



Department of
Environmental
Conservation

Lake Champlain Total Maximum Daily Load Watershed Implementation Plan (WIP)

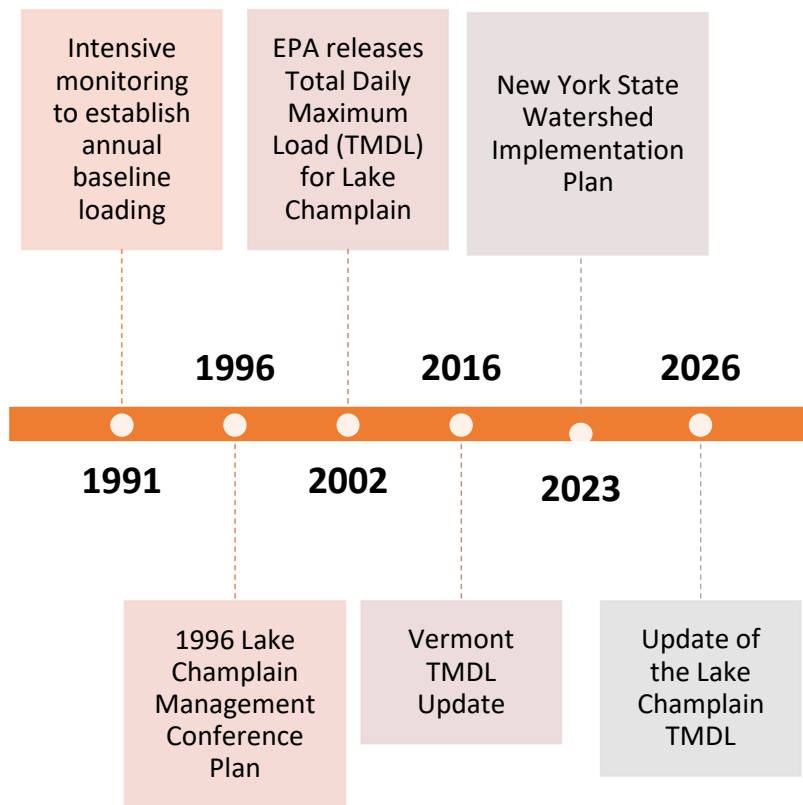
New York CAC
March 6th, 2023

Draft Available for Public Comment

- Released on February 15, 2023
- Find the draft online at https://www.dec.ny.gov/docs/water_pdf/lcwip23.pdf
- Public comments received until March 17, 2023
- Comments can be submitted to water.log@dec.ny.gov



History of Water Quality Management in Lake Champlain



Total Maximum Daily Load (TMDL)

- According to the Federal Clean Water Act, each state must develop total maximum daily load for all waterbodies identified on the Section 303(d) list of impaired waters
- A TMDL is “pollution diet” which is the calculation of the maximum amount of a pollutant allowed to enter a waterbody so the waterbody will meet quality standards for a particular pollutant
- A TMDL determines a pollutant reduction target and allocates load reductions necessary to the source(s) of the pollutant and includes implementation plan on how to achieve reductions



Lake Champlain TMDL

- 2002 Lake Champlain Phosphorus TMDL completed jointly with Vermont
- The watershed was dissected into 13 lake segments total that correlate with major tributaries, 7 in New York
- Watershed divided into lake segments, each with EPA assigned target loads and in-lake criteria for TP



Purpose of Implementation Plan Update

- Review of current water quality against TMDL targets (has water quality changed since the TMDL?)
- Where has implementation occurred since the TMDL started?
- Can we quantify load phosphorus reductions from past implementation?
- Can we make better implementation recommendations compared to 2002 TMDL?
- Can we target resources to particular subwatersheds with suspected higher loading?
- What are potential implementation projects for the future?



WIP Outline

- Lake Segment and Tributary Information
- TMDL Criteria and Allocations
- Ambient Water Quality Trends
- Past Implementation and Load Reductions
- Land Cover Analysis and Sources of Phosphorus
 - Agriculture
 - Forested
 - Urban
 - Septic
 - Wastewater
- Potential Implementation



Photos courtesy of
Chesapeake Bay Program

Ambient Water Quality Trends

Lake Segment	TMDL Total TP Criteria (mg/L)	TMDL Baseline TP Mean Concentration (1990–1991) (mg/L)	TP Mean Concentration (2002–2019) (mg/L)
South Lake B	0.054	0.058	0.052
South Lake A	0.025	0.034	0.036
Port Henry	0.014	0.015	0.015
Otter Creek	0.014	0.015	0.015
Main Lake	0.010	0.012	0.012
Cumberland Bay	0.014	0.014	0.014
Isle La Motte	0.014	0.012	0.017

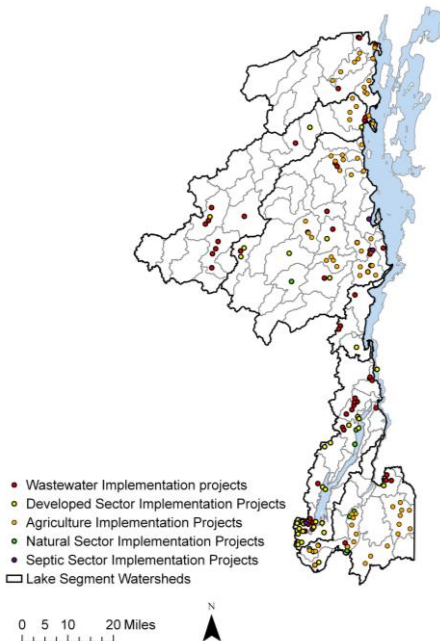


Tributary Loading Analysis

Lake Segment	Major Tributary	First Period Trends (1991-2004)	Second Period Trends (2004-2017)
South Lake B	Mettawee River	No trend	No trend
	Poultney River	No trend	No trend
South Lake A	Putnam Creek	No trend	Increase
Main Lake	Salmon River	No trend	No trend
	Little Ausable River	No trend	Decrease
	Boquet River	No trend	No trend
	Ausable River	Increase	No trend
Cumberland Bay	Saranac River	Increase	No trend
Isle LaMotte	Little Chazy River	No trend	No trend
	Great Chazy River	Increase	No trend



Past Implementation



Sector	State Funding Spent	Number of Projects Funded	Funding Program
Agriculture*	\$18,700,00	74	AgNPS, CRF, AEM
Forest	\$4,000,000	14	WQIP
Urban	\$7,500,000	40	WQIP, EPG, EFC, GIGP
Wastewater**	\$118,000,000	118	WQIP, EPG, EFC, CWSRF, ESD
Septic	\$164,000	3	WQIP

State Funding Summary (1995–2019)

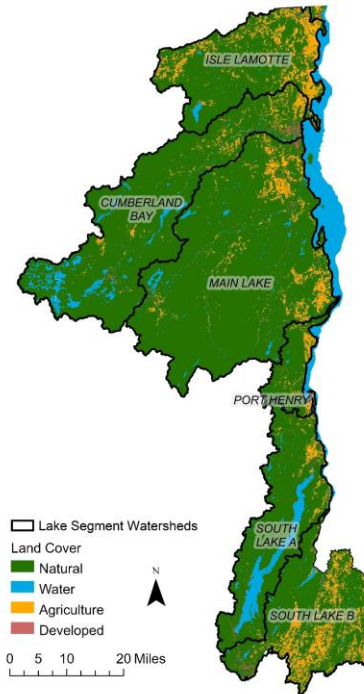
*Agriculture Sector: \$17.4 million in competitive grant funds,
\$1.3 million in county-wide allocation

** Wastewater Sector: \$52 million in grant funds, \$69 million in loans



Department of
Environmental
Conservation

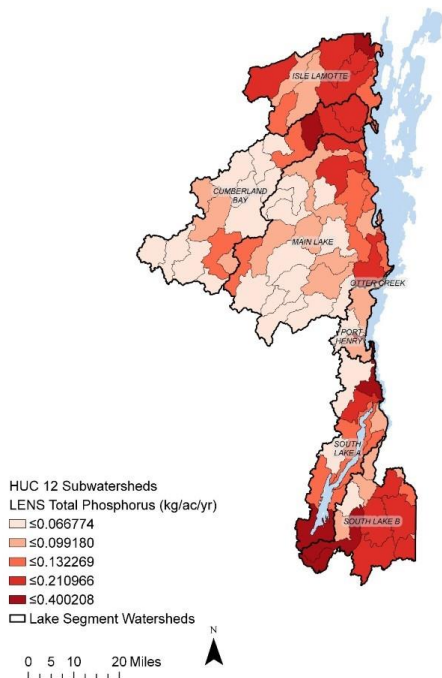
Land Use Analysis



- New York portion of Lake Champlain watershed is approximately 1,844,276 acres
- 89.8% natural areas or “forested” (including forest, shrublands, grasslands, water, and wetlands)
- 8.7% agriculture (cultivated crops, hay and pasture)
- 1.6% developed land (buildings, roads, and other impervious surfaces)
- Land cover data was obtained from the Lake Champlain Basin Program’s High-Resolution (1 meter) Land Cover Mapping project



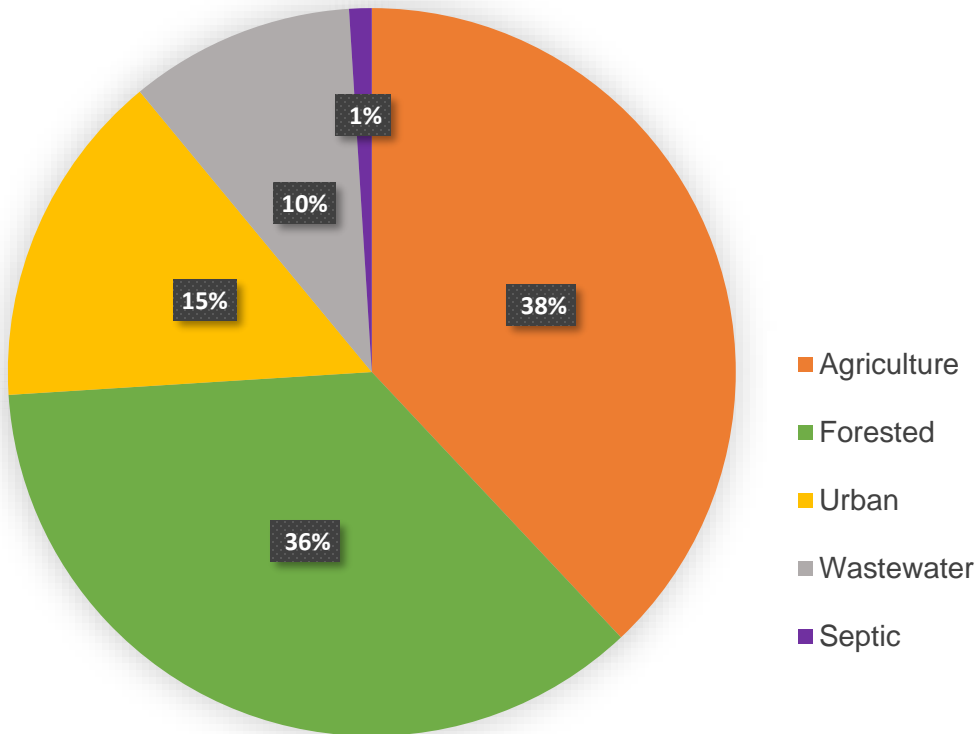
Phosphorus Load Calculations



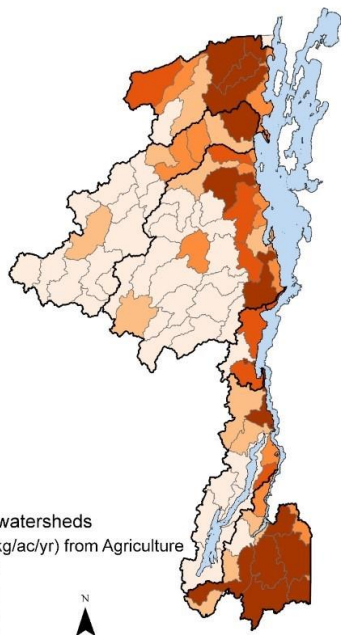
- Phosphorus loads from each of the 79 HUC 12 subwatersheds were calculated using the Load Estimator of Nutrient Sources (LENS) tool
- DEC's LENS is a screening tool to estimate average annual loading rates from nonpoint sectors (agriculture, urban, forested, septic) and estimates of wastewater contribution



LENS Load Estimation for the Basin

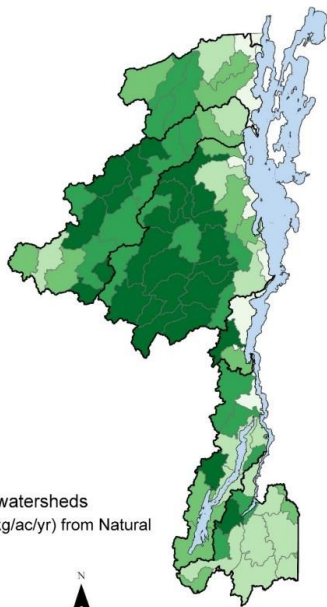


Agricultural Sector Analysis



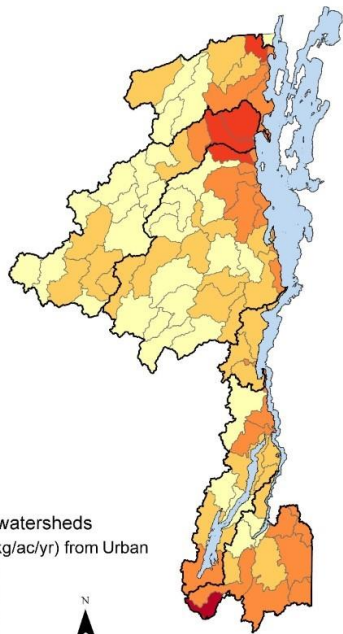
- Composes 8.7% of the land use basin wide
- Contributes estimated 38% of the total phosphorus load to the lake
- Segments with greatest agricultural load are Isle LaMotte and South Lake B

Forested Sector Analysis



- Largest sector in terms of land cover, 89.8% of total watershed
- Contributes estimated 36% of the total phosphorus load to the lake
- Segments of greatest land use and load are Cumberland Bay and Main Lake (a majority of the area is located in the Adirondack Park/High Peaks region)

Urban Sector Analysis



HUC 12 Subwatersheds
Phosphorus (kg/ac/yr) from Urban

≤0.007719
≤0.015462
≤0.027234
≤0.082868
≤0.133989

□ Lake Segment Watersheds

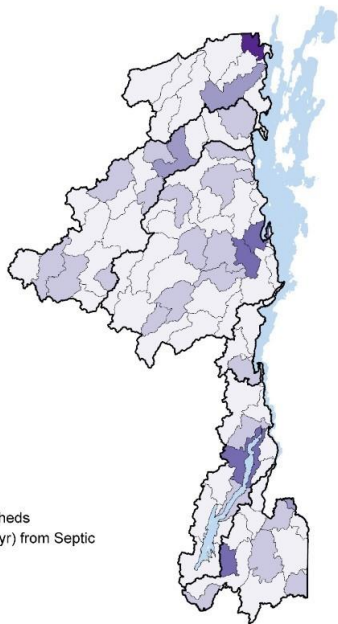
0 5 10 20 Miles

- Smallest land cover sector in the watershed overall
- Composes just 1.6% of the land area
- Contributes estimated 15% of the total phosphorus load to the lake
- Area of highest land cover and load is South Lake B



Department of
Environmental
Conservation

Septic Sector Analysis



HUC 12 Subwatersheds
Phosphorus (kg/ac/yr) from Septic

□	≤0.000721
□	≤0.002497
□	≤0.004728
□	≤0.009610
□	≤0.023163

□ Lake Segment Watersheds

0 5 10 20 Miles

- Contributes estimated 1% of the phosphorus load to the basin
- Only septic systems within 250 feet of a waterbody were taken into account



Department of
Environmental
Conservation

Wastewater Sector Analysis

Lake Segment	Facility	TMDL Wasteload Allocation (lbs./day)	Current Average Load (lbs./day)
South Lake B	Fort Ann STP	1.33	1.12
	Village of Granville WWTP	4.30	1.42
	Great Meadows Correctional	1.67	0.77
	Washington Correctional	0.72	0.19
	Whitehall STP	3.60	1.86
South Lake A	Crown Point WWTF	1.03	0.71
	International Paper Co. Ticonderoga Mill	37.80	16.41
	Ticonderoga WPCP	15.60	8.20
Port Henry	Port Henry/Moriah Joint WWTP	3.34	2.17
	Westport WWTP	2.00	1.64
Main Lake	Ausable Forks Community WWTP	4.47	1.89
	Keeseville WWTP	2.00	0.52
	Lake Placid WPCP	13.00	7.75
	Peru STP	3.70	2.28
	Peru/Valcour SD STP	0.32	0.15
	Wadhams WWTF	0.24	0.13
	Willsboro WWTF	1.73	0.77
Cumberland Bay	ADK Fish Culture Station	0.45	0.15
	Cadyville WWTP	0.25	0.07
	Dannemora STP	20.30	13.74
	Plattsburgh WPCP	65.50	55.05
	Saranac Lake STP	13.50	6.76
	St. Armand SD WWTP	1.70	1.22
Isle LaMotte	Altona Correctional	0.50	0.13
	Champlain WWTP	3.09	1.44
	Chazy WWTF	0.6	0.11
	Rouses Point WWTP	15.78	7.62
	Wyeth-Ayerst, Chazy	0.4	N/A
	TOTAL	218.92	134.27



Potential Implementation Projects

- Potential projects for implementation were identified in the Lake Champlain Non-Point Source Pollution Subwatershed Assessment and Management Plan created by the LCLGRP
- Projects were organized by:
 - Subwatershed
 - Source sector
- Projects listed as an appendix. They will be reviewed and updated on a regular basis.



Next Steps

- Draft WIP will be noticed for public comment
- DEC has acquired state funding to support this plan – Request for Applications (RFA) will be released in 2023
- Future work with LCLGRPB, VTDEC, LCBP to calculate load reductions for past/future implementation projects
- DEC will continue to track project implementation, with assistance from partners, to inform the next TMDL update



Contact Information:

Lauren Townley

New York State Department of Environmental Conservation
Chief, Watershed Section A
Bureau of Water Resource Management, Division of Water
(518) 402-8283 | lauren.townley@dec.ny.gov

Erin Vennie-Vollrath

New York State Department of Environmental Conservation
NYSDEC Lake Champlain Coordinator
(518) 897-1267 | erin.vennie-vollrath@dec.ny.gov

