Sunrise at Montauk Point

Michael Weinberg

Bringing Science to the Shore

NY Sea Grant celebrates first 40 years

By Barbara Ann Branca

Paul Focazio

Paul Focazio

Courtesy of NYSG

In Montauk, twilight gives way to dawn. Eager surfcasters throw their lines at first light. Nearby, the inlet dock is humming with activity as a fishing boat heads out before sunrise. The captain is reassured knowing that his crew is prepared for whatever weather comes their way—the entire crew practiced donning life-saving immersion suits at last summer's Safety-at-Sea workshop, organized by New York Sea Grant (NYSG). As one crew member put it, "I'd rather learn how to put it on in June on the dock than in February during an emergency at sea."

Later that same morning, about 400 miles away in the middle of Lake Ontario, enthusiastic educators work side-by-side with environmental researchers, taking samples, monitoring water quality, and checking for native and invasive species during a weeklong research cruise. Once back in the classroom, teachers will show the next generation how best to conserve our aquatic resources.

These are just a few examples of how NYSG has helped recreational and commercial anglers, researchers and educators, and businesses and municipalities, during its 40 years in existence.

New York Sea Grant is Born

It was the sixties. Our nation was in the throes of social upheaval paired with unprecedented scientific advances. Rachel Carson's *Silent Spring* had begun raising awareness about the environment. Many proclaimed Lake Erie to be dead. Our nation's technological machinery was moving at breakneck speed ever since President John Kennedy challenged Americans to put a man on the moon by decade's end. But compared to the space race, ocean exploration hadn't left the starting gate.

That's when things changed. At the 1963 meeting of the American Fisheries Society, keynote speaker and University of Minnesota professor Althestan Spilhaus first proposed "sea grant colleges," analogous to land grant colleges. "The same kind of imagination and foresight should be applied to the exploration of the sea," wrote Spilhaus in a 1964 issue of *Science*. In 1966, the National Sea Grant College Program was developed by Congress with a goal of initiating and supporting education, research and outreach programs to impart useful information to people working with marine resources, the scientific community and the general public.

By decade's end, a number of states became eligible for funding under the National Sea Grant College Act—states with coasts along the Atlantic

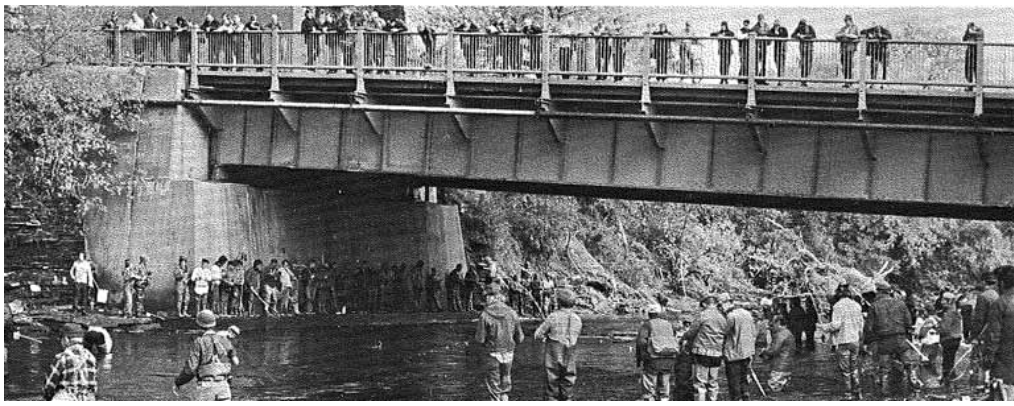
and Pacific Oceans, and our continent's inland seas, the Great Lakes. New York is unique in that it borders the Atlantic Ocean, two of the Great Lakes (Erie and Ontario) and also contains the interconnecting river systems of the Hudson, Niagara and St. Lawrence. In 1971, New York State received its first grant under the new National Sea Grant Program: $600,000 to explore development of the state's thousands of miles of coastlines along the ocean and Great Lakes. Dr. Donald F. Squires at the State University at Stony Brook headed the program, and started a long tradition of choosing the best research projects and disseminating results through a specialized extension staff.

Over time, New York's program evolved as a cooperative program of the State University of New York (SUNY), Cornell University (the state's federally designated land grant college), and the National Oceanographic and Atmospheric Administration, with offices and personnel across the state. Today's goals revolve around the themes of healthy coastal ecosystems, sustainable coastal development, safe and sustainable seafood, and hazard resilience in coastal communities.

Courtesy NY Sea Grant

Dr. Donald F. Squires oversaw the start of New York's sea grant program.

NYS DEC archives



Anglers line the banks of the Salmon River in the 1970s.

Research to Application: The Sea Grant Paradigm

Since its inception, New York Sea Grant has brought high-quality research to the end user with a useful application—or as we call it, "bringing science to the shore." For example, projects from the '70s examined ice cover with regards to navigability on Lake Erie, and the impacts of hard structures such as breakwaters and power plants along the shorelines. Funding was also used to study the fisheries throughout the state and to comprehensively survey the New York Bight for the first time.

From some of the state's leading academic institutions, Sea Grant brought together researchers trained in related fields: fish biologists and physical oceanographers, coastal engineers and toxicologists, geochemists and social scientists. Then a cadre of trained "extension staff" disseminated the research results to angler groups, managers, government officials and educators.

Extension staff are often some of the first to hear about emerging issues from stakeholders and first to respond with important technical information and resources. In the 1980s, when the threat of invasive zebra mussels in New York's Great Lakes became apparent, New York Sea Grant Extension "got ahead of the issue" and led workshops

Nordica Holochuck

Go to New York Sea Grant's website **www.nyseagrant.org** to read about cutting-edge research on topics from algae to zebra mussels. Use the online searchable research database or scan the latest outreach activities on social media websites like Facebook or Twitter.

Sea Grant New York

throughout the region, informing stakeholders how they might prevent and reduce negative impacts to the resources they valued.

More recently, Dr. Paul Bowser of Cornell's College of Veterinary Medicine has been conducting research on viral hemorrhagic septicemia (VHS), a potentially deadly virus that threatens Great Lakes fish. He worked closely with NYSG's fisheries specialist Dave MacNeill to bring information about the virus to anglers and aquaculturists. Together they won the first-ever Research to Application Award given by the national Sea Grant Association for their coordinated efforts in spreading the word about the virus.

Along the Salmon River in the 1970s, Sea Grant "agents in hip waders" assisted anglers that were lined up almost shoulder to shoulder in pursuit of the newly established salmon fishery. Since then, Sea Grant continues to sponsor research on trout and salmon that DEC uses to better manage these valuable fisheries.

The U.S. Geological Survey (USGS), in close collaboration with DEC, is also a key player in conducting fish assessment to measure population trends of important prey fish. Most NYSG-sponsored research on the lower Great Lakes would not be possible if it weren't for the large research vessels operated jointly by USGS and DEC. NYSG plays a key role in developing effective communication strategies and identifying ongoing research needs. The three groups are strongly committed to ensuring healthy and sustainable ecosystems and working together to bring accurate, science-based, practical information to resource users so they better understand fisheries management and can make informed decisions.

Kara Lynn Dunn

Over the years, NYSG research has moved steadily towards an ecosystem approach. In Lake Ontario, for example, understanding the relationships within the food web is key to maintaining a healthy ecosystem. The top predator trophy fish, Chinook salmon, consume smaller bait fish, alewife, which in turn consume small planktonic invertebrates. But when species from other environments began invading the Great Lakes—there are currently about 180 invasive species—the ecosystem began to change: More food energy was taken from native organisms by prolific invaders such as zebra and quagga mussels. In response, NYSG funded research on all parts of the ecosystem and worked with various stakeholders (anglers, managers, recreational divers, boaters, and those concerned with a safe supply of drinking water) to build an understanding of the lake's complicated dynamics.

Establishing Partnerships

For many New Yorkers, fishing and boating go hand in hand. Working with a host of agency, industry and community partners, NYSG's recreation/tourism specialist Dave White brought a pilot boater-education project to fruition over the last two years. A fully equipped "Discover Clean and Safe" boat visited nearly a dozen ports in the Great Lakes during the summer of 2011, demonstrating to boaters the latest in required, safe, and environmentally friendly boating gear. The 2011 campaign also stressed "Don't pick up hitchhikers," which educated boaters about

Paul Czarnecki


Over the years, NYSG has funded research on Lake Ontario's ecosystem, including its fish communities.

the destructiveness of aquatic invasive species, as well as provided information about water quality, the changing food web, and safety and security on the water.

The Discover Clean and Safe Boating campaign also reached the Hudson Valley, a region known for its majestic views, historic landmarks, and unique tidal estuary that is a living laboratory where freshwater from the north mixes with saltwater coming up from New York Harbor. Sea Grant has long supported cutting-edge research on once-plentiful sturgeon that inhabit this area. Researchers studying DNA of sturgeon dorsal fins have identified the genetic markers that differentiate Hudson River sturgeon from those in other estuaries along the Atlantic. The techniques developed have helped determine which populations are threatened or endangered and has aided in rebuilding stocks. Other NYSG research runs the gamut from geosciences (how sediments are carried in the river) to the social sciences (surveying those characteristics that make the region a tourist destination).

Barbara Ann Branca

One of NYSG's missions is to ensure seafood safety, including training businesses in the safest and healthiest ways to store and display finfish and shellfish.

Ensuring Seafood Safety

Part of Sea Grant's mission is to ensure a safe and sustainable seafood supply. A large portion of the nation's seafood comes through New York. Fish caught at Montauk, the Great Lakes, or flown in from anywhere in the world are sold at New York City's Fulton Fish Market.

NYSG seafood specialist Ken Gall is an internationally recognized educator in training seafood business owners and inspectors on ways to keep seafood fresh. Through workshops and over the internet, he's trained more than 5,700 people in such practices as displaying finfish and shellfish in separate counters because of their requirements for different temperatures to remain fresh.

Clams from Great South Bay, scallops from Peconic Bay and lobsters from Long Island Sound are all critical marine resources whose numbers have dwindled—and scientists aren't sure why. NYSG research strives to address such questions. Studies of brown tide and its devastating effects on commercially important species such as hard clams and scallops have been an important part of Sea Grant's coordinated research agenda. Beneficial collaborations with other agencies and stakeholders have resulted in an increased understanding of the brown tide algae.

A Look Ahead

Moving forward, New York Sea Grant is addressing concerns about changing weather patterns and their impact on our coastal communities. At the southern tip of Manhattan, the Stony Brook University Storm Surge group is examining trends in storm surge and the area's vulnerability to flooding events. They've created new models and developed innovative ideas on how to protect the shoreline and its coastal communities. In another example, to help deal with the damage associated with "nor'easters," NYSG worked with its partners to develop a website that helps government officials, coastal managers, and emergency personnel better prepare for predicted storms.

What's in store for the next 40 years is anyone's guess, but New York Sea Grant will surely be up to the challenge! The program's dedicated research will aid in the development of new and innovative technology to ensure healthy coastal ecosystems, coastal development and sustainable seafood practices for the benefit of all New Yorkers…which is exactly NYSG's goal—to put research to good use.

Barbara Ann Branca is New York Sea Grant's communications manager.

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