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Coastal Breeding Bird Monitoring

2013 volunteer coastal bird survey results for Boston Harbor Islands

Background

Boston Harbor Islands NRA includes 34 islands and peninsulas situated within the Greater Boston shoreline and is one of 13 park units included in the Northeast Temperate Network (NETN). The park is a Massachusetts Important Bird Area (IBA) and provides habitat for a significant number of colonial-nesting waterbirds, including Least and Common Terns, which are both listed as species of special concern in the state.

Birds are an important component of park ecosystems and are sensitive to changes within them. They operate close to the limit of their ecological tolerance, and their high body temperature, rapid metabolism, and high ecological position in most food webs makes birds an important indicator of ecosystem change at local and regional scales. A shift in environmental conditions or a change in the abundance of food sources could produce a change in their health, reproductive rate, or abundance. Because waterbird populations can fluctuate widely, a consistent and comprehensive long-term monitoring program was established in 2009 in order to accurately measure park population trends over time.

Results and Findings

Common Eiders

The high count for eider ducklings was 266 observed on June 5th, with 231 observed several weeks later. In previous years, major declines were evident during the month of June, suggesting that juvenile survival was unusually favorable this year. Similar numbers of female eider were detected in the area during both surveys in 2013, which lends additional credibility to this theory.

In general, Common Eider experience high annual adult survival rates (over 80% in several studies), but also a highly variable degree of reproductive success in any given year and years of 'near disaster' are not uncommon. In a stable population, low survival of young is compensated for by their comparatively long average life span for birds (5 to 6 years). The number of ducklings observed in 2013 was within the range generally observed in the park in recent years.

Cormorants and Gulls

Ground-based surveys of nesting gulls were conducted on Great Brewster, Gallops, and Hangman Islands. In addition, ground-based surveys of nesting gulls and cormorants were conducted in conjunction with wading bird surveys on Sheep and Sarah Islands.



The Great Black-backed Gull colony on Hangman appears to be stable according to survey data over recent years. Carol Lynn Trocki photo.



A marked sample photo mosaic from Green Island taken in May 2013 during a boat-based survey of the Outer Harbor Islands. Photos such as this help volunteers and project scientists to better estimate nesting activity on park islands. NPS photo.

A boat-based survey of gulls and cormorants was conducted in the Outer Harbor Islands on May 28th. The mean total numbers of nests observed were 983 Double-crested Cormorant nests, 107 Great Black-backed Gull nests, and 379 Herring Gull nests. Boat-based surveys of incubating cormorants and gulls are safe and efficient to conduct, but produce highly variable results due to differences in observers and survey conditions. Because of several competing survey priorities in 2013, there was only a single survey that took place rather late in the season when many eggs had hatched. Nests are easiest to identify during the peak of incubation when a single adult is a near constant presence at each nest. Once eggs hatch it becomes much more difficult to estimate nests, which may help explain the wide range of variability in the numbers observed.

Ground-based nest surveys for gulls and cormorants are more precise than boat-based methods, but require considerably more effort, are not feasible using volunteers at cliff-based colony sites, and cause much greater disturbance to nesting individuals. Ground-based surveys were conducted on islands where colony sites were accessible and where colonies have historically been sampled this way. When compared to prior state-wide surveys conducted in 1994-5 and 2006, it appears that Herring Gulls have declined significantly park-wide, while Great Black-backed Gulls are fairly stable. Double-crested Cormorants have increased significantly on Sheep and Sarah since counts in the mid-90s. A more in depth trend analysis of existing data is planned for the 2014 field season, which should shed more light on emerging trends for these species.

Wading Birds

Wading bird colonies on Sarah and Sheep Islands were comprehensively surveyed in 2013. Compared to numbers observed in 2009, it appears that Black-crowned Night Herons and Snowy Egrets

have declined significantly on Sarah, but increased somewhat on Sheep. Disturbance is always a concern for this group of species. Surveys on Sarah Island, the largest colony in the park, were carried out by two teams of experienced observers under ideal weather conditions at the height of incubation in mid-May. No evidence of extreme stress, such as overheated young, branching older young, or harassment by predators was observed.

American Oystercatchers and Willets

A combination of boat-based and ground-based surveys detected a total of 20 American Oystercatcher pairs on 11 islands, though only one pair is known to have successfully fledged chicks. Three pairs of territorial Willets were detected on Snake Island in early June, but no nests were located and only a limited survey effort was conducted due to disturbance concerns.

Terns

Mass Audubon staff observed a Least Tern colony containing 72 pairs on Lovells Island in mid-June, and also reported a large congregation of gulls had formed off of Lovells a month later, presumably pursuing bait fish. The tern colony was abandoned shortly thereafter with evidence of gull predation on eggs and substantial gull tracks detected throughout the colony site. Twenty young are believed to have fledged from the colony prior to this incident.

During a visit to the Spinnaker Island platform in early June, 147 adult Common Terns were observed attending the colony. No terns were detected nesting on Snake or Rainsford Islands in 2013.

Spotted Sandpipers

Spotted Sandpipers were not surveyed in 2013, although one territorial pair was detected on Snake Island in early June. Individual spotted sandpipers were also observed on Calf, Little Calf, Little Brewster, and Middle Brewster Islands during July boat surveys.

More Information

To learn more about the coastal bird monitoring program in the park, you can download the program protocol, as well as view all previous years reports and resource briefs from the Boston Harbor Islands park page on NETN's website at:

<http://science.nature.nps.gov/im/units/netn/parkPages/BOHA.cfm>

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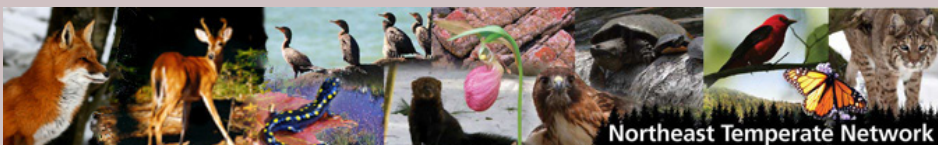
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