MESSAGE FROM THE DIRECTOR

Conference on Current State of the Estuary

The third 1997 Delaware Estuary Program Coordinating Conference, held on October 29th at Clayton Hall at the University of Delaware in Newark, concentrated on the current state of the environment in the estuary region. This conference presented very important information about current environmental conditions in the estuary. Specifically, it 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 conference 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.

After keynote and welcoming addresses by Delaware Governor Thomas Carper and Delaware Department of Natural Resources and Environmental Control 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 at 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 general information about the discussions at this conference, give us a call at 1-800-445-4935, to request a copy of the conference summary. For more information on the individual presentations, you may contact the following sources:

Water Quality: Jonathan Sharp, University of Delaware (302) 645-4259
Toxics: Tom Fiksel, Delaware River Basin Commission (609) 883-9500 Ext. 253
Fisheries: Tom McCloy, New Jersey Division of Fish, Game and Wildlife (609) 292-2083
Land Use: Barry Seymour, Delaware Valley Regional Planning Commission (215) 592-1800
Greenways: Dave Ennis, Delaware State House of Representatives (302) 577-8475
Conservation Design: Randall Arendt, Natural Lands Trust (610) 353-3587
Fish Kills and Algal Blooms: Robin Tyler, Delaware Department of Natural Resources and Environmental Control (302) 739-4771
Horseshoe Crabs and Migratory Shore Birds: Bill Hall, University of Delaware (302) 645-4253

Marsh Restoration:
Stan LaBruna, Public Service Electric and Gas (PSE&G) (201) 430-7380
Philadelphia Waterfront Redevelopment:
Ed Grusheski, Philadelphia Water Department (215) 685-4908
John Heinz National Wildlife Refuge:
Jackie Burns, John Heinz National Wildlife Refuge (610) 521-0662
Anadromous Fish Restoration:
Dave Arnold, Pennsylvania Fish and Boat Commission (717) 588-6588.

Kathy Klein, Editor
Estuary News

Bud Watson, Executive Director
Partnership for the Delaware Estuary
In 1996-1997, the Pennsylvania Department of Environmental Protection (PADEP), as part of implementation of the Delaware Estuary Management Plan, funded the first Delaware Estuary Education Institute. This cooperative effort was coordinated by staff of the Pennsylvania Department of Conservation Natural Resources' Jacobsburg Environmental Education Center and PADEP. Twenty-seven teachers from Pennsylvania, Delaware and New Jersey participated.

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 include: Encouraging School Administrators to Incorporate Estuary Education Initiatives (E19); Education Initiatives in Support of Various Issue Areas (E4 through E7), and Promoting Hands on Educational Activities in the Estuary (E12).

As the first act in a continuing effort, the 1997 Estuary Institute created a true partnership of individuals and organizations dedicated to estuary education. The effort will continue in 1998 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.

The development of Market Square Memorial Park in Marcus Hook, PA, 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 River 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, which ends at the park; a summer music program; a fall festival featuring crafts, music, and games; a Halloween program organized around the legend of Blackbeard’s ghost, with carved and lighted pumpkins (Blackbeard, whose name was 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. Beyond the park, the rest of the borough’s waterfront is highly urbanized, dominated by large petroleum refineries.

The 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.

In addition, the Borough of Marcus Hook commissioned a master site plan to protect and enhance the “green” connection to Market Square Memorial Park and the Delaware Estuary. Both the park and the green are located within the Market Square (continued on top of next page)
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.

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.

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.

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

PARTNERS FOR WILDLIFE PROGRAM
BY GREGORY BREESE
DELWARE 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 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 biological expertise, provided the landowner will sign an agreement (with an attached site restoration plan) agreeing to maintain the restored habitat for a minimum of 10 years. Permanent 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 landowner’s 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.

FOOD FOR THOUGHT

Below is a winning crab cake recipe from the 1997 Coastal 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
2 oz. fresh garlic
1 t. Tabasco sauce
Italian style bread crumbs
2 oz. peppercorn dressing
4-5 oz. vegetable oil
1 egg
Parsley
2 T. butter
1 t. lemon juice
1 oz. honey mustard

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.

WINTER 1998
ESTUARY EVENTS

IMPORTANT UPCOMING 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’s 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
Barneget 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 Barneget Bay Estuary. For more information, call Chet Johnson at (610) 866-1156.

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

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 course being offered by Cook College of Continuing Education will teach you 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.

HORSESHOE CRAB POPULATION UPDATE
BY ROBERT NYMAN, U.S. EPA, REGION II
ILLUSTRATION BY PAUL BAYER

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 have issued a temporary moratorium on harvest in 1997 and are considering reissuing harvesting permits only to those fishermen 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.
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 migrant proposals that were submitted in June have been selected for funding:

1. 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. 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 shore, between the C&D canal and the Roosevelt Inlet.

4. 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. 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 features of the canal.

6. 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, to prevent further erosion and reduce sedimentation and pollutants.

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 of and need for preservation.

9. 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, a web page, and county-wide meetings for municipal committees and 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. Trustees of Ardenvan and the Hanby Trust, in Ardenvan, DE, will be restoring woods alongside the South Branch of Naaman's Creek by hydroseeding, transplanting seedlings, and eradicating invasive plants.

Look for migrant project updates in future issues of Estuary News.

In addition to working on the migrants, 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 migrants and the PPIT's activities, call Kathy Klein at 1-800-445-4935.

To get information about the other Delaware Estuary Implementation Teams, 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 Fiskin (609) 883-9500 ext. 253

Local Government Resource Teams (LGBT):
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.

NOTE: Implementation teams were established to realize the goals set forth in the Delaware Estuary Management Plan.
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.

The centerpiece of the program is the 75’ steel topsail schooner, the Jolly ill 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. During the summer, PCS teaches students how to sail, provides vocational training, and for many of its school year participants, offers summer vocatinal jobs that involve maintaining the boat and waterfront. For more information, call Captain Rick LeFevre at (215) 574-1200.

Local Zebra Mussel Monitoring Program Underway
Eleanor A Bocheneck, 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 in the two states are monitoring for zebra mussels, reporting their findings directly to Dr. Bocheneck. 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.

States Team With Federal Partners To Test Mid-Atlantic’s Oil Spill Response Strategies
The nation’s largest-ever oil spill response drill was conducted in September on the Delaware River. The states of Delaware, New York, New Jersey, Maryland, and Virginia teamed with representatives from the U.S. Coast Guard, the National Oceanic and Atmospheric Administration, the Federal Emergency Management Agency, the U.S. Fish and Wildlife Service, the U.S. Environmental Protection Agency, other federal agencies, and three shipping firms and their oil spill response organizations.

The drill stimulated two simultaneous major oil spills, equaling roughly the size and magnitude of the Exxon Valdez spill. The goals was to test oil spill contingency plans for the region, to integrate the resources of the three states and federal agencies to handle a massive spill, and to determine how best to protect the environment and the area’s economy in the event of a nationally significant major oil disaster. For more information about this drill, contact Dave Small at (302) 739-4506.

DELMARVA Coastal Cleanup Nets More Than 50,000 Pounds of Debris
If the totals from the Delmarva Coastal Cleanup are any indication, the coastline of the Peninsula is getting cleaner. More than 3,000 volunteers collected 51,500 pounds of debris during cleanup events held in late September.

From Delaware’s Fox Point State Park near the Pennsylvania state line to Kiptopeke State Park near Cape Charles, Virginia, volunteers cleaned debris from 66 locations up and down the Peninsula.

Again this year the cleanup yielded some unusual items—a part from an airplane, a toilet, a vacuum cleaner, a mailbox, a set of bed springs, and a large plastic nose were some of notable. Preliminary analysis showed cigarette butts to be the number one item collected. For information about this annual event, contact Matt Likovich, from Delmarva Power, at (410) 860-6366.

Friends Helping To Care For Tincum
A new non-profit organization, called the Friends of the Heinz Wildlife Refuge at Tincum, is working with the United States Fish and Wildlife Service to sponsor activities and produce educational materials that will encourage public participation. The Friends are also working to raise money to support activities at the Refuge. For information about how you can get involved, call the Friends at (215) 365-3115.

Bayside Tract Rich in Estuary Resources & History
With the recent completion of PSE&G’s public use facilities on the Bayside Tract, the Estuary Enhancement Program (EEP) has satisfied all of its commitments in the Tract’s Management Plan, EEP’s first fully implemented Plan. This 4,500 acre historic and natural resource area contains a variety of habitats including wetland, farmland and forested upland. This tract is being preserved to protect the natural and historic resources of the Delaware Estuary.

To get a map and brochure of the Bayside Tract call The Nature Conservancy at 1-888-Marshes Option 2 and for more information about the EEP and other restoration sites, call Marcia Walton of PSE&G at (609)339-7915.

River Network Resources Available
The River Network, based in Portland, Oregon, helps people organize to protect and restore rivers and watersheds. This organization has a publications list that describes a number of documents designed to help citizens’ conservation efforts ranging from fundraising to protecting instream flows. To request a copy of this list, call (503) 241-3506.
SPECIES SPECIFIC

RIVER OTTER
ILLUSTRATION BY LIZ MINOR, ENERGETICS, INC.

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 its pelt to near extinction in the 1800's, otter populations have recovered throughout the unpolluted waterways of the watershed. The otter is 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.

The otter's 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 its diet is fish and crustaceans such as crayfish, it also eats 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, smartweed, 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.

NOTE: This article was excerpted from a chapter written by Patricia McConnell and Jodi Powers for 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.

ESTUARY EXCURSIONS

A. J. MEERWALD PROVIDES OPPORTUNITY FOR ESTUARY RESIDENTS TO EXPERIENCE THE RIVER
BY KATHY KLEIN AND MARY SPITZER

Aboard the Delaware Bay Schooner Project's New Jersey-based restored oyster schooner, the 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 schooner's 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 in September, 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.

According to Victoria Kirby, one of the students who sailed on the Meerwald from the class of 2004, "Our class had a great time! In school we are studying the estuary. You could say the trip was too much fun to be educational. We saw a lot of cool fish like hogfishes, flounders, weakfish, perch, spot, jellyfish and crabs."

Another local group that recently took advantage of the Meerwald's program was the Central Philadelphia Monthly Meeting. Forty-five members and friends of this Quaker Meeting sailed on the vessel from Penn's Landing in Philadelphia. After sailing north of Camden, just below Petty's Island, the crew, who sail the vessel as a floating classroom, lowered the 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 the 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.

Those who have had the opportunity to take a Meerwald sail seem to agree that it is a fantastic way to learn about the estuary, experience the Delaware from a new and wonderful perspective, and have a great time. For information about how you or your group can take a sail on the schooner, please call the Delaware Bay Schooner Project at (609) 785-2060.
WHO IS THE PARTNERSHIP?

The Partnership for the Delaware Estuary, Inc., is a private, non-profit organization established in 1996. The Partnership promotes the estuary as a regional resource through public outreach and education.

THANKS AND WELCOME TO THE PARTNERSHIP'S NEWEST MEMBERS

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.

Daniel & Lynda Ansine, Alameda, CA
David K. McGuire, Gaithersburg, MD
Patrick J. Mulligan, Mullica Hill, NJ
Oldman's Creek Watershed Association, Mullica Hill, NJ
John R. Sheridan, Wilmington, DE
Nancy Shukaitis, East Stroudsburg, PA
Marla L. O'Malley Walsh, Pottsville, PA
Barbara Westergaard, Princeton, NJ
Richard Westergaard, Newfield, NJ
Meghan E. Wren, Newport, NJ

PARTNERSHIP PROMOTIONAL PRODUCTS NOW AVAILABLE

The Partnership now has for sale a variety of promotional products with our logo. These products include adult and children's T-Shirts, baseball hats, and coffee mugs. For price and ordering information, call the Partnership at 1-800-445-4935.