

Coastlines

NEW YORK STATE SEA GRANT INSTITUTE
STATE UNIVERSITY OF NEW YORK and CORNELL UNIVERSITY

Vol. 16 No. 1

Winter 1985

E/V ONTARIO: Cooperation Makes Unique Project a Success

by Mike Voiland, Brockport

Over the last two years and in what might just be the most extensively collaborative public educational activity yet seen in Sea Grant, the Educational Vessel *Ontario* Project has reached thousands of users of Lake Ontario's sportfishing resources.

Built around the use of a 25-foot, state-of-the-art-equipped sportfishing boat, the E/V (for "Educational Vessel") *Ontario* Project has sought to focus attention on Lake Ontario as a special fishery resource. To reach this goal, EVO has carried out a host of both formal and informal educational activities involving anglers, 4-H club members, the media and lakeshore decision makers.

The hallmark of this unique extension project has been cooperation between both public and private entities in support of the effort. The vessel, trailer and all fishing and boating equipment were either loaned or donated to the project by their manufacturers. Docking and launching services from Henderson Harbor to the Niagara River were provided by some 20 marinas. Businesses, tackle makers and private fishing groups placed sponsored advertisements in the project's complimentary educational and fund-raising publication the *Lake Ontario Sportfishing Information Annual*, thereby generating the bulk of operational monies. And many outright donations were received from clubs and individuals to support the vessel's annual cruise.

In all, over 250 organizations were listed as EVO sponsors in 1984. With

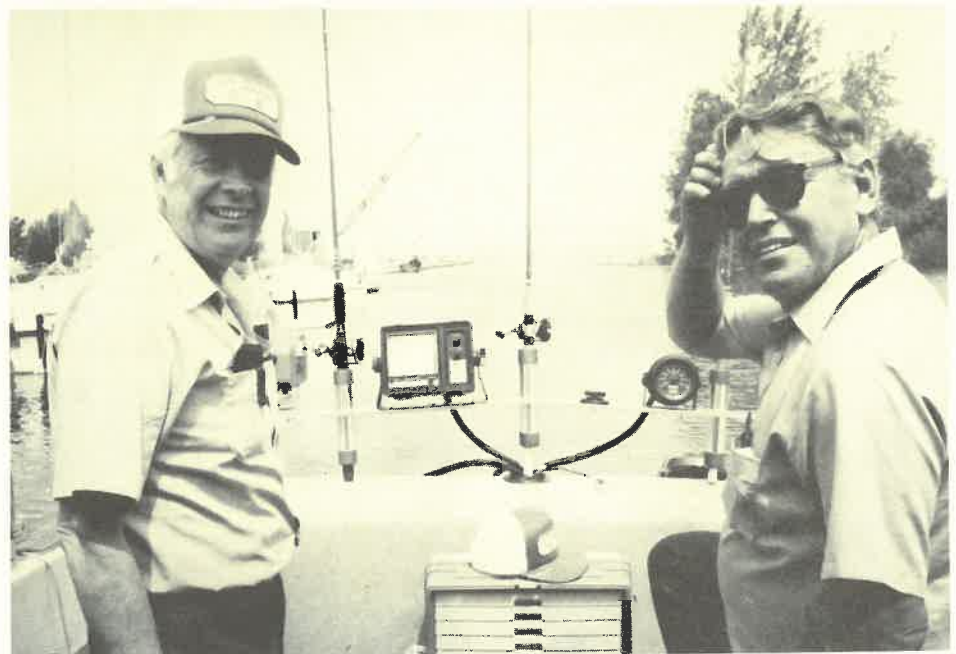
the exception of Sea Grant specialist and EVO director Mike Voiland's time, the project was wholly supported by the private sector.

A broad spectrum of educational activities were carried forth by the E/V *Ontario* Project in 1983 and 1984, ranging from the most informal "open-boat" sessions for curious docksiders to formal educational presentations at "dry-land" host port facilities. In addition, trips by local and national media aboard the EVO has resulted in greatly increased and improved

coverage of lake fishery resources and issues.

For his work as project director, Specialist Voiland recently received a Superior Program Award by the Great Lakes Sea Grant Network, a consortium of Sea Grant extension programs in Great Lake states.

Copies of the vessel project's 1984 Annual Report are now available (see "I Want More"), detailing its purpose, cooperative nature, sponsorship, and education activities and accomplishments.



Henry Williams (left), Commissioner of the New York State Department of Environmental Conservation, aboard Sea Grant's E/V *Ontario*. Numerous state and local officials were exposed to the lake environment and its fishing aboard the E/V over the last two years. With Commissioner Williams is Roger Lowden, a member of Sea Grant Extension's Coastal Recreational Program Advisory Committee.



Riverhead Clam Program Update

In terms of growth and survival, the Riverhead Town Clam Project was one of the most successful ever conducted on Long Island. This small pilot-scale program was initiated last spring when a group of baymen gathered to construct three floating hard clam rafts. These rafts were intended to protect clams while they grew from average size of 5 to 7mm to hopefully 25mm in shell length.

Figure 1 shows a picture of the raft design which basically was a 12' by 3' tray which was floated from frameworks attached to two styrofoam flotation logs. The tray had a bottom mesh covering of 1" by 1/2" by 3' galvanized wire over which was placed fiberglass window screening. Inside the tray this screening was layered with bluestone rock and sand to provide the growth substrate for the small clams. In order to prevent predators from entering from above, a top screen mesh door was attached. All three rafts were held in place by pushing galvanized pipe into the bottom at East Creek, South Jamesport, Peconic Bay, New York, and chaining the rafts to the pipe. This small tidal estuary proved to be an excellent

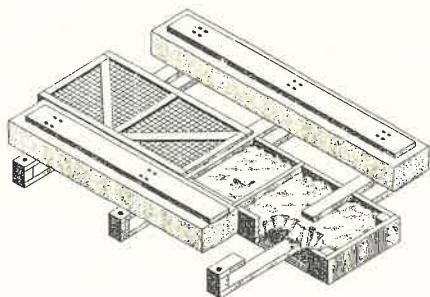


Figure 1

growth area for hard clams as the average size of 26mm was attained between the months of July and November and over 98% survival occurred.

Many educational benefits accrued from this project. One of the most important was to allow baymen to experience the mariculture process. One of these individuals surfaced as the project monitor who was employed by the town to take care of these rafts while they were in the water. This person was trained and is now a valuable resource individual for future town clam projects. Another educational aspect of this program was the creation of a 4-H Clam Club. Drawing from students from Riverhead High School, the 18 members of this club were involved right from the start in conducting, monitoring, and assisting others in completing this project. These students had the opportunity to learn about various parameters that are important to growing hard clams such as salinity, temperature, food supply, bacterial levels and predators. They also had the opportunity to visit several shellfish industry personnel and facilities in the area.

The first week in November saw the grand finale of the project as greater than 18,000 seed were planted in several areas of Western Peconic Bay. The purpose of planting seed was:

- (1) to restock areas that were presently barren;
- (2) to provide some spawning effort in the western end of Peconic Bay; and,
- (3) to provide clams in areas where they would become marketable size and, therefore, harvestable in the next two to three years.

Contact: C. Smith, Riverhead



6,000 5-8 mm hard clam seed

Sportfishing Clubs

Fisherman Magazine, Suffolk County, and Sea Grant sponsor a sportfishing camp that has to turn applicants down due to numbers, Wayne County hosts its now annual Ice Fishing Derby, and in Erie County a local Kiwanis Club donates \$300 to initiate a fishing program for the youth of its community. All this marks the beginning rumblings of what may prove to be one of the most popular 4-H projects to be begun in New York for a long time.

Since Natural Resources have long been a component of 4-H programs it seemed logical to focus natural resource programs on the marine environment to develop 4-H sportfishing clubs. Such clubs could recruit new youth and adults into the program while generating interest in marine issues and teaching a lifetime leisure skill.

With this in mind, Suffolk County 4-H agent Bob Kent applied for a youth in coastal issues small grant from Sea Grant Extension. With the funds he received he initiated the youth sportfishing camp as a pilot project in the area of youth angling. The camp (which taught such things as selection of rods and reels, types of lines and bait, tying knots and safety, fish identification) was so popular an idea that a huge waiting list was created and kids had to be turned away. Thus, as a pilot project it was a rousing success and will be repeated in an expanded form in 1985.

Ernie Shimp, 4-H agent from Wayne County has met with similar success for the past several years with an ice fishing derby. "Anybody can enter," smiles Shimp, "but they have to bring a kid along to fish." An innovative way to get a child interacting with an adult. As part of the derby, of course, prizes are given away. But everyone gets a certificate of participation. Shimp also uses the event to introduce new people to Extension and the possibility of joining a Sportfishing Club. Besides learning to fish, a possible benefit might be a trip aboard New York Sea Grants' E/V Ontario to learn the finer points of locating fish using electronic gear. (Not to mention the possibility of landing a Lake Ontario salmonid!)

Money donated in East Aurora has

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Research in Short



The Presence of Paralytic Shellfish Poisoning in Long Island Waters

by William Wise, Albany

A new threat has arisen to Long Island's hard clam industry, already reeling from the combined effects of declining stocks and shaken consumer confidence in clams due to possible contamination by pathogenic viruses and bacteria. In 1980 the organism responsible for paralytic shellfish poisoning (PSP), the dinoflagellate *Gonyaulax tamarensis*, was detected in sediment samples from Long Island coastal waters. PSP outbreaks have historically plagued inshore shellfisheries in the Canadian Maritimes and northern New

England, causing severe economic hardship through the closure of digging beds. More than 500 people are believed to have died in the past decade from PSP.

The life cycle of *G. tamarensis* involves two distinct phases. While normally reproducing through asexual division, the species can reproduce sexually, producing a free-swimming zygote that soon encysts. The cyst (hypnocyst) sinks to the bottom where it lies dormant until it excysts to form a large, planktonic cell. On Long Island, *G. tamarensis* occurs in its benthic, encysted form year round, with the planktonic stage occurring in spring and fall. Under optimal conditions the planktonic stage can reproduce rapidly, forming a very substantial portion of the total phytoplankton available to molluscan shellfish in localized areas. The filter-feeding molluscs accumulate and concentrate the natural toxins contained in the dinoflagellate and pass them on to humans when consumed. Twelve toxins have now been identified in *G. tamarensis*, most related to saxitoxin, a neurotoxin that attacks the nervous system. Usual symptoms of PSP include dizziness, shortness of breath, nausea, and loss of sensation in the extremities. In severe cases, the respiratory muscles are affected and death may ensue.

Initial identification of *G. tamarensis* from Long Island was made by Dr. Donald Anderson at the Woods Hole Oceanographic Institution, who found hypnocysts from six locations on the north and south shores. These cysts were shown to contain toxins, although their potency was somewhat less than that of more northerly *G. tamarensis* strains. Recognizing the potentially serious public health and economic concerns raised

by this discovery, in the spring of 1982 the New York Sea Grant Institute made funds available to Dr. Edward Carpenter of SUNY's Marine Science Research Center at Stony Brook to document the extent and distribution of planktonic stages of the PSP dinoflagellate at the six locations. The Suffolk County Department of Health Services assisted in this work as did the State Department of Environmental Conservation (DEC). Analysis of hard and soft clams from the six sites for the presence of PSP was also done. In 1983, the survey was expanded with funds from Suffolk County to examine many sites along the north and south shores and in the Peconic Bay system. Nassau County also developed a survey program, as *G. tamarensis* had also been detected in that county's waters.

Survey results indicate that *G. tamarensis* is widespread on Long Island, although its distribution is patchy and blooms of the planktonic form, although occasionally intense, are usually short-lived. The organism is generally confined to headwaters of small streams and embayments around Long Island's coast. Planktonic forms do not appear to be transported from one site to another, although such movement of hypnocysts may occur. Distribution of *G. tamarensis* within an estuary appears to be determined by tidal flushing. Motile, planktonic cells generally appeared by March as inshore waters began to warm, inducing excystment of benthic cysts. Peak concentrations of planktonic cells (100,000 cells/liter) were found in May and June. Peak numbers were frequently associated with periods of sustained sunshine after several days of rain,

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I Want More!

Please check the items which interest you and send to the Ithaca Sea Grant Extension Office. Make checks payable to Cornell University.

_____ **Educational Vessel Ontario Project: 1984 Annual Report.** Michael P. Voiland. 13 pp. Free

_____ **Maintaining Coastal Erosion Control Structures, 1984.** Sea Grant Fact Sheet. Charles O'Neill and Jay Tanski. 6 pp. \$0.30.

_____ **Helping Yourself Through Mareps.** 1984. Bruce DeYoung & Robert Buerger (New York Sea Grant Program) and Kevin McCarthy (National Weather Service). 14-minute script, color/slide cassette tape program. \$20.00

Shellfish Poisoning

(from page 3)

indicating that temperature and nutrient availability, through runoff, may trigger blooms of this species. PSP toxin was not found in any of the shellfish analyzed to date. This may be due to the apparent low relative toxicity of the strain(s) of *Gonyaulax* on Long Island.

Carpenter has discussed his findings with state and local officials and, with Sea Grant support, is currently conducting tests to more accurately determine the toxicity of *G. tamarensis* from Long Island waters. With this information in hand, resource managers and public health officials will be better able to judge how real a threat PSP poses to Long Island's hard clam industry and to develop a program for monitoring *G. tamarensis* populations around the Island, particularly in those areas that support active shellfishing.

For further information on this subject, contact the New York Sea Grant Institute, 37 Elk Street, Albany, NY 12207, (518) 436-0701.

1983 New York Fisheries Review

The marine waters of New York support a variety of commercial fishing operations harvesting fin fish and shell fish resources. The reported landed value of New York Marine Commercial Fisheries, that is the dockside return received by commercial fishermen in 1983 was \$38,117,348 for a total reported landed weight of 37,690,015 pounds. According to a survey done in 1981, over 300 vessels greater than 5 net tons were engaged in commercial fishing activity in New York. It is estimated that commercial fishing employs approximately 6,500 people; this would include 5,000 involved in the near-shore shell fisheries, many of whom are part-timers.

The majority of the 5,000 commercial fishermen that participate in the in-shore fishery are involved in shellfishing activities, primarily for hard clams and bay scallops. The remaining near-shore commercial fishing activity includes the inshore net fisheries which is comprised of pound nets, haul seines and gill nets.

The major off-shore commercial fishing activity involves the large vessel trawl fishery. There are over 160 trawlers in the New York Commercial Fishing Fleet. These vessels

average about 50 feet in length. There has in recent years been a substantial increase in the number of vessels that have entered the fleet. The newer vessels are generally larger, and range 65 to 80 feet in length, are steel constructed and equipped with advanced electronic equipment. Other major large vessel fishing includes the sea scallops fishery, surf clam fishery and lobster fishery.

Along with an increase in the number of commercial fishing vessels, major improvements have been made in commercial fishing facilities at Montauk, Greenport, Shinnecock, and Point Lookout. Shinnecock Inlet, located in Hampton Bays, New York, was the top port for commercial fisheries landings in New York in 1983, reporting 8.4 million pounds of landed product. Greenport Village with 7.7 million dollars worth of landed product ranked number one in dollar value in 1983.

In addition to the landed value of product harvested by New York commercial fishermen in 1983, substantial commercial fishing activity resulted in product landed either at ports outside of New York (primarily located in New England) and over-the-side sales of product which occurred at sea with foreign partners involved with Joint Ventures for the harvest of squid. While it is impossible to identify with certainty the value involved in these activities, it is conservatively estimated that an additional \$1,000,000 (dockside value) in economy to New York was generated.

The future for commercial fishing in New York is optimistic. There is opportunity for substantial growth in some components while in other areas there is real concern. The main reason for such optimism involves the growing interest and support that the commercial fishing industry is receiving from the State of New York. Interest which has generated new opportunities for funding fleet and shore side facility expansion. Further programs have been established that now focus on aquaculture as a way of increasing New York State aquatic production. The causes for concern are just as real, and include decline in abundance of the hard clam species as well as other shellfish species. Competition and conflict among users of the near shore waters present real problems that need to be resolved.

Contact: J. Scotti, Riverhead

Small Grant Program

Over the past two years the 4-H Coastal Issues Program has provided small grants to New York's Cooperative Extension Associations to assist in the development efforts which involve youth and the coast. Grants have been made available to initiate new and innovative projects concerning the coast.

While proposals covering any coastal issue have been considered, four areas are emphasized: the coastal environment; erosion control, shoreline stabilization, coastal vegetation; nutritional aspects of seafood use; and coastal heritage, recreation and tourism. Although service projects are supported, it is expected that youths participating in 4-H/CI programs will be encouraged to actually learn to make decisions about some aspect of the coast.

The program has initiated mariculture projects, marine recreation projects, water quality investigations, and wildlife inventories. Three such funded projects were the *Queen Catherine Marsh Wildlife Inventory* project which developed and conducted an inventory of the newly installed open water areas in Queen Catherine Marsh, a *Hard Clam Rafting Project* by which the youths grew clams in rafts and had the opportunity to work on an important community issue, and *Sport Fisheries Clubs* which banked on the natural ability of fishing to recruit kids into youth groups while focusing on the marine environment.

The Coastal Issues Small Grant Program has been a success in education and variety of proposals as well as the amount of community interest generated. One cannot underestimate the impact of the Clam Clubs on their communities and the warm acceptance by the Baymen and local government. Sportfishing Clubs may have the ability to attract hundreds of thousands of youth to learn about the waters of New York State. The Queen Catherine Marsh study gave a group of Schuyler County youth the opportunity to work with their parents and adult leaders to make decisions about a piece of their environment. They and the other Coastal Issues projects are giving youth the opportunity to learn success and failure hand-in-hand with the adult leaders and experts of their community.

Contact: D. Greene, E. Aurora

The Stability of the Commercial Marina Industry in New York City-Long Island

by Tommy L. Brown, Ithaca

Commercial marinas fulfill the important role of providing access and services to an estimated 40,000 boating households in the New York City-Long Island area. Approximately 25 percent of all downstate boaters depend on the use of a commercial marina in that area. Thus, the continued viability of this industry has importance beyond its owners, employees, and boating-related sectors of the economy.

On numerous occasions in the past decade the future of commercial marinas has been questioned. Property and construction costs are so high that few new marinas are being built. Most undeveloped coastal areas have either protected forms of zoning (e.g. wetlands) or site characteristics not conducive to marinas. Furthermore, the industry has a relatively low profit margin, and the coastal areas occupied by marinas are in potential demand for a variety of other uses, including condominiums and a variety of waterfront or water-based industries.

In response to these concerns, the author obtained a Sea Grant mini-grant to investigate the supply of marinas and marina berths in 1982, in comparison to a decade ago, 1972. Related to this, investigations were made of (1) any new marinas opened since 1972, (2) expansion of existing marinas, and (3) marinas that have gone out of business since 1972. The study included the New York City and Long Island portions of the state. It relied heavily upon data from the Boating Almanac, supplemented by field checks of any reported new businesses or firms going out of business. A mail survey was sent to a sample of 200 new businesses to determine their ability for further expansion.

Results

In terms of coastal land use changes, commercial marinas were very stable over the 1972 to 1982 decade. The boating almanac listed 346 operating commercial marinas downstate in 1982. Only 14 firms were found which opened for business after 1972, 12 of which are still active. Eight of the 12 opened between 1972 and 1976. Approximately 21 firms went out of business

between 1972 and 1982, yielding a net loss of 9 firms (2.6 percent of the total). Of these 21, 8 were marginal firms that had been abandoned (2 had suffered major fires), 7 had been sold to a variety of other marine-related uses (e.g., salvage operations, diving school, mariculture), 3 had been sold to other retail uses, and 3 had been sold to housing-related uses.

Despite a slight loss in the total number of commercial marinas downstate, the total number of available berths increased by about 9 percent from 1972 to 1982. This was attributable to a combination of expansion and improved use of space in many existing marinas. The largest increase in berths, 28 percent, occurred in the Peconic Bay area of eastern Long Island. Available berths on the North Shore of Long Island (including the New York City portion) increased by 8%, compared to 4% for the South Shore.

The estimated 9 percent increase raises the total estimated number of berths at downstate commercial marinas to 28,735, or an average of 83 berths per firm. Firms were somewhat smaller in the Peconic Bay region and larger on the North Shore. Of the estimated net gain of 2,374 berths downstate from 1972 to 1982, 77 percent were the result of expansion of existing businesses and 23 percent from construction of new marinas.

The 12 newer firms built since 1972 were on the South Shore from the Hempstead Bay area east to Shinnecock Bay and in the Peconic Bay area. The 8 firms on the South Shore average 44 berths; only 2 have more than 75 berths. Three are operated in conjunction with other retail businesses. The 4 newer Peconic Bay firms average 70 berths, ranging from 30 to 115. It appears that spatial opportunities for expansion are slightly greater in the Peconic Bay area than elsewhere on Long Island.

Approximately 40 percent of the marinas in existence in 1972 that were still open in 1982 had changed ownership. This fairly large turnover is not surprising in terms of the 1972 finding that the average New York

City-Long Island marina was then 28 years old and had been under current management almost 13 years.

Based upon 68 survey responses, it is projected that the supply of berths at commercial marinas can grow an additional 15% via further expansion. This will likely meet the boating demand through the year 1995, if other waterfront uses displace marinas at no greater rate than in the past 10 years. This is a big "if," however, and one that should be monitored periodically.

Note: The final report is completed, and copies are available by writing New York Sea Grant Institute, 37 Elk Street, Albany, New York 12207.

Sportfishing Clubs

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been used to secure equipment to be shared by a wide variety of youth agencies and the kids they serve. Because of this, handicapped kids will go on outings with boys and girls from the local Youth Clubs and be taught fishing skills by local anglers. Boy Scouts and 4-H clubs will also be able to test their luck under the watchful eye of a knowledgeable adult. Finding a willing adult to work with the kids has never been a problem. When putting the East Aurora program together it seemed that everyone who liked to fish was eager to share in the experience and almost everyone liked to fish!

The Cornell Department of Natural Resources has established a position to develop curriculum materials for statewide programming in sport-fisheries. Because of the popularity of the concept of 4-H special interest clubs centered around the activity of fishing among youth and adults, the only thing lacking is some guidelines for teaching to be placed in the hands of the adult volunteer. "Until the time that a complete program is available, there is still a lot to help out," says Dr. Ron Howard the Youth Specialist from Natural Resources. "We have *Let's Go Fishing*, *Fly Tying*, and *Exploring Fresh Water Fisheries* available now and this winter *Let's Go Ice Fishing* will be off the press."

Anybody want to take a kid fishing?

Contact: D. Greene, E. Aurora

11th Annual Docks and Marinas Conference

The 11th Annual Docks and Marinas Conference held in Madison, Wisconsin in October featured a full week of presentations by marine experts on topics ranging from engineering to aesthetics. New York Sea Grant specialist Stephen Lopez delivered a one-hour lecture on Marina Landscape and Site Design. Approximately 180 representatives of marinas, marine equipment manufacturers, and marina engineering and design firms attended the conference.

MAREPS

Small vessels are extremely vulnerable to severe weather which can "blow up" very rapidly. Accurate marine weather forecasts help recreationists and mariners protect their lives, their vessels, and, in the case of commercial vessels, their cargo. The Mariner Report Program known as "MAREPS" was developed in an effort to improve marine forecasting.

The New York Sea Grant Extension Program and the National Weather Service, with support from the Small Business Energy Program at Cornell Cooperative Extension and the New York State Energy Office, have produced a slide/audio cassette program entitled "Helping Yourself Through MAREPS." This program shows how MAREPS networks operate and encourages mariners to develop and support a MAREPS program in their own area. To order, see "I Want More."

New Factsheet

While most people would never think of waiting until their car's engine was ruined before changing the oil, those same folks will often neglect an expensive shoreline erosion control structure until it fails and erosion once again starts to eat away at their property. A new factsheet titled "Maintaining Coastal Erosion Control Structures" addresses the "ounce of prevention" for keeping such structures as bulkheads, seawalls, revetments, gabions, and sand fences in tip-top shape throughout their expected lifetimes. Both saltwater (marine) and freshwater (Great Lakes) coastal structures are discussed, as are general maintenance guidelines that would apply to most structures in most situations. See "I Want More" to order.

Home Ports

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Sea Grant Extension Program
52 Swetman Hall
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Oswego, New York 13126
Tel. (315) 341-3042

Sea Grant Extension Program
512 Raymond Hall
SUNY/Potsdam
Potsdam, New York 13676
Tel. (315) 267-2131

Hudson River

Sea Grant Extension Program
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62 Old Middletown Road
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Marine Coast

Sea Grant Extension Program
Nassau County Cooperative Extension
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1425 Old County Road
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Tel. (516) 454-0900

Sea Grant Extension Program
Cornell University Laboratory
39 Sound Avenue
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