

New Directions in Tourism

Coastal businesses of the ten counties that border NY's Great Lakes are looking for alternative marketing strategies to increase the number of visitors traveling to the region. "New program efforts becoming more popular in the region include agritourism, ecotourism and nature-based tourism," says NYSG coastal tourism specialist Diane Kuehn, who has taught a course on ecotourism and interpretation at SUNY CESF.

Ecotourism is on the increase in the unique sand dunes area on the eastern-most shore of Lake Ontario where dunes rise to a height second only to those of Cape Cod on the east coast. The dunes protect wetlands from the lake's wave action and form a unique ecological system. So how can tourism grow while preserving this unique ecosystem? One popular site had 30,000 visitors in 2000. So in 2001 the DEC partnered with NYSG and the Nature Conservancy to fund a student internship program focusing on preserving the 17 mile strip of rare dunes. Supervised by NYSG's dune habitat coordinator, Molly A. Thompson, the interns are providing visitor education on the preservation of sand dunes in several sites. The interns lead field trips for residents and tourists on marked trails while also collecting data to be used to interpret the health of the dunes and success of protection efforts.

Coordinated Issue Area

Fostering Coastal Businesses

Whether to a boat builder, marina operator, or a dive shop owner along the state's marine or freshwater shores, New York Sea Grant has provided information essential to coastal businesses since its 1971 inception. In the most recent decade, NYSG's efforts have been to help businesses maintain their competitiveness in the face of new regulations and requirements aimed at reducing environmental impacts. And in the last couple of years, NYSG has helped some coastal entrepreneurs in design approaches to enhance their businesses in the newest area of coastal tourism — ecotourism.

Under the broad heading of economic leadership, New York Sea Grant's research and outreach efforts focus on three related areas: marine business operation and management, recreation/tourism planning and development, and underwater resource management. By funding state-of-the-art research, compiling existing data, and producing diverse publications, NYSG is able to effectively communicate needed information to water-dependent businesses and other stakeholders.

Marine Business Operation and Management

With a diversity of coastal water resources found essentially nowhere else in the country, New York's salt, brackish and fresh waters provide the base for over 2,000 recreational marine-related businesses with more than 850 boat dealers, 32 boat builders and over 1,000 marinas that serve over 526,000 registered boaters in the state.

Public and private boating facilities, such as marinas and boatyards, are an important part of the coastal recreation and tourism infrastructure and economy. These facilities provide access to the water for thousands of visitors and residents while generating billions of dollars to state and regional economies. The EPA's Long Island Sound Study found that recreational

boating is the single most important economic activity associated with the use of the Sound, generating several billion dollars annually. Economic studies of two other LI estuaries found that recreational boating facilities had the largest economic impact of any of the water-dependent uses in the region.

But while boating is a significant revenue generator in coastal areas, the marine facilities that provide the infrastructure necessary for this activity are typically relatively small businesses operating at very low profit margins— usually less than five percent. Because they are on the water, these facilities often have high overhead expenses associated with the high cost of waterfront property and specialized marina equipment and structures. Added to those expenses, marine recreational facilities must also meet some of the most rigorous environmental standards due to their waterfront location. Federal, state and local governments are implementing pollution control programs and regulations that may require many marine facilities to implement costly changes in facility design and operation. Improper implementation of proposed environmental requirements could drive smaller, less profitable enterprises out of business.

At the national level, Sea Grant professionals have identified the need for reliable, technically-sound information on the economic and environmental impacts associated with recreational boating and marinas in order to foster wise decision making. Sea Grant has recognized that government officials and decision makers need help in better understanding the needs and constraints of this industry and evaluating the effectiveness and cost of regulations and policies aimed at reducing pollution from marine facilities.

At the program level, NYSG professionals help recreational boating facility operators identify and implement pollution control measures in a cost-effective manner. NYSG specialist **Jay Tanski** worked with Coecles Harbor Marina and Boatyard to create a demonstration site for Best Management Practices (BMPs) for marina pollution control. The marina served as living classroom where marina operators were shown first-hand a variety of all practices that reduce and control pollution sources from marine facilities. Workshops allowed participants to observe the use of equipment, products and operational procedures to minimize pollution in a "real world" setting. Tanski reports that of the respondents to a workshop evaluation questionnaire, all had invested some money in pollution control measures. "The average expenditure was \$5,439. If this average is applied to the estimated number of marine facilities operators attending, the workshops may have helped account for over \$489,500

Photos by Jay Tanski



Marina operators are shown first-hand a variety of techniques from material handling to hull maintenance to storm water management.



A Hudson Valley marina.
Photo courtesy of Nordica Holochuck.

worth of pollution control practices being implemented in area marine facilities.”

Outreach tools developed on this project included an educational video, a slide set and a 16-page bulletin, *Storm Water Runoff Management*. According to Tanski, “In addition to being used statewide, 11 other states and two foreign countries have begun using these materials to train the marina industry. In Florida the bulletin has been distributed to every boatyard.”

Ed Kilgus, President of the Empire State Marine Trade Association (ESMTA) notes that “Sea Grant extension specialists Jay Tanski on Long Island and Dave White in the Great Lakes have been extremely cooperative, sharing their abilities and technical expertise.” Kilgus was instrumental in getting the law in place that mandates that marina operators stay up-to-date in the use of the most environmentally-safe bottom painting techniques. Bottom paint used on boats contains pesticide and operators must take courses and receive 10 credits toward pesticide application re-certification within 6 years. “With the logistic planning of the courses by White and Tanski, Sea Grant has served as an advisory arm in the re-certification program,” says Kilgus who has used the slide set as part of state-wide training for marine operators and distributed Tanski’s bulletin to all members.

In another collaboration with the ESMTA, as well as with the NYSDEC, NYSG conducted a thorough statewide inventory of the marina industry of New York State. Upon completion of the inventory, a desk reference was developed for agency use, including a New York State Marina Guide and web site made available to the public. With these two groups and other state and not-for-profit organizations, NYSG has produced numerous guides and fact sheets for boaters on pumpout facilities, boating and marina regulations, boating emergencies, the impacts of exotic species on boating, and boating access guides.

Not only is New York Sea Grant proactive in the transfer of vital technical information to marina owners and operators, Sea Grant is innovative in teaching the next generation of marina managers, planners and decision makers. NYSG Great Lakes program leader, **David White** says, “New York Sea Grant, in partnership with SUNY College of Agriculture and Technology at Morrisville, is continuing to look at the educational

needs of the state’s marine trade industry. Building on this strong partnership, Morrisville is the first upstate SUNY campus to offer course work directly focused on the needs of this industry.” Already several marina operators are employing new techniques resulting in cost savings and improved staff response as a result of this course.

New York Sea Grant-funded research is also essential for providing coastal businesses with up-to-date information. A cutting-edge study on personal watercraft completed by **Chad Dawson** of SUNY College of Environmental Science and Forestry in Syracuse, (see Summer '00 *Coastlines*) focused on identifying conflicts between water-based recreation user groups and recommending ways to resolve these conflicts. With an ever-increasing number of personal watercraft and boaters in New York waters, the continued enjoyment and safety of water-based recreation has become a crucial issue. The research results and recommendations from Dawson’s NYSG-funded study are currently being disseminated to stakeholder groups and managers through NYSG publications and workshops.

Underwater Resource Management

Another emerging area of interest, especially in the ten counties that border the Great Lakes, is that of use of our underwater resources. Spurred on in large part by the increase in water clarity brought on by the zebra mussel, there is increasing interest in gaining access to these resources and increasing their use by divers, historians and the general public. With interest on the rise, there is more of a need for definitive public policy for the long-term management of underwater resources.

The related businesses served by NYSG research and outreach activities in this issue area are dive charter operations, dive shop owners, dive clubs and other related businesses. To make an analysis of the State’s diving community and its economic impact in New York’s Great Lakes region, NYSG-funded research leader **Sharon L. Todd** of SUNY Cortland completed an in-depth survey in 2000. Todd’s study created benchmarks for the diving community’s impact in the region, identified the primary business motivation factors for dive business owners and surveyed dive preferences. The study results were presented at the *Great Lakes Underwater 2000* (See page 12,

“Growing” Businesses

Boaters, fishers, divers and other recreationists along New York’s many waterways may top off the day with a trip to another coastal business— a farm stand. NYSG’s Diane Kuehn’s 1999 study was the first to quantify the impact of agritourism on New York State’s economy—with a special look at the ten counties that border Lakes Ontario and Erie. Kuehn and co-author Duncan Hilchey (Cornell’s Farming Alternatives Program) present study results in “Agritourism in New York: Management and Operations.” This 8-page fact sheet identifies the types of agritourism businesses, and estimated income, expenses and profit by business type in each of NY’s tourism regions.

Kuehn says, “We found that 64 percent of the 645 farm-based businesses we surveyed plan to expand or diversify their operations in the next five years, while nearly seven percent say they may be out of business in that time.” Liability and liability insurance top the list of agritourism business owners’ concerns with marketing and labor costs, government regulations and taxes right behind. The pair is currently working on another fact sheet looking at agritourism marketing strategies.

Photo by Diane Kuehn



Farm stands like this one along Lake Ontario make up the greatest percentage of agritourism business types for 10 of the state’s 11 tourism regions.

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Lobster Mortalities continued from page 5:

Summary of NYSG-funded Lobster Projects

LIS Lobster Initiative

“The research topics highlighted in our request for proposals are a direct result of the year 2000 meetings,” says NYSG Director Jack Mattice. In April 2000, over 250 lobstermen, researchers, resource managers, legislators of federal and state agencies as well as environmental organizations came together for the first annual LIS Lobster Health Symposium in Stamford, Connecticut.

The gathering in Connecticut – which featured experts who discussed some of the then-current hypotheses to explain the lobster die-off in the Sound – was succeeded by May 2000’s “Lobsters and the Long Island Sound: 1999-2000.” This meeting, at Stony Brook University, gave researchers and administrators an opportunity to discuss with lobstermen the research priorities that came from April’s symposium.

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Robert E. Wilson, R. Lawrence Swanson and Duane E. Waliser, of Stony Brook University’s Marine Science Research Center (MSRC), will examine influence of water quality factors such as temperature, salinity, dissolved oxygen, and pollutants with respect to the lobster mortalities. Says Wilson of the generally hardy American lobster, “The lobsters are vulnerable to stress and sometimes mortality when exposed to unfavorable environmental conditions, especially during the molt cycle. Environmental factors can act singularly or in combination to cause sub-lethal stress that increases sensitivity to events that would normally be tolerated. Significantly elevated bottom temperatures during the summer and fall of 1999 lead us to focus primarily on co-variations in temperature and dissolved oxygen.”

Glenn Lopez and Robert Cerrato, also of MSRC Stony Brook, will find out to what extent high summer temperatures in Long Island Sound’s bottom waters have negative impacts on lobsters and if larger lobsters are more susceptible to temperature stress than smaller ones. The results of their lab studies may be used to predict the effects of long term changes in summer temperatures on the health of the LIS lobster population. The study will shed light on normal patterns of lobster stress and mortality as well as the extraordinary mortality event of fall 1999.

Anne McElroy and Bruce Brownawell, of SBU’s MSRC will address the potential link between pesticide use and lobster mortality. They will measure mortality and immune response in larval and juvenile lobsters exposed to environmentally realistic levels of pesticides (Malathion, Methoprene, and selected pyrethroids such as Anvil and Scourge). The team will also develop ways to measure levels of these pesticides and their breakdown products in

seawater, sediment, and possibly lobster tissues. They are particularly interested in sampling water after storm events when concentrations may be highest. “The results of this study should provide a strong indication whether or not pesticide use is likely to contribute to degraded lobster health in Long Island Sound,” states McElroy. The study will also shed light on the effects of temperature on the immune response of young lobsters.

SUNY Purchase’s **Jan Factor** will look at how lobsters defend themselves against infection and disease. He will develop methods that will allow the assessment of cellular defenses against infection and disease after sub-lethal exposure to environmental stresses and toxic substances. Says Factor, “Our research may lead to an explanation of the recent mortalities by enabling assessment of impacts on the immune system that may lead to lethal infections.”

At the Chesapeake Biological Laboratory, **Robert S. Anderson** of the University of Maryland Center for Environmental Sciences will use cutting-edge biotechnology to measure the blood cell-related defense system of the lobster against disease. “This research will lay the groundwork for discerning changes in immune response due to toxicity or other environmental stressors,” explains Anderson.

By comparing shell disease in lobsters from eastern Long Island Sound with those from Buzzards Bay, Massachusetts, **Andrei Chistoserov** (MSRC) and **Roxanna Smolowitz** (Marine Biological Laboratory, Woods Hole) will identify the kinds of bacteria that cause lobster shell disease. The team will also design a set of specific probes that will be used to test for such pathogens.

www.seagrant.sunysb.edu/LILobsters/LILobsters.htm

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Currents) and more recently at the Northeast Recreational Research Symposium. In addition to publishing the symposium proceedings, NYSG hosts workshops and assists state agencies and stakeholders who can directly implement the study’s recommendations.

While Todd’s research has been a socio-economic survey, New York Sea Grant has also sponsored numerous research projects on the science of diving. At the State University of New York at Buffalo, investigators **Gerald Logue** and **Claes E. Lundgren** worked to define the role of a diver’s age and the tendency to develop decompression sickness. Their

results showed that the rate of nitrogen elimination does not appear to play a role in the susceptibility of older persons to decompression sickness as had been hypothesized. However, there is a correlation between a diver’s plasma triglycerides and a tendency to form bubbles with decompression. Lundgren’s seminal work on decompression sickness and breath-hold diving is highlighted in CoastWatch on page 8 of this issue.

—Barbara A. Branca, Jay Tanski and Dave White