



# estuary news

Newsletter of the Delaware Estuary Program

Volume 9 / Issue 4  
Summer 1999

## WORKSHOPS COMPLETED FOR THE *FLOWING TOWARD THE FUTURE* PROCESS

By Richard C. Albert  
Basin Planner, Delaware River Basin Commission

In April and May, ten regional workshops were held at five locations in the Delaware River watershed, which includes parts of Pennsylvania, Delaware, New Jersey, and New York (see map). An additional 3 workshops were held with students attending the Youth Summit near Portland, Pennsylvania. The purpose of these workshops was to gather information and ideas for developing a vision for the Delaware River Basin and "21st Century Directions" for attaining the vision.

The workshops are the first step in a three-step process named *Flowing Toward the Future*. The next steps are a Governors' Summit to be held on September 29th at the NJ State Aquarium in Camden, NJ, and a basinwide conference to be held from November 15th to 17th at the Adams Mark Hotel in Philadelphia, PA.

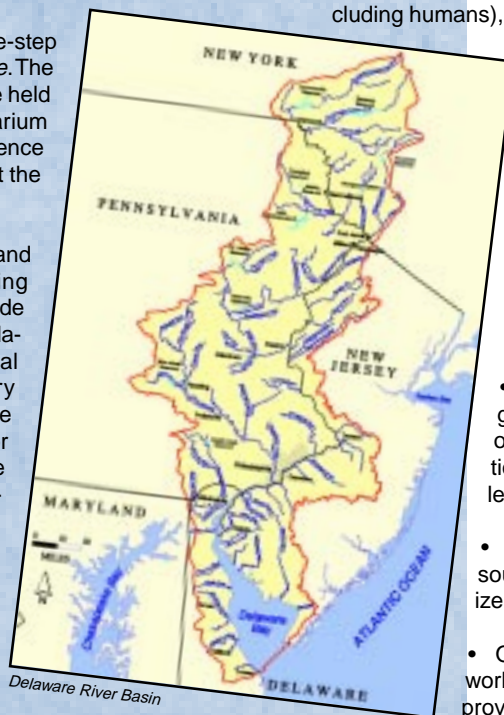
A consortium of 8 government agencies and 5 non-profit organizations is conducting *Flowing Toward the Future*. These include the four state environmental agencies, Delaware River Basin Commission, National Park Service, U.S. EPA, Delaware Estuary Program, Heritage Conservancy, Alliance for a Sustainable Future, Partnership for the Delaware Estuary, Upper Delaware Council, and Water Resources Association of the Delaware River Basin.

The workshops used a focus group process with attendees segregated into four groups: preservation/advocacy, commerce/utilities, recreation, and government. Interest groups were used to determine differences between groups, if any, and to prevent a smaller interest group's opinions from being diluted by a group having a larger representation.

Each workshop began with a brief introduction about the *Flowing Toward the Future* process and the workshop objectives. The participants immediately split up into break-out sessions where trained facilitators led them through a three-hour process where they developed lists of vision descriptors, challenges and directions. The sometimes-intense brain-storming process was followed by a voting procedure that used color-coded big dots and small dots to score the results of the workshop. The pattern of the voting will be used to determine priorities and areas of consensus across interest groups.

The 26 break-out sessions held at the ten workshops yielded descriptors for about 75 vision elements, 826 challenges, and 880 directions (including redundancies). These are currently being analyzed. Some preliminary findings include the following:

- The vision for the Delaware River and its watersheds clearly involves diverse natural resources, healthy biological populations (including humans), and a clean environment. 23 of the 26 break-out sessions picked one or more of these as their top three vision elements - often combining them into one or using one to describe another.
- The vision of the future also clearly involves people because watershed communities, water supplies, and economic considerations were important to many participants.
- Environmental education and related stewardship ideas dominated the lists of challenges and directions.
- Interestingly, an opinion that crossed interest group lines is the need for increased enforcement of existing regulations. With the possible exception of land use, there was little interest in either less regulations or new ones.
- Concerns about land use - sprawl, non-point sources, the misuse of land, and the need to revitalize cities - were expressed at all workshop sessions.
- Other threads that appeared throughout the 26 workshops included the need for good science, improved land and water management, and the need to work more effectively and cooperatively.
- Regional differences were largely absent with the exception of one or two issues. In fact, an important conclusion might be that remarkable agreement exists within the Basin's community and between interest groups, although not always for the same reason or from the same perspective.



Delaware River Basin

A directions report is being prepared for mid-summer release. Meanwhile, the raw data from all the workshops can be found on the Delaware River Basin Commission's web site ([www.state.nj.us/drbc/](http://www.state.nj.us/drbc/)) or by calling (609) 883-9500 x205 for Chris Roberts or x260 for Clarke Rupert of the Commission's public information office.

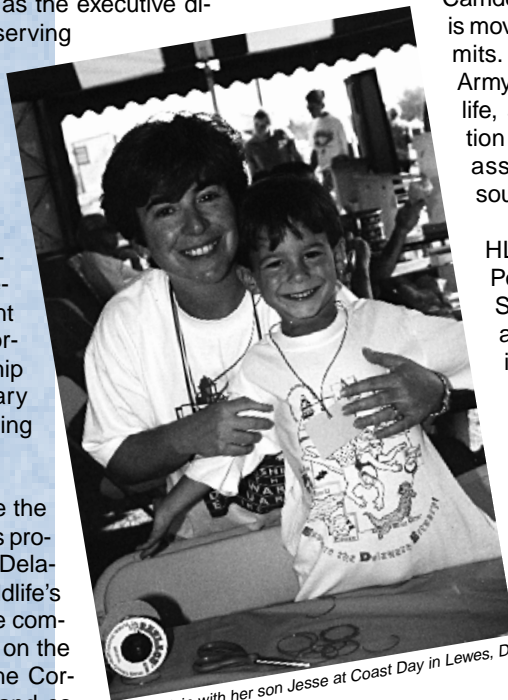
# UPDATES FROM DELEP and its IMPLEMENTATION TEAMS

## STAFFING NEWS AT THE PARTNERSHIP FOR THE DELAWARE ESTUARY

At the May meeting of the Partnership for the Delaware Estuary's Board of Directors, Kathy Klein was named as the executive director for the organization. Kathy had been serving as acting director since last December and previous to that had been the Partnership's program director for two years.

Kathy brings to her new position fifteen years of experience working for environmental non-profit organizations in the Delaware Estuary Region. Most of her work has been in the areas of environmental education program development and implementation, special event planning, and fundraising. She is looking forward to using her skills to move the Partnership forward in helping to implement the Estuary Program's Management Plan and to positioning the Partnership as the "voice of the estuary."

The Partnership is also pleased to announce the recent hiring of Lisa Wool as the organization's program specialist. Lisa previously worked for Delaware Greenways and for Delaware Fish & Wildlife's Wetlands Rehabilitation Program. During the coming months, Lisa will be focusing her energy on the 1999 Delaware Estuary Teacher Institute, the Corporate Environmental Stewardship Project, and estuary mini-grant initiatives.



Kathy Klein with her son Jesse at Coast Day in Lewes, DE.

into a tidal mudflat with little or no habitat for wildlife or fish. The effort would include restoring tidal wetlands, a trail system, observation and educational areas, and some open water for fish and bird habitat. HLRIT was instrumental in assembling a group of technical experts and regulatory officers to review and advise Camden on the restoration potentials. Camden is moving forward with plans and securing permits. The U.S. National Park Service, the Army Corps of Engineers, U.S. Fish and Wildlife, and the Natural Resources Conservation Service are all interested in providing assistance and some possible funding sources.

HLRIT is also working with the Greater Pottstown Watershed Alliance and the Schuylkill Riverkeeper on the removal of an orphan dam on the Manatawny River in Pottstown, PA. Once the reservoir is removed and the river opened up for fish passage up the Manatawny River, work will begin on the restoration of wetlands in the park above the dam. HLRIT is working with the Department of Defense to get the removal of the dam included as a military exercise. This would reduce the cost of the restoration significantly for the state and city, while providing needed training for the military.

HLRIT is continuing to work with the Partnership for the Delaware Estuary and the Wildlife Habitat Council on selection of the Corporate Environmental Stewardship Program's (CESP) demonstration sites including Williams-Transco Company, Sunoco, Dupont, and Hercules. Individual briefings for upper management are available to interested corporations. HLRIT encourages communities to work with CESP, and corporations to acquire sponsorship for the restoration of wetlands and wildlife habitat within its communities.

*For more information about these and other HLRIT initiatives, call Wendell Scheib at (610) 793-3698.*

## HABITAT AND LIVING RESOURCES IMPLEMENTATION TEAM (HLRIT)

The HLRIT is working with the Camden Greenway Working Group to reinstate Farnham Park as a viable part of the Cooper River/Delaware River North Shore Greenway system in Camden, NJ. Farnham Park was once an elegant Victorian Park, which was diked out of the tidal floodplain of the Cooper River. A 1970's hurricane storm surge caused the dikes to fail and turned the park

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

### Public Participation Implementation Team

Kathy Klein, Partnership for the Delaware Estuary, Inc.  
1-800-445-4935, partners@udel.edu

### Habitat and Living Resources Implementation Team

Wendell Scheib, Wetlands Coordinator  
(610) 793-3698,  
wscheib@bellatlantic.net

### Monitoring Implementation Team

Jonathan Sharp, University of Delaware  
(302) 645-4259, jsharp@udel.edu  
or Edward Santoro, Monitoring Coordinator  
(609) 883-9500 x 268,  
esantoro@drbc.state.nj.us

Regional Information Management Service (RIMS) Implementation Team

Bruce Hargreaves, Lehigh University  
(610) 758-3683, brh@lehigh.edu  
or Karl Heinicke, RIMS Coordinator  
(609) 883-9500 x 241,  
heinicke@drbc.state.nj.us

### Coordinating Committee for Governors Summit Planning

Michael McAllister, NJDEP,  
(609) 292-0502, mmcallis@dep.state.nj.us

*The Delaware River Basin Commission also has two Committees that serve in the same capacity as the implementation teams:*

### Water Quality Advisory Committee

John Davis, Widener University  
(610) 499-4064, John.F.Davis@widener.edu

### Toxics Advisory Committee

Tom Fikslin, DRBC  
(609) 883-9500 x 253,  
tfikslin@drbc.state.nj.us



# Species Specific

## SUMMER FLOUNDER, *Paralichthys dentatus*

BY CAROL MC CORMACK

My neighbor Dave and his wife Susan are from “downstate” Delaware, and Dave, on occasion, goes fishing out of Roosevelt Inlet in Lewes, Delaware. He was off the breakwater the day he caught the summer flounder he shared with me. Susan brought over the catch, filleted and neatly wrapped.

Without hesitation, I began to prepare the prize filets. So delicate and fresh, it was a joy to dip the firm flesh in egg and lightly dredge it in fresh bread crumbs. Then to the frying pan just long enough to turn it flaky white. “Out of this world!” I exclaimed as I ate. “The mildest flavor I have ever tasted!”

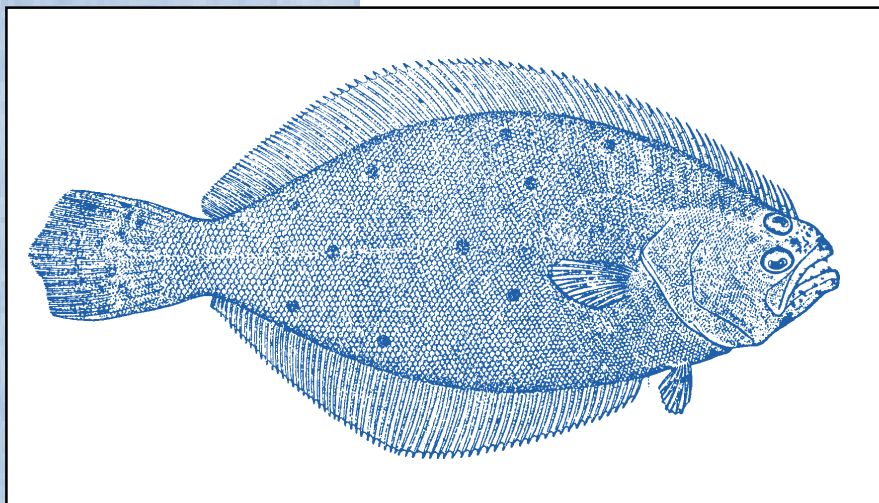
*As I write “Species Specific,” I am reminded of that wonderful plate of summer flounder.*

Summer flounder fishing is usually best from a boat in 8 feet or more of water. This is especially true when water temperatures climb above 75 degrees because the fish then seek the cooler depths. During the warmer months, May through September, summer flounder remain in estuarine and coastal waters from the shore to a depth of 100 feet. In winter, most move offshore to deeper water (150 to 500 feet in depth).

While summer flounder live on any type bottom, they are most often found in sandy areas. On soft bottoms, flounder bury themselves quickly using undulating movements of their fins to throw sand or silt onto their backs. The eyes remain uncovered and watch carefully for dinner prospects. Other favorite flounder hangouts are near marine vegetation or around pilings or rocky areas. All serve as hiding places for the smaller food fish and invertebrates lower on the food chain.

Small fish may be the most important part of a summer flounder’s diet, but they are known to eat much of what is available. That includes shrimp, crabs, squid, worms and various small fishes such as menhaden, anchovies, silversides, killifish, weakfish, hake and other flounder. Much depends on the flounder’s size and on the presence of certain prey. In the Delaware Bay, summer flounder smaller than 16 inches feed mainly on sand shrimp, while the larger ones feed mostly on small weakfish.

Except for the hogchoker, all flatfish found in the Delaware Estuary belong in the left-eyed flounder family (summer flounder and windowpanes) or the right-eyed flounder family (winter flounder). All young flounder start out looking like other fish, but when they reach a length of about half an inch, their bodies flatten, one eye slides over to join the other (the migrating eye depends on the species), and dark coloration develops on the side with eyes. At this time, the flounder begins to swim and lie on its blind side.



The summer flounder is white on its blind side and a mottled brown, olive green or grey on its eyed side. The pigmented side is also marked with many regularly placed eye-like spots which can change shades independently of the background to help it imitate the texture and color of the particular bottom on which it is resting.

Because it has a large mouth filled with many teeth, the summer flounder is a formidable predator. Unlike most other flatfish, flounder are voracious feeders and will actively chase their prey to the surface.

The summer flounder is the largest and probably most prized of the flatfish caught in the mid-Atlantic region. Though some have reached lengths of 35 inches or greater and weights in excess of 18 pounds, the average size flounder caught is usually between 2 and 5 pounds. While many fishermen do not consider catching flounder as glamorous as catching weakfish or blues, flounder fishing does have its advantages. For instance, flounder do not school so they are found over a wider area. Also, they can be caught easily in shallow, protected areas, accessible in small boats.

For a webcam view of Roosevelt Inlet with marine and local forecasts, visit [www.ocean.udel.edu/roosinlet.html](http://www.ocean.udel.edu/roosinlet.html).

*The facts in this “Species Specific” are from the University of Delaware’s Sea Grant College Program’s MAS bulletin Flounder, The Ocean’s Platter, adapted from an earlier bulletin by Ronald W. Smith.*

# Making Waves

## COUNTDOWN TO COMPLETION OF FAIRMOUNT WATER WORKS FUNDRAISING PAVES THE WAY FOR RENEWAL

BY SHILLEST CLAYTON,  
INTERPRETIVE CENTER GRADUATE INTERN

If you've traveled recently past the Fairmount Water Works, you may have thought that the site looked different. You weren't imagining things. Since April 1999, there is a definite sense of renewal around the site as the restoration and renovation progresses.

The Fairmount Park Commission, which is overseeing the Engine House restaurant work, will begin receiving bids from restaurateurs in June 1999. The restaurant is due to open in Spring 2000. In addition, the site will also house the Fairmount Water Works Interpretive Center (FWWIC), scheduled to open in 2001. A project of the Philadelphia Water Department, the FWWIC will be an environmental education facility focused on the urban watershed. With these combined offerings, the restored and renovated site will be a major draw for residents, tourists, and students.

This year marks the 25th anniversary of the fundraising effort to preserve and restore the Fairmount Water Works. To find out how you can get involved, call (215) 685-6110.

## UPDATE RELEASED ON POLYCHLORINATED BIPHENYLS IN THE DELAWARE ESTUARY

COMPILED BY JOHN KENNEL, AICP  
DELAWARE DEPARTMENT OF NATURAL RESOURCES  
AND ENVIRONMENTAL CONTROL

A new study was recently released on Polychlorinated Biphenyls (PCBs) in the Delaware Estuary. It was prepared in conjunction with the State of Delaware's Department of Natural Resources and Environmental Control. Since the Winter 1996 issue of "Estuary News" featured an article titled, "PCBs in the Delaware Estuary" by Richard Greene, improvements have been made in the knowledge about (1) the sources of PCBs, (2) the distribution of PCBs in the estuary, and (3) whether or not new contamination is a concern.

Below is the Executive Summary from the "Study of the Loadings of Polychlorinated Biphenyls from Tributaries and Point Sources Discharging to the Tidal Delaware River," June 1998.

Polychlorinated biphenyls (PCBs) have been detected at elevated levels in the sediments and tissues of resident and anadromous fish collected from the Delaware Estuary. Concern regarding these levels has resulted in the issuance of fish consumption advisories by the three states covering the entire tidal Delaware River and Bay. The lack of comprehensive and reliable information concerning the sources of PCBs to the estuary and the associated transport pathways has hampered mitigation of the problem. This study focused on two classes of potential sources to the Delaware Estuary; namely, wastewater treatment plants and tributaries.

The results of separate dry weather and wet weather sampling events indicate that wastewater treatment plants and tributaries discharging to the tidal Delaware River are active and significant sources of PCBs to the system. Mass loading was significantly greater (up to 60 times) during wet weather conditions than during dry weather conditions. During the wet weather sampling event, 88% to 95% of the PCB loading was associated with combined sewer overflows, with 4% to 9% of the loading contributed by the tributaries and 1% to 3% contributed by point sources. During the dry weather sampling event, point sources contributed 95% of the measured loading of PCBs to the tidal river, with the balance coming from tributary inflow. Independent of weather conditions, the vast majority of PCB loading to the estuary enters DRBC Zone 3, roughly encompassing the reach between the Tacony-Palmyra and Walt Whitman Bridges.

The findings noted above suggest that rainfall acts to significantly increase PCB mass loading to the estuary, presumably due to increased resuspension, erosion and transport of PCBs associated with contaminated upland sediments and/or PCBs associated with sediments otherwise settled out within sewage collection systems.

The study also demonstrates that the current fish contamination problem cannot be attributed solely or predominately to "historic" sediment contamination already in the estuary, as many resource managers have believed. Indeed, the active loading entering the estuary from treatment plants, CSOs, and tributaries is sufficient, independent of the PCBs already in estuary sediments, to cause water quality criteria exceedances and associated fish contamination. Of course, treatment plants, CSOs, and tributaries are not original sources of PCBs. Rather, treatment plants and tributaries are merely acting as conduits for PCBs that have been inadvertently or deliberately introduced into sewage collection systems, eroded off of contaminated upland sites, and transported via overland flow into the collection systems and down through tributary watersheds. The treatment plants, in fact, act to significantly reduce the amount of PCBs entering the estuary as evidenced by the much lower effluent concentrations in comparison to the influent concentrations. Presumably, much of the PCBs entering the treatment plants is being incorporated into biosolids (sludge), which in turn is then being redistributed back to the environment to an unknown extent. Actions to interrupt this cycle including the systematic identification of significant upland sources of PCBs, enhancement of the Commission's mathematical model of the estuary, and implementation of effective sediment and erosion control practices are recommended.

*For more information, call 1-800-445-4935.*

## TEENS STENCIL "NO DUMPING" WARNING ON STORM DRAINS

This spring, students from eight Philadelphia high schools stenciled "No Dumping" warnings on approximately 2,000 storm drains across the city in an effort to educate residents about the effects of stormwater runoff pollution.

The stencil of a fish shouting "YO!!! NO DUMPING! Drains to River!" also appeared on informational door hangers that the students distributed in their neighborhoods.



"This program will teach Philadelphians that pollutants put directly into a storm drain will eventually end up in the Delaware and Schuylkill Rivers," said Drew Brown, Manager of Public Education for the Philadelphia Water Department, a program sponsor.

More than 240 students took part in the program, part of a six-month environmental project designed to educate high school students about storm water runoff pollution prevention and its role in the urban water cycle.

The stenciling is the culmination of The Delaware Estuary Watershed Action Project, implemented in eight Philadelphia high schools since January. The project is a collaborative effort of the Philadelphia Water Department, Pennsylvania Environmental Council and the Partnership for the Delaware Estuary. Funding was provided by the Pennsylvania Coastal Zone Management Program and the Philadelphia Water Department.

The program consisted of presentations on the urban water cycle and the Delaware Estuary, a field trip to the Water Department's Pollution Control Plant, and a Delaware River sail on the restored oyster schooner, the *A. J. Meerwald*. Aboard the ship, which is owned and operated by the Delaware Bay Schooner Project, the students learned about the boat's history, water quality, and pollution prevention.



Students from Frankford High School in Philadelphia mark "No Dumping" message on stormdrains.

"It is our hope that this program's message will also reach participating students' family members as well as residents from the school's community," said Ann Smith, Director of Watershed Programs for the Pennsylvania Environmental Council. "We also wanted the participating classrooms to establish relationships with local watershed conservation organizations. We'd like to see these relationships continue after the project has ended."

For more information about this program, call Ann Smith, Pennsylvania Environmental Council at (215) 563-0250.

## Estuary Excursions

### THE NATION WELCOMES THE NEWEST ESTUARINE RESERVE LOCATED IN THE DELAWARE ESTUARY

On May 19, 1999, the Delaware Department of Natural Resources and Environmental Control and the National Oceanic and Atmospheric Administration (NOAA) celebrated completion of the St. Jones Center for Estuarine Studies at the Delaware National Estuarine Research Reserve. The new center is located on the north shore of the St. Jones River off Kitts Hummock Road, east of the Dickinson Plantation and south of Dover, Delaware.

The one-story wood frame building of approximately 5,500 square feet, consists of educational and research laboratories, office space, exhibits, a multi-functional auditorium, classroom/conference rooms, and storage for wet and dry field equipment, such as boats, vehicles, canoes, sampling gear, etc. It also includes environmental protection systems to be used as educational demonstration projects on tertiary wetland construction for septic and geothermal heating and cooling systems.

Construction costs for the facility totaled \$1.2 million with funds coming primarily from NOAA grants. The facility is located on 526 acres along the St. Jones River comprised of agricultural lands, forested areas and healthy tidal wetlands. The lands were purchased with State funds totaling \$968,000.

Construction of this building is a big step forward toward reaching the Reserve's goals. These goals include enhancing scientific

understanding of the reserve environment; providing information needed by coastal zone decision-makers; and improving public awareness of estuaries and estuarine management issues.

The programs, offered by the Reserve, will address significant resource management issues including those that develop an understanding of estuaries and how they are impacted by human activities. In addition to the continuous water-quality monitoring of the reserve hydrology, stormwater runoff in the St. Jones watershed will be evaluated and coastal habitats and the species dependent upon them will be studied.

For more information about the National Estuarine Research Reserve System (NERRS) sites, visit <http://inlet.geol.sc.edu/nerrsite.html>.

Complementing the St. Jones Center for Estuarine Studies is a donated collection of 62 specimens, most of them waterfowl that represent all of the waterfowl species along the mid-Atlantic flyway. Robin Tyler, in memory of Brice Tyler, his father, donated the mounts. The late Mr. Tyler, a well known Princess Anne, Maryland, taxidermist, created this unique collection that now can be enjoyed for centuries to come by the general public.

# TIDINGS: News from around the region

## DiPasquale Sworn In As DNREC Secretary

Nicholas A. DiPasquale became the Seventh Secretary of the Department of Natural Resources and Environmental Control on April 8, 1999 in Dover before an enthusiastic crowd of supporters. Governor Carper noted the 20-0 confirmation vote in the Senate as indicative of the broad support for Secretary DiPasquale in the environmental and business community. "It really is a matter of balancing," said Secretary DiPasquale. "It is important to protect both the public and private interests." DNREC's new Secretary mentioned implementation of the Coastal Zone Regulations as one of the more significant issues. "The Coastal Zone Regulations will soon be promulgated. They will become part of Delaware's history. These regulations will protect and improve our coastal zone for generations to come."

The Secretary also listed water-quality issues and implementation of controls to limit pollutant loadings for Delaware waters, southern Delaware nutrient management issues, and attainment of ozone standards here and among states along the East Coast as some of the most difficult environmental problems facing the Department and all Delawareans. He emphasized that our environmental challenges go beyond those facing business and industry. "Environmental protection is becoming personal," said Secretary DiPasquale. "It affects our daily lives. We must examine our personal lifestyles, our habits."

One of the more exceptional projects with which Secretary DiPasquale has been involved is the redevelopment along the riverfront in Wilmington. "We can see progress. We can't always see the results of our efforts. It's not always visible. We have the opportunity to reclaim this natural resource. We need to restore our rivers and our waterways, to protect them and to enjoy them. And we need to look more holistically at our environment," said Secretary DiPasquale, who included integration of environmental databases and information management among Departmental management and organizational issues he will focus on during his administration.

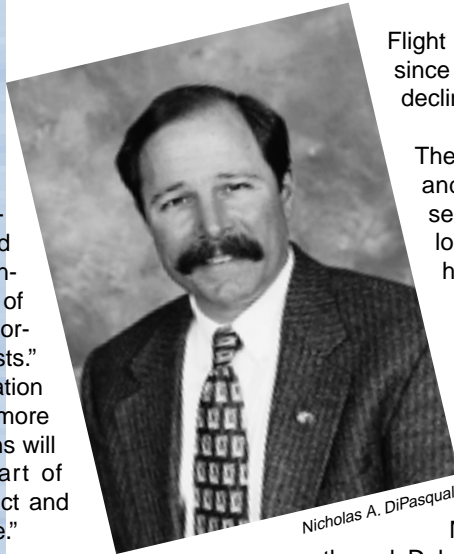


## Delaware Partners In Flight

Partners in Flight is an international bird conservation program with chapters in each of the states in the U.S., the Canadian Provinces, and in South and Central American countries. The mission of PIF is to cooperate on a hemispheric scale to maintain and recover landbird

populations - especially the neotropical migrants — which depend on forests, shrublands, and grasslands throughout the Americas.

PIF was begun as a response to an alarming trend in population declines among some of the bird species that migrate each year between their North American breeding grounds and their Central and South American feeding grounds. These are called Neotropical Migratory Birds (NTMB's). The concerns of Partners in



Nicholas A. DiPasquale

Flight have expanded to include all landbirds since many resident bird populations are also declining.

The reasons for the declines are complex and not completely understood but they seem to be related to the degradation and loss of suitable habitat across the entire hemisphere.

The Delaware Partners In Flight Working Group is concerned at the local level about bird conservation in our state and our region. Delaware - and the Delmarva peninsula - is a critical migratory and breeding region. There are over 100 species of Neotropical Migratory Birds that migrate into and

through Delaware each year. In 1995, 10 nesting species were rare and another 16 species were very uncommon. Many resident species are showing serious population declines.

## How You Can Help:

- Provide food sources for birds in your backyard. This can be as simple as planting some native shrubs;
- Avoid spraying pesticides and herbicides on your native plants. The caterpillars that may live there are a rich food source for birds;
- Cats are expert predators. If you have a cat, consider keeping it inside for healthier cats and more abundant wild birds.

*If you want to do something more to help, call (302) 653-2882 or write to DE Partners In Flight c/o Division of Fish & Wildlife, 4876 Hay Point Landing Road, Smyrna, DE 19977.*

## Successful Watershed Management Through Education

The New Jersey Department of Environmental Protection (NJDEP) and the Watershed Partnership for New Jersey (WPN) launched a statewide watershed education campaign this May to encourage residents to become aware of their roles in watershed management and to become actively involved in watershed activities in their communities. "Successful watershed management is dependent upon all citizens taking positive steps to prevent pollution such as controlling wastes, reducing polluted runoff and preserving open space, requiring more than just additional government regulation," said Robert Tudor, Assistant Commissioner of Environmental Planning and Science.

WPNJ Chairperson Dale Rosselet notes that education is an important part of watershed management. One way to raise awareness in a community is to help distribute watershed education materials. Such materials may be ordered from NJDEP for local festivals, events, community days, school activities or for general distribution.

The *Clean Water Rainers Program* is geared for elementary school students. Claudius Crab, Marshall Muskrat and Diesha Diamondback help inform students about water pollution prob-



lems and solutions. The *Nonpoint Source pollution brochure* provides a brief introduction to nonpoint source pollution and prevention tips. The *Clean Water Book* provides an in-depth look at how you can reduce water pollution in your daily life. To request copies of this publication, call Kyra Hoffmann, NJDEP Division of Watershed Management, at (609) 292-2113 or e-mail [khoffman@dep.state.nj.us](mailto:khoffman@dep.state.nj.us).



To receive a Watershed Education and Resources Packet complete with the new WPNJ Watershed Education and Resource Directory, a colorful map of NJ's watersheds, brochures and fact sheets, write Colleen Thomas, NJDEP, PO Box 418, Trenton, NJ 08625 or fax (609) 292-0687.

### Summer Flounder and Weakfish Size and Possession Limit Changes

The Delaware Division of Fish and Wildlife recently adopted changes to existing summer flounder and weakfish regulations. The modifications are the result of efforts to comply with the Atlantic States Marine Fisheries Commission's management plans to help rebuild summer flounder and weakfish populations along the Atlantic coast.

The 1999 Delaware regulations include:

- A summer flounder season closure from July 16 to August 7 to reduce the total harvest;
- A 15-inch minimum length of summer flounder caught recreationally;
- A creel limit of eight summer flounder caught recreationally;
- An increase in the minimum length of weakfish caught recreationally from 13 to 14 inches;
- A creel limit increase from 6 to 14 weakfish caught recreationally.

For more information, contact the Fisheries Section, Delaware Division of Fish and Wildlife at (302) 739-3441 or Kathleen Jamison, Information and Education, at (302) 739-4506.

The 1999 New Jersey summer flounder and weakfish regulations include:

- A summer flounder open season from May 15 to October 11
- A 15 1/2-inch minimum length of summer flounder
- A possession limit of 8 summer flounder
- A 14-inch minimum length of weakfish
- A possession limit of 14 weakfish

Fish are measured from tip of snout to tip of tail. Cleaning or filleting of fish with a minimum size limit while at sea is prohibited.

For more information about NJ regulations, access the New Jersey Division of Fish, Game and Wildlife web address <http://www.state.nj.us/dep/fgw/marreg99.htm>.

### ERDG's Horseshoe Crab Conservation Program

The Ecological Research & Development Group of Milton, Delaware launched a successful **Just flip 'em!** Horseshoe crab conservation program last year to bring attention to the high mortality from horseshoe crab strandings and to encourage individual support for the preservation of these ancient mariners. Up to 10 percent of this species die each year from stranding alone. Loss of habitat, pollution, and overharvesting for bait are the primary causes for the population's dramatic decline. The Rodgers Forge Elementary School was one of twelve Maryland middle schools selected this year to participate in a pilot program to raise and study horseshoe crabs in the classroom. Encouraged by Governor Parris Glendening and developed by Cindy Grove, Aquatic Resources Education Coordinator for Maryland DNR, this program teaches students about the early development stages of this remarkable species, its ecological role in nature's delicately balanced food web and its biomedical contribution to the health of millions of people world wide.

ERDG believes the current restrictions on harvesting horseshoe crabs for eel and conch bait is but a short-term conservation solution. Public education and coastal community support in conjunction with habitat conservation initiatives, both terrestrial and aquatic, will ultimately be the foundation of a successful conservation program.

ERDG is a 501(c)(3) non-profit organization whose mission is to seek solutions, which prevent and/or mitigate damage to native wildlife populations and habitat from human activities. This is accomplished through scientific research and development, public education, environmental planning and management. ERDG works to inspire and assist individuals and organizations to solve problems, change behaviors and promote sound decisions to achieve sustainable ecosystems.

For more information about ERDG, call Glen Gauvry at (302) 684-3373 or e-mail [ERDG@dmv.com](mailto:ERDG@dmv.com).

<http://www.njaquarium.org/>

Welcome to the official web site of the New Jersey State Aquarium! This website features an underwater viewing camera so you see what's happening right now at their Open Ocean Tank.

On this website you can also learn about the Aquarium's research programs, including the first-ever aquarium breeding of several species.

The New Jersey State Aquarium is located on the Delaware River waterfront at 1 Riverside Drive, Camden, NJ, just minutes away from Philadelphia's historic district and Penn's Landing by ferry, car, or public transportation. The RiverLink Ferry crosses the Delaware River every 30 minutes, departing on the hour from Philadelphia and on the 1/2 hour from Camden from 10am - 5pm. Call (215) 925-LINK for more information.

For more information about the New Jersey State Aquarium, call the Aquarium's main number (609) 365-3300 or visit their web-site at [www.njaquarium.org/](http://www.njaquarium.org/).

# Estuary events

## IMPORTANT UPCOMING DELAWARE ESTUARY EVENTS

### **Wissahickon Watershed Exhibit Open Throughout the Summer Logan Square Library Philadelphia, Pennsylvania**

The main focus of this exhibit is on Wissahickon Valley Park in Philadelphia. Other themes are the major institutions associated with the Park and the importance of the sixty-four square mile watershed as the basic planning and development unit. The exhibit, made possible by a grant from the William Penn Foundation, is a joint project of the Wissahickon Restoration Volunteers and the Free Library of Philadelphia. For more information, call the Wissahickon Restoration Volunteers at (215) 342-8394.

### **“Art From The Aquifer: Stonebubble” Open Throughout the Summer The Noyes Museum of Art Oceanville, New Jersey**

“Art from the Aquifer: Stonebubble” explores the relationship between the fragile aquifer and the people in contact with it. Paintings of public spaces throughout the Pine Barrens, collaborative sculptures, a virtual installation and educational projects evoke the dynamic interface between human beings and their environment. Visit [www.stonebubble.com](http://www.stonebubble.com) to participate in an ongoing dialogue about The Pinelands, water resources, ecology, art and landscape. Visit often to share in the artist’s experiences. Join in the process as the site evolves over the summer. For more information about the project, call The Noyes Museum of Art at (609) 652-6166 or e-mail [Noyesnews@Jerseycape.com](mailto:Noyesnews@Jerseycape.com).

### **Fairmount Water Works Interpretive Center (FWWIC) Public Tour Season June 12 - October 10 , Weekends, 1 pm - 3:30 pm Philadelphia, Pennsylvania**

The FWWIC public tour season will take visitors along the deck level and then down to the machine level of the Old Mill House where the original 1851 Jonval turbine and pump still remain. These are the only remaining pieces of machinery from the early operations of the Water Works. For more information, call the Philadelphia Water Department/FWWIC at (215) 685-4935.

### **Delaware Bay Lighthouse Marathon Cruise July 10, 16, and 24, August 20 and 28, 1999 Cape May, New Jersey**

See six lighthouses from the water on the Cape May Whale Watcher. For more information, call Mac at (609) 884-5404.

### **“Designing Stormwater Best Management Practices Using the Pennsylvania Handbook of BMP’s for Developing Areas” Thursday, July 29, 1999**

#### **Villanova University, Villanova, Pennsylvania**

This workshop is sponsored by Villanova’s Department of Civil and Environmental Engineering and PADEPs Bureau of Watershed Conservation. A \$20 registration fee includes a catered lunch. For more information or to register, call Linda DeAngelis at (610) 519-4358 or e-mail [ldangel@email.vill.edu](mailto:ldangel@email.vill.edu). For other questions, call Robert Traver, Ph.D., PE at (610) 519-7889 or e-mail [rtraver@email.vill.edu](mailto:rtraver@email.vill.edu).

### **Cape May County Days July 31 - August 1, 1999 Historic Cold Spring Village Cape May, New Jersey**

Displays and demonstrations by local, cultural, historical, and art organizations will tell the story of Cape May County. For more information, call (609) 898-2300.

### **“Hawkwatch” and “Seawatch” Cape May Bird Observatory September 1 - December 15, 1999 Cape May, New Jersey**

“Hawkwatch” is all day every day, dawn until dusk, from September 1 - November 30. Seventeen different species of hawks and eagles are seen regularly. “Seawatch” is from September 15 - December 15. Come out to see migrating seabirds, including scoter and other sea ducks, loons, cormorants, jaegers, and gannets. Call (609) 884-2736 for more information or visit [www.nj.com/audubon](http://www.nj.com/audubon). The birding hotline for current sightings is (609) 861-0466.

### **Excellence in Environmental Leadership Workshop Series “Grassroots Fundraising” Saturday, October 2, 1999 New Brunswick, New Jersey**

Participants of this workshop will assess their organizations’ fundraising “readiness,” identify the most effective methods for raising money, and learn how to engage volunteers and board members in the organizations’ fundraising efforts. Registration is \$40 and includes a copy of *Fundraising for Social Change* by Kim Klein, a resource manual, and lunch. For more information or to register, call the Institute for Conservation Leadership at (301) 270-2900 or e-mail [peter@icl.org](mailto:peter@icl.org).

### **Wetlands Regulatory Workshop, CALL FOR ABSTRACTS November 2 - 5, 1999 Atlantic City, New Jersey**

Scientists, managers, regulators and consultants will meet to discuss the use and protection of wetland ecosystems. In addition, the workshop will serve to increase dialogue and foster partnerships between federal, state, and local regulatory agencies as well as the regulated community. For more information, call Ralph Spagnolo at (215) 814-2718, e-mail [spagnolo.ralph@epamail.epa.gov](mailto:spagnolo.ralph@epamail.epa.gov) or visit <http://www.epa.gov/region03/hydricsoils/>.

### **Delaware River Watershed-Wide Conference! “Flowing Toward the Future: 21st Century Decisions for the Delaware River and Its Watersheds” November 15 - 17, 1999 Adam’s Mark Hotel Philadelphia, Pennsylvania**

Early check-in, registration, and the opening reception for this conference is Monday, November 15, 1999. Hold these dates now and plan to create a unified vision for the basin, showcase innovative programs, share success stories, form a network from source to sea, promote public/private partnerships, increase watershed wide coordination, foster planning and decision making.

*For more information, call Partnership for the Delaware Estuary at 1-800-445-4935.*



# students Page

## Summer Camps AND PROGRAMS

### Earth YES! Camp Awbury Recreation Center Ardleigh & Haines Streets Philadelphia, PA

This summer Earth YES! is opening its first city-wide Environmental Camp at Awbury Recreation Center in the Mount Airy section of the city. Summer camp is for 10 - 14 year olds and will run for three two-week sessions. The cost is \$60 per session. Camp runs from 9 am - 3 pm with an extended day available for \$20 per week (7:30 am - 6 pm). To obtain an application form, call (215) 683-3680.



### Philadelphia's Fairmount Park "Ecology Camp"

Philadelphia's Fairmount Park Commission is pleased to offer "Ecology Camp" over the summer of 1999. Sponsored by Fairmount Park, its Division of Environmental Education, and its Natural Lands Restoration and Environmental Education Program (NLREEP), "Ecology Camp" offers a wide range of activities which promote environmental understanding, appreciation, and stewardship. Hands-on experiences at Fairmount Park's Horticulture Center combine ecological explorations with lots of outdoor, and sometimes indoor, fun!

Fairmount Park's "Ecology Camp" is for summer camps and/or groups. Its three "Ecology Camp" sites are: The Pennypack Environmental Center, The Andorra Natural Area, and the Horticulture Center. All three run from July 13 - August 20, 1999. There is a \$2-per-camper fee which includes complimentary pre- and post-lesson materials. Make your reservations early!



To register or for more information about "Ecology Camp," please call the numbers listed below:

Pennypack Environmental Center  
(Northeast Philadelphia):  
(215) 685-0470

The Andorra Natural Area  
(Northwest Philadelphia):  
(215) 685-9285

Horticulture Center  
(West Philadelphia):  
(215) 685-0156

### Academy of Natural Sciences Camp and Academy Adventures 1900 Benjamin Franklin Parkway Philadelphia, Pennsylvania

July 10, 1999	Academy Adventure: fossil Collecting at Big Brook
July 12 - 16, 1999	Camp: Animals with Bad Reputations
July 26 - 30, 1999	Camp: Wild About Water
August 2 - 6, 1999	Camp: Natural Discoveries
August 23 27, 1999	Camp: Animals Past and Present
September 11, 1999	Academy Adventure: Hawk Mountain

Weekday hours are from 10 am - 4:30 pm; weekend and holidays from 10 am - 5 pm. For 24-hour information, call (215) 299-1000 or call (215) 299-1022.

### SHARKMANIA New Jersey State Aquarium Saturday, August 14, 1999 Camden, New Jersey

Join the aquarium staff and take a closer look at the mystery and myth of sharks in the open ocean tank. Shows on this day will be interpreted into American sign language. The New Jersey State Aquarium is located on 1 Riverside Drive between Federal Street and Mickle Boulevard in Camden, New Jersey. It is situated on the east bank of the Delaware River in Camden directly across from Penn's Landing in Philadelphia, Pennsylvania. For more information, call 609-365-3300.

### Young Waterfowlers (Coming in September for Ages 12 - 16)



Waterfowling is an American tradition that combines hunting with an appreciation of our wetlands and their wildlife. In order to instill a strong conservation ethic for all of our natural resources, the Delaware Nature Society in partnership with NVF Company, the Department of Natural Resources and Environmental Control, and the National Wildlife Federation, is providing an exciting opportunity for young Nature Society members. Participants will study wildlife management, habitat protection, good conservation practices and wetlands values during a comprehensive introduction to the American waterfowling heritage.

Classes held at the Ashland Nature Center, Bombay Hook National Wildlife Refuge near Smyrna, and the Ommelanden Hunter Safety Training Center Range complex near Delaware City will feature field identification of waterfowl, conservation ethics, safety skills, good sportsmanship, camouflage techniques, and boat and water safety. Instruction by experts from the partnering organizations will provide participants with effective sporting techniques along with a responsible stewardship approach for wildlife and its habitats. An optional hunt at the conclusion of the program, under the supervision of experienced resource people, will further reinforce the sound practices taught during the course.

For more information about Young Waterfowlers or about a fly fishing program early next year, call Karen Travers, DNS Members' Programs Coordinator, at (302) 239-2334 x14.

# Teachers Page

## Professional Development

### National Marine Educators Association Annual Conference August 6 - 11, 1999 College of Charleston Charleston, South Carolina

Explore coastal heritage in southern style in historic Charleston by the sea! Expansive salt marshes, meandering tidal creeks, remote barrier islands, old cobblestone streets, former rice plantations, and gullah-speaking sweetgrass basket weavers create a magnificent backdrop to this special NMEA Conference that will long be remembered. The conference promises excellent concurrent sessions, dynamic guest speakers, field trips to unique ecological and historic locations, great southern cuisine, and the brand new South Carolina Aquarium! For more information, contact co-chair Wendy Allen, Baruch Field Laboratory, at (843) 546-3623 or e-mail wendy@belle.baruch.sc.edu or Paula Keener-Chavis, Charleston Math & Science Hub, at (843) 953-5812 or e-mail chavisp@cofc.edu.



### Watershed Academy

Look below under "Recommended Websites" for information about virtual learning opportunities.

### 1999 Overnight Workshops for Educators at the NJ Division of Fish, Game & Wildlife Sedge Island Site in Barnegat Bay

July 16 - 18, 1999 (foul weather date is July 23 - 25)  
SPECIAL TOPIC: COASTAL INSECTS

July 30 - 31, 1999 (foul weather date is August 6 - 7)

August 14 - 16, 1999 (foul weather date is August 21 - 23)  
SPECIAL TOPIC: SNORKELING

August 28 - 30, 1999 (foul weather date is September 4 - 6)  
SPECIAL TOPIC: SUBMERGED VEGETATION

September 25 - 26, 1999 (foul weather date is October 2 - 3)

Who can participate? Can you sit on the floor, knees slightly bent, without back support for 1/2 hour? Is your health and conditioning such that you could paddle a kayak - fairly strenuously if the weather sours - for 1/2 hour at a time? Can you arrive at the Island Beach State Park parking area before 9 am? If so, come along. Access is via 1.2 mile paddle on double, sit-on-top, no-experience-necessary kayaks. Barnegat Bay is very shallow in this area. As a result, 99% of the trip is over waist-deep (or less) water. Flotation vests are provided.

Who may participate? Any educator in a public or private school system, classroom teacher or supervisor; grades K-12 or beyond; camp or environmental center personnel or volunteers; home schoolers with access to coastal learning sites; ecotour operators; and coastal community summer youth program personnel, etc. A sense of humor and adventure would be helpful.

Designed to bring participants to a better understanding of the biodiversity and value of the Bay and all coastal resources, educational resources and field equipment are available on Sedge Island to run programs to study plankton, macro marine life, terrestrial plants, marine plants, birds, insects, naked-eye astronomy, island and salt marsh ecology, water quality and currents, and tides.

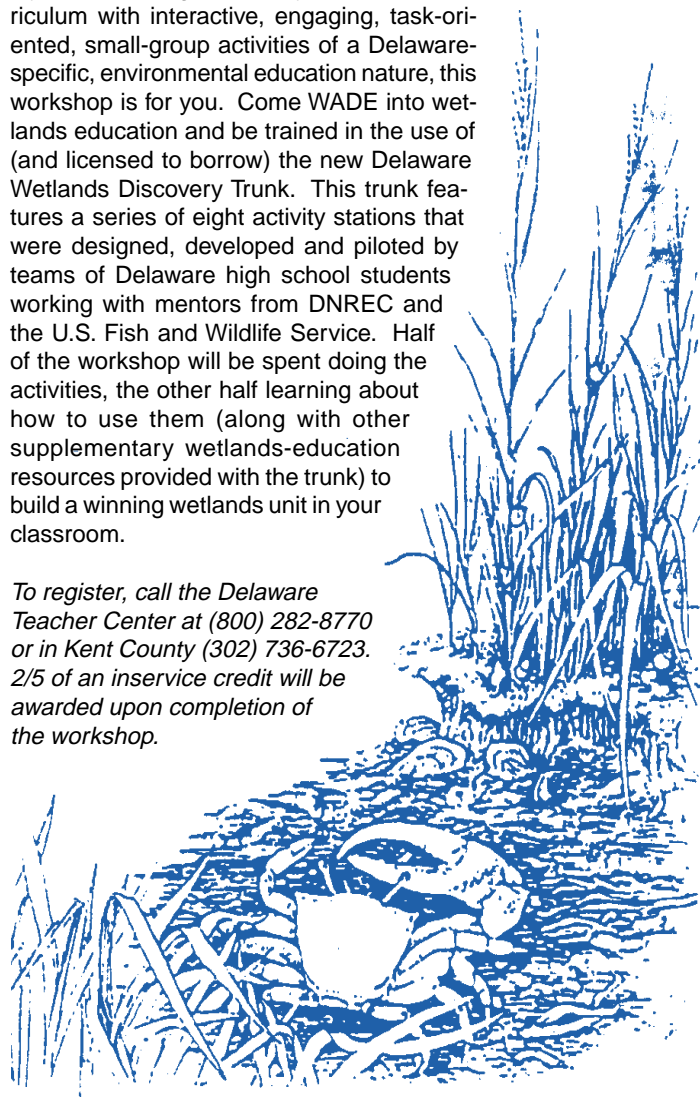
A registration form and check for \$40 made payable to NJ FG&W should be sent to Larry Sarnier, NJ FG&W, P.O. Box 418, Port Republic, NJ 08241. Class size is limited to 14. Call (609) 748-2031 anytime for an update on available space before sending in your registration or if you have questions.

Wetland Activities for DE Educators (Science Teachers 4-8)  
(WADE WORKSHOPS) #4789R

### August 11, 1999, 9:00 am - 4:00 pm Aquatic Resources Education Center 4876 Hay Point Landing Road Smyrna, Delaware

If you are looking to enrich your science curriculum with interactive, engaging, task-oriented, small-group activities of a Delaware-specific, environmental education nature, this workshop is for you. Come WADE into wetlands education and be trained in the use of (and licensed to borrow) the new Delaware Wetlands Discovery Trunk. This trunk features a series of eight activity stations that were designed, developed and piloted by teams of Delaware high school students working with mentors from DNREC and the U.S. Fish and Wildlife Service. Half of the workshop will be spent doing the activities, the other half learning about how to use them (along with other supplementary wetlands-education resources provided with the trunk) to build a winning wetlands unit in your classroom.

To register, call the Delaware Teacher Center at (800) 282-8770 or in Kent County (302) 736-6723. 2/5 of an inservice credit will be awarded upon completion of the workshop.





## Recommended Books

**REBEL WITH A CONSCIENCE**, by Russell W. Peterson. This book is about the real experiences of a true rebel—a scientist, business executive, politician, citizen activist—who successfully challenged the powers-that-be in business and government to further justice and environmental health worldwide. It provides a good history of the environmental movement and illustrates how a scientist can flourish in business and government. A multimedia CD ROM supplements the book with photos, videos, interviews and narration. “Rebel With A Conscience” is newly published by Associated University Presses, Inc.

**COAST QUEST**, an activity book for kids written by Susan Moerschel, Park Resource Office, Division of Parks and Recreation, DNREC, will be available this summer. The Coast Quest Activity Guide is designed to help kids and families explore the historic and natural treasures



and the great outdoors of Delaware's coastal region. Centered on the Coastal Heritage Greenway that stretches along Delaware's 115 mile coast, the guide will take you back in time to explore a Civil War fort, a Revolutionary War-era Plantation, and treasures recovered from the shipwreck DeBraak. Visit historic towns, marshlands and the beach. You may even catch a glimpse of a Bald Eagle or see hundreds of horseshoe crabs. Hike trails that will take you to hidden places off the beaten path, and see and learn what makes Delaware's coast beautiful, unique and memorable. If you would like to be placed on the Coast Quest mailing list, contact Susan Moerschel at (302) 739-5285.

**EXTRAORDINARY HORSESHOE CRABS**, published this spring by Carolrhoda Books, examines the biology, ecology, and human/animal relationships of *Limulus polyphemus* with a special focus on their importance to migratory shorebirds around the Delaware Bay. For more information about the book, contact the publisher at (800) 328-4929 or the author, Julie Dunlap, at (410) 381-8710.

**DELAWARE'S FRESHWATER AND BRACKISH-WATER FISHES** by Maynard S. Raasch, 3rd edition, December 1997, is a 174 page hardcover book containing 106 color photographs. It describes all freshwater fishes known to occur in Delaware, fish that travel from salt water to fresh water to spawn, and brackish-water species. Included in the book is a convenient taxonomic list, lists of the top 10 winning catches since 1966 for each species in the freshwater division of the state fishing tournament, and 241 bibliographic entries, 214 of which provide Delaware information. Raasch's book is available from the Delaware Nature Society, P.O. Box 700, Hockessin, DE 19707. The cost is \$15.95 plus \$2 for shipping and handling.

## Recommended Web-sites

### Watershed Academy

<http://www.epa.gov/owow/watershed/wacademy.html>

Find information on training opportunities, information transfer documents and internet training modules at this site.

### NonPoint Source Pollution

<http://www.epa.gov/owow/nps/>

Find the answers to your questions concerning nonpoint source pollution (NPS). Learn about “Splash!,” a wonderful way to inter-actively teach both children and adults how to reduce runoff pollution.

### What's New

<http://www.epa.gov/owow/WhatsNew.html>

Visit this website to view new and exciting sites, such as the Pfiesteria Homepage at <http://www.epa.gov/OWOW/estuaries/pfiesteria/>.

### Aerial Photos

<http://www.teraserver.microsoft.com/>

Here is an alternative to contacting your local USGS office for aerial photos. This URL offers a place search for both aerial and satellite imagery.

### Northeast Wetland Flora

<http://www.npwrc.usgs.gov/resource/1999/neflor/neflor.htm>

Produced by the USDA Natural Resource Conservation Service's Northeast National Technical Center in Chester, Pennsylvania, this guide contains black and white illustrations, full species descriptions (with color photographs, illustrations, and small distribution maps), illustrated glossaries, an alphabetical species list (common and scientific names for 300 species of vascular plants), and a key to generalized plant groups. “Northeast Wetland Flora” may be browsed online or downloaded in .zip format.

Check out  
these websites  
to learn  
more about  
the Delaware  
estuary:



[www.del.ep.org](http://www.del.ep.org)  
[www.udel.edu/pde](http://www.udel.edu/pde)



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## Estuary News

Partnership for the Delaware Estuary, Inc.  
c/o Pennsylvania Environmental Council  
1211 Chestnut Street, Suite 900  
Philadelphia, PA 19107

Address Correction Requested

## DELAWARE ESTUARY PROGRAM

**Partnership for the Delaware Estuary, Inc.**  
Kathy Klein, Executive Director  
1009 Philadelphia Pike, Wilmington, DE 19809  
Tel: (302) 793-1701 / (800) 445-4935  
Fax: (302) 793-1666  
E-mail: partners@udel.edu

**DELEP Program Coordinator**  
Forsyth Kineon  
Tel: (609) 883-9500 ext.217 / Fax: (609) 883-9522  
E-mail: fkineon@drbc.state.nj.us

**Environmental Protection Agency**  
Irene Purdy, EPA Region II  
Tel: (212) 637-3845 / Fax: (212) 637-3889  
E-mail: PURDY.IRENE@epamail.epa.gov

Catherine Libertz, EPA Region III  
Tel: (215) 566-2737 / Fax: (215) 566-2782  
E-mail: LIBERTZ.CATHERINE@epamail.epa.gov

**Pennsylvania**  
Nancy Crickman  
Department of Environmental Protection  
Tel: (610) 823-6100 / Fax: (610) 823-6133  
E-mail: crickman.nancy@al.dep.state.pa

**Delaware**  
John Kennel  
Department of Natural Resources  
and Environmental Control  
Tel: (302) 739-5726 / Fax: (302) 739-3491  
E-mail: jkennel@state.de.us

**New Jersey**  
Michael McAllister  
Department of Environmental Protection  
Tel: (609) 292-0502 / Fax: (609) 292-4608  
E-mail: MMCALLIS@dep.state.nj.us

**Delaware River Basin Commission**  
David P. Pollison  
Tel: (609) 883-9500 x225 / Fax: (609) 883-9522  
E-mail: pollison@drbc.state.nj.us

**Editors**  
Kathy Klein, Partnership for the Delaware Estuary  
Carol McCormack, Consultant

**Layout & Design**  
Nancy A. Dubin



The Estuary News encourages reprinting of its articles in other publications. Estuary News is published quarterly by the Partnership for the Delaware Estuary, Inc., under an assistance agreement (CE-993985-01-0) with the U.S. Environmental Protection Agency (EPA). The purpose of this newsletter is to provide an open, informative dialogue on issues related to the Delaware Estuary Program. The viewpoints expressed here do not necessarily represent the views of the Partnership or EPA, nor does mention of names, commercial products or causes constitute endorsement or recommendation for use. For information about the Delaware Estuary Program, call 1-800-445-4935.

## 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.

To find out how you can become a member, call the Partnership at 1-800-445-4935, or visit our new website at [www.udel.edu/PDE](http://www.udel.edu/PDE).

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Send to: Partnership for the Delaware Estuary, 1009 Philadelphia Pike, Wilmington, DE 19809