THE BENEFITS OF LOCALLY GROWN PRODUCE

BY BRIAN LANG AND YAELE LEHMANN,
THE FOOD TRUST

“What could be better than a local peach so juicy that it drips down your arm when you bite into it?”
— farmers' market patron

Tasty peaches are just one of the many benefits to purchasing and consuming locally grown produce. Some of these advantages include: freshness, quality, and superior taste. In addition, buying locally grown produce supports local farmers and preserves farmland.

The Food Trust, a nonprofit in Philadelphia, is one of many organizations committed to promoting the benefits of local food. At our farmers’ markets, local farmers provide fresh, nutritious fruits and vegetables to low-income neighborhoods where access to fresh food is a problem.

THE BEST THINGS IN LIFE ARE FRESH!

Hands down, the best thing about locally grown produce is the quality and freshness of the food. Local farmers often pick their produce at peak ripeness — meaning the flavor is as good as it gets. Produce grown in far away states or countries can take a week (or more) to transport to your neighborhood grocery store. The 1997 U.S. Department of Agricultural Market News reported that food traveled an average of 1,685.5 miles from the state of its origin to arrive at one market. Not only does this affect the freshness and nutritional value of the produce, but also constitutes an inefficient use of energy bringing food from farm to table.

SUPPORTING LOCAL FARMERS AND PRESERVING SMALL FARMS

Buying locally grown fruits and vegetables along with herbs, jams, cheeses, meats, poultry and flowers, helps support family farmers and preserves farmland. Although situated in a major metropolitan area, many small and medium-scale growers in the Delaware Valley face significant hurdles to marketing their products. This is primarily because most of the region’s wholesale firms, brokers, and large institutions deal almost exclusively with high volumes of sorted and graded produce available year round. In fact, consolidation in food transportation and distribution, economies of scale for large growers, and improved packing and refrigeration techniques have led to a dramatic increase in both domestic and foreign imports into the area. This has resulted in a corresponding decrease in markets for the region’s farmers, particularly those with small and medium-scale operations.

Loss of profits has resulted in a dramatic loss of farmland as growers decide to sell their farms. In just twenty-five years, nearly a quarter of the productive farmland in southeastern Pennsylvania has been lost to development. Similar trends have occurred throughout much of the region. The loss of farms and farmland to development has negative effects: loss of farm income to the local economy, declining vitality of rural communities, and increased levels of stormwater runoff.

Stormwater runoff is becoming more and more of an issue as farmland is developed into suburban land uses, thereby increasing the levels of impervious surface cover. The effect of impervious surfaces on the volume of stormwater runoff can be dramatic. For example, a 1-inch rainstorm on a 1-acre natural meadow would typically produce 218 cubic feet of runoff, enough to fill a standard size office to a depth of about 2 feet. The same storm over a 1-acre paved parking lot would produce 3,460 cubic feet of runoff, nearly 16 times more than the natural meadow, and enough to fill three standard size offices completely.

(continued on page 2)
FARMERS’ MARKETS ARE AN ASSET TO THE COMMUNITY

Locally grown produce sold at farmers’ markets can bring fresh, affordable, and nutritious food to community residents that may not have easy access to fresh-picked produce. Farmers’ markets can provide a good source of food supplements for women, infants, children, and seniors. In 2001, close to 100,000 people throughout the mid-Atlantic region received vouchers redeemable for fresh fruits and vegetables at farmers’ markets through the Farmers’ Market Nutrition Program. The program is funded through the U.S. Department of Agriculture, and Department’s of Agriculture in Maryland, New Jersey, and Pennsylvania.

People don’t just benefit from the food itself, but from the affect farmers’ markets have on their communities. At open-air markets, The Food Trust provides nutritional information and helpful tips about different types of fresh produce and vegetables. They’re lively places where people can socialize with their neighbors. Customers interact directly with farmers and develop relationships with the people who grow their food. As one farmers’ market customer said, “There is no better person to buy produce from than the one that grows it!”

“Schueler, T. R., Site Planning for Urban Stream Protection, p. 22 (Schueler calculates 218 cu. ft. of runoff from meadow)

For more information on The Food Trust visit www.thefoodtrust.org, or email contact@thefoodtrust.org, or call(215) 566-0630. Also see Events on page 14 for information about The Future of Our Food and Farms Summit being held in Wilmington, Delaware in December 2002.

UPDATES FROM DELEP

MONITORING ADVISORY COMMITTEE (MAC)

The purpose of the most recent MAC meeting, which was held on May 30, 2002 was to discuss the progress of several ongoing monitoring initiatives.

Dr. David Eslinger, of the National Oceanic and Atmospheric Administration (NOAA), provided an update on current remote sensing activities in the Delaware Bay, which are being conducted through NOAA’s Coastal Service Center in Charleston, South Carolina. Utilizing remote sensing (aircraft and satellite) technologies allows researchers and resource managers to obtain a “snap shot” or a birds-eye-view of environmental activities over a certain period of time. In addition, by utilizing remote sensing information coupled with other monitoring data collected in the Estuary, resource managers can make more informed decisions in order to protect and enhance the Bay’s resources. Additional partners in conducting the remote sensing activities include: the Delaware River Basin Commission (DRBC), the states of Delaware, New Jersey and Pennsylvania, and the National Air and Space Administration (NASA).

An update was provided regarding DRBC’s ongoing Polychlorinated Biphenyls (PCBs) monitoring activities in the Estuary. Preliminary studies revealed that tributaries contribute substantial loadings of PCBs to the Estuary. The purpose of the monitoring activities are to provide accurate, precise, and defendable estimates of the PCB loading to the Delaware Estuary from the tributaries to the Delaware River. This information in turn will be used to develop Total Maximum Daily Load’s (TMDLs) for the Delaware Estuary as required under law. A TMDL or Total Maximum Daily Load is a calculation of the maximum amount of a pollutant that a water body can receive and still meet water quality standards. The Clean Water Act, section 303, establishes the water quality standards and TMDL programs.

At the meeting, Jim Mumman announced his retirement from the MAC effective July 1, 2002. Jim, an active member of the MAC since its inception and a friend of the Estuary, will be missed. We wish him much success in his retirement and future endeavors.

The next MAC meeting will be held in October.

See the summer 2000 issue of Estuary News for an explanation of TMDLs. Current and past newsletters are available online at www.delep.org.

TOXICS ADVISORY COMMITTEE (TAC)

Most of the work of the TAC is currently centered on the development of a Total Maximum Daily Load (TMDL) for Polychlorinated Biphenyls (PCBs) in the Delaware Estuary. (See the fall 2000 issue for an explanation of PCBs).

The PCB Expert Panel, which is advising the TAC on PCB modeling issues, met on August 21, 2002. Significant progress is being made on setting up the PCB model framework through
the cooperation of the Expert Panel and the TAC. At the
August meeting, several decisions were made in regards to the
PCB Model:
• The model will divide the Delaware River into 79 seg-
ments, with additional segments used to extend the
model to the Atlantic Ocean boundary.
• The model will be calibrated between September 2001
and April 2003.
• The TAC and Expert Panel will be looking into a longer-
term simulation, or a 30-year "hind cast" that would take
the model back to the 1970s.

A symposium will be held in October 2002. The purpose of
this event will be to present current PCB research, which is
being conducted in the Estuary. This scientific forum will
include information on sediment sampling, water sampling, and
atmospheric deposition studies.

The next meeting of the Expert Panel will be in January 2003.
Efforts will be directed at compiling data for input to the model,
i.e. sediment, atmospheric deposition, flows, point and non-
point source loadings, etc.

The Tidal Nonpoint Source workgroup, a subcommittee of the
TAC, is working on estimating loadings from Superfund sites,
and other nonpoint sources below tributary sampling sites
which are potential PCB sources. The group consists of repre-
sentatives of U.S. Environmental Protection Agency, the states
of Delaware, Pennsylvania and New Jersey, the Delaware
River Basin Commission, and academia. The findings of this
group will provide input for the PCB model.

PUBLIC PARTICIPATION
IMPLEMENTATION TEAM (PPIT)

During the third week of September, 650,000 copies of the
2002 State of the Delaware Estuary Report were distributed,
via 16 newspapers, throughout the Delaware Estuary region.
The report, a major initiative of the Delaware Estuary Program,
premises the most recent scientific data available that mea-
sures the environmental health of the Delaware Estuary.

This 20-page, full-color educational piece, answers many of your questions
about the Estuary. Is the water quality improving in the
Delaware Estuary? How does land use impact the
Estuary? Can I eat the fish or swim in the water?
Are depleted fish and wildlife populations impro-
vling? It contains information regarding horseshoe crab
populations, the status of the Estuary’s wetlands, the recovery of
the bald eagle, and much more.

If you didn’t see the report in your local paper, contact the
Partnership for the Delaware Estuary at 1-800-445-4935 to
receive a free copy. Thanks to all of our sponsors who helped
to make this first report possible.

DELAWARE ESTUARY PROGRAM
ANNOUNCES MIGRANT REQUEST
FOR PROPOSALS

The DELEP Migrant Program provides small grants to organiza-
tions throughout the Delaware Estuary. Over the past
eleven years, more than 90 migrants have been awarded
totaling more than $250,000. Past recipients of these mini-
gants have included Delaware Greenways for the creation
of an access trail to the Delaware River, New Jersey
Academy of Aquatic Sciences to develop a one-act play for
elementary school students about indigenous estuarine ani-
mals, and the Clean Water Fund to promote reduced pesticide
use by integrated pest management.

The deadline for submitting proposals for the 2003 cycle is
Friday, December 6, 2002.

To receive a copy of the Request for Proposals, please call the
Partnership for the Delaware Estuary at 1-800-445-4935.
The Delaware Estuary's Horseshoe Crab is Still Making Headlines

By Joseph Matassino, Deputy Director, Partnership for the Delaware Estuary

From the Cape May County Herald to The News Journal in Wilmington, the interconnected relationship between the horseshoe crab and the shorebird has been getting quite a lot of press coverage.

In the winter 2001 issue of Estuary News, we reported on the efforts of the New Jersey Department of Environmental Protection's Division of Fish and Wildlife's Endangered and Nongame Species Program to establish baseline data on the impact of the declining horseshoe crab population on the red knot. The red knot is one of several species of migratory shorebirds that travel annually from South America to their breeding grounds in the Arctic. During the month of May, they feed upon horseshoe crab eggs laid along the shores of the Delaware Bay. These shorebird depend upon the horseshoe crab eggs to sustain them in their journey, and rely on body fat accumulated from eating the eggs to get them through their first few weeks in the Arctic. Therefore, the fat that the red knot accumulates on our shores is critical to the survival of the species.

In February 2002, New Jersey researchers found a very significant population decline in the red knot during a visit to South America. The population of birds, at the primary wintering sites, had declined by 57 percent since 1986, with nearly half of that decline occurring in 2001. Since the wintering areas have not changed, this finding calls attention to the ever-growing importance of managing the population of horseshoe crabs, as they form an essential — and fragile — link in the red knot's survival. The importance of preserving the horseshoe crab is being recognized at the federal, state, and local levels.

This spring, employees of New Jersey's Endangered and Nongame Species Program took samples of horseshoe crab eggs from seven beaches in Cumberland and Cape May Counties. The samples were taken on a weekly basis throughout the months of May and June. According to Kathy Clark, a principal biologist with the Endangered and Nongame Species Program, nearly half of all eggs were found during one week, and half of those were found at only one beach. Clark also participated in an aerial survey in May and June that showed shorebird numbers were down 25 percent and red knots down by 30 percent.

In Delaware, scientists with the state's Coastal Management Program, the U.S. Geological Survey, and the Cornell University Cooperative Extension Service are turning their attention to improving horseshoe crab habitat. This includes everything from trying to figure out where the horseshoe crabs go when they are not spawning, to the size of sand grains that they favor for laying eggs.

To control the harvesting of horseshoe crabs, a number of restrictions have been placed on waterman, at both the state and federal levels, including the establishment of a 1,500-square-mile horseshoe crab sanctuary located at the entrance to the Delaware Bay. Organizations like the Ecological Research and Development Group are promoting the use of bait bags by watermen, which have been shown to reduce the amount of horseshoe crab bait needed to catch eel and conch. In addition, at the encouragement of a local high school student, the State of Delaware signed legislation in July 2002 making the horseshoe crab Delaware's official marine animal. (See our Teacher's section on page 11 for more details.

Still more is needed to turn around the decline in crab numbers and restore stability to both the horseshoe crab and the Western Hemisphere's shorebird migration.


Help for Delaware Estuary Gardeners - EPA Launches New Website

By Dan Welker, Environmental Protection Specialist, U.S. Environmental Protection Agency's Region III

Harm to our estuaries is often unintended. It can come from overuse of less permeable groundcovers (such as Lawns), heavy dependence on power equipment, use of inappropriate plants (such as those that become invasive or ones not suited to the site conditions), and disposal of organic matter. More obvious causes of harm come from overuse or misuse of pesticides and fertilizers.

Concerned gardeners can adopt many practices to reduce their impact on the Delaware Estuary. Often, the homeowner will be rewarded through reduced maintenance costs. Some of these practices are as simple as changing the way we maintain our lawns, or selecting native plants rather than exotics. Others, such as adding a small pond to benefit wildlife and serve as a rain garden, are initially more costly, but are extremely rewarding.

In an effort to help gardeners understand how traditional gardening practices might be harming the environment and to provide better alternatives known collectively as "green landscaping," a new website, www.epa.gov/reg3esd1/garden.htm, was recently inaugurated. The site is fairly comprehensive and provides links to demonstration gardens, native plant sales, and other organizations providing additional information on the subject.
The new site provides practical information on how to get started, both at home and through community involvement. If you're like an increasing number of gardeners, you'll find adopting "green gardening" to be extremely rewarding. Rather than the expense and drudgery of taking care of a traditional landscape dominated by lawn, you'll find a fascinating hobby full of seasonal change and discovery. It should also provide you with great joy and satisfaction in knowing that you're helping to protect the Delaware Estuary.

While the website is designed to serve the entire mid-Atlantic region, many of the links are to more local sources in the Delaware River Watershed.

Dan Welker is the creator of the new EPA website and a frequent writer on environmental landscaping issues. His wildlife garden has been the subject of national radio and television shows. welker.dan@epa.gov

HOW OUR CITIES ARE MAKING LIFE BETTER FOR MIGRATORY BIRDS

BY JOSEPH MATASSINO, DEPUTY DIRECTOR, PARTNERSHIP FOR THE DELAWARE ESTUARY

For the vast majority of people living in heavily urbanized areas, birds may represent their most frequent contact with wildlife. Located along the Atlantic Coastal Flyway, the Delaware Estuary plays host to migrating shorebirds, raptors, and other avian species traveling across the globe. As a host, it is important to realize that in addition to our natural areas, our cities can be wildlife sanctuaries as well.

In May 2002, Philadelphia became the third city, after Chicago, Illinois and New Orleans, Louisiana to sign an Urban Conservation Treaty for Migratory Birds. Under the Treaty, the U.S. Fish and Wildlife Service (Service) will give the City of Philadelphia $75,000 to support projects and educational initiatives to make the city a better place for migratory birds.

An Urban Conservation Treaty for Migratory Birds is a partnership agreement between a U.S. city and the Service to conserve migratory birds through education and habitat improvement. The Service provides challenge grants and technical assistance. The Treaty city develops and implements bird conservation projects, provides matching dollars and in-kind support, and develops additional partnerships.

Each Treaty city works with the Service to develop an action plan with specific goals and objectives in the areas of habitat protection and restoration; education and outreach; hazards reduction; and non-native, invasive or nuisance animal and plant management. It is up to each individual Treaty city to determine their area of interest and the focus they will take.

In 2000, Chicago and the Service signed their Urban Conservation Treaty for Migratory Birds. Researchers, in Chicago, determined that turning off building lights in the downtown could save thousands of migratory birds a day. Doug Stotz, a conservation ecologist at The Field Museum in Chicago and his colleagues, counted dead birds every day in 2000 and 2001 around a large downtown building during the migration seasons, from late March to the end of May and from mid-August to Thanksgiving. Half of the vertical surface of the huge, lakefront building was glass, and lights in the building seem to disorient migrating birds. Turning the lights off reduced the number of dead birds by up to 88 percent, depending on lighting conditions and window location. For all the days counted, 1,297 birds died from hitting lit windows, while just 192 birds died from hitting dark windows. After adjusting for the variance in lit versus dark windows, the overall reduction due to turning the lights out was 83 percent. Now, the city asks all downtown buildings to dim or shut off their lights in the spring and fall.

One of the projects the City of Philadelphia planning to implement under its Urban Conservation Treaty for Migratory Birds is to promote the use of shade grown coffee. How does that impact migratory birds? Migratory birds winter in the coffee-growing regions of the world. Traditionally, in the tropics, coffee was grown under the shade of a forest canopy. As the demand for coffee increased, and the land was cleared of trees, sun-tolerant varieties of coffee were developed and planted in the new open spaces. This clear-cutting, however, has reduced habitat for migratory birds. "Experts from the Smithsonian Migratory Bird Center have documented sightings of up to 150 different bird species in shaded coffee farms, while in unshaded coffee farms only 5 to 20 different species were counted." With this knowledge and with an increased demand for ecotourism in the developing world, there are more and more reasons for coffee producers to begin planting trees on their properties. This will in turn enhance habitat for migratory birds.

The next U.S. cities that are planning to sign an Urban Conservation Treaty for Migratory Birds are Anchorage, Alaska and Houston, Texas.

EXCELLENCE IN THE ESTUARY AWARD RECIPIENTS

On Thursday, September 19, 2002 the Board of Directors and the staff of the Partnership for the Delaware Estuary recognized, ten individuals, organizations and agencies for their efforts in protecting, enhancing and sustaining the Delaware Estuary, during our Fourth Annual Experience the Estuary Celebration.

For the second year, the event, which hosted more than 250 of the region’s environmental leaders, was held along the banks of the Schuylkill River in Philadelphia. The following individuals were recognized at Fairmount Park’s Lloyd Hall:

• **Artistic Impression** - Artist, Frank McShane of Elkins Park, Pennsylvania whose graphic designs reflect a true understanding of the environmental complexity of the Delaware Estuary.

• **Citizen Monitoring** - The New Jersey Department of Environmental Protection’s RATs (River Assessment Teams) and BATs (Biological Assessment Teams) Program, a monitoring program that has trained hundreds of volunteers to map general watershed health throughout the State.

• **Corporate Environmental Stewardship** - PG&E Logan Generating Station, for restoring ten-acres of land formally dominated by phragmites, on their corporate site in Swedesboro, New Jersey.

• **Ecotourism** - The Delaware Tourism Office for their “Small Historic Towns” initiative, which is an effort to collectively market Fort Delaware, Delaware City, New Castle, Odessa and Port Penn as a single destination for travelers.

• **Estuary Stewardship** - DeCou Orchards for using Best Management Practices on their farm, in Shiloh, New Jersey, to improve water quality and the natural resources of the Cohansey Watershed.

• **Habitat Restoration** - There were two deserving recipients in this category: the Delaware Nature Society for their Watershed Stewardship Program, which includes a volunteer driven Backyard Wildlife Habitat Program; and the Kaiserman Jewish Community Center in Wynnewood, Pennsylvania for rallying their community in restoring 300 feet of stream bank along Indian Creek.

• **Living Resources** - The Cape May Bird Observatory for their year-round educational programming aimed at safeguarding bird habitat for years to come.

• **Water Education** - The Stroud Water Research Center has been at the forefront in developing unique programs for students providing a variety of field experiences at their research facility in Avondale, Pennsylvania.

• **Visionary** – Ernesta Ballard whose professional training and experience in horticulture enabled her to work effectively with the Fairmount Park Commission staff in their efforts to maintain the plantings in the park system and to explain the means of the system to the municipal authorities.

TOM'S OF MAINE NATIONAL RIVER AWARENESS PROGRAM

If all of the world’s water were fit into a gallon jug, the amount of available fresh water would be just a tablespoon. Sadly, almost 50% of the 3.6 million miles of rivers and streams in the United States are threatened or impaired, and most of us live within 10 miles of a polluted lake, river, stream or coastal area.

To celebrate, protect, and restore our nation’s rivers and watersheds, Tom’s of Maine announced last year an exciting program. In partnership with River Network, The Nature Conservancy, the National Park Service’s Rivers & Trails Program through the National Park Foundation, and participating retailers throughout the country, Tom’s of Maine launched The National Rivers Awareness Program. This five-year partnership aims to create a groundswell of action and support for our country’s greatest natural treasure – fresh, clean, safe water.

Tom’s of Maine, founded in 1970, is a leading manufacturer of safe, effective natural care products, such as toothpaste, soap, and deodorant. Tom’s believes it can help take care of the world while caring for its customers, and has a long history of supporting environmental and social causes. Tom’s was a corporate sponsor of the 2002 Pennsylvania Coast Day held on September 29 at the Fairmount Water Works in Philadelphia.

For more information about Tom’s of Maine’s River Awareness Program visit the company’s website at www.tomsofmaine.com.
ESTUARY BASICS

OVER THE RIVER AND THROUGH THE WOODS...AND OUT OF THE WOODS...AND INTO THE WOODS...AND SO ON...

BY JOSEPH MATASSINO, DEPUTY DIRECTOR, PARTNERSHIP FOR THE DELAWARE ESTUARY

The lyrics to this traditional Thanksgiving Day song “Over the River and Through the Wood” by Lydia Maria Childs may have to be changed at some point in the future, as contiguous forests throughout the region become more and more scarce.

Forests and woodlands are one of four major types of habitat that have been identified in the Delaware Estuary. The others include shrublands, herbaceous vegetation, and unvegetated aquatic systems. Forest and woodlands are also sometimes referred to as “uplands.” Uplands play a key role in estuarine wildlife diversity and ground water protection (through recharge as well as buffers to wetlands). In the Delaware Estuary, most of what we consider upland habitat is where the bulk of the human population resides. This is mostly urban and suburban areas with scattered farmland and pockets of preserved wildlife areas. Of significant concern in upland habitat is a loss of contiguous forest, which has become fragmented due to development. “Forest fragmentation” occurs when contiguous forests are broken into smaller parcels surrounded by agricultural or urban and suburban land uses.

Currently, the U.S. Geological Survey in cooperation with the U.S. Forest Service is conducting a study of the Delaware River Basin to determine the extent of forest fragmentation in the region. The lessons to be learned, however, with respect to the ecological consequences of forest fragmentation, are transferable to any watershed area. In the Chesapeake Bay Watershed, in the past 15 or more years, the watershed has lost more than 471,000 acres of forests, due primarily to development. In 1998, the U.S. Forest Service and the Society of American Foresters organized and sponsored a series of Round Table discussions in partnership with the Chesapeake Bay Program. The primary objective of the discussions was to hear from experts about the affects of forest fragmentation on forested land use in the Chesapeake Bay Watershed.

The round table discussions focused on the negatives and positives of forest fragmentation, as well as what was known and some things that still required more research. There were several key findings, but there where many more questions than answers. It was generally agreed upon that the negative ecological consequences of fragmentation could be severe, depending upon where it is occurring. For example, deforestation along streams will decrease the stream’s stability and increase the level of sediment and nutrients in waterways, but what is the threshold for the locations of fragmentation on a stream stability and function? Fragmentation will result in fewer habitats for wildlife, but what is the optimum size of an ecosystem for animals requiring large areas? How are aquifer recharge rates affected by fragmentation? What is the affect of fragmentation on the local climate? The biggest question of all, however, was what should be done to control forest fragmentation.

The general public and our community leaders have a “gut feeling” that forests are important to protect, but do we really understand forests? Public policies pertaining to transportation, zoning, and taxation can impact forest habitat and need to be better coordinated and more consistent, but dothose policies cause fragmentation or does population growth? The round table discussions concluded that establishing public policy requires a lot more than ecological and economic data. Connections and actions between our current institutions must be better coordinated to manage land use in ways that minimize forest fragmentation. To affect public policy, accessible involvement of scientists, resource managers, and other interest groups is required. Also, the vast majority of society doesn’t know that forest fragmentation is an issue; therefore, increased public awareness and education are necessary.

In the Delaware Estuary, there is an opportunity for the residents of New Jersey to get involved in protecting our forests. The Forest Resource Education Center, offers outdoor experiences for both the general public and students on their 650 acre forested site. Their nursery sells seedlings in smaller quantities through its three seedling packet programs that enable residents of New Jersey to play a role in sustaining our forests. Available for order are the:

 Arbor Day Seedling Packet, which is perfect for conservation and educational plantings in schoolyards, parks or around your community. Each packet contains a total of 30 seedlings of three different species. Arbor Day in New Jersey, Delaware, and Pennsylvania is the last Friday in April.

Riparian Buffer Packet, which is a program that promotes the planting of tree seedlings along rivers, streams, lakes and ponds banks to maintain healthy and clean waterways. The Forest Service also sells the book Best Management Practices, which provides information on forestry in a wetlands environment.

Wildlife Seedling Packet, which promotes the planting of tree seedlings to improve wildlife habitats.

The cost of each packet is $25. Packets are available for shipping between mid-March and April 30. Orders are accepted from December 2002 to April 1, 2003. This gives you plenty of time to plan your community planting activity. To order seed packets, or for more information about the Forest Resource Education Center, please call (732) 928-0029 or visit www.state.nj.us/dep/forestry/service.

Resources used for this article include www.satnet.org/policy/frag6.htm and www.arborday.org. Special thanks for the assistance provided by the New Jersey Department of Environmental Protection library staff.
SPECIES SPECIFIC

AMERICAN KESTREL
(*FALCO SPARVERIUS*)

BY JOSEPH FERRY, COMMUNITY RELATIONS
COORDINATION, PENNSYLVANIA DEPARTMENT OF
ENVIRONMENTAL PROTECTION, SOUTHEAST REGION

Each year, one of the country's largest and most diverse flights of migratory raptors occurs at the mouth of the Delaware Estuary. As many as 80,000 raptors fly through the Cape May, New Jersey region each fall, many on their first journey to southern wintering grounds. A large number of the migrants, representing 17 regularly occurring species, use the habitats along the Delaware Bay for feeding, resting, and roosting.

One of the migratory raptors that rely on the Delaware Estuary during their annual trek is the American kestrel, North America's smallest falcon. Actually, it's a scaled down version of its larger and more powerful cousin, the peregrine falcon.

The word kestrel originated in Europe, and is thought to have been taken from the English word “coilstrel,” meaning peasant or lower class. During medieval times, when falcons were used in subsistence hunting, the common man used the kestrel; peregrine falcons were reserved for kings and nobles.

Kestrels require an open habitat where they can locate their prey. The kestrel is often called the “hover hawk” because it can hover into the wind while flapping its wings rapidly to look for prey. Hovering allows a kestrel to maintain a stationary position aloft, from which it can scan the ground below. When there is no wind, however, hovering is too energy-expensive, so the kestrel may perch on any elevated object, such as utility lines or poles, to search for prey. They are apt and able hunters, feasting on large insects, bats, mice, birds and small reptiles. When they spot suitable prey, they swoop down on it, using their large, talon-tipped feet to pin their victims to the ground.

This small (9" to 12") colorful bird has the typical falcon body shape, a short neck, a sharp hooked bill, and a small head that has a black and white pattern with dark vertical black stripes on the side. In flight, its pointed wings and wing beats (seven to twelve short, rapid strokes followed by a short glide, then another set of strokes) are easily identifiable. The American kestrel has typical falcon wings for fast flight, and day-flying raptor facial features, including the supra-orbital bony ridge that makes a sunshade. The falcon face marks, called mustache marks, called mustache marks, act much like a football player's “cheek black” by cutting glare from the sun.

Male and female kestrels are readily identified by their different markings as well as their difference in size. Both males and females have mustache and sideburn marks. Males have blue gray wings, a reddish back and a reddish tail with a single subterminal tail band. Females have reddish wings and a reddish back, but are darker from the wrist to the tip of the wings. The female has a reddish tail with multiple narrow bands. Falcons, including kestrels, exhibit an uncommon dimorphism in that the female is substantially larger than the male.

Pair bonding among kestrels is strong and usually permanent. A pair is established after the male takes over a particular territory. At that point, a female will begin to hunt and associate herself with the male. The major components that will strengthen the bond between the two include courtship feeding of the female by the male, aerial displays, and the search for a nest site.

Kestrels nest in the spring from April to early June in woodpecker holes, natural cavities, niches in cliffs or buildings, and in nest boxes that are specifically set up for them.

Once incubation begins, the male brings food to the nest box, and also shares in the incubation twice a day. Incubation lasts about 30 days. When the young hatch, the female broods continuously for about a week, during which time the male still brings all the food for both the female and the young. After a week or so, the female leaves the nest to join in feeding the now-ravenous nestlings. She returns to the nest at night to brood the young for several more days. When the young fledge at approximately 30 days, they are coaxed to a nearby
waterway, where both parents continue to feed them. For at least several days, the female and the young return to the nest at night. After two more weeks, the young are on their own and must leave the adults’ territory. The adults then resume their solitary ways.

Populations of the kestrel have declined in some areas. Since they consume primarily insects in the summer, it is possible that the use of pesticides has had a negative effect on them in recent decades. An even greater problem may be a scarcity of nest sites. Being a secondary cavity nester, the kestrel requires an abandoned woodpecker hole or similar cavity. Sadly, few people bother to erect larger nest boxes for kestrels and screech owls, perhaps, because they think their chances of attracting these species are small. (See below for a description of Hawk Mountain Sanctuary’s kestrel box program.)

Despite population declines, the American kestrel is distributed widely throughout North America. Their habitat can range from alpine zones down into desert habitats. However, they generally prefer savanna-like areas with few trees, farmsteads, woodland borders, city parks, and suburban areas. Certainly the kestrel’s ability to adapt to varying conditions has enabled it to remain one of the most abundant raptors of North America.

For more information on the American kestrel, please visit www.geocities.com/heartland/5960/amkest.html.

Hawk Mountain Sanctuary – A Place to Soar

Hawk Mountain Sanctuary is located along the Kittatinny Ridge in the headwaters of the Schuylkill River in Pennsylvania. It was established in 1934, as the world’s first refuge for raptors. Since that time, the Sanctuary has become an international center for conservation, education, and research about raptors. (For the location of Hawk Mountain Sanctuary, please refer to the map on page 15).

During the months of August through December, birders from all over the world come to Hawk Mountain to witness an average of 18,000 hawks, eagles, and falcons representing 16 species of raptors that fly past the Sanctuary’s 1,521 foot high North Lookout. In the fall, the Northwest winds, combined with the topography at Hawk Mountain, produce updrafts that help carry the migrating birds southward on their journey.

At the Sanctuary, biologists and citizen scientists have been studying the breeding, wintering, and migratory habits of American kestrels for more than 30 years. Because these birds are near the top of the food chain, kestrels are excellent bioindicators of ecosystem health, helping us learn more about how our farmland habitats function.

As part of its long-term research studies, the Sanctuary has placed and is monitoring more than 200 kestrel nest boxes within a 25-mile radius of Hawk Mountain. Because human-altered habitat often eliminates the trees and snags that provide natural cavities for nesting birds, artificial nest boxes provide needed “nurseries.” Fortunately, kestrels readily use artificial nest boxes. When boxes are made available, the local population of kestrels grows. In mid-July, when nestlings are about two weeks old, nest boxes are carefully inspected. Nestlings are sexed, banded, and counted as a measure of reproductive success. Information gathered by Hawk Mountain kestrel researchers is shared with kestrel biologists at sites in Canada, Iowa, Idaho, and Florida.

In April 2002, the Pennsylvania Department of Conservation and Natural Resources awarded the Sanctuary with $425,000 to support the purchase of 124 acres to add to the already existing 2,400-acre natural area. Aside from the area’s natural beauty, the Sanctuary also has a visitor center, bookstore, and gift shop. Formal programs are available for schools and other larger groups.

For more information about Hawk Mountain Sanctuary, please call (610) 756-6000.
ESTUARY EXCURSIONS

RANCOCAS WATERSHED

Everywhere you look, the Rancocas Watershed seems to be reinventing and rediscovering itself. The Rancocas Watershed is located in south central New Jersey. It drains approximately 360 square miles, making it one of the largest watersheds in the state. The watershed is comprised of the main stem of the Rancocas Creek, which further divides into the North, South, and Southwest Branches. (For the location of the Rancocas Watershed, please refer to the map on page 15).

The watershed includes not only the creek itself, but also the land it drains. From its headwaters in the cranberry bogs and Pine Barrens of western Ocean County, to its mouth at the Delaware River near the towns of Riverside and Delanco, the watershed is diverse in habitat, land use, and population.

With the construction of grist and saw mills, early settlers were able to harness waterpower from the Rancocas Creek. They also used the Creek to ship raw materials and passengers to Philadelphia, and points beyond. From these mills grew the modern-day towns of Mount Holly, Lumberton, Pemberton, and Medford. The watershed avoided the introduction of heavy industry that can be found along the Delaware River, meaning that much of the Rancocas now offers pleasant stretches for canoeing or kayaking.

Also of important economic value in the watershed was, and in many respects still is, the berry industry. The growing of cranberries requires a special bog culture. Cranberries were produced in the watershed as early as 1935. The first commercial blueberry planting in the country took place in 1916 in the company town of Whitesbog. Today Whitesbog is a silent village undergoing a major restoration effort through the leadership of the Whitesbog Preservation Trust.

Most towns in this watershed are actively preserving their history and promoting small town America. Mount Holly is a town of historical significance. It is also now realizing its potential as a tourist destination. Most of the activity in town is centered along High and Washington Streets. Mount Holly hugs the North Branch, with some of its shops and eateries spilling over its banks. The Shops at Mill Race Village offer visitors one-of-a-kind finds from hand-painted furniture, to note paper, to handcrafted jewelry. In an effort to revitalize the downtown area without losing its Victorian charm, each of the buildings that house the shops have been painstakingly restored to historic specifications by their owner.

There are a number of locations and sites scattered throughout the watershed that will provide visitors with the opportunity to experience the natural resources of the Rancocas first-hand. The Woodford Cedar Run Wildlife Refuge is a wildlife rehabilitation hospital and educational facility that treats more than 2,000 animals per year. The Rancocas Nature Center provides an educational starting point for exploration of the Creek’s surrounding forest, fields, and tidal marshes.

The Partnership for the Delaware Estuary has recently completed an ecotourism brochure for the Rancocas Watershed. It is the third in a series of brochures that have been produced, highlighting watersheds throughout the Delaware Estuary. Identified in the brochure are listings of natural areas, recreational resources, and locally owned and operated accommodations and eateries.

DELAWARE PRESENTS YOUNG ENVIRONMENTALIST OF THE YEAR AWARD

On July 25, 2002 at the Delaware State Fair, Governor Ruth Ann Minner presented the 2002 Young Environmentalist of the Year Award to three students for their tireless dedication to conserving and protecting Delaware’s natural resources.

This year’s first place winner was Abigail M. Bradley, a recent graduate of Cape Henlopen High School, nominated by Robert Schroeder, her former teacher and advisor. Abby has dedicated a tremendous amount of time and energy in aiding the horseshoe crab population. She conducted independent research projects, during her high school years, on topics such as the horseshoe crab’s nest site selection, looking at sand grain size, beach slope, and salinity. Her research has been recognized by her peers both locally and regionally. Abby has taken her talents to the University of Delaware College of Marine Studies in Lewes as a research assistant in several of the research labs conducting studies that are tangentially related to the horseshoe crab, such as the effects of dredge spoils on the flora and fauna of area beaches.

Abby also initiated legislation that resulted in the horseshoe crab being designated as Delaware’s official marine animal. She testified on behalf of this innovative legislation before the Delaware House of Representatives in Legislative Hall in Dover.

HAWK MOUNTAIN SANCTUARY’S EDUCATIONAL PROGRAMMING

Hawk Mountain Sanctuary offers a number of programs for school groups about birding and more specifically about raptors; teaching students about a variety of subjects ranging from the use of binoculars to Appalachian Mountain habitats. They also have an “Adopt-a-Kestrel-Nestbox Program” for students in Pennsylvania. This program, which has been in existence since the 1950’s, introduces students to the practice of real wildlife biology and natural resources management. A detailed description of their kestrel bird box program and a brochure of educational programming options is available on their website at www.hawkmountain.org, or by calling (610) 756-6000 x 226 or 227.

CITIZENS UNITED WINS AWARD FOR DOWN JERSEY PROJECT

Citizens United to Protect the Maurice River and Its Tributaries was presented with the First Place New Jersey Department of Environmental Protection Watershed Management Award 2002 in Education — Learning Institution for their interpretive program “Down Jersey.” This program includes a documentary co-produced with NJN entitled “Down Jersey”, and the “Down Jersey: Celebrating Our Sense of Place Teacher’s Curriculum.” More than 250 teachers have participated in curriculum workshops and another 50 or more have received the lesson plans. The project brings attention to the important natural and cultural resources along the New Jersey shore of the Delaware Bay and encourages both stewardship and protection by thousands of residents and students. For more information about the project, please call (856) 327-1161.

SIXTH ANNUAL DELAWARE ESTUARY TEACHERS INSTITUTE PHOTO ALBUM

Connie Streitz of Clayton, New Jersey and Denise Everett of Pitman, New Jersey, both teachers at Pitman Middle School, paddle down the Schuylkill River during the orientation meeting on June 24, 2002.

Participants seine the Delaware Bay and get a closer look at all of the estuarine critters found in the water.

Touring the Del River oil spill response boat, we find out how oil spills are controlled and cleaned up.

Cruising the Delaware River with Philadelphia City Sail.
Schoolyard Habitat Restoration Workshops for Delaware Teachers

Carol Brewer, Associate Professor and Director of Undergraduate Studies at the University of Montana wrote an article recently for the journal Conservation Biology, calling environmental professionals to partner with teachers in educating our youth about the environments in which they live — their backyards and schoolyards. Dr. Brewer cited research showing that in order to incorporate outdoor exploration into their curriculum teachers needed “meaningful opportunities to learn about ecology in a relevant context, and time to plan instructional activities; resources specific to their regions and schoolyards; access to inexpensive instructional materials; and occasional, dependable interaction with scientists during the academic year.”

The Partnership for the Delaware Estuary is inviting teachers in the State of Delaware to receive the funding and technical support needed to create a schoolyard habitat site on their school’s property. In order to participate, teachers should attend one of two workshops designed to introduce the benefits of participating in such an effort.

Workshops are being held on Tuesday, November 5, 2002 from 3:30 to 4:30 p.m. at Bombay Hook National Wildlife Refuge, in Smyrna and on Thursday, November 7, 2002 at Brecknock Park Nature Center in Dover.

Funding and support to create the schoolyard habitat sites are being provided by the Marmot Foundation; New Castle, Kent and Sussex Conservation Districts; and the U.S. Fish and Wildlife Service.

For more information or to register, please call the Partnership at 1-(800)-445-4955.

Water Lessons at the Academy of Natural Sciences

The Academy of Natural Sciences is currently offering three water lessons for classroom teachers, and grants are available to cover the costs of the program. The lessons can take place at The Academy of Natural Sciences or arrangements can be made to have them at your school. The lessons available are as follows:

- Wetty Worlds for Grades pre-K–2
What do ducks and frogs have in common? Learn about ponds, rivers, and oceans and the amazing creatures that inhabit these watery worlds. Live animals and fun activities encourage investigation into the features that make aquatic animals unique.

- Water, Water Everywhere for Grades 3–5
Did you know that much of the world’s fresh water is not clean enough to drink or to provide homes for aquatic organisms? Explore how water becomes polluted, become familiar with some aquatic creatures that Academy scientists study, and participate in a fun experiment conducted right before your eyes.

- What’s Your Watershed Address? for Grades 6 and up
Every home lives in a watershed, but what exactly is a “watershed”? Learn about watersheds and how human activity on land affects water. Work as teams of aquatic ecologists to determine water quality by performing experiments just like Academy scientists do.

For more information about any of these programs, please call (215)-299-1060.

Estuary Events

Upcoming Delaware Estuary Events and Happenings

4th Annual Hawk Mountain Nature Art Show
October 18-20, 2002
Kempton Community Center
Kempton, Pennsylvania
Artwork from fifty national, regional, and local wildlife artists will display and sell original art, including acrylics, oils and watercolors, prints, photographs, wildlife carvings, and sculptures. Admission fees benefit Hawk Mountain Sanctuary. For more information, please call (610) 756-6000 or visit www.hawkmountain.org.

Hagley Museum Craft Fair
October 19 & 20, 2002, 10 a.m. – 5 p.m.
Hagley Museum
Wilmington, Delaware
Located along the Brandywine River on the site of the first du Pont powder works, Hagley provides a unique glimpse into 19th Century American life. Their craft fair features talented artisans from the mid-Atlantic region. For more information, please call (302) 658-0588.
New Jersey Lighthouse Challenge
October 19 & 20, 2002
Various locations throughout New Jersey
Take the challenge and visit eleven of New Jersey’s historic lighthouses in one weekend. The event is being presented by the New Jersey Lighthouse Society and the Lighthouse Preservation Organizations of New Jersey. For directions and locations of the lighthouses, please call (856) 546-0514 or visit www.njlhs.burlco.org.

Delaware Sediment and Stormwater Conference
October 21-23, 2002
Dover Downs Hotel and Conference Facility
Dover, Delaware
More than 40 speakers from across the country will share the latest in policy, programs, technology, and science in the emerging field of urban erosion, sediment, and stormwater management. Other featured topics include, low impact development, watersheds and streams, and stormwater monitoring and design approaches. For more information, please call (302) 739-4411.

Halloween Enchanted Forest
Friday, October 25, 2002, 6:30 p.m. – 8:30 p.m.
Abbott’s Mill Nature Center
Milford, Delaware
Experience the wonders of the night while hiking through the Center’s trails. Stop along the way and hear facts shared by naturalists about bats, insects, amphibians, and alien invaders. There is a cost of $2 for adults and $1 for children. For more information, please call (302) 422-0847.

Cape May Autumn Weekend – “The Bird Show”
October 25-27, 2002
Cape May Bird Observatory
Cape May Court House, New Jersey
Enjoy three days of friendly, easy-paced birding, with field trips, programs, workshops, boat trips, special guest appearances, and 50 nature-focused exhibits. Registration is required by October 15, 2002. For the schedule of events and the registration form, please call (609) 884-2736.

Oyster Sail and Oyster Raw Bar
Saturday, October 26, 2002, 1:30 p.m. - 4:30 p.m.
Bayshore Discovery Project
Bivalve, New Jersey
Enjoy all you can eat oysters from the raw bar, listen to stories told by local oystermen, and view the remnants of the historic oyster industry along the Maurice River. Reservations are required. The cost is $15 for children and $30 for adults. For more information, please call 1-800-485-3072.

Help Protect the Pennsauken Creek
Saturday, October 26, 2002, 9 a.m. – 1:30 p.m.
Mount Laurel Municipal Building
Mount Laurel, New Jersey
Learn how to conduct a visual assessment of a stream during this one-day workshop. A visual stream assessment is the art of really looking at a stream and trying to understand whether it’s in good shape or not. Your work will eventually lead to specific restoration projects on the Pennsauken. For more information, please call Fred Stine at (609) 854-5108.

Sunset Hayride and Campfire Story Time
Saturday, October 26, 2002, 6 p.m.
Whitesbog Village
Browns Mills, New Jersey
Sing around the campfire with your host Dave Orleans. Bring your own hot dogs and they’ll supply the marshmallows and apple cider. There is a cost of $10 per person. For more information, please call (609) 893-4646.

New Jersey Green Acres Workshop
Thursday, October 31, 2002
Campbell’s Field
Camden, New Jersey
Each year the NJDEP Green Acres Program holds informational workshops around the state to assist municipal and county officials, and nonprofit organizations in protecting open space, providing quality recreational facilities, and providing effective land stewardship programs. Registration is required. For more information and a registration form, please contact Nancee May at (609) 984-0570.

Kaimar Nyckel Public Tours
November 1–7, 2002
Battery Park Pier
New Castle, Delaware
Tour this authentically recreated three-masted armed pinnace, known as Delaware’s sea-going Ambassador of Good Will. There is a small fee. For more information, please call (302) 429-7447.

Autumn with the Animals
Saturday, November 2, 2002, 1 p.m. - 5 p.m.
Woodford Cedar Run Wildlife Refuge
Medford, New Jersey
A family festival with games for children, puppet shows, rides, food, music, and some of refuge’s live animals. For more information, please call (856) 983-0326.
Family Birding  
Sunday, November 10, 2002, 9 a.m.  
John Heinz National Wildlife Refuge at Tinicum  
Philadelphia, Pennsylvania  
Join Doris McGovern on a two to three hour, leisurely walk through the Refuge. For more information, please call (215) 365-3118.

Sunshot  
Tuesday, November 12, 2002, 6:30 p.m. to 9 p.m.  
Philadelphia Wooden Boat Factory  
Philadelphia, Pennsylvania  
With the advent of the mariner's chronometer, the sailor learned to accurately position himself on a large body of water using celestial bodies and a sextant. For the most part, this is a lost art for the modern sailor. "Shooting" the sun is the first step in learning celestial navigation. Learn how to use and adjust the sextant, and work a sight of the sun to fix your position. There is a $60 fee. For more information, please call (215) 755-2400.

The Artist in the Garden: Documenting Plants through Images in Arts and Crafts  
Wednesday, November 13, 2002, 7:30 p.m.  
Delaware Center for Horticulture  
Wilmington, Delaware  
Join Arthur Tucker, Ph.D., research professor and co-director of the Claude E. Phillips Herbarium at Delaware State University, as he tells the story of how so many wonderful cultivated plants have been lost over the course of hundreds of years. Reservations required by November 4, 2002. Cost is $8 for members and $14 for nonmembers. For more information, please call (302) 656-6262.

Clean Water Fund Auction and Party  
Friday, November 15, 2002, 6:00 p.m. - 8:30 p.m.  
Moore College of Art and Design  
Philadelphia, Pennsylvania  
This fun evening will include complementary hors d'oeuvres and refreshments as well as a performance by Stargazer Lily. There is a cost of $35 per person. For more information, please call TJ Gobremski at (215) 640-8800.

Goshawk Weekend  
November 16 & 17, 2002, 9 a.m. – 4 p.m.  
Hawk Mountain Sanctuary  
Kempton, Pennsylvania  
Visit during one of the best times to see the elusive northern goshawk, when the average passage rate is one goshawk every three hours. There is a trail admission fee. For more information, please call (610) 756-5000 or visit www.hawk-mountain.org.

Streams and Structures Seminar  
Thursday, November 21, 2002, 8:30 a.m. – 4:30 p.m.  
Villanova University  
Villanova, Pennsylvania  
In this seminar, you will learn how structures affect stream flow. Case studies will provide you with examples of stream restoration projects that have successfully integrated existing structures into the design. This seminar has been designed for landscape architects, engineers, and people involved with stream restoration projects. There is a fee of $95. For more information, please call (215) 247-5777 x 156 or 125.

The Future of Our Food and Farms Summit  
December 5 & 6, 2002  
Wyndham Wilmington Hotel  
Wilmington, Delaware  
The Summit, sponsored by The Food Trust, The Mid-Atlantic Food and Farm Coalition, and NESAWG, is creating a place where farmers, consumers, industry, government, and nonprofits can come together to share ideas about problems and solutions affecting the farm and food system in the region. For more information, please call (215) 568-0830 x 10.

Mountain Bike Adventure  
Saturday, December 7, 2002, 9:00 a.m. – 1:00 p.m.  
Pine Barrens, New Jersey  
Go exploring with teacher-naturalist John Volpa and learn about the wildlife, ecology, and history of the Pine Barrens. Bring your own bike to test your skills on fun and challenging terrain. For more information, please call (856) 983-0326.

NEWS IN A FLASH

TO BE PERIODICALLY UPDATED ABOUT VOLUNTEER ACTIVITIES, EVENTS, AND PROGRAMS TAKING PLACE IN THE DELAWARE ESTUARY, SEND YOUR EMAIL ADDRESS WITH YOUR NAME AND PHONE NUMBER TO ROSSD@DELAWARE ESTUARY.ORG
Please use the map below to locate the places, towns, or waterways mentioned in the articles in this edition of Estuary News. We hope this feature will help to enhance your knowledge of the Estuary region and to encourage you to explore its fascinating resources.

**Map Key**

1. Rancocas Watershed
2. Hawk Mountain Sanctuary
3. Philadelphia
4. Wilmington
5. Cape May
6. Delaware Bay

**Where in the Estuary Are You?**

Answer from page 10

Riverwalk located beside the Christina River in downtown Wilmington is a 1.3 mile pedestrian pathway that links Tubman-Garrett Riverfront Park to the Shipyard Shops. Along the way you will pass native grasses and wetlands plantings, signage describing the historical uses of the waterfront, restaurants, and plenty of places to relax and take in the view of Wilmington's skyline.
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-993565-04-0) 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.

WHAT IS THE DELAWARE ESTUARY PROGRAM?
The Delaware Estuary Program (DELEP) is a partnership of governmental agencies, nonprofits, the private sector, and citizens working together to restore and protect the Delaware Estuary. It was established in 1988 and is one of 28 national estuary programs around the nation. The estuary region extends from Trenton, New Jersey to the mouth of the Delaware Bay. To learn more about DELEP activities, visit www.delep.org.

WHO IS THE PARTNERSHIP?
The Partnership for the Delaware Estuary, Inc. is a private, nonprofit organization established in 1996. The Partnership promotes the estuary as a regional resource through public outreach and education. It also serves as the education, outreach, and fundraising arm for the Delaware Estuary Program. To find out how you can become one of our partners, call the Partnership at 1-800-445-4935 or visit our website at www.DelawareEstuary.org.

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