

# Lake Champlain Basin Program



**2017 Report of Activities Summary**



## Building Bridges

The 2017 fiscal year was one of renewal and transition for the Lake Champlain Basin Program. The most notable accomplishment was the release of a new version of *Opportunities for Action*, LCBP's management plan for the Lake Champlain watershed. Unveiled at a ceremony at Crown Point, NY, under the gaze of the Champlain Bridge, the plan re-focuses efforts of the LCBP and our partners on four goals: Clean Water, Healthy Ecosystems, Thriving Communities, and an Informed and Involved Public. These themes were first introduced with the launch of the new LCBP website in 2013, and they will serve as the framework for the *2018 State of the Lake and Ecosystem Indicators Report*. The new Plan was signed by the membership of the Lake Champlain Steering Committee, the acting U.S. EPA Regional Administrators for Regions 1 and 2, the Governors of New York and Vermont, and was formally endorsed by the Premier of Québec.

The year also brought new faces to the Grand Isle office. Matthew Vaughan and Ellen Kujawa joined our team, filling the Technical Coordinator and Technical Associate positions. They have brought a wealth of new perspectives and skills to the LCBP team, and many of our partners have directly enjoyed the benefits of their experience in the form of a new internal grant management system, designed to streamline the process for grant administration.

We continue to expand partnerships with others working toward critical water quality goals. The LCBP is participating in several capacities in a new study began this year by the International Joint Commission that is

exploring flood mitigation measures in response to flooding events in the Lake Champlain watershed and Richelieu River corridor. The five-year study will evaluate the feasibility and acceptability of an array of projects that can reduce flooding in our binational watershed.

The LCBP Technical Advisory Committee introduced a new budget development process, designed to take advantage of the collective knowledge, skills, and interests of our partners across the watershed and beyond to generate new concepts for the Lake Champlain Steering Committee to consider for our FY2018 budget. We expect to complete this process in April 2018 to initiate new projects in the fall.

We also are excited to report that the LCBP and the Champlain Valley National Heritage Partnership (CVNHP) have expanded our partnerships in Québec. The CVNHP Annual International Summit in Saint-Jean-sur-Richelieu resulted in the first regional stakeholder group north of the border. For the first time, with the appropriation of funds from the Great Lakes Fishery Commission, the LCBP was able to support awards to Québec-based organizations for work in the Missisquoi Bay watershed.

We remain grateful for the strong support of our U.S. congressional delegation, representing Lake Champlain interests in both the Senate and House of Representatives. This steadfast support ensures that the work of the LCBP, CVNHP and all of our partners will continue to improve water quality, ecosystem integrity, and community vitality in the Lake Champlain Basin.





# CLEAN WATER

**H**ealthy ecosystems, working landscapes, and vibrant communities rely on clean water. Efforts to reduce nutrient loading and contaminants that affect human health also help to improve habitat and foster economic opportunity. Sound science is fundamental for understanding and addressing these challenges, and is central to the clean water objectives of the LCBP and its partners.

*Opportunities for Action 2017* calls for innovation in management approaches to achieving clean water objectives, and the LCBP embraced the theme in 2017. Staff conceived and launched a new process for identifying and awarding large technical research and implementation grants. Requests for pre-proposals will require short summaries of potential projects that address any of the strategies in the Plan. A subset of pre-proposals will be chosen to submit full proposals. The intent of this approach

**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.**

is to encourage creativity by the research and management community in identifying and solving the most pressing challenges. While transitioning to this new process, the LCBP issued requests for proposals for fresh approaches to pollution reduction. RFPs were developed for innovative agricultural phosphorus reduction projects and for enhanced best management practices to be implemented at larger scales than traditionally supported by LCBP grants. These RFPs paved the way to the pre-proposal process by leaving the specific solutions up to applicants.

## Program Highlights

- » Staff supported the **International Joint Commission technical workgroup** tasked with creating flood inundation maps, models and tools for Lake Champlain and Richelieu River flood resilience, coordinating workgroup meetings, facilitating public discussion, and assembling basin-wide datasets.
- » **Agonomists** in Vermont and New York assisted farmers in implementing best management practices to reduce erosion and export of nutrients from farmland.
- » **The Long-term Water Quality and Biological Monitoring Program** continued to provide critical data used for scientific analyses and to guide watershed management, marking the 25th year of the program.
- » Staff worked with the U.S. Army Corps of Engineers to revise the **Section 542 General Management Plan** that implements the Watershed Environmental Assistance Program for large watershed restoration projects.

## Grant Highlights

**Evaluating Stormwater Pond Performance** – The City of South Burlington, VT installed and tested the effectiveness of floating wetlands in removing pollutants in a suburban stormwater treatment pond.

**Assessment of Tile Drainage System Impacts** – A consultant to the LCBP summarized the current state of knowledge about the use of tile drains in agricultural fields, including measures to reduce phosphorus loads in tile drainflows.

**Fecal Pollution to Cumberland Bay** - The City of Plattsburgh performed sampling and DNA analysis to identify sources (gulls, humans, pets, etc.) of fecal contamination and develop strategies to prevent pollution in the future.

**Phosphorus in the Flower Brook Subwatershed** – The Poultney-Mettowee NRCDC collected data to determine flow conditions that carry the highest phosphorus loads and completed a landscape survey to identify projects with the greatest potential to reduce phosphorus draining to Lake Champlain.

**Mercury and Cyanotoxins Risks in Lake Champlain** - The Darrin Fresh Water Institute sampled and analyzed fishes for mercury and cyanotoxin levels and identified areas of the lake most affected.

**Dew Drop Drill** – The Essex County Soil & Water District purchased a no-till drill for planting cover crops and made it available to local farmers through a cost-share arrangement.





# HEALTHY ECOSYSTEMS



**H**ealthy ecosystems provide invaluable services such as native species habitat, nutrient filtration, flood resilience, and sediment retention. They help support a lake that provides clean water for drinking and recreating, and healthy fish and wildlife populations. LCBP’s work in this area focuses on conserving critical habitat, protecting species of concern, and reducing the risk of new invasions by non-native species.

Among the LCBP’s more visible efforts to protect ecosystems is the growing number of boat launch stewards stationed at water bodies throughout the Basin. In addition to the LCBP’s own steward program, which inspected more than 25,000 vessels and found invasive species 315 times in 2017, LCBP grants supported programs operated by lake associations and watershed organizations. Stewards and greeters at Lake Dunmore, Fern Lake, Lake Carmi, and

**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.**

Lake Eden in Vermont and at Saranac Lake, Lake Flower and Lake George in New York helped to ensure a regional approach to AIS spread prevention. The Adirondack Mountain Club’s backcountry water monitoring program and the Lake Champlain Maritime Museum’s outreach aboard the travelling canal schooner *Lois McClure* took the message beyond the launches. The LCBP works with partners throughout the Basin to compare and analyze data collected to determine high risk areas and help focus future efforts.

## Program Highlights

- » The LCBP helped finalize an agreement with the U.S. Army Corps of Engineers and NEIWPCC to study measures for preventing the spread of aquatic invasive species within the **Champlain Canal**.
- » Staff **harvested invasive species**, including European frogbit in Charlotte, VT and water chestnut in St. Albans Bay, VT and the LaChute River wetlands in New York.
- » Staff participated in multiple fish and wildlife and invasive species **management committees**, including the national Aquatic Nuisance Species Task Force, Northeast Aquatic Nuisance

- Species Panel, New York State Invasive Species Council Advisory Committee, Lake Champlain Fish and Wildlife Management Cooperative, and Fish Technical Advisory Committee.
- » Staff participated in developing **Asian clam control** strategy for Lake George and assisted with investigations into disturbance as a factor that may decrease the local population.
- » **Boat decontamination stations** treated high-risk boats with high-pressure hot water washes at select launches in Vermont and New York.

## Grant Highlights

**Bank Stability and Invasive Species Assessment** - The Ausable River Association prioritized restoration projects by surveying for streambank instability and invasive species infestations.

**Protecting and Restoring Floodplain Forests for Wildlife and Recreation** – The Vermont River Conservancy eradicated Japanese knotweed, restored a riparian buffer, and developed an access trail on three tributaries.

**Reducing Phosphorus Loads and Improving Fish Habitat**  
The Winooski Natural Resource Conservation District opened three miles of stream habitat and ten acres of wetlands, and reduced sedimentation by replacing a culvert on Texas Hill Tributary.

**Water Chestnut Mapping and Control** - The Lake Champlain Committee harvested water chestnut at Black Creek, VT and evaluated the use of drone technology in mapping infestations.

**Junior Scientists Implementing Native Planting Projects** – With student and youth volunteers, Poultney Mettowee Natural Resources Conservation District sold native plants for restoration projects, removed invasive species, and planted native species to restore streambanks.

**Hot Water Wash Station** – The Lake Iroquois Association installed a hot water wash station to treat boats contaminated with invasive species at the Lake Iroquois fishing access.





# THRIVING COMMUNITIES

The LCBP continues to work on the premise that strong communities are a keystone of healthy watersheds. Our efforts in this area focus on providing financial and technical support to community and management partners, supporting and informing business practices that promote clean water, increasing awareness of cultural heritage, and enhancing recreation opportunities.

The spirit of the Thriving Communities goal was captured in the CVNHP's support of the Lake Champlain Maritime Museum's 650-mile journey through New York State's canal system with its replica canal schooner *Lois McClure*. During the four-month tour commemorating the centennial of construction of the Erie and Champlain Canals, more than 12,000 visitors in 37 communities learned about forest

**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.**

ecosystems, the history of forestry, wood products, and the crucial role the forest plays in fostering clean water, soil health, and rich habitat. Students along the route planted seedlings to establish stream-side buffers that protect water quality. CVNHP staff developed interpretive materials and provide outreach support to visitors at the World Canals Conference in Syracuse, NY.

## Program Highlights

- » The CVNHP hosted the 6th annual **International Heritage Summit** in Québec. The summit resulted in the creation of the first Regional Stakeholder Group in Québec, an effort to more effectively gather input from Canadian partners.
- » The CVNHP developed and installed 12 new exhibits as part of the award-winning **Wayside Exhibit Program**. The CVNHP provided free design, editing, and French translation.
- » LCBP staff managed more than 150 **local implementation grants** that provided financial and technical assistance to watershed groups, municipalities, natural resource conservation districts and other organizations (see local grants summary on page 7).
- » The CVNHP hosted the **"One NPS" workshop**, where participants identified opportunities for collaboration and communications and explored opportunities for financial and technical assistance through the National Park Service's numerous community assistance programs.
- » LCBP coordinated, hosted, and published a webinar series based on the **Green Infrastructure for Stormwater Management** manual developed under contract with a consulting firm. The manual and series covered implementation of green infrastructure in a variety of settings, including streets in developed areas, rural roads, parking lots and hardscapes, and buildings.

## Grant Highlights

**Swanton Heritage Water Trail** - The Northern Forest Canoe Trail developed interpretive displays and public recreation access to historical locations along the Missisquoi River that highlight the waterway's role in the region's economic development.

**U.S. LaVallee** - The Lake Champlain Maritime Museum developed infrastructure, including mooring and hardware and interpretive materials, for divers to safely visit the wreck site of the *U.S. LaVallee*, a well-preserved tugboat that sank in Shelburne Bay in 1931.

**New York Realtor Training** - CWICNY taught 145 real estate agents about wetlands, floodplains, wells, septic systems, and related land use regulations during three-hour workshops.

**Barre Stormwater Education** - Friends of the Winooski River developed neighborhood stormwater maps, identified stormwater mitigation opportunities, delivered presentations to municipal and public meetings with residents, and published resources online.

**Road Salt Application Training** - The Winooski Natural Resource Conservation District conducted a workshop for road maintenance contractors and developed fact sheets for application of BMPs.

**Volunteer Cyanobacteria Monitoring** - The Lake Champlain Committee recruited and trained 300 volunteers to conduct visual surveys for cyanobacteria blooms, collect water samples, and submit data to the Vermont Department of Health.



LCBP



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CWICNY



# INFORMED AND INVOLVED PUBLIC

A public that understands water quality science and management challenges as well as possible solutions can make informed choices about protection and restoration of Basin resources. For this reason, public information and outreach efforts have been a core function of the LCBP’s work since its establishment in 1992. The LCBP works in formal learning settings and in less structured public events and outreach avenues.

Many of these efforts came together with the 2017 World Water Day event hosted by the Champlain Basin Education Initiative (CBEI) at the ECHO, Leahy Center for Lake Champlain in Burlington, VT. This public event brought together artwork, writing, photography, and videography from 18 classrooms in New York and Vermont to celebrate the importance of water resources. Many of the partici-

**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.**

pating educators were also enrolled in CBEI’s *Watershed for Every Classroom* (WEC) professional development program. World Water Day entries from these teachers’ students were closely tied to classroom lessons that were developed through WEC. Keynote speaker Becky Tharp from Lake Champlain Sea Grant shared her work in using green infrastructure to improve water quality in the Basin, and awards were presented for student artwork.

## Program Highlights

- » LCBP produced two new videos in the **Diving In** series focusing on opportunities for citizens to get involved in protecting the watershed.
- » Staff greeted 31,609 visitors and hosted multiple classes and organizations at the **LCBP Resource Room** at ECHO, Leahy Center.
- » Twelve teachers completed the year-long **Watershed for Every Classroom** professional development program in watershed education and place-based learning.
- » Staff and partners continued the **Healthy Soils** outreach campaign, creating infographics and conducting public education

sessions to inform the public of lake-friendly lawn care practices.

- » The **Boat Launch Steward Program** surveyed more than 25,000 boaters and inspected 12,314 watercraft, intercepting 315 invasive species at launches in New York and Vermont.
- » The Champlain Basin Education Initiative hosted two workshops— **State of the Lake: Explore Basin Issues** and **Love the Lake for Educators**—to enhance instruction of lake issues in K-12 classrooms.
- » Staff presented **water quality programs** at classroom, camp, and field days sessions throughout the watershed.

## Grant Highlights

**Trout in the Classroom** – Vermont Trout Unlimited provided equipment to nine schools for students to raise brook trout from eggs and release them in local streams. Students learned about water chemistry, healthy watersheds, ecosystems, and trout biology.

**Lake George Floating Classroom** - The Lake George Association brought more than 2,240 students out on their customized catamaran to learn about the Lake George watershed and the quality of the Lake’s water, while taking samples and using microscopes.

**April Stools’ Day** – The Lake Champlain Committee coordinated a series of events around the watershed to clean up dog droppings to raise awareness of the environmental and health effects of pet waste.

**Lamoille Watershed Quests** – The Lamoille County NRCD developed community-based treasure hunts that help educate residents about local water resources and foster stewardship of habitat.

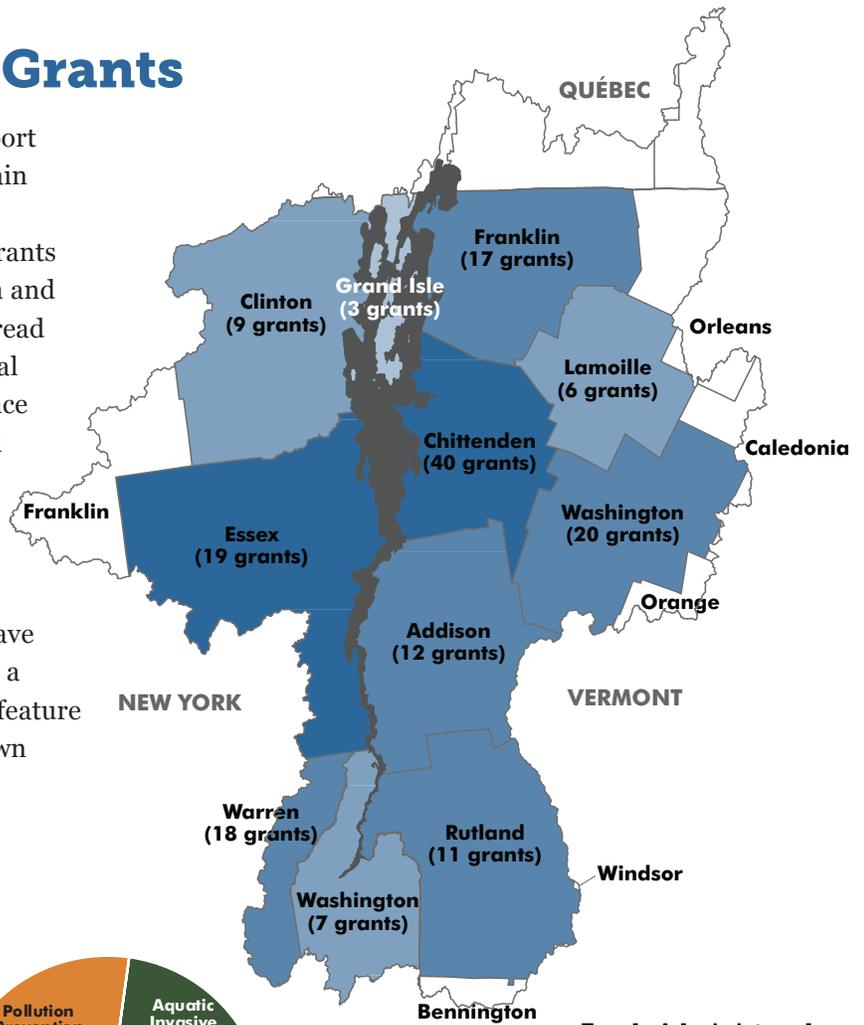
**Wind, Waves and Variables** - The Isle La Motte Preservation Trust delivered a program to teach students about geologic time and the formation of the Lake Champlain Basin, human impacts on the watershed, and lake ecology.

**Discovering the Ausable** - The Adirondack Mountain Club created an Aquatic Stewardship Program that provides students with skills in aquatic ecology, including water quality testing, macroinvertebrate identification, and aquatic invasive species identification.



# Local Implementation Grants

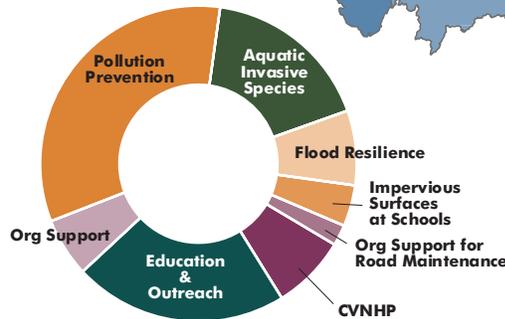
The LCBP Local Grant Programs provide vital support for many of the tasks included in the Lake Champlain Management Plan *Opportunities for Action*. The LCBP’s core areas of work are addressed through grants awarded in several categories: Pollution Prevention and Habitat Conservation, Aquatic Invasive Species Spread Prevention, Education and Outreach, Organizational Support, and Cultural Heritage and Recreation. Since 1992, the LCBP has awarded more than 1,100 small grants amounting to more than \$8,000,000 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.



**\$1,593,881** Sum of grants administered by LCBP staff in FY 2017

**162** Local implementation grants administered by LCBP

**8** Categories of local implementation grants administered



Funds Administered in 2017



Note: Grants administered in FY 2017 were funded with budgets from multiple years.

# Climate Change Adaptation

The climate in the Basin is changing and we must be prepared for an environment that may look very different in the future. Scientists predict a warmer, wetter watershed, which will have far-reaching impacts to tourism, water quality, frequency and toxicity of harmful algal blooms, invasive species spread, and many other management priorities. For this reason, the LCBP has established resilience to climate change as one of five management themes in *Opportunities for Action* (OFA).

Principles that address climate change adaptation—like all of the management themes—underlie the strategies spelled out for each of the four goals in OFA. Planning for these

changes at a watershed scale will create more resilient natural systems and human communities. In 2017, a number of organizations addressed this challenge through projects funded under the Flood Resilience and Climate Change category of the LCBP’s Local Implementation Grant program.

In the New Haven River watershed, the Vermont River Conservancy is working with three municipal conservation commissions to take a multi-faceted approach to flood adaptation. A coordinated effort to restore upland wetlands, implement stormwater mitigation projects in residential areas, and establish a river corridor easement will help mitigate impacts of flooding along the river.

# 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 2017, 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.

This summary annual report highlights LCBP projects that were in progress or concluded between October 1, 2016 and September 30, 2017. The appendix to this report includes a comprehensive listing of external contracts managed by LCBP, and key LCBP tasks implemented by staff during this time period. To view or request a copy of the full report, please contact the LCBP.



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