



The Tidal Exchange

Newsletter of the New York ~ New Jersey Harbor Estuary Program

Spring 2003

THIS ISSUE

HARBOR ESTUARY NEWS

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An Acronym to Help the Harbor TMDL is not a Four Letter Word

Richard Draper, Debra Hammond, and Rosella O'Connor

Love 'em or hate 'em, TMDLs, or Total Maximum Daily Loads, are receiving a lot of attention in the Harbor as a regulatory tool to improve water quality. A TMDL is a calculation of the maximum amount of a pollutant that a water body can receive and still meet water quality standards, and an allocation of that amount to the pollutant's sources. The calculation must include a margin of safety and account for seasonal variation in water quality. If the current loadings of a pollutant are greater than those calculated in the TMDL, reductions in the loadings must be identified and achieved through the appropriate regulatory or voluntary programs.

The Harbor Estuary Program has been putting considerable effort and resources into developing the data and mathematical models that will help to develop TMDLs for the waters of the estuary. This work has been coordinated through the HEP Nutrients and Pathogens Work Groups, and in cooperation with the CARP effort on toxics.

The states of NY and NJ set the water quality standards and identify the uses for each waterbody. Examples of uses include drinking water supply, contact recreation (e.g. swimming), and aquatic life support (e.g. fishing). The states also identify waters that are impaired and report them to EPA every two years.

The mathematical models being developed will help to evaluate

the magnitude and scope of the water quality impairments. The models will also evaluate the reductions necessary to achieve the water quality standards and uses designated by the States. Impairments currently include pathogens, nutrients, and specific chemicals of concern. Based on concentrations of these chemicals in the harbor's water, sediment and biota, the HEP has identified a number of "Chemicals of Concern" that are candidates for TMDLs. These include lead, cadmium, mercury, PCBs, dioxin, PAHs, DDT and its metabolites, chlordane and its metabolites, and dieldrin.

When the mathematical models are available in 2005, NJDEP and

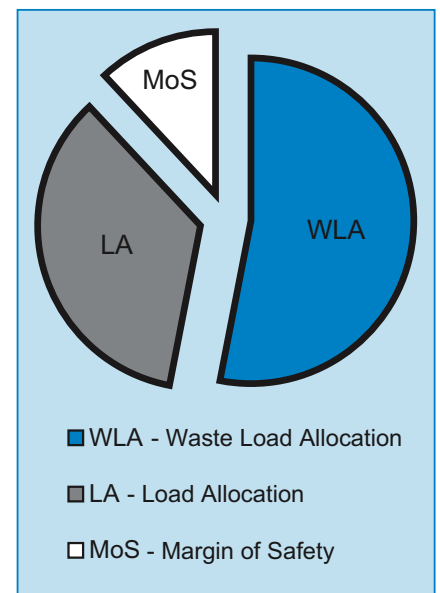


Figure 1: Example of the principal components of a TMDL.

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Creating a Network of Estuary Stewards: an Outreach Campaign

Nina Haiman

The Harbor Estuary needs you! Many stewards are working for the estuary by organizing in their communities, overseeing agency work, educating the public, and advocating on a policy level. As a member of the HEP Citizen's Advisory Committee (CAC), I am helping to put together an outreach effort to connect these organizations and increase stewards' involvement in the Harbor Estuary Program.

As the Harbor Estuary Program works to set numerical targets and goals to increase stewardship, it has struggled with the fact that it has little baseline data on stewardship activities in the region. This is reflective of a larger problem - the lack of a network of estuary stewards among the region's environmental organizations and limited involvement of stewards in the HEP.

We hope to address this issue with a targeted outreach campaign. The first step in this process is a mailing to roughly 600 regional stewardship groups from Eugenia Flatow and Steve Barnes, Co-chairs of the HEP CAC. Along with a letter from the Co-chairs, the mailing will include a new booklet titled "A Steward's Guide to the Estuary" and a questionnaire on stewards' activities in the region.

The steward's guide outlines the goals of the HEP and highlights some of the work being done in the region, both by nonprofits

and government agencies. The accompanying questionnaire asks respondents to detail their activities, so that this information can be used to strengthen and assess the existing network. Stewards will be asked to classify their activities into three broad categories: Education, Advocacy, and Hands-on Action.

Information gathered in the questionnaire will be used to create an online searchable database of stewards. This will be a useful tool not only to

organizations interested in forming partnerships, but also to individuals looking for volunteer opportunities. The information will also be linked to the Open Accessible Space Information System (OASIS) website. OASIS is an online resource for community mapping in NYC, which may be expanded to include the entire Harbor Estuary region.

The ultimate goal of this outreach effort is to build a network

of stewardship organizations in the region and to increase stewards' involvement in the HEP. As the HEP creates the stewardship database, it can serve as a clearinghouse to connect, for example, the many groups interested in developing estuary-specific educational programming. Many

small groups may be interested in expanding their activities or programming, but do not know where to begin.

Please keep an eye out for our mailing and send the questionnaire back as soon as possible. If you did not receive it, or would like to become more involved with this effort, please contact me at nina@nycswcd.net. Hope to hear from you soon! ❖

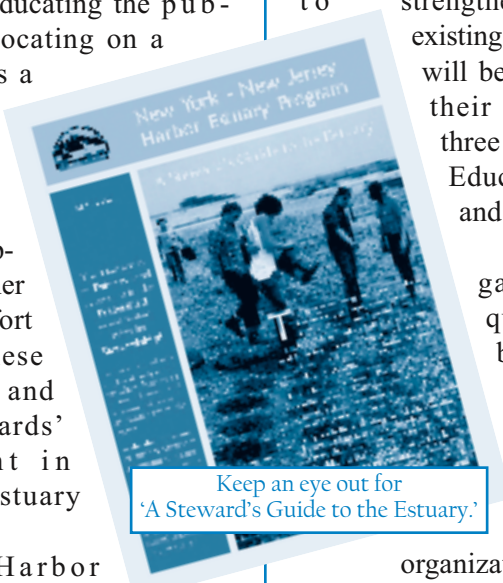
Nina Haiman is Program Director for the NYC Soil and Water Conservation District, and a member of the Citizen's Advisory Committee.

Recent Happenings

EPA Administrator Whitman Announces 2003 HEP Mini-grants

At an Earth Day ceremony on April 22, US Environmental Protection Agency Administrator Christie Whitman announced the recipients of HEP's 2003 Mini-grants. The event took place aboard the historic, 125-foot schooner *Lettie G. Howard* docked at the 79th Street Boat Basin on the Hudson River.

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Keep an eye out for 'A Steward's Guide to the Estuary.'



EPA Administrator Whitman presents Peter Neill, President of the South Street Seaport Museum, with a HEP Mini-grant award. Photo by Berry Shore/EPA

TMDLs

(from page 1)

NYSDEC will begin the process of developing TMDLs for waterbodies that are still classified as impaired. Each State's TMDL will indicate the reductions needed by the various sources of the pollutant to achieve the water quality standards, how these actions will be accomplished and schedule for completion. However, while the modeling efforts are expected to continue through 2005, state and federal environmental agencies are not standing still and waiting for the results. Efforts to further improve the water quality conditions in the estuary are ongoing. For example, sewage treatment plants are being upgraded, controls on Combined Sewer Overflow (CSO) points are being installed, contaminated sites are being remediated, and habitat is being purchased and restored - in part to improve water quality.

The principal components of a TMDL (see Figure 1) are Waste Load Allocation (WLA), Load Allocation (LA), and Margin of Safety (MoS). The principal components are in turn made up of component pieces. The WLA is composed of sources regulated by State or Federal permits, such as Industrial point sources; Municipal point sources; CSOs; and stormwater. The LA is made up of natural background loadings, atmospheric deposition and other nonpoint sources such as overland runoff or contaminated sediment. The MoS is included to provide a "buffer" between what is calculated as an allowable load and what is allocated. The MoS can also include a set-aside for future sources so that the total load in the future does not exceed the allowable load.

How are TMDLs developed?

The process of developing a TMDL can be described by a number of activities that are logically sequential, but practically speaking, work on a number of elements usually

takes place simultaneously, and the results are pulled together in the TMDL document.

- First, the pollutant that is causing the problem – or use impairment – must be identified. All sources and current loadings of that pollutant must also be identified.

- Next, the TMDL endpoints must be established. The endpoint is the concentration (e.g. micrograms/liter) of the pollutant that is allowable in the water without causing a problem. This is usually equal to a water quality standard.

- Finally, the endpoint is translated to an equivalent allowable load (e.g. kilograms/year). After consideration of regulatory factors that control loadings of the pollutant, such as minimum treatment requirements and clean up objectives, the allowable load is allocated into its principal components. Water quality models are very often used as a tool in this part of the process.

TMDLs, and the reductions that may be identified, are implemented through a variety of control actions, such as the revision of permit limits for point sources; best management practices to control nonpoint sources; and implementation of the Clean Air Act for atmospheric sources. It is also important to note that TMDLs are required to include a public participation component and are usually available for public comment prior to being finalized. Each TMDL also must be approved by the USEPA before it becomes effective.

So now you've been introduced to TMDLs. Because this is such an important effort in the Harbor, updates will be provided on the HEP website and in future issues of *The Tidal Exchange*. If you'd like more general information on TMDLs, see www.epa.gov/owow/tmdl/. ❖

Richard Draper (NYSDEC), Debra Hammond (NJDEP) and Rosella O'Connor (USEPA) all work on water quality management programs with their respective agencies.

Recent Happenings

(from page 3)

A total of \$50,000 was awarded this year for eleven projects focusing on water quality improvement, student education, teacher training, and stewardship of the estuary. The mini-grants assist in achieving the goals of the HEP by engaging groups with hands-on experience in their local area.

"Our nation's estuaries are unique places where fresh and salt water mix – creating vibrant habitats for marine life and scenic spots for boating and birdwatching," said Administrator Whitman. "Since joining EPA's National Estuary Program fifteen years ago, a dedicated group of stakeholders, representing government, community and environmental groups, have worked to develop a plan to restore, manage, and protect the waters of the Harbor Estuary."

"Having grown up in Jersey City on the shores of the New York/New Jersey Harbor, it is a personal goal to see environmental improvements continue," said Jane M. Kenny, EPA Regional Administrator. "Projects like these ensure that we keep awareness of the harbor's importance high and help continue to fuel efforts to restore it."

"Today, by providing grants and resources to community groups, the EPA is helping us in our goal to help New Yorkers to become better stewards of natural areas," said New York City Parks and Recreation Commissioner Adrian Benepe.

Mini-grant recipients in New York include: American Littoral Society and Jamaica Bay Eco Watchers; Beczak Environmental Education Center; Hudson River Sloop *Clearwater*; New York City Audubon Society; and the South Street Seaport Museum's schooners, *Pioneer* and *Lettie G. Howard*. New Jersey mini-grant recipients include: Bayshore Sub-watershed Regional Council; Future City, Inc.; Greater

Newark Conservancy; Hackensack Riverkeeper, Inc.; and Monmouth County Planning Board.

Volunteering Makes a Difference

The first New York-New Jersey Harbor Estuary Volunteer Monitoring Workshop was a tremendous success due to the hard work and dedication of many people. Hosted by the Stevens Institute of Technology in Hoboken, NJ on March 21 and 22, the two-day workshop attracted a crowd of almost 80 participants. The main purpose of the event was to draw attention to the importance of volunteer monitoring, and to look for opportunities to promote it in a meaningful way in the Harbor. Developing an ongoing network of volunteer monitoring groups working together on monitoring and educational activities turned out to be a common interest among the participants.

The first day of the event took place in the Wesley J. Howe Center on a bluff overlooking the Hudson

River. Morning presentations were made by various government agencies and researchers currently involved with intensive monitoring efforts. Marcus Kantz from EPA's Edison office eloquently addressed the importance of developing high quality, well thought out Quality Assurance Project Plans (QAPPs). Mr. Kantz noted that producing a QAPP would help volunteer monitors address one of the most important issues, "What is the question that I want to have answered?"

The afternoon presentations by nonprofit groups were highlighted by remarks made by Bill Shadel from Save the Sound, Inc, and Aaron Bennett of Hudson Basin River Watch. These groups have both been involved with volunteer monitoring for some time and provided good background for groups looking to develop similar efforts in the Harbor.

The weather on the second day of the workshop was perfect for field activities at the 14th Street Pier. Six stations were set up to demonstrate various monitoring equipment from

the simple secchi disk, to more complex water testing kits, to high tech electronic devices utilized by Stevens Institute.

The workshop was topped off with the opportunity for participants to go on board Steven's 37-foot research vessel *Deep Explorer* or the 66-foot *Cleanwaters*, operated by EPA. The workshop was cosponsored by HEP, EPA, The Ocean Conservancy and the Stevens Institute. Based on the enthusiastic response of the audience, HEP will likely host a follow-up workshop. In fact, next year's draft budget now includes funds to help facilitate it!

Passaic Valley Sewerage Commissioners Receive Environmental Quality Award

At a ceremony on April 24, 2003, the Passaic Valley Sewerage Commissioners (PVSC) were honored with an Environmental Quality Award (EQA) for several voluntary efforts related to the Harbor. Every year, EPA

recognizes organizations and individuals who demonstrate a heightened level of dedication to preserving and protecting the environment. The efforts for which PVSC was recognized include organizing and participating in various river clean-ups; voluntarily participating in surveys aimed at evaluating levels of volatile organic compounds in the Harbor; and working with HEP to initiate a Harbor-wide Survey of water quality that builds on the renowned New York City Harbor Survey. Through these efforts, PVSC continues to show initiative and a dedication to the community that they serve. ❖



Sampling from the 14th Street Pier in Hoboken, NJ during the Volunteer Monitoring Workshop. Photo by Joe Hall/EPA

Beaches in the Harbor Estuary

(from page 2)

health departments, and seven local environmental health agencies jointly conduct the program. In NY, the NYC Department of Health (NYCDOH) monitors the public and private beaches in Staten Island and Brooklyn. Monitoring of Great Kills Park, part of Gateway National Recreation Area, is conducted by the National Park Service. All of these monitoring programs are designed to ensure that the beaches are safe for swimming, but the results cannot be directly compared due to different water quality standards, bacteria standards, and monitoring procedures.

Exposure to pathogens through ingestion, inhalation or direct contact can lead to human health problems, including communicable diseases such as gastroenteritis and the common cold. Because swimming and other water-related recreational activities often involve direct contact with the water, high pathogen levels can result in beach closures. Human waste from a variety of sources is generally the cause of elevated levels of pathogens in the water.

Many pathogens are not easy to measure reliably. Therefore, agencies charged with protecting human health typically measure other organisms that are “indicators” of pathogens. In the Harbor area, fecal and total coliform have been the primary indicators, although enterococci is being utilized more frequently due

to new marine water quality criteria issued by the USEPA.

The New Jersey state standard for fecal coliform is 200 fecal coliforms per 100 milliliters of sample (200/100ml), and can be measured by membrane filtration or a fermentation technique that provides a “Most Probable Number.” NJ also tests some of the water samples collected for enterococci. Beaches are sampled once a week. When a sample exceeds the standard, it is resampled the following day. If the second sample also exceeds the standard the beach is closed. These closures due to high bacteria levels usually correspond to rainfall, but the source is not always identifiable. NJ also closes beaches for precautionary reasons. A precautionary closure does not necessarily indicate a high bacteria count, but could be the result of an environmental factor. In addition to monitoring bathing beaches, NJ also takes samples at environmental monitoring stations. These stations are sampled to collect background data on water quality, and are not resampled if the standard is exceeded.

New York State uses both fecal and total coliform levels as indicators for pathogens. The fecal coliform standard considers samples taken over a 30-day period. In particular, it says that the “log mean for five or more samples in a 30-day period shall not exceed 200, and a single sample shall not exceed 1000.” NY’s total coliform standard states that the “log mean for five or more samples in a 30-day period shall



A calm Spring day at Millar Street Beach in Highlands, NJ before the hustle and bustle of the beach season begins.

Photo by Cathy Yuhans/NJ Sea Grant

not exceed 2400, and 20 percent of samples in a 30-day period shall not exceed 5000.” New York City beaches are monitored once a week and, like New Jersey, are resampled if the standards are exceeded. If NYCDOH confirms that there is a problem, they close the beach.

NYCDOH also issues wet weather advisories for three public beaches, which are South Beach and Midland Beach on Staten Island and Manhattan Beach in Brooklyn. In 2002 the advisory notified the public against swimming for 12-hours if rainfall during the previous six hours was greater than 1½ inches.

Monitoring of beaches in Gateway National Recreation Area is conducted weekly using the membrane filtration method to measure total and fecal coliforms. If a sample has a bacteria level of 200/100ml for fecal coliform or 2400/100ml for total coliform, the water is resampled. Bacterial levels that exceed the standards for three consecutive days result in a beach closure.

The water quality in the Harbor has been sufficient for bathing at the designated beaches in the Harbor. In recent years, there have been low numbers of beach closures in NY (see Figure 2) and NJ. During the summer 2002 season there were no beach closures in NYC or at the Gateway beach, and in NJ there was only one beach closure at Recreation Center in Highlands.

In the late 1980’s and early 90’s,

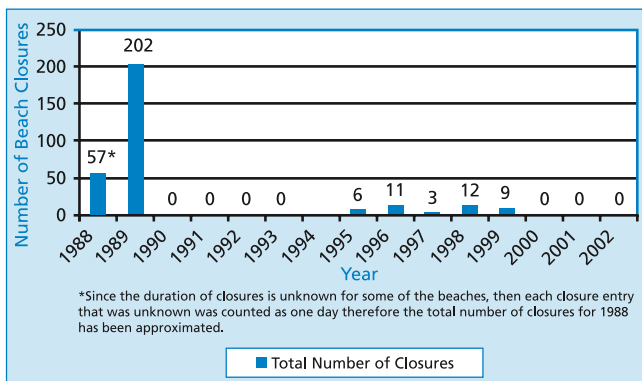


Figure 2: Total Number of Beach Closures – 1988 to 2001 New York Beaches located in the NY/NJ Harbor Estuary.

beaches were closed more frequently, not only for high bacteria levels, but also for medical debris and floatables that would wash ashore. Nowadays, beaches in the Harbor are closed infrequently, and these closures are usually due to bacteria levels or precautionary reasons. The passing of various acts and regulations have resulted in the reduction of raw sewage and floatables entering the Harbor and have contributed to these improvements in water quality.

As previously mentioned, new water quality criteria have been developed to further protect the users of bathing beaches. The EPA in 1986 recommended new water quality criteria for bacteria, which would require that enterococci be used as the bacterial standard in marine waters, rather than fecal and total coliform. These water quality criteria, for the most part, have not been implemented by the states (Connecticut started in 1989), but the BEACH Act of 2000 mandates the use of the new bacterial standard by April 2004.

The potential for new swimming areas becoming available in the Harbor is dependent upon more water quality testing. According to NJDEP, there are currently 17 potential new swimming areas from the Palisades Interstate Park to the Atlantic Highlands in NJ. In NY, the Hudson River Park Trust is proposing the establishment of two non-swimming beaches on the Hudson River. These two beaches would be located in Manhattan, one at Gansevoort and the other at 34th Street immediately south of Pier 76.

Beaches in the Harbor are valuable to residents and tourists alike because they are used for swimming and recreation. In an area where access to the water is limited, these beaches are vital points of access to the Harbor. Now that you know where to find a beach in the Harbor - and before the summer season comes to a close - make



Capt. Pete Says...

Flounder Franaises

Peter L. Sattler

Of all the marine fish adaptations, I think flatfish are the most unique. The family Pleuronectidae are flat (duh), right-eye oriented with both eyes on the upper side and swim along the sea floor on the other side. The winter flounder, *Pseudopleuronectes americanus*, is truly a delicious quarry. The incredible camouflage of these fish demand a sharp eye by the scuba diver. They have great eyesight and a preference for yellow, so if you're trying to catch one, use yellow baits (bank mussels), yellow chum (kernel corn) and yellow sinkers. And remember, a bad day of fishing is always better than a good day in the office!!

FLOUNDER FRANAISES

- 4 Fillets, skinless, boneless
- 3/4 Cup White cooking wine with lemon
- 2 Tbl Shallots, minced
- 4 Tbl Butter or margarine
- 2 Eggs, beaten and add
- 1 Tbl Water
- 1 Cup Flour
- 2 Lemons, cut in wedges

- ◆ Moisten fillets with water, dredge in flour, then dip in egg/water mixture
- ◆ Heat skillet, melt 2 tbs of butter, cook fish until golden brown, add more butter as needed. Remove from pan to a heated plate
- ◆ In the same pan, add shallots and cooking wine; reduce and pour over fish
- ◆ Serve with rice and lemon wedges

Recommended wine: Reisling served ice cold.

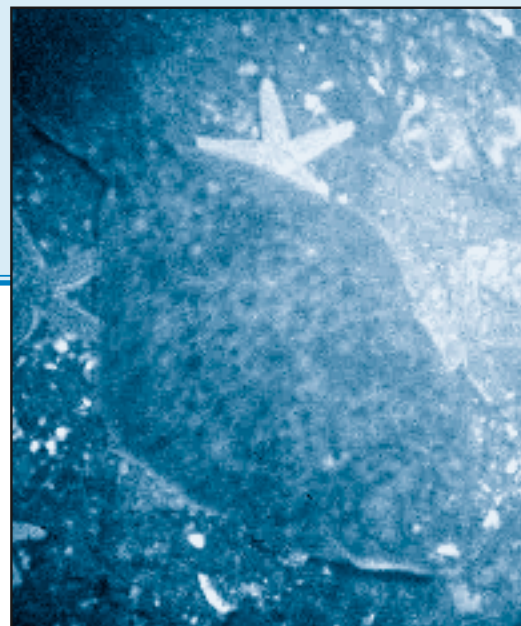
Peter L. Sattler

is Principal Environmental Planner with the Interstate Environmental Commission.

sure you dive in at one of these designated Harbor beaches and appreciate the beauty of the NY-NJ Harbor Estuary. ❖

Cathy Yuhas

(NJMSC NJ Sea Grant Extension Program) is the Technical Specialist for the NY-NJ Harbor Estuary Program.



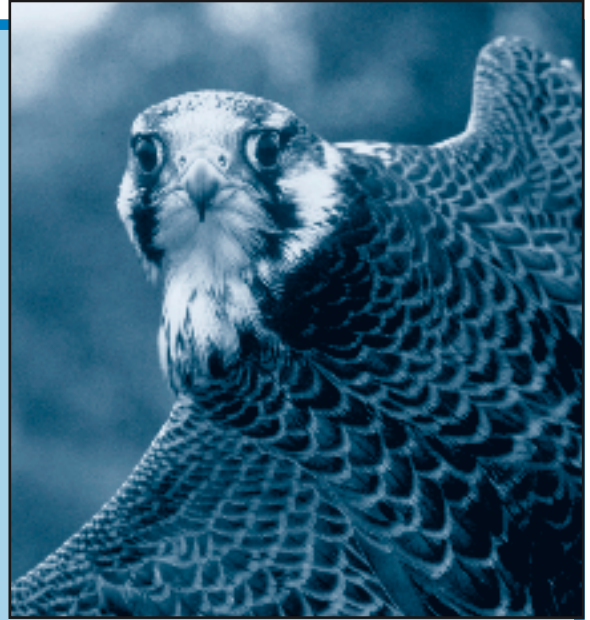
Winter Flounder. Photo by Pete Sattler

Peregrine falcon,

Falco peregrinus

Bob Dieterich, US EPA Region 2

The Peregrine falcon (*Falco peregrinus*), about the size of a crow, is one of nature's swiftest and most beautiful birds of prey. Peregrine falcons are medium-sized hawks with long pointed wings, a generally dark body coloration above and paler below, and characteristic black vertical cheek marks, or "moustaches." Typical among hawks, Peregrine females exceed males in size, by as much as one-third. These aerodynamically designed predators can attain speeds of 200 miles per hour, making them the fastest bird in the world. Peregrine falcons favor open areas for foraging and often hunt over marshes, beaches, or open water. Being predators of other birds, they feed on songbirds, shorebirds, ducks, and in urban areas, the ubiquitous pigeons and starlings. They can frequently be seen from the EPA Region 2 office in downtown New York City soaring over the open expanse of City Hall Park.



It may seem incongruous to talk about a top-tier predator inhabiting the densely urbanized realm of the New York-New Jersey Harbor Estuary, but in fact, Peregrines have adapted well to high-rise living and the metropolitan area supports one of the highest concentrations of this species anywhere along the East Coast. Up to 20 pairs, or 10% of the East Coast population, nest in and around the NY-NJ metropolitan area. They have accepted high-altitude ledges of city skyscrapers and the undercarriages of major bridges as nesting platforms. Historically, their favored nesting environment was the high cliffs of the Hudson River Palisades, but they are no longer found there, due in part to competitive exclusion and predation by Great Horned Owls (*Bubo virginianus*), another raptorial bird that has taken to suburban living.

In the course of the past century, the local population of Peregrine falcons was decimated, first by nest robbers for the falconry trade and by indiscriminant hunters, then as a result of poisoning by the pesticide DDT, which was in wide use starting in the 1940s. By the 1960s, there were no known nesting Peregrines in the East, and this was but a harbinger of the decline of the species throughout most of North America. The Peregrine Falcon was classified as a federally endangered species in 1970, DDT was banned in 1972, and shortly thereafter, an aggressive Peregrine falcon recovery plan was initiated in the East. Biologists released captive-reared young Peregrines into the wild starting in the late 1970s, and achieved a satisfying level of success in our area by the mid-1980s. The population of birds continued to increase so that by 1999, the US Fish and Wildlife Service was able to de-list the Peregrine falcon, making this one of the most stunningly successful achievements ever in the history of the Endangered Species Program.

It's comforting to know that there is room to accommodate much of wild nature, as exemplified by the Peregrine falcon, within our built-up cities and shorelines, but more than that, the continued health of the Peregrine population assures us that we are achieving our goals in reducing the risk of environmental pollution as well.

Would you like to change your address or add someone to our mailing list?

Provide changes or additions below, cut out or copy this section (include mailing label to the right so we can find you in our records) and mail to the Harbor Estuary Program Office, 290 Broadway, 24th Floor, New York, NY, 10007.



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Harbor Estuary Program

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