Funding Breakthrough Research

In February 2004, The National Oceanic and Atmospheric Administration (NOAA) awarded more than $2.4 million to support programs and research conducted by New York Sea Grant. The award funds many new research projects and numerous educational and communications projects, as well as an extension program that serves the state's coastal communities from New York's two Great Lakes to the Hudson Valley, the greater New York metropolitan area and Long Island.

"This NOAA grant provides funding for New York Sea Grant to support and enhance multi-project initiatives targeting the origin of botulism in Lake Erie fish and the potential impacts of coastal change on New York's communities and beaches," said retired Navy Vice Adm. **Conrad C. Lautenbacher**, Undersecretary of Commerce for oceans and atmosphere and NOAA administrator.

Undersecretary Lautenbacher also highlighted two "special focus areas" that NYSG has targeted for this two-year award. One special focus area, finding the origin of botulism, helps to promote the sustainable use of economically important Great Lakes fisheries. NYSG will sponsor two research projects that trace the origin of type E botulism in Lake Erie fish. For an in-depth look at these seminal projects, read the article on page 12 about the recent Botulism Workshop. In the marine district, NYSG researchers will examine another special focus area—the impacts of potential barrier island breaches to Long Island's estuaries. The article on page 4 will elaborate on this suite of four research projects.

The remaining newly-funded projects affect other important issues from New York's fresh and salt water coasts. Since the 1970s, one of the thrusts of NYSG research has been in the fisheries biology and management of New York's waters. With an ecosystem approach, NYSG researchers improve the understanding of the food webs and the biology of valuable fishery species.

New projects in the Great Lakes District:

Mysis in Crisis: Food Web Disruption and the Decline of _Mysis relicta_ in Lake Ontario
Researchers will seek to understand how ecosystem changes in Lake Ontario have impacted distribution, mortality and growth of *Mysis relicta*, an invertebrate essential to the diet of Lake Ontario trout and salmon. Investigators **Lars Rudstam** (Cornell) and **Ora Johannsson** (Fisheries and Oceans, Canada) are seeking a better understanding of the consequences of ecosystem changes in Lake Ontario, as well as an increase in their understanding of the spatial and temporal dimensions of predator-prey interactions and the role of mysids in Great Lakes food webs.

Evaluating the Effects of Environment and Stressors on Thiaminase Expression in Alewife
A primary challenge in managing Great Lakes fisheries is the prevalence of early life stage mortality in salmonids. Over the past three decades, a thiamine-deficiency-related reproductive failure (early mortality syndrome, or EMS) has been observed that affects alewife predators such as lake trout and Atlantic salmon, but not alewife themselves. The Cornell research team of **Clifford Kraft** and **Tadgh Begley** will use replicated pond manipulations to investigate environmental stressors responsible for the expression of thiaminase in alewife, the key food web vector affecting the development of EMS in valuable Great Lakes fishes. A cheaper and less complicated assay procedure for detecting the presence of thiaminase in fish tissues will also be developed for use by fishery managers in the Great Lakes and marine districts.

Estimating Natural Recruitment of Chinook Salmon in the Salmon River, New York
In this project, researchers **Neil Ringler** of SUNY College of Environmental Science and Forestry (ESF) and **Lars Rudstam** of Cornell seek to improve estimates of salmon adult stock and smolt recruitment, identify critical habitat, examine hydrologic factors that influence smolt migration, and provide better estimates of the number of salmon smolts entering Lake Ontario from the Salmon River. This will provide fisheries managers with critical information for stocking programs.

Low P and High F: Testing for Unexpected Synergistic Effects of Phosphorus Abatement and Bivalve Filtration
The research team of **Kim Schulz** and **Karin Limburg** of SUNY ESF will try to determine the effects and interactions of phosphorus abatement and zebra mussel filtration on benthic and pelagic primary and secondary production and community composition in the Great Lakes. Understanding of how the factors of lowered phosphorus and increased filtration interact to effect production in the benthic and pelagic habitats of the Great Lakes will enhance ability to develop effective management strategies.

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Earthstock 2004

EARTHSTOCK is a Stony Brook University cross-campus community effort to promote environmental awareness during the celebration of Earth Day each year. Displays, workshops, lectures and interactive educational events provided by over 70 vendors and sponsors brought the theme home to scores of people at the Charles B. Wang Center this April 2004.

New York Sea Grant-funded research being done by researchers **Duane Waliser**, **Robert Wilson** and their team at Stony Brook University's MSRC, in partnership with the Bridgeport & Port Jefferson Steamboat Company, was a featured display. Instruments mounted in the hull of the *PT Barnum* ferry, in conjunction with a moored data profiler, provide unique scientific insight into the conditions above and below the surface of Long Island Sound. A kiosk mounted on the passenger deck continuously displays this data for travelers to view during their Sound crossing. Photos capturing the progress of the installation of this state-of-the-art sensing system and the inaugural demonstration aboard the *PT Barnum* brought the project to life on Earth Day at the Wang Center.

NYSG's Susan M. Hamill at the Sound Science display.
Photo by George Carroll, MSRC, Stony Brook University

As a thought provoking addition to this display, visitors that day were asked to answer the question, **"How deep is the deepest part of the Long Island Sound along the ferry route?"** Our congratulations go out to *Grand Prize* winner **Dave Fersh**, of Huntington Station, whose entry was closest to the answer of **138 feet**! He wins a round trip ferry ride with passengers, plus 4 free tickets to *Six Flags New England*. Second and third place winners were also awarded prizes generously donated by **Fred Hall**, VP and General Manager of the Bridgeport & Port Jefferson Steamboat Company.

— Susan M. Hamill

CURRENTS

Funding Breakthrough Research

New projects in the Marine District:

Coastal Early Warning for Emergency Response and Protection Against Flooding in Metropolitan New York
The research team of MSRC's **Malcolm Bowman** and **Bob Wilson** will produce an integrated state-of-the-art meteorological/storm surge prediction model for early warning of coastal flooding. Another expected result is to provide significantly improved techniques for forecasting the location, timing and severity of coastal flooding from severe storms.

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Isolation of the Pathogen from New York Clams and Genetic Variability in the Host-Parasite System of QPX Disease in *Mercenaria mercenaria*
Little is known about the protistan parasite QPX and its effect on the commercially important hard clam *Mercenaria, mercenaria*. Research thus far suggests that genetic variability in the host and/or in the QPX pathogen could be responsible for differences in susceptibility toward the infection and in the occurrence of the disease. Molecular genetic tools and infection transmission experiments will be employed by the team of **Alistair Dove** and **Bassem Allam** at Stony Brook University's Marine Pathology Lab to address the genetic variability in the QPX disease system.

— Barbara A. Branca, Patrick Dooley and Lane Smith

Alistair Dove at the Marine Pathology Lab at Stony Brook where he'll be working on QPX, a parasite that affects hard clams.
Photo by Bob Strovink