Report of Activities Summary

Lake Champlain Basin Program

BOUND BY WATER

Two of the Lake Champlain Basin Program's key accomplishments in Fiscal Year 2018 showcase several of the primary management themes in the management plan *Opportunities for Action*. The *2018 State of the Lake and Ecosystem Indicators Report* and the 2018 Lake Champlain Research Conference both embody the science-driven collaborative management that is at the heart of the Program's work. Both were a source of great enthusiasm and pride by LCBP staff—not only for their content and presentation, but also for their process.

OFA reads: "Management of the Basin's resources is based on consistent, high-quality data and current scientific knowledge that is developed by a diverse array of federal, state, provincial, local, and not-for-profit partners."

Planning for January's research conference was a collaborative effort of organizations within the region and beyond. It brought together more than 200 researchers, agency scientists, management practitioners, and members of the public to discuss and share the latest knowledge about nutrients, cyanobacteria, fisheries, aquatic invasive species, climate change, and cultural heritage. Keynote speaker Dan Egan discussed the challenges and opportunities shared by Lake Champlain and the Great Lakes, and Larry Greenberg of Sweden's Karlstad University spoke about Atlantic salmon restoration efforts in Lake Vänern—further broadening the pool of experts that can help generate solutions.

Similarly, the *State of the Lake Report* is a distillation of collaborative science. More than a dozen LCBP staff helped produce this report. It is a sometimes trying, but always rewarding in-house team effort. But the LCBP is more than the staff in the office. It is also the dozens—perhaps scores—of scientists, resource managers, and other committed professionals who serve on our advisory committees and generously contribute their time and expertise in the development of the report.

Meanwhile, the Lake Champlain Basin's Congressional delegation continued to provide strong support for our treasured and common resource. In a bi-partisan effort on the floor of the U.S. House of Representatives, Representatives Elise Stefanik of New York and Peter Welch of Vermont successfully passed an amendment to restore $4.4 million in LCBP funding to the Federal budget. In the Senate, Patrick Leahy of Vermont secured an additional $4 million for projects to implement the 2016 Vermont Lake Champlain TMDL for phosphorus.

Whether among LCBP staff debating the best presentation of phosphorus loading data, or on the floors of the U.S. Congress, science-driven collaborative management persevered in 2018. It's not always easy, but sound science *is* critically important and collaboration *is* possible. In the end, we—and Lake Champlain—benefit when we are bound by our similarities more than we are divided by our differences.

This summary highlights LCBP projects that were in progress between October 1, 2017 and September 30, 2018. A comprehensive listing of local grants, technical projects, and staff accomplishments is available in the full *2018 Report of Activities*. To view or request a copy of the full report, please contact the LCBP office.

Photo: LCBP

CLEAN WATER

GOAL:
Water in the Lake Champlain Basin's lakes, ponds, rivers, and streams that sustains diverse ecosystems, supports vibrant communities and working landscapes, and provides safe recreation opportunities.

Photo: Stone Environmental

A core function of the LCBP, the Long-term Water Quality and Biological Monitoring Program continued to provide critical data used for scientific analyses and to guide watershed management.

The data is collected by scientists within separate entites in two different states, staffed in part with LCBP funds, and hosted on the Vermont Department of Environmental Conservation's website. The data have been the basis of countless LCBP technical projects and grants for more than 25 years.

This data, taken together with the information collected by the cyanobacteria volunteer monitoring program operated by the Lake Champlain Committee (and supported by the LCBP), provides important information that is used to protect the health of beach-goers throughout the Basin.

Program Highlights

- The LCBP and NEIWPCC worked in collaboration with Organisme de Bassin Versant de la Baie Missisquoi to develop a literature review in support of an International Joint Commission exploratory project to examine **water quality and cyanobacteria blooms in Missisquoi Bay**.
- LCBP staff coordinated the planning and hosting of the **Lake Champlain Research Conference,** which brought together more than 200 stakeholders for interdisciplinary sessions on lake science and management.
- The LCBP coordinated with the U.S. Army Corps of Engineers to evaluate alternatives for reducing phosphorus loading in St. Albans Bay. The project received financial and technical support as part of the **Section 542 Watershed Environmental Assistance Program**.
- Staff coordinated the release and external peer review process for **nine technical Requests for Proposals,** including Enhanced BMP pollution reduction implementation and planning grants, and a project to improve stability and function of the Rock River in Vermont and Québec.
- Staff coordinated the review and approval process for 13 new **quality assurance project plans (QAPPs)** for projects requiring data collection or analysis.

Grant Highlights

Stormwater Mapping and Master Planning: The City of Vergennes worked with contractors and the regional planning commission to map sewer infrastructure in an effort to prevent combined sewer overflows.

Farm-P Reduction Planner: Stone Environmental, Inc. developed and piloted a web-based tool to help farmers identify changes to their field operations that will help reduce the amount of phosphorus leaving the farm.

Stormwater Mitigation Project: Friends of the Winooski River worked with Smilie School in Bolton to install a rain garden and bio-retention area, and converted an access road to a footpath to reduce stormwater runoff.

Stormwater Infrastructure: The Village of Lake George installed a hydrodynamic separator, trench drain, and bioretention basin in the Lower Amherst Street subwatershed, which is located directly on Lake George.

Cover Cropping Workshop: The Clinton County Soil & Water Conservation District worked with local farms to implement cover crops on 219 acres to improve soil health, prevent erosion, and reduce phosphorus loss.

Photos: LCBP, UVM Extension, Friends of the Winooski River, Village of Lake George, Clinton County SWCD

HEALTHY ECOSYSTEMS

GOAL:
Ecosystems that provide clean water for drinking and recreating, and intact habitat that is resilient to extreme events and free of aquatic invasive species where diverse fish and wildlife populations will flourish.

Photo: LCBP

Two much-anticipated events—with opposite ecological consequences—shaped the Lake Champlain ecosystem in 2018. The Quarry Dam on the West Branch of the Ausable River was removed. Removal of the dam is expected to improve aquatic connectivity and fish passage in this nationally renowned trout stream.

On a less auspicious note, the 51st known aquatic invasive species was discovered in Lake Champlain. Fishhook waterflea, a small crustacean is an aggressive predator of zooplankton and fouls fishing lines.

Both events were marked by collaboration among many partners—for funding and planning of the dam's removal and response to the fishhook by the Lake Champlain Aquatic Invasive Species Rapid Response Task Force.

Program Highlights

- Thirteen **Lake Champlain Boat Launch Stewards** greeted 26,808 visitors, inspected watercraft from 37 states, and intercepted aquatic invasive species on 609 vessels.
- Staff served on several **ecosystem and water quality management committees** for issues including invasive species and dam removal.
- The AIS Coordinator served as **President of the Northeast Aquatic Plant Management Society** and planned for the 20th anniversary meeting held in January 2019.
- Staff coordinated a multi-state effort to survey for and conduct **genetics analyses of hydrilla** in the Connecticut River.
- As part of the **Lake Champlain Basin Aquatic Invasive Species Rapid Response Task Force,** staff helped assess and recommend management actions in response to the discovery of alewife in Lake Carmi and fishhook waterflea in Lake Champlain.
- The LCBP procured two new travelling, self-contained **high pressure-hot water decontamination units** to be used at Vermont boat launches.
- Staff coordinated the review and approval process for 11 new **quality assurance project plans (QAPPs)** for projects requiring data collection or analysis.

Grant Highlights

Riparian Forest Stewardship: The Intervale Center cleared vegetation and contained aggressive species to maintain 30 acres of riparian forest buffer restoration projects and to ensure long-term success.

Great Chazy-Saranac Culvert Assessment: Franklin County SWCD, NY assessed more than 134 road-stream crossings to identify bridges and culverts that are priorities for improving aquatic connectivity and stream bank stability.

DASH Harvesting: Lake Hortonia Property Owner Association in VT controlled Eurasian watermilfoil using diver assisted suction harvesting (DASH) near the lake's outlet dam, helping to prevent the movement of the species downstream.

Water Chestnut Control: The Friends of the Missisquoi National Wildlife Refuge continued to help control invasive water chestnut, removing 8,644 rosettes and protecting an important wetland over the last five years.

Backcountry Water Monitors Project: Volunteers for the Adirondack Mountain Club (ADK) in NY surveyed remote ponds for the presence of aquatic invasive species. ADK also conducted an awareness campaign.

Photos: Intervale Center, Franklin County SWCD, Lake Hortonia POA, FMNWR, ADK

THRIVING COMMUNITIES

GOAL:
Lake Champlain Basin communities have an appreciation and understanding of the Basin's natural and cultural resources, and the capacity to implement actions that will result in sound stewardship of these resources while maintaining strong local economies.

Photo: LCBP

Support for local level implementation and public involvement is a key function of *Opportunities for Action*. Each year, the local implementation grants that support organizations' efforts to protect the Basin's unique communities are a priority for all areas of the LCBP budget, from pollution prevention to education and outreach.

The LCBP and Champlain Valley National Heritage Partnership also engaged local partners through two key annual events. The CVNHP Internation Summit included a review of projects proposed for the 2018 budget and opportunities to advance the interptetive themes of the heritage area. The watershed group meeting, held together with Watersheds United Vermont, provided time for local organizations to share strategies and successes and build new skills and knowledge.

Program Highlights

- The Lake Champlain Maritime Museum—key partner of the CVNHP— embarked on the **Glass Barge Tour** with the Corning Museum of Glass to commemorate 150 years of glass making in Corning, NY. The canal schooner *Lois McClure* traveled 1,200 miles, providing glass blowing demonstrations and interpretation of the history of the Erie Canal to more than 33,000 people.
- The 7th annual **International Heritage Summit** in Lake George, NY included a discussion of options to retrieve, conserve, and interpret the history of the gunboat *Spitfire,* which sank during the 1776 Battle of Plattsburgh.
- The LCBP partnered with the Friends of the Saranac River Trail to develop a series of **seven wayside exhibits** that highlight the significance of the river in the community of Plattsburgh, NY, including the importance of the wastewater treatment facility and contemporary efforts to restore the river.
- The CVNHP served as the liaison with the **Upper Missisquoi and Trout Rivers Wild and Scenic Rivers Program** to enhance the use and enjoyment of these waterways. The program monitored water quality, assessed potential access sites, and constructed access facilities.
- LCBP staff managed **100 local implementation grants** that provided financial and technical assistance to watershed groups, municipalities, natural resource conservation districts, and other organizations.

Grant Highlights

Shared Vacuum Truck: Clinton County (NY) towns are sharing equipment to clean catch basins and other stormwater infrastructure, reducing sediment and pollutant loading to Lake Champlain.

Capital Resilience Initiative: Friends of the Winooski River used water quality monitoring data to inform the community about how water moves through Montpelier, and the environmental impacts of stormwater.

Battenkill Inspired: The Crandall Public Library Folklife Center worked with students to develop a series of videos interpreting the history of the Battenkill River and the cultural activities that occur along the famous waterway.

Logging Along the Bend of the River: The Warren County Historical Society created interpretive exhibits about the history of logging on the Hudson River in Glens Falls, NY for display at their new buildling.

Lamoille River Paddlers' Trail: The Vermont River Conservancy restored a river access, led a community paddle, trained seven site stewards, and organized a river cleanup as part of an effort to create a paddlers' trail.

Photos:Clinton County SWCD, Friends of the Winooski River, Crandall Public Library, Warren County Historical Society, VRC

INFORMED AND INVOLVED PUBLIC

GOAL:
Basin residents and visitors will understand and appreciate Lake Champlain Basin resources, and will possess a sense of personal responsibility that results in behavioral changes and actions to reduce pollution.

Photo: LCBP

A number of the LCBP's long-standing Education and Outreach efforts continued in 2018. The *Love the Lake* speaker series, Champlain Basin Education Initiative workshops, and dozens of programs delivered in classrooms and summer camps reached hundreds of adults and children.

The LCBP also branched out into new territory, exploring art as a learning and interpretive opportunity. Student work at the World Water Day Celebration showcased the power of artistic expression in classroom learning. The LCBP hosted watercolor workshops in which artists painted maps of personally meaningful places on the lake. The CVNHP International summit in Lake George highlighted the work of Georgia O'Keefe and sparked an interest in an artist-in-residence program, which was included in the 2018 budget.

Program Highlights

- A new cohort of educators started the ***Watershed for Every Classroom*** program with a week of instruction, curriculum development, and site visits as part of a comprehensive study of the natural and cultural resources of the Basin.
- LCBP staff produced an updated version of the online ***Lake Champlain Basin Atlas,*** a collection of more than 20 interactive maps that illustrate a variety of themes and issues in the Lake Champlain Basin.
- The LCBP developed activities and curricula for **camp watershed education programs** to be integrated into activities at YMCA Camp Abnaki and YWCA Camp Hochelaga in the Lake Champlain Islands.
- The **Healthy Soils** partnership expanded, with several new businesses joining, new outreach materials developed, research done on the benefits of lake-friendly lawncare practices, and representation at a variety of public events.
- The LCBP and Champlain Basin Education Initiative (CBEI) partners hosted a **World Water Day** celebration, bringing together artwork, writing, photography, and videography from classrooms in New York and Vermont.
- Staff greeted 27,764 visitors and hosted many classes and organizations at the **LCBP Resource Room** at ECHO, Leahy Center for Lake Champlain.
- The LCBP produced three new videos in the ***Diving In*** series focused on opportunities for citizens to get involved in protecting the watershed.

Grant Highlights

Lands & Waters Education Program: The South Hero Land Trust developed a Master Naturalist Program and worked with teachers from Folsom Elementary School to create an Outdoor Classroom behind the school.

South Champlain Historical Ecology Project: SCHEP enhanced knowledge of cultural heritage by presenting at local schools, helping students participate in archaeological excavations and meeting with Elnu Abenaki.

Wetland Identification and Delineation Training: The Warren County Soil and Water Conservation District in NY taught ecological identification and field delineation of wetlands for planning and project purposes.

Diatoms–Nature's Glass: The Lake Champlain Maritime Museum developed curriculum, a student art exhibit, and a scientific exhibit to highlight natural history to accompany the *Lois McClure's* 2018 Glass Barge Tour.

Ahead of the Storm: The Lewis Creek Association developed outreach materials and self-guided tours for stormwater mitigation sites, and delivered public presenations.

Photos: SHLT, SCHEP, WCSWCD, LCMM, LCA

Local Implementation Grants

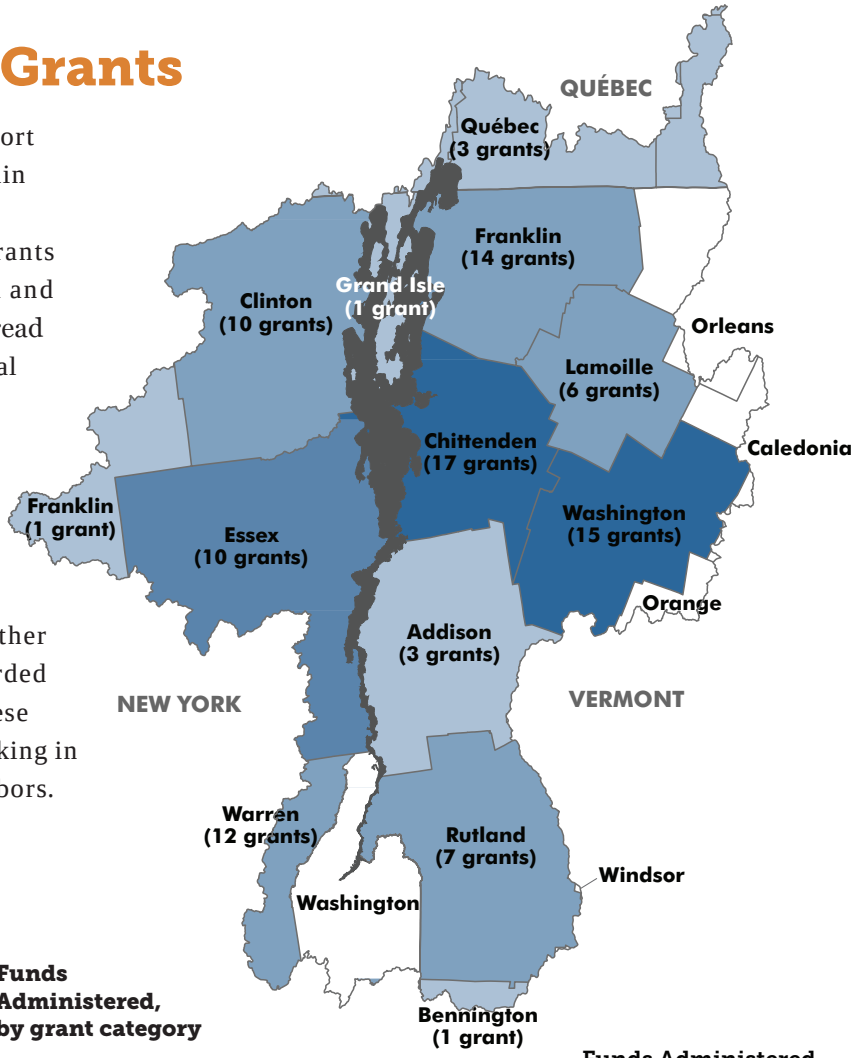
The LCBP Local Grant Programs provide vital support for many of the tasks included in the Lake Champlain Management Plan *Opportunities for Action*. The LCBP's core areas of work are addressed through grants awarded in several categories: Pollution Prevention and Habitat Conservation, Aquatic Invasive Species Spread Prevention, Education and Outreach, Organizational Support, and Cultural Heritage and Recreation. Since 1992, the LCBP has awarded more than **1,200 small grants** amounting to more than **$9,000,000** to **350 organizations.** Local municipalities and watershed groups, Soil and Water Conservation Districts, Natural Resource Conservation Districts, NGOs, schools, and many other groups have been funded for effective projects awarded through a competitive process. The outcomes of these grants feature the accomplishments of citizens working in their own communities, often with their own neighbors.

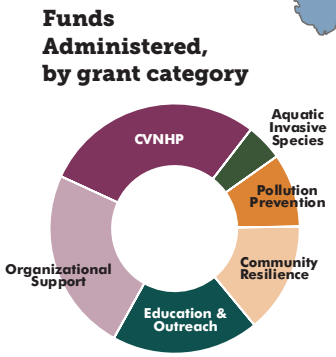
$966,656 Sum of grants administered by LCBP staff in FY 2018

100 Local implementation grants administered by LCBP

6 Categories of local implementation grants administered

Note: Grants administered in FY 2018 were funded with budgets from multiple years.





Technical Project Grants

Each year, the LCBP supports a number of technical research and implementation projects. The awards for these projects are generally larger than local grants, and are solicited with Requests for Proposals from universities, consultants, research foundations, and other organizations. Many of these larger research projects provide the foundation for informing critical decisions for limited management resources. Results from these studies often inform policy, and are extended to educational programming and training opportunities by partners across the watershed.

Key technical projects from 2018 include:

- Tile drain monitoring and phosphorus filter experiments.
- High resolution land cover mapping of the U.S. portion of the Basin.
- The Farm-P Reduction Planner agricultural phosphorus reduction tool.
- Technical Assistance in Wastewater Treatment Facility Asset Management.
- Demonstration project of whole farm nutrient management to reduce phosphorus loading.

ABOUT THE LCBP

The Lake Champlain Basin Program (LCBP) coordinates and funds efforts that benefit the Lake Champlain Basin's water quality, fisheries, wetlands, wildlife, recreation, and cultural resources, in partnership with government agencies from New York, Vermont, and Québec, private organizations, local communities, and individuals.

The Lake Champlain Basin Program was created in 1992 at the recommendation of the Lake Champlain Management Conference. The Management Conference was a multi-jurisdictional effort led by the U.S. Environmental Protection Agency (US EPA) upon the signing of the Lake Champlain Special Designation Act, under Section 120 of the U.S. Clean Water Act on November 5, 1990. Sponsored by Senators Leahy and Jeffords from Vermont and Senators Moynihan and D'Amato from New York, this legislation designated Lake Champlain as a resource of national significance and required examination of water quality, fisheries, wildlife, recreational, and economic issues.

Before passage of the Act, natural resource managers faced the challenge of addressing specific problems requiring immediate action while also charting a comprehensive, integrated plan for the future of the Lake Champlain Basin. To address this challenge, the Lake Champlain Special Designation Act authorized funding through the US EPA to the States of Vermont and New York, and to the New England Interstate Water Pollution Control Commission (NEIWPCC) in support of the Lake Champlain Basin Program to work collaboratively toward achieving management goals outlined in *Opportunities for Action*, the management plan for Lake Champlain.

In FY 2018, the LCBP received federal funding from the U.S. Environmental Protection Agency, the Great Lakes Fishery Commission, and the National Park Service. NEIWPCC manages the financial, contractual, and human resource business operations for the LCBP on behalf of the Lake Champlain Steering Committee. LCBP staff are employees of NEIWPCC operating from the LCBP office in Grand Isle, VT.

Lake Champlain Basin Program

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NEIWPCC
New England Interstate Water Pollution Control Commission