

## New Hampshire Considers Climate Change in Wetlands Program Plan and Review Process

### Overview

Under the [2011-2017 New Hampshire Wetlands Program Plan](#), comprehensive efforts have been made to incorporate climate change considerations in several wetlands program areas. Examples include updating protocols and mitigation rules to include climate concerns; using updated monitoring and assessment data and climate science to inform regulatory decisions; prioritizing protection and restoration of wetlands of high ecological value or function; focusing grant resources; and ensuring that stakeholders understand the importance of preserving ecosystem services. New Hampshire's comprehensive approach ensures that wetland resources and the ecosystem services they provide are protected as the climate changes.

### Background

With the increase in frequency and severity of extreme weather events associated with climate change, New Hampshire is experiencing greater erosion, flooding, habitat loss, and structural damage. In the *2011-2017 New Hampshire Wetlands Program Plan*, the State recognized the importance of tidal and nontidal wetlands for flood control, water quality protection, wetland habitat, and water recharge for both groundwater and surface waters. Not only do wetlands offer significant environmental values, but confer significant social and economic benefits such as recreational opportunities and flood mitigation. The State indicated these functions become more valuable with the expected increase in occurrence and severity of storm events anticipated with climate change.

The State's wetland permitting program in NHDES is the primary means of wetlands regulation in New Hampshire. For projects with significant wetland impacts, NHDES requires the applicant to compensate for the unavoidable loss of wetland functions that will result from the proposed impact. To better protect these natural resources from additional stressors associated with climate change, the Program is considering modifications to existing State laws and rules through their Wetlands Program and Process Improvement Effort. The *2011-2017 Plan* provides a framework to address issues related to climate change

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**Project Date:** 2012



and identifies activities to be performed in collaboration with state agency partners to achieve the Programs goals. A main goal of the *Plan* is to prioritize and implement protection and restoration of wetland resources of high ecological value or function that are connected to other aquatic habitats.

### Addressing Climate Change in New Hampshire's Wetlands Program Plan and Review Process

As part of the *Plan*, New Hampshire has modified mitigation rules and protocols for wetlands permits, grant criteria, and their Wetlands Monitoring Strategy to include climate change concerns.

**Wetlands Mitigation and Permitting:** The permitting program is using wetlands mitigation to ameliorate climate change risks to the State's sensitive natural resources. Current climate change and wetlands science is being used to inform both wetland permit application reviews and regulatory decisions. Projects include guidance on minimum impact project types, as well as construction design criteria and requirements. Several local projects are underway to address stream stabilization, conservation easements, habitat restoration, augment flood capacity, and promote flow improvements.

Applications under the State Programmatic General Permit must meet requirements outlined by the [Stream Crossing Protocols](#) and design guidelines to ensure that stream crossing structures maintain natural flow conditions and preserve hydrology to

minimize harm to aquatic systems. Due to projected increases in flow variability, greater span lengths in stream crossing designs were recommended to accommodate future hydrologic changes and high flow conditions associated with climate change.

**The Aquatic Resource Mitigation (ARM) Fund and Grant Criteria:** New Hampshire is also supporting areas of high ecological integrity by identifying funding opportunities for climate related restoration projects. The [ARM Fund](#) seeks “no net loss” of wetland acreage and functions using a watershed approach; and provides grants for projects involving wetland and/or stream restoration, wetland enhancement, and preservation of upland buffers associated with high quality aquatic resources. New Hampshire is using the ARM Fund to maximize efficiency of use of funds for ecologically sustainable projects by prioritizing high quality protection and restoration projects, as well as making revisions to the application process and ranking criteria to accommodate a broader range of protection and restoration activities. NHDES is currently working to revise the ARM Fund criteria to provide an incentive for project proposals to include climate change adaptation and resiliency planning.

**Wetlands Monitoring Strategy:** Building on the [2013 Wetlands Monitoring Strategy](#), the State intends to use monitoring and assessment data, along with climate change information, to inform regulatory decisions related to mitigation. A main effort is to further develop methods for monitoring and assessing wetland functions and overall condition. New Hampshire is identifying protocols for reviewing climate change and scientific information, developing new field metrics for restoration and protection, and has evaluated various assessment methods that provide information on wetland condition and function. This information will help managers:

1. Improve protection for NH’s highest quality wetlands,
2. Decrease impacts to and help restore wetlands; and
3. Quantitatively measure the success of mitigation sites.

Furthermore, the new Strategy attempts to gather information on the health and services of wetlands, causes of decline, and whether wetland condition has been impacted by climate change. The State is setting up a network to determine trends in wetland condition and their environmental stressors by using reference sites, functional analysis, and assessments to quantify the status of known critical or at risk wetlands.

NHDES also developed a GIS based desktop screening tool called the [NH Wetlands Mapper](#) to provide regional planners and conservation professionals with a tool to help them evaluate wetland functions and values (flood storage, water quality, and wildlife habitat), as well as identify the most intact habitat areas. Information from these GIS models will be used by NHDES technical staff in their review of wetlands applications, mitigation proposals, conservation planning, and local permitting.



**Outreach and Education:** The *Plan* also includes a strong education and outreach component to ensure that local decision makers, the general public, and State Legislature understand the multiple benefits of protecting wetlands, as well as the overall permitting process. Training was provided on the NH Wetlands Method and Wetlands Mapper to enhance professional and citizen volunteer understanding of wetlands evaluations, ecological integrity, and the benefits of wetland functions. Under the *Plan*, messaging on wetland functions and online training tools will continue to be developed.