



# Vermont Wetlands Supporting Climate Resilience



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Wetlands Program Manager  
March 11, 2024



## Outline

- Wetlands overview
- Wetland functions
- Wetland program overview
- Map updates
- Outreach efforts
- Monitoring
- Restoration
- Regulations





# Where Land and Water Meet







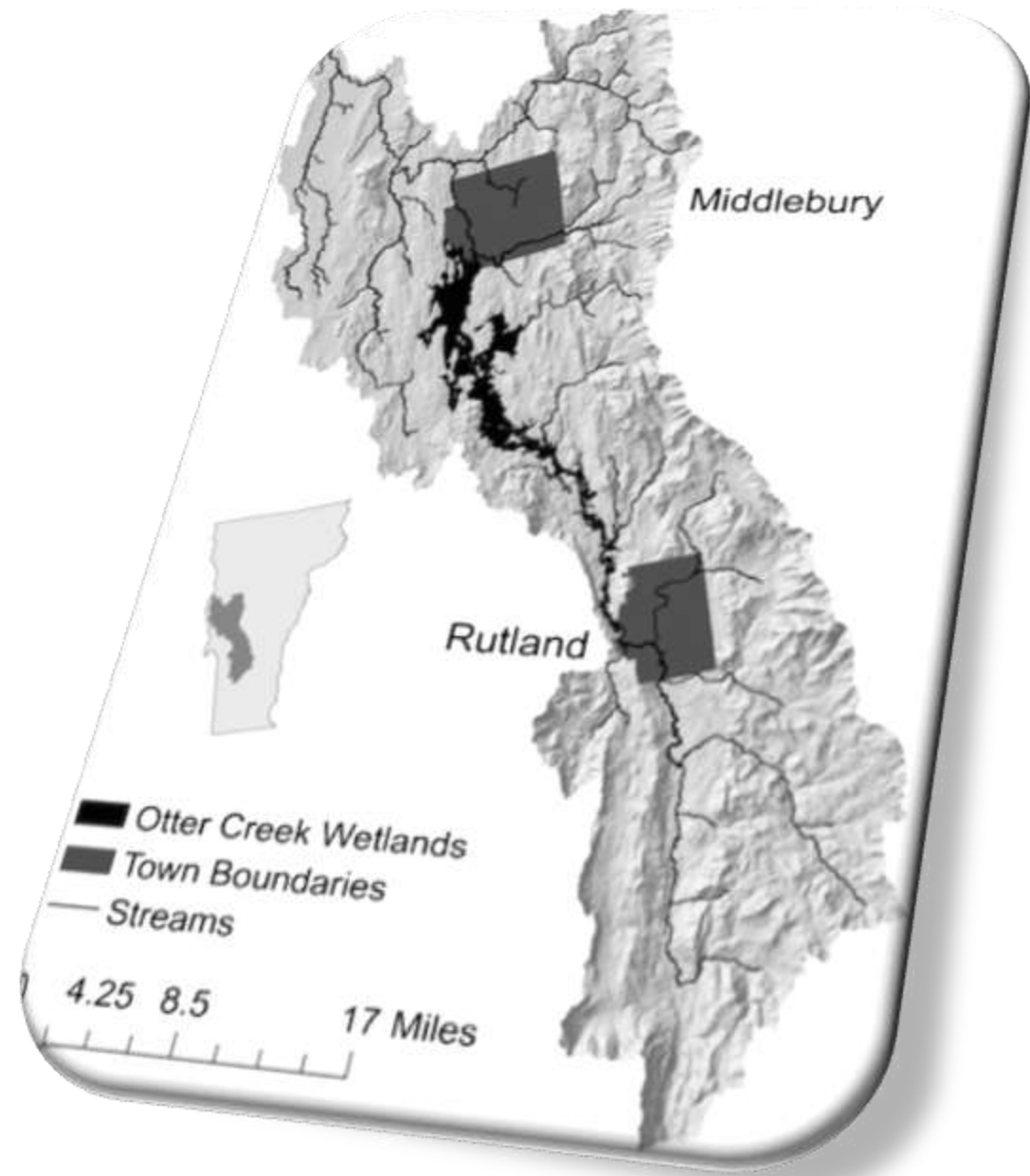
# Wetland Function and Values

Historically Vermont has lost  
35% of wetland area.  
~4% is wetland today.

# Flood & Storm Water Storage

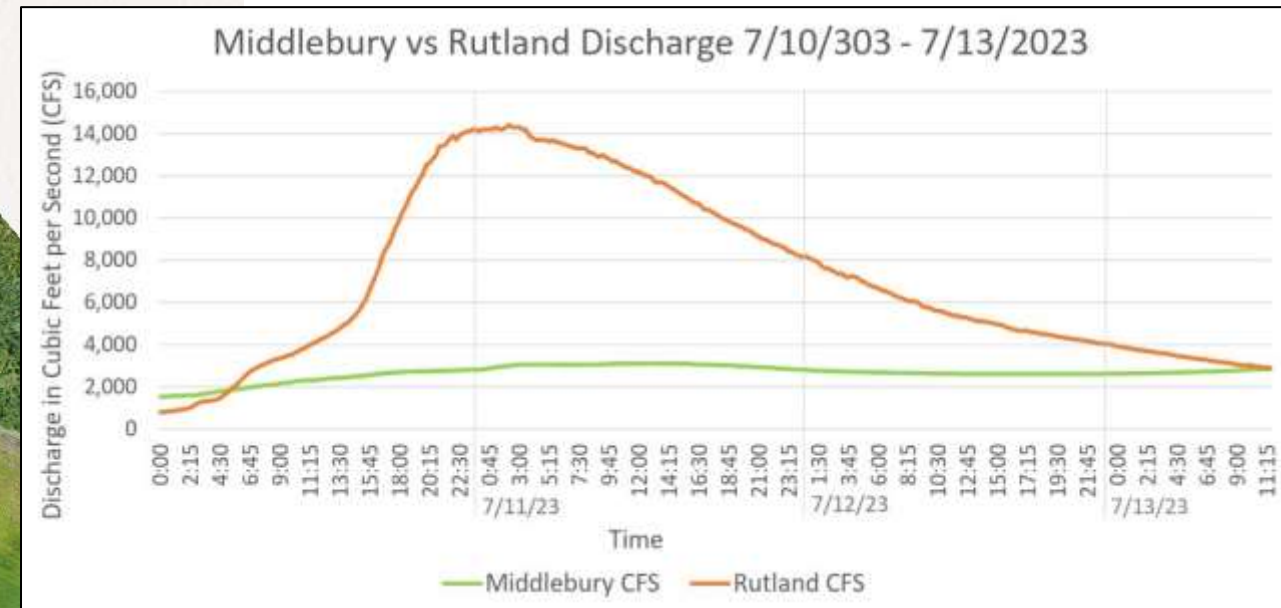
## University of Vermont Studies

- Otter Creek wetlands and floodplains protected Middlebury from up to **1.8 million in flood damage** during Tropical Storm Irene.
- Average yearly savings from wetland/floodplain protection for Middlebury between \$126,000 to \$450,000





# Slow the flow.



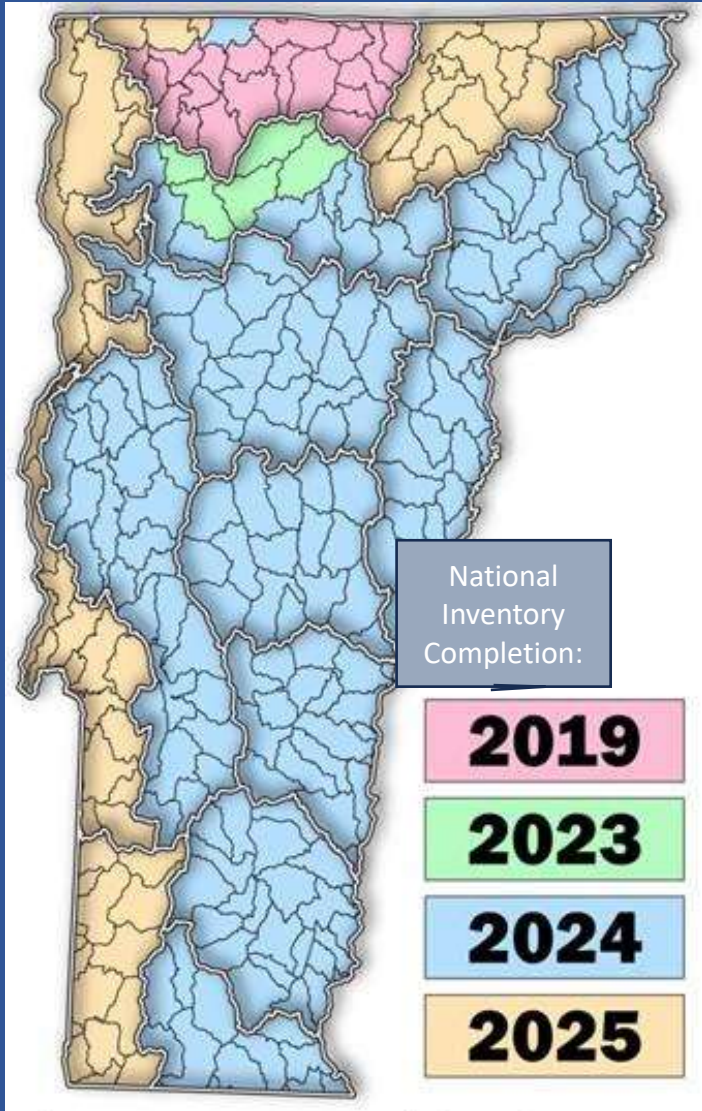


# Vermont Wetlands Program

- Identify wetland locations with maps and site visits
- Outreach about wetlands
- Assess the health of wetlands
- Support voluntary wetland restoration
- Implement Vermont Wetland Rules
  - Review project plans
  - Require wetland avoidance where possible
  - Ensure no net loss of wetland function or value



# Wetland Map Updates Underway

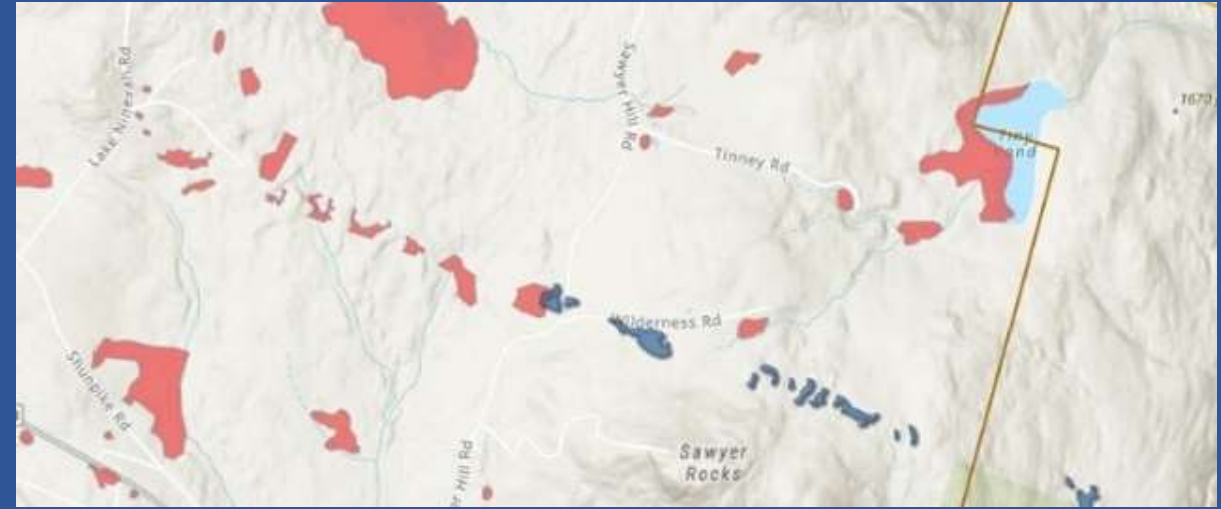


**Missisquoi River Basin Wetlands were updated for the VSWI in early 2023.**  
Area updated: 603 square miles.

**(Partial) Lamoille River Basin Wetlands are awaiting USFWS approval.** Area to be updated: 233 sqmi

**Over 30% of statewide NWI will be complete in July 2024**

**Nearly 80% of statewide NWI will be complete before 2025**



Permit related map additions:

Over 250 changes are on public notice until April 2.



# Predicting Wetland Function

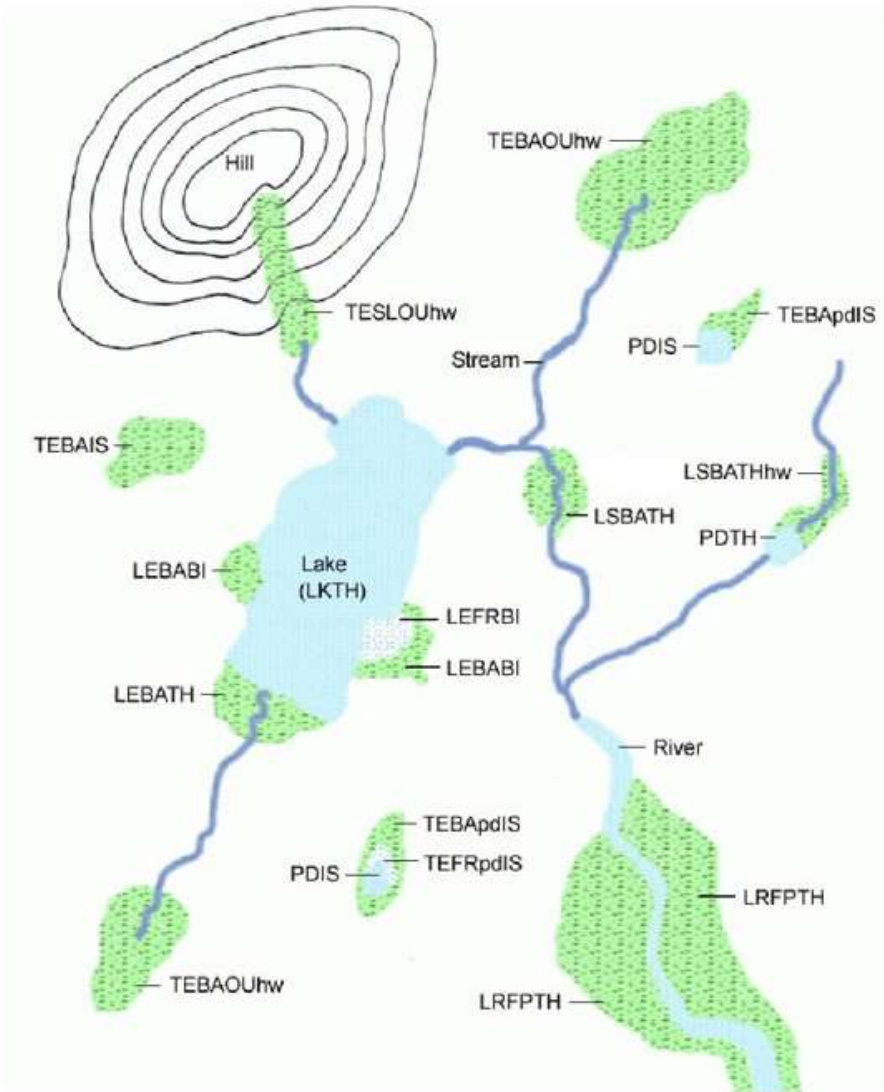
Using Maps - National Wetlands Inventory Plus:

Landscape Position

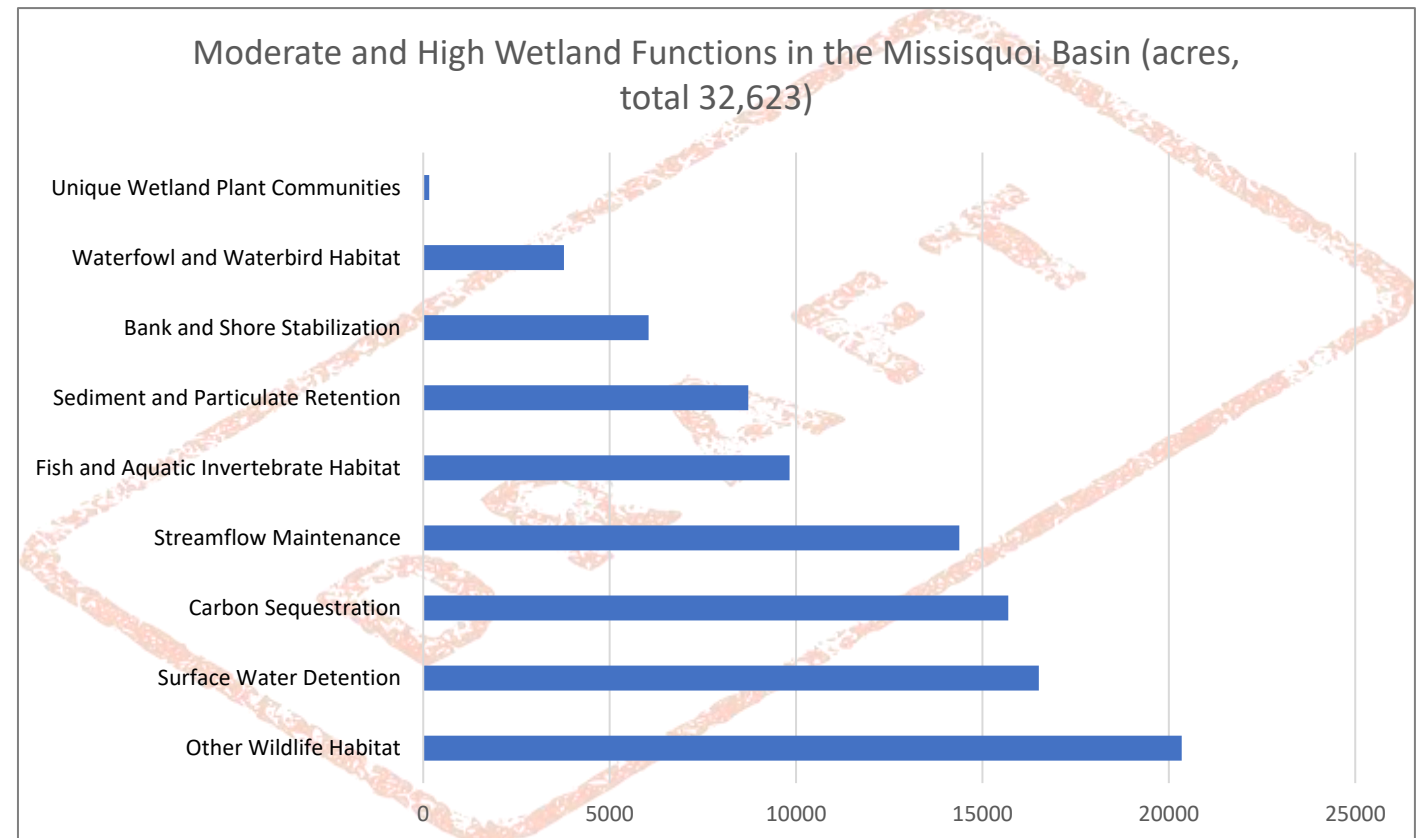
Landform

Water Flow Path

Waterbody Type



**Figure 1.** Application of LLWW descriptors to a region with nontidal wetlands. Landscape positions: LR – lotic river, LS – lotic stream, LE – lentic, and TE – terrene; Landforms: BA – basin, FR – fringe, FP – floodplain, SL – Slope; Water flow paths: OU – outflow, IS – isolated, TH – throughflow, BI – bidirectional-nontidal; other descriptors: pd – pond (association), hw – headwater; Waterbodies: PD – pond, LK – lake. Note: Landscape position can be added to lakes and ponds if desirable.





# Wetland Screening Tool

☒ Address ☐ SPAN 1 market street south burlington

Status:	14/14 queries completed... DONE!
Matching Address:	396 DORSET ST. SOUTH BURLINGTON, 05403
Grand List Owner:	
SPAN:	
District Wetland Ecologist:	<a href="#">Tina Heath</a> , Phone: 802-495-1393
<a href="#">Link to Wetland Map</a>	

**Wetland Screening Result: Very Likely**

Wetland Project within (500ft.)

Issued Wetland Permit (within 1000ft.)

Vermont Significant Inventory Map

Vermont Significant Inventory Map (within 300ft)

Wetland Advisory Maps

Wetland Advisory Maps (within 300ft)

Hydric Soils (FACW)

Hydric Soils





☐ Address ☒ SPAN 120-037-10781

Status:	14/14 queries completed... DONE!
Matching Address:	No matching E911 Address.
Grand List Owner:	THULMAN MARY
SPAN:	120-037-10781
District Wetland Ecologist:	<a href="#">Shannon Morrison</a> , Phone: 802-490-6178
<a href="#">Link to Wetland Map</a>	

**Wetland Screening Result: Swamp Lot** ^

***This parcel has been flagged as a “Swamp Lot”.***

*These are properties that may have very limited development potential due to wetland presence. Please contact your District Wetland Ecologist for a review at [Contact Wetlands Staff | Department of Environmental Conservation \(vermont.gov\)](#) before proceeding with any projects. For more information on how this parcel was identified as a Swamp Lot, and what may be possible, explore the links below.*

*[What Can I do With a Swamp Lot?](#) : Offers options for enjoying and utilizing lots that have limited development potential due to wetland presence.*

*[Swamp Lot Mapping Guidance](#) : Information on how a property is identified as a “Swamp Lot”, next steps, jurisdictional considerations, and resource links.*

Enjoy,  
Use,  
Conserve,  
Or Sell





## Vermont Wetlands Identification and Regulations for Real Estate Professionals

Shannon Morrison, Wetlands Ecologist



### The Vermont Wetlands Program **Landowner's Guide to Wetlands**

What to Know *Before* You  
Purchase Land or Build

## VERMONT WETLANDS SURVEY

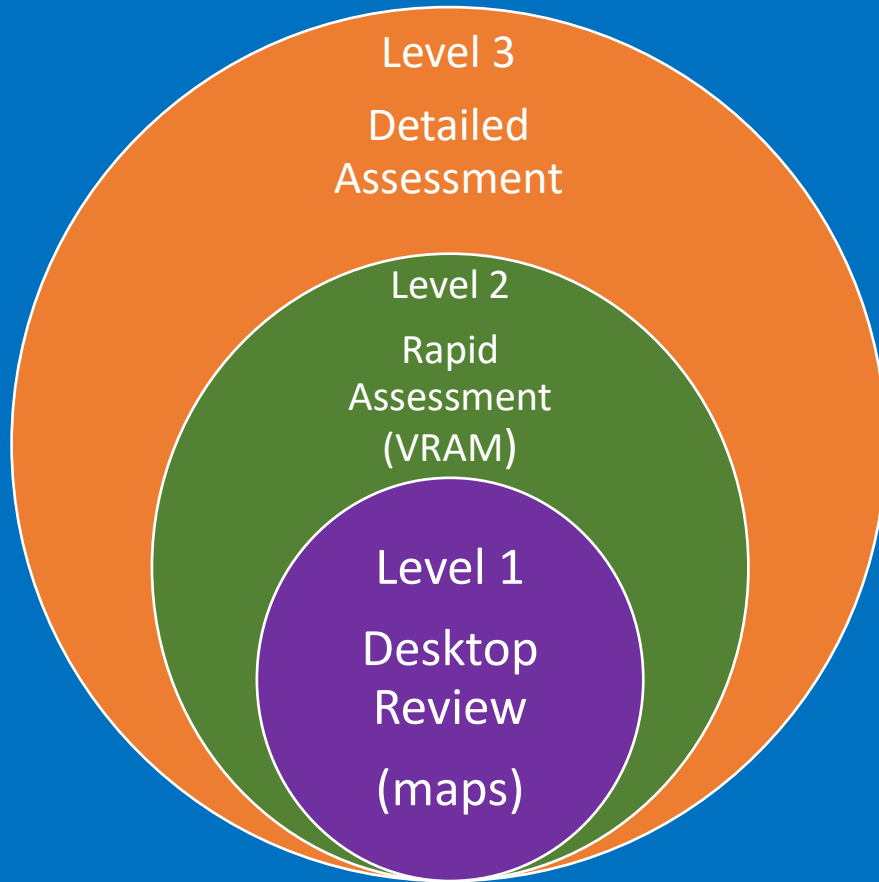
Do you know  
how to identify  
a wetland?



Take our survey for a chance to  
**WIN a \$50  
Amazon Gift Card!**



# Wetlands Biomonitoring



- Monitoring in floodplains, streamside wetlands, and seeps extreme weather impacts.
- monitoring marginally wet communities for climate effects on wetland extent.
- reference condition surveys.
- Focus on ecosystem types on the northern or southern extent in VT.
- Study how peatlands respond to climate change and how that changes carbon sequestration.

# Wetland Restoration

## LAKE CHAMPLAIN BASIN WETLAND RESTORATION PLAN December 31, 2007



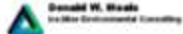
Prepared for  
VERMONT AGENCY OF NATURAL RESOURCES  
VERMONT DEPARTMENT  
OF  
FORESTS, PARKS AND RECREATION  
LAKE CHAMPLAIN CLEAN AND CLEAR ACTION PLAN



Prepared by



POWELL ENVIRONMENTAL ASSOCIATES, LLC  
CONSULTING ORGANIZATION



The Wetland Restoration Potential Layer (2017) is found in the Wetland Inventory Map under “Wetland Map”, “Watershed Protection”.

Learn more:

<https://dec.vermont.gov/watershed/wetlands/protect/re-store>



## Vermont Wetland Rules regulate activities in protected wetlands

### **VT Wetland Classification System:**

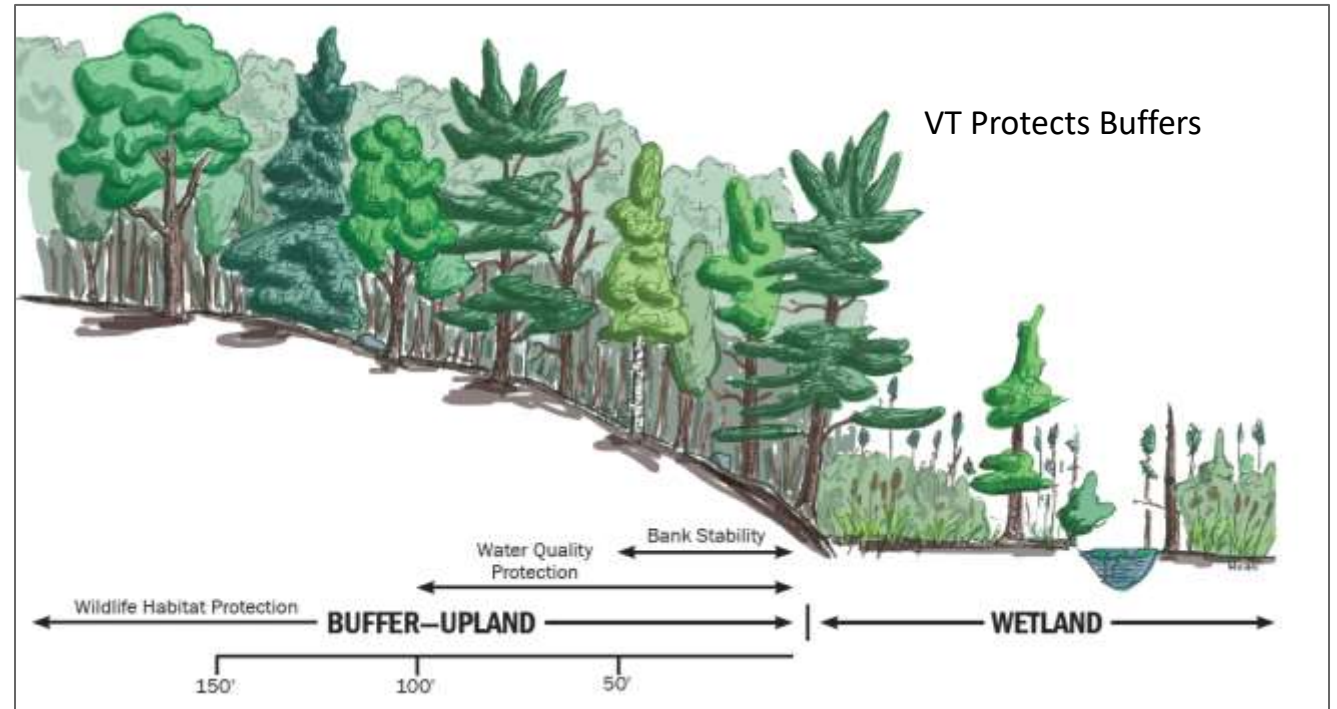
Class I: Exceptional function and value

Class II: Significant function and value

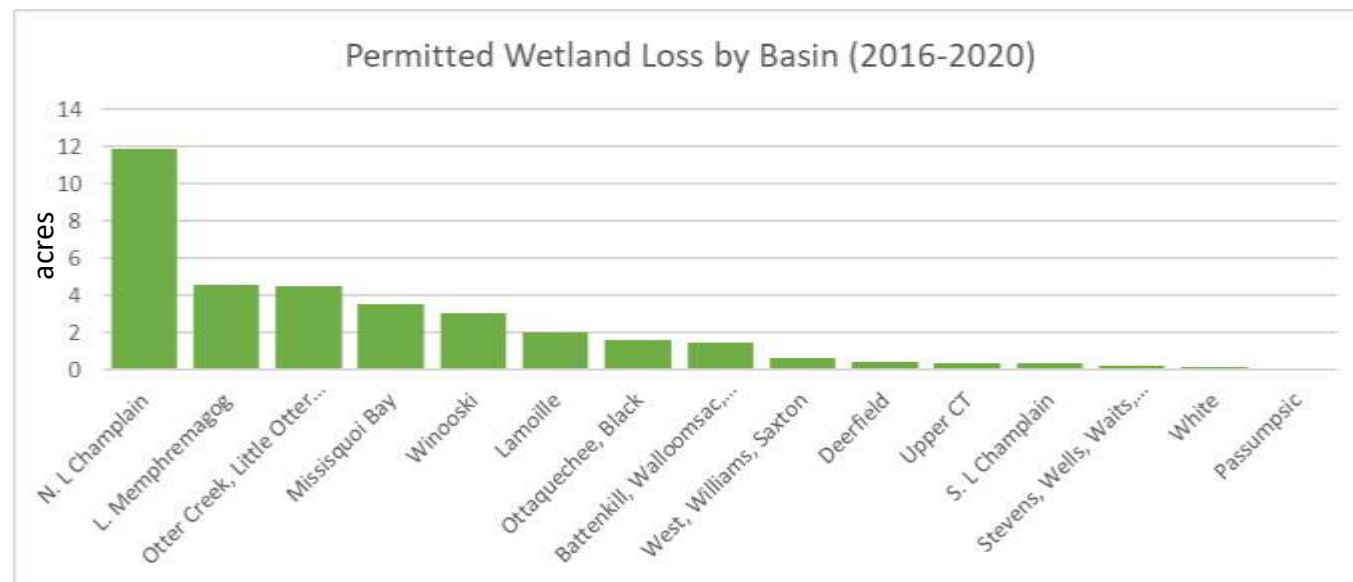
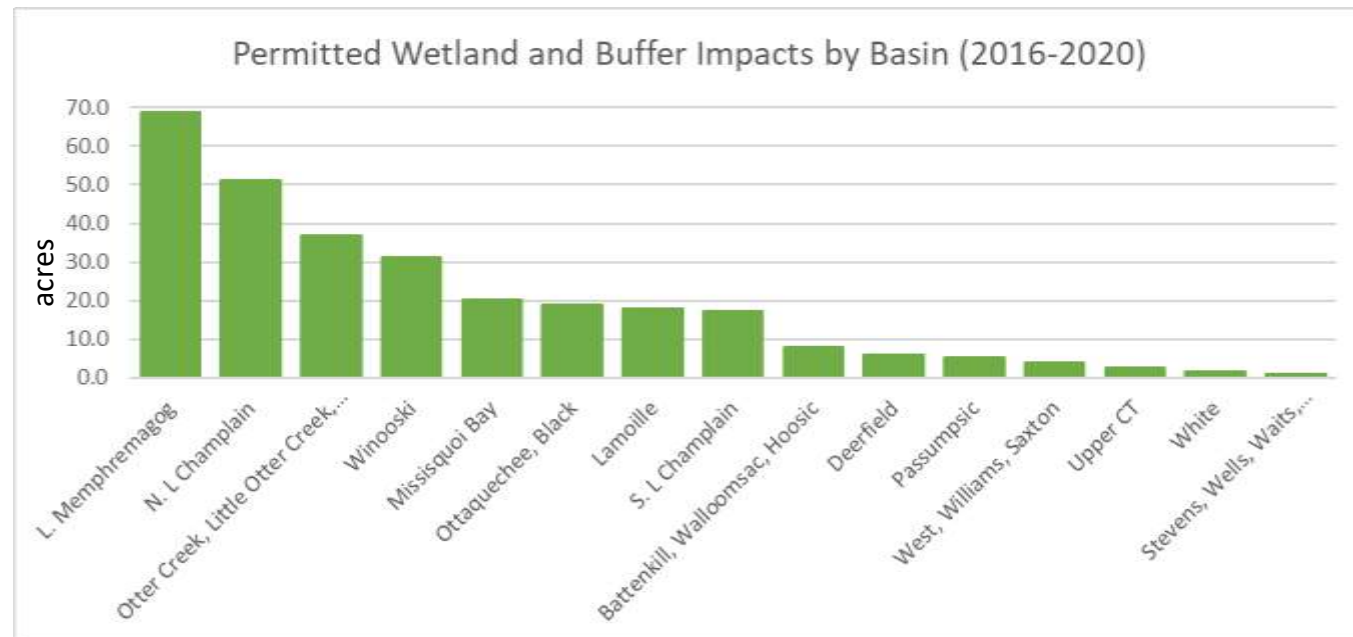
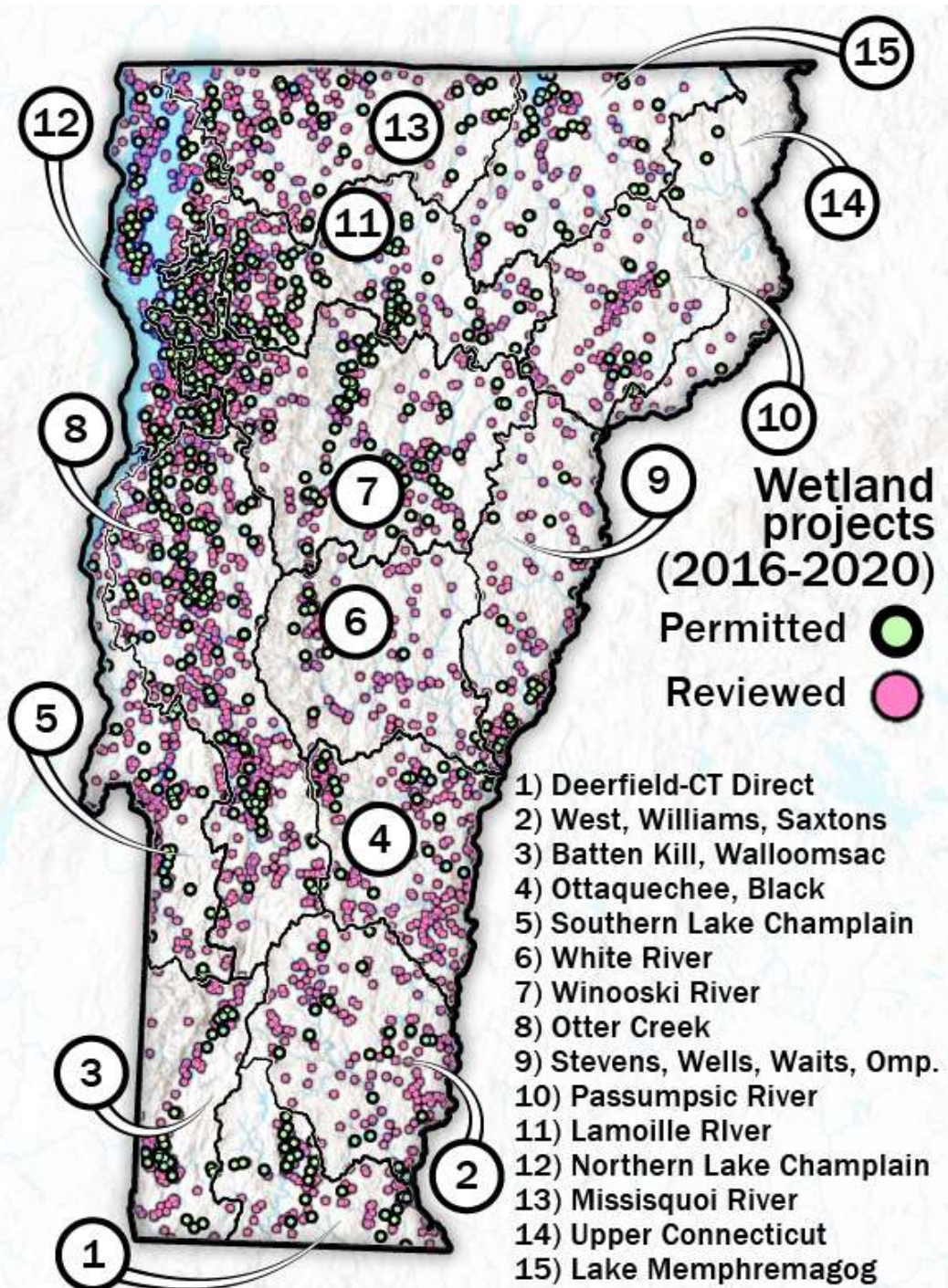
Class III: Not significant, no regulation

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

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









# Wetland Losses and Gains 2022

2022:

2.5 acres of wetland filled

5.2 acres of wetland  
enhanced or restored

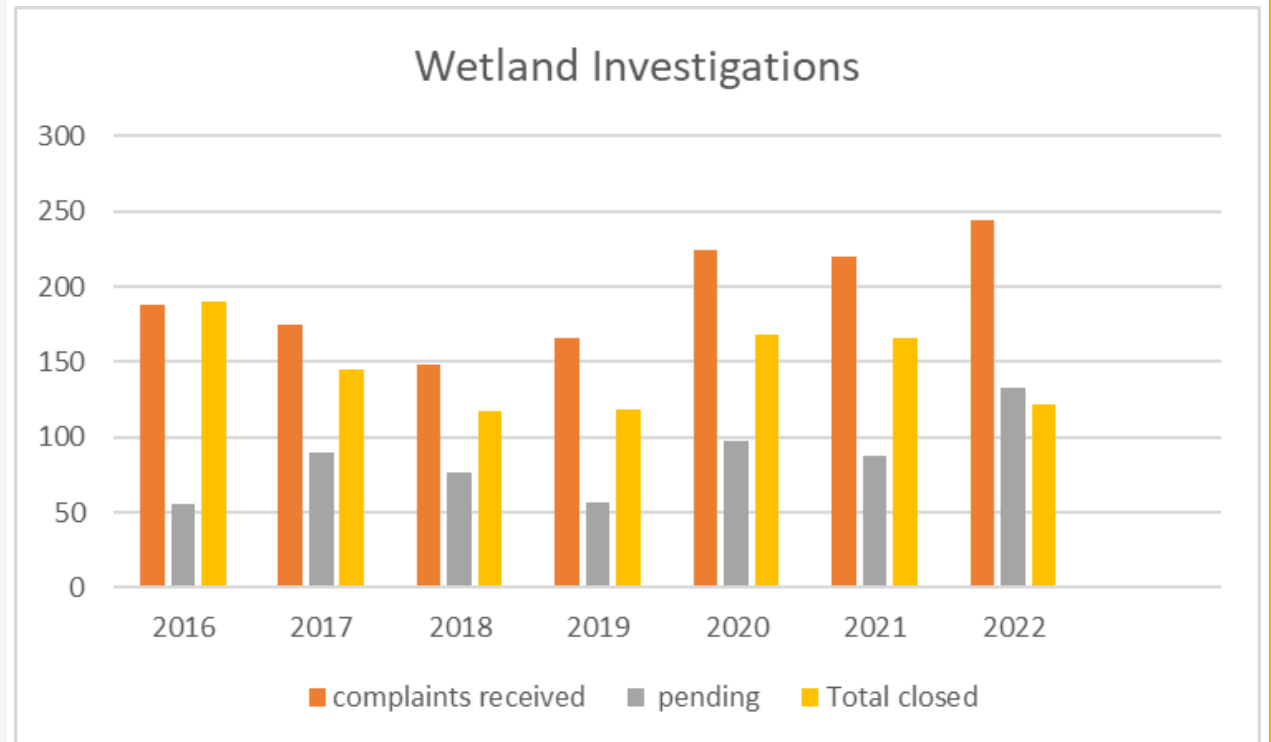
**Table 1: Loss and Gain By County**

*(in square feet)*

County	Loss	Gain
Addison	7863	2653
Bennington	5873	0
Caledonia	1834	0
Chittenden	37084	71146
Essex	0	0
Franklin	634	54270
Grand Isle	2920	0
Lamoille	17782	4438
Orange	0	0
Orleans	330	0
Rutland	24789	45227
Washington	6803	46041
Windham	1287	4682
Windsor	2085	0

# Wetland Investigations 2016-2022

See Legislative Reports: “Report to the  
Legislature Uniform Environmental  
Enforcement Act” 2016-2022







# Class I Petitions



Photo credit: Valley News



