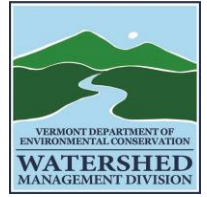


# Functions & Values of Wetlands



As much as **90%** of sediments in water may be removed by the filtration by natural wetlands.



**43%** of rare species in the U.S. rely on wetlands for survival.

**80%** of US bird species rely on wetlands for breeding habitat

Wetlands host **31%** of the world's plants



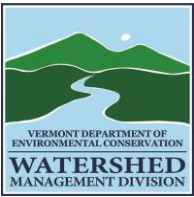
Every year wetlands save Middlebury at least **\$126,000** from potential flood damages.



**\$10 million** is generated nationwide from bird photography and observation annually.



Cost of replacing 10 years of flood protection and wildlife habitat from a single acre of wetland: **\$590,000**



# Wetland Status and Trends

**35% loss** of VT wetlands before 1980. Equivalent to the size of Grand Isle County.

Just 4% of VT is wetland

Permit projects 2016-2020 resulted in a net gain of 18.5 acres. (not including voluntary gains)



In 2022, permitted projects filled 2.5 acres of wetland and 5.2 acres of wetland were enhanced or restored.

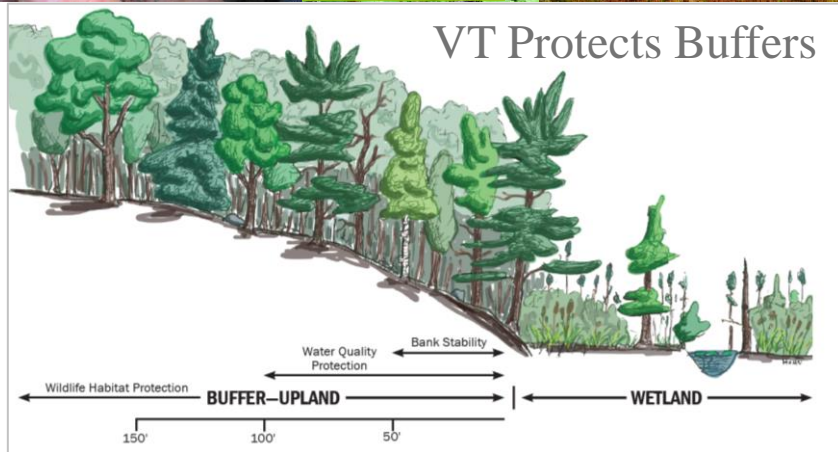
## How are our Remaining Wetlands Doing?

Nationally, 47% are in good biological condition, 34% in poor condition (2016).

Generally, there is a higher frequency of good condition wetlands in the Green Mountains and Northeast Kingdom.

Leading problems for remaining wetlands are soil hardening, vegetation removal, ditching, & non-native plants.

Reports on losses and gains associated with permits are produced for US EPA annually and additional trend data is reported for five-year periods.



**Vermont Wetland Rules regulate activities in protected wetlands**

**VT Wetland Classification System:**

- Class I: Exceptional function and value
- Class II: Significant function and value
- Class III: Not significant, no regulation

7 Review Staff  
 200+ Permits  
 >1,100 Projects  
 Reviewed

Permits are issued when an activity cannot be placed elsewhere and functions and values are not adversely affected or adverse effects are mitigated.





# Wetland Mapping

## State-wide updates by 2026

Contractor creating NWI, select wetlands from NWI will be added to VSWI.

### Improvements in Permit mapping:

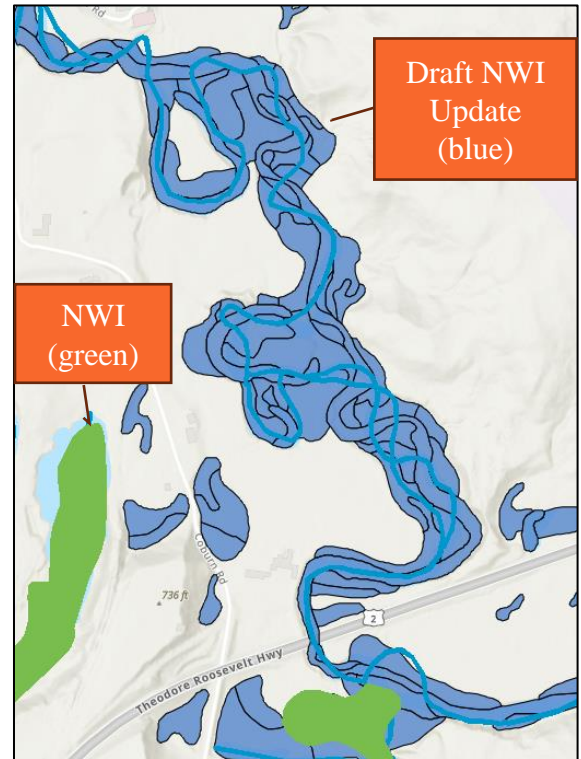
2016-2020, DEC added 2.3 square miles of wetland to VSWI from permitting, totaling 313 individual wetlands.

2023 DEC mapped nearly 400 individual wetlands to add to VSWI in early 2024.

**Missisquoi River Basin Wetlands were updated for the VSWI in 2023.** Net increase in wetlands identified by 5,100 acres. Area updated: 603 square miles.

### Preliminary Functional Assessment for NWI in Missisquoi Basin:

- Nearly 80% are important for carbon sequestration (climate change resilience)
- 35% of individual wetlands perform important surface water storage (flood protection)



**National Wetlands Inventory – NWI**, managed by USFWS, origins of VSWI, includes rivers and lakes too.

**Vermont Significant Wetlands Inventory – VSWI**, managed by VT DEC, includes regulated wetlands, many regulated wetlands are not on the map, rigorous public notice.

**Wetland Advisory Layer – Managed by VT DEC**, includes wetlands found by staff in field or aerial interpretation, no regulatory status, updated continuously.



# Wetland Mitigation and Restoration

**Adverse impacts that cannot be avoided must be compensated to meet Wetland Rule Permit Standard.**

Compensation plans must ensure no net loss, monitoring, be self-sustaining, have permanent protection, and adequate finances.

Rules allow payment of fees into federal “in-lieu fee” program instead of permittee compensation projects. Current cost per credit is \$200,000.

In-Lieu Fee credits based on impact acreage and impact type following [federal guidance](#). % of acreage used for conversion of wetland type (e.g. forested wetland to marsh is 30%).

## Ducks Unlimited In-Lieu Fee Restoration site



- Three mile bridge road, Middlebury
- 138 acres, 58 acres of wetland restored.
- Project increased flood storage. July 2023 image.

**Voluntary Restoration: RCPP\* Wetland Reserve Projects. In partnership with NRCS developed a wetland restoration site prioritization model, incentive payment for landowners, restored 186 acres since 2015.**