fund
Final In-Lieu Fee Program Instrument
February 2023



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Aquatic Resource Mitigation Fund

Wetlands Bureau, Land Resources Management

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Acronyms

Acronym	Definition
AOP	Aquatic Organism Passage
ARM	Aquatic Resource Mitigation
CTH	Critical Terrestrial Habitat
DE	District Engineer
DNCR	NH Department of Natural and Cultural Resources
HUC	Hydrologic Unit Code
ILF	In-Lieu Fee
IRT	Interagency Review Team
NHDES	New Hampshire Department of Environmental Services
NHFG	New Hampshire Fish and Game Department
NRCS	Natural Resource Conservation Service
NMFS	National Marine Fisheries Service
NWI	National Wetland Inventory
PRM	Permittee-Responsible Mitigation
RFP	Request for Proposals
RGP	Regional General Permit
RSLR	Relative Sea Level Rise
SGCN	Species of Greatest Conservation Need
SSC	Site Selection Committee
SCAP	Stream Visual Assessment Protocol
SVAP	US Army Corps of Engineers, New England District
The Corps	United States Environmental Protection Agency
USEPA	Wildlife Action Plan
WAP	

1. Introduction

This instrument will continue the operation of New Hampshire's In-Lieu Fee (ILF) program, the Aquatic Resource Mitigation (ARM) Fund operated by the New Hampshire Department of Environmental Services Wetlands Bureau (NHDES) pursuant to 33 CFR Parts 325 and 332 Compensatory Mitigation for Losses of Aquatic Resources; Final Rule known as the federal "Mitigation Rule". This Instrument supersedes the previous Instrument governing NHDES operations.

This instrument establishes the NHDES as the qualified ILF program Sponsor and administrator for the ARM Fund program. The NHDES will work with the Corps to ensure that requirements for aquatic resource compensation are being met and that it is recognized that ultimately NHDES is solely responsible for providing compensatory mitigation for projects which have paid into the ARM Fund.

The signatories to this instrument recognize that cooperation between and among the US Army Corps of Engineers, New England District (Corps), United States Environmental Protection Agency (USEPA), Natural Resource Conservation Service (NRCS), National Marine Fisheries Service (NMFS), and NHDES is critical to the continued development of high-quality mitigation and are committed to continue efforts that have been on-going since adoption of the ARM Fund program in 2006.

The purpose of this instrument is to document the guidelines, responsibilities and standards for the use, operation, and maintenance of the ARM Fund in compliance with the Federal Mitigation Rule. The NHDES statute describes the operation of the program and the mechanism that allows NHDES to receive funds for wetland impacts and disburse deposits in a fashion to maximize environmental benefits from the pooled funds.

An In-Lieu Fee payment to the ARM Fund may be used to compensate for unavoidable impacts to aquatic resources and their associated functions and values. ARM funds are pooled according to the location of impacts within nine watersheds called Service Areas and then made available as competitive grants to fund restoration, enhancement, establishment, and preservation activities. As the ILF sponsor, NHDES holds and manages the collected funds and announces a grant round (i.e., Request for Proposals) annually. Grant applications are reviewed and evaluated by an ARM Fund Site Selection Committee (SSC) using evaluation criteria outlined in Env-Wt 800. The SSC recommends funding awards to the New Hampshire Wetlands Council and a federal interagency review team (IRT) composed of the U.S. Army Corps of Engineers (ACE), U.S. Environmental Protection Agency, U.S. Fish & Wildlife Service, National Marine Fisheries Service, and the Natural Resources Conservation Service. Funds awarded must be approved by Governor and Executive Council (G&C) before being disbursed.

More information on the ARM Fund Program, including reference documents and sources, can be found on the program website at: Aquatic Resource Mitigation Fund | NH Department of Environmental Services.

1. Need for an In-Lieu Fee Program

The NHDES ARM Fund will be used for compensatory mitigation for unavoidable impacts to waters of the United States in the State of New Hampshire. Permits are required by the Corps through the Clean Water Act (CWA) Section 404 for discharge of dredge or fill materials within "waters of the U.S."; through the Rivers and Harbors Act Section 10 for structures or work in or affecting navigable water of the U.S.; and the NHDES wetlands program (RSA 482-A).

Under the Corps Regional General Permit (RGP) for New Hampshire, compensatory mitigation for proposed jurisdictional impacts is required for projects having more than 5,000 square feet of non-tidal wetland impact, and for minor and major projects when deemed appropriate by NHDES and the Corps, to comply with federal and state standards. These regulatory agencies require that aquatic resource functions and services lost due to impacts be replaced through compensatory mitigation after addressing avoidance and minimization of impacts. The following instrument outlines the circumstances and the way a statewide in lieu fee (ILF) program will provide a compensatory mitigation option to permit applicants under the Corps and NHDES permit programs.

Mitigation options currently available to permit applicants include permittee-responsible mitigation (PRM) and ILF payments, or a combination of these. In New England, historically, most PRM projects implemented are small, less than one acre in size, and their broader environmental benefits are limited in scope. Numerous studies have shown that many PRM mitigation sites in New England, and throughout the country have a high rate of failure. They fail to meet performance standards and have significant information gaps regarding compensation goals, planning considerations, design features and monitoring data (Wilkinson and Thomas 2005; Minkin and Ladd 2003; NRC 2001; Kusler and Kentula 1990). Mitigation failure rates are linked to several specific issues that can be addressed by developing a mitigation program that incorporates landscape and watershed planning, well-defined project goals and success criteria, baseline data, proven site selection criteria and restoration techniques, and effective monitoring and management plans.

Federal regulations recognize that ILF programs are the environmentally preferable option over PRM options based on several factors. ILF projects target larger, more ecologically valuable resources that have been prioritized on a landscape or watershed scale. ILF Programs consistently include thorough scientific analysis, planning, implementation, and monitoring for each project. The structure of an ILF program facilitates up-front site selection, mitigation plan development, and provides for better scientific expertise and financial assurances which translates to reduction of temporal loss of aquatic resource function and project success uncertainty (33 CFR Part 332). A regulatory program that includes an ILF option provides for implementation of projects that provide ecologic benefits on a watershed scale. ILF projects offset impacts by identifying larger, more environmentally valuable resources that can result in a suite of functions being restored and/or protected.

In 2006, the NH General Court enacted Senate Bill 140 establishing Aquatic Resource Compensatory Mitigation. The General Court has also adopted several revisions to the statute in 2009, 2010, 2012 and 2016. These provisions establishing the ARM Fund, are codified at RSA 482-A:28 through RSA 482-A:33 and are found at New Hampshire Statutes - Table of Contents. The law creating the ARM Fund program became effective on August 18, 2006, and NHDES adopted implementing rules effective on June 20, 2007, with recent revisions in February 1, 2016, and December, 2019 (NHDES Wetlands Rules).

ii. Goals and Objectives

The primary goal of the Fund is to provide sustainable compensatory mitigation meeting the national goal of "no net loss" of functions and values of waters and wetlands of the U.S. Compensatory mitigation may be performed using the methods of restoration, enhancement, establishment, and, in certain circumstances, preservation. Restoration should generally be the first option considered because the likelihood of success is greater and the impacts to potentially ecologically important uplands are reduced compared to establishment, and the potential gains in terms of aquatic resource functions are greater compared to enhancement and preservation. A sustainable mitigation project has a high likelihood of successfully achieving the targeted functions and values over the duration of the required monitoring period and beyond. Additional goals include:

- To provide an alternative to on-site and local off-site permittee-responsible compensatory mitigation to support a broad range of aquatic resource restoration, enhancement, establishment, and preservation projects across the state that will effectively replace functions and values lost through permitted impacts.
- Support projects to meet current and expected demand for credits sales in each Service Area.
- To increase the scope and quality of restoration projects.
- Direct ILF funds to protect and restore aquatic resources that will effectively sustain the functions and values over the long term that have been lost due to permitted impacts.
- Identify wetlands and streams of ecological significance and remove the potential of future threat and degradation with permanent land protection through fee acquisition, conservation easements, and deed restrictions.
- Improve coordination among and between agencies with respect to wetland policies and regulatory programs to ensure efficiency in effort, consensus in outcome, and consideration of wetlands at the landscape scale.

iii. Qualifications of Program Sponsor

This instrument recognizes NHDES as the Sponsor and administrator of the ARM Fund program, and as the responsible organization for providing compensatory mitigation for NHDES and Corps issued permits that use the ILF option. The mission of NHDES is to sustain a high quality of life for all citizens by protecting and restoring the environment and public health in New Hampshire. NHDES has a proven record as a highly qualified Sponsor of the ARM Fund. Since the first ARM Fund payment was received in January 2007, 289 permits have used ILF as the mitigation option, totaling $35,137,383 across the nine service areas. The ARM Fund has been responsible for supporting mitigation projects to compensate for 146.1 acres of wetland loss, 117.2 acres of wetland conversion, and 33,542 linear feet of stream impacts (Table 1).

Table 1. Summary of permitted impacts and wetland loss per service area for projects that used ILF mitigation, January 2007 through December 31, 2022.

Service Area	Permits Using ILF	Total payment	Wetland loss (ac)	Wetland conversion/ secondary impacts (ac)	Stream impacts (lf)
Androscoggin	8	1,089,948	7.53	0.00	299
Saco	7	180,402	0.53	2.00	373
Pemigewasset-Winnipesaukee	31	1,610,860	8.80	5.95	728
Salmon Falls–Piscataqua	81	9,134,338	38.42	29.71	2,213
Merrimack	84	15,881,512	66.29	48.51	16,547
Lower Connecticut	32	4,798,857	12.22	15.14	10,621
Contoocook	14	966,043	3.67	9.36	1,509
Middle Connecticut	22	1,033,009	7.03	6.48	179
Upper Connecticut	10	440,412	1.58	0.00	1,073
Total	**289**	**35,137,383**	**146.1**	**117.16**	**33,542**

Since 2007, ARM has awarded $25,073,684 to support 141 mitigation projects statewide (Table 2). The majority of projects (75%) are protection of high-value aquatic resources and their upland buffer, totaling 28,078 acres of land conservation, which includes 4,047 acres of wetland, 117 miles of stream, and 422 vernal pools. The ARM Fund has supported 59 restoration and/or enhancement projects, with 23 projects enhancing 54 miles of aquatic habitat for fish passage through dam removals and culvert upgrades. Several projects (22) have included both land preservation and restoration or enhancement.

Table 2. Summary of the projects funded by ARM and total mitigation achieved per service area, January 2007 through December 31, 2022.

		Land Protection				Restoration and Enhancement			
Service Area	Number of Mitigation Projects	Total Land (ac)	Wetland (ac)	Stream (mi)	Vernal Pools	Stream Passage (mi)	Wetland (ac)	Stream (lf)	Riparian Buffer (ac)
Androscoggin	3	1,799	598	6	4	0	0	0	0
Saco	3	1,744	129	10	0	0	0	0	0
Pemigewasset-Winnipesaukee	14	1,471	193	7	27	2	1	72	0
Salmon Falls–Piscataqua	40	6,742	911	23	152	23	4	7,602	0
Merrimack	46	8,304	1,329	37	174	11	6	1,724	0
Lower Connecticut	17	6,348	743	27	65	26	1	2,685	0.7
Contoocook	6	683	16	2	0	1	0	380	0
Middle Connecticut	9	663	65	4	0	2	0	150	0.1
Upper Connecticut	4	324	63	3	0	0	0	7,712	15
Total	**141**	**28,078**	**4,047**	**117**	**422**	**66**	**12**	**20,325**	**15.8**

2. The New Hampshire Aquatic Resource Mitigation Fund

i. Establishment & Operation

The New Hampshire ARM Fund has been created as one of several compensatory mitigation options available to applicants for impacts to wetlands and other aquatic resources. This mitigation option is available for use after avoidance and minimization of impacts to these aquatic resources has been achieved. State and federal programs recognize that ILF programs are the environmentally preferable option over other mitigation forms and establish that an ILF payment may be required as a condition of a permit approval. When required, the compensatory mitigation project must be commensurate with the amount and type of impact occurring and replace the lost functions and values at an equal or greater value. This instrument addresses the procedures and guidelines for coordinating compensatory mitigation requirements for permits issued by the Corps in the State of New Hampshire and the ARM Fund may be utilized for permit actions involving (a) Corps General Permits, (b) NHDES permits, and (c) Corps individual permits. The ILF program proposed in this Instrument shall be referred to as the "ARM Fund" for the convenience of the parties, but this Instrument shall not be deemed to establish or qualify as a trust under state or federal law.

Site Selection Committee— The Site Selection Committee (SSC) as established by RSA 482-A: 32 and NHDES Wetlands Rules, assists in guiding program operations, evaluates project proposals, and makes recommendations on funding. Members of the SSC include representatives from the following agencies and nongovernmental organizations:

- The commissioner of the NHDES or designee.
- The executive director of the NHFG, or designee.
- The director of the Department of Energy (formerly Office of Strategic Initiatives), or designee.
- The commissioner of the DNCR, or designee.
- Five members of the public, appointed by the governor and council for a term of 3 years or until a successor is chosen that will represent the following:

  (1) A member of a municipal conservation commission nominated by the New Hampshire Association of Conservation Commissions.

  (2) A natural resource scientist nominated by the New Hampshire Association of Natural Resource Scientists.

  (3) A person experienced in environmental protection and resource management submitted by The Nature Conservancy.

  (4) A person experienced in environmental protection and resource management submitted by the Society for the Protection of New Hampshire Forests.

  (5) A person with experience in stream restoration nominated jointly by the Northeast Region of American Rivers and the New Hampshire Rivers Council.

Members of the SSC must have relevant knowledge and technical skills (wetland science, conservation biology, wildlife biology, engineering, hydraulics, hydrology, geomorphology, soil science, etc.) and should represent the broad interests of aquatic resource priorities statewide. Committee members may not act as advocates for their own organizational interests and carefully determine whether there is a conflict of interest with projects requesting funding. If a conflict of interest exists, the SSC member must disclose it to the SSC according to the Conflict-of-Interest Policy adopted in 2012. The SSC members are expected to attend all meetings and substitutions are only permitted with permission from Committee Chair. A chair and vice chair will be appointed by the SSC members and the vice chair will perform all functions of the chair in his/her absence. The NHDES ARM Fund Manager, NHDES staff, and federal agencies (see Interagency Review Team Section below) will attend the SSC meetings and keep meeting minutes.

The role of the SSC is to provide a mechanism for reviewing applications received from the Request for Proposals (RFP) and provide recommendations for ARM funding. The SSC evaluates the projects using the ARM Scoring Criteria (Appendix A) and selects high-priority projects that will most effectively compensate for the losses in each Service Area. A minimum of five SSC members is needed to vote on ARM funding recommendations and a motion to fund must be supported by most of the SSC members present. If at least five SSC members cannot participate in voting, then the Chair may declare four voting members as a sufficient. The USACE retains discretionary authority to disqualify projects from SSC consideration if they do not meet the federal mitigation rules (33 CRF 332.8(d)(5)).

Interagency Review Team — The Interagency Review Team (IRT) is chaired by the New England District Engineer (DE) of the Corps. Membership will be determined by the Corps, but will generally include representatives of the USEPA, NRCS, USFWS and NOAA. The primary role of the IRT is to review proposals, approve funding recommendations, evaluate mitigation plans, assist the DE in the review of monitoring reports, recommend remedial measures, approve credit releases, and approve modifications to this instrument, including approving additions of projects proposed for funding by the ARM Fund. The IRT will work to reach consensus on its actions.

Request for Proposals — NHDES shall identify mitigation sites through two methods: solicitation of proposals through an open, RFP, or through an internal process using the experience and expertise of NHDES staff and departments. The preference between these two approaches is given to holding an open solicitation RFP to broaden the pool of potential projects and increase stakeholder engagement.

For the competitive RFP process, applicants must submit a Pre-Proposal Form and project summary to be eligible to submit a Full Application. The Pre-Proposal applications are reviewed by the SSC and IRT and feedback provided to the applicant on eligibility, funding amounts, or how the proposal may be strengthened to meet the ARM criteria. Project applicants are notified on the merits of their pre-proposal based on the ARM program evaluation criteria and whether a full application submittal is recommended. A complete project proposal form and required grant materials are reviewed by the SSC and IRT. Projects are advertised for public comment in a 30-day Public Notice issued by the Corps.

Special Project Assistance — NHDES can contract any and all work as necessary, as long as it is consistent with procedures in the mitigation rule: These costs must be based on full cost accounting, and include, as appropriate, expenses such as land acquisition, project planning and design, construction, plant materials, labor, legal fees, monitoring, and remediation or adaptive management activities (33 CFR § 230.98 Mitigation banks and in-lieu fee programs) OR 33 CFR 290.98(o)(ii).

The process for identifying and proposing sites to the Corps and IRT will be initiated by the Sponsor when there are sufficient funds to pursue development of a mitigation project or when action is required to initiate a project after funds have remained in a Service Area more than three years from deposit. Restoration projects that arise outside of the RFP process may be considered for special assistance funding. Projects submitted in this fashion will follow all procedures noted in 33 CFR 332.8(d)(2)-(8) of the 2008 Mitigation Rule.

Previously approved ARM projects requiring additional funding ("gap funding") due to partial funding award, construction cost inflation, and other unavoidable circumstances may be considered for special project assistance, if deemed appropriate by the Sponsor, SSC, and IRT, provided that the additional funds will support the successful completion of project objectives and performance standards. For projects seeking gap funding, NHDES will coordinate on necessary supporting documents. Previously approved ARM projects requiring additional funding will be reviewed by the Sponsor, circulated to the SSC for review, and to the IRT for approval. Any additional ARM funds for a previously approved ARM project will require Governor & Council approval.

Consistent with project selection under the RFP process, NHDES will consider watershed-scale wetland and stream losses and the beneficial effects to offset functional loss achieved through restoration. This process will prioritize restoration projects to improve conditions of former aquatic habitats with adequate site protection measures to be achieved.

All proposals reviewed under special project assistance must contain the ability to result in a successful and sustainable net gain of wetland or stream functions and meet the following criteria:

- Restoration proposals are in watersheds that have sustained significant loss through wetland or stream permit decisions, are in areas of high development pressure, or have had a lack of restoration projects achieved over time.
- The budget request must achieve completion of the project.

Proposals for Special Project Assistance will be submitted to NHDES in adherence with the yearly grant application forms and materials in use at the time. A complete project proposal form and required grant materials are reviewed by the Sponsor for completeness and circulated to the SSC and IRT within 30 calendar days of receipt. Eligible projects are advertised for public comment in a 30-day Public Notice issued by the Corps. An on-site review by the SSC and IRT will be conducted to confirm site conditions and proposed restoration design. The Sponsor will convene a meeting to evaluate the proposals based on the scoring criteria, site suitability, likelihood of mitigation project success, maximizing the environmental benefit of ILF funds expended, relative value of the natural resource type(s) involved, and the inclusion of adequate site protection measures.

The SSC recommendations for funding are forwarded to the IRT for approval. The Corps, in coordination with the IRT, will provide a final recommendation. The Sponsor will deliver final recommendations to the NH Wetlands Council for final approval and notifies applicant of funding decisions. NHDES, or the applicant, will prepare a Mitigation Plan that contains the core elements required under 33 CFR 332.4 and submit it to the Corps and IRT for review and approval.

Project Evaluation — The SSC uses a set of scoring criteria to evaluate the proposals so all projects within a service area can be compared with one another. The SSC also evaluates proposals based on site suitability, likelihood of mitigation project success, maximizing the environmental benefit of ILF funds expended, relative value of the natural resource type(s) involved, and, in the case of preservation, the relative threat of degradation of the proposed site.

Funding Approval — The Corps, in coordination with the IRT, reviews all projects proposed to be funded. The SSC recommendations for funding are forwarded to the IRT and NH Wetlands Council for final approval. The NH Wetlands Council, established by statute, provides oversight of the ARM Fund program by assisting in rulemaking and approves annual reports prepared by the Program Administrator to be provided to the Corps, other federal agencies, and the legislature. The NH Wetlands Council and the Corps review the recommendations provided by the SSC and IRT. The Corps and the NH Wetlands Council must issue approval of the projects to be funded. The Governor and Executive Council must issue final approval for funds to be disbursed and has approved all projects submitted for funding as of December of any year.

Federal Mitigation Plans — The Instrument will serve as the "umbrella" beneath which mitigation projects in New Hampshire will be proposed and implemented. Each mitigation project will have an individual Mitigation Plan reviewed by the Corps and IRT and is added as an amendment to the NHDES ARM Program instrument. Mitigation Plans will be developed and implemented in accordance with 33 CFR 332 and the Corps and will include the following elements:

1) Goals and objectives
2) Site selection
3) Site protection Instrument
4) Baseline conditions
5) Determination of credits
6) Mitigation work plan
7) Maintenance plan
8) Performance standards
9) Monitoring requirements
10) Long-term management plan
11) Financial assurances
12) Adaptive management plan
13) Credit release schedule
14) Threat and credit calculations

ii. Fees and Credits

Credit Sales — NHDES, in coordination with the Corps, will determine the amount of an ARM Fund payment required from permittees. Occasionally, the Corps may require additional payment to adequately compensate for direct, secondary, indirect or cumulative impacts to wetlands, streams, and vernal pools, conversion, degradation of functions, and other environmental issues. If this occurs, these additional funds will be accepted in the ARM Fund for the applicant to obtain a state and federal permit.

Calculated Payment for Wetland Impacts:

a) Determine the area of wetland, by resource type, that would need to be created according to the ratios in Table 800-1 in the NHDES administrative rules. Each project must also comply with the current US Army Corps of Engineers, New England District Compensatory Mitigation Standard Operating Procedures.

b) Calculate the cost to construct a wetland of the required size (a) based on a price of $65,000 per acre of wetland created, set in 2006 and adjusted annually using the Judgments established by RSA 336:1,II.

c) Calculate the cost to purchase the land needed to construct a wetland of size (a) by multiplying the acres of wetland by the cost of land in the town where the impact is occurring as determined from the assessed land values produced by the NH Department of Revenue Administration (land values are divided by the number of acres in each municipality to yield a per acre equalized land value).

d) The sum of b and c above, plus an administrative fee of 20%.

Calculated Payment for Stream Impacts:

a) The cost that would have been incurred if a stream of the same type were restored pursuant to the ratios adopted by the department, based on a price of $200 per linear foot of channel and/or bank impacts to be adjusted according to the annual simple rate of interest on judgments established by RSA 336:1, II. Each project must also comply with the "US Army Corps of Engineers, New England District Compensatory Mitigation Standard Operating Procedures, December 2020".

b) The sum of (a) above, plus an administrative fee of 20%.

The ARM Fund Calculator is available on the NHDES website for potential applicants to determine their estimated ILF payment. The calculator distinguishes payments for non-tidal and tidal resource impacts. The NHDES Wetlands Bureau updates the ARM Fund calculator annually in June based on information published by the NH Department of Revenue Administration on land values and the State Treasury on the annual cost of inflation.

Land Preservation Credit Generation — The methods used to calculate the amount of wetland, stream, and upland preservation credits generated for the protection of the aquatic resources and upland buffer are outlined below. Geospatial information systems (GIS) are used to determine the quantity (acres or linear feet) of wetlands and streams within the project boundary by resource type as described by the Wetland Classification Codes | U.S. Fish & Wildlife Service, and mitigation type (protection, restoration,

and/or enhancement), using a series of geoprocessing steps on the wetland delineation and functional assessment data (Figure 1). The ratios used to calculate the credits for each type are from the "US Army Corps of Engineers, New England District Compensatory Mitigation Standard Operating Procedures, December 2020". NHDES staff coordinate with Corps staff prior to calculating credits to confirm whether any changes have been made to the operating procedures. The general process developed to perform credit generation is as follows:

- Calculate the area of wetlands that lies within the project area by Cowardin Classification.
- Buffer confirmed vernal pools by the size of the restricted no-cut zone to designate upland credit.
- Remove the vernal pool upland buffer area from overlapping wetlands, upland buffer, and stream buffer areas to avoid double counting areas for different credit types.
- Calculate the length of stream that has a 100' buffer on both sides and/or one side.
- Remove the stream buffer from overlapping wetlands, upland buffer, and vernal pool buffer areas to avoid double counting areas for different credit types.
- Buffer wetlands by the size of the restricted no-cut zone for upland credit in all ARM-funded easements that allow forestry activities. For projects that have conservation easements that restrict forestry to the entre property, upland credit it generated for all areas outside of the vernal pool CTH and stream buffers.

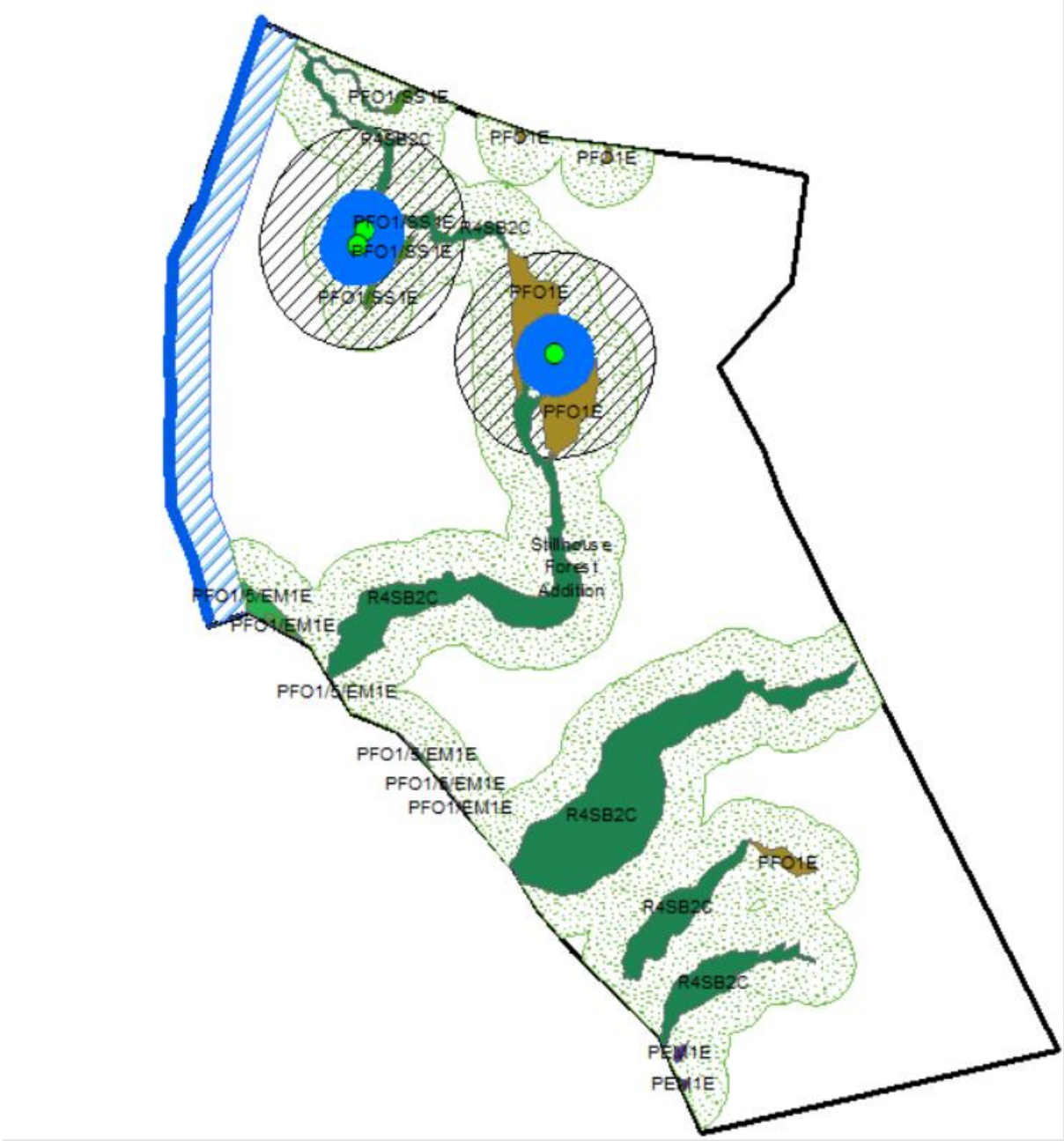
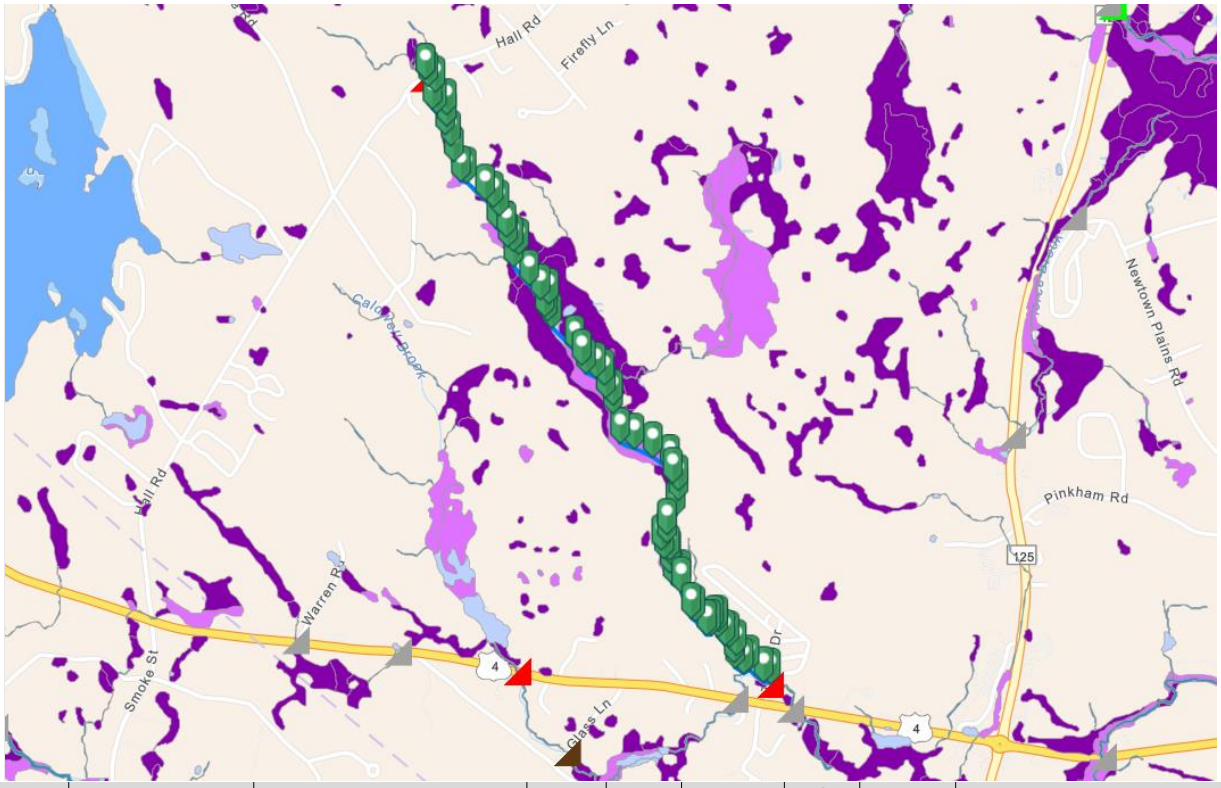


Figure 1. Example of the geospatial analyses used to delineate and quantify the protected aquatic resources for mitigation credit. This project includes wetlands (dark green polygons) with a 100' upland buffer (light green textured fill), the 100' upland buffer along one side of a stream (blue cross hatch fill) and 150' upland buffer (brown cross hatch fill) to vernal pools (light green points).

Stream Restoration and Enhancement Credit Generation — Credits are calculated by measuring the linear distance of the restoration and enhancement components (Figure 2) of the project and estimating the increase in stream condition using the Stream Visual Assessment Protocol Version 2 (SVAP; Natural Resources Conservation Service. 2009. National Biology Handbook, Subpart B – Conservation Planning, Part 614. 190-VI-NBH) and applying the multipliers from "Table C5-Recommended Mitigation Multipliers for Stream Credit Generation" in the New England District Compensatory Standard Operating Procedures December 29, 2020. The condition has been estimated based on the baseline conditions of the site and the expected improvements. The site will be revisited at the completion of the five years of performance monitoring, to conduct the SVAP Assessment and determine if the value has changed and credits will be adjusted accordingly if necessary. Credits are summarized by the Cowardin Classifications for the New England District and adjusted by the percent ARM contribution toward the total project cost.



Resource Type	Credit Classification	Form of Mitigation	Stream Miles	Stream LF	Mmitigation multiplier	Total Credits	ARM Credits (%)	Notes
R3	**Fish Connectivity-** Stream enhancement	**Removal of dam or other barrier up to three miles above former impoundment**	2.500	13200	0.02	264	101.765	Fish Connectivity- aquatic organism passage made accesible upstream of culvert on mainstem Seaver to next culvert on Hariman Road, which is a barrier.- 1st 3 miles passage
R3	**Stream/River- Channel Rehabilitation**	**Rehabilitation of the stream resulting in an improved channel condition -1 Step increase (Severly Degraded to Poor)**		50	0.50	25	9.637	Removal of metal pipes and replaced with open bottom span with natural stream material throughout.
Total			**2.500**	**13250**		**289**	**111.402**	

Figure 2. Example of the credit generation for a culvert upgrade project that regained 2.5 miles of upstream habitat for anadromous fish passage in the Salmon Fall-Piscataqua Service Area.

Activities and areas of the stream considered for credit:

- Stream channel exposed from the removal of the dam or culvert replacement to include the area that physically responds to and exhibits geomorphic adjustments from restored natural hydrologic and sediment regimes (i.e. the footprint of the channel bed that is now exposed when a dam or culvert is removed, or a culvert is upgraded to an open-bottom bridge).
- Consider all areas upstream of the restoration area that will benefit including a natural stream channel that becomes re-established in a former impoundment area and upstream areas that are expected to undergo adjustments in geomorphology in response to the removal of the structure.
- Stream habitat that is now accessible for fish passage and restored aquatic connectivity.
- Areas where stream restoration work is performed to rehabilitate the channel (rip rap and fill removal, bank stabilization, riffle/pool creation, wood additions, weirs, grade controls to enhance fish passage, etc.).
- Downstream areas of the stream that will exhibit an appreciable adjustment in stream geomorphology and aquatic habitat from restored hydrology and sediment transport processes.

Advance Credits — Upon approval of this instrument, NHDES is permitted to sell advanced credits in the amount indicated in the table below. The number of advance credits available for sale varies, are specified by service area, and were determined based on the estimated credits needed to compensate for impacts permitted over the past four years (data provided by T. Bell, New England District Corps of Engineers, July 2022).

Table 3. Summary of wetland credits per service area from January 2007 through December 31, 2021.

	Advance Credits		Total Credit Sales		Credit Generation	
Service Area	**Wetland**	**Stream**	**Wetland**	**Stream**	**Wetland**	**Stream**
Androscoggin	41.954	2309.98	7.5	205	2.17	14.01
Contoocook	28.849	2015.337	14.3	477	0.95	3.8
Lower Connecticut	48.808	1220.833	12.3	3,541	169.4121	3640.146
Merrimack	194.389	2495.7	56.0	7,620	144.1745	9916.865
Middle Connecticut	15.939	2460.623	7.5	74	17.908	24.8
Pemigewasset-Winnipesaukee	47.883	2272.99	8.0	346	27.338	1826.798
Saco	29.991	2500	0.8	125	2.41	599.8
Salmon Falls–Piscataqua	119.3319	2107.37	40.5	1,251	67.66616	5170.056
Upper Connecticut	29.929	2138.03	1.0	358	8.42	0
Total			**147.98**	**13,996**	**440.45**	**21,196**

Credit Accounting — To track and account for the ILF payments into the ARM Fund, the NHDES wetlands ARM Fund staff maintains a debit and accounting database that includes the following data on every permit for which an ILF payment is submitted:

- The NHDES and Corps permit numbers, approval date, and permittee.
- Service Area and location (in decimal degrees) of the authorized impacts.
- The amount (acreage or linear feet) of the impacts by aquatic resource type (Cowardin Classification).
- The functions and values lost due to the impacts.
- Total amount of ILF payment required to compensate for the impacts, with the administration and permit fee separated.
- Date the funds were received from the permittee and deposited into the ARM Fund account.
- Whether permittee-responsible mitigation was also incorporated to adjust the ILF payment.
- The number of credits being sold for each resource type impacted.

Projects funded with ARM money are uploaded to the federal Regulatory In-lieu Fee and Bank Information Tracking System. NHDES also tracks the effectiveness of the program at offsetting losses to aquatic resources and maintains an online geodatabase that is available for public view at ARM Fund Conservation Dashboard. The following information is recorded for each project receiving ARM funding:

- Service Area and location of the project.
- The amount of compensation being provided by activity (i.e., restoration, establishment, enhancement, and/or preservation), aquatic resource type (Cowardin Classification), the amount of compensatory mitigation being provided (acres and/or linear feet).
- The ecological benefits associated with the project including wildlife habitat types threatened and endangered species, source water and groundwater, unique and exemplary resources involved in the project, and landscape connectivity benefits.

Accounting Procedures — The NHDES wetlands mitigation staff receives the ILF payments and deposits them into the NHDES ARM Fund Service Area accounts. The NHDES holds the funds collected in an interest-bearing account to earn interest while maximizing the safety and preservation of the money. All interest earned on these accounts is used for purposes of compensatory mitigation. The accounts are maintained by NHDES, and funds are only used for program administration and the selection, design, acquisition, implementation, and management of compensatory mitigation projects. A portion of the ILF payment is assigned to the ARM Fund for administrative purposes. These funds are used to defray such ordinary expenses involved in administering the program tasks including:

- Administration of contractual agreements.
- Database management and data analysis.
- Communications with partners.

- Financial management and accounting.
- Review, management, and presentation of project proposals, including site visits and coordination with those seeking proposal information.
- Monitoring of ARM funded projects, including construction and post-construction monitoring, site visits, data collection, report development, and additional follow-up as needed to ensure project success and adherence to approved plans.
- Program outreach materials such as brochures, fact sheets, guidance manuals, and the accommodations needed to hold public information sessions.
- Staff training and equipment needed to perform program tasks such as computer software and hardware, field equipment to perform site assessments and project inspections, and registration fees and associated travel costs for staff to attend workshops, conferences, or other training enabling them to perform program tasks.

iii. Provision of legal responsibility

This Instrument establishes the terms by which the legal responsibility for compensation requirements is transferred from the permittee to the NHDES. A payment deposit into the ARM Fund is acknowledgement that NHDES, and not the permittee, is responsible for satisfying the compensatory mitigation requirements of Sections 404 or 10 permits. The ILF payment must be received prior to permit issuance to ensure mitigation liability is assigned prior to the start of approved permit actions. Transfer of mitigation liability to the NHDES occurs when the DE accepts the credit sale letter from NHDES. NHDES is then responsible for fulfilling the mitigation through identification and selection of a suitable site, property rights acquisition and land protection, mitigation plan design, construction, performance monitoring, and long-term management and maintenance.

NHDES will provide compensatory mitigation of the amount and Service Area specified in the permit, or as authorized by the DE in consultation with the IRT. If NHDES cannot provide sufficient mitigation in the impacted service area through the RFP process, then additional mitigation requirements will be the responsibility of NHDES. Federal permit conditions will include the total ILF payment, required credits, the Service Area, and will state that no actions approved in the permit may be conducted until the payment is received by NHDES.

Corps approval of this Instrument constitutes the regulatory approval required for the State of New Hampshire – In Lieu Fee Program to be used to provide compensatory mitigation for Department of the Army permits pursuant to 33 C.F.R. 332.8(a)(1). This Instrument is not a contract between the State and the Corps or any other agency of the federal government. Any dispute arising under this Instrument will not give rise to any claim by the State for monetary damages. This provision is controlling notwithstanding any other provision or statement in the Instrument to the contrary.

iv. Reporting Protocols

Credit Transaction Letters — Upon receipt of payment from the permittee to purchase credits, the NHDES will submit a signed and dated credit sale letter to the DE within 45 days of receiving. The credit sale letter includes the state and federal permit number(s), the permittee, location of permitted project,

Service Area, impact acreage, resource types impacted, impact type, and the functions and values lost (Appendix B).

Monitoring reports — Monitoring is required of all compensatory mitigation projects to determine if the project is meeting its performance standards and if additional measures are necessary to ensure that the compensatory mitigation project is accomplishing the objective(s). Project-specific mitigation plans will detail: 1) the responsible party to carry out the monitoring 2) the parameters to be monitored and survey methods, 3) the length of the monitoring period, 4) the dates that the reports must be submitted to the DE and IRT for review. NHDES will ensure submittal of monitoring reports within 60 days of the deadlines outlined in the mitigation plan.

Biannual Fiscal Reports — NHDES will provide a report 60 days after the close of each odd-numbered fiscal year, to the Corps, fiscal committee of the general court, the chairperson of the house resources, recreation and development committee, and the chairperson of the senate environment and wildlife committee summarizing all receipts and disbursements of the ARM Fund, including a description of all funded projects and the status of the administrative account. Each report will include information on the permitted impacts that generated the ARM Funds. The NHDES biannual report will be provided to the Corps for review and issued as a Public Notice.

Status and Trends — Every five years, the NHDES will produce a status and trends report summarizing the previous five years of ILF payments and funded projects. The next status and trends report will be published in 2027. The document will examine the goals for each Service Area and discuss how well the projects assisted with promoting those goals.

3. Compensation Planning Framework

The compensation planning framework provides the foundation for selecting, securing, and implementing aquatic resource and associated upland buffer restoration, establishment, enhancement, and preservation under the ARM Fund ILF Program. The elements required by the Federal Mitigation Rule are addressed in the sections below.

i. Geographic Service Areas

The ARM Fund program geographic service areas are established as modified US Geological Survey Hydrologic Unit Code (HUC) 8 watersheds (Table 4 and Figure 3). The watershed areas were modified by combining HUC 08s that were similar in geographic area, climate, and historic and current development practices. Mitigation will be performed in the same service area within which the impact occurs unless the Corps, in consultation with the IRT, has agreed to an alternative.

Table 4. Summary of Hydrologic Unit boundaries for the nine service areas.

Service Area	Hydrologic Unit 8 Name and 8-digit code	Area (acres)
Androscoggin	Upper Androscoggin River (01040001); Lower Androscoggin River (01040002)	462,583
Saco	Saco River (01060002)	556,245
Pemigewasset – Winnipesaukee	Pemigewasset River (01070001); Winnipesaukee River (01070002)	965,106
Salmon Falls – Piscataqua	Piscataqua-Salmon Falls (01060003)	531,546
Merrimack	Merrimack River (01070006); Nashua River (01070004)	976,898
Lower Connecticut	Millers River (01080202); Ashuelot River-Connecticut River (01080201); West River-Connecticut River (01080107); Black River-Connecticut River (01080106)	871,259
Contoocook	Contoocook River (01070003)	489,024
Middle Connecticut	Waits River-Connecticut River (01080104); Ammonoosuc River-Connecticut River (01080103)	504,145
Upper Connecticut	Headwaters Connecticut River (01080101)	583,307

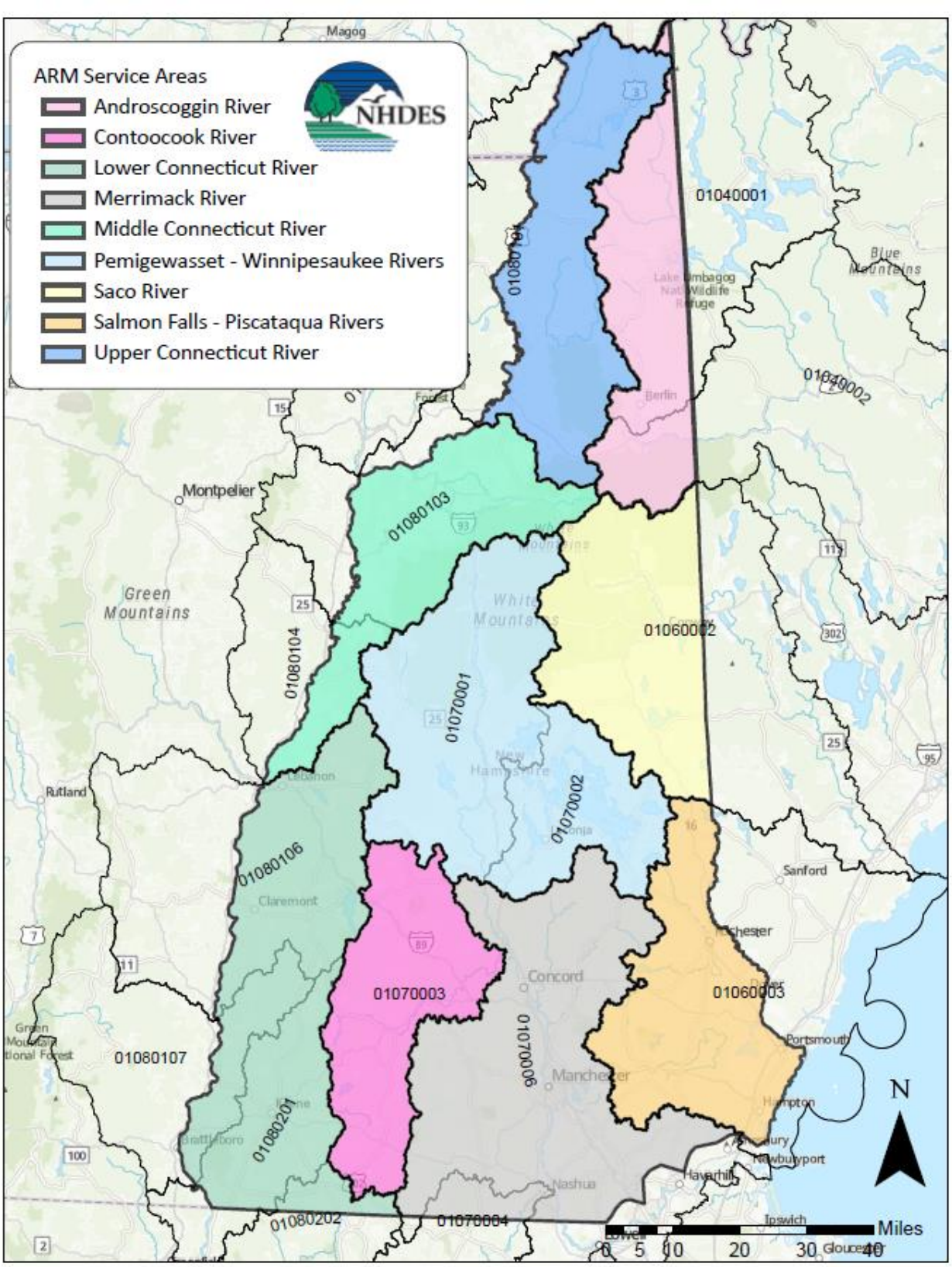
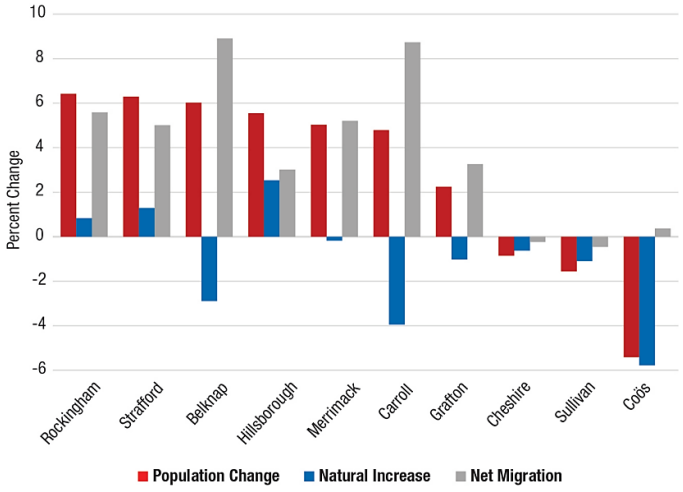


Figure 3. Map of the nine service areas and HUC 08 boundaries in New Hampshire for the Aquatic Resource Mitigation Fund.

ii. Threats to Aquatic Resources

Population Growth- Changes in human population and the rate of development in New Hampshire pose a significant threat to the state's aquatic resources and their critical functions and values. The resident population of New Hampshire grew 4.6% over the last decade (Table 5). The population in 2020 was 1,377,529 people compared to 1,316,470 in 2010, an increase of 61,059 people. This increase is smaller than the population gain of 6.5% seen between 2000 and 2010. New Hampshire's population increase over the last decade reported a net gain of 54,500 people, with migration accounting for 89% of the population increase (Johnson, 2020). In contrast, there were only 6,500 more births than deaths from 2010-2020, fewer than in prior decades. The population grew in seven of the state's ten counties between 2010 and 2020 (Figure 4) due to migration. In the two fastest growing counties, Rockingham and Strafford (Merrimack and Salmon Falls-Piscataqua Service Areas) more than 80% of the population gain was the result of migration associated with the outward sprawl from the Boston metropolitan area (Johnson and Bundschuh, 2020). Figure 5 illustrates distribution of densely populated areas throughout the state, with the greatest number of residents located within southern and coastal regions.

Residential and commercial development, which have profound effects on natural resources, represent a large portion of land conversion occurring within New Hampshire. Over the past 10 years, there has been a 3.9% increase in housing units to accommodate the influx of people in southern New Hampshire. This, in turn, contributes to loss and fragmentation of wetlands and streams (Johnson, 2021). In 2021, 68% of all wetland loss resulting in compensatory mitigation payments was from commercial and residential projects (NHDES Wetlands Bureau Annual Report to U.S. EPA, 2021).



Source: U.S. Census, 2010 and 2020 Decennial Census and Census Bureau Population Estimates

Figure 4. Population growth in New Hampshire from 2010-2020 by county (Johnson, 2020).

Table 5. Population changes in New Hampshire from 2000-2020 by Service Area

Service Area	2000 Population	2010 Population	2020 Population	Percent Population Change 2010-2020
Androscoggin	15,882	3,893	3,736	-4.0
Saco	26,037	27,851	28,661	2.9
Pemigewasset – Winnipesaukee	106,963	112,606	117,419	4.3
Salmon Falls – Piscataqua	254,228	278,465	296,463	6.5
Merrimack	601,001	638,322	674,715	5.7
Lower Connecticut	124,956	135,921	135,550	-0.3
Contoocook	56,479	55,415	57,769	4.2
Middle Connecticut	36,578	38,895	39,927	2.7
Upper Connecticut	13,426	25,102	23,289	-7.2
Total	**1,235,550**	**1,316,470**	**1,377,529**	**4.6%**

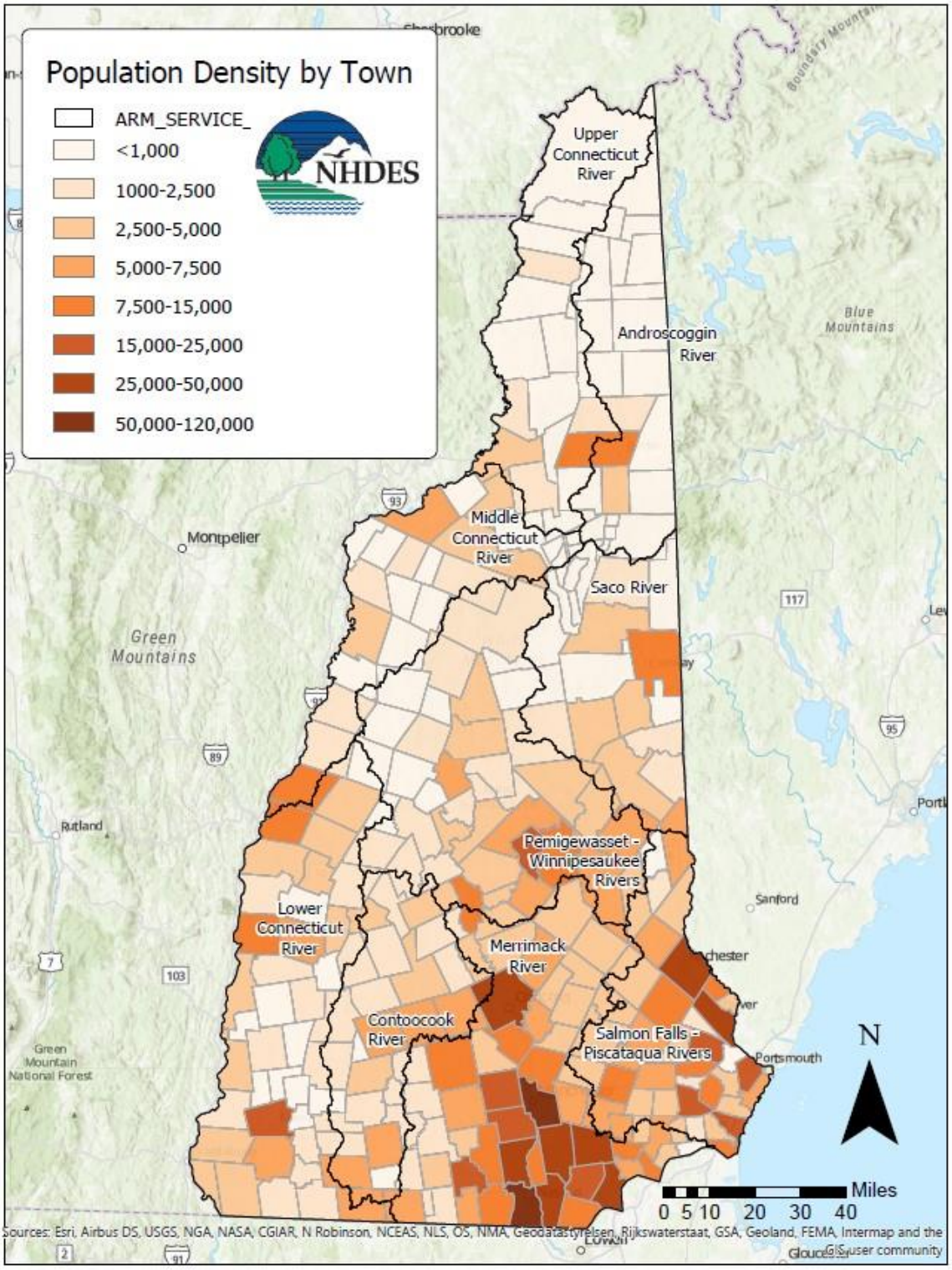


Figure 5. Map of population density (US Census Bureau, 2020) across the nine service areas in New Hampshire.

Land Conversion and Fragmentation — Land conversion for development is notable across all nine service areas, with an increase of 11,848 acres of low, medium, and high intensity development statewide from 2011-2019 (2019, National Land Cover Dataset) (Figure 6). The most significant increases in development occurred in the Merrimack (4,831 acres) and Salmon Falls (2,459 acres) service areas (Figure 8). There has been an overall decrease in upland herbaceous and barren land cover types statewide, as well as a decrease in open water with a shift to emergent and woody wetlands (Table 6). Lakes and ponds naturally change over time by ecological succession, but this natural process can be highly accelerated by alterations to watershed characteristics and hydrology, resulting in rapid shifts in wetland types. Shrub scrub cover decreased in the northern service areas while they increased in the southern and central service areas. Greater pressure from human development in the southern/central regions are evidenced by the decline in forested upland, whereas the northern region with less development is experiencing conversion of herbaceous and shrub scrub areas to forested uplands. The trends evidenced in the land cover change highlight the continued intense development in the Merrimack and Salmon Falls areas and the subsequent demands on our water resources in those regions of the state.

Since 1995, there have been a total of 2,264 acres of regulated wetland loss and 300,781 feet of regulated stream impacts in New Hampshire. These practices throughout the state have led to adverse impacts to wetlands from permanent loss (filling and dredging), conversion, or degradation of functions. Development is a widespread threat for wetlands, wildlife habitat, and water storage and supply. Impacts to aquatic resources can be extensive, and even catastrophic, for some wetland-dependent species leading to local extirpation of sustainable populations of sensitive species (i.e., Blanding's and spotted turtles, and salt marsh birds; NHFG WAP 2020). Losing saltwater and freshwater marshes, scrub-shrub wetlands, and development of surrounding uplands, results in the loss of critical functions including wildlife habitat, flood storage, and nutrient transformation. Large forest blocks are being subdivided and remaining patches are highly fragmented, especially in southern and coastal New Hampshire. Thirty-four percent of New Hampshire's wetlands area is protected; however, the largest land protection is in Northern counties (e.g., Androscoggin headwaters) and percentages of land protected in Southern counties remain low. Approximately 6% of the state is identified as 100-year floodplain, yet only 21% of floodplain is currently protected or in public ownership (TNC and SPNHF 2014). Species also remain vulnerable, with nearly 74% of wetlands in the Granite State on unprotected land.

Historic conversion of riparian areas along large rivers for agriculture led to significant losses of floodplain wetlands and their important flood storage, nutrient attenuation, and wildlife habitat functions. While there is much opportunity for floodplain restoration in these agricultural areas, agricultural lands are a limited landscape feature and greater pressure from human development threatens the loss of these productive soils and farms. Land use patterns demonstrate a trend of less agricultural lands remaining productive and viable and increased conversion of NH forests, agricultural sites, and aquatic resources for conversation for infrastructure access and improvements and development. Figure 7 summarizes the impacts based on project type. Most of the impacts permitted in 2021 were for road access, including bridge and stream crossings (25.6%) followed by lot development, including commercial and residential development (24.6%).

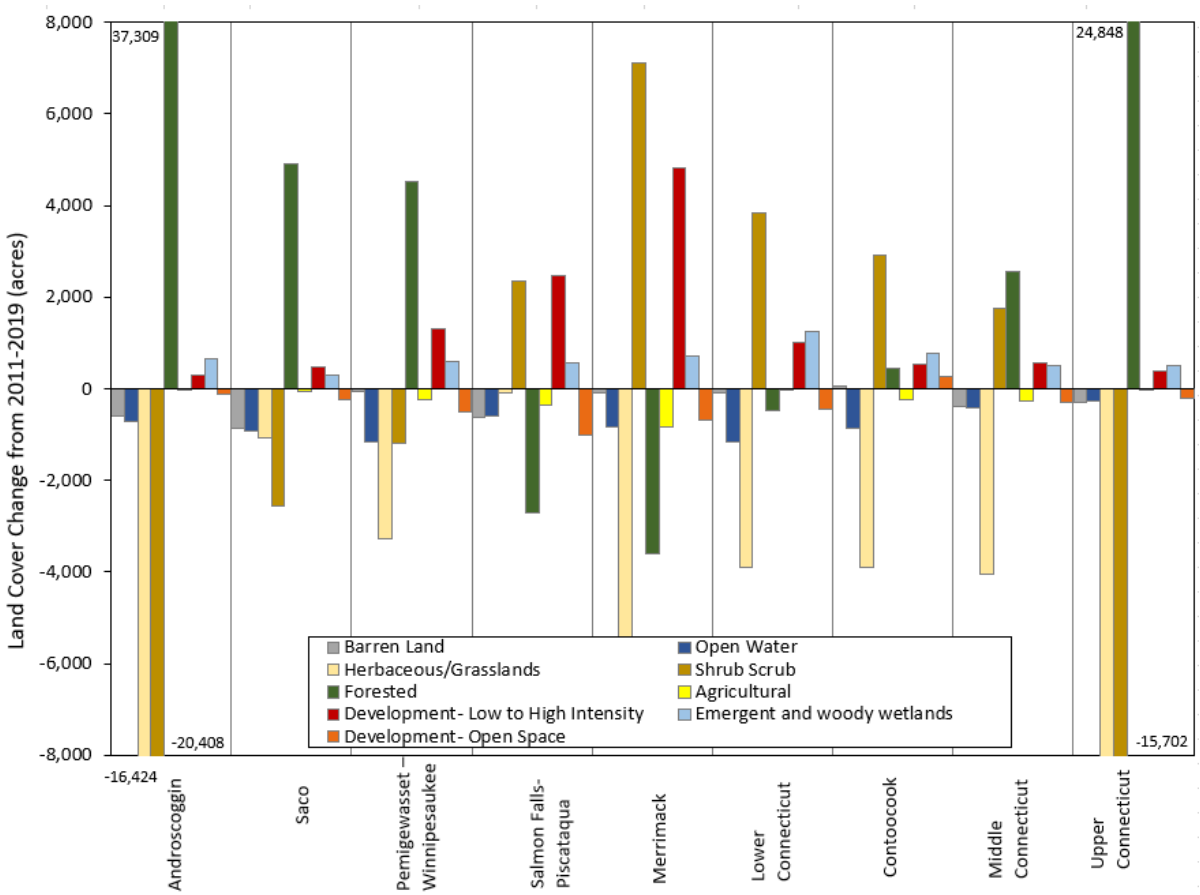


Figure 6. Classification based on NLCD land cover; change in land cover types from 2011 to 2019 by service area (NLCD, 2019).

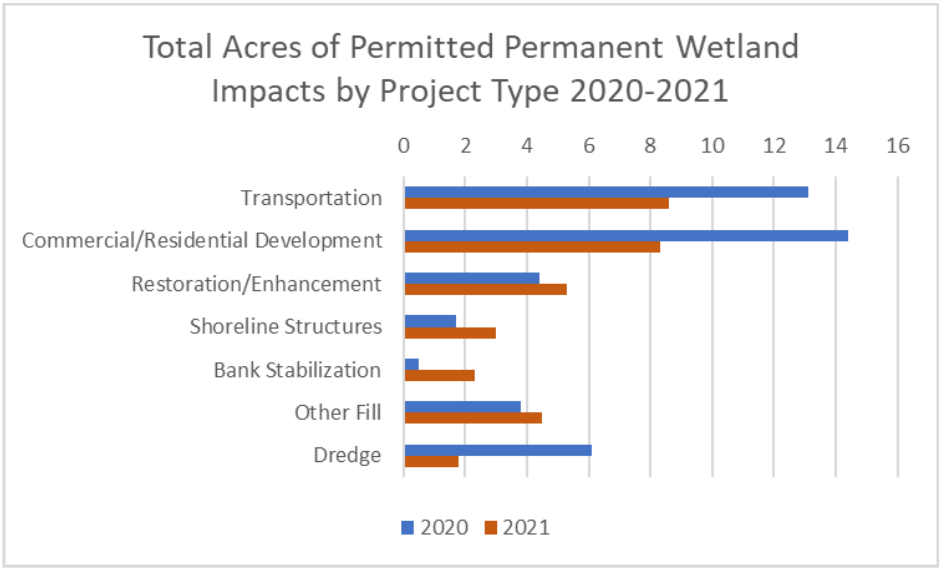


Figure 7. Permitted permanent wetland impacts by project type in New Hampshire 2020-2021 (NHDES Wetlands Bureau Annual Report to U.S. EPA Region 1 for Calendar Year 2021)

Table 6. New Hampshire land cover conversion matrix (acres). Classification based on NLCD land cover; change in land cover types from 2011 to 2019 by service area (NLCD, 2019).

		2019														
	Land Cover Types		Wetland		Upland Forests			Other Uplands			Agriculture		Development			
		Open Water	Emergent	Woody	Deciduous	Evergreen	Mixed	Shrub-Scrub	Herbaceous	Barren Land	Hay/Pasture	Crops	Open Space	Low	Medium	High
2011	Open Water	196,024	6,202	1,043	26	1,538	69	63	327	52	2	1	18	9	7	5
	Wetland: Emergent	854	28,250	7,041	5	6	6	10	21	4	11	3	27	26	7	2
	Wetland: Woody	713	3,721	377,067	2	2	2	14	10	11	16	0	186	72	31	9
	Forest: Deciduous	28	16	19	1,239,041	100	1,631	26,416	8,197	508	579	2	961	562	430	157
	Forest: Evergreen	357	64	48	80	1,093,261	667	18,493	8,251	515	91	3	669	518	356	113
	Forest: Mixed	72	20	29	373	377	1,876,242	24,253	10,874	576	267	1	1,215	427	264	79
	Other Uplands: Scrub-Shrub	16	22	18	47,561	8,944	63,656	28,773	1114	93	213	20	69	52	38	22
	Other Uplands: Herbaceous	130	95	24	13,193	5,278	31,326	29,397	16,332	1,449	554	96	246	279	213	92
	Other Uplands: Barren Land	260	31	17	95	109	530	572	4,661	17,264	11	0	36	115	139	110
	Agriculture: Hay/Pasture	8	175	87	354	63	511	765	295	485	165,518	232	382	331	171	69
	Agriculture: Crops	3	11	4	7	4	12	12	6	59	166	14,802	6	18	15	9
	Development: Open Space	0	0	0	0	0	0	0	0	0	0	0	224,441	2,177	4,575	346
	Development: Low	0	0	0	0	0	0	0	0	1	0	0	0	171,311	1,656	1,026
	Development: Medium	0	0	0	0	0	0	0	1	4	0	0	0	0	105,390	144
	Development: High	0	0	0	0	0	0	0	0	1	0	0	0	0	0	30,627
	Total	**198,465**	**38,608**	**385,396**	**1,300,736**	**1,109,683**	**1,974,652**	**128,767**	**50,089**	**21,023**	**167,427**	**15,160**	**228,255**	**175,896**	**113,293**	**32,812**

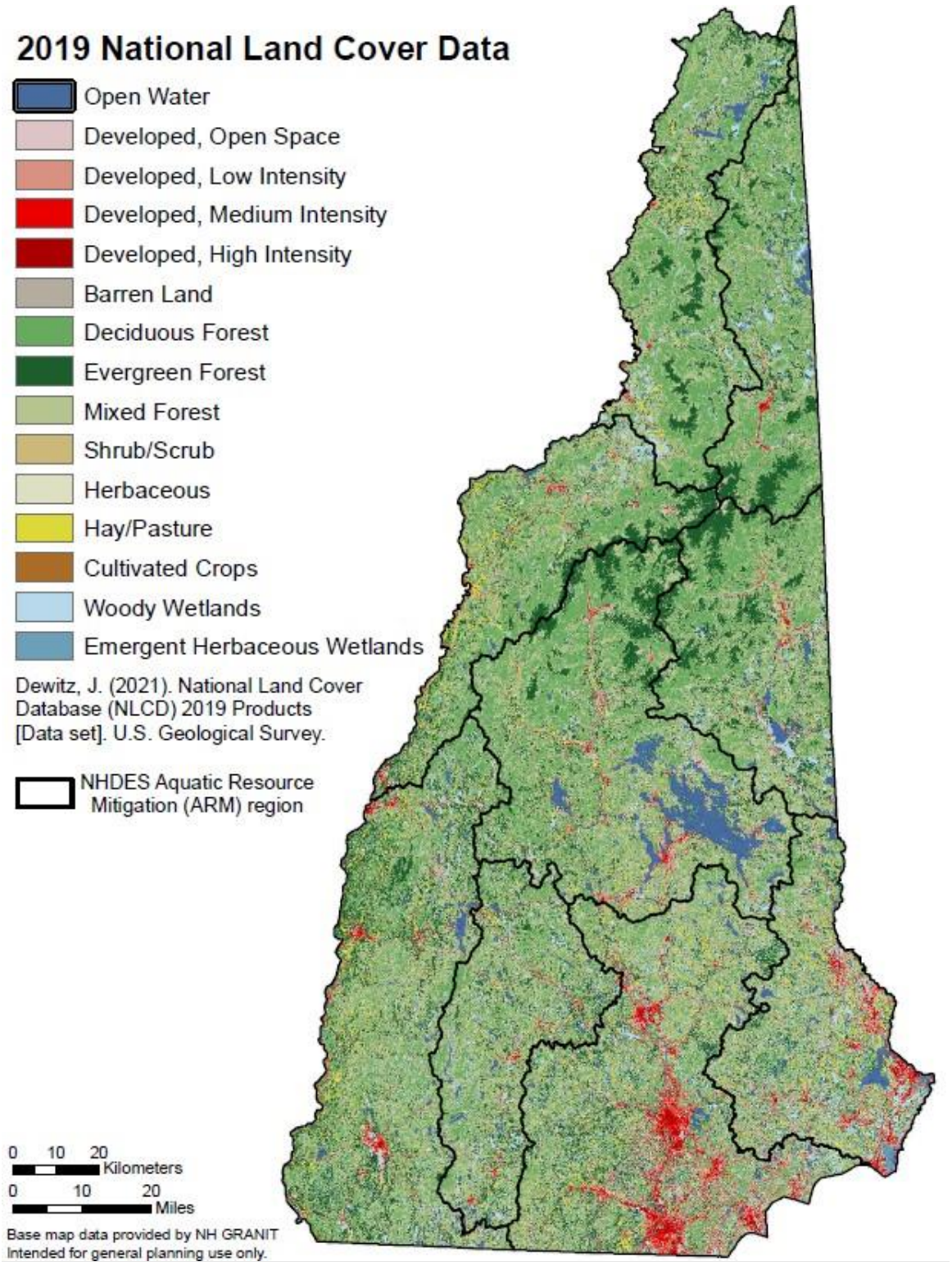


Figure 8. Map of New Hampshire land cover types based on the National Land Cover Dataset.

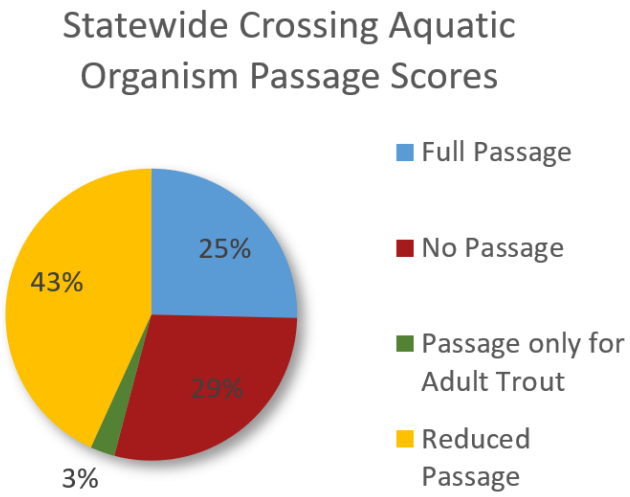
Fragmentation of Waterways — Dams and road crossings fragment aquatic networks and interrupt ecosystem processes including nutrient transfer, sediment transport, and aquatic organism passage (AOP). The scale of this problem is evidenced by the significant number of dams and culverts in New Hampshire; there are more than 5,000 dams and 22,000 road crossings statewide (Figure 11). Dams alter the hydrologic regime of a watershed, prevent sediment transport, alter plant communities and are barriers to fish and wildlife migrations. Anadromous and migratory coldwater fish are prevented from moving between habitats for critical life stages, such as natal rearing, spawning, and thermal refuge areas. Additionally, dams cut off terrestrial-aquatic linkages critical to maintaining the flooding regime of riparian and floodplain communities. Most of New Hampshire's dams were built during the Industrial Revolution in the 19th and early 20th centuries and played central roles in economic growth during that period. But as technological and societal needs have changed, so, too, has the need for some dams. Dam removal can result in significant environmental and social benefits and should be considered for dams that are obsolete, in disrepair, and blocking passage for anadromous and coldwater fisheries. The NHDES Dam Bureau has identified 14% of the state's dams as active hazards, and more than 20% as breached or in ruins (Table 7).

Table 7. Aquatic barrier data by service area.

	Dams			Road Crossings		
Service Area	**Total**	**Active Hazards**	**In Ruins or Breached**	**Total**	**AOP Barrier**	**Undersized**
Androscoggin	104	16 (15%)	47 (45%)	872	543 (62%)	591 (81%)
Contoocook	491	99 (20%)	112 (23%)	1,106	698 (63%)	797 (90%)
Lower Connecticut	964	137 (14%)	220 (23%)	1,920	1,431 (75%)	1,313 (89%)
Merrimack	1486	199 (13%)	298 (20%)	3,464	2,648 (76%)	2,632 (92%)
Middle Connecticut	317	51 (16%)	67 (21%)	845	586 (69%)	619 (85%)
Pemigewasset - Winnipesaukee	683	103 (15%)	157 (23%)	1,264	760 (60%)	759 (87%)
Saco River	190	21 (11%)	32 (17%)	654	343 (52%)	513 (82%)
Salmon Falls - Piscataqua	797	98 (12%)	121 (15%)	1,542	1,162 (75%)	993 (90%)
Upper Connecticut	213	30 (14%)	57 (27%)	11	8 (73%)	18 (90%)
Totals	**5245**	**754 (14%)**	**1111 (21%)**	**21714**	**8112 (75%)**	**8235 (88%)**

Deficient road crossings inhibit sediment transport, alter hydrology, accelerate erosion and scour, and block fish and wildlife passage. When a road crossing is undersized and incompatible with stream geomorphology, this leads to increases in water velocity, erosion, and scour that degrade aquatic habitats and water quality. Over time, the culvert will become perched above the streambed and block fish and wildlife movements, limiting their access to important breeding, nesting, and overwintering sites (Figure 10). The ability of aquatic organisms to have free passage through the stream network is critical to many species' life cycle events and the ecology of the aquatic community. In addition,

crossings that cannot accommodate storm flows are a flood hazard and are a public safety and infrastructure problem Replacing deficient road crossing with properly sized and designed crossing structures can offer numerous infrastructure and ecological benefits as well. Furthermore, surveys done by NHDES and partners under the New Hampshire Stream Crossing Initiative [New Hampshire Stream Crossing Initiative] show most road crossings are undersized for the channel bankfull flow and barriers to aquatic organism passage (AOP) (Table 7). As of 2021, approximately half of the road crossings in the state have been assessed for AOP and proper sizing, with 75% classified as a moderate to severe barrier to AOP (Figure 9) and 88% undersized.



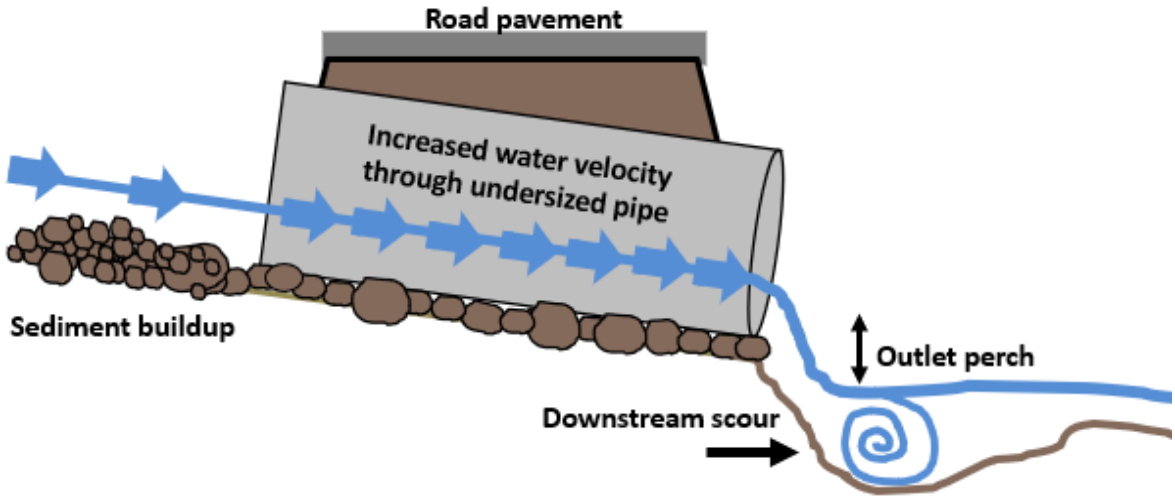


Figure 10. Illustration of an undersized culvert

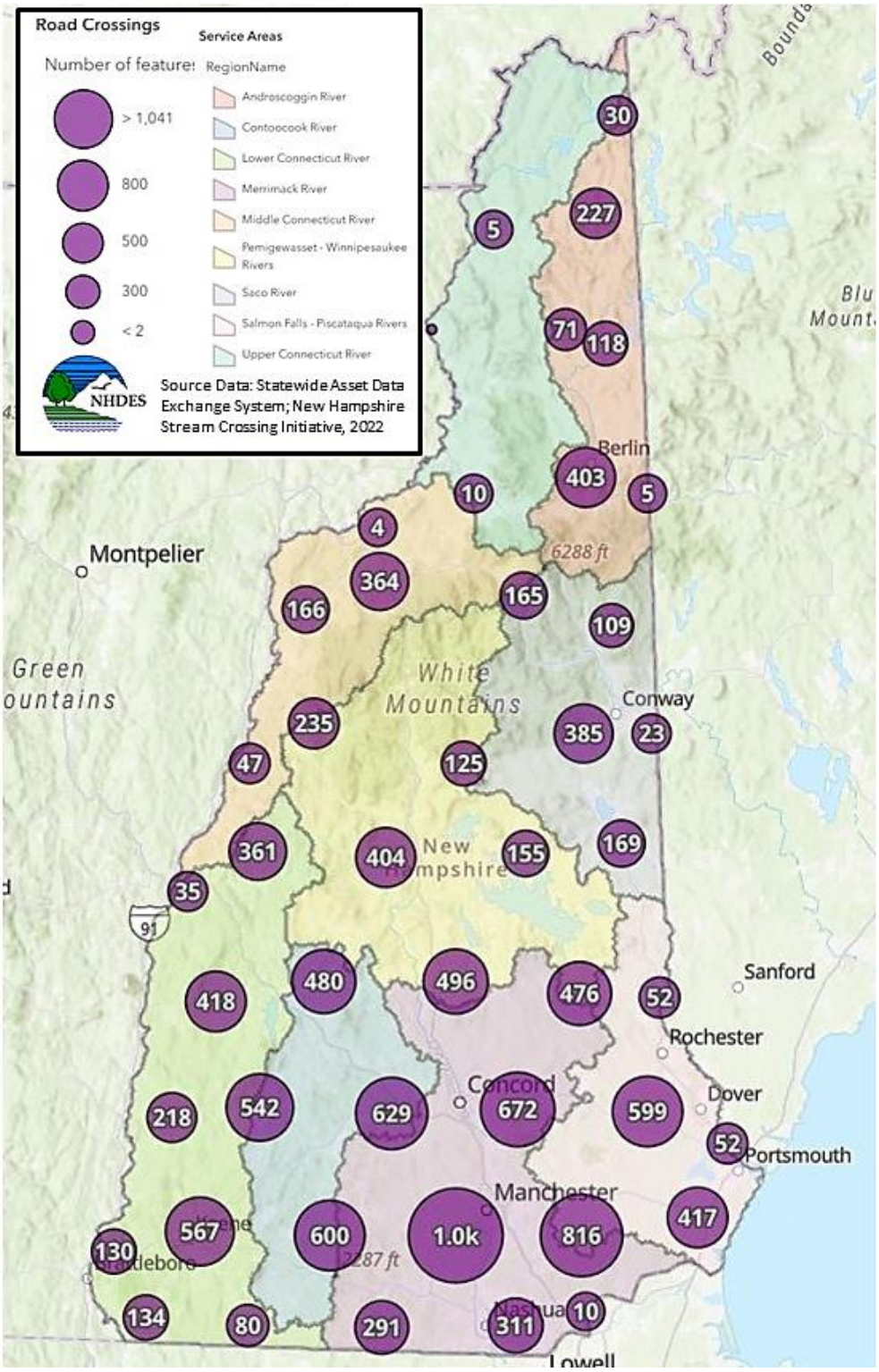


Figure 11. Map of road crossing locations in New Hampshire.

Invasive species — Invasive species are a threat to our aquatic ecosystems as they outcompete native species. The economic costs from invasive species also exceeds $100 billion annually in the United States. Invasive species are a serious threat to the health of New Hampshire's wetlands (Table 8). There are 28 nonnative invasive aquatic plants in New Hampshire with species such as *Phragmites australis* (Common Reed), *Phalaris arundinacea* (Reed Canary Grass), and *Lythrum salicaria* (Purple Loosestrife) causing the main problems. This displaces native vegetation, depletes the seed bank of native species, and can interfere with drainage systems and recreational activities. Common methods of management and removal include early detection by surveying areas where these species are most likely to grow, manual pulling of the invasive species, prescribed burning, repeated mowing, and applying herbicide. Purple Loosestrife is known to grow in recently disturbed areas, so it is essential that careful attention be paid to newly replaced culverts and the area that surrounds them for the invasive species.

Table 8. Common invasive species in New Hampshire and associated threats and management methods.

Common Name (*Species*)	Threats to Wetlands and Streams	Management Methods
Purple Loosestrife (*Lythrum salicaria)*	Overruns wetlands and displaces native wetland vegetation, no natural predators.	Early detection, manual pulling, spot application of herbicide, beetles *Galerucella calmariensis* and *G. pusilla*
Reed Canary Grass (*Phalaris arundinacea*)	Underground root system depletes native seed bank and grass density can outcompete native species in wetlands.	Covering patches for one growing season and then reseeding with native species, prescribed burns, hand-pulling, herbicide
Japanese Knotweed (*Reynoutria japonica*)	Dense thickets overrun native species in wetlands and stream riparian areas.	Cut stems and apply herbicide
Multiflora rose (*Rosa multiflora*)	Will form impenetrable thickets that prevent native plant species from establishing and thriving.	Frequent mowing, herbicide, plant-feeding wasp
Common Reed (*Phragmites australis*)	Dense growth will outcompete native species.	Manual pulling, repeated mowing, burning concentrated herbicides
Variable Milfoil (*Myriophyllum heterophyllum*)	Degrades water quality and threatens aquatic biodiversity.	Education about invasive species, cleaning boats before moving into a new body of water, hand-pulling, herbicide for aquatic species
Fanwort (*Cabomba caroliniana*)	Forms dense strands which clog drainage systems and interferes with recreational activities	Raking from pond, non-toxic dye that prevents sunlight penetration therefore plant growth, and aquatic herbicide
Common buckthorn (*Rhamnus cathartica*)	Dense thickets prevent native plants from establishing and thriving.	Concentrated burnings, uprooting of seedlings, and application of herbicide

Nutrient Enrichment and Pollution — New Hampshire is home to over 1,200 lakes and ponds, approximately 1,200 impoundments, nearly 17,000 miles of rivers and streams, and about 99 square miles of ocean and estuarine waters. Water is arguably the state's most valuable asset, integral to the health of aquatic organisms, wildlife, people and the economy. Stormwater runoff and excess nutrients account for 50% and 21%, respectively, of the impairments identified in the 2020/2022 water quality assessments. Major sources of non-point source pollution, which includes stormwater runoff and

nutrients, in New Hampshire include agriculture, developed land, hydrologic and habitat modification, lawn and turf management, winter road maintenance, and septic systems (New Hampshire Nonpoint Source Management Program Plan, 2019). Elevated nutrients in surface water can result in excessive algal growth, decreased light penetration, low concentrations of dissolved oxygen, and loss of desirable flora and fauna either through displacement or mortality (fish kills are among the most apparent losses). One of the most effective tools for combatting threats to water quality is the protection and enhancement of wetlands and vegetated upland buffers. Wetlands greatly influence the flow and quality of surface water by intercepting surface runoff and removing or retaining inorganic nutrients, reducing suspended sediments, and processing organic wastes before contaminated runoff reaches open water. Similarly, healthy upland buffers serve the function of filtering sediment, absorbing excess nutrients, and removing contaminants from stormwater runoff before it reaches wetlands and surface waters.

The NHDES Watershed Management Bureau monitors more than 2,000 stream sites, 2,500 lake sites and 640 marine sites, which includes over 180 water-quality and ecological parameters for the aquatic life integrity, recreation, potential drinking water supply, and fish & shellfish consumption designated uses. NHDES assessed over 21,000 parameter/designated use/waterbody combinations as part of the 2020/2022 assessment cycle. Of those, 2,717 were found to be impaired or threatened and require a TMDL (NHDES Section 305(b) Surface Water Quality Report, 2022). Figure 12 summarizes the distribution of impaired waterbodies between the nine Service Areas recognized by the ARM program. The greatest acreage and percentage of lakes with water quality impairments is found within the Pemigewasset – Winnipesaukee Rivers Service Area, followed by the Lower Connecticut and Merrimack areas. The greatest cumulative miles of rivers and streams are located within the Lower Connecticut River, followed by the Merrimack and Pemigewasset – Winnipesaukee Rivers Service Areas (Figure 13). The Salmon Falls – Piscataqua River is the only service area to contain estuaries Currently 77% of the state's estuaries are impaired for water quality. In addition to increasing development pressure predicted for much of New Hampshire, the state is also seeing wetter and warmer weather, with a projected increase of 12-20% precipitation by the end of the century (New Hampshire Nonpoint Source Management Program Plan, 2019). The associated increases in runoff and pollution from these projections underscore the importance of strategies that build resiliency and protect our surface water resources. The preservation, restoration, enhancement, and creation of upland buffers and wetland systems is a highly effective tool for building water quality resiliency and treating impaired water bodies.

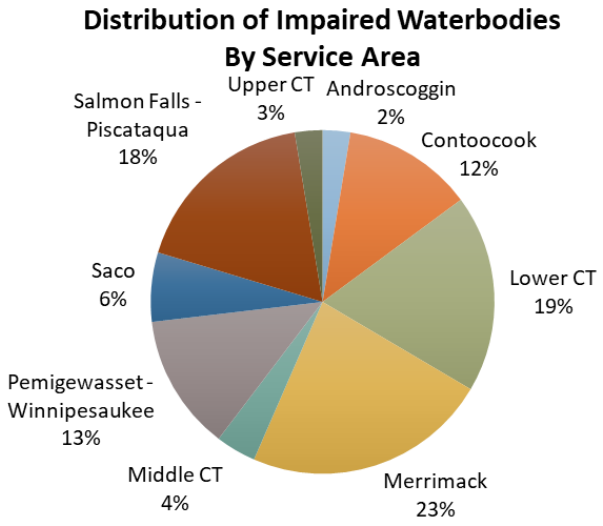


Figure 12. Distribution of Impaired Waterbodies by service area in terms of total number of impaired bodies.

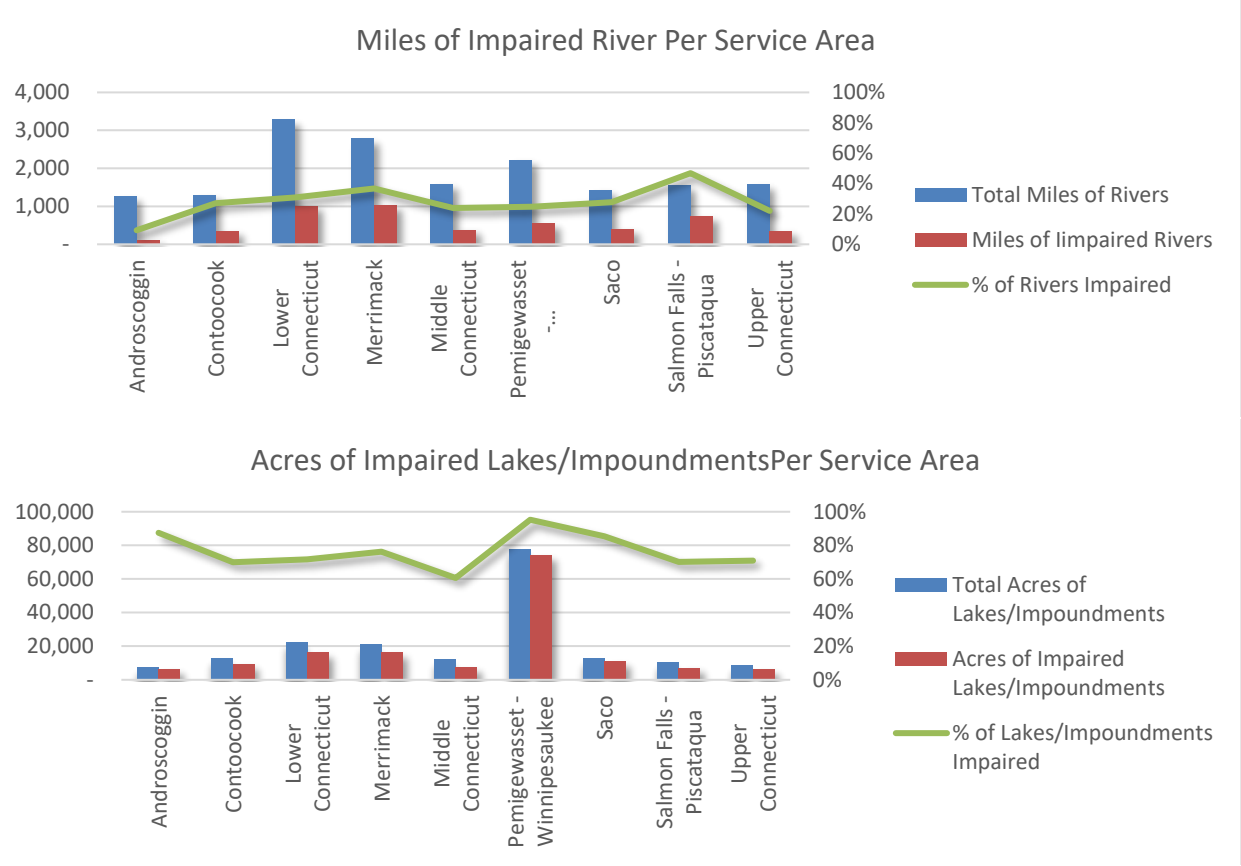


Figure 13. Impaired surface waters by service area in terms of total acreage or miles of impaired water bodies.

Climate Change, Coastal Hazards, and Risks – Increased concentrations of greenhouse gases, particularly carbon dioxide, from fossil fuels and urbanization of natural areas is changing the climate worldwide. Along with other states, particularly those situated along the coast, New Hampshire will face many challenges in coming years. Assuming global greenhouse gas concentrations stabilize by 2100, relative sea level rise in coastal New Hampshire is likely to rise by (NH Coastal Flood Risk Summary, UNH, August 2018):

- 0.5 – 1.3 feet by 2050 (but could exceed 2.9 feet)
- 1.0 – 2.9 feet by 2100 (but could exceed 8.7 feet)
- 1.2 – 4.6 feet by 2150 (but could exceed 18.1 feet)

There are many uncertainties surrounding the long-term severity of these changes, but broad consensus on the issue confirms that the region has experienced a three-degree Fahrenheit increase in average annual temperature since the early 20th century, with additional rising temperatures projected. Historically unprecedented warming is quite possible; extreme heat events are projected to increase, cold events are projected to become less intense, and higher temperatures are expected to increase the intensity of droughts (Runkle, et al., 2017). Frequent, and intense storm events, which increased significantly over the last 50+ years, will continue to increase based on projections. Sea levels are rising

and will continue to do so more rapidly, and groundwater will rise in low lying coastal areas in association with rising seas (Wake, et al., 2019) (Figure 14).

Restoring and conserving our most critical natural resources is more important than ever. As reported in the 2015 Wildlife Action Plan (WAP), sea-level rise will alter the function of coastal habitats such as salt marshes and estuaries, habitat availability, and the timing of nesting and migration for seabirds. Total habitat and species losses will likely be greater in developed areas where there is no space for natural habitats to retreat or migrate inland. Modeling results suggest that salt marshes will likely reach a tipping-point under the highest sea-level rise scenario, with 95 percent of salt marshes potentially disappearing by 2100 (New Hampshire Fish and Game Department's *Sea Level Affecting Marshes Model* 2014).

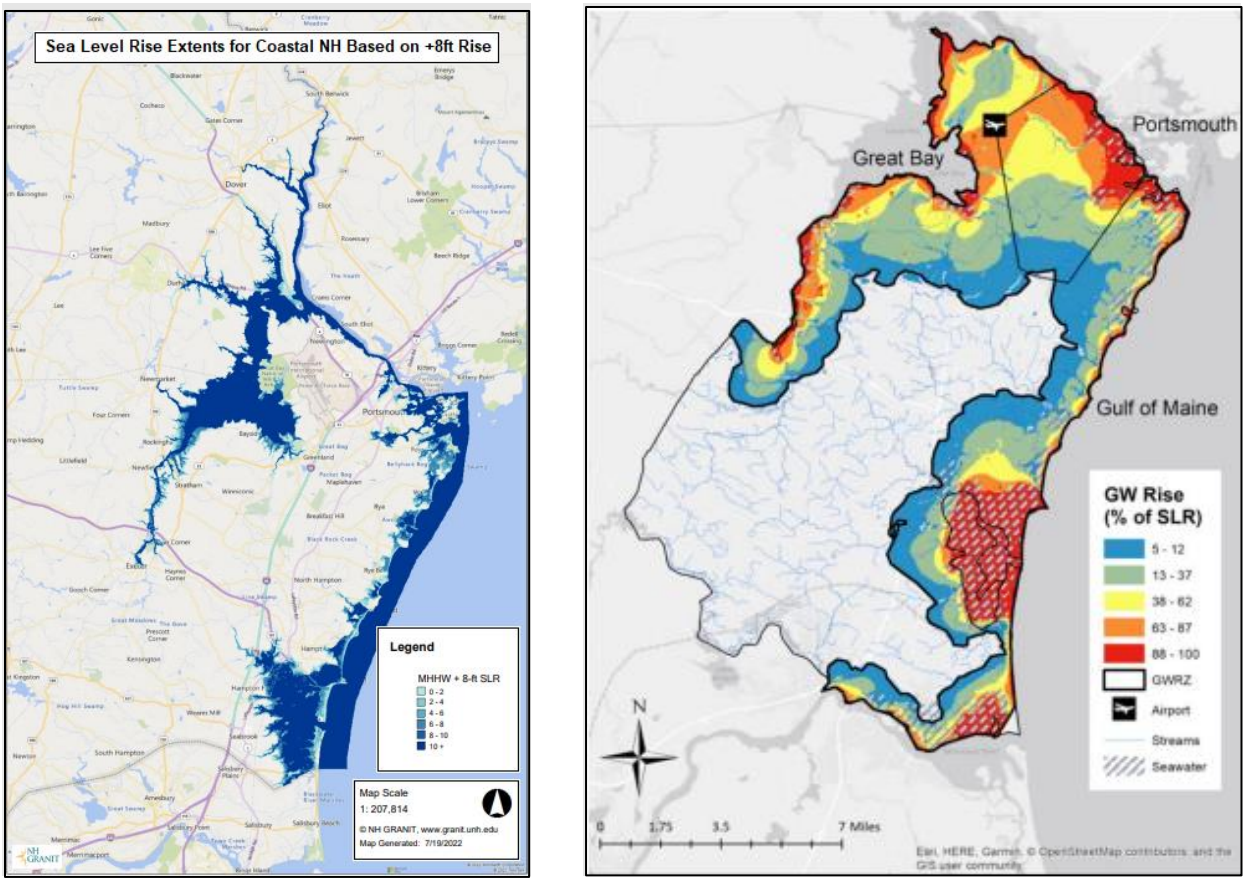


Figure 14. Maps of sea level rise (SLR). Left: SLR over Mean High Water (MHHW) based on 8-ft rise scenario. Right: Projected groundwater rise as a percent SLR in coastal NH (Modified from Knott et al. 2018)

- In addition to long-term sea-level rise, extreme storm events can pose significant risks to coastal systems by altering hydrology, sedimentation, and land forming processes. Coastal dune sediments will be driven inland by storm surges, and dune degradation will further exacerbate the impacts of storms. As dune systems migrate landward, they will compete with developed landscapes and, as a result, the remaining dunes could eventually be lost completely. Average groundwater levels are projected to rise as a percentage of Relative Sea Level Rise (RSLR) up to 3

miles inland from the coast (NH Coastal Flood Risk Summary, UNH, August 2018) (Figure 14):66% of RSLR between 0 – 0.6 miles from the coast

- 34% of RSLR between 0.6 – 1.2 miles from the coast
- 7% of RSLR between 1.9 – 2.5 miles from the coast
- 3% of RSLR between 2.5 – 3.1 miles from the coast

Extreme precipitation will change the temporal distribution of fresh water to river and estuarine systems. In the marine environment, freshwater pulses may impact the timing and abundance of algal blooms and influence which species can enter the estuary to breed or feed. This could lead to changes in freshwater wetland systems, an important habitat for many southern New Hampshire birds and amphibians. Increases in episodic water flow in floodplains may change the types of plants and animals that can live in and along our rivers. iii. Historic Loss and Degradation to Aquatic Resources

Since 1995, there has been a total of 2,264 acres of regulated wetland loss and 300,781 feet of regulated stream impacts in New Hampshire (Figure 16). The reported loss does not include impacts approved through permit by notifications and statutory permit by notifications. The most significant losses to wetlands occurred between 1995-2006, with a maximum of 194.5 acres of loss in 2002 due extensive expansion of NH Route 101 in the Salmon Falls-Piscataqua Service Area that resulted in 110 acres of palustrine wetland loss (Figure 17). Overall, the amount of wetland loss has declined in recent years (Figure 18), to an average of 42.6 acres between 2012-2021, compared with 86.8 acres between 1995-2001 and 96.9 acres between 2002-2011. The Merrimack (712.9 acres) and Salmon Falls-Piscataqua (665 acres) Service Areas experienced the greatest wetland loss, as these regions are undergoing the highest land conversion and development to accommodate population increases (Table 5).

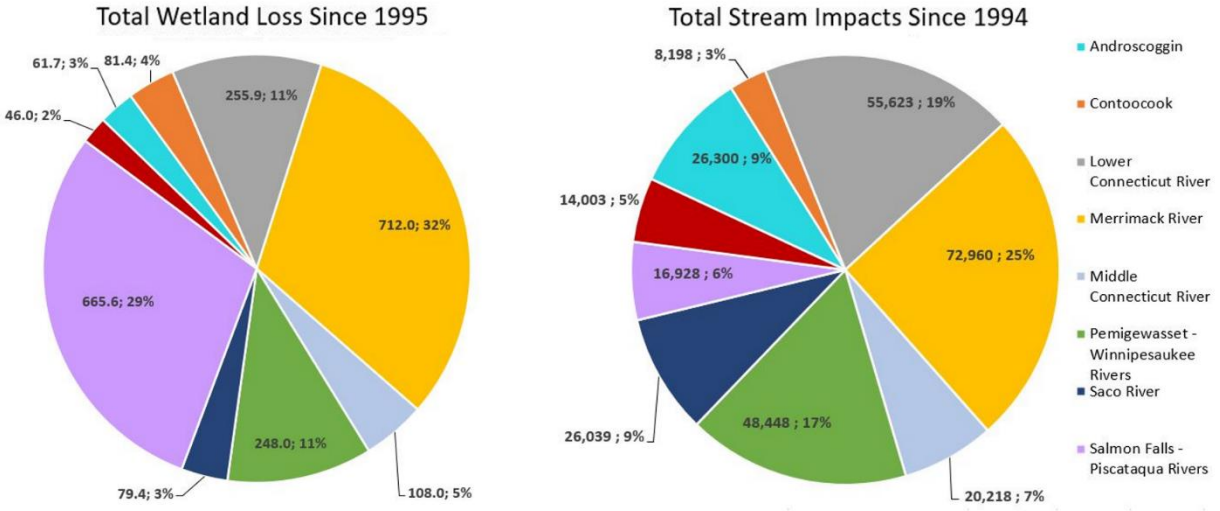


Figure 15. Total regulated wetland loss in acres (left) and stream impacts in linear feet (right) in New Hampshire since NHDES Wetlands Bureau began data tracking.

The most significant impacts to streams occurred between 1996-1998 and 2016-2019, with a maximum of 35,736 feet of channel and bank impacts in 2016 due extensive expansion of Interstate 93 in the Merrimack service area that resulted in 26,924 feet of stream impacts (Figure 18). Since 1995, the

Merrimack (72,960 feet) and Lower Connecticut (55,623 feet) Service Areas experienced the greatest stream impacts (Figure 15). The amount of stream impacts has declined in most recent years (2020 and 2021).

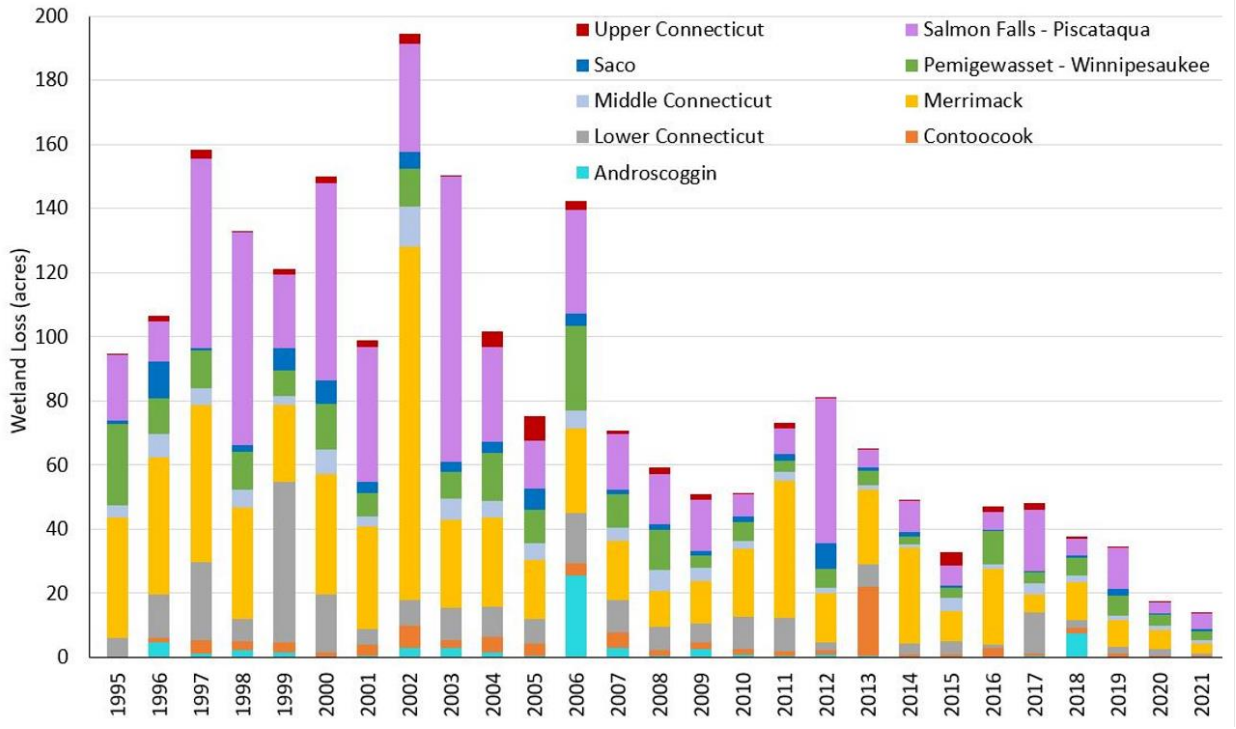


Figure 16. Acres of regulated wetland loss in New Hampshire by Service Area since 1995.

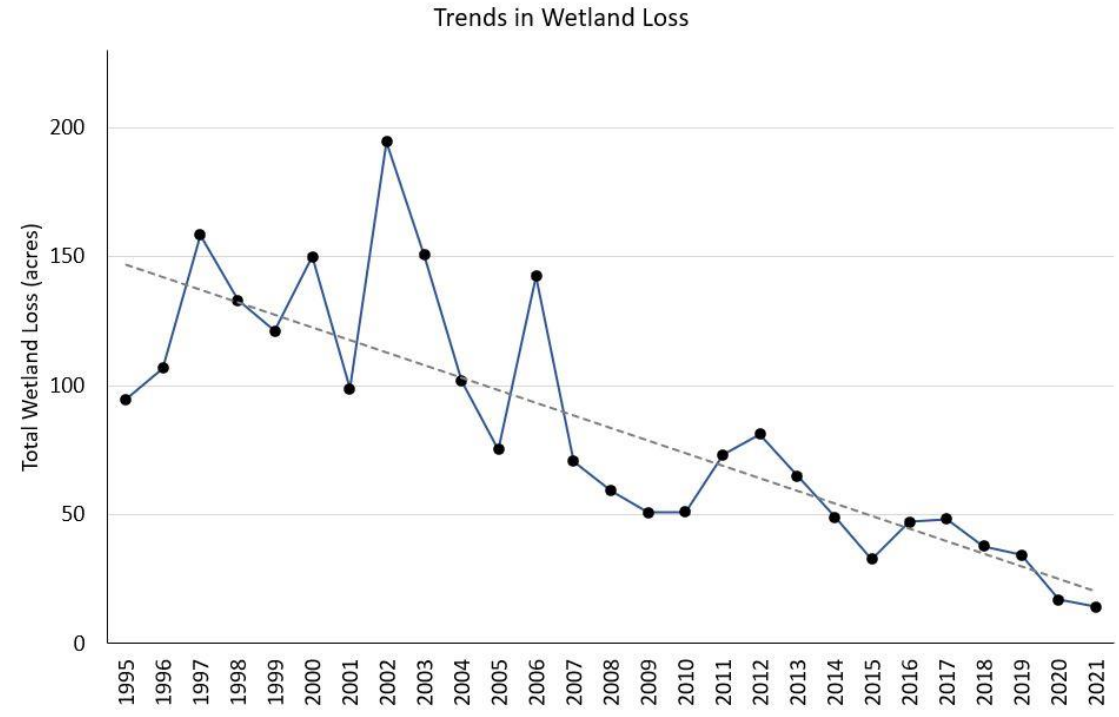


Figure 17. Total acres of regulated wetland loss in New Hampshire since 1995.

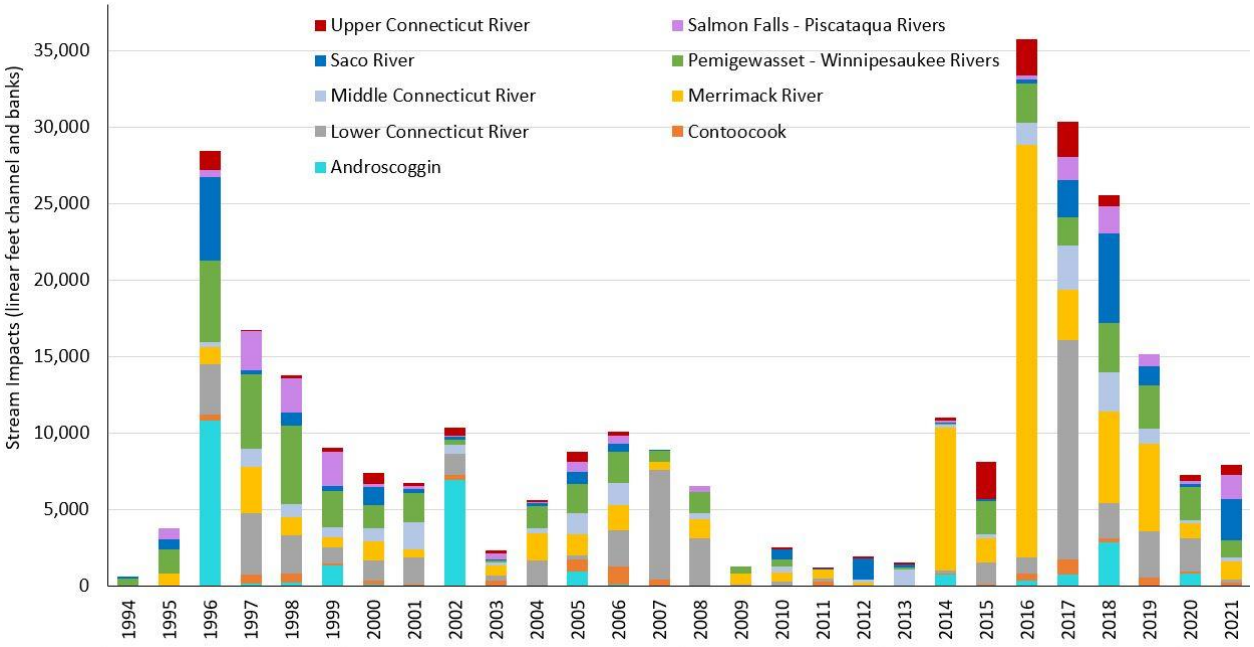


Figure 18. Linear feet of regulated stream impacts in New Hampshire by service area since 1990.

iv. Status of Current Conditions

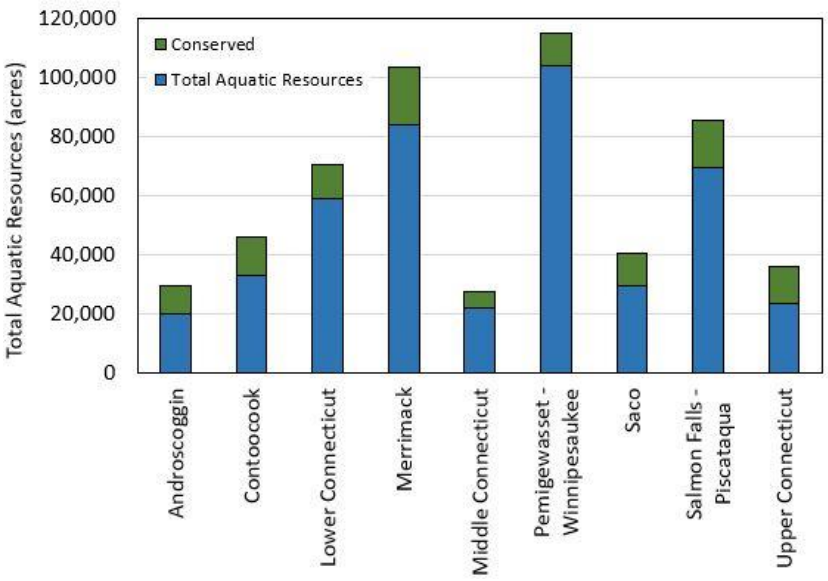


Figure 19. Proportion of statewide aquatic resources conserved by service area.

Summary of Aquatic Resource and Functions — There are an estimated 419,649 acres of wetlands and 134,099 acres of open water (L2), totaling 553,747 acres of aquatic resources under jurisdiction in New Hampshire (NWI, 2020). The most common wetland type across all nine service areas is Palustrine Forested and accounts for 29% (123,780 acres) of the wetlands in New Hampshire (Figure 20). Palustrine Scrub-shrub (21%) and Palustrine Emergent (14%) are also abundant wetland types within the state. With limited coastline in New Hampshire, there are only 17,061 linear feet and 747 acres of estuarine and marine wetland types, respectively, in the Salmon Falls-Piscataqua service area. Due to the prevalence of large lakes in the Pemigewasset - Winnipesaukee watersheds (Winnipesaukee, Newfound, and Squam Lakes), this service has the largest area of aquatic resources in the state. If Limnetic Lacustrine (open water) areas are excluded, however,

the Merrimack River service area leads the state in terms of largest area of wetlands with a total of 85,691 acres (Table 9).

Currently 110,192 acres (20%) of the state's total aquatic resources are under permanent land protection (Figure 19 and Table 9; UNH GRANIT, 2022). The Merrimack Service Area has the highest quantity of aquatic resources in conservation (18,852 acres) mostly due to the large landscape coverage in this area. The Upper Connecticut has the highest percentage (42%) of wetlands conserved mainly due to land holdings such as the White Mountain National Forest, Nash Stream Conservation Area, and Silvio O. Conte National Fish and Wildlife Refuge. In comparison, the Lower Connecticut only has 18% of its total wetlands protected. Overall, Palustrine Forested Wetlands is the non-tidal wetland type that has been protected in the highest amount (35,377 acres statewide), whereas Palustrine Unconsolidated Shore (9 acres) and Palustrine Unconsolidated Bottom have been the least protected (3,431 acres statewide).

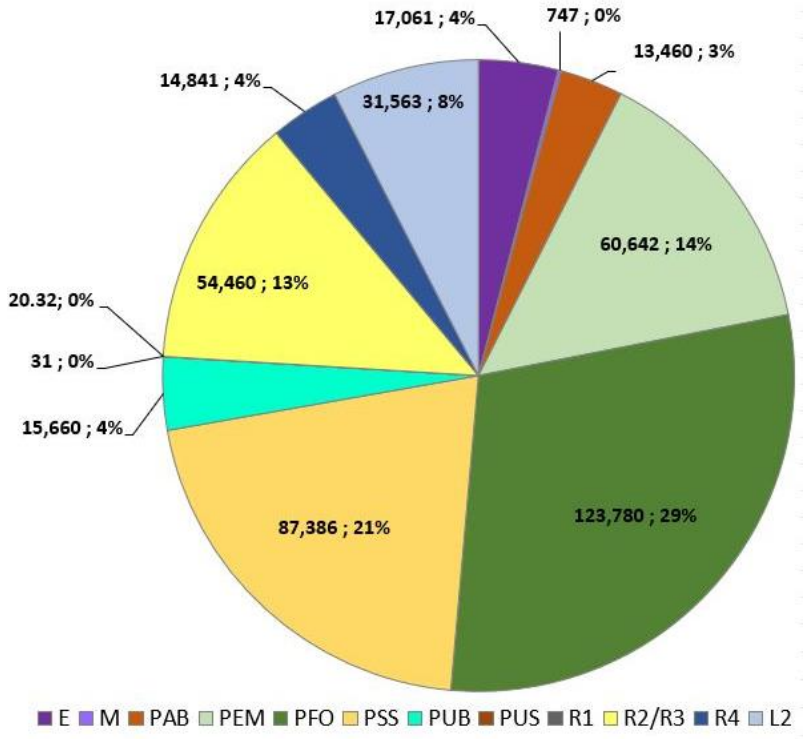


Figure 20. Percentages and acreage of wetland types in New Hampshire.

Table 9. Summary of wetland types by service area in acres. The percent currently in permanent conservation is noted in parentheses.

	Estuary	Marine	Palustrine Aquatic Bed	Palustrine Emergent	Palustrine Forested	Palustrine Scrub Shrub	Palustrine Unc-Bottom	Palustrine Unc-Shore	Tidal River	Perennial River	Intermittent River	Lacustrine Littoral	Total Wetlands	Lacustrine Limnetic	Total wetlands and open water
Androscoggin	0	0	167 *(45%)*	750 *(36%)*	6,674 *(48%)*	8,719 *(43%)*	437 *(28%)*	0	0	4,058 (28%)	1,086 (46%)	4,944 (13%)	**26,837 (36%)**	2,605 (3%)	**29,442 (33%)**
Contoocook	0	0	1,745 *(32%)*	8,157 (35%)	11,680 (34%)	6,203 (38%)	1,444 (27%)	1 (0%)	0	3,989 (26%)	1,230 (27%)	383 (66%)	**34,833 (34%)**	10,868 (10%)	**45,701 (28%)**
Lower Connecticut	0	0	1,540 *(28%)*	6,983 *(24%)*	16,207 *(21%)*	12,384 *(22%)*	2,237 *(21%)*	0	0	10,712 *(6%)*	2,700 *(17%)*	5,725 *(15%)*	**58,488 *(18%)***	12,079 *(6%)*	**70,568 *(16%)***
Merrimack	0	0	5,139 (27%)	20,193 *(25%)*	30,457 (21%)	11,756 (25%)	4,435 (14%)	24 *(29%)*	0	10,124 *(12%)*	2,204 *(14%)*	1,358 *(41%)*	**85,691 *(22%)***	17,868 *(5%)*	**103,559 *(19%)***
Middle Connecticut	0	0	334 (12%)	2,254 (25%)	3,911 (38%)	7,012 (25%)	893 (28%)	0	0	6,463 *(11%)*	1,364 *(38%)*	887 *(7%)*	**23,119 *(23%)***	4,181 *(6%)*	**27,300 *(21%)***
Pemigewasset - Winnipesaukee	0	0	764 (22%)	5,225 (21%)	11,605 (29%)	10,766 *(30%)*	2,001 (24%)	0	0	6,917 *(21%)*	2,515 (34%)	11,325 (3%)	**51,117 (21%)**	64,065 (.5%)	**115,182 (10%)**
Saco	0	0	449 *(20%)*	2,192 *(30%)*	10,009 *(38%)*	9,028 *(37%)*	1,173 *(30%)*	0	0	4,222 *(35%)*	1,299 *(61%)*	4,613 *(4%)*	**32,984 *(32%)***	7,404 *(3%)*	**40,388 *(27%)***
Salmon Falls - Piscataqua	17,061 *(9%)*	747 *(2%)*	2,934 *(34%)*	13,046 *(27%)*	26,382 *(22%)*	9,303 *(27%)*	2,312 *(22%)*	6 *(30%)*	20 *(0%)*	3,514 *(16%)*	963 *(14%)*	738 *(36%)*	**77,026 *(21%)***	8,529 *(4%)*	**85,555 *(19%)***
Upper Connecticut	0		387 *(32%)*	1,843 *(33%)*	6,855 *(54%)*	12,216 *(45%)*	729 *(33%)*	0	0	4,460 *(25%)*	1,478 *(54%)*	1,588 *(29%)*	**29,556 *(42%)***	6,499 *(1%)*	**36,055 *(35%)***
Total	**17,061**	**747**	**13,460**	**60,642**	**123,780**	**87,386**	**15,660**	**31**	**20**	**54,460**	**14,841**	**31,563**	**419,649 *(25%)***	**134,009**	**553,747 *(20%)***

Table 10. Summary of "high" and "moderate" wetland functions by service area (NWI Plus, 2020).

Service Area	Total Aquatic Resources	Nutrient Transformation		Surface Water Detention		Streamflow Maintenance		Sediment/Particulate Retention		Bank Shoreline Stabilization		Coastal Storm Surge	
		High	*Moderate*	*High*	*Moderate*	*High*	*Moderate*	*High*	*Moderate*	*High*	*Moderate*	*High*	*Moderate*
Androscoggin	**29,440**	16,488	993	3,034	12,432	2,205	1,820	6,587	4,914	12,595	2,090	0	0
Contoocook	**45,701**	27,506	521	17,203	11,636	4,749	13,428	17,362	7,871	19,221	3,638	0	0
Lower Connecticut	**70,568**	37,240	2,483	12,402	20,755	3,408	11,571	18,961	14,300	24,467	2,662	0	0
Merrimack	**103,558**	66,807	1,940	44,238	26,313	10,814	32,969	44,735	24,435	41,052	8,715	0	0
Middle Connecticut	**27,299**	13,133	1,133	2,899	9,938	1,960	2,352	5,985	5,609	9,339	2,001	0	0
Pemigewasset - Winnipesaukee	**115,182**	28,027	2,855	10,494	15,894	2,467	8,635	16,796	9,684	20,687	2,316	0	0
Saco	**40,389**	20,574	2,229	7,734	13,184	2,286	6,662	13,774	6,584	17,023	2,210	0	0
Salmon Falls - Piscataqua	**85,555**	60,791	1,038	30,622	22,296	17,471	18,573	40,424	23,015	36,868	14,603	12,846	5,727
Upper Connecticut	**36,055**	20,816	1,356	3,959	16,655	2,817	3,080	9,688	7,141	15,769	2,874	0	0
Total	**553,747**	**291,382**	**14,547**	**132,585**	**149,043**	**48,175**	**99,089**	**174,312**	**103,553**	**197,021**	**41,109**	**12,846**	**5,727**

The biological, physical, and geochemical processes that occur within wetlands, streams, and lakes provide important ecosystem services. Aquatic resources provide water purification and storage, fish and wildlife habitat, and flood control functions critical to human health. These functions vary across the landscape and by specific characteristics of a wetland, stream, or waterbody including landscape position, local geology, hydrology, watershed size, and plant communities. To enhance the utility of NWI data for better characterizing of wetlands and their functions, additional features have been added to the NWI data in New Hampshire (NWI Plus) to include hydrogeomorphic features to describe landscape position, landform, and water flow path and waterbody types. Nutrient transformation is identified as the most common function of New Hampshire's aquatic resources, with a total of 305,929 acres of which 53% are classified as "high" (Table 10 and Figure 21). The Merrimack Service Area has 66,807 acres of aquatic resources ranking "high" for nutrient transformation, whereas the Middle Connecticut only has 13,133 acres most likely reflective of the limited acres of wetlands in the region. Important functions to support flood resiliency are both surface water detention and streamflow maintenance; with a total of 132,585 acres and 149,043 acres of "high" and "moderate" functioning aquatic resources performing surface water detention and 48,175 acres of "high" and 99,098 acres of "moderate" functioning aquatic resources performing streamflow maintenance.

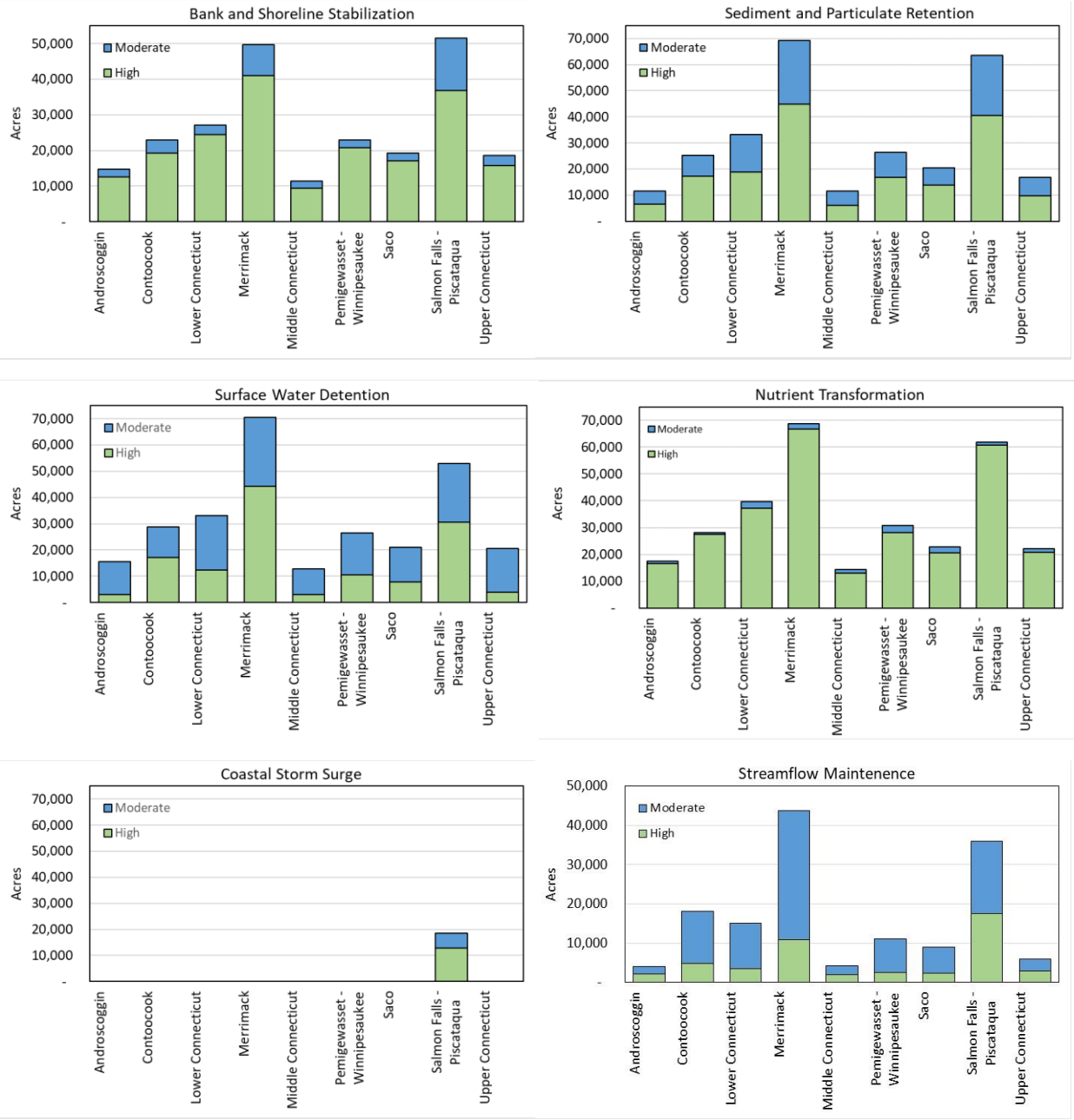


Figure 21. Areas of "high" and "moderate" wetland function by service area.

Status of Wildlife Habitat and Corridors — The New Hampshire Fish and Game Department (NHFG) Wildlife Action Plan (WAP) is the guide for conserving Species of Greatest Conservation Need (SGCN) and their habitats in New Hampshire based on the best available data, expert knowledge, and habitat models. High value habitats represent areas with known occurences of state and federally listed fish and widllife species, and important environmental conditions that support assemblages of species that are restricted to specific habitat types. The WAP identifies 169 SGCN, which represent a broad array of wildlife, and focuses on the 27 habitats that support these species, such as lowland spruce-fir forest, salt marsh, shrublands, warm water lakes and ponds, vernal pools, and many others (Figures 23 and 24).

There is a total of 1,398,238 acres of Highest Ranked Habiat in NH (Tier 1), which constitutes 24% of New Hampshire's land (Figure 22). The Pemigewasset -Winnipesaukee service area contains the most Tier 1 habitat (308,514 acres) which is attributed to Lake Winnipesaukee, large unfragmented land west of the Interstate 93 corridor, and portion of the White Mountain National Forest. Whereas the Middle Connecticut only has 89,097 acres. Currently 581,884 acres (42%) of Tier 1 habitat is permanently protected in New Hampshire (Table 11). There are 358,239 acres of wetlands that are classified as Tier 1, 53,994 acres that overlay Tier 2, and 60,602 acres that overlay Tier 3 habitats.

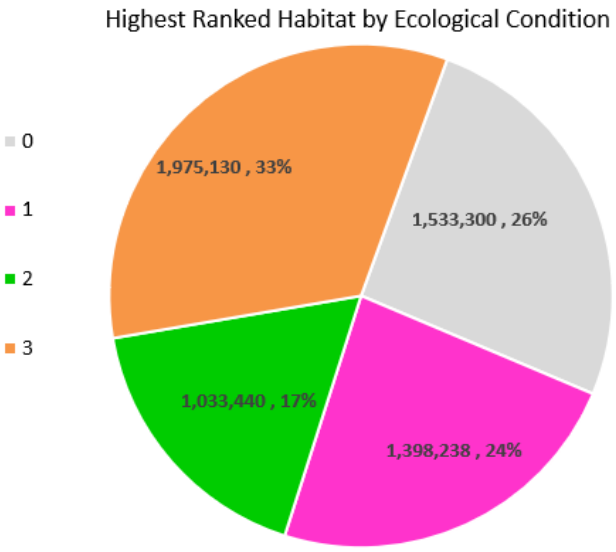


Figure 22. Highest ranked habitat in New Hampshire in acres

Table 11. Summary of NHFG WAP (2020) Habitat Tiers and the amount in conservation by service area..

Service Area	Wildlife Habitat Tier	Total	Protected	Wetlands within WAP Tier
Androscoggin	Tier 1	114,501	58,102 (51%)	22,056 (19%)
	Tier 2	127,508	65,602 (51%)	1,639 (1%)
	Tier 3	170,005	65,445 (39%)	2,383 (1%)
Saco	Tier 1	149,806	100,784 (67%)	19,018 (13%)
	Tier 2	105,753	74,423 (70%)	6,395 (6%)
	Tier 3	212,828	119,130 (56%)	7,214 (3%)
Pemigewasset - Winnipesaukee	Tier 1	308,514	105,313 (34%)	34,987 (11%)
	Tier 2	147,402	85,134 (58%)	7,030 (5%)
	Tier 3	313,647	108,219 (35%)	10,057 (3%)
Salmon Falls – Piscataqua	Tier 1	123,004	38,039 (31%)	45,655 (37%)
	Tier 2	84,146	17,786 (21%)	14,269 (17%)
	Tier 3	131,452	20,002 (15%)	13,158 (10%)
Merrimack	Tier 1	174,410	51,293 (29%)	14,292 (8%)
	Tier 2	154,356	31,882 (21%)	2,799 (2%)
	Tier 3	256,027	37,556 (15%)	3,222 (1%)
Lower Connecticut	Tier 1	192,368	49,638 (26%)	91,197 (47%)
	Tier 2	92,056	21,124 (23%)	5,870 (6%)
	Tier 3	349,151	62,773 (18%)	5,683 (2%)
Contoocook	Tier 1	108,947	42,588 (39%)	25,527 (23%)
	Tier 2	65,235	21,288 (33%)	3,323 (5%)
	Tier 3	178,715	47,861 (27%)	4,150 (2%)
Middle Connecticut	Tier 1	89,096	41,739 (47%)	52,788 (59%)
	Tier 2	105,123	54,199 (52%)	9,202 (9%)
	Tier 3	182,203	59,897 (33%)	8,051 (4%)
Upper Connecticut	Tier 1	137,586	94,383 (69%)	24,135 (18%)
	Tier 2	151,857	118,445 (78%)	3,467 (2%)
	Tier 3	181,097	86,095 (48%)	3,462 (2%)
Statewide Totals	Tier 1	1,398,238	581,884 (42%)	358,239 (26%)
	Tier 2	1,033,440	489,885 (47%)	53,994 (5%)
	Tier 3	1,975,130	606,983 (31%)	60,602 (3%)

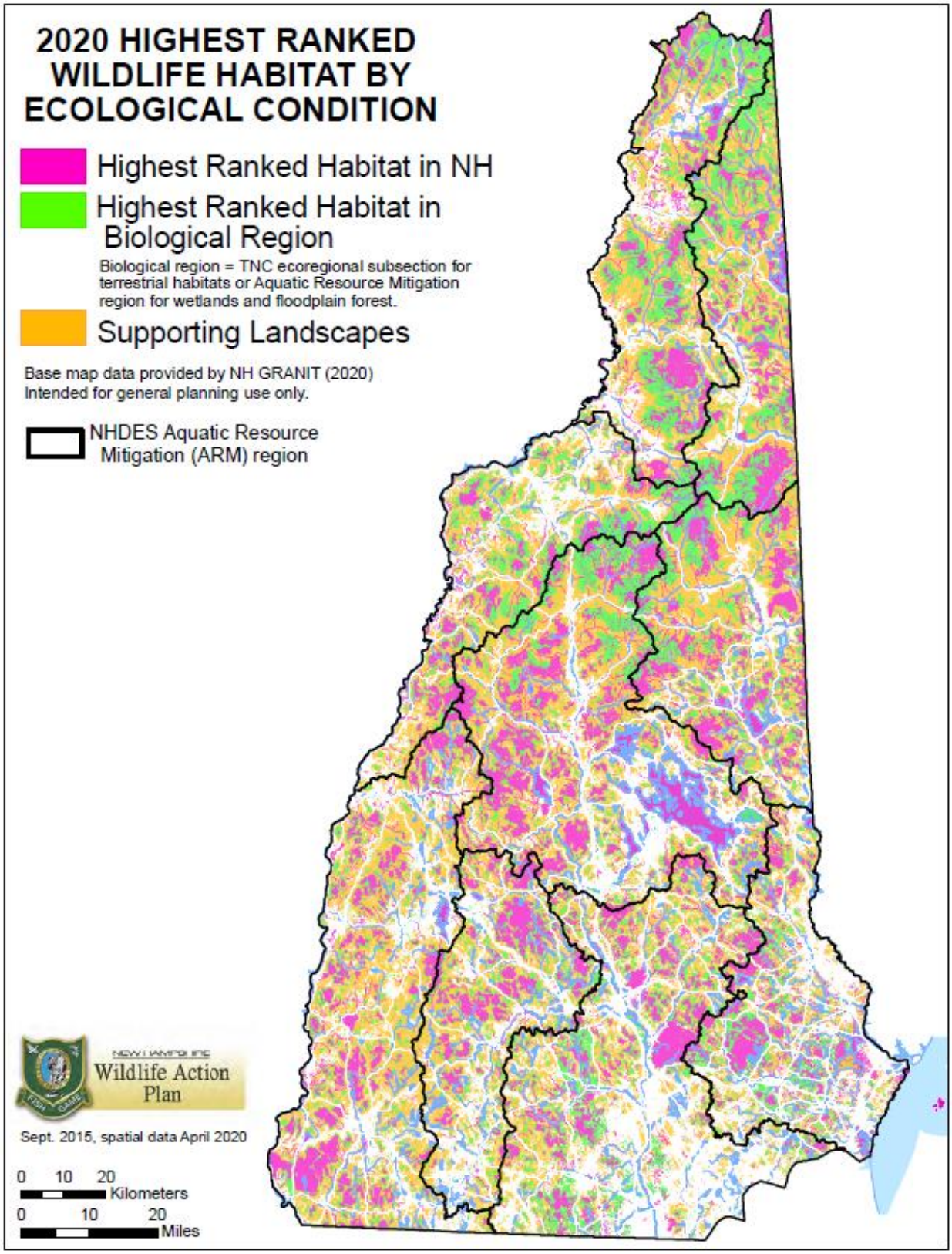


Figure 23. Map of highest ranked wildlife habitat by service area.

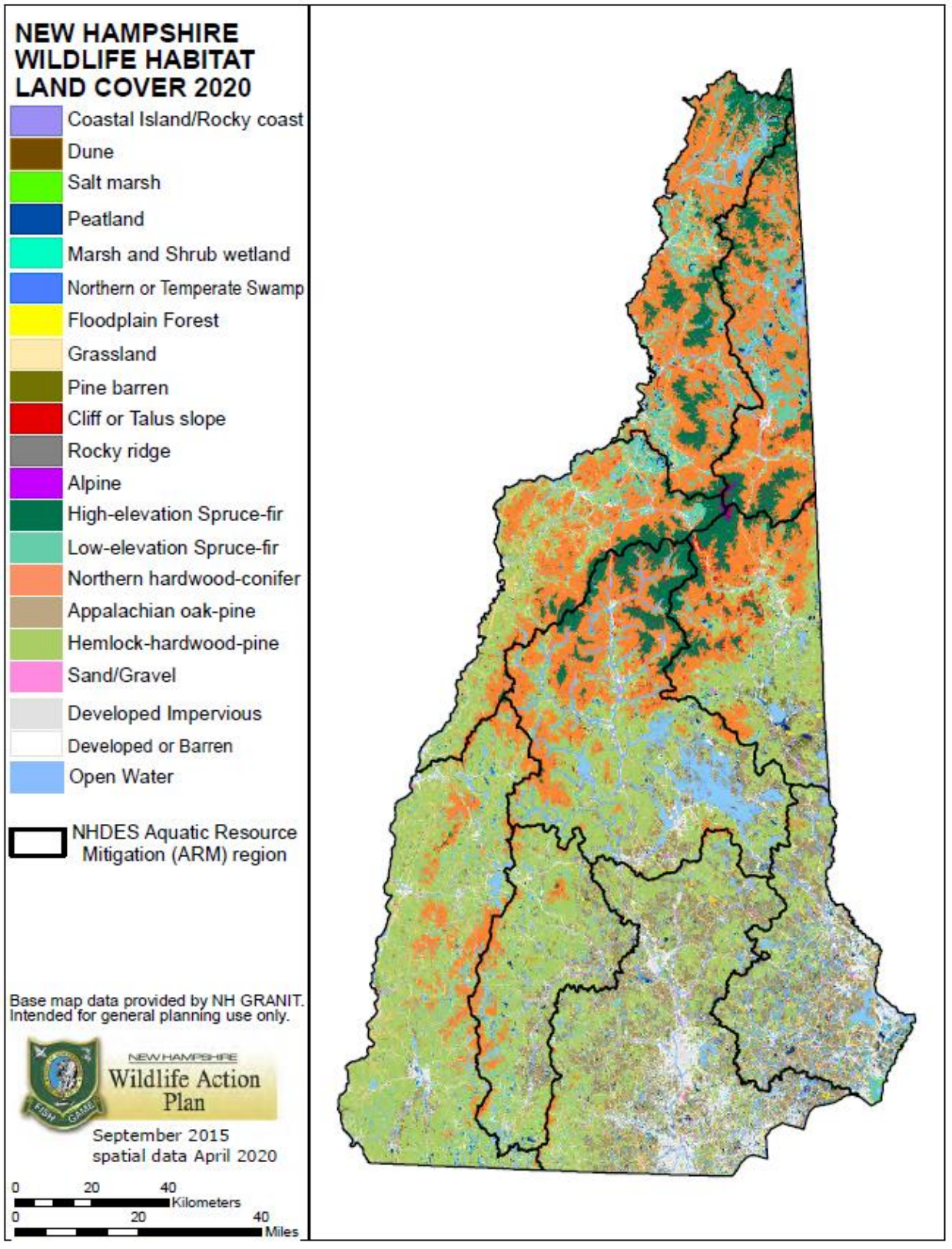


Figure 24. Map of wildlife habitat land cover in New Hampshire.

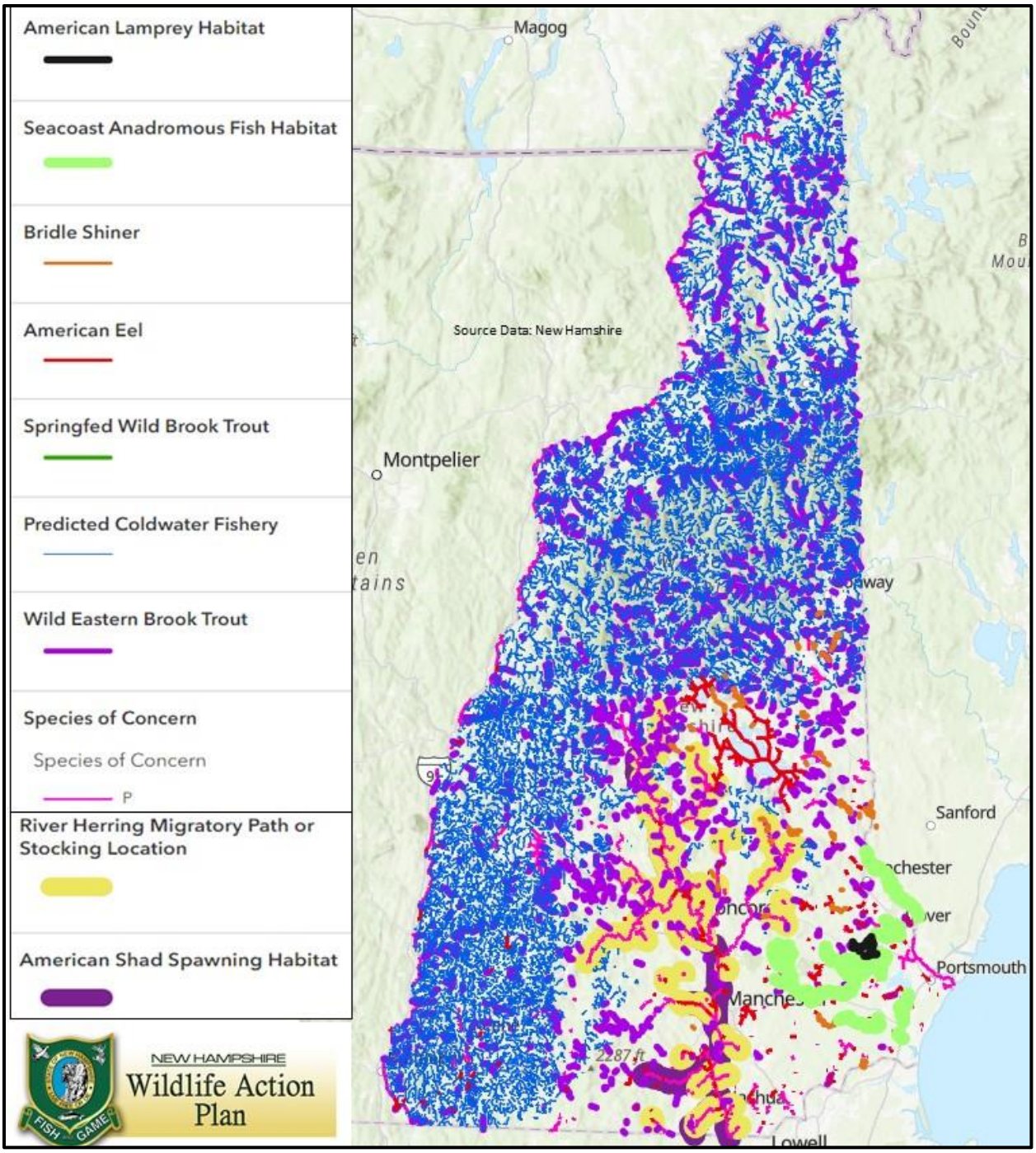


Figure 25. Map of aquatic species habitat distribution in New Hampshire.

Aquatic Habitats for Fisheries and Species of Concern – A detailed aquatic habitat data layer was developed in 2015 as a component of the WAP and it was updated in 2020. This data layer is a mapped classification of lakes, ponds, rivers, and streams based on variables that structure aquatic natural communities. The attributes of the Important Fish Habitat layer were updated in 2020 (Figure 25). Lakes and ponds with coldwater habitat are a limited resource in New Hampshire. They are critical habitat for several native coldwater fish species with restricted ranges in the state. Ponds and smaller lakes with marginal coldwater habitat are vulnerable to the effects of climate change, which may cause local extirpations of coldwater dependent species (Thill, 2014).

Coldwater river and stream habitat is largely intact in northern and western New Hampshire. The White Mountain region contains large networks of relatively pristine coldwater river and stream habitat. South of the Lakes Region and east of the Contoocook River watershed, coldwater river and stream habitat becomes increasingly dependent on abundant sources of groundwater to maintain cool temperatures and consistent flow during the summer. Coldwater stream habitat in southern New Hampshire is vulnerable to sprawling development pressure, which may alter the hydrology of some streams and push water temperatures above the threshold for supporting coldwater species (Table 12).

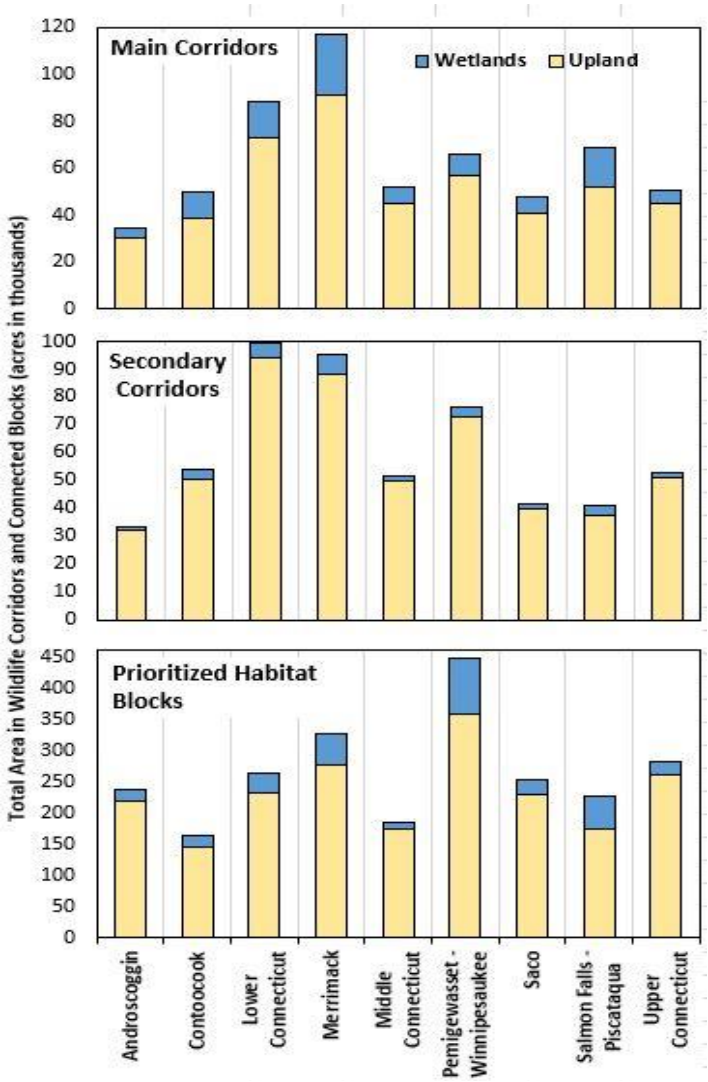
Table 12. Summary of NHFG Aquatic WAP habitat by service area in total stream miles.

Service Area	Species of Concern	American Brook Lamprey	Seacoast Anadromous Fish Habitat	Bridle Shiner	Wild Brook Trout	Herring Migratory or Stocking Loc.	American Shad	Coldwater Habitat
Androscoggin	193	0	0	0	189	0	0	1,141
Contoocook	212	0	0	0	114	57	0	756
Lower Connecticut	289	0	0	0	130	0	0	3,112
Merrimack	461	0	0	11	89	275	106	181
Middle Connecticut	243	13	108	0	171	0	0	1,487
Pemigewassett – Winnipesaukee	565	0	0	25	293	69	19	1,599
Saco	245	0	0	11	214	0	0	1,222
Salmon Falls – Piscataqua	303	0	0	34	501	0	0	79
Upper Connecticut	289	0	0	0	182	0	0	1,378
Total	**2,799**	**0**	**108**	**81**	**1,434**	**401**	**125**	**10,954**

Wildlife Corridors — All wildlife move to meet their needs such as finding food, reproducing, migrating between winter and summer habitats, and dispersing to a new territory. A wildlife corridor is a linkage that joins two or more areas of wildlife habitat, allowing for animal movement from one area to another (Chapter 207; General Provisions as to Fish and Game). Wildlife corridors are critical for the conservation of species in New Hampshire and their loss impacts populations by direct mortality, habitat fragmentation, gene flow between populations, and creating barriers to dispersal and migrations. At

greatest risk are slow-moving species (e.g., reptiles and amphibians), species that depend on high adult survivorship (e.g., turtle species), species that are long range dispersers (e.g., bobcats, American martens), and species with small, isolated populations (e.g., timber rattlesnakes). Large mammals crossing roadways (e.g., black bear, moose, and deer), although not likely to have population level impacts, cause safety concerns for motorists (NHFG Wildlife Corridors Report, 2018).

The NH Wildlife Connectivity Model is a GIS-based, landscape permeability model that predicts broad-scale wildlife connectivity zones across New Hampshire (Figure 26). The model classifies areas with >50 acre-blocks of WAP Tier 1 or Tier 2 WAP Habitat Rankings as "Prioritized Habitat Blocks" and predicts the dispersal behavior of a wide range of species including habitat specialists, habitat generalist, area-sensitive, and barrier sensitive species were all included to model the corridors. The model identifies key areas for land protection and strategic locations for restoring connectivity in fragmented landscapes.



There are 2,391,607 acres identified as Priority Habitat Blocks statewide, with 315,165 acres classified as wetlands (Figure 26). The Pemigewasset-Winnipesauke service area has the most priority habitat blocks (448,332 acres), with the majority (80%) in upland areas. The Merrimack service areas has a significant amount of primary (116,930 acres and secondary (acres) wildlife corridors, emphasizing the need for land protection of critical corridors in this highly fragmented and developing region of the state (Figure 27).

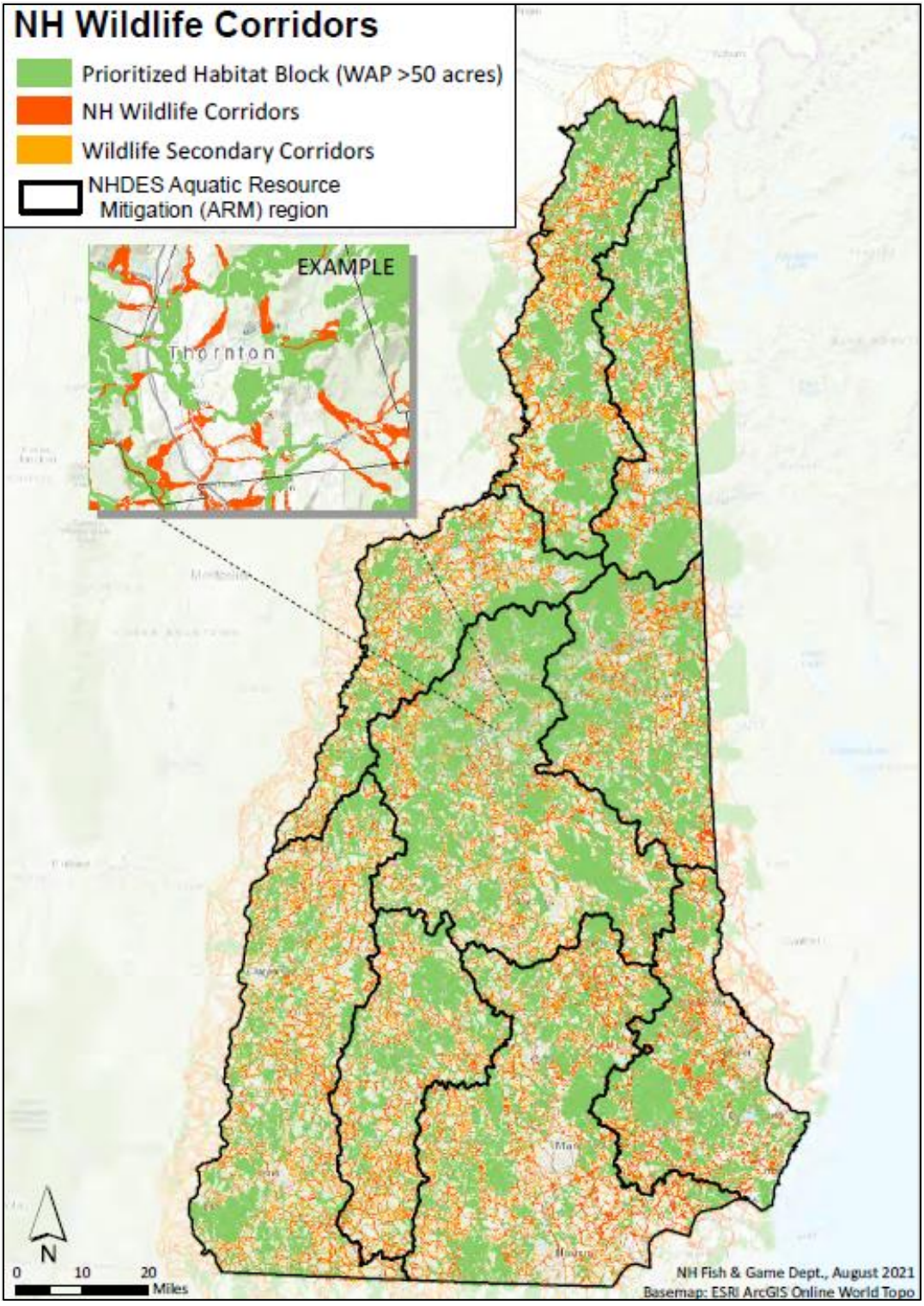


Figure 27. Map of wildlife corridors in New Hampshire.

Status of Source Water and Groundwater — Ensuring safe and adequate drinking water supplies requires maintaining the quality and availability of present and future water supply sources. New contaminants of concern continue to emerge, potentially requiring a costlier treatment of source waters if they have not been adequately protected. Municipalities and water suppliers have crucial roles in managing activities that affect source water quality and availability. Under New Hampshire state law, all groundwater is classified into one of four categories: GAA, GA1, GA2, and GB (Table 13) to establish protections to the groundwater resource area(s) that contribute to public water supply wells and high-value aquifers. Areas identified as GAA are the most sensitive areas immediately around public water supply wells, and state laws prohibit high-risk activities.

Table 13. Groundwater Classifications.

Groundwater Classifications	
Class	Description
GAA	• Delineated Wellhead Protection Areas • Prohibits new and monitors existing high risk uses (e.g., landfills) • Authorizes active management on local level
GA1	• Groundwater of high value for present or future drinking water • No land use prohibitions • Authorizes active management on local level
GA2	• Potentially valuable stratified drift aquifers defined by USGS • No land use prohibitions • No active management
GB	• All groundwater not assigned to a higher class • No land use prohibitions • No active management

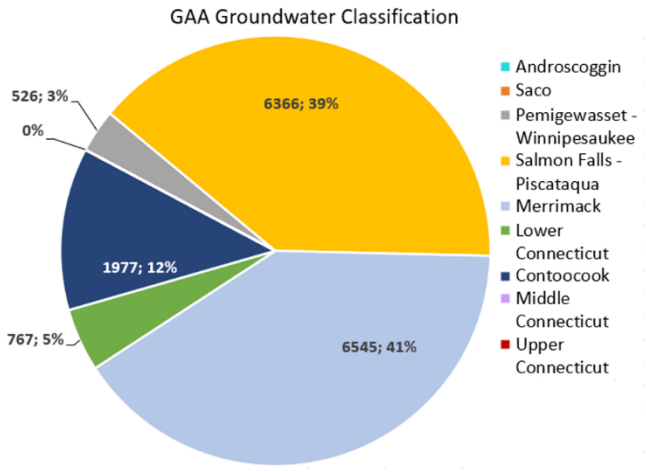


Figure 28. Distribution of GAA classified groundwater throughout the nine service areas.

There are 16,181 acres classified as GAA statewide, with the majority occurring within the Merrimack (6,545 acres) and Salmon Falls-Piscataqua (6,366 acres) service areas (Figure 28). Several service areas do not have any lands classified as GAA (Androscoggin, Saco, Pemigewasset – Winnipesaukee, Middle Connecticut, and Upper Connecticut). When combining all classification types, the greatest acreage of wetlands serving as groundwater resource areas are located within the Merrimack, followed by the Salmon Falls – Piscataqua (Figure 29).

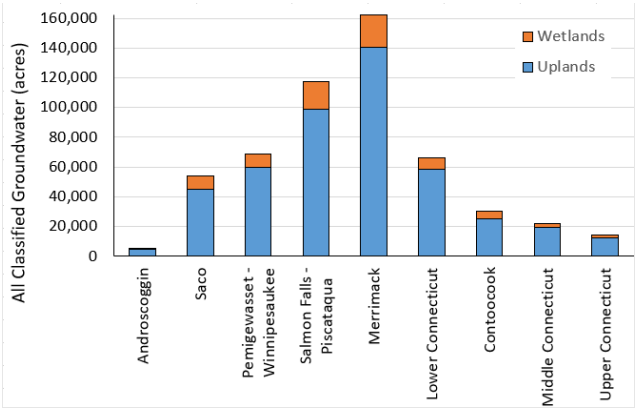


Figure 29. Total acres of wetland and upland groundwater sources by service area.

v. Goals and Objectives for Each Service Area

The primary goal of the Fund is to provide sustainable compensatory mitigation meeting national goal of "no net loss" of functions and values of waters and wetlands of the U.S. Since the ARM Fund was established in 2006, 289 NHDES Standard Dredge and Fill Wetlands Applicants have used this form of compensatory mitigation. These funds have been used to support projects that restore, enhance, and preserve aquatic resources and associated upland buffers. To date, a total of **$35,137,383** has been collected by the ARM Fund since 2006, which has funded 141 projects. The ARM Fund has been very successful and resulted in a total of 28,078 acres of land conservation, 4,047 acres of wetland protection, 422 vernal pools protected, 5 acres of tidal restoration/enhancement, and 66 miles of fish passage and aquatic connectivity improvements following the 2022 grant awards.

Despite the success of the ARM fund, New Hampshire is not meeting the goal of no net loss of wetland functions. Historically, ARM funding has focused on land preservation to protect aquatic resources and their buffers. Preservation reduces the threat of future impacts to our limited aquatic resources, but preservation alone does not replace the lost functions, values, or acreage. To address this discrepancy, AMR funds will target projects with a high likelihood of success to support significant restoration, enhancement, establishment, and, in some circumstances, preservation, at the larger landscape scale in watersheds that have sustained significant loss through wetland or stream permit decisions.

The following identifies the goals and objectives for each Service area to achieve compensation for historic loss, current permit trends and threats to aquatic resources.

Androscoggin

This area reports a relatively low loss of its wetlands since 1995 (3%) which is consistent with the limited development pressure in the northern regions of the state. The wetlands consist mainly of PFO and PSS areas and perennial streams that are associated with the Androscoggin River. The area has the second lowest number of wetlands within WAP habitats (21%) and has a high percentage of dams identified as active hazards, and more than 20% as breached or in ruins which is high compared to the other service areas.

- Fund dam removal and culvert upgrades that will reconnect aquatic habitats for brook trout and coldwater fisheries, with emphasis on coldwater tributaries that provide thermal refugia from warmer water in the summer months due to climate change.
- Identify waterbodies with low levels of existing protection or limited vegetated buffer as targets for conservation efforts and enhancement to increase water quality protection.
- When appropriate, target preservation to focus on wetlands and streams, and their upland forested buffers that perform high functions for surface water detention, sediment and particulate retention, streamflow maintenance, and nutrient transformation to support water quality, provided the site meets the conditions of the federal mitigation rule in 33 CFR 323(h)(105).
- Identify restoration opportunities to compensate for functions and values lost within service area

- Increase forested buffers surrounding aquatic resources to 250' feet for land protection projects to limit forest management, agriculture, and recreational practices within these areas.

Pemigewasset – Winnipesaukee

This area has a prevalence of large lakes (Winnipesaukee, Newfound, and Squam Lakes), which defines it as having the highest total amount of aquatic resource acreage in the state. With the high amount of surface water, it also reports the highest acres of impaired lakes in the state. The area has a low total quantity of wetlands in conservation 19% and this is further reduced as large lakes are waters of the state and not recognized for additional protections.

- Fund dam removal and culvert upgrades that will reconnect aquatic habitats for brook trout and coldwater fisheries, with emphasis on coldwater tributaries that provide thermal refugia from warmer water in the summer months due to climate change.
- Fund dam removal and culvert upgrades that will restore passage for anadromous river herring, and American eel, bridle shiner, and other species of concern.
- Identify perennial tributaries with low levels of existing protection or limited vegetated buffer as targets for conservation efforts and enhancement to increase water quality protection.
- Focus land protection on areas that lie within or connect large contiguous blocks of land surrounding areas of heavy development in the Lakes Region and/or under high threat of development due to increase tourism and recreational pressure.
- When appropriate, target preservation to focus on Tier 1 and Tier 2 WAP habitat, wetlands and streams, and their upland forested buffers, that perform high functions for surface water detention, sediment and particulate retention, streamflow maintenance, and nutrient transformation to support water quality, provided the site meets the conditions of the federal mitigation rule in 33 CFR 323(h)(105).
- Increase forested buffers surrounding aquatic resources to 250' feet for land protection projects to limit forest management, agriculture, and recreational practices within these areas.
- Identify restoration opportunities to compensate for functions and values lost within service area.

Salmon Falls – Piscataqua

This area has experienced 665 acres of wetland loss since 1995, due to the high levels of land conversion and development pressure. The greatest quantity of aquatic resources that rank "high" in function are nutrient transformation, sediment/particulate retention, and bank/shoreline stabilization. The area consists of 747 acres of estuarine and marine wetland types, respectively, and has the highest amount of stream miles important to wild brook trout (501 miles). Although the area has the second highest amount of wetlands within WAP tier habitats that are protected (64%), it has the lowest total quantity of aquatic resources in conservation (21%). In terms of stream barriers, the area has the third highest number of total dams, crossings that are a barrier to AOP and number of undersized structures.

- Target wetlands that have high sediment-nutrient-pollutant retention functions in watersheds that drain into the Great Bay estuary to reduce nitrogen and phosphorous inputs to improve water quality and support biological integrity of the estuary.
- Increase forested buffers surrounding aquatic resources to 250' feet for land protection projects to limit forest management, agriculture, and recreational practices within these areas.
- Remove hard bank armoring and replace with living shorelines in areas subject to shoreline erosion and salt marsh loss.
- Fund dam removal and culvert upgrades that will restore passage for seacoast anadromous fish including American brook lamprey and American eel and other species of concern.
- Focus land protection on areas that lie within or connect large contiguous blocks of land to support a resilient landscape amidst rapid suburban and urban sprawl, provided the site meets the conditions of the federal mitigation rule in 33 CFR 323(h)(105).
- Protect uplands adjacent to estuary wetlands to accommodate marsh migration from SLR.
- Prioritize areas for restoration and protection of flood storage.
- Identify restoration opportunities to compensate for functions and values lost within service area.
- Identify opportunities for restoration of wetlands and stream systems that provide water quality improvement functions.

Saco

The wetlands in this area consist mainly of PFO and PSS areas and perennial and intermittent streams that are associated with major tributaries that flow to the Atlantic Ocean. It has the second highest amount of stream miles important to wild brook trout (214 miles), and 1,222 miles of cold-water habitat. The Saco has the fourth lowest number of wetlands within NH Fish & Game Wildlife Action Plan (WAP) tiers that are protected (22%).

- Identify areas for restoration and enhancement within Tier 3 landscape locations near Tier 1 and 2 areas to improve wetland and stream functions.
- Identify restoration opportunities to compensate for functions and values lost within the service area.
- Target restoration and preservation to focus on wetlands and streams, and their upland forested buffers, that perform high functions for surface water detention, sediment and particulate retention, streamflow maintenance, and nutrient transformation to support water quality, provided the site meets the conditions of the federal mitigation rule in 33 CFR 323(h)(105).
- Focus land protection on wetlands, stream systems, and their associated buffers significant to native wildlife populations focusing on Tier 1 and Tier 2 WAP habitat, threatened and

endangered species, native plants, vernal pools, and exemplary communities, provided the site meets the conditions of the federal mitigation rule in 33 CFR 323(h)(105).

- Increase forested buffers surrounding aquatic resources to 250' feet for land protection projects to limit forest management, agriculture, and recreational practices within these areas.
- Target restoration on forestry lands that contain high-value aquatic resources and protect upland buffers to allow for passive regeneration.

Merrimack

Since 1995, the Merrimack Service Area has experienced the greatest wetland loss (712.9 acres) in the state due to the level of land conversion and development occurring in the region of the state. Similarly, the Merrimack reports the greatest amount stream loss (72,960 linear feet). The Merrimack Service Area has 66,807 acres of aquatic resources ranking "high" for nutrient transformation, mainly represented by higher amounts of PEM and PFO wetlands. If Limnetic Lacustrine (open water) areas are excluded from the Pemi-Winni, however, the Merrimack River service area leads the state in terms of largest area of wetlands with a total of 85,691 acres. The area has the highest quantity of aquatic resources in conservation (18,852 acres) mostly due to the large landscape coverage in this area but the least number of wetlands within WAP tier habitats protected (11%). The area has the highest number of total dams (1,496), crossings that are a barrier to AOP (2,648), number of undersized structures (2,632), the highest number of impaired streams (1,026 miles) and the highest amount of stream miles (275 miles) important to migratory or stocked herring.

- Target restoration and enhancement areas that lie within or connect large contiguous blocks of land to support a resilient landscape amidst rapid suburban and urban sprawl.
- Fund dam removal and culvert upgrades that will reconnect aquatic habitats for brook trout and coldwater fisheries, with emphasis on coldwater tributaries that provide thermal refugia from warmer water in the summer months due to climate change.
- Target preservation to focus on wetlands and streams, and their upland forested buffers, that perform high functions for surface water detention, sediment and particulate retention, streamflow maintenance, and nutrient transformation to support water quality.
- Focus land protection on wetlands and their upland buffers significant to native wildlife populations, focusing on Tier 1 and Tier 2 WAP habitat, threatened and endangered species, native plants, vernal pools, and exemplary communities.
- Increase forested buffers surrounding aquatic resources to 250 feet for land protection projects to limit forest management, agriculture, and recreational practices within these areas.
- Identify restoration opportunities to compensate for functions and values lost within service area.
- Identify opportunities for restoration of wetlands and stream systems that provide water quality improvement functions Fund projects that will remove impervious surfaces (i.e., abandoned parking and commercial lots) from upland buffers surrounding high-value aquatic resources, re-vegetate the buffer, and reconnect floodplain areas.

- Protect areas identified as high-yield aquifer and groundwater recharge sites to provide water supply for isolated spring-fed coldwater streams and resident brook trout.

Contoocook

This area has experienced slow development and growth compared to the other service areas and has resulted in only 4% of wetland loss and 3% stream loss since 1995. The area is important to migratory or stocked herring as reported by the aquatic WAP, with a considerable number of total dams (491) that are noted as active hazards (20%), the highest in the state.

- Target locations along rivers that have been channelized or hardened banks and restore and reconnect the floodplain.
- Target restoration and preservation to focus on wetlands and streams, and their upland forested buffers, that perform high functions for surface water detention, sediment and particulate retention, streamflow maintenance, and nutrient transformation to support water quality.
- Focus land protection on wetlands and their upland buffers significant to native wildlife populations focusing on Tier 1 and Tier 2 WAP habitat, threatened and endangered species, native plants, vernal pools, and exemplary communities, provided the site meets the conditions of the federal mitigation rule in 33 CFR 323(h)(105).
- Identify restoration opportunities to compensate for functions and values lost within service area.
- Increase forested buffers surrounding aquatic resources to 250’ feet for land protection projects to limit forest management, agriculture, and recreational practices within these areas.

Lower Connecticut

The Lower Connecticut Service Areas has experienced the greatest stream loss with 55,623 linear feet since 1995. The Lower Connecticut has third highest % of area that has protected wetlands within WAP tier habitat (55%). The area has the second highest number of total dams, crossings that are a barrier to AOP and number of undersized structures. With the heavy mills and agricultural lands in the area, it is the second highest area with impaired streams (1,011 miles).

- Fund dam removal and culvert upgrades that will reconnect aquatic habitats for brook trout and coldwater fisheries, with emphasis on coldwater tributaries that provide thermal refugia from warmer water in the summer months due to climate change.
- Fund locations along rivers that have been channelized or hardened banks and restore and reconnect the floodplain.
- Target preservation to focus on wetlands and streams, and their upland forested buffers, that perform high functions for surface water detention, sediment and particulate retention, streamflow maintenance, and nutrient transformation to support water quality, provided the site meets the conditions of the federal mitigation rule in 33 CFR 323(h)(105).

- Identify restoration opportunities to compensate for functions and values lost within service area.
- Focus land protection on wetlands and their upland buffers significant to native wildlife populations focusing on Tier 1 and Tier 2 WAP habitat, threatened and endangered species, native plants, vernal pools, and exemplary communities.
- Increase forested buffers surrounding aquatic resources to 250' feet for land protection projects to limit forest management, agriculture, and recreational practices within these areas.
- Retire agricultural lands and revegetate 200' buffers along the mainstem Connecticut river to increase sediment retention and reduce nitrogen and phosphorus inputs.

Middle Connecticut

This area reports the least amount of total wetland acres in the state (27,299 acres) and this equates to only 5% of wetland loss and 7% stream loss since 1995. Nutrient transformation is identified as the most common function reported ranking "high" and the Middle Connecticut only has 13,133 acres most likely reflective of the limited total acres of wetlands in the region. The area has the second highest number of wetlands within WAP tier habitats protected (72%).

- Fund dam removal and culvert upgrades that will reconnect aquatic habitats for brook trout and coldwater fisheries, with emphasis on coldwater tributaries that provide thermal refugia from warmer water in the summer months due to climate change.
- Target restoration and preservation to focus on wetlands and streams, and their upland forested buffers, that perform high functions for surface water detention, sediment and particulate retention, streamflow maintenance, and nutrient transformation to support water quality, provided the site meets the conditions of the federal mitigation rule in 33 CFR 323(h)(105).
- Identify restoration opportunities to compensate for functions and values lost within service area.
- Focus land protection on wetlands and their upland buffers significant to native wildlife populations focusing on Tier 1 and Tier 2 WAP habitat, threatened and endangered species, native plants, vernal pools, and exemplary communities.
- Increase forested buffers surrounding aquatic resources to 250 feet for land protection projects to limit forest management, agriculture, and recreational practices within these areas.
- Identify agricultural lands that provide opportunities for floodplain restoration and provide enhancement of a 200' vegetated buffer along the mainstem Connecticut river to increase sediment retention and reduce nitrogen and phosphorus inputs.

Upper Connecticut

The Upper Connecticut is in a slow developing landscape with forestry as the largest economy and is reflected in consisting or more PSS than PFO wetlands. It has the highest percentage (42%) of wetlands conserved mainly due to land holdings such as the White Mountain National Forest, Nash Stream Conservation Area, and Silvio O. Conte National Fish and Wildlife Refuge. However, it has the third lowest number of wetlands within WAP tier habitats protected (22%). Relative to the number of dams in the area, a high percentage are in ruin or are breached (27%). Coldwater river and stream habitat is largely intact in northern and western New Hampshire. This region contains large networks of relatively pristine coldwater river and stream habitat.

- Fund dam removal and culvert upgrades that will reconnect aquatic habitats for brook trout and coldwater fisheries, with emphasis on coldwater tributaries that provide thermal refugia from warmer water in the summer months due to climate change.
- Target agricultural lands provide opportunities for floodplain restoration and for revegetation of a 200' buffer along the mainstem Connecticut River to increase sediment retention and reduce nitrogen and phosphorus inputs.
- Identify locations where waterbodies with low levels of existing protection and high levels of development pressure as targets for conservation efforts and an increase in impairments.
- Fund locations along rivers that have been channelized or hardened banks and restore and reconnect the floodplain.
- Identify restoration opportunities to compensate for functions and values lost within service area.
- Target restoration and preservation to focus on wetlands and streams, and their upland forested buffers, that perform high functions for surface water detention, sediment and particulate retention, streamflow maintenance, and nutrient transformation to support water quality, provided the site meets the conditions of the federal mitigation rule in 33 CFR 323(h)(105).
- Focus land protection on wetlands and their upland buffers significant to native wildlife populations focusing on Tier 1 and Tier 2 WAP habitat, threatened and endangered species, native plants, vernal pools, and exemplary communities.
- Increase forested buffers surrounding aquatic resources to 250 feet for land protection projects to limit forest management, agriculture, and recreational practices within these areas.

vi. Prioritization Strategy for Selecting and Implementing Projects

The ARM Fund uses a comprehensive approach for selecting mitigation projects to prioritize projects that will address multiple functions and values provided by the aquatic resources. The SSC considers several scientific sources and data to evaluate the ecological outcomes, indicators of project success, and how effectively the project will offset losses to aquatic resources in the service area. The ARM program prioritizes projects that have clearly defined objectives consistent with the Federal Mitigation Rule and uses the most current science, field-based surveys, and spatial datasets available. The SSC uses

a set of evaluation criteria (Appendix B) that incorporate the main goals of the ARM ILF program to prioritize projects for funding as described below:

The Project Contains High-Value Aquatic Resources and Functions

- Wetlands and streams that perform multiple functions that are significant to the watershed are good candidates for mitigation sites.
- Projects that are within the same HUC 10 watershed as the permitted impacts that generated the ILF payment to better offset the losses locally.
- Wetlands that have a primary function of flood storage, nutrient removal, sediment retention and groundwater recharge will be highlighted.

Benefits to Water Quality and Supply

- Areas that are important to public water supply sources, and lie within source water, wellhead, groundwater protection, or high-yield aquifer areas are great candidates for mitigation projects as they serve a critical function in maintaining clean water supplies to the public.

Fish and Wildlife Habitat

- Protection or restoration of an area that will benefit an exemplary natural community, threatened, rare, or endangered species are highly supported.
- Areas ranked as NHFG WAP Statewide (Tier 1) or Regional Biological Significance (Tier 2) by the NHFG Wildlife Action Plan and important to sustaining critical wildlife habitat.
- High-value aquatic resources such as vernal pools, prime wetlands, fens, and coldwater streams that are habitat for wetland-dependent wildlife.

Landscape Connectivity

- Projects that will connect conservation lands by adding to existing protected parcels and establishing new connections between conserved lands, are important to landscape resiliency.
- Projects will be prioritized that contribute to large, continuous blocks of undeveloped land by adding to unfragmented blocks of land.
- Projects that reconnect high quality stream habitat important to fish and other aquatic wildlife are a priority for dam removals and culvert upgrades.

Support Regional Conservation Efforts

- Projects that have strong support from the host-municipality and local conservation partners are encouraged.
- Areas identified as a priority in a conservation plan and that are under high threat to potential development and conservation groups are eager to have it protected.

vii. Explanation of How Preservation Supports Mitigation

The NHDES mitigation program has demonstrated success in mitigating for losses to wetland and streams by protecting land that contains high-value aquatic resources, and their upland buffers, from future degradation. While preservation reduces the threat of future impacts to aquatic resources, preservation alone does not replace aquatic resource lost functions. Most of New Hampshire's wetlands (74%) and open waters (97%) are unprotected and vulnerable to land conversion and development (Table 14). The NHDES Wetlands Bureau permits, on average, +/- 40 acres of wetland loss annually, and in the rapidly developing regions of the Merrimack and Salmon Falls-Piscataqua watersheds 13, and 11.7 acres, respectively. Wetlands form only under specific hydrologic, topographic, and climatic conditions that are difficult to engineer. By permanently protecting wetlands, and their upland buffer, the ARM Fund is ensuring a certain number of wetlands and streams remain intact to sustain highly valuable functions for wildlife habitat, water storage and water quality. Conserving aquatic resources in the face of climate challenges is increasingly more important. More frequent and intense storms put communities and infrastructure at risk and wetlands play a key role in flood storage and flow regulation. Conservation of wetlands and streams and their upand buffers ensures that areas will be sustained on the landscape to provide functions important to the health and biodiversity of the state. When combined with successful restoration, enhancement, or establishment efforts, preservation supports the long-term success of mitigation efforts and protection of aquatic resources.

Table 14. Acres of wetlands and open water currently unprotected and average loss per Service Area.

Service Area	Unprotected Aquatic Resources		Average Annual Loss in Past 10 Years
	Wetlands	**Open Water**	
Androscoggin	17,174 (74%)	2,530 (97%)	1.1
Contoocook	23,093 (66%)	9,743 (90%)	3.1
Lower Connecticut	47,746 (82%)	11,371 (94%)	3.8
Merrimack	66,929 (78%)	16,980 (95%)	13.6
Middle Connecticut	17,759 (77%)	3,928 (94%)	1.9
Pemigewasset - Winnipesaukee	40,133 (79%)	63,838 (99%)	4.9
Saco	22,303 (68%)	7,209 (97%)	1.6
Salmon Falls - Piscataqua	61,191 (79%)	8,200 (96%)	11.7
Upper Connecticut	17,008 (68%)	6,419 (99%)	1.0
Total	**313,337 (74%)**	**137,028 (97%)**	**42.6**

viii. Description of Public & Private Stakeholder Involvement in Plan Development

The ARM Fund program fosters and strengthens partnerships with a diverse group of highly qualified land conservationist, restoration practitioners, and experienced non-governmental organizations. Effective working relationships with partners is needed at every stage of the funding process from project selection to execution, performance monitoring, adaptive management, and long-term stewardship. As part of this Instrument update, stakeholders were surveyed to identify program goals and priorities, existing challenges to successful project execution, practitioner experience with various

types of conservation and restoration activities, as well as querying areas in which the ARM program can adapt to meet emerging challenges. A total of 110 individuals were invited to participate in the survey., with 48 individual responses that represent an array of affiliations with a broad range of experiences with the ARM Fund Program.

The majority of those surveyed represent non-profit organizations (27%), municipal governments (23%), and land trusts (21%). Other participants represent environmental consulting groups (10%), state agencies (6%), federal agencies (4%), and educational institutions (2%). Nearly half of those surveyed are engaged in projects within the Merrimack and/or Salmon Falls-Piscataqua service areas, approximately 25% within the Pemigewasset-Winnipesaukee and/or Middle Connecticut service areas, and 20% or less within the remaining service areas (Figure 30). The majority of survey participants reported their organization is most engaged in land protection, either by conservation easement or fee simple ownership, and wildlife habitat management activities (Figure 31). Only 40% surveyed claimed they are engaged in wetland enhancement/restoration, and 35% stream enhancement/restoration activities.

Figure 30. Service areas in which surveyed partners are most engaged.

The survey reports a disproportionate experience level and feasibility of land conservation projects versus restoration and enhancement projects. Figure 32 summarizes the results of a series of questions in which participants were asked to rank the difficulty level of various aspects of the project planning process for three project categories: land conservation, stream restoration, and wetland restoration. Overall, a larger number of responses and a slightly greater proportion of low difficulty level ratings were received for land conservation projects. Identifying projects, obtaining stakeholder support, and overcoming regulatory obstacles appear to be most challenging for wetland restoration projects, while securing funding is apparently one of the most prohibitive factors for all project types. Responses indicate that stream restoration projects are relatively easy to find compared to wetland restoration projects, and only two participants identified land conservation projects as being very difficult to find.

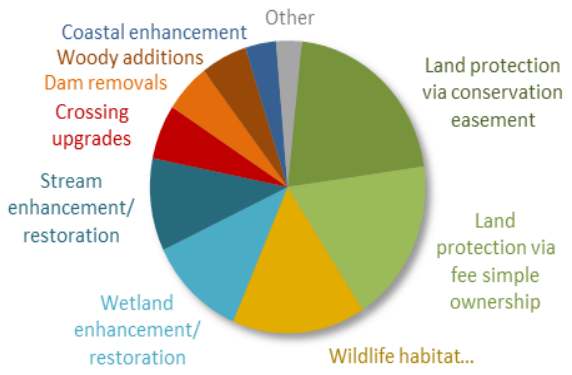


Figure 31. Partner project experience areas.

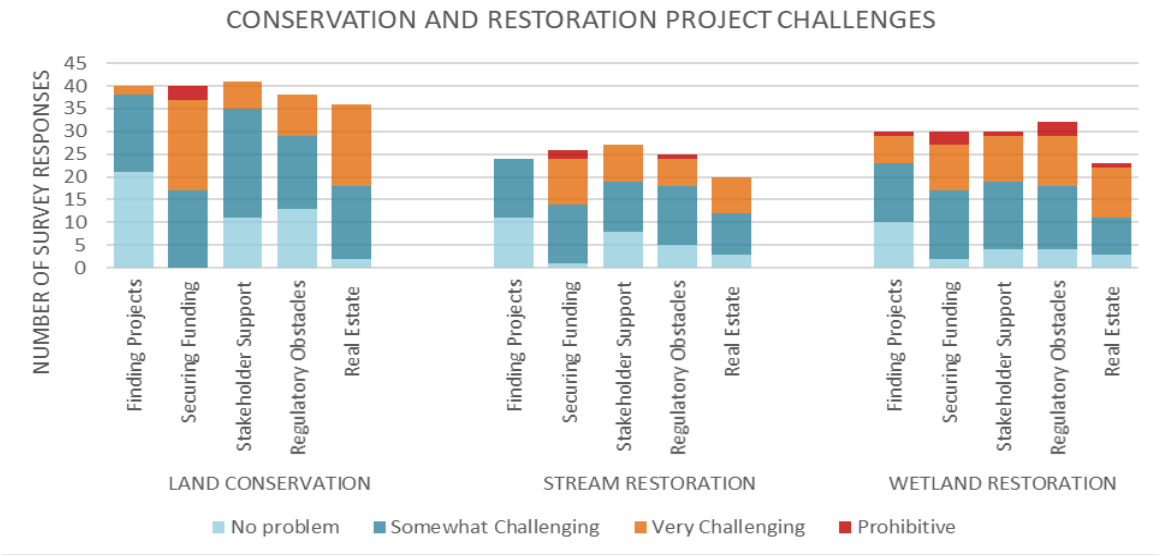


Figure 32. Partner ratings of the challenges to executing conservation and restoration projects.

Throughout the survey, partners were asked to prioritize conservation priorities and identify past and future changes to conservation and restoration objectives. Wildlife ranked high on participants' priority lists, followed by water quality and landscape connectivity (Figure 33). The majority of partners feel that the ARM program is aligned with their organization's priorities, and nearly half acknowledged their priorities have changed in the last 10 years with the evolution of the program. Amongst the emerging issues and evolving challenges identified by partners are the difficulties of navigating increasingly restrictive program requirements (often with a limited, volunteer-based staff) and dealing with rapid development and increased costs. Nearly three quarters of those surveyed say that future land management activities on the property are a signigicant factor in whether their organization will pursue funding. Restrictions on timber management and future trail development appear to be common issues when it comes to land conservation eligibility for ARM funding.

Survey results highlight the diversity of the ARM Fund Program's partnerships, as well as the common challenges faced by those seeking ARM funding. The majority of participating partners are involved in land conservation or management activities, while relatively few are engaged in stream or wetland restoration projects. This suggests that there may be a statewide need for greater expertise, outreach, and support for restoration project identification and implementation. Overall distribution of partner activity between service areas indicates a deficiency in practitioner experience and project opportunities in certain parts of the state. Furthermore, some partners voiced concerns over unreliable funding landscapes resulting from funding apportionment by service area. Modification

of service area boundaries could be considered to result in a more uniform distribution of resources throughout the state.

Perhaps the most informative responses to the survey were those that idenitified emerging challenges to restoration and conservation. In light of increased development pressure, real estate costs and competition, construction expenses, and the evolving implications of climate change, many partners note the need for a more adaptive approach for funding projects. The increasing costs associated with completing a project requires an applicant to seek multiple funding sources that may have competing goals and requirements. This has been an increasing challenge for combining federal and state deed documents and completing restoration of habitats that must adhere to rising land costs, inconsistent funding availability, and administrative rules that have not kept pace with current practices and restoration techniques.

The future of conservation and restoration depends on a comprehensive approach and stewardship of the state's aquatic resources and having partners to identify and prioritize high value natural resources to conserve and restore through land protection, land use decision making, and management. Achieving wetland conservation and restoration requires a thorough understanding of the ecosystem dynamics of the system one is working to restore. Wetland preservation achieved by the ARM program extends beyond the typical isolated location of importance and strives to maintain connections with existing aquatic, riparian, and wetland vegetation and other high-quality natural areas, and is needed to connect existing natural sites with restoration sites. To repair a degraded ecosystem requires not only ameliorating the stressors that impact the system, but recognizing how the intact, surrounding wetland works. Both the type, size and unique quality of a wetland and its location within the wetland network play a role in its ecological significance and is key in program funding success. It is recommended that metrics for wetland restoration success should include information on the distinctions for spatial organization, connectivity, and hydrologic regimes to further enable proper maintenance and care. As there were once critical links that connected the now isolated clusters of wetlands, identifying the critical pathways that hydrologically and biologically reconnect these clusters will be an effective way for future restoration of the landscape.

ix. Description of Long-Term Protection and Management Strategies

Each applicant that receives ARM funds shall be responsible for ensuring long-term protection of each project through an appropriate protection mechanism. The IRT will be responsible for making sure that each applicant receiving funds will have the needed legal status, experience and stewardship funds to ensure the long-term protection and management of the site. Permanent legal property protection instruments, such as fee-simple title and conservation easements will be used as the main legal mechanisms for ensuring proper perpetual protection as required. Such as conservation instruments, will be held by entities such as Federal, Tribal, other State or local resource agencies, non-profit conservation organizations, or for-profit land managers. The protection mechanism shall assign long-term stewardship roles and responsibility for the project and will, to the extent practicable, prohibit incompatible uses that might otherwise jeopardize the objectives. Copies of such recorded instruments shall be maintained by the Program Administrator and shall become part of the official project record. Each protection instrument shall contain a provision requiring notification to the sponsor and the Corps if any action is taken to void or modify it. Such protection mechanisms should be in place prior to site closure or final credit release, as stipulated in each mitigation plan. NHDES shall be granted — Third

Party enforcement rights on all conservation deeds entered as part of an approved natural resource mitigation plan funded by the ARM Fund. All conservation deeds executed under this program shall be in conformance with the standard NHDES template unless otherwise authorized by NHDES.

The ARM program shall also be legally responsible for ensuring the long-term management of ARM funded sites through the creation of site-specific mitigation plans that will detail the Long-Term Monitoring and Maintenance Plans for each site as required under 33 CFR 332.4 and 33 CFR 332.8. The Sponsor may sub-contract out the Long-Term Monitoring and Management of ARM project sites to another NHDES program or to another entity through solicitation of contract proposals or other approved transfer mechanisms that ensure the monitoring and management goals are met, however the responsibility remains with the Sponsor. In addition, with Corps approval, the Sponsor may transfer ownership or management of ARM properties on a case-by-case basis to appropriate nonprofit organizations, nongovernmental organizations, state or local government entities, or for-profit organizations. In the event any of the above transfers occur the Sponsor shall also transfer any reserve funds specifically set aside to finance the responsibilities associated with said transfer. Likewise, upon successful transfer to another party, that party shall accept full responsibility for meeting any and all long-term monitoring, management and stewardship responsibilities outlined in the approved project specific mitigation plan. The terms and conditions of the conveyance shall not conflict with the intent and provisions of the preservation mechanism, nor shall such conveyance enlarge or modify uses specified in the protection mechanism unless explicitly approved by the Corps in consultation with the IRT.

x. Program Evaluation

The Mitigation Rule requires the Instrument to include reporting protocols addressing the following four areas:

1. Monitoring reports, on a schedule and for a period determined by the project specific mitigation plan;
2. Notification to the Corps of credit transactions;
3. An annual program report summarizing activity from the program account, addressing both financial and credit accounting; and
4. An annual financial assurances and long-term management funding report.

ARM Fund program will submit the annual program report to the Corps and to the IRT, which will include an accounting, on a statewide and service area basis, of all income, disbursements and interest earned, and the balance of such funds.

Every five years, ARM program will produce, in consultation with the Corps and the IRT, a status and trends report summarizing the activities and accomplishments that have occurred during the preceding five years. The report will include an assessment of the extent to which the ARM Fund has achieved the goals established in this Instrument for the inland and coastal mitigation components and discuss how the mitigation projects implemented under each component during this period helped achieve or made progress toward achieving the program goals.

Every ten years or as funds allow, ARM program will assess, in consultation with the Corps, the IRT and other stakeholders, the effectiveness of the compensation planning framework established in the program instrument.

xi. Protocol for Monitoring Completed Projects

Each mitigation project approved under this Instrument will contain performance standards to be used to assess whether the project is achieving its objectives (e.g., developing into the desired aquatic resource type; providing the expected ecological functions; resulting in the preservation of the required acreage of land). General performance standards considered for restoration and enhancement projects may include but are not limited to achieving site stabilization of slopes, soils, substrates, and constructed features within and adjacent to the mitigation site; vegetative success at an appropriate percentage; and management of invasive species. Culvert replacement standards should focus on achieving full aquatic organism passage and wide vegetated riparian zones on both sides of the stream. Finally, for dam removal projects, the footprint of the former dam following removal is stable, formerly inundated areas are stable and have an appropriate percentage of coverage by native vegetation, and the newly exposed stream channel, to ensure stream shading, results in riparian banks having native vegetative coverage including native woody species.

The mitigation project plan will also have a monitoring period that is sufficient to demonstrate that the project has met the identified performance standards. Consistent with the Mitigation Rule, projects will be monitored for a minimum of five years unless the ARM program, with approval from the Corps in consultation with the IRT, reduces or waives the remaining monitoring period based upon its determination that the project has met its performance standards. Conversely, the ARM program may extend the monitoring period based upon its determination that the project has not met or is not on track to meet its performance standards. In such cases, ARM may implement or require an approved third party to implement adaptive management activities and/or corrective actions deemed necessary to meet the performance standards in accordance with a revised timeframe.

Once the required monitoring period is complete and the mitigation project successfully accomplishes the performance standards and objectives, the DE will release the credits specified in the mitigation plan in accordance with 33 CFR Part 332. Long-term management mechanisms must be established to ensure the project and resources are protected in perpetuity. If the project does not achieve the performance-based milestones in the approved mitigation plan, the DE may modify the credit release schedule, including reducing the number of credits.

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5. DEFAULT AND CLOSURE PROCEDURES

Any delay or failure of the NHDES to comply with the terms of this agreement shall not constitute a default hereunder if and to the extent that such delay or failure is primarily caused by any act, event or conditions beyond the NHDES' reasonable control and that significantly adversely affects its ability to perform its obligations hereunder including: (i) acts of God, lightning, earthquake, fire, or landslide; (ii) condemnation or other taking by any governmental body; (iii) change in applicable law, regulation, rule, ordinance or permit condition, or the interpretation or enforcement thereof; (iv) any order, judgment, action or determination of any federal, state or local court, administrative agency or government body; or (v) the suspension or interruption of any permit, license, consent, authorization or approval. If the performance of the NHDES is affected by any such event, the NHDES shall give written notice thereof to the IRT as soon as is reasonably practicable.

The Corps or NHDES may terminate this Instrument by giving sixty (60) days written notice to the other party. Prior to termination, the NHDES shall provide an accounting of funds and shall complete payment on contracts for projects approved by the IRT, the Wetlands Council and G&C, and any expenses incurred on behalf of the account. Upon termination, after payment of all outstanding obligations, the remaining funds in the ARM Fund shall be paid to not more than five different entities if required by the Corps. In the event the program is closed, NHDES is responsible for fulfilling any remaining obligations for credits sold, unless the obligation is specifically transferred to another entity as agreed upon by the Corps and NHDES. Funds remaining in an account after these obligations are satisfied should continue to be used for restoration, enhancement, or preservation of aquatic resources.

6. SIGNATURES

U.S. ARMY CORPS OF ENGINEERS

for By: Tammy R. Turley Date: August 16, 2023

Justin R. Pabis, District Engineer

NEW HAMPSHIRE DEPARTMENT OF ENVIRONMENTAL SERVICES

By: Robert Scott Date: August 31, 2023

Robert R. Scott, Commissioner

New Hampshire Aquatic Resource Mitigation Fund Final In-Lieu Program Instrument, Ten-Year Update, February 2023

IN WITNESS WHEREOF, the undersigned have indicated their agreement with the terms of the instrument amendment to be duly executed.

Kaitlyn Shaw, NOAA NMFS Date: 06/21/23

(Name & Agency)

New Hampshire Aquatic Resource Mitigation Fund Final In-Lieu Program Instrument, Ten-Year Update, February 2023

IN WITNESS WHEREOF, the undersigned have indicated their agreement with the terms of the instrument amendment to be duly executed.

MARIA TUR Digitally signed by MARIA TUR
Date: 2023.06.21 12:22:04 -04'00'

Maria Tur, U.S. Fish and Wildlife Service	June 21, 2023
Name & Agency	Date

New Hampshire Aquatic Resource Mitigation Fund Final In-Lieu Program Instrument, Ten-Year Update, February 2023

IN WITNESS WHEREOF, the undersigned have indicated their agreement with the terms of the instrument amendment to be duly executed.

KIMBERLY MCCABE Digitally signed by KIMBERLY MCCABE Date: 2023.06.12 11:29:42 -04'00'

(Kimberly McCabe, USDA-NRCS)

Date: 6/12/2023

IN WITNESS WHEREOF, the undersigned have indicated their agreement with the terms of the instrument amendment to be duly executed.

NATHAN MARGASON

Digitally signed by NATHAN MARGASON
Date: 2023.06.21 11:34:06 -04'00'

_____ Date: _____

(Name & Agency)

Appendices

APPENDIX A. Scoring criteria

AQUATIC RESOURCE MITIGATION FUND

GUIDANCE ON PROJECT EVALUATION CRITERIA

Applications are scored by the ARM Site Selection Committee using a point system established in Env-Wt 808.20, and the maximum number of points for any project is 100. The maximum number of points allocated for each category are listed below.

Project Categories

L = Land preservation by acquisition and/or legal protection

W = Wetland restoration, enhancement, or creation

S = Stream restoration without land acquisition

C = Stream crossings or dams without land acquisition

I = Invasive species management

1. Restoration and/or Enhancement of Aquatic Resources

Maximum 27 point possible— Check all that apply

If a project contains both wetland and stream restoration/enhancement activities, then the Site Selection Committee will allocate points under question 1 based upon the greatest improvement to aquatic resource functions.

1A. Wetlands

Project restores, enhances or replaces wetland types (NWI) and/or wetland functions & values that were lost in the HUC 8 watershed. In general, funds shall go towards projects or a suite of projects that provide the greatest potential to restore, enhance or replace ecological integrity, water quality, and wildlife habitat functions and values lost by the impacts in the HUC 8 watershed as documented in the program ledger, and/or the Compensation Planning Framework for the watershed.

Ecological Integrity: W, C, I

a. _____ (up to 9 points) In general, projects will result in an increase in ecological/hydrologic integrity through a specific activity. The difference in value is based on anticipated change in value or score based on a pre-treatment assessment of the site. If more than one wetland is being affected, then the score shall be the difference in the aggregate of all Ecological or Hydrologic Integrity scores for all

wetlands being treated. Greatest amount of points go to a project that results in a significant increase. No points would be awarded if there is no appreciable difference in Ecological or Hydrologic Integrity that will result from the proposed project.

Water Quality: W, C, I

b. _____ (up to 9 points) In general, projects will result in an increase in water quality functions through a specific activity. The difference in value is the anticipated change in value or score based on a pre-treatment assessment of the site. If more than one wetland is being affected, then the score shall be the difference in the aggregate of all Water Quality related functional scores for all wetlands being treated. Greatest amount of points go to a project that will result in an increase in water quality functions through one or more of the following activities: reducing/treating stormwater inputs, restoring hydrology, increasing recharge, stabilizing soils, installing filter strips, increasing flood storage, enhancing sediment trapping, or increasing nutrient uptake or transformation that results in a significant increase. No points would be awarded where there is no appreciable difference in water quality will result from the proposed project.

Wildlife Habitat: W, C, I

c. _____ (up to 9 points) In general, projects will result in an increase in wildlife habitat functions through a specific activity. The difference in value is based on anticipated change in value or score based on a pre-treatment assessment of the site. If more than one wetland is being affected, then the score shall be the difference in the aggregate of all wildlife-related functional scores for all wetlands being treated. Greatest amount of points will result in an increase in wildlife habitat function(s) by one or more of the following activities: replanting native species, increasing production export, restoring buffer area integrity, restoring hydrology for AOP, improving habitat structure, re-introducing native species and their habitat, or eliminating or controlling invasive species that results in a significant increase. No points would be awarded if there is no appreciable difference in wildlife function(s) will result from the proposed project.

1.B. Streams

Aquatic Organism Passage and Geomorphic Compatibility: S, C

a. _____(up to 6 points) In general, upgrading road crossings and removing dams without land acquisition (C) projects improve aquatic organism passage and geomorphic compatibility of the stream. The project needs to identify the deficiencies of the crossing(s) proposed to be replaced and provide the scores for Aquatic Organism Passage (AOP) and Geomorphic Compatibility according to the New Hampshire Stream Crossing Initiative scoring scheme. The deficient crossing documentation should provide information that notes its priority for replacement based on local or state planning if available. This question scores the stream restoration or improvement only; if land protection is offered, those points would be gained in Part 4. Tidal crossings will be assessed on a case-by-case basis. Greatest amount of points will go to a project that will replace (or remove) a structure that indicates no AOP for all aquatic organisms (including adult salmonids); or is ranked as fully incompatible or mostly incompatible according to geomorphic compatibility score. Lower amount of points consider scores based on AOP and geomorphic compatibility scores with the least amount of points going to a project

that will replace (or remove) a structure that has a score that indicates full AOP; or is ranked as fully compatible according to geomorphic compatibility score; OR project does not include a road crossing replacement or removal component.

Stream Connectivity Potential and Habitat Enhancement: S, C, I

b. _____ (up to 6 points) Project will reconnect fragmented instream habitat and significantly **increase the amount of upstream aquatic resources** accessible to anadromous, diadromous, or resident fish species and **re-establish a connection** between upstream and downstream habitat for fish, freshwater turtles, amphibians, mussels, or aquatic plants. In addition, the project will restore access to or **enhance** stream reaches determined as "high quality habitat" or having a "high restoration" potential. Greatest amount of points would go to a project that reconnects or enhances a **significant** length of stream miles within the watershed (HUC 12) identified as having "high quality" habitat or "high restoration potential" and no points would go to a project that does not improve the connection between upstream and downstream areas or enhance in-stream habitat.

Drainage Area: S, C, I

c._____(up to 3 points) Project will contribute to stream passage or enhance habitat that will potentially affect a broader area of the HUC 8 watershed or service area. The larger the watershed area above the activity, the more likely the project will improve the aquatic organism passage and/or habitat at a broader scale. Note that the watershed area should be calculated from the stream crossing location or the lowest point of the enhancement/restoration activity in the Project Area. More points go to tier 3 crossing and the least amount of points go to enhancement of ephemeral stream habitat.

Water Quality: W, C, I

d. _____ (up to 6 points) Project will implement a best management practice (i.e. buffer creation/enhancement or storm water treatment) which will result in an increase in water quality. If more than one best management practice is proposed, the improvement with the greatest treatment will be considered for scoring. For a buffer improvement to receive full points, the buffer improvement must pertain to both sides of the stream. Points will also be distributed based on the amount of water quality improvement relative to the receiving stream reach and identified impairments to the stream. Greatest points will go to a project that results in a buffer enhancement/creation with a width greater than 100 ft., or stormwater treatment prior to discharge to a stream or river with a 75% or greater pollutant load reduction. No points will go to a project that does not provide water quality improvements.

Hydraulic Vulnerability: S, C

e. _____(up to 6 points) The project will improve a stream reach, or remove a crossing that overtops, which degrades water quality and instream aquatic habitat by increasing sediment loads into the river, eroding stream banks, and are susceptible to washouts of road fill material. Project will replace or remove a stream crossing or enhance stream/riparian areas that are known to experience flooding and have been identified as a past or potential flood issue, or is predicted to overtop/fail during specified flood intervals based on a hydraulic capacity model. Greatest amount of points will be awarded to a project that will improve stream passage and hydraulic capacity of a stream crossing that

lies within a flood-prone area that is frequently flooded; OR that is predicted to frequently fail/overtop by a hydraulic model (generally a 2 - 25 year or greater storm event). No points will be awarded to a stream passage improvement project that lies in an area that is not considered prone to floods AND **passes** a two-year and greater flood by a hydraulic model.

2. Overall Environmental Significance

Maximum 27 Points Possible – Check All that Apply

Drinking Water Benefits: L, W, S

a. _____(up to 9 points) Project is located within an area evaluated for drinking water supply potential such as a source water protection area or wellhead protection area, is in an area that overlays a high-yield stratified drift aquifer, or is located within groundwater protection areas or water supply intake protection areas. This question simply evaluates whether a project location overlaps with wellhead protection areas, GA 1 or GA2 areas, or is located within a lower yield stratified drift aquifer (<1,000 acre ft/day)

Wildlife Habitat: L, W, S, C, I

b. _____(up to 9 points) Project will benefit endangered, threatened or special concern species and/or exemplary natural communities documented to occur on the property. Greatest points will go to a project that will help protect a known high quality/significant endangered wildlife/plant population (Rank = B or better) or Exemplary Natural Community and no points will be awarded to a project that has no endangered, threatened, special concern species (wildlife or plants), or exemplary natural community known or potential based on application, NHB datacheck, and committee knowledge.

c. _____ (up to 9 points) Project is located in or in close proximity to NH WAP highest quality wildlife habitat. Greatest amount of points are awarded if a project is in a Tier 1 (State Ranked) area. Point range can vary for how significant the project is for the WAP area. No points will be awarded if the project is not in or near (within 250 m), or contributes to a Tier 1 (Highest Ranked State), 2 (Highest Ranked Biological Region), or 3 (Supporting Landscape) area.

3. Proximity to Conserved Lands and Landscape Connectivity

Maximum 19 Points Possible – Check All that Apply

Benefits to Nearby Conservation Land: L, W, S, C, I

a. _____ (up to 4 points) Project is adjacent to lands protected in perpetuity. This question does not require that project PROTECT land. Greatest points will be awarded to a project if it is adjacent to protected land. No points are awarded if the project is not adjacent to protected lands.

Landscape Connections L, W, S, C, I

b. ____ (up to 4 points) Project provides or contributes to a connection between lands that are currently unconnected and which are protected in perpetuity. For the purposes of this question and aquatic systems projects (not riparian buffers), public waters (major rivers, lakes/ponds > 10 acres) are

considered protected. This question does not necessarily require that project protect land. Greatest points are awarded if the proposal protects land & creates a new connection between two separate protected lands (L projects only). No points are awarded if there is no contribution to a connection of protected lands.

c. _____ (up to 4 points) Project contributes to linkages or over-land connections among and between one or more aquatic resource areas. This question involves linkages to aquatic resources over land (terrestrial). Greatest points are awarded if the site includes wet-dry-wet "land" connection protection. "Wet" can include vernal pools and surface water (flowing or ponded). No points are awarded if no connection.

d. _____ (up to 4 points) Project lies within a large unfragmented block of land, relative to the HUC 10 watershed. For this question, use unfragmented lands layer from the WAP, unless specifically derived by the applicant for the purposes of answering this question. Greatest points are awarded to projects that lie within one of top five unfragmented blocks. No points are awarded if the project is not within, near, or contributes to one of the five large unfragmented blocks.

Distance to Impact Location

e. ____ (up to 3 points) Project is located within the same sub-watershed (HUC 10) as the impact area(s) that generated the funds. Greatest points awarded if in the same watershed, any part or amount. No points awarded if not in the same watershed.

4. Overall Mitigation Potential

Maximum 19 Points Possible – Check All that Apply.)

Protection of Valuable Aquatic Resources and Upland Buffers: L only

a. _____ (up to 6 points) Project will contribute to the protection of most or all of an aquatic resource. 'Aquatic resource' includes any surface waters and/or wetlands including vernal pools. This question requires that the project PROTECT land legally and permanently. Greatest points awarded to a project that protects wetland acreage > 100 acres; or 6 or more documented vernal pools and their critical terrestrial habitat will be mostly to fully legally protected following the completion of project. No points are awarded to a project where protection is non-permanent or unknown.

b. _____ (up to 10 points) Project will protect an upland buffer that protects an aquatic resource. "Aquatic resource" includes any surface waters and/or wetland type including vernal pools. Greatest points are awarded to a project where an aquatic resource identified as a regionally or locally important, high value, or prime wetland or surface water and an upland buffer of ≥ 200' will be fully legally protected following the completion of the project. Full or nearly full points can be awarded if a portion of the aquatic resource is already protected and the proposed project completes protection. No points are awarded if the project has no permanent protection to the aquatic resource buffer.

_____ (up to 3 points) Project will **protect most or all** of the watershed of the aquatic resource(s) within the project area. This question pertains to the watershed of the aquatic resource within the HUC 12 watershed(s) where the resource occurs. The watershed of a vernal pool may be very small and the

entire watershed can be easily protected. Large rivers are unlikely to meet these criteria unless they are headwater areas.

5. Cost-Effectiveness and Partnerships: L, W, S, C, I

Maximum 8 Points Possible – Check All that Apply

a. _____ (up to 3 points) Project will provide a cash and/or in-kind donation match of at least 30%.

3 points - ≥ 30% cash/in-kind match provided

2 points - ≥ 20% cash/in-kind match provided

1 points - ≥10% cash/in-kind match provided

0 points - < 10% of cash/in-kind match provided.

b. _____ (up to 3 points) Project area is identified in a federal, or state environmental priority plan other than the WAP. Plans under this question must include a spatial component. In other words, project area needs to be mapped as a priority area. It is not enough that an action is listed in a plan without a spatial reference. Examples of plans with a spatial component include: NH Coastal Plan, Quabbin to Cardigan, Merrimack River watershed plan, Blanding's turtle conservation plan for northeast, etc. A list is available from the mitigation program. Greatest points awarded to project noted in a plan, no points awarded if not included in a recognized plan.

c. _____ (2) Project is supported by the host municipality.

2 points – yes, letter submitted by town

0 points — no letter submitted

Total Score_____ out of 100 points

APPENDIX B. Credit sale letter

The State of New Hampshire
Department of Environmental Services

Robert R. Scott, Commissioner

February 28, 2022

NH DEPT OF TRANSPORTATION
PO BOX 483
CONCORD NH 03302-0483

Re: Received Payment to Aquatic Resource Mitigation Fund (RSA 482-A)
NHDES File Number: 2019-03832
U.S. Army Corps Permit Number: NAE-2021-02441
Subject Property: Us Route 4, Danbury, Tax Map #ROW, Lot #ROW

To Whom It May Concern:

The New Hampshire Department of Environmental Services (NHDES) confirms the receipt of $88,809.22 on December 17, 2022, for the sale of 0.521 wetland credits. These credits compensate for 22,668.00 square feet of impacts to aquatic resources, and their associated functions and values, in the Contoocook River watershed (i.e. service area) to realign and widen US Route 4 and replace in a new location the existing NHRR Bridge No. 156/104 over the Northern Rail Trail. The table below summarizes the impacts authorized by NHDES and the Army Corps of Engineers (USACE) permits:

Impact Quantity	Credits	Resource Type	Impact Type and Functions and Values Lost
4,499 square feet	0.103	PEM1E	Dredge and Fill; Sediment and Nutrient Retention; Flood Storage
16,795 square feet	0.386	PFO1E	Dredge and Fill; Sediment and Nutrient Retention; Flood Storage
73 square feet	0.002	PFO1Ex	Dredge and Fill ; Sediment and Nutrient Retention; Flood Storage
1,301 square feet	0.030	PSS1E	Dredge and Fill ; Sediment and Nutrient Retention; Flood Storage

Impacts authorized by the NHDES and the USACE permits.

By making this payment, the Permittee permanently transfers responsibility for the mitigation liability to the NHDES Aquatic Resource Mitigation Fund Program. By accepting the mitigation payment, NHDES is solely responsible for use of these funds, less an administrative fee, to provide compensatory mitigation for the above-described impacts.

If you have any questions, please contact me directly at Cheryl.A.Bondi@des.nh.gov or (603) 271-0727.

Sincerely,

Cheryl A. Bondi
Mitigation Program Specialist, Wetlands Bureau
Land Resources Management, Water Division

cc: New England District Corps of Engineers Division,
Attn: Taylor Bell, Mitigation Program Manager