

Lake Champlain Sea Grant Strategic Plan 2018-2021

February 8, 2017

I.	Our Planning Process	2
II.	How and Where We Work	3
III.	Lake Champlain Sea Grant Vision	4
IV.	Lake Champlain Sea Grant Mission	4
V.	Core Values	4
VI.	Cross Cutting Principles	5
VII.	National Focus Areas	6
VIII.	National Focus Area Goals	6
IX.	Outcomes and Performance Measures	7
	1. Resilient Communities and Economies (RCE)	7
	2. Environmental Literacy and Workforce Development (ELWD)	9
	3. Healthy Coastal Ecosystems (HCE)	11
	Appendix A: NYSG and LCSG Outreach and Potential Connections	13
	I. Personnel on the Call	13
	II. Our Work and Opportunities for Collaboration	14

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 (Appendix A) 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 Ecosystems¹

- 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.

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 postgraduates² 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.

Appendix A: New York Sea Grant and Lake Champlain Sea Grant Outreach and Potential Connections

On September 16, 2016 staff from the Great Lakes and Hudson River Programs of New York Sea Grant met via webinar with staff from the Lake Champlain Sea Grant Program. The purpose of the webinar was to provide outreach professionals an opportunity to share information about their outreach endeavors, and to look for opportunities to potentially network and partner in the future.

I. Personnel on the Call

New York Sea Grant

- [Kathy Bunting-Howarth, Ph.D., J.D.](#), Associate Director, New York Sea Grant Institute; Assistant Director, Cornell Cooperative Extension, keb264@cornell.edu
- [Helen Domske](#), Coastal Education Specialist; Associate Director, Great Lakes Program, hmd4@cornell.edu
- [Nordica Holochuck](#), Hudson Estuary Specialist, nch8@cornell.edu
- [Heather Weitzner](#), Great Lakes Coastal Processes and Hazards Specialist, hw528@cornell.edu
- [Dave White](#), Recreation and Tourism Specialist; Associate Director, Great Lakes Research Consortium, dgw9@cornell.edu
- [William Wise](#), Director, William.Wise@stonybrook.edu

Lake Champlain Sea Grant

- [Breck Bowden](#), Director, breck.bowden@uvm.edu
- [Ashley Eaton](#), Interim Watershed and Lake Education Coordinator, ashley.eaton@uvm.edu
- [Mark Malchoff](#), Aquatic Resource Specialist, Mark.Malchoff@plattsburgh.edu
- [Linda Patterson](#), Land Use and Water Quality Educator, linda.patterson@uvm.edu
- [Elissa Schuett](#), Research Coordinator and Communicator, Elissa.Schuett@uvm.edu
- [Kris Stepenuck](#), Extension Program Leader, kris.stepenuck@uvm.edu
- [Becky Tharp](#), Green Infrastructure Collaborative Manager, rtharp@uvm.edu
- Bill Valliere, Financial Specialist, William.Valliere@uvm.edu

II. Our Work and Opportunities for Collaboration

Each outreach professional shared a summary of their work. The following table identifies general topic areas on which work is being conducted within one or both Sea Grant Programs. In addition to what is listed, NYSG also has seafood safety (aquaculture, oceans outreach) and coastal resilience (climate forums, podcasts) specialists in other offices (e.g., Long Island). Opportunities for potential cooperation or learning between NYSG and LCSG are described in the farthest right column.

For LCSG strategic planning purposes, an additional column also identifies other entities in the Lake Champlain Basin that are addressing each topic.

Topic	NYSG	LCSG	Other LC Basin Organizations	Opportunities
Discover Clean and Safe Boating	Time-Warner twice/month TV show; pfd use demos; <i>Suddenly in Command</i> workshops		Coast Guard Auxiliary	
	Dave White			
Clean Boating	Marinas and boaters understand and follow policies and AIS prevention techniques	Boaters understand and follow policies and AIS prevention techniques; LCSG developing pump out locations app	VTDEC Clean Marinas Program; LCI pump out boat; LCBP AIS Coordinator and Boat Launch Stewards	NYSG/LCSG: Meeting set for November (Dave, Mark and Kris)
	Dave White	Mark Malchoff; Kris Stepenuck		
Shipwreck Management	Fair exhibit - developing long-term maritime history/tourism/economic development one		LCMM	
	Dave White			
National Marine Sanctuaries	Developing proposals		Lintilhac Foundation; LCMM	LCSG: Lintilhac Foundation contacted LCSG about this
	Dave White			

Teacher professional development	More than 125 teachers per year provided education; 15 conduct research on research vessel each summer - gives real life experience they can take to the classroom	Education for teachers through Watershed for Every Classroom (WEC) and for Watershed Alliance stream monitoring and stewardship program	LCBP leads WEC initiative; CREST summer institute; ECHO summer institute; EPSCoR?	NYSG-LCSG: Share curricula; identify common teacher professional development needs across states; learn NY state standards for improved LC Basin education efforts in NY by LCSG; opportunity for shared and accessible database by teachers and students?; Compare notes on teacher recruitment techniques (e.g., source and level of funding)
	Helen Domske	Ashley Eaton		
Equipment sharing for schools	Great Lakes Ecosystem Education Exchange Project	Watershed Alliance equipment kits		NYSG-LCSG opportunity to share lessons learned, kit contents
	Helen Domske	Ashley Eaton		Helen, Ashley & Kris Stepenuck (WI experience)
Great Lakes Literacy Network	Principles of literacy for the Great Lakes established	Erin De Vries used to be involved though on own initiative as sponsor not interested in LC		LCSG learn from NYSG and keep an ear out about this over time (adopt principles in LCSG programming)
	Helen Domske			Ashley Eaton
Student education in coastal waters	Citizen science activities for students	Watershed Alliance stream monitoring and stewardship, and lake, AIS and food web education programs	EPSCoR	NYSG-LCSG: Opportunity to compare and adopt/adapt local programming with great ideas from the other; Shared database idea (see above)

				LCSG-EPSCoR: Kris contacted Mike to communicate about future potential interaction/focus areas
	Helen Domske	Ashley Eaton	Mike Winslow	Helen, Ashley, Mike, & Kris
Science Exploration Days at University of Buffalo	STEM program involving over 1200 HS students			NYSG-LCSG opportunity to consider if this is something that makes sense to consider in LC Basin. Maybe in conjunction with ECHO?
	Helen Domske			Helen, Ashley
Habitat/AIS education	Minimize spread of AIS	AIS education (general); Clean Boating outreach; Watershed Alliance Keeping the Balance program	VTDEC Vermont Invasive Patrollers; LCBP outreach	LCSG: Consider where to go with this type of outreach in the future
	Helen Domske	Mark Malchoff; Kris Stepenuck; Ashley Eaton		
Watercraft Inspection Program	Train leaders of this program		LCBP (Boat Landing Stewards); VTDEC (Public Access Greeter Program)	
	Mary Austerman & Brittney Rogers			
Resiliency training for municipal leaders of small towns and villages	Local gov't conference	Organizing regional workshops for this audience with RPCs and towns	Regional Planning Commissions; VT River Conservancy	NYSG-LCSG opportunity to share agendas and resources (e.g., LCSG report: barriers towns face re: regulation implementation in floodplains)
	Mary Austerman	Ashley Eaton, Kris Stepenuck, Mark Malchoff		

Climate Change Outreach	Coastal Community Resilience Index			LCSG learn more about this – possibly of use in LC Basin?
	Mary Austerman			
Green Infrastructure (GI)	Outreach to local leaders	State agency partnership; Low impact development guide; GI tours; Roundtable of professionals provided with education, resources, and networking; GI bike tour map; student GI research and workforce development symposium; technical assistance to individual & municipal; research on floating treatment wetlands' efficacy for P removal		NYSG-LCSG opportunity to share resources and knowledge; National Community of Practice NYSG can join
	Mary Austerman	Becky Tharp		
NYIS (New York Invasive Species) AIS website	Manages information on site, though currently limited access			NYSG-LCSG possible related opp. - Is there an existing mobile-friendly database by waterbody of which AIS are in which waterbody for launch steward use? Interested in developing?
	Brittney Rogers			
PRISM listserv	Manages various invasive species lists		Meg at LCBP?	LCSG: Opportunity to communicate about these to a NY audience?

	Brittney Rogers			Mark Malchoff; Elissa Schuett
New York's Great Lakes Clearinghouse	Brittney Rogers			LCSG - look for relevant information and opportunities for NY portion of LC Basin
Nature-based Shoreline workshops, tours, and binational Community of Practice	Coastal processes and hazards; Seeking to ID information needs, best practices, demo site criteria	Natural shoreline development and Shoreland Protection Act/FEMA Floodplain Maps, and Use Value Appraisal regulation training for Realtors; Initiating plans for natural shoreline workshops for landowners in partnership with VTDEC; Green infrastructure connects to this too (see GI category)	VTDEC Lake Wise (Amy Picotte); Anyone on NY side?	NYSG-LCSG opportunity to learn about workshop content, and to share recommended vegetation lists, regulations, demo site criteria, and processes in each state; LCSG join Community of Practice; LCSG learn NY regulations
	Heather Weitzner	Linda Patterson; Kris Stepenuck; Becky Tharp		
Boat launch access for the disabled	Guidebook for site managers to develop disabled-friendly launches		USFWLS? VTDEC? NYDEC?	LCSG: Is this something that is needed in the LC Basin? (Likely don't have capacity, but possibly connect the right folks with this resource)
	Nordica Holochuck			
Coastal change over time workshops	Educates public audiences about coastal change over time			LCSG: Is there something comparable that coastal audiences along LC should be being educated about or less concern?
	Nordica Holochuck			
Crude oil transport	Webinars, fact	Webinars, fact		NYSG-LCSG

	<p>sheets about impact to fisheries and beaches, and proposal for Extension in research</p> <p>Kathy Bunting-Howarth</p>	<p>sheets about impact to fisheries and beaches, and proposal for Extension in research</p> <p>Mark Malchoff</p>		<p>already partnering; Larisa Graham as Gulf of Mexico contact</p>
CSMI work	<p>Ontario and Erie</p> <p>Kathy Bunting-Howarth</p>		<p>LCBP Toxics Working Group</p> <p>Kris Stepenuck (attending meeting)</p>	
Fisheries conservation		<p>Developed conservation plan for fisheries tournaments</p> <p>Mark Malchoff</p>		<p>NYSG-LCSG opportunity - could the conservation plan and methods to achieve it be used by NYSG?</p>
Ice Fishing - assess locations, economic impact over time		<p>Assessed current status and future trends in pilot study of ice anglers on LC (economic, fishing gear, locations being fished)</p> <p>Mark Malchoff</p>		<p>NYSG-LCSG opportunity (or regional) to conduct long term research on this by establishing annual angler surveys</p> <p>Kris Stepenuck also interested</p>
Coastal Storms community partnerships		<p>Supporting local teams to develop and carry out flood resilience education and demos</p> <p>Linda Patterson</p>		
Sustainable Landscape Stewards Program		<p>Provides watershed science, regulations, and resources along with certification for participants as Sustainable Landscape Stewards</p>		

		Linda Patterson		
Best winter maintenance practices outreach		Initiating social marketing research and outreach to promote limiting salt use by private contractors; co-sponsoring Salt Summit in Lake George Oct. 24; potential for citizen science project implementation	Fund for Lake George; Winooski NRC	NYSG-LCSG opportunity to partner on research and outreach
		Kris Stepenuck		