



The Tidal Exchange

Newsletter of the New York ~ New Jersey Harbor Estuary Program

Summer 2004
THIS ISSUE

HARBOR ESTUARY NEWS

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Eric A. Stern

Deep below the waters of the Harbor Estuary lie sediments that are often contaminated with a variety of toxic materials. Byproducts of a more industrial time in our region's history, compounds such as Dioxins, PCBs, and chlorinated pesticides are known to cause harm to humans and the environment. When maintenance of navigational channels requires sediment removal, contamination creates a difficult situation for port

managers as they are unable to use traditional inexpensive methods of disposal, such as placement in the ocean, and are forced to prohibitively expensive options link landfill placement. To address this problem, a number of Federal and state agencies have formed a partnership to develop alternatives to the conventional methods of managing dredged material.

The partners, including representatives from the U.S.



Gas Technology Institute - thermo-chemical rotary kiln facility.

Photo courtesy of BNL

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New York – New Jersey
Harbor Estuary Program

Director
Robert Nyman
US EPA, Region II

Outreach Coordinator
Laura Bartovics
New York Sea Grant

Technical Specialist
Cathy Yuhas
New Jersey Sea Grant

Program Associate
Joel Banslaben
New England Interstate Water
Pollution Control Commission
info@harborestuary.org

The Tidal Exchange – Summer 2004

Editors
Laura Bartovics, NYSG
Jeff Myers, NYS DEC
Kerry Kirk Pflugh, NJ DEP
Robert Nyman, EPA HEP Office
Cathy Yuhas, NJSG
Joel Banslaben, NEIWPC

The Tidal Exchange is a publication of the New York – New Jersey Harbor Estuary Program (HEP), a partnership of federal, state and local governments, scientists and citizens working together to protect and restore the natural resources of the estuary. The purpose of the newsletter is to promote an informative dialog on issues related to the Harbor Estuary Program.

The HEP is sponsored by the States of New York and New Jersey and the US Environmental Protection Agency. The HEP Management Committee consists of representatives from the US EPA, NJ DEP, NYS DEC, NY and NJ local governments, US ACE, US DOI, NOAA, Port Authority of NY & NJ, Interstate Environmental Commission, NJ Harbor Dischargers Group, NYS DOS, Science & Technical Advisory Committee and Citizens Advisory Committee.

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Stormwater, MS4s, Phase II, and BMPs

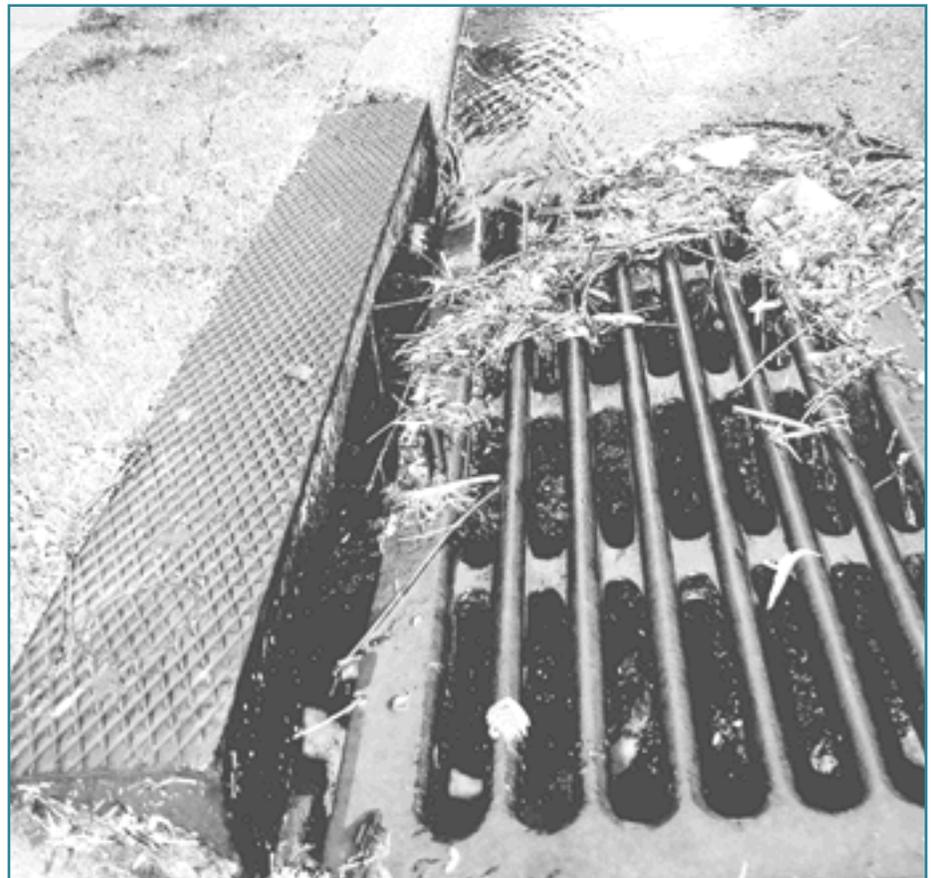
What Do They All Mean for Our Local Waters?

Stephen Venezia

Historically overlooked, the Environmental Protection Agency (EPA) believes that stormwater is the remaining major source of pollutants to our waters. Stormwater runoff occurs when accumulated rainfall or snowmelt flows over the ground instead of filtering into the soil. Impervious surfaces like streets, driveways, and sidewalks reduce the area of land available to absorb water, leading to increased runoff. Stormwater can carry harmful contaminants to local surface waters, resulting in polluted drinking water, impaired water quality and degraded habitats. Excess quantities of stormwater can

lead to increased flooding, erosion and deposition of sediment into streams, lakes, wetlands, and rivers. The primary method of controlling stormwater discharges and reducing pollution of local waterbodies is through the use of best management practices (BMPs). BMPs can address the concentration of pollutants in runoff (e.g. limiting use of fertilizers and pesticides) or the volume and rate of runoff (e.g. preserving and enhancing natural vegetation buffers).

In 1987, the Clean Water Act (CWA) was amended to require the regulation of stormwater discharges under the National Pollutant



Impervious surfaces can lead to increased runoff to stormdrains.
Photo courtesy of New York Sea Grant, Eileen Keenan

Elimination Discharge System (NPDES). The EPA's Phase I rule, issued on November 16, 1990, identified stormwater discharges from medium and large municipal separate storm sewer systems (MS4s) that serve communities of populations greater than 100,000. The Phase I rule also covers certain industrial activities and construction projects that disturb more than 5 acres of land.

EPA's Phase II stormwater rule, published on December 8, 1999, included communities of less than 100,000 that are either located in urbanized areas or designated by the permitting authority (federal or state). An urbanized area is defined as one with a minimum population of 50,000 people and an overall population density of 1,000 per square mile. In addition, construction activities disturbing 1 to 5 acres of land are covered under the Phase II rule.

An MS4 is a conveyance or system of conveyances - owned by a state, city, town, or other public body - that is used for the collection or transport of stormwater, but is not part of a combined sewer or publicly owned treatment works (POTW). Examples of MS4s include roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, etc.

Not surprisingly, most of the land area in the core watershed of the Harbor Estuary is considered "urbanized", requiring even small municipalities in the watershed to apply for NPDES stormwater permits. To obtain the permits, operators of small MS4s must develop stormwater management programs that address EPA's six minimum control measures (see side bar). They must also implement these programs using BMPs, develop measurable goals and evaluate the effectiveness of the programs. Additional measures may be required by the designated permitting authorities for the States - New

Jersey Department of Environmental Protection (NJDEP) and New York State Department of Environmental Conservation (NYSDEC).

New Jersey

NJDEP issued four revised general permits addressing stormwater on February 2, 2004 under its Municipal Stormwater Regulation Program. The Tier A Municipal Stormwater Permit, which generally addresses more densely populated areas and coastal regions, will affect most municipalities in the Harbor Estuary region. Under the Tier A Permits, municipalities must create a Stormwater Pollution Prevention Plan (SPPP) that includes New Jersey's Statewide Basic Requirements (SBRs).

Public education and involvement are central to NJ's stormwater program and the SBRs. The public must be notified about the permits and public involvement is recommended by NJDEP in developing, implementing, and reviewing the SPPP. Municipalities

are also required to develop a local public education program that involves distributing educational information and holding an educational event. The topics that should be covered are stormwater and non-point source education; storm drain inlet labeling; fertilizer and pesticide education; and waste disposal education, including litter, pet and yard waste.

NJDEP also requires municipalities to manage stormwater associated with new development and redevelopment construction projects depending on the size of the site. Solids and floatables must be controlled by monthly sweeping of all municipal curbed streets with storm drains in commercial areas having posted speed limits of 35 mph or less. The SPPP must also include measures to minimize or eliminate the pollutants entering the waterways from maintenance yard operations (e.g., de-icing material and sand storage, fueling operations, and vehicle maintenance facilities). Finally, and perhaps most importantly,

(continued on page 5)

Six Minimum Control Measures for Small MS4 Stormwater Programs

- Public Education and Outreach on Stormwater Impacts
- Public Involvement/Participation
- Illicit Discharge Detection and Elimination
- Construction Site Stormwater Runoff Control
- Post-construction Stormwater Management
- Pollution Prevention/Good Housekeeping for Municipal Operations

For more information on the federal and state stormwater programs, please visit the following websites:

www.epa.gov/npdes/stormwater

www.njstormwater.org

www.dec.state.ny.us/website/dow/mainpage.htm

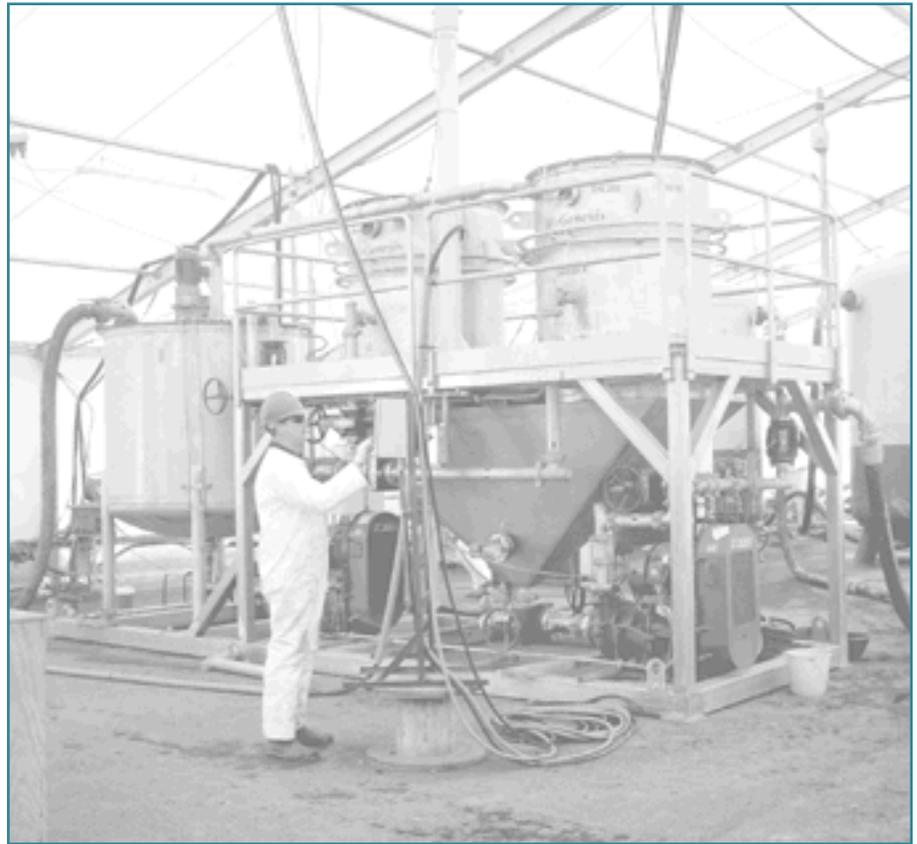
Building the Port's Future on Sediment

(from page 1)

Environmental Protection Agency Region 2, U.S. Army Corps of Engineers New York District, Brookhaven National Laboratory, and the New Jersey Department of Transportation (NJDOT), are tasked with designing and implementing a planning program to evaluate the efficacy of sediment decontamination technologies in the region. The NY/NJ Harbor Sediment Decontamination Program is designed to demonstrate the environmental and economical feasibility of sediment decontamination on a commercial-scale level. The federal program began in 1993 with funding under the Federal Water Resources Development Act (WRDA). In 1998, with funding from the NJ Dredging and Harbor Revitalization Bond Act, NJDOT joined as a partner in this program. By demonstrating how decontaminated sediment can be used to manufacture marketable beneficial use products, the program aims to achieve a new manner of thinking for environmental protection. Another goal of the program is to assist in the development of a long-term, self-sustaining business program for the treatment of contaminated sediments.

Over the past decade, the program's integrated approach has been to develop a variety of commercial-scale sediment decontamination technologies. The processes and products should be environmentally responsible and economically feasible. Decontaminated sediments should be converted to beneficial use products and be cost-effective when compared with other placement alternatives. The technologies should also be able to process or store up to 1500 cubic yards/day and achieve an annual commercial-scale processing capacity of at least 500,000 cubic yards/year.

Initial development of several innovative technologies on a bench-scale (gallons) and pilot-scale



BioGenesis Enterprises - sediment washing collision chamber. Photo courtesy of BioGenesis

(hundreds of cubic yards) have proven successful and are now approaching full-scale operational status in the NY-NJ Harbor. Selected technologies include thermal destruction in a rotary-kiln, plasma-arc vitrification, sediment washing, and stabilization with chemical oxidation. All of these processes generate beneficial use products such as manufactured topsoil, construction-grade cement, light-weight aggregate, composite bricks, tiles and structural fill. These materials can provide economic benefits that will facilitate the redevelopment of impacted waterways and adjacent Brownfield communities.

One of the major technologies that will undergo a full-scale demonstration was developed by BioGenesis Enterprises (see photo above). Using a physical and chemical sediment washing process to remove contaminants, the treated sediments are then used to create products such as topsoil and bricks. During the process, organic contaminants are destroyed

by oxidation and heavy metals are isolated and treated separately. This full-scale demonstration project will process approximately 50,000 cubic yards of dredged sediment and is expected to commence in the fall of 2004.

Another sediment decontamination technology with great promise was developed by Jay Cashman Inc. / Upcycle Aggregates. Their process includes the use of an existing rotary kiln where sediments are first dewatered, and then shaped into small pellets that are heated at high temperatures. The resulting output is a light weight aggregate that is suitable for use in the construction industry.

The Harbor Resource Environmental Management Group is in the process of conducting a full-scale demonstration of their decontamination abilities. Using a stabilization and chemical oxidation process, the end product is a structural fill material suitable for beneficial use.

The Gas Technology Institute

began implementing a full-scale demonstration project of a thermochemical rotary-kiln in July 2004 (see photo page 1). Sediments are heated to 2,450 degrees Fahrenheit and then melted with amendments to create a construction grade material similar to Portland cement. Organic contaminants are destroyed by the extremely high temperatures while heavy metals are immobilized and held in the final product. Over 400 cubic yards of dewatered dredged material from upper Newark Bay will be decontaminated in Bayonne, NJ during this demonstration program.

Federal and state teams are actively promoting the commercialization of additional technologies to increase the resources that can be employed for beneficially using dredged materials. By encouraging the development of more effective technological solutions, the creation of additional beneficial use applications will continue to stimulate competition and bring about lower processing costs. Cross-program applications that could also benefit from the success of this program would include Brownfields redevelopment, aquatic Superfund projects, and renewable confined/aquatic sediment disposal facilities. With the continued support of the Federal and State governments and increased contribution by private – public partnerships, decontamination technologies provide an opportunity to truly build our future on our past.



Eric Stern is the USEPA Region 2 Regional Contaminated Sediment Program Manager. He has managed the federal side of the NY/NJ Harbor Sediment Decontamination Program since its inception in 1993. He works closely with EPA Superfund, the State of NJ, the Port Authority of Venice, Italy and the European Union Sediment Network in bringing together with the program team these technologies to commercial-scale viability with beneficial use applications.



After stormwater enters a municipal separate storm sewer system it is released into a local waterbody. Photo courtesy of New York Sea Grant, Eileen Keenan

Stormwater, MS4s, Phase II, and BMPs (from page 3)

the SBRs require municipalities to develop and conduct an annual employee-training program.

New York

New York's Phase II stormwater permits became effective January 8, 2003. NYSDEC issues two general permits, one for small MS4s in urbanized areas and another for construction activities. Under the MS4 permits, each regulated municipality is required to develop a Stormwater Management Program (SWMP). The SWMP must be developed and implemented to reduce the discharges of pollutants to the maximum extent practicable, and must include the six minimum control measures issued by the federal stormwater program.

The development of a public education and outreach program is an important part of NYSDEC's Stormwater Management Program. Municipalities must implement a public program to discuss the impacts of stormwater discharges on water bodies, as well as pollutants of concern and their sources. They must inform the public about the permit and seek input from individuals and groups that are affected by or interested in the

stormwater program. To encourage public involvement and participation, MS4s also develop activities that the public can participate in to aid in the reduction of polluted stormwater.

NYSDEC's MS4 permit also requires the detection and elimination of illicit discharges into the stormwater system. BMPs must be used to reduce pollutants in stormwater runoff from construction activities that disturb one acre of land or more. This includes developing a post-construction stormwater management plan to ensure that future discharge of pollutants will be reduced to the maximum extent practicable. The final requirement of SWMPs in NY, one that could serve as the foundation of any good plan, is pollution prevention and good housekeeping in municipal operations.

As communities develop aggressive stormwater management programs and implement best management practices, especially in conjunction with other environmental activities, they will revitalize their surface waters, improve local quality of life, and create places that are attractive to businesses and residents alike. ❖

Stephen Venezia is Stormwater Coordinator for EPA Region II, Water Programs Branch, Point Non-Point Source Control Section.

Neck Creek Marsh

HEP Priority Acquisition Site AK15

Tali Vardi and Julianna Wyman



Neck Creek and marsh as viewed from Meredith Avenue with power plant and Arthur Kill in background. Photo courtesy of NYC Parks Salt Marsh Restoration Team

New York Harbor is a significant population center for nesting colonial wading birds, hosting up to a quarter of the northeast Atlantic coast population. Until the late 1990s, the northwestern portion of Staten Island was the Harbor's densest breeding area for these birds, supporting mixed colonies of eight different species. Alternately referred to as Northwest Staten Island, the Arthur Kill Complex, and the Harbor Herons Region, this area is recognized by

local and regional management plans for its unique ecosystems and important colonial wading bird populations. These include: U.S. Fish and Wildlife Service's Significant Habitats and Habitat Complexes of the NY Bight Watershed, National Audubon Society - New York's Important Bird Areas in New York State, NY/NJ Harbor Estuary Program's 2001 Status Report, the New York State Open Space Plan, and New York City's Waterfront Revitalization Program.

The Harbor Herons Task Force, led by the New York City Department of Parks and Recreation, the Trust for Public Land's Harbor Program, and the New York State Department of Environmental Conservation, identified four priority Ecological Complexes in the Harbor Herons Region as acquisition and restoration targets: Mariner's Marsh, Old Place Creek, Prall's Island/Saw Mill Creek, and Neck Creek/Meredith Woods.

Neck Creek Marsh, a 70-acre parcel of coastal wetland and

associated habitat adjacent to New York City-owned Neck Creek Marsh Park, is HEP High Priority Acquisition Site AK15. The site represents one of the last remaining examples of an interconnected watershed in the estuary, and perhaps the largest area of contiguous habitat in the Harbor Herons Region.

More than half of the Neck Creek site, or 41 acres, are wetlands. Nearly all of these wetlands are comprised of wetland types, including estuarine emergent, palustrine emergent, and palustrine forested, classified as “nationally decreasing”. The site includes an additional 29 acres of open water habitat, and an upland forest (“Meredith Woods”) consisting of red maple, gray birch, white and pin oak trees with a dense understory supporting five species of ferns.

Neck Creek Marsh is designated as Essential Fish Habitat for 12 fish species, and as such is also a primary foraging area for the three Harbor Herons rookeries. The site supports rich concentrations of forage fish, particularly mummichog and Atlantic silverside, as well as migratory species like bay anchovy and alewife, and important predators including bluefish, striped bass, weakfish, and hake. Sportfishing, dependent on species such as winter flounder, striped bass, and bluefish, is an important component of the local economy and a valuable recreational opportunity for area residents.

In this fragmented landscape, the remaining natural tracts such as Neck Creek/Meredith Woods are critical for avian species. Over 30 species, including waterfowl and neotropical songbirds, are found breeding in the Neck Creek system. Many of these are identified as priorities for conservation under federal and state management plans.

For example, the USFWS prioritizes the protection of coastal wetland species including saltmarsh sharp-tailed sparrow, Nelson’s sharp-tailed sparrow, seaside sparrow, and

American oystercatcher, all of which are found in this area.

The area is also recognized as a “critical migration site” for red knot, ruddy turnstone, sanderling, semipalmated sandpiper, and dunlin, and is extremely important to wintering and migrating waterfowl, including large numbers of greater scaup, tundra swan, gadwall, brant, northern shoveler, American wigeon, canvasback, and American black duck. The American Black Duck, a priority species of the North American Waterfowl Management Plan, feeds, breeds and takes refuge in the inland salt creeks and coves of Northwest Staten Island. In the winter their numbers swell into the hundreds, and black duck flotillas are not uncommon at the mouth of Neck Creek and nearby.

Other shorebirds commonly spotted in the area include willet, yellowlegs, short-billed dowitcher, black bellied plover, white-rumped sandpiper, upland sandpiper, American woodcock and the spotted sandpiper - a Shorebird Conservation Plan priority species.

Many protected wildlife species are found foraging and taking advantage of this site’s relative isolation. Several state- and federally-listed species use the Neck Creek ecosystem, including diamondback terrapin, eastern mud turtle, peregrine falcon, short-eared owl, black skimmer, seaside sparrow, Northern harrier, American bittern, least tern, and osprey. In addition, New York State protected plants in the sandy hummocks of the region include rose pink, Virginia pine, and Nantucket juneberry.

At one time, northwest Staten Island was comprised of vast areas of contiguous tidal and freshwater wetlands, interspersed with sandy hummocks and maritime forest. Today, roads and buildings fragment these ecosystems, with only 2,200 acres of land in the northwest quadrant still undeveloped. Of these residual open spaces and habitats, only 755 acres are protected under the jurisdiction

of federal, state, or conservation organizations. The rest – including Neck Creek Marsh – are subject to intense commercial and residential development pressure, and remain high acquisition priorities for the Harbor Estuary Program. ❖

Tali Vardi, NYC Department of Parks and Recreation, Natural Resources Group

Julianna Wyman, USFWS, Southern New England - New York Bight Coastal Program

National Estuaries Day is September 25th!

Join us in celebrating the Harbor Estuary by attending one (or more!) of the many events that will be sponsored by HEP

Events will take place from September 18 - October 3

Please visit the HEP website for a calendar of events

www.harborestuary.org

The Greater Yellowlegs

Tringa melanoleuca

Hugh M. Carola

It's usually the first shorebird to appear in mid-April and is always the last one to leave as November dawns. Whether you're scoping the mudflats at Jamaica Bay or birding the impoundments at the Mill Creek Marsh in the New Jersey Meadowlands, the Greater yellowlegs (*Tringa melanoleuca*) is hard to miss if you know where and when to look. A member of the sandpiper family, the Yellowlegs is commonly observed feeding or resting on mudflats throughout the Harbor Estuary region during the spring and fall.



Photo by Kevin Watson

The names of many birds reflect something about their appearance and so yes, the bird in question does feature very bright yellow legs. It also features a slender, slightly upcurved bill and a very loud 3-5-note call. As its scientific name implies, the Yellowlegs has a dark (*melano-*) back and a white (*-leuca*) underside. Standing up to eleven inches high, the bird is one of our largest sandpipers.

As a migrant however, it's definitely a lightweight. Unlike its cousin the Red Knot that flies between Tierra del Fuego and Alaska each year, the migratory path of a Yellowlegs may take it only as far south as Chesapeake Bay and as far north as Cape Breton Island in Nova Scotia. That's why we get to enjoy their presence for such a long time.

Just about any quiet marsh or marshy area can provide habitat for the birds and an excellent viewing opportunity for birders. Places like Gateway NRA at Sandy Hook, the Sawmill Creek Wildlife Management Area in the Meadowlands and the Jamaica Bay Wildlife Refuge are prime shorebird-viewing areas but small, unobtrusive places can also reward the patient birder. There are plenty of spots along the coast of Staten Island, the Raritan Bayshore, the head of Long Island Sound and the banks of our regional rivers (Hudson, Hackensack, Passaic, Raritan and Navesink) that host the birds during their stay in our area. Start looking for them in late July.

Most birders will tell you that shorebird identification is one of the most difficult skills to master; and they're right. However, the Greater Yellowlegs is a welcome exception to the rule. ❖

Hugh Carola is the Program Director for Hackensack Riverkeeper, Inc. An avid birder for nearly twenty years, he conducts Eco-Cruises aboard the Riverkeeper vessel Robert H. Boyle as well as guided nature walks throughout the New Jersey Meadowlands. For information, call 201-968-0808 or visit www.HackensackRiverkeeper.org.

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