

2019 New Jersey Beach Nesting Bird Project Report



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The New Jersey Division of Fish and Wildlife – Endangered and Nongame Species Program (NJDFW-ENSP) is responsible for the monitoring and management of beach-nesting birds on all state, county and municipal sites and the collation of statewide data (including federal and private properties). This report offers a short summary of nesting in 2019 for the four primary species that comprise this group in NJ – Piping Plover (federally threatened, state endangered), Black Skimmer (state endangered), Least Tern (state endangered) and American Oystercatcher (species of special concern).

Due to a constraint on resources, not all potential sites in the state were surveyed for all species. All known nesting sites for Piping Plover and Least Tern were monitored. All known beach strand nesting sites for Black Skimmer were monitored but only a small number of marsh island sites were monitored. All known beach strand nesting sites for American Oystercatcher were monitored but only a small number of marsh island, Delaware Bayshore and non-traditional (parking lots, rooftops) sites were monitored.

Each species has slightly different nesting phenology and habitat requirements. Some species are solitary nesters (plovers and oystercatchers) while others are colonial (terns and skimmers). These differences can lead to not only distinctive management strategies but also to vastly disparate reproductive outcomes (at a given site, one species may be successful while another may fail). It is therefore difficult to formulate conclusions for the group, so results are presented by species.

However, there were some across species commonalities. Depredation continued to be the major limiting factor for all species. This impacted all species’ eggs and chicks, but also contributed to adult mortality (abandonment rate of exclosed Piping Plover nests was up, which can be a proxy for adult fatalities, and remains of adult Least Terns and Piping Plovers were detected). Predator species from a variety of taxa played a role in these losses. Primary predators (of adults, eggs and young) included confirmation by red fox, gulls and Fish Crows while Peregrine Falcon, Great-horned Owl, cats and ghost crab were strongly suspected. Efforts to manage depredation were hindered in some locations by public interference as well as the lower suitability of some sites for trapping.

The distribution of beach-nesting birds across the state continues to be in flux. The pattern of Piping Plovers primarily nesting at federal sites in the central and northern portion of the state continued, but previous year’s fledges have dispersed into other parts of the state and thus increased the number of pairs at non-federal sites (including Corson’s Inlet State Park, a historical stronghold in southern NJ). Least Terns returned to Cape May (TNC) and one of the most successful Black Skimmer colonies was located at Stone Harbor Point. It is hoped these signs are a portent of things to come and that the distribution will continue to shift more evenly across the state for Piping Plovers. American Oystercatchers continue to

colonize non-traditional sites, nesting at heavily groomed and recreated beaches, showcasing their flexibility in nest site selection. This can pave the way for other beach-nesting birds, as was observed this year at Point Pleasant Beach (a very heavily recreated site) which was both one of the season's biggest successes and surprises.

The state, in conjunction with partners (State University New York-ESF, The Wetlands Institute, Conserve Wildlife Foundation of NJ), continued to expand its banding program. Three of the four species (all but Least Terns) are now being banded with field-readable color bands and biologists are collecting resight data to better understand population dynamics, natal site fidelity and dispersal, and to improve monitoring. Not all individuals of all species are being banded, but the goal is to continue to slowly increase these numbers as well as to consider banding Least Terns. Band-related injuries (particularly for Piping Plovers) are being closely monitored and adjustments made as needed. The safety of the birds is of utmost importance and takes precedent over data collection.

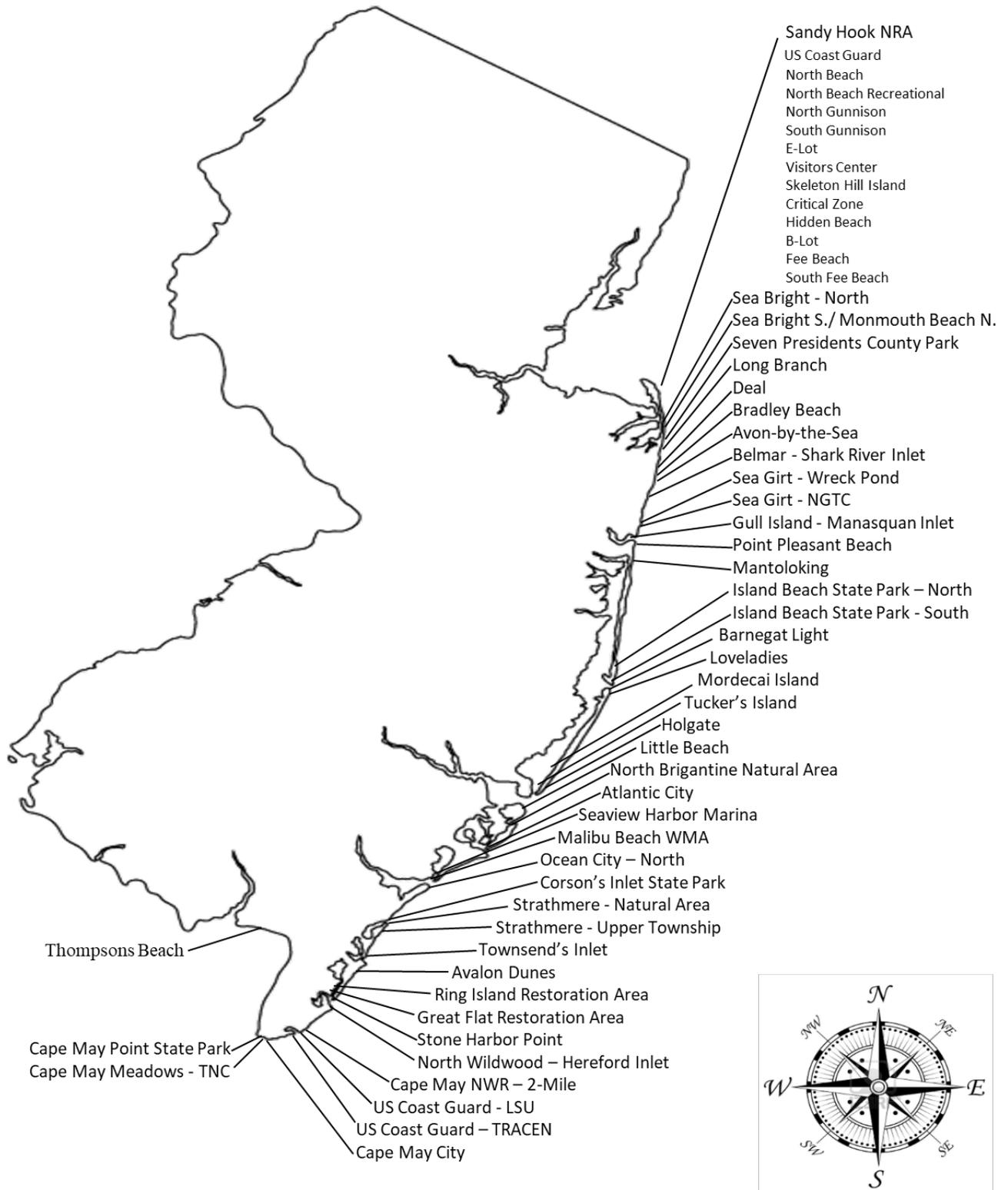
The NJDFW-ENSP does not own any of the property that it manages for these species so relationships with landowners and interested parties is paramount to a successful season. Staff continued to work hard to create and/or strengthen relationships this year with all partners. Volunteers and interns played an ever-increasing role, as staff relied on them to help with monitoring efforts and engaging with the public. We were deeply appreciative of the cooperation and support from all entities that resulted in the successes that were had.

Special thanks to Alfred Breed for his help in compiling data in this report.

Data from partners was provided by USNPS -Gateway National Recreation Area – Sandy Hook Unit, USFWS – Edwin B. Forsythe National Wildlife Refuge & Cape May National Wildlife Refuge, USCG - TRACEN, The Nature Conservancy, The Wetlands Institute, & New Jersey Audubon Society.

A more detailed report for Piping Plover is available through the Conserve Wildlife Foundation of NJ website or can be requested through NJDFW-ENSP.

New Jersey Beach Nesting Bird Sites: 2019



** This map represents all the Atlantic Coast and Delaware Bay sites where confirmed nesting was documented. It does not show sites that were monitored but no active nesting detected or sites that nesting did/may have occurred but where there was no monitoring, as is largely (but not exclusively) the case for the marsh islands of the Atlantic Coast.*

Piping Plover Nesting Summary

- One hundred and fourteen (114) pairs of piping plovers nested in New Jersey in 2019, a 19% increase from 2018 (96) and a 7% increase from 2017 (105). This increase represents one of the biggest single year jumps since records began and somewhat quelled concerns stemming from two years of declines.
- Pairs nested at 27 sites statewide, a sharp increase from 19 in 2018 and more in line with the peak counts of 30 sites recorded in both 2004 and 2005. However, the distribution remains heavily skewed in the northern part of the state, with only one site being added to Cape May and Atlantic Counties. That one site, Corson's Inlet State Park in Cape May County, was an exciting development as it was previously a stronghold for this species and bodes well for the future. Piping Plover were monitored, depending on the site, 3-7 x/week at all active nesting sites.
- The 114 pairs laid 165 nests. Of those nests, 98 hatched (60%), 65 failed (39%) and two had unknown outcomes (1%). Of the 65 that failed, 29 were lost to predators (45%), 11 to flooding (17%), 10 to abandonment (15%), three were blown over (5%), and 12 had undetermined failure (18%).
- Statewide pair-nest success (the percentage of pairs that successfully hatch at least one nest) decreased in 2019 compared to 2018 (83% vs. 91%, respectively), but was still above-average for the period since federal listing (69%).
- The statewide productivity rate was 1.24 fledglings/pair, a decrease from 2018 (1.51 fledglings/pair) but above the long-term average 1.03 fledglings/pair.
- NJ biologists continued to use predator exclosures in 2019, exclosing 52% of nesting attempts. The exclosed hatch rate was 83%. The abandonment rate for exclosed nests was 10% (abandonments can suggest an adult mortality event). The unexclosed hatch rate was 34%. Of the nests not exclosed, 35% were lost to predators.
- The majority of plovers (71%) are still nesting in just two federal areas (Gateway NWA – Sandy Hook and EB Forsythe NWR). Cape May County continues to be considerably lacking in active nesting areas and pairs, but some progress was made in 2019. There were 43 pairs in this county in 2002, compared to just five in 2019. However, that was an increase from three compared to 2018, and at two sites instead of one.
- The increase in pair number brought a great deal of relief to species managers but there are many unanswered questions that still need answers. Will the upswing continue? What caused the 2017 and 2018 declines? Was there a higher degree of adult mortality (at any point in life cycle) than would be expected under average conditions? Are NJ fledglings less fit, so that they are surviving their hatch season but perishing before becoming members of the breeding population? The population increase was very welcome, but species managers remain cautious about its sustainability, given the lack of understanding for the recent declines and how to prevent them in the future.
- 2019 represented the sixth year that plovers were banded in the state. One hundred and thirty-one (131) were banded in 2019, bring the total since 2012 to 647. An enormous amount of information has been gleaned from this work (via research projects by a State University New York-ESF student) and the state is interested in continuing banding efforts beyond the scope of her work and building a long-term dataset. This will allow additional analysis of trends and population dynamics.

New Jersey Piping Plover nesting summary by site: 2019

Site	2019					
	Pairs	Pairs Hatched	Chicks Fledged	Pair Success	Fledge Rate	SP Fledge Rate
Sandy Hook NRA	41	40	53	0.98	1.29	1.33
<i>Coast Guard</i>	3	3	3	1.00	1.00	1.00
<i>North Beach</i>	10	10	12	1.00	1.20	1.20
<i>North Beach Recreational</i>	3	3	3	1.00	1.00	1.00
<i>North Gunnison</i>	8	8	13	1.00	1.63	1.63
<i>South Gunnison</i>	3	3	5	1.00	1.67	1.67
<i>E-Lot</i>	1 ¹	1	1	1.00	1.00	1.00
<i>Visitor's Center</i>	1 ¹	0	0	0.00	0.00	0.00
<i>Critical Zone</i>	6	6	7	1.00	1.17	1.17
<i>Hidden Beach</i>	1	0	0	0.00	0.00	0.00
<i>B-Lot</i>	1 ¹	0	0	0.00	0.00	0.00
<i>Fee Beach</i>	5 ¹	5	6	1.00	1.20	1.20
<i>South Fee Beach</i>	1	1	3	1.00	3.00	3.00
Sea Bright - North	10	7	13	0.70	1.30	1.86
Monmouth Beach – North ²	4 ¹	1	2	0.25	0.50	2.00
7 Presidents Oceanfront Park	2 ¹	2	1	1.00	0.50	0.50
Region 2 Subtotal	56	50	69	0.89	1.23	1.38
Belmar - Shark River Inlet	1	0	0	0.00	0.00	0.00
Sea Girt – Wreck Pond	1 ¹	0	0	0.00	0.00	0.00
Sea Girt - NGTC	2 ¹	2	2	1.00	1.00	1.00
Island Beach SP NNA	4	4	6	1.00	1.50	1.50
Island Beach SP SNA	1 ¹	0	0	0.00	0.00	0.00
Barnegat Light	3 ¹	2	5	0.67	1.67	2.50
Loveladies	1	1	2	1.00	2.00	2.00
Region 3 Subtotal	11	9	15	0.82	1.37	1.67
EB Forsythe NWR	40	31	52	0.78	1.30	1.68
<i>Holgate</i>	29 ¹	21	38	0.72	1.31	1.81
<i>Little Beach</i>	12 ¹	10	14	0.83	1.17	1.40
North Brigantine NA	2	2	2	1.00	1.00	1.00
Region 4 Subtotal	42	33	54	0.79	1.29	1.64
Corson's Inlet SP	2	2	1	1.00	0.50	0.50
Region 6 Subtotal	2	2	1	1.00	0.50	0.50
Stone Harbor Point	3	1	2	0.33	0.67	2.00
Region 7 Subtotal	3	1	2	0.33	0.67	2.00
NJDFW sites TOTAL	33	24	36	0.73	1.09	1.50
All NJ sites TOTAL	114	95	141	0.83	1.24	1.48
# Active Sites	27					

¹ The same pair nested at two nearby sites. Therefore "subtotals" and "totals" are less than sum of individual sites.

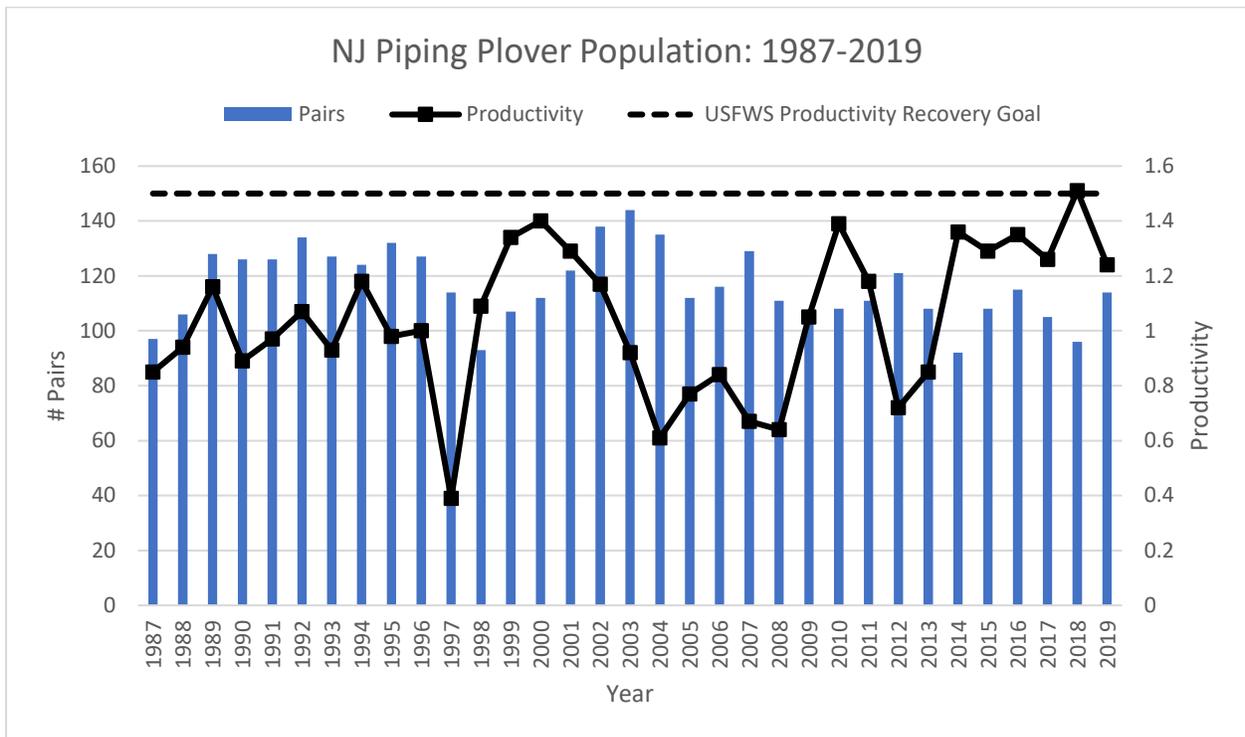
² This site includes Sea Bright – South and Monmouth Beach – North

Pair Success equals the percentage of pairs that hatched young (at least one chick observed).

Fledge Rate equals the number of chicks fledged per pair.

Successful Pair (SP) Fledge Rate equals the number of chicks fledged per pair that successfully hatched young.

New Jersey Piping Plover population: 1987-2019



Black Skimmer Nesting Summary

- Black skimmer breeding bird counts were conducted every week or every other week at active sites from arrival (mid-May) until nesting ceased (September-October) on beaches along the entire Atlantic coast. Marsh islands were not comprehensively surveyed, due to lack of resources, but some sites were visited as time and staff allowed. Ground surveys took place at eight sites and active nesting (at least one nest with eggs) was observed at four sites. These four sites were visited 3-7x/week for management and outreach for the duration of the nesting season.
- A total of 1,963 adults were present at the active sites. This figure is the cumulative total of site counts that occurred in the peak survey period, which was 24-30 July. The sum of the peak adult number from each site was 2,114. A large difference between these two numbers can suggest failure at any given colony and then relocation/re nesting to another colony but this year it appears that most birds stayed settled at their initial nest sites. As has now been the case since 2010, the majority (67%) of the state's known population was present at just one site, which continued to be Seaview Harbor Marina (SHM) (1,425 peak adult count). However, the percent is at its lowest rate since SHM became a major site in 2008. It peaked at 89% of state's population in 2012 and this is the first time it has dipped below 70% since then. Skimmers were documented continuing to visit the sandy restored areas of marsh islands (Ring Island, Mordecai Island and Great Flat), although no nesting was documented this year (due in part, it appeared, to mammalian predators).
- A peak count of 717 incubating adult black skimmers was tallied in the 10-16 July survey period. The incubation number was lower than might be expected given the number of adults present and was likely lower than what nested. As is generally the case, the vegetation at SHM blocked observers from garnering an accurate perimeter count but walk through colony counts have not shown to be effective in NJ.
- Black skimmer statewide productivity appeared to be on the lower side of moderate and a marked decline from 2018, with 403 fledglings produced statewide (941 in 2018). This translates to 0.56 fledglings/pair if calculated on the peak incubating adult count. If we simply halve the peak period total adult number and use that as pair count, the productivity is 0.41. The true rate is likely somewhere in between. Three sites (Point Pleasant Beach, SHM and Stone Harbor Point) fledged young, in a much more evenly distributed pattern than in recent years. Rather than SHM producing the bulk of the state's fledges, it produced just 36%. Stone Harbor Point produced 44% and Point Pleasant Beach 20%. The fledge rate further highlights what may be the beginning of a departure from SHM as the major nesting area in the state. Depredation appeared to be the primary factor responsible for nest and chick loss on beach strand sites.
- NJDFW-ENSP, The Wetlands Institute and the Conserve Wildlife Foundation of NJ worked cooperatively to band 111 near-fledgling Black Skimmers on Stone Harbor Point. This effort was the most fruitful yet, since banding began in 2016, owing largely to the success of the colony at Stone Harbor Point. Nocturnal efforts for banding continued to be the preferred technique. Additional band sizes were utilized in 2019 to accommodate a variety of leg sizes and shapes and allowed banders to mark more birds. Long-term goals of banding include better understanding of site fidelity and inter-state movements (particularly with New York breeding birds).
- Over the course of fall 2018-fall 2019, 27 individuals banded in NJ from 2016-2019 were observed either on migration or wintering grounds. Many NY and MA-banded birds (and one from NC) were observed in NJ as migrants. One adult banded as a fledge in 2016 was observed breeding in NJ this year, marking the first confirmed breeding of a study bird.
- Although NJDFW-ENSP continues to be concerned that the majority of black skimmers were at just one site, its dominance appears to be declining, and other substantial colonies are beginning to take shape. As SHM continues to vegetate (a primary hypothesis for fewer birds this year) and the other sites find success, it is expected that this trend will continue as birds seek other nesting habitat. If habitat conditions persist, is suspected that colonies will form/grow at Ocean City-North, Corson's Inlet State Park and Stone Harbor Point in 2020.

New Jersey Black Skimmer nesting summary by site: 2019

SITE	Peak Total Adult Count	Peak Incubating Adult Count	Chicks Fledged	Fledge Rate
Point Pleasant	87	43	79	1.84
Holgate - South	84	36	0	0.00
Seaview Harbor Marina	1425	536	147	0.27
Stone Harbor Point	518	222	177	0.80
NJDFW sites TOTAL	2030	801	403	--
All NJ sites TOTAL	2114	837	403	--
Statewide Peak Window Count	1963	717	--	--
	(7/24-7/30)	(7/10-7/16)		
# Active Sites	4			

“**Fledge Rate**” equals the number of chicks fledged per incubating adult. This number should be considered an estimate as there is not a high degree of confidence in the incubating adult and fledge number as these data points are very difficult to collect. Because of this difficulty, there is no statewide fledge rate tallied here.

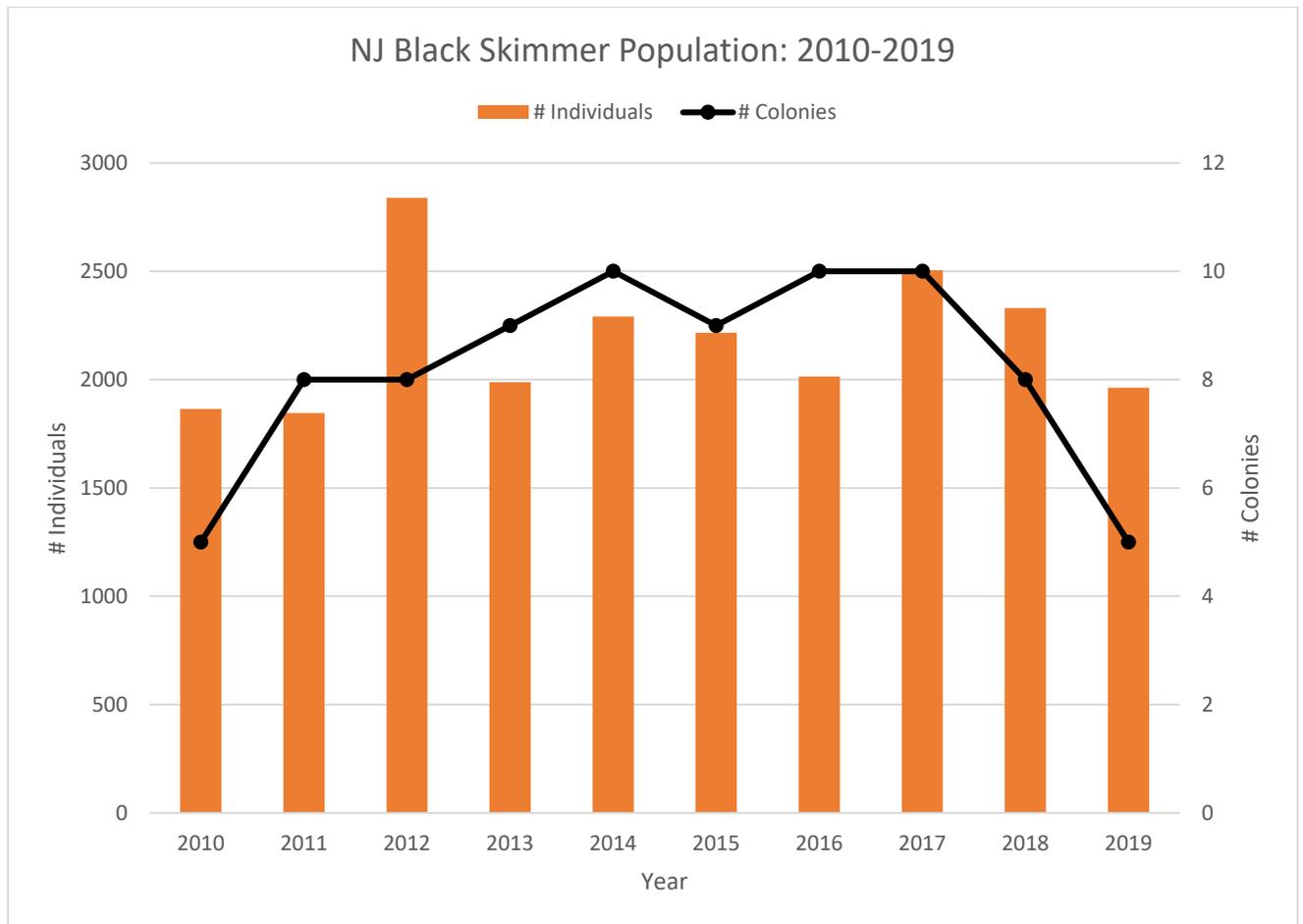
“**Peak Total Adult Count**” & “**Peak Incubating Adult Count**” are the highest adult counts observed at any point during the breeding season. “**Statewide Peak Window Count**” represents the highest tally for one one-week survey window. This species exhibits a high degree of intra-year movements so both numbers are important to understand the distribution of adults and habitat use (on site and state levels) in NJ.

The following sites had adults present during some surveys but nesting was not confirmed.

- Belmar – Shark River Inlet
- Ocean City – North
- Ring Island
- South Cape May Meadows – TNC

Please note that the data in the table is presented both in terms of peak tallies of each site and the peak counts statewide in a given survey window. It is presented by site so that the use of any given location can be understood. However, simply tallying these peaks can lead to double counting individuals since this species is known to use multiple sites in one year (e.g. a colony fails at one site and they re-nest at another site.) so the statewide peak window count is an effort to reduce that issue and add context to the site total figures.

New Jersey Black Skimmer population: 2010-2019



Note: The number of colonies only includes sites where active nesting was documented.

Least Tern Nesting Summary

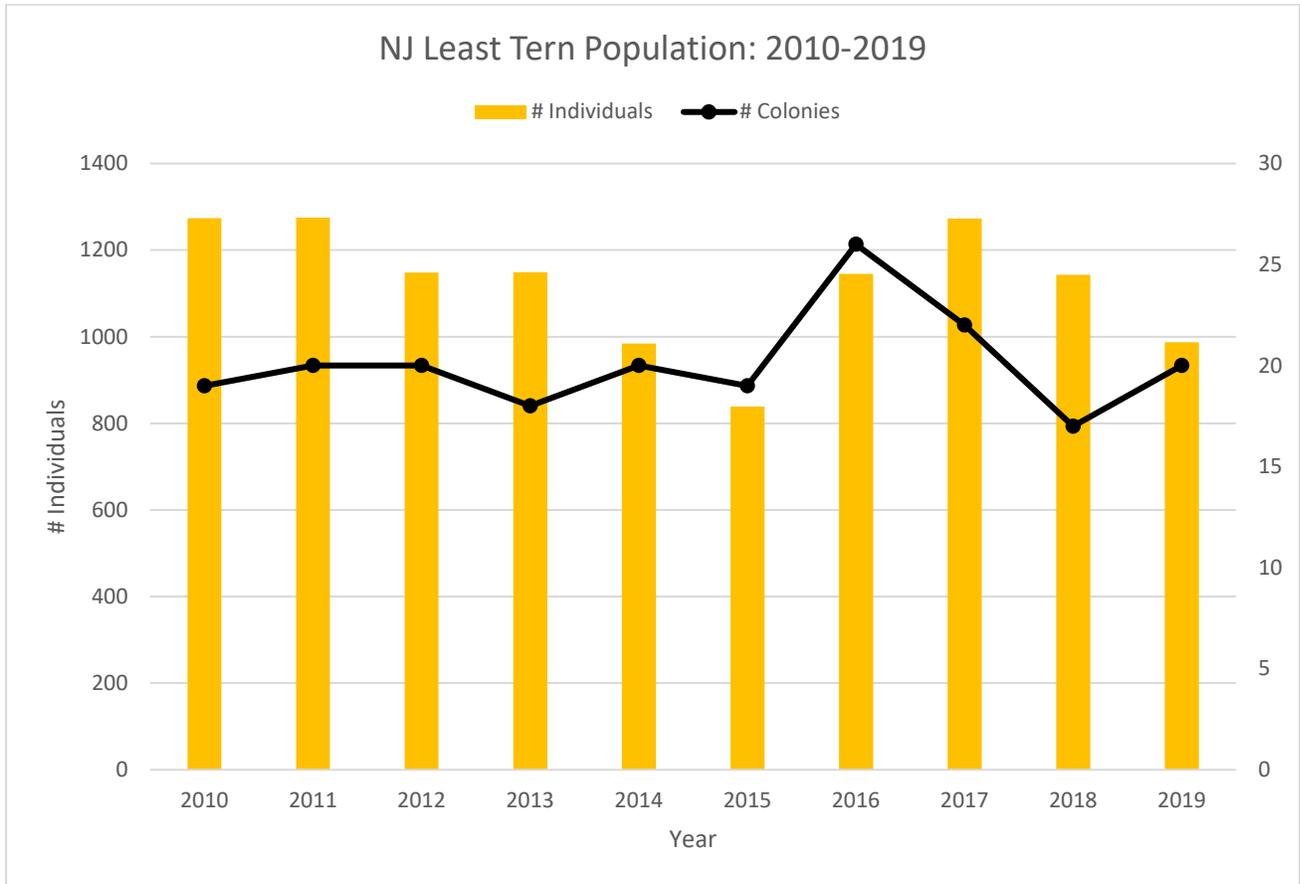
- Least tern breeding bird surveys were conducted every week from mid-May until the end of August at beaches along the entire Atlantic coast. Colonies were located at 20 sites and observations were made at these locations for the duration of the season. These 20 sites were visited 3-7x/week for management and outreach for the duration of the nesting season.
- A total of 987 adults were present at these sites (based on a cumulative total of peak site counts that occurred in the 17-23 July survey period). The summed peak adult count from each site was 1,825. A large difference between these two numbers can suggest failure at a given colony and then relocation/renesting to another colony, which given the data and on-the-ground observations appears to have happened in 2019. Depredation was the primary cause for colony collapse. The statewide adult peak number was lower than in recent years but was likely higher than what was detected, based on what would be expected by doubling the peak incubating adult number (see below).
- A peak (census period of 12-18 June) of 624 adult least terns were observed incubating. Productivity was moderate for least terns with 376 fledglings produced statewide (0.60 chicks per pair, based on the peak number of incubating adults). The peak incubating adult count suggests a higher number of adults than was tallied for the peak adult count. This is likely because not all adults associated with a colony were present during a count (may be foraging or roosting at other locations).
- The population was distributed fairly evenly throughout the state and seven colonies had >100 adults with one colony 300+ adults. The largest colony was at Holgate, with 395 adults on its peak count, followed by Sea Bright – North, with 249 adults at its peak. Of note was the recolonization of Ocean City – North and Corson’s Inlet State Park, which historically have held large colonies. Point Pleasant Beach was another site of interest. 2019 marked the first time terns nested at this site, which was surprising given its high degree of recreation and beach grooming. Even more surprising was that it went on to be the most productive site in the state. The success is primarily attributed to lack of predators.
- Predators continue to be the primary limiting factor for this species. Nearly every colony sustained catastrophic loss to predators, causing the birds to renest multiple times. Unlike the Black Skimmer colonies, which were located in just a few key areas and had the added protection of the aggressive Common Terns to help defend, the Least Terns nested in areas that were seemingly more susceptible to predators. Species managers are working on addressing this issue, not only through predator removal but also considering options that have not been used in NJ in the past (such as electric fences) or not used extensively (substantial predator fences, non-electrified).
- Please note that the data in the following table is presented both in terms of peak tallies of each site *and* the peak counts statewide in a given survey window. It is presented by site so that the use of any given location can be understood. However, simply tallying these peaks can lead to double counting individuals since this species is known to use multiple sites in one year (e.g. a colony fails at one site and they re-nest at another site.) so the statewide peak window count is an effort to reduce that issue and add context to the site total figures.

New Jersey Least Tern nesting summary by site: 2019

SITE	Site Peak Total Adult Count	Site Peak Incubating Adult Count	Chicks Fledged	Fledge Rate
Sandy Hook NRA	93	26	0	0.00
<i>North Beach</i>	5	5	0	0.00
<i>North Beach Rec</i>	18	9	0	0.00
<i>North Gunnison</i>	30	4	0	0.00
<i>South Gunnison</i>	31	2	0	0.00
<i>South Fee Beach</i>	9	6	0	0.00
Sea Bright North	249	65	3	0.05
Monmouth Beach North/SBSO	35	5	0	0.00
Seven President's Park	16	1	0	0.00
Belmar – Shark River Inlet	156	138	45	0.33
Sea Girt – NGTC	31	14	1	0.07
Point Pleasant Beach	165	123	92	0.75
Mantoloking	25	5	18	--
EB Forsythe NWR	476	285	134	0.47
<i>Holgate – North</i>	395	250	125	0.50
<i>Holgate – South</i>	79	34	9	0.26
<i>Little Beach</i>	2	1	0	0.00
Ocean City - North	204	94	62	0.66
Corson's Inlet State Park	169	67	21	0.31
Townsend's Inlet	38	13	0	0.00
Stone Harbor Point	54	43	0	0.00
South Cape May Meadows	114	59	0	0.00
NJDFW sites TOTAL	1142	568	242	
All NJ sites TOTAL	1825	938	376	
Statewide Peak Window Count	987	624		
	(7/17-7/23)	(6/12 - 6/24)		
# Active Sites	20			

- “Fledge Rate” equals the number of chicks fledged per incubating adult. This number should be considered an estimate as there is not a high degree of confidence in the incubating adult and fledge numbers. As these data points are very difficult to collect.
- “Peak Total Adult Count” & “Peak Incubating Adult Count” are the highest adult counts observed at any point during the breeding season. “Statewide Peak Window Count” represents the highest tally for one two-week survey window. This species exhibits a high degree of intra-year movements so both numbers are important to understand the distribution of adults and habitat use (on site and state levels) in NJ.
- There were adults present at multiple sites in the state during one or more survey periods, but they are not included here as no nesting was ever confirmed and for space constraints.

New Jersey Least Tern population: 2010-2019



Note: The number of colonies only includes sites where active nesting was documented.

American Oystercatcher Nesting Summary

- Although American Oystercatchers are a management priority in areas of high human disturbance, resource limitations dictate that the data collected on this non-listed species is neither comprehensive to the state (it is well known that many individuals nest in the marsh, but the vast majority are not tracked) nor is the data broken down in the same way it is for the listed species. The sites listed in the table were visited anytime from 1x/week (or less) to 7x/week.
- There was an increase in the number of pairs that were monitored by NJDFW-ENSP and partners compared to 2018 (148 pairs vs. 125 pairs) but on par with the monitored pair number in 2017 (142). However, since there is not an ability to monitor all the pairs in the state, it is difficult to put this into context. The nesting sites with the highest pair numbers on the beach strand were at Sandy Hook (28 pairs), Holgate (25), Little Beach (16) and Stone Harbor Point (25).
- The American Oystercatcher Working Group recommends a goal of 0.50 fledglings/pair and the reproductive output of monitored pairs was 0.48 fledglings/pair. Predators were the main factor in egg and chick loss. Counterintuitively, the most natural sites did not always produce the most fledglings.
- The Conserve Wildlife Foundation of NJ, with support from NJDFW-ENSP, led a banding initiative for American Oystercatchers. Although this species has been banded in NJ for many years, 2019 marked a concerted effort by these two organizations to begin a consistent banding program. In total, 19 individuals were banded in this pilot effort and that number is expected to grow in future years.
- Of the four species, American Oystercatchers show the greatest elasticity in their nesting, utilizing natural areas of marsh islands and beaches. However, they also are using more atypical areas – highly groomed beaches, rooftops, and grassy strips in parking lots among them. Their use of these areas is not well understood, and more information is needed to explain this trend and whether it is a sound, albeit counterintuitive, strategy as they adapt to a changing landscape.
- American Oystercatchers are among the beach nesting bird species that garner the most interest by the public. Their striking appearance and comical behaviors make them a natural at engaging the beach-going public. NJDFW-ENSP staff and volunteers capitalized on this curiosity to help make connections between people and the state's natural resources, including the full suite of beach-nesting birds.
- Marine debris is an ever-present problem for all beach-nesting bird species but oystercatcher is the most frequent victim of fishing line entanglements, likely due to its proclivity for foraging on jetties. Their legs get tangled but they can still fly, making them exceptionally difficult to trap if they are not associated with a nest or chicks (which can be used as a lure). If the line is not removed, observers note the legs getting increasingly swollen and infected and then the bird disappears, presumably because it died. NJDFW-ENSP has increased educational efforts on this issue and is actively searching for reliable methods to trap hard-to-capture entangled birds.

American Oystercatcher nesting summary: New Jersey 2019

All Monitored Sites

SITE	Pairs	Pairs Hatched	Chicks Fledged	Pair Success	Fledge Rate
Sandy Hook NRA	28	5	5	0.18	0.18
<i>Coast Guard</i>	2	0	0	0.00	0.00
<i>North Beach</i>	6	2	0	0.33	0.00
<i>North Beach Recreational</i>	2	0	0	0.00	0.00
<i>North Gunnison</i>	3	0	0	0.00	0.00
<i>South Gunnison</i>	3	0	0	0.00	0.00
<i>Visitor's Center</i>	1	0	0	0.00	0.00
<i>Skeleton Hill Island</i>	3	3	5	1.00	1.67
<i>Critical Zone</i>	3	0	0	0.00	0.00
<i>Hidden Beach</i>	1	0	0	0.00	0.00
<i>B-Lot</i>	1	0	0	0.00	0.00
<i>Fee Beach</i>	2	0	0	0.00	0.00
<i>South Fee Beach</i>	1	0	0	0.00	0.00
Sea Bright - North	3	0	0	0.00	0.00
Monmouth Beach - North	1	0	0	0.00	0.00
Region 2 Subtotal	32	5	5	0.16	0.16
7 President's Oceanfront Park	1 ¹	0	0	0.00	0.00
Long Branch	1 ¹	1	1	1.00	1.00
Deal	1	1	1	1.00	1.00
Bradley Beach	1	0	0	0.00	0.00
Avon	1	1	1	1.00	1.00
Belmar-Shark River Inlet	1	1	1	1.00	1.00
Belmar – Beachfront	1	1	1	1.00	1.00
Sea Girt-Wreck Pond	1	0	0	0.00	0.00
Sea Girt – NGTC	1	0	0	0.00	0.00
Point Pleasant Beach	1	1	3	1.00	3.00
Gull Island – Shoreline & CDF	1	0	0	0.00	0.00
Island Beach SP – NNA	1	1	1	1.00	1.00
Island Beach SP – SNA	1	0	0	0.00	0.00
Barneгат Light	2	0	0	0.00	0.00
Region 3 Subtotal	14	7	9	0.50	0.64
Mordecai Island	3	1	2	0.33	0.67
Holgate	25	14	16	0.56	0.64
Tucker's Island	1	0	0	0.00	0.00
Little Beach	16	0	0	0.00	0.00
Region 4 Subtotal	45	15	18	0.33	0.40
North Brigantine Natural Area	2	0	0	0.00	0.00
Atlantic City High School	1	0	0	0.00	0.00
Seaview Harbor Marina	1	1	1	1.00	1.00
Malibu WMA	2	2	5	1.00	2.50
Region 5 Subtotal	6	3	6	0.50	1.00
Corson's Inlet State Park	1	1	3	1.00	3.00
Strathmere NA	1	1	1	1.00	1.00
Strathmere Upper Twp	1	0	0	0.00	0.00
Avalon – Dunes	1	1	1	1.00	1.00
Region 6 Subtotal	4	3	5	0.75	1.25
Ring Island	3	0	0	0.00	0.00
Great Flat	1	1	0	1.00	0.00
Stone Harbor Point	25	18	18	0.72	0.72
North Wildwood	1	0	0	0.00	0.00
Two-Mile Beach	7	5	8	0.71	1.14
<i>Cape May NWR</i>	4	2	4	0.50	1.00
<i>USCG LSU</i>	3	3	4	1.00	1.33
Coast Guard-TRACEN	3	0	0	0.00	0.00
Cape May City	1	1	0	1.00	0.00
Cape May Meadows	6	1	2	0.17	0.00
<i>The Nature Conservancy</i>	4	0	0	0.00	0.00
<i>Cape May Point State Park</i>	2	1	2	0.50	1.00
Region 7 Subtotal	47	26	28	0.55	0.60
All NJ sites TOTAL	148	59	71	0.40	0.48
# Active Sites	50				