Lake Champlain Sea Grant Strategic Plan 2018-2021

February 8, 2017

I. Our Planning Process

Lake Champlain Sea Grant (LCSG) faculty and staff undertook an extensive strategic planning process to identify priority areas for research and outreach for 2018-21 and beyond. Between April and June 2016, working with a professional facilitator, we conducted a series of four focus groups to gather input from a diverse group of stakeholders. In addition, we conducted a survey of 229 other stakeholders in the Basin representing a broad cross section of interests, from tourism and business, to education, environment and religion.

A total of 49 partners and stakeholders participated in focus group meetings that helped us define research and outreach priorities. These individuals represented 29 organizations, including 8 of the 13 colleges and universities in the Basin. The first focus group brought together our Program Advisory Committee (PAC) members, with additional stakeholders invited to represent arenas in which we expect to engage more deeply in the future (e.g., diversity, resiliency to extreme events). This group helped us define key areas for outreach and opportunities for future efforts. The second focus group meeting engaged faculty, staff and researchers from colleges and universities from across the Lake Champlain Basin to identify key research opportunities and gaps. The final meeting included other key partners and stakeholders who shared unique perspectives for research and outreach opportunities for future LCSG work. Finally, the PAC met again, along with our NSGO Program Officer, Elizabeth Rohring, and Sea Grant Advisory Board member, Dale Baker (who was instrumental in the initial development of LCSG as a project of New York Sea Grant (NYSG), and as a fledgling National Sea Grant College program). This group helped refine earlier recommendations from focus groups and the survey.

In June, LCSG played an integral role in facilitating a NOAA-sponsored Congressional Roundtable in Vermont. At the Roundtable, staff from the entire Vermont federal congressional delegation (i.e., Senators Leahy and Sanders, and Representative Welch) gathered with professionals representing multiple agencies and organizations that rely upon NOAA (often Sea Grant-specific) resources to do their work. Representatives included those from LCSG, National Weather Service, Vermont Agency of Natural Resources, Vermont Department of Health, University of Vermont, non-profit organizations, and a private business that utilizes NOAA resources to improve decision-making about stormwater management in urban areas. The meeting

further identified areas of opportunity for partnerships across organizations to improve knowledge through research or outreach.

Meetings and collaboration with our regional Sea Grant networks and key NOAA partners strengthened our planning process further. LCSG staff met via webinar with NYSG staff in September 2016. This meeting built upon Great Lakes Sea Grant Network efforts in late 2015 and early 2016 to identify highest priority topics for regional collaboration over the next three to five years. During the September 2016 meeting between NYSG and LCSG, each outreach professional shared key activities and projects in which they were engaged. This meeting stimulated follow up meetings among several staff members to build upon identified synergies. A white paper was developed that identified opportunities for shared programming that builds upon partnerships already underway with Great Lakes regional projects (e.g., crude oil transport webinars and fact sheets). Late in September, Maine Sea Grant hosted a gathering for northeast Sea Grant programs and National Weather Service (NWS) representatives. LCSG staff proposed potential areas for collaboration between our program and NWS that build upon currently funded research and outreach needs identified through stakeholder outreach and meetings.

Our planning process culminated by again gathering our PAC in early 2017 to review a draft strategic plan and offer recommendations to improve its strength. This strategic plan builds upon results from this series of stakeholder, Sea Grant and NOAA meetings along with recommendations from our 2015 site review.

II. How and Where We Work

Lake Champlain Sea Grant was initially established in 1999 as a project of New York Sea Grant and the National Oceanic and Atmospheric Administration (NOAA). An independent Lake Champlain Sea Grant program was established in 2002 with strong support from Vermont Senator Patrick Leahy during deliberations about the National Sea Grant College Program Reauthorization Act. There, he advocated for an amendment that would include Lake Champlain in the National Sea Grant Program. Today, LCSG is a collaborative effort between the University of Vermont and Plattsburgh State University of New York. LCSG has evolved over the years, earning promotion through NOAA's four-tiered system in recognition of its successes along the way. It is currently a

Coherent Area Program. LCSG recently received strong encouragement from a review committee organized by the National Sea Grant Office that concluded that LCSG was well poised to seek institutional status in the National Sea Grant College Program. Since its inception, LCSG has worked with nearly 200 partner organizations and reached thousands of stakeholders to address coastal and freshwater issues.

III. Lake Champlain Sea Grant Vision

Lake Champlain Sea Grant envisions a future in which Basin communities anticipate and enable change for long-term ecosystem health and sustainable economic development.

IV. Lake Champlain Sea Grant Mission

To develop and share science-based knowledge to benefit the environment and economies of the Lake Champlain Basin. Our audience is business, state, and local leaders and the communities they serve.

V. Core Values

Our core values of scientific integrity and neutrality, dedication and commitment, respect and personal development guide our day-to-day activities. They serve as the foundation upon which we conduct outreach and research, build partnerships and base our interactions.

- Scientific Integrity and Neutrality
    - We plan, conduct, and support outreach and research that center upon principles of excellence and which are supported by sound scientific methods.
    - We strive to be neutral sources of science-based information and advocate only for sound and well-informed decision making.
- Dedication and Commitment
    - We engage with and strive to understand and address the needs of a broad variety of individuals and communities who work, play and live in the Lake Champlain Basin of Vermont and New York.

    - We conduct outreach and research to improve and sustain aquatic health and community resilience to environmental change in the Lake Champlain Basin.
- Respect
    - We embrace diversity across cultures, races, religions, and personal choices, and cultivate an atmosphere of respect for not only people, but the environment.
- Personal Development
    - We maintain and expand our personal professional competencies by engaging in lifelong learning.
    - We are attentive to the importance of maintaining work-life balance to sustain development and implementation of creative and highly engaging programs.

VI. Cross Cutting Principles

We apply the following cross-cutting principles to enhance our capabilities to meet future needs:

- Cultivate partnerships
    - We develop meaningful partnerships through thoughtful integration of expertise, assets and capabilities of a diverse set of collaborators within the Lake Champlain Basin, across the nation, and beyond.
- Enhance Diversity & Inclusion
    - We seek and welcome diverse perspectives, and work diligently to extend knowledge and resources to diverse audiences to help achieve our vision and mission.

VII. National Focus Areas

As a Coherent Area Program with funding at the current base level, Lake Champlain Sea Grant will narrow its focus to two of the four National Focus Areas: Resilient Communities and Economies and Environmental Literacy and Workforce Development. If awarded institutional status accompanied by additional funding, we intend to focus on one additional National Focus Area: Healthy Coastal Ecosystems.

VIII. National Focus Area Goals

A. Resilient Communities and Economies

- Goal 1: Water resources are sustained and protected to meet emerging needs of the communities, economies and ecosystems of the Lake Champlain Basin.
- Goal 2: Coastal communities and economies are resilient to changing environmental conditions.

B. Environmental Literacy and Workforce Development

- Goal 3: An environmentally literate, engaged and diverse public is informed by lifelong formal and informal opportunities and implements innovative solutions to improve community well-being in the face of a changing Lake Champlain Basin.
- Goal 4: A diverse and skilled workforce is engaged and enabled to address critical local, regional and national needs.

C. Healthy Coastal Ecosystems[1]

- Goal 5: Habitat, ecosystems, and the services they provide are protected, enhanced, and/or restored.
- Goal 6: Land, water, and living resources are managed by applying sound science, tools, and services to sustain ecosystems.

[1] We will address this focus area only if awarded institutional status and associated additional funding.

IX. Outcomes and Performance Measures

Resilient Communities and Economies (RCE)

Goal 1: Water resources are sustained and protected to meet emerging needs of the communities, economies and ecosystems of the Lake Champlain Basin.

ACTION: Inform community members about how actions impact water quality and availability.

Desired Outcomes

- Community members understand watershed functions and the services they provide that support communities and economies.
- Community members understand how actions will impact water quality and quantity, and are able to make informed decisions.

ACTION: Collaborate with stakeholders to develop and share best management practices (BMPs) and measures to protect and manage water resources.

Desired Outcomes

- Communities implement best practices that minimize pollution to tributary streams and rivers, inland lakes, and to Lake George and Lake Champlain.
- Communities have access to sound science, data, tools, and services to understand and anticipate changes in water quality and quantity.
- Communities have access to science, tools, and technologies to understand, anticipate, protect and sustain water resources and make informed decisions.

Goal 2: Coastal communities and economies are resilient to changing environmental conditions.

ACTION: Use innovative tools to increase the public's awareness of changing conditions and the potential impacts their communities, economies and ecosystems may encounter.

Desired Outcomes

- Communities, individuals and businesses in the Lake Champlain Basin, including the underserved, are adequately prepared to anticipate and adapt to changing conditions and hazards over time.
- Through innovative training programs, business, local, and state leaders, and the communities they serve throughout the Lake Champlain Basin understand how innovative technologies, such as green stormwater infrastructure, and best management practices can improve resilience of communities over time.

ACTION: Utilize comprehensive planning and adaptive management strategies to enhance community resilience and adapt to hazards and changing environmental and socioeconomic conditions.

Desired Outcomes

- Communities have access to information needed to understand the factors impacting ecosystems and participate in adaptive management planning.
- Communities employ adaptive management strategies and apply tools to engage diverse members of the community to improve resilience and community sustainability.

Resilient Community and Economies Performance Measures

1. Number of communities that adopt/implement sustainable economic and environmental development practices and policies as a result of Sea Grant activities.
2. Number of communities that adopt/implement hazard resiliency practices to prepare for and respond to/minimize coastal hazardous events as a result of Sea Grant activities.
3. (State-level measure) Number of Lake Champlain Basin marinas that have clean boating

education programs.

Environmental Literacy and Workforce Development (ELWD)

Goal 3: An environmentally literate, engaged and diverse public is informed by lifelong formal and informal opportunities and implements innovative solutions to improve community well-being in the face of a changing Lake Champlain Basin.

ACTION: Increase effective environmental literacy instruction for K-12 students by formal and informal educators.

Desired Outcome

- K-12 students in the Lake Champlain Basin understand watershed functions and impacts of humans to aquatic resources, improve their understanding of a changing climate, and learn how to be stewards of the environment through hands-on STEM education.
- Formal and informal educators in the Lake Champlain Basin are knowledgeable about and engage students in hands-on learning about environmental literacy principles, limnology, watershed and climate science, and expected environmental changes over time.

ACTION: Increase effective environmental literacy communication to stakeholders, including how ecosystem change affects economic, social, and cultural values, as well as implications for conservation and management.

Desired Outcomes

- Lifelong learners who live, work and play in the Lake Champlain Basin better understand personal impacts and actions they can take to minimize impacts to water resources and remain resilient in a changing world.
- Communities implement sustainable strategies when managing natural resources and make decisions based on information acquired through informal science education.

Goal 4: A diverse and skilled workforce is engaged and enabled to address critical local, regional and national needs.

ACTION: Grow awareness across a diverse population of recent postgraduates and members of Lake Champlain Basin communities regarding career paths that support the region's needs.

Desired Outcomes

- Recent postgraduates[2] and members of Lake Champlain Basin communities, including those from underrepresented groups, are enabled to explore and pursue the variety of occupations that are essential to sustain the nation's coastal communities, economies, and ecosystems.
- Recent postgraduates engage in research and outreach relevant to high priority issues in the Lake Champlain Basin.[3]

ACTION: Increase opportunities for undergraduate and graduate students to gain knowledge and experience in the science and management of watershed and coastal resources.

Desired Outcomes

- Undergraduate and graduate students, including those from underrepresented groups, are supported and have access to formal and experiential learning, training, and research experiences.
- College level internships provide increased literacy, experience, and preparedness in areas of watershed and coastal ecosystems for all students including those from underrepresented groups.

[2] Addressed only if institutional status and sufficient additional funding awarded.
[3] Addressed only if institutional status and sufficient additional funding awarded.

ACTION: Prepare a responsive and diverse workforce to advance and benefit from sectors that support the needs of the nation's coastal communities and ecosystems (e.g., industry, research, government, etc.), and to adapt and thrive in changing conditions.

Desired Outcomes

- The existing and future workforce is able to adapt and thrive in changing environmental, social, and economic conditions.

Environmental Literacy and Workforce Development Performance Measures

1. Number of Sea Grant products that are used to advance environmental literacy and workforce development.
2. Number of people engaged in Sea Grant-supported informal education programs.
3. Number of Sea Grant-supported graduates who become employed in a job related to their degree within two years of graduation.

Healthy Coastal Ecosystems (HCE)[4]

Goal 5: Habitat, ecosystems, and the services they provide are protected, enhanced, and/or restored.

ACTION: Develop and share scientific understanding, decision-support tools, technologies, and approaches to protect and restore ecosystems.

Desired Outcomes

- Scientific understanding and technological solutions inform and improve the management and conservation of natural resources.
- Greater awareness and understanding of ecosystem functions and services they provide improve stewardship efforts.

[4] Addressed only if institutional status and sufficient additional funding awarded.

ACTION: Sustain the habitat, the biodiversity, and the abundance of coastal ecosystems, fish, wildlife, and plants.

Desired Outcomes

- Biodiversity, habitats, and ecosystem functions and services are restored and sustained.

Goal 6: Land, water, and living resources are managed by applying sound science, tools, and services to sustain ecosystems.

ACTION: Support a sound science- and management-driven framework that integrates observations, monitoring, research, and modeling to provide a scientific basis for informed decision-making.

Desired Outcomes

- Collaborations with partners and stakeholders support planning, research and technological solutions to address resource management needs.
- Citizen science initiatives are engaged and contribute to improving our knowledge with respect to coastal communities, economies and ecosystems.
- Communities have access to sound science, data, tools, and the training to be effective as participants in decision-making processes.

Healthy Coastal Ecosystem Performance Measures

1. Number of resource managers who use ecosystem-based approaches in the management of land, water, and living resources as a result of Sea Grant activities.
2. Number of acres of coastal habitat protected, enhanced, or restored as a result of Sea Grant activities.