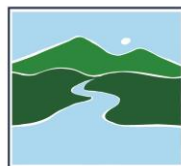


VERMONT DEPARTMENT OF ENVIRONMENTAL CONSERVATION
WATERSHED MANAGEMENT DIVISION

VERMONT WETLANDS PROGRAM'S 2011-2015 TREND REPORT AND REGULATORY UPDATE



VERMONT DEPARTMENT OF
ENVIRONMENTAL CONSERVATION
WATERSHED
MANAGEMENT DIVISION
WETLANDS PROGRAM

December 2017

CONTENTS

Purpose	1
Executive Summary	1
Wetlands and The Wetlands Program	2
Changes in Statute and Rule.....	4
Regulatory Improvements.....	5
Regulatory Activities and Trends.....	5
Wetland Investigations and Violations.....	11
Wetland Gains	11
Analysis and Conclusions.....	12

PURPOSE

This report fulfills the U.S. EPA Performance Partnership Agreement task of reporting on the gains and losses of wetlands state-wide and gives an update on state wetland regulation. The time-period reported on and analyzed in this report is from January 1, 2011 to December 31, 2015.

EXECUTIVE SUMMARY

Vermont's wetlands are the interface between lands and deepwater habitats. These areas are commonly known as bogs, fens, marshes, wet meadows, shrub swamps, and wooded swamps and they provide a variety of functions and values that benefit the people of Vermont. Wetland loss contributes to problems such as declining water quality and increased flood damage. The Vermont Wetlands Program protects wetland function and value through the Vermont Wetland Rules by identifying wetland areas, project review, permitting, and restoration. This document gives an update on wetland regulation and reports on activities in Vermont which have contributed to the gains or losses and alteration of wetlands from 2011-2015.

In 2010 the Vermont Wetland Rules were updated to allow for protection of unmapped wetlands and provided a process for reclassifying wetlands and updating wetland maps. In 2012 the Agency of Natural Resources was given rulemaking authority over the Vermont Wetland Rules, including the ability to initiate Class I wetland protection. Staff resources increased in this period and Lean tools and technology was leveraged to improve program efficiency. Due to the lack of a fully operational database until mid-2014, not all projects and tasks were recorded and thus some are not reported on.

In the time period for this report, the majority of projects reviewed by the wetland program were to determine jurisdiction or were engaged in the permit process. The highest number of projects were in Chittenden and Franklin Counties. An average of 92 permits are issued a year with just under 4 acres of wetland loss. The

watersheds with the most permitted alterations and loss (combined) were Northern Lake Champlain and Otter Creek. The most permitted wetland loss was in the Winooski and Missisquoi watersheds. Over 18 acres of wetland and buffer zone was lost or altered due to activities in violation of the Vermont Wetland Rules. Most wetland gains were achieved by voluntary actions. Many of the mitigation tasks are taking place in the In-Lieu Fee program which has not completed a restoration project for compensation as of 2015.

While we can track and quantify the gains and losses of wetlands when the program is involved, it is more difficult to quantify the program's direct involvement in the maintenance of wetland acreage, function and value through effective technical assistance. Given that the Program logged over 2,000 projects reviewed, it is likely $\frac{3}{4}$ of the time the program staff successfully found and encouraged an alternative to wetland alteration which would amount to thousands of acres of wetland and buffer zone maintained as intact systems providing functions and values to the people of Vermont.

WETLANDS AND THE WETLANDS PROGRAM

The Vermont Wetlands Program ("the Program") is a part of the Watershed Management Division of the Department of Environmental Conservation of the Vermont Agency of Natural Resources. The Watershed Management Division ("the Division") is responsible for **protecting, maintaining, enhancing and restoring** the quality of Vermont's surface water resources, including the approximated 300,000 acres of wetlands in Vermont (less than 4% of the State).

WETLANDS: Vermont's wetlands are defined as those areas of the state that are inundated by surface or ground water with a frequency sufficient to support plants and animals that depend on saturated or seasonally saturated soil conditions for growth and reproduction. These areas are commonly known as ponds, bogs, fens, marshes, wet meadows, shrub swamps, and wooded swamps. Wetlands often occur in association with lakes, ponds, rivers, and streams, creating transitional areas between dry land and open water. However, wetlands can also be isolated from any obvious connection to water when they occur where the topography collects surface water, or where ground water surfaces.

Wetlands play an important role in our environment. Whether acting as a sponge - by creating flood storage and filtering pollutants and sediments before they reach our surface waters - or being a source of water from groundwater discharge, wetlands are a critical interface between upland and water. They also are a source of incredible biological diversity, acting as nesting and breeding areas for many animal species, and providing specialized habitat for both plants and animals. Table 1 lists the ten functions and values of wetlands which form the basis of wetland protection in Vermont.

Table 1: Ten Functions and Values of Wetlands.

Functions:		Values:
Water Storage	Fish Habitat	Aesthetics
Erosion Control	Wildlife Habitat	Recreation
Water Quality Protection	Wetland Natural Community	Research and Education
Rare Species Habitat		

Wetland mapping may be used as a tool to understand the general extent and composition of wetlands on a regional scale. Wetlands are mapped nationally in the National Wetlands Inventory (NWI) via aerial photograph interpretation which misses areas under dense forest cover and smaller areas. According to the latest NWI, less than 4% of the State is wetland. Nearly half of the NWI is forested wetland and 25% is shrub-scrub wetland. Around 4,300 acres were found to be aquatic beds which are semi-permanently to permanently inundated with water. Wetland area is not evenly distributed across the State. Franklin and Grand Isle Counties have the most wetland proportional to area (Figure 1).

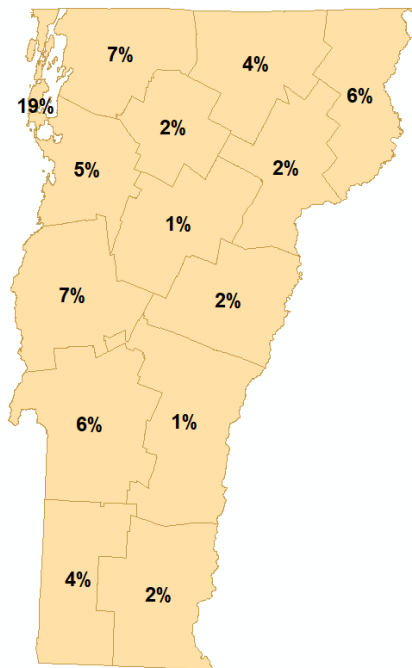


Figure 1: Percentage of NWI wetland by county.

PROGRAM GOALS: The Vermont Wetlands Program has four main goals.

- To **IDENTIFY**, **MONITOR** and **ASSESS** the health of Vermont’s wetlands.
- To **MAINTAIN** wetland acreage, function, and value by watershed.
- To **PROTECT** wetland functions and values.
- To **ENHANCE** and **RESTORE** wetland acreage, function, and value.

The Wetlands Program achieves its goals by working within the framework of the Vermont Wetlands Rules and with partner agencies, including the Vermont Departments of Fish and Wildlife, Environmental Conservation, and Forests, Parks and Recreation; the Natural Resources Board and the Act 250 Land Use Permit program; the US Environmental Protection Agency; the US Army Corps of Engineers; the Natural Resources Conservation Service (NRCS); US Fish

and Wildlife; and the Green Mountain National Forest. Besides project review and permitting, the Wetlands Program also designates Class I wetlands for greater protections, incentivizes voluntary wetland restoration, monitors the health of wetlands, and educates the public about wetlands.

STAFFING AND FUNDING: Program staffing changed drastically at the end of 2013, including a change in program management. In 2010 the program had 2 full-time staff, one ¾ time staff member, a temporary 11-month position, a seasonal employee for bioassessment, and a manager. In 2013 an additional full-time staff was hired. As of 2015 the program staffing levels was brought back to near 2008 levels with five full-time district staff, one seasonal bioassessment staff, one seasonal staff for regulatory support, and a manager. The Program Manager retired and was replaced in late 2013.

To better represent the staff time and efforts in preapplication and application review, the fees for reviewing permit applications were increased in 2012. The Program does not charge a fee for project review or site visits if there is no permit application. To aid in funding a full-time administrative staff, the application administrative fee was doubled. The Program received funding for program development with three EPA Wetland Program Development Grants and some funding from the state general fund. Around 50% of funding was from the environmental permit fee fund, 11% was federally funded, and 38% was from the general fund. The cost to implement the program in 2015 was approximately \$683,000.

As mentioned above, administrative staffing changed from a part-time position to a full-time position in 2014. The full-time position is responsible for reviewing applications for administrative completeness, answering general questions, developing new forms, and creating Vermont Significant Wetlands Inventory Maps (VSWI) mapping.

CHANGES IN STATUTE AND RULE

The 2012 Vermont Legislature passed Act 138, which transferred surface water and wetland rulemaking authority from the Natural Resources Board’s Water Resources Panel to the Agency of Natural Resources’ Department of Environmental Conservation under 29 V.S.A. §410. The Wetlands Program now has responsibility to administer the Vermont Wetland Rules and receive petitions to adopt, amend, or repeal the rules.

Revised Vermont Wetland Rules (VWR) were enacted September 15 of 2010. The rule change process and details of the changes were provided in the 2005-2010 trend report. The most notable change in the VWR is the change in determination authority. The Agency of Natural Resources Wetlands Program has had the

authority to make decisions about wetland classification for Class II and III wetlands since 2010 and is no longer limited in jurisdiction to what occurs on or is contiguous to VSWI maps. All wetlands given Class II protection status are to be added to the VSWI maps. Activities in Class I or II wetlands or their buffer zones which do not meet an exemption or a §6 Allowed Use have required a permit since 2010. Before 2010 the activities required



Figure 2: Black Gum Trees are one exceptional feature of the Colchester

a Conditional Use Determination (CUD). Both permits and CUDs may only be granted if it is found that there is no undue adverse impact to the protected functions or values of the wetland.

REGULATORY IMPROVEMENTS

Given the new authority to promulgate rule changes to the VWR, the Program was able to consider reclassifying Class I wetlands, which is a rulemaking procedure by statute. Class I status provides for the highest level of protection for the most exceptional or irreplaceable wetlands based on their functions or values and only three wetlands had this status as of 2015. In 2013 the Program assessed over 20 wetlands which were identified as having potential Class I qualities and created a process for how to determine whether the wetland met exceptional or irreplaceable criteria.

In 2014 the Wetlands Program underwent a full-week LEAN planning event which focused on the Program's management of projects. The ability to effectively acquire and manage project data is crucial to successfully meeting program goals, improving program operations, enhancing public interactions, and satisfying legal requirements. The goals of the LEAN event were to: (1) improve upon the existing method of collecting and managing data, (2) improve upon the ability to track, document, and report on inquiries, and (3) increase time that Wetland Ecologists are spending on proactive wetland protection activities. These improvements included the creation of a much needed project database, website improvements, and form letter creation. Improvements to wetland mapping and public inquiry management were explored and recommendations were made.

REGULATORY ACTIVITIES AND TRENDS

PROJECT REVIEW: The Vermont Wetlands Program reviews a variety of projects including residential, commercial, and industrial developments, roads, public works, utilities, agricultural projects, silvicultural projects and others. In a typical year, close to 90% of projects are for private citizens, close to 10% are local governments, and the remainder are state government or federal government. The primary function of the Vermont Wetlands Program is to administer the Vermont Wetland Rules, which regulate significant palustrine wetlands, many of which have been mapped on the Vermont Significant Wetland Inventory maps. The Wetlands Program also reviews projects under the jurisdiction of Vermont's Act 250 Land Use Permits, Section 248 Energy Projects, and Section 401 of the Federal Clean Water Act. Figure 3 represents a breakdown of the project categories the Vermont Wetlands Program reviewed between 2011 and 2015. Note that some projects may fit into more than one category. For example, many complaint projects were found to be wetland violations (81). Most projects were for permits, jurisdictional determinations (whether the wetland is regulated or not), and technical assistance.

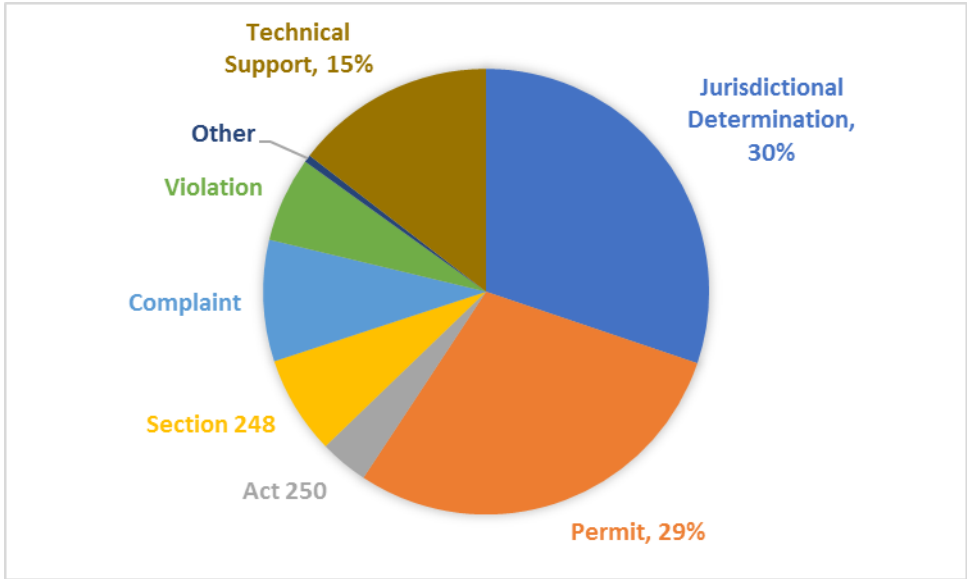


Figure 3: Review Categories for Wetland Projects 2011-2015.

The Wetlands Program logged in 2043 new projects between 2011 and 2015. This is a decrease of over 500 projects when compared to the previous five years (2005-2010: 2574). The average number of new projects per year was 408 and peaked in 2015 with 777 projects and was lowest in 2011 with 222 projects. Nearly a third of projects were from Chittenden County (Figure 4), followed by Franklin County with over 200 projects. The temporal and spatial variation of project numbers may be attributed to trends in the economy, staffing levels, and the new database in 2014. Because the database was not fully operational before the update in mid-2014, some data was not captured and cannot be reported.

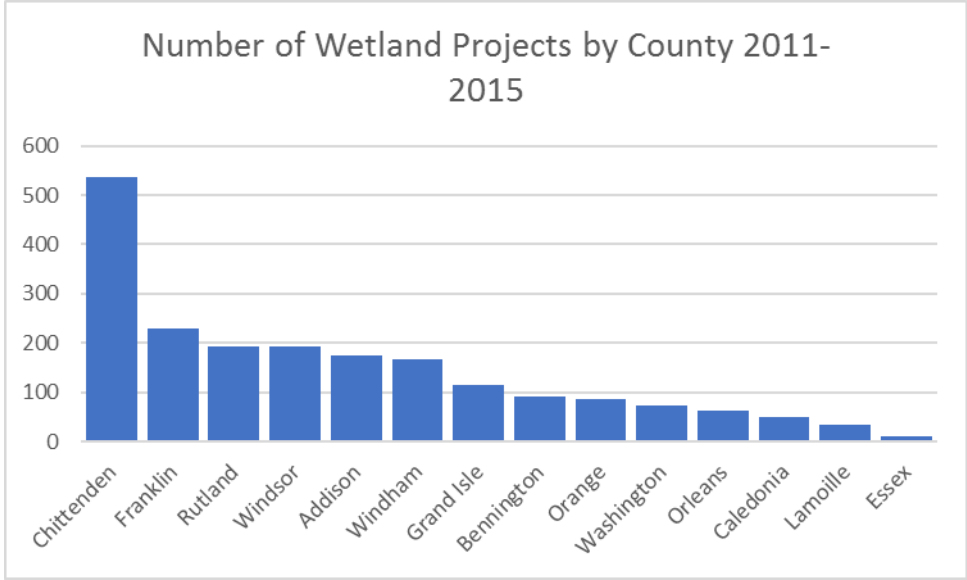


Figure 4: Count of Wetland Projects from 2011-2015 by County.

PERMITTED WETLAND AND BUFFER LOSS AND ALTERATION: On average, the Wetlands Program receives 96 new Permit requests per year, and approves 92 (Table 2). Throughout the review period 460 permit decisions were made by the program. Less than 5% of applications were terminated either because the applicant withdrew or the program returned the application without prejudices due to unresponsiveness. Although the Program’s jurisdiction has increased due to the rule change in 2010, there was no substantial increase in applications between this 5-year period and the last (2005-2010). On average 50% of permit applications were for projects which the Program had given pre-application review in a previous year (between years 1998 and 2010).

Table 2: Wetland Permits applied for and decisions 2011 – 2015. *Permit review time standard is 90 days.

Year	Applied	Approved	Terminated	Denied	% Meeting Standard*
2011	71	67	4	0	83%
2012	93	90	3	0	45%
2013	90	89	1	0	82%
2014	118	113	5	0	79%
2015	108	100	7	1	66%
average:	96	91.8	4	<1	71%
total:	480	459	20	1	N/A

Program staff provide guidance to the public to help them avoid wetland and buffer impacts. Often projects can be designed to entirely avoid impacts to wetlands and their buffer zones. The Program received over 1,000 inquiries a year and reviewed an average of 408 projects. Most projects reviewed (77% average) did not result in permitted wetland or buffer impacts. Staff guidance and assistance lead to the reduction of wetland permits needed and a reduction in wetland and buffer zone impacts.

Of the 459 approved permits the program tracked wetland loss (fill), permanent wetland alteration (eg. conversion from forested to wet meadow), temporary wetland alteration (eg. Temporary work spaces), permanent and temporary buffer zone alteration, and linear clearing of wetland (ski resort, transmission line and road clearing). A total of 58 acres of wetland was permitted to be filled or altered and 142 acres of buffer zone alteration was approved over the five-year period (Table 3). When compared with the previous five-year period, the buffer zone alteration approval has increased (2005-2010: 95 acres). There was no upward or downward trend in the amount of yearly wetland or buffer alteration approval. 2013 had the highest amount of alteration approval of the five years as two large transportation and energy infrastructure projects were approved. On average 40 acres of wetland and buffer zone is permitted for loss or alteration per year.

Table 3: Permitted Class II wetland and buffer loss or alteration in acres.

	Wetland Loss	Permanent Wetland Alteration	Temporary Wetland Alteration	Permanent Buffer Zone Alteration	Temporary Buffer Zone Alteration	Wetland Clearing
2011	5.2	2.9	1.4	21.7	4.4	N/A
2012	3.8	0.8	1.5	15.2	6.0	N/A
2013	4.7	4.5	12.8	17.3	11.9	0.2
2014	3.0	5.3	3.5	27.1	5.7	0.0
2015	2.9	2.4	3.2	19.1	13.5	0.0
Average:	3.9	3.2	4.5	20.1	8.3	0.1
Total:	19.7	15.9	22.5	100.4	41.5	0.2

Figure 5 gives the general geographical location of 2011-2015 wetland projects in relation to watershed planning basins. A concentration of projects and permits for this time-period remains in the northwest portion of the state, in the Lake Champlain basin.

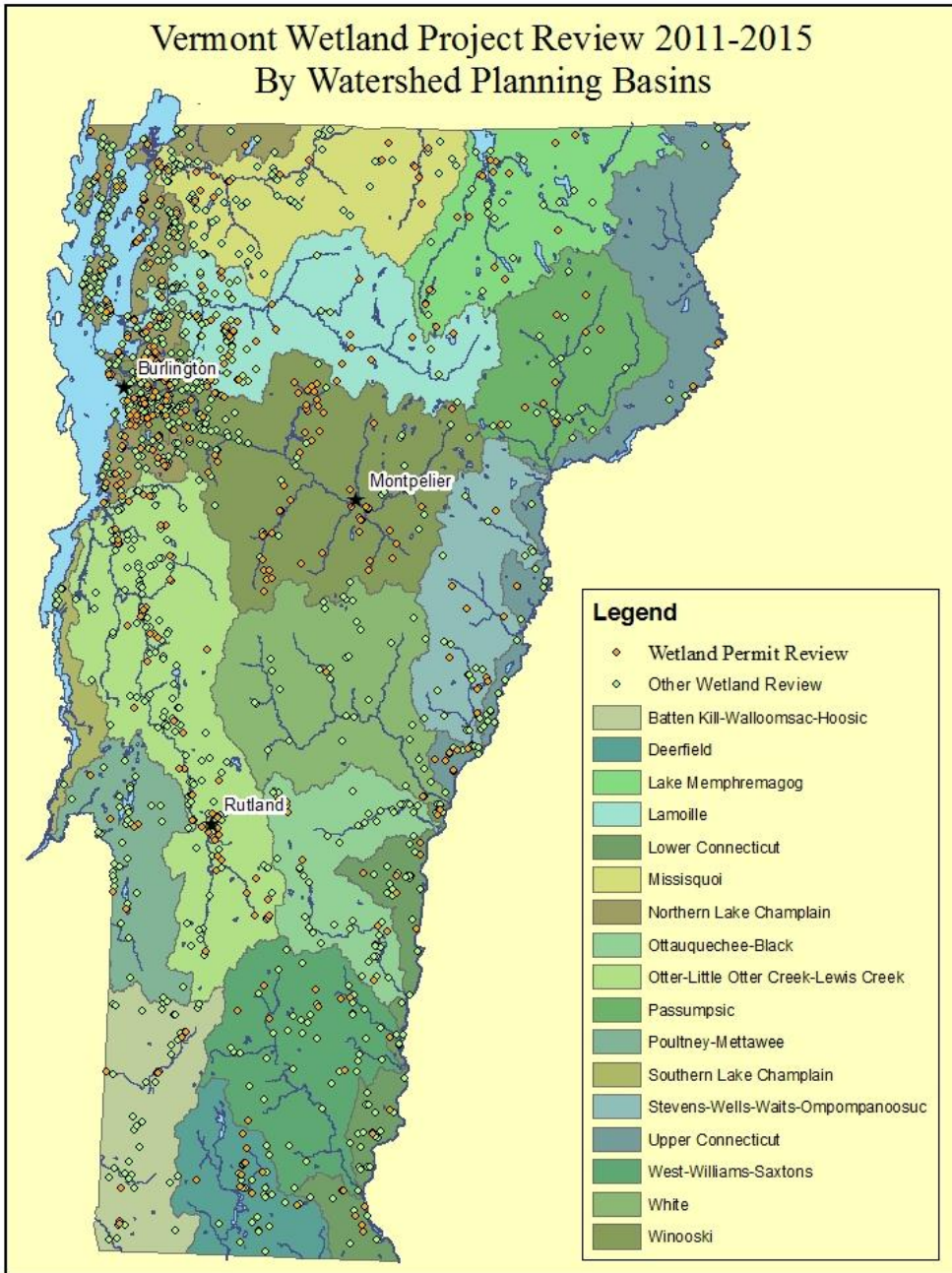


Figure 5: Wetland Review and Permitting Across the State.

Figure 6 breaks down permitted losses and alterations by watershed. Where permitted projects crossed watersheds the alterations and losses were compiled in the “multiple watershed” category. The Northern Lake Champlain watershed and Otter Creek watersheds received over 50% of permitted alteration approvals. These watersheds contain all or part of Grand Isle, Franklin, Chittenden, Addison, and Rutland Counties. The Winooski watershed received the most permitted wetland fill, followed by the Missisquoi watershed (Figure 7). The Winooski Watershed covers Washington County, Lamoille County and part of Chittenden County. Four projects

had over four acres of wetland and buffer impact: Vermont Gas Phase VI and VII (19 acres), the Morrisville-Stowe Airport (7 acres), Hartford Recreational Park (5 acres), and Route 7 Upgrade in Charlotte (5 acres).

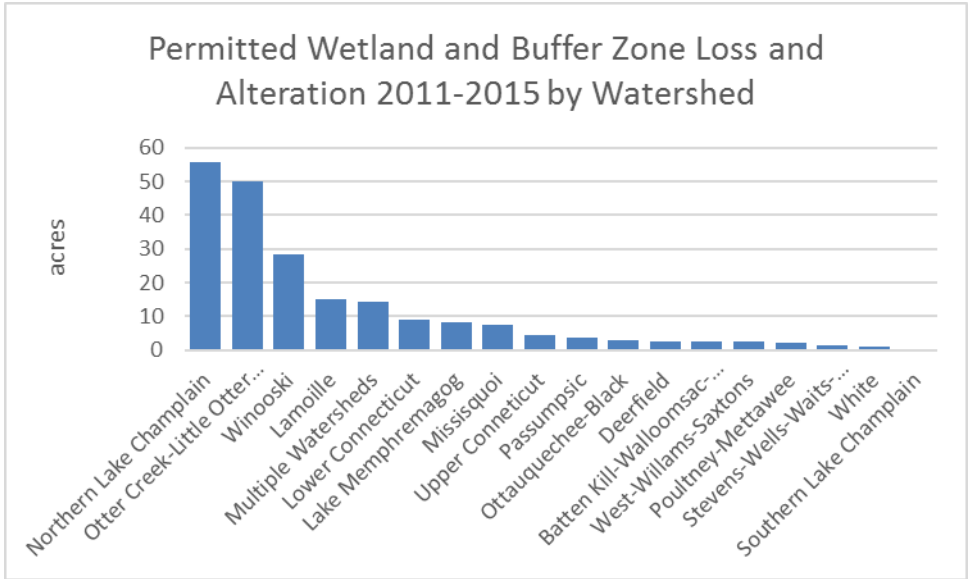


Figure 6: Permitted Wetland and Buffer Alteration and Loss by Watershed.

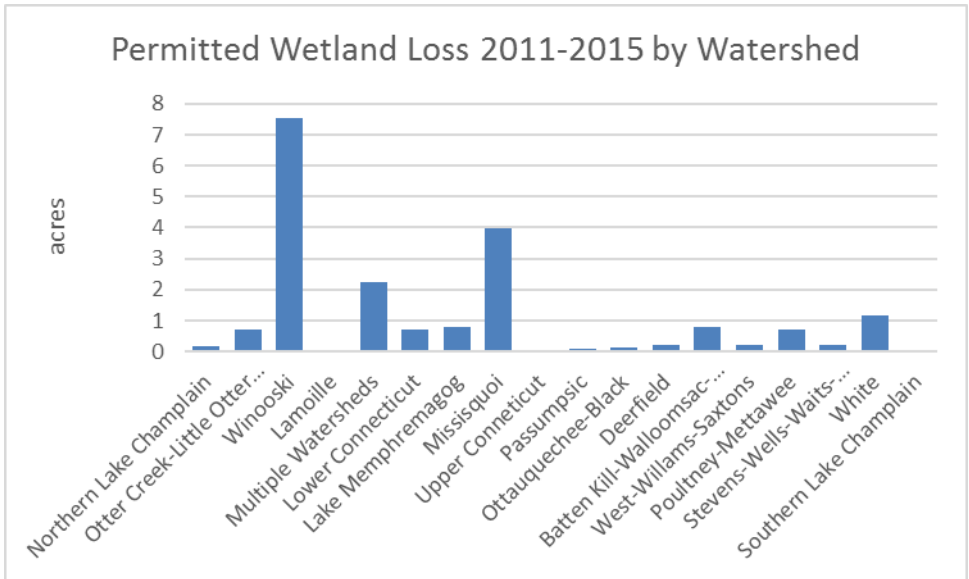


Figure 7: Permitted Wetland Loss by Watershed.

WETLAND INVESTIGATIONS AND VIOLATIONS

There were 180 complaints made to the Wetlands Program between 2011 and 2015, down by 200 from the last reporting period (2005-2008). Of these complaints, 126 were actual violations. Many wetland complaint investigations are tracked by the Enforcement Division and are not reported on in this document. It is the Program's practice to respond to all complaints, which could involve resolution over the phone, referral to another program, or to a thorough investigation with enforcement action through the Central Office. Because these cases tend to be more complicated, violations usually take multiple years to resolve. Table 4 breaks down the acres of wetland and buffer lost and impaired due to violations, for projects that were started in calendar years between 2011 and 2015. The losses and alterations have increased over the five year period, which may be attributed to the Program's increased capacity to investigate violations where the Enforcement Division may have investigated them in earlier years.

Table 4: Acres of wetland and buffer lost or altered due to violations 2011-2015.

	Wetland Filled	Temporary Wetland Alteration	Permanent Other Wetland Alteration	Permanent Buffer Zone Alteration	Temporary Buffer Zone Alteration	Total
2011	0.5	0.0	0.3	0.0	0.0	0.7
2012	0.0	0.2	0.0	0.3	0.8	1.3
2013	0.0	0.1	2.0	1.0	0.0	3.2
2014	0.9	0.3	0.7	1.1	0.2	3.3
2015	0.4	4.1	2.4	2.0	1.0	9.9
Average:	0.4	0.9	1.1	0.9	0.4	3.7
Total:	1.8	4.7	5.4	4.5	2.1	18.4

WETLAND GAINS

Activities were considered wetland gains when they lead to restoring, enhancing, conserving or creating wetland or buffer zone. Data collected to measure gain included the whole area of various types of mitigation, not just the net result in wetland acreage increase. Conserving wetland or buffer zone adds a layer of protection to existing wetland areas which may have been impaired by land use or be in pristine condition. While conservation may not result in a gain in wetland or buffer acreage, it will sometimes lead to a gain in function and the area is saved from future encroachment. Opportunities for wetland gains occur as a result of repairing a violation, through mitigation to offset permitted impacts, or as a result of voluntary measures. In the instances of repairing violations and mitigating permitted impacts, there is little to no net gain in wetland or buffer. Table 5 lists those wetland gains made through projects started between 2011 and 2015. The majority of tracked gains were from voluntary actions. Many permit mitigation requirements for this time period will be satisfied through the Army Corps of Engineers In Lieu Fee (ILF) Program. As of 2015 the ILF did not complete any

mitigation projects. Gains projects through ILF are expected to start soon now that the review team and Ducks Unlimited have identified a first site.

Table 5: Acres of Wetland and Buffer Gained in 2011-2015.

	Wetland Restoration	Buffer Restoration	Enhanced Wetland	Enhanced Buffer	Conserved Wetland	Conserved Buffer	Wetland Creation
Mitigation	0.00	0.00	6.95	1.51	4.05	0.21	0.03
Violation	1.34	0.55	0.00	0.03	0.00	0.00	0.00
Voluntary	13.55	0.19	72.14	4.82	12.99	0.00	0.00
Other	0.85	0.05	0.40	0.00	0.00	0.00	0.00
Total Gains	15.73	0.79	79.50	6.36	17.05	0.21	0.03

ANALYSIS AND CONCLUSIONS

The 2011-2015 time period led to significant changes to the Wetlands Program’s work processes, including a new database, addition of wetland determinations, Class I designations, and letter forms. These changes were initiated from changes in the Rule, management, and a Lean project. The increase in regulatory responsibility and work process efficiency improvements led to no significant change in permit review time (Table 2). This time period started with the lowest staff numbers in the past 10 years and a partially broken database. Capacity and database issues have compromised some of the Program’s reporting ability for this time period. Capacity and database issues have likely reduced the number and type of projects recorded, complaint data, and gains information. Permit data was prioritized and is an accurate account. Surprisingly, the addition of thousands of previously unregulated wetlands by Rule change did not significantly increase the number of permits received and approved when compared with the 2005-2010 period.

The data demonstrates how the Wetland Rules manage to allow for development while also allowing wetlands to continue to persist and function on the Vermont landscape. Given that the Program logged over 2,000 projects reviewed and far less permits, it is likely ¾ of the time the program staff successfully found and encouraged an alternative to wetland alteration which would amount to thousands of acres of wetland and buffer zone maintained as intact systems providing functions and values to the people of Vermont. Such technical assistance provided by the Program helps developers evade additional permitting, including federal permits, which saves time and cost. Where impacts to wetlands could not be avoided, permit applications were submitted and approved more than 98% of the time.