LAKE CHAMPLAIN SEA GRANT
2013-2017 Strategic Plan

Introduction

Lake Champlain shares a similar natural history and faces many of the same environmental problems as the Great Lakes, including nonpoint source pollution, eutrophication and occasional toxic algae blooms; the invasion of nonnative and nuisance aquatic species; and habitat alterations resulting from erosion and sedimentation. These environmental challenges are likely to be exacerbated by climate change, which is increasing the frequency and intensity of precipitation events, changing the balance of rain and snow in precipitation events, and increasing the mean air and water temperature[1].

Mission

Lake Champlain Sea Grant is dedicated to improving the understanding and management of Lake Champlain, Lake George and their watersheds for long-term environmental health and sustainable economic development.

Vision

To be a recognized leader and source of knowledge about the natural resources and health of Lake Champlain and its watershed, through scientific research, outreach services, and providing educational opportunities to the general public, managers, and decision makers, with the goal of obtaining Institutional status within the four-year omnibus period.

Strategic Focal Areas and Goals

Lake Champlain Sea Grant recently gained Coherent Area Program (CAP) status. This change in status requires LCSG to develop a strategic plan. Our strategic plan is consistent with the goals and objectives we identified in the LCSG CAP proposal and aligns with the 2014-17 National Sea Grant Strategic Plan[2]. However, the resources available to the Lake Champlain Sea Grant program are limited and so we have decided to focus on only three of the four NOAA Sea Grant Strategic Plan Focus Areas: Healthy Coastal Ecosystems (HCE), Resilient Communities and Economies (RCE), and Environmental Literacy and Workforce Development (ELWD). In the current document we outline our primary goals in these focus areas. Our specific objectives and performance measures for the future are detailed in the Lake Champlain Sea Grant program omnibus proposal for 2014-17. These documents collectively will guide LCSG Extension and Research activities for the omnibus period.

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[1] Stager, C. and M. Thill. 2010. Climate Change in Champlain Basin. The Nature Conservancy. http://www.nature.org/ourinitiatives/regions/northamerica/unitedstates/vermont/howwework/champlain_climate_report_5_2010-2.pdf.

[2] http://seagrant.noaa.gov/Portals/0/Documents/global_docs/strategic_plan/2014-2017_National_Sea_Grant_College_Program_Strategic_Plan.pdf

LCSG Goal: Protect and restore coastal and aquatic ecosystems in the Lake Champlain basin.

Focus Area: Resilient Basin Communities and Economies

Tourism and recreation are central to the economic wellbeing of coastal communities in the basin. However, these communities must be able to identify and pursue sustainable economic development policies and programs. They also need access to information and training in the use of tools that help them realize the economic potential of sustainable development of tourism and recreation and to help balance business development and resource protection.

Marina operators and boaters are an important stakeholder group involved in Lake Champlain management and protection. Nationwide, Sea Grant led efforts have engaged these groups in effective pollution prevention, boater safety and cleanup efforts. A Clean Boating program, in support of a partner-led VT Clean Marina program, engages marina operators and users in pollution prevention and AIS spread prevention, using available Sea Grant Clean Boating and Clean marinas resources.

Climate change models predict that Lake Champlain basin will become wetter, with an increase in the severity of rainfall events. Municipalities are struggling with limited budgets to plan for and address the costly impacts of increased rainfall and flash flooding. Helping towns take steps to prepare for and mitigate future climate change related flooding events is a need that LCSG will help meet. We will provide technical support, training and coordination among the various stakeholders to develop local vulnerability assessments, regional case studies to serve as reference for future flood resiliency efforts, and promote use of tools such as geomorphic assessments for climate adaptation planning and implementation. Using these tools, local officials, from regional planning commissions to town leaders, will be better able to proactively mitigate future flooding impacts and reduce infrastructure damage and cost to basin communities.

Further, an evaluation of the interactions between changes in climate and changes in land-use is needed. Research that addresses local priority information needs, such as building ecosystem models that consider climate change in efforts to improve management of stormwater runoff, manage fisheries and understand food web dynamics will contribute to preparing the region for a changing climate.

Lake Champlain is under a phosphorous TMDL. Phosphorous is the most serious problem

While advances have been made in methods of treating stormwater pollution, it still remains the fastest growing threat to basin water quality. Intensive land development, urbanization and intensification of agriculture produce stormwater runoff that degrades many Vermont streams and watersheds. For example, there are 15 lakes and ponds and 98 state stream and river waters that do not meet Vermont Water Quality Standards.

Erosion and sedimentation, climate and weather related hazards, lead to loss of land and infrastructure, cause significant water quality problems and cause significant economic harm. Shoreline property owners inadvertently promote shoreline erosion, sedimentation and phosphorous input by clearing natural vegetation and modifying stream banks or shoreline for views or recreation. Farmers maximizing the productive uses of their lands may farm to riverbanks, leading to bank erosion, channel instability and sediment impairment. To assist landowners to address erosion threats, we will inform landowners, farmers and municipal officers about effective ways to slow or stop erosion, with a focus on promoting using non-structural (bioengineering) techniques for vulnerable shorelines and evaluating the technical and economic feasibility of Agriculturally Productive Buffers for vulnerable farm lands.

Finally, Lake Champlain supports a diverse sport fishery with cold, cool and warm water components characterized by trout and salmon, walleye, and black bass fisheries. Lake Champlain contains abundant habitat for both smallmouth and largemouth bass and hosts numerous yearly bass tournaments, bringing substantial economic benefits to the local communities along Lake Champlain. Within-basin business and municipal government groups have directed much effort toward the operation of bass tournaments, ranging in scale from local-amateur to national-professional events, many of which are televised globally. Competitive fishing can have important local economic benefits that must be weighed against management of a sustainable fishery. Despite the growing number and importance of these tournaments, little data are available to properly manage and assure the sustainability of the bass sports fishery in Lake Champlain.

LCSG Goal: Expand efforts to support sustainable lake-based tourism and recreation (e.g. Clean Boating, Sustainable Bass Tournaments) that strengthens the economic base of basin communities.

LCSG Goal: Reduce NPS pollution (especially phosphorus, lawn chemical, coliform bacteria) to improve quality of water resources in the basin.

LCSG Goal: Lake Champlain Basin communities plan for and adopt practices that mitigate the impacts of climate change and weather related hazards.

Focus Area: Environmental Literacy

Environmental Literacy is essential to have an informed public and to prepare them to make difficult decisions to protect and restore watersheds, water quality and the basin environment. But knowledge about the condition of our environment, including water resources, is constantly changing, as are the landscapes in which we live. The result is variability over time and among programs engaged in relevant water resource education in the basin. Further, many science

educators do not have the current knowledge, resources or support to integrate appropriate watershed education into their curricula, particularly related to climate change effects and our evolving knowledge of ecosystems and processes in the basin.

The University of Vermont Watershed Alliance (WA), a Sea Grant managed program, fills this critical need for environmental education in the basin by making hands-on, up-to-date, inquiry-based, scientific watershed and water quality education available to Vermonters including educators, students, and the general public. UVM WA provides equipment, curricula, technical support and human resources for those participating in our programs. The Watershed Alliance provides life-long learning programs for people of all ages that enhance understanding of coastal, ocean and Great Lakes environments and promote stewardship of healthy ecosystems. The education program supports goals in the other LCSG