

Wildlife Populations: Colonial-nesting Waterbirds (Long-legged Wading Birds and Seabirds)

Colonial-nesting waterbird is a collective term used to refer to a large variety of different species that share two common characteristics: the tendency to gather in assemblages during the nesting season and to gather most of their food, mainly fish and aquatic invertebrates, from the water. Colonial waterbirds have attracted the attention of scientists, conservationists, and the public since the turn of the century when plume hunters nearly drove many species to extinction. Although the populations of many species rebounded in the middle part of the 20th century, major losses and alteration of coastal wetlands still threaten the long-term sustainability of many colonial waterbirds and we are now seeing declines in many of these species.¹

For more than four decades, DEP's Division of Fish and Wildlife has monitored the nesting populations of colonial-nesting waterbirds through a combination of ground and aerial surveys. These birds are important predators, feeding near the top of the food chain. They serve as valuable indicators of environmental quality, including resource abundance and health; levels of toxic substances, such as organic contaminants and heavy metals; and levels of human disturbance. These birds can be divided into two general groups: long-legged wading birds and sea birds.

Long-legged Wading Birds - Background

Long-legged wading birds are prominent members of estuarine ecosystems. Snowy Egrets and Black-crowned Night-herons are particularly good indicators of estuarine systems because they both feed and nest in the Atlantic Coastal ecosystem and are prominent in New Jersey. The Snowy Egret (*Egretta thula*) can be distinguished from the Great Egret by its smaller size, its black bill, and yellow feet. The Snowy Egret can be spotted from spring through fall, often along the edge of the water in a marsh.



Snowy Egret
(Getty, 2019)

The Black-crowned Night-heron (*Nycticorax nycticorax*) is a stocky heron with plumage that is gray and white with a distinctive black cap and a pair of white plumes that extend from the back of the head. They usually nest colonially, which can be anywhere from among reeds in marshes to 160 feet above the ground in

trees. Their spring migration generally occurs from mid-February through mid-May. Fall migration occurs from mid-July through October. The Black-crowned Night-heron is widely distributed throughout North America, South America, Eurasia and Africa.²



Black Crowned Night-Heron
(John Parke, New Jersey
Audubon, 2020)

Status and Trends

Long-term trends in Figure 1 reveal that the Snowy Egret population has significantly declined since the late 1980s (Kendall Tau Correlation, $\rho = -0.58$, $p < 0.05$). The Black-crowned Night-heron was also found to be declining since the 1970s, however the population indices have shown a slight rebound since 2013. These trends are based on indices of the populations, not population estimates. The aerial surveys tend to underestimate populations, especially for those birds with dark plumage because it can be difficult to see them through the cover of vegetation. However, the protocol is consistent and appropriate to establish long-term trends.

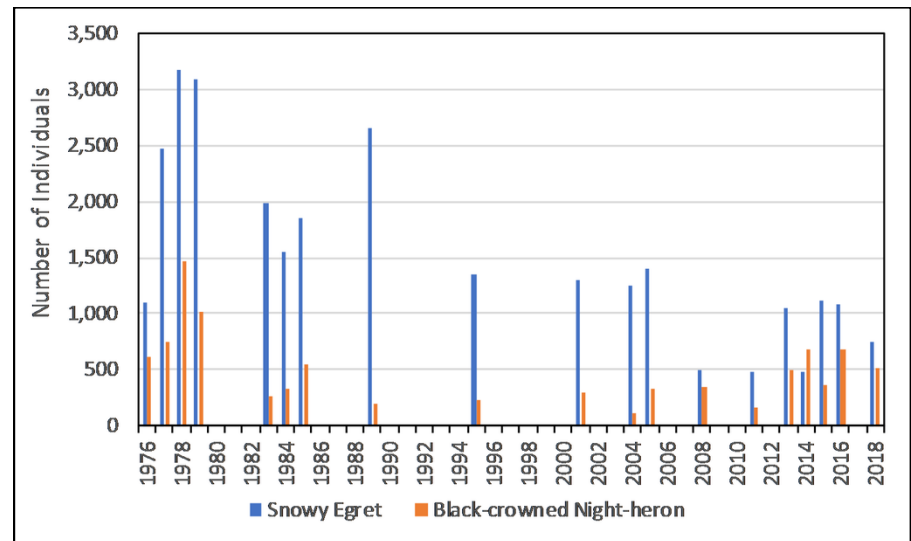


Figure 1. Number of snowy egret and black-crowned night-heron individuals as counted from aerial surveys. Years without counts represent years when surveys were not conducted.

Outlook and Implications

The Black-crowned Night-heron is not federally listed as threatened or endangered, however in 1999 the breeding population was added to the New Jersey list of threatened species at N.J.A.C. 7:25-4.17 and its status remains threatened. Although the data suggest that the populations of the Snowy Egret and the Black-crowned Night-heron have been more robust since 2013, these populations are still well below their historic maximum recorded values which occurred in 1978. In 2018, there were an estimated 744 Snowy Egrets compared to 3,178 in 1978, and an estimated 505 Black-crowned Night-herons in 2018 versus 1,470 in 1978. The data show that both populations have failed to fully recover from a major decline that occurred between 1978 and 1983 when the Snowy Egret population decreased by over a third and the Black-crowned Night-heron population declined by two thirds. Some data suggest that population decreases may be the result of nest-site competition with other coastal waterbirds and impacts to breeding success due to the presence of pesticides and other environmental contaminants.³ Nesting success of all colonial waterbirds can be severely reduced by specific types and excessive levels of human activity. The use of personal watercrafts (e.g., jet skis) is a particular concern, as these vehicles interfere with waterbird feeding and nesting activities. Climate change also poses a substantial threat to waterbird habitat with projected increases in flooding and salinity.

More Information

For more information on the natural history and protection efforts of these birds see:

Snowy Egret: https://www.allaboutbirds.org/guide/Snowy_Egret/id

Black-crowned Night-heron: https://www.allaboutbirds.org/guide/Black-crowned_Night-Heron/id

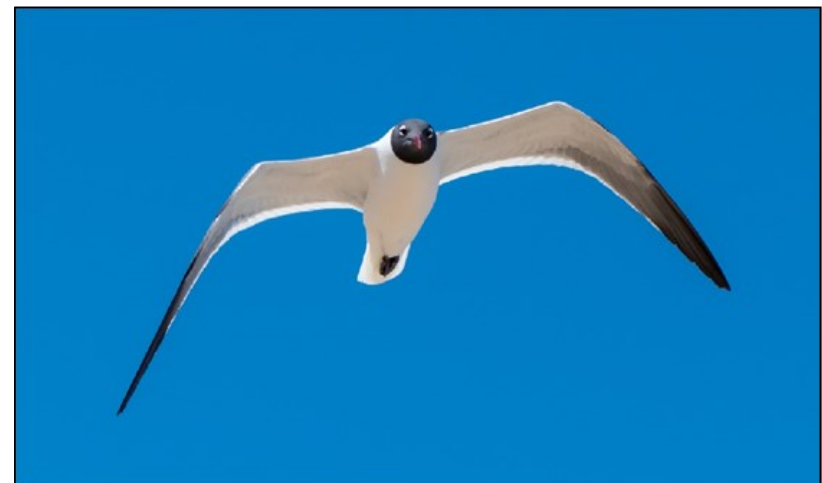
Sea Birds - Background

Sea birds feed primarily in saltwater. Some of the species in this category, such as albatrosses and frigatebirds, are so well adapted to the marine environment that they spend most of their lives at sea, returning to land only to nest. Others, such as gulls and terns, are confined to the interface between land and sea, feeding during

the day and loafing and roosting on land. The Department tracks a number of populations of these birds, including the Laughing Gull (*Larus atricilla*), the Herring Gull (*Larus argentatus*), and the Forster's Tern (*Sterna forsteri*).

Gulls possess exceptional flying ability and can often be seen swimming, and occasionally diving underwater. Increasing gull populations in North America during the past century have led to a variety of problems for different segments of society. Gulls can cause damage to agricultural crops and threaten human safety at and near airports; they are involved in more collisions with aircrafts than any other bird group due to their high numbers and wide distribution. They are also often considered a nuisance species due to their propensity to nest near human populations and seek food from people eating outdoors. In addition, gulls are predators of several birds during the breeding season; expanding and colonizing gull populations may have detrimental effects on the breeding performance of other species.⁴

The Laughing Gull is a small, black-hooded gull; its light, buoyant flight and laughing call are a familiar sight and sound along New Jersey's coast.⁵ Laughing Gulls breed in coastal marshes and ponds in large colonies. The nest, made largely from grasses, is constructed on the ground, and the 3 or 4 greenish eggs are incubated for about three weeks.⁶



Laughing Gull (Getty, 2019)

The Herring Gull, a large white bird with light gray back and wings, pink legs and a yellow beak with a red dot at the tip, is a year-round resident of New Jersey. This species, like the Laughing Gull, also generally nests in large colonies. Both species are generalist predators and will feed on a variety of fishes, invertebrates, and other seabirds.⁷ They can also be opportunistic scavengers, feeding on carrion and human refuse.⁸



Herring Gull (John Parke, New Jersey Audubon, 2020)



Forster's Tern (John Parke, New Jersey Audubon, 2020)

Terns are medium-sized birds, typically with grey or white plumage and black markings on the head, longish bills, deeply forked tails and orange webbed feet. They are lighter bodied and more streamlined than gulls. Forster's Tern breeds primarily in marshes, including wetter portions of lakes and streams; along New Jersey's coast, this species can also be found in the marshy portions of beaches and estuarine areas. The diet of the Forster's Tern consists mainly of small fish and occasional invertebrates. During hunting, this species dives directly into water from heights as high as 25 feet above the water surface.⁹

while the Laughing Gull population is much more robust, requiring a different y-axis scale, and is therefore shown in Figure 3.

The Herring Gull population (Figure 2) has fluctuated over time, with a significant decline since 1977 (Kendall Tau Correlation, $\rho = -0.41$, $p < 0.05$). In the earliest data collected, the three-year average from 1977 to 1979 was 5,928 individuals. In the late 1980s and mid 1990s the population increased to over 6,800 individuals, peaking at 9,814 in 2001. The population subsequently decreased to a three-year average of 3,656 from 2014 to 2016. The number of Forster's Terns (Figure 2), on the other hand, has increased significantly since 1977 (Kendall Tau Correlation, $\rho = 0.66$, $p < 0.05$).

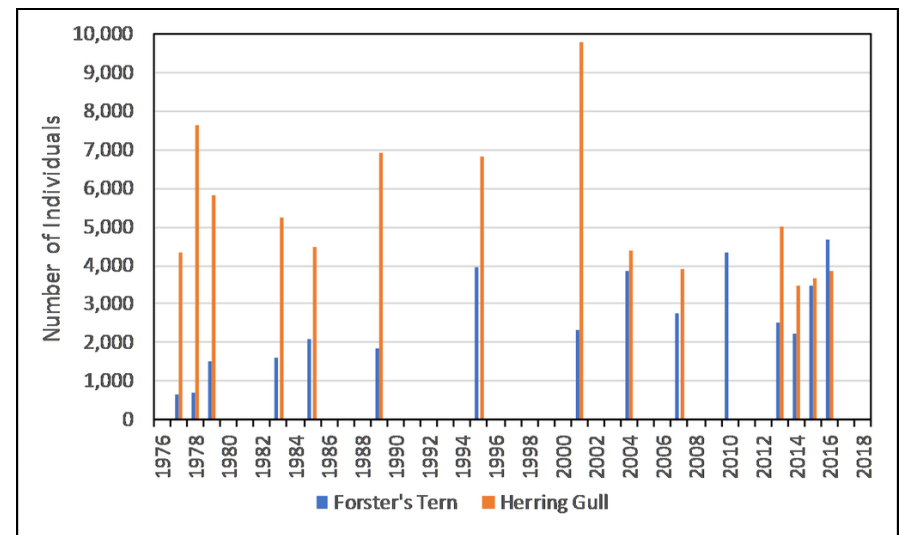


Figure 2. Number of Herring Gull and Forster's Tern individuals as counted from aerial surveys. Years without counts represent years when surveys were not conducted.

The Laughing Gull population (Figure 3) has fluctuated from year to year without showing a significant increase or decrease over time. In 2013, the Center for Conservation Biology reported a substantial threat to the Laughing Gull population in the breeding grounds on the coast of the lower Delmarva Peninsula. Significant

Status and Trends

Figures 2 and 3 below show the number of individuals for each species by year. The data, collected by DEP's Division of Fish and Wildlife, show fluctuations from year to year, with especially large gull counts in 2001. The Forster's Tern and Herring Gull are shown together in Figure 2 based on similar population counts,

tidal events since the early 2000's due to rising seas repeatedly washed out eggs and nests along the Delmarva Peninsula and laughing gull populations in that area declined by over 80% from 2003 to 2013.¹⁰

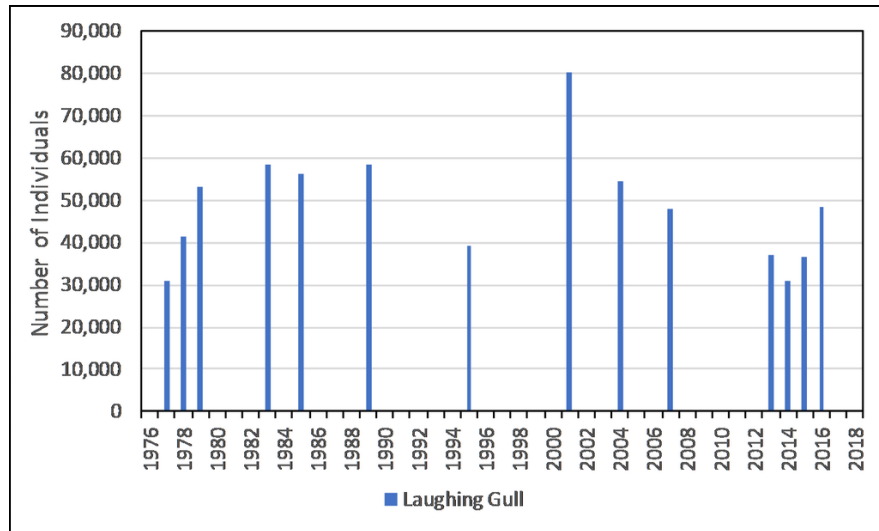


Figure 3. Number of Laughing Gull individuals as counted from aerial surveys. Years without counts represent years when surveys were not conducted.

Outlook and Implications

While the populations of seabirds appear to be stable, they nevertheless face a steady barrage of threats, including oil pollution associated with increased tanker traffic, direct mortality from entanglement and drowning in commercial fishing gear, the depletion of fish due to overfishing, and predation of colonies by introduced and/or human-subsidized predators, like cats or red fox. Sea level rise and changing tidal conditions also threaten these ground-nesting species.

More Information

For more information on the natural history and protection efforts of these birds see:

Laughing Gulls: https://www.allaboutbirds.org/guide/Laughing_Gull/id

Herring Gulls: https://www.allaboutbirds.org/guide/Herring_Gull/id

Forster's Tern: https://www.allaboutbirds.org/guide/Forsters_Tern/id

References

¹US Fish and Wildlife Service. 2002. Colonial-nesting Waterbirds: A glorious and gregarious group. Available at <https://www.fws.gov/uploadedFiles/waterbird-fact-sheet.pdf>. Accessed May 2019.

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⁴The Internet Center for Wildlife Damage Management. Gulls. Available at <http://icwdm.org/species/birds/gulls/>. Accessed May 2019.

⁵Burger, Joanna. 1996. Laughing Gull (*Leucophaeus atricilla*), The Birds of North America Online (A. Poole, Ed.). Ithaca: Cornell Lab of Ornithology; Retrieved from the Birds of North America Online: <https://birdsoftheworld.org/bow/species/laugul/cur/introduction> Accessed May 2019.

⁶Gulls and Terns of North America. Accessed Aug., 2012. Available at <http://www.surfbirds.com/namericanbirds/gull-tern.html>. Accessed May 2019.

⁷Pierotti, R. J., and T. P. Good. 1994. Herring Gull (*Lams argentatus*). In The Birds of North America, No. 124 (A. Poole and F. Gill, Eds.). Philadelphia: The Academy of Natural Sciences; Washington, D.C.: The American Ornithologists' Union. Available at http://gull-research.org/papers/papers6/PierottiGoodBNA_124%20HERG.pdf. Accessed May 2019.

⁸Cornell Lab of Ornithology, All About Birds, (Herring Gull). Online: https://www.allaboutbirds.org/guide/Herring_Gull/id. Accessed online May 2019.

⁹McNicholl, M. K., P. E. Lowther and J. A. Hall. 2001. Forster's Tern (*Sterna forsteri*), version 2.0. In The Birds of North America (A.F. Poole and F.B. Gill, Editors). Ithaca: Cornell Lab of Ornithology; Retrieved from the Birds of North America Online: <https://birdsna.org/Species-Account/bna/species/forter/introduction>. Accessed May 2019.

¹⁰The Center for Conservation Biology. Available at: <https://www.ccbirds.org/2013/11/18/laughing-gulls-match-rising-seas/>. Accessed May 2019.