

PEP TALK

The Newsletter of the Peconic Estuary Program

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Aquaculture: Underwater Leases in Peconic & Gardiners Bays

Suffolk County has a new Shellfish Aquaculture Lease Program for Peconic Bay and Gardiners Bay. This new program will provide access for commercial shellfish aquaculture operations on certain designated underwater lands in Peconic and Gardiners Bays. The State of New York ceded title to approximately 100,000 acres of underwater lands in Peconic and Gardiners Bays to Suffolk County for the purpose of shellfish cultivation, and authorized the County to prepare, adopt and implement a shellfish aquaculture lease program for this region. While Suffolk County can convey the underwater land for shellfish cultivation, New York State will regulate shellfish cultivation. The County controls: the location of shellfish farms through issuance of leases on underwater land within a formally adopted Shellfish Cultivation Zone; and the extent and intensity of aquaculture use through limits on lease size and number.

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SPAT: A model for community based shellfish restoration

The Southold Program in Aquaculture Training (SPAT) is hosted by Cornell Cooperative Extension (CCE) of Suffolk County, Marine Program and was created to encourage community members to become stewards of their environment and to restore shellfish to the bays. To date, over 400 people have taken part in SPAT activities and that number continues to grow each year. SPAT volunteers are provided with the tools and instruction needed to help

produce shellfish to seed the bays. Volunteers maintain the hatchery (“SPAT Shack”) and nursery where they work with expert CCE Marine Program staff to cultivate and grow shellfish in containment where they are safe from predators. Once the shellfish reach adult size, SPAT volunteers are permitted to harvest half of the shellfish they worked to raise for their personal consumption, while the other half are released into local creeks and bays.

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PEP Report to the National Estuary Program

In 2006 the Environmental Protection Agency (EPA) released the National Estuary Program On-Line Reporting Tool (NEPORT). This tool is a web-based database that EPA developed for all 28 National Estuary Programs (NEPs) to submit annual information on habitat restoration and protection efforts (reported in acres) and on investments in environmental protection efforts (termed “leveraging” which is reported in dollars). NEPORT was created to reduce the reporting burden on NEPs, standardize reporting requirements and to enhance quality assurance and quality control.

Since 2006, the Peconic Estuary Program (PEP) has reported leveraging and habitat restoration information to NEPORT. As access to NEPORT is not available to the general public, the Program Office is disseminating a summary of the reported information for 2009 with the PEP Talk audience.

The increasing concentration of people living along the coast is placing additional stress on estuaries and the surrounding areas resulting in a loss in both the quantity and quality of important ecological habitats. The NEPs have implemented wide-ranging actions to address habitat loss and degradation, as well as to permanently protect and restore these valuable areas. These actions are carried out by the NEPs and their many Federal, State and local agency partners.

Since 2000, NEPs and their partners have protected and restored over 1 million acres of habitat. Within the Peconic Estuary watershed, since 2006 over 1,132 acres were protected by land acquisitions. In 2009 the PEP reported 20 habitat restoration projects ranging from land acquisition to invasive species removal. More than 200 acres were directly acquired for permanent protection including agricultural land, wetlands and forested areas in the watershed.

The second aspect of NEPORT reporting is related to leveraging of resources. EPA encourages and promotes the adoption of sustainable financing strategies by each of the 28 NEPs. The NEPs receive Federal funding each year authorized under Section 320 of the Clean Water Act. These core funds enable the NEPs to raise additional dollars and to obtain additional in-kind resources from other government agencies, private entities, nonprofit organizations, and individuals. The funds raised are used to implement the NEPs’ Comprehensive Conservation Management Plans (CCMPs). By leveraging EPA funding with these additional funding sources, the NEPs have the ability to accomplish more and also give their organizations a more stable financial foundation. By developing strategic alliances with implementing partners, the NEPs have leveraged approximately \$16.50 for every \$1 of EPA funding (where NEPs played a primary role in obtaining the funding).

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PEP Talk is published by the Peconic Estuary Program (PEP), a partnership of governments, environmental groups, businesses, industries, academic institutions, and citizens. The PEP’s mission is to protect and restore the Peconic Estuary system. Learn more at www.peconicestuary.org. Edited by Emily A. Fogarty



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As a result, nearly \$1.11 billion has been generated through individual, private, local, State and Federal partnerships to support implementation of CCMPs since 2003. This funding is raised from annual membership appeals, grants, license plate revenues, fines and penalties, taxes, and intergovernmental agreements. Since NEPORT reporting began in 2006, the PEP has leveraged more than \$170 million dollars. In 2009, the PEP assisted in leveraging over \$25 million dollars for projects ranging from land protection to eelgrass groundwater interaction studies to preparation of local waterfront revitalization plans.

The PEP will continue to document programmatic successes through NEPORT and will continually strive to exceed commitments of leveraged resources and habitat protection.

PEP Adopts “Eelgrass Management Plan for the Peconic Estuary”

In June 2009, after undergoing extensive review and revision by the Peconic Estuary Program Natural Resources Subcommittee, the Peconic Estuary Program Management Committee adopted the “Eelgrass Management Plan for the Peconic Estuary.” The innovative plan details specific management objectives, actions, and steps designed to help protect and restore this ecologically and economically valuable resource. Once bountiful throughout the pristine waters of the Estuary, eelgrass abundance has fallen victim to an alarming, downward trend. Since 1930 the Peconic Estuary has lost over 80% of its eelgrass beds. The loss is attributed to multiple stressors including wasting disease and Brown Tide. The Eelgrass Management Plan outlines actions that government, residents, stakeholders and user groups can collectively undertake to ensure the protection and restoration of eelgrass and eelgrass habitat.

PEP’s Eelgrass Management Plan, the first developed for any New York estuary, will serve as a model for other estuaries in the region suffering from similar declining trends. Based upon the Plan, the New York State Seagrass Task Force is developing recommendations which are to be presented to the NYS Governor and Legislature later in 2009. The Peconic Estuary Program looks forward to working with all partners to help implement the Eelgrass Management Plan and further protect and restore this invaluable habitat.

The Peconic Estuary Program’s “Eelgrass Management Plan for the Peconic Estuary” is available on the PEP website www.peconicestuary.org.

~Laura Stephenson, NYSDEC/PEP

Calendar of Events

January 20th, 2010 - Citizen’s Advisory Committee Meeting (6:30 pm-9:30 pm), Hampton Bays Senior Citizen Center, Ponquogue Ave., Hampton Bays

For more information visit: www.peconicestuary.org/calendar.html

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The study identified 29,969 acres for a Shellfish Cultivation Zone which includes New York State Department of Environmental Conservation-issued Temporary Marine Area Use Assignment locations; historic, private oyster grants; and other contiguous areas where the impacts and potential conflicting uses will be minimal. Lease applicants are required to obtain all necessary regulatory permits from relevant government agencies for conducting on or off-bottom shellfish culture activities on their leases, including a shellfish culture permit from the NYSDEC once a lease is issued.

In addition to addressing the access needs of existing shellfish aquaculture businesses, the lease program will accommodate limited growth in the industry. Leases for new shellfish farms will consist of 5 or 10 acre underwater parcels. New shellfish aquaculture leases will be limited to a total of 60 additional acres each year, for a maximum of 600 acres leased by the tenth year of program implementation. Including those participants currently cultivating shellfish in the estuary that will be given the opportunity to continue in the program, the maximum area that could potentially be leased during the first 10 years of program implementation is 3,174 acres, given the structure and requirements of the program. The total potential area is less than 3% of the area under County lease jurisdiction and is expected to be substantially less in actuality. The program also provides municipalities, researchers, and not-for-profit entities with the opportunity to obtain non-commercial shellfish cultivation leases for experimental, educational, and shellfish resource restoration purposes.

Implementation of the Lease Program will increase private investment in shellfish aquaculture businesses, and shellfish farms will be established at specified locations that do not pose conflicts with commercial fishermen and other bay users. This, in turn, will expand the marine-based economy of Suffolk County and create jobs that contribute to the quality of life and sense of place in East End communities.

The production of large numbers of oysters, hard clams and bay scallops in dense populations on shellfish farms will augment the spawning potential of off site native shellfish populations. The millions of filter feeding bivalves on shellfish farms is expected to exert a positive influence on water quality by helping to control nutrient cycling and contributing to the prevention of noxious plankton blooms, such as brown tide. These and other ecosystem services associated with shellfish farms are to be provided on a sustainable basis at little to no cost to the general public.

The Suffolk County Department of Planning is in the initial stages of implementing the Lease Program and recently held an informational meeting for prospective lease participants at Cornell Cooperative Extension in Riverhead, NY. For more information on Suffolk County's Aquaculture Leasing Program, please visit the program website: www.suffolkcountyny.gov/aquaculture.

~Prepared by Suffolk County Department of Planning

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This process allows an increased likelihood of reproductive success and in turn will help to replenish the shellfish population in our local waters. To become a member of the SPAT program, visit <http://ccesuffolk.org/membership> or contact Mr. Kim Tetrault, the Director of the program, at 631-852-8660 ext. 34, or via email at kwt4@cornell.edu.



SPAT Happens!

Photo By: K. Becker

The following is an abbreviated listing of some of the SPAT programs activities and accomplishments:

- **Participation in all aspects of aquaculture, for the production of seed for local enhancement** - 2009 total seed production was in excess of 5 million shellfish seed from 3 species. SPAT maintains a shellfish hatchery on site at the Suffolk County Marine Environmental Learning Center (SCMELC) in Southold;
- **Successful fundraising to help support the SPAT program, including boat raffles, cookbooks, events, etc.** - SPAT has been self financed for the past nine years and has added much equity to CCE's Marine Program;
- **Development of educational components including local school groups learning about shellfish aquaculture techniques** - Currently, four schools and eight summer groups participate, and a new expansion of school groups is actively under way, the most recent being Southold School/BOCES;
- **Volunteer assistance with projects at the Marine Center including the scallop restoration initiative which is an ongoing five year program** - SPAT assists with all aspects of infrastructure building, production of seed and aids in field work;
- **The creation of new SPAT membership area gardens** for 2009 including the Sag Harbor Oyster Club (36 member families), Southampton Oyster Garden at Tiana Beach (13 families) and the Bellport Oyster Club (newest endeavor with 3 families to start and negotiations being carried out for rapid expansion). For more information on SPAT check out the Program's website at <http://ccesuffolk.org/spat>. ~Kim Tetrault, CCE

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The neurotoxin it releases can kill finfish and shellfish quickly when present in large concentrations. His research group has isolated cells to form laboratory cultures which have been investigated in conjunction with the collection of bloom water from the Peconics. They have published some of their results in a series of manuscripts in international, peer-reviewed journals in 2008 and 2009. They have found that bloom water and cultures isolated from the Peconic Estuary are capable of killing phytoplankton, zooplankton, fish, and juvenile and larval shellfish including bay scallops, hard clams, and oysters in a matter of hours to days. During widespread blooms of 2008 and 2009, fishermen have reported mass mortality of fish held in pound nets in the Peconics and neighboring Shinnecock Bay. Moreover, the Southampton Town Trustees reported a mass mortality of scallops in Little Peconic and Noyack Bay during the 2009 bloom. The precise causes of *Cochlodinium* blooms are poorly understood, but some preliminary observations indicate that when blooms are very dense they can kill other phytoplankton and zooplankton allowing blooms to proliferate without predation or competition. Blooms also vertically migrate to the bottom of estuaries at night and this may allow for access to abundant nutrients in sediment. Finally, regarding nutrients, this species seems capable of using a wide variety of compounds. It is concluded by scientists that annual blooms of the annual blooms of *Cochlodinium* are likely to be adversely impacting Long Island fish and shellfish populations.

~Article contributed by Dr. Christopher Gobler, Associate Professor at Stony Brook University. For more information related to red tide and recent red tide blooms please visit the SUNY Stony Brook School of Marine and Atmospheric Sciences website at http://www.somas.stonybrook.edu/news_events/press.html.

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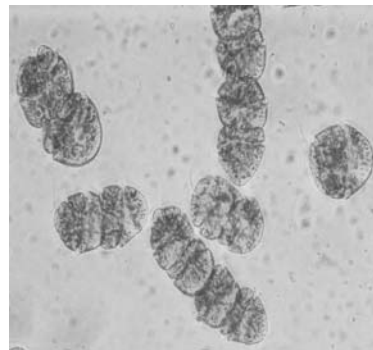
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Species Snapshot: Red Tide

Harmful algal blooms (HABs) pose a significant threat to fisheries, public health, and economies around the world. HABs have increased in frequency, duration, and distribution in recent decades and the Peconic Estuary is representative of this global phenomenon. The Peconic Estuary was first introduced to HABs in 1985 when brown tides caused by the phytoplankton *Aureococcus anophagefferens* occurred through this system, destroying eelgrass beds and the bay scallop fishery. Although significant brown tide blooms in the Peconics have not appeared since 1995, a new HAB has emerged to become an annual visitor to our estuary.

Harmful algal blooms caused by *Cochlodinium polykrikoides* are now annual occurrences in coastal ecosystems around the world although the precise mechanism of bloom toxicity is unknown. On Long Island, blooms have become an annual occurrence in the Peconic Estuary and Shinnecock Bay. *Cochlodinium polykrikoides* is a dinoflagellate and in large densities it discolors waters a reddish – brown color. Since 2004, *Cochlodinium polykrikoides* blooms have occurred every year across the Peconics, starting in August and persisting through September and sometimes into October. Blooms are visually distinct, as they consist of very dark patches of more than 10,000 cells per milliliter. Globally, *Cochlodinium* blooms were previously rare, but they have emerged across the globe during the past decade from Chesapeake Bay to California to Indonesia, Malaysia, and the Arabian Gulf. Historically, blooms have been most common in Japan and South Korea where blooms have caused more than \$100 million in annual losses to fisheries due to fish kills.

Because *Cochlodinium* blooms are a new and recent phenomenon, the causes and complete ecosystem impacts of these events are only starting to be understood. During the past four years, Dr. Christopher Gobler's research laboratory at Stony Brook University's Southampton campus has been investigating the impacts and causes of *Cochlodinium polykrikoides* blooms in the Peconics. The red algae can do considerable harm, according to Dr. Gobler.



Cochlodinium polykrikoides
Photo By: C. Gobler

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