NHDES Wetlands Bureau Annual Report to U.S. EPA Region 1 for Calendar Year 2015

NEW HAMPSHIRE DEPARTMENT OF Environmental Services

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NHDES Wetlands Bureau Annual Report to U.S. EPA Region 1 for Calendar Year 2015

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INTRODUCTION

This report has been prepared for EPA to provide a summary of the New Hampshire Department of Environmental Services (NHDES) Wetlands Bureau regulatory trends, activities, and updates on EPA grant-funded projects as part of NHDES's priority and partnership agreement with EPA. The NHDES Wetlands Bureau operates under the authority of the New Hampshire Revised Statutes Annotated (RSA) 482-A, the wetlands dredge and fill statute. The Wetlands Bureau oversees NHDES's regulation of impacts to freshwater and coastal wetlands, surface waters and their banks, dunes, the tidal buffer zone, and areas adjacent to designated prime wetlands. The Wetlands Bureau also administers RSA 483-B, the Shoreland Water Quality Protection Act, in which permitting and compliance activities within the Bureau are also reported on within this report. The regulation of impacts is accomplished primarily through the permitting process.

The mission statement of the Wetlands Bureau is "*to protect, maintain and enhance the environmental quality in New Hampshire through the powers set forth in RSA 482-A to regulate impacts to those areas "wherever the tide ebbs and flows" or "freshwater flows or stands*."

EPA GRANT UPDATES

2013 Grant #1: Under the grant **Advancing Wetland Assessment in New Hampshire (CD98179201)** awarded in the fall of 2013, the major tasks are as follows:

1. Evaluate the applicability of Maine's macroinvertebrate protocols and model for wetland assessment in New Hampshire.

2. Develop criteria and classification information to support wetland assessment and wetland conservation status and apply new tools on existing data to improve knowledge of resources.

3. Improve the requirements for and technical review of wetland permit applications.

4. Develop new Memorandums of Agreement (MOAs) with sister programs and agencies.

Task 1: Apply Maine's biomonitoring methods and statistical modeling for aquatic macroinvertebrates to New Hampshire

In preparation for undertaking field work to be conducted in 2015, NHDES conducted a variety of follow-up activities related to field work conducted in 2014. In order to enable the taxonomic identification and enumeration of macroinvertebrate samples, NHDES contracted with ESS Group. In April of 2015 NHDES provided the 2014 macroinvertebrate samples for six sites to the new taxonomic contractor for sorting, identification, and enumeration. ESS Group provided the taxonomic results and NHDES reviewed them, and sent to the Maine DEP Biomonitoring Program for review and input through Maine's predictive model.

Maine's Biomonitoring Program provided the results of the predictive model for the six sites. Three wetlands were given an "A attainment class", one a "B attainment class", and one a "C attainment class". Analysis of the attainment class and additional data collected will be conducted when data from the remaining site become available.

NHDES hired a wetlands sampling intern and conducted field training for the sampling team. NHDES first identified wetlands to sample and sought landowner permission where needed. NHDES then conducted reconnaissance of potential wetland sampling locations to ensure that the sites would meet the required criteria – type, water depth and accessibility (and landowner permission).

Photo by Ross Moldoff, Town of Salem

NHDES needed and obtained landowner permission to sample five of the 18 sites (three "wader" sites and two "canoe" sites). For four of the five sites, at least the access, if not the wetland, was located on private land. For the fifth site, the municipality requested that NHDES seek permission from the Board of Selectmen, and the NHDES project manager attended a meeting of the Salem Board of Selectmen. For at least four additional wetland sites, NHDES sought formal permission, but essentially notified the property owner of the agency's presence to conduct sampling.

NHDES sampled some sites located in watersheds beyond the Watershed Management Bureau's watershed rotation to increase the diversity of sites subject to a range of impacts from human disturbance.

In 2015, NHDES began sampling wetlands during the last week in June and completed sampling of 18 wetlands by August 15, thus completing sampling of 24 wetlands planned for the grant task during the two field seasons (2014 and 2015). The 24 wetlands sampled by NHDES are listed in Table 1 below.

Table 1: Wetlands Sampled by NHDES (2014-2015)

Town	Wetland	HUC8 Watershed
Alstead	Fuller wetland	West River
Bow	Town Pond	Merrimack
Canterbury	Oxbow Pond	Merrimack
Concord	South End Marsh	Merrimack
Deerfield	Pawtuckaway Marsh	Piscataqua-Salmon Falls
Enfield	George Pond	Connecticut/ Black-Ottauquechee
Franconia	Echo Lake wetland	Waits River
Greens Grant	Mt. Wash. Auto Rd – tributary to Peabody River (White Mountain National Forest)	Lower Androscoggin
Hanover	Mulherrin Farm Rd. pond	Upper Connecticut -Mascoma
Hooksett	Clay Pond	Merrimack
Hudson	Musquash Pond	Merrimack River
Jaffrey	Contoocook River wetland	Contoocook River
Manchester	Rail Trail Marsh	Merrimack

Town	Wetland	HUC8 Watershed
Manchester	Joseph Street Pond	Merrimack
Marlow	Baine Rd- Gregg wetland	Middle Connecticut
Nashua	Fields Grove/ Salmon Brook	Merrimack River
Nashua	The Cove	Nashua River
New Boston	Great Meadow	Merrimack
Pembroke	Brickett Hill Pond	Merrimack
Salem	World End Pond	Merrimack
Salem	Salem High School wetland	Merrimack
Troy	Perkins Pond- upper (loc. Jaffrey)	Middle Connecticut
Whitefield	St Johns River	Waits River
Woodstock	Elbow Pond (WMNF)	Pemigewasset River

In 2015, NHDES changed the tool used to sample aquatic vegetation (using a shrub rake rather than a hand cultivator), which resulted in more effective sampling of vegetation.

Task 1 (NHB): The Natural Heritage Bureau (NHB) of the Department of Resources and Economic Development were charged with several tasks under this grant, including some that specifically support the monitoring and assessment work that NHDES is conducting.

Task 2 (NHB): NHB researched aquatic bed systems (lakes and ponds) and developed a draft classification to assist staff in conducting macroinvertebrate sampling and Ecological Integrity Assessment / Floristic Quality Assessment in aquatic bed communities. The document, ***Draft Classification of Freshwater Lakes and Ponds in New Hampshire*** is available on line. The 22 ponds that were sampled to gather data for the classification report are listed in Table 2 below.

Table 2: Sites of NHB Aquatic Bed Surveys (2015)

Site	Town	Site	Town
Barbadoes Pond	Madbury	Greenough Pond	Salisbury
Bear Brook – Fluvial Pond #1	Deerfield	Ice Pond	Lincoln
Bear Brook – Fluvial Pond #2	Deerfield	Lake Solitude	Newbury
Black Pond	Lincoln	Lime Pond	Columbia
Blackwater River – Fluvial Pond #1	Salisbury	Little Cherry Pond	Jefferson
Blackwater River – Fluvial Pond #2	Salisbury	Mack Pond	Madison
Blue Pond	Madison	North of Black Pond	Lincoln
Cherry Pond	Jefferson	Pond of Safety	Randolph
Cranberry Bog	Madison	Pond of Safety – Fluvial Pond	Randolph
Drew Pond	Madison	Round Pond	Gilford
Fish Pond	Columbia	Stag Hollow Brook – Tributary – Fluvial Pond	Randolph

Task 3i (NHB): NHB developed wetland system-specific rank specifications to support application of the Ecological Integrity Assessment for all NH wetlands. The report, ***Rank Specifications for Wetland Systems in New Hampshire*** **-** *For use with the Level 2 Ecological Integrity Assessment Method,* is available online.

Task 3ii (NHB): Apply the Conservation Status Assessment for the 27 wetland system types in New Hampshire

As part of this task, NHB reevaluated the condition of 78 exemplary wetlands (both natural communities and systems) ranked "BC" or "BC?" to determine which could be assigned a B or a C using the L2 Environmental Impact Assessment (EIA) method. A summary of results follows:

- Fifteen wetlands are no longer considered exemplary. NHB has a high level of certainty regarding their downgraded rank to the point where field confirmations are not needed.
- Eight wetlands are probably not exemplary and require a field visit to confirm their newly assigned non-exemplary status.
- Eighteen wetlands that remained exemplary after desktop reviews require field surveys to gather sufficient data to allow us to confirm their priority wetland status using current standards.
- Out of this subset of 78 wetlands, at least 19% (and up to 30%) are no longer considered exemplary using current assessment standards and 31% require field visits to either confirm their down-graded status (n=8) or reaffirm their exemplary status (n=18).

The summary report, ***Applying NatureServe's Conservation Status Rank Methodology to New Hampshire Wetland Systems*** is available online.

Task 4 (NHB): NHB reviewed more than 250 existing wetland system records in its Biotics database and applied the Level 2 EIA method to those records. The review (detailed in the submitted report) identified that:

- Nine percent (18) of the occurrences are no longer considered exemplary.
- The overall wetland system rank changed from a lower rank to a higher rank for 44 percent (89) of the occurrences and from a higher rank to a lower rank for 25 percent (51) of the occurrences.
- The overall wetland system rank stayed the same for 31 percent (62) of the occurrences.
- Forty percent (81) of the occurrences have been identified as high priorities to be re-surveyed and additional desktop work to improve record quality.

In addition, NHB made improvements to the Access database form by adding a wetland system filter option, calculating land use index, and adding a field for the index score.

Task 5 (NHB): This effort was to provide outreach materials. In addition to the deliverables posted on the website, NHB developed fact sheets for all 27 wetland systems occurring in which comprise the report ***Fact Sheets for Wetland Systems in New Hampshire*** is available online.

Task 6 (NHDES): The two main aspects to this task were 1) to develop a GIS-based protocol for technical review of proposed impacts from projects that are the subject of wetland applications, and 2) to develop technical review checklists to provide guidance on GIS review and other considerations.

Wetlands Bureau GIS Protocol:

A protocol was developed for GIS data collection and mapping for applications submitted to the NHDES's Land Resource Management Program (LRMP). The protocol was developed to accomplish the following objectives:

- Georeference wetlands permit applications, shoreland permit applications, notifications, and LRMP complaints.
- Ensure consistency, standardization, and training in data collection procedures.
- Provide concise guidance to the GIS analyst, the GIS team, and other LRMP personnel.
- Ensure LRMP personnel GIS needs are met.

Technical review checklists were developed in the following specific areas:

Fish and Wildlife Review Process:

- Fish and Wildlife Checklist
- Fish and Wildlife Impact Considerations Checklist

Water Quality Review Process:

- Water Quality Trigger Checklist
- Water Quality Impact Considerations and Checklist

Additional standardized permit language was created for the database (permit pick lists) and impact-tracking categories were defined and expanded to assist with reporting and program analysis.

Task 7: Develop new Memorandums of Agreement (MOAs) with sister programs and agencies

NHDES held internal discussions on requirements for pre-application materials. In February of 2015, NHDES participated in NEIWPCC Wetlands Work Group meeting where state and federal coordination procedures were discussed. NHDES learned that EPA and Corps would be interested in having states establish a formal process similar to the monthly transportation meetings. There was also an interest in having NHDES set up an electronic site for the receipt of pre-application materials prior to such meetings.

NHDES staff Mary Ann Tilton and William Thomas presented a pre-application coordination concept at the New Hampshire Fish and Game environmental review meeting in March of 2015. The NH Fish and Game director and staff were receptive to this concept. Subsequently, NHDES internally circulated a draft MOA through the NHDES Water Division director and to the NH Fish and Game director for review and comment.

NHDES also sought and received information on pre-application materials and criteria triggers used by the NHDES Coastal Program, NHDES Dam Safety Bureau, NHDES Watershed Management Bureau, US Army Corps of Engineers, and EPA.

With summarized coordination information staff began preliminary discussions and scheduled a meeting with the NHDES Public Information and Permitting Unit to discuss how pre-application coordination meetings are scheduled by the Commissioner's office. NHDES received comments from Fish and Game attorney on draft MOA and has begun incorporating these suggestions.

Task 8: Grant Management: NHDES has exceeded the 25 percent match required under the grant.

2015 Grant #1: Under the newest grant, **Wetland Biocriteria and Outreach tools in New Hampshire (CD00A00014),** awarded in the fall of 2015, the major tasks are as follows:

1a. Investigate development of numeric biocriteria thresholds for aquatic life use support in fringing and emergent wetlands.

1b. Develop and test aquatic vegetation sampling protocols with Maine to use with the standard wetland biomonitoring protocols being used by NH and Maine.

2. Evaluate and document historical exemplary wetland systems so they can be reliably used for environmental reviews and conservation planning. (NHB)

3. Develop thresholds for interpreting Floristic Quality Assessment (FQA) scores that are specific to NH wetland types. (NHB)

4. Update NHWPP for 2017-2022 timeframe.

5. Develop resources for new Wetlands Mitigation Pre-application Coordination Resources web page.

6. Develop new wetlands message and outreach tools that incorporate new published research and eLearning methods and tools for the public.

7. Grant Administration, Quality Assurance, Outreach and Reporting

In October of 2015, NHDES began working on tasks associated with the new grant.

2013 Grant #2: Enhancing Mitigation Procedures and Tracking (CD96179301-0)

NHDES received a second grant from EPA in 2013 titled “Enhancing Mitigation Procedures and Tracking.” NHDES began implementation of Grant #2 on October 1, 2013 and submitted the final report in March, 2016. The three main projects under the grant included the following:

1. Build the mitigation program capacity by developing new procedures for review and developing a tracking system.

2. Coordinate training on the NH Method, Level 2 EIA, and Natural Plant Community Systems to wetland professionals and local communities.

3. Update the New Hampshire Wetland Program Plan to include adaptations and a resiliency plan on climate change.

Task 1: Develop new Mitigation Procedures and work with partners and stakeholders to revise wetland mitigation rules to address new guidelines and process.

In March of 2014 NHDES began examining all aspects of the Wetlands Program and initiated the Wetlands Program Rulemaking and Process Improvement Effort (WPRPIE).[1] NHDES was interested in hearing all ideas for improving the rules and developed a discussion guide to provide background on some concepts and topics that were being evaluated. The overarching goals of the WPRPIE are as follows:

1. Enhance transparency and predictability.
2. Increase consistency and standardization.
3. Ensure that decisions made are scientifically based and protective of New Hampshire's sensitive and important natural resources.

The NHDES wetland mitigation rules were first adopted in 2004 and were due to expire in June, 2015. Although the rules have not changed significantly from adoption, there were revisions to the NH wetlands law in 2010 that affected the mitigation program. With that in mind, the NHDES mitigation rule revisions focused on addressing the amendments to the law (RSA 482-A). The two major changes in the law included adding a payment option for compensating stream impacts and eliminating the three-acre threshold for projects eligible to use the in-lieu fee payment option.

Led by Mitigation Coordinator Lori Sommer, NHDES established a Mitigation Rules Workgroup (MRW) to discuss potential rule revisions. MRW participants included representatives from the NH Association of Natural Resource Scientists, NH Department of Transportation, the NH Association of Conservation Commissions, members of the ARM Fund Site Selection Committee, representative from the Association of General Contractors, Granite State Designers and Installers, U.S. Army Corps of Engineers, EPA, NHDES, and several private consultants. The group met at NHDES on February 13, 25, and March 11, 2015. Over 33 stakeholders were invited to share comments with NHDES. Most of those invited attended one or more of the meetings.

As noted by the MRW, submittal of a model dredge and fill application to the NHDES requires good planning, collection of detailed information, and coordination with local, state and federal resource officials for review and comment. Exploration of local mitigation options with the local conservation commission is a prerequisite an applicant must exhaust prior use of the fourth option of payment into the ARM Fund.

Over the years, some applicants have seen the local mitigation option exploration prerequisite as a burdensome and time-consuming hurdle. To assist applicants in this process, NHDES developed a proposed rule, with stakeholder support, that references the need for conservation commissions to develop a list of local mitigation opportunities for review by wetland applicants (new Env-Wt 801.03(a) (Mitigation Priority List). Such a list would include a land conservation project, restoration / enhancement location that may include wetlands, streams, or both, and a stream passage improvement priority such as upgrade of a deficient culvert or improvements to an existing stream crossing to improve aquatic organism passage. If a community does not have a project that adequately compensates for the impacts or does not have a Mitigation Priority List, the applicant reports this as part of the application materials and may qualify for the in-lieu fee payment option.

As a result of the MRW meetings, revisions were drafted mostly to Chapter 800 with corresponding revisions to several definitions (Env-Wt 100), and to some procedures (Env-Wt 500).

[1] http://des.nh.gov/organization/divisions/water/wetlands/process-improvement.htm

Chapter 100:

The following new definitions were adopted: “Certified Wetland Scientist” as defined in RSA 310-A, (2) “Service area” and “Wetland enhancement”.

Chapter 500:

The existing rules, Env-Wt 500, establish the review process for (1) mitigation proposals, (2) data requirements, (3) the mitigation sequence process, (4) items needed for a mitigation proposal to be deemed complete, and (5) what is involved in the review of mitigation proposals. The proposed change eliminates the one-acre and three-acre thresholds (to reflect statutory changes). Additionally, a pre-application meeting is required for projects requiring mitigation. The amendments are intended to improve the administrative process for mitigation proposal review and clarify the rules to reflect what is already required under federal law. The changes will benefit the environment and the public by clarifying criteria and process for stream impacts and stream mitigation projects. A summary of the Draft mitigation rules is found below:

Chapter 800:

Env-Wt 800, Compensatory Mitigation rules, establish the procedures and substantive requirements that apply when compensatory mitigation is required for unavoidable wetlands impacts. Specifically, the rules establish acceptable forms of mitigation, the amount of mitigation required, the information needed for a mitigation proposal to be deemed complete, the criteria used to evaluate mitigation proposals, the requirements for accepting an in-lieu fee payment, use of the ARM Fund, requirements for ARM Fund applicants, and ARM Fund project evaluation criteria.

As part of the readoption, amendments were made to clarify existing requirements, improve the wetland mitigation submittal, evaluation and permit process, align the state rules with legislative changes and federal requirements, and to clarify ARM Fund operation.

Specific requirements to be changed are: (1) elimination of the one-acre and three-acre thresholds to correspond with RSA 482-A, (2) addition of a new methodology to be used in evaluating wetland functions within a development site and for the proposed mitigation site, (3) clarification of wetland and vernal pool creation criteria, (4) clarification of assessment of in-lieu fee payments distinguishing between wetland and stream impacts, (5) clarification on the separation of ARM Fund stream impact payments from wetland impact payments, (6) addition of a pre-proposal process for ARM Fund requests, (7) clarification of the Site Selection Committee review process and (8) addition of stream projects to the ARM Fund review criteria.

Pre-Application Review Process:

The compensatory mitigation rules were first adopted in 2004. Since the adoption of these rules, applicants have found it beneficial to meet with NHDES to discuss the mitigation requirements and exchange information with state and federal resource agency staff on mitigation proposals. Prior to 2016 rules adoption of these recent mitigation rules, pre-application meetings were not required but have been encouraged. These meetings, when successful, will accomplish multiple objectives:

- Ensure early and effective communication between the applicant and NHDES.
- Help identify and define one or more of the following early in the permitting process: regulatory requirements, processing timeframes, pitfalls to avoid hints for success, potentially applicable infrastructure limits, and policy considerations.

- Establish direct links between the customer and designated NHDES personnel for subsequent communications.
- Provide for efficient use of time, effort, and resources on the part of both NHDES and the applicant.

The Wetland Mitigation Coordinator's role is to schedule meetings on projects that require mitigation or by their nature, will involve scrutiny by other state and federal agencies particularly the US Army Corps of Engineers (Corps) and EPA. At these meetings it is NHDES standard practice to coordinate other state and federal agency staff to ensure comprehensive feedback so the application will be complete when submitted. It has been noted that applicants that do not meet with the review agencies prior to submittal have difficulty in submitting a complete application which results in delays in the review process. These pre-application meetings have been helpful in establishing the items needed for a complete application package and to work out the mitigation details with all regulatory agencies. After conferring with the Mitigation Wetlands Rules Workgroup, agreement was reached that a pre-application meeting should be required for projects required to provide mitigation.

The proposed rule revisions were reviewed by the Wetlands Council at a meeting held May 12, 2015. Council members provided several comments and generally in concurrence with the rule changes. A public hearing on the rules was held at NHDES on July 29, 2015 with seven people in attendance. NHDES filed the final proposal to JLCAR in November of 2015. The following final rule revisions were officially adopted on February 1, 2016 and can be found at: http://des.nh.gov/organization/commissioner/legal/rules/index.htm#wetlands

2013 Grant #2: Task 1: Revise wetland application and other mitigation submission materials for new process and information requirements

In 2015 application materials were not revised as the new proposed rules were not officially adopted. Existing application forms and materials were reviewed for possible revisions.

Task 2: Implement new mitigation procedures

Numerous efforts to raise awareness of the permit process and coordinate the ARM Fund program with other land conservation initiatives were pursued over the grant period. These opportunities for presenting information on the grant program have resulted in more awareness of how the regulatory process works, first-hand knowledge of the available funds by municipalities and various land conservation organizations, and much improved grant application submittals. Table 3 lists the outreach events and informational exchanges that were provided by the program.

Table 3: ARM Fund Presentations and Outreach Efforts

Event	Date	Location
NH Department of Transportation and American Council Engineering Companies	January 2015	Concord
NH Bar Association Quarterly Meeting	February 2015	Concord
Constant Contacts electronic news	March / April, 2013-2015	E-news
Websites and Municipal Eco-Link	February, March, June 2013-2015	Various organizations

Through the outreach efforts, awareness of the ARM Fund program has grown. This awareness has translated into an increase in the ability for organizations to leverage funds to complete large and expensive land transaction projects. Leveraging of funds is defined as additional funding

beyond the ARM Funds for a project that is counted toward completion of the project. Applicants are encouraged to pursue partnerships as much as possible and leveraged funds should be noted in the budget materials submitted. Having more partners that assist with funding a project is often a key to success. In the 2015 grant round, the matching funds associated with grant awards was the most in the history of the program reaching $3.1 million. This is a strong indication that project proponents understand how to coordinate multiple grant program requirements, utilize available scientific information and reports to identify significant projects, and gather the support to move costly yet meaningful projects forward.

Task 3: Develop mitigation tracking system

Through funds from this grant, the Wetlands Bureau was able to hire a part-time employee with the appropriate skills to fulfill this grant task. Melinda Bubier was hired in June of 2014 to review NHDES permit files that made an in-lieu fee payment to mitigate for wetland impacts. The tracking system Ms. Bubier developed summarizes wetland impact amounts and functions and values impacted, and includes the following information:

- NHDES permit file number
- Army Corps of Engineers file number
- Site location (including town, latitude, and longitude)
- Project name
- Service area and HUC 8 watershed
- Payment information (amount, date, etc.) from the file and confirmed with the information in the permit
- Stream name
- Protected / endangered species impacted
- Vernal pool impact
- Secondary and conversion impacts
- Type of project (municipal, residential, commercial)
- General notes (maintained for other items of interest including if the project was completed or potential compliance issues)

The impact-tracking system evolved as more recent files were reviewed to better account for stream impacts and create consistency for conversion and secondary wetland impacts as well as vernal pool impacts. These impacts require mitigation pursuant to ACOE requirements and guidance for these impacts is currently under review by the ACOE. Mitigation staff held several meetings with representatives from ACOE and EPA to discuss how these impacts should be tracked in RIBITs and additional guidance is currently underway.

Task 4: Conduct a review of wetland permits that included a payment into the ARM Fund and projects that received funds and populate the Army Corps RIBITS database

In-lieu fee payments have been tracked internally based on file number, impact amount, and general impact type since the program's inception in 2006. However, the detailed information required by the ACOE database, RIBITS, was not added. The outcome of this task was to develop a tracking procedure and update the RIBITS database.

A project kick-off meeting was conducted with Ruth Ladd from the ACOE on June 19, 2014 to create a login profile with appropriate permissions for the new staff to access RIBITS, and to establish the critical pieces of information required for RIBITs and the level of detailed required. At this meeting it was decided that wetland impacts would be documented by Cowardin class and the date entered would correspond to the date the payment was received by NHDES. RIBITS does not have an area for functions and values information and that information would be input into the comments field.

Based on the amount of data and number of projects to be entered, an Excel spreadsheet was created to track the files reviewed and compile the information required for RIBITS. The Excel spreadsheet was populated with a list of wetland impact projects by permit number which paid an In-Lieu fee. Information to populate the spreadsheet was obtained from the NHDES FoxPro database, the permit file, and Google Earth. Once the information was obtained, the information was input to the RIBITS database. Information input to RIBITS can be viewed by the general public through the RIBITS website[2].

Task 5: NH Method training and data collection

The ***Method for Inventorying and Evaluating Freshwater Wetlands in New Hampshire*** (NH Method) was originally published in 1991 and extensively revised and updated in 2011, with additional updates made in 2012, 2013, and December of 2015. The NH Method evaluates 12 wetland functions and can be used to evaluate single wetlands or multiple wetlands (comparative evaluation) in a study area. It is the most frequently used wetland evaluation method for community and watershed-based wetland assessments in the state. In 2012, the ***NH Wetlands Mapper***, an online web tool, was developed as a companion to the NH Method. This easy-to-use web tool was designed to assist both GIS and non-GIS users conduct functional evaluations of wetlands based on the NH Method. It includes a set of flexible map display, navigation, query, and printing tools, as well as the companion forms required to conduct the evaluation.

The goals of this grant task are as follows:

- Provide participants with intensive classroom instruction and hands-on field experience in using the NH Method and the NH Wetlands Mapper for wetland evaluation.
- Ensure consistency in the way participants apply the NH Method through training, facilitated discussion, and field evaluation.
- Revise and update the NH Method based on feedback from workshop participants and others.

Through the second year of this grant, NHDES provided a second round of two-day hands-on training in the use of the NH Method and the NH Wetlands Mapper to two audiences:

- Professionals including staff from state agencies (NHDES, NHDOT, NH Fish & Game) and private consultants (including wetland scientists, soil scientists, biologists, and others).
- Community volunteers including conservation commissions, planning boards, community open space committees, and other interested parties.

[2] https://ribits.usace.army.mil/ribits_apex/f?p=107:100:72013509358::NO::P100_PROGRAM_ID:21

As with Year 1 of the grant (2014), instructors for the NH Method and NH Wetlands Mapper training included the four primary co-authors of the NH Method (Amanda Stone, Frank Mitchell, Rick Van de Poll and Nancy Rendall). During the project period, trainings were held in the fall of 2014 and the spring of 2015 (May 29, 2015 and June 5, 2015).

The “day 1” indoor classroom session for both trainings was held at the NH Technical Institute in Concord, NH, where we had use of both classroom space and a lab of 20 computer stations with internet access (necessary for using the NH Wetlands Mapper). There was a limit of 20 participants per training session. These smaller groups allowed for a high degree of interaction between presenters and participants. The NH Method Workshop Team used the same presentations from 2014, but modified it following feedback from workshop participants. Topics included review of the NH Method, review of functions 1-6, review of functions 7-12 with a more in-depth technical review of flood storage for professionals (a less-technical presentation was given to community volunteers), review of section D, review of wetland restoration criteria, and review of the NH Wetlands Mapper including review of extracting data needed for field visits, creating maps, and drawing watershed boundaries.

The “day 2” field training for both trainings was held at Bear Brook State Park in Allenstown, NH. The Hayes Marsh was the primary field site for wetland assessment. This was the same location used as in 2014, to ensure consistency among the groups trained. Participants met at the NH Department of Resource and Economic Development warehouse classroom in Bear Brook State Park in Allenstown, NH. After a brief overview indoors, the group spent the morning at Hayes Marsh. The focus of the field visit was to collect field-based data for the evaluation. Presenters provided field instruction and were available for questions and discussion. Participants returned to the classroom to complete data sheets. Presenters were on hand to assist participants as needed. Participants were asked to complete a copy of their responses to questions before the group discussion, so results could be reviewed for inconsistencies and areas in the NH Method that needed modification to reduce or eliminate this variability could be addressed (see the resulting edits to the NH Method below). The group reviewed and discussed participant results and entered the final data into the Excel spreadsheet.

The NH Method Workshop Team used the online evaluation tool from 2014 and emailed it to all participants following each training workshop. There was an average response rate of 64%. The results below reflect a participant agreeing / strongly agreeing with the following statements:

- 100% of respondents increased their familiarity with how the NH Method works.
- 82% of respondents increased their understanding of ecological integrity, wildlife, aquatic habitat and social functions.
- 82% of respondents increased their understanding of the hydrologic functions (flood storage, groundwater, sediments, nutrients, shoreline).
- 79% of respondents increased their comfort level with analyzing the results of wetland evaluation using the NH Method.
- 93% of respondents increased their ability to use the NH Wetlands Mapper.
- 100% of respondents increased their understanding of completing a wetland evaluation using field and map information.
- 100% of respondents felt that the two-day training format was a good use of their time.
- 100% of respondents increased their knowledge about wetland evaluation as a result of this training.

- 100% of respondents learned something they will apply to their work or future decisions.
- 100% of respondents improved their ability to locate wetland-related information.

2015 Update of the NH Method:

The NH Method was due to be updated in 2015 since it was last updated in July of 2013. Project partners took advantage of the opportunity to use feedback from workshop participants and the results of inter-observer variability that were assessed during the trainings to make changes to the wording of questions and clarify instructions to reduce this variability. The NH Method primary co-authors worked on revisions and updates to the NH Method from July through November of 2015. Specific changes that were made to questions and instructions in each of the functions that served to clarify the information required are listed below. It is anticipated that these changes will help to reduce inter-observer variability. Specifically, functions 1, 2, 3, 4, 5, 7, 8, 9, 10, and 11 were updated. NH Method questions were reworded, definitions were added, clarification was provided, and specific guidance was provided on How to Answer Questions on over 22 of the questions.

Conclusions and Recommendations:

Both the indoor classroom training and field training allowed participants to understand the principles of wetland evaluation, conduct a wetland evaluation using existing information and collect field data, use the NH Wetlands mapper as a tool for wetland evaluation. The two-day training format was well received by workshop participants who appreciated the additional time to absorb the information and have more time to interact with the instructors.

Using feedback from participants in both years of the training program, the NH Method Presentation Team concluded that some of the inter-observer variability found among participants is largely a function of the wording of the questions in the NH Method which can lead to some misinterpretation of the questions. Once participants had the questions explained to them, we found that there was more agreement on the responses to questions. We collected data from participants to assess the areas of variability and found the following:

- Some variability was a result of participants not reading the full instructions for that question. Where several participants did not fully understand what that question was asking, the question was flagged for rewording to reduce the source of variability.
- Some variability was introduced by participants who had no prior experience with wetland evaluation along with little or no background in wetland science, so a lack of knowledge about wetlands resulted in some questions not being answered correctly.
- At least 50% of the participants attending the training were using the NH Method for the first time. Our experience with using the NH Method has shown that users are more consistent with their results when they have used it several times and have a better overall understanding of what the questions are asking and how the NH Method works.
- The 2015 update of the NH Method resulted in revising some questions and instructions in order to make them to clearer and non-ambiguous, which, in turn, will help to generate more consistent results. Overall, the 2015 version of the NH Method is greatly improved as a result of the feedback from and assessment of the results generated by workshop participants.

Task 6: Conduct training on EIA and natural plant communities

NatureServe and state partners from NHB, in collaboration with federal agencies, have developed an assessment of wetland system condition, structured around the concept of ecological integrity. The NHB Ecological Integrity (EIA) Method is a multi-metric approach similar to the Index of Biological Integrity (IBI) for aquatic systems and a variety of state-based wetland rapid assessment methods (RAMs). EIA is rapid (Level 2) objective, science-based method for assessing wetland condition. The NHB EPA report under this grant is available on line at: http://www.nhdfl.org/about-forests-and-lands/bureaus/natural-heritage-bureau/publications/report.aspx.

Through this grant, NHB provided four, two-day EIA wetland condition trainings designed to meet the needs of natural resources professionals and community stakeholders. One of the goals of the training was to advance the EIA Method so that is accessible to a much broader audience. Data on the condition or ecological integrity of systems can be used to aid functional assessments, monitor status and trends, prioritize sites for conservation or restoration, guide mitigation applications, and contribute to land use planning. Using the NHB wetland system classification system is critical for comparison to reference examples and to enhance a surveyor's ability to assess condition through an improved understanding of wetlands ecology.

On November 12, 2014, NHB gave a presentation during the New England Biological Assessment of Wetlands Workgroup (NEBAWWG) meeting summarizing NHB's progress on this EPA project. In 2015, NHB also provided a presentation to the NEWIPCC Wetlands Workgroup summarizing the revised method.

Task 7: Update NH Wetland Program Plan

In 2014 and 2015 the NHDES Wetlands Bureau participated in a Department-wide initiative to develop a Climate Change Action Plan. In the spring of 2015 the NHDES Wetlands Bureau finalized its Climate Change Action Plan using a NHDES-wide template which included several parameters including: general category; bureau response, potential partners, and data needs. At the NHDES April 1, 2015 meeting with EPA, the Wetlands Bureau presented its summary of its Climate Change Action Plan action items. Additionally, NHDES provided a summary of the evaluation tool that is being used Department wide. The NHDES Wetlands Bureau also evaluated these responses using the NHDES evaluation tool considering feasibility and resource limitations. In the fall of 2015, the NHDES Wetlands Bureau also participated in a Water Division-wide discussion on climate action strategy going forward.

The NHDES Wetlands Bureau serves on the department-wide Climate Action Team to guide strategic planning and implementation. The NHDES Wetlands Bureau modified its Wetlands Program Plan in 2015 to address climate change. The **Wetland Program Plan** (WPP) was approved by EPA and is available on line.

In 2015, the NHDES Wetlands Bureau added a new climate change statement to its Wetland Program Plan. *"With the increase in frequency and severity in extreme weather events, New Hampshire is seeing increased road washouts from undersized culverts and increased erosion and damage from storm events. Climate change is real, serious, and substantially anthropogenic and is responsible for the many of the changing environmental conditions that put New Hampshire's residents, communities, and sensitive natural resources and wildlife and their habitats as risk. Working with local, state and federal partners and within our intra-agency programs to address*

climate change issues is more important than ever. As a FEMA study shows, a dollar spent on [impact] mitigation saves society an average of $4[3]."

WPP Climate Change Action Plan

Core Element #2: Restoration and Protection

Action a) Develop new and use existing tools and science to inform regulatory decision.

- **New Activity:** Use and adapt existing tools to inventory and assess existing stream crossings.

Action b) Continue to develop the ARM Fund Program to maximize efficiency of program / use of funds for ecologically sustainable projects.

- **New Activity:** Identify a method to prioritize stream restoration and protection projects.

Action c) Mitigation impacts to wetlands and aquatic resources.

- **New Activity:** Develop formal relationship with Fish and Game to protect and mitigate significant regulated wildlife resources and assist with updates and implementation of the NH Wildlife Action Plan.

Action d) Use data to inform regulatory decisions related to mitigation.

- **New Activity:** Incorporate wetland monitoring and assessment information into regulatory decision-making.

Core Element #3: Data / Monitoring and Assessment / Water Quality Standards

Action b) Develop a GIS-based wetland catalog system capable of update.

- **New Activity:** Update NWI wetland maps to inform existing models and tools, including wetland monitoring and assessment, wetland permitting and ARM Fund programs.

Core Element #4: Outreach and Education / Local Capacity Building

Action a) Coordinate wetland message into other Water Division outreach.

- **New Activity:** Develop wetlands message and outreach tools (fact-sheets, presentations, etc.) focused on important functions and values (wildlife, flood protection, and water quality).

Phase 2 of the NHDES-wide climate initiative is "Evaluation and Prioritization." On March 23, 2015 NHDES was scheduled to hold another "Cookies and Climate Change" meeting to discuss next steps relative to evaluation and prioritization. The NHDES Assistant Wetlands Bureau Administrator is a member of the CLEANR Team, the NHDES-wide Climate Change team that has reviews and provides suggestions on NHDES-wide climate change activities.

[3] https://c.y.mcdn.com/sites/www.nibs.org/resource/resmgr/MMC/hms_vol1.pdf."

Phase 2 took place in April and May of 2015 and the each NHDES program will:

1. Evaluate their climate assessment matrices by scoring each proposed response against a set of criteria.

2. Prioritize their responses.

3. Submit those priorities to senior leadership.

With the mitigation grant, NHDES has taken actions to implement these climate change action items.

Task 8: Develop new ARM Fund climate change criteria

The Aquatic Resource Mitigation (ARM) Fund was created as an additional compensatory mitigation option available to applicants proposing 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. The NHDES is authorized to collect mitigation funds *in lieu of* other forms of wetland mitigation as part of a wetlands application. NHDES holds and manages funds to be offered as grants for projects that will accomplish long-term environmental results. ARM Fund payments are collected according to nine service areas. ARM fund grant projects must consider the service area goals and replace and/or protect wetland and other aquatic resource functions and values that were impacted by development projects in the service area. Projects that have deposited money into the ARM Fund and corresponding information about the wetland loss and the wetland functions and values associated with this loss, can be reviewed at: http://des.nh.gov/organization/divisions/water/wetlands/wmp/documents/arm-fund-ledger.pdf.

NHDES has the responsibility to work with a Site Selection Committee (Committee) which reviews, evaluates, and selects wetland restoration, upland preservation, wetland creation, and aquatic resource improvement proposals that have requested ARM funding. Selected projects are subject to approval by the US Army Corps and the NH Wetlands Council (Council). The Committee's goal is to select high priority projects that most effectively compensate for the loss of watershed aquatic resource functions and values due to multiple, small wetland impacts within the impacted Service Area. In its project selection process, the Committee shall consider completeness, planning, implementation, monitoring, and outreach necessary for project success.

An ideal ARM Fund grant project would provide resource restoration within the context of a proposed land conservation proposal. NHDES encourages projects that provide connectivity to other protected resources or are in close proximity to the wetland impacts. Opportunities to provide benefit to rare resources such threatened or endangered plants and animals, or unique wetland resources such as vernal pools are also looked upon favorably. Proposals are scrutinized for the likelihood of project success and the sustainability of the resource functions and values that are proposed for restoration, enhancement, preservation, or creation. In addition, the overall mitigation potential, environmental significance of the project, cost-effectiveness and partnership potential are assessed during the evaluation and ranking of applications.

Through the EPA grant, the Committee was tasked with considering strategies for addressing climate change. A discussion on whether the evaluation criteria could be revised in order to provide additional points to efforts that address climate change initiatives was held. The following four areas were targeted for improvements with the overarching topic of adapting to climate change brought into each area discussed:

- Projects with a focus on Land / Wetland Acquisition / Legal Protection.
- Wetland Restoration/Creation Projects.
- Stream Restoration Projects.
- Determining Criteria for Invasive Species Management Projects.

Land / Wetland Acquisition / Legal Protection

Where there is benefit from land being protected against future development, two key components of a potentially high scoring land protection project proposed under the ARM Fund grant process are ones that include habitats of high ecological value, and / or rare resources (natural community or threatened/endangered plant / wildlife, or vernal pool complex).
Habitat, plant community, wildlife profiles and maps are available to applicants through the NH Fish and Game Department's Wildlife Action Plan (WAP)[4]. In addition, the NHB data check tool[5] allows a landowner to query for records of known occurrences on their site or in the vicinity. With the WAP and NHB review a person can gather information on land that is of statewide or regional significance. The WAP was recently updated for public use.

A third component is whether the project is adjacent to other conservation lands or provides linkage to other protected parcels. The more connected to other existing conservation lands the more sustainable the landscape will be for maintaining quality habitat over the long term. With the increased stresses of climate change on remaining sensitive wetland landscapes, the need to identify high functioning protection parcels has become heightened.

Another very important consideration for identifying projects with high likelihood for funding is whether the aquatic resources and their associated buffers will be protected. Language in the conservation instrument generally dictates what practices can take place and what activities are prohibited. NHDES staff was using language for land protection projects that was provided by the easement holder. In general, this was acceptable but the documents varied according to regional issues and experience of the organization. Due to these discrepancies, this last item was the focus of attention by the Committee and interagency review team for improvement. Conservation practices and maintenance of vegetation are an significant consideration in evaluating the value of the land protection proposed.

On June 19, 2015 a meeting was convened by NHDES to focus on the development of a standard ARM Fund easement deed. The meeting included members of the Site Selection Committee, other state and federal agency staff, land trust organizations and private consultants familiar with conservation easements. Following the meeting, several versions of edits to the draft standard easement template were circulated. A final version was completed and the result is a much stronger template for all ARM Fund conservation projects which allows existing practices to take place while recognizing sound management practices need to be instituted to maintain the quality of aquatic resources being afforded long-term protection.

Wetland Restoration, Enhancement and Creation

An applicant seeking ARM Funds can propose wetland or other aquatic resource restoration, including the re-establishment of a filled, dredged or otherwise altered resource to its natural condition, in order to restore or enhance lost functions to the greatest extent practicable. This can

[4] http://www.wildlife.state.nh.us/wildlife/wap.html
[5] https://www2.des.state.nh.us/nhb_datacheck/

be accomplished through the removal of fill, restoration of hydrology to the area, or by other means. The request for funds can include the development of final restoration plans and the costs associated with the proposed restoration work such as site clearing and excavation, construction management, consulting fees, permit costs, grading and soil augmentation, disposal costs of excavated materials, and planting. The funds can also go towards the permanent legal protection of areas adjacent to the restored resource to insure long-term sustainability, and for subsequent monitoring and maintenance expenses that may be necessary until the site is successfully restored.

A functional assessment of each of the wetlands to be restored, protected, enhanced, and/or created is required to be provided using the 2015 Method for Inventorying and Evaluating Freshwater Wetlands in New Hampshire[6] (NH Method) or the 1993 Method for the Evaluation and Inventory of Vegetated Tidal Marshes in New Hampshire (Coastal Method), as amended. Preference will be given to those projects for which a detailed wetland evaluation has been completed by a Certified Wetland Scientist. A summary table of the wetlands on site and the functions and values associated with each wetland shall be included with the application package. For restoration projects, an indication of which functions will be enhanced or restored should be highlighted in this table. A new application worksheet was developed and used in the 2014 and 2015 grant rounds. This form requires the documentation of aquatic resources on the site according to acres or linear feet of resources and allows for the Site Selection Committee to compare projects more easily.

As noted above, the NH Method was under final revision during this EPA grant project and has been updated. An additional outcome from this update was the development of a set of questions that could indicate the potential need for restoration on a project site, or ways ecological conditions could be improved. This set of questions should be considered by an ARM Fund applicant when wetlands are impaired or have reduced function. This information helps applicants identify potential opportunities for improving functions and values that were previously not considered and can improve the overall environmental gains of a project.

Because of scientific studies showing little functional replacement from wetland creation projects, wetland creation as a form of mitigation has generally not been favored in New Hampshire. In discussions with the Committee, it was decided that there may be some circumstances where wetland creation is valuable if done correctly and if it is located properly.

Stream Restoration

The NH Comprehensive Flood Study Commission (2007), a legislative committee, reviewed New Hampshire's recent experience with floods has underlined their potential danger and costly devastation. Due to the nature of the conditions that affect flooding the means to reduce the risk of flood losses are not simple or easy. To reduce the impact of flooding there must be sustained investment and cooperation from individuals, businesses, private organizations, municipalities, the state and the federal government. New Hampshire has averaged about one major and destructive flood per decade since the early 20th century, and three major flood events in 2005, 2006 and 2007. A common theme amongst all of the data collected by this commission was that floods and flood damage can be mitigated, though not fully avoided, through a variety of land use and development regulations, proactive conservation and restoration activities, real-time data and accurate floodplain mapping availability, and infrastructure maintenance and design.

[6] www.nhmethod.org

As part of this report, DOT, NHDES and NH Fish & Game, with input by The Nature Conservatory, were tasked to develop the procedure and database for a standard culvert assessment data collection. In 2014, NHDOT, as the lead agency, launched an initiative to develop a Statewide Asset Data Exchange System (SADES). This effort included staff of the mitigation program, New Hampshire Geological Survey (NHGS), NHFG, and the Division of Homeland Security and Emergency Management (HSEM). The SADES was recognized by all agencies to serve as the shared, authoritative repository for collected stream crossing data. This system focuses on NHDOT transportation assets and represents an extension of New Hampshire's stream crossing assessment initiative. The use of updated data collection technology, combined with an online real-time GIS-based data management system will greatly enhance and expand the statewide dataset.

Stream crossing assessment data is important for many purposes. These assessments allow crossings to be rated for their compatibility with river form and process (geomorphic compatibility), the ability to pass a range of flow levels (hydraulic capacity), and ability to pass fish (aquatic organism passage, or AOP). Stream crossings that are not properly sized for the rivers and streams that contain them can increase the chances of sediment and wood buildup, and ponding of water, which can increase failure risks, while also affecting the ability for fish to pass upstream through such crossings. Data can be used to find crossings most liable for public safety risks, and to select for replacement those that will reduce such risks and improve fish passage. This initiative, the Stream Passage Improvement Program within NHDES, is a partnership between NHGS and the Wetlands Bureau, who have worked closely on this issue during the past several years, and has been a long-term response to failures that have occurred in the state in recent years.

- During the summer of 2014, through a partnership with the University of New Hampshire (UNH) Technology Transfer Center (T^2), an additional 1,000 culverts were assessed. To enable our quality control review process to keep pace with this number of culverts, NHGS staff developed computer code to read submitted data to automate "red flagging" of problems to help reduce the time required for quality control of submitted data, while continuing to ensure its maximal quality. We estimate that about 130 hours of staff time was performed on this task.

- Wetlands Bureau staff, particularly in the mitigation program, have contributed many hours toward ensuring that our protocols and statewide stream crossing assessment efforts are aligned with established agency policies and regulations.

- In the summer of 2015, NHDES hired 10 interns with to complete assessments of 1,400 stream crossings in two watersheds: the Souhegan and Sugar (Claremont area). Upon completion of this suite of collection, and consequent assignment of geomorphic and aquatic organism passage compatibility rankings, this will bring the total number of entire watersheds for which data is available to three, which includes the Piscataquog watershed. This assessment effort is worth a cash value of approximately $90,000, and will bring the total number assessed in the state to approximately 3,400.

- NHDES Wetlands Bureau and NHGS staff will continue quality control review of data submitted in the future, and calculating geomorphic and aquatic organism passage compatibility rankings for all culverts for contribution to the statewide dataset.

- NHDES Wetlands Bureau and NHGS staff members are actively collaborating with NHDOT and T^2 relative to the data management components of SADES and long-term maintenance of the system.

Draft evaluation criteria for reviewing SPIP applications were developed and the ARM Fund Site Selection Committee beta tested the following draft rules for projects with a stream restoration component during the 2015 grant round:

A maximum of 27 points shall be assigned based on the potential the project has to provide a stream passage improvement for stream resources in the service area that were impaired, and those that have been identified by the site selection committee as priorities for the application cycle.

The project shall receive 20 to 27 points if it is a combination of a stream passage improvement with a floodplain or other wetland restoration component, and the structure to be replaced:

a. Has a geomorphic compatibility score of fully incompatible or mostly incompatible or has a score indicating that no aquatic organism passage, including salmonids, exists, or both.

b. Will provide over 10 miles of connectivity after the work is completed.

c. Meets the criteria of both a. and b.

The project shall receive 13-19 points if it is a stream passage improvement without a floodplain or other wetland restoration component and the structure to be replaced meets the criteria in a. or b., or both.

The project shall receive 6-12 points if it is a stream passage improvement without a floodplain or other wetland restoration component and the structure to be replaced:

a. Has a geomorphic compatibility score of partially compatible or mostly compatible or has a score indicative of reduced aquatic organism passage.

b. Will provide over 5 miles of connectivity after the work is completed.

The project shall receive one to 5 points if it is a stream passage improvement and the structure to be replaced:

a. Has a geomorphic compatibility score of partially compatible or mostly compatible or has a score indicative of reduced aquatic organism passage but will improve hydraulic conditions.

b. Will provide up to 5 miles of connectivity after the work is completed.

At the conclusion of the grant round, the Committee and federal agency representatives determined that the draft language does not take into consideration the wide array of stream restoration projects and should be further reviewed. For instance, a project proposing to install woody structure in a stream that was void of material would not fit into any category thus not receive any points. The consensus was to not go forward with the draft rules as noted above at this time. However, a general rule allowing stream projects to receive up to 27 points would be included so stream restoration projects could be provided a score. The program staff plans to work with the Committee further and continue drafting more comprehensive rules in the future.

Finally, the NHDES Wetlands Bureau and Geological Survey staff are continuing discussions with NHDOT, NH Fish & Game Department, the Homeland Security and Emergency Management office, and the University of New Hampshire to determine whether the existing stream assessment protocol meets the needs of all agencies, takes into consideration all watershed-based efforts, and is in alignment with regional efforts also underway. The goal is to establish a framework for further

stream crossing collaboration among data collection and management entities. This effort is a component of the 2015 EPA Wetland Program Development Grant titled “Building Climate Change Resiliency in New Hampshire by Prioritizing Wetland and Stream Mitigation Opportunities (Track Two)” to be pursued during the 2015-2017 grant period.

Task 9: Update NH Method and Level 2 EIA, and identify improvements for NH Mapper tool.

NH Method Revision - December 2015

The 2015 update to the NH Method focused on rewording some questions and clarifying some instructions to reduce inter-observer variability in wetland evaluations. It also focused on adding additional and updated information and resources and updated hyperlinks.

Updates to the NHB Ecological Integrity Assessment (EIA) method

In preparation for the training workshops in Year 1, significant advances were made to the EIA method and protocols. With regards to vegetation classification, it remains very important to classify to system type of wetland being assessed. There is no longer a need to classify natural community types within the wetland system, just a need to identify vegetation zone (shrub thicket, marsh, peat mat, etc.).With regards to the importance of referencing system rank specifications, once a wetland system has been classified, the surveyor is directed to reference the newly developed system rank specifications before completing the Metric Form. All forms (Recon Form, Stressor Checklist, and Metric Form) can are designed to be completed in the field, increasing accuracy of assessment (surveyor is now able to complete all three forms in field as a result of simplified, less time-consuming vegetation data collection).

- **Rapid Recon Form:** Modified to eliminate vegetation data and simplified woody species strata columns. This form was pared down to include condition and overall rank.
- **Stressor Checklist:** Developed a human stressor index that includes pre-assigned severity values to most stressors.
- **Metric Form:** Developed user-friendly form with A-D rating criteria, broad habitat types, landscape context, and a natural buffer metric.
- **Manual:** Increased clarity and guidance and added a simplified guidance system key, condition and hydrology metrics, and a draft system size rank table.
- **EIA Scorecard:** Developed an EIA Excel spreadsheet with easy to use instructions and allow for land use index exportability.

Under the newest grant, **Building Climate Change Resiliency in New Hampshire by Prioritizing Wetland and Stream Mitigation Opportunities (CD00A00016),** awarded in the fall 2015, the major tasks are as follows:

1. Update National Wetland Inventory maps in select watersheds and publish on GRANIT.
2. Re-establish statewide technical workgroup related to stream crossings.
3. Collection of field data in Merrimack and Piscataqua watersheds (up to five subwatersheds).
4. Evaluate surveyed stream crossings for aquatic organism passage and geopmorphology parameters.

5. Prioritize culvert replacement projects within each watershed.
6. Update conservation layers – post 2006.
7. Outreach of updated information.
8. Cross training of permitting staff with culvert assessment protocol and database updates.
9. Grant Administration, Quality Assurance, Outreach and Reporting.

In October 2015, NHDES began work on the new grant, to facilitate use of the funds and drafting of a MOA to provide funds to Virginia Polytechnic Institute and State University, one partner on the grant.

PERMITTING ACTIVITIES

Permits Received

The number of standard dredge and fill permit applications received by the Wetlands Bureau has remained relatively stable over the past several years. As the economy has continued to improve, the number of applications has steadily increased. However, in 2015, the Wetlands Bureau issued 54 less standard dredge and fill permits than in 2014. This is illustrated in Table 4 and Figure 1.

Table 4: 12-Year Trend of Wetlands Standard Dredge and Fill Applications Received (2004-2015)

2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
807	916	939	840	602	539	514	485	501	501	581	527

In 2015, the Wetlands Bureau issued 490 less notifications and applications than in 2014. This is illustrated in Table 5 below.

Table 5: 12-Year Trend of All Wetland Permit Applications and Notifications Received (2004-2015)

2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
2,714	2,606	2,775	2,479	2,109	2,006	2,383	2,287	2,158	2,159	2,255	2,065

Figure 1 illustrates the 12 year trend for the 11 different types of wetland applications and notices.

The number of Shoreland permit applications received by the Wetlands Bureau has fluctuated over time. Applications received increased from 2008 to 2009, decreased from 2009 to 2010, decreased from 2010 to 2012, and increased again from 2012 through 2015. In 2015, the Wetlands Bureau issued 87 more standard Shoreland permit applications than in 2014. This is illustrated in Table 6 and Figure 2.

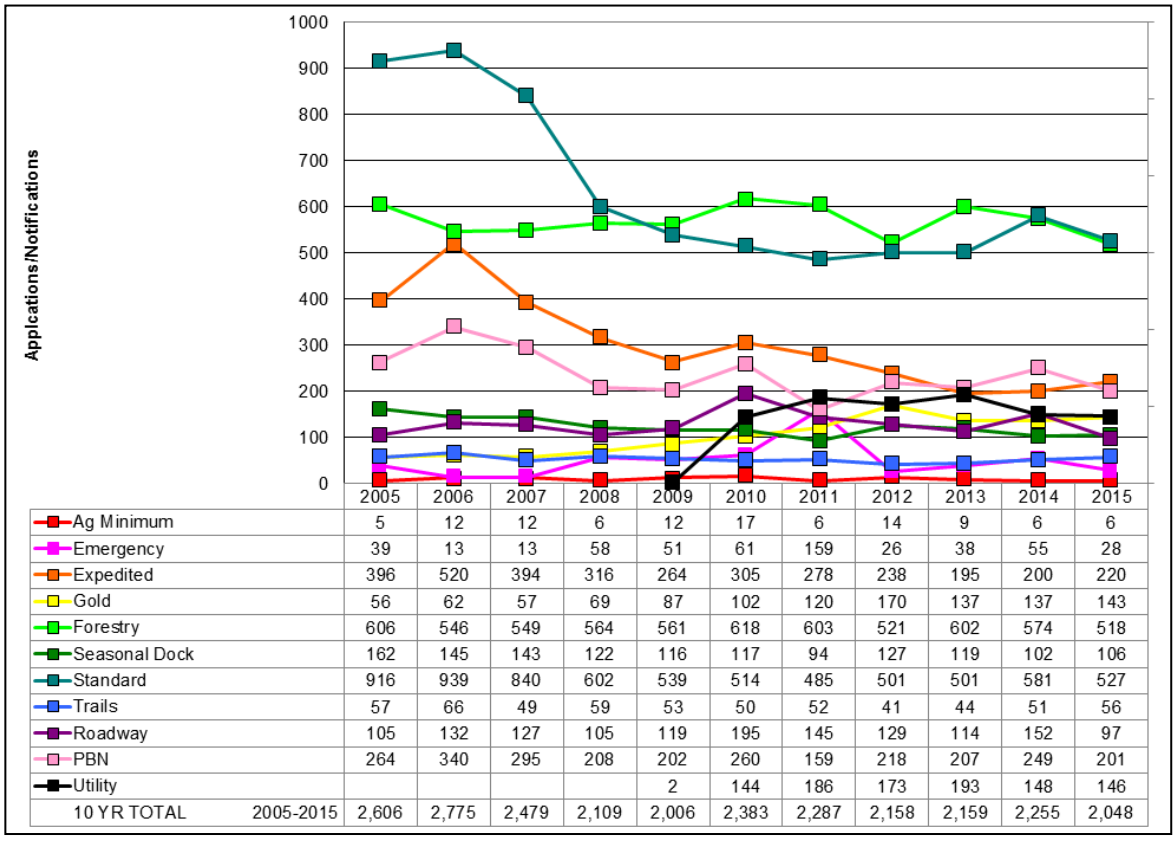
Table 6: Eight-Year Trend of Standard Shoreland Permit Applications Received (2008 – 2015)

2008	2009	2010	2011	2012	2013	2014	2015
381	797	817	626	466	546	518	605

Similarly, the total number of all Shoreland permit applications received by the Wetlands Bureau also fluctuated. Applications received increased dramatically from 2008 to 2009, stayed relatively stable in 2010, dropped slightly in 2011, but then saw an annual increase from 2012 through 2015 with the Wetlands Bureau issuing 110 more Shoreland applications than in 2014. This is illustrated in Table 7 and Figure 2.

Table 7: Eight-Year Trend of All Shoreland Permit Applications Received (2008 – 2015)

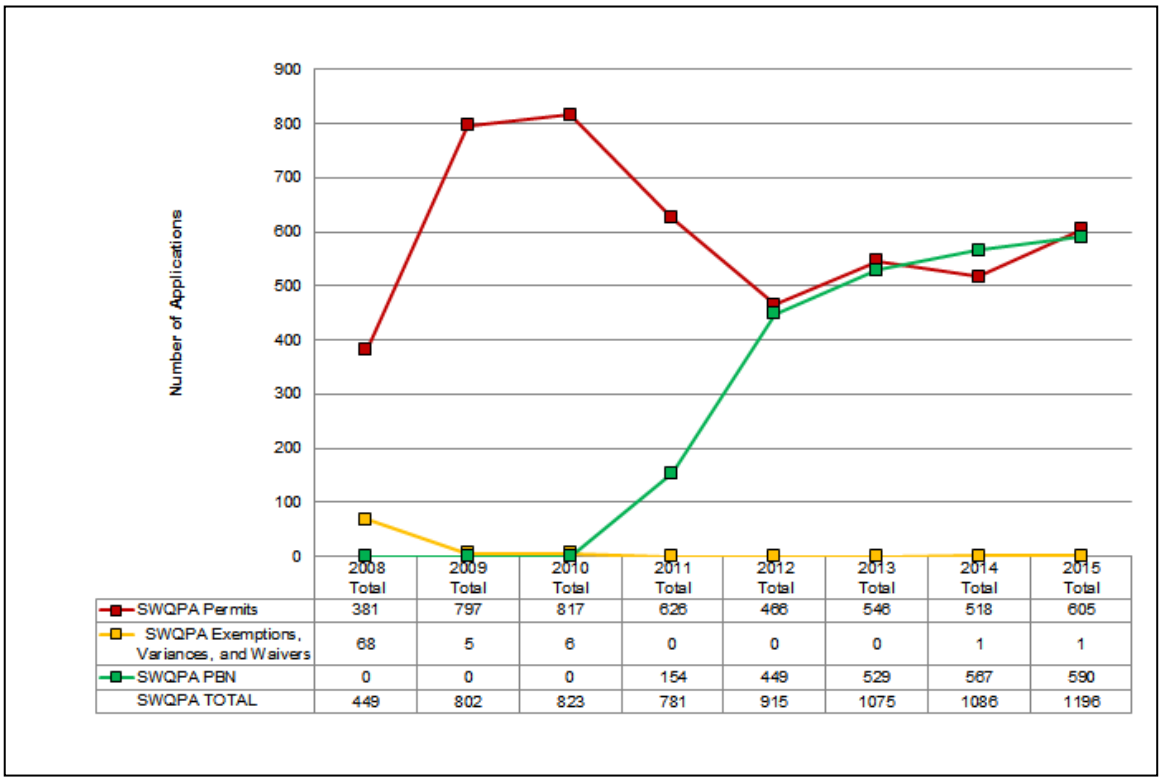
2008	2009	2010	2011	2012	2013	2014	2015
449	802	823	781	915	1075	1086	1196



	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Ag Minimum	5	12	12	6	12	17	6	14	9	6	6
Emergency	39	13	13	58	51	61	159	26	38	55	28
Expedited	396	520	394	316	264	305	278	238	195	200	220
Gold	56	62	57	69	87	102	120	170	137	137	143
Forestry	606	546	549	564	561	618	603	521	602	574	518
Seasonal Dock	162	145	143	122	116	117	94	127	119	102	106
Standard	916	939	840	602	539	514	485	501	501	581	527
Trails	57	66	49	59	53	50	52	41	44	51	56
Roadway	105	132	127	105	119	195	145	129	114	152	97
PBN	264	340	295	208	202	260	159	218	207	249	201
Utility					2	144	186	173	193	148	146
10 YR TOTAL 2005-2015	2,606	2,775	2,479	2,109	2,006	2,383	2,287	2,158	2,159	2,255	2,048

Figure 1: 10-Year Trend of All Wetland Permit Applications Received (2005 – 2015)

Figure 2 illustrates the eight-year trend for three categories of applications. In 2011, the Wetlands Bureau stopped issuing exemptions, variances, and waivers.



	2008 Total	2009 Total	2010 Total	2011 Total	2012 Total	2013 Total	2014 Total	2015 Total
SWQPA Permits	381	797	817	626	466	546	518	605
SWQPA Exemptions, Variances, and Waivers	68	5	6	0	0	0	1	1
SWQPA PBN	0	0	0	154	449	529	567	590
SWQPA TOTAL	449	802	823	781	915	1075	1086	1196

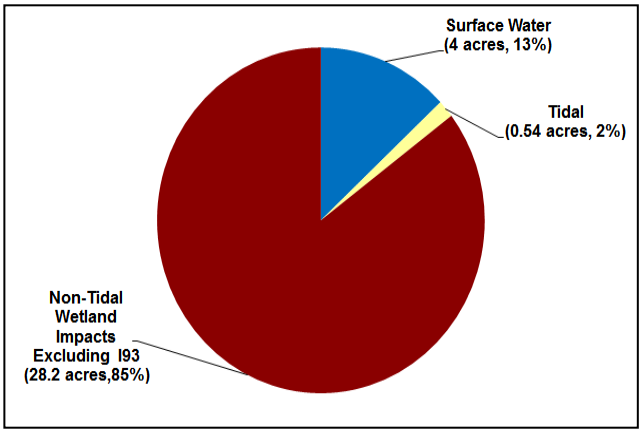
Figure 2: Eight-Year Trend of Shoreland Permits Received (2008 – 2015)

Table 8 illustrates the amount of impacts permitted based on project type for 2015. The highest percentage of permitted impacts is for road access, bridge construction and stream crossings. Commercial and residential development, bank stabilization and maintenance also provided significant project impacts.

Table 8: Permitted Wetland Impacts by Project Type for Calendar Year 2015

Project Type	Square Feet	Percentage
■ Road Access / Bridge / Stream Crossings	1,591,387	50%
■ Restoration / Enhancement	479,449	15%
■ Lot Development / Commercial / Residential	296,520	9%
■ Dredge/Fill/Other	472,830	14%
■ Maintenance	238,592	7%
■ Bank Stabilization	93,644	3%
■ Shoreline / Docks	40,690	2%
Total		**100**

The total impacts by wetland type are shown in Figure 3. Non-tidal wetlands are subject to the greatest loss at 22.67 acres or 48 percent. The tidal impacts are the lowest at 2.91 acres or six percent. In 2015 the impacts to surface water were significantly skewed by a single dredge project. The permit approved the dredge of approximately 11.5 acres of accumulated sediments from Osgood Pond in four phases in order to restore the functions and values of a deep-water habitat to the wetland system. The project will be entirely contained within the existing pond, without disturbance to the area of bordering wetland vegetation around the perimeter of the pond.



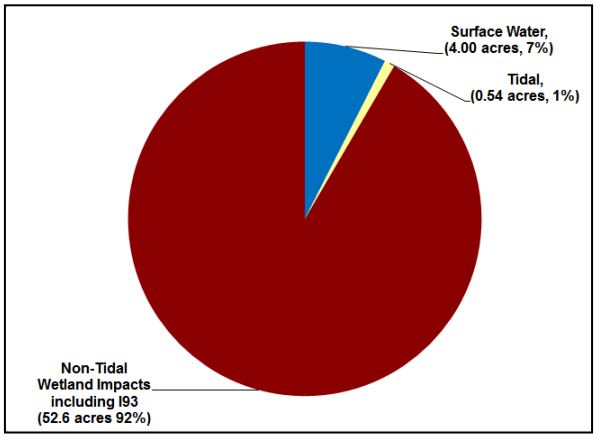
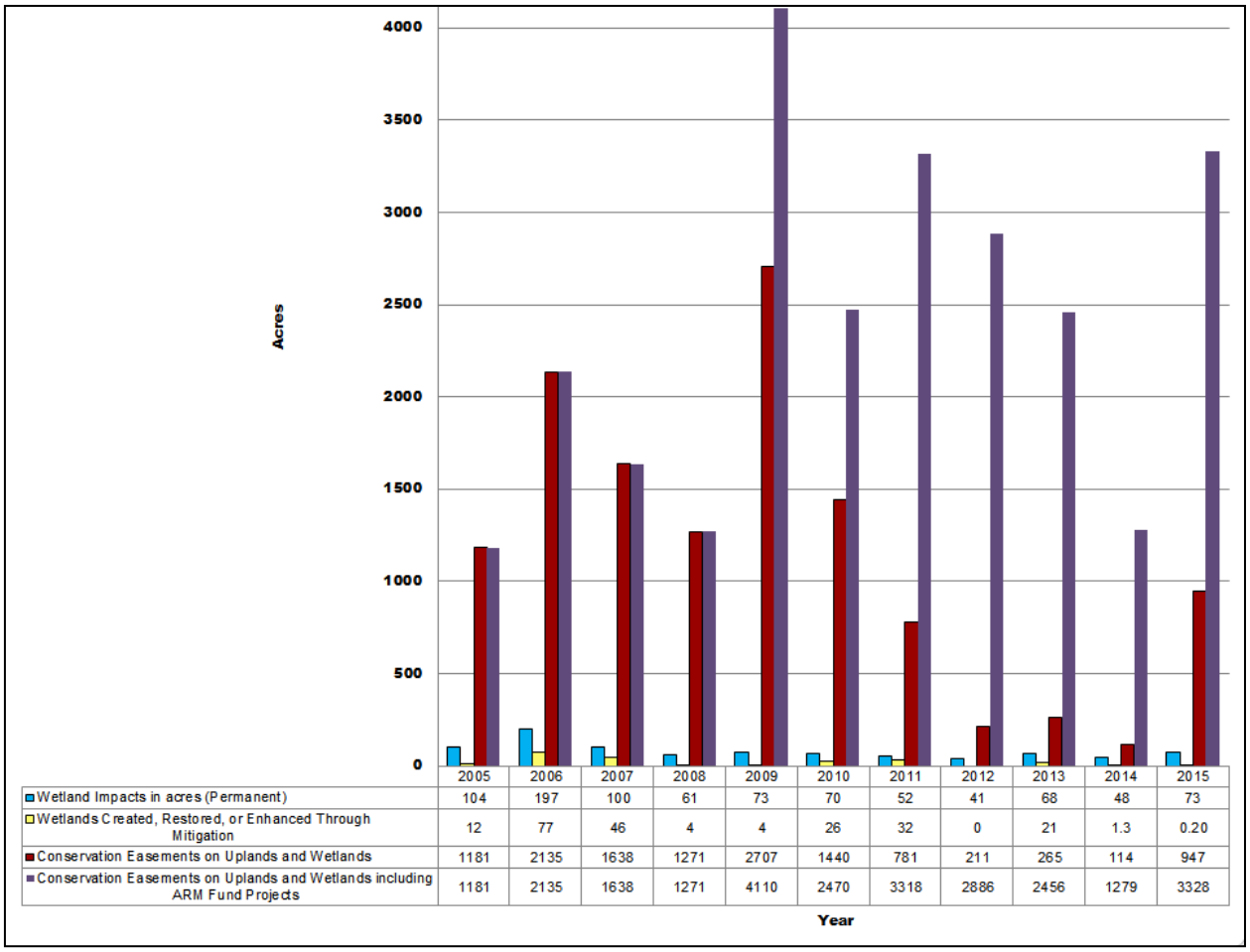


Figure 3 (Left): Permitted Wetland Impacts by Wetland Type Excluding I93 Reconstruction Permit

Figure 4 (Right): Permitted Wetland Impacts by Wetland Type Including I93 Reconstruction Permit



	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Wetland Impacts in acres (Permanent)	104	197	100	61	73	70	52	41	68	48	73
Wetlands Created, Restored, or Enhanced Through Mitigation	12	77	46	4	4	26	32	0	21	1.3	0.20
Conservation Easements on Uplands and Wetlands	1181	2135	1638	1271	2707	1440	781	211	265	114	947
Conservation Easements on Uplands and Wetlands including ARM Fund Projects	1181	2135	1638	1271	4110	2470	3318	2886	2456	1279	3328

Figure 5: Wetland Impacts and Mitigation (Creation, Restoration and Land Protection), 2005-2015

The shift in use of permittee-responsible mitigation methods is a result of lack of available restoration projects and the increasing use and success of the In Lieu Fee ARM (Aquatic Resource Mitigation) Fund program (See the Aquatic Resource Mitigation Section of this report for more information).

Figure 6 illustrates generalized permanent wetland impacts which required payment into the ARM Fund in 2015. The total amount of permanent wetland impacts which required mitigation was 11.86 acres. In addition, 5,223 linear feet of perennial streams and 4,242 linear feet of intermittent stream were impacted. It is important to note that a significant amount of these impacts are related to the I-93 roadway extension which added wetland impacts of 9.58 acres, 4,039 linear feet of perennial stream and all the intermittent stream impacts. This project will cause 1.36 acres of temporary impacts to PEM (0.78 acres) and PEM (0.57 acres) wetlands.

Given the large and complex nature of the I-93 project a detailed break-out by wetland by type was difficult and some areas and wetland types were lumped together.

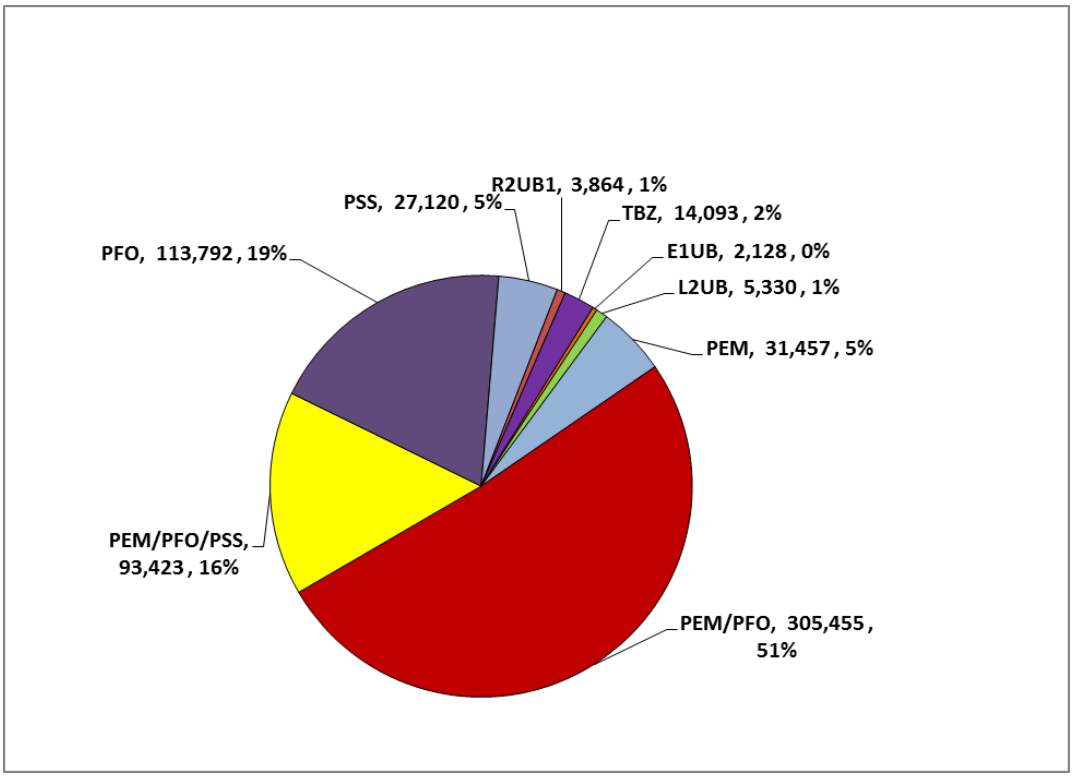


Figure 6: Types of Wetland Impacts in Square Feet Which Required Payment into the ARM Fund in 2015

Figure 7 illustrates the large percentage of municipal and highway projects which contribute to over half of the ARM Fund payments (Impacts depicted in square feet).

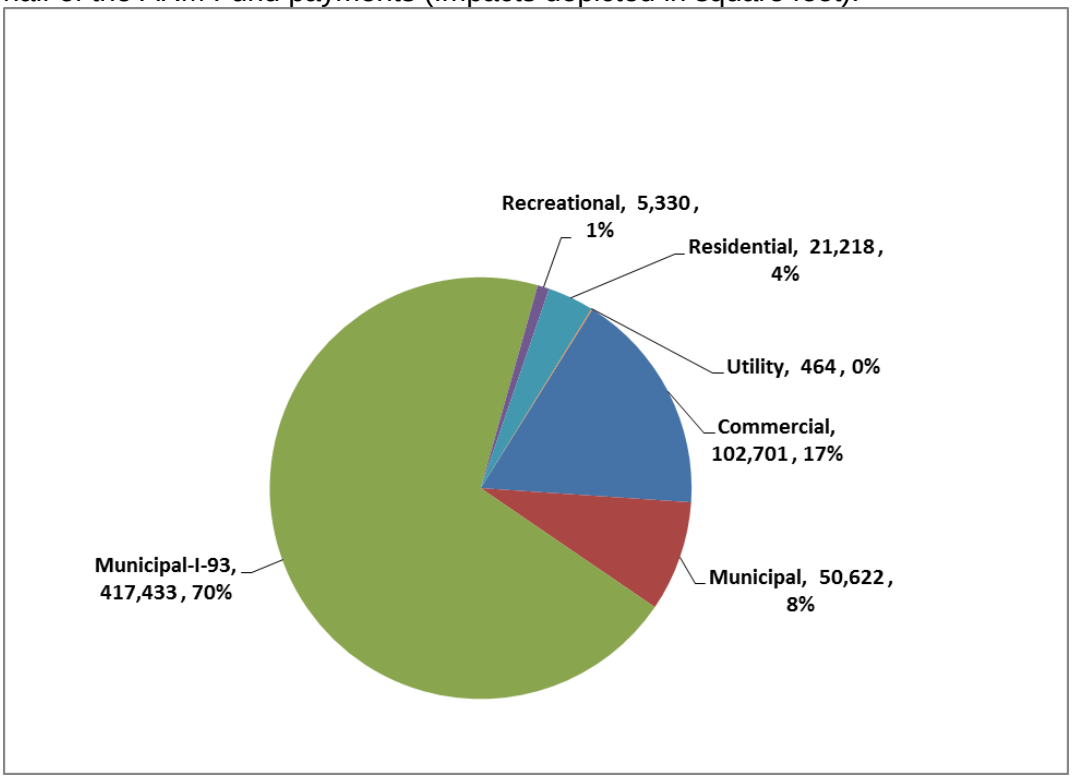


Figure 7: Summary of 2015 Wetland Impacts Requiring ARM Fund Payment by Project Type

COMPLIANCE ACTIVITIES

Complaints Received

In 2015, the Wetlands Bureau received 201 written complaints. The program breakdown for these complaints is as follows: 140 complaints alleging violations of RSA 482-A, the NH Wetlands Statute; 50 complaints alleging violations of RSA 483-B, the Shoreland Water Quality Protection Act (SWQPA); 5 complaints alleging violations of RSA 485-A, Alteration of Terrain; and six complaints alleging water quality complaints.

Of the 97 complaints alleging violations of RSA 482-A, 97 (69.3 percent) related to the dredge / fill of wetlands, 19 complaints (13.6 percent) related to docking structures, 15 complaints (10.7 percent) related to beaches or retaining walls, and 9 complaints (6.4 percent) related to forestry and logging operations. Table 9, below, includes a breakdown by percentage:

Table 9: Number and Percentage of Complaints by Type for Calendar Year 2015

Category	Description	Number	Percentage
■ WET	Wetlands (Dredge & Fill)	97	48.26%
■ SWQPA	Shoreland Water Quality Protection Act	50	24.88%
■ DOCK	Docks	19	9.45%
■ SHORE	Beaches, Retaining Walls	15	7.46%
■ FORESTRY	Forestry / Logging	09	4.48%
■ WQ	Water Quality	06	2.99%
■ AOT	Alteration of Terrain	05	2.49%
		201	**100.00 %**

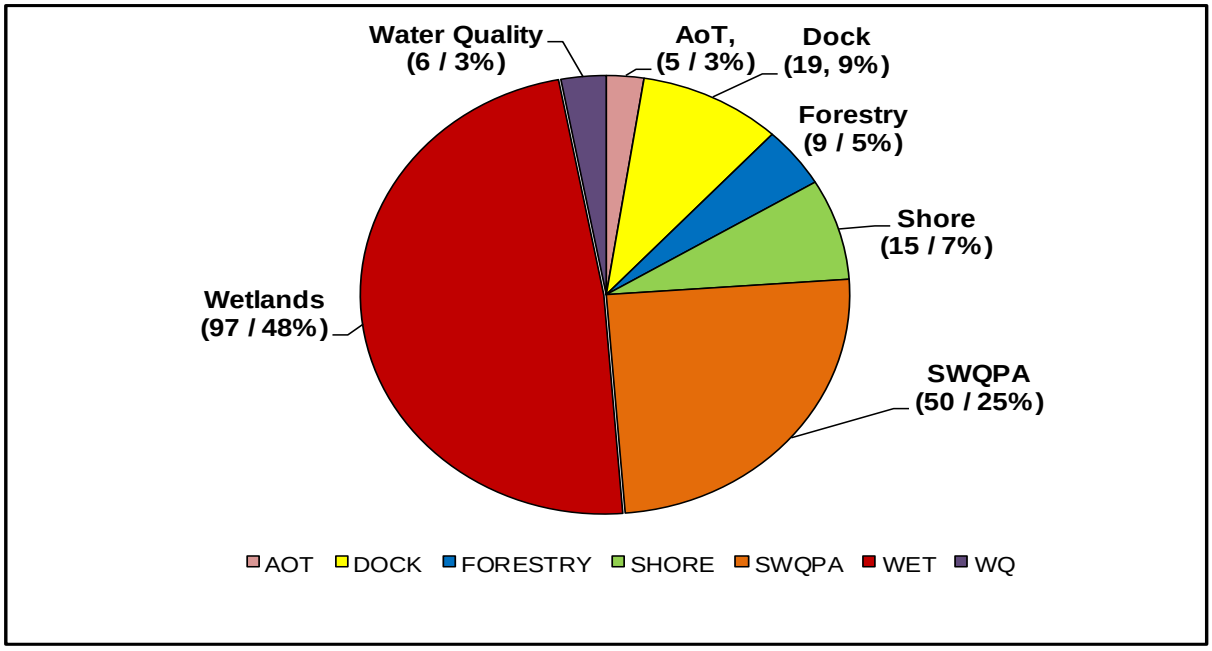


Figure 8: Number and Percent of Complaints by Type for Calendar Year 2015

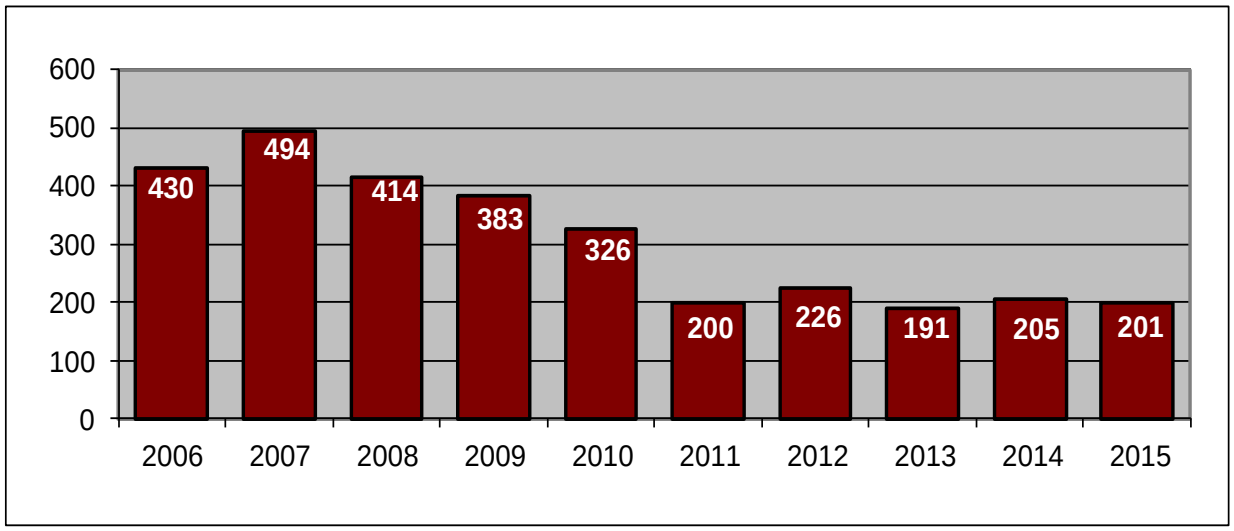


Figure 9: **Ten-Year Trend of Number of Complaints Received (2006 - 2015)**

Compliance Actions Taken

If possible, the Wetlands Bureau attempts to resolve minimal violations during or immediately following a site inspection through informal means by issuing an on-site restoration request or by issuing a Letter of Deficiency. In cases where the impact is larger or more environmentally damaging, where the violator has a prior enforcement history, or if the violator is unwilling to work cooperatively with the Wetlands Bureau to correct the deficiencies, more formal action(s) may be taken in the form of an Administrative Order, referral to the Department of Justice, and / or imposition of administrative or civil penalties. A 10-year trend of wetland compliance actions by type is illustrated in Table 10 below.

Table 10: Ten-Year Trend of Wetland Compliance Action by Type (2006-2015)

Compliance Action Type	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
■ Complaints Received	430	494	414	383	326	200	226	191	205	201
■ Informal Restoration Requests	72	63	65	50	41	40	20	22	265	337
■ Notices of Past Violations	15	06	06	19	05	12	07	58	49	20
■ Letters of Deficiency	160	113	99	92	55	28	34	27	44	42
■ Administrative Fines	07	09	05	07	11	09	04	01	03	02
■ Administrative Orders	32	09	16	19	14	18	04	03	17	06
■ Referrals to the Department of Justice	06	03	07	06	05	03	01	02	05	09
	722	**697**	**612**	**576**	**457**	**310**	**296**	**304**	**588**	**617**

The Wetlands Bureau will also seek fines consistent with its statutory authority and the Compliance Assurance Response Policy (CARP). In 2015, the Wetlands Bureau collected approximately $66,895.83 in administrative fines and civil penalties. The reduction in money collected can be attributed to receiving fewer complaints than in the past and a reduction in compliance staff to perform inspections of permitted sites. Civil penalties and administrative fines collected for violations of RSA 482-A are illustrated in Figure 10.

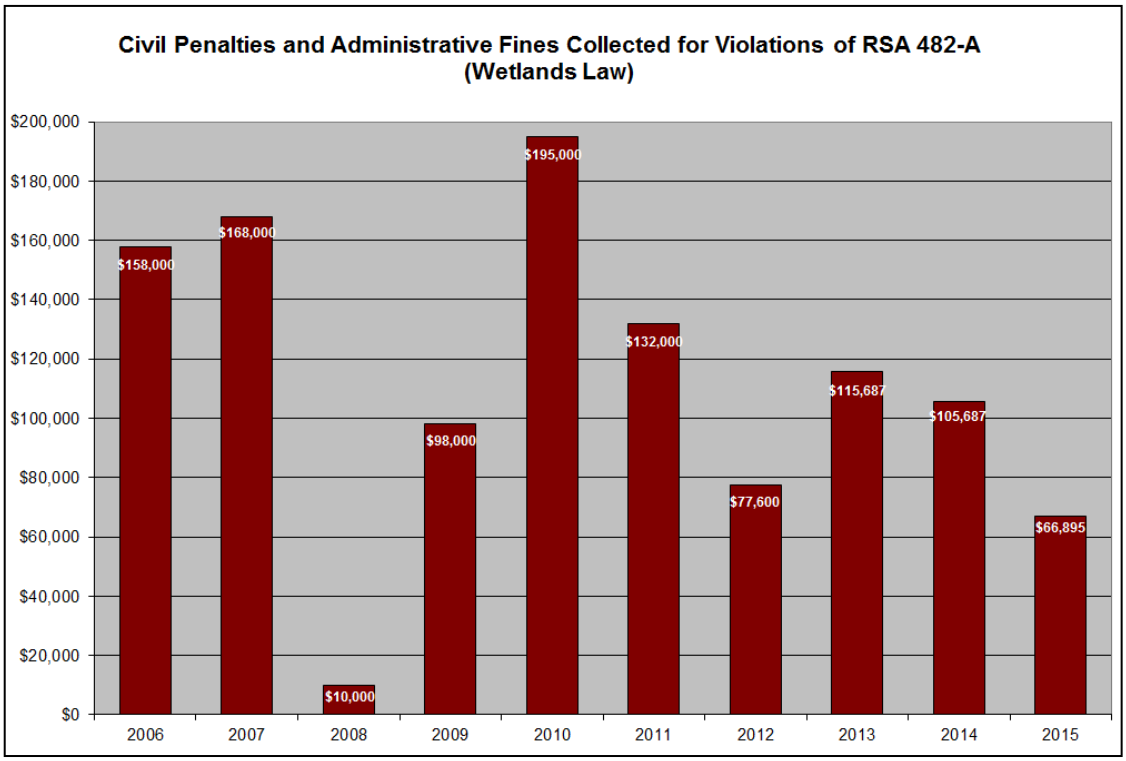


Figure 10: Civil Penalties and Administrative Fines Collected for Violations of RSA 482-A

AQUATIC RESOURCE MITIGATION FUND PROGRAM

Compensation for unavoidable wetland impacts has been a part of the Wetlands Bureau since the mid 1980's and now serves to address impacts under the federal Clean Water Act (CWA), Sections 401 and 404 which result in the discharge of dredged or filled materials within “waters of the U.S.” Under the U.S. Army Corps of Engineers (ACOE) General Permit for New Hampshire, compensatory mitigation for proposed wetland dredge and fill impacts is required for projects having more than 10,000 square feet of wetland impact and for minor projects when deemed appropriate by the ACOE, to comply with federal standards. During the 2006 legislative session, the General Court enacted Senate Bill 140, known as Aquatic Resource Compensatory Mitigation Fund (ARM Fund).These provisions are codified at RSA 482-A:28-33.The law creating the ARM Fund became effective on August 18, 2006, and NHDES adopted implementing rules effective on June 20, 2007.

As a result, the ARM Fund has been become one of several compensatory mitigation options available to permittees 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. Although compensatory mitigation is a requirement in some permits, use of the ARM Fund can only occur after the applicant has reviewed other available forms of mitigation in the vicinity and local community. The ARM Fund seeks “no net loss” of aquatic resource acreage and functions using a watershed approach. NHDES has the authority to collect the funds and they are pooled together according to a modified Hydrologic Unit Code 8 (HUC 8) watershed level.

Program Improvements

Applicants seeking ARM grant funds are instructed that an ideal ARM Fund grant project would provide aquatic resource restoration within the context of a proposed land conservation proposal. The success of the ARM Fund program is attributed to applicants using best available data to locate high quality habitat areas and use the funds to provide long-term protection of land through fee-simple ownership by a conservation entity or completing a conservation easement transaction. The key to success is the long-term protection of the wetland functions that are restored or enhanced. Where project scores are comparable, preference will be given to those projects that provide long term protection of the project area and its buffer or provide long term management to ensure the greatest environmental benefit from funds available. NHDES encourages applicants to review the wildlife habitat value in terms of significance in the state and in the biological region. This information is provided by the New Hampshire Fish and Game Department *Wildlife Action Plan* which is updated every five years. The opportunity that a project provides connectivity to other protected resources or is in close proximity to the wetland impacts of permitted projects that paid into the fund is also considered. Opportunities to provide benefit to rare resources are also looked upon favorably. Proposals are scrutinized for the likelihood of project success and the sustainability of the wetland functions and values that are proposed for restoration, enhancement, preservation, or creation. In addition, the overall mitigation potential, environmental significance of the project, project cost-effectiveness, and partnership potential are assessed during the evaluation and ranking of applications. Out of the 38 grant awards to date, there have been 17 land protection projects, 13 projects with a combination of preservation and restoration measures provided, and eight projects that involved only restoration or enhancement activities.

For projects to be successful, it is important for applicants to leverage additional funds for completion of the project. The types of projects pursuing ARM Funds have had good success in

securing multiple funding sources. Leveraged funds are defined as additional funding for a project that is counted toward completion of the project. Applicants are encouraged to pursue partnerships as much as possible and leveraged funds are noted in the budget materials. Figure 11 represents the seven year trend of ARM funds and leveraged funds according to grant round, and Figure 12 represents the seven year trend of ARM Fund Program acres of land conserved.

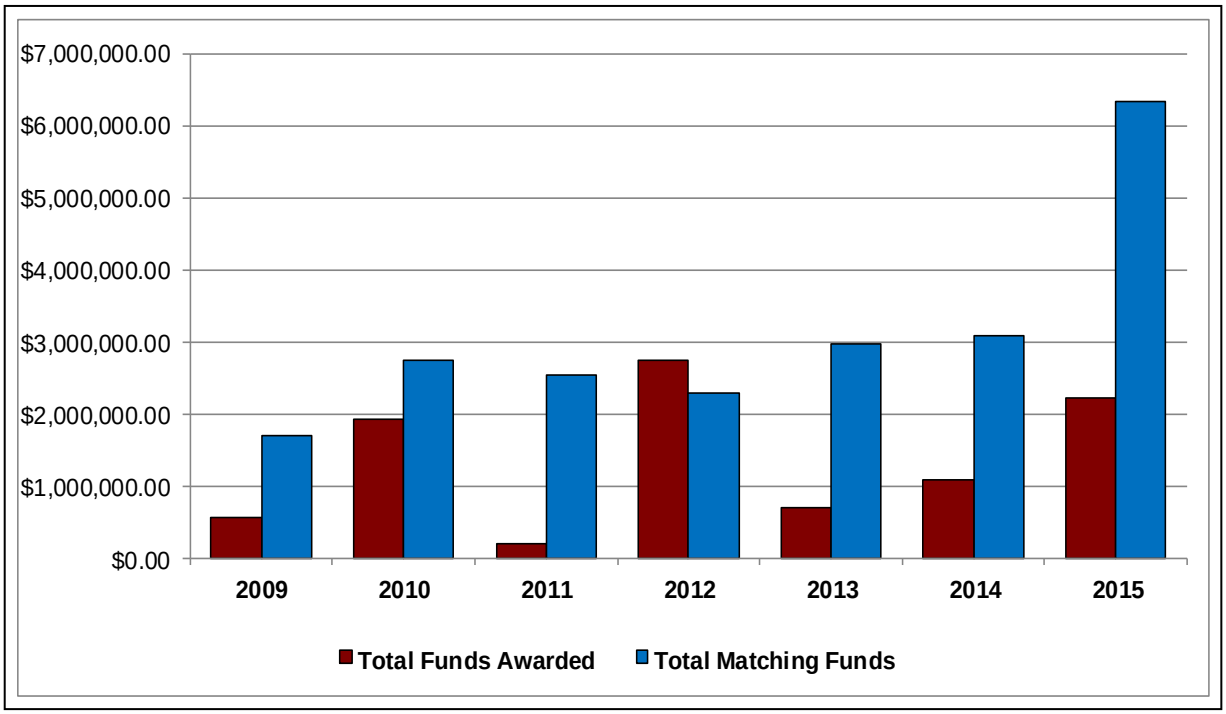


Figure 11: Seven Year Trend of ARM Funds and Leveraged Funds According to Grant Round (2009-2015)

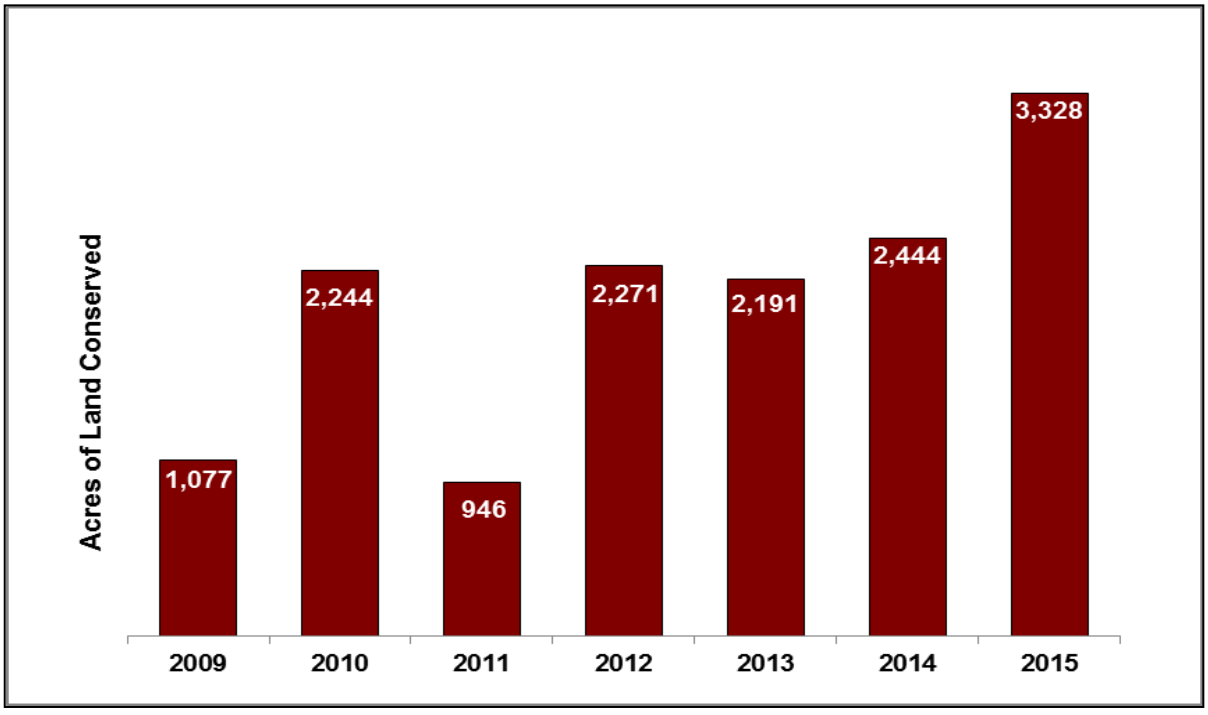


Figure 12: Seven Year Trend of ARM Fund Program Acres of Land Conserved (2009-2015)

During the 2014 state fiscal year, the ARM Fund program began collaborating with the New Hampshire Department of Transportation (NHDOT) on an innovative approach to develop an inventory within the state transportation system of deficient culverts or crossings that fragment stream reaches to be funded through in-lieu fee funds. These deficient culverts or barriers to aquatic organism passage are proposed to be replaced or rehabilitated as mitigation for other stream impacts. The collaboration between NHDES and NHDOT will result in a robust inventory of crossing locations that lack aquatic organism passage, a system to prioritize the replacement of crossings with the greatest potential to exacerbate the effects of climate change, and a funding arrangement that addresses rehabilitation of existing infrastructure as mitigation for other roadway projects. The stream passage improvement program is a new and promising model of collaboration and utilization of limited funds for measurable environmental gains.

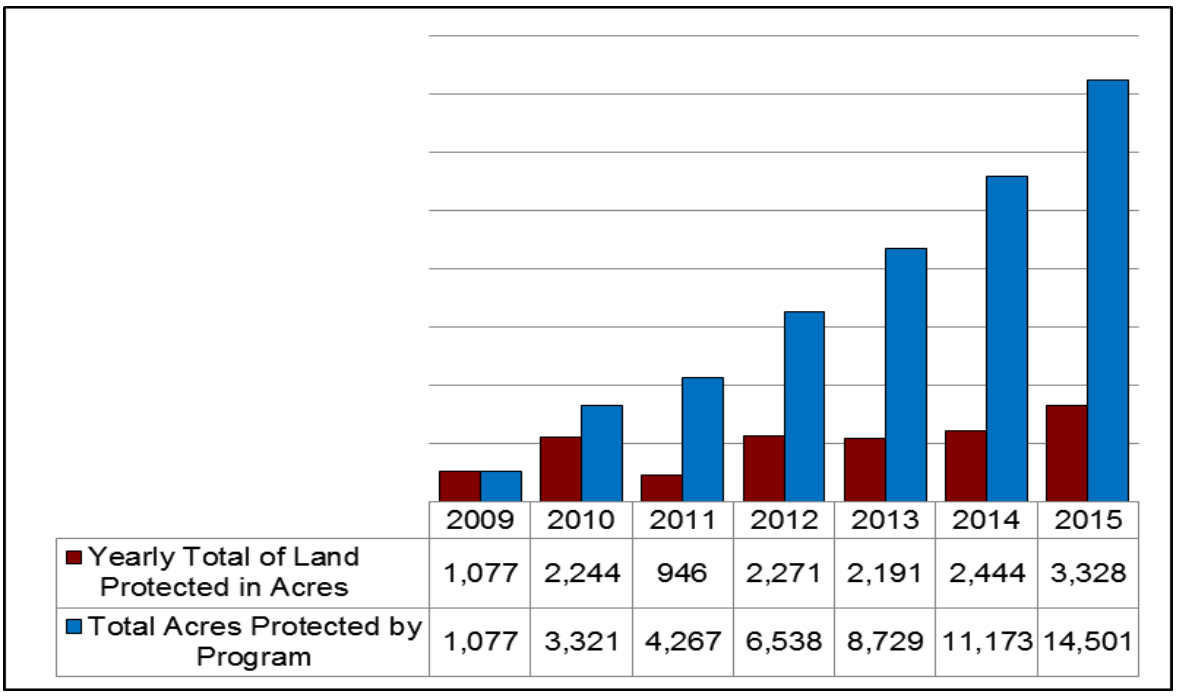
FY 2015 Permits Issued with ARM Fund as Compensatory Mitigation Component

The in-lieu fee option has become a good choice for permit applicants needing to provide compensatory mitigation. Table 11 provides a list of the projects permitted from July 1, 2014 to June 30, 2015 where the wetland permit holders selected payment to the ARM Fund to satisfy mitigation requirements. In this time period, 28 permits involving an ARM Fund payment were issued that resulted in 8.56 acres of wetland loss, 1,853 linear feet of stream loss, and 26.28 acres of temporary impacts including secondary impacts due to conversion of forested wetlands to emergent or scrub shrub wetlands. The total amount of funds collected was $1,893,892.15.

Table 11: Wetland Permits Issued in FY 2015 Where Applicant Used ARM Fund for Compensatory Mitigation

Municipality (NHDES Permit #)	Service Area	Wetland Loss		Stream Loss Linear Feet	Temporary Loss		Payment Deposit Date
		F2	Acres		F2	Acres	
Lebanon 2013-03310	Lower CT River	15,559	0.36	228			07/02/2014
Jefferson 2014-00778	Upper CT River			25			07/03/2014
Lebanon 2014-00871	Lower CT River	27,605	0.63				07/07/2014
Conway 2013-03283	Saco River	6,410		0.15	315		07/01/2014
New Ipswich 2014-00364	Merrimack River			154			07/10/2014
Wolfeboro 2014-00507	Pemi-Winni Rivers	160					08/11/2014
Bedford 2013-03175	Merrimack River	3,070	0.07	624			09/18/2014
Littleton 2014-00407	Middle CT River	64					09/04/2014
Webster 2014-01292	Contoocook River	112			46,805	1.07	10/03/2014
Concord 2014-01257	Merrimack River	7			390,587	8.97	10/03/2014
Londonderry 2014-01589	Merrimack River	12,698	0.29		1,262	0.03	10/16/2014
Londonderry 2014-01591	Merrimack River	29,838	0.68				10/16/2014
Lebanon 2011-02973	Lower CT River	14,410	0.33	110			10/24/2014
Manchester-Londonderry 2014-01757	Merrimack River	676	0.02				10/27/2014
Northwood 2014-01443	Salmon Falls-Piscataqua Rivers	50			184,274	4.23	11/07/2014

Municipality (NHDES Permit #)	Service Area	Wetland Loss		Stream Loss Linear Feet	Temporary Loss		Payment Deposit Date
		F2	Acres		F2	Acres	
Milan 2013-02389	Androscoggin River	21,735	0.50				11/26/2014
Portsmouth 2014-01053	Salmon Falls-Piscataqua Rivers	101,230	2.32				11/26/2014
Durham-Newmarket 2013-02883	Salmon Falls-Piscataqua Rivers	45,492	1.04		53,299	1.22	12/08/2014
Littleton 2014-00447	Middle CT River			25			12/31/2014
Portsmouth 2014-02775	Salmon Falls-Piscataqua Rivers	88					1/20/2015
Newington 2013-2918	Salmon Falls-Piscataqua Rivers	14,093	0.32		17,140	0.39	02/18/2015
Haverhill 2014-02201	Middle CT River	37,020	0.85				04/22/2015
Lebanon 2014-01521	Lower CT River	17,114	0.39				05/16/2015
Troy 2014-02128	Lower CT River	636	0.01	32	283,068	6.50	06/15/2015
Littleton 2015-00394	Middle CT River	8,610	0.20	195	120,383	2.76	04/29/2015
Hampton 2014-02773	Salmon Falls-Piscataqua Rivers			145			05/08/2015
Salem 2014-03064	Merrimack River	11,750	0.27				05/11/2015
Manchester 2015-00680	Merrimack River	4,280	0.10				06/18/2015
TOTALS		**372,707**	**8.56**	**1,853**	**47,776**	**1.10**	



	2009	2010	2011	2012	2013	2014	2015
Yearly Total of Land Protected in Acres	1,077	2,244	946	2,271	2,191	2,444	3,328
Total Acres Protected by Program	1,077	3,321	4,267	6,538	8,729	11,173	14,501

Figure 13: Yearly and Cumulative Wetland Loss from Payments Into the ARM Fund, 2009-2015

ARM Fund Disbursements in FY 2015

The ARM Fund program grants funds to projects involving wetland and / or stream restoration, wetland enhancement, and / or preservation of upland buffers associated with high quality aquatic resources. The ARM Fund has been utilized by projects in several watersheds since the program's inception. The projects that were provided payment during FY 2015 are noted in Table 10 as well as active projects with encumbered funds to be spent in the coming year.

Table 12: ARM Fund Disbursements for Projects in FY 2015 and Active Projects

Project Name: Huppe Farm Project			
Applicant: Strafford River Conservancy	**Watershed:** Salmon Falls-Piscataqua River	**Town:** Farmington	
ARM Funds Disbursed in FY 2015: $75,000.00	**Total ARM Fund Grant Awarded in 2013:** $75,000.00	**ARM Fund Amount Spent to Date:** $75,000.00	**Remaining Amount Encumbered:** $0.00
Description: The project achieved permanent protection of 96 acres of land and establishment of a 200 foot no-cut buffer around the wetland and the portion of Berry Brook that flows through the land. The project includes a conservation easement held by the Strafford Rivers Conservancy that permanently protects six acres of wetland and 2,370 linear feet of Berry Brook and its tributary, which flows into the Isinglass River. The protection of this parcel was a priority by the state funded Land Conservation Plan for the coastal watershed and the Isinglass River Management Plan. The project also protects approximately 36 acres of land identified by the NH Fish & Game *Wildlife Action Plan* as highest ranked in bioregion and protects habitat for the threatened small whorled pogonia which has been identified by the Natural Heritage Bureau as being present near the site. A historic and scenic mill foundation on the property dates from the 1800s.			
Project Name: Calef Isinglass River Project			
Applicant: Town of Barrington	**Watershed:** Salmon Falls-Piscataqua River	**Town:** Barrington	
ARM Funds Disbursed in FY 2015: $100,000.00	**Total ARM Fund Grant Awarded in 2013:** $100,000.00	**ARM Fund Amount Spent to Date:** $100,000.00	**Remaining Amount Encumbered:** $0.00
Description: The Town of Barrington acquired the approximately 270 acre property owned by the A. Harlan Calef Revocable Trust. The project permanently conserved 16 wetland complexes (75.81 acres), 13 vernal pools, 70.3 acres of floodplain forest, 1.5 miles of frontage on the Isinglass River, and 261 acres of forested uplands. A total of four wetland restoration sites totaling 8,400 square feet were identified on the site. According to the NH Natural Heritage Bureau, both spotted turtle and wood turtle have been identified on the property. Additionally, Natural Heritage Bureau data indicates that Blandings turtle has also been identified within close proximity to the property.			
Project Name: Crooked Run Property			
Applicant: Bear-Paw Regional Greenways	**Watershed:** Merrimack	**Towns:** Barnstead, Pittsfield, Strafford	
ARM Funds Disbursed in FY 2015: $350,000.00	**Total ARM Fund Grant Awarded in 2012:** $361,600.00	**ARM Fund Amount Spent to Date:** $350,000.00	**Remaining Amount Encumbered:** $11,600.00
Description: The project involved the purchase of a conservation easement to conserve approximately 600 acres of valuable wildlife habitat. The parcel includes 85 acres of wetlands, three miles of perennial streams, most of the frontage on the 30 acre Adams Pond, and almost half of the frontage on Wild Goose Pond. The wetlands include 57 acres of marshland, 26 acres of other wetlands, two acres of peatland and the 30 acre Adams Pond. The unfragmented forest that includes Crooked Run is more than 2,000 acres in extent connecting a 6,000 acre block that includes Evans Mountain property and a 16,000 acre block just to the north. Nine restoration sites that total 16,900 square feet will be restored including removal of a bridge from a perennial stream, fill removal, and slope stabilization adjacent to high value peatlands.			

Project Name: Frazian Land Protection Project			
Applicant: Society for the Protection of NH Forests	**Watershed:** Pemigewasset-Winnipesaukee	**Town:** Hebron	
ARM Funds Disbursed in FY 2015: $175,000.00	**Total ARM Fund Grant Awarded in 2013:** $175,000.00	**ARM Fund Amount Spent to Date:** $175,000.00	**Remaining Amount Encumbered:** $0.00
Description: The Society for the Protection of NH Forests purchased a conservation easement on approximately 197 acres of the Frazian property in Hebron. The property is located near the north end of Newfound Lake at the end of Braley Road, approximately 1.5 miles from Hebron Center. Its entire western boundary abuts the 272-acre Hazelton easement that was completed through ARM Funds and its southernmost boundary is directly across the road from conserved land on Newfound Lake. This historic property was likely settled in the mid-1700s and later became the Braley Farm at the foot of Tenney Mountain. The property includes over 32 acres of wetlands, 770 linear feet of undeveloped shoreline along the Cockermouth River, and two small brooks which all drain to Newfound Lake.			
Project Name: Green Hills Conservation Project/Marshall Tract			
Applicant: The Nature Conservancy	**Watershed:** Saco	**Town:** Conway	
ARM Fund Disbursed in FY 2015: $46,000.00	**Total ARM Fund Grant Awarded in 2013:** $46,000.00	**ARM Fund Amount Spent to Date:** $46,000.00	**Remaining Amount Encumbered:** $0.00
Description: The Green Hills Conservation Project permanently protected the 1,014 acre Marshall property in Conway, including its approximately 56 acres of high quality, headwater wetlands and on-site adjacent uplands. The parcel links the Green Hills Preserve and other connected conservation land to the north and west with an additional, currently unconnected, 240 acres to the east, creating a 6,500 acre block of conserved land. The property includes 6.5 miles of tributary streams, encompassing virtually the entire Mason Brook watershed. Mason Brook flows into an important aquifer recharge area along the Saco River just south of the property, helping to maintain water quality in many downstream private and commercial wells.			
Project Name: Hinman Pond			
Applicant: Bear-Paw Regional Greenways	**Watershed:** Merrimack	**Town:** Hooksett	
ARM Funds Disbursed in FY 2015: $3,738.75	**Total ARM Fund Grant Awarded in 2012:** $507,800.00	**ARM Fund Amount Spent to Date:** $503,738.75	**Remaining Amount Encumbered:** $0.00
Description: Bear-Paw Regional Greenways and NH Fish & Game conserved 460 acres of high value wildlife habitat on Hinman Pond including over 76 acres of wetlands. The property was purchased by Bear-Paw Regional Greenways with a conservation easement held by NH Fish & Game. The parcel lies within a *Wildlife Action Plan* conservation focus area that is greater than 20,000 acres in size. The parcel is primarily hemlock-hardwood-pine forest and includes the largest 100 acres of Appalachian-oak-pine exemplary forest known in NH. Twenty-seven wetlands on the property total 76 acres including the prime wetland, Hinman Pond, and approximately 43 vernal pools. Three perennial streams provide almost one mile of riparian habitat which flow to Dubes Pond and one flows north to Head Pond and then the Merrimack River. The Hinman Pond property provides critical habitat for several rare or endangered species including Blandings and spotted turtles. The property abuts Bear Brook State Park and Manchester Water Works properties and lies within the Lake Massabesic watershed; Manchester's public drinking water supply.			

Project Name: Green Crow Conservation Project			
Applicant: Society for the Protection of NH Forests	**Watershed:** Contoocook	**Town:** Stoddard	
ARM Funds Disbursed in FY 2015: $15,000.00	**Total ARM Fund Grant Awarded in 2013:** $15,000.00	**ARM Fund Amount Spent to Date:** $15,000.00	**Remaining Amount Encumbered:** $0.00
Description: The project permanently protected approximately 361 acres through the purchase of a conservation easement on land purchased by the Harris Center. The land contains over 500 feet of frontage on Rte. 9 in Stoddard. It is predominantly mixed northern hardwoods (beech, birch, maple and ash), but transitions to more of a softwood forest dominated by hemlock and spruce in the eastern portion of the land. The property abuts other land held in conservation and the property provides substantial linkage to previously protected lands in Stoddard, Nelson, and Hancock.			
Project Name: Avery Brook Watershed Project			
Applicant: Francestown Land Trust	**Watershed:** Merrimack River	**Town:** Francestown	
ARM Funds Disbursed in FY 2015: $0.00	**Total ARM Fund Grant Awarded in 2012:** $237,000.00	**ARM Fund Amount Spent to Date:** $235,290.00	**Remaining Amount Encumbered:** $1,710.00
Description: The project involved the purchase of a conservation easement by Francestown Land Trust to protect 182 acres of land which is the entire catchment of Avery Brook as it meanders through forestland and exemplary wetland communities to its confluence with the Piscataquog River. Restoration work includes lowering a perched culvert, installing water bars on a logging road, and enhancing 200 feet of a riparian buffer. No-cut buffers around aquatic resources are included in the conservation easement. The Avery Brook catchment connects and enhances the ecological function of over 3,700 acres of biologically diverse protected land. The property includes the entire length of Avery Brook west, nearly all of Avery Brook East, and frontage along the South Branch of the Piscataquog River.			
Project Name: Plaistow Town Forest			
Applicant: Southeast Land Trust of NH	**Watershed:** Merrimack River		**Town:** Plaistow
ARM Funds Disbursed in FY 2015: $30,000.00	**Total ARM Fund Grant Awarded in 2012:** $100,000.00	**ARM Fund Amount Spent to Date:** $100,000.00	**Remaining Amount Encumbered:** $0.00
Description: The town of Plaistow and the Southeast Land Trust of NH worked to place conservation easements on lands acquired through tax default totaling 350 acres. There are 17 parcels known, or believed to be owned by the town, which have been managed as town forests for the forest resources. The project conserved an unfragmented block of land that encompasses more than 490 acres. The town forests are mature forests dominated by Appalachian Oak-pine and more than 1.2 miles of riparian corridor along Kelly Brook. There are at least six beaver impoundments that encompass more than 60 acres along inlet streams and main stem of Kelly Brook with numerous vernal pools and an active heron rookery. Restoration work planned for the properties will focus on upgrades to heavily used sections of the recreation trail network and repairs from damage to the site by off-road vehicles.			

Project Name: McQuesten Pond Dam Removals			
Applicant: New Hampshire Rivers Council	**Watershed:** Merrimack		**Town:** Manchester
ARM Funds Disbursed in FY 2015: $13,200	**Total ARM Fund Grant Awarded in 2013:** $65,400.00	**ARM Fund Amount Spent to Date:** $13,200.00	**Remaining Amount Encumbered:** $52,200.00
Description: McQuesten Brook is listed as impaired for failure to support aquatic life due to insufficient dissolved oxygen concentration and saturation. The brook is also impaired due to elevated chloride levels. McQuesten Pond fails to support aquatic life due to insufficient dissolved oxygen content and fails to support primary contact recreation due to excessive concentrations of Chlorophyll-a. The presence of three dams within McQuesten Pond have interrupted hydraulic connectivity, stream geomorphology, and wetland functions, and are one of the major sources of impairment along with stormwater runoff. The ultimate goals of this project are to develop construction plans for two obsolete stream barriers in a portion of McQuesten Brook that has been artificially impounded to form McQuesten Pond, and then remove both barriers to restore stream and wetland functions. The completed project will provide an additional 1,500 linear feet of trout habitat once the restored channel has stabilized and a riparian buffer will be established for shading and cooling stream temperatures.			
Project Name: Beaver Brook Restoration Project			
Applicant: City of Keene	**Watershed:** Lower Connecticut River		**City:** Keene
ARM Funds Disbursed in FY 2014: $0.00	**Total ARM Fund Grant Awarded in 2014:** $277,707.00	**ARM Fund Amount Spent to Date:** $0.00	**Remaining Amount Encumbered:** $277,707.00
Description: The proposed project includes restoration of approximately one acre of historically filled wetlands within the Beaver Brook watershed in the City of Keene. The proposed restoration will advance the on-going effort to restore Beaver Brook, augment flood storage in this area of the city, and create additional scientific and educational opportunities that complement on-going projects within the watershed. The proposed restoration parcel is contiguous with Robin Hood Park, which is a 110-acre conservation parcel. Invasive species (mainly a large colony of Japanese knotweed) will be removed. Research of the parcel deed and two abutting parcels is also proposed to potentially protect the area in perpetuity.			
Project Name: Hanchetts Brook Conservation Project			
Applicant: Upper Valley Land Trust	**Watershed:** Lower Connecticut River		**Town:** Plainfield
ARM Funds Disbursed in FY 2015: $110,560.00	**Total ARM Fund Grant Awarded in 2012:** $293,090.00	**ARM Fund Amount Spent to Date:** $110,560.00	**Remaining Amount Encumbered:** $0.00
Description: The Upper Valley Land Trust purchased a conservation easement on the 101 acre parcel to permanently protect frontage (1,750 feet of brook traverses the parcel) and wetlands (0.5± acres observed) along Hanchetts Brook. Hanchetts Brook flows from Sky Ranch Pond, a deep emergent marsh with surrounding shrub marsh encompassing about 10 acres. Much of the Sky Ranch Pond watershed is under the protection of an Upper Valley Land Trust easement, however that easement does not include a riparian buffer around the shoreline. The owner of the pond donated additional restrictions around the pond to leverage this project. Hanchetts Brook flows approximately 5,870 feet from Sky Ranch Pond to the Connecticut River. The protection of a significant portion of Hanchetts Brook benefits water quality in the area and may serve to benefit potential NHB species.			

Project Name: Baird Property, Snake River Project			
Applicant: Town of New Hampton	**Watershed:** Pemigewasset-Winnipesaukee River		**Town:** New Hampton
ARM Funds Disbursed in FY 2015: $1,205.00	**Total ARM Fund Grant Awarded in 2011:** $100,000.00	**ARM Fund Amount Spent to Date:** $95,097.00	**Remaining Amount Encumbered:** $4,903.00
Description: The project protected 8.1 acres of land with a conservation easement on the Snake River in New Hampton. The Snake River is a largely undeveloped wetland system immediately upstream of Lake Waukewan. This property includes approximately 1,560 feet of frontage along the Snake River which flows from Lake Winona into Lake Waukewan. Lake Waukewan is the drinking water supply for the Town of Meredith. The health of the Snake River is vital to the water quality of Lake Waukewan as these types of perennial rivers are known to filter and flush-out toxins, pollution, and sediments. The town of New Hampton is acting in conjunction with the Waukewan Watershed Advisory Committee, the Waukewan Shore Owners Association, the town of Meredith conservation commission, and the Center Harbor conservation commission.			
Project Name: Ammonoosuc River Floodplain and Hanno Pond Preservation and Restoration Project			
Applicant: Ammonoosuc Conservation Trust	**Watershed:** Middle Connecticut River		**Town:** Lisbon
ARM Funds Disbursed in FY 2015: $8,250.00	**Total ARM Fund Grant Awarded in 2012:** $98,350.00	**ARM Fund Amount Spent to Date:** $98,350.00	**Remaining Amount Encumbered:** $0.00
Description: The Ammonoosuc Conservation Trust preserved nearly one mile of riparian buffer on the Ammonoosuc River. The project is located approximately 1/2 mile upstream of Lisbon Village and potentially includes portions of four parcels of land containing a complex of wetland and agricultural land surrounding Hanno Pond, and a six acre oxbow pond. The project area is located within the highest yielding and deepest aquifer in the Ammonoosuc River Valley. Nearly the entire site is within the floodplain of the Ammonoosuc River and most of it floods regularly. It is located upstream of municipal water sources at Lisbon and Woodsville and the Lisbon community well lies directly across from the lower section of the project area. Restoration opportunities include bank stabilization, stream improvements, and plantings.			
Project Name: Ammonoosuc Floodplain Restoration Project			
Applicant: Ammonoosuc Conservation Trust	**Watershed:** Middle Connecticut River		**Town:** Lisbon
ARM Funds Disbursed in FY 2015: $0.00	**Total ARM Fund Grant Awarded in 2013:** $66,000.00	**ARM Fund Amount Spent to Date:** $0.00	**Remaining Amount Encumbered:** $66,000.00
Description: The ARM Fund grant proposal by ACT is to begin the restoration and enhancement process on the property acquired via the 2012 ARM Fund grant. The Ammonoosuc Conservation Trust's long-term goals are to restore and protect floodplain forest and restore/create riparian, wetland, and upland functions and values on the site. Additional goals are to buffer and enhance the Hanno Pond wetland complex and provide increased educational and recreational values. This proposal is to restore a four acre hayfield to a riparian forested buffer and to plant the existing Ammonoosuc River bank with dormant stakings. Included in the project is a culvert removal and wetland restoration at the current agricultural crossing of the unnamed perennial brook that parallels Route 302. The restoration will provide an estimated 1,600 square feet of habitat restoration in this area.			

Project Name: Bailey-Clay Brook Property			
Applicant: Upper Valley Land Trust	**Watershed:** Middle Connecticut		**Town:** Lyme
ARM Funds Disbursed in FY 2015: $11,350.00	**Total ARM Fund Grant Awarded in 2013:** $43,378.00	**ARM Fund Amount Spent to Date:** $11,350.00	**Remaining Amount Encumbered:** $32,028.00
Description: This project will protect 4.88 acres of wetlands west of Route 10, including 2,044 linear feet of a brook frontage, 1.97 acres of wetlands within the portion of the property east of Route 10, as well as the approximately 45 acres of undeveloped upland surrounding these aquatic resources. The property is located both adjacent to and in close proximity with other permanently conserved lands and creates a protected corridor between these otherwise unconnected conserved lands. These highly diverse wetlands and the undeveloped corridor are important for wildlife movement and ecological integrity. Permanent protections will be accomplished through the acquisition of a conservation easement on the 50 acres of the property to be held by the Upper Valley Land Trust. This property includes 3,780 linear feet of frontage along NH Route 10, part of the Connecticut River National Scenic Byway, making it a highly visible landmark within the community.			
Project Name: Garrison Spruce Swamp Property			
Applicant: Southeast Land Trust of NH	**Watershed:** Salmon Falls-Piscataqua		**Towns:** Brentwood & Fremont
ARM Funds Disbursed in FY 2015: $0.00	**Total ARM Fund Grant Awarded in 2014:** $15,000.00	**ARM Fund Amount Spent to Date:** $0.00	**Remaining Amount Encumbered:** $15,000.00
Description: The Southeast Land Trust of NH is currently in negotiations with the owner of a 32.18 acre property to permanently protect approximately eight acres of wetland and 24.18 acres of upland buffer in the regionally significant Spruce Swamp. The Southeast Land Trust of NH proposes to place a Natural Resources Conservation Service Wetland Reserve Easement on the entire property. Funding for restoration opportunities is not part of this proposal but may occur through the Wetland Reserve Easement program. The property is located entirely within the spruce swamp area which the property and its surrounding forest are one of the few wilderness areas remaining in southern New Hampshire. The Swamp is an 824 acre fen nestled in a 1,700+ acre unfragmented forest. The Southeast Land Trust of NH will acquire the property with NRCS holding the easement.			
Project Name: Falls Brook Culvert / Stream Passage Improvement Project			
Applicant: Cheshire County Conservation District	**Watershed:** Lower Connecticut		**Town:** Swanzey
ARM Funds Disbursed in FY 2015: $0.00	**Total ARM Fund Grant Awarded in 2014:** $115,000.00	**ARM Fund Amount Spent to Date:** $0.00	**Remaining Amount Encumbered:** $115,000.00
Description: Cheshire County Conservation District and Trout Unlimited seeks to improve aquatic organism passage, particularly for brook trout, in the Falls Brook culvert located on Hale Hill Road which is 2 ¼ miles upstream of the confluence with the Ashuelot River. Falls Brook sub-watershed was identified as the second highest priority sub-watershed due to the amount of high quality cold water headwaters habitat throughout this stream network. The majority of Falls Brook consists of excellent brook trout thermal refugia and spawning habitat. The anticipated restoration will replace an undersized culvert, potentially hazardous to community infrastructure and stream geomorphology during extreme storm events, whereby protecting the long term viability of local wetlands. The new structure will be a steel stringer bridge design allowing for full passage of all organisms as well as the stream flows related to the one hundred year storm event.			

In March of 2014, the ARM Fund program announced the availability of funds for FY 2015 in five service areas. The amount of funding available was as follows:

Table 13: ARM Fund Grant Round Awarded in November 2014

Amount	River Portions
$135,000.00	**Pemigewasset – Winnipesaukee Rivers** (Headwaters in Lincoln, to Franklin and Sandwhich to Alton and Gilmanton)
$336,000.00	**Salmon Falls to Piscataqua Rivers** (Headwaters in Wakefield, from the west in Deerfield and to the south to Seabrook and the MA border)
$1,027,000.00	**Merrimack River** (Headwaters in Canterbury to MA border)
$425,000.00	**Lower Connecticut River** (Headwaters in Canaan and Lebanon to MA border)
$52,000.00	**Middle Connecticut River** (Headwaters in Dalton and Whitefield to Hanover)
$1,975,000.00	

The ARM Fund program required each applicant to submit a pre-proposal summarizing their project. The pre-proposals were reviewed by the ARM Fund Site Selection Committee and feedback was provided. Four of the service areas lacked funds to distribute which included the Androscoggin River, Saco River, Contoocook River, and Upper Connecticut River service areas. There were no applications submitted for the Middle Connecticut River service area. The funds in that service area will be advertised in 2015.

The Committee, NHDES staff, and federal agency representatives visited 11 application sites on September 15, 2015 through October 21, 2015. On October 29, 2015 the Committee convened to evaluate and rank the applications and selected 10 projects to be funded. The Committee's recommendations were approved by the Army Corps of Engineers and the Wetland Council. The details of the awards announced by the Committee and a brief description of the gain in resources from each project are noted below. These projects will require a grant agreement to be approved by the Governor and Executive Council for funds to be disbursed.

Salmon Falls to Piscataqua River Service Area

- **$121,000** to permanently protect the former Rand Lumber Yard property located on Wallis Road in Rye. In partnership with other funding sources, the Rye conservation commission will purchase approximately 73 acres of land which will contribute to existing protected lands and the upland buffers that will protect Berry's Brook and designated prime wetlands in Portsmouth.

- **$100,000** to the town of Exeter to remove the Great Dam in downtown Exeter. The project has the opportunity to benefit the diadromous fish populations in the Exeter River and the wider Great Bay Estuary, enhance the natural and human ecosystem by improving water quality, and reduce Exeter's vulnerability to the growing risk of flooding. The removal project will restore approximately 15 miles of the Exeter River and its tributaries to a free-flowing condition, eliminating a barrier to migrating anadromous fish and improving water quality.

- **$15,000** to permanently protect approximately eight acres of wetland and 24.18 acres of upland buffer in the regionally significant spruce swamp in Fremont. The property will involve a conservation easement held by the Natural Resource Conservation Service after the transfer of the deed to the Southeast Land Trust of New Hampshire. The swamp is an 824 acre fen nestled in an approximately 1,700 acre unfragmented forest.

- **$100,000** for the replacement of an undersized culvert with a precast concrete bridge structure with open bottom design that will restore full stream connectivity of Thompson Brook. The project will be carried out by the Great Bay Chapter of Trout Unlimited and will provide stream bed restoration and fish passage restoration on 1.17 miles of Thompson Brook, a lower tributary of the Winnicut River. Successful completion of the project will provide spawning and rearing habitat not only for brook trout but for diadromous species of concern including river herring, blueback, and alewife.

Merrimack River Service Area

- **$75,000** for the acquisition of six parcels of land owned by Manchester Sand and Gravel for the conservation of 218 acres in Hooksett. The project will combine Bear-Paw Regional Greenways ownership with a conservation easement held by the New Hampshire Fish and Game Department. The entire 218 acre property lies within a conservation focus areas identified in the 2010 NH Fish & Game, Wildlife Action Plan which is more than 18,000 acres in size. The properties contain 21 wetland complexes totaling 25 acres ranging from 0.02 acre vernal pool to a 10 acre beaver pond.

- **$197,707** to the Lakes Region Conservation Trust to permanently protect approximately 86 acres of land located on Guinea Ridge Road in Gilmanton. The parcel is located within the focus area of the Belknap Range Conservation Coalition (BRCC) and will protect approximately 21 acres of wetlands and 65 acres of upland along a significant wetland and perennial stream resource located in the BRCC Focus Area.

- **$150,000** to permanently protect the undeveloped 177-acre Shost property through the purchase of a conservation easement to be held by the Society for the Protection of NH Forests. The property includes one large, 22-acre open wetland complex that was designated as prime in 2005, several smaller forested wetlands, at least three vernal pools, and an unnamed perennial stream which drains south to the Piscataquog River and then to the Merrimack River.

Lower Connecticut River Service Area

- **$115,000** to improve aquatic organism passage, particularly for brook trout, by removing the Falls Brook culvert located on Hale Hill Road which is 2.25 miles upstream of the confluence with the Ashuelot River. The Cheshire County Conservation District and Trout Unlimited will replace an undersized culvert which is potentially hazardous to community infrastructure and stream geomorphology during extreme storm events. The project will provide approximately 15 miles of barrier-free passage in an area of excellent brook trout thermal refugia and spawning habitat.

- **$140,000** to the Monadnock Conservancy for the acquisition of two conservation easements on the 552-acre West Hill Property in Keene, Swanzey, and Chesterfield. These easements will protect 25.8 acres of wetland, 526.2 acres of upland, approximately 16,850 feet of streams, 13 potential vernal pools, and three known vernal pools. The West Hill property includes four perennial streams associated with the wetlands (including a beaver

pond) that provide fish and aquatic habitat, with all of these streams flowing into the Ashuelot River.

ARM Funds Advertised in March 2015

In March 2015, NHDES announced the availability of ARM funds that had accrued in all nine ARM Fund service areas (See Figure 14). The pre-proposal deadline was April 30, 2015, and 30 proposals were received. After review by NHDES and the Committee, 24 projects were invited for submission of a full application due August 31, 2015. The full applications are reviewed by the Committee and representatives from the Army Corps of Engineers (ACOE) and EPA. The Committee's recommendations will be provided to the ACOE and the Wetland Council for final approval.

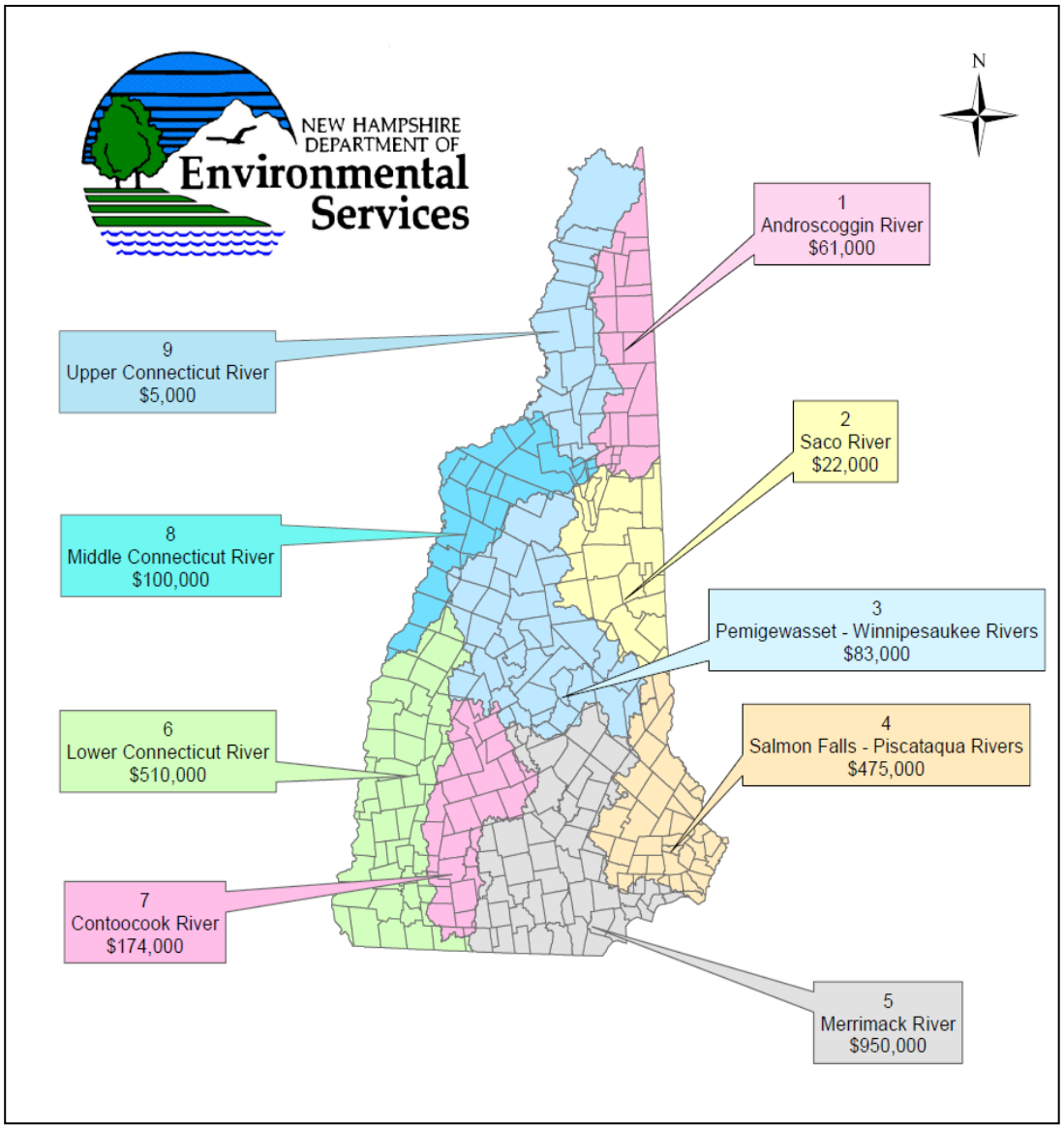


Figure 14: ARM Funds Advertised in 2015 According to Service Area

Overall Status of the ARM Fund Account (as of June 30, 2015)

The state FY 2015 ended with all nine ARM Fund service areas having a positive balance. The results of the 2015 grant round will be reported in the 2016 state fiscal year report. Table 14 describes revenues, expenses, encumbered funds and a balance according to each service area.

Table 14: Status of ARM Fund Accounts According to Service Areas

Service Areas	Beginning Balance (7/1/2014)	Revenues	Expenses	Encumbered	Ending Balance (6/30/2015)	Committed Funds Not Yet Encumbered
Androscoggin River	$0.00	$61,480.00	$0.00	$0.00	$61,480.00	$0.00
Saco River	$48,800.00	$20,147.16	$46,000.00	$0.00	$22,947.16	$0.00
Pemigewasset to Winnipesaukee Rivers	$432,263.22	$605.21	$176,205.00	$4,903.00	$251,760.43	$162,736.00
Salmon Falls to Piscataqua Rivers	$521,723.68	$501,834.59	$175,000.00	$15,000.00	$833,558.27	$321,000.00
Merrimack River	$1,464,531.54	$460,095.74	$396,938.75	$65,510.00	$1,462,178.53	$422,707.00
Lower Connecticut River	$831,884.70	$487,318.91	$110,560.00	$392,707.00	$815,936.61	$140,000.00
Contoocook River	$14,638.90	$174,417.18	$15,000.00	$0.00	$174,056.08	$0.00
Middle Connecticut River	$177,583.90	$182,993.36	$19,600.00	$98,028.00	$242,949.26	$0.00
Upper Connecticut River	$0.00	$5,000.00	$0.00	$0.00	$ 5,000.00	$0.00
Total All Watersheds	**$3,491,425.94**	**$1,893,892.15**	**$939,303.75**	**$576,148.00**	**$3,869,866.34**	**$1,046.443.00**

Status of Administrative Assessment Account

One component of an ARM Fund payment is an administrative assessment established by RSA 482-A:30, III and RSA 482-A:30-1,II. Such account assessments collected shall be used to support up to two full-time positions to administer the funds. The assessment has vacillated starting at 5% in 2009, 20% in 2010, 10% from 2011 through 2015 and is currently 20%. The status of the account is noted in Table 15.

Table 15: Status of Administrative Assessment Account

Beginning Balance (7/1/2014)	Revenues	Expenses	Ending Balance (6/30/2015)
$119.27	$205,044.51	$96,247.14	$108,916.64

LEGISLATION & RULEMAKING

Legislation

On March 3, 2015, the House Ways and Means Committee voted Inexpedient to Legislate HB 278 that would have reinstated the $10.00 Town Clerk fee associated with the submission of wetlands applications. This fee was eliminated last session when the statute was changed to allow submission of applications directly to NHDES rather than through certified mail from the Town Clerk. On the same day the House Resources, Recreation Development Committee (RR&D) tabled HB 349 that would have established wetland buffer as part of a permit approval to allow the New Hampshire Association of Natural Resource Scientists (NHANRS) to study the wetland buffer science and report to the RR&D.

NHANRS established a Wetland Science Buffer Workgroup to investigate the basis for establishing protective buffers to jurisdictional wetlands. Collis Adams and Mary Ann Tilton were NHDES representatives of the Wetland Science Buffer Workgroup.

The goal of the workgroup was 1) to research and summarize the wetland buffer literature and 2) to make general recommendations to be reviewed by various stakeholder groups for possible consideration during the 2016 legislative session. From April to November 2015 the Wetland Scient Buffer Workgroup met monthly and completed the following tasks:

- Compiled scientific literature of wetland buffers in protecting wetland function.
- Compiled wetland assessment scores on wetlands evaluation (NH Method).
- Determine appropriateness of NH Method to identify High Value Wetlands (HVW).
- Review of other wetland assessment methods for use in identifying HVWs.
- Compiled and reviewed wetland buffer regulations from other states in New England.
- Drafted criteria for HVWs and recommended buffers to protect these wetland types.

House Bill 464, authorizing NHDES to establish a broadened Notification process, was approved on July 13, 2015 and became effective on September 11, 2015.

House Bill 306, an act relative to reducing the Wetlands Council by one member, became effective on August 11, 2015, the Commissioner of the Department of Safety or designee.

Rulemaking

During 2015, the NHDES Wetland Bureau made significant progress on rules work. NHDES held three stakeholder meetings, 11 workgroup meetings, and one subcommittee meeting. In November, NHDES filed proposed mitigation rules with Joint Legislative Committee on Administrative Rules (JLCAR). Other wetland draft concepts were reviewed by stakeholders. NHDES has been working with partner agencies on their updates to ***Best Management Practices for Routine Roadway and Railway Maintenance Activities in NH*** (With NHDOT), ***Best Management Practices for Erosion Control on Timber Harvesting Operations in NH*** (with DRED), ***Best Management Practices for Agriculture*** (with NRCS), and ***Best Management Practices for Utility Maintenance in and Adjacent to Wetlands and Waterbodies in NH*** (with

DRED). NHDES is also in the process of updating a Rhode Island Wetland BMP Manual (with permission of Rhode Island Department of Environmental Management and the New England Interstate Water Pollution Control Committee) and adopting it for NHDES with a workgroup subcommittee. Additionally, NHDES met regularly with the Shoreland Advisory Committee to discuss their recommendations on Shoreland Rules. Table 16, below lists the rules workgroup meetings coordinated by NHDES in 2015.

Table 16: Rules Workgroup Meetings

Date	Workgroup	Purpose
02/13/15	■ Mitigation	Stakeholder Meeting
02/23/15	■ Inland Lake Structures	Workgroup Meeting
02/25/15	■ Mitigation	Stakeholder Meeting
03/11/15	■ Mitigation	Stakeholder Meeting
03/24/15	■ Tidal	Workgroup Meeting
04/02/15	■ Tidal	Workgroup Meeting
05/12/15	■ Mitigation	Wetland Council Review and Comment
05/28/15	■ Tidal	Workgroup Meeting
06/26/15	■ Inland Wetland / Streams	Workgroup Meeting
07/23/15	■ Inland Wetland / Streams	NHDES Summary of 30 Public Listening Sessions Workgroup Meeting
07/29/15	■ Mitigation	Rules Hearing
08/20/15	■ Inland Wetland / Streams	Workgroup Meeting
09/10/15	■ Inland Wetland / Streams	Workgroup Meeting
11/2015	■ Inland Wetland /Streams	Workgroup Subcommittees Meetings
11/12/15	■ Inland Wetland / Streams	DRED-NHB Plant Community Presentation Workgroup Meeting
11/15/15	■ Mitigation	JLCAR Review
12/09/15	■ Inland Wetland / Streams	Workgroup Meeting

COMMUNICATIONS AND OUTREACH / EDUCATION

During 2015 Wetlands and Shoreland staff presented at 31 workshops around the state reaching several hundred attendees. Topics included changes to RSA 482-A, the NH Wetlands Law, changes to RSA 483-B, the Shoreland Water Quality Protection Act, changes to wetlands and shoreland permit applications and procedures, erosion and sediment control best management practices, routine roadway and culvert replacement procedures, timber harvesting using BMPs in wetlands, vegetation maintenance within the protected shoreland, landscaping at the water's edge, among others. Table 17 below lists the date, event, and location in which staff gave presentations in 2015.

Table 17: Wetlands and Shoreland Presentations

Date	Event	Location
01/23/15	NH Department of Transportation and American Council of Engineering Companies Winter Technical Meeting	Concord
01/30/15	NH Association of Natural Resource Scientists Annual Meeting	Concord
02/18/15	NH Bar Association Quarterly Meeting	Concord
03/04/15	NH Seacoast Board of Realtors Meeting	Portsmouth
03/17/15	BIA – Rules Update	Concord
03/18/15	Seacoast Stormwater Coalition Meeting	Portsmouth
03/18/15	Certified Culvert Maintainer Program	Dover
3/24-26/15	LRM Water Quality and Wetland Compliance	West Virginia
03/25/15	Real Estate Round Table	Portsmouth
04/09/15	Soak Up The Rain with Landscapers	Portsmouth
04/9/15	LEANing the NHDES Wetland Review process	WEBINAR
04/11/15	Wetland Mitigation Program Saving Special Places	Weare
04/14/15	Soil Matters – LRM Compliance	Concord
04/15/15	NH State Buffer Regulations and Building Resilience Through Better Buffers for Residence Living on Rivers	Dover
05/12/15	Logging and the Law Workshop	Lancaster
05/13/15	Logging and the Law Workshop	Conway
05/14/15	Logging and the Law Workshop	Loudon
06/23/15	Navigating Wetlands and Shoreland Permitting in Tidal NH	Greenland
07/19/15	Mascoma Lake Association Annual Meeting	Enfield
08/13/15	Lakes Region Board of Realtors Annual Meeting	Wolfeboro
09/10/15	NH Seacoast Board of Realtors Meeting	Portsmouth
09/15/15	UNH Cooperative Extension Pesticide Applicator Meeting	Concord
09/16/15	UNH Cooperative Extension Pesticide Applicator Meeting	Concord
09/16/15	NH Realtors Association Annual Meeting	Manchester
09/29/15	Stormwater Solutions Seminar – Managing Shorelands to Prevent Stormwater Pollution and Maintain Water Quality	Lebanon
11/07/15	NH Association of Conservation Commissions Annual Meeting	Concord
11/09/15	Logging and the Law Workshop	Auburn
11/10/15	Logging and the Law Workshop	Lancaster
11/18/15	Soak Up the Rain Workshop	Durham
12/04/15	NH Land Surveyor's Annual Meeting	Concord
12/18/15	NH Society of Professional Engineers Annual Meeting	Manchester

The NHDES Wetlands Bureau also organized several Land Resources Management Program training workshops during 2015, listed in Table 17 below.

Table 18: LRM Staff Cross-Training Workshops

Date	Topic
01/07/15	■ EMD Compliance Database
01/15/15 01/21/15	■ LRM EMD Compliance Database
04/14/15	■ LRM Compliance Inspections
08/28/15	■ Compliance Cross-Training
10/28/15	■ Wetland Assessment (NH Method)
12/2015	■ Shoreland Program Overview

Additional training received by staff during the reporting period includes the following: Facilitating Effective Meetings, Customer Service, Water Words that Work, Speechcraft, Introduction to Supervision, Geomorphology, Soil Stabilization, Erosion Control, Hydraulic Stream Crossing Models, Stream Bank Stabilization, Wetland Assessment, Climate Change, Aerial Photography, and the NHDES Coastal Viewer.

Wetland Program Improvements

EPA-funded grant projects facilitate and provide program improvement for the Wetlands Bureau. In 2015, examples included updating the Wetland Program Plan to address climate change, development of a GIS standard operating procedure, implementation of a new complaint intake process, training on a new compliance integrated database, development of a mitigation tracking system, development of technical review checklists, and review and testing of water quality assessment or wetland assessment. Other program improvements of note are listed below.

Database Conversion

The NHDES Wetlands Bureau currently uses a Foxpro database (created in 1999) which is now outdated and unsupported by a NH Office of Information and Technology computer programmer. NHDES released a request for qualifications in December 2015, to convert the existing unsupported FoxPro database to an Oracle-based Visual Studio.NET database. This will hold the existing functionalities of the current application, and it is expected that efficiency will be gained in making this transition. This bid was awarded to Voyager Systems of Bedford, New Hampshire with expected code delivery on December 31, 2016.

Website Improvements

Docks and Shoreline Structures Webpage

In the spring of each year, NHDES Wetlands Bureau staff is flooded with phone calls from the public requesting information on how to obtain a dock or beach permit. In May of 2015 the Wetlands Bureau created a new Dock and Shoreline Structures webpage. The webpage contains dock and shoreline related project information including a dock permitting fact sheet, frequently asked questions, and a perched beach fact sheet.
http://des.nh.gov/organization/divisions/water/wetlands/docks/index.htm

Wetlands Balanced Score Team

As part of a Certified Public Manager project, a NHDES Wetlands Program Balanced Score Card Team was created. A Balanced Score Card (BSC) is a management system that will allow the Wetlands Bureau to track, report, and present important measures. The BSC is divided into four major categories that are linked to the NHDES's strategic plan, 1) Customer Satisfaction, 2) Performance, 3) Business Operations, and 4) Employee and Workplace Development. NHDES objectives, specific measures, unit definitions, 2015 data, 2016 projected data, and goals for 2017 were established for each category. The BSC will be an excellent tool to communicate key objectives, performance measures, targets, and to identify where resources need to be directed to achieve important program goals. The Wetlands Program Balanced Score Card Team includes representatives of wetlands permitting, shoreland permitting, compliance, and the Commissioner's Office. Additional meetings are scheduled for 2016 on each of the four categories of the BSC. Discussions have already fostered new staff initiatives on compliance training and outreach.

CONCLUSION

The Wetlands Bureau continues work on process improvements, coordination, and consistency with other programs within the Land Resources Management Program. As part of that effort, the items below highlight the major program improvements accomplished during 2015:

- Continued the rewrite of the administrative rules to improve clarity, consistency, and incorporation of technologies.
- Began cross-training staff across all LRM programs to make the best use of available resources. This will allow staff to perform multi-program activities such as plan reviews and site inspections thus increasing efficiency.
- Developed a webpage logic model to assist applicants with permitting of docks and shoreline structures.
- Began work to secure vendor to convert the obsolete FoxPro database to an Oracle-based platform database.
- Standardized over 100 permit conditions for consistency and predictability in the permit decision-making process.
- Continued work updating Best Management Practices manuals to facilitate expedited permitting processes for utilities, forest management, routine roadway maintenance, trail construction, and agricultural work.
- Developed Standard Operating Procedures for GIS review of incoming applications.

The Wetlands Bureau continues to work on EPA program improvements and partnerships. With updates to existing MOAs on coordination, the Wetland Program Plan, and development of water quality and wetland assessments, NHDES has partnered with the State of Maine Department of Environmental Protection, NH Fish & Game Department, and DRED. With the recently awarded grants, NHDES looks forward to partnerships with the Geology Unit, DOT, UNH, and Fish and Game. The new grant projects will help communities plan and prioritize improved stream crossings and locate wetlands at a community scale.

The Wetlands Bureau is engaged in discussions about measuring what we do each day. With legislative mandates, measuring permit turn-around times has been the Bureau's primary focus. Through creation of a Balanced Score Card Team, NHDES discussed ways to measure customer satisfaction, efficiency of business processes, environmental results, and organizational capacity. What we measure matters – and it has helped us brainstorm on how our daily activities should be tied to our long- term goals.

Through standardization, screening of sensitive resources, and increased understanding of scientific research, NHDES has improved its protection of wetlands and aquatic resources. The existing NHDES Wetland Program Plan provides a framework and direction to prepare our program for the future.