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## Birds of the Hudson River Estuary

by Julie Moore,  
Senior Planner, Town of  
Southampton Planning Department

The Hudson River Environmental Society (HRES) *Birds of the Hudson River Estuary* conference held at the American Museum of Natural History on April 29<sup>th</sup>, 2004 was an update of data collected and ongoing studies on avifauna populations and trends in the region. The conference was organized in collaboration with the Audubon Society and provided an opportunity for a diverse array of people including students, researchers and representatives of both private and public agencies to congregate and learn about the birds of the region.

Kimberley Corwin of the Department of Environmental Conservation described the current update to the 1980 Breeding Bird Atlas (BBA) including species trends: for example, ospreys in the area are recovering nicely as well as yellow-bellied sapsuckers, which seem to be spreading throughout western New York. Ms. Korwin listed reasons for population declines including habitat loss, degradation of habitat, human expansion, pollution, and larger deer herds removing understory growth. The audience asked how a legitimate comparison of effort can be made between the original BBA project and the current one to which Ms. Korwin responded that the levels of effort can not be repeated with 100 percent accuracy - on a large scale the two data sets may be more comparable; however, on an individual atlas block, the comparison would be less accurate. These data are available for interpretation and analysis by researchers and the public (<http://www.dec.state.ny.us/website/dfwmr/wildlife/bba/>).

In two separate presentations, Paul Kerlinger of Kerlinger and Kelly, LLC summarized information on migratory species in the region including hawks, songbirds, and shorebirds/waterfowl, and discussed the Harbor Herron Project. In his first presentation he discussed various types of survey methodologies and survey effectiveness in quantifying species type and abundance of migratory species. Nexrad data can be combined with information on where large numbers of birds are passing, and these data can be matched to the greenspaces on which they stopover. The stopover grounds identified can then be documented as specific sites important to migrating birds in the region.

The Harbor Herons project that has found numerous species nesting on islands in the New York Harbor area, including yellow and black crowned night heron, great egret, snowy egret, cattle egret, little blue heron, tricolored heron, green heron, and glossy ibis.

On the other hand, Katherine Parsons' discussion of urban wading bird colonies and contamination in New York Harbor revealed the abandonment of several core nesting sites within the harbor by colonially nesting waterbirds. Dr. Parsons is the Director of Wetland Monitoring at the Manomet Center for Conservation Sciences. In discussing the population declines of great egret, cattle egret, snowy egret, and black-crowned night heron, she attributed the changes in nesting and foraging by these species to their exposure to contaminants throughout the region. Dr. Parsons' research illustrated the devastating decline in populations of herons and egrets in the islands throughout the Harbor. She presented data on the shifts of wading bird abundance from non-urban estuaries to urban estuaries: increases in urban estuaries in the mid-1970s to mid-1990s, and decreases in urban estuaries in the mid-1990s to present.

Chris Nadeski of the NYC Department of Environmental Protection (DEP) presented his study on water bird management and water quality protection on New York City reservoirs. The DEP's program to comply with the EPA's Surface Water Treatment Rule of 1991 placed stringent water quality regulations on NYC's non-filtered surface drinking water supply, mandating a 20 fecal coliform bacteria colony count per 100 milliliters of water. As a result, the DEP implemented a water bird management program to deter birds from roosting on the reservoir. Some methods of deterrence employed by DEP include motorboats, hovercraft, Husky Airboats, pyrotechnics, bird distress calls, and deprecation of eggs in goose nests. This program has proven successful and has allowed DEP to remain in compliance with EPA regulations.

Kevin McGowan of the Cornell Laboratory of Ornithology gave a presentation on *West Nile Virus (WNV): Devastating Examples of Bird Mortality in the Hudson River Estuary*. Dr. McGowan's data provided an overview of the rapid spread of WNV across North America and in over 200 species of birds that have been found dead of the disease. American Crow is one species in particular that is experiencing significant local declines.

Jillian Liner of the New York Chapter of the Audubon Society presented the Important Bird Areas (IBA) program that identifies sites for the long-term conservation of birds, other wildlife, and their habitats. The program is particularly relevant to developers and consultants who might want to know where these boundaries have been delineated and the species occurrences on potential development sites. In general, a site is recognized as an IBA if it meets at least one of three IBA criteria relating to threatened species, habitat-species assemblages, and congregations of birds.

The status of Hudson River Bald Eagles was covered by Peter Nye of the New York State Department of Environmental Conservation Wildlife Diversity Unit. Mr Nye emphasized the importance of being involved in and aware of large development projects, particularly waterfront development and those projects that may fragment large tracts of contiguous forested lands that are located in potential and documented roosting and wintering sites of bald eagles in the area. While habitat loss, pesticides, pollution, power lines, and other human impacts potentially limit eagle populations, 75 nesting pairs were present last year, and the number of occupied territories is growing

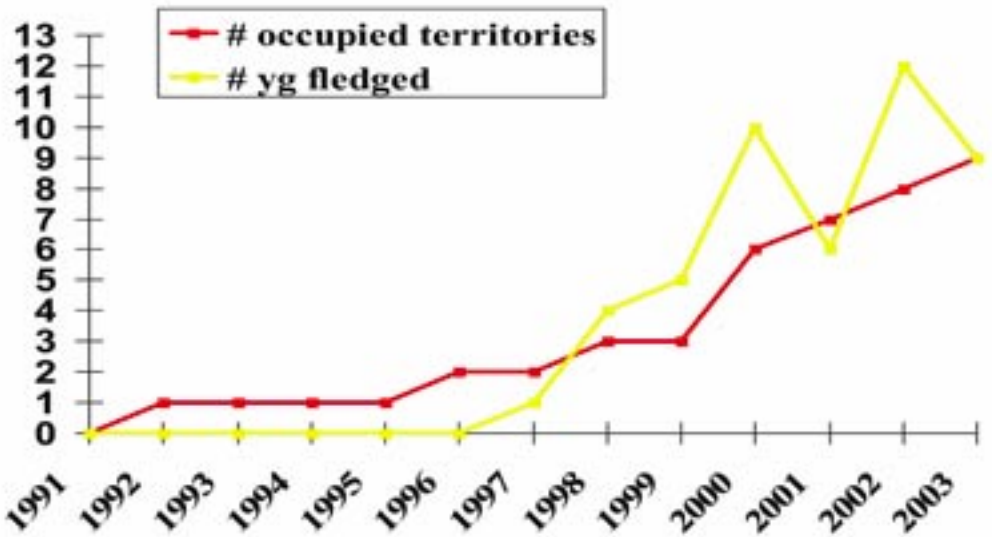


Figure 1 - The number of occupied territories and the number of young bald eagles has been increasing in the Hudson River Valley over the last decade. Chart Courtesy Pete Nye

at a steady rate (See Figure 1). The population size that makes an important roosting site is greater than 15 eagles for more than two weeks in the winter. Bald eagles prefer tidal mudflats for nesting and forage. He emphasized the struggle against ecological homogenization and that diversity is vitality.

The *Open Space and Habitat Protection* presentation by Karen Strong of DEC's Hudson River Estuary Program (HREP) was a significant contribution to the conference, as it focused attention of the audience the importance of biodiversity. She discussed the State's Open Space Conservation Plan, which for the first time in 2002, prioritized biodiversity as the focus of reason for protection of land and acquisition. Presently, 400,000 acres are managed for biodiversity. Asked why biodiversity was important and should be protected, she referenced a Lyme disease study in the region. The research compared two forests and the small mammals in the forest infected with the *Borrelia burgdorferi* bacteria that causes Lyme disease in humans. One forest contained a diversity of small mammals, and the other a homogenous population of white-footed mouse. The forest with the more diverse population was found to harbor fewer ticks carrying the *Borrelia burgdorferi* bacteria, the forest with less diversity in the small mammal population was determined to contain greater numbers of animals harboring ticks with the bacteria. The study concluded that in a forest with higher degrees of biodiversity, there's less chance of developing a monoculture of species, in particular species that may transmit diseases such as Lyme. Biodiversity furthermore maintains the stability of resources available to species, thus a biologically

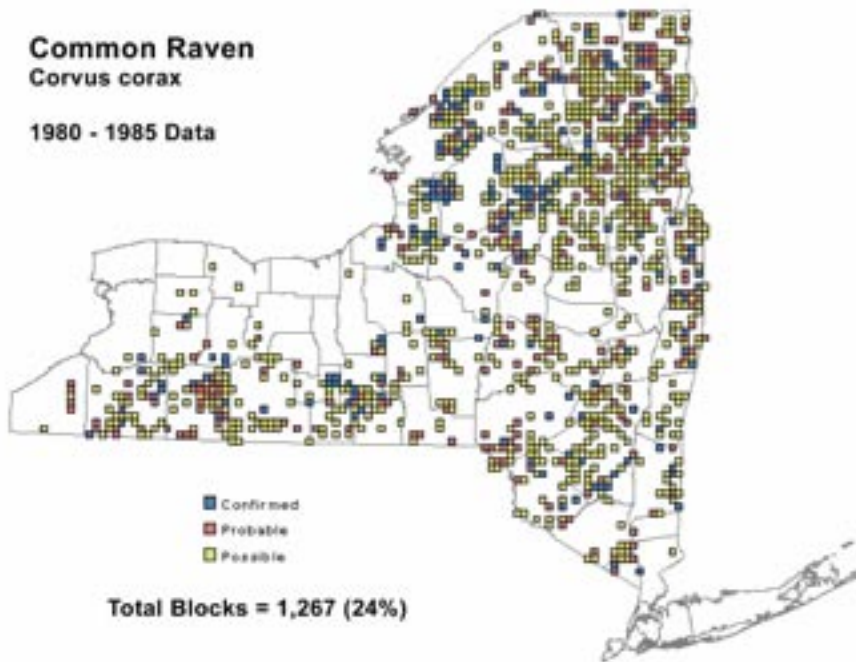
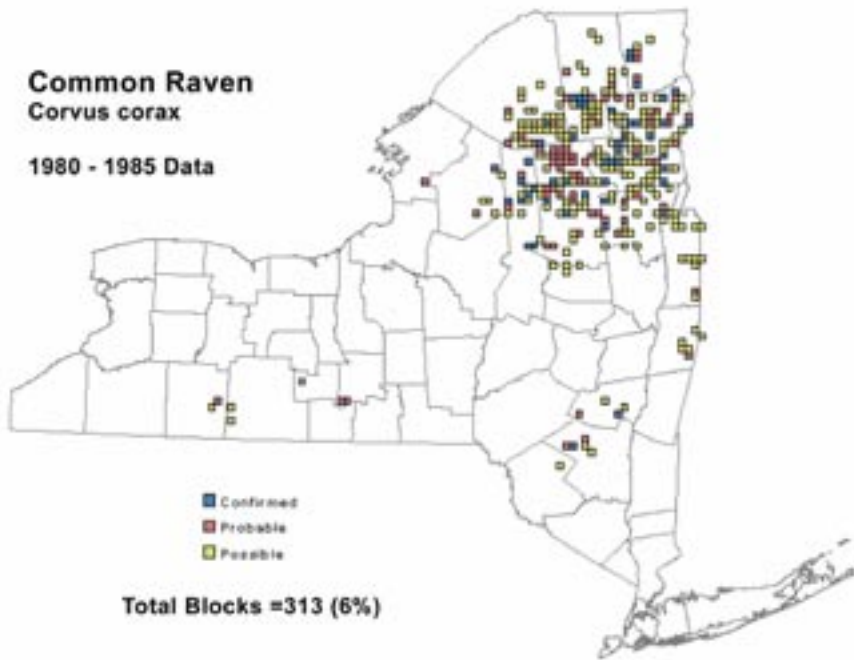
diverse habitat is less likely to collapse and become homogenous.

The ultimate message of the conference was that citizens should be involved in local planning initiatives that may have the potential to prevent the degradation or fragmentation of open space and habitat for avifauna in the Hudson River Estuary and throughout New York State. The more citizens are involved in the decision making process, the greater potential for the protection of natural resources in the region and the greater likelihood of preserving wildlife habitat for future generations. Additionally the information collected on species of birds in the area, population trends, and reasons for increases or declines in populations should be further examined and these data applied to future land management and protection efforts by public and private agencies.



**About the Author**

Julie E. Moore has a B.S. in Marine Science Biology from LIU Southampton College. After 5.5 years as a consultant at AKRF, Inc., a planning firm in NYC, primarily writing Environmental Impact Statements for large development projects, Julie is now working on planning and Code compliance issues for site plans and subdivisions in Southampton, on Long Island's South Fork.



Figures 2 - The common raven has become more common throughout most of New York State in the last twenty years as depicted in the revised New York State Breeding Bird Atlas (<http://www.dec.state.ny.us/website/dfwmr/wildlife/bba/>). Images courtesy Kim Corwin

For more information, including abstracts on *Birds of the Hudson River Estuary* and other HRES conferences and events, please visit our web site at [www.hres.org](http://www.hres.org)

Announcing:

## Who's Doing What in the Upper Hudson?

2004

Important scientific issues for the Upper Hudson River.

October 5, 2004

Heffner Alumni House (RPI Campus)  
Troy, N.Y.

The Hudson River and its major tributaries have a rich three-century industrial and agricultural history, which include both major urban areas and near pristine ecosystems. The river basin, stretching from the Adirondacks to New York City provides numerous challenges in all aspects of watershed science that must be met to achieve the goal of a sustainable water resource. Due to the diverse ecological areas that the Hudson River possesses there are unique opportunities to address important scientific issues in the Upper, Mid and Lower Hudson River. Issues for the Upper Hudson differ from those faced in the Mid and Lower Hudson where increased population densities, extensive transport activity, and both agricultural and industrial influences interact with the complexity of tidal dynamics in the lower estuary. The Upper Hudson is critical to our understanding of the river, since it is the location of the headwaters, contains the major tributaries into the Hudson, such as the Mohawk, Sacandaga, Battenkill and the canals from Lake George and is at the head of the estuary for the river in Troy.

The purpose of the conference is to bring together investigators who presently have studies in the Upper Hudson River Basin to introduce their work and to provide the opportunity for researchers to forge new collaborations for future studies. Student participation is encouraged.

Topics include:

- Contaminants
- Nutrients
- Invasive Species
- Fish
- Sediments
- Monitoring using advanced technologies
- Geomorphology-Hydrology
- Reservoirs and dams
- Chemistry

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## Integrating Water Resource Objectives With Local Land Use Decisions: The Challenge of the Stormwater Phase II Program

Governors seek federal dollars for Bay Cleanup; Federal Oceans Commission Finds Decline Along Coasts; DEC Restricts Shellfishing in Four Towns in Suffolk County. Are these newspaper headlines from the 1970's? NO, these articles are from February, April and May 2004, from the Chesapeake Bay to New York City. BUT, you may say, what about the Clean Water Act, NEPA, RCRA, and all the accompanying regulations that were passed in the 1970's? Didn't these provide adequate protection for our waterways? While these laws did an excellent job of cleaning up point sources of pollution from industrial sources and wastewater treatment plants (Currents December 2002, May 2003), pollution from nonpoint sources remains as a significant source of contamination to our streams, rivers, estuaries, lakes and wetlands, especially in urban areas. For the Hudson River Estuary and the tributaries which form its watershed, silt, sediment and in some cases nutrients and pathogens from stormwater runoff are the priority pollutants of concern.

### Water Quality Impacts from Stormwater

Research in the 1980's on the chemical constituents of stormwater runoff showed that the runoff produced when rain falls on the land contains various pollutants including sediments, nutrients, organic carbon, petroleum hydrocarbons, trace metals (copper, zinc and lead), pesticides and fecal coliform bacteria, regardless of geographic location (Schueler and Holland, 2000). But in an April 2004 EPA study comparing geographic regions, the condition of the coastal waters in the Northeast received the worst rating among all five regions in the United States (USEPA, Draft National Coastal Condition Report II). The Southeast received the best rating, followed by the Gulf Coast, Great Lakes, and West Coast. Stormwater runoff was identified as one of the sources of impairment to coastal waters. Even though stormwater runoff has an average chemical fingerprint, the estuaries and coastal areas of the Northeast are receiving amounts of stormwater that continue to impact our natural resources to a greater extent than other areas of the United States.

The pollutants in stormwater runoff are as diverse as the land uses that surround our waterways, a reflection of the urbanized world we live in. Oil, grease, hydrocarbon products and road salts come from roadways and parking lots. Fertilizers and pesticides dissolve in stormwater from both residential areas and agriculture. Bacteria and viruses result from malfunctioning septic systems, sewage pipes improperly connected to the storm drain system, combined sewer overflows, and pet wastes. Roof shingles and motor vehicles have been

shown to be a source of heavy metals. Thermal pollution is caused by runoff from impervious surfaces such as streets, rooftops and parking lots. Eroding stream banks and construction sites contribute sediment to stormwater runoff. Studies have shown that sediment runoff rates from construction sites are typically 10 to 20 times greater than from agricultural lands and 1000 to 2000 times greater than from forested areas (USEPA, 2000). Combined in stormwater runoff, these pollutants contaminate our drinking water, discourage or prohibit recreational use, and interfere with habitat for fish, other aquatic organisms and wildlife, as exemplified by the newspaper headlines above.

### Water Quantity Impacts from Stormwater

In addition to the water quality impacts from stormwater, the increase in the amount and intensity of stormwater from developed areas has a negative impact on water resources and communities. As impervious surfaces (roads, parking lots, and rooftops) are created and runoff is channelized, infiltration of rainfall into the ground is diminished. As a result, urban streambanks erode and the stream channel becomes enlarged and/or incised from an increase in the frequency of channel-forming storms in urban areas. This in turn triggers a cycle of streambank erosion and habitat degradation in urban streams. Flooding events also increases in frequency and duration, causing property damage and sometimes loss of life. This cycle has been occurring on the Hudson and its tributaries.

### Impervious Cover as a Measure of Stormwater Impacts

We know that stormwater causes both water quality and water quantity impacts to local and regional water resources. How can we provide a measure of control for these diverse land use impacts to our natural resource systems? A number of researchers over the last ten years have been studying the link between watershed imperviousness and water resource degradation, with the goal of developing engineering guidelines and policy-level implementation measures to control the impacts of stormwater runoff.

Schueler and Holland (2000) summarized various studies and concluded that, "Imperviousness is a very useful indicator with which to measure the impacts of land development on aquatic systems." As shown by Figure 1, Schueler and Claytor (1995) found that at relatively low levels of imperviousness in a watershed (-10 %) stream degradation occurs, with greater impacts as imperviousness increases.

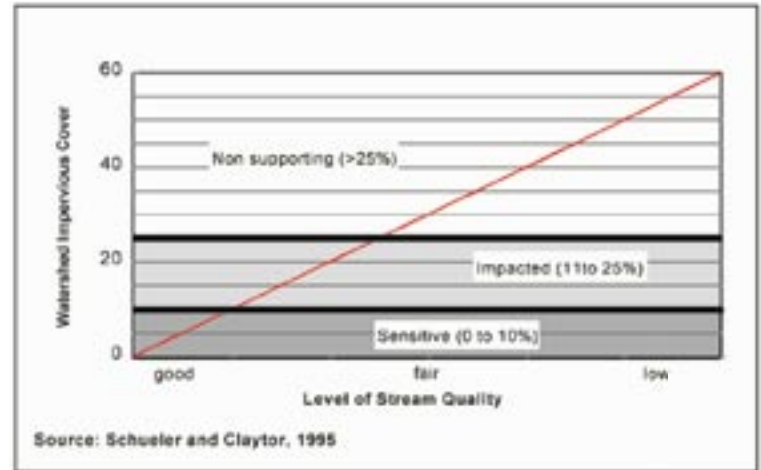


Figure 1 - Stream quality decreases as the percentage of impervious cover in a watershed increases.

This stream degradation can be seen in four functional components: change in stream shape, loss of water quality, stream warming and decline in biodiversity.

The relationship between imperviousness and the shape of streams "appears to be a function of sub-bank full floods, whose frequency can increase by a factor of 10 even at relatively low levels of imperviousness" (Hollis, 1975; Macrae and Marsalek, 1992 and Schueler, 1987). Frequent storms cause channel instability and loss of pool and riffle sequences, decrease in overhead cover, and reduction in the wetted perimeter of the stream.

Numerous urban runoff monitoring studies and watershed modeling projects have shown that pollutant loads in urban watersheds are directly related to imperviousness (Schueler and Holland, 2000). Studies have also shown that during the summer the temperature of the ground and air associated with impervious areas is 10 to 12 degrees higher than an adjacent field or forest. In addition, trees are absent from most impervious areas, so that natural cooling from vegetation shading does not occur.

Biodiversity may also be measured by the percentage of impervious area. Several researchers have found that both macroinvertebrate and fish diversity drop as watershed imperviousness increases to more than 10%. Salmonid fish species (trout and salmon) are especially affected. Relevant

to the Hudson River, Limburg and Schmidt (1990) discovered that the density of anadromous fish eggs and larvae declined sharply after a threshold of 10% imperviousness was exceeded in 16 subwatersheds draining into the Hudson River.

### Policy and Programs for Stormwater Control

Numerous studies have documented water quality and water quantity impacts from stormwater runoff, as well as the role of impervious surface in a watershed in creating those impacts. But how can we control these impacts when land use decisions take place at the local level? The EPA has recognized that the control of stormwater impacts must be shared by multiple levels of government by promulgating the Phase II Stormwater Regulations under the National Pollutant Discharge Elimination System (NPDES) program. New York State has implemented this program under the State Pollutant Discharge Elimination System with two general permits: The SPDES General Permit for Stormwater Discharges from Construction Activity (GP-02-01) and the SPDES General Permit for Stormwater Discharges from Municipal Separate Storm Sewer Systems (MS4s) (GP-02-02).

### Construction Site Runoff

The construction activity general permit was developed by New York State in response to the research that shows that construction sites can be major contributors of sediment to streams, lakes and wetlands. The construction permit also reflects research showing that imperviousness can be quantified, managed and controlled during land development. In effect as of March 2003, GP-02-01 requires any owner or operator of construction activities of more than one acre to file with the NYSDEC a Notice of Intent to discharge stormwater and prepare a Stormwater Pollution Prevention Plan (SWPPP) for the site. All activities require a level one SWPPP consisting of an erosion and sediment control plan including such items as silt fences, sediment traps and phasing sequences. In some cases, a level two SWPPP is also required that includes post-construction stormwater controls such as stormwater ponds, stormwater wetlands, filtering and infiltration practices.

Recognizing the impervious area impacts on watershed function, New York State has incorporated impervious area calculations into the formulas that are required under GP-02-01 for sizing of stormwater management practices as detailed in the New York State Stormwater Management Design Manual (Design Manual). The Design Manual was written by the Center for Watershed Protection in Maryland, in consultation with the New York State Department of Environmental Conservation. Based on the

most recent research, the Design Manual contains a wealth of information, including an entire chapter on the impacts of new development on our waterways. The approved stormwater management practices that are listed in the Design Manual have been proven through research to remove 80% of the total suspended solids and 40% of the total phosphorus from stormwater when installed correctly.

### What is an MS4 and why does it involve HRES Currents readers?

The General Permit for Stormwater Discharges from MS4s (GP-02-02), while sounding like a wastewater permit program, is, in actuality, a community-wide watershed planning program. MS4s, defined as a population center of 50,000 with an associated surrounding area of 1,000 people per square mile or more, must develop a local Stormwater Management Program by 2008 that contains six minimum measures of control: Public Education and Outreach, Public Involvement and Participation, Illicit Discharge Detection and Elimination, Construction Site Runoff Control, Post-Construction Runoff Control, and, finally, Pollution Prevention and Good Housekeeping. The required activities include identification of impaired waterways, mapping of stormwater outfalls, public education on the impacts of stormwater, and adoption of a local law or other regulatory mechanism to control sedimentation from construction sites and stormwater impacts from newly-created impervious areas. Optional items include water quality monitoring of streams and stormwater discharges. As one can see, these activities involve multiple levels of involvement by planning, conservation, educational and scientific groups at the local level.

The NYSDEC has developed various tools to assist communities with this program, including a Stormwater Management Guidance Manual for Local Officials that contains a Model Local Law for Stormwater Management, educational materials, and a grant program for MS4s from the Environmental Protection Fund. The Model Local Law is designed to be adopted as amendments to a municipality's zoning, site plan, subdivision and erosion control laws. Through adoption of these amendments, the municipality will then require a Stormwater Pollution Prevention Plan (or equivalent) during subdivision and site plan review that contains stormwater management practices that reflect the most recent research on pollutant controls and stream channel protection. Since New York State is a

home rule state, the most effective way to produce change at the local level is to include requirements for stormwater controls during the local review process.

### Building on Required Programs

There are exciting opportunities to build on the requirements of the Stormwater Phase II program and create even better land use projects that will be reflected in more livable communities and even better watershed quality. The concept of Low Impact Development (LID) incorporates infiltration and filtering of stormwater at the individual lot level, while emphasizing use of natural contours and protection of existing riparian buffers. LID also encourages subdivision layouts that reduce street widths, provide sidewalks on one side of the street, and eliminate cul-de-sacs. When combined with the techniques outlined in the Design Manual, LID can reduce impervious cover and reduce the required size of stormwater management practices.

A community should also look beyond the requirements of the Stormwater Phase II program and incorporate protection of wildlife habitat and biodiversity when approving stormwater management practices for a site. While stormwater ponds and wetlands do create wildlife habitat, they may attract certain amphibians that cannot survive in fluctuating water levels. By mapping sensitive habitat areas on a community-wide basis within a watershed planning process, local boards can then recognize areas where infiltration and filtering practices would be a better choice than stormwater ponds and wetlands. In addition, use of certain infrastructure practices such as "Cape Cod Curbs" (Figure 2) can facilitate the movement of amphibians in urban and suburban areas. Cape Cod Curbs are designed with a maximum 1:4 slope.

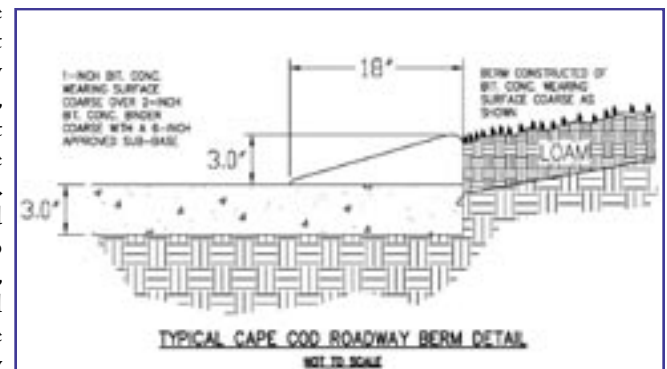


Figure 2. Curbing, referred to as Cape Cod curbs, is designed to facilitate the movement of amphibians across roads by providing a sloping surface from the roadway up to the surrounding land in contrast to traditional curbs with a vertical transition from roadway to surrounding land.

Finally, by incorporating riparian buffer, wetland and watercourse, and steep slope regulations along with a stormwater management law at the local level, communities can provide a suite of natural resource protection laws that provide protection for their waterways and habitats. Other techniques such as conservation subdivisions, overlay districts, and purchase of development rights also provide site-specific tools for managing land use. The Pace Land Use Law Center has developed a series of guides that can assist communities in developing these land use controls (see the "Starting Ground Series", 2003, available from the Land Use Law Center, Pace University School of Law and the NYSDEC Hudson River Estuary Program).

The NYSDEC Hudson River Estuary Program is currently providing education and outreach on the Stormwater Phase II program for communities in the Hudson Valley. Please contact Barbara Kendall at 845-256-3163 or [blkendal@gw.dec.state.ny.us](mailto:blkendal@gw.dec.state.ny.us) if you would like to order the Stormwater Management Guidance Manual for Local Officials, other educational materials or would like to schedule a presentation. The Hudson River Estuary Program also provides technical assistance and grants to communities and non-profit organizations on watershed planning, biodiversity and Hudson River education programs.

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#### About the Author

Barbara Kendall joined the NYSDEC Hudson River Estuary Program in October 2003 as a Stormwater Outreach Specialist. Prior to joining DEC, Ms. Kendall was Executive Director of the Greenway Conservancy for the Hudson River Valley from 2001 to 2003 and Executive Director of the Dutchess County Environmental Management Council from 1994 to 2001. As EMC Director, Barbara was instrumental in the formation of a Watershed Plan and Intermunicipal Council for 13 municipalities in the Wappinger Creek Watershed and authored *Local Strategies for Wetland and Watercourse Protection*.

## New E-Format for Hudson River Almanac

The Hudson River Almanac, published by NYSDEC's Hudson River Estuary Program since 1994, is a compilation of natural history observations covering the Hudson from the High Peaks of the Adirondacks to New York Harbor.

1/14/04 - Rod Hook, Hudson River Mile [HRM] 44: On the late afternoon train home from Manhattan, I spotted an adult bald eagle flying alongside, keeping up very nicely. I had to tell someone, so I said, half out loud, "There's a bald eagle." Immediately six heads and twelve eyes came up from newspapers, crossword puzzles, and corporate reports to see the bird. The woman in the seat behind me was enraptured! "Wow! Just like the movie *Winged Migration*." Except this one recurs every day.

-Tom Lake

Formerly released annually, the Almanac is now emailed weekly as a free electronic newsletter,

providing information and inspiration in a much more timely manner. In addition to presenting natural history, it places contemporary observations in historical perspective, and encourages others to look more closely at the Hudson and share what they see.

12/12/03 Cohoes, HRM 159: The snow from the nor'easter of December 5-6 was almost all washed away by the rains of December 10-11 (an inch or more). Where did it all go? Into Hudson Valley streams and thence into the Hudson. Today the tributaries were roaring, nowhere more so than at Cohoes Falls on the Mohawk River. Set in a steep-sided gorge, the falls are about 1,000 feet across and tumble down some 70 feet. They were a thrilling sight this afternoon as water crashed down and then ricocheted back up in plumes that seemed nearly as high as the cataract itself. According to the U.S. Geological Survey gaging station, discharge at the falls was around 45,000 cubic feet of water per second, six times the average flow for this date.

-Jennifer Dupont, Laurie Fila, Rebecca Johnson, Jean Valla McAvoy, Steve Stanne

Over the years, observations have been compiled from the contributions of more than 1700 volunteers, ranging from elementary school students to professional biologists.

7/20/00 - Esopus Meadows, HRM 87: Three of us were staring across the water chestnuts at a harbor seal hauled out on a buoy. Through our spotting scope we could make out a very relaxed seal stretching its flippers and looking around. No doubt it had been feeding well on river fish. Earlier in the week we had caught many young of the year herring and striped bass in our seine. As the sun set, we could see the seal every four seconds, illuminated by the buoy light. What a great sight on the river- an ambassador from the salty realms to the south, come north to partake in the bounty of the estuary's abundance.

-Chris Bowser, Dave Conover, Jennifer Tether

To sign up to receive the E-Almanac free of charge, send an email request to [hrep@gw.dec.state.ny.us](mailto:hrep@gw.dec.state.ny.us) and write E-Almanac in the subject line.

## Inside HRES

with Stephen O. Wilson



**I**t has been an unusually busy summer for us.

Our Annual Members' meeting in June at the new Henry A. Wallace Center at the FDR Presidential Library & Museum featured John Mickelson's presentation on access to mapping and finding links to the many forms of aquatic and fisheries data on the Hudson. It was a brief glimpse of what the future may hold for many different types of Hudson River Research. Awards were given as well. Jon Cole & Nina Caraco of the Institute for Ecosystem Studies receive the HRES Outstanding Researcher Award for their studies of the lower trophic levels of the Hudson River aquatic ecosystems which demonstrate the Hudson's dual food base, and account for its great productivity. Andy Mele received the Outstanding Educator Award. As Executive Director of the Hudson River Sloop Clearwater he has built a firewall between Clearwater's environmental education programs and its advocacy program.

This fall, we have 3 upcoming programs:

*Who's Doing What in the Upper Hudson?* 5 October, which is being organized by Board member, Sandra Nierzwicki-Bauer of RPI; *Rising Chloride Levels in Tributaries of the Hudson Estuary*, 6 December, Mid-Hudson, Emilie Hauser Program Chair; and a winter conference: *Contaminants in the Lower Hudson Estuary II*, to be at the Stevens Institute of Technology in Hoboken, NJ. Mike Bruno and Dennis Suszkowski, are the Co-Chairs.

We hope you will be able to attend some or all of these upcoming events. Look in the mail or on the HRES website for more information, CFP's and registrations for these exciting and informative events. Please contact the organizers if you would like to lend a hand.

We have organized an orientation session to welcome our five new Board Members:

**Fred W. Koontz**, Ph.D., Executive Vice President,

Wildlife Trust, former Curator of Mammology at the Bronx Zoo, and former Director/Founder of the of WCS's Science Resource Center;

**Grady Moore**, who recently retired as Director of the United States Geological Survey, Water Resources Division - Northeast

**Dorothy M. Peteet**, Scientist, Lamont Doherty Earth Observatory, and faculty of Columbia University in wetlands paleoenvironments;

**Edward W. Radle** retired as the Steam-Electric Unit Leader. New York State Dept. of Environmental Conservation, Retired; and

**William D. Saksen III**, Project Scientist, Lawler, Matusky and Skelly Engineers, LLP.

We regret the departure of the two "Mikes" from our Board: Professor Michael Tannenbaum, Dean of the Marist College School of Science, and Professor Michael Bruno, Director of the Davidson Lab at Stevens Institute of Technology. Thank you both for your energy, encouragement and constructive suggestions.

The HRES Web Site [www.hres.org](http://www.hres.org), contains a wealth of information, such as contacts for the Board members, a calendar of Hudson River environmental events, jobs postings, and details for our programs including descriptions, registration forms, and directions. While we do work hard to keep it relevant to your interests and up-to-date, we always appreciate receiving your ideas to make it more useful.

Finally, the Board has asked me to emphasize that our Committee structure is vital, not only in producing our public programs, but in the selection of HRES awardees, in finding new Board members, and for determining what, how and when we will publish important findings in Hudson River research. We encourage you to attend our Board meetings, and better, to participate in one of the following committees:

**Program:** Chair, Jeff Clock - [jjclock@cenhud.com](mailto:jjclock@cenhud.com)

**Membership:** Chair, Susan Howes Conrad [conrad@sunydutchess.edu](mailto:conrad@sunydutchess.edu)

**Publications:** Chair, John Ladd - [jwlladd@alumni.williams.edu](mailto:jwlladd@alumni.williams.edu)

**Nominating:** Chair, William Shaw - [whshaw10@earthlink.net](mailto:whshaw10@earthlink.net)

**Awards:** Chair, Bob Henshaw - [rehenshaw@att.net](mailto:rehenshaw@att.net)

**Business Plan:** Mark Mattson [mmattson@normandeau.com](mailto:mmattson@normandeau.com)



HRES was founded in 1970 to help science enlighten decision-making by bringing together scientists, educators and decision makers.

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