



estuary news

Newsletter of the Delaware Estuary Program

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Winter 1997

Message from the Director

Conferences Discuss Current State of the Estuary

Two conferences held earlier this fall at Clayton Hall at the University of Delaware concentrated on the current state of the environment in the estuary region. These conferences presented very important information about current environmental conditions in the estuary. Specifically, they highlighted progress in cleaning up the industrial portions of the estuary that has occurred in the last twenty-five years, since the passage of the landmark law now called the Clean Water Act. Just as importantly, however, the conferences showed where improvements still need to be made — thereby identifying important areas for public involvement. We urge all of our readers to become informed about these areas by obtaining information from the sources listed below.

The first of the two conferences, which was the third 1997 Delaware Estuary Program Coordinating Conference, held on October 29, was designed to allow participants to see the "big picture" of current environmental conditions in the estuary. And, on November 20, 1997, the Partnership joined the Water Resources Association for the Delaware River Basin, the Delaware River Basin Commission, and the Susquehanna River Basin Commission in sponsoring the second of the two conferences, a one-day conference entitled *Pfiesteria Facts and Fallacies*.

At the October 29 Coordinating Conference, after keynote and welcoming addresses by Delaware Governor Thomas Carper and Delaware Department of Natural Resources and Environmental Secretary Christophe Tulou, the 150 plus conference participants were briefed on the current state of the estuary by four panels of experts. The first panel discussed water quality, including toxics problems and an assessment of estuary fisheries. The second panel discussed land management, including changes in land-use, greenways, and conservation zoning and subdivision design. The third panel discussed emerging issues, such as fish kills, the condition of the horseshoe crab population, and sustainable development activities around the estuary. The final panel discussed ongoing estuary environmental enhancement initiatives, such as PSE&G's Estuary Enhancement Project, efforts to rebuild the Philadelphia waterfront by the Philadelphia Water Department, activities and the John Heinz National Wildlife Refuge, and anadromous fish restoration around the estuary region.

The Partnership was well-represented at this conference. I had the enjoyable job of master of ceremonies, and six of the fourteen scheduled expert panelists and the wrap-up moderator were Partnership Board members. For information about the discussions at this conference, give us a call at 1-800-445-4935, and we will provide conference summaries and direct you to additional, more specific information sources.

The November 20 conference, organized by the Water Resources Association of the Delaware River Basin, featured experts on *Pfiesteria* biology, epidemiology, and ecology from the Chesapeake and Delaware bays. The dinoflagellate *Pfiesteria* has been implicated in fish kills in estuaries in North Carolina and the Chesapeake Bay.

Representatives of several Maryland agencies described activities related to several *Pfiesteria* and *Pfiesteria*-like organism outbreaks in tributaries of the Chesapeake Bay this past summer.

Dinoflagellates in general, and *Pfiesteria* in particular, are very old, complex, and agile organisms, which have very complex life-cycles, making them difficult to identify and particularly difficult to link to events, such as fish kills. Increasingly, when fish are caught that have skin lesions *Pfiesteria* is thought to be the cause, however, numerous other agents can also cause skin lesions on fish.

Representatives of the Delaware Division of Fish and Wildlife and the Delaware Department of Natural Resources described Delaware's experiences with *Pfiesteria* and *Pfiesteria*-like organisms. In 1987, before *Pfiesteria* had been identified as a potentially toxic organism, a fish kill had occurred in the Indian River. Analysis of fish kills in the area in 1997 led to reevaluation of 1987 samples, and the identification of *Pfiesteria*-like organisms being present in both incidents.

However, no causal relationship was established between the dinoflagellates and the kill.

Nevertheless, as a result of the 1997 experience with *Pfiesteria*, an interagency task force has drawn up a contingency plan for dealing with microorganism blooms and fish kills for Delaware's bays.

For more information on this subject, give us a call at 1-800-445-4935, or the Water Resources Association at (610) 917-0090. Several World Wide Web sites feature information on *Pfiesteria*: in particular, <http://www2.ncsu.edu>; also try searching "Pfiesteria."

*Bud Watson, Executive Director
Partnership for the Delaware Estuary*

We hope that you are finding the new *Estuary News* format to be reader friendly and full of interesting information. In order for us to make this publication even better, we need your help. If you have an article, newsworthy item, or an event that you would like to have included, you can mail it to us at P. O. Box 9569, Wilmington, DE, 19809, FAX it to us (302) 793-1666, or E-Mail it to us at partners@udel.edu. If possible, we would greatly appreciate you providing us with your information in the correct format for the section where you want your article or announcement printed. The deadlines for the four issues that will be published in 1998 are as follows: January 15, 1998, April 15, 1998, June 15, 1998, and September 15, 1998.

*Kathy Klein, Editor
Estuary News*

tributor

Below are two stories about recent sails that were taken aboard the Delaware Bay Schooner Project's *A. J. Meerwald*. For information on when the *Meerwald* sails, call the Delaware Bay Schooner Project at (609) 785-2060.

Three Hours Under the Sail

By Mary Spitzer

Forty-five members of Central Philadelphia Monthly Meeting (Quakers) and their friends, took an opportunity for knowledge and reflection aboard the handsomely restored oyster schooner, the *A. J. Meerwald*.

Sailing from Penn's Landing, the *Meerwald* left by motor and raised sail only when she was in the middle of the river. After sailing north of Camden, just below Petty's Island, the crew, who sail the vessel as a floating classroom, lowered nets and hauled up a sampling of the Delaware River. The curious got to see wildlife up close and to learn a little bit about catfish, alewives and other species sharing the river environment.

Mini workshops on subjects such as the early Leni Lenape Native American culture, non-point source pollution, and wetlands were offered to our group. There was also time to let the sails open wide and to surge easily forward with no sounds except the winds in the sails and the creaking of the block and tackle.

MAKING WAVES

1997 Delaware Estuary Summer Institute a Success

By John T. Hines, Pennsylvania Office for River Basin Cooperation

In 1996-1997, the Pennsylvania Department of Environmental Protection (PADEP), as part of the efforts in implementing aspects of the Delaware Estuary Program, funded the first Delaware Estuary Education Institute. This cooperative effort was coordinated by staff of the Pennsylvania Department of Conservation Natural Resources' (PADCNR) Jacobsburg Environmental Education Center along with PADEP and was held for twenty seven teachers from Pennsylvania, Delaware and New Jersey.

Over twenty governmental and non-governmental organizations representing a variety of stakeholders' interests made up the planning committee or "implementation team," whose efforts focused on the week-long residential workshop designed to promote hands-on stewardship activities throughout the estuary. The workshop coordinated educational efforts in the estuary and established the beginning of an environmental network among teachers, students and other professionals. Examples of actions in the Management Plan for the Delaware Estuary implemented by this project included: E19 - Encouraging School Administrators

A

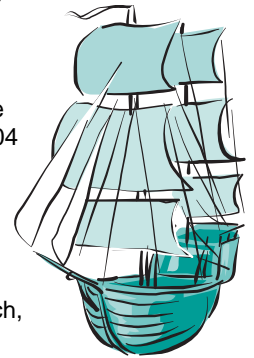
(little girl looking into water at fish)

Partnership and Dupont Provide Opportunity for Students to Experience the River

Aboard the New Jersey-based schooner *A.J. Meerwald*, Captain Jesse Briggs gave the command, "haul the main sheet," and 40 students from Glasgow High School in Delaware began pulling the lines raising the schooners massive sails. They were preparing for an educational sail out of the Port of Wilmington to learn about issues relating to the Delaware Estuary. As one of six Pennsylvania and Delaware school groups that got to spend a half day on the *Meerwald*, they were learning about the Delaware Estuary, what pollution currently is doing to it, and what can be

done to help improve water quality. These trips were coordinated by the Partnership for the Delaware Estuary, with funding support from DuPont's Edgemoor Plant.

Such partnered "education" projects can be fun too, as Victoria Kirby of the class of 2004 said after the trip: "Our class had a great time! In school we are studying the estuary. You could say the trip was very educational, but it seems like it was too much fun to be. We saw a lot of cool fish like hogchoakers, flounders, weakfish, perch, spot, jellyfish and crabs."



B

(group gathered around looking at grasses)

to Incorporate Estuary Education Initiatives; E4 through E7 - Education Initiatives in Support of Various Issue Areas, and E12 - Promoting Hands on Educational Activities in the Estuary.

As the first act of a continuing effort, the 1997 Estuary Institute represented implementation in action through a true partnership of individual and organizations dedicated to estuary education. The effort will continue in 1997-98 through the Partnership for the Delaware Estuary, Inc. For more information contact John T. Hines, PADEP at (717) 772-5634, or Kathy Klein at 1-800-445-4935.

Marcus Hook Connects with the Delaware

Source: Pennsylvania Coastal Zone Management Program

The development of Marcus Hook's Market Square Memorial Park is a good example of what a small community can accomplish when it defines a clear vision of what it wants and uses available resources over a period of time to accomplish that vision.

In 1978, a comprehensive plan recommended the expansion of a small riverfront park, then known as McClure Park. By using several coastal zone management grants to leverage an investment of over \$1.1 million, Marcus Hook is now the home of Market Square Memorial Park, a three-acre municipal facility with 441 feet of river frontage offering magnificent views of the Delaware and its commercial shipping.

The park was designed to combine the elements of a dramatic waterfront orientation with a colorful local history, in an attractive facility that would serve all age groups and provide a focal point for the community. Today it is the site of a number of special events and programs, including a Memorial Day parade ending at the park; a summer music program; a fall festival featuring crafts, music, and games; a Halloween program organized around the legend of Blackbear's ghost, with carved and lighted pumpkins (Edward Teach was a frequent visitor to Marcus Hook); and periodic stops by historic ships visiting the Delaware Estuary.

Marcus Hook is the southernmost municipality in Pennsylvania's Delaware Estuary Coastal Zone and is one of the oldest communities in the Commonwealth. Except for the park, the rest of the borough's waterfront is highly urbanized, dominated by large petroleum refineries.

The 1992 Delaware County Water Resources Management Plan, partially funded by CZM, deemed the Old Market Square vicinity to be a "major resource" to the county's waterfront. The park, Market Green, and other local improvements clearly indicate to prospective residents, investors and developers the commitment of Marcus Hook Borough to the neighborhood as a water-related residential area in a historic setting.

This latest cooperative project between Marcus Hook and the Pennsylvania Coastal Zone Management Program includes a recently completed canopy design for the open air stage that serves as the center of community celebrations in Market Square Memorial Park. The canopy is designed to protect performers from inclement weather and to improve acoustics.

A second phase of the project developed a master site plan for the Market Green, physically and visually connecting the park to the community. Both the park and the green are located within the Market Square Redevelopment Area, as designated in a 1985 plan adopted by the borough. Market Green is a remnant of the 1701-era "Old Market Square," whose design reflected a traditional market-waterfront-community center and was one of only three such markets chartered by William Penn. The Market Square neighborhood displays historically-significant architectural detailing and development patterns. Surviving physical evidence of Market Green consists of two grass plots in the center of Market Street between Second and Fourth streets.

The Borough of Marcus Hook commissioned the master plan to protect and enhance the "green" connection to Market Square Memorial Park and the Delaware Estuary. The plan suggests replacing aging shade trees with new landscaping and regeneration of the soil, which was high in salt content, so that the new plantings will survive. Also under consideration is appropriate size and canopy coverage of the new trees, curb cuts,

stormwater management and nonpoint source water pollution control, utility easements, planting details, and a Market Square Memorial Plaque.

For more information about this initiative, call John Booser at (717) 772-1101.

PARTNERS FOR WILDLIFE PROGRAM

By Gregory Breese

Delaware Bay Estuary Project -
U.S. Fish & Wildlife Service

If you would like to see more birds and other wildlife on your land then the "Partners for Wildlife Program" may be just right for you. This voluntary Program run by the U. S. Fish & Wildlife Service aims to restore wildlife habitat on private lands through cooperation with private landowners, private conservation organizations and other governmental agencies. Developed to protect and restore important fish and wildlife habitats through forming partnerships, this voluntary program builds on the strengths of the numerous committed individuals and organizations to accomplish common goals. Originally formed to restore degraded wetlands, the program has been expanded to include upland forest and grassland habitats as well as stream-side riparian areas.

Any non-Federal landowner is eligible to participate in this competitive program. Once selected, the Service will develop a restoration plan with the owner and other partner agencies. Depending on the project, the Service may fund the project, or it might be cost-shared with other partners. Landowners also have the opportunity to use their own equipment to prepare the site or assist with planting trees or grasses. The Service offers interested landowners with biological expertise, provided the landowner will sign a landowner agreement (with an attached site restoration plan) agreeing to maintain for a minimum of 10 years. Permanent

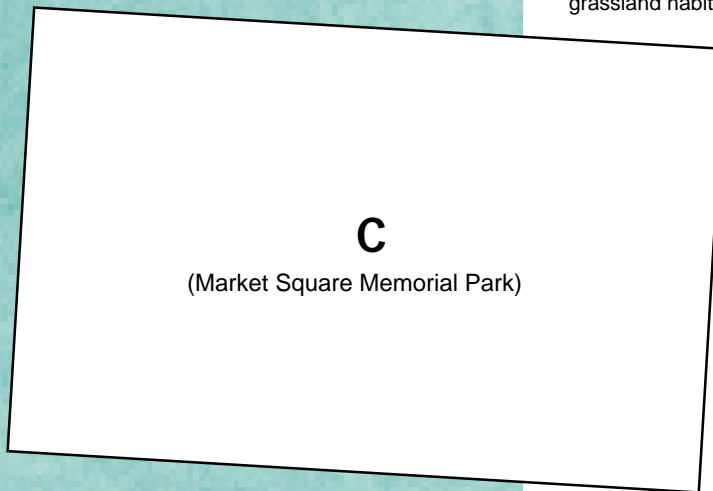
the restored habitat agreements may provide tax advantages to the landowner involved. Short-term agreements may revert to their former condition upon completion of the agreement, should the landowner so desire.

Areas that are priorities for the Partners Program include: previously ditched forested wetlands, prior converted or farmed wetlands and their associated upland buffers, degraded coastal saltmarshes, damaged riparian habitats, and impacted native grasslands and shrub/dune communities. While the Service will entertain proposals throughout the Delaware River watershed, areas in the immediate proximity of National Wildlife Refuges will be given priority.

The Service enjoys working cooperatively with private landowners to restore critical fish and wildlife habitat and looks forward to strengthening this partnership by developing new projects.

If you are a landowner who would like to work with the Service and its partners to restore fish and wildlife habitat on your land, please contact the Service at one of the numbers listed below. You can either provide the needed information over the phone or ask to have an information package mailed to your home. Once we have necessary information, we will register your land and include it in our inventory of willing landowners. We will utilize the inventory to target restoration in critical areas and to help match funding opportunities with interested landowners. Information contained in the inventory will not be shared with outside groups without the landowners express permission and then only for the purpose of having their project constructed by one of our partner agencies.

In Delaware contact Rick McCorkle at (302) 653-9152 ext. 17.
In Pennsylvania contact David Putnam at (814) 234-4090.
In New Jersey contact Paula Halupa at (609) 646-0620.



Estuary Events

UPCOMING IMPORTANT DELAWARE ESTUARY DATES AND EVENTS

The Art of Storytelling from the Brandywine to the Bay
Thursday, January 22, 1998, 7 pm
Port Penn Interpretive Center
Port Penn, Delaware

Storyteller Ed Okonowicz with tales of history, humor, romance, and mystery. Learn about the region history and the lost art of storytelling through yarns, folktales, and historical and contemporary pieces. For reservations and information, call (302) 834-7941.

“Water Birds In Winter”

Saturday, January 24, 1998
Barnegat Light, Long Beach Island, New Jersey

This event, sponsored by the Valley Forge Audubon Society, will take you to one of the best places in New Jersey to see Great Cormorant, Northern Gannet, Common and King Eiders, and many more winter water birds. This is also a great opportunity to experience the Barnegat Bay Estuary. For more information, call Chet Johnson at (610) 566-1156.

Winter Bird Census at Fort DuPont

Saturday, February 7, 1998 & Sunday, February 15, 1998, 9 am
Port Penn Interpretive Center
Port Penn, Delaware

Grab a warm coat, a pair of boots, and your best bird identification books! Join the nature center's manager on a 90-minute walk along the Fort DuPont trail. Birders of all experience levels are welcome. For program information, call (302) 836-7665.

Week-Long Birding Workshop for Hawks, Owls & Winter Waterfowl
February 11-15, 1998

Cape May Bird Observatory
Cape May Court House, New Jersey

Five days of birding and learning with authors Pat & Clay Sutton (*How to Spot An Owl and Hawks in Flight*) and Observatory Director and author Pete Dunne. For more information, call (609) 861-0700.

Whistling Swan Tours

Saturday, February 14, 1998
Whitesbog Village, Burlington County

See the flocks of whistling (tundra) swans that winter in Wharton State Forest. To register, call (609) 893-4646.

“Coldwater Conservation: What Works and How To Do It”

Saturday, February 21, 1998
Penn State Conference Center
University Park, PA

This one-day workshop co-hosted by Pennsylvania Trout, Pennsylvania Department's of Environmental Protection, Conservation and Natural Resources, and Fish and Boat Commission will focus on methods to develop and implement watershed/trout fisheries improvement projects. For a copy of the workshop's program and registration forms, call Debbie Noyes at (814) 863-5120.

Manumuskin Hike and Fries Mill Clean-up

Saturday, February 28, 1998 from 10 am - 2 pm
Maurice River Township, Cumberland County, New Jersey

Join The Nature Conservancy's land steward Russ Babb on a hike and clean-up of the old Fries Mill. For more information on this and other Conservancy programs, call (609) 785-1735.

Schuylkill River Watershed Water Monitoring Congress
Saturday, March 14, 1997

Reading Area Community College, Reading, Pennsylvania

The Schuylkill Riverkeeper, in collaboration with the Alliance for Aquatic Resource Monitoring and Reading Area Community College is sponsoring this Congress to focus on the needs of volunteer monitors in the Schuylkill River Watershed. This program will bring together volunteers, private businesses, and agency staff so that water monitoring information can be shared. For more information, call Chari Towne at (610) 469-6005.

Threatened & Endangered (T&E) Species in New Jersey: Regulations, Identification and Assessment
March 24-26, 1998

This 2 to 3 day course being offered by Cook College of Continuing Education will teach how you can access data from the New Jersey State T&E species list, how to perform and report on a T&E species survey and how reported sightings are authenticated. For information, call (732) 932-9271.

Cape May Jazz Festival

April 17-19, 1998

Cape May, New Jersey

Enjoy some of the greatest names in Jazz by attending workshops, intimate jam sessions and exciting concerts at this three day celebration of jazz. To request a brochure, call (609) 884-7277.

Bayside Tract Nature Walk and Clean-up

Saturday, March 28, 1998 from 10 am - 2 pm

PSE&G's Estuary Enhancement Site Bayside Tract, Greenwich Township, Cumberland County, New Jersey

Join The Nature Conservancy's steward Nate Thomas for a nature walk to clean-up Tindall Island on PSE&G's Estuary Enhancement Site Bayside Tract. For more information on this and other Conservancy programs, call (609) 785-1735.

“Team Wetlands: 101 Ways to Win for Wetlands”

April 15-17, 1998

Hyatt Hotel, Crystal City, Arlington, VA

This three-day conference will celebrate American Wetlands Month. For more information, call the Terrene Institute at (703) 548-5473.

ESTUARY EXCURSIONS

CORRECTION TO “Visit Pea Patch Island Via New Ferry Service” article in Summer 1997 issue of ESTUARY NEWS:

Fort Delaware was built on Pea Patch Island and Fort Mott was built on the New Jersey coastline along the Delaware River.

TEAMWORK

UPDATES FROM THE DELEP IMPLEMENTATION TEAMS

Regional Information Management Service (RIMS) Implementation Team

Comments received at the October 29, 1997, DELEP Coordinating Conference underscored the need to redesign the RIMS web site to make it more user-friendly. We hope we've accomplished that, but you be the judge. Check it out at <http://www.state.nj.us/drbc/rims.htm>.

RIMS is now only found on the web. If there is material you would like to contribute, call Karl S. Heinicke at (609) 883-9500 ext. 241, or by E-Mail at heinicke@drbc.state.nj.us. Comments and suggestions are welcomed.

Public Participation Implementation Team (PPIT)

The PPIT and the Partnership's Board of Directors are pleased to announce that 11 of the 30 Delaware Estuary minigrant proposals that were submitted in June have been selected for funding. These projects, listed in alphabetical order are:

1. The **Delaware Bay Schooner Project**, based in Port Norris, NJ, will be researching, designing and constructing a prototype and two additional scale models of the Delaware Estuary.
2. **Delaware Greenways, Inc.**, based in Wilmington, DE, will be creating a nature trail and estuary access trail in Fox Point State Park.
3. The **Delmarva Ornithological Society**, based in Greenville, DE, will be constructing and locating 11 osprey nesting platforms on both state and private property, along the Delaware River's coast, between the C&D canal and the Roosevelt Inlet.
4. The **Environmental Commission of Camden County**, based in Cherry Hill, NJ, will be educating the residents of the heavily developed areas of Camden County about the importance of environmental protection and management through the watershed concept by developing and distributing educational materials as well as establishing a speakers program.
5. The **Friends of Manayunk Canal**, based in Philadelphia, PA, will be creating a comprehensive, educational map to illustrate existing topography, point water sources, vegetation, historical landmarks and other feature of the canal.
6. To prevent further erosion and reduce sedimentation and pollutants, **Lower Makefield Township**, based in Yardley, PA, will be stabilizing approximately 400 feet of highly eroded streambank along Brock Creek which flows directly into the Delaware River.
7. **Lower Township Department of Parks and Recreation**, based in Villas, NJ, will be creating and placing informational signs (wayside exhibits, regarding marine and mammal life within the Bay at two bayfront access areas.
8. **Oldman's Creek Watershed Association**, based in Mullica Hill, NJ, will be mapping, photographing, and cataloging

significant characteristics of the creek and watershed in order to develop an educational display to be presented to townships, schools, and civic groups to promote the value and need for preservation.

9. The **Salem County Planning Board**, based in Salem, NJ, will be educating the general public, students, and municipal officials about the local watershed through a newsletter, web page, and county-wide meetings for municipal committees, planning, and zoning boards.
10. **Towamencin Township**, in Towamencin, PA, will be developing a baseline consensus of animal habitats along the municipality's primary waterway in order to assess the impact of riparian corridors upon species health and diversity.
11. The **Trustees of Ardentown and the Hanby Trust**, in Ardentown, DE, will be restoring woods alongside the South Branch of Naaman's Creek by hydroseeding, transplanting seedlings, and eradicating invasive plants.

In addition to working on the minigrants, the PPIT has selected the horseshoe crab to be the official mascot for the estuary. With design work for the mascot underway, the PPIT plans to unveil this character in early spring along with a new Delaware Estuary Program/Partnership display that will be used at public events throughout the region.

For more information about the minigrants and the PPIT's activities, call Kathy Klein at 1-800-445-4935.

To get information about the other Delaware Estuary Implementation Team's activities, please call the following people:

Monitoring Implementation Team (MIT):

Jonathan Sharp (302) 645-4259

Water Conservation Implementation Team:

Jeff Featherstone (609) 883-9500

Water Quality Advisory Committee:

Paul Webber (609) 883-9500

Habitat and Living Resources Implementation Team:

Wendell Scheib (610) 793-3698

Toxics Advisory Committee (TAC):

Tom Fikslin (609) 883-9500 ext. 253

Local Government Resource Teams (LGRT):

PA call Lou Guerra at (610) 832-6100, DE call William Brierly, Jr. at (302) 739-5726, and NJ call Liz Rosenblatt at (609) 633-1349.

TIDINGS

New Philadelphia SchoolShip Sets Sail

Philadelphia City Sail (PCS), based at Pier 12 on the Delaware River, offers hands-on education programs for inner-city at-risk youth. Since its inception, PCS has offered programs focusing on math, science and maritime-related subjects to more than 3,000 young people and has been recognized as a significant adjunct to the curriculum of the Philadelphia School District.

The centerpiece of the program is the 75' steel topsail schooner, the *Jolly II Rover*, PCS's "SchoolShip." During the school year, classes board the ship daily to see and experience, first-hand, the practical application of lessons taught in the classroom. Subjects covered range from the interaction of natural and human forces upon our environment to navigation and helmsmanship, in order to understand the principles of math and science. During the summer, PCS teaches students how to sail, provides vocational training, and for many of its school year participants, offers summer vocational jobs that involve maintaining the boat and waterfront. For more information, call Captain Rick LeFevre at (215) 574-1200.

NJDEP Surface Water Quality Standards Public Hearing

The New Jersey Department of Environmental Protection has completed a proposed readoption with changes of the Surface Water Quality Standards (N.J.A.C. 7: 9B). The proposal was published in the December 15, 1997, New Jersey Register. A public hearing will be held on January 6, 1998, at the Department of Environmental Protection's office at 401 East State Street in Trenton. For more information, please contact Meredith Laverly of the Office of Environmental Planning at (609) 633-7020.

Local Zebra Mussel Monitoring Program Underway

Eleanor A Bochenek, Ph.D., coordinator of the New Jersey Zebra Mussel Control Program, has organized a citizen's volunteer monitoring program for zebra mussels in the Delaware River watershed, Hudson-Raritan Watershed, and other waterbodies in New Jersey and Pennsylvania. Participants are drawn from local watershed and lake associations, environmental groups, government agencies, schools, and concerned citizens. Over 225 volunteers from the two states are monitoring for zebra mussels, and reporting their findings directly to Dr. Bochenek. For more information about this program and zebra mussels, please call (732) 349-1152.

Delaware National Estuarine Research Reserve

The Delaware National Estuarine Research Reserve (DNERR) is a cooperative program between the Delaware Department of Natural Resources and Environmental Control and the National Oceanic and Atmospheric Administration. The goal of the program is to establish and protect and manage natural estuarine habitats for research and education.

The DNERR covers the St. Jones River and Blackbird Creek. These sites include both brackish and freshwater estuaries and represent the diverse estuarine ecosystems found throughout the Mid-Atlantic.

For information about DNERR programs, please call (302) 739-4413 or (302) 739-2583 from 8:00 a.m. to 4:30 p.m., Monday through Friday.

D

Jolly Roger

States Team With Federal Partners To Test Mid-Atlantic's Oil Delaware Seeking Input on Environmental Goals

In September, the Delaware Department of Natural Resources and Environmental Control (DNREC) held public workshops to discuss its priorities, goals and objectives for 1998. DNREC's strategic priorities are protecting public health and safety, protecting and improving water quality, protecting and improving fish and wildlife resources, protecting our valuable lands, enhancing recreational opportunities, and improving DNREC's effectiveness as an organization.

The priorities, goals and objectives are part of the 1998 Performance Partnership Agreement and Performance Partnership Grant—funds which DNREC receives from the U.S. Environmental Protection Agency to carry out its activities. Copies of the Agreement and Grant, along with a 1997 Performance Progress Report, are available by calling David Small at (302) 737-4506 or at www.dnrec.state.de.us.

Charting The Future

The results of a survey conducted by the Delaware River Basin Commission as part of a campaign to develop policy-level strategy to help chart the future are now available to the public. The survey, mailed in April 1997 to some 2,000 constituents who represent a wide spectrum of interests in the basin, sought opinions on the Commission's performance in meeting coordination and management objectives identified in the Delaware River Basin Compact—the document that outlines the Commission's powers and duties.

Accompanying the survey was a draft DRBC "vision statement" that respondents also were asked to comment on. The constituents also were asked to assess the effectiveness of current Commission activities and programs as well as to comment on possible future Commission initiatives.

The survey results are contained in a document titled *Delaware River Basin Commission Survey to Assess its Management of the Basin's Water Resources*. It can be obtained by calling (609) 883-9500 ext. 215, and leaving your name and address, or it may be downloaded from the Commission's web site at <http://www.state.nj.us/drbc/drbc.htm>.

SPECIES SPECIFIC

River Otter

The river otter is a predator at the top of the food chain in all three states of the Delaware Estuary. Many people don't even realize that this relative of the weasel lives in their watershed. Hunted for their pelts to near extinction in the 1800's, otter populations have recovered throughout the unpolluted waterways of the watershed. They are particularly abundant in the tidal marshes of New Jersey and Delaware. In Pennsylvania, where it was reintroduced, the population has expanded statewide and currently seems to be stable.

Their long, thick-set, streamlined body can weigh up to 30 pounds and is supported by short powerful legs and webbed feet. While the most important part of their diet is fish and crustaceans such as crayfish, they also eat reptiles, amphibians, clams, snails, mussels, muskrats and waterfowl. Because otters are top predators in the aquatic food chain, they are sensitive to environmental contaminants such as pesticides, heavy metals and PCBs, all of which are present in some portions of the estuary.

Suitable habitat with little human disturbance is very important to otter survival. Freshwater marshes containing cattails, water lily, smart weed, saw grass and bulrushes, or saltmarshes containing saltgrass, cordgrass and needlerush are favorite habitats. Otters avoid extensive shorelines devoid of large trees and other riparian vegetation.

After mating, the females normally retreat to a small tributary stream, pond, or lake. There they take possession of a den, which is either a natural shelter such as dense shrubs, tall grasses, or tree root cavities, or one dug by another animal such as a muskrat, beaver or woodchuck.

As is frequently the case, when habitat is preserved for the top predators, many other species also benefit. Based on the habitat needs mentioned above, riparian corridor and wetland preservation and restoration are very important activities and should be pursued whenever possible. You can help river otters and all the

other species that rely on this type of habitat by not cutting trees or other vegetation near water. In areas that have been cleared, native plants can be replaced. Call your local Soil Conservation Service office or the U. S. Fish and Wildlife Service for assistance.

This article was excerpted from a chapter written by Patricia McConnell and Jodi Powers from the book, *Living Resources of the Delaware Estuary*. If you would like to learn more about the key species of the Delaware Estuary, contact the Partnership for the Delaware Estuary at 1-800-445-4935 to request a free copy.

Horseshoe Crab Population Update

Delaware and New Jersey are concerned about increasing evidence that substantiates a decline in the population of horseshoe crabs. A number of data sets now point to a 90% decline in less than a decade. These studies have included: counting stranded crabs on beaches, an annual spawning census on beaches, monthly bay trawl surveys from both states, a study of egg density on beaches, and surveys on the continental shelf.

Experts fear that overharvesting of the crabs for use as bait may be the main cause of the decline. Both states instituted a temporary moratorium on harvest in 1997 and are considering reissuing harvesting permits only to those fisherman who reported harvest for two or more years.

The spectacular spring migration of shorebirds that utilize the lower estuary as a major east coast stopover is also experiencing a similar decline. Some have postulated that the decline in birds is due to the decline in horseshoe crab eggs on which the birds feed, but their decline may also be affected by contributing factors such as habitat loss and environmental quality outside of the Estuary.

Stay tuned for further updates.

FOOD FOR THOUGHT

Below are two winning crab cake recipes from the 1997 Coast Day Crab Cake Cookoff, held on Sunday, October 5, 1997, at the University of Delaware's Graduate College of Marine Studies in Lewes, Delaware.

SLOWER LOWER DELAWARE CRAB CAKES

Peter Marconi, Jr. - Millsboro, DE

2 lbs. crab meat	1 egg
2 oz. fresh garlic	Parsley
1 t. Tabasco sauce	2 T. butter
Italian style bread crumbs	1 t. lemon juice
2 oz. peppercorn dressing	1 oz. honey mustard
4-5 oz. vegetable oil	

Blend all ingredients together. Form into 5 oz. crab cakes and coat with Italian style bread crumbs. Pan fry in oil and butter until golden brown.

GARDEN OF EATIN' ALL JUMBO LUMP CRAB CAKE

Steven Bell, Lewes, DE

4 T. fresh squeezed lemon juice plus 1 wedge of lemon	
2 lb. fresh jumbo lump crab meat	
1 c. Hellman's mayonnaise	Seasoning
2 T. Worcestershire sauce	1/2 c. flour
4 eggs, beaten	1-1/2 c. milk
1/4 t. hot pepper sauce	1/4 t. cayenne
1/2 c. Japanese bread crumbs	1 t. butter
2 T. plus dash of Old Bay	2 T. dry mustard
2 T. chopped parsley	4 T. sliced onion

Beat eggs well. Combine milk, mayonnaise, hot pepper sauce, Old Bay, cayenne, dry mustard, 2-3 dashes worcestershire sauce, lemon juice, flour, bread crumbs and parsley. Mix well together. Fold in lump crab meat gently. Shape into 4 oz. crab cake. Grill in 1/2 teaspoon butter, Old Bay and sliced onion till golden brown. Squeeze lemon juice from wedge on both sides of crab cake.



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The Partnership for the Delaware Estuary sends a sincere thank you and welcome to its newest Founding Partners, listed below. To find out how you can become a member, call Kathy Klein or Bud Watson at 1-800-445-4935.

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