Osprey 87/K with Atlantic menhaden in Forked River, New Jersey. March 2022. Photo by Rich Nicol.

2022 NEW JERSEY OSPREY PROJECT REPORT

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NEW JERSEY OSPREY PROJECT

CONSERVE WILDLIFE
FOUNDATION OF NEW JERSEY

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In 2022, ospreys in New Jersey faced one of their toughest years in recent history. Weather had an adverse impact on the outcome of a great quantity nests in the coastal region. Despite this grim news, many pairs were still successful, especially at inland nesting sites, and productivity was still above the level to sustain the population. Overall, data recorded this past year paints a positive picture for ospreys as their range continues to expand and adults are living long, productive lives.

Before/after cleaning out a nest. In most cases, we rebuild a small nest with sticks and grass.

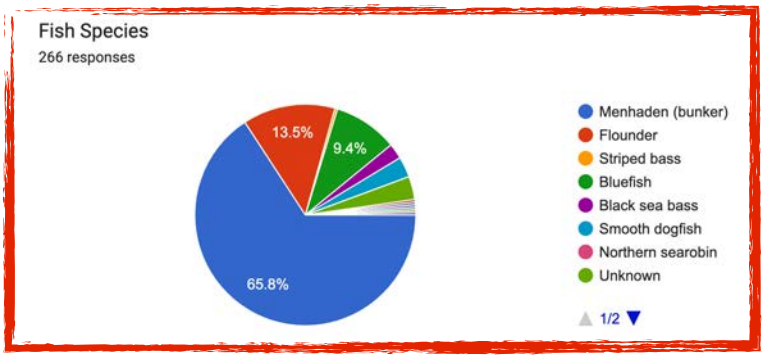
Before ospreys arrive, our small legion of dedicated volunteers makes every effort to ensure that pairs return to stable nesting platforms. Usually repairs are noted during nest surveys in the summer, but in some occasions, damage happens during the harsh winter season. With longevity in mind, we have begun to clean out nesting material from wood nest platforms. Our goal is to avoid failure of these platforms when they are active by reducing extra weight and moisture from this decomposing plant matter. This causes premature decay of the wood nestbox and possible failure of the nest. Cleaning out nests during this time also gives us a chance to remove any plastic marine debris, which may entangle birds when they return.

Since it has been five years since the last statewide (citizen scientist centered) census was conducted, this year our efforts to document nesting activity began as soon as ospreys arrived. Occupied nests (those with a nesting pair) were recorded and later surveys indicated whether those nests were active and productive (with eggs, nestlings or empty). This year, staff and volunteers recorded a total of 733 occupied nests, which was the most in the history of the project.

Results from surveys have indicated that the majority of osprey colonies were not as productive this year as they have been over the past ~20 years. This was largely due to a low pressure system (nor'easter) that stalled off the coast in early May — when the majority of pairs were incubating eggs. The strong onshore winds caused moderate coastal flooding, windy conditions, increased wave action and water turbidity, which made it more difficult for ospreys to find and catch prey in coastal waters.

Males do 100% of the foraging from the onset of egg laying until young begin to fledge, so when they are unable to provide food, females must abandon their nests and eggs to forage for themselves. At the Barnegat Light Osprey Cam, viewers watched as the 16 year old male, named Duke, disappeared for hours at a time. When he would return, he was without prey. This forced the female off her clutch of eggs to forage and sustain herself, which put her eggs at risk of predation by avian predators, like crows and gulls. Luckily, she still managed to hatch and fledge two young.

We believe that this nor'easter in May affected the outcome of many coastal nests and in some cases, entire colonies. Out of the twelve colonies surveyed throughout the state, all had reduced production, except two (Delaware River Basin and Monmouth County). The colonies with the worst production were: Sedge Islands - where the productivity rate was an average of 0.82 young/active (known-outcome) nest, which was half of the 5 year average of 1.6 young; Sea Isle City - 0.77 young/active nest (1.73); and Avalon - 0.55 (1.75), which was below the rate needed to sustain the population. Thankfully ospreys have done quite well over the past couple decades and adults are living long, productive lives, so this reduced production should not have an effect on the statewide population.



Once we got into June and July, which is the nestling period, prey availability did not appear to be an issue. Of prey observed and reported at the Barnegat Light Osprey Cam by viewers, menhaden, flounder, and bluefish were the staples. Other notable catches by the adult female were smooth dogfish (in August) and a striped killifish and northern pufferfish by one of the fledglings, which were some of its first catches.

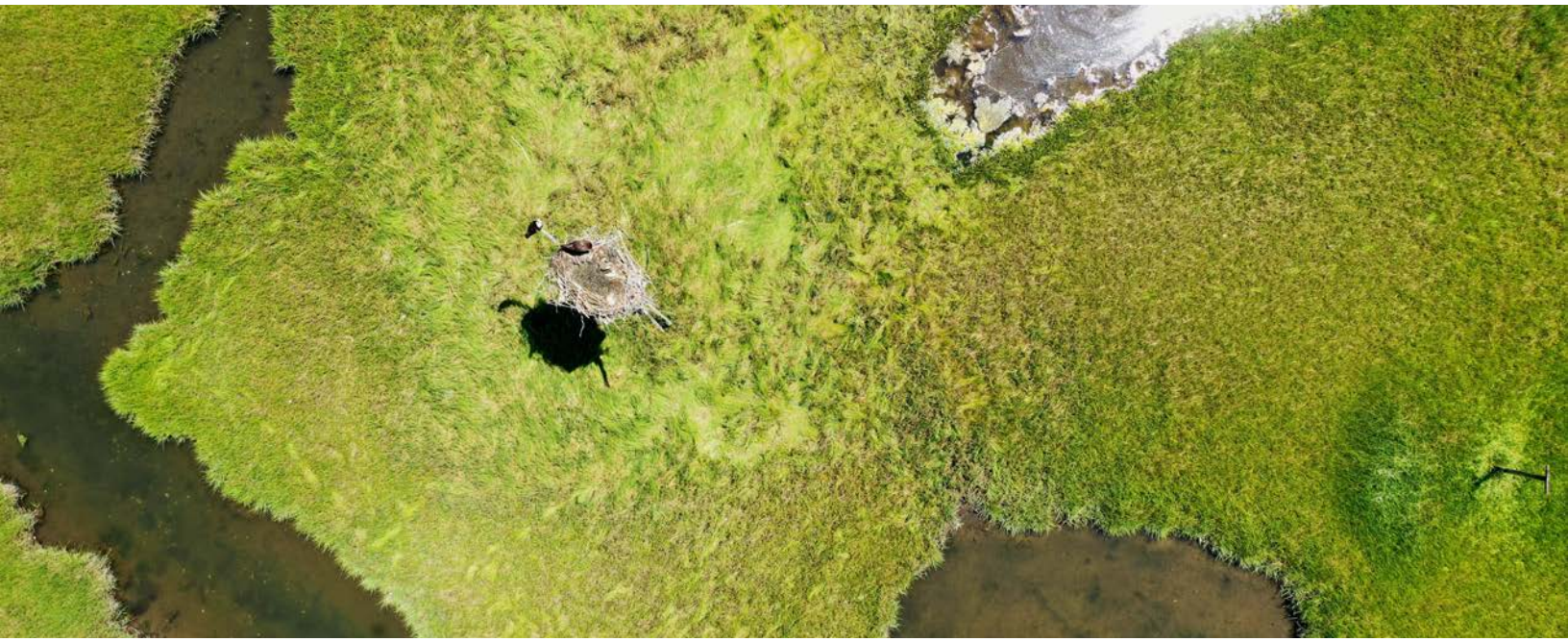
A female osprey perched on a developing, low ground nest (135-A-040) on Barnegat Bay saltmarsh. This nest was found in 2017 and the pair has yet to produce young. June, 2022.

Ospreys nest on a variety of structures throughout their range in New Jersey. The vast majority nest on wood platforms that were designed specifically for them (~75%) and others nest on utility poles, communication towers, channel markers, duck blinds, trees, and debris on the open salt marsh. Of the 45 new nests found in 2022, around half were located on utility poles. We work closely with our public utility companies to identify nests and ensure that they do not pose a risk to the birds or electrical grid. Several years ago we created a guide for removing, relocating and placing osprey nests, which provides guidance on how to deal with problematic

nests. Active osprey nests are protected during their nesting season from April 1 to August 31 and during this time, permits are required to remove a nest.

METHODS

Nesting surveys which are conducted by staff and specially trained volunteers are conducted primarily in late June and early July. This is when most ospreys have nestlings that are around 3-4 weeks old and at an age when they can be banded for future tracking. Surveys are conducted in all major colonies from Point Pleasant south to Cape May and west along the Delaware Bayshore (see table 1 for list of all colonies). Other regions are surveyed by partners, consultants and many volunteer “Osprey Watchers.”



Aerial view of an osprey nest with three young in Loveladies, New Jersey. June, 2022.

Most colonies are surveyed by boat, since most nests on wood platforms are located within saltmarsh habitat. Nest occupancy is noted by the presence or absence of adults. To determine the outcome, nests are either climbed with a ladder, viewed with a mirror/GoPro on an extendable pole, camera with telephoto lens or with a sUAS/drone. In more recent years the latter has been used primarily by the lead author, as it helps reduce time spent at nests, which reduces disturbance to adults. However, nests with visible plastic marine debris were climbed to remove that risk of suffocation or entanglement. Nests are also climbed when the young are old enough to band with aluminum USGS bird bands.

When first entering a colony and nest, it is viewed from a distance with optics. This is done to first determine occupancy. If adults are present then the nest is considered occupied. Their behavior is noted during this time. If an adult is sitting low in the nest with a flat back, then they are likely incubating eggs. If they are standing beside the nest bowl or without a flat back, then they likely have young. When approaching a nest, if they fly off their nest and actively defend it, then that is usually a sign that young are present. Presence of young is then confirmed by the

methods stated above. It is often more difficult to determine the reason for failure of nests, especially when it was unknown if eggs were present prior to our nest surveys. With many failed nests this year, established nests were assumed to have eggs if their nests were well kept and adults were present during the survey.

We continue to seek new volunteers to help survey areas that are not covered by our specially trained volunteers. These areas include Shrewsbury/Navesink Rivers, Sandy Hook, Raritan Bayshore, including Cheesequake State Park, lower Delaware River, and parts of Salem County. These Osprey Watchers visit established nests and use optics to determine if they still exist and if they are occupied and productive. Nest surveys, which should take less than an hour once a week/month from the beginning of May until the end of July. If you live in any of these areas and are interested in volunteering, please reach out to Ben Wurst.

Use of a GoPro, which is triggered remotely, has been a great tool for surveying nests and reducing disturbance. Mullica River. June, 2022.

RESULTS

In 2022, a total of 733 nests were occupied (pair present) throughout New Jersey. This is the greatest in the history of the project, which was founded in 1973 when osprey were listed as endangered. Like previous years, most ospreys nest along the Atlantic Coast (83%) and the remainder nest along the Delaware Bay (11%) and fewer inland (north and west). Around 20% of the state population is found on Barnegat Bay, which is the largest estuary on the Atlantic Coast of New Jersey and where osprey recovery began at Sedge Island WMA.

Overall, the outcome was determined in 73% of the known population (555), and those pairs produced a total of 720 young, of which 125 were banded for future tracking. A total of 206 pairs failed to produce young. The statewide average productivity rate was 1.30 young/active

(known-outcome) nest, which is the lowest recorded since 2003 (0.86). Nests within the Delaware Bay watershed had higher productivity than Atlantic Coastal colonies (1.81 vs 1.16). Again, we are lacking data from nests within Gateway National Recreation Area-Sandy Hook. All colonies had reduced productivity in 2022 (as compared to their five year average), except for colonies in northwest/inland locations and Monmouth County (here nest outcome was only determined in 20% of nests surveyed). Even though the productivity was decreased in 2022, it was still above the level needed to sustain the population.

BAND RECOVERIES & RED BAND RE-SIGHTINGS

This year 36 New Jersey banded ospreys were recovered or re-sighted. Of those, most were re-sightings of live birds, which is quite the contrast to recoveries from ten years earlier when all were deceased. These are the results of banding young ospreys with auxiliary or field readable color bands. The bright red bands that we have deployed on 499 young who originated from nests on Barnegat Bay is really paying off as more and more return to their natal areas to forage and settle down to nest as adults.

Last year, 29 ospreys were re-sighted by their red auxiliary bands. All were alive when encountered except for one, 71/C, who was electrocuted near the Bay Head Yacht Club in early May. The majority were re-sighted in New Jersey with a few from other states and countries, including Florida, Cuba, and Trinidad where 69/M, a one year old was wintering. He was re-sighted at two different locations on the island by two different photographers. Six were re-sighted more than once.

Duke, the 16 year old male who nests at the BL Osprey Cam.

The oldest ospreys re-sighted/recovered last year were 15 and 16 years old. The 15 year old originated from a nest in N. Wildwood in 2007 and was found injured during the early May nor'easter at Cox Hall Creek WMA. A 16 year old who originated at a nest on the Delaware Bay was found injured at an industrial site in Gibbstown and was euthanized, and the other was alive and has nested at the **Barnegat Light Osprey Cam** nest since 2018. He originated at a nest at Sedge Island WMA. One last notable re-sighting was of a green auxiliary banded osprey, E/37 who originated at a nest on Jamaica Bay, NY in 2018. She was re-sighted last year at a nest near Sunrise Beach in Forked River on Barnegat Bay but her band code couldn't be read. This year, photographer Rich Nicol was able to photograph her band to positively identify her. Please refer to Table 2 for all band recoveries and re-sightings in 2022.

Clockwise from top left — 52/K by Chris Kelly, 69/M by David Huggins, 93/H and 37/H by Ben Wurst, 41/H by Steve Forman, 75/K by Barbara Annarumma, 38/D by Mike Burke, 69/M by Davis Gunn and 98/K by Bob Peal.

We thank everyone who takes the time and effort to re-sight and report auxiliary banded ospreys in New Jersey! We hope to compile a Story Map over the next year to tell the story of all ospreys who have originated from Barnegat Bay and returned to nests as adults.

In summary, the average statewide productivity of ospreys was reduced in 2022. The Atlantic coastal colonies were affected by a low pressure system which stalled offshore in early May, when most pairs were incubating eggs. While this should not have any long term effects on the population, we must be cautious as the effects of climate change may make storms like this more common.

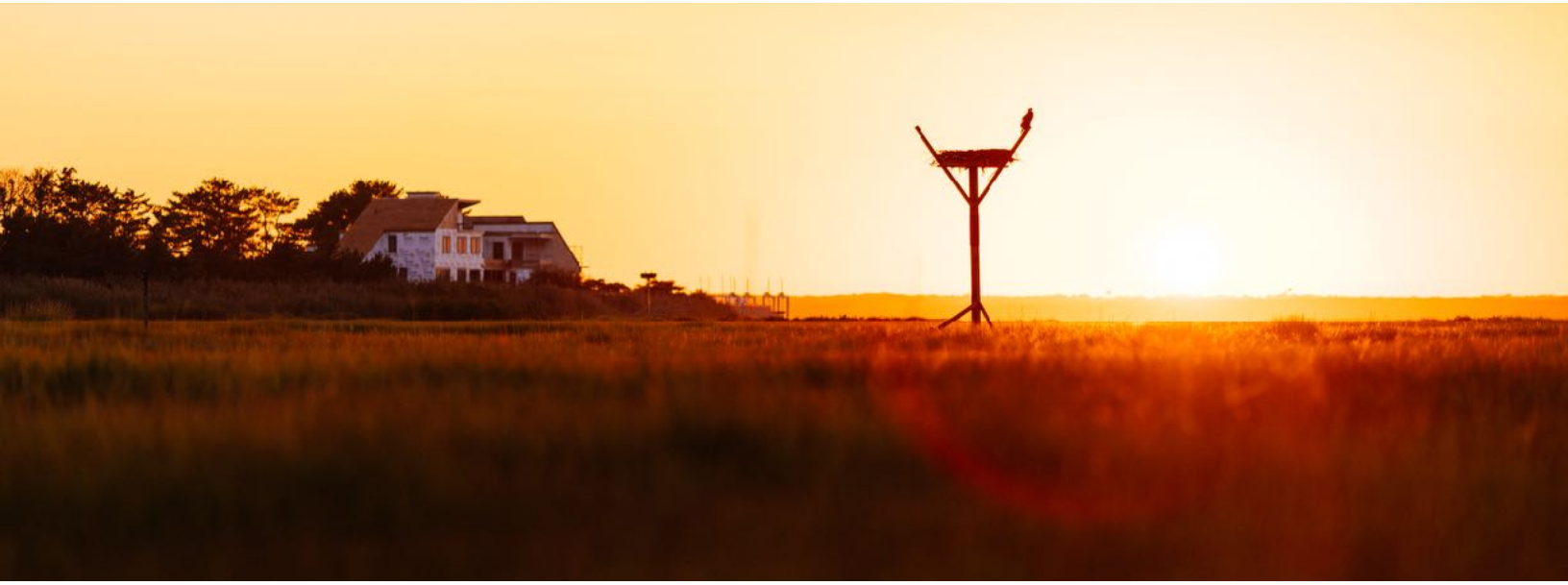
Despite the reduced productivity, staff and volunteers recorded the greatest number of nesting pairs since DDT, habitat loss and persecution decimated the population. Even with the reduced production, ospreys are slowly expanding their range in New Jersey and occupying many new structures to nest. Efforts to band young ospreys with auxiliary red bands is now paying off, with more re-sightings being of live birds. As time goes on, we hope that data collected from these birds will help us learn more about their life history living in the most densely populated state in the nation. Their collective health is a direct reflection of the health of our environment.

Project Staff: Ben Wurst, Kathy Clark, Larissa Smith

Volunteer Osprey Banders: Fred Akers - Great Egg Harbor Watershed Association, Jane and Peter Galetto - Citizens United to Protect the Maurice River and its Tributaries, Trish Miller - Conservation Science Global, Northside Jim - Nest Story, David and Kelly Natkie, Damon Noe - The Nature Conservancy, Bill Stuempfig, Matt Tribulski, Hans and Hanna Toft, John King and Wayne Russell.

Thanks to everyone who donates to Conserve Wildlife Foundation of NJ, contributes to the Endangered and Nongame Species Program through the Check-Off for Wildlife on their NJ State Income Tax, and by purchasing Conserve Wildlife License Plates!

Funding also provided by the U.S. Fish & Wildlife Service, with matching contributions from Osprey Project volunteers.



A lone male osprey perched on a nest platform in Loveladies. September, 2022.

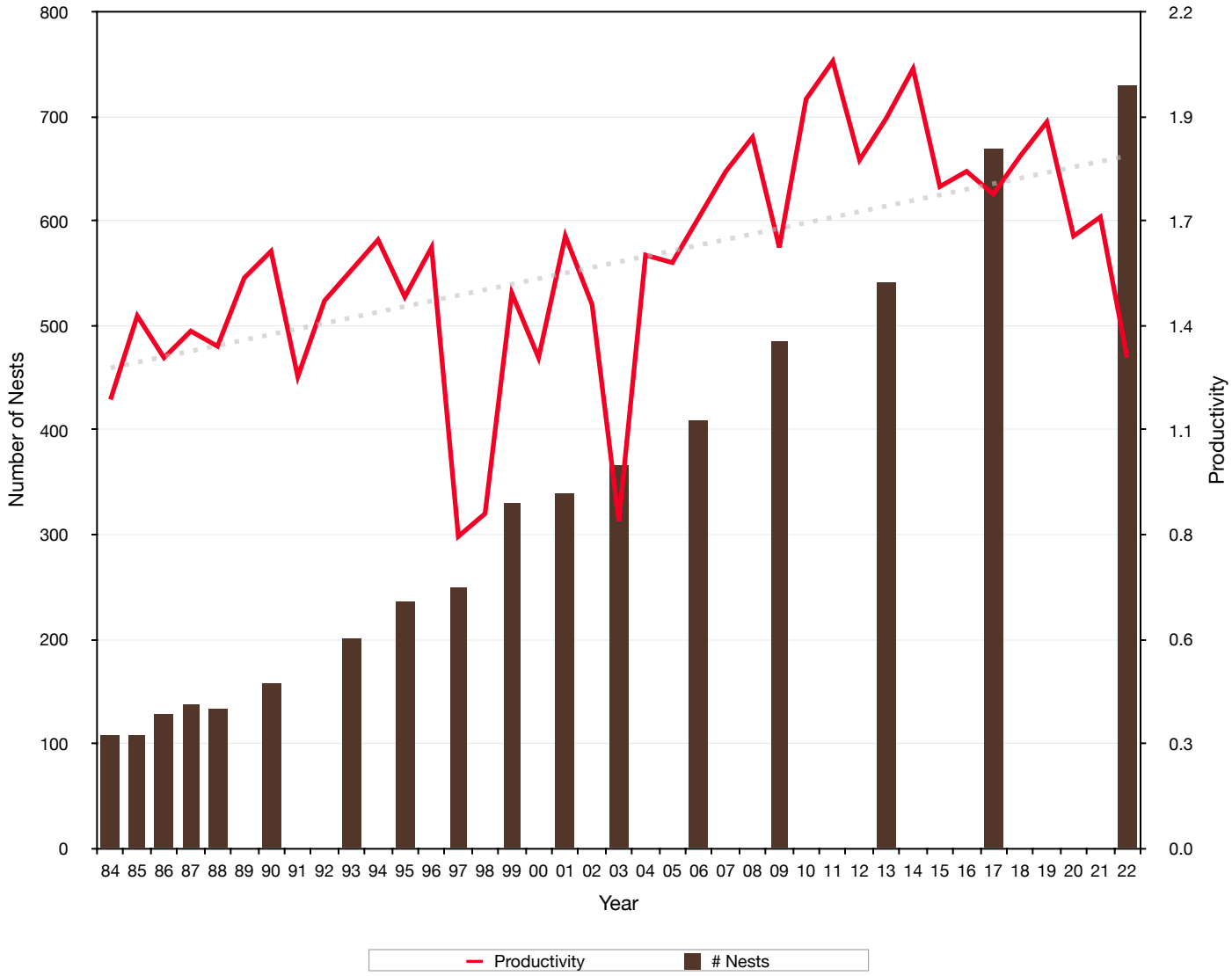
Special thanks to: Bill Clarke and the Osprey Foundation for his continued support of our efforts to monitor and manage New Jersey's ospreys.

Thanks to: Jim Verhagen – NestStory; Zoological Society of New Jersey; Don and Karen Bonica; Dr. Andrew Wurst - Barnegat Animal Clinic; Dr. Erica Miller; Osprey-Watch.org; Hugh Carola - Hackensack Riverkeeper; Bill Schultz - Raritan Riverkeeper; Borough of Seaside Heights - Public Works; Woodhaven Lumber & Millwork - Manahawkin; Joe Fallon - FMERA; Tim McGuire - McCormick Taylor; Cattus Island Park - Ocean County Parks; Citizens United to Protect the Maurice River and its Tributaries; Great Egg Harbor Watershed Association, Island Beach State Park; USDA-APHIS-Wildlife Services; Friends of Forsythe NWR; Friends of IBSP; Toms River Avian Care; Tri-State Bird Rescue & Research; The Raptor Trust; The Wetlands Institute; PSE&G; Atlantic City Electric; NJ-NY Baykeeper; Garden Club of LBI; Jetty Rock Foundation; Cape May County Mosquito Control Department; Ocean County Mosquito

Table 1. Osprey productivity in 2022 in all major nesting areas. Productivity was determined by ground surveys in June-July. Productivity rates in 2019-2021 provided for comparison.

						Previous Years		
Nesting Area	**# Nests**	**Known-Outcome Nests**	**# Young**	**# Banded**	**Production 2022**	**2021**	**2020**	**2019**
Delaware River Basin & North Jersey	32	25	52	0	2.08	1.53	2.18	1.60
Hackensack/ Hudson Rivers	13	13	22	0	1.69	1.70	1.57	1.40
Raritan River & Bay	14	6	11	0			2.17	1.32
Monmouth County	73	15	29	0	1.93	0.88	1.82	2.29
Barnegat Bay	111	72	106	0	1.47	1.53	1.45	1.93
Sedge Islands	32	22	18	2	0.82	1.50	1.24	1.86
Great Bay to Atlantic City	101	76	95	9	1.25	1.70	1.38	1.80
Great Egg Harbor/ Ocean City	104	96	130	1	1.35	1.60	2.14	2.14
Sea Isle City	41	39	30	0	0.77	1.47	2.03	1.74
Avalon & Stone Harbor	78	65	36	10	0.55	1.60	1.26	2.09
Wildwood & Cape May	57	53	59	13	1.11	1.84	1.38	1.90
Delaware Bay & Maurice River	77	73	132	90	1.81	2.10	1.65	2.09
TOTAL of Study Areas	733	555	720	125	1.30	1.66	1.61	1.91
Barnegat Bay	139	92	120	2	1.30	1.51	1.35	1.89
D. River/N. Jersey	45	38	74	0	1.95	1.59	2.03	1.60
Atlantic Coast	590	432	491	35	1.14	1.60	1.58	1.90
Delaware Bay	76	73	132	90	1.81	2.10	1.65	2.09
Total Statewide	**733**	**555**	**720**	**125**	**1.30**			

Chart 1: Number of osprey nests and average productivity in New Jersey, 1984-2022.



Commission; and all other donors and volunteers who assist with and support the project.

Table 2. Auxiliary banded osprey recoveries and re-sightings in New Jersey in 2022.

Federal Band	Aux Band	Origin Nest ID #	Date banded	Date of re-sighting	Years previously re-sighted	Distance from natal nest (miles)	Present Condition	Bird status / Location	Sex	Age
1088-06497	71/C	101-C-010	7/1/2015	3/22/2022	2021	2.63	Live	Point Pleasant	M	7
0928-11232	E/37	Jamaica Bay, NY	6/26/2018	3/27/2022	2021	55	Live	Nesting @ 122-A-008. Forked River	F	4
1218-02649	87/K	123A17	7/9/2019	3/29/2022	n/a	3.44	Live	In flight. Forked River	M	3
1088-14891	21/K	122-B-014	7/13/2018	4/3/2022	n/a	1.2	Live	Nesting @ 123-B-004. Barnegat Light	M	4
1088-14593	15/H	123-A-021	7/9/2017	4/4/2022	2021	0.92	Live	Observed at IBSP.	M	5
788-49033	-	123-A-013	7/12/2006	4/8/2022	2019-2021	2.6	Live	Nesting at BL Osprey Cam	M	16
1088-11616	62/D	147-B-037	6/26/2017	4/8/2022	n/a	40	Live	Nesting @ 092-A-008. Wall Twp.	F	5
1088-11630	74/D	135-A-015	6/27/2017	4/8/2022	n/a	3.4	Live	Harvey Cedars	M	5
1088-14593	15/H	123-A-021	7/9/2017	4/9/2022	2021	0.9	Live	Nesting @ 123-A-003. Sedge Islands	M	5
1088-08893	38/D	123-A-023	7/13/2016	4/10/2022	2016, 2020	27	Live	Nesting @ 092-A-030a. Avon-by-the-sea	F	6
1088-14619	41/H	123-A-004	7/9/2017	4/10/2022	2020	24	Live	Nesting @ 146-B-018. Bass River Twp	F	5
1088-08828	91/C	123-A-003	7/13/2015	4/11/2022	2021	3.7	Live	Nesting @ 122-A-009. Forked River	M	7
1088-14593	**15/H**	123-A-021	7/9/2017	4/13/2022	2021	0.9	Live	Nesting @ 123-A-003. Sedge Islands	M	5
1088-14891	21/K	122-B-014	7/13/2018	4/16/2022	n/a	1.2	Live	Nesting @ 123-B-004. Barnegat Light	M	4
1088-08882	27/D	123-A-002	7/12/2016	4/18/2022	n/a	3.6	Live	BL Osprey Cam		6
1088-11616	**62/D**	147-B-037	6/26/2017	4/22/2022	n/a	40	Live	Wreck Pond	F	5
1218-02635	75/K	135-A-022	7/8/2019	4/22 & 23/2022	2021	1.46	Live	Roost in High Bar Harbor	M	3
788-48561		161-A-006	7/10/2006	4/25/2022	n/a	31	Injured - fractured wing	Gibbstown, NJ	unk	16
1088-06497	**71/C**	101-C-010	7/1/2015	5/5/2022	2021	3	Dead	Bay Head, NJ	M	7
0928-00241		175-C-018	7/6/2007	5/9/2022	n/a	7.1	Injured, then died	Villas, NJ	unk	15
1218-02910	69/M	135-A-026	7/11/2021	5/12/2022	n/a	1st yr winter	Live	Trinidad & Tobago	M	> 1
1218-00859	98/K	123-A-032	7/12/2019	5/17/2022	n/a	2.3	Live	Barnegat Lighthouse State Park, NJ	M	3
1088-14615	37/H	123-A-003	7/9/2017	5/18/2022	n/a	9.7	Live	On perch w/ fish. Stafford Twp., NJ	M	5
1088-11630	**74/D**	135-A-015	6/27/2017	5/18/2022	Yes, 2020 2021	2.27	Live	Nesting @ 135-A-019, Stafford Twp., NJ	M	5
1218-02738	31/M	134-A-003	7/7/20	6/1/2022	n/a	~57 miles	Live	Sandy Hook, NJ	unk	2

Federal Band	Aux Band	Origin Nest ID #	Date banded	Date of re-sighting	Years previously re-sighted	Distance from natal nest (miles)	Present Condition	Bird status / Location	Sex	Age
1088-06451	39/C	123-A-013	7/12/14	6/4/2022	Yes, 2019,20,21	0.94	Live	Nesting @ 123-A-038, Sedge Islands	M	8
1088-08889	34/D	123-A-003	7/12/2016	6/14/2022	Yes, 2021	2.13	Live	Nesting @ 122-B-014, High Bar, NJ	M	6
1088-06487	63/C	135-A-025	6/25/2015	6/24/2022	Yes, 2020. 21	15.3	Live	Nesting @ 146-B-005	F	7
1088-14605	27/H	123-A-038	7/9/2017	6/26/2022	N/a	3	Live	Roost in High Bar Harbor tree	M	5
1218-02649	**87/K**	123-A-017	7/9/2019	7/20/2022	Yes	2.1	Live	Barnegat Lighthouse State Park, NJ	M	3
1218-02632	72/K	135-A-028	7/8/2019	7/26/2022	n/a	0.8	Live	Perched on channel marker. Loveladies, NJ	M	3
1088-14863	93/H	122-B-021	7/9/2018	7/26/2022	n/a	1.1	Live	In flight. Loveladies, NJ	M	4
1088-14589	11/H	123-A-014	7/9/2017	8/1/2022	n/a	0.46	Live	Nesting @ 123-A-028. Sedge Islands	M	5
1088-08825	90/C	123-A-018	7/13/2015	8/8/2022	Yes, 2020	2.7	Live	Nesting on water tower, Barnegat Light, NJ	M	7
1218-00818	40/K	135-A-011	6/27/2019	8/24/2022	n/a	1.4	Live	Perched on USFWS sign. Stafford Twp., NJ	M	3
1218-02910	69/M	135-A-026	7/11/2021	9/9/2022	Yes, 5/22	1st yr winter	Live	Trinidad & Tobago	M	>1
1088-08856		135-A-032	7/1/2016	3/22/2020	n/a	1.22	Live	BL Osprey Cam	M	6
1218-00829	52/K	111-A-032	7/2/2019	9/5/2022	n/a	13.87	Live	Perched on small pond. Osbornes Mills, Monmouth Co., NJ	F	3
1218-02758		175-B-004	7/6/2022	12/13/2022	n/a		Dead	Camaguey, Cuba	unk	>1
1218-05817		163-A-040	7/4/2022	10/1/2022	n/a		Dead	Yulee Heights, Florida	unk	>1
1218-05823		163-A-005	7/4/2022	12/27/2022	n/a		Dead	Ormond Beach, Florida	unk	>1