2011 Projects Impact New York's Coastal Resources

January 2012 — New York Sea Grant has issued a series of impact statements for projects completed in 2011. Partnerships and collaborations with national, state, region, and local partners made the following projects possible:

- **Coastal Change Education in NY's Hudson River Estuary Region**
- **Educating the Next Generation of Concerned Citizens**
- **Keeping Unwanted Medicines Out of the Great Lakes**
- **Long Island Sound Mentor Teacher Program Extended to NYC**
- **NEMO: Protecting & Restoring Long Island's Water Resource**
- **New York Educators Help to Restore Gulf Coast Habitats**
- **NYSG Focuses on Resolving Dredging Windows Issues**
- **NYSG Facilitates Development of Oswego's New Maritime Center**
- **NY Sea Grant Recognized for Award-Winning Training Program**
- **NYSG Training Programs Support Seafood Safety**
- **Trawl Design Workshop Significant for Great Lakes Fisheries**
- **Workforce Training Aids Aquatic Invasive Species Education**

Project awards and impacts include:

- US Coast Guard Certificate of Appreciation
- Northeast Sea Grant Consortium Outstanding Outreach Achievement Award
- "great new opportunities for the museum, the maritime district, and the city of Oswego" — *Mercedes Niess, H. Lee White Maritime Center Executive Director*
- 207 teachers who will engage 15,400 students in lessons on critical environmental issues such as water quality and invasive species
- shoreline stakeholders, anglers and teachers now aware of the dangers of releasing PPCPs (pharmaceuticals and personal care products) into the environment
- more than 100 K-12 and community youth educators able to use geospatial training to inform sound stewardship
- more than 1,280 individuals from seafood companies and state or federal regulatory agencies trained in food safety
- a groundbreaking international initiative that will assure quality fisheries data for managing the $5 billion Great Lakes fisheries
- and more. The full series of 2011 New York Sea Grant impact statements is online at www.seagrant.sunysb.edu/articles/r/1089.

These projects meet the performance measures of Sea Grant's Coastal & Ocean Literacy, Hazard Resilience in Coastal Communities, Health New York Coastal Communities, and Safe & Sustainable Seafood Supply focus areas.

New York Sea Grant Extension administration is located at 112 Rice Hall, Cornell University, Ithaca, NY 14853.

Coastal Change Education in NY's Hudson River Estuary Region

Understanding how our coastlines change over time informs sound stewardship. In 2011 New York Sea Grant and the Cornell University Institute for Resource Information Sciences provided geospatial training for more than 100 K-12 and community youth educators.

Professional development partners in this effort included Cornell Cooperative Extension NYC (New York City) educators, community youth mentors and member teachers of the New York State Geographic Alliance.

The year's work built on the prior trainings the project partners conducted in the Mid-Hudson Region and New York metropolitan area.

Using cutting edge publically-accessible internet resources as well as current and historic aerial photographs and printed maps, the project partners enabled program participants to virtually travel "up and away" to explore features of local New York coastlines.

The shoreline study sites used for training were selected based on publicly accessible and audience relevant shoreline areas or parks with restoration projects considered or underway.

Historic aerial photos, such as this one of the Hudson River at Central Park, helped educators "see" geospatially. Photo: USDA

NYSG Hudson Estuary Specialist Nordica Holochuck helps Youth Mentors NYC 2011 participants "explore" NY coastlines using printed maps. Photo: C. Malone

Program participants compared maps from the turn of the century and aerial photos from the 1950s to modern topographic maps and recent photos illustrating changes in the landscape over time. Each replicable set of site materials the project partners developed tells a unique story about the urban and suburban estuaries, of the growth of the coastal communities over time, and the impacts of this growth on habitats.

The project materials include an overview of NYC estuarine waterways, including the Hudson Estuary, the physical setting, environmental challenges, and existing programs working to protect and promote responsible stewardship of the region.

This partnership project was a featured poster presentation entitled *"A Day in the Classroom: 100 Years of Change"* at the 2011 Land Grant/ Sea Grant National Water conference in Washington D.C.

This project meets the performance measures of Sea Grant's Healthy Coastal Ecosystems focus area.

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Educating the Next Generation of Concerned Citizens

To ensure a scientifically and environmentally informed citizenry for the future, New York Sea Grant (NYSG) makes science/environmental education a priority as part of its Healthy New York Coastal Ecosystems focus area goals and strategies.

By using a "teach the teacher" approach in 10 workshops in 2011, NYSG was able to educate 207 teachers who will engage 15,400 students in lessons on critical environmental issues such as water quality and invasive species.

In-school presentations, college lectures, and career day presentations reached an additional 2,100 students, bringing the total of students to 17,500 for the year. These students will go on to become the next generation of voters and concerned citizens who will make decisions to protect the Great Lakes.

Utilizing innovative approaches and the final-year funding for the Centers for Ocean Sciences Education Excellence (COSEE) Great Lakes (GL), NYSG was able to offer a week-long teachers' workshop on Tropical Marine Ecology and several conference presentations. A curriculum project entitled *Great Lakes To Go!* was developed to provide educators with free presentations they can use to infuse Great Lakes materials into their own classroom teaching.

The COSEE GL mission is to foster lasting relationships through networks that link Great Lakes educators with ongoing science research in the region and connections of that science to marine equivalents. COSEE GL is co-funded by the National Science Foundation, the National Oceanic and Atmospheric Administration, and the National Sea Grant College Program.

Teachers work on creating a watershed model at a NYSG workshop. Photo: Helen Domske, NYSG

Other Successful NYSG-coordinated Great Lakes Educational Programs in 2011

- A semester-long undergraduate course on Great Lakes Ecology was taught at the University at Buffalo for 30 students.
- Science Exploration Day, brought 900 high school students and teachers to the University at Buffalo to learn from scientists on topics from invasive species to environmental engineering.
- A NYSG distance learning program that introduced 1,000 students and their teachers to the impacts of invasive species through the Authentic Learning program at the Buffalo Museum of Science.

This project meets the performance measures of Sea Grant's Healthy New York Coastal Ecosystems focus area.

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Keeping Unwanted Medicines Out of the Great Lakes

Each day through the improper disposal of pharmaceuticals and personal care products we add unwanted toxins to the finite system of freshwater that is the Great Lakes. In 2011, New York Sea Grant (NYSG) shared this important message with stakeholders to help them learn what they can do to reduce this troubling form of water pollution and thereby protect New York's aquatic environments.

"*Don't Rush to Flush*" became the motto used to teach stakeholders about the dangers of flushing or improperly disposing of unwanted or unused over-the-counter medications, pharmaceuticals, and personal care products (PPCPs).

"Food for Thought:" University of Buffalo students shared pill-shaped cookies with classmates to inform them about the impacts of improper disposal of pharmaceuticals. Photo: Helen Domske, NYSG

Students enrolled in the NYSG-taught Great Lakes Ecology course at the University of Buffalo tackled the problems associated with PPCPs going down the drains of households around the Great Lakes. Their creativity and genuine concern were evident in the public awareness projects they designed to educate others.

Some student groups used Facebook and Twitter to reach thousands of their friends and contacts to survey their behaviors and knowledge about the use and proper disposal of PPCPs. The survey results indicated that a majority of people lacked awareness about the problems or proper disposal techniques.

Other students developed posters and stickers they displayed around the University, targeting dorms and restroom facilities on campus. Their goal was to encourage students to think before they flush! Stickers for bathroom mirrors in the dorms and student apartments asked: "*What are YOU putting down the drain?*" These stickers included information for reducing the amount of personal care products used and proper disposal of unwanted/unused medicines.

NYSG also reached out to stakeholders, anglers and teachers as a means of informing others about the dangers of releasing the PPCPs into the environment. Utilizing a newly produced NYSG fact sheet: "*Undo the Environmental Chemical Brew: Keep Unwanted Medications & Chemicals Out of the Great Lakes*" and promotional pieces encouraged interested citizens to learn more about the issue at www.unwantedmeds.org.

A series of newspaper, radio and television public service announcements helped to get this important message out to tens of thousands of New York residents along the coasts of Lake Erie and Lake Ontario.

Partial funding for this project was provided through the U.S. Environmental Protection Agency's Great Lakes Restoration Initiative.

This project meets the performance measures of Sea Grant's Healthy New York Coastal Ecosystems focus area.

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Long Island Sound Mentor Teacher Program Extended to NYC

In 2011, New York Sea Grant (NYSG) began a successful Long Island Sound educational initiative with teachers on Long Island in New York state.

According to a Public Perception Survey conducted by the Long Island Sound Study (LISS), watershed residents were lacking knowledge about Long Island Sound, and its watershed or drainage basin, tidal wetlands, and water quality. To increase the knowledge of watershed residents, LISS provided funding for Connecticut Sea Grant to start a Long Island Sound Mentor Teacher Program in 2002. This Program engages certified educators in sharing their successful strategies for implementing Long Island Sound concepts into existing curricula at professional peer development workshops.

In 2011, the Program was extended to K-12 educators on Long Island by NYSG.

Long Island Sound Mentor Teacher Program workshops align with the content standards of the New York Science Frameworks and/or National Science Education Standards. Their format can be easily implemented into existing curricula. The workshops include a field training component within the Long Island Sound watershed and all participants receive a tote bag of the supplies and resources needed to conduct the activities with their students.

K-12 educators identify macroinvertebrates during a workshop focused on watersheds. Photo: Larissa Graham, NYSG

The first New York workshop, entitled *The Wonders of the Wetlands*, focused on wetland loss in Mt. Sinai Harbor. Educators learned how to utilize Long Island's natural resources as an outdoor classroom, apply inquiry-based techniques to teach ecology, and effectively organize a field study in a wetland ecosystem.

The second workshop - *Your Watershed Connection* - focused on the Nissequogue River watershed that flows into Long Island Sound. K-12 educators conducted water quality tests and followed spring water from the crest of the subwatershed into the Sound.

Twenty-four workshops in Connecticut and New York have educated more than 300 formal and informal K-12 educators and, through them, more than 14,000 students. Funding has been secured to continue these workshops in 2012.

Long Island Sound Mentor Teacher Program participants test water quality at a local harbor experiencing wetland loss. Photo: Larissa Graham, NYSG

This project meets the performance measures of Sea Grant's Healthy New York Coastal Ecosystems focus area.

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NEMO: Protecting & Restoring Long Island's Water Resource

With mounting state and federal environmental regulations and an economy dependent upon coastal business revenue, the protection of beaches, shellfishing areas, and habitats is another costly, yet essential, responsibility of Long Island's local governments.

For more than 11 years, the New York Sea Grant Nonpoint Education for Municipal Officials Program (NYSG NEMO) has delivered the technical resources that Long Island officials need to make informed decisions about water resource protection.

Striving to ensure cost-effective expenditure of scarce municipal funds, NYSG NEMO, in keeping with NYSG's Sustainable Coastal Development Focus Area, has increased understanding of complex stormwater regulations and has advanced multi-jurisdictional water quality management approaches. These objectives were achieved through consultations, email and telephone support, and presentations. NYSG NEMO's email communications program (Phase II LI listserve) was used to disseminate information on trainings, case studies, research, and funding programs to more than 200 Long Island professionals and officials, and to enable them to share expertise and technical resources.

In 2011, NYSG NEMO served as Co-Chair of the Peconic Estuary Program's Stormwater Workgroup and acted as a catalyst in obtaining $129,000 from Suffolk County and the Peconic Estuary Program to fund development of a Peconic Inter-municipal Agreement and Strategic Implementation Plan to address water quality impairments, particularly bacterial contamination, through inter-municipal stormwater management planning.

Inter-municipal initiatives ensure cost-effective water resource management. Photo: Eileen Keenan, NYSG NEMO

Further, NYSG NEMO assisted in development and dissemination of a Peconic Municipal Stormwater Management Needs Survey, which will be used to inform the Inter-Municipal Agreement and Strategic Implementation Plan.

This formalized cross-jurisdictional approach to water quality restoration advanced by New York Sea Grant NEMO in 2011 will conserve financial resources, reduce the need to close shellfishing areas, and protect priceless Peconic beaches, bays and harbors.

This project meets the performance measures of Sea Grant's Sustainable Coastal Development focus area.

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New York Educators Help to Restore Gulf Coast Habitats

In February 2011, a group of 14 New York educators traveled to Louisiana to rebuild tidal wetlands and maritime forest communities devastated by recent natural and man-made events.

Larissa Graham, New York Sea Grant Long Island Sound Study Outreach Coordinator, and Meghan Marrero, President of the New York State Marine Education Association, organized the group in response to the oil spill that occurred in April 2010. After talking to various experts and touring the Louisiana coast, the group quickly learned that the oil spill was only one of numerous problems that face the habitats along the Louisiana coast.

Group leaders Larissa Graham (right) and Meghan Marrero prepare smooth cordgrass at a local nursery. The NY educators planted more than 350 pots of smooth cordgrass in tidal wetland restoration project areas in Louisiana. Photo: Paul C. Focazio, NYSG

Wetlands are an extremely important habitat for thousands of wild animals in the Gulf of Mexico region, but, in Louisiana, wetlands are being lost at a rate of one acre an hour. The New York group volunteered with Louisiana Sea Grant to plant two native wetland plants: more than 320 pots of smooth cordgrass (*Spartina alterniflora*) and to propagate more than 2,700 Gulf Bluestem (*Schizachyrium maritimum)* plants that will be placed at various sites.

Maritime forests are an important habitat that provide food and shelter to neotropical birds as well as other wildlife. Volunteering with the Barataria-Terrebonne National Estuary Program, the group planted 800 salt matrimony vines (*Lycium carolinianum*), a native shrubbery, in what will one day be a critical part of a maritime forest on a manmade ridge created from dredged spoil.

While in Louisiana, New York Sea Grant Web Coordinator Paul Focazio created a blog so that those who could not attend the trip could follow the adventure. Once home, the participants gave presentations to their classes, colleagues, and friends about their experiences.

This trip allowed educators to participate in hands-on habitat restoration projects, and created new environmental stewards who now understand the importance of habitats and are able to protect and restore coastal New York ecosystems.

Learn more about this New York-to-Louisiana learning adventure at www.nysmea.blogspot.com

This project meets the performance measures of Sea Grant's Healthy New York Coastal Ecosystems focus area.

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NYSG Focuses on Resolving Dredging Windows Issues

Navigation dredging is vital to New York's economically-important commercial shipping and recreational boating activity. Regulators set windows when dredging is allowed to minimize environmental impacts. Concern for a growing number of fish species has caused these windows to shrink to a point where the U.S. Army Corps of Engineers, New York District, (USACENYD) found it did not have time to complete necessary projects. USACE and the New York State Department of Environmental Conservation (NYSDEC) requested New York Sea Grant (NYSG) assistance in resolving this long-standing, complex, and costly problem.

Dredging in Fire Island Inlet, New York. Photo: Jay Tanski, NYSG

With funding from USACENYD, NYSG worked with Stony Brook University to evaluate the technical basis for the windows and the feasibility of adjusting them to allow work to occur while protecting fisheries.

NYSG developed a comprehensive matrix to organize information regulatory agencies used to set windows. NYSDEC and other agencies filled in the matrix with biological data on abundance, distribution by habitat life stage and timing, and dredging stressors for 17 species of concern.

Using this matrix as a basis, NYSG brought academic experts together with representatives of USACE, NYSDEC, the New Jersey Department of Environmental Protection and NOAA's National Marine Fisheries Service at a workshop to review and update the information, examine the feasibility of modifying the windows based on the updated information, and identify processes that could improve permitting procedures.

As a result of this effort:

- the state is using the matrix to streamline and facilitate permitting and setting of the dredging windows, and
- USACE is using technical information and processes to improve coordination identified at the workshop on a proposed $25 million dredging project for Fire Island Inlet.

This has allowed USACE to work with the NYSDEC to expand the dredging window, giving them time to complete the project while protecting important resources.

This project is one more example of how New York Sea Grant helps resolve complex problems by bringing people together and providing the technical information needed to make informed decisions.

This project meets the performance measures of Sea Grant's Sustainable New York Coastal Development focus area. *Sea Grant Extension administration is located at 112 Rice Hall, Cornell University, Ithaca, NY 14853.*

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NYSG Facilitates Development of Oswego's New Maritime Center

During the fall of 2008, Oswego, NY's major maritime organizations came together to discuss reinventing the city's Historic Maritime District. Initial discussions included the concept of consolidating the H. Lee White Marine Museum, Oswego Maritime Alliance (OMA), and Oswego Maritime Foundation (OMF) to better provide maritime history, education, and events. The Port Authority of Oswego provided input, and, as discussions moved forward, New York Sea Grant (NYSG) was asked to join the group as facilitator as NYSG had assisted each group individually since their inceptions in developing programs and events.

This LT-5 tugboat used at Normandy in World War II is among the historic and educational vessels that will be featured as part of the H. Lee White Maritime Center at Oswego Harbor. Photo: H. Lee White Marine Museum staff

Representatives of each group met over the course of a year to begin reorganizing into one entity with a healthy respect for each partner organization's history, contributions, ideas and concerns. They agreed to a plan that was set in motion in 2009 with a press conference announcing the creation of the new partnership and the H. Lee White Maritime Center at Oswego Harbor.

In 2010-2011, each group completed an asset and event inventory; the Museum was restructured to become the new "Center," and the OMA and OMF commenced dissolution and transfer of assets and programs.

NYSG played a pivotal role in assisting in what could have been a very contentious process. A NYSG educator experienced with facilitating successfully coalesced the parties' common interests to create a shared vision for Oswego's Historic Maritime District.

OMA Board Member and Secretary and former Oswego County Tourism Director Christine Gray, says, "The tremendous working knowledge and experience with all three organizations that New York Sea Grant brought to the process of helping us forge a new path was a true time-saver. The new Center blends our common threads into a cohesive new organization that better reflects our historic maritime resources. That is a positive for our current funders and prospective new supporters."

OMF Board member Richard Bush says, "New York Sea Grant's insight and perspective on tourism in the Northeast offered us models, helped assuage our fears, and inspired us to create something new that is bigger and better than our single selves."

H. Lee White Maritime Center Executive Director Mercedes Niess agrees, "Consolidating our shared passion and interests - through a process made smooth by Sea Grant's facilitation - into this new Center represents great new opportunities for the museum, the maritime district, and the city of Oswego."

This exciting new development is one more success story in NYSG's history of facilitating the interests of New York's Great Lakes coastal community leaders.

This project meets the performance measures Sea Grant's Sustainable Coastal Development focus area.

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NY Sea Grant Recognized for Award-Winning Training Program

New York Sea Grant has been recognized for its training programs that are helping to keep commercial fishermen safe at sea. Search and rescue operations for commercial fishermen cost the US Coast Guard (USCG) millions of dollars each year. Under the guiding principles of Magnuson-Stevens Fishery Conservation and Management Act (commonly known as the Magnuson Act) first enacted in 1978 to manage marine fisheries in the United States, new regulations should not force commercial fishermen to take unnecessary risks while fishing. In 2010, Congress approved the United States Coast Guard Authorization Act that promises to establish mandatory safety standards in the commercial fishing fleet, and NOAA Fisheries began to engage the public for this purpose.

In 2011, New York Sea Grant (NYSG) assisted commercial fishermen to be recertified in safety-at-sea for the second year. This training was facilitated with funding from New York Sea Grant, the New York Center for Agricultural Medicine and Health, the U.S. Coast Guard, the Long Island Occupational and Environmental Health Center, the Cornell Cooperative Extension of Suffolk County Marine Program, and Inlet Seafood Packing House.

Proper use of a distress flare is part of NYSG Safety-At-Sea training. Photo: Paul C. Focazio, NYSG

(From far right) USCG Regional Commander Long Island Sound Sector Captain Joseph N. Vojvodich and NYSG Director James Ammerman congratulate Safety-at-Sea Project Coordinator NYSG's Antoinette Clemetson. Photo: Barbara A. Branca, NYSG

In addition to routine safety drills, e.g., practice using immersion suits and correct techniques to use distress flares, and free inspection of onboard safety equipment, participants had access to a health clinic. Several fishermen underwent a physical exam and received a new Personal Flotation Device.

More than 100 commercial fishermen have benefited from this program to date. Those visiting the health clinic received blood pressure, glucose and other tests, and a guided tour of the USCG cutter rescue vessel. This training helps reduce the need for costly sea search and rescues for commercial fishermen (most in Alaska, but many in the Northeast).

The US Coast Guard bestowed NYSG with a Certificate of Appreciation for this outreach exercise that helps to fulfill one of the agency's goals. A second award was received from the Northeast Sea Grant Consortium, who selected project coordinator and NYSG Marine Fisheries Specialist, Antoinette Clemetson, to receive the Outstanding Outreach Achievement Award.

This project meets the performance measures of Sea Grant's Safe & Sustainable Seafood Supply focus area.

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NYSG Training Programs Support Seafood Safety

A New York Sea Grant (NYSG)-funded study documented that the seafood industry contributed $7.8 billion to New York state's economy and employed 96,000 New Yorkers in 1999. To remain competitive and prosperous, this industry must use science-based systems to maximize the safety and quality of its products.

New York Sea Grant's outreach activities include on-site and distance education training programs, workshops, newsletters, and direct technical assistance. These programs involve collaboration with businesses, regulatory agencies, the national Sea Grant network, and university resources.

In 2011, more than 1,280 individuals from seafood companies and state or federal regulatory agencies participated in food safety training programs conducted or managed by NYSG.

Internet-based Training

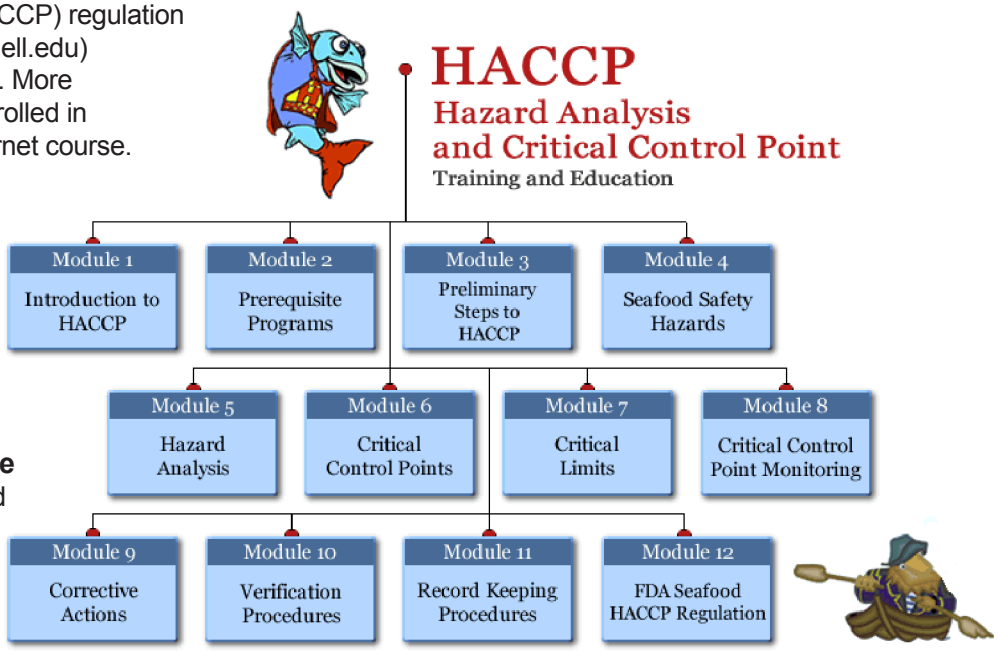
In 2011, the Internet-based ***Seafood HACCP Training*** course that enables seafood businesses to meet the training requirements of the US Food and Drug Administration's seafood Hazard Analysis Critical Control Point (HACCP) regulation (http://seafoodhaccp.cornell.edu) was revised and updated. More than 1,000 individuals enrolled in the seafood HACCP Internet course. An additional 157 people completed the Internet course on basic ***Good Manufacturing Practices*** (http://gmptraining.aem.cornell.edu) in 2011.

Training Workshops, Resources & Expertise

In 2011, NYSG conducted four workshops in NY on seafood safety requirements with 130 individuals from seafood firms and federal and state food safety inspectors. Nearly 900 people have participated in these "live" training courses since 2002.

NYSG is one of four Sea Grant programs in the US that received a $600,000 grant from USDA's National Integrated Food Safety Initiative to update the national Seafood HACCP Alliance training program. The program, developed in 1995, incorporates new scientific findings and regulatory requirements for a national network of qualified trainers. In 2011, NYSG was a key member of the national team that conducted six workshops in the U.S. to explain the updated FDA Seafood HACCP guidance published in 2011 to 450 individuals from seafood businesses and regulatory agencies.

NYSG also helped requalify 125 trainers who conduct HACCP training in the U.S. and helped conduct a train-the-trainer course in Qingdao,China, for 60 Chinese food safety inspectors who will conduct industry training to ensure that seafood producers that export to the U.S. implement the latest HACCP-based food safety control strategies.



This project meets the performance measures of Sea Grant's Safe and Sustainable Seafood Supply focus area.

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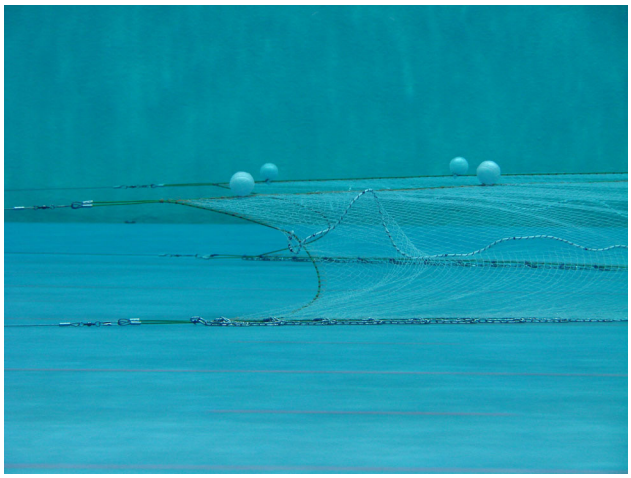
Trawl Design Workshop Significant for Great Lakes Fisheries

Management of the $5 billion Great Lakes fisheries (>$600 million for Lake Ontario) depends on reliable fish abundance estimates derived from bottom trawls. During the past 20 years, biologists suspect that fish abundance estimates from trawling data may have been affected by mussels clogging current trawl designs and fish habitat shifts. Unfortunately, trawl design and operation expertise has been limited among Great Lakes biologists - until 2011.

In partnership with the US Geologic Survey and the Memorial University of Newfoundland (MUN), New York Sea Grant (NYSG) convened an intensive 3-day trawl design workshop for 35 biologists and vessel personnel representing state, federal and provincial agencies from the Great Lakes. The workshop trained participants about trawl design and design effects on fish capture. Video simulations of a scale model Lake Ontario trawl conducted at MUN's flume tank - the world's largest - were presented. Flume tank simulations approximate results of field trials by 95%, saving months of intensive field testing of full-size trawls.

The flume tank trials enabled Great Lakes biologists for the first time to visualize underwater trawl behavior and better appreciate the dynamics of trawl design. The workshop participants recognized how operational and design modifications affect trawl efficiency.

All workshop participants indicated in an exit survey that they found the workshop to be highly beneficial and planned to apply the information to their current and proposed trawling programs, especially for forage and invasive fish assessment. Three new vessels will begin operation in 2012, and the workshop information will be used to design or modify new trawls to outfit those vessels.



Lake Ontario scale model trawl being tested in the Memorial University of Newfoundland flume tank, the largestin the world. Photo: MUN Centre for Sustainable Aquatic Resources

Workshop Meets Significant Need

Sustainability of the $5 billion Great Lakes fisheries depends on accurate biological information from trawling. The November 2011 trawl design workshop was organized by NYSG, USGS and the MUN. The workshop featuring internationally renowned experts enabled participants to better understand trawl design, vessel operation, and fish capture. Moreover, the workshop will ensure that quality fisheries data information is obtained for managing Great Lakes fisheries.

This groundbreaking international initiative placed NYSG in the leadership role in trawl design outreach in the Great Lakes.

A Great Lakes Regional Research Information Network (GLRRIN) grant to NYSG funded the workshop.

This project meets the performance measures of Sea Grant's Healthy New York Coastal Ecosystems focus area.

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Workforce Training Aids Aquatic Invasive Species Education

In the past 200 years, more than 180 aquatic invasive species (IS) have entered the Great Lakes and St. Lawrence River ecosystems. IS are non-native species with the potential to cause harm to the local economy, environment, or human health. IS can outcompete similar native species because they lack natural predators, inhabit a variety of habitats, and have higher reproductive rates/success. IS establishment further degrades ecosystems by disrupting food webs and reducing biodiversity.

In 2011, New York Sea Grant created a workforce development training program to help educate future members of the environmental sector. These trainees helped educate New York's Great Lakes stakeholders about IS and the importance of healthy coastal ecosystems.

NYSG's Aquatic Invasive Species (AIS) Resource Educator Program (REP) created two seasonal positions that provided AIS materials to stakeholders, and K-12 educators and students in the Eastern Lake Ontario region. The AIS REP created an education series: Know Your Natives (http://www.seagrant.sunysb.edu/articles/t/publication-series-native-or-invasive-aquatic-invasive-species-news), attended resource-related events and workshops, offered public education programs, and completed IS inventory and control work.

NYSG AIS Resource Educator Greg Chapman (left) examines aquatic species with Salmon River Guide and local citizen at a July 2011 water chestnut pull. Photo: Stacy Furgal, NYSG

The 2011 NYSG AIS REP successfully provided AIS information to more than 1,500 stakeholders, 13 K-12 educators, and nearly 170 K-12 students. In addition to information dissemination, the REP inventoried select public use properties, seven bodies of water (covering ~46 linear miles), more than 300 invasive species populations, and uploaded data to the NYS iMapInvasives database.

With local partners, NYSG's REP canvassed and restored (as needed) four acres of the Salmon River (Oswego County, NY) against the invasive water chestnut.

With Great Lakes Initiative funding, NYSG partnered with the US Fish and Wildlife Service, New York State Department of Environmental Conservation, Finger Lakes-Lake Ontario Watershed Protection Alliance, Oswego County Soil & Water Conservation District, and St. Lawrence-Eastern Lake Ontario Partnership for Regional Invasive Species Management to successfully implement this project.

AIS Resource Educators Stacy Furgal, holding an invasive fish specimen, and Greg Chapman, with a handful of water chestnut nutlets, engaged the public at events. Photo: Kara Lynn Dunn

This project meets the performance measures of Sea Grant's Healthy New York Coastal Ecosystems focus area.

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