Lake Champlain Sea Grant Strategic Plan 2024–2028

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I. Our Planning Process

Lake Champlain Sea Grant (LCSG) faculty and staff undertook a multifaceted strategic planning process to identify priority areas for research, outreach, and education for 2024-28. Between February and July 2022, we conducted a series of six focus group meetings to gather input from a broad group of partners. In addition, we conducted a survey of 528 individuals and organizations in the Lake Champlain basin who represented a broad cross section of interests, from tourism and business, to education, environment, and communities.

One hundred and twenty-seven individuals responded to the survey, representing about a 24% response rate. Individuals from non-profit organizations represented a quarter of respondents, of which almost one in five heralded from a college or university (19%), 12% served in roles with state or federal government, another 12% were involved with K-12 education, 8% were from municipal or regional planning agencies, 7% were members of the public, 7% were business representatives, 4% were students, and 2% represented cultural organizations or tribal programs. The remaining 5% represented emergency management agencies and Conservation Districts. Of these, 82% were from Vermont while 18% were from New York.

A total of 52 individuals participated in focus group meetings that helped LCSG define research, outreach, and education priorities for the coming four-year period. These individuals represented 42 different organizations. The first focus group brought together our Program Advisory Committee (PAC) members. The second and third focus groups engaged formal and informal educators at varied levels of the K-12 and higher education systems in thinking about the work of Lake Champlain Sea Grant between 2024 and 2028. The fourth focus group included representation of watershed groups, nonprofit organizations, and federal and state government. The individuals from the fourth focus group framed their conversation specifically around riparian forest restoration. The final two focus group meetings included other key partners and individuals who shared unique perspectives to inform future LCSG work. Following these meetings, LCSG faculty and staff (several of whom were present at each of the focus group meetings) met to review the draft strategic plan, assessing suggested goals and direction along with alignment of goals with our vision, mission, values, and cross-cutting principles.

Meetings and collaboration with regional and national Sea Grant networks strengthened our

planning process further. For instance, LCSG collaborated to lead a national conversation with community science practitioners across the Sea Grant Network. The goal was to collaboratively assess Sea Grant programs' 2018-2023 strategic plans for goals, actions, and performance metrics that addressed public participation in the scientific process. This resulted in development and sharing of language individual Sea Grant programs could choose to adopt to enhance efforts to bring members of the public into assessment and decision-making processes, strengthening resilience, promoting sustainable ecosystems, and widening participation within all four National Sea Grant focus areas.

II. How and Where We Work

One of 34 Sea Grant programs, Lake Champlain Sea Grant was first established in 1999 as a project of New York Sea Grant in collaboration with the National Oceanic and Atmospheric Administration (NOAA). Lake Champlain Sea Grant was established as an independent program in 2002 through an amendment to the National Sea Grant College Program Reauthorization Act. Today, LCSG is a collaborative effort between the University of Vermont and the State University of New York at Plattsburgh and is operated regionally across portions of both Vermont and New York. Over time, LCSG earned promotion through NOAA's four-tiered Sea Grant College Program system in recognition of its successes. In May 2018, LCSG was awarded institutional status in the National Sea Grant College Program, which is the third of four levels through which Sea Grant programs can progress. Each year, LCSG faculty, staff, and supported researchers work with over 300 partner organizations and reach thousands of individuals to address coastal and freshwater issues, community resilience, environmental literacy, and workforce development. As a transboundary water, partnerships extend not only across state, but sometimes international borders.

III. Lake Champlain Sea Grant Vision

Lake Champlain Sea Grant envisions a future in which Lake Champlain 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.

V. Core Values

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

- Scientific Integrity and Neutrality
    - We plan, conduct, support, and evaluate outreach, education, research, and communications that center upon principles of excellence, and which are supported by sound scientific methods.
    - We are neutral sources of science-based information.
- Dedication and Commitment
    - We proactively seek out, 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 and support outreach, education, research, and communications to improve and sustain aquatic health and community resilience to environmental change in the Lake Champlain basin.
- Respect
    - We cultivate an atmosphere of respect and sensitivity for all people.
- 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 accommodation 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 seek, develop, and sustain meaningful partnerships through thoughtful integration and leveraging of expertise, assets, and capabilities of numerous collaborators within the Lake Champlain basin, regionally, across the nation, and beyond.
- Respect all people
    - We seek and welcome broad perspectives and work diligently to develop and extend knowledge and resources to all people within the Lake Champlain basin to help achieve our vision and mission.

VII. National Focus Areas and Goals

Lake Champlain Sea Grant efforts will focus on all four national focus areas: Environmental Literacy and Workforce Development, Healthy Coastal Ecosystems, Sustainable Fisheries and Aquaculture, and Resilient Communities and Economies.

Environmental Literacy and Workforce Development (ELWD)

Goal 1: An environmentally literate public participates in lifelong formal, non-formal, and informal learning opportunities and implements innovative solutions to improve community well-being in the face of a changing Lake Champlain basin.

ACTION 1.1: Increase effective environmental literacy instruction for K-12 students by formal and non-formal educators.

Desired Outcomes

- K-12 students in the Lake Champlain basin are supported to participate in hands-on education, research, and stewardship experiences that help them to understand watershed

functions and impacts of humans on aquatic resources, improve their understanding of a changing environment, and become stewards of the environment.

- Formal and non-formal educators in the Lake Champlain basin are knowledgeable about and engage students from all backgrounds in hands-on learning about environmental literacy principles, limnology, watershed science, and expected environmental changes over time.

ACTION 1.2: Increase effective environmental literacy communication to watershed organizations, businesses, government staff, and individuals in the Lake Champlain basin, 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 the personal actions they can take to minimize impacts to water resources and how to remain resilient in a changing world.
- Watershed organizations, businesses, government agencies, communities, and individuals implement sustainable strategies when managing natural resources and make decisions based on information acquired through informal science education.

Goal 2: A skilled and environmentally literate workforce is engaged and able to build prosperous lives and livelihoods in a changing world through traditional and innovative careers.

ACTION 2.1: Grow awareness regarding career paths that support the region's coastal, freshwater, and resilience needs across the population of recent postgraduates and members of Lake Champlain basin communities.

Desired Outcomes

- Recent postgraduates and members of Lake Champlain basin communities 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 and members of Lake Champlain basin communities engage in professional development, research and outreach relevant to high priority coastal and freshwater issues.

ACTION 2.2: Increase opportunities for students at all levels to gain knowledge and experience in the science and management of watershed and coastal resources.

Desired Outcomes

- Students at all levels and from all backgrounds are supported in and have access to formal, non-formal, and experiential learning, training, and research experiences.
- High school and college level internships for all students provide increased literacy, experience, and preparedness in areas of watershed and coastal ecosystems, and resilience.

ACTION 2.3: Prepare a responsive workforce to advance the ability of Lake Champlain basin communities and ecosystems to adapt and thrive in changing conditions.

Desired Outcomes

- The existing and future Lake Champlain basin workforce increases understanding of changing environmental, social, and economic conditions as related to aquatic resources and community resilience.
- The existing and future workforce in the Lake Champlain basin has knowledge of actions individuals can take to adapt and thrive in changing conditions and extends that knowledge to others.
- The existing and future Lake Champlain basin workforce adapts and thrives in changing environmental, social, and economic conditions.
- The existing and future Lake Champlain basin workforce expands.

Healthy Coastal Ecosystems (HCE)

Goal 3: Habitat, ecosystems, and the services they provide are protected and/or restored in the Lake Champlain basin.

ACTION 3.1: Co-develop, improve, and share scientific knowledge, decision-support tools, technologies, and approaches to protect and restore ecosystems.

Desired Outcomes

- Scientific knowledge 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.

ACTION 3.2: 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 4: Land, water, and living resources are managed by applying sound science, tools, and services to sustain resilient ecosystems in the Lake Champlain basin.

ACTION 4.1: 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 interested parties support planning, research, and innovative technological solutions to address resource management needs.
- Members of the public are engaged in scientific research and contribute to improving our knowledge with respect to stewardship of ecosystems and their contributions to Lake Champlain basin communities and economies.
- Communities and resources managers have access to sound science, data, tools, and the training to be effective as participants in planning and decision-making processes.
- Resource managers understand the risks, options, tradeoffs and impacts of their decisions.

ACTION 4.2: Identify and advance successful strategies that enhance resilient ecosystems and watersheds in the context of changing conditions, including environmental variability and change.

Desired Outcomes

- Communities share, access, understand and use information regarding projected changes and related impacts within ecosystems.
- Communities can apply knowledge from case studies, training, and tools to improve their ability to plan, prepare and adapt to environmental variability and change.

Sustainable Fisheries and Aquaculture (SFA)

Goal 5: Domestic fisheries, aquaculture, aquaponics, and other living freshwater resources supply food, jobs, economic and cultural benefits in the Lake Champlain basin.

ACTION 5.1: Support development of a trained workforce and enhance technology transfer in a manner that recognizes a variety of methodologies and approaches, including those based on traditional and local knowledge.

Desired Outcomes

- Increased understanding of and technological solutions to aid management and production.
- Engagement with interested parties and partnerships enable the industry to acquire innovative technologies and adapt to changing conditions.

Goal 6: Natural resources are sustainably managed to support coastal communities and working waterfronts, including industrial, recreational, subsistence fisheries, aquaculture, and aquaponics in the Lake Champlain basin.

ACTION 6.1: Ensure the best available science, services, and tools are available to and trusted by resource managers, the fishing and aquaculture communities, and consumers.

Desired Outcomes

- Charter boat operators, recreational fishers, and aquaculturists are knowledgeable about efficient, sustainable, and responsible tools, techniques, and uses of coastal and freshwater resources.

- Resource managers and fishing and aquaculture communities have access to and share knowledge and tools to increase their capability to adapt to changing resource management needs.
- Consumers understand the health and sustainability benefits of domestically produced seafood and use that knowledge to inform their seafood purchasing decisions

Resilient Communities and Economies (RCE)

Goal 7: Lake Champlain basin communities and economies have resilient capability and the resources to prepare for and adapt to changing environmental conditions, extreme weather, coastal hazards, economic disruptions, and other threats to community health and well-being.

ACTION 7.1: 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 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 7.2: 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 improve resilience and sustainability.

Goal 8: Aquatic resources are sustained and protected to meet emerging needs of the communities, economies, and ecosystems of the Lake Champlain basin.

ACTION 8.1: Engage Lake Champlain basin community members in understanding how their actions impact water quality and availability of aquatic resources.

Desired Outcomes

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

ACTION 8.2: Collaborate with numerous organizations, partners, and individuals to develop and share best management practices (BMPs) and measures to protect and manage water resources.

Desired Outcomes

- 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.
- Communities implement best practices that minimize pollution of tributary streams and rivers and inland lakes of Lake George and Lake Champlain.

VIII. Performance Measures and Metrics

Focus Area Performance Measures

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 (youth and adults) engaged in Sea Grant-supported non-formal 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 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.

Sustainable Fisheries and Aquaculture Performance Measure

1. Number of fishers, seafood processors, aquaculture industry personnel, or seafood consumers who modify their practices using knowledge gained in fisheries sustainability and seafood safety as a result of Sea Grant activities.

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. Annual number of communities that adopt/implement hazard resiliency practices to prepare for and respond to minimize the impacts of 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.

Cross-Cutting National Focus Area Measures

1. Number of Sea Grant tools, technologies and information services that are used by our partners/customers to improve ecosystem-based management.
2. Economic and societal impacts and benefits derived from Sea Grant activities (market and non-market; jobs and businesses created or sustained; patents).

Cross-Cutting National Performance Metrics

1. Number of individuals and full-time equivalents (FTEs) supported by Sea Grant.
2. Number and origination of core funding pre-and full proposals.
3. Number of volunteer hours.
4. Number of Postsecondary Students and Degrees Financially Supported by Sea Grant in Higher Education Programs (Undergraduate, Graduate).
5. Number of P-12 students who participated in Sea Grant supported formal education programs.
6. Number of P-12 students reached through Sea Grant trained educators.
7. Number of educators who participated in Sea Grant supported professional development programs.
8. Number of Sea Grant sponsored/organized events.
9. Number of attendees at Sea Grant sponsored/organized events.
10. Number of public or professional presentations.
11. Number of peer-reviewed publications produced by Sea Grant.
12. Number of people that visit museums, aquariums, and other information education institutions hosting NOAA-supported exhibits or programs.
13. Number of people participating in environmental actions through NOAA education programs.