



April 12, 2020

**Wetlands: Workhorse of Vermont's Ecosystems**  
**Prepared for Vermont's Senate Committee on Natural Resources and Energy**  
**Sen. Christopher Bray, Chair**

**Introduction**

Wetlands comprise just 4% of Vermont's land area,<sup>1</sup> yet are vital to Vermont's natural environment and provide a host of invaluable and irreplaceable functions to the public. Wetlands offer critical habitat for 35% of Vermont's threatened and endangered plant species and 21% of imperiled animals.<sup>2</sup> Additionally, they store floodwaters,<sup>3</sup> filter pollutants<sup>4</sup> and are important stores of carbon.<sup>5</sup> Wetlands also provide outdoor recreation opportunities such as hunting, fishing, wildlife watching and paddling. The Vermont Departments of Environmental Conservation and Fish and Wildlife estimate that between 35 and 50% of the State's original wetlands have been eliminated. With so much at stake, it is critical for Vermont to adopt proactive goals and policies that protect, restore, and expand Vermont's wetlands for the benefit of climate resilience, carbon storage, water quality, and biodiversity.

The monetary value of wetlands was highlighted in a report released in 2018 that was prepared by the Trust for Public Land's national conservation economics team for the Vermont Forest Partnership. The study, entitled "[Vermont's Return on Investment in Land Conservation](#)," found that for every state dollar invested in conservation of our forests and wetlands, \$9 worth of natural goods and services such as water quality protection, flood control, carbon storage, and wildlife habitat is returned to Vermonters. In addition, the report documents that wetlands have by far the highest value per acre of any land cover type in Vermont for the natural goods and services they provide. At an estimated \$590/acre, wetlands were found to have a per acre value more than 3 times higher than the next highest land cover types, which are deciduous and mixed forests.

Specific to water quality improvement, recent research demonstrates that small wetlands have a disproportionately large impact on nutrient removal, benefiting water quality in our streams, rivers, ponds, and lakes.<sup>6</sup> Locally, [a study by TNC Vermont and UVM's Gund Institute](#) found that Vermont

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<sup>1</sup> "[Vermont Conservation Design: Habitat and Natural Communities Technical Report](#)" (Zaino et al, 2018)

<sup>2</sup> *Wetland, Woodland, Wildland: A Guide to the Natural Communities of Vermont* (E. Thompson, E. Sorenson, and R. Zaino, 2019)

<sup>3</sup> "[Quantifying flood mitigation services: The economic value of Otter Creek wetlands and floodplains to Middlebury, VT](#)" (Watson et al, 2016)

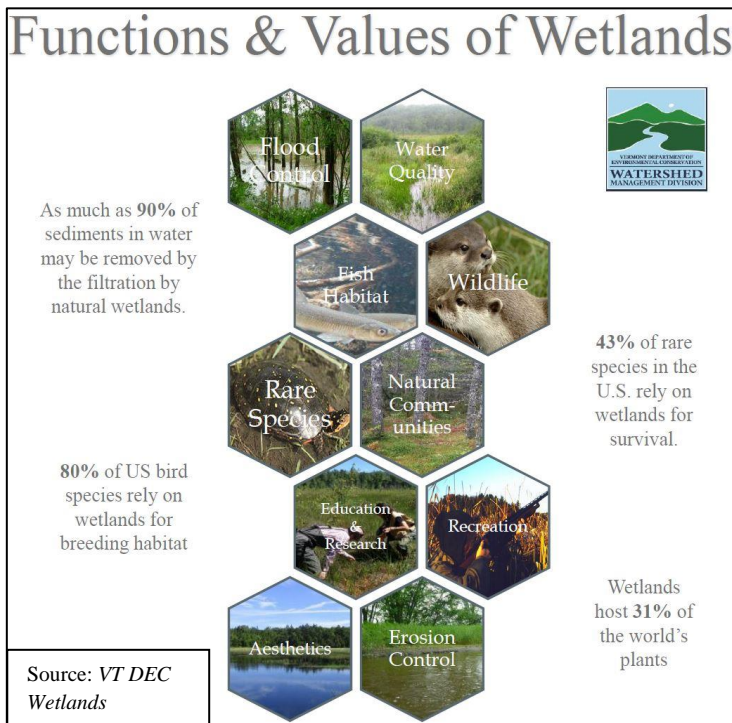
<sup>4</sup> "[Optimizing wetland restoration to improve water quality at a regional scale](#)" (Singh et al, 2019)

<sup>5</sup> "[Wetlands in a changing climate: science, policy and management](#)" (Moomaw et al, 2018)

<sup>6</sup> "[Biogeochemical hotspots: Role of small water bodies in landscape nutrient processing](#)" (Cheng and Basu, 2017)

could achieve up to 15% of its phosphorus reduction goals for Lake Champlain under the TMDL by restoring degraded wetlands alone.

Vermont’s wetland protection and restoration strategies lag behind those of other states. Given the critical benefits that wetlands provide, it’s imperative that Vermont update its wetland policies to match the latest science and best management practices. Following are a suite of policies that would bring Vermont to the forefront of wetland management, nationally. A coalition of organizations including Vermont Natural Resources Council, The Nature Conservancy in Vermont, Lake Champlain Committee, Audubon Vermont, and Conservation Law Foundation can provide more detailed policy descriptions and draft legislative language on request.



**1. Net Gain Proposal**

Across the United States, at least fourteen states have adopted a “net gain” goal for wetland management. Some states are on track to achieving their goals by employing strategies based on best management practices for protection, restoration, and creation of wetlands and a requirement to track success of strategy annually.

The current policy of the state of Vermont is no net loss of wetlands. Because of their critical importance to people and the natural environment on which we depend, Vermont policy should focus on a goal of a net gain of wetlands. This can be

accomplished through protection of existing intact wetlands, restoration of degraded wetlands, and creation of new functional wetlands in appropriate circumstances. We recommend the following:

**A) Establish a goal of net gain of wetlands:**

Amend Vermont Wetland Rules Sec 1.1 to read:

**1.1 Purpose and Applicability**

It is the policy of the State of Vermont to identify, protect, and restore wetlands and the values and functions which they serve in such a manner that the goal of a net gain of wetlands and their functions is achieved on a statewide basis.

**B) Update the policy and procedures for avoid, minimize, and mitigate:**

As to the policy of avoid, minimize and mitigate, the key will be to maximize efforts to avoid and minimize impacts to protect current wetlands from loss. If this is not

achievable, a stronger mitigation policy that requires restoration of a substantial predetermined ratio of degraded wetlands or the creation of new functional wetlands would achieve an overall gain of wetlands.

Mitigation ratios should be determined based on the following 5 factors: (1) existing level of wetland function at site prior to mitigation; (2) resulting level of wetland function expected at the mitigation site assuming project success; (3) length of time before mitigation is expected to be fully successful; (4) risk that the mitigation project may not succeed; and (5) differences in the location of the lost wetland and the mitigation wetland that affect the services and values they have the capacity and opportunity to generate.

The Vermont Wetlands Rules should prioritize the protection of existing intact wetlands. Where permitted projects lead to impacts that cannot be avoided, VT DEC should mandate restoration, enhancement or creation of wetlands or buffers at an area ratio no less than 2:1, with higher ratios for restoration and creation.

### **C) Update the in-lieu fee compensation program**

The Vermont in-lieu fee compensation program should be updated so that all funds paid into the program are required to be spent in state, funds are spent on priority mitigation projects that optimize wetland benefits and are identified through a scientifically robust, publicly visible process, parties contributing to these funds (e.g., landowners, developers) have the ability to track how their monies are spent, and the effectiveness of mitigation projects supported through the program is tracked over time.

## **2. Class I Wetlands Proposal**

The Vermont Department of Environmental Conservation [describes Class I wetlands as](#) “exceptional or irreplaceable in their contribution to Vermont’s natural heritage. They provide unmatched environmental functions and values and therefore merit the highest level of protection.” Highly functioning wetlands cannot be easily replicated or replaced, and it is incumbent on all of us to protect Vermont’s remaining examples. Yet the process for designating Class I wetlands is unnecessarily cumbersome and hinders protection of these outstanding natural assets of the State. The process should be streamlined.

## **3. Wetland Mapping Proposal**

Vermont’s current wetland maps are out of date and incomplete. Wetland experts believe a significant portion of the state’s wetlands remain unmapped, making them vulnerable to development. Vermont DEC should expedite updates to the Vermont Significant Wetlands Inventory (VSWI) and/or Wetland Advisory mapping layers, and revise these maps on a regular basis. High

Quality National Wetlands Inventory (NWI) Plus level mapping for all of the tactical basins should be completed within the next five years, and then updated concurrent with revisions to tactical basin plans.

#### 4. Wetland Reporting Proposal

For tracking and accountability purposes, the Agency of Natural Resources should submit an annual report on the status of Vermont's wetlands to the House Committee on Natural Resources, Fish and Wildlife and to the Senate Committee on Natural Resources and Energy. The report should include trends in wetlands loss, protection, and restoration; a summary of the extent of wetlands restored on-site compared with offsite, in-lieu fee, or conservation; the number of site visits and technical assistance calls, the number of permits processed, and any enforcement actions that were taken in the previous year; an analysis of historical trends of wetlands including data showing sectors of wetland impact, including but not limited to fill, land clearing for structures, land clearing for access, and renewable energy development.

#### Conclusion

Healthy wetlands are essential to Vermont's resilient future. Vermont should protect, restore, and create wetlands (in that order of priority) to improve water quality, sequester and store atmospheric carbon, mitigate against catastrophic flood events, and support our state's unique biodiversity. Please get in touch for additional background information or specific legislative language.

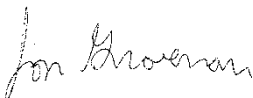
Thanks,



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