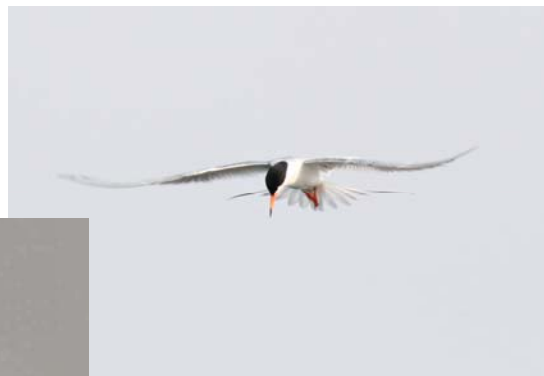


Harbor Herons, Cormorants, and More Current Research and Future Planning

*Proceedings of the Greater New York/New Jersey Harbor Colonial
Waterbirds Working Group*



Staten Island,
New York
30 November ~ 1 December 2006



Proceedings of the Greater New York/New Jersey Harbor Colonial Waterbirds Working Group

**November 30 – December 1, 2006
Visitor Center, Room 115
Fort Wadsworth, Staten Island, New York**

**Organized by:
Wildlife Trust's New York Bioscape Initiative
National Park Service, Gateway National Recreation Area, Jamaica Bay Institute
Harbor Herons Subcommittee of the NY-NJ Harbor Estuary Program**

**Hosted by:
National Park Service, Gateway National Recreation Area, Jamaica Bay Institute**

**Funded by:
National Park Service, Gateway National Recreation Area, Jamaica Bay Institute
and the United States Department of Agriculture, Animal and Plant Health
Inspection Service**

**Meeting booklet compiled by:
Susan Elbin and Veronica Padula, New York Bioscape Initiative, Wildlife Trust**

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Presentations from the meeting will be made available in pdf format on 2 websites:

Jamaica Bay Institute, <http://www.nature.nps.gov/jbi/>
New York Bioscape Initiative, <http://www.nybioscape.org>



Meeting Agenda

Thursday, 30 November

- | | |
|--------------------|--|
| 10:00-12:00 | Session I: Harbor Herons Sub-Committee Meeting |
| 12:00-12:45 | Lunch |
| 12:45-5:00 | Session II: Monitoring Methodology |
| 12:45-1:00 | Welcome and Introduction
<i>Kim Tripp, National Park Service</i> |
| 1:00-1:15 | Updates from the Harbor Heron Sub-Committee Meeting and
Progress toward the Conservation Plan
<i>Yigal Gelb, New York City Audubon</i> |
| 1:15-1:30 | Long Island Colonial Waterbird and Piping Plover Surveys
<i>Dan Rosenblatt and Michelle Gibbons, NYS Department of Environmental
Conservation</i> |
| 1:30-1:45 | A Brief Overview of Harbor Heron Nesting Survey Data: 2006
Highlights and a Focus on Methodology
<i>Andy Bernick, New York City Audubon and City University of New York-
Graduate Center</i> |
| 1:45-1:55 | Discussion |
| 1:55-2:10 | The Great Lakes Colonial Waterbird Monitoring Scheme, 1976-2007
<i>Chip Weseloh, Canadian Wildlife Service</i> |
| 2:10-2:25 | Updates on Research and Survey Work in New Jersey
<i>Christina Kisiel, N.J. Division of Fish and Wildlife
Endangered and Nongame Species Program</i> |
| 2:25-2:40 | Break |
| 2:40-2:50 | Research on Goose and Huckleberry Islands, 2006
<i>David Kunstler, New York City Parks and Recreation</i> |
| 2:50-3:15 | Facilitated Discussion with Speakers on Monitoring Methodology
<i>Facilitator: Kim Tripp, National Park Service</i> |
| 3:15-5:00 | Session III: Environmental Toxins, Bioindicators, and
Habitat Quality |
| 3:15-3:25 | Natural Resources Damage Assessment Update for Diamond Alkali,
Superfund Site
<i>Tim Kubiak and Melissa Foster, U.S. Fish and Wildlife Service</i> |

3:35-3:50	Colonial Birds on Urban Islands as Indicators of Ecosystem Health <i>Joanna Burger, Rutgers University</i>
3:50-4:05	Health Assessment of Black-crowned Night-Herons in the NY/NJ Harbor <i>Veronica Padula, Wildlife Trust</i>
4:05-4:15	Discussion
4:15-4:30	Research on North Brother Island <i>Tim Wenskus and Mike Feller, New York City Parks and Recreation</i>
4:30-4:45	Restoration of Salt Marsh Foraging Grounds in and around the Harbor Heron Islands: Progress to Date <i>Carl Alderson, NOAA</i>
4:45-5:00	Discussion/ Wrap up

Friday, 1 December

9:00-9:30	Coffee
9:30-12:00	Session IV: Colonial Waterbird Populations beyond Harbor Herons
9:30-9:45	Welcome and Introduction <i>Kim Tripp, National Park Service</i>
9:45-10:00	Wading Birds in the City: Habitat Use and Competition on the Susquehanna River in Harrisburg, Pennsylvania <i>Terry Master, East Stroudsburg University</i>
10:00-10:15	Piping Plovers on Breezy Point, NY <i>Kim Tripp, National Park Service</i>
10:15-10:30	Update on Yellow-crowned Night-Herons in the Secaucus, NJ (and) What About Ecotourism? <i>Hugh Carola, Hackensack Riverkeeper</i>
10:30-10:45	Foraging Colonial Waterbirds in the Meadowlands District <i>Nellie Tsipoura, New Jersey Audubon</i>
10:45-11:00	Discussion
11:00-11:15	Break
11:15-12:00	Session IV: Population Perspectives
11:15-11:30	Gulls as Links Between Land and Sea in the Gulf of Maine <i>Julie Ellis, Tufts University</i>

11:30-11:45	Sociability Leads to Instability: A Metapopulation Model of the Heron and Egret Nesting Colonies in New York Harbor <i>Gareth Russell and Abraham Rosales, Rutgers University</i>
11:45-12:00	Discussion
12:00 – 1:00	Lunch
1:00-2:45	Session V: Focus on Double-crested Cormorants
1:00-1:15	Update on Cormorant Research 2006 and Setting an Agenda for the Future <i>Susan Elbin, Wildlife Trust</i>
1:15-1:35	Impacts of Double-crested Cormorants on New York Harbor Island Habitats <i>Liz Craig, Columbia University</i>
1:35-1:55	Feeding Dynamics of the New York Harbor Cormorant Population <i>Colin Grubel, Queens College</i>
1:55-2:00	Counting Fish <i>John Waldman, Queens College</i>
2:00-2:20	Variable Impacts of Cormorants on Black-crowned Night-Herons at Four Ontario Breeding Colonies <i>Chip Weseloh, Canadian Wildlife Service</i>
2:20-2:40	Evaluating Non-lethal Management of Double-crested Cormorants in Central New York <i>Travis DeVault, USDA</i>
2:40-3:00	Discussion/ Wrap-up <i>Susan Elbin, Wildlife Trust</i>



Meeting Venue: Fort Wadsworth
National Park Service: The Historic Resources of the Staten Island Unit



Staten Island, an eclectic mosaic of the American culture, contains a record of some of the most important events in American history. The first European to leave a record of his exploration of the entrance to New York Harbor was Giovanni da Verrazano, who in 1527 sailed into the stretch of water known as the Narrows, the location of the present-day Fort Wadsworth. Henry Hudson, 85 years later, explored the river beyond the Narrows and named Staten Island. The US Congress created Gateway National Recreation Area in 1972 and, today, the National Park Service cares for Fort Wadsworth, Miller Field and Great Kills Park on Staten Island.

"Fort Wadsworth, Guardian of the Narrows"

As early as the 1600s, the high ground on the Staten Island side of the Narrows took on great military value. First a Dutch holding, the site was then seized by the English, who built the first fort capable of stopping ships at the Narrows. After the Revolutionary war, the State of New York further reinforced the site, which helped to prevent English invasion of New York Harbor in the war of 1812. Around the time of the Civil War, the Federal government replaced the early sandstone structures with more powerful granite forts. Battery Weed and Fort Tompkins still stand today. From 1954 to 1966, Fort Wadsworth was the control center for New York City's Nike missile defense system. At the time of its closure in 1994, Fort Wadsworth was the longest continuously used military site in the country, and continues to be used by the Coast Guard today.

World War Veterans Park at Miller Field

Beginning in World War I, Miller Field gained recognition as an airfield. Originally the site of a Vanderbilt Mansion and the historic Elm Tree Light, Miller Field became home to the 102nd Observation Squad. Today, the Elm Tree Light and an airplane hanger remain, and dozens of athletic fields of all kinds provide opportunities for recreation to City residents.

Great Kills Park

As a nature preserve with vestigial coastal forest and swampland, Great Kills Park is unparalleled on Staten Island.

For further historical information, and opportunities for self-led, ranger-led, and field trips, contact Fort Wadsworth's Visitor Center at 718-354-4500.

Reprinted from the National Park Service Website

http://www.nps.gov/archive/gate/siu/siu_history.htm

Directions to Fort Wadsworth, (718) 354-4500:

By car:

From the Verrazano Narrows Bridge from Brooklyn: after toll, take the Bay Street exit to the Park entrance.

From the Staten Island Expressway (Rt. 278) east to the Bay Street exit. Turn left at the light and follow this road to Bay Street and the Park entrance.

By bus:

S51 from Staten Island Ferry Terminal to the Park entrance on Bay Street.

By train:

Not available.



A view from Fort Wadsworth - across the Hudson River, under the Verrazano Bridge



Abstracts

(arranged in alphabetical order by presenter's last name)

Alderson, C. Restoration of Salt Marsh Foraging Grounds in and around the Harbor Heron Islands: Progress to Date.

NOAA Restoration Center - Sandy Hook Office, Carl.Alderson@noaa.gov

Bernick, A.J. Proposed revisions to New York City Audubon's Harbor Herons Nesting Survey

CUNY-Graduate Center/NYC Audubon, abernick@nycaudubon.org

Since the 1980s, New York City Audubon (NYCA) has lead ground-based nesting surveys of colonial wading birds (herons, egrets, and ibis) in NY/NJ Harbor and surrounding waterways. As of 2006, approximately 1,700 wading birds nest on nine islands owned and managed by the New York City Department of Parks and Recreation, the National Park Service, and private entities. Due to continuing changes in habitat composition, and in the interest of creating a protocol that is aligned with other regional wading bird surveys, some alterations to the current survey methodology are now necessary. This presentation will chronicle the most pressing issues to date, and offer possible methodological changes to address these issues.

Burger, J.¹ and Gochfeld, M.² Colonial Birds on Urban Island as Indicators of Ecosystem Health.

¹ Rutgers University, Piscataway, NJ, burger@biology.rutgers.edu

² UMDNJ-Robert Wood Johnson Medical School, Piscataway, NJ

As human populations continue to concentrate along coasts, there is increasing interaction between people and birds. This trend will continue, and ornithologists must devise ways for birds and people to co-exist. Increasingly birds are exposed to a multiple stressors at the same time in coastal environments, and each one exerts an incremental influence on reproductive success. On top of human disturbance, are the effects of habitat loss, fisheries take, and increasing pollution from urbanization and suburbanization. With changes in energy policy, there are changes in atmospheric deposition of chemicals, such as mercury, which have major implications for biodiversity of nesting birds. Seabirds are excellent bioindicators because they are long-lived, feed at different trophic levels, are at the top of the food chain, and many are abundant and widely distributed. They can reveal spatial or temporal trends in contaminant levels. We examined temporal trends in the levels of cadmium, lead, and mercury in eggs from Common Terns (*Sterna hirundo*) nesting on several salt marsh islands in Barnegat Bay, New Jersey. Levels were highest for mercury, followed by lead. The eggs of Barnegat Bay Common Terns show a decline in levels of cadmium and lead. Mercury declined from 1971 to 1982, increased dramatically in 1999, then initially declined but have started to increase (perhaps due to the relaxation of standards for power plants). The data indicate that Common Terns can serve as useful bioindicators of temporal trends in exposure, and that some of the metals of concern in

estuarine environments (lead, cadmium) have declined over the last thirty years, although mercury levels are higher than in the early 1980s. The effects of contaminants, such as lead, influence a wide range of behaviors such as begging, walking, thermoregulation, and individual recognition, as demonstrated by experimental work with Herring Gulls.

Carola, H. Update on Yellow-crowned Night-Herons in the Secaucus, NJ
(and) What About Ecotourism?

Hackensack Riverkeeper, hugh@hackensackriverkeeper.org

As the waters of our harbor estuary recover and habitat preservation efforts move forward, we continue to witness the remarkable recovery of ecosystems and the recolonization of formerly extirpated species. During the same timeframe, environmental education has brought the estuary and its wildlife - most especially its colonial nesting birds - into the public eye and created an ecotourism market. While that is certainly a positive development, there are new dangers; not the fear of wholesale habitat loss or renewed degradation of the aquatic environment but rather the danger that the birds and their fragile nesting & feeding grounds might be "loved to death".

With 15+ million people living in our bi-state region and millions visiting each year (and an increasing number of them doing so for nature-based activities), we ought to consider a long-term ecotourism strategy. One possibility might be a HEP Certification for operators (like Hackensack Riverkeeper and the NJ Meadowlands Commission) and for those who contract with organizations like NYC Audubon & NY/NJ Baykeeper. Another might be a non-interference pledge like the whale watch companies out of New England & the Maritime Provinces abide by. Needless to say, coordination with all applicable agencies is a must for such an initiative to proceed and the birds (and associated wildlife) to be protected.

Craig, E.C.¹, Palmer, M.¹, Danoff-Burg, J.¹, Elbin, S.² An Assessment of the Impacts of Double-crested Cormorants (*Phalacrocorax auritus*) on New York Harbor Island Habitats.

¹ Department of Ecology, Evolution and Environmental Biology, Columbia University, 10th Floor Schermerhorn Extension, 1200 Amsterdam Avenue, New York, NY 10027.

ecc2101@columbia.edu

² Wildlife Trust, 460 West 34th Street, 17th Floor, New York, NY 10001.

Over the past three decades, the Double-crested Cormorant (*Phalacrocorax auritus*) has undergone rapid population expansion throughout much of its historic range. There is mounting evidence that these populations are degrading the habitats they colonize primarily through the destruction of vegetation and the alteration of soil conditions, as well as competition with, and displacement of, other colonial waterbirds. The Double-crested Cormorant populations in New York Harbor have been monitored for the past twenty years, but little quantitative analysis has been undertaken to determine the effects of these growing populations on the New York Harbor ecosystem. This study elucidates the effects of waterbird colonies on their nesting habitats by examining plant and arthropod community structure as well as soil and leaf litter characteristics at colonized and non-

colonized plots. The results reveal that, beneath cormorant nests, plant species richness and percent cover are significantly depressed while arthropod abundance is elevated in comparison to non-colonized habitats. However, the environment beneath cormorant nests does not consistently differ from other colonial waterbirds in regards to plant and arthropod community structure, or soil and litter characteristics. These results suggest that cormorants are not currently more detrimental to their nesting habitats than other waterbirds.

Elbin, S. Update on Cormorant Research 2006 and Setting an Agenda for the Future New York Bioscape Initiative, Wildlife Trust, elbin@wildlifetrust.org

The New York Bioscape Initiative started a project focused on Double-crested Cormorants of the Greater New York Harbor in May 2006. We conducted surveys on all harbor islands where cormorants have nested/do nest and assisted New York City Parks (David Kunstler) with their survey of cormorants on Huckleberry Island. By tagging occupied trees with flagging tape, we were able to record individual nests per tree, and number of occupied trees per island. Recommendations are made as to timing of nesting surveys for cormorants, survey methodology, and additional habitat variables that could be measured during nesting surveys. In addition, we color marked (orange leg bands etched with black alpha-numeric codes) 198 fledgling cormorants: 189 on Swinburne Island and 9 on the Muskoot Reservoir. We recommend annual surveys and color banding of Double-crested Cormorants in the Greater New York Harbor as well as continued monitoring of the island vegetation and co-occurring species in order to evaluate possible detrimental impacts from cormorants as confirmed in the Lower Great Lakes.

Ellis, J.C. Gulls as Links Between Land and Sea in Coastal New England. Tufts Cummings School of Veterinary Medicine, julie.ellis@tufts.edu

Exchange of nutrients and materials among ecosystems has long been recognized, however a theoretical framework for this process has only recently been generated. Seabirds are conspicuous components of coastal habitats, and play an important role as links between land and sea. Our studies show that Great Black-backed (*Larus marinus*) and Herring gulls (*L. argentatus*) are important predators in rocky intertidal and shallow subtidal zones throughout the Gulf of Maine. The jonah crab, *Cancer borealis*, is a particularly important prey of gulls; gulls are capable of removing 25-50% of the intertidal standing stock of jonah crabs every diurnal low tide during the summer. Gull predation on crabs generates significant cascading effects on intertidal mesopredators and dominant space occupiers. Gulls and other seabirds also introduce large amounts of marine-derived nutrients to land thereby altering resources availability to terrestrial species. Our studies show that nutrient inputs by gulls and cormorants can greatly increase soil nutrient concentrations and alter the species composition of plant assemblages in colony areas. Variation in nesting density and breeding behavior among seabird species can substantially affect the magnitude of its effects on terrestrial habitats. In the Gulf of Maine, gulls impact three ecosystems: 1) the subtidal and 2) intertidal zones where they remove large numbers of mobile invertebrate predators, and 3) terrestrial habitats where they nest and alter soil nutrients and plant assemblages.

Feller, M.¹ and Wenskus, T.² Restoration on North Brother Island.

¹ Chief Naturalist, Natural Resources Group, City of New York Parks & Recreation, 1234 Fifth Avenue, New York, NY 10029. michael.feller@parks.nyc.gov

² Tim Wenskus, Deputy Director, Natural Resources Group, City of New York Parks & Recreation, 1234 Fifth Avenue, New York, NY 10029.

During 2005, a significant restoration project was undertaken to change the structure of 1.8 acres of North Brother Island, off the coast of the Bronx. Invasive non-native trees, mostly norway maple (*Acer platanoides*) which were not being utilized for nesting, were removed, and 4,552 trees and shrubs more appropriate for nesting by a variety of bird species, including herons, were planted. Ecology of the island and details of the restoration will be presented.

Gelb, Y. The Harbor Herons Conservation Plan.

Program Director, New York City Audubon, 71 West 23rd Street, New York, NY 10010. ygelb@nycaudubon.org

For the first time in history more people live in cities than in rural areas. This means that more and more, the majority of residents from the bi-state region are experiencing birds and nature mostly within the metro region. The Harbor Herons Conservation Plan identifies research, habitat, and education and outreach priorities that will ensure the present and future health of the Harbor Herons – the herons, egrets, and ibis that nest and feed in the New York – New Jersey Harbor Estuary region. Recognizing these birds as an irreplaceable natural wonder in our region, the plan emphasizes the need for non-profits, government agencies, universities, and all other stakeholders to work together in realizing these priorities. The Plan will work to ensure that the Harbor Herons continue to thrive side-by-side with humans in one of the most developed estuaries in the world.

Grubel, C. Feeding Dynamics of the Double-crested Cormorant (*Phalacrocorax auritus*)

Population in New York Harbor

Queens College/City University of New York. vombatidae@juno.com

Pellets and bolus samples of fish and invertebrates dropped by Double-crested Cormorants (*Phalacrocorax auritus*) were collected on South Brother and Swinburne islands in New York Harbor during the breeding and chick-rearing season of 2006. Bolus samples were identified to the genus and species levels. Overall, 24 genera and 25 species were identified comprising 20 species of fish, 3 species of crustacean and 1 mollusk. The diets of the two communities were compared for similarities in composition. Preliminary findings indicate a low level of overlap between the diets of the two communities. Research will continue into analysis of pellets and a second field season in 2007. More research is needed to fully understand the nature and impact of the *P. auritus* diet in New York Harbor.

Kisiel, C. Updates on Survey and Research Work in New Jersey
NJ Division of Fish and Wildlife – Endangered and Nongame Species Program.
ckisiel@gtc3.com

Aerial surveys of the Atlantic coast marshes have been conducted in NJ for long-legged waders and Larids since 1984. Surveys took place in 1984, 1989, 1995, 2001, 2004 and 2005. All populations of long-legged wader species, except Great Egrets, appear to be trending downward. However, research has shown that aerial surveys underestimate population numbers, especially for dark plumaged species. In 2004 and 2005, ENSP compared different survey techniques in an effort to better interpret the actual population trends in New Jersey. The techniques tested were aerial survey, perimeter counts, flight line counts and post season nest counts. The comparison of techniques confirmed that NJ's aerial surveys are probably underestimating the population of colonial waterbirds. Perimeter counts showed potential for accurate counts, but are limited by the size of a colony. Flight line counts were the least useful method in this study, although they did reveal the presence of some species that were missed on the aerial survey. Post-season nest counts were instrumental in showing that aerial surveys underestimated populations. Despite the positive experience with some of these techniques, none proved to be as time efficient as the aerial survey. The aerial survey will continue to be the primary method of counting colonial waterbirds in NJ, although additional research of other options will continue to inform interpretation of the results.

Upcoming management projects taking place in NJ include the restoration of the Stone Harbor Bird Sanctuary, and restoration of dredge spoil sites to long-legged wading bird nesting habitat. Upcoming surveys include an Atlantic coastal aerial Larid survey and a secretive marsh bird survey in the Skylands landscape region. Upcoming research includes a comparison of methods for estimating coastal larid populations and a Black Skimmer disturbance study.

Kubiak, T. Natural Resources Damage Assessment Update for Diamond Alkali, Superfund Site.
tim_kubiak@fws.gov

A good summary of actions as well as in-depth data are available at:
<http://www.ourpassaic.org/>

Kunstler, D. Update on Goose and Huckleberry Islands
N.Y.C. Parks & Recreation. David.Kunstler@parks.nyc.gov

Goose Island. After a jump in population in 2005, Great Egrets are back at the 2002-2004 level of low 20s. Production of young is below a suggested level of sustainability for this species. The Snowy Egret population appeared to rise slightly to 18-21 nests, but it will need some time to attain 2002-2004 levels of about 30 to low 40s of nests again. Enough young birds seem to be produced in order to maintain their numbers. The Black-crowned Night-Heron was probably the first to colonize Goose Island and perhaps the only wading

bird nesting on the island prior to 1996. 2006 was a near record year for this species at 64 nests. Nestling production is and has been well above the level necessary for long term population maintenance. Yellow-crowned Night-Heron had perhaps only one nest, the lowest estimate since 2001. However, the colony may be remarkable in having had at least one apparent pair or nest each year since the heronry was discovered in 1996. The colony was climbing in numbers generally until 2002-2003 when the three common species more or less reached a plateau. Their numbers are now fluctuating. The absence of Double-crested Cormorants thus far has helped insure the success of this colony compared to Huckleberry Island with its large cormorant population.

More simultaneous daytime nest and adult counts of Great Egrets on Goose Island (and perhaps other colonies) should be conducted in which the results are compared with adult counts at dusk the same day. The aim would be to ascertain the accuracy of adult counts and any increase in the number of adults during a ground survey. It is thought that on Goose Island, the nest counts are most accurate, but adult dusk counts would be the most accurate for the Great Egret. With the planting of various shrub and tree species in a sizeable opening, there will hopefully be an increase in the number of potential nesting sites over the next several years leading to a similar increase in the number of nesting waterbirds. A webcam focusing on nesting birds is nearly ready to be erected on the island and spearheaded by NYC Audubon.

Huckleberry Island. Double-crested Cormorants increased slightly. Their numbers peaked at 830 nests in 1995, but still continue to exert a negative impact on the island's degraded forest, which is now a broken canopy of Norway Maple, and the wading birds that also nest. Great Egrets quickly peaked at 114 nests in 1989, later numbered in the 20s or 30s and have numbered 8 or 12 over the last 4 years. They only nest in one section of the island where Sassafras may be slowly replacing the lost hardwood nest trees. The Snowy Egret population experienced its 2nd year of its 2nd absence. The loss of snowies appeared a little less sudden than that in 1992, but there was no apparent reason this time. Black-crowned Night-Herons only numbered a dozen nests and like the Great Egrets are affected by the vegetation damage caused by the cormorants. An unprecedented 8 pairs of American Oystercatcher were sighted, but this is not expected to continue. The usual level is 2 pairs. Another pair was seen on tiny rocks south of Huckleberry after leaving the island. Herring and Great Black-backed gulls continued at very low population levels.

Master, T.L., Detwiler, D. and B. Romano. Wading Birds In The City: Habitat Selection And Competition On The Susquehanna River In Harrisburg, Pennsylvania.
Department of Biological Sciences, East Stroudsburg University. Pennsylvania.
tmaster@po-box.esu.edu

Pennsylvania's largest wading bird colony, containing Great Egrets, Black-crowned Night-Herons and Double-crested Cormorants, is located on Wade Island in the Susquehanna River within the city limits of Harrisburg, Pennsylvania. Management concerns, partially stemming from recent exponential increases in the nesting cormorant population, prompted the current study of habitat use of and competition among the three colony species. Studies to date have shown that Great Egrets travel extensively along the river, primarily to the north of Wade Island at a landscape scale and that locally they prefer feeding in shallows

surrounding islands vegetated with Water Willow (*Justicia Americana*). Their diet is composed primarily of a variety of small fish, toad tadpoles (*Bufo spp.*) and rusty crayfish (*Cercopagus pengoi*) depending somewhat on water depth, age and nesting chronology. Observational data indicate that night-herons utilize the same foraging habitat, in addition to the river shorelines, but prefer crayfish. Cormorants forage primarily in open water on larger fish species including small-mouthed bass (*Micropterus dolomieu*). Studies are continuing this summer and will include continued use of egret decoys to attract existing colony individuals to new island nesting sites.

Padula, V.¹, Newman, S.H.², Bernick, A.³, Burger, J.⁴, and Elbin, S.¹ Health Assessment of Black-crowned Night-Herons (*Nycticorax nycticorax*) of the New York Harbor Estuary.

¹Wildlife Trust, 460 West 34th Street, 17th Floor, New York, NY 10001.

vmp2011@gmail.com

²Food and Agriculture Organization of the United Nations, Viale delle Terme di Caracalla, Rome, ITALY 00100

³CUNY-Graduate Center/NYC Audubon

⁴Rutgers University, Nelson Labs 604 Allison Road, Piscataway, NJ 08854-8082

Measurements from 85 Black-crowned Night-Heron (*Nycticorax nycticorax*, BCNH) chicks (mean age 3 weeks) were taken from four island colonies in New York Harbor in 2004 and 2005 (Goose (2004), Canarsie Pol (2005), Hoffman (2004 and 2005) and North Brother (2004 and 2005)) to establish reference ranges for this species and to compare health indices of birds reared on different islands. In 2004, heron white blood cell counts (WBC) were higher on Hoffman Island compared to North Brother Island, however no difference was observed in 2005. Packed cell volume (PCV) and total solids (TS) did not differ among islands in either year. Herons reared on Hoffman Island in 2004 had higher activities of creatine phosphokinase (CPK), lactate dehydrogenase (LDH), aspartate amino transfersase (AST), higher concentrations of potassium (K) and phosphorous (PHOS) and lower liver derived proteins (TP, prealbumin, albumin, alpha 1 globulins, alpha 2 globulins, beta globulins and gamma globulins) compared to herons from Goose Island and North Brother Island. These changes suggest compromised health in chicks reared on Hoffman in 2004. On Hoffman in 2005, these biochemical analytes did not differ from concentrations and enzyme activities measured in birds from other islands. Although no single etiology can explain these extensive changes, it is likely that exposure to contaminants at foraging sites used by birds nesting on Hoffman or changes in prey availability and abundance resulting in birds foraging in different locations between years led to differences measured in blood-based health indices. Currently, feathers collected from BCNH chicks are being analyzed for concentrations of mercury (Hg), lead (Pb), cadmium (Cd), arsenic (As) and chromium (Cr). Linking avian health assessments coupled with foraging ecology serves as an excellent method for evaluating the health of the New York Harbor estuary system

Russell, G. and A. Rosales. Sociability Leads to Instability: A Metapopulation Model of the Heron and Egret Nesting Colonies in New York Harbor.
Rutgers University. russell@njit.edu

We present a general model of the population dynamics of a colonially breeding organism on a connected network of patches. We are motivated by the observed breeding population dynamics of various heron and egret species on the islands of New York Harbor and Long Island Sound. We want to understand why a) the populations fluctuate dramatically, with frequent extinctions and recolonizations, and b) there appear to be ‘empty’ nesting sites. Our hypothesis is that both these observations can be explained by the intrinsic properties of the system, namely, the birds’ desire to aggregate, combined with a simple, global limit on the number of nesting pairs imposed by poor foraging resources. Our model does indeed produce dynamics that are qualitatively very similar to those observed in the field. In light of this, we emphasize the importance of managing this system as dynamic, connected system, and caution against interpreting dramatic population changes on particular islands as evidence of rapid changes in local habitat quality, predation pressure, or disturbance. (These changes may, of course, be occurring also, but independent evidence is needed.) Finally, we discuss how our model may be further tested, and the implications for future research and monitoring efforts.

Taylor, J. D.¹, T. L. DeVault², R. B. Chipman³, B. Dorr⁴, and S. C. Barras⁴

Documenting Efficacy of a Non-lethal Double-crested Cormorant Hazing Program.

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⁴USDA Wildlife Services, National Wildlife Research Center, P.O. Box 6099, Mississippi State University, MS 39762

The population of Double-crested Cormorants (*Phalacrocorax auritus*) on Oneida Lake, New York, increased at an annual rate of 20% per year from 1984 to 1997. Fall population numbers, regardless of biological carrying capacity, exceeded acceptance capacity with local wildlife stakeholder groups and resulted in the formation of a Citizens Task Force by the New York State Department of Environmental Conservation in 1996. Stakeholder concerns on the lake predominantly focused on aesthetic and economic values associated with changes in recreational fisheries. In 1998, New York Wildlife Services initiated a non-lethal hazing program, using pyrotechnics, boat chases, and other fear-provoking stimuli, to manage Double-crested Cormorants in central New York. Concurrent with hazing, regular monitoring of cormorant population levels has been conducted via road and lake surveys, and cormorant movement patterns have been evaluated with VHF and satellite telemetry.

Our results indicate that since 1998, the mean number of cormorants using Oneida Lake has declined by 92% compared to previous years (1995-1997), despite increasing populations of cormorants in the Great Lakes region. Further, we have documented no adverse effects of hazing on non-target species. Cormorants shifted diurnal use between

lakes and roosts within the central New York watershed during hazing. Future work will further evaluate relationships between fish community structure in Oneida Lake and cormorant use of the lake.

Tripp, K. and J. Browning. Piping Plover Management at Gateway.
Jamaica Bay Institute, Gateway National Recreation Area, HQ Building 69, Floyd Bennett Field, Brooklyn, New York 11234. kim_tripp@nps.gov

Piping plovers (*Charadrius melodus*) nest throughout Gateway National Recreation Area (Gateway). In the Jamaica Bay Unit, plovers are regularly seen at the Breezy Point Tip, West Beach, Fort Tilden, and Jacob Riis Park. They are also found along Sandy Hook in the New Jersey portion of Gateway. Nesting success has fluctuated through the years since monitoring began in 1988. The greatest number of chicks fledged (77) actually occurred this past nesting season, 2006. The lowest number of fledglings (9) occurred in 1996. Fledging success rate (# chicks/ # nests) was the highest in 2002 (1.92). The lowest occurred in 1996 with a fledging rate of just 0.18. The regional goal for plover recovery is a fledging success rate averaging 1.5 over a five year period (USFWS 1996). Conservation of this federally threatened species requires intensive management. When they select nesting sites in March; all is ideal. However, pressures mount when beach lovers and sun bathers visit these same beach sites by the thousands. Plovers experience: disturbance, egg and chick crushing, and predation by animals attracted by human presence (e.g. rats, cats, crows, sea gulls). Park managers ameliorate these impacts by constructing exclosures that function to protect the nest from predation. Symbolic fencing cordons off an area unavailable to the public and buffers the plovers from major disturbances. In addition to all of these threats, major storms and super high tides can flood a nest or force a pair to abandon their nest, exposing the eggs to the elements. This vulnerability is steadily increasing due to the stabilization effects of the terminal jetty at Breezy Point Tip. The vegetation is getting denser and is expanding into the beach strand, narrowing the zone between the high tide line and the foredune. Gateway is considering an experimental area of vegetation removal to address this habitat reduction. All of these management measures implemented and proposed benefit Piping Plovers and other shorebird species, such as Common and Least Terns, oystercatchers, skimmers, and the federally endangered Roseate Tern.

Tsipoura, N. and D. Mizrahi. Avian Abundance and Distribution in the New Jersey Meadowlands District.
New Jersey Audubon Society. nellie.tsipoura@njudubon.org

The Meadowlands is a diverse mosaic of habitats that include tidal, brackish, and freshwater emergent wetlands, forested wetland, upland deciduous forest and early successional habitats. In 2004, the NJMC contracted New Jersey Audubon Society to systematically conduct two full years of avian surveys in the Meadowlands District, starting in August 2004. A total of 118 points at 28 sites was surveyed from the end of August 2004 through August 2005. We report the results for the first year of the study.

We determined frequency of occurrence (percentage of points where seen) for each species of colonial waterbird seen, and also the total and maximum numbers counted. Long-legged wading birds and cormorants are not breeders in the District but forage in many of its waterways and marshes during the breeding season.

Double-crested Cormorant (*Phalacrocorax auritus*) was the most widespread colonial waterbird other than gull species, recorded at 70% of survey points and also most abundant with 2930 total individuals seen during the first year of the study. This species also had the maximum count for a single cycle among all colonial waterbirds (1189). Among long-legged colonial waterbirds (e.g. heron, egrets) Great Egret (*Ardea alba*), Snowy Egret (*Egretta thula*) and Great Blue Heron (*Ardea herodias*) were the most widespread, occurring at 64%, 47% and 40% of the survey points, respectively.

We also examined seasonal patterns of occurrence for these species. Double-crested Cormorants are present throughout the year, but occur in great numbers in late summer and fall, suggesting that they use the District waterways as a fall migration staging-site. The maximum number of cormorants seen during one survey cycle was 1189 seen between September 29th and October 13th, 2004. Among long-legged colonial waterbirds Great Egret and Snowy Egret were most abundant during the post-breeding season. Great Egret numbers peaked from late-August until October, and Snowy Egret numbers peak in mid-August.

Other species of significance in the Meadowlands District are the state threatened Black-crowned and Yellow-crowned Night-Herons. These birds were seen in smaller numbers, but in this project were not surveyed systematically in a manner to obtain accurate information on their abundance.

Weseloh, D.V. Chip¹ and F. Cuthbert². The Great Lakes Colonial Waterbird Monitoring Scheme, 1976-2007: Decadal and Annual Monitoring.

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During the last 30 years, federal, provincial and state agencies in Canada and the U.S. have co-operated to conduct decadal and annual population surveys of colonial waterbirds that nest on the Great Lakes. **Decadal** surveys are designed to census all 14 species of colonial waterbirds that nest on the Great Lakes; **annual** surveys are designed to census colonial species whose populations are changing very rapidly, mainly the Double-crested Cormorant. The objective of this population monitoring is to track the spatial and temporal changes in Great Lakes colonial waterbird populations to insure the conservation of rare species and to monitor potential impacts of super-abundant species. Different methodologies will be discussed.

Decadal populations of Ring-billed Gulls (RBGUs), Herring Gulls (HERGs) and Caspian Terns (CATEs) increased from the 1970s to the 1980s and were relative stable thereafter. Great Black-backed Gulls (GBBG) and Double-crested Cormorant (DCCO) populations increased dramatically from the 1970s through the 1990s. Common Terns (COTEs) declined during each of the ten-year periods. At the end of the 1990s, the approximate

populations of each species were: RBGUs = 600,000 pairs; DCCOs = 90,000 pairs; HERGs = 75,000 pairs; COTEs = 8,200 pairs; CATE = 6,100 pairs and GBBGs = 45 pairs. Lake Ontario had the greatest populations of RBGUs and GBBGs, Lake Huron had the greatest populations of HERGs and COTEs, Lake Michigan had the greatest populations of CATEs and DCCOs.

Annual surveys of cormorant nesting on Lake Ontario have been conducted for more than 25 years. Cormorant numbers have increased from 315 pairs in 1979 to 20,692 pairs in 2006. In the last 10 years, the population centers of DCCOs on Lake Ontario have shifted from the Eastern Basin to the Central Basin to the Western Basin as cormorants have moved away from areas of intense management. Egg oiling and/or culling have been used as management tools on Lake Ontario since 1999. Annual censuses for cormorant populations have proven essential to track possible impacts to other species and to assess management activities.

Weseloh, D.V. Chip and D.J. Moore. Variable Impacts of Cormorants on Black-crowned Night-Herons at 4 Ontario Breeding Colonies.

Canadian Wildlife Service, Toronto, Ontario. Chip.Weseloh@ec.gc.ca

In 2006, we conducted a study to quantify the fate of Black-crowned Night-Heron (BCNH) nests as well as the rate and outcomes of interactions between tree-nesting BCNHs and Double-crested Cormorants (DCCOs). Data were collected at four locations on the Great Lakes where BCNHs and DCCOs co-nested: Hamilton Harbour (HH), Toronto Harbour (TH) and Presqu'île Provincial Park (PPP; all on Lake Ontario) and Chantry Island (CI; Lake Huron). At HH and TH, where BCNHs and DCCOs nested in close proximity to each other, 28.1% and 59.7% of initiated BCNH nests, respectively, were taken over or destroyed (through theft of nesting material) by DCCOs. For example, at TH, although 119 BCNH nests were initiated, there were 52 active nests at the start of the study and 48 at the end of the study; 71 nests were taken over or "disappeared" during the study. In contrast, <1% of BCNH nests were affected at PPP and CI, where there was segregation of nesting areas (habitat) between these species. At HH, many BCNHs appear to have re-nested, but initiation of second nesting attempts was delayed by about a month. Some birds presumably re-nested at TH as well. We found no difference in BCNH brood size at fledging age among sites. We found evidence that DCCOs displaced BCNHs from preferred nesting sites within trees. At HH, BCNHs nested at higher elevations at a subcolony where DCCOs were not present (2.8 ± 1.1 m) than at subcolonies where DCCOs were present (1.8 ± 0.8 m). At subcolonies where the two species occurred together, BCNHs nested at a significantly lower elevation in trees that contained DCCOs (1.5 ± 0.7 m) than in trees without DCCO nests (1.9 ± 0.8 m). In trees where both species nested, BCNH nest height was negatively correlated with DCCO nest density. These negative impacts of co-nesting with DCCOs, which have undergone a rapid population increase, may explain recent declines in the number of BCNH colonies on the Great Lakes.



Presenter Biographies

Carl Alderson

Carl Alderson is the Coastal Restoration Specialist at the NOAA Restoration Center, Sandy Hook, NJ, Office.

Andrew Bernick

Andrew Bernick received his undergraduate degree in Wildlife Biology and Management from the University of Rhode Island in 1993, and is currently completing a doctoral degree in Ecology, Evolutionary Biology, and Behavior at the City University of New York-Graduate Center. His research interests include foraging ecology, population dynamics, and conservation of wading birds in urban ecosystems; the role of birds in infectious disease transmission (e.g. Lyme disease, West Nile virus); and the use of satellite telemetry in animal tracking. Mr. Bernick has collaborated on a variety of bird studies in New York with both non-profit and governmental agencies (NYC Parks, National Park Service, Wildlife Trust), and currently leads wading bird surveys for NYC Audubon's Harbor Herons Project.

Joanna Burger

Joanna Burger is a Distinguished Professor of Biology at Rutgers University whose primary interests are in the adaptive significance of social behavior in vertebrates, the effects of incubation temperature on behavioral development, the effects of heavy metals on neurobehavioral development, and ecological risk. In the area of social behavior she works mainly with marine and coastal birds, including the effects of people on reproductive success and ecology of colonial species. The work on reptiles involves examining how the behavior of snakes is influenced by incubation temperature, including locomotion, antipredator behavior, foraging, and over-wintering.

For several years she has been examining patterns of heavy metal distribution worldwide, using avian feathers as indicators. This ongoing work involves examining the effects of low level lead, chromium and manganese exposure (similar to what children get when they eat lead paint) on behavior development of Herring Gulls, both in the field and in the laboratory. Her work with ecological risk assessment has included many different species and habitats. She is currently working at the Department of Energy's Savannah River Site in South Carolina, developing ecological risk methodologies. She sits on the U.S. National SCOPE Committee, is on the National Academy of Sciences Committee of Endocrine Disruptors, and has participated in several international SCOPE committees on ecological risk, mercury, and hazardous wastes.

Hugh Carola

Hugh Carola is the Hackensack Riverkeeper's program director. Hugh holds a Bachelor's Degree in Political Science from Ramapo College of New Jersey. Shortly after graduating in 1980, Hugh began a career in retail management that lasted until 1999. In 1999, Hugh spent six months working as a volunteer assistant to Capt. Bill Sheehan, the Hackensack Riverkeeper. His new career began in July of that year when he was hired as coordinator for the Hackensack Meadowlands Preservation Alliance (HMPA). Under Hugh's

leadership, the HMPA grew from twelve members to a coalition over one hundred groups by January 2001.

In January 2001, Hugh joined the staff of Hackensack Riverkeeper as program director. He oversees the organization's Eco-Programs that serve thousands of people annually. In 2002, Hugh earned a Limited Master of Inland Waterways license from the U.S. Coast Guard and since then has conducted hundreds of Eco-Cruises aboard the Riverkeeper vessel *Robert H. Boyle*. Hugh is also the organization's wordsmith, writing the majority of Hackensack Riverkeeper's press releases, policy documents and official correspondence.

In 2001, Hugh helped co-found the New Jersey Catholic Coalition for Environmental Justice (NJCCEJ) and currently serves on its Coordinating Committee. In 2004, he was named a Trustee of Garden State EnviroNet, New Jersey's only statewide, cyber-based environmental news service. In January 2005, Hugh was honored by the Alliance for New Jersey Environmental Education (ANJEE) and received its Outstanding Environmental Educator Award for 2004.

Elizabeth Craig

Elizabeth Craig is an undergraduate at Columbia University's Department of Ecology, Evolution and Environmental Biology. She has worked for 4 years as a wild bird rehabilitator and is currently researching the impacts of Double-crested Cormorants on their nesting habitat in the New York Harbor. She hopes to continue researching colonial waterbirds in the future, with a focus on population dynamics and conservation.

Travis L. DeVault

Travis L. DeVault is a Research Wildlife Biologist with USDA Wildlife Services, National Wildlife Research Center. He received a B.A. and M.A. in biology from Indiana State University and a Ph.D. in wildlife science from Purdue University. His current research interests include ecology and management of fish-eating birds, vertebrate food habits and foraging behaviors, trophic interactions, and resolution of human-wildlife conflicts.

Susan Elbin

Susan Elbin, Senior Scientist, is the Director of Wildlife Trust's New York Bioscape Initiative. Susan directs the research program, which concentrates on issues that have emerged as a result of suburban sprawl in the region: over-abundant and invasive species, human-wildlife conflict, and ecotoxins. In addition to leading the initiative, Susan conducts research in behavioral ecology. Her current research projects include work on over-abundant and invasive species, studying the distribution and abundance of Mute Swans, an invasive species, in the Hudson River Estuary and a similar study of Double-crested Cormorants, a native but potentially over-abundant species in the New York Harbor, and to assess their potential impact on the biodiversity of the river. Susan received her PhD from Rutgers University. Susan is the co-chair of the Harbor Herons Subcommittee.

Julie Ellis

Julie Ellis is the SEANET (Seabird Ecological Assessment Network) coordinator out of Tufts University, Cummings School of Veterinary Medicine. She received her Master's

degree from the University of Kansas where she spent two field seasons on the Washington coast studying ecology of a gull hybrid zone. As a doctoral student in the Department of Ecology and Evolutionary Biology at Brown University, Julie conducted most of her research at the Shoals Marine Laboratory located in the Isles of Shoals, NH/ME. Her dissertation focused on two main foci: gulls as keystone predators in rocky intertidal habitats and seabirds as agents of disturbance in terrestrial habitats. As a postdoctoral fellow at Cornell University, Julie continued work on a variety of projects related to seabird ecology. Her current research activities include genetic studies of Herring Gulls and Great Black-backed Gulls, banding gulls for studies of dispersal and population trends, effects of introduced predators on seabird populations, and effects of changing seabird populations on island ecosystems.

Michael J. Feller

Michael is the Chief Naturalist for the City of NY Parks & Recreation, Natural Resources Group. He has a degree in Anthropology from SUNY, Albany and has done graduate work in Archaeology, Ethnobotany, and Cultural Ecology. This is his 24th year at Parks performing and supervising natural resources inventory, protection, management, restoration, interpretation, and policy formation throughout New York City.

Colin Grubel

Colin completed his undergraduate degree in Biology at Alfred University in 1999. He was a zookeeper in both Ross Park Zoo in Binghamton, NY and Zoo Atlanta, GA for 4 years before deciding to pursue his Masters degree at Queens College. The presented material covers the preliminary findings in his thesis work. He is eager to begin the next field season.

Christina Kisiel

Christina Kisiel works in the coastal region for the NJ Division of Fish and Wildlife Endangered and Nongame Species Program. The primary focus of her work is with beach nesting birds (Piping Plover, Least Tern, Black Skimmer and American Oystercatcher) and marsh-based waterbirds (long-legged waders, bitterns, grebes, rails). She has been with the Program since 2002, when she started as a seasonal with the beach nesting bird project. Christina has also worked for the National Park Service, National Forest Service, State Park Service, The Nature Conservancy, and Audubon Society. She graduated in 1999 with a B.S. from Richard Stockton College of New Jersey and is currently working on her M.S. in ecology and evolution from Rutgers University. Her research entails conducting a retrospective analysis of spatial patterns among nesting Piping Plovers from 1987-the present. Patterns detected during the analysis will be used to make recommendations for management plans throughout the state with a goal of increasing the Piping Plover population.

Tim Kubiak

Tim Kubiak is the Assistant Supervisor for Environmental Contaminants for the New Jersey Ecological Services Field Office of the U.S. Fish and Wildlife Service. Mr. Kubiak began his Federal Government career with Region 7 of the U.S. Environmental Protection Agency in 1974. He has served in a variety of positions in U.S. Fish and Wildlife Service, both in the Field and Washington Offices since 1978. Mr. Kubiak has been extensively

involved with contaminated sediments and environmental pollutants while working for the Service. He has particular expertise in the ecotoxicological effects of PCBs and dioxins and has published extensively. Mr. Kubiak holds a Bachelor of Science degree from the College of Natural Resources at the University of Wisconsin – Stevens Point and a Master of Public Affairs degree from the School of Public and Environmental Affairs at Indiana University – Bloomington.

David Künstler

David S. Künstler received a B.A. in Biology from Southampton College of Long Island University in 1977 and an M.A. in Biology from SUNY New Paltz in 1982. Various properties that were biologically surveyed for hopeful (and ultimately actual) protection include Wodaembarc in Northport; Freilich Farm, Cold Spring Harbor; and Fish Thicket Nature Preserve in North Patchogue, which includes Threatened Pitch Pine-oak-heath woodland and Endangered Pitch Pine-scrub oak barrens (oak brush plains). He began working for N.Y.C. Parks in 1985, in the Natural Resources Group 1985-1986, and on Pelham Bay Park Natural Areas Management Plan in 1988. He then went on to Van Cortlandt and Pelham Bay Parks Administrator's Office as Wildlife Manager. Dave contributed to the Pelham Bay Park Management Study (1987), finding and managing rare plants and wildlife, revegetating and managing PBP landfill, reintroducing herptiles, attracting nesting bluebirds, working with old field and old-growth forest restorations and conducting wildlife censuses.

Terry Master

Terry L. Master graduated from Muhlenberg College with a B.S. in Biology in 1976, from East Stroudsburg University with an M.S. in Biology in 1980 and continued on for his Ph.D. at Lehigh University, graduating in 1989. He began teaching at East Stroudsburg University the same year and remains there as a Professor in the Department of Biological Sciences. Current research activities, in conjunction with graduate students, include investigation of competitive interactions and habitat use of Great Egrets, Black-crowned Night-Herons and Double-crested Cormorants at Pennsylvania's largest wading bird colony on Wade Island in the Susquehanna River, effects of woolly adelgid infestations on Acadian Flycatcher productivity and competitive interactions among headwater stream passerine species in Costa Rica. He and his wife, Sally, regularly conduct natural history tours to Costa Rica, the Galapagos Islands and East Africa.

Veronica Padula

Veronica Padula received her B.A. in Ecology, Evolution and Environmental Biology from Columbia University in 2006. She is currently a research intern at Wildlife Trust, continuing a health assessment of Black-crowned Night-Herons in New York Harbor that she began as a senior in college. Her main interest is in wildlife health, and how wildlife health is related to ecosystem health and public health. She plans to attend veterinary school in the future, and travel to many places around the world to do research.

Dan Rosenblatt

Dan Rosenblatt received his B.A. in Biology from Rutgers University in 1992 and his Ph.D. in Wildlife Ecology from the University of Illinois at Urbana-Champaign in 1999.

His research focused on the impacts of habitat fragmentation on species distributions and community composition. He has held positions as a Wildlife Refuge Manager on a private preserve in Connecticut, a Research Associate with the Illinois Natural History Survey and, with the New York State Department of Environmental Conservation, positions as an Endangered Species Biologist and Regional Wildlife Manager. While with the Illinois Natural History Survey, he worked on a project that focused on how the prevalence of edge habitats impacted the abundance of mammalian nest predators and ground-nesting bird productivity. Dan also created and populated the mammalian database used to construct the mammal coverage of the Illinois GAP Analysis Project. Dan came to the NYSDEC in 1999 to coordinate the Long Island Colonial Waterbird and Piping Plover Program and was promoted to Regional Wildlife Manager in 2000. He now has the responsibility of overseeing the implementation of all regional wildlife staff and programs within Nassau and Suffolk counties including Endangered Species, Hunter Education, Public Access, Special Licenses, Bird Conservation Areas, Deer Management, Furbearer Management, Nuisance Wildlife, Wildlife Pathology, Waterfowl, Upland Game Bird, Marine Mammal, Sea Turtle and Habitat Restoration Programs.

Gareth Russell

Gareth is an assistant professor in the Department of Mathematical Sciences at New Jersey Institute of Technology and the Department of Biological Sciences at Rutgers University. Gareth earned his BA at the University of Oxford and his PhD at the University of Tennessee. His current research is driven in large part by an intense interest in how complex ecological systems work. This interest manifests itself in a variety of specific research activities. One such activity involves the colonial wading birds of south Florida, and of Everglades National Park in particular. There are two main themes. One is analysis of the wading bird distribution data collected by the systematic reconnaissance flights (SRF). He and his coauthors have published one paper on this, and he is currently seeking funding to extend this work to predictive models of the response of various wading bird species in the Park to alternative water management scenarios. Another interest is information-based statistics in ecology, likelihood and Bayesian methods for estimating survivorship and related curves, small-world and other network models as they apply to ecological systems.

Kim Tripp

Kim Tripp earned her BS at Cornell University and her MS at North Carolina State University. She has worked as an endangered species biologist for the U.S. Fish and Wildlife Service for 8 years. Throughout those years she worked very closely on the recovery efforts for the Piping Plover. For the past 4 years, Kim has been the Director and Research Coordinator of the Jamaica Bay Institute- a program hosted by Gateway NRA which identifies, supports, and shares research findings on park resources to encourage science based decision-making within Gateway and beyond park boundaries.

Nellie Tsipoura

Nellie Tsipoura is the Director of Citizen Science for the Research Department at New Jersey Audubon Society, coordinating volunteer surveys of shorebirds during spring and fall migration, birds in the New Jersey Pinelands and in grasslands managed through state and federal landowner incentive programs. She is also managing projects investigating avian communities and contaminant levels in birds in the New Jersey Meadowlands

District. This work involves extensive mapping using GIS for developing survey points at the various sites as well as assessing distribution of birds.

She earned a Ph.D. from Rutgers University for work on ecophysiological and hormonal aspects of wintering and migration in shorebirds. She has over 20 years experience doing research on bird populations, including consulting work for NJ DEP with shorebirds in Delaware Bay, consulting work for the WCS with grassland birds in New York, and work for National Audubon Society on the Western Hemisphere Shorebird Reserve Network during its early stages.

John Waldman

In autumn 2004, Dr. John Waldman joined the faculty of Queens College as a tenured professor of Biology following his twenty year career at the Hudson River Foundation for Science and Environmental Research. He received his Ph.D. in 1986 from the Joint Program in Evolutionary Biology between the American Museum of Natural History and the City University of New York. His research interests focus on the ecology and evolution of fishes, especially the diadromous forms, the historical ecology of rivers and urban waterways, estuarine biology and, as of late, cormorants and other birds of New York Harbor. Dr. Waldman has authored more than 60 scientific articles and several books, including one on the environment of New York Harbor, *Heartbeats in the Muck*, another on marine phenomena and coastal pleasures, *The Dance of the Flying Gurnards*, and one on the ages-long battle of wits between mankind and fishes, *100 Weird Ways to Catch Fish*, and is an occasional contributor to the New York Times and various periodicals. He lives not too far from Long Island Sound in Sea Cliff, New York.

Tim Wenskus

Timothy J. Wenskus is the Deputy Director of the New York City Department of Parks & Recreation, Natural Resources Group. He received a B.S. in Forest Resource Management from SUNY College of Environmental Science and Forestry. He has fourteen years' experience successfully managing over six million dollars of woodland restoration projects including reforestation, invasive species control, and slope stabilization. Before joining Parks, Mr. Wenskus was a Forest Manager with the Urban Forest and Education Program (UFEP) of the City Parks Foundation where he planned and implemented forest management and restoration activities in the Bronx and north Manhattan, and managed a native tree nursery. Earlier in his career, Mr. Wenskus worked with the U.S. Forest Service in the Black Hills and Nez Perce National Forests. He is a regional expert on invasive plant management, has lectured at Rutgers University, Columbia University and the University of Pennsylvania, and is a board member of the Invasive Plant Council of New York State, and a member of the Long Island Weed Management Area.

D.V. Chip Weseloh

Chip Weseloh is Head Biologist of the Wildlife Toxicology Section for the Canadian Wildlife Service (CWS) - Ontario Region. He has worked on colonial waterbirds for 39 years and can trace his interest to a 3rd year undergraduate Ecology project. He completed an M.Sc. at Michigan Technological University on the effects of heron droppings on plant distribution within a breeding colony. For his Ph.D., he studied the urban ecology of gulls at Calgary, Alberta, where he individually colour-marked over 2500 Ring-billed Gulls.

Following graduation, he became the first Curator of Ornithology at the Provincial Museum of Alberta in Edmonton. He began work for CWS in 1978 in Toronto and has been at the same job ever since. He directs two major long-term avian monitoring projects on the Great Lakes: The Herring Gull Egg Contaminants Monitoring project - an annual surveillance project for contaminants and their effects in gulls - and the Canadian portion of the Great Lakes Binational Colonial Waterbird Census - a decadal monitoring program that censuses all waterbird colonies on the Great Lakes. Both projects have been underway since the early 1970s. The former is the longest running annual contaminants monitoring program for birds in the world and is in its 32nd year. The latter includes a 57-year database on cormorant numbers on Lake Ontario. Chip is also an active birdwatcher, a co-founder and current co-editor of the Ontario Field Ornithologist.



New York – New Jersey Harbor Estuary Program

<http://www.seagrant.sunysb.edu/hep/index.htm>

The New York – New Jersey Harbor Estuary Program

The NY-NJ Harbor Estuary Program (HEP) is a partnership of federal, state, and local environmental agencies, scientists, and citizens working together to protect and restore the natural resources of the NY-NJ Harbor Estuary. The Harbor Estuary is both a dynamic living ecosystem and a center of human activity. The goal of the program is to establish and maintain a healthy and productive harbor ecosystem with full beneficial uses.

Geographic Location

The NY-NJ Harbor Estuary encompasses the waters of NY Harbor and the tidally influenced portions of all rivers and streams flowing into it. The “core area” of the Harbor Estuary Program extends from Piermont Marsh on the Hudson River to an imaginary line at the mouth of the Harbor connecting Sandy Hook, New Jersey and Rockaway Point, New York (the Sandy Hook-Rockaway Point Transect). The core area includes the bi-state waters of the Hudson River, Upper and Lower Bays, Arthur Kill, Kill van Kull, and Raritan Bay. In New York, it includes the East and Harlem Rivers and Jamaica Bay, and in New Jersey, it includes the Hackensack, Passaic, Raritan, Shrewsbury, Navesink, and Rahway Rivers, and Newark and Sandy Hook Bays.

Planning and Goals

A Comprehensive Conservation and Management Plan (CCMP) for the Estuary was completed in 1996 and signed by the Governors of NY and NJ, along with the EPA Administrator, in 1997. The CCMP identifies eight areas of concern: habitat and living resources; toxics; dredged material management; pathogens; floatables; nutrients and organic enrichment; rainfall-induced discharges; and public involvement and education.

In 2004, HEP adopted a set of Targets and Goals to direct future efforts towards the restoration of a healthy estuary ecosystem that supports fishing and swimming, habitat and ecological health, public access, clean sediment and navigation, and stewardship. The goals represent levels of achievement that we are ultimately striving for and are recognized as not being easily achieved. The development of these Targets and Goals was inspired by a successful similar effort completed by the Chesapeake Bay Program in 2000.

Areas of Concern

Fishing and Swimming

Fishing and swimming in the Harbor is affected by many factors, such as pathogens, toxics, nutrients and dissolved oxygen levels, and floatable debris. The goal of HEP is that all of the Harbor waters will meet the fishable/swimmable goal of the Clean Water Act.

Habitat and Ecological Health

The Harbor Estuary encompasses an amazing diversity of habitats, such as beaches, mudflats, and wetlands that are home to an abundance of fish, birds, plants, and other organisms. The goal

of HEP is to preserve, manage, and enhance the Estuary's vital habitat, ecological function, and biodiversity so that the Harbor is a system of diverse natural communities.

Public Access

Public access to the water is important for boating, fishing, swimming and other waterfront leisure. There are many public access opportunities along 770 miles of waterfront in the core Harbor Estuary region, but access is still restricted in some areas. The goal of HEP is to increase public access points without harming important habitat areas.

Clean Sediment and Navigation

Toxic contaminants have accumulated in the sediment of the Harbor Estuary through inputs from major point sources and tributaries. These contaminants create challenges for the management and reuse of sediments dredged from the bottom of the harbor and continues to impact water quality and the biota that live in and around it. The level of some contaminants in fish and crabs make them unsafe for unlimited human consumption. The goal of HEP is that the Port of New York and New Jersey will be an integral and complementary part of the world-class NY-NJ Harbor Estuary that is environmentally sustainable, economically efficient, and safe for commercial and recreational navigation.

Stewardship

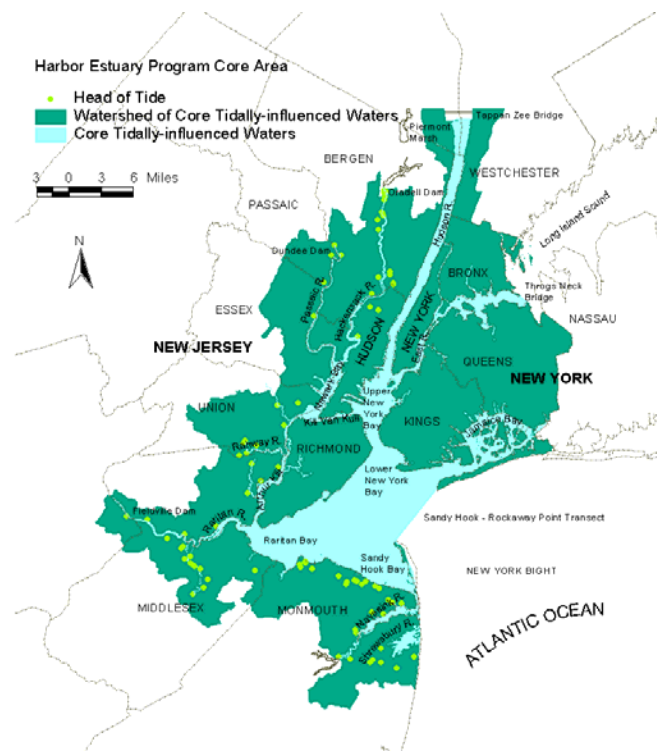
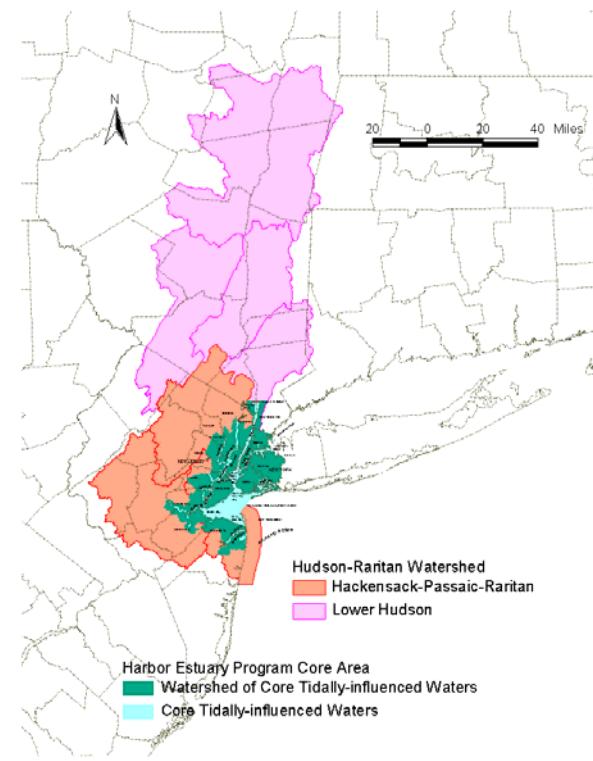
Active involvement in the protection and restoration of the Harbor Estuary is essential if we are to achieve a healthy harbor ecosystem for people and wildlife. The goal of HEP is to engage everyone who lives or works in the Estuary watershed as an active steward of the ecosystem.

What is an estuary and why protect them?

An estuary is a partially enclosed body of water where freshwater from rivers and streams mixes with saltwater from the ocean. All estuaries also have a watershed, the area of land where rainfall and other runoff collects and ultimately drains into the estuary. Estuaries are naturally rich in nutrients and organic matter from both land and sea, placing them among the most biologically productive ecosystems on Earth.

The amount of freshwater flowing into an estuary varies from season to season and from year to year. This variation, coupled with the daily rise and fall of the tides and the movement of saltwater up and down-river, creates a unique and dynamic environment. More than 80 percent of all fish and shellfish use estuaries as primary habitat or as feeding, spawning or nursery grounds during part of their lives. Estuaries also provide essential feeding, nesting, breeding, and nursery areas for birds and other diverse wildlife. Typical estuary habitats include beaches, mudflats, wetlands, bottom sediments, and the water itself.

In addition to natural resources, estuaries also support a wide variety of economic, cultural and recreational resources including ports and shipping, transportation, commercial fisheries, recreational boating and fishing, historic waterfronts, tourism and many more.



Maps of the Harbor Estuary Program's watershed (upper map) and core areas (lower map).



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Stay Connected.....

...via the list serve for Harbor Herons, Cormorants, and other Colonial Waterbirds of the Greater New York Harbor.

If you are not already on the Colonial Waterbirds List serve, please contact Susan Elbin at elbin@wildlifetrust.org with a request to have your email address added to the list serve.

