

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



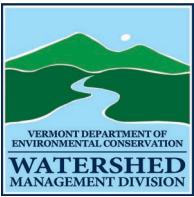
Every year wetlands save Middlebury at least **\$126,000** from potential flood damages.



\$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.

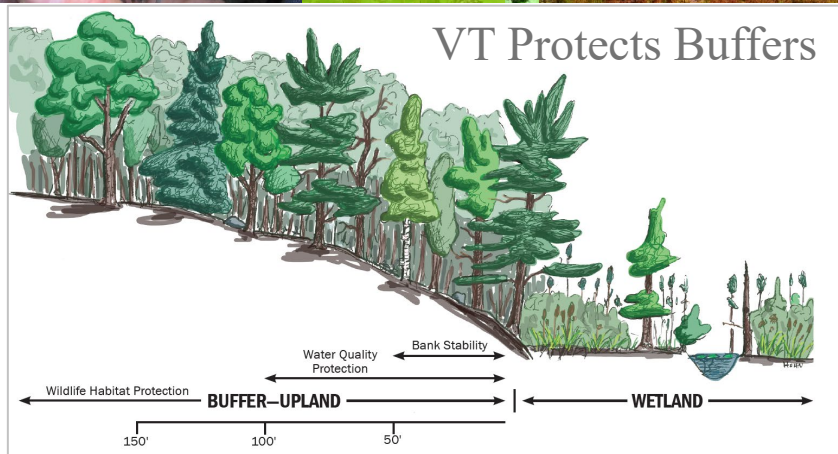
How are our Remaining Wetlands Doing?

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:

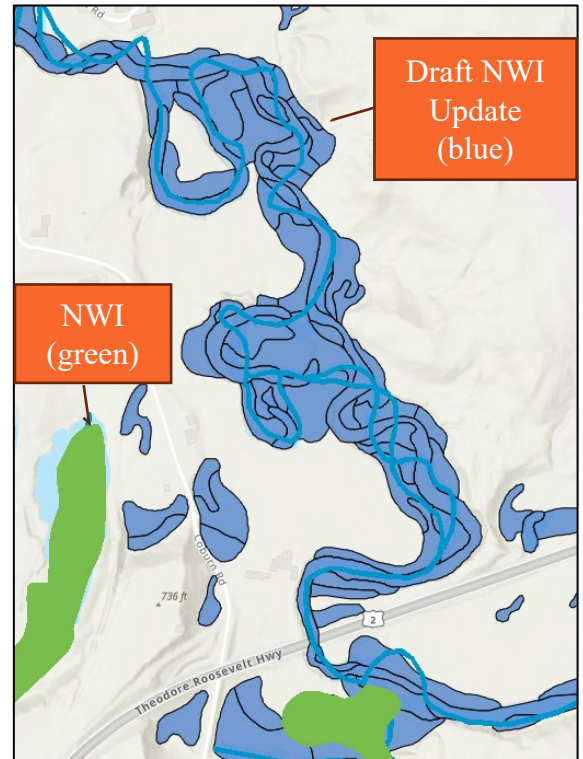
2016-2020, DEC added 2.3 square miles of wetland to VSWI from permitting, totaling 313 individual wetlands.

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:

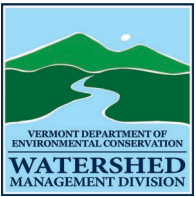
- Nearly 80% are important for carbon sequestration (climate change resilience)
- 35% of individual wetlands perform important surface water storage (flood protection)



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.