New York Sea Grant's
IMPLEMENTATION PLAN 2004-2005

This Implementation Plan describes research, extension, education and communication activities for both years of a biennial omnibus proposal that concludes a four-year award cycle. The Milestones listed for the Objectives of the Strategic Plan are expected to be completed in fiscal years 2005 or 2006 that ends January 31, 2007.

Special Note: This Implementation is organized to coincide with NYSG's Strategic Plan. Where Objectives are skipped, it indicates that no activities are currently planned for the two-year term of the Implementation Plan.

Issue A. ECONOMIC LEADERSHIP ISSUES

GOAL 1. Increase the competitiveness of coastal-dependent businesses.

Objective a. Assist water dependent businesses in improving management, operation programs, marketing strategies and responses to regulations and management policies to enhance business efficiency, effectiveness, cost competitiveness, and profitability.

Milestones:
Provide leadership and overall of a Sea Grant sponsored research project quantifying the statewide economic impact of recreational boating in New York and develop and disseminate, at state and national industry meetings, educational and technical materials on recreational boating state wide and regionally.

Work with industry associations to plan, organize and conduct pesticide applicator re-certification courses and appropriate alternatives for marina and boatyard personnel and develop educational/awareness materials for marina and boatyard customers regarding pesticide regulations on boat painting.

Serve as technical advisor to NYS DEC Marina Advisory Committee and the NYS Boating Advisory Council.

Identify appropriate host site web-based program materials on national guidance for controlling non-point source pollution from marinas and recreational boating activities and distribute and publicize through national trade publications, associations and other media outlets.

Expected Outcome:
Industry representatives, state officials and community groups will better understand the impact recreational boating and boating facilities have on regional and state economies and utilize information developed by Sea Grant to evaluate policy, management and regulatory decisions regarding boating and boating facilities and improve and facilitate industry compliance with pesticide re-certification requirements for boat bottom painting.

Milestones:
Working with the Empire State Marine Trade Association, Boating Industry Association of Upstate NY, and The Western New York MTA, coordinate at least one educational program regarding enhanced business operation and management.

Seek funding for the development and implementation of a "marina business and environmental response" planning CD and workshop series (as a follow-up to the NYSDEC marina pollution prevention program.)

Expected Outcome:
Marine facility operators will be aware of marine business management/operational applications of emerging technologies and evaluate the potential for adopting these practices/technologies.

Milestones:
In partnership with Seaway Trail, continue to update and distribute the "Cross Border Travel Guide". (This guide was developed in response to boating restrictions placed on border travel post 9/11).

Write two service letters per year on "motorboat registrations" and "fishing license sales" in New York's Great Lakes Region and distribute to Tourism Promotion Agencies (TPAs) and chambers of commerce throughout the region. Post this information on NY Sea Grant's web page.

Write one fact sheet explaining the results of the 2002 statewide B&B and inn survey. The survey will be distributed to 500 B&B and inn owners, 200 legislators, 60 tourism promotion agencies, and 100 chambers of commerce across New York State.

In partnership with the US Power Squadron and US Coast Guard Auxiliary, convene a "Boater Summit" to look at the needs of the boating community in upstate NY and how they can better organize to serve the boating public.

Maintain computer database of marine facilities in NY to assist industry and government clientele.

Compile and synthesize technical and regulatory information on the siting, design and impacts of small docks and develop written materials on regulatory and permitting guidelines governing these structures, disseminating to industry representatives, government officials and the public.

Expected Outcome:
Marine industry leaders, local government officials, planners and community leaders will be more informed regarding the nature, status and trends of the marine industry and the issues and problems facing this industry.

Milestones:
Design and evaluate approaches to enhance tourism and ecotourism opportunities that help develop opportunities that help develop and/or promote environmentally sustainable economically stable tourism markets.

Produce one or more educational brochures or fact sheets focusing on nature-based tourism.

With the assistance of ESF students, write one ecotourism plan for a specific area (to be determined) within New York's Great Lakes Region.

Work with bird watching organizations, TPAs, US Fish and Wildlife Service, and NYSDEC to produce a bird watcher's map to New York's Great Lakes coast.

Seek funding to design and implement interpretive signage at 10 marinas throughout the Hudson River Estuary. The signage will focus on interpretation of the Hudson River's Ecology.

Working with the River's tour boat operators design a promotional fact sheet or brochure to be distributed to at least 1,000 members of the public that will include accurate interpretive information on the Hudson River Estuary ecosystem functions and value.

Provide editorial and graphic design assistance for NYSG ecotourism-related publications and provide assistance with the writing and distribution of press releases to the media regarding tourism events and programs.

Expected Outcome:

Ecotourism opportunities in the Hudson River and Great Lakes areas will increase.

Milestones:
Co-sponsor at least one regional conference on underwater cultural resource management and use issues (i.e. Great Lakes Underwater, policy symposium on underwater management in NYS).

In partnership with Seaway Trail Inc., develop a system-wide "Diving the Seaway Trail" diving guide, and a series of 4 site-specific guides.

Expected Outcome:
Ecologically sensitive tourism by the diving community (including historians and archaeologists) will increase because divers and those who have management responsibility for our underwater resources will use sound public policy for managing the use and protection of these resources.

Milestone:
Serve as chair of The Ontario Dune Coalition education committee, providing leadership for the development of a proactive education program.

Expected Outcome:
Ontario Dune Coalition members and lakefront business owners will use timely resource management information to development an enhanced eco-tourism market.

Milestones:
Develop an outdoor skills curriculum for use in high school physical education classes that is designed to expose students to outdoor recreation, increase awareness of environmental issues, and increase participation in outdoor sports such as fishing.

Write an educational brochure on teaching children how to fish. The brochure will be based on the results of Sea Grant-funded research concerning the factors influencing angler participation during childhood.

Expected Outcome:
Help to recruit the next generation of recreational tourists.

Objective c: Identify, assess and encourage the use of innovative techniques and technologies to prevent, control or reduce the environmental impact of marina operations, boating and other coastal-dependent businesses in a cost-effective manner.

Milestones:
With funding from the EPA, work with marine trades associations and Suffolk County CE to plan and implement programming on the development of environmental management systems for marina facilities. Assist 10 to 20 facility owners in developing plans for their facilities as a model.

Develop and disseminate educational materials summarizing costs, benefits, and technical issues associated with environmentally compatible innovative marina basin bulkhead design with integrated wetlands based on performance of planned demonstration project on the Post-Morrow property.

Work with marine industry leaders to identify and obtain funds to conduct training programs for the servicing and maintenance of low emission marine engines and outboards, conducting programs if successful.

In collaboration with Rutgers University and the NJ Marine Trades Association, evaluate the New Jersey marina pollution control BMP demonstration project, disseminating results to project sponsors, participants and marinas. Present results at regional and national meetings as appropriate.

Continue to disseminate and promote the publication: *Best Management Practices for Marina Operators* through NYSG's web site, publication lists, conferences, and exhibits and maintain the online version of this publication on the northeast Sea Grant web site.

Expected Outcome:

Industry and agency audiences will be familiarized with marina and recreational boating pollution control best management practices through implementation of demonstration programs, development of educational materials and applied research efforts.

Milestones:
Identify funding mechanisms to publicize and provide wider distribution of fuel dock spill prevention educational materials and products developed for the Hudson River.

Install 12 boating information stations at boat clubs and marinas throughout the Hudson Estuary. These stations will be maintained with the cooperation of marina operators and will distribute written materials from NYSG and other agencies and organizations concerning estuarine ecology, stewardship, boating safety.

Develop and deliver 10 presentations to yacht clubs and marine trade associations on best management practices for stormwater.
Develop and maintain marina best management practices website. Adapt existing New York Sea Grant marina best management practice (BMP) materials for use on the Hudson.

Develop and deliver spill prevention/education kits to the Hudson's 37 boat fueling stations.

Survey Hudson Estuary marina operators on the use of Best Management Practices, build outreach and /education strategy for recreational boaters based on results of the survey.

Expected Outcomes:
More than 175 Hudson River marina and yacht clubs owners/operators on the river, will be provided with information, that will increase awareness of pollution control best management practices and techniques for boat maintenance and storage. Twenty percent will use NYSG information to evaluate feasibility of these practices at their facilities.

Marina/boat club operators will inform and educate 2,000 customers/club members and the general public regarding river stewardship issues.

Milestones:
Serve as Sea Grants representative to the Marine Environmental Education Foundation (MEEF), and as its' chair for 2003-2004.

Co-Chair MEEF's Marina Education and Research Committee (MERC), which has assumed the leadership role from the Sea Grant MarinaNet project in identifying and seeking funding for national marina outreach/research projects.

In partnership with the MEEF/MERC, investigate funding opportunities to develop a nationwide marina signage program and produce a CD-Rom and website.

In partnership with MEEF, investigate the need for and funding for a National Clean Marina Workshop #2 to be held in conjunction with the next National Marina Conference.

In partnership with the NYSDEC, implement New York States Clean Vessel Act Information and Education program. Specific activities include the development of a "Clean Boater Program" (boater bag program), updating a web-based directory of all marinas and pumpouts in NY, and implementation of a small grants program.

Investigate opportunities for follow-up outreach needs in the GL area to the NYSDEC Marina Pollution Prevention Program.

Expected Outcomes:
Marina operators, government officials, and community leaders will develop an implementation plan for best management practices and techniques associated with marina operations/management and boating activity.

Marine recreation facility developers/managers will investigate environmentally proactive enhancements to design approaches to accommodate changes in user patterns and regulatory requirements.

Objective d: Identify and increase awareness of innovative strategies to minimize or reduce dredging impacts by reducing the need for dredging and reusing, recycling, and/or disposing of dredged material associated with recreational boating facilities.

Milestones:
Using existing dredging records, initiate a model project to develop information characterizing dredging projects in terms of size, scope, type, sponsorship, location and permitting requirements to identify and quantify obstacles to dredging operations. Compile information in a GIS-based database and disseminate information to marina operators, consultants, contractors, and agency representatives.

Identify critical research information needs and questions concerning the beneficial use of material in small scale dredging projects, transmit these research needs to the Institute, monitor research results and disseminate to appropriate audiences.

Assist marine industry representatives in planning, organizing and holding a summit on dredging issues and problems under the auspices of the Peconic National Estuary Program.

Develop summary fact sheets/bulletins that describe the results of the sediment data analysis.

As part of the Sea Grant Dredging Initiative Network, assist in the implementation of a national outreach effort focused on recreational harbor dredging. Facilitate a regional needs assessment program in the Great Lakes.

Participate in the Lake Ontario Dredge management forum being lead by Wayne County. This six county effort is designed to focus on the development of a system wide dredging initiative.

In partnership with Rensselaer Polytechnic Institute, and the New York State DEC, characterize existing Hudson Estuary marina dredging data to define the types and extent of contaminants present in targeted stretches of the Hudson River.

Expected Outcomes:
Increased awareness of impediments to cost effective disposal options, employing beneficial use of dredged material in small-scale recreational boating projects, and work with industry, researchers, and agencies to identify and promote viable alternatives for beneficial use of this material.

At least 100 Hudson marine and boating community leaders and elected officials better understand the extent and type of contaminants in Hudson marina navigable fairways and have them use this knowledge to provide input to decision makers.

Objective f: Help develop and initiate, in partnership with industry groups and federal, state and local regulatory authorities, effective consumer education strategies that support the wise growth and development of the seafood industry.

Milestones:
Continue to help New York residents, businesses, and government officials understand the seafood industry in New York and it's economic contribution to the state, using the results of the NY Sea Grant funded study on the contribution of the sportfishing, commercial fishing and seafood industries to the state's economy.

Provide technical information and planning assistance to at least 30 individual processing, wholesale, import/export, or retail businesses each year to help them evaluate business expansion opportunities utilizing new technologies, products, production processes, or markets.

Serve as Technical Advisor to the New York Seafood Council's Board of Directors and assist with the planning, development, and execution of at least one major seafood marketing or public education initiative and one industry education or policy initiative each year.

Coordinate program activities, provide technical and program planning support, and supervise the Seafood Project Coordinator associated with the annual joint Cornell-Sea Grant-New York Seafood Council project initiative conducted at the Sea Grant Extension Program office in Stony Brook, and provide assistance with the Council's bi-weekly newsletter to regularly distribute timely information to over 200 NY seafood businesses.

Provide timely research based information on seafood products, nutrition, and safety issues to food writers and other media through individual contacts, educational or marketing brochures and publications, periodic mailings, press releases, or other collaborative initiatives produced with the New York Seafood Council and other trade and professional organizations.

Provide technical support to maintain and expand the New York Seafood Council consumer Web site at www.nyseafood.org to ensure that accurate information on New York seafood products, nutrition and safety is readily available and accessible to New York consumers.

Expected Outcomes:
Because of the technical expertise provided, the New York Seafood Council and/or at least one other industry organization that will plan, develop, and implement at least one annual major marketing initiative and one industry education or policy development initiative that will have a positive impact on consumer attitudes and seafood consumption practices and maintain a positive market climate for New York seafood products and seafood businesses.

100,000 New York consumers will receive objective information about seafood products, nutrition, safety issues, and proper handling, storage, and preparation techniques through educational programs, written materials, and articles delivered directly or via information multipliers like Cooperative Extension and other food and nutrition professionals and by the media.

At least 25 existing and prospective New York seafood businesses will utilize technical information on specific seafood products, markets, processes, or regulations that will help them enhance profitability or create new economic opportunities by utilizing alternative resources, developing new markets or products, or managing overhead costs.

GOAL 2: Facilitate sustainable use of economically important coastal fisheries.

Objective a. Development of new or existing tools to evaluate effects of ecosystem changes on current and future sportfish and to identify harvesting and management policy responses to overcome sustainability barriers.

Milestone:
(Ringler R/FBF-16)
Improve estimates of salmon adult stock and smolt recruitment, identify critical habitat and examine hydrologic factors that influence smolt migration.

Expected Outcome:
Better estimates of the number of salmon smolts entering Lake Ontario from the Salmon River will provide fisheries managers with critical information for stocking programs.

Milestones:
Develop synthesis articles on fisheries management issues (i.e. stocking rates vs. fish catches, fish post-stocking survival etc.) and publish them in the Great Lakes Angler on the web.

Identify a focus group that presently does not actively participate in fisheries management planning. Organize field activities that are geared to animate the group and stimulate interest in the process (e.g., organize seminars and special projects with input from resource managers, researchers, and other stakeholders).

Expected Outcome:
Participating anglers' capabilities will be strengthen so they can effectively participate in the fisheries management planning process through the development of a model, which is based on facilitated stakeholder involvement.

Milestones:
Work with resource managers to develop programs that would accommodate direct involvement of local anglers in fisheries management planning.

Develop an information document that serves to identify the key players that are involved in fisheries management planning in the Marine District. This document will be distributed to members in angler-based associations and other individuals who are unfamiliar with the fisheries management planning process.

Expected Outcome:
Fifty fisheries managers and researchers will be provided with the latest information on new assessment/ research tools, to have 80% of this audience better understand the need for these tools, how to use these techniques; and to have 40% of this audience utilize these tools in their resource assessment or research programs.

Milestone:
Attempt to secure funds for a charterboat education workshop, with the main goal of helping the industry to organize and strengthen their representation in the marine district. If funds are secured, help them to organize a board to promote charterboat fishing as a vibrant contributor to the local economy.

Expected Outcome:
This board would also serve a vehicle to connect with the local legislative offices.

Objective b. Identify and evaluate modifications that will maintain fisheries health by reducing inadvertent fishing mortality.

Milestones:
Pursue the development of an expanded technical workshop on precautionary fisheries management, uncertainty, and decision-making theory using expertise from NOAA NMFS, synthesizing past marine modeling experiences for Great Lakes researchers and fisheries managers.

Develop *Species Profile Fact Sheets* for an additional 7 species that are being targeted by anglers in the Marine District, summarizing the fishes' life cycle, migration, and angling techniques. This information will be compiled through literature searches and collaboration with master

(experienced) anglers and staff in resource management agencies. Seek funds to support a full reprint of the *Species Profile Fact Sheets* (14 in the series).

Expected Outcome:
400 fisheries resource users will receive educational programs which summarize target species identification, angling techniques to; and, to have 70% of this audience use this information to improve their angling ethics, adopt new angling techniques and to reduce unintentional harvests by 20%.

Milestones:
Secure funds to develop a special publication to target children (ages 6-10), to educate them about marine district environmental issues.

Continue publication of *Sport Fishing Industry News* and expand its circulation list by at least 20%. The newsletter will continue to serve as a media to interpret research results that are published in the primary journals using terminologies that are easily understood by non-technicians. Such reviews will be prepared and presented for 15-20 manuscripts that are published during the period.

Continue work to secure and establish New York Sea Grant outreach desk in western Suffolk County to serve as a base for distributing outreach and education publications. Collaborate with the education officers at the Babylon Sportfishing Education & Aquaculture Center to develop a proposal to support volunteer training. If funds are received, use these funds to organize a series of training sessions for volunteers, so that they may serve as a resource pool for organizing outdoor fishing events.

Provide editorial and graphic design assistance on sportfishing education publications and other outreach materials; maintain a Fisheries Resource web site: www.nyseagrant.org/fishery.

Expected Outcome:
New educational resources will introduce the basic principles of fishing in the marine district, to new anglers. These anglers will embrace a sense of angler ethics, which will contribute to the overall conservation efforts in the Marine district.

Objective d. Identify factors influencing disease prevalence in fish and shellfish and how to identify them, assess their impacts and manage them to reduce pathologies.

Milestone:
(Alben R/CTP-32)
Determine the dietary pathways leading to Type E botulism in fish and birds in Lake Erie, using the presence of algal carotenoids in tissues of food organisms as a tracer.

Milestone:
(Bowser R/CTP-31)
Determine the role of organisms at different trophic levels in the movement of botulism from the sediments through invertebrates to higher vertebrates such as fish.

Expected Outcome:
Scientists will better understand and evaluate the food-web origins and transfer of Type E botulism (*Clostridium botulinum*) toxin from benthic organisms to fish. This knowledge will help managers anticipate impacts and potentially develop remediation or prevention measures.

Milestone:
(Allam R/FBF-17)
Investigate the genetic diversity among different QPX isolates and natural infections found in different hard clam populations, and determine whether QPX/clam genotype interactions cause variability in the severity and the presentation of the disease in clams from different locations.

Expected Outcome:
Resource managers and hard clam aquaculturists will be able to assess the degree of QPX virulence and potentially identify resistant hard clam strains for culture.

Objective f. Examine the effects of various physiological and behavioral processes on the dynamics of fished populations and their predators.

Milestone:
(Kraft R/FBF-15)
Conduct a food web manipulation in replicated ponds, with contrasting cyanobacterial and primary productivity conditions and evaluate resulting thiaminase activity in alewife. Develop and evaluate new fluorescence and chromogenic assays for thiaminase.

Expected Outcome:
State and federal Great Lakes fisheries managers will benefit from the availability of a useful measurement technique and from a better understanding of ecological conditions under which early mortality syndrome is manifested by commercially-valuable fishes.

Objective g. Develop a process of understanding of population, system and community level changes in ecologically or economically important living coastal resources.

Milestone:
(Rudstam R/CE-23)
Understand how ecosystem changes in Lake Ontario have impacted distribution, mortality and growth of *Mysis relicta*.

Expected Outcome:
A better understanding of the consequences of ecosystem changes in Lake Ontario, and an increase in our understanding of the spatial and temporal dimensions of predator-prey interactions and the role of mysids in Great Lakes food webs will be used to improve aspects of fisheries management.

Milestones:

Publish NY's Great Lakes Angler disseminate on an updated NYSG website.

Facilitate the development of an umbrella sportfishing stakeholder organization that represents diverse interests and provide them with information on fostering improved communication with management agencies and elected officials.

Develop/convene Lake Ontario session for Great Lakes Fisheries Institute.

Expected Outcomes:
400 fisheries resource users will be provided with updated, research-based information on Great Lakes predator-prey dynamics, ecosystem changes, fisheries trends and fisheries sustainability; and 70% of this audience will use this information in better communicating with fisheries managers.

Four hundred resource users will have better understanding of the mechanics of fisheries management, better understand the process of science and its role in fisheries management, and 70% of this audience will be able to better communicate their concerns to fisheries managers and scientists.

Collaborative research programs, through NYSG, will generate information that can be integrated into extension outreach to benefit 15 fisheries managers in developing improved resource management strategies and to 400 public stakeholders; to have 70% of this audience improve the communication of their concerns to fisheries managers and in their better understanding how fisheries management policies influence fisheries sustainability and impact coastal businesses; and, to have 2 research proposals generated from NYSG roundtables on research need identification.

Milestones:
Serve as the liaison between the lobster fishing community, resource managers, researchers, and the Lobster Steering Committee, and facilitate information exchange between these stakeholders.

Publish a minimum of three issues of *Lobster Health News*, a joint publication with Connecticut Sea Grant College Program that summarizes the progress and main results of the nineteen funded research projects.

Publish a series of fact sheets to support the ongoing research for the established categories (environmental stressors, physiological responses to stress, pesticides, infectious/noninfectious diseases). An example of this includes a fact sheet describing the general life cycle and physiology of the American lobster, a review of the pesticide groups that are commonly applied in Long Island Sound, etc. Information will be gathered from the literature and supplemented with new knowledge gained from ongoing research. These publications will require collaboration with principal investigators and the Lobster Steering Committee.

Work with the Lobster Steering Committee and Connecticut Sea Grant College Program to organize the *Annual Long Island Sound Lobster Health Symposium* in New York; this will be the last meeting in the series. Use the comments provided by the participants from the previous year

to improve the meeting's content and general structure. Prepare and distribute reference documents and other background literature with the cooperation of the Connecticut Sea Grant College Program, researchers, and the Lobster Steering Committee.

Maintain the web site: www.nyseagrant.org/lilobsters to feature all publications, press releases, and news clips to support the efforts of the Lobster Steering Committee.

Participate in the Lobster Steering Committee's efforts to subcontract research to develop a hydrodynamic model that maps the likely outcome of commonly applied pesticides and their breakdown products in Long Island Sound.

Contribute to regional efforts to organize a special session to synthesize the main conclusions of the research projects funded under the Lobster Research Initiative.

Expected Outcome:
Stakeholder groups (lobster fishing community, resource managers, and the general public) will be able to identify the factors and processes (both natural occurring or anthropogenic in origin) that can affect the general health status of American lobsters. This will help stakeholders to better understand the possible causes of lobster mass mortality in Long Island Sound.

Objective e. Develop capabilities to predict socio-economic responses of coastal communities to changes in fishery resources or accessibility.

Milestone:
Establish a contact within the NOAA MPA Office, and organize a session with local stakeholders, so that they can convey their concerns, and find innovative solutions to approach the issue within NY.

Expected Outcome:
More direct communications with local constituents (recreational and commercial fishers) regarding Marine Protected Areas in federal waters, with NOAA will be facilitated.

Milestone:
Use the experiences of the West Coast buyback program as a case study, for the commercial fishing industry to use to identify issues that will guide the decision making process. If the industry agrees to proceed with the buy-out proposal and if funds permit, work with key industry representatives to develop resources to help in the transition. These transitory activities would be developed in collaboration with the local industry, cooperative extension, and the Northeast Sea Grant Program.

Expected Outcome:
Through the Northeast Regional Sea Grant Program it will be determined if the commercial fishing industry's is interested in participating in a federal buyback program.

Milestones:

Work with a consultant and researchers to finalize the dealer and market study report, and use the information to identify the short to medium term effects of the 1999 lobster mass mortality.

Prepare outreach publications that summarize the main conclusions of the study, and distribute the information to key associations that have an interest in lobster marketing.

Expected Outcome:
Identified of constraints to the marketing process for lobsters that are caught in Long Island Sound.

Issue B. COASTAL ECOSYSTEM HEALTH AND PUBLIC SAFETY

Goal 3. Improve the quality and safety of New York State's commercial and sport caught seafood products.

Objective a. Coordinate efforts by the seafood industry and federal, state and local regulatory authorities to enhance the safety of seafood products and to successfully complete the transition to a state-of-the-art food safety control system (e.g., Hazard Analysis Critical Control Point (HACCP)).

Milestone:
Coordinate and conduct Seafood HACCP Alliance/Association of Food and Drug Officials training programs in New York, and provide technical assistance to individual businesses and/or groups of businesses to help them evaluate, refine, and implement effective HACCP based food safety control and sanitation plans for their operations, consistent with federal and state regulations.

Expected Outcome:
At least 50 New York seafood businesses will attend workshops and utilize research based information on the control or management of specific seafood safety hazards, HACCP or sanitation systems that will enable them to adopt procedures or practices that enhance product safety and ensure compliance with federal Food and Drug Administration Seafood HACCP and Good Manufacturing Practice regulations as well as state and local food safety and sanitation regulations.

Objective b. Develop, test, and deliver new and innovative educational and training programs on seafood safety hazards and improved sanitation practices for consumers, the seafood industry and regulatory community as part of the National Seafood Education and HACCP (or other state-of-the-art system) Alliance.

Work with seafood industry groups, individual businesses, and regulatory agencies to keep New York seafood businesses and regulators up to date on changes and modifications in HACCP and other new regulations such as new Homeland Security regulations for imported foods, and new

procedures, technologies or other tools that can be used to improve, enhance, or optimize their HACCP based food safety controls.

Expected Outcome:
To have at least 25 individuals from regulatory agencies, government, public and private groups, and academic programs or professional organizations better understand seafood industry and consumer issues and make informed policy decisions that balance the need to protect public resources and consumer access to high quality safe products, while minimizing adverse economic impacts.

Milestone:
Coordinate the marketing and conduct the routine management of the Seafood HACCP Alliance Internet training course for at least 200-300 individuals from industry and regulatory agencies across the U.S. per year.

Expected Outcome:
Technical, program, and leadership support will be provided to the National Seafood HACCP Alliance that will ensure that effective programs are developed and implemented to meet the changing food safety, HACCP, and sanitation training needs of the seafood industry in the U.S.

Milestones:
Serve as a Co-Investigator of a national three-year project with the Cornell Department of Food Science and other collaborators in the Northeast and Northwest to develop mathematical predictive models for *Listeria* testing in smoked seafood and other food processing establishments if funded by USDA's National Food Safety Initiative.

Serve as a project team member for the National Sea Grant Fisheries Extension Enhancement project to develop training and education programs in support of effective control for scombroid (histamine) poisoning in collaboration with Sea Grant seafood specialists in RI, DE, MD, VA, NC, GA, FL and OR and the FDA.

Participate as appropriate in potential FDA Pilot Program to test and evaluate *Listeria* control strategies in smoked seafood processing plants in collaboration with the Smoked Seafood Working Group of the National Fisheries Institute and industry volunteers.

Work with researchers in New York and other states to develop and conduct research needed to enhance control options and strategies for specific food safety hazards associated with seafood products.

Actively participate as a member of the core group for the National Sea Grant Program's Seafood Technology and Safety theme team to identify research and extension priorities in this program area and effectively communicate them to constituents.

Monitor research results and maintain program linkages with researchers at Cornell, SUNY, and other Sea Grant universities, national and regional professional and trade organizations such as

the Institute of Food Technologists, state and federal agencies, National Fisheries Institute and other state, regional or national groups or programs.

Help develop and delivery consumer information on risks associated with methyl mercury in seafood products when regulatory policies and guidelines are formalized using advice from federal and state public health agencies.

Provide technical resource support and distribute timely information, as necessary, on seafood products, nutrition, safety, handling, storage, and preparation to Cornell Cooperative Extension food and nutrition extension educators in New York State through individual contacts and established communication networks.

Expected Outcome:
Seafood will be safer to consume in NY.

Objective d. Develop techniques to maintain or increase seafood quality during the period from catch to consumption.

Milestones:
Continue to help New York residents, businesses, and government officials understand the seafood industry in New York and it's economic contribution to the state, using the results of the NY Sea Grant funded study on the contribution of the sportfishing, commercial fishing and seafood industries to the state's economy.

Serve as Technical Advisor to the New York Seafood Council's Board of Directors and assist with the planning, development, and execution of at least one major seafood marketing or public education initiative and one industry education or policy initiative each year.

Coordinate program activities, provide technical and program planning support, and supervise the Seafood Project Coordinator associated with the annual joint Cornell-Sea Grant-New York Seafood Council project initiative conducted at the Sea Grant Extension Program office in Stony Brook, and provide assistance with the Council's bi-weekly newsletter to regularly distribute timely information to over 200 NY seafood businesses.

Expected Outcome:
Technical expertise and support will be provided to the New York Seafood Council and/or at least one other industry organization that will enable them to plan, develop, and implement at least 1 annual major marketing initiative and 1 industry education or policy development initiative that will have a positive impact on consumer attitudes and seafood consumption practices and maintain a positive market climate for New York seafood products and seafood businesses.

Milestone:

Provide technical information and planning assistance to at least 30 individual processing, wholesale, import/export, or retail businesses each year to help them evaluate business expansion opportunities utilizing new technologies, products, production processes, or markets.

Expected Outcome:
At least 25 existing and prospective New York seafood businesses will utilize technical information on specific seafood products, markets, processes, or regulations that will help them enhance profitability or create new economic opportunities by utilizing alternative resources, developing new markets or products, or managing overhead costs.

Milestones:
Provide timely research based information on seafood products, nutrition, and safety issues to food writers and other media through individual contacts, educational or marketing brochures and publications, periodic mailings, press releases, or other collaborative initiatives produced with the New York Seafood Council and other trade and professional organizations.

Provide technical support to maintain and expand the New York Seafood Council consumer Web site at www.nyseafood.org to ensure that accurate information on New York seafood products, nutrition and safety is readily available and accessible to New York consumers.

Maintain and track www.nyseagrant.org/seafoodtechnology on the NYSG web site.

Expected Outcome:
Objective information about seafood products, nutrition, safety issues, and proper handling, storage, and preparation techniques will be delivered to 100,000 New York consumers through educational programs, written materials, and articles delivered directly or via information multipliers like Cooperative Extension and other food and nutrition professionals and by the media.

Goal 4. Prepare for and respond to coastal hazards and processes.

Objective a: Use and demonstrate new information technologies (Geographic Information Systems (GIS), internet and web-based technologies, etc.) to help decision makers better quantify and evaluate the structural, social, and economic impact of short and long-term coastal hazards on communities and select effective potential mitigation measures.

Milestone:
(Goodbred R/CE-22)
Reconstruct the position and timing of tidal inlets and breaches, determine their influence on estuarine infilling, benthic faunal communities, and habitat distribution, and establish a baseline for 'natural' environmental conditions.

Expected Outcome:
Public, agency and governmental stewards of the Long Island South Shore Estuary Reserve will have key environmental information that will contribute towards meeting several stated goals of the SSER Comprehensive Management Plan and to understanding the impacts of breaches.

Milestones:
In conjunction with the Coastal Services Center and the New York Department of State, plan develop and implement web based programming to deliver GIS-based coastal hazards and process data and educational information over the internet. Monitor and evaluate use of site and, in conjunction with other topical specialists, identify and implement applications for other programming issue areas.

Develop produce and disseminate series of annual "State of the Coast Reports" incorporating monitoring program data for government, media, and public audiences with funding from the state.

Participate as a member of the federal/state study team overseeing coastal processes and response, data collection dissemination and utilization.

Develop working knowledge of newly available, web-based coastal data products from NOAA, NASA and other federal partners (e.g. LIDAR digital elevation models) and integrate this information into programming on coastal hazards and erosion issues with coastal community groups, regulators and decision makers.

Expected Outcome:
Increase awareness and use of new and existing coastal data products and information by coastal decision makers through the development and implementation of programs incorporating innovative techniques for collecting, analyzing and presenting coastal hazard data and information.

Milestones:
Pursue funding from and work with EPA to plan and conduct a national model outreach project for sea level rise awareness and response that integrates existing regional land use, coastal processes and geographic data sets to provide quantitative assessments of potential sea level rise impacts on a community basis.

In conjunction with Sea Grant funded researchers, plan and conduct a workshop focusing on the response of coastal wetlands to environmental changes.

Explore and pursue the potential for collaborative efforts and programming on coastal climate related issues with NOAA partners and other Sea Grant coastal hazards specialists.
Complete mapping of the responses to sea level rise for the entire New York marine shoreline as part of the EPA-funded national project. Develop and distribute maps and written materials to appropriate audiences.

Expected Outcome:
Increase awareness of potential coastal impacts associated with climate-related changes affecting sea level rise and storms. Tools will be developing to help planners, managers, decision makers and the public identify and evaluate appropriate responses.

Milestones:
Maintain and enhance the New York Sea Grant Extension Program Great Lakes Coastal Processes and Erosion web page, including detailed graphics of lake level fluctuations, information on why lake levels fluctuate, "New York Great Lakes Water Levels Update," relevant meeting notices and newsworthy items, and lake level/coastal hazard web site hot links.

Develop and maintain up-to-date links to pertinent non-New York Sea Grant lake level and erosion control web sites on the NYSGE Great Lakes Coastal Processes and Erosion web page.

Expected Outcome:
1,500 coastal resource users, landowners, marine facility owners, businesspeople, media representatives, government officials, special interests, and other decision makers will be educated on Lake Ontario and Lake Erie lake level fluctuations and causes of coastal erosion and flooding, utilizing such information/education technologies as the Internet and the World Wide Web, and have those individuals use that knowledge to make better shoreline development, erosion control, and flooding control decisions.

Objective b: Demonstrate and foster the use of new sustainable approaches for mitigating coastal erosion hazard problems that incorporate structural and habitat-enhancing techniques.

Milestones:
With funding from Suffolk County, conduct a site analysis and develop plans for a demonstration project utilizing structures and wetlands for erosion control in conjunction with the Virginia Institute of Marine Science and property owner groups.

Work with county, state and federal agencies to identify and obtain funding for implementation of an integrated breakwater/marsh demonstration projects.

Plan and hold a meeting/workshop on innovative and alternative estuarine erosion control technologies with Sea Grant personnel and others from the Northeast and Atlantic regions to share technical and educational resources and to identify and explore technical issues, research needs, and regulatory obstacles associated with these approaches.

Expected Outcome:
Government officials, coastal property owners and managers and community leaders will be able to evaluate the potential use of breakwater/marsh systems for erosion control and consider implementation of a demonstration project as a regional educational tool.

Objective c: Provide technical assistance and advice to local, state and federal partners in the development of large-scale and regional coastal hazard prevention or mitigation programs and projects.

Milestones:
Develop, produce and disseminate educational programs and materials on results of research on effects of barrier breaches conducted as part of the special focus area project.

Initiate a pilot project to develop a simple methodology to use existing data to evaluate the potential long-term regional impacts of shore hardening structures, and mitigation measures and disseminate resulting information to government officials, consultants, contractors and property owners.

Participate as member of the Review Panel for the Sea Grant funded feasibility study of the use of storm surge barriers for flood protection in the NYC Metropolitan area, providing guidance and developing and disseminating information on project results as appropriate.

Organize and hold one or more roundtables/meetings for Sea Grant coastal hazards and processes professionals to better integrate and coordinate field programming efforts with Coastal Hazards Theme Team and other national initiatives and identify common issue areas and research and extension needs and opportunities.

Assist state and federal partners in the development of regional sand management strategies and policies as a member of NYDOS's State Inlet Management Group and the U.S. Army Corps of Engineers Regional Sediment Management group.

Expected Outcome:
Information will be developed and disseminated that will allow local, state, and federal decision makers to better evaluate and assess coastal conditions, hazard risks and potential impacts of mitigation strategies in the development of long-term regional management plans.

Milestone:
Participate in the International Joint Commission / U.S. Army Corps of Engineers Lake Ontario water levels study, and serve on Coastal Processes Technical Working Group.

Expected Outcome:
Technical assistance and advice provided will help local, state, and federal partners in the development of large-scale and regional coastal hazard prevention or mitigation programs and projects.

Objective d: Develop the capability to proactively assist coastal landowners, public decision-makers, and marine contractors to deal with coastal high or low water, flooding, and/or erosion events.

Milestone:
(Bowman R/EPH-2)
Produce an integrated state of the art meteorological/storm surge prediction model for early warning of coastal flooding.

Expected Outcome:
Significantly improved techniques for forecasting the location, timing and severity of coastal flooding from severe storms will save lives and reduce damage costs.

Milestone: *(Gobler R/CMB-30)*
Characterize plankton communities, nutrient levels, submerged aquatic vegetation densities, and shellfish densities across a range of estuary-to-ocean locations within Long Island's south shore estuaries, and evaluate the impact of ocean exchange on the growth of these biota.

Expected Outcome:
Resource managers, agency personnel and researchers will be able to assess current bay health, compare historical trends, and predict the potential effects of barrier island breaches.

Milestones:
Provide advice to local officials and coastal erosion stakeholders on the coastal erosion control educational resources available from New York Sea Grant.

Prepare and distribute (via the internet) "New York Great Lakes Water Levels Update" service letter.
Distribute updated erosion control educational materials packet in response to erosion cause and/or control information requests.

Expected Outcome:
Enhance and utilize New York Sea Grant's capability to respond immediately to rapidly-developing coastal high water, flooding, and/or erosion events to assist our coastal landowner, public and private decision-maker, marine contractor, and marine facility owner audiences to deal with such hazardous situations.

Objective f. Develop models to use data on currents, circulation, sediment transport and other processes to predict the dynamics of filling and opening up of small, local harbors, bays, etc., as well as the dynamics of middle and large size coastal geographic areas.

Milestone:
(Warren R/CCP-10)
Characterize the physics, hydrography, and sedimentary characteristics of several areas of the Long Island Southern Shore Estuary Reserve system to assess the effects of proximity to inlets.
Milestone:
(Wilson R/CCP-11)
Develop a 3D circulation model of Great South Bay and Long Island South Shore Lagoons and evaluate the response to selected breach scenarios in terms of interior water level, temperature, salinity and patterns and rates of flushing.

Expected Outcome:
Resource managers, agency personnel and researchers will be able to use this information to help predict the ecological impacts of potential barrier island breaches and decide whether to change current policies regarding their closure.

Goal 5. Assess and enhance coastal water quality.

Objective a: Design nonpoint source water quality education programs that will assist existing federal, state, and municipal water quality coordinating committees and water body management programs, lake associations, local governments, and estuary programs in protecting and enhancing the quality of New York's coastal waters.

Milestone:
Attend the US EPA sponsored smart growth training, and implement a pilot program in the Marine District and the Great Lakes Region.

Expected Outcome:
Work closely with the USEPA and other Sea Grant Programs nationally to introduce communities to smart growth concepts.
Milestones:
Provide leadership and direction as the coordinator of the Island-wide NYSG NEMO Program expansion.

Obtain funding from the Long Island Sound Study, the New York State Department of Environmental Conservation and the New York State Department of State in order to fulfill staffing and equipment needs for a NYSG Nonpoint Education for Municipal Officials (NEMO) Program that will be broadening to reach officials in the South Shore Estuary and the Peconic Estuary as well as the Long Island Sound.

Hire two additional staff persons to assist in development and delivery of program workshops, presentations and materials.

Adapt existing "Linking Land Use to Water Quality" and Phase II presentations for use with South Shore Estuary and Peconic Estuary communities by incorporating pertinent local information regarding water quality issues, land use and estuary management plan recommendations.

Conduct presentations and provide consultations to municipal elected and appointed officials and staff on Long Island pertaining to strategies and practices that will reduce the impacts of land use activities on water quality, fisheries, habitats, wildlife, human health and coastal communities.

Develop focus presentations and printed materials pertaining to common priority needs including system maintenance, municipal pollution prevention practices, development of effective local land use plans and ordinances and site plan review.

Pursue opportunities to deliver educational support to municipal officials through forums, such as regional conferences and seminars, conducted in coordination with local partners including the Suffolk County Department of Health Services, the Suffolk County Soil and Water Conservation District, Long Island's estuary programs and the Nassau County Department of Public Works.

Create, distribute and tabulate municipal nonpoint source pollution management surveys designed to identify gaps in nonpoint source management, establish baseline information regarding practices, track progress and to potentially serve as proxy indicators of estuary protection.

Compile, analyze and develop graphic depictions of local geospatial land use and water quality data in order to increase the relevance and understanding of the watershed management concepts conveyed in NYSG NEMO presentations.

Maintain updated information on the NYSG NEMO Program web pages: www.nyseagrant.org/nemo including program fact sheets, reference materials and scheduled events.

Deliver targeted presentations and materials to officials in priority Suffolk Long Island Sound watersheds in close coordination with the Suffolk County Office Of Ecology. These watersheds include: Huntington – Northport Harbor, The Nissequogue River, Stony Brook Harbor, Port Jefferson Harbor, Mount Sinai Harbor, and Mattituck Inlet.

Engage in regular consultations with the NYSG NEMO Program Advisory Network regarding program content, technical accuracy, outreach strategy, identification of partners and evaluation.

Work closely with Long Island estuary program managers to insure appropriate program content, responsiveness and effective delivery of program support.

Contribute to the implementation of the Long Island Sound Study Suffolk County North Shore Embayment Watershed Management Plan by participating on its proposed management structure as a member of the Steering Committee.

Serve as an active member of the New York State Nonpoint Source Coordinating Committee and contribute to the identification, development and prioritization of resources and programs designed at the state level to support municipal nonpoint management efforts.

Represent the NYSG NEMO Program as a member of the National NEMO Network and cultivate linkages with NEMO programs nation-wide in order to facilitate the exchange of innovative technologies, techniques, expertise and materials of potential benefit to Long Island municipal officials.

Expected Outcome:

Long Island municipalities will identify strategies that will result in the implementation of effective Phase II storm water management programs, the advancement of New York State's Coastal Zone Management Program, Quality Communities Initiative and Open Space Plan goals to reduce the impacts of nonpoint pollution and to improve water quality in the Peconic Estuary, the Long Island Sound and the South Shore Estuary.

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Milestones:

Due to recent fish and bird die-offs in Lake Erie and Lake Ontario, NY Sea Grant has taken a proactive stand in bringing researchers and agency representatives together to work on this important environmental issue. NYSG will continue to run conferences, conduct programs, present findings and reports around the basin to educate and inform stakeholders about this critical environmental and human health issue. Conference proceedings, media coverage, research directions and other pertinent details will be maintained at the web site: www.nyseagrant.org/botulism.

Conduct conferences, write proceedings and reports, provide presentations and programs and create educational materials to agencies, environmental groups and stakeholders around Lake Erie and Lake Ontario to educate them about the environmental and human health issues related to botulism outbreaks in the Lower Great Lakes.

Expected Outcome:

NY Coastal Communities on Lake Ontario and Lake Erie, will be better able to cope with fish and bird die-offs caused by botulism outbreaks.

Objective c. Determine the processes and rates of transport, fate and effects of point and non-point source anthropogenic contaminants and pathogens (e.g., MTBE, fertilizer, sewage) and develop appropriate models to assess their impacts on developed coastlines.

Milestone:

(Schulz R/CE-24)

Determine the effects and interactions of phosphorous abatement and dreissenid filtration on benthic and pelagic primary and secondary production and community composition in the Great Lakes.

Expected Outcome:

A clearer understanding of the interaction between lowered phosphorus levels and exotic mussel filtration effects on Great Lakes ecosystems will be useful in reassessing current policies of water quality and fisheries management.

Objective d: Design and deliver educational and outreach programs that meet the goals of the Lake Erie and Lake Ontario Lakewide Management Plans.

Milestones:

Disseminate the new Lake Erie LaMP education presentation and support materials, developed with NYSG input, to stakeholders along the Lake Erie shoreline of New York State.

By attendance at Lake Erie LaMP Binational Forum meetings throughout the year, work on new education/outreach projects that will help advance the work of the LaMP and the protection of Lake Erie.

Expected Outcome:
Stakeholders will be able to more effectively participate with the Lake Erie and Lake Ontario Lakewide Management Plans (LaMPs) and the Lake Erie Binational Forum.

Milestone:
Provide support to the Soil and Water Conservation District and the Erie County Department of Environment and Planning for upcoming rehabilitation projects on Cazenovia and Scajaquada Creeks.

Expected Outcome:
The Soil and Water Conservation District and the Erie County Department of Environment and Planning will have outreach programs designed to enhance and restore waterways in Western New York.

Objective g: Provide information to assist state and municipal drinking water treaters, public health officials, and local governments in protecting and better treating public and private drinking water for bad taste and odor and cyanobacterial toxins.

Milestones:
Develop a comprehensive listing of all public and private drinking water treatment facilities which utilize the Great Lakes or their contiguous waterways as their sources of raw water.

As part of Great Lakes MERHAB project, survey operators of drinking water treatment facilities which utilize the Great Lakes or their contiguous waterways as their raw water source to determine the extent of taste and odor problems in the region.

Identify university, agency, and private sector researchers with expertise in drinking water taste and odor formation and control, particularly knowledge of the drinking water taste and odor precursors 2-MIB, geosmin and waterborne cyanobacterial toxins and develop a database of experts.

As part of Great Lakes MERHAB project, plan and implement a research forum pertaining to cyanobacteria and cyanotoxin issues.

Develop funding to compile a bibliography of papers pertaining to 2-MIB and geosmin, zebra mussel influence on the formation of drinking water tastes and odors, zebra mussel impact on plankton in the Great Lakes, and cyanobacterial toxins in public drinking water, and add those papers to the National Aquatic Nuisance Species Clearinghouse library and searchable database.

As part of Great Lakes MERHAB project, design and implement a web site pertaining to cyanobacteria and cyanotoxin issues in the Great Lakes and the Finger Lakes

As part of Great Lakes MERHAB project, develop and distribute educational materials regarding taste and odor and cyanobacterial toxin impacts on drinking water uses of Great Lakes waters.

Expected Outcomes:
250 coastal resource decision makers will better understand the impacts of aquatic nuisance and invasive species on consumptive and nonconsumptive uses of Great Lakes waters, so that they can make better decisions regarding control and management of such species and treatment of drinking and process waters.

Outreach programming and materials will be developed to educate 500 drinking water treaters, public health professionals, and public officials, on the causes and control of zebra mussel-related drinking tastes and odors.

Goal 6. Protect or enhance coastal habitats.

Objective a: Educate community groups, professionals, and agencies about the benefits of and techniques for improving the quality (structure or ecosystem function) of threatened, degraded, or compromised coastal habitats

Milestone:
Produce public education programs and materials for the Beaver Dam Creek restoration project. Involve scientists in the project to ensure the best available scientific information is incorporated into the project.

Expected Outcome:
A wetlands and watershed restoration project, will be implemented, in partnership with the Beaver Dam Creek Restoration Steering Committee.

Milestones:
Collect information on the impact of lake level range fluctuations on coastal wetland compression and prepare a fact sheet on the topic.

Conduct 3 full day workshops on coastal habitat restoration for 90 community leaders (boating associations, elected officials, and natural resource managers).

Utilize funding opportunities such as the New York Great Lakes Protection Fund and other grant programs to support projects dealing with coastal habitat restoration.
Expected Outcome:
Lake Erie and Lake Ontario coastal local governments will be able to evaluate and improve the effectiveness of existing management strategies designed to minimize the negative impacts of human use on coastal habitats and resources

Milestones:

Create a portable SAV educational display with project partners to be used in conjunction with river education programs in the 10 counties bordering the Hudson.

Conduct 10 SAV presentations at monthly meetings for recreational fishing groups, (e.g. trout unlimited) reaching at least 300 individuals.

Distribute a SAV boater brochure and fact sheets. Create additional educational materials if warranted.

In 2003 work with SAV Team to pilot a volunteer monitoring project for SAV on the Hudson River.

Expected Outcome:
The SAV Stewardship Project will be implemented involving 200 boating and community leaders, providing SAV workshops, talks and presentations to at least 500 individuals.

Goal 7. Control the spread and mitigate the impact of non-indigenous species (nis) and aquatic nuisance species (ans) in new york's coastal waters.

Objective a: Educate the public and other stakeholders throughout North America about ANS introduction, spread, control, and impact (industry, drinking water tastes and odors, ecosystem components) mitigation via traditional methods, as well as operation of the National Aquatic Nuisance Species Clearinghouse and World Wide Web searchable database.

Milestones:
Plan and implement extension education activities on the history and impact of aquatic nuisance and invasive species introductions in the eastern Great Lakes Basin region for lay audiences such as home owners, recreational boaters and anglers, local officials, teachers and students, and the media.

Plan, write, and distribute up-to-date fact sheets, information bulletins, brochures and other outreach educational materials addressing aquatic nuisance and invasive species and strategies for preventing or slowing their introduction and spread and for mitigating their impacts.

Develop funding to continue to expand the National Aquatic Nuisance Species Clearinghouse library and World Wide Web searchable database to include ballast water transmittal of nonindigenous aquatic species and ballast water management; continue to update and increase the Clearinghouse's publication holdings; add more species to the Clearinghouse library as identified by the Clearinghouse's Scientific Advisory Board.

Utilize the World Wide Web as a means of implementing New York Sea Grant aquatic nuisance and invasive species and outreach education and technology transfer programming.

Plan and implement a marketing strategy to increase audience knowledge of the National Aquatic Nuisance Species Clearinghouse and its aquatic nuisance and invasive species resource materials.

Serve on the national Invasive Species Advisory Committee.

Work with other Sea Grant programs to plan and implement aquatic nuisance and invasive species symposia with the intention of facilitating the formation of aquatic nuisance and invasive species task forces and working groups.

Provide technical support to 15 state and regional zebra mussel/aquatic nuisance/invasive species task forces and working groups Nationwide.

Serve on the Northeast Panel on Aquatic Nuisance Species.

Assist in the development of the Mid-Atlantic Panel on Aquatic Nuisance Species and serve as NYSG's representative to said Panel.

Oversee publication of 4 issues of the National Aquatic Nuisance Species Clearinghouse Digest, ***Aquatic Invaders*** per year while improving the technical content and types of features presented. Write 8-10 annotations for each issue, solicit and edit papers by researchers and policy makers for the issues, write features or articles as needed and review new library holdings to highlight in each issue. Assist in efforts to increase distribution of this publication.

Maintain the Clearinghouse Database by identifying papers for inclusion, maintaining literature searches, seeking out "grey literature", maintaining the website topical outline and assigning keywords to papers. Work with programmers at EETG to add features to the database as needed.

Support expansion and improvement of the Clearinghouse World Wide Web Site by assisting with text maintenance on existing pages as needed, developing new features such as an Announcement page and improve the ANS Links page.

Join forces with the U.S. Fish and Wildlife Service's Lower Great Lakes Fisheries Resource Office to provide educational programs related to the Erie Canal and exotic species.

Provide teachers' workshops on aquatic exotic species for 300 teachers and non-formal educators in coastal communities around New York. These workshops will utilize materials developed through Sea Grant funded projects on aquatic exotic species.

Provide information on aquatic exotic species to conservation groups, fishing clubs, environmental organizations, community groups and interested stakeholders through presentations or the distribution of the latest scientific information on invasive species. Work with these groups to encourage their members to practice ways to mitigate the spread of exotics.

Continue efforts with Illinois/Indiana Sea Grant to improve the SGNIS Kid's Page on the Internet to improve its educational potential and provide information for teachers.

Conduct a summer teachers' workshop program entitled, Educators and the Erie Canal, in partnership with USFWS – Lower Great Lakes Fisheries Resources Office. The workshops will take place along the Erie Canal, throughout New York.

Provide 10 teachers' workshops throughout the coastal counties of New York for teachers and non-formal educators related to aquatic exotics species.

Create and distribute an educational poster of a Great Lakes ecosystem highlighting the aquatic nuisance species that have entered the food web.

Expected Outcomes:
Students, public and other stakeholders throughout North America will be better educated about ANS introduction, spread, control and impact (industry, drinking water tastes and odors, ecosystem components) mitigation via traditional methods.

An improved operation of the National Aquatic Nuisance Species Clearinghouse and improved World Wide Web searchable database, will better serve information needs on ANS.

Our understanding of how human activities influence exotic species (including diseases and parasite introductions) distributions and impacts will be improved.

Objective b: Determine the causes of initiation and cessation of ANS such as harmful algal blooms (e.g., brown tide), in order to develop strategies for prevention or mitigation.

Milestone:
Work with NYSG staff to design, edit, publish and distribute the final Brown Tide Report and the Brown Tide synthesis outreach document. Write and distribute press releases to the media regarding the research findings described in these documents. Maintain all related reports and press articles on www.nyseagrant.org/btri.

Expected Outcome:
The research community, managers and the interested public will stay informed about the progress and conclusions made by the Brown Tide Research Initiative and can use the information to make informed decisions about the management of marine resources in Long Island's bays.

Issue C. EDUCATION AND HUMAN RESOURCES

Goal 8. Develop the Capacity of New Yorkers to Participate as Partners in Coastal Issues.

Objective a. Work with Marine and Great Lakes educators to integrate new technologies and Sea Grant resources into K-12 classrooms.

Milestones:
Hold training workshops for formal and non-formal educators and teachers in training on a variety of marine and Great Lakes science topics to update their knowledge and bring to them the latest scientific findings, and to involve them and their students in applied science projects.

Use/bring new technologies, such as distance learning, Internet, and multi-media, to educators through workshops. Serve as a resource and educator/scientist for Erie County/Museum of Science distance learning project being developed for the 2003-2004 school year.

Work with the National Marine Educators Association, Science Teachers of New York State (STANYS), Niagara Frontier Science Supervisors and other teachers' associations to support their efforts in aquatic science education. Continue efforts at the Environmental Science Area Resource for STANYS. Conduct presentations at conferences to inform teachers of New York Sea Grant and its educational efforts.

Work with, provide assistance for and support marine education efforts of ERIE II and Niagara/Orleans BOCES, the Aquarium of Niagara, the IJC-supported Center for Great Lakes Environmental Education, Great Lakes Student Summit, Erie County Environmental Education Institute, and other educational entities in counties along Lake Erie and Lake Ontario.

Serve as adjunct faculty for the Aquarium Science courts at Niagara County Community College, as part of their Animal Management Program. Teach an undergraduate Great Lakes Ecology course at SUNY Buffalo. Offer a graduate course for educators on tropical marine ecology in conjunction with the Curacao Seaquarium. Serve as a tutor and course evaluator through Empire State College for up to three courses in Marine Biology, Ichthyology, Biological Conservation, Aquaculture, Limnology, and other aquatic science-related courses.

Provide information and support to 75 individual teachers or students who request information on marine and Great Lakes ecosystem topics, Sea Grant extension programs, or marine-related careers.

Expected Outcome:
300 teachers will be educated and informed on coastal issues and made aware of educational materials produced by New York Sea Grant and other Sea Grant Programs, Cornell Cooperative Extension, the Great Lakes Sea Grant Network, NOAA and the National Estuary Programs of EPA.

Milestone:
Work to enhance the involvement of minority students in science and environmental careers. To facilitate this goal, serve on the Coordinating Committee for Science Exploration Day at the University of Buffalo to provide exposure to scientific careers and research for more than 1,000 high school students from ore than 25 local school districts.

Expected Outcome:

At least 200 students, especially females, minorities and students with disabilities, will learn about career possibilities in the field of aquatic/marine sciences to help improve the diversity of future scientists and technicians.

Objective b: **Prepare the next generation of coastal science professionals and decision-makers by supporting Sea Grant Scholars, by using New York's colleges and universities to transfer Sea Grant-developed information and by supporting Sea Grant Extension educators' service as adjunct faculty in selected courses and institutions.**

Milestone: Fund reprint costs and page charges for journal publications written by PIs and Scholars that result from sponsored research projects. Interview and feature Sea Grant Scholars in *Coastlines* articles where appropriate. Work with research project assistants to send masters and doctoral theses written by Sea Grant Scholars through the National Sea Grant Library.

Expected Outcome:
A high percentage of NYSG-sponsored research will be published in reputable science journals.

Objective c. Develop a New York State undergraduate internship program.

Milestone:
Implement an undergraduate internship program at the GL SUNY campuses that house Sea Grant offices (Brockport, Buffalo, Oswego).

Expected Outcome:
Improved working relationships will be developed between Sea Grant and these SUNY Campuses.

Objective d. Develop and distribute educational materials to Congress, state legislators, and stakeholders on the principles and theory of resource management and uncertainties in current methods for making predictions and management decisions.

Milestone:
Develop targeted information packets including NYSG's *Program Guide*, issue one-pagers, and other novel educational products to aid NYSG staff in educating the media, state and national legislators, agency representatives and other decision makers about how NYSG is currently contributing and can contribute in the future to wise decisions on the use of the state's marine and Great Lakes coastal resources.

Expected Outcome:
New York Sea Grant will reach more decision makers with appropriate messages and increase the chances of receiving funding during times of fiscal uncertainty.

Objective e: Provide non-formal education on Sea Grant issues and techniques to groups such as scouts, 4-H groups, etc.

Milestone:
Provide NYSG publications, images and other educational materials for displays at events such as the Ocean Sciences Bowl and make these materials available to all NYSG staff.

Expected Outcome:
NYSG presence at events will be easily identifiable as an integrated program of coastal research, extension and education.

Objective f. Develop and use new communications techniques and strategies (including publications, the internet, and the media) to aid outreach to stakeholders and to the general public in order to foster an educated citizenry.

Milestones:
Produce and distribute NYSG's flagship publication *Coastlines.* Meet with *Coastlines* editorial board and create a schedule for producing *Coastlines* three times per year. Create stories that integrate extension, education and research projects as well as Great Lakes and marine issues whenever possible. Request in advance any material to be contributed by Extension staff or researchers for upcoming issues. Prepare editorial and design of each issue, acquire images, track the publication's progress through production, printing and distribution.

Continue to identify key audiences and update mailing lists (currently approximately 7,000).

Create a meaningful reader survey to get feedback from the readership to determine whether appropriate audiences are being targeted with the quality of information that is useful to them and which has potential to change their behavior.

Expected Outcome:
Survey results will be used to ensure that *Coastlines* becomes one of the most outstanding newsmagazines of the Sea Grant network.

Milestones:
Coordinate with management and extension staff the development of publications, fact sheets, brochures, displays and other print or electronic media and provide a unifying design for these products.

Produce templates of each of these products using compatible software and post them to the NYSG *Communications Help* web site where all NYSG staff can download and use.

Maintain an inventory of technical and nontechnical publications in hardcopy and electronic form when possible. Fulfill publication requests that come to NYSG's offices. Distribute mandatory publications to University of Rhode Island's National Sea Grant Library. Use a database to track publications, those who request them, and how NYSG information is used in other publications.

Expected Outcome:
NYSG publications and web-based products will have a unified, identifiable and professional look and can be readily accessed by users.

Milestones:
Attend LI Coalition for Fair Broadcasting media events to expand media contacts in Long Island metro area.

Continue to supervise consultant publicist in Oswego area, reviewing and approving draft press releases and media hits.

Proactively seek a consultant publicist, writer, or communications intern in the Buffalo area to aid in the drafting and distribution of press releases.

Prepare and/or approve one press release monthly regarding issues or staff from both the Great Lakes and marine districts.

Provide media contacts, press kits, or press releases regarding research or outreach efforts for NYSG, regional or national meetings, conferences, or symposia as requested by state, regional or national SG offices.

Expected Outcome:
NYSG will see an increase in the number of media hits from NYSG generated press releases.

Milestones:
Expand NYSG's website to include in-depth information about and links to NYSG research, extension and educational activities. Create new sub-sites as requested by extension staff. Maintain the "Communications HELP" Web site that includes templates, high-resolution images and logos, printable products and a press release archive.

Work with the Great Lakes extension office to streamline and coordinates the look of the web sites on the SUNY and Cornell servers.

Continue using *WebTrends* software to measure the usage of the web site.

Working collaboratively with other SG programs and the Coastal Community theme team, develop a template for a Coastal Community CD that will be used not only by NYSG, but by other programs throughout the network with coastal users and planners.

Expected Outcome:
NYSG's web site and web-based products will be content-specific, visually appealing and readily accessible to users.

Milestones:
Initiate and develop new protocols and policies for an enhanced communications program in the Great Lakes. This includes developing a Great Lakes-focused media program, website maintenance, publication layout and editing, and other communication-type activities that are required to maintain a Great Lakes communication program.

Expand and update the NY Sea Grant Extension web site.

Expand and update the Eastern Lake Ontario Dunes and Wetlands web pages.

Expected Outcome:
A more professional image, and improved public relations, will be developed for NYSG in the Great Lakes region.

Goal 9. Develop new partnerships.

Objective a. Initiate a Sea Grant urban extension outreach effort in New York City.

Milestones:
Hire an urban fisheries specialist with funding from NYSDEC. Develop educational materials for use with the *I Fish New York Program,* and conduct fishing clinics for urban audiences.

Serve on the *I Fish New York* Steering Committee for NYSDEC.

Expected Outcome:
An urban fishing program will be launched in New York City, in concert with the New York State Department of Environmental Conservation.

Milestones:
Update HEP "Tip Strips" and produce a Harbor Estuary handbook with information on the natural resources of the estuary and what citizens can do to protect them.

Product the quarterly HEP newsletter, *Tidal Exchange* – Work with HEP partners to develop focus topics, recruit authors for articles, write articles, and edit, produce and distribute the final product.

Update "A Teachers' Guide to Water in the NY-NJ Harbor Region" to include estuary-related classroom activities and lesson plans that meet national education standards.

Create new poster exhibits and other display materials for events and festivals throughout the region.

Serve as Chair of the HEP Education and Outreach Work Group, consisting of representatives from HEP partner agencies and HEP CAC members.

Create an on-line searchable database of stewardship organizations, activities, internships and volunteer opportunities in the Harbor Estuary.

Coordinate an annual Harbor-wide celebration of National Estuaries Day.

Implement an updated HEP Mini-grant program to focus on achieving targets and goals of the program.

Convene a second NY-NJ Harbor Estuary Volunteer Monitoring workshop to encourage water quality monitoring by community groups, teachers and students.

Support the HEP CAC in establishing action-oriented subcommittees.

Expected Outcome:
New York-New Jersey Harbor Estuary Program (HEP) outreach activities and projects will be developed and coordinated to promote understanding and appreciation of the Harbor Estuary and increase stewardship involvement in its protection and restoration.

Objective c. Develop a comprehensive coastal and aquatic outreach effort with New York's Native Peoples, in concert with Cornell's American Indian Program, to aid them in managing and utilizing their aquatic resources.

Milestones:
Develop and carry out in partnership with the USGS biological survey and Akwesasne a training program that will assist ten Native resource managers in skills needed to better assess the aquatic (riverine) habitats and fish populations they manage.

Assist five Native American farmers in the area of aquaculture providing up-to-date information about current systems and techniques. Investigate the production of finfish and vegetative cropping (wild rice). Set up one demonstration project in each area.

Assist in the development of a fisheries advisory board at the Seneca Nation of Indians using one on one and group meetings with key volunteers and Nation leaders.

Assist business consultants, and tribal representatives of native communities along the St. John River, New Brunswick in developing and implementing plans for developing Atlantic salmon restoration/stock enhancement program and a charter boat industry.

Develop, write and distribute a monthly newsletter about the American Indian Program (AIP) outreach effort for communication to both the in-house and outreach communities.

Continue work in Native plant restoration working with culturally significant plants, such as sweetgrass, black ash, ginseng and other medicine plants as selected by the Program Work Group.

Expected Outcome:
The American Indian Nations in NY will more effectively manage the natural resources in their coastal regions.

Objective d. Maintain and improve positive relationships between the NYSG and existing and potential host institutions.

Milestones:

Working with the GL SUNY-based office coordinators, identify and implement opportunities to further enhance the relationship between SUNY and NYSG (i.e., seminar series, guest lecturing, advisory committees, direct programmatic opportunities).

Teach, as Adjunct Professor, a 700-level graduate seminar in Great Lakes Issues for the Master of Arts – Liberal Studies Program at SUNY Brockport.

Working closely as a four-member team (both specialists, the Clearinghouse Coordinator and the Administrative Assistant) evaluate the functions of both offices and identify those areas in which old methods of accomplishing office goals can be updated and made more efficient; develop and implement said improvements.

Work closely with Administration and faculty of SUNY Brockport to more closely integrate the resources of the New York Sea Grant Regional Office and Sea Grant's National Aquatic Nuisance Species Clearinghouse with the educational mission of the campus.

Expected Outcome:

Improve and maintain the effectiveness, efficiency and professional operation of the SUNY SGE Office, which will contribute to the success of the programming of the Regional Specialists.

Milestones:

Maintain proactive role in the Public Relations Team on Stony Brook University Campus including Communications, Photography and Illustration Services.

Maintain partnerships with Cornell Media Services and Cornell News Services.

Expected Outcome:

The visibility of NYSG program efforts will become more established within these institutions.

Issue D. NYSG ORGANIZATIONAL GOALS

Goal 10. NYSG will examine how funding can be increased for NYSG activities.

Objective a. Increase funds from federal sources.

Milestones:

Work with the Sea Grant Network to obtain yearly appropriations for the National Sea Grant budget at the authorized level by contacting NYS legislators via personal visits, letters, faxes and/or phone calls and presenting information about the value of NYSG and Sea Grant Network activities.

Develop legislative NYSG 'champions' to spearhead support activities with other Representatives and Senators.

Expected Outcome:
One or more NYSG legislative champions will take the lead in getting twenty or more of NYS's representatives and both Senators to provide signatures in support of the national appropriations.

Milestone:
Apply to manage federal funds, work with NYS PIs to apply for funds from non-core NSGCP federal solicitations, and leverage funding from other federal agencies for research and outreach projects.

Expected Outcome:
Maintain a significant budget of non-core federal funds for research and outreach activities.

Objective b. Increase NYSG funds from the state.

Milestones:
Contact NY State Senators and Assemblymen and the Governor's staff via personal visits, letters, faxes and/or phone calls and present information about the value of NYSG and Sea Grant Network activities. Encourage extension and research staff to develop contacts with state legislative district staffers.

Work with SUNY Central administrators to increase the NYSG budget line in the SUNY budget.

Encourage and assist fund raising from state sources by NYSG extension specialists.

Expected Outcome:
NYSG's funds from state sources will be increased.

Objective c. Increase NYSG funds from private organizations.

Milestones:
Continue to encourage and assist fund raising from private industry by NYSG extension specialists.

Work with PIs doing research or outreach projects of particular relevancy to business/industry to raise matching funds for the work.

Expected Outcome:
Half a dozen industries and/or businesses will contribute to NYSG activities each year.

Milestone:
Use the Fortune 500 company listing to identify potential sources of private funds and request information about NY-based companies for follow-up funding requests.

Expected Outcome:
A decision will be made about the benefit cost (primary cost is expected to be NYSG management effort) of approaches to foundations and whether this is a valid option for obtaining additional NYSG funds.

Objective d. Increase funds by collaborating with others.

Milestone:
Identify and meet with communications specialists and managers from other organizations and examine possibilities for developing mutually beneficial products.

Expected Outcome:
NYSG will expand its resources by co-producing and cost sharing communications products with other organizations that support NYSG goals.

Milestone:
Seek collaborations with NGO environmental groups to develop proposals for funding of research/extension efforts.

Expected Outcome:

NYSG will obtain cooperative funding for strategic activities.

Goal 11. NYSG will improve its reputation among decision-makers as a leader in generating objective, science-based information for application to coastal issues.

Objective a. Increase input of the best scientists toward defining the coastal resources research areas where efforts can have large impacts on scientific progress.

Milestone:
Determine how best to obtain such input of advice and implement it.

Expected Outcome:
Potential scientific progress can be incorporated along with programmatic usefulness into research priority setting.

Objective b. Increase the value of NYSG research results by optimizing the protocols for implementing the Special Focus Area.

Milestone:
Identify a protocol for planning for NYSG's Focus Topic area that will involve more state researchers and increase the number of submissions for the next omnibus.

Expected Outcome:
Better proposals will be submitted, competition will be intensified and the likelihood of stepwise progress will be increased.

Goal 12. NYSG will increase its role as a key collaborative liaison among NYS stakeholders in coastal issues.

Objective a. Identify partnerships that can be developed or enhanced by having NYSG staff serve on additional committees or boards so that the program can better serve its user groups in the state, region, and nation.

Milestones:
The Director, Associate Director and/or Assistant Director will meet with the heads of at least six relevant NYS or federal agencies or programs or with non-governmental organizations to find areas of mutual interest related to coastal resource issues.

NYSG will initiate at least two new cooperative efforts with these organizations and arrange for new appointments of NYSG staff to advisory committees or boards of these organizations.

Expected Outcome:
NYSG managers or staff will influence activities of at least two new state, regional or national groups involved with coastal resource issues.

Milestones:
NYSG staff members who already serve on advisory committees or boards of coastal decision-making organizations will identify potential collaborative opportunities to be taken with those groups, even if they require NYSG resources to implement.

At least six staff members will bring ideas for potentially effective collaborations to the Management Team for discussion and approval.

Expected Outcome:
NYSG will implement at least one new collaborative activity through this mechanism to accomplish an activity of benefit to the state of science knowledge, to our stakeholders, and/or to coastal resources directly.

Goal 13. NYSG will develop ways to demonstrate better the success of the program.

Objective a. NYSG staff will participate heavily in documenting accomplishments in their areas.

Milestones:
NYSG Management will explore how other similar groups evaluate their successes (what metrics are useful, etc.).

A list of metrics and processes used by others to document success will be compiled and considered and appropriate ideas will be evaluated for adoption by NYSG.

Expected Outcome:
NYSG will identify common metrics to measure impacts of its components - research, outreach and education.

Milestone:
In-service education on program evaluation will be made available to all SG staff.

Expected Outcome:
Program evaluation will be seen as an opportunity by SG staff to show program accomplishments. Extension specialists will spend up to 10% of their total effort on program evaluation; other staff may devote even greater portions of their time to this.

Objective b. Identify and implement additional techniques and processes to continuously document NY Sea Grant programmatic accomplishments.

Milestones:
NYSG extension will improve its NYSG Narrative database so that accomplishments are recorded by state and federal legislative district and can be distributed to legislators and other interested parties on a regular basis.

The NYSG research program will continue to evolve its process to report on results, successes and impacts of the research it has funded.

Expected Outcome:
NYSG will significantly increase its ability to report program accomplishments to legislative districts and regions of NY State that have been impacted by SG efforts.

Objective c. More fully utilize its statewide PAC, district PAC's and individual extension specialist PAN's to evaluate program efforts.

Milestone:
NYSG Management will explore how other Sea Grant programs utilize their advisory committees for evaluation, develop protocols to use its own advisory committees for effective evaluation and conduct such evaluations.

Expected Outcomes:
NYSG will be recognized as having one of the best programmatic efforts in the network.

Program funding opportunities will increase due to NYSG's ability to evaluate and report on its program accomplishments.

Objective d. Identify and implement effective communication evaluation practices

Milestones:
Through the use of a communications advisory committee made up of specialists and managers explore how other organizations evaluate publications, websites and media coverage.

Work with the Sea Grant Communications Network to assess and update systems of evaluating program efforts.

Expected Outcomes:
NYSG communications will conduct evaluations of its efforts using techniques that are generally acceptable and effective.

Using these techniques, NYSG will demonstrate its substantial value to internal and external stakeholders.