


NEW HAMPSHIRE SEA GRANT

2013-14 PROGRAM GUIDE

Coastal Science for the Granite State



New Hampshire Sea Grant's mission is to promote the wise use, conservation and sustainable development of marine and coastal resources in the state, the region and beyond.

Located at the University of New Hampshire, N.H. Sea Grant is part of a national network of programs located in our coastal and Great Lakes states as well as in Puerto Rico and Guam. Working in coordination, these programs conduct research, extension, education and communications projects designed to enhance the practical use and conservation of the country's coastal, marine and Great Lake resources. Sea Grant receives funding from the U.S. Department of Commerce through the National Oceanic and Atmospheric Administration, funds that are matched 1:2 with local funds.

NHSG 2012 By the Numbers

- **8,697 hours** volunteered by UNH Marine Docents and NHSG Coastal Research Volunteers.
- **24 jobs** retained in connection with NHSG-supported aquaculture efforts involving oysters, mussels and steelhead trout.
- **6,000,000 oysters, valued at \$4,000,000**, being farmed by eight NHSG-supported aquaculturists.
- **\$50,000 worth of mussels** being farmed at a site off the N.H. coast operated by a NHSG-supported aquaculturist.
- **\$1.9 million secured in grant funding** for technical tool development, assistance and community engagement relating to climate adaptation for local communities, led by the N.H. Coastal Adaptation Workgroup, which includes NHSG.
- **\$11,550 saved** by the Yankee Fishermen's Cooperative due to efficiencies gained by the NHSG-led overhaul of the Co-op's data management system.



Top: N.H. fisherman Erik Anderson and aquaculture technician Jess Cranney raise and harvest steelhead trout with guidance from NHSG. Photo credit: Michael Chambers, NHSG

Bottom: Wan-Jean Lee, UNH Ph.D. recipient and Sea Grant Knauss Fellow, conducted aerial surveys of Great Bay mud flats with NHSG development funds.

Photo credit: UNH Photographic Services

NHSG Extension/Outreach

N.H. and the northeast region have been faced with both environmental and social challenges that are impacting land use, water quality and natural resource management decisions, which in turn have affected coastal economies. To address these challenges, NHSG focuses research and extension efforts on improving the sustainability of the fishing and aquaculture industries while reducing their impact on fish stocks and marine habitats and enhancing the management of marine resources. We also work to build science and decision-maker understanding of nutrient flux in coastal watersheds and stormwater run-off while preparing to adapt to a changing climate. In addition, our efforts in environmental literacy and workforce development provide youth and young adults with an appreciation and understanding of our marine ecosystem, strengthening marine stewardship and encouraging future marine professionals. The following summaries provide highlights from our four focus areas.

Healthy Coastal Ecosystems

NHSG is working closely with The Blue Ocean Society for Marine Conservation to coordinate marine debris clean-up and education efforts targeting man-made litter and derelict fishing gear. In 2012, we helped to remove six tons of marine debris from our beaches, open waters and the Isles of Shoals in hopes of decreasing marine mammal and seabird entanglements and improving the health and aesthetics of our beaches and waters.



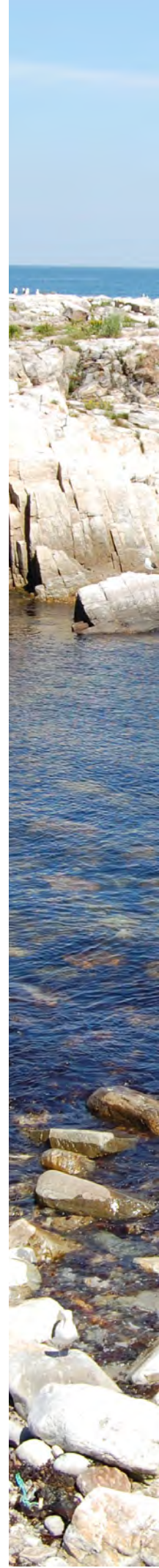
Who are the Coastal Research Volunteers and how are they making a difference in our communities?

Find out at: www.seagrant.unh.edu/crv.

Resilient Communities & Economies

New Hampshire's seacoast communities are facing pressures to be better prepared for extreme weather events and other effects of long-term climate change. The New Hampshire Coastal Adaptation Workgroup (NHCAW) is a collaboration of 19 organizations including NHSG working to help these communities by providing education, facilitation and guidance. Since the inception of NHCAW in 2010, workshops have been held for 15 communities, bringing municipal leaders and community members together to learn how they can adapt to changing climate conditions.

How can NHSG help your community be more hazard-resilient? Attend one of our workshops or find out more at: www.nhblog.stormsmart.org.



Sustainable Fisheries & Aquaculture

Our staff has worked diligently to help support the development of new markets for seafood, delivering higher prices directly to fishermen and helping to meet consumer demand for local and sustainable seafood. As part of this effort, NHSG manages the website www.NHSeafood.com to convey information about local fish availability and seasonality, as well as to provide short bios of local fishermen and fisheries managers.

NHSG staff developed a protocol for raising steelhead trout in offshore pens to help local fishermen augment their income via aquaculture. After a few training sessions, fishermen took over the daily operations and have harvested and sold trout to local markets where the fillets are in high demand.

What are community supported fisheries and why did N.H. Sea Grant help to host a national summit on them? Check out our YouTube page to find out!



Environmental Literacy & Workforce Development

NHSG seeks to foster an environmentally literate and engaged citizenry through formal and informal education and outreach opportunities in ocean, coastal and climate sciences. Each year, the NHSG-trained UNH Marine Docents teach students about marine science through in-school, hands-on programs and on boat-based field trips like the Coastal Floating Lab. This lab is a valuable teaching tool that students will remember for a lifetime and supports many of the science standards for middle and high school students. They get their hands wet by rotating through five boat stations including benthic communities, plankton, water column characteristics, coastal navigation and bottom trawl.

NHSG also helps to support a year-long class called Ocean Projects for UNH undergraduates studying marine science or ocean engineering. Students form teams to tackle real-life marine-related challenges and must design a product, method or type of technology to combat the problems. This hands-on approach to marine science and engineering helps prepare students for careers in their field of choice.



Our marine education staff and the UNH Marine Docents teach thousands of students each year about marine science through SeaTreks and other programs. Dive deeper into marine literacy at: www.seagrants.unh.edu/marinedocents.



NHSG Research

- The Great Bay Estuary is classified as nitrogen-impaired due to elevated nutrient loads from its surrounding watershed, but very little information is available about the nutrient dynamics during storm events. NHSG-funded researchers collected continuous data in the headwaters and mainstem of the Lamprey River to better understand these nutrient fluxes that likely end up in the estuary. These data are helping scientists and resource managers by improving knowledge of watershed processes and informing nutrient flux models.
- The number of human gastroenteritis cases due to pathogenic *Vibrios* in the U.S. has been on the rise over the past few decades, primarily caused by the consumption of raw or undercooked shellfish. With funding provided by NHSG, a researcher is studying the interactions between salinity and microbes that could influence the presence of pathogenic *Vibrios* in the oysters of Great Bay. Results from this research will help scientists and resource managers to remediate or survey *Vibrios* populations and potential pathogenic outbreaks.

Please visit the research page of our website for more details about all of the current research projects funded by NHSG: www.seagrant.unh.edu/research/projects

Get Social With Us

With a newly revised web site, NHSG is even easier to access. Stay current with our news, events and initiatives via www.seagrant.unh.edu as well as our social media pages.

We've got hundreds of photos, dozens of videos and plenty of interesting news articles to discover.

For more up-to-the-minute news, connect with us via Facebook or Twitter. Join the conversation!

We've got some new faces on the NHSG staff, too. Check out our staff listing at www.seagrant.unh.edu/staff for contact information.



Above: Charles French, UNH Cooperative Extension associate professor, stands in front of a newly opened fish market. Using NHSG funds, French and Kelly Cullen, UNH assistant professor of resource economics and development, are researching the N.H. commercial fishing industry's capacity for alternative markets. They conducted surveys to determine consumer preferences for seafood and retailers' willingness to carry alternative species like pollock, hake and redfish that are abundant in New England waters. This research will help the fishing industry to more easily adapt to regulatory changes and make it less susceptible to competition by low-cost seafood imports. Photo credit: UNH Photographic Services

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