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# THE JERSEY SHORELINE

## Klein Takes Sea Grant Helm

by Kim Kosko

Dr. George D. Klein, who officially took the helm as President of the New Jersey Marine Sciences Consortium (NJMSC) on August 1, 1993, was recently designated Director of the New Jersey Sea Grant College Program. Dr. Klein was appointed to the Sea Grant post following Bill Gordon's departure this summer. Gordon, who served as New Jersey Sea Grant Director since 1989, has relocated to Denver, Colorado, but will continue to provide consultant services to NJMSC.

Dr. Klein is a marine geologist who received his B.A. from Wesleyan University in Connecticut, an M.A. from the University of Kansas, and a PhD. in Geology from Yale University.

In the past two decades, Dr. Klein's academic career and visiting appointments have literally spanned the globe, including a Visiting Fellowship at Oxford University, England; Visiting Professor of Geology and Geophysics at the University of Berkeley, California; Sedimentologist and Visiting Scientist at Scripps Institution of Oceanography, San Diego, California; Visiting Professor of Geophysical Sciences at the University of Chicago; Visiting Professor of Oceanography at Seoul National University, Korea; Visiting Professor of Marine Geology at the University of Tokyo, Japan; and Visiting Professor of Geophysics at the University of Utrecht in the Netherlands.

Dr. Klein's work has been recognized worldwide, with a number of awards and citations, including: a Visiting Fellowship at Oxford University, England; the SEPM Outstanding Paper Award for 1970 Journal of Sedimentary Petrology; A Citation of Recognition from the Illinois House of Representatives; A Senior Research Fellowship at the Ocean Research Institute, University of Tokyo; and a Senior Fulbright Research Fellowship in the Netherlands.

Born in Den Haag, Netherlands, Dr. Klein moved to the U.S. in 1947, where his first landfall, appropriately enough, was Hoboken, NJ, and later became a U.S. citizen. After graduating Mamaroneck High School in New York, Dr. Klein went on to build a distinguished research career in marine geology.

Previous geological projects at Island Beach State Park have helped familiarize Dr. Klein with New Jersey's marine and coastal issues and challenges. Dr. Klein's immediate goals as President of NJMSC



*Dr. George D. Klein*

and Director on New Jersey Sea Grant will include focusing on performing research and educational services that are "excellent and relevant to the needs of the state of New Jersey and the region in marine sciences, particularly as it relates to the environmental field."

Dr. Klein expects NJMSC and Sea Grant to undertake expanded research in coastal erosion and remediation, coastal environmental assessment and abatement, improved coastal engineering design, fisheries research, and wetlands research.



## Sea Grant Staff Shuffle

A number of noteworthy changes have taken place among the New Jersey Sea Grant College Program staff. Following Bill Gordon's departure, Dr. George D. Klein has been named Program Director (see article at left). Linda Fiorello, secretary to past NJMSC President Dr. Bob Abel, has been designated Sea Grant Secretary. Linda replaces Sandra Reill, who recently relocated to North Carolina with her family. Debbie Gallagher from NJMSC's Accounting Department will now be working full-time as Grants Administrator for the Sea Grant Program. Susan Press, also from NJMSC's Accounting Department has been

appointed to the newly created post of Sea Grant Program Associate, and will handle day-to-day administrative and managerial support tasks. John Tiedemann, whose title and duties have been redefined, has been named Director of Research, Education and Outreach, and Rachel Salas-Didier has been designated Assistant Director of Research, Education and Outreach. Both John and Rachel will be concentrating primarily on education programs for both NJMSC and Sea Grant.

New Jersey Sea Grant Communications has revised its one-page program fact sheet which reflects all these changes

and includes a brief overview of the program's goals and accomplishments. For a free copy of the fact sheet, contact the New Jersey Sea Grant Communications office at 908/872-1300.



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## Putting the Byte on Shellfish Farming

Although aquaculture is still a fledgling industry in New Jersey, oyster farmers can already turn to state-of-the-art computer software to help predict the potential profitability of existing or prospective shellfish farm operations. The unique software program was spawned from an aquaculture research project headed by Standish Allen, Assistant Professor at Rutgers University and sponsored by the National Coastal Resources Research and Development Institute (NCRI) at the Rutgers University Haskin Shellfish Research Laboratory. The user-friendly software and corresponding guide were recently mass-produced and are currently being marketed with funding from a New Jersey Sea Grant College Program Development Grant (Shellfish Farm Spreadsheet and Economic Analysis Software Package and Users' Guide, R/F-71D).

A longtime advocate of aquaculture, Stan Allen has spent most of his academic and professional career conducting oyster research, specifically breeding and genetic manipulation. In his search for ways to apply his findings within the aquaculture industry, Stan has previously teamed up with Sea Grant. As a result of his triploid oyster production project in Washington State in the late 1980's, Stan teamed up with Washington Sea Grant and New Jersey Sea Grant (which provided technical assistance and a video crew), to produce a video and companion manual on Triploid oyster production.

When Stan relocated to the East Coast five years ago, his work at Rutgers Haskin Shellfish Research Lab focused on a special breed of oyster resistant to MSX disease, a plague on oysters and contributor to the decline of the fishery for nearly a decade. While researchers had been successful in their attempts to produce a MSX-resistant bivalve, the industry lacked the infrastructure to grow it. According to Allen, the slow growth rate of the state's oyster culture industry, is the lack of demonstration of its economic viability. "One of the major goals of our genetics program, is to try and produce a breed of oyster that will be valuable for cultivating in the mid-Atlantic region, but the state and region also require an industry that's prepared to use it."

Stan spotted an ideal opportunity to encourage the development of aquaculture on a state and regional level, through the NCRI sponsored research program. Collaborating with Stan were NCRI Project Manager, Dr. David Jones and Dr. Lee Anderson, an economist from the College of Marine Studies at the University of Delaware. "The overall goal of the demonstration project was to determine the economic feasibility of oyster grow-out using rack and bag culture of MSX-resistant, cultchless oysters. Specifically, we were trying to estimate the biological parameters that affect the feasibility of oyster farming in this area" noted Allen. "Our principal questions were: How do the biological parameters affect the economics, and what are the sensitive features of an economic model?"

"As part and parcel to the project, Lee Anderson developed a spreadsheet to accomplish the economic analysis. We were able to come up with a computer spreadsheet that worked, but was hard to use. I then contacted Kenneth Cooper, a colleague from Washington state, who was able to convert the spreadsheet into a user-friendly computer program."

The resulting product was an easy-to-use software program, available for IBM compatible computers (Excel version 4.0) or for Apple Macintosh. It provides the prospective oyster farmer with a preliminary estimate of the profitability of a particular operation. According to Allen, "The program is basically designed to demonstrate whether a particular aquaculture project is a good investment, taking every financial factor into consideration. Since the program is based in Microsoft Excel, it's user-friendly, relying on icons and intuition to advance users to different screens of spreadsheet analysis. Each screen can be printed for an up-to-date summary of values. Changes can be saved for later use, or default values can be used to reset the entire spreadsheet. The program can be applied to any scale of operation with different needs and potentials for financing. In short, it's a tool that's easy to use and helpful in understanding the economics of oyster farming. It can also be adapted for use in other types of shellfish operations."

Allen believes the hard copy guide and software package, now being marketed and distributed by the New Jersey Sea Grant College Program's Communications Department, will be helpful to existing and potential aquaculture operations not only in New Jersey, but nationwide and will also be appropriate and useful for classroom and other instructional environments.

  
KIM KOSKO, EDITOR

## Director's Message

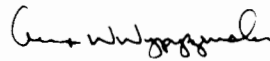
When I arrived in New Jersey a dozen years ago, the beach access issue was headline news, and a number of towns along the Atlantic coast were being challenged in the courts because of restrictive ordinances and policies. At the time, the New Jersey Supreme Court had made landmark public trust doctrine and public beach access decisions and would within a few years make another. . . the famous Bay Head decision.

It seemed then that the courts and the public were beginning to realize that attempts by some municipalities to deny or restrict the right of people to gain access to public beach areas are fundamentally wrong. The language of the New Jersey Supreme Court decisions is fairly explicit. In 1972 for example, the Court said in the case of Neptune City v. Borough of Avon-by-the-Sea that "where a municipal beach is dedicated to public use, . . . the beach and the ocean waters must be open to all on equal terms and without preference and that any contrary state or municipal action is impermissible." The ruling and its wording seem simple and straightforward.

Unfortunately, delay was and still is a common litigation tactic employed by the recalcitrant few towns still trying to maximize access to municipal beaches for local residents and guests, and minimize access by all others. The New Jersey Public Advocate's Office has been forced to spend taxpayer funds to negotiate *ad nauseam* and to litigate when necessary over access points, restrictive parking ordinances, the cost of beach badges and other discriminatory practices. And the legal battles continue.

In 1988, sixteen years after the Avon decision, the Borough of Seaside Park agreed to remove a fence between the six block "daily" beach and the rest of the thirty-two block municipal beach. Today, Seaside Park continues to attempt to restrict daily beachgoers to the smaller area by limiting daily badge sales to certain entrances and by a sign marking off the daily beach area. The Public Advocate is back in court to challenge Seaside Park's beach management policy. The Borough is willing to go back to court to try and preserve the status quo.

Considering the ruling in the Avon case twenty-one years ago, the only remaining question regarding public beach access, is why are restrictive beach access policies still being practiced in New Jersey? The matter has already been settled.

  
DIRECTOR, NJSGMAS

## Kids Hooked on Fishing

by Dr. Eleanor Bochenek, Marine Agent

In conjunction with National Fishing Week, the New Jersey Sea Grant Marine Advisory Service (MAS) helped cast new angles on recreational fishing to dozens of Ocean County youngsters. Dr. Eleanor Bochenek, Marine Agent for the New Jersey Sea Grant MAS was one of the principal participants in a special program designed to educate a group of third and fourth grade students from Point Pleasant, NJ about recreational fishing, aquatic resources and marine conservation.

Greg Kucharewski, Youth Education Director for both the Shore Surf Club and the Jersey Coast Anglers Association organized the program, in cooperation with the New Jersey Division of Fish, Game and Wildlife; the New Jersey Sea Grant Marine Advisory Service; the Coast Guard Auxiliary; the New Jersey Beach Buggy Association; Allaire State Park; the Point Pleasant Business Association; the Point Pleasant Beach Police Department; the Manasquan Fire Company Woman's Auxiliary; the Point Pleasant Beach Council; several local tackle dealers; and nearly a dozen businesses in Ocean and Monmouth counties.

Students from the G. Harold Antrim School in Point Pleasant Beach were among the first group of youngsters selected to participate in the *Pathway to Fishing* and *Hooked on Fishing Not on Drugs* programs launched by the state early this summer. A cooperative effort of the U.S. Fish and Wildlife Service, Bureau of Land Management, National Park Service, the USDA, and the Forest Service, *Pathway to Fishing* is designed to teach basic fishing skills and aquatic conservation by using twelve learning stations that prepare them step-by-step for an actual angling experience. *Hooked on Fishing Not on Drugs* is a program designed by the Future Fisherman Foundation that can be used to complement existing drug awareness programs in schools.

Support materials for the programs included an Aquatic Resource Curriculum, teachers guide, Sport Fishing Aquatic Resource Handbook, bumper stickers, pledge cards and Fishing Fun Booklets.



Fourth grade students from G. Harold Antrim school in Point Pleasant Beach gear up to get *Hooked on Fishing*.

Prior to the actual day of the program, teachers were asked to show two videos to class participants. One demonstrated the skills needed to become a good angler, and the other emphasized an anti-drug message, promoting the advantages of getting hooked on fishing instead of drugs. In mid-June, just prior to the end of the school year, the selected group of students met in their gymnasium, where they received an educational fishing packet. They then visited each of the twelve learning stations that are geared to build a foundation of recreational fishing knowledge that both enhances angling skills and promotes conservation. Information offered at the stations include: fish biology; fish habitats; baits and lures for freshwater and saltwater; rods and reels; tackle and knot tying; casting techniques; hands-on casting; detecting fish bites; hooking and landing your catch; proper handling and releasing; and local fishing opportunities and regulations.

At the end of the program, each student was given a packet of materials to take home along with an anti-drug use pledge card. They were also instructed to take the signed pledge card to participating program sponsors and local merchants where they would receive a free gift.

Initial response to the program has been extremely positive. Participants on every level; volunteer instructors, teachers, students, and sponsors rated it extremely worthwhile and recommend it be offered to other students in school systems throughout the state.

If you'd like more information about either program, contact Dr. Eleanor Bochenek at 908/349-1152.



## Aquaculture Captivates Inmates

by Gef Flimlin, Marine Agent

They've committed no wrong, but over four hundred hybrid striped bass are being incarcerated at the Ocean County Department of Corrections Community Work Group Facility in Toms River, New Jersey, as part of a cooperative aquaculture effort between the New Jersey Sea Grant Marine Advisory Service and the County Corrections Department. The project involves a recirculating fish culture system that has been set up in a greenhouse behind the county work group's building.

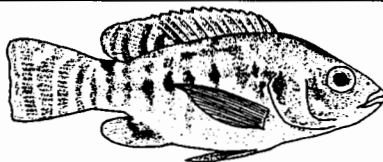
Under the supervision of Lt. Richard Therein, inmates from the County Jail with good records and little time left on their sentences, are placed at the work facility. There the inmates, or trustees as they are also called at the facility, participate in various work projects for the county and selected municipalities, such as debris pick-up, building handicap accesses for beaches and even participating in the hard clam spawner sanctuary which was organized by the NJSGMAS several years ago. The facility itself has a one-half acre garden in which fresh vegetables are grown for the corrections department. The addition of a greenhouse in 1992, sparked the interest in a potential fish culture system.

With funds provided by a NJSGMAS Rapid Response Grant, I worked with Warden Ted Hutler, and the rest of the Corrections Department, to incorporate aquaculture within the facility's existing agriculture ventures. The greenhouse was visualized as a place where seeds could be started to plant in the jail's vegetable garden, and to produce ornamental plants

(Continued on page 5)

# Strictly Seafood

by Claire Antonucci  
NJ Sea Grant Correspondent



THE STATE UNIVERSITY OF NEW JERSEY  
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Campus of New Brunswick



Americans are becoming more adventurous when it comes to seafood. Which fish do they order when they want to try something new? According to a recent consumer survey conducted by *Simply Seafood Magazine*, tilapia is the fish catching the public's fancy. Nearly 60 percent of the survey respondents reported trying a new seafood within the past year, and tilapia was the seafood most often tried for the first time.

Tilapia is a mild-tasting, freshwater fish that, according to seafood lore, is the fish caught by St. Peter, used by Jesus to feed the multitudes on the shores of Galilee. (In Israel, where it's widely farmed, tilapia is sold as "St. Peter's fish.")

While tilapia is now farmed in dozens of states in the U.S. including New Jersey, most of the supply comes from farms in Latin America and Southeast Asia, where the fish, a native to Africa, is less expensive to produce. To put tilapia's increased popularity in perspective, consider this. In 1993, the total U.S. tilapia supply, including domestic

production and imports, could be in excess of 20 million pounds. In 1990, the supply was less than 2 million pounds.

What makes tilapia so popular? Since the fish is a vegetarian, aquaculturists say its production costs are fairly low. In addition, their ability to interbreed easily make it possible to produce hybrids suited for specific market needs and environments. From a consumer's standpoint, tilapia's white flesh and mild, sweet flavor are ideally suited for American appetites. For the calorie conscious, tilapia is an ideal fish dish, at 80 calories per three ounce serving. Best baked, fried or poached, it can also be substituted in recipes calling for more expensive, less available species, such as grey and Dover sole.

Tilapia is now available year-round at many seafood retail stores and supermarkets. If you'd like to experience a change of pace and taste in seafood, see for yourself why chefs and consumers from coast-to-coast are promoting tilapia as a delicious seafood value for the '90's.



## Sea Sense

by John Tiedemann  
Director of Research, Educational  
Outreach

Barnegat Bay provides recreational, economic, and aesthetic benefits to the coastal users of New Jersey which are directly dependent on the overall vitality of the Bay's ecosystem. The land that makes up the Barnegat Bay watershed has undergone dramatic growth in the past few decades and continues to be one of the fastest growing areas of the State. During the 1980's the municipalities surrounding the Bay reported population expansions that, on average, exceeded 20%. The watershed is now the year-round home for nearly 435,000 people and that population more than doubles during the summer season with municipalities on the barrier islands bordering the Bay on the east experiencing a nearly ten-fold increase in population.

Because of concerns raised by citizens over development pressures around the Bay which can adversely affect the Bay's water quality and ecology, the New



Jersey Legislature passed Public Law 1987 Chapter 397, creating the Barnegat Bay Study Group. The Study Group was charged with developing an environmental inventory of land use patterns, non-point sources of pollution, water quality, fish and wildlife habitats, wetland areas, navigability, and growth patterns around the Bay and preparing management options for protecting the environmental future of the Bay region.

The New Jersey Department of Environmental Protection and Energy (DEPE) used the environmental inventory along with suggested management options to develop a comprehensive environmental management plan for the Barnegat Bay watershed, known as The Watershed Management Plan for Barnegat Bay. The Watershed Management Plan drafted by the DEPE is ambitious and multi-tasked; however, (Continued on page 5)

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Alex Wypyszinski  
Director, NJSGMAS

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## Captive Inmates (Continued from page 3)


that could be used for landscaping other county buildings. It was suggested that a fish culture project could supply an extra source of food for the jail, and also double as hydroponic plant growing system in the future. What made the prospect even more feasible, was the fact that equipment purchased with a previous grant from Rutgers Cooperative Extension, which had been used at Estell Manor in Atlantic County Park, could be used for part of the fish culture system.

The tank system itself and the electrical work was completed through the outstanding cooperation of the Ocean County Buildings and Grounds Department's Plumbers and Electricians.

The system is a very basic one, which centers around two four-hundred gallon plastic fish tanks, one three-hundred gallon biological filter tank with a rotating biological contactor, and two fifty-five gallon drums, which act as settling filters. The water is moved

throughout using air lifts powered by a small air pump. The hybrid striped bass used to stock the tanks, purchased from DelMarVa Aquatics, a fish hatchery located in Odessa, Delaware, were placed in the system in late July. Two trustees have been assigned to watch the system, clean the filters, feed the fish, and perform daily water quality tests. With my assistance, Sergeant James Davis and Officer John Clark have been in charge of the overall management of the project.

Although the fish are only about four inches long right now, it's hoped they'll grow to between one-and-a-half and two pounds by winter, when they'll wind up on the inmates' dinner plates. While the fish won't realize a huge savings for the Corrections Department's food budget, the system has helped teach the inmates responsibility and provided some educational opportunities during their rehabilitation. The possibility also exists that if the County builds a larger jail facility, an aquaculture system of larger tanks or even ponds, could be incorporated into the design.

Meanwhile, fish culture is a trend of the future. Its inclusion in vocational training is currently growing. And projects such as this one with the Corrections Department, is certainly a good way to spread the word about aquaculture and at the same time, educate a captive audience. 



Sgt. Jim Davis (left) looks on as a trustee participant tests the waters for the fish culture project.


## Sea Sense (Continued from page 4)

implementation remains unfunded. In addition, The Watershed Management Plan must be viewed as working document which will continuously need to be revised, refined, and updated.

Although many citizen-based organizations focusing at least partially on the Barnegat Bay region exist, most rely heavily on volunteers and have a full schedule of existing programs. During the development of the final Watershed Management Plan for Barnegat Bay it became apparent that there was strong consensus that there is a need for a Barnegat Bay Watershed Association. A Watershed Association is a nonprofit citizen's action organization made up of people who live where the problems are and who have the most to gain by solving these problems. Instead of having to limit its activities to a single municipality, a Watershed Association can function throughout the natural boundaries of the region draining into a waterbody.

Because it is intimately familiar with the problems of its locality and can meet them with local leadership, understanding, and initiative, a Watershed Association can act directly to educate the public in protecting resources and to promote better land use laws. It can encourage action by Municipal, County, and State agencies.

The New Jersey Marine Sciences Consortium/New Jersey Sea Grant College Program Education and Outreach Program has been actively assisting with the formation of the Barnegat Bay Watershed Association. The Barnegat Bay Watershed Association will be a private, not-for-profit corporation, eligible to receive tax exempt gifts and donations. There will be two categories of membership: organizational and individual. The Barnegat Bay Watershed Association will be governed by a Board of Trustees composed of Officers and Directors at-large selected from the organizational members.

In order to facilitate educational efforts within the Barnegat Bay Watershed, the New Jersey Sea Grant College Program has initiated a project that will result in the development of a well directed, comprehensive bay-wide educational program that complements the goals and objectives contained in the recently published Watershed Management Plan for the Barnegat Bay Watershed. The project will facilitate the identification and assessment of educational needs and the establishment of environmental education priorities. The comprehensive education program for the Barnegat Bay watershed will build a local and regional capacity to deliver environmental education throughout the watershed. For more information about the project, contact New Jersey Sea Grant at 908/872-1300. 

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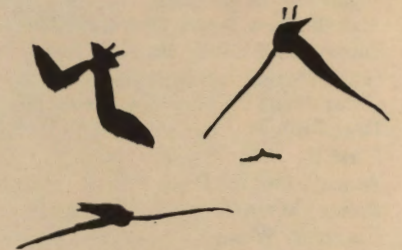
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