2024 Maine Coastal Birds Project Report

December 2024

Laura Minich Zitske
Laura Williams
Brad Zitske

With assistance from:
Helen Manning
Erin Campbell
Greer Lowenstein
Sophie Garland-Doré
Thea Kastelic

This project was supported by federal Pittman-Robertson Funds, federal State Wildlife Grant funds, USFWS Region 5 and Inventory and Monitoring Program; state revenues from the Loon Conservation license plate and Chickadee Check- off; the P. W. Sprague Memorial Foundation, and volunteer assistance.

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ACKNOWLEDGEMENTS

This project would not be possible without the assistance of several state and federal agencies and organizations, private citizens, and volunteers. Organizations that committed people and resources to the protection and management of Piping Plovers and Least Terns include: The Maine Department of Inland Fisheries and Wildlife, the Maine Bureau of Parks and Lands, U.S. Fish and Wildlife Service, U.S. Department of Agriculture – APHIS Wildlife Services, Maine Warden Service, the Rachel Carson National Wildlife Refuge, the Prouts Neck Country Club, and the Sprague Corporation. Special thanks to Sean Vaillancourt, Kurt Shoener, Haylee Parsons, Greg Wilfert, Brett Johnson (Bureau of Parks and Lands), Sarah Spencer, Scott Lindsay, Joshua Matijas, and Adrianna Bessenaire (MDIFW), Juliana Berube and Karl Stromayer (USFWS), and Rebecca Clark Uchenna and Robert Long (Bates/Morse Mountain Conservation Area) for their assistance throughout the year.

The success of the Piping Plover and Least Tern populations in Maine are greatly enhanced by the generous support of individual landowners. Maine Audubon and landowners have a partnership that continues to grow and strengthen each year. Most landowners from whom we have requested permission to manage their beach have agreed to allow at least some form of protection or monitoring. Over 160 landowners have worked with us to allow protection of Piping Plover and Least Tern nests on their property. The number of landowner relationships increases every year as the population grows and birds choose different nesting sites.

In addition, Trevor McCourt at Ram Island; town managers Michael Pardue in Wells, Matthew Buttrick in Ogunquit, Heather Balser in Kennebunk, Laurie Smith in Kennebunkport, Diana Asanza in Old Orchard Beach, and Thomas Hall in Scarborough; Public Works crews from Ogunquit, Wells, Biddeford, Saco, Scarborough, and Old Orchard Beach; Douglas Howard of the Scarborough Public Works Department; Lisa Wilson of the Old Orchard Public Works Department; and Prouts Neck Country Club deserve special thanks for their assistance.

Volunteers serve as the backbone for this project. Much of what we accomplish is a direct result of their efforts. Carol Sherman has devoted countless hours to the birds at Goose Rocks Beach along with Emily McCormick conducting outreach. Glennis Chabot and the Higgins Beach Association recruited and organized a team of volunteers on Higgins Beach in conjunction with the Scarborough monitoring program led by Jami Fitch. Ryan Sommer coordinated volunteers on Saco beaches. Suzanne Craig coordinated volunteers for Ogunquit Beach, Moody Beach, Wells Beach, and Drake's Island Beach. Missy Mans provided constant volunteer support on Old Orchard Beach. Rachel King was essential for her coordination of Western Beach. Peter Cohen and Dutch Walsh led a volunteer program for Crescent Beach State Park. Long Island's community embraced their second year of a nesting pair of Piping Plovers on South Beach. Special thanks are due to the Chebeague and Cumberland Land Trust for their dedication in monitoring their second known successful Piping Plover nest on The Hook Beach on Chebeague Island.

The authors are also grateful to Sally Stockwell and Karl Stromayer for providing guidance to the project and Natalie Conn for assistance in project administration. Additional thanks to our interns Clark Begley, Lily Benn, and James Foleno.

INTRODUCTION

Maine Audubon began monitoring Least Terns in 1977 and Piping Plovers in 1981. Each year an annual report has been produced and is available for review of historical data. The conservation of these species continues to be a cooperative effort with landowners and other organizations and agencies. Maine Audubon, Maine Department of Inland Fisheries and Wildlife (MDIFW), U.S. Fish and Wildlife Service (USFWS), U.S. Department of Agriculture APHIS Wildlife Services (Wildlife Services) and Rachel Carson National Wildlife Refuge (RCNWR) contribute substantially to this project each year.

Maine Audubon and RCNWR both hire and supervise seasonal personnel, negotiate management agreements with private landowners, ensure consistent management practices, compile data collected from all cooperators, provide and supervise the primary field personnel for the project, and work collaboratively with municipalities on beach management issues. The staff at the RCNWR has primary responsibility for monitoring and management of five of the 31 beaches currently being monitored. They have been invaluable in covering additional sites whenever the Maine Audubon crew was unavailable. Maine Audubon has the primary responsibility for management of the other 26 sites and for producing the annual statewide report. National Audubon Society has staff on Stratton Island managing Common and Roseate Terns as well as Least Terns when they nest there. MDIFW is the primary coordinator for municipal management agreements, provides funding support and equipment (including procuring state-owned trucks for the seasonal staff), provides overall oversight, and assists with management on several sites.

The population status of Piping Plovers in Maine remains precarious, and the birds continue to need intensive management. Although productivity of Piping Plovers has increased dramatically since exclosures were first used in 1989, predation of chicks and adults, storm activity, development, and heavy beach use by people and pets have negatively impacted reproductive success and population recovery. Extreme storms during December 2023 and January 2024 were especially damaging to both beaches and dunes across southern Maine beaches.

Maine's Least Tern population appears to be relatively stable, though there is considerable variability year to year. Productivity estimates are conservative due to the field methods used. Changes in available nesting habitat and increased predation rates, particularly by "smart predators," have affected distribution and productivity of Least Terns throughout the state.

METHODS AND MATERIALS

Population Monitoring

Plovers typically first appear in Maine in mid to late March. Monitoring began in mid to late April at all potential nesting sites. The 31 sites that are regularly monitored and managed include: Ogunquit Beach in Ogunquit; Moody, Wells, Drakes Island, and Laudholm Beaches in Wells; Crescent Surf and Parsons Beaches in Kennebunk; Batson River (Marshall Point) and Goose Rocks Beach in Kennebunkport; Fortunes Rocks/Biddeford Pool Beach (including the municipal beach) and Hills Beach in Biddeford; Goosefare Brook (Kinney Shores) and Ferry Beach in Saco; Ocean Park and Old Orchard Beach in Old Orchard Beach; Pine Point, Western/Ferry, Scarborough Beach State Park, and Higgins Beaches in Scarborough; two beaches at Ram Island Farm and Crescent Beach State Park in Cape Elizabeth; Seawall, Popham State Park, and Hunnewell Beaches in Phippsburg; and Reid State Park Beaches and Indian Point in Georgetown. Other sites were occasionally monitored, including Timber Point and Basket Island in Biddeford, Richmond Island at Ram Island Farm in Cape Elizabeth, Long Island in Casco Bay, Chebeague Island in Casco Bay, and Head Beach in Phippsburg. The annual census was held range wide between June 1 and June 10.

Beach Monitoring
Once territorial Piping Plovers or courting Least Terns were observed, sites were visited at least once a week by biologists from Maine Audubon or RCNWR. Trained volunteers and interns assisted biologists regularly, and on certain beaches volunteers provided daily monitoring throughout the nesting season.

The presence of paired and unpaired Piping Plovers and Least Terns were recorded using NestStory (neststory.org). NestStory is a mobile collection database developed by The Little Egg Foundation and used for real-time data entry in the field. This monitoring tool allowed for the tracking of Piping Plovers and Least Terns. NestStory is designed to digitally track pairs, nests, and brood locations, behavior, estimated hatch and fledge dates, predators, brood counts, and much more (Appendices I-VI). To ensure users don't leave out any necessary details, NestStory offers prompts for each data point, allowing researchers to record and monitor every pair's nesting behavior.

Least Tern Monitoring
We continue to work towards developing best practices for estimating total numbers of nesting and fledgling Least Terns. We believe all methods for counting are estimates and not "true" numbers; however, we have devised protocols to minimize noise and bias by using coordinated pair and fledgling counts. Coordinated pair counts in some years may be slightly off, and fledgling counts almost always underestimate fledgling success. Accurate estimates continue to be a challenge because of the transient nature of Least Tern colonies, the fact that fledgling birds are not individually identifiable, and that nesting and fledging at colonies within Maine often do not occur simultaneously because of frequent colony disturbance. However, a certain percentage of adults will still be missed, and double-counting those individuals who fledge early in the season is a risk. We used multiple methods to estimate the number of nesting adults within the state and the number of fledglings they produce, detailed below.

Our efforts are geared towards minimizing bias and documenting those times where a complete simultaneous count was not possible.

Window Pair Count
Least Terns are monitored along the Atlantic coast from North Carolina to Maine using the same window count protocol. The protocol calls for counts to take place between June 5-20, within a 7-day time frame, after Least Terns have settled at a nesting site, but before any major colony disruptions have occurred. This requires some coordination with partners who manage Least Tern colonies at each site to time the surveys appropriately. Ideally all counts in the state are conducted on the same day. All nests or birds in an incubating posture are counted, depending on if the count occurs within the colony or from the perimeter of the colony.

In 2024, coordinated state-wide counts took place from June 12 to 14. Nests were counted using walk- through nest counts.

Estimating Productivity
Previously, dusk surveys had been conducted (from 2003-2008) as we believed that most older fledgling terns return to the colony once the visibility for capturing fish is diminished as evening approaches. However, visibility for human observers was also greatly diminished during this time frame, making accurate counts almost impossible. Continued work leads us to believe that tidal cycle is the most important consideration when conducting surveys, as the extensive sand flats exposed at low tide make counting the birds impossible. Current surveys are slated for about two hours before high tide or 1-2 hours after high tide and after most of the chicks are fledged. If necessary, another count spaced at least two weeks apart is conducted and the numbers are added together for a total count. The number of later fledglings is compared with chick counts to ensure fledgling numbers considered "new" are roughly consistent with what we have previously observed in the colony.

During the survey, counters stood outside the colony and were spaced such that each person surveyed a specific stretch of beach. Counters used binoculars and recorded numbers of fledglings on data sheets. The areas tended to be rectangular and were "marked" using beach formations or debris, lines in the sand, or the fence posts used for symbolic fencing. Counters were stationed at all active colonies. Watches or cell phones were synchronized, and counts were conducted every five minutes. The highest and/or most consistent estimate for a single timeslot across the colony was determined to be the best estimate of total fledglings present. Unfledged chicks were also recorded. When multiple waves of fledglings were produced, additional counts were taken every two to three weeks. At Stratton Island, where the entire Least Tern colony can be observed using a single observer, continuous daily counts were taken throughout the season.

Productivity estimates at all sites are more likely an underestimate versus an overestimate. Previous research in Maine indicates a mean fledgling residency time of two weeks. Fledgling counts spaced at least two weeks apart are considered cumulative. Fledgling residency time declines over the breeding season so some fledglings may depart prior to being counted.

Fencing

In general, stake-and-twine (symbolic) fencing was erected on beaches as soon as potential nesting sites of Least Terns or Piping Plovers were identified and as landowner permission was granted. The primary purpose of symbolic fencing is to keep people and pets away from nesting birds. High priority sites were fenced first based on habitat quality and history of successful plover and tern nesting. At sites where use by Piping Plovers was unpredictable it was difficult to determine placement of fencing ahead of time; these sites were fenced as soon as plovers exhibited territorial behavior or a nest was located.

The extent of symbolic fencing varied among sites depending on recent site occupancy by Piping Plovers, the amount of habitat historically needed by plovers at each site, and on the desires of individual landowners. We requested permission to begin fencing at or near the high tide line and continue back into the dune grass, including at least some of the sparsely grassed area that provides habitat for Piping Plover and Least Tern chicks. Signs were placed around the perimeter of the symbolic fencing to alert the public to the nesting area and prevent potential impacts to nesting pairs from beachgoers (Appendix VIII). New signs were manufactured in 2018 (Appendix IX) and placed at sites when possible.

When a plover nest was found, if an exclosure was deemed suitable for the site and landowner permission was received, nests were protected with an exclosure. The exclosures consisted of approximately 50 feet of wire fencing with five metal posts spaced evenly throughout to support the fencing. The exclosure was placed around the nest so that once the exclosure was complete the plover nest would be in the middle of the circle. Blueberry netting was cut into 14-17' circles, or in some instances, squares, and secured to the top. Any excess was bunched up and fastened tightly across the top of the fencing using zip ties to diminish the chance of entanglement. In sandy locations, exclosures were erected by a minimum of two people. Where the substrate was rocky or additional interns/volunteers were available, more people were used. Exclosures generally took no more than 20 minutes to erect from start to finish. Once the exclosure was completed, the behavior of the adults was monitored to see when and if they returned to the nest. Data on the time required to exclose a nest and on the return time for plovers was recorded in NestStory.

The USFWS guidelines for using exclosures to protect Piping Plovers state that exclosures should only be constructed after a full clutch of eggs has been confirmed. This guideline serves to limit abandonment from the disturbance caused during the erection of an exclosure. Exceptions may be approved by state agencies for beaches where egg predation is very likely. Maine's heavily developed beaches often provide easy access for predators, and thus we routinely construct exclosures around partial clutches. Data from previous years indicate that exclosing partial clutches has not caused abandonment of plover nests in Maine; factors such as domestic pets, predators and human disturbance cause most of observed abandoned nests. Data continues to be collected

on abandonment of exclosed vs. unexclosed nests to evaluate potential problems.

Some predators can use the exclosures to their advantage during hunting and potentially kill multiple adults. In instances when adults were taken and we were concerned for the remaining adults, exclosures were removed from nesting areas.

Concerns about exclosure use contributing to adult deaths in certain circumstances have worried plover managers in their recovery efforts for this species. An intensive workshop dedicated to strategic decision-making directed around exclosure use was held in December of 2013. Results of this workshop indicate that in the Atlantic population, exclosures increase productivity at some sites. Research is ongoing about what factors influence the benefits of exclosures to help managers make informed decisions about whether to use them, but in the meanwhile, we will continue to use them at sites where they appear to be beneficial.

Electric Fencing

We used a solar-powered electric net fence (Premier One Electro-Stop II) around parts of the Least Tern nesting sites at Laudholm Beach in Wells and Western Beach in Scarborough. The net fence does not protect against all predation events, but if installed and maintained properly, it is an important tool for protecting Least Tern and Piping Plover nests from mammalian predators. The charge on the net fence was checked with a digital voltmeter every time the site was visited. Beach grass was cleared from the fence line on a regular basis. We found the voltage dropped on damp days, however for the majority of the time the charge was above 5,000 volts. The fencing was adjusted as the sand habitat altered and the tern colony expanded. This fencing also protects any unexclosed plover nests when they occur within the tern colony.

Predation Management

Targeted predation management provided by USDA Wildlife Services began in 2007. After years of evaluation, the data suggest that average productivity rates are higher on beaches where problem predators are removed.

Whenever nests of Piping Plovers or Least Terns were predated, every effort was made to identify the predator. Typically, this was done using track identification. Various removal methods were used to manage predators at Ogunquit Beach, Higgins Beach, and Western Beach by Wildlife Services.

Game cameras were set up in 2024 to help identify problem predators at Crescent Surf Beach.

Public Outreach Programs 2024

Outreach programs are needed to raise public awareness about the ecology and conservation of Piping Plovers, Least Terns, and migrating shorebirds and on the impacts of disturbance from recreational activities in coastal areas.

Our annual newsletter (Appendix XI) is one tool we use to reach members of the public who are currently involved in the project and to help others become more engaged. It is published at the end of the season and distributed to many beach-front landowners on beaches with either current or historic nesting plovers. The newsletter is also mailed to all collaborators including municipal officials, volunteers, and agency personnel, and is posted on the Maine Audubon website for public viewing. This year we distributed over 300 copies of the newsletter.

During 2024, we employed a part time outreach coordinator, allowing for new targeted outreach efforts and an increased social media presence. A large focus was dedicated to presentations within beach communities, large scale events, informational tables at busy beach entrances, and hosting a second annual plover celebration at Crescent Beach State Park. We also continued to use our new alternative passive outreach methods, such as increased social media efforts and ‘beach walk’ series of educational signs. We promoted our Pets for Plovers

campaign, encouraging pet owners to support plover conservation. Additionally, we partnered with Virginia Tech to launch a community-based social marketing campaign to reduce dog disturbance to nesting plovers on Higgins Beach.

Law Enforcement
For the twelfth year in a row, Maine Game Wardens patrolled beaches on dedicated details in addition to their normal duties, helping to protect Piping Plovers throughout the nesting season. Twenty-three details occurred; patrols were conducted at beaches from Ogunquit to Scarborough. Patrols began in late May and continued through early August. As with previous years, patrols were conducted during early mornings and evenings during the week, and on weekends and holidays. Zack Ostiguy, Federal Wildlife Officer with USFWS, conducted additional patrols and educated beachgoers.

Prior to conducting any patrols, all Maine Game Wardens were required to attend a training session on Piping Plovers and Least Terns. This field training included identification, life history, nesting behavior, migration, population estimates, recovery and productivity goals, and threats to the population. We had a total of at least twenty-two Game Wardens who were trained to conduct patrols.

Game Wardens interacted with hundreds of people, and we continue to receive positive feedback from people at all the beaches where the wardens patrolled. The primary purpose of game warden patrols was to prevent "take" or harassment of plovers by people or domestic animals. The Warden Service was also crucial in handling several potential instances of takes in 2024, and they followed up with investigations on several incidents including injured chicks, a landowner setting pinwheels and small flags to purposefully deter nesting birds, mysterious nest losses, removal of sand and beach manipulation by landowners nearby nest locations, and dog disturbances within areas fenced off with stake and twine as well as dogs seen chasing birds. Their presence is essential in helping the public understand the rarity of these birds, their vulnerability, and the seriousness of potential harm.

RESULTS AND DISCUSSION

Least Terns
From June 12 to 14, coordinated walking nest census counts documented a minimum of 191 nesting pairs of Least Terns in Maine. This was four more pairs than last year's 187 and was the third lowest pair count in the past ten years. This low population count could be attributed to varied disturbance and delayed nest initiation throughout the colonies which made coordinating a census count challenging. The two main causes of disturbance were high tides washing out nests and predation events that decimated some colonies during the census window, which resulted in staggered and delayed nest initiations throughout the state. During the census window we observed 15 nests on Wells, 15 nests on Laudholm, 11 nests on Crescent Surf, three nests on Parsons, 30 nests on Western, 106 on Stratton Island, ten nests on Seawall, and one nest on Half-Mile Beach at Reid State Park. The Least Terns on Wells fledged a minimum of 28 chicks, three on Laudholm, 19 from Parsons, 45 on Western and 30 on Stratton. Crescent Surf, Seawall and Reid State Park did not fledge any chicks. The state fledged a minimum total of 125 chicks for an estimated productivity of 0.65 fledglings per pair. This is the second highest productivity and third most fledged in the past ten years. Least Tern productivity can vary greatly from year to year with the reason largely unknown due to varying factors including predation, storm surge, and human disturbance.

Site Summaries for Least Terns
Following are summaries of Least Tern population estimates, comparisons to other years, and predation management used (if any) by beach, with the primary monitoring organization or agency listed under the name of each beach. A statewide summary of Least Terns is provided in the GOMSWG annual report. In addition to recently active 2024 sites, in previous years Least Terns have also nested at Higgins Beach, Pine Point, Goose

Rocks Beach, Ram Island, and Popham Beach State Park. We will continue to monitor these sites in the future for any Least Tern activity.

Wells Beach, Wells
Maine Audubon
Population Estimate: A total of 15 nests were counted during the nest census, although more were laid throughout the season. Due to winter storms, the dunes were washed over and created an even, sandy area north of Public Way 15. The Least Terns started staking their territory in late May and competing for space with two Piping Plover pairs that were scraping in that area. In early July at the peak, 60 adults and 30 nests were estimated for the Wells Beach colony. A minimum of 28 Least Terns fledged. There were no major predator events observed in the colony. Beachgoers walking through the stake and twine area continuously posed a threat and caused disturbance to the birds.

Comparison: Least Terns arrived on Wells for the first time since 2007, and at that time there was one pair and one successful fledge. In 2004, Wells was home to 15 Least Tern pairs and fledged 10 chicks. Prior to then, the last time Least Terns nested and successfully fledged chicks there was in 1979.

Predation Management: None.

Laudholm Farm Beach, Wells
Rachel Carson NWR
Population Estimate: 15 Least Tern pairs were nesting during the walking nest count census conducted on June 14. The high count for the season outside of the census window was 18 nests recorded on July 3. One fledgling count was conducted on July 23 where no fledglings were recorded but chicks were present. A second fledgling count was conducted on August 7 but all terns had left the beach. Outside of the counts, one fledgling was seen on July 22 and two were seen on August 1 which provided a minimum total of three fledglings. The causes of nest and chick loss are largely unknown though crow, coyote, fox, and Cooper's Hawk sign were recorded throughout the season. There were also multiple days with temperatures in the upper 80s and 90s that could have contributed to exposure related issues.

Comparison: 21 pairs nested at Laudholm in 2018 but all nests were predated by a fox after the electric net fence failed. There were no pairs nesting at Laudholm in 2019 or 2020. In 2021 there were 18 pairs nesting which combined with Crescent Surf's 116 pairs produced at least 81 fledglings. In 2022, 23 pairs produced 18 fledglings and in 2023, nine pairs fledged one chick.

Predation Management: An electric net fence was set up around the colony and anti-perching bird spikes were placed on top of the symbolic fencing posts.

Crescent Surf Beach, Kennebunk
Rachel Carson NWR
Population Estimate: 11 Least Tern pairs were nesting during the walking nest count census conducted on June 14. The high count for the season outside of the census window was 45 nests recorded on May 31. One fledgling count was conducted on July 23 where no fledglings were recorded. All terns had left the beach by the time a second fledgling count would have been conducted. Coyote predation is suspected to be the main source of Least Tern nest and chick loss at Crescent Surf. Throughout the season, crow, fox, and Cooper's Hawk sign were also recorded. The beach never really rebuilt after the winter storms eroded away much of the nesting habitat, so Least Terns were limited in suitable nesting habitat this year.

Comparison: Crescent Surf Beach saw its most successful years in 2015, 2013, and 2012 with productivity of 1.04, 0.76, and 0.79 respectively. 2021, 2020, 2011, 2009, and 2008 were decent years with productivities between 0.5-0.6. Productivity was poor in 2017, 2016, and 2014, and was also poor from 2003-2007. In 2022,

102 pairs nested and did not fledge any chicks and in 2023, 77 pairs fledged eight chicks.

Predation Management: Anti-perching bird spikes were placed on top of symbolic fencing posts. This was the first year since 2007 predation management was not conducted.

Parsons Beach, Kennebunk
Rachel Carson NWR
Population Estimate: Three Least Tern pairs were nesting during the walking nest count census conducted on June 14. A high count of seven nests was recorded on July 1 outside of the census window, though it is suspected more nests were present during the season. Two fledgling counts were conducted where seven fledglings were recorded on July 23 and 12 were recorded on August 7 which results in a minimum of 19 fledglings total. Crow, fox, and gull sign were recorded throughout the season as well as human and domestic dog within the nesting area.

Comparison: This was the first time Least Terns attempted nesting at Parsons Beach since monitoring began in 1977.

Predation Management: None.

Western/Ferry Beach, Scarborough
Maine Audubon
Population Estimate: Least Terns had a record-breaking season at Western beach. A total of 30 nests were counted during the census, although it is suspected many more were laid after the census window. The site, located in the middle of the beach, held up to 80 adults at one time, but consistently held around 40 starting from the end of May. A fox jumped the electric fence mid-season and predated all the nests inside. A second wave of nesting occurred after the predation event, with most nests being laid outside of the electric fencing. The terns were still largely successful with a minimum of 45 chicks fledged.

Comparison: In 2019, 35 Least Tern nests were observed on Western, but after a predation event, no nests or chicks remained. There were a minimum of five Least Tern nests in 2018 that fledged no chicks. There were 48 Least Tern nest attempts on Western in 2017, fledging five birds. In 2016, there were at least four nest attempts on Western, with no fledglings produced. Before this, terns had not nested on Western Beach since 2008, and the site had not fledged chicks since 2005, when there were a total of 40 active nests. Prior to 2005, Least Terns had not nested at the site since 1981.

Predation Management: USDA Wildlife Services removed specialist predators from Western Beach throughout the breeding season. An electric net fence was set up surrounding most of the colony.

Stratton Island
National Audubon Society
Population Estimate: 106 nests and 36 chicks were counted during the nest census conducted on June 14 and a total of 129 nest attempts were recorded throughout the season. Stratton Island had the largest Least Tern colony in the state this year. Some nests were lost to tidal wash over in June, and in early July, Black-crowned Night Herons predated the majority of the island's chicks, and the colony was slow to recover. A minimum of 30 fledglings were produced this year with a high count of 17 on July 11, and 13 fledglings seen two weeks later.

Comparison: In 2022, at least 14 fledglings were produced from 91 pairs. Black-crowned Night Heron predation was the biggest struggle in 2022. In 2021 at least 63 pairs nested on the island but abandoned after two nights of Black-crowned Night Heron predation and tropical storm Elsa, no chicks fledged. In 2020 Least Terns did not attempt to nest on the island. 84 pairs produced 14 fledglings in 2019 and 122 pairs produced 50

fledglings in 2018. In 2017 only one chick fledged from 87 nesting pairs. Stratton Island has historically hosted the second largest least tern colony in the state.

Predation Management: Predation management was conducted on Stratton Island. Specialist predators targeting the colony were removed.

Higgins Beach, Scarborough
Maine Audubon
Population Estimate: Around 45 Least Terns were observed touching down and courting on Higgins Beach in mid-May. Least Terns never nested and by June 1 abandoned the area. It is suspected there was a disturbance event that caused the colony to choose another area.

Comparison: In 2023, 20 Least Tern nests were counted but no chicks fledged. A colony with at least 51 nesting pairs fledged a minimum of five chicks in 2022. In 2021, at least 71 pairs nested and fledged a minimum of 17 chicks. A colony of 128 nesting pairs of Least Terns on Higgins Beach fledged at least 50 chicks in 2020. A smaller colony of 55 pairs fledged 16 chicks in 2019. A small colony was unsuccessful in 2018 and no terns nested in 2017. In 2016, a colony had begun to form at the end of May, but a storm tide in early June washed over the area, and no nests were laid. In 2015 and 2014 small colonies formed at Higgins Beach, fledging 13 chicks in 2015 and none in 2014. No Least Terns nested on Higgins between 2010-2013.

Predation Management: USDA Wildlife Services removed specialist predators from Higgins Beach throughout the breeding season.

Seawall Beach, Phippsburg
Maine Audubon
Population Estimate: Least Terns touched down on the Morse River side of Seawall Beach with consistent numbers of around 40 adults starting in late May. On June 4, a high count of 16 nests were observed. Before the census window count, a large portion of the colony was predated by fox and skunks; 10 nests were counted for the census. A high tide event flooded these remaining nests. Pairs began to nest again and as the birds continued to lay eggs, the eggs were predated by fox. The only chick observed was on July 3, with only around a dozen adults flying around the area, and five incubating nests. On the subsequent visits, the chick and all nests had been predated. By July 18, the colony was abandoned.

Comparison: Last year, predators were just as prevalent of an issue as they were this year, if not more. There was a high count of 11 nests at one time, with 50 adults, and no chicks hatched or fledged. However, in 2021, 39 chicks fledged from a colony of 60 adults. Prior to 2020, Least Terns did not nest on Seawall since 2005, where the colony was predated, resulting in no chicks hatching.

Predation Management: None.

Reid State Park, Georgetown
Maine Audubon
Population Estimate: Between late May and early July, an average of seven Least Terns were regularly spotted at Half Mile Beach. One nest was counted during the census window. Three hatched chicks were observed on July 5 but not seen in following visits. Predation and tidal over wash were consistent issues for the colony, which eventually abandoned by late July.

Comparison: Least Terns had not nested at Reid State Park since 2006, prior to 2023, with only one chick hatching but not fledging. Even in 2006, no chicks fledged.

Predation Management: None.

Piping Plovers

A total of 143 pairs of Piping Plovers nested at 29 Maine beaches in 2024 (Tables 4, 8), 14 pairs less than last year's high count. A total of 237 fledglings were produced in 2024, resulting in a productivity of 1.66 chicks/pair, which exceeds our recovery goals of 1.5 chicks fledged per pair (Table 3). Chicks had a 54% survivorship (Table 7). Of the 174 nesting attempts in 2024, 10 were lost to over-washing tide, three were abandoned prior to hatch, 37 nests were predated, two were buried, one had nonviable eggs, and one was lost to other unknown causes (Table 5). Of the 174 nesting attempts, 53 were exclosed (Table 6). The nesting outcomes were 49 of the exclosed nests successfully hatched, and four were lost to tide (Table 6). Of the 121 unexclosed nests, 71 hatched, 37 were predated, six were lost to over-wash, three abandoned prior to hatch and another four were lost to other causes (Table 6). Crows and other birds predated at least 15 nests, while mammalian predators consumed 11 nests, and the remaining 11 were lost to an unknown predator (Table 6). Overall, 68% of eggs successfully hatched (Table 7).

Exclosures were not erected for nests at sites when the nests were located on the steep dune or in very dense vegetation, thus making an exclosure impossible or dangerous. Predator activity altered the use of exclosures at sites such as Goose Rocks, Ferry and Old Orchard Beach where predators appear to be keying in on the fencing as an indicator of nests or were otherwise putting adults at greater risk. In those cases, the nest was not exclosed until biologists deemed it safe to do so. Exclosures were not erected in certain areas at sites such as Wells, Western and Seawall Beaches once Least Tern colonies arrived, to reduce the risk of tern injury.

Predation management measures were conducted by USDA Wildlife Services biologists at three sites with nesting Piping Plovers: Ogunquit, Western, and Higgins. Wildlife Services activity at all three sites was constrained by intense human activity; Wildlife Services observed regular unpermitted and destructive activities at these sites including dog disturbances in nesting areas. Their observations were essential in limiting disturbance to nesting plovers from people and pets, as their presence during early hours restricted new disturbance.

The number of Piping Plover nesting pairs decreased 9% from 2023 to 2024, from 157 pairs to 143 pairs (Table 4). Although number of pairs decreased, productivity was higher overall. We also had record high breeding pairs on the following beaches: Wells, Western, and Crescent Beach State Park, and record high fledgling counts for four Maine beaches: Goose Rocks, Pine Point, Western, and Scarborough Beach State Park. For ten consecutive years we have detected at least 60 pairs of nesting plovers in Maine, and for the past six years we have had 89 or more nesting pairs, whereas we did not exceed 66 pairs in Maine for the first 37 years of monitoring. These numbers demonstrate the effectiveness of our multi- leveled conservation efforts using outreach, enforcement, and predation management in addition to fencing and other more traditional management techniques.

For the past decade, we began to see plover nesting activity more broadly distributed among several sites after many years where most of Maine's plovers were concentrated at a handful of locations. The increasing trend in nesting distribution continued in 2024, with ten beaches hosting at least five nesting pairs, nine beaches fledging at least ten chicks, and one new nesting site (Table 4). The recovery of Maine's plover population and subsequent re-colonization of sites is encouraging as the population grows and disperses. This more widespread nesting distribution is important for future success as it takes pressure off a few sites and should make for a more stable and resilient population in future years.

GPS coordinates were collected for each nesting attempt (Appendix XII) and maps of brood locations and movements were sent to the MDIFW to produce GIS maps for the project (Appendix XIII).

Site Summaries for Piping Plovers

Ogunquit Beach, Ogunquit
Maine Audubon
Ogunquit Beach was damaged by winter storms and lost some typical nesting areas, but still was home to 14 breeding pairs in 2024 and fledged 21 chicks. An adult plover was found deceased in the stake and twine in early June. There was no evidence of puncture wounds or blood but there was a set of human tracks leading to the stake and twine. Those human tracks continued down the beach lower from the fencing and had fresh dog tracks paralleling them. Maine Game Wardens were contacted and the bird was collected. A high dune vegetation nest, 10A, was found with help from an Ogunquit volunteer. This nest fledged all four chicks and the adults helped the newborn chicks navigate down the steep dune to forage and grow on the ocean side of Ogunquit beach. Many nests were found in dangling roots exposed in the dune edge where plovers found natural camouflage and protection. Unfortunately, due to the loose sand and steep dunes, nests 01A and 13A were both buried and the eggs were not recovered by the adults. Nest 09A nested on an unstable section of protruding dune and as the sand continued to fall, the eggs rolled out of the nest. The pair re-scraped at the location where the eggs rolled to and successfully incubated and hatched three eggs. Pair 06A included banded male 464, back for his sixth consecutive breeding season. A deceased chick was found in the nest cup for Pair 06A and was only observed with one chick. The following visit the entire brood was lost.

USDA Wildlife Services removed specialist predators from Ogunquit beach throughout the breeding season. Due to this effort, we only lost two nests, 13B and 14A, from crow predation.

Beach	Nest	Discovery	Eggs	# Hatched	Nest Loss Date	Nest Fate	Actual Hatch	Exclosed	Actual Fledge	# Fledged
Ogunquit	01A	4/29/24	4	0	6/3/24	B	--	N	--	0
Ogunquit	02A	4/30/24	4	4	--	H	6/3/24	N	6/28/24	2
Ogunquit	03A	5/6/24	4	4	--	H	6/9/24	N	7/4/24	4
Ogunquit	04A	5/6/24	4	4	--	H	6/7/24	N	7/2/24	2
Ogunquit	05A	5/6/24	4	1	--	H	6/8/24	N	7/4/24	1
Ogunquit	06A	5/6/24	4	4	--	H	6/7/24	N	--	0
Ogunquit	07A	5/10/24	4	3	--	H	6/8/24	N	7/2/24	3
Ogunquit	08A	5/14/24	3	3	--	H	6/17/24	N	7/12/24	3
Ogunquit	09A	5/18/24	3	3	--	H	6/21/24	N	--	0
Ogunquit	10A	5/19/24	4	4	--	H	6/21/24	N	7/16/24	4
Ogunquit	11A	5/22/24	3	3	--	H	6/21/24	Y	--	0
Ogunquit	12A	5/27/24	4	4	--	H	6/24/24	Y	7/19/24	2
Ogunquit	13A	6/6/24	4	0	6/17/24	B	--	N	--	0
Ogunquit	14A	6/13/24	4	0	7/8/24	P	--	N	--	0
Ogunquit	01B	6/21/24	4	2	--	H	7/12/24	N	--	0
Ogunquit	13B	6/21/24	3	0	6/26/24	P	--	N	--	0
									Total Fledged	**21**

Moody Beach, Wells

Maine Audubon

Two pairs nested on Moody Beach this season, but only one nest successfully hatched and fledged three chicks. Both nests were along the seawall and were in adjacent stake and twine areas. Nest 02A, with four eggs, was lost due to an unknown cause, but likely was lost to predation or washed out by a high tide. Moody Beach experienced challenges this season due to the loss of majority of the dunes to the late winter storms, as well as many disturbances from off leash dogs throughout the breeding season.

Beach	Nest	Discovery	Eggs	# Hatched	Nest Loss Date	Nest Fate	Actual Hatch	Exclosed	Actual Fledge	# Fledged
Moody	01A	5/16/24	4	4	--	H	6/16/24	N	7/11/24	3
Moody	02A	5/27/24	4	0	6/10/24	U	--	N	--	0
									Total Fledged	**3**

Wells Beach, Wells

Maine Audubon

Wells Beach had another record breaking year with 17 breeding pairs. Thirteen of those pairs successfully fledged 37 chicks, the second highest amount of chicks fledged from a Maine beach ever. Despite houses lining the beach and storm damage to the existing dunes, Wells had the highest number of fledglings this season in Maine. In May, spring tides caused three nests to be washed, 07A and 08A and 12A, as they were either close to seawalls or in a wrack line. All others nests hatched. However, 15A and 18A broods were lost, likely due to the challenge of close proximity of the Least Tern colony and territorial nesting terns. Nest 14A had a clutch of six eggs. All but two of the eggs hatched, but the brood was lost to unknown causes. A non-breeding pair that was scraping by PW15 lost an adult in late May due to an unknown cause but suspected trauma. An injured, limping chick from 07B was spotted by Wells Lifeguards on July 8. The bird was never seen again and presumed predated by the following morning.

Beach	Nest	Discovery	Eggs	# Hatched	Nest Loss Date	Nest Fate	Actual Hatch	Exclosed	Actual Fledge	# Fledged
Wells	01A	4/25/24	4	4	--	H	5/28/24	Y	6/22/24	3
Wells	02A	4/25/24	4	3	--	H	5/27/24	Y	6/21/24	1
Wells	03A	4/28/24	4	4	--	H	5/30/24	Y	6/24/24	2
Wells	04A	4/29/24	4	4	--	H	6/1/24	N	6/26/24	4
Wells	06A	4/29/24	4	4	--	H	5/30/24	Y	6/24/24	4
Wells	07A	5/2/24	3	0	5/14/24	W	--	Y	--	0
Wells	08A	5/2/24	3	0	5/14/24	W	--	N	--	0
Wells	09A	5/2/24	3	3	--	H	6/2/24	N	6/26/24	3
Wells	05A	5/3/24	4	4	--	H	6/2/24	N	6/26/24	4
Wells	10A	5/3/24	4	4	--	H	6/2/24	N	6/26/24	4
Wells	11A	5/6/24	4	4	--	H	6/5/24	N	7/4/24	3
Wells	12A	5/8/24	0	0	5/10/24	W	--	N	--	0
Wells	13A	5/10/24	4	4	--	H	6/9/24	N	7/4/24	2
Wells	14A	5/15/24	6	4	--	H	7/2/24	N	--	0
Wells	15A	5/20/24	4	2	--	H	6/21/24	Y	--	0

Wells	07B	5/20/24	4	4	--	H	6/19/24	N	7/16/24	2
Wells	08B	5/27/24	4	4	--	H	6/19/24	N	7/16/24	3
Wells	17A	5/27/24	4	3	--	H	6/24/24	N	7/19/24	2
Wells	18A	5/27/24	4	4	--	H	6/26/24	N	--	0
									Total Fledged	**37**

Drakes Island, Wells

Maine Audubon

This year, Drakes Island hosted two breeding pairs for the second time ever and fledged a total of three chicks. Both nests were found in the dune grass, nest 01A by the edge of the dune and nest 02A farther back in the dune in an open patch of sand. A Killdeer pair nested for the second consecutive year in the symbolic stake and twine on the beach.

Beach	Nest	Discovery	Eggs	# Hatched	Nest Loss Date	Nest Fate	Actual Hatch	Exclosed	Actual Fledge	# Fledged
Drakes	01A	5/14/24	4	4	--	H	6/11/24	N	7/6/24	1
Drakes	02A	5/16/24	4	4	--	H	6/11/24	N	7/6/24	2
									Total Fledged	**3**

Laudholm Beach, Wells

Rachel Carson NWR

Three pairs of Piping Plovers nested on Laudholm Beach in 2024 and produced three fledglings. Two nests were exclosed and one was not due to rocks and thick vegetation preventing the exclosure from being installed. The exact causes of chick loss are unknown due to lack of direct evidence. Crows, a Cooper's Hawk and fox tracks were seen during the time periods when chicks went missing as well as weather events including multiple days with temperatures in the 90s and a day with fog and rain.

Beach	Nest	Discovery	Eggs	# Hatched	Nest Loss Date	Nest Fate	Actual Hatch	Exclosed	Actual Fledge	# Fledged
Laudholm	01A	5/10/24	2	2	--	H	6/8/24	N	7/3/24	1
Laudholm	02A	5/10/24	4	4	--	H	6/10/24	Y	--	0
Laudholm	03A	5/20/24	4	3	--	H	6/21/24	Y	7/16/24	2
									Total Fledged	**3**

Crescent Surf Beach, Kennebunk

Rachel Carson NWR

This year, seven pairs of Piping Plovers fledged nine chicks. Three of the eight nest attempts were unable to be exclosed as two nests were in dense vegetation, and one was located on the edge of the dune. Nest 06A had nonviable eggs that never hatched and was incubated for 39-43 days. Nest 02A was predated with no visible tracks near it, so the predator is unknown. The nest cup was destroyed and one broken egg was found nearby. Fox and coyote tracks were seen on the beach but did not go directly to the nest location. Nest 03A lost one egg to suspected rodent predation, possibly chipmunk or vole tracks were along the dune leading to the nest cup.

The causes of chick loss are largely unknown, although one chick was suspected to have been killed by neighboring territorial adult plovers. During the time periods when other chicks went missing, crow, coyote, Great-horned Owl, Cooper's Hawk, fox and gull sign were recorded. In addition, there were multiple days with temperatures in the upper 80s and 90s as well as some rain and fog events.

Beach	Nest	Discovery	Eggs	# Hatched	Nest Loss Date	Nest Fate	Actual Hatch	Exclosed	Actual Fledge	# Fledged
Crescent Surf	01A	5/6/24	4	4	--	H	6/3/24	Y	6/28/24	4
Crescent Surf	02A	5/6/24	4	0	5/28/24	P	--	N	--	0
Crescent Surf	03A	5/6/24	4	3	--	H	6/5/24	N	6/30/24	1
Crescent Surf	04A	5/6/24	2	0	5/9/24	W	--	Y	--	0
Crescent Surf	05A	5/9/24	4	4	--	H	6/9/24	Y	7/4/24	3
Crescent Surf	06A	5/13/24	3	0	6/25/24	D	--	N	--	0
Crescent Surf	07A	5/13/24	4	4	--	H	6/9/24	Y	--	0
Crescent Surf	02B	6/5/24	4	4	--	H	7/4/24	Y	7/29/24	1
									Total Fledged	**9**

Parsons Beach, Kennebunk

Rachel Carson NWR

Five pairs of Piping Plovers nested on Parsons Beach in 2024 and fledged seven chicks. Only one nest was able to be exclosed as four nests did not receive landowner permission for management, and two nests were in a rocky area preventing an exclosure from being hammered in. Two nests were lost to predation, one by crows and the other by fox. Nest 05A lost two of its eggs to tidal wash over and one chick died in the process of hatching. Nest 03B did not hatch one egg and one chick died in the process of hatching six days after the first egg hatched. The exact causes of chick loss are unknown though during the time periods when chicks went missing, crow, fox, gull, and domestic dog sign were recorded as well as temperatures in the upper 80s and 90s and a few rain events.

Beach	Nest	Discovery	Eggs	# Hatched	Nest Loss Date	Nest Fate	Actual Hatch	Exclosed	Actual Fledge	# Fledged
Parsons	01A	5/7/24	4	4	--	H	6/6/24	Y	7/1/24	3
Parsons	02A	5/13/24	3	0	6/3/24	P	--	N	--	0
Parsons	03A	5/13/24	4	0	6/11/24	P	--	N	--	0
Parsons	04A	5/16/24	4	4	--	H	6/16/24	N	--	0
Parsons	05A	5/20/24	4	1	--	H	6/24/24	N	7/19/24	1
Parsons	02B	6/6/24	4	4	--	H	7/6/24	N	7/31/24	3
Parsons	03B	6/20/24	3	1	--	H	7/18/24	N	--	0

									Total Fledged	**7**

Marshall Point, Kennebunkport

Rachel Carson NWR

One pair of Piping Plovers nested on Marshall Point but the nest was lost to predation. The nest cup was found empty with two broken eggshells about fifteen feet up the dune from the nest cup. There were no visible tracks in the sand near the nest cup or eggshells. Fox and crow tracks were recorded on the beach, so either is a possible cause or an undetected predator. The nest was unable to be exclosed due to vegetation and location on the dune face. The pair did not attempt to renest. Brood 12A from Goose Rocks Beach crossed the Batson River with their four chicks sometime within three days of hatching. The brood was seen one day after hatch on Goose Rocks and six days later spotted at Marshall Point. Two of the four chicks fledged.

Beach	Nest	Discovery	Eggs	# Hatched	Nest Loss Date	Nest Fate	Actual Hatch	Exclosed	Actual Fledge	# Fledged
Marshall Point	01A	5/23/24	4	0	6/4/24	P	--	N	--	**0**

Goose Rocks Beach, Kennebunkport

Maine Audubon

Goose Rocks Beach was home to 12 pairs and 28 fledglings this summer. The west end had a majority of the pairs nest in the dune grass and on the open sand. In May, many cat tracks were seen, which made exclosing nests not an option. Other predators such as skunk, fox, and raccoon tracks were seen and were responsible for seven predated nests. Nests 02B and 05B were renests of predated dune grass nests, where the birds moved out of the dune onto the open sand. Nest 02B fledged four chicks, while nest 05B was lost again. The east end of Goose Rocks was more susceptible to boat access traffic especially on Dinghy Point. Although the town staked off the point, locals still stored their canoes, kayaks, and dinghies along the stake and twine near nest attempts of 10A and 10B. Around the time 10B was lost, there were trailer dolly tracks right along the stake and twine that protected the nest. This disruption and stress would have made the nest more likely to be unattended and more vulnerable to predators.

Beach	Nest	Discovery	Eggs	# Hatched	Nest Loss Date	Nest Fate	Actual Hatch	Exclosed	Actual Fledge	# Fledged
Goose Rocks	01A	5/7/24	4	0	5/24/24	P	--	N	--	0
Goose Rocks	02A	5/7/24	4	0	5/21/24	P	--	N	--	0
Goose Rocks	03A	5/10/24	4	4	--	H	6/9/24	N	7/5/24	4
Goose Rocks	04A	5/14/24	4	4	--	H	6/16/24	N	7/11/24	2
Goose Rocks	05A	5/14/24	4	0	5/24/24	P	--	N	--	0
Goose Rocks	06A	5/21/24	4	4	--	H	6/22/24	N	7/17/24	4
Goose Rocks	07A	5/21/24	4	4	--	H	6/16/24	N	7/11/24	4
Goose Rocks	08A	5/21/24	4	4	--	H	6/14/24	N	7/9/24	3

Goose Rocks	09A	5/24/24	4	0	5/31/24	P	--	N	--	0
Goose Rocks	02B	5/24/24	4	4	--	H	6/23/24	N	7/18/24	4
Goose Rocks	05B	5/29/24	4	0	6/27/24	P	--	N	--	0
Goose Rocks	01B	5/31/24	4	4	--	H	6/30/24	N	7/23/24	2
Goose Rocks	10A	6/3/24	4	0	6/14/24	P	--	N	--	0
Goose Rocks	09B	6/17/24	4	4	--	H	7/9/24	N	8/2/24	3
Goose Rocks	11A	6/19/24	3	3	--	H	7/21/24	N	--	0
Goose Rocks	12A	6/24/24	4	4	--	H	7/8/24	N	8/2/24	2
Goose Rocks	10B	6/24/24	4	0	7/15/24	P	--	N	--	0
									Total Fledged	**28**

Timber Point, Biddeford

Rachel Carson NWR

One pair of Piping Plovers made one nest attempt which was lost to tidal wash over the day after it was found. The pair did not attempt to renest and left the beach after the nest failed. Piping Plovers have not been documented to nest at this location since monitoring began in 1981.

Beach	Nest	Discovery	Eggs	# Hatched	Nest Loss Date	Nest Fate	Actual Hatch	Exclosed	Actual Fledge	# Fledged
Timber Point	01A	6/6/24	1	0	6/7/24	W	--	Y	--	**0**

Fortunes Rocks Beach, Biddeford

Maine Audubon

In 2024 Fortunes Rocks had seven breeding pairs and 12 chicks successfully fledged. Due to the winter and spring storms, many of the homeowners restored their dunes by rebuilding and planting dune grass. Homeowners also erected snow fencing to protect their dunes from foot and dog traffic. Many of the nesting plovers found protected areas behind the snow fencing and successfully hatched their eggs. Two pairs nested in front of seawalls. The easternmost pair had the only exclosed nest on the beach due to the new dune restoration being unstable. Biddeford Pool Public Beach section had one pair that fledged three chicks. The Middle Beach portion is mostly private property and the dog rules are ambiguous. One chick, from Nest 05A, was injured and ultimately died from a suspected dog attack on June 24. The crew discovered the deceased chick during the beach survey that day and it was collected. USFWS Service Law Enforcement was notified and is dealing with the issue.

Beach	Nest	Discovery	Eggs	# Hatched	Nest Loss Date	Nest Fate	Actual Hatch	Exclosed	Actual Fledge	# Fledged
Fortunes Rocks	01A	4/30/24	4	4	--	H	6/1/24	N	6/28/24	4

Fortunes Rocks	02A	5/3/24	4	4	--	H	6/5/24	Y	6/30/24	2
Fortunes Rocks	03A	5/3/24	4	4	--	H	6/3/24	N	6/28/24	2
Fortunes Rocks	04A	5/7/24	4	4	7/1/24	h	6/5/24	N	--	0
Fortunes Rocks	05A	5/10/24	4	4	--	H	6/9/24	N	7/6/24	1
Fortunes Rocks	06A	5/24/24	4	3	--	H	6/27/24	N	7/22/24	3
Fortunes Rocks	07A	5/31/24	4	0	6/11/24	W	--	N	--	0
Fortunes Rocks	07B	6/17/24	4	4	--	H	7/16/24	N	--	0
									Total Fledged	**12**

Hills Beach, Biddeford

Maine Audubon

This year on Hills Beach, three pairs nested and two pairs fledged one chick each. Hills Beach can be a challenging place to manage for plovers for a variety of factors. Outdoor house cat roaming the beach by the Surf Ave entrance and ongoing dog presence continues to be an issue, as well as landowners permitting minimal management for nesting and brooding areas. Hills is the only Maine beach where the public can drive on the beach out to Basket Island, also putting plovers and chicks at risk.

Beach	Nest	Discovery	Eggs	# Hatched	Nest Loss Date	Nest Fate	Actual Hatch	Exclosed	Actual Fledge	# Fledged
Hills	01A	5/7/24	4	4	--	H	6/9/24	N	7/5/24	1
Hills	02A	5/10/24	4	4	--	H	6/12/24	N	7/7/24	1
Hills	03A	5/10/24	4	4	--	H	6/9/24	N	--	0
									Total Fledged	**2**

Ferry Beach, Saco

Maine Audubon

Ferry Beach had three nest attempts by two plover pairs this year. Two nest attempts by one pair in the Kinney Shores area were unsuccessful, both predated by crow. These nests were not exclosed due to regular sightings of cat tracks within the area. Nest 02A, which was near the State Park area, went on to hatch three chicks and fledge two. Ferry Beach also hosted the sole fledgling from Old Orchard, which swam across Goosefare Brook as a 9-day-old chick with both parents before landing in Kinney Shores to brood.

Beach	Nest	Discovery	Eggs	# Hatched	Nest Loss Date	Nest Fate	Actual Hatch	Exclosed	Actual Fledge	# Fledged
Ferry	01A	5/6/24	4	0	5/22/24	P	--	N	--	0
Ferry	01B	5/30/24	2	0	6/7/24	P	--	N	--	0
Ferry	02A	6/14/24	4	4	--	H	7/15/24	Y	8/9/24	2

									Total Fledged	**2**

Goosefare Brook, Saco

Rachel Carson NWR

One pair of Piping Plovers fledged two chicks at Goosefare Brook. Nest 01A was lost to tidal wash over and beach erosion. The river at this site changed direction with the monthly high tides and eroded away the beach until the nest fell into the river. Nest 01B hatched only two of the three eggs. Both chicks survived to fledge. Brood 07A from Old Orchard passed through this area while moving southward onto Ferry Beach.

Beach	Nest	Discovery	Eggs	# Hatched	Nest Loss Date	Nest Fate	Actual Hatch	Exclosed	Actual Fledge	# Fledged
Goosefare Brook	01A	5/21/24	4	0	6/6/24	W	--	Y	--	0
Goosefare Brook	01B	6/14/24	3	2	--	H	7/12/24	Y	8/6/24	2
									Total Fledged	**2**

Ocean Park Beach, Old Orchard

Maine Audubon

In 2024, no Piping Plover nests were found in Ocean Park. While tracks were frequently seen during bi-weekly surveys, only a few scrapes were observed during one visit early in the season. Brood 07A from Old Orchard passed through Ocean Park and stayed for a few days, before crossing Goosefare Brook into Saco.

Old Orchard Beach, Old Orchard

Maine Audubon

Old Orchard Beach had a total of nine nest attempts this year. Due to a heavy predator load and consistent human disturbances, only two nests hatched and one chick fledged after moving to Saco. Nest 07A lost three chicks before the brood crossed Goosefare Brook into Saco, where they remained until the sole chick fledged. Since cat tracks were seen throughout the stretch of nests east of the pier, the majority of nests were not exclosed as a caution to prevent adult plover death. Six nests were predated by crows, and Nest 01B was abandoned, likely due to the presence of an outdoor cat; as neither adult was observed after cat tracks were found around the nest site. Heavy beach raking occurred regularly on Old Orchard, and the Coastal Birds Project crew often observed the operation of beach cleaning equipment without the use of spotters. There continue to be challenges regarding communication and understanding of what is permitted under the Beach Management Agreement. There was a large amount of disturbance as a result of the town's Fourth of July celebration; where illegal fireworks were observed for multiple hours in front of the Nest 01B site two weeks after it was laid, with the plover adults exhibiting signs of distress as a result.

Beach	Nest	Discovery	Eggs	# Hatched	Nest Loss Date	Nest Fate	Actual Hatch	Exclosed	Actual Fledge	# Fledged
Old Orchard	01A	4/30/24	4	0	5/10/24	P	--	N	--	0
Old Orchard	02A	4/30/24	1	0	5/2/24	P	--	N	--	0
Old Orchard	03A	5/6/24	4	0	5/17/24	P	--	N	--	0
Old	04A	5/9/24	3	0	5/15/24	P	--	N	--	0

Orchard										
Old Orchard	06A	5/13/24	1	0	5/17/24	P	--	N	--	0
Old Orchard	05A	5/13/24	2	0	5/17/24	P	--	N	--	0
Old Orchard	07A	5/22/24	4	4	--	H	6/24/24	Y	7/24/24	1
Old Orchard	08A	5/28/24	4	4	--	H	6/28/24	Y	--	0
Old Orchard	01B	6/20/24	4	0	7/15/24	A	--	N	--	0
									Total Fledged	**1**

Pine Point, Scarborough

Maine Audubon

Pine Point Beach had four nesting pairs and fledged a beach record of seven chicks. Nest 01A was predated by a crow, as evidenced by crow tracks near the nest cup, and had not been exclosed due to dense dune vegetation.

Beach	Nest	Discovery	Eggs	# Hatched	Nest Loss Date	Nest Fate	Actual Hatch	Exclosed	Actual Fledge	# Fledged
Pine Point	01A	5/13/24	4	0	5/17/24	P	--	N	--	0
Pine Point	02A	5/22/24	4	4	--	H	6/18/24	Y	7/12/24	2
Pine Point	01B	5/22/24	4	4	--	H	6/20/24	Y	7/15/24	3
Pine Point	03A	5/30/24	2	0	6/12/24	A	--	N	--	0
Pine Point	04A	6/5/24	4	4	--	H	6/18/24	Y	7/13/24	2
									Total Fledged	7

Western Beach, Scarborough

Maine Audubon

In 2024 Western Beach the highest number of fledged chicks and nesting pairs since monitoring began, with 14 pairs, 14 nest attempts, and 27 chicks fledged. This was the third highest number of fledglings per beach in Maine for the year. Dredge spoils from the Scarborough River provided ample nesting habitat and birds seemed to move to Western after scoping sites or failing at Old Orchard. Predation management on site undoubtedly played a large role in the success. The biggest loss occurred when nests 11A, 13A, and 14A were predated by a fox that got trapped inside the electric fence being used to protect the Least Tern colony.

Beach	Nest	Discovery	Eggs	# Hatched	Nest Loss Date	Nest Fate	Actual Hatch	Exclosed	Actual Fledge	# Fledged
Western	01A	5/6/24	4	4	--	H	6/9/24	Y	7/1/24	1
Western	02A	5/6/24	4	4	--	H	6/7/24	Y	7/2/24	3

Western	03A	5/6/24	4	4	--	H	6/14/24	Y	--	0
Western	04A	5/6/24	4	4	--	H	6/9/24	Y	7/7/24	4
Western	05A	5/11/24	4	4	--	H	6/10/24	Y	7/7/24	1
Western	06A	5/11/24	4	3	--	H	6/13/24	Y	7/8/24	1
Western	07A	5/11/24	4	4	--	H	6/4/24	N	6/30/24	3
Western	08A	5/19/24	4	3	--	H	6/14/24	Y	7/9/24	3
Western	09A	5/21/24	4	4	--	H	6/19/24	N	7/14/24	4
Western	10A	5/24/24	4	3	--	H	6/25/24	Y	7/20/24	3
Western	11A	5/24/24	3	0	6/26/24	P	--	N	--	0
Western	12A	5/24/24	4	4	--	H	6/24/24	Y	7/19/24	4
Western	13A	6/5/24	4	0	6/26/24	P	--	N	--	0
Western	14A	6/14/24	4	0	6/26/24	P	--	N	--	0
									Total Fledged	**27**

Scarborough Beach State Park, Scarborough

Maine Audubon

Scarborough Beach had a successful year with four pairs, three nest attempts, and ten fledged chicks. This was the beach's highest number of fledged chicks ever recorded, despite the average number of nesting pairs. Nest 03A fledged four chicks despite being close to the wrack line in the open rocky sand and directly next to the spot where Surf Camp operates. Nest 01A was located underneath a dune overhang, and nest 02A was exclosed in the open sand nearby.

Beach	Nest	Discovery	Eggs	# Hatched	Nest Loss Date	Nest Fate	Actual Hatch	Exclosed	Actual Fledge	# Fledged
SBSP	01A	5/3/24	4	4	--	H	6/7/24	N	7/2/24	4
SBSP	02A	5/3/24	4	3	--	H	6/1/24	Y	6/26/24	2
SBSP	03A	5/21/24	4	4	--	H	6/21/24	N	7/16/24	4
									Total Fledged	**10**

Higgins Beach, Scarborough

Maine Audubon

In 2024, Higgins Beach had eight pairs, seven nest attempts, and ten fledged chicks. All of the pairs nested early in the season, as all of the nests except for Nest 06B hatched before June 10. The high tides in the early summer likely caused brood loss for multiple nests, and the loss of Nest 06A. There were two deceased chicks found on Higgins this season, both with unknown cause of death. The nesting birds and broods often were disturbed by human and dog activity. Dogs have been seen running off-leash within the protective stake and twine at least four times throughout the season. On two nights in July, there were incidents of vandalism where stake and twine fencing and signage was removed or broken. There have also been at least three fires on the beach reported nearby the Plover nesting area throughout the season. This year, Higgins took part in a widespread research campaign using community-based social marketing to encourage leashing dogs to become the social norm and to reduce dog disturbance to nesting and migrating shorebirds through voluntary leashing.

New signs, created by the Plover Coordinator, were used to see if dog leashing compliance increases and dog disturbances decreases.

Beach	Nest	Discovery	Eggs	# Hatched	Nest Loss Date	Nest Fate	Actual Hatch	Exclosed	Actual Fledge	# Fledged
Higgins	01A	4/28/24	4	4	--	H	5/31/24	N	6/25/24	4
Higgins	02A	4/28/24	4	2	--	H	5/28/24	Y	6/22/24	2
Higgins	03A	4/30/24	4	4	--	H	5/30/24	Y	6/24/24	1
Higgins	04A	5/7/24	4	3	--	H	6/4/24	N	--	0
Higgins	05A	5/9/24	4	4	--	H	6/9/24	N	7/8/24	2
Higgins	06A	5/21/24	2	0	5/24/24	W	--	N	--	0
Higgins	06B	6/7/24	4	4	--	H	6/29/24	N	7/24/24	1
									Total Fledged	**10**

Breakwater Beach- Ram Island, Cape Elizabeth

Maine Audubon

Breakwater Beach had low productivity, with one nest attempt, which was exclosed. Breakwater is fairly secluded and abuts a large forested area inhabited by many predators which regularly visit the beach. Tracks were seen on the beach throughout the summer, including crow, gull, fox, skunk, dog, and raccoon; which may have affected nesting and fledge success. Only one chick fledged from the beach, likely due to predation.

Beach	Nest Code	Discovery	Eggs	# Hatched	Nest Loss Date	Nest Fate	Actual Hatch	Exclosed	Actual Fledge	# Fledged
Breakwater	01A	5/8/24	4	4	--	H	6/3/24	Y	6/28/24	**1**

Nano's Beach- Ram Island, Cape Elizabeth

Maine Audubon

Only one breeding pair nested twice on Nano's Beach, and both nests were suspected to have been predated by crows. Neither nest was exclosed, due to historical knowledge of abandonment.

Beach	Nest	Discovery	Eggs	# Hatched	Nest Loss Date	Nest Fate	Actual Hatch	Exclosed	Actual Fledge	# Fledged
Nano	01A	5/27/24	2	0	5/30/24	P	--	N	--	0
Nano	01B	6/4/24	3	0	6/11/24	P	--	N	--	0
									Total Fledged	**0**

Crescent Beach State Park, Cape Elizabeth

Maine Audubon

Crescent Beach had a record high number of breeding pairs in 2024, however fledged zero chicks due to suspected predation. Nest 01A had not been exclosed due to dense dune vegetation and was predated days before hatching by an unknown predator. Nest 01B and 02A hatched all four eggs, however, the entire brood was suspected to be predated. Nest 03A met a similar fate, although chicks were observed for a few days. Crow, fox, skunk, owl, and gull tracks were seen all over the beach, and could have contributed to these losses.

Beach	Nest	Discovery	Eggs	# Hatched	Nest Loss Date	Nest Fate	Actual Hatch	Exclosed	Actual Fledge	Fledged
Crescent Beach State Park	01A	5/8/24	4	0	6/4/24	P	--	N	--	0
Crescent Beach State Park	02A	5/24/24	4	4	--	H	6/22/24	Y	--	0
Crescent Beach State Park	03A	5/24/24	4	4	--	H	6/25/24	Y	--	0
Crescent Beach State Park	01B	6/14/24	4	4	--	H	7/13/24	Y	--	0
									Total Fledged	**0**

South Beach, Long Island

Maine Audubon

This year on South Beach, there was a nest reported in early June with three eggs, located in open sand on the beach. By the time it was able to be checked by the crew and exclosed it was gone. There were many fox tracks in the area, making predation the likely cause of loss.

Beach	Nest	Discovery	Eggs	# Hatched	Nest Loss Date	Nest Fate	Actual Hatch	Exclosed	Actual Fledge	# Fledged
Long Island	01A	6/7/24	3	0	6/13/24	P	--	N	--	**0**

The Hook, Chebeague Island

Maine Audubon & Chebeague and Cumberland Land Trust

After volunteers consistently reported seeing plovers on the Hook in spring, one nest was found hidden in the dune grass on Chebeague Island on a visit in late May. The pair of plovers hatched four chicks and fledged three of them. In addition to the nesting pair, there was consistently a scraping bird in the area throughout the season.

Beach	Nest	Discovery	Eggs	# Hatched	Nest Loss Date	Nest Fate	Actual Hatch	Exclosed	Actual Fledge	# Fledged
The Hook	01A	5/21/24	4	4	--	H	6/13/24	N	7/9/24	**3**

Seawall Beach, Phippsburg

Maine Audubon

In 2024, Seawall Beach had 16 pairs that made 20 nest attempts. Half of these nests hatched, while one nest was washed by a high tide event, one nest eroded into the Morse River, and eight were lost to predation. Skunk and fox tracks were consistently observed, especially on the eastern side of Seawall by the Morse River. Adding to the predator load, many larger birds were regularly seen near brood locations, including Herring and Great Black-backed Gulls, Bald Eagles, and a Northern Harrier. Many nests on this side were not exclosed as a Least Tern colony was nesting within the same area. Despite the predators and shifting sand, a total of 30 chicks hatched, with 20 documented as fledged. A deceased adult plover was found nearby Nest 04A six days after the nest was recorded as lost. The cause of death is unknown because the bird was badly decomposed, although there were many fox tracks in the area.

Beach	Nest	Discovery	Eggs	# Hatched	Nest Loss Date	Nest Fate	Actual Hatch	Exclosed	Actual Fledge	# Fledged
Seawall	01A	5/13/24	4	4	--	H	6/13/24	Y	--	0
Seawall	02A	5/13/24	4	4	--	H	6/16/24	Y	7/11/24	4
Seawall	03A	5/13/24	4	3	--	H	6/17/24	N	7/12/24	2
Seawall	04A	5/13/24	4	0	6/4/24	P	--	N	--	0
Seawall	05A	5/16/24	4	4	--	H	6/17/24	Y	7/12/24	1
Seawall	06A	5/16/24	4	0	6/10/24	W	--	N	--	0
Seawall	07A	5/23/24	4	0	6/18/24	P	--	N	--	0
Seawall	08A	5/23/24	4	0	6/10/24	P	--	N	--	0
Seawall	09A	5/23/24	4	0	6/13/24	P	--	N	--	0
Seawall	10A	5/23/24	1	0	5/23/24	P	--	N	--	0
Seawall	11A	5/23/24	4	4	--	H	6/21/24	Y	7/16/24	4
Seawall	12A	5/31/24	4	0	6/10/24	P	--	N	--	0
Seawall	10B	6/4/24	2	0	6/13/24	W	--	N	--	0
Seawall	13A	6/10/24	4	3	--	H	7/13/24	Y	8/7/24	3
Seawall	14A	6/13/24	4	0	7/8/24	P	--	N	--	0
Seawall	10C	6/18/24	4	0	7/1/24	P	--	N	--	0
Seawall	06B	6/18/24	2	2	--	H	7/20/24	N	8/14/24	1
Seawall	08B	6/18/24	4	4	--	H	7/18/24	N	8/14/24	2
Seawall	15A	6/25/24	4	2	--	H	7/25/24	Y	8/19/24	1
Seawall	04B	6/25/24	4	0	--	H	7/27/24	N	--	0
									Total Fledged	**20**

Popham Beach State Park, Phippsburg

Maine Audubon

Popham Beach hosted eight plover pairs, all of which were able to successfully nest. Due to the behavior observed by breeding adults in the early weeks of the season, it is possible that prior nest attempts could have been laid and predated before they were found. Throughout the spring and summer, tracks from skunk, fox, coyote, deer, and muskrat were observed regularly. All nests went on to hatch a total of 23 chicks, with 17 making it to fledging age. The two chicks from Nest 05A were consistently seen with the four chicks from Nest 04A until both broods fledged.

Beach	Nest	Discovery	Eggs	# Hatched	Nest Loss Date	Nest Fate	Actual Hatch	Exclosed	Actual Fledge	# Fledged
Popham	01A	5/13/24	4	4	--	H	6/10/24	N	7/8/24	3
Popham	02A	5/13/24	4	4	--	H	6/6/24	N	7/1/24	3
Popham	03A	5/16/24	4	4	--	H	6/10/24	N	7/8/24	3
Popham	04A	5/20/24	4	4	--	H	6/24/24	N	7/19/24	4

Popham	05A	5/23/24	4	3	--	H	6/25/24	Y	7/20/24	2
Popham	06A	5/23/24	4	0	--	H	6/22/24	Y	--	0
Popham	07A	5/23/24	4	0	--	H	6/21/24	Y	--	0
Popham	08A	6/4/24	4	4	--	H	6/29/24	N	7/26/24	2
									Total Fledged	**17**

Hunnewell Beach, Phippsburg

Maine Audubon

In 2024, Hunnewell Beach had one pair successfully nest on the point within 200 feet of the 2023 nest location. The nest hatched four chicks that all made it to fledging age.

Beach	Nest	Discovery	Eggs	# Hatched	Chicks	Nest Loss Date	Nest Fate	Actual Hatch	Exclosed	Actual Fledge	# Fledged
Hunnewell	01A	5/13/24	4	4	4	--	H	6/8/24	N	7/3/24	**4**

Indian Point, Georgetown

Maine Audubon

This year on Indian Point, one pair nested. The nest hatched four eggs, and fledged two chicks. The other two chicks likely were either taken by the high tide or predated.

Beach	Nest	Discovery	Eggs	# Hatched	Nest Loss Date	Nest Fate	Actual Hatch	Exclosed	Actual Fledge	# Fledged
Indian Point	01A	5/10/24	4	4	--	6/9/24	H	N	7/5/24	**2**

Half Mile Beach- Reid State Park, Georgetown

Maine Audubon

This year, Half Mile Beach suffered erosion from winter storms, resulting in the damage of potential nesting habitat. Nest 02A was made by banded bird A50, his third consecutive year breeding here. The two successful nests were hidden in the dune grass on the backside of the beach, whereas the abandoned nest, 03A, was located in the open sand near the Least Tern colony. This pair nested again and hatched four chicks, who were all lost either by high tide or predation. The beach is highly susceptible to predation, as it was common to see coyote, fox, skunk, raccoon, and crow tracks in and around nests. Deer were also seen running through the nesting area, knocking down the stake and twine.

Beach	Nest	Discovery	Eggs	# Hatched	Nest Loss Date	Nest Fate	Actual Hatch	Exclosed	Actual Fledge	# Fledged
Half Mile	01A	5/8/24	3	3	--	H	5/29/24	Y	6/26/24	3
Half Mile	02A	5/10/24	4	3	--	H	6/10/24	N	7/5/24	2
Half Mile	03A	5/27/24	4	0	6/12/24	A	--	N	--	0
Half Mile	03B	6/5/24	4	4	7/10/24	H	7/2/24	N	--	0
									Total Fledged	**5**

Mile Beach- Reid State Park, Georgetown

Maine Audubon

There was one pair who settled in the middle of Mile Beach and hatched four chicks. The brood disappeared around two weeks old and the pair of adult plovers left the beach shortly after their brood was lost. It is unknown exactly why the chicks went missing, but big waves and predators are common at Mile Beach.

Beach	Nest	Discovery	Eggs	# Hatched	Nest Loss Date	Nest Fate	Actual Hatch	Exclosed	Actual Fledge	# Fledged
Mile	01A	5/8/24	4	4	7/3/24	H	6/9/24	Y	--	**0**

Outreach Details and Results

Maine Audubon

Outreach to beach-goers and stakeholders is essential to the success of our work protecting beach- nesting birds, but has been challenging with increased numbers of nesting birds requiring more monitoring and management from biologists. The Coastal Birds Team devotes time when on the beach to educate and connect with people while doing our management work. In addition, we had a dedicated outreach specialist that concentrated on developing materials for and interacting with the public. We continued posting signage to engage beach goers, similar to what we began in 2020. We put out educational signs around two of the Least Tern colonies that alerted the public to their behavior of dive-bombing and defecating if beach goers approach too closely. We continued our Shorebird Ambassador program for its second year, by providing volunteers with information and outreach materials to distribute to the beachgoers about migrating shorebirds. Additionally, we deployed shorebird story-board signs during migration to educate the public on how to minimize disturbance. Maine Audubon biologists also worked closely with communications staff to create blogposts, videos, and social media content, and spoke with newspaper and television reporters' numerous times throughout the nesting season about the project.

Outreach on the beaches in 2024 was successful. The weather cooperated and having a dedicated outreach specialist helped to increase these efforts. Attending local events and hosting presentations also helped increase our outreach numbers for 2024. Our biggest event was a 'plover party' at Crescent Beach State Park on July 26th. Attendance was high with 150 attendees that gave very positive feedback on the event, which included face painting, beach walks, and general education.

Our outreach efforts included:

- **1,386** Instagram followers- connected with and interacted with via Instagram platform with stories and information
- **300** people educated through virtual and on-beach Trainings
- **3,420** opportunistic interactions on the beach
- **397** people engaged through educational tabling at beach entrances
- **1,900** interactions through beach community events, including our plover party
- **1,223** people educated at libraries, presentations, and beach walks

In summary, Maine Audubon connected with a minimum of 8,626 people in 2024, but the reality is probably many more.

Rachel Carson National Wildlife Refuge

One of the primary duties of the RCNWR plover technician is to work together with volunteers and interns to have a public presence on our beaches. Whenever possible, the plover technician is in the field, speaking with the public, ensuring closures are in effect, letting people view the birds through spotting scopes, distributing

information and making positive public contacts. When available, volunteers and interns supplement this effort. Staff presence on the beaches helps ensure that management problems are noted in a timely manner and that biological data is collected. Public education is one of our primary plover conservation tools.

A log of public outreach activities is maintained, and all interns and staff are encouraged to write down plover and tern related outreach contacts. In 2024, a minimum of 134 staff interactions with public individuals were recorded. This does not include any interactions volunteers had throughout the season. The recorded interactions were distributed as follows: Laudholm 45, Crescent Surf 6, Parsons 54, Timber Point 2, and Goosefare Brook 27. The plover technician led two educational programs open to the public through the Wells Reserve on Laudholm beach. The technician also led a training for the Rangers at the Wells Reserve so they could help perform outreach on Laudholm. RCNWR maintains an active social media site on Facebook with multiple educational posts regarding plovers and terns throughout the year. The refuge's Facebook page has around 14,000 followers.

CONCLUSIONS AND RECOMMENDATIONS FOR 2025

Overall we are pleased to note that intensive field work, predation management, law enforcement, and active beach outreach programs continue to aid in the recovery of Maine's Piping Plover and Least Tern populations. Ten consecutive years of over 60 pairs of nesting Piping Plovers and four consecutive years of over 100 nesting pairs indicates the current multi-pronged management program is benefitting the species. This success story is only possible because of the dedication of each of the partners, landowners, municipalities and volunteers involved. Another benefit of this work is that management that is good for the birds helps stabilize the beach and dune grass, which is also good for the people and any infrastructure along the beach.

This year's Piping Plover productivity rate of 1.66 is above the current recovery goal of 1.5 chicks per pair, with the second highest number of fledglings after 2022. We continue to see a correlation between higher plover productivity and beaches with strong town support and volunteer monitoring. One new nesting site this year in addition with two new sites in 2023 that have not hosted nesting plovers since monitoring began demonstrates the long-term effectiveness of our recovery efforts. The 143 nesting pair and 237 fledglings in 2024 demonstrate that Maine beaches are capable of sustaining more nesting Piping Plovers than most of our previous 43 years of experience had suggested. Furthermore, given the poor nesting success in many other states and provinces along the Atlantic, Maine plovers also have the potential to disperse to other areas in the region, contributing to the Atlantic Flyway range wide population.

Least Tern productivity was high in 2024 - with the second highest productivity rate of 0.65 chicks/pair, and the third highest number of fledglings in the past ten years. The 191 nesting pairs is the third lowest pair count in the past ten years. Least Tern longevity means their population is more resilient in the face of poor productivity, however with recent years having low population count and often low productivity, more attention to Least Terns may be necessary in future years. Least Tern productivity varies greatly from year to year due to changing seasonal factors by site including predation, storm surge, and human disturbance.

Our work also continues to benefit other species of concern, including the state and federally endangered Roseate Tern, federally threatened Red Knot, and other migrating shorebird species of management concern. In areas where Least Tern or Piping Plover protected area fencing remains until mid-August, great numbers of migratory shorebirds roost.

An additional project of Maine Audubon and Rachel Carson National Wildlife Refuge in 2024 was the second year of a 'shorebird ambassador' volunteer outreach program. This was enthusiastically received by volunteers and over 40 shorebird ambassadors committed to the project. We used the training program we developed in 2023 based on USFWS models, and offered both virtual and on-beach trainings for volunteers, who then received custom lanyards with a mini shorebird identification guide. We distributed outreach materials such as postcards and stickers to volunteers for them to share with beach-goers. We hope to expand on these efforts in

future years to engage the public about what they can do to support migratory shorebirds as they rest and refuel in Maine, particularly in light of the dramatic declines in shorebird populations worldwide.

Based on good productivity in recent years, Maine's Piping Plover numbers may continue to increase in the upcoming years, or the breeding population may level off and stabilize. We don't really know which way it will go; managers need to prepare for multiple scenarios.

We recommend the following for 2025:

Electric Fencing
The solar-powered electric net fence used at the tern colony at Laudholm and Western, and occasionally at other beaches, can be a useful tool in protecting these birds from predators. However, they are most effectively used in concert with other predation management techniques and must be monitored closely. We recommend that net fences continue to be used at tern colonies and potentially be used at sites like Reid State Park or Seawall to help increase the success of terns at other sites in Maine.

Outreach
Having an outreach specialist for our fourth year helped with our transition to digital and social media outreach. Support from USFWS was instrumental in helping with our second year of a shorebird ambassador program that expanded our outreach efforts for conservation of coastal birds. We were able to engage with new audiences on the beach thanks to additional financial support, and we would like to continue this in 2025. In particular, we believe that increased efforts to engage the public with migratory shorebirds will benefit a suite of vulnerable coastal species.

We have found that at sites like Ogunquit Beach with concerted outreach efforts, the public is more informed and positive regarding the birds, evidenced by the fact that people frequently remember talking with us on previous occasions. Based on our increasingly positive interactions, we believe our outreach efforts are productive and worth continuing. We recommend continuing our increased staffing capacity for outreach in 2025, to have a position solely focused on outreach so biologists and technicians can manage the growing population of plovers. We believe outreach will be ever more important as we anticipate beachgoers might encounter even more birds in 2025 than in 2024.

Law Enforcement
The presence of wardens on the beach was helpful in ensuring the public's compliance staying outside our symbolic fencing and following dog ordinances. Wardens gave out warnings to dog owners, provided information about the birds to beachgoers, and were critical in investigations of potential take incidents on the beaches, such as on Ogunquit Beach, Wells Beach, Higgins Beach, Fortunes Rocks Beach, and Old Orchard Beach. Continued and increased pressure from dog walkers on all beaches, even where dog restrictions exist, makes Warden Service presence essential for continued plover nesting success. Continued correspondence and thought about how best to use wardens on the beach and maximize our funding efforts is needed.

Beach Cleaning
Beach cleaning continues on many of Maine's beaches, although most beach managers are reducing cleaning activity. Beach cleaning needs to be done in accordance with a site-specific management plan that incorporates the needs of nesting birds. Old Orchard Beach and Pine Point Beach are regularly cleaned, and small sections of Ogunquit Beach are cleaned, although the "Natural Beach Area" continues to be left untouched throughout the summer. Continued proper management of this beach will further build up the sand on the beach, making it an excellent example for other municipalities and beach managers. Wells Beach and Crescent Beach State Park ceased all raking activities during the plover breeding season over the last three years, and both had high numbers of nesting pairs. The success can be linked to a variety of factors including leaving wrack on the beach and demonstrates the benefit of not raking wrack off the beach. We will continue to share these successes with

other towns to encourage them to reduce and/or eliminate raking on their beaches.

Use of trained spotters (in accordance with beach management agreements) should continue to be monitored and encouraged. We recommend closer correspondence between MDIFW, USFWS and municipalities to ensure that commitments outlined in the Beach Management Agreements are being followed as Maine Audubon is not a signatory on the agreements and cannot be as effective as MDIFW or USFWS in holding towns accountable.

Predation Management

Predation management from USDA Wildlife Services continues to be integral to Maine's Piping Plover and Least Tern populations. Wildlife Services operated at only three of our 31 sites, but remain important to the overall state productivity numbers, as sites like Western Beach continue to be essential for both endangered beach-nesting species. Predation management has been shown to increase the number of nesting birds, decrease nest predation, and increase chick survivorship.

We believe that productivity numbers would be much lower at Western, Higgins and Ogunquit without this essential support from the Wildlife Services team. Wildlife Services conducts annual reports of their work and the results consistently demonstrate the effectiveness of predation management. Ideally we would be able to expand this work to additional beaches where predation has been shown to be problematic.

Domestic and Feral Animals

Continued collaboration with the Warden Service and further outreach efforts are critical to limiting the detrimental effects of domestic and feral animals on nesting Piping Plovers. Roaming cats and off-leash dogs present problems every year and result in nest abandonment and plover harassment. This year, dogs on Old Orchard Beach were a particular problem and linked to a number of plover harassment incidents. In 2025 we recommend increased outreach efforts to encourage residents and renters to keep dogs away from nesting and brooding areas as well as leashing their dogs while walking the beach throughout the breeding season. We recommend municipalities that allow off-leash dogs during the plover season such as Old Orchard take a serious look at their dog restrictions as more people are bringing off-leash dogs to these sites. Continued education and monitoring of dog owners (particularly by the Warden Service) will be important to nesting success in future years, especially during early morning and evening hours, when walkers are most likely to let their dogs run on the beach. Plovers continue to nest on beaches with heavy dog use such as Moody Beach, Old Orchard Beach, Pine Point Beach, and Fortune's Rocks Beach, but tend to be less successful.

Table 1: Number of Nesting Least Tern Pairs and Fledglings ( ) at each Nesting Site in Maine, 1977-2024

Year	WELLS	LAUDHOLM FARM	CRESCENT SURF	PARSONS BEACH	GOOSE ROCKS	GOOSEFARE BROOK	PINE POINT	FERRY/ WESTERN	STRATTON ISLAND	HIGGINS	RAM ISLAND	SEAWALL	POPHAM STATE PARK	REID STATE PARK	TOTAL
1977	0(0)	[3(0)]	14(10)		20-25(20)	-	0(0)	6-8(6)	-	-	0(0)	13(14)	4-5(0)	0(0)	50-60(50)
1978	0(0)	0(0)	[7(0)]		55(35+)	-	0(0)	20(25+)	-	-	0(0)	18(6+)	0(0)	0(0)	93(66)
1979	25(6+)	3(?)	0(0)		[22(0)]	-	0(0)	30(12)	-	-	0(0)	20(13)	0(0)	0(0)	78(31)
1980	[2(0)]	[6(0)]	17(12)		15(12)	-	0(0)	6(0)	-	-	0(0)	12(4)	0(0)	12(6)	62(34)
1981	0(0)	[N3(0)] [S3(0)]	55(20)		6-15(0)	-	0(0)	0(0)	-	-	0(0)	E2(0) W2(0)	4(1)	15(0)	78(21)
1982	0(0)	0(0)	27(13)		0(0)	-	0(0)	0(0)	-	-	0(0)	E3(5) W4(2)	0(0)	5(6)	39(26)
1983	0(0)	0(0)	[9](0)		22(5)	-	0(0)	0(0)	-	-	0(0)	14(12)	10(5)	8(7+)	54(29)
1984	0(0)	0(0)	0(0)		39(15)	-	0(0)	0(0)	-	-	0(0)	40(52)	0(0)	9(15)	88(82)
1985	0(0)	0(0)	4(3)		57(6)	-	0(0)	0(0)	-	-	8(0)	36(3)	0(0)	26(0)	131(12)
1986	0(0)	0(0)	26(10)		25(1)	-	1(0)	0(0)	-	-	0(0)	72(18)	0(0)	0(0)	124(30)
1987	0(0)	0(0)	[20(0)]		19(2)	-	8(1)	0(0)	-	-	0(0)	48(3)	14(6)	[8(0)]	89(12)
1988	0(0)	0(?)	45(20+)		[12(1)]	-	0(0)	0(0)	-	-	0(0)	13(12)	40+(7+)	[12(0)]	98(40)
1989	0(0)	0(0)	46(0)		5(0)	-	0(0)	0(0)	-	-	0(0)	18(1)	15(1)*	6(6)	83(8)
1990	0(0)	0(0)	16(6)		3(0)	-	0(0)	0(0)	-	-	0(0)	18(2)	20(15)	8(21)	65(44)
1991	0(0)	1(1)	0(0)		9(0)	-	0(0)	0(0)	-	-	0(0)	0*(12)	30(6)	12(6)	52(25)
1992	0(0)	14(11)	15(42)		0(0)	-	0(0)	0(0)	-	-	0(0)	33(30)	0*(0)	32(40)	94(123)
1993	0(0)	1(3)	64(62)		1(0)	-	0(0)	0(0)	-	-	0(0)	29(22)	8(4)	22(23)	125(114)
1994	0(0)	12(13)	35(32)		0	-	0(0)	0	-	-	0	22(20)	0	20(14)	89(79)
1995	0	8(0)	25(9)		[10(0)]	-	0	0	-	-	0	25(0)	0	42(7)	100(16)
1996	0	0	[15(0)]		0	-	0	0	-	15(8)	0	[20(0)]	25(22)	[30(0)]	60(30)
1997	0	0	20(1)		0	-	0	0	-	15(10)	0	[4(0)]	15(0)	[16(0)]	50(11)
1998	0	1(2)	20(7)		10(0)	1(0)	0	0	-	[25(1)]	0	12(2)	0	35(0)	86(12)
1999	0	20(20)	40(45)		0	0	0	0	-	[9(1)][1]	0	[28(1)][1]	0	0	62(67)
2000	0	37(17)	85(62)		0	0	0	0	-	4(2)	0	0	0	0	126(81)
2001	0	15(#)	102(57)		0	0	0	0	-	4(6)[2]	0	3(0)[2]	0	0	120(63)
2002	0	12(√)	81(145)		0	0	0	0	-	9(8)	0	0	0	19(2)	121(155)

2003	0	20(0)	57(8)		8(0)	0	0	0	-	38(53)	0	0	0	33(5)	156(66)
2004	15(10)	1(0)	[50(3)]		0	0	0	0	-	45(54)	0	0	0	50(2)	146(69)
2005	0	4(1)	[52(7)]		0	0	0	[40(3)]	18(9)	[22(0)]	0	[17(0)]	0	0	114(20)
2006	[1(0)]	0	30(10)		[25(1)]	0	0	0	103(15)[4]	1(0)	0	0	0	[1(0)]	134(26)[5]
2007	1(1)	0	[37(1)]		[45(2)]	0	0	0	113(108)	0	0	0	0	0	150(112)[5]
2008	0	0	30(10)		2(0)	0	0	[2]	72(33)	0	0	0	0	0	166(89)[5]
2009	0	0	102(62)		[6(0)]	0	0	0	72(16)	[16(0)]	0	0	0	0	170(78)
2010	0	0	136(22)		18 (0)[6]	0	0	0	76(3)	0	0	0	0	0	212(25)
2011	0	0	123(73)		23 (12)	0	0	0	59(28)	0	0	0	0	0	205(113)
2012	0	0	99(79)		0	0	0	0	92(72)	0	5(1)[7]	0	2(3)[7]	0	191(155)[8]
2013	0	0	129(93)		0	0	0	0	92(79)	0	0	0	3(0)	0	224(172)
2014	0	0/*4*(4)	164(29)		0	0	0	0	79/*99*(36)	4/*11*(0)	0	0	2/7(6)	0	249(72)
2015	0	0/6(0)	138+(144)		0	0	0	0	69/95(0)	25(13)	0	0	1/14(4)	0	233(161)
2016	0	3(0)	169(15)		10(7)	0	0	4(0)	69(14)	0	0	1(0)	22(0)	0	238(36)[5]
2017	0	1(0)[6]	115(13)		4(0)[6]	0	0	48(5)	87(1)	0	0	0	0	0	250(19)
2018	0	21(0)[5]	43(19)		2[0]	0	0	4[0]	122*(50)	10**	0	0	0	0	186(69)[4]
2019	0	0	156*(31)		2[0][9]	0	0	35[0]	84*(14)	21*(16)	0	0	0	0	296*(61)
2020	0	0	130(65)		0	0	0	0	0	128(50)	0	7(1)	0	0	258(116)
2021	0	18(41)	116(35)		10[0]	0	0	0	0	71(20)	0	13(38)	0	0	228(134)
2022	0	23(18)	102(0)		5(1)	0	0	0	91(14)	51(5)	0	10(2)	0	0	277(40)
2023	0	*9*(1)	*77*(8)		*10*(0)	0	0	0	*91*(4)	20(0)	0	*11*(0)	0	*3*(0)	187(13)
2024	15(28)	15(3)	11(0)	3(19)	0	0	0	30(45)	106(30)	0	0	10(0)	0	1(0)	191(125)

[ ] colony deserted *italicized numbers are high counts at each site*

* colony moved from Popham to Seawall after census

total amount of fledglings included with the Crescent Surf totals, could not differentiate totals between the beaches

√ Laudholm fledglings combined with Crescent Surf

1 only nesting pairs counted in total

2 renesting after loss at Crescent Surf/Laudholm not counted in total - Higgins(1pr), Seawall(3pr)

3 renested from colony at Crescent Surf after crow predated nests

4 preliminary numbers

5 total was simultaneous count at occupied sites, not site specific high nest counts

6 renested from colony at Crescent Surf after fox predation, not counted in total

7 Ram Island and Popham colonies developed after the storm and census, renests from Stratton and Crescent Surf

8 185 was GOMSWG census, 191 pairs is closer to actual number, though still an underestimate due to storm event.

9 nests only observed at one visit and not during window count

Table 2: Productivity of Least Terns in Maine, 1977-2024

Year	Chicks fledged/pair	Productivity
1977	50/55	0.91
1978	66/93	0.71
1979	31/78	0.40
1980	34/62	0.55
1981	21/78	0.27
1982	26/39	0.67
1983	29/54	0.54
1984	82/88	0.93
1985	12/131	0.09
1986	30/124	0.24
1987	12/89	0.13
1988	40/98	0.41
1989	8/83	0.10
1990	44/65	0.68
1991	25/52	0.48
1992	123/94	1.31
1993	114/125	0.91
1994	79/89	0.89
1995	16/100	0.16
1996	30/60	0.50
1997	11/50	0.22
1998	12/86	0.14
1999	67/62	1.08
2000	81/126	0.64
2001	63/120	0.53
2002	155/121	1.28
2003	66/156	0.42
2004	69/146	0.47
2005	20/114	0.18
2006	26/134	0.19
2007	112/150	0.75
2008	89/166	0.54
2009	78/170	0.46
2010	50/212	0.24
2011	113/205	0.55
2012	155/191*	0.79
2013	172/224	0.77
2014	72/249	0.29
2015	153/233	0.66
2016	36/238	0.15
2017	19/255	0.07
2018	69/186	0.37
2019	61/296	0.21
2020	116/258	0.45
2021	134/228	0.59
2022	40/277	0.14
2023	13/187	0.07
2024	125/191	0.65

Table 3: Productivity of Piping Plovers in Maine, 1981-2024

Year	Chicks fledged/pair	Productivity
1981	9/10	0.9
1982	18/10	1.8
1983	7/6	1.17
1984	21/9	2.33
1985	28/15	1.87
1986	31/15	2.07
1987	21/12	1.75
1988	15/20	0.75
1989	38/16	2.38
1990	26/17	1.53
1991	45/18	2.5
1992	49/24	2.04
1993	76/32	2.38
1994	70/35	2
1995	95/40	2.38
1996	98/60	1.63
1997	93/47	1.98
1998	88/60	1.47
1999	91/56	1.63
2000	80/50	1.6
2001	109/55	1.98
2002	91/66	1.38
2003	78/61	1.28
2004	80/55	1.45
2005	27/49	0.55
2006	54/40	1.35
2007	37/35	1.06
2008	42/24	1.75
2009	46/27	1.7
2010	49/30	1.63
2011	70/33	2.12
2012	64/42	1.52
2013	85/44	1.93
2014	97/50	1.94
2015	121/62	1.95
2016	101/66	1.53
2017	102/64	1.59
2018	128/68	1.88
2019	175/89	1.97
2020	199/98	2.03
2021	213/125	1.70
2022	252/140	1.80
2023	201/157	1.28
2024	237/143	1.66

Table 4: Number of Nesting Piping Plover Pairs and Fledglings ( ) at each Site in Maine, 1981-2024

Year	OGUNQUIT	MOODY	WELLS	DRAKES ISLAND	LAUDHOLM FARM	CRESCENT SURF	PARSONS BEACH	MARSHALL POINT	GOOSE ROCKS	TIMBER POINT	FORTUNES ROCK	HILLS BEACH	FERRY	GOOSEFARE BROOK	OLD ORCHARD	PINE POINT	WESTERN	SCARBOROUGH	HIGGINS	RAM ISLAND	CRESCENT	SOUTH BEACH	CHEBEAGUE THE HOOK	HEAD BEACH	SEAWALL	POPHAM	HUNNEWELL	INDIAN POINT	REID STATE PARK	TOTAL
1981	0	0	1(0)	-	-	4(9)	-	0(0)	1(0)		-	-	-	-	-	1(0)	-	-	-	-	-	-	-	-	2(0)	0(0)	-	-	1(0)	**10(9)**
1982	0	0	0	-	-	3(10)	-	0	0		-	-	-	-	-	1(0)	-	-	-	-	-	-	-	-	5(8)	3(0)	-	-	1(0)	**10(18)**
1983	0	0	0	-	-	1(0)	-	0	0		-	-	-	-	-	0	-	-	-	-	-	-	-	-	3(4)	1(0)	-	-	1(3)	**6(7)**
1984	0	0	0	-	-	0	-	0	0		-	-	-	-	-	0	-	-	-	-	-	-	-	-	6(14)	1(2)	-	-	2(5)	**9(21)**
1985	1(3)	0	0	-	-	1(0)	-	1(2)	1(3)		-	-	-	-	-	0	-	-	-	-	-	-	-	-	9(14)	0	-	-	2(6)	**15(28)**
1986	1(1)	0	0	-	0	1(0)	-	0	1(4)		-	-	-	-	-	0	0	-	-	-	-	-	-	-	9(24)	0	-	-	3(2)	**15(31)**
1987	[1(0)]	0	0	-	0	1(0)	-	0	1(4)		-	-	-	-	-	1(0)	0	-	-	-	-	-	-	-	8(17)	0	-	-	1(0)	**12(21)**
1988	[1(0)]	0	0	-	0	1(2)	-	0	2(3)		-	-	-	-	-	0	0	-	-	-	-	-	-	-	7(3)	1(3)	6(2)	-	3(0)	**20(15)**
1989	0	0	0	-	0	2(3)	-	0	2(8)		-	-	-	-	-	0	0	-	-	-	-	-	-	-	7(11)	3(11)	1(3)	-	1(2)	**16(38)**
1990	0	0	0	-	0	3(4)	-	0	2(4)		-	-	-	-	-	0	0	-	-	-	-	-	-	-	6(8)	3(2)	1(4)	-	2(4)	**17(26)**
1991	0	0	0	-	1(3)	3(9)	-	0	1(3)		-	-	-	-	-	1(0)	-	-	-	-	-	-	-	-	4(12)	4(6)	2(6)	-	2(6)	**18(45)**
1992	0	0	0	-	1(0)	4(16)	-	0	2(3)		-	-	-	-	-	0	1(2)	-	-	-	-	-	-	-	7(13)	5(10)	2(0)	-	2(5)	**24(49)**
1993	0	0	0	-	1(4)	4(16)	-	0	2(7)		-	-	-	1(2)	-	0	3(9)	-	2(2)	1(3)	-	-	-	-	6(10)	8(18)	1(0)	-	3(5)	**32(76)**
1994	0	0	0	-	1(3)	4(11)	-	0	4(10)		-	-	-	1(3)	-	2(1)	3(8)	-	2(2)	1(1)	-	-	-	-	5(6)	7(19)	1(0)	-	4(6)	**35(70)**
1995	2(5)	0	2(5)	-	1(2)*	4(9)	-	0	6(15)		1(2)	-	-	1(0)	-	[1(0)]	3(10)	1(3)	2(4)*	2(5)	-	-	-	-	6(12)	4(12)	0	-	5(11)	**40(95)**
1996	5(10)	0	4(12)	1(0)	1(4)	5(15)	-	1(3)	6(8)		2(3)*	-		1(2)	1(3)	3(0)	3(4)	2(0)	5(13)	1(3)	-	-	-	-	7(6)	5(10)*	0	-	7(2)	**60(98)**
1997	3(8)	0	4(11)	-	1(2)	4(13)	-	1(3)	6(13)		2(4)	-	-	1(0)	2(0)	1(0)	[1(0)]	2(1)	4(13)	1(4)	-	-	-	-	5(9)	6(11)	-	[1(0)]	4(1)	**47(93)**
1998	6(16)	0	4(5)	1(0)	2(3)	3(6)	-	1(0)	7(14)		3(10)	-	-	1(1)	0(0)	1(0)	1(2)	3(2)	4(3)	2(4)	1(1)	-	-	-	9(10)	5(6)	2(2)	0	4(3)	**60(88)**
1999	6(5)	1(2)	6(9)	0	4(11)	4(4)	-	0(0)	6(12)		4(7)	-	1(1)	0(0)	0(0)	0(0)	0(0)	2(4)	3(10)	3(6)	1(1)	-	-	-	8(10)	2(3)	3(3)	0	2(3)	**56(91)**
2000	4(4)	0	5(10)	0	6(14)	3(6)	1(4)	0	5(1)		3(3)	-	0	1(4)	0	0	0	3(8)	2(7)	2(7)	1(0)	-	-	-	9(7)	0	2(1)	0	3(4)	**50(80)**
2001	3(1)	0	6(19)	0	4(14)	5(14)^	1(4)	0	4(11)		4(0)	-	0	1(1)	1(2)	1(0)	0	3(6)	4(9)	4(5)	0	-	-	-	10(8)	[1(0)]	1(4)	1(3)	4(8)^	**55(109)**
2002	5(0)	0(0)	7(10)	1(0)	5(15)	5(6)	2(7)	0(0)	4(9)		3(1)	1(1)	0(0)	1(1)	1(1)	4(1)	0(0)	4(4)	4(11)	4(5)	1(1)	-	-	1(0)	6(9)	1(0)	0(0)	0(0)	6(9)	**66(91)**
2003	3(1)	0(0)	5(12)	1(1)	6(10)	8(0)	3(6)	0(0)	4(5)		1(2)	1(0)	0(0)	1(4)	1(1)	2(2)	0(0)	3(1)	5(10)	3(1)	1(0)	-	-	0(0)	5(3)	1(0)	0(0)	0(0)	7(19)	**61(78)**
2004	3(4)	0(0)	7(21)	1(0)	5(3)	3(4)	2(3)	0(0)	4(0)		1(3)	1(2)	0(0)	1(1)	1(2)	1(0)	0(0)	2(1)	d	3(5)	1(0)	-	-	0(0)	5(7)	1(1)	0(0)	0(0)	7(13)	**55(80)**
2005	4(0)	0	6(6)	1(0)	1(1)	6(5)	1(0)^	0	1(1)		1(0)	2(1)	0	1(2)	1(0)	0	2(1)	2(6)	6(0)	4(1)	0	-	-	0	5(0)	1(0)^	0	0	6(3)	**49(27)**
2006	1(0)	1(2)	4(9)	1(2)	0	5(4)	0	0	5(14)		0	2(1)	1(0)	1(1)	1(1)	0	2(0)	3(6)	3(2)	2(3)	0	-	-	0	5(4)	1(2)	0	0	3(3)	**41 (54)**
2007	3(1)	0	2(2)	1(1)	0	4(4)	0	0	7(10)		0	1(0)	2(0)	1(0)	1(2)	0	2(6)	2(0)	2(3)	1(1)	0	-	-	0	2(0)	1(0)	0	0	3(7)	**35 (37)**
2008	0	0	2(6)	0	0	3(9)	1(1)	0	7(15)		0	0	0(0)	2(3)	1(0)	0	1(4)	1(0)	1(0)^	3(3)	0	-	-	0	0	0	0	0	2(1)	**24(42)**
2009	1(3)	0	2(3)	0	0	6(19)	0	0	8(15)		0	0	0	1(3)	1(0)^	0	1(0)	1(0)^	2(0)	2(2)	0	-	-	0	2(0)*	0	0	0	2(1)*	**27 (46)**
2010	2(2)	0	3(6)	0	0	6(14)	0	0	8(10)		2(6)	0	0	1(3)	0	0	1(0)	0	1(2)	2(0)	0	-	-	0	0	2(2)	0	0	2(4)	**30(49)**
2011	3(5)	0	4(7)	0	0	5(14)	1(4)	0	7(18)		2(3)	1(0)[1]	0	1(4)	0	1(1)	0	1(0)	2(1)	1(3)	0	-	-	0	1(4)	3^(6)	0	0	1(0)	**33(70)**
2012	2(4)	1(2)	4(8)	0	0	7(17)	0	0	9(10)		1(2)	1(0)	0	1(3)	0	1(1)	0	0	1(0)	1(1)	0	-	-	0	2(0)	6(13)	0	0	2(3)	**42(64)**
2013	3(4)	0	3(7)	0	1(4)	7(22)	0	0	6(11)		3(4)	2(2)[1]	0	2(4)	2(5)	1(0)	0	2(3)	1(0)^	2(2)	0	-	-	0	1(4)	7(7)	0	0	2(6)	**44(85)**
2014	3(7)	1(1)	3(7)	0	1(1)	6(18)	0	0	4(9)		2(6)	0	1(0)	2(2)	6(10)	3(5)	0	5(0)^	1(3)	2(0)	2(4)	-	-	0	2(4)	5(14)	0	0	2(6)	**50(97)**
2015	5(8)	1(2)	5(8)	1(3)	1(4)	7(18)	0	0	5(10)		3(5)	1(0)	0	1(2)	9(17)	2(3)	2(6)	1(3)	3(4)	1(2)	1(2)	-	-	0	6(14)	5(10)	0	0	2(0)	**62(121)**
2016	7(13)	1(3)	6(17)	0	1(4)	6(15)	1(0)	1(0)	6(8)		2(3)	2(1)	1(2)	0	9(8)	4(1)^	3(2)	1(0)	2(7)	1(1)	1(0)	-	-	0	7(11)	4(5)	0	0	1(0)	**66(101)**
2017	8(26)	0	6(12)	1(2)	2(2)	7(9)^	0	0	7(6)		2(3)	1(0)	0**	0	7(6)	2(0)	5(11)	1(3)	2(2)	1(0)	0	-	-	0	6(16)	6(0)	0	0	1(4)	**64(102)**

2018	11(24)	0	6(15)	1(0)	2(5)	6(5)	0	1(0)^	7(11)		1(2)	1(3)	1(4)**	1(2)	3(10)	0	7(15)	2(4)	4(7)	1(0)	0	-	-	0	6(12)	6(5)	0	0	2(4)	**68(128)**
2019	12(14)	1(0)	8(24)	1(4)	2(6)	7(8)	0	0	6(11)		4(3)	2(4)	0**	0***	7(8)	2(2)	8(26)	2(4)	5(7)	1(0)	1(2)	-	-	0	7(18)	10(26)	0	0	3(6)	**89(175)**
2020	12(30)	1(3)	8(13)	1(1)	3(7)	6(13)	1(3)	1(0)^	6(13)		3(6)	1(3)	1(1)	1(0)	8(11)	0	9(21)	5(8)	5(9)	2(4)	2(1)	-	-	0	8(13)	14(25)	0	0	1(4)	**98(199)**
2021	17(28)	3(3)	8(13)	1(1)	4(7)	7(8)	2(0)	1(1)	9(22)		5(7)^	2(3)	4(5)	1(0)	8(5)	2(1)	9(16)	6(2)	5(11)	3(7)	2(3)	-	-	0	15(33)	10(25)	0	0	4(12)	**125(213)**
2022	19(35)	2(5)	14(40)	2(0)	4(6)	6(7)	3(2)	0	12(24)		7(15)	2(4)	2(5)	1(2)	9(8)	1(2)	8(17)	7(6)	6(6)	2(3)	2(5)	-	-	0	15(34)	13(19)	0	0	4(7)	**140(252)**
2023	16(24)	4(2)	16(29)	1(3)	3(5)	8(13)	5(12)	1(0)	15(17)		8(12)	3(10)	2(0)	1(0)	15(8)	2(7)	6(10)	5(8)	7(7)	2(0)	2(7)	1(0)	1(4)	0	17(9)	10(4)	1(4)	1(1)	4(3)	**157(201)**
2024	14(21)	2(3)	17(37)	2(3)	3(3)	6(9)	5(7)	1(0)	12(28)	1(0)	7(12)	3(2)	2(2)**	1(2)	4(1)	4(7)	14(27)	4(10)	8(10)	2(1)	3(0)	1(0)	1(3)	0	15(20)	8(17)	1(4)	1(2)	4(5)	**143(237)**

1 = Chick raised in rehabilitation center and released, not counted in total fledgling count
[ ] = failed early in season, not counted in total
* = additional nests present but failed
^ = 1 pair moved to another site, not counted in total
** some chicks from southern OOB raised on Ferry
*** One Old Orchard pair nested on RCNWR property adjacent to Goosefare Brook, but on OOB side. Counted in OOB total.

Table 5: Causes of Nest Losses for Piping Plovers, 2002-2024

Causes Of Nest Loss						
Year	**Tide**	**Nest Predation**	**Abandonment**	**Buried in Sand**	**Other(unknown; dead eggs)**	**Totals**
2002	18	21	17	0	0	56
2003	6	19	9	0	0	34
2004	12	4	21	0	0	37
2005	22	17	13	0	0	52
2006	2	9	6	0	0	17
2007	15	5	9	1	1	31
2008	0	2	4	0	0	6
2009	6	3	3	0	0	12
2010	1	1	5	0	0	7
2011	0	2	7*	0	0	9
2012	21	9	6**	0	0	36
2013	14	14	5**	0	0	33
2014	4	5	6	0	0	15
2015	6	11	4	1	0	22
2016	15	14	7	0	1	37
2017	26	15	6	0	0	47
2018	8	15	5	0	0	28
2019	0	16	8	0	0	24
2020	1	13	14	1	2	31
2021	14	26	16	2	2	60
2022	22	35	12	0	5	74
2023	22	49	16	0	14	101
2024	10	37	3	2	2	54

Table 6: Number of Nests Hatched, Destroyed, and Abandoned in Exclosed vs. Unexclosed Piping Plover Nests in 2024

Nesting Outcome	**Unexclosed**	**Exclosed**	**Total**
Predated - Avian	15	0	15
Predated - Mammalian	11	0	11
Predated - Unknown	11	0	11
Tide	6	4	10
Abandoned	3	0	3
Other (unknown, dead eggs, buried)	4	0	4
Unsuccessful Nests SUBTOTALS	***50***	***4***	**54**
Successfully hatched	***71***	***49***	**120**
Total Nesting Attempts	***121***	***53***	**174**

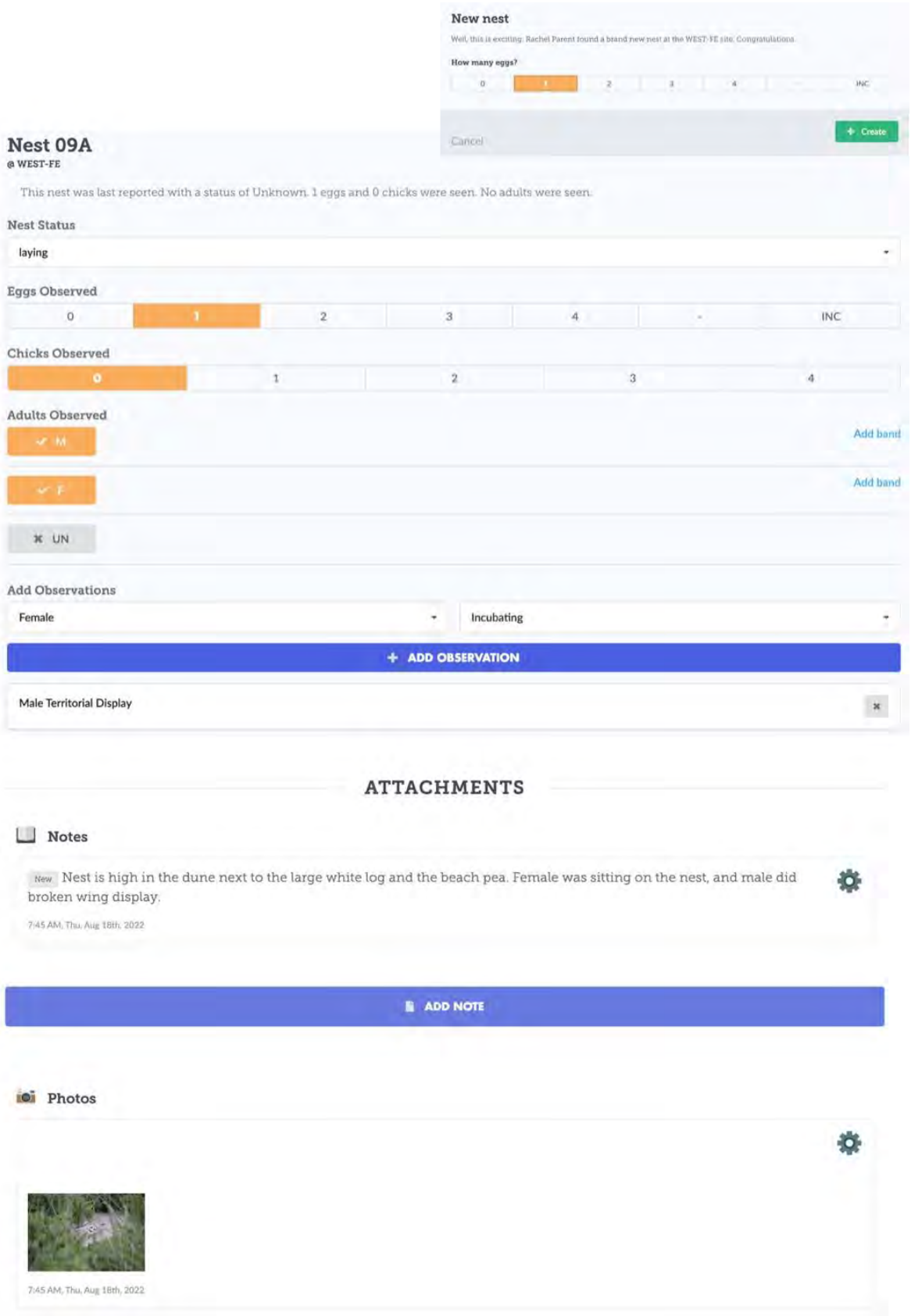
Table 7: Estimated Piping Plover Productivity from Egg to Fledgling, 2002-2024

Year	% Egg Hatchability	% Chicks Fledged	Productivity
2002	39%	73%	1.4
2003	48%	57%	1.28
2004	42%	66%	1.45
2005	34%	26%	0.55
2006	54%	53%	1.35
2007	35%	53%	1.06
2008	74%	49%	1.75
2009	57%	68%	1.7
2010	74%	51%	1.63
2011	69%	65%	2.12
2012	45%	57%	1.52
2013	46%	77%	1.93
2014	63%	70%	1.94
2015	69%	61%	1.95
2016	59%*	54%	1.53
2017	50%	57%	1.59
2018	65%	66%	1.88
2019	73%	59%	1.97
2020	71%	63%	2.03
2021	60%	58%	1.70
2022	60%	60%	1.80
2023	53%	50%	1.28
2024	68%	54%	1.66

Table 8: List of Regularly Monitored Beaches and Observed Piping Plover Activity in 2024

Town	Beach	Pairs	Nest Attempts	Fledged	Nest Outcomes
Ogunquit	Ogunquit	14	16	21	2B, 12H, 2P
Wells	Moody	2	2	3	1U, 1H
Wells	Wells	17	19	37	3W, 16H
Wells	Drakes Island	2	2	3	2H
Wells	Laudholm Farm	3	3	3	3H
Kennebunk	Crescent Surf	6	8	9	1W, 1P, 1D, 5H
Kennebunk	Parsons	5	7	7	5H, 2P
Kennebunk	Marshall Point	1	1	0	1P
Kennebunkport	Goose Rocks	12	17	28	7P, 10H
Biddeford	Fortunes Rocks	7	8	12	7H, 1W
Biddeford	Hills	3	3	2	3H
Biddeford	Timber Point	1	1	0	1W
Saco	Ferry	2	3	2	2P, 1H
Saco	Goosefare Brook	1	2	2	1W, 1H
Old Orchard	Ocean Park	0	0	0	
Old Orchard	Old Orchard	4	9	1	6P, 2H, 1A
Scarborough	Pine Point	4	5	8	1P, 1A, 3H
Scarborough	Western	14	14	27	11H, 3P
Scarborough	Scarborough	3	3	10	3H
Scarborough	Higgins	6	7	10	6H, 1W
Cape Elizabeth	Ram Island	2	3	1	1H, 2P
Cape Elizabeth	Crescent Beach SP	3	4	0	1P, 3H
Long Island	South Beach	1	1	0	1P
Chebeague Island	Indian Point	1	1	3	1H
Phippsburg	Seawall	15	20	20	8P, 2W, 10H
Phippsburg	Popham Beach	8	8	17	8H
Phippsburg	Hunnewell	1	1	4	1H
Georgetown	Indian Point	1	1	2	1H
Georgetown	Reid- Mile	1	1	0	1H
Georgetown	Reid- Half Mile	3	4	5	3H, 1A
TOTALS		**143**	**174**	**237**	

Appendix I: NestStory Create New Nest



Appendix II: NestStory Exclosure Data and Activity Log

Exclosure Data

+ Edit

Date Exclosed	05/02/2022
Time Adult Off	14min
Time Exclosure Complete	13min
Time Adult Return	1min
Total Time Off Nest	14min
Exclosure Shape	circular
Type Of Top	bird netting

Activity Log

Date	Status	Eggs	Chicks	M	F	UN	Link
Mon, May 2nd 2022	laying	1	0	Y	Y	N	View Report
2 Observations ▸							
Tue, May 3rd 2022	laying	1		Y	Y	N	View Report
2 Observations ▸							
Fri, May 6th 2022	laying	2		Y	N	N	View Report
Mon, May 9th 2022	incubating	4		N	N	N	View Report
Wed, May 11th 2022	incubating	4		N	N	N	View Report
1 Attachments ▸							

Appendix III: NestStory Nest Card

01A 2022 | PIPL | WEST-FE

Nest Fate	Brood Fate	Last Check
hatched	fledged	07/12/22

5/2	6/10	7/5	N/A
DISCOVERED	HATCHED	FLEDGED	LOSS

Active Nest Status	Continuation Nest
fledged	N

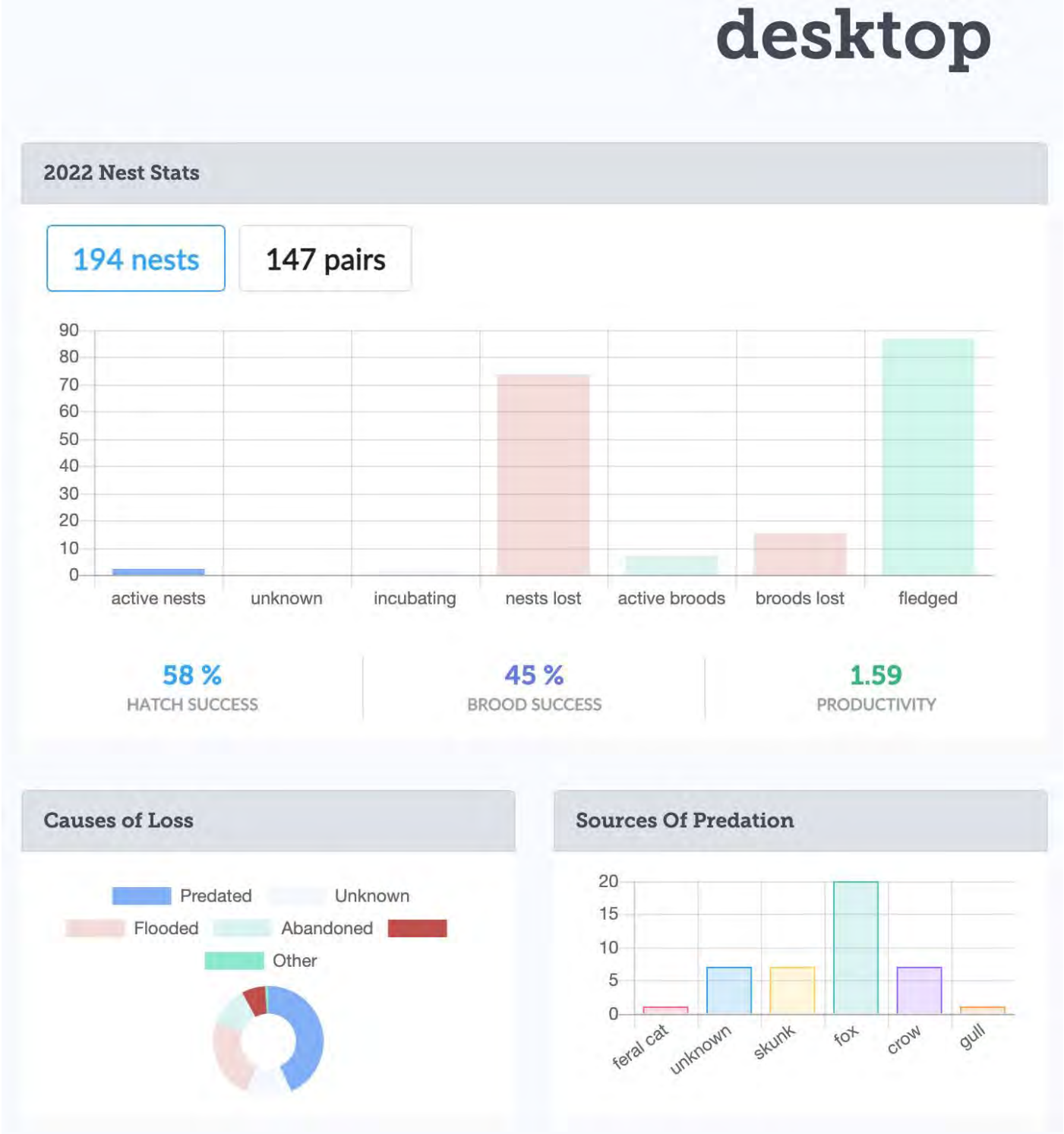
Nest History

Estimated Hatch	06/06/22
Earliest Possible Hatch	
NLT?	N
Actual Hatch	06/10/22
Hatch Observed?	Y
Nest Initiation	n/a
First Incubation	n/a
Last Incubation	n/a
Max Clutch	4
Egg Hatched	4
Eggs Unhatched	0
Eggs Collected	0

Brood History

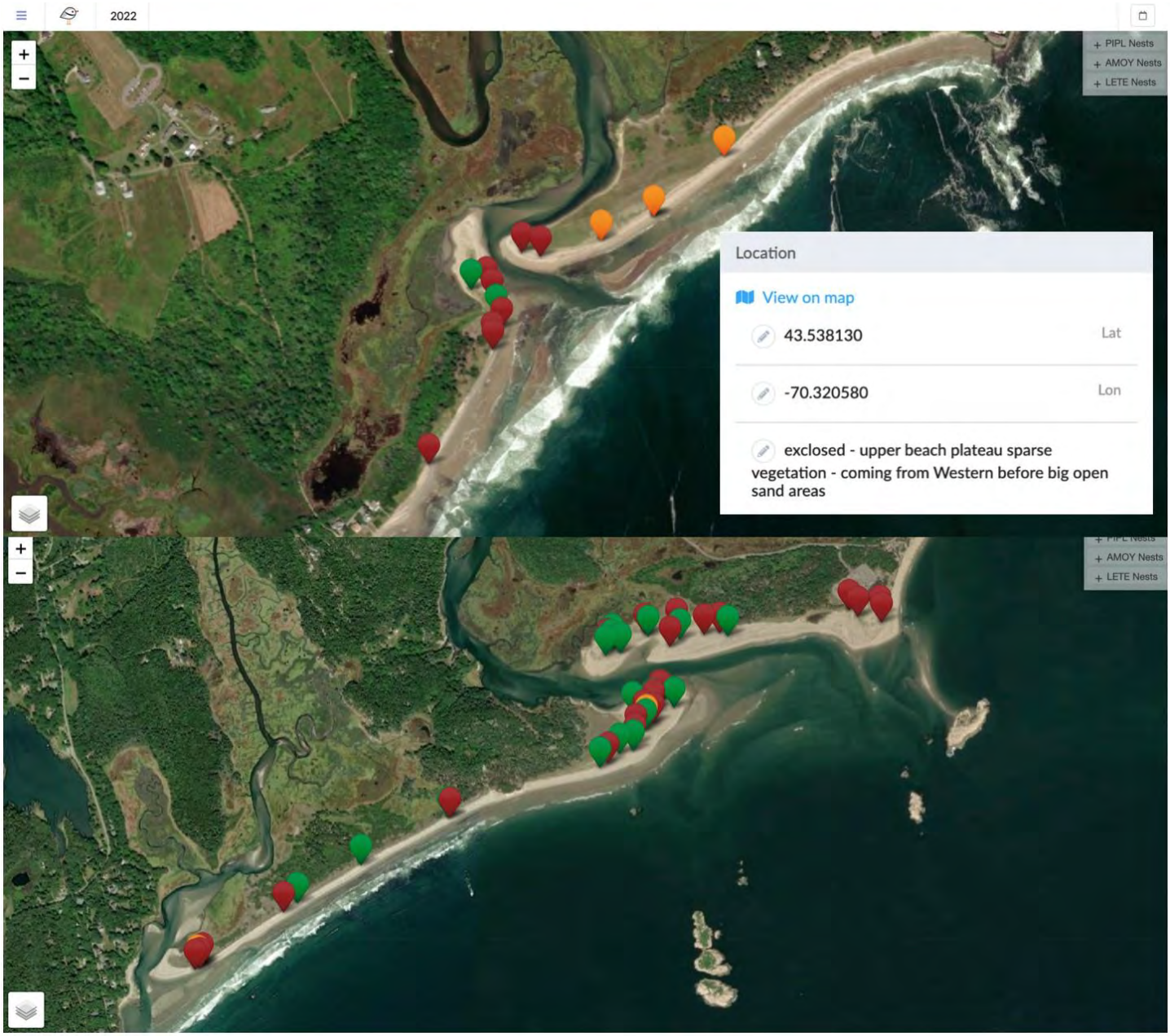
Estimated Fledge	07/05/22
Actual Fledge	07/05/22
Date Fledge Determined	07/06/22
Date Brood Banded	n/a
First Brood Observation	n/a
Last Brood Observation	n/a
Max Chicks	4
Chicks Fledged	4
Chicks Unfledged	0

Appendix IV: NestStory Desktop Statistics and Tables



Appendix V: NestStory Planner

Appendix VI: NestStory Maps and Nest Locations



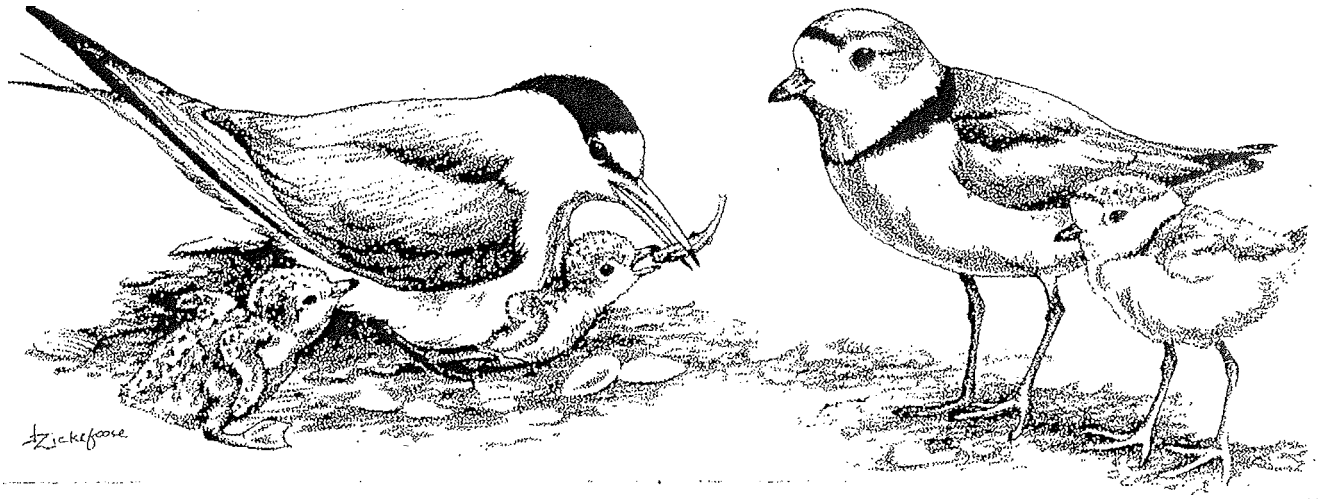
Appendix VII: Piping Plover Census for Maine Sites, 2024

2024 Piping Plover Census						
Town	**Beach**	**# Adults**	**# Pairs**	**# Nests**	**# Chicks**	**Comments**
Biddeford	Fortune's Rock Beach	16	8	3	16	
	Granite Pt Beach	0	0	0	0	
	Hattie's Beach	0	0	0	0	
	Hills Beach	8	4	3	0	
	Timber Point	2	1	1	0	
Cape Elizabeth	Crescent Beach State Park	6	3	2	0	
	Ram Island	6	3	2	0	
Georgetown	Indian Point	2	1	1	0	
	Reid State Park	10	5	3	0	Banded GF A50 nesting
Kennebunk	Crescent Surf	12	6	4	0	
	Colony Beach	0	0	0	0	
	Gooch's Beach	0	0	0	0	
	Kennebunk Beach	0	0	0	0	
	Parsons Beach	10	5	4	0	
Kennebunkport	Goose Rocks Beach	22	11	9	0	
	Marshall Point	0	0	0	0	
Kittery	Crescent Beach	0	0	0	0	
	Seapoint Beach	0	0	0	0	
Long Island	South Beach	3	1	1	0	
Chebeague Island	The Hook	3	1	1	0	
Ogunquit	Ogunquit Beach	31	15	12	4	Banded GF 464 nesting
Old Orchard Beach	Ocean Park	0	0	0	0	
	Old Orchard Beach-N	6	3	1	0	
	Old Orchard Beach-S	2	1	1	0	
Phippsburg	Head Beach	0	0	0	0	
	Hunnewell Beach	2	1	1	0	
	Popham Beach State Park	20	10	7	3	
	Seawall Beach	30	15	11	0	
Saco	Ferry Beach	4	2	1	0	
	Goosefare Brook	2	1	0	0	
Scarborough	Higgins Beach	16	8	2	12	
	Pine Point	8	4	4	0	
	Scarborough Beach	10	5	1	4	
	Western/Ferry Beach	26	13	11	7	
Wells	Drake's Island	5	2	2	0	
	Laudholm Farm	6	3	3	0	
	Moody Beach	4	2	2	0	
	Wells Beach	37	18	7	30	
York	Cape Neddick Beach	0	0	0	0	

TOTAL	**309**	**152**	**100**	**76**

RESTRICTED AREA

This area is a natural breeding ground for Terns and Plovers



THESE RARE BIRDS, THEIR NESTS AND EGGS ARE PROTECTED

UNDER MAINE AND FEDERAL LAWS

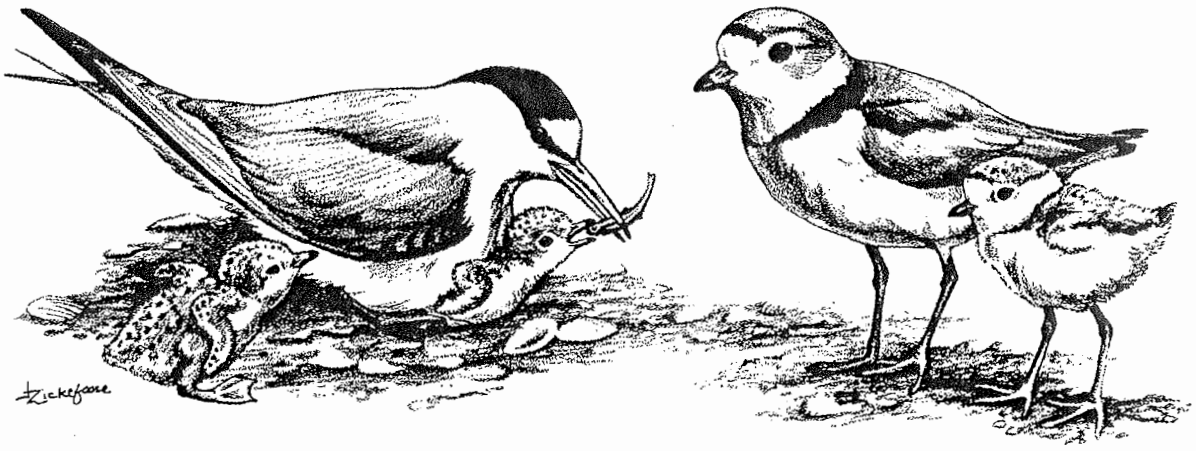
Persons May Be Arrested and Fined for Killing, Harassing or in Any Way Disturbing Birds Nesting in This Area (12 MRSA Sec. 7756).

ILLUSTRATION BY JULIE ZICKEFOOSE, HADLYME, CT. 06439

VOSS SIGNS MANLIUS, NY 13104-0553 (315) 682-6418

ZONE RESTREINTE

Cette zone est un terrain de reproduction pour les Hirondelles De Mer et les Pluviers Siffleur



CES OISEAUX RARES, LEURS NIDS ET LEURS OEUFS SONT PROTÉGÉS

PAR LES LOIS DU MAINE ET LES LOIS FÉDÉRALES
Sera Arrêtée et Condamnée à L'amende
Toute Personne Trouvée Coupable D'avoir Tué, Harcelé
Ou Troublé de Quelque Façon Que ce Soit
Les Oiseaux Qui Font Leurs Nids Dans Cette Zone.

ILLUSTRATION BY JULIE ZICKEFOOSE, HADLYME, CT 06439

VOSS SIGNS, MANLIUS, NY 13104-0553 (315) 682-6418

1. - 278 signs


ATTENTION
Please keep away from this piping plover nesting area and shorebird feeding and resting area.
You can help these endangered species by staying close to the water's edge.
MAINE
DEPT. OF INLAND FISHERIES AND WILDLIFE

2. - 50 signs

ATTENTION

Please keep away from this sandpiper and plover feeding and resting area.

You can help these endangered species by staying close to the water's edge.

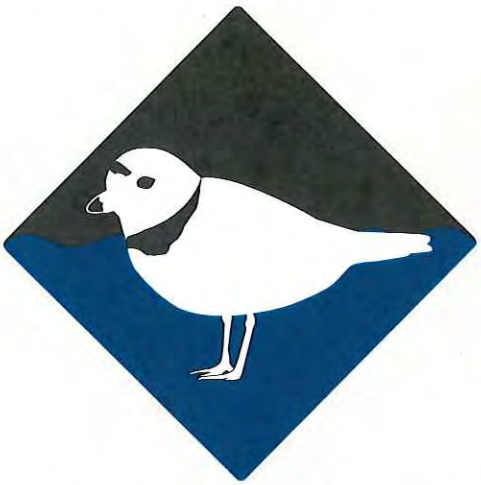
MAINE
DEPT. OF INLAND FISHERIES AND WILDLIFE

ATTENTION

Signs with this symbol are posted where endangered piping plovers nest or where plover families and migrating sandpipers are resting and feeding.

When people or pets get too close, plover parents can become scared and leave their nest and chicks. You can help protect eggs and chicks by staying away from signed areas.

Weighing only a few ounces, shorebirds complete annual migrations between arctic nesting areas and South American winter habitats.



Thousands of sandpipers and plovers stop along Maine's coast to rest and refuel for a nonstop flight to South America (2000 miles or more)!

3. - 80 signs

YOU CAN HELP

Disrupting these weary travelers means they use up vital energy they need to successfully migrate. Avoid walking or jogging through feeding and resting flocks of birds. Please give them lots of space and if permitted, keep your dog on leash.

DUNE

DRY SAND: SENSITIVE NESTING AREA

WET SAND: WALK CLOSE TO THE WATER'S EDGE

MAINE DEPT. OF INLAND FISHERIES AND WILDLIFE

mefishwildlife.com (207) 287-8000

It is a violation of Maine and Federal law to kill, harass, or disturb endangered birds in this area (12 MRSA, Ch 925, Sub 3, Sec 12808; Federal Endangered Species Act, Sec 9).

ATTENTION

Signs with this symbol are posted where endangered piping plovers nest or where plover families and migrating sandpipers are resting and feeding.

When people or pets get too close, plover parents can become scared and leave their nest and chicks. You can help protect eggs and chicks by staying away from signed areas.

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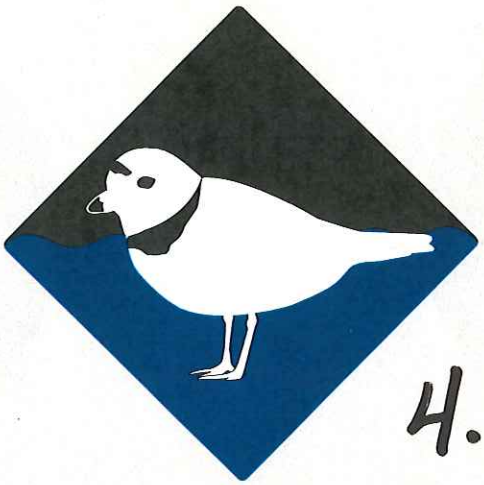

Thousands of sandpipers and plovers stop along Maine's coast to rest and refuel for a nonstop flight to South America (2000 miles or more)!

4.- 33 signs

YOU CAN HELP

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DUNE

DRY SAND: SENSITIVE NESTING AREA

WET SAND: WALK CLOSE TO THE WATER'S EDGE

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ATTENTION

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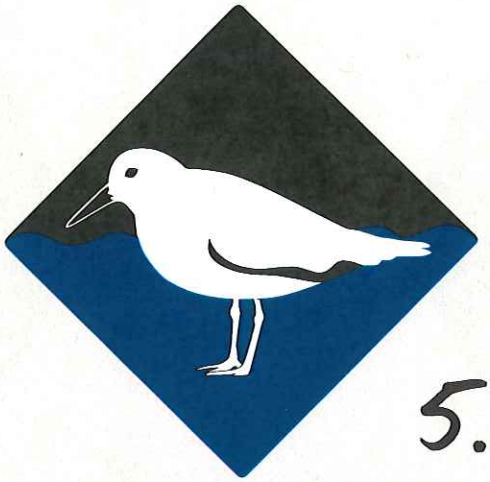

Thousands of sandpipers and plovers stop along Maine's coast to rest and refuel for a nonstop flight to South America (2000 miles or more)!

5. - 25

YOU CAN HELP

Disrupting these weary travelers means they use up vital energy they need to successfully migrate. Avoid walking or jogging through feeding and resting flocks of birds. Please give them lots of space and if permitted, keep your dog on leash.

✓ UPLAND EDGE: WALK CLOSE TO THE VEGETATION

✗ BEACH COBBLE & ROCKY LEDGE: SENSITIVE ROOSTING AREA

✓ MUD FLATS: WALK CLOSE TO THE WATER'S EDGE

MAINE
DEPT. OF INLAND FISHERIES AND WILDLIFE

mefishwildlife.com (207) 287-8000

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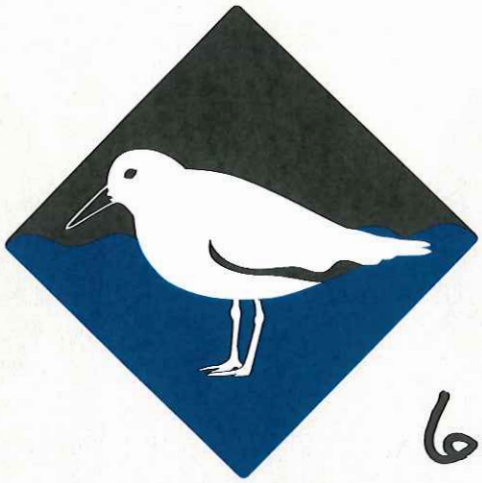

Thousands of sandpipers and plovers stop along Maine's coast to rest and refuel for a nonstop flight to South America (2000 miles or more)!

6. - 25

YOU CAN HELP

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UPLAND EDGE: WALK CLOSE TO THE VEGETATION

BEACH COBBLE & ROCKY LEDGE: SENSITIVE ROOSTING AREA

MUD FLATS: WALK CLOSE TO THE WATER'S EDGE

MAINE DEPT. OF INLAND FISHERIES AND WILDLIFE

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Maine Audubon

Coastal Birds 2024 Newsletter

Photo: Susan Kline

Piping Plover Season Wrap-up

Productivity is Back on Track

Despite severe winter storm damage on the beaches, Piping Plovers arrived in Maine right on schedule, starting to arrive in mid-March with many in time for the early April snowstorm and solar eclipse. Hardy little birds, the Piping Plovers weathered the storm and started staking out their nesting territories by mid-April. Although some of the beaches and nesting habitat were altered, we saw birds choose creative nesting locations and scope out some newer sites this season. For the past seven breeding seasons, Maine's Piping Plover numbers have been on the rise, breaking records year after year. After seeing a record high of 157 pairs in 2023, in 2024 we had 143 breeding pairs. Maine fledged 237 chicks for a productivity rate of 1.66 chicks per pair which surpasses the state's recovery goals of 1.5. This is compared to 2023, when plovers fledged 201 chicks for a productivity rate of 1.28, the lowest recorded since 2007. Knowing that our productivity numbers are back on track is reassuring, even with fewer breeding pairs. Many of those fledged chicks will return to beaches and help grow our breeding population for future years.

We had plovers nest at yet another new site this season: Timber Point, Biddeford. The first report came from Susan Kline, Wells Plover Monitor. The nest was unsuccessful but the expansion to new nesting sites over the past two seasons bodes well for the species. Plovers returned to Chebeague and Long Island for their second season, and we had plovers nest both at Hunnewell and Indian Point for their second consecutive year since 2002.

Three beaches in Scarborough fledged the most chicks since monitoring began: Pine Point with eight, Scarborough Beach State Park with ten, and Western with 27. Over the years, we have seen predator and dog pressures in these areas, but with continued community awareness and rising support, we were able to get a lot of chicks off the ground. Nine beaches along the coast, on average, fledged more than two chicks per pair including Wells, Goose Rocks, Goosefare Brook, Pine Point, Scarborough Beach State Park, the Hook, Popham Beach State Park, Hunnewell, and Indian Point.

The success of the plovers would not be possible without our amazing volunteer coordinators, volunteers, landowners, and government partners. Partnerships with town, state, and federal employees like town managers, state park rangers, U.S. Fish and Wildlife Service biologists, Maine Department of Inland Fisheries and Wildlife biologists and wardens, town lifeguards, and beach association members have been essential for the growth of the Piping Plover population in Maine.

For more information, including *Maine Endangered Piping Plovers and Least Terns* brochure, visit **maineaudubon.org/plovers**

Wildlife Biologist Laura Williams at Littlefield footbridge on Ogunquit Beach in mid-April

Coastal Resiliency Depends on Dunes

In the spring, we saw the efforts of homeowners, town officials, and community members blossom to help protect and restore essential dune habitats in Maine. Winter and spring storms hit the coasts hard, and beaches were no exception. Many beaches lost a lot of sand, and some of the gradual sloping dunes were transformed into steep cliff-like features which were unstable and easily collapsible. Areas with non-native vegetation like Rugosa rose or Asiatic Bittersweet were particularly vulnerable to destabilization. Some dunes will disappear entirely, exposing hidden seawalls, while others will diminish, leading to flooding on the roads and houses they currently protect.

Permitted and appropriate dune restoration is essential to aid in the protection of plovers, combat rising sea levels, and ensure the safety of beach residents. Rebuilding and replanting efforts require permits and coordination with multiple Maine agencies to ensure that the work is done in a way that benefits the beach, wildlife, and property alike. We've seen this type of dune restoration in action with newly planted American beachgrass at Goose Rocks Beach (Kennebunkport) and Fortunes Rocks Beach (Biddeford). The beachgrass helps stabilize the sand and extend the dunes. Also, in January 2024, state officials asked Mainers to donate their Christmas trees to Popham Beach State Park in Phippsburg. The park staff lined up the trees on either side of the entrance to help build dunes back up in front of the bathhouse, parking lot, and walkway. Over time, the trees collect sand during high winds which helps to rebuild the flattened dunes, slow erosion, and increase protection to the surrounding infrastructure. Toward the end of the season, we saw the signs of success of the dune grass planting as the American beachgrass continued to grow and establish roots in the dune.

So, how do all these efforts affect the Piping Plovers? They have adapted! The plovers made their homes in Maine for the breeding season and successfully used the available habitat to lay their eggs and raise their chicks. Despite the changes, the birds found creative spots to nest, like on top of a 12-foot dune or nuzzled behind the dangling dune grass roots. Plovers are small, but they are mighty and resilient!

Top photo: In late May, before homeowners had returned for the summer beach season, plovers on Wells Beach found a well hidden and shaded nest location under this staircase.

Middle photo: Many plovers on Ogunquit Beach nested under and behind dangling roots.

Bottom photo: A well-camouflaged nest on Wells Beach is hidden throughout the cobble.

Least Terns Show Progress in 2024

Least Terns settled across eight Maine nesting sites in 2024: Wells, Laudholm, a beach in Kennebunk, Parsons, Western, Stratton Island, Seawall, and Reid State Park. A total of 191 nesting pairs were counted in June, although it is suspected some pairs had yet to nest. This is four more pairs than last year's 187, making it the third lowest pair count in the past ten years.

Despite a low number of nesting pairs, 125 chicks fledged for a statewide productivity of 0.65 fledglings per pair. This is the second highest productivity and the third most fledged in the past ten years. Getting an accurate count on the number of nesting pairs and fledglings can be a challenge and as with years past, this is likely a low estimate. Least Terns go through cycles of renesting, adults changing nesting sites, and chicks fledging at different times.

Nesting sites changed over the winter due to the severe storms the coast experienced. Habitat was degraded and lost at some sites, improved and created at others. Least Terns typically change sites throughout the years as habitat changes, success varies at sites, or predators increase, and this year was no exception. As a result, terns nested on beaches like Wells and Western that have not seen recent activity. Wells, Laudholm, Parsons, Western, and Stratton Island produced fledglings with Western having a high of 45 chicks fledged. As always, challenges included predation from foxes, coyotes, and a Black-crowned Night Heron as well as human disturbance from beachgoers walking too close to or through nesting colonies.

With biologists, land managers, and landowners working together and being flexible based on the birds' needs and changing landscape, the state endangered Least Terns will continue to have the opportunity to rebound.

Photo: Susan Kline

Question & Answer

An Intern's Perspective

Q: What surprised you most about this job?

A: I had initially thought that wildlife conservation meant we worked solely with animals, but I was wrong. The plovers were our main priority but working with volunteers and educating beachgoers is equally important for conservation efforts. The success of the Coastal Birds Project comes not only from the crew, but also from the efforts of everybody who enjoys the beach. Working alongside volunteers and doing education on the beach was a shock coming in but became very rewarding. The project is bigger than just the seasonal crew, as conservation efforts require all of us to care.

Clark Begley
University of New Hampshire '24
Recreation Management & Policy

Q: What assumptions did you have coming in that were dispelled?

A: Sometimes it is easy to assume that new job environments with more experienced people will be difficult and the people and tasks are intimidating. However, even on an internship position, I didn't feel any "less-than" from the other field crew. My skills and wants to learn and participate were immediately encouraged and accepted, and opportunities to take on difficult tasks were plenty. I am always nervous to begin working in a new place. But working with the Maine Audubon Coastal Birds field crew was a wonderful and happy experience for me. Meeting new people can be hard but everyone in the crew this year was so friendly, cheerful, and extremely willing to share their knowledge, skills, and friendship with me.

Lily Benn
Mount Holyoke College '24
Biology & Environmental Studies

Q: What are your big takeaways from your time working with plovers? Has this experience changed your perspective of the world/ the environment?

A: In the past few months, I have witnessed the many threats that Piping Plovers face. On the Fourth of July, I was stationed outside a nest in Old Orchard Beach. I watched countless fireworks explode near me, followed by frantic peeps. I began to develop some cynicism about humans and their role in the environment. However, I was struck by the devotion my colleagues, town volunteers, and many beachgoers have for the birds. While one of my observations from this internship is the severity of what plovers undergo each summer, it is not my only takeaway. I am leaving this experience with restored hope that humanity will continue to fight for the environment.

James Foleno
Bates College '28

Wrack Rocks!

Take a walk on any of the beautiful Maine beaches and you might notice a dark line stretching across the sand. This wrack, which is mostly seaweed but also contains other natural materials, sea grass, shells, and vegetation, washes up onto the beach at high tide and provides resources to organisms on the shore. Acting as a primary source of nutrients and the foundation of the shoreline food chain, the wrack line is often the preferred foraging habitat for coastal birds like Piping Plovers and other migratory shorebirds. This natural debris serves the beach and the whole coastal community. It provides coverage for wildlife to hide from predators, catches windblown sand that helps build dunes, and helps to fertilize beach vegetation that stabilizes the dunes and protects coastal communities against storm damage.

However, it's not unusual to find a wrack line that contains human-made debris, trash, or plastic pollution. Sometimes the organic components can have a smell that is off-putting to beachgoers, or may contain invasive seaweed species. To deal with this, some towns rely on raking the beach with mechanical equipment. While this is an effective way to clear the sand of any unwanted elements, it can be detrimental to the biodiversity and success of shoreline wildlife. This raking decreases the amount of food available to shoreline species, disrupting the coastal food chain through the removal of vital microorganisms, and uproots developing vegetation.

Maine beaches are treasured for their natural beauty and wildlife. Beach raking creates an unnatural (albeit perhaps less stinky) environment for all, from beachgoers to the Piping Plovers that rely on wrack to forage. Many of the benefits of mechanical beach cleaning can be accomplished through beach clean-ups by hand, strengthening coastal communities to improve the places we all love. Next time you visit one of the beautiful shoreline areas, notice the wrack and all the small organisms that might utilize it—maybe as shelter, or perhaps as a food source. The beach is a dynamic, complex environment, and we are lucky to enjoy it in Maine.

Photo: Missy Mans

Photo: Apalacian Dreamer/Flckr

Photos: Town of Scarborough

Dredging on Western Beach

Dredging is a common practice used to reshape channels and harbors in order to help boats safely navigate coastal waterways that have filled in with sediment. In Maine, dredging is only permitted from November to April to protect fish, lobster, and wildlife populations.

Marine ecosystems are impacted by dredging, since it can lead to the release of toxic material into sediment, erosion, and/or the displacement of habitat for aquatic life. That is why dredging is strictly regulated by both the Army Corps of Engineers and Maine Department of Environmental Protection, under the Clean Water Act and Maine's Natural Resource Protection Act, to ensure it is done only when the benefits outweigh the costs. If done thoughtfully and properly, dredging can help with flood control, beach ecosystem nourishment, and water quality improvement.

The Scarborough River Federal Navigation Project dredged from November 2023 to February 2024. Around 130,000 cubic tons of sediment were placed on Western Beach in Scarborough. Although the effect of the dredge on the marine ecosystem has not yet been assessed, the sandy beach was larger as a result, which greatly benefited the beach ecosystem. This likely contributed to the most successful year for Piping Plovers and Least Terns at Western Beach, offering more habitat to use for nesting. An all-time high of 14 pairs of Piping Plovers fledged 27 chicks.

Least Terns had not nested at Western Beach since 2019, had not fledged chicks there since 2017, and the record number of Least Terns fledged from the beach was 25, set way back in 1978. This year, though, 45 Least Terns have fledged! It appears that the amount of sandy beach habitat available played a positive role for both these endangered species this season.

In Memoriam

Mary Ross
1937–2023

When we think about Ogunquit Beach, the Ross ladies immediately come to mind. Longtime Ogunquit resident Mary Ross was a plover lover who cared deeply for the natural world and was a positive force for good. For decades, the Maine Audubon plover crew has loved seeing her and her daughter Kirsten on the beach and talking about plovers. Mary is, and will continue to be, missed.

2024 PIPING PLOVER NESTING DATA

Town	Beach	Pairs	Nest Attempts	Fledglings
Ogunquit	Ogunquit	14	16	21
Wells	Moody	2	2	3
	Wells	17	19	37
	Drakes Island	2	2	3
	Laudholm Farm	3	3	3
Kennebunk	All Beaches	11	15	16
Kennebunkport	Marshall Point	1	1	0
	Goose Rocks	12	17	28
Biddeford	Fortunes Rocks	7	8	12
	Hills	3	3	2
	Timber Point	1	1	0
Saco	Ferry	2	3	2
	Goosefare Brook	1	2	2
Old Orchard Beach	Ocean Park	0	0	0
	Old Orchard	4	9	1
Scarborough	Pine Point	4	5	8
	Western/Ferry	14	14	27
	Scarborough SP*	3	3	10
	Higgins	6	7	10
Cape Elizabeth	Ram Island	2	3	1
	Crescent SP*	3	4	0
Casco Bay	Long Island	1	1	0
	Chebeague Island	1	1	3
Phippsburg	Seawall	15	20	20
	Popham SP*	8	8	17
	Hunnewell	1	1	4
Georgetown	Indian Point	1	1	2
	Reid SP*-Mile	1	1	0
	Reid SP*-Half Mile	3	4	5
	Totals	**143**	**174**	**237**

**SP = State Park*

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MAINE AUDUBON
20 Gilsland Farm Rd.
Falmouth, ME 04105
maineaudubon.org

FirstName LastName
AddressLine1
AddressLine2
City, State Country PostalCode

Photo: Susan Kline

The Coastal Birds Project

The 2024 Coastal Birds Team:
(*Back row, left to right):* Christie Hull, Thea Kastelic, Sophie Garland-Doré, Erin Campbell, Greer Lowenstein, Laura Williams, Laura Minich Zitske
(Front row, left to right): Lily Benn, Clark Begley, James Foleno

The Coastal Birds newsletter is published annually by Maine Audubon in partnership with the Maine Department of Inland Fisheries & Wildlife and Rachel Carson National Wildlife Refuge.

Maine Audubon has worked for more than 40 years to restore Maine's Piping Plover and Least Tern populations with help from our partners, Maine Department of Inland Fisheries and Wildlife (MDIFW) and the U.S. Fish and Wildlife Service (USFWS); populations have increased substantially in that time. The project is funded by MDIFW, USFWS, with additional funding from the Phineas W. Sprague Memorial Foundation.

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Appendix XI: Latitude and Longitude Coordinates and Nesting Outcomes for 2024 Piping Plover Nests

Site	Nest Code	Latitude	Longitude	Discovery	Status	Nest Fate	Eggs	Chicks	Loss Date	Suspected Cause Of Nest Loss	Suspected Predator	Expected Hatch	Actual Hatch	# Hatched	Excl osed	Date Exclosed	Expected Fledge	Actual Fledge	# Fledged
BREA	01A	43.5542	-70.2430	5/8/24	fledged	H	4	2				6/5/24	6/3/24	4	Y	5/8/24	6/28/24	6/28/24	1
CRES-SP	01A	43.5614	-70.2328	5/8/24	lost	P	4	0	6/4/24	predated	unknown	6/5/24		0					0
CRES-SP	02A	43.5645	-70.2263	5/24/24	brood lost	H	4	4				6/26/24	6/22/24	4	Y	5/24/24			0
CRES-SP	03A	43.5647	-70.2243	5/24/24	brood lost	H	4	1				6/29/24	6/25/24	4	Y	5/30/24	7/20/24		0
CRES-SP	01B	43.5615	-70.2327	6/14/24	brood lost	H	4	3				7/19/24	7/13/24	4	Y	6/14/24	8/7/24		0
Crescent Surf	01A	43.3354	-70.5411	5/6/24	fledged	H	4	4				6/3/24	6/3/24	4	Y	5/6/24	6/28/24	6/28/24	4
Crescent Surf	02A	43.3362	-70.5378	5/6/24	lost	P	4	0	5/28/24	predated	unknown	6/6/24		0					0
Crescent Surf	03A	43.3369	-70.5363	5/6/24	fledged	H	4	3				6/5/24	6/5/24	3			6/30/24	6/30/24	1
Crescent Surf	04A	43.3375	-70.5352	5/6/24	lost	W	2	0	5/9/24	flooded				0	Y	5/6/24			0
Crescent Surf	05A	43.3365	-70.5369	5/9/24	fledged	H	4	4				6/9/24	6/9/24	4	Y	5/10/24	7/4/24	7/4/24	3
Crescent Surf	06A	43.3358	-70.5385	5/13/24	lost	D	3	0	7/1/24	dead eggs, unviable		6/8/24		0					0
Crescent Surf	07A	43.3381	-70.5345	5/13/24	brood lost	H	4	4				6/10/24	6/9/24	4	Y	5/20/24	7/4/24		0
Crescent Surf	02B	43.3360	-70.5378	6/5/24	fledged	H	4	4				7/4/24	7/4/24	4	Y	6/5/24	7/29/24	7/29/24	1
Curtis Cove	01A	43.4060	-70.3961	6/6/24	lost	W	1	0	6/7/24	flooded				0	Y	6/6/24			0
DRAK	01A	43.3211	-70.5544	5/14/24	fledged	H	4	3				6/12/24	6/11/24	4			7/6/24	7/6/24	1
DRAK	02A	43.3218	-70.5539	5/16/24	fledged	H	4	4				6/11/24	6/11/24	4			7/6/24	7/6/24	2
FERR-Saco	01A	43.4892	-70.3857	5/6/24	lost	P	4	0	5/22/24	predated	crow	6/10/24		0					0
FERR-Saco	01B	43.4902	-70.3856	5/30/24	lost	P	2	0	6/7/24	predated	crow	6/30/24		0					0
FERR-Saco	02A	43.4736	-70.3843	6/14/24	fledged	H	4	4				7/20/24	7/15/24	4	Y	6/18/24	8/9/24	8/9/24	2
FORT	01A	43.4339	-70.3709	4/30/24	fledged	H	4	4				6/1/24	6/1/24	4			6/26/24	6/28/24	4
FORT	02A	43.4373	-70.3661	5/3/24	fledged	H	4	4				6/5/24	6/5/24	4	Y	5/7/24	6/30/24	6/30/24	2
FORT	03A	43.4355	-70.3691	5/3/24	fledged	H	4	4				6/3/24	6/3/24	4			6/28/24	6/28/24	4
FORT	04A	43.4348	-70.3701	5/7/24	lost	H	4	4				6/6/24	6/5/24	4			6/30/24		0
FORT	05A	43.4336	-70.3715	5/10/24	fledged	H	4	4				6/11/24	6/9/24	4			7/6/24	7/6/24	1
FORT	06A	43.4426	-70.3479	5/24/24	fledged	H	4	3				6/28/24	6/27/24	3			7/22/24	7/22/24	3
FORT	07A	43.4324	-70.3727	5/31/24	lost	W	4	0	6/11/24	flooded		7/1/24		0					0
FORT	07B	43.4321	-70.3729	6/17/24	lost	H	4	4				7/17/24	7/16/24	4			8/10/24		0

GOOS	01A	43.3888	-70.4288	5/7/24	lost	P	4	0	5/24/24	predated	skunk	6/9/24		0					0
GOOS	02A	43.3897	-70.4276	5/7/24	lost	P	4	0	5/21/24	predated	unknown	6/9/24		0					0
GOOS	03A	43.3912	-70.4251	5/10/24	fledged	H	4	4				6/13/24	6/9/24	4			7/4/24	7/5/24	4
GOOS	04A	43.3882	-70.4289	5/14/24	fledged	H	4	4				6/16/24	6/16/24	4			7/11/24	7/11/24	2
GOOS	05A	43.3903	-70.4264	5/14/24	lost	P	4	0	5/24/24	predated	fox	6/16/24		0					0
GOOS	06A	43.3884	-70.4288	5/21/24	fledged	H	4	4				6/22/24	6/22/24	4			7/17/24	7/17/24	4
GOOS	07A	43.3894	-70.4282	5/21/24	fledged	H	4	4				6/16/24	6/16/24	4			7/11/24	7/11/24	4
GOOS	08A	43.3906	-70.4258	5/21/24	fledged	H	4	4				6/17/24	6/14/24	4			7/9/24	7/9/24	3
GOOS	09A	43.4019	-70.4039	5/24/24	lost	P	4	0	5/31/24	predated	skunk	6/20/24		0					0
GOOS	02B	43.3895	-70.4276	5/24/24	fledged	H	4	4				6/26/24	6/23/24	4			7/18/24	7/18/24	4
GOOS	05B	43.3903	-70.4262	5/29/24	lost	P	4	0	6/27/24	predated	unknown	6/30/24		0					0
GOOS	01B	43.3891	-70.4286	5/31/24	fledged	H	4	3				7/2/24	6/30/24	4			7/25/24	7/25/24	2
GOOS	10A	43.3982	-70.4111	6/3/24	lost	P	4	0	6/14/24	predated	feral cat	7/3/24		0					0
GOOS	09B	43.4012	-70.4058	6/17/24	fledged	H	4	4				7/10/24	7/9/24	4			8/3/24	8/3/24	3
GOOS	11A	43.3891	-70.4281	6/19/24	brood lost	H	3	2				7/20/24	7/21/24	2			8/16/24		0
GOOS	12A	43.3882	-70.4294	6/24/24	fledged	H	4	4				7/8/24	7/8/24	4			8/2/24	8/2/24	2
GOOS	10B	43.3980	-70.4112	6/24/24	lost	P	4	0	7/15/24	predated	unknown	7/24/24		0					0
Goosefare Brook	01A	43.4965	-70.3852	5/21/24	lost	W	4	0	6/6/24	flooded		6/17/24		0	Y	5/22/24			0
Goosefare Brook	01B	43.4960	-70.3855	6/14/24	fledged	H	3	2				7/11/24	7/12/24	2	Y	6/14/24	8/6/24	8/6/24	2
HALF	01A	43.7723	-69.7383	5/8/24	fledged	H	3	3				5/29/24	5/29/24	3	Y	5/8/24	6/23/24	6/26/24	3
HALF	02A	43.7733	-69.7374	5/10/24	fledged	H	4	3				6/11/24	6/10/24	3			7/5/24	7/5/24	2
HALF	03A	43.7718	-69.7388	5/27/24	lost	A	4	0	6/12/24	abandoned				0					0
HALF	03B	43.7717	-69.7387	6/5/24	brood lost	H	4	4				7/5/24	7/2/24	4			7/27/24		0
HIGG	01A	43.5622	-70.2734	4/28/24	fledged	H	4	4				6/1/24	5/31/24	4			6/25/24	6/25/24	4
HIGG	02A	43.5625	-70.2726	4/28/24	fledged	H	4	2				5/27/24	5/28/24	2	Y	4/30/24	6/22/24	6/22/24	2
HIGG	03A	43.5624	-70.2733	4/30/24	fledged	H	4	4				5/29/24	5/30/24	4	Y	4/30/24	6/24/24	6/24/24	1
HIGG	04A	43.563	-70.2723	5/7/24	lost	W	4	3	6/9/24	flooded		5/29/24	6/4/24	3			6/29/24		0
HIGG	05A	43.5625	-70.2729	5/9/24	fledged	H	4	2				6/9/24	6/9/24	4			7/4/24	7/8/24	2
HIGG	06A	43.5628	-70.2722	5/21/24	lost	W	1	0	5/24/24	flooded				0					0
HIGG	06B	43.5628	-70.2723	6/7/24	fledged	H	4	4				7/2/24	6/29/24	4			7/24/24	7/24/24	1
HILL	01A	43.4577	-70.3742	5/7/24	fledged	H	4	3				6/13/24	6/9/24	4			7/4/24	7/5/24	1
HILL	02A	43.4515	-70.3642	5/10/24	fledged	H	4	2				6/11/24	6/12/24	4			7/7/24	7/7/24	1
HILL	03A	43.4509	-70.3633	5/10/24	brood lost	H	4	4				6/11/24	6/9/24	4			7/4/24		0
HOOK	01A	43.7206	-70.1404	5/21/24	fledged	H	4	3				6/3/24	6/13/24	4			7/8/24	7/9/24	3

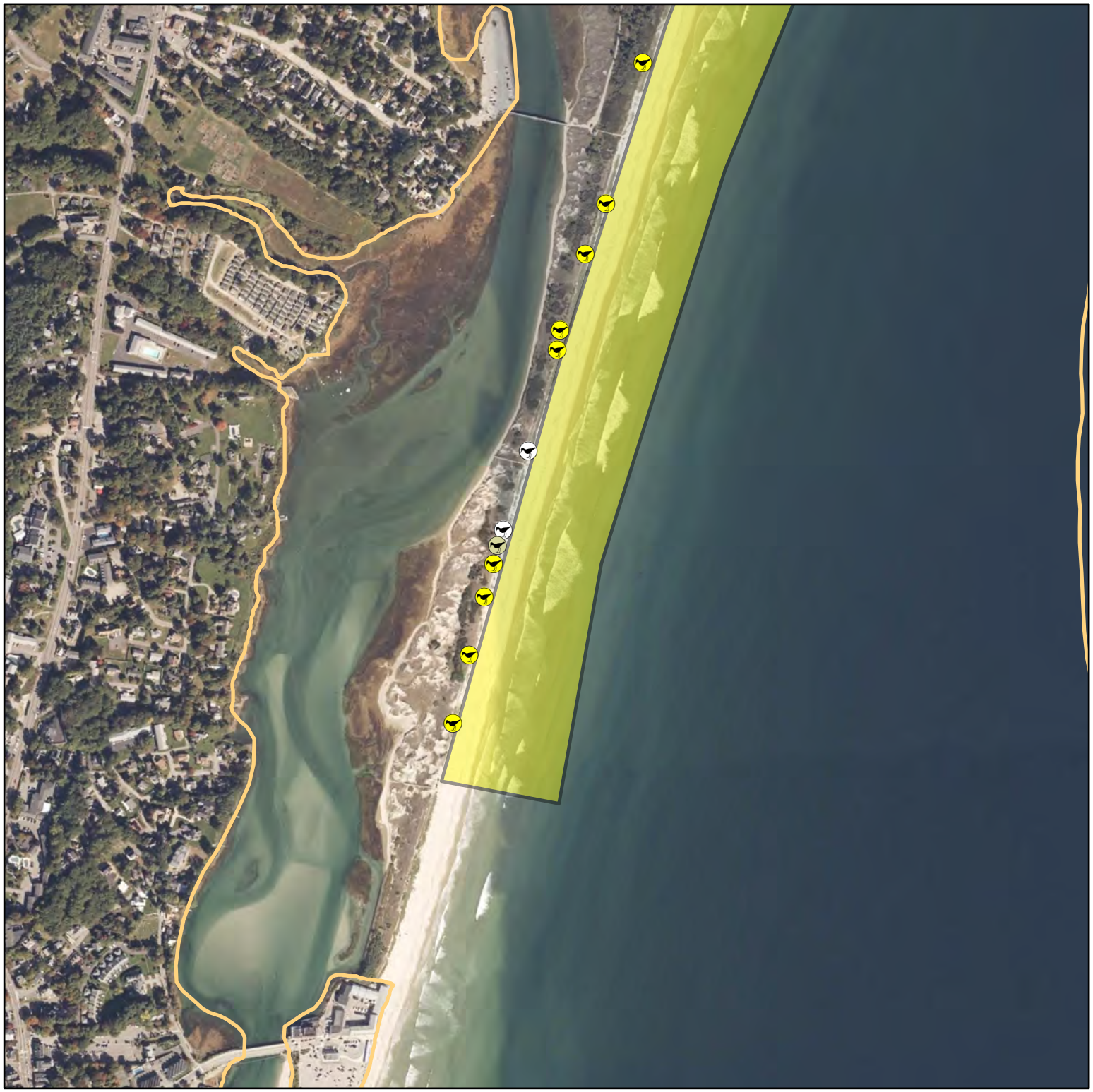
HUNN	01A	43.7439	-69.7812	5/13/24	fledged	H	4	4				6/5/24	6/8/24	4			7/3/24	7/3/24	4
INDI	01A	43.7745	-69.7391	5/10/24	fledged	H	4	4				6/8/24	6/9/24	4			7/4/24	7/5/24	2
Laudholm	01A	43.3346	-70.5420	5/10/24	fledged	H	2	2				6/6/24	6/8/24	2			7/3/24	7/3/24	1
Laudholm	02A	43.3348	-70.5422	5/10/24	brood lost	H	4	4				6/9/24	6/10/24	4	Y	5/10/24	7/5/24		0
Laudholm	03A	43.3343	-70.5418	5/20/24	fledged	H	4	2				6/22/24	6/21/24	3	Y	5/20/24	7/16/24	7/16/24	2
LONG	01A	43.6814	-70.1563	6/13/24	lost	P	0	0	6/13/24	predated	unknown			0					0
Marshall Point	01A	43.3867	-70.4292	5/23/24	lost	P	4	0	6/4/24	predated	unknown	6/20/24		0					0
MILE	01A	43.7797	-69.7269	5/8/24	brood lost	H	4	4				6/6/24	6/9/24	4	Y	5/10/24	7/4/24		0
MOOD	01A	43.2714	-70.5846	5/16/24	fledged	H	4	4				6/17/24	6/16/24	4			7/11/24	7/11/24	3
MOOD	02A	43.2715	-70.5844	5/27/24	lost	U	4	0	6/10/24	unknown		6/28/24		0					0
NANO	01A	43.5542	-70.2613	5/27/24	lost	P	2	0	5/30/24	predated	crow			0					0
NANO	01B	43.5539	-70.2621	6/4/24	lost	P	3	0	6/11/24	predated	crow			0					0
OGUN	01A	43.2657	-70.5879	4/29/24	lost	B	4	0	6/3/24	buried		6/5/24		0					0
OGUN	02A	43.2564	-70.5916	4/30/24	fledged	H	4	4				6/3/24	6/3/24	4			6/28/24	6/28/24	2
OGUN	03A	43.2637	-70.5888	5/6/24	fledged	H	4	4				6/9/24	6/9/24	4			7/4/24	7/4/24	4
OGUN	04A	43.2611	-70.5898	5/6/24	fledged	H	4	4				6/7/24	6/7/24	4			7/2/24	7/2/24	2
OGUN	05A	43.2598	-70.5903	5/6/24	fledged	H	4	1				6/5/24	6/8/24	1			7/3/24	7/4/24	1
OGUN	06A	43.2556	-70.5918	5/6/24	brood lost	H	4	4				6/7/24	6/7/24	4			7/2/24		0
OGUN	07A	43.2648	-70.5882	5/10/24	fledged	H	4	3				6/9/24	6/8/24	3			7/3/24	7/2/24	3
OGUN	08A	43.2665	-70.5874	5/14/24	fledged	H	3	3				6/20/24	6/17/24	3			7/12/24	7/12/24	3
OGUN	09A	43.2569	-70.5914	5/18/24	brood lost	H	3	3				6/20/24	6/21/24	3			7/16/24		0
OGUN	10A	43.2601	-70.5903	5/19/24	fledged	H	4	4				6/6/24	6/21/24	4			7/16/24	7/16/24	4
OGUN	11A	43.2547	-70.5921	5/22/24	brood lost	H	3	3				6/25/24	6/21/24	3	Y	5/30/24	7/16/24		0
OGUN	12A	43.2618	-70.5895	5/27/24	fledged	H	4	3				6/27/24	6/24/24	4	Y	6/3/24	7/19/24	7/19/24	2
OGUN	13A	43.2571	-70.5914	6/6/24	lost	B	4	0	6/17/24	buried		7/9/24		0					0
OGUN	14A	43.2584	-70.5908	6/13/24	lost	P	4	0	7/8/24	predated	crow	7/17/24		0					0
OGUN	01B	43.2658	-70.5877	6/21/24	brood lost	H	4	2				7/20/24	7/12/24	2			8/6/24		0
OGUN	13B	43.2573	-70.5912	6/21/24	lost	P	3	0	6/26/24	predated	crow			0					0
OOB	01A	43.5236	-70.3663	4/30/24	lost	P	4	0	5/10/24	predated	crow	6/3/24		0					0
OOB	02A	43.5133	-70.3749	4/30/24	lost	P	1	0	5/2/24	predated	crow			0					0
OOB	03A	43.5246	-70.3653	5/6/24	lost	P	4	0	5/17/24	predated	crow	6/8/24		0					0
OOB	04A	43.5349	-70.3539	5/9/24	lost	P	3	0	5/15/24	predated	crow			0					0

OOB	06A	43.5231	-70.3666	5/13/24	lost	P	1	0	5/17/24	predated	crow			0					0
OOB	05A	43.5253	-70.3647	5/13/24	lost	P	2	0		predated	crow			0					0
OOB	07A	43.5077	-70.3786	5/22/24	fledged	H	4	4				6/28/24	6/24/24	4	Y	5/31/24	7/19/24	7/24/24	1
OOB	08A	43.5330	-70.3569	5/28/24	brood lost	H	4	3				7/3/24	6/28/24	4	Y	6/12/24	7/26/24		0
OOB	01B	43.5236	-70.3662	6/20/24	lost	A	4	0	7/15/24	abandoned	feral cat	7/23/24		0					0
Parsons	01A	43.3430	-70.5227	5/7/24	fledged	H	4	4				6/6/24	6/6/24	4	Y	5/7/24	7/1/24	7/1/24	3
Parsons	02A	43.3447	-70.5176	5/13/24	lost	P	3	0	6/3/24	predated	crow	6/13/24		0					0
Parsons	03A	43.3421	-70.5250	5/13/24	lost	P	4	0	6/11/24	predated	fox	6/11/24		0					0
Parsons	04A	43.3415	-70.5262	5/16/24	brood lost	H	4	4				6/17/24	6/16/24	4			7/11/24		0
Parsons	05A	43.3418	-70.5253	5/28/24	fledged	H	4	1				6/18/24	6/24/24	1			7/19/24	7/19/24	1
Parsons	02B	43.3444	-70.5178	6/11/24	fledged	H	4	4				7/6/24	7/6/24	4			7/31/24	7/31/24	3
Parsons	03B	43.3419	-70.5252	6/20/24	brood lost	H	3	1				7/20/24	7/18/24	1			8/12/24		0
PINE	01A	43.5412	-70.3305	5/13/24	lost	P	4	0	5/17/24	predated	crow	6/7/24		0					0
PINE	02A	43.5410	-70.3297	5/22/24	fledged	H	4	4				6/20/24	6/18/24	4	Y	5/28/24	7/13/24	7/12/24	2
PINE	01B	43.5410	-70.3303	5/22/24	fledged	H	4	3				6/25/24	6/20/24	4	Y	5/28/24	7/15/24	7/15/24	3
PINE	03A	43.5408	-70.3344	5/30/24	lost	A	2	0	6/12/24	abandoned				0					0
PINE	04A	43.5358	-70.3525	6/5/24	fledged	H	4	4				6/26/24	6/18/24	4	Y	6/7/24	7/13/24	7/13/24	2
POPH	01A	43.7346	-69.8096	5/13/24	fledged	H	4	3				6/11/24	6/10/24	4			7/8/24	7/8/24	3
POPH	02A	43.7342	-69.8107	5/13/24	fledged	H	4	3				6/9/24	6/6/24	4			7/1/24	7/1/24	3
POPH	03A	43.7343	-69.8097	5/16/24	fledged	H	4	4				6/6/24	6/10/24	4			7/5/24	7/8/24	3
POPH	04A	43.7350	-69.8087	5/20/24	fledged	H	4	4				6/23/24	6/24/24	4			7/19/24	7/19/24	4
POPH	05A	43.7356	-69.8053	5/23/24	fledged	H	4	3				6/26/24	6/25/24	3	Y	5/23/24	7/20/24	7/20/24	2
POPH	06A	43.7355	-69.8060	5/23/24	brood lost	H	4	4				6/22/24	6/22/24	4	Y	5/23/24			0
POPH	07A	43.7350	-69.8067	5/23/24	brood lost	H	4	4				6/21/24	6/21/24	4	Y	5/23/24			0
POPH	08A	43.7394	-69.7935	6/4/24	fledged	H	4	4				7/2/24	6/29/24	4			7/26/24	7/26/24	2
SCAR	01A	43.5470	-70.3049	5/3/24	fledged	H	4	4				6/5/24	6/7/24	4			7/2/24	7/2/24	4
SCAR	02A	43.5473	-70.3043	5/3/24	fledged	H	4	3				6/1/24	6/1/24	3	Y	5/7/24	6/26/24	6/26/24	2
SCAR	03A	43.5453	-70.3072	5/21/24	fledged	H	4	4				6/23/24	6/21/24	4			7/16/24	7/16/24	4
SEAW	01A	43.7310	-69.8091	5/13/24	brood lost	H	4	4				6/15/24	6/13/24	4	Y	5/13/24			0
SEAW	02A	43.7315	-69.8091	5/13/24	fledged	H	4	4				6/15/24	6/16/24	4	Y	5/13/24	7/11/24	7/11/24	4
SEAW	03A	43.7261	-69.8237	5/13/24	fledged	H	4	3				6/14/24	6/17/24	3			7/12/24	7/12/24	2
SEAW	04A	43.7226	-69.8331	5/13/24	lost	P	4	0	6/4/24	predated	fox	6/13/24		0					0
SEAW	05A	43.7306	-69.8093	5/16/24	fledged	H	4	4				6/17/24	6/17/24	4	Y	5/16/24	7/12/24	7/12/24	1
SEAW	06A	43.7323	-69.8077	5/16/24	lost	W	4	0	6/10/24	flooded		6/18/24		0					0

SEAW	07A	43.7314	-69.8080	5/23/24	lost	P	4	0	6/18/24	predated	unknown	6/23/24		0					0
SEAW	08A	43.7316	-69.8077	5/23/24	lost	P	4	0	6/10/24	predated	unknown	6/26/24		0					0
SEAW	09A	43.7318	-69.8075	5/23/24	lost	P	4	0	6/13/24	predated	unknown	6/26/24		0					0
SEAW	10A	43.7323	-69.8072	5/23/24	lost	P	1	0	5/23/24	predated	crow			0					0
SEAW	11A	43.7239	-69.8286	5/23/24	fledged	H	4	4				6/24/24	6/21/24	4	Y	5/28/24	7/16/24	7/16/24	4
SEAW	12A	43.7319	-69.8077	5/31/24	lost	P	4	0	6/10/24	predated	unknown	7/3/24		0					0
SEAW	10B	43.7325	-69.8068	6/4/24	lost	W	2	0	6/13/24	flooded		7/4/24		0					0
SEAW	13A	43.7301	-69.8101	6/10/24	fledged	H	4	3				7/12/24	7/13/24	3	Y	6/10/24	8/7/24	8/7/24	3
SEAW	14A	43.7323	-69.8071	6/13/24	lost	P	4	0	7/8/24	predated	skunk	7/15/24		0					0
SEAW	10C	43.7323	-69.8071	6/18/24	lost	P	4	0	7/1/24	predated	fox	7/17/24		0					0
SEAW	06B	43.7322	-69.8077	6/18/24	fledged	H	2	2				7/19/24	7/20/24	2			8/14/24	8/14/24	1
SEAW	08B	43.7315	-69.8079	6/18/24	fledged	H	4	4				7/18/24	7/18/24	4			8/12/24	8/14/24	2
SEAW	15A	43.7249	-69.8265	6/25/24	fledged	H	4	2				7/26/24	7/25/24	2	Y	7/3/24	8/19/24	8/19/24	1
SEAW	04B	43.7228	-69.8328	6/25/24	brood lost	H	4	1				7/26/24	7/27/24	4			8/21/24		0
WELL	01A	43.3161	-70.5597	4/25/24	fledged	H	4	3				5/28/24	5/28/24	4	Y	4/29/24	6/22/24	6/22/24	3
WELL	02A	43.3151	-70.5601	4/25/24	fledged	H	4	1				5/28/24	5/27/24	3	Y	4/29/24	6/21/24	6/21/24	1
WELL	03A	43.3124	-70.5620	4/28/24	fledged	H	4	4				6/2/24	5/30/24	4	Y	5/3/24	6/24/24	6/24/24	2
WELL	04A	43.3123	-70.5621	4/29/24	fledged	H	4	4				6/1/24	6/1/24	4			6/26/24	6/26/24	4
WELL	06A	43.3142	-70.5608	4/29/24	fledged	H	4	4				6/2/24	5/30/24	4	Y	5/3/24	6/24/24	6/24/24	4
WELL	07A	43.3132	-70.5615	5/2/24	lost	W	3	0	5/14/24	flooded				0	Y	4/3/24			0
WELL	08A	43.3067	-70.5653	5/2/24	lost	W	3	0	5/14/24	flooded				0					0
WELL	09A	43.3078	-70.5646	5/2/24	fledged	H	3	3				6/4/24	6/2/24	3			6/27/24	6/26/24	3
WELL	05A	43.3108	-70.5632	5/3/24	fledged	H	4	4				6/3/24	6/2/24	4			6/27/24	6/26/24	4
WELL	10A	43.3104	-70.5633	5/3/24	fledged	H	4	4				6/4/24	6/2/24	4			6/27/24	6/26/24	4
WELL	11A	43.3090	-70.5641	5/6/24	fledged	H	4	4				6/9/24	6/5/24	4			6/30/24	7/4/24	3
WELL	12A	43.3161	-70.5591	5/8/24	lost	W	0	0	5/10/24	flooded				0					0
WELL	13A	43.3164	-70.5596	5/10/24	fledged	H	4	4				6/12/24	6/9/24	4			7/4/24	7/4/24	2
WELL	14A	43.3155	-70.5597	5/15/24	brood lost	H	6	4				6/18/24	7/2/24	4			7/27/24		0
WELL	15A	43.3173	-70.5583	5/20/24	brood lost	H	4	2				6/22/24	6/21/24	2	Y	5/20/24	7/19/24		0
WELL	07B	43.3135	-70.5614	5/20/24	fledged	H	4	4				6/19/24	6/19/24	4			7/14/24	7/16/24	2
WELL	08B	43.3074	-70.5649	5/27/24	fledged	H	4	4				6/24/24	6/19/24	4			7/14/24	7/16/24	3
WELL	17A	43.3146	-70.5605	5/27/24	fledged	H	4	3				6/27/24	6/24/24	3			7/19/24	7/19/24	2
WELL	18A	43.3179	-70.5582	5/27/24	brood lost	H	4	4				6/28/24	6/26/24	4			7/21/24		0
WEST-FE	01A	43.5372	-70.3199	5/6/24	fledged	H	4	4				6/9/24	6/9/24	4	Y	5/15/24	7/4/24	7/1/24	1

WEST-FE	02A	43.5389	-70.3216	5/6/24	fledged	H	4	4				6/9/24	6/7/24	4	Y	5/7/24	7/2/24	7/2/24	3
WEST-FE	03A	43.5394	-70.3225	5/6/24	brood lost	H	4	2				6/8/24	6/14/24	4	Y	5/7/24	7/9/24		0
WEST-FE	04A	43.5357	-70.3190	5/6/24	fledged	H	4	4				6/9/24	6/9/24	4	Y	5/7/24	7/4/24	7/7/24	4
WEST-FE	05A	43.5360	-70.3190	5/11/24	fledged	H	4	4				6/11/24	6/10/24	4	Y	5/14/24	7/5/24	7/7/24	1
WEST-FE	06A	43.5361	-70.3190	5/11/24	fledged	H	4	3				6/16/24	6/13/24	3	Y	5/15/24	7/8/24	7/8/24	1
WEST-FE	07A	43.54	-70.3238	5/11/24	fledged	H	4	4				6/8/24	6/4/24	4			6/29/24	6/30/24	3
WEST-FE	08A	43.5369	-70.3195	5/19/24	fledged	H	4	3				6/21/24	6/14/24	3	Y	5/21/24	7/9/24	7/9/24	3
WEST-FE	09A	43.5384	-70.3213	5/21/24	fledged	H	4	4				6/18/24	6/19/24	4			7/14/24	7/14/24	4
WEST-FE	10A	43.5351	-70.3184	5/24/24	fledged	H	4	3				6/27/24	6/25/24	3	Y	5/27/24	7/20/24	7/20/24	3
WEST-FE	11A	43.5380	-70.3205	5/24/24	lost	P	3	0	6/26/24	predated	fox	6/24/24		0					0
WEST-FE	12A	43.5396	-70.3231	5/24/24	fledged	H	4	4				6/24/24	6/24/24	4	Y	5/27/24	7/19/24	7/19/24	4
WEST-FE	13A	43.5378	-70.3204	6/5/24	lost	P	4	0	6/26/24	predated	fox	7/6/24		0					0
WEST-FE	14A	43.5377	-70.3202	6/14/24	lost	P	4	0	6/26/24	predated	fox	7/10/24		0					0

Key: H - hatched, P - predated, A - abandoned, B - buried, W - washed, U - unknown, D - dead eggs



2024 Piping Plover Nest Locations

Ogunquit Beach

Nest Location & Outcome

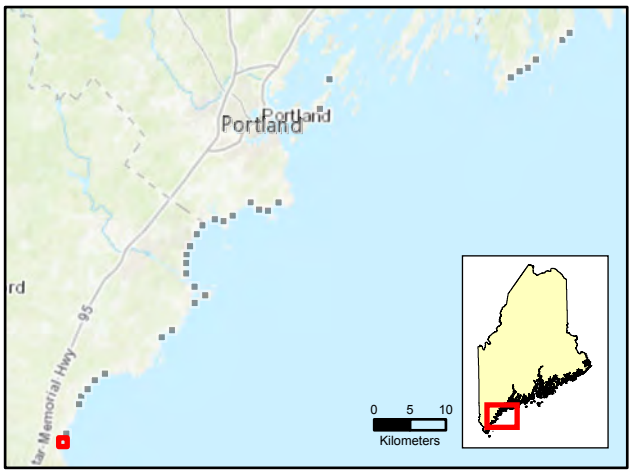
- Hatched
- Predation
- Buried

- Foraging Area
- Essential Habitat

0 55 110 220 330 440 Meters

Universal Transverse Mercator (UTM) Projection
North American Datum (NAD) 1983
Data Sources: MEGIS; MDIFW; Maine Audubon

N
W E
S



Map Prepared by Maine Department of Inland Fisheries & Wildlife

November, 25, 2024

2024 Piping Plover Nest Locations

Ogunquit Beach / Moody Beach

Nest Location & Outcome

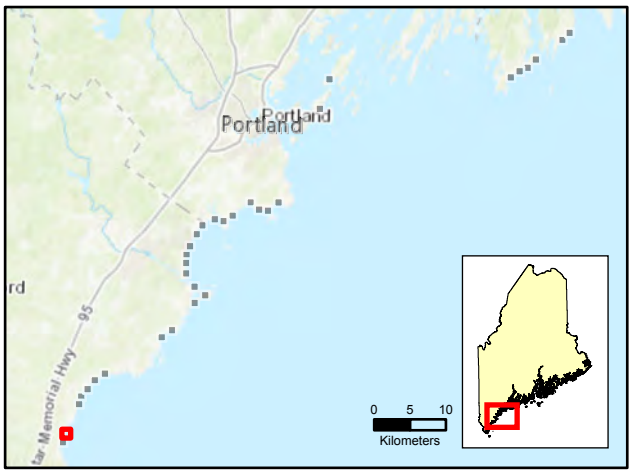
- Hatched
- Unknown
- Buried

- Foraging Area
- Essential Habitat

0 40 80 160 240 320 Meters

Universal Transverse Mercator (UTM) Projection
North American Datum (NAD) 1983
Data Sources: MEGIS; MDIFW; Maine Audubon

N
W E
S



Map Prepared by Maine Department of Inland Fisheries & Wildlife

November, 25, 2024

2024 Piping Plover Nest Locations

Wells Beach - South

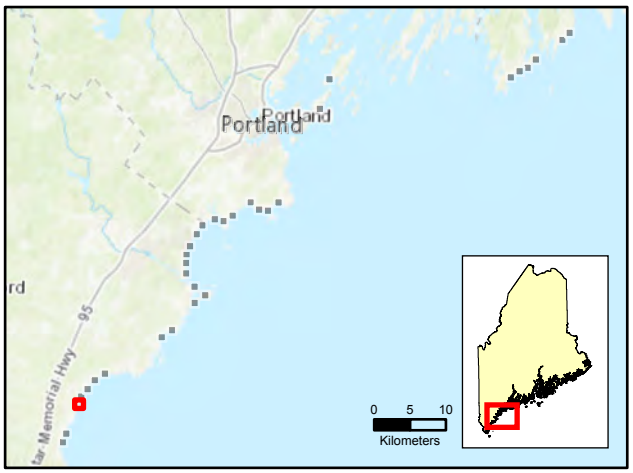
Nest Location & Outcome

- Hatched
- Washout

Foraging Area

0 55 110 220 330 440 Meters

N
W E
S



Universal Transverse Mercator (UTM) Projection
North American Datum (NAD) 1983
Data Sources: MEGIS; MDIFW; Maine Audubon

Map Prepared by Maine Department of Inland Fisheries & Wildlife

November, 25, 2024

2024 Piping Plover Nest Locations

Wells Beach - North

Nest Location & Outcome

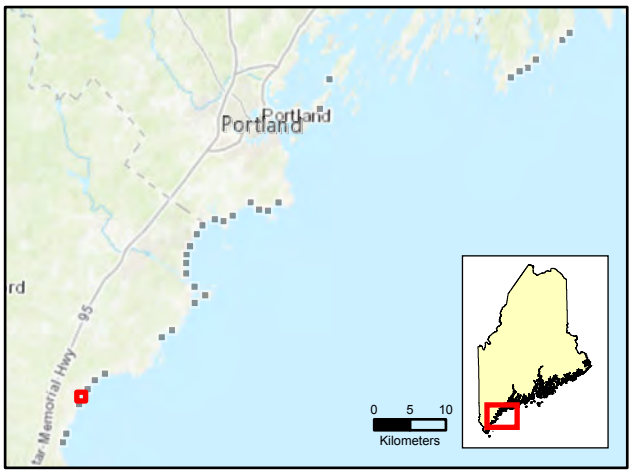
- Hatched
- Washout

Foraging Area

0 55 110 220 330 440 Meters

Universal Transverse Mercator (UTM) Projection
North American Datum (NAD) 1983
Data Sources: MEGIS; MDIFW; Maine Audubon

N
W E
S



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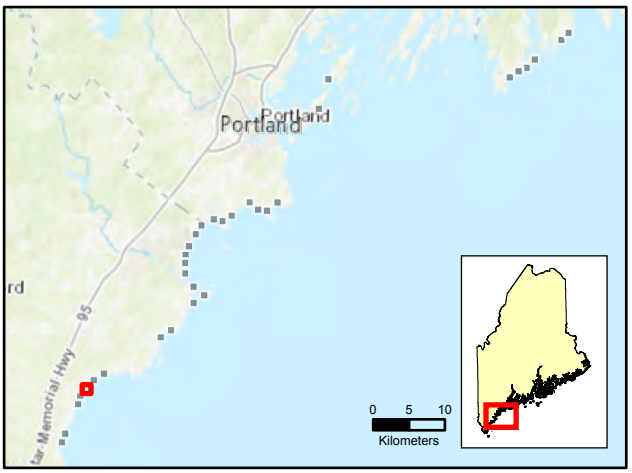
November, 25, 2024

2024 Piping Plover Nest Locations

Drakes Island Beach



Nest Location & Outcome

Hatched

Foraging Area

Essential Habitat

Meters

0 40 80 160 240 320

N

W E

S

Universal Transverse Mercator (UTM) Projection
North American Datum (NAD) 1983
Data Sources: MEGIS; MDIFW; Maine Audubon

Map Prepared by Maine Department of Inland Fisheries & Wildlife

November, 25, 2024

2024 Piping Plover Nest Locations

Laudholm Farm / Crescent Surf

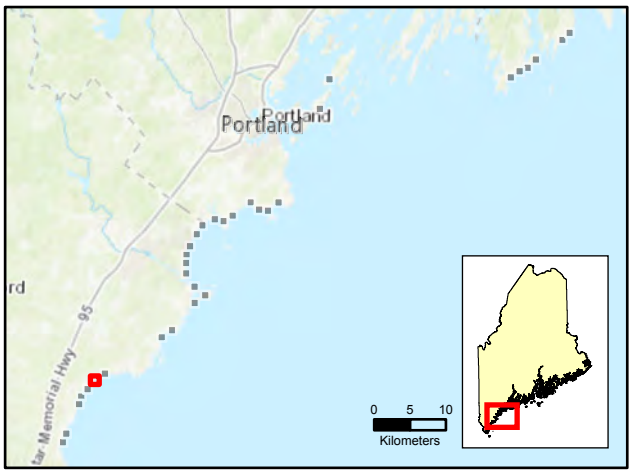
Nest Location & Outcome

- Hatched
- Predation
- Washout
- Dead Eggs

- Foraging Area
- Essential Habitat

0 40 80 160 240 320 Meters

N W E S



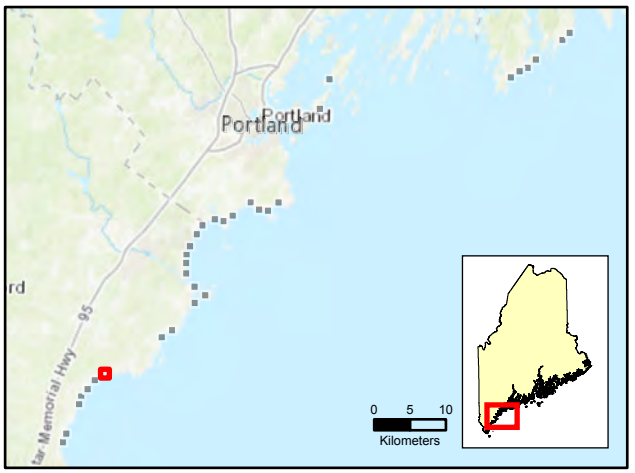
Universal Transverse Mercator (UTM) Projection
North American Datum (NAD) 1983
Data Sources: MEGIS; MDIFW; Maine Audubon

Map Prepared by Maine Department of Inland Fisheries & Wildlife

November, 25, 2024

2024 Piping Plover Nest Locations

Parsons Beach



Map Prepared by Maine Department of Inland Fisheries & Wildlife

November, 25, 2024

Nest Location & Outcome

Hatched

Predation

Foraging Area

0 40 80 160 240 320 Meters

Universal Transverse Mercator (UTM) Projection
North American Datum (NAD) 1983
Data Sources: MEGIS; MDIFW; Maine Audubon

N
W E
S

2024 Piping Plover Nest Locations

Goose Rocks / Marshall Point

Nest Location & Outcome

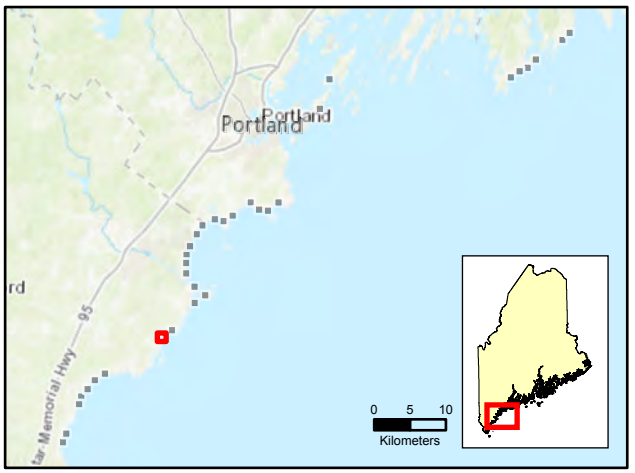
- Hatched
- Predation

- Foraging Area
- Essential Habitat

0 70 140 280 420 560 Meters

Universal Transverse Mercator (UTM) Projection
North American Datum (NAD) 1983
Data Sources: MEGIS; MDIFW; Maine Audubon

N W E S



Map Prepared by Maine Department of Inland Fisheries & Wildlife

November, 25, 2024

2024 Piping Plover Nest Locations

Goose Rocks (East)

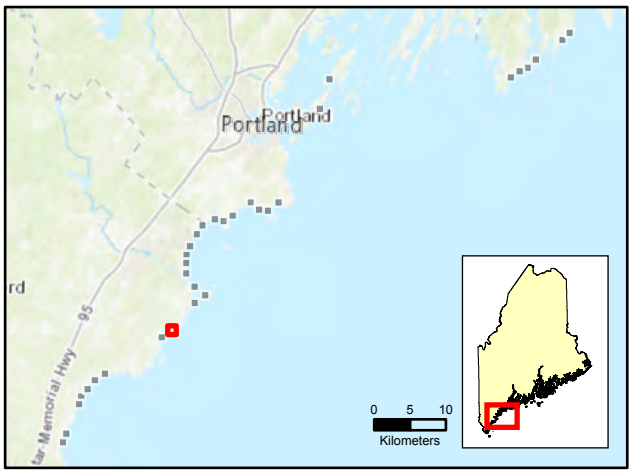
Nest Location & Outcome

- Hatched
- Predation

- Foraging Area
- Essential Habitat

0 40 80 160 240 320 Meters

N W E S



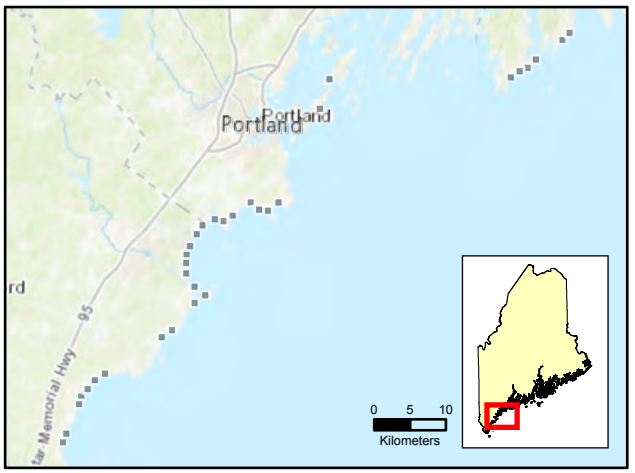
Universal Transverse Mercator (UTM) Projection
North American Datum (NAD) 1983
Data Sources: MEGIS; MDIFW; Maine Audubon

Map Prepared by Maine Department of Inland Fisheries & Wildlife

November, 25, 2024

2024 Piping Plover Nest Locations

Curtis Cove



Map Prepared by Maine Department of Inland Fisheries & Wildlife

November, 25, 2024

Nest Location & Outcome

Washout

Essential Habitat

0 40 80 160 240 320 Meters

Universal Transverse Mercator (UTM) Projection
North American Datum (NAD) 1983
Data Sources: MEGIS; MDIFW; Maine Audubon

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2024 Piping Plover Nest Locations

Fortunes Rocks

Nest Location & Outcome

- Hatched
- Washout

- Foraging Area
- Essential Habitat

Meters

0 70 140 280 420 560

Universal Transverse Mercator (UTM) Projection
North American Datum (NAD) 1983
Data Sources: MEGIS; MDIFW; Maine Audubon

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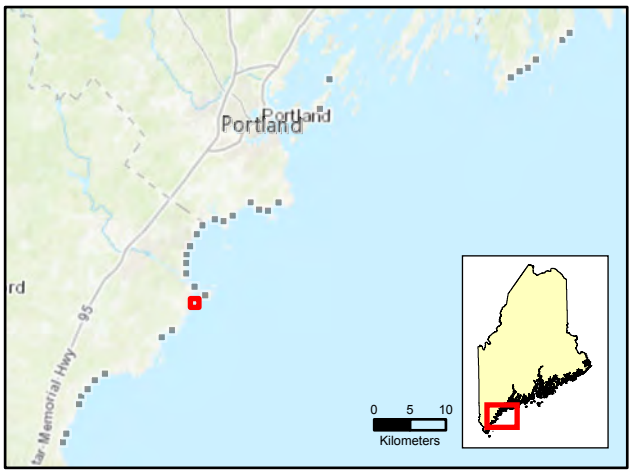


Map Prepared by Maine Department of Inland Fisheries & Wildlife

November, 25, 2024

2024 Piping Plover Nest Locations

Fortunes Rocks - Public Beach

Nest Location & Outcome

Hatched

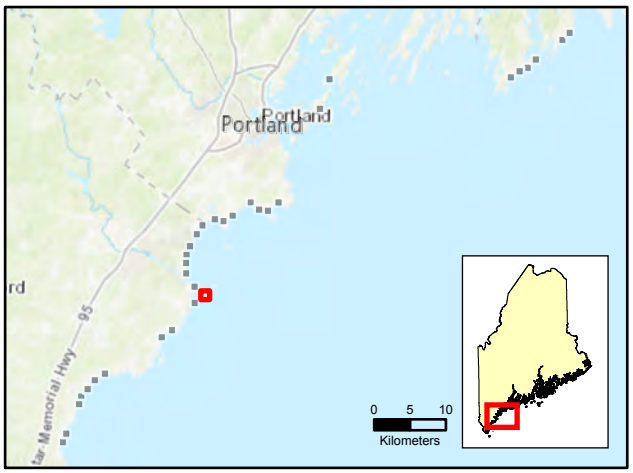
Foraging Area

Essential Habitat

0 70 140 280 420 560 Meters

N W E S

Universal Transverse Mercator (UTM) Projection
North American Datum (NAD) 1983
Data Sources: MEGIS; MDIFW; Maine Audubon

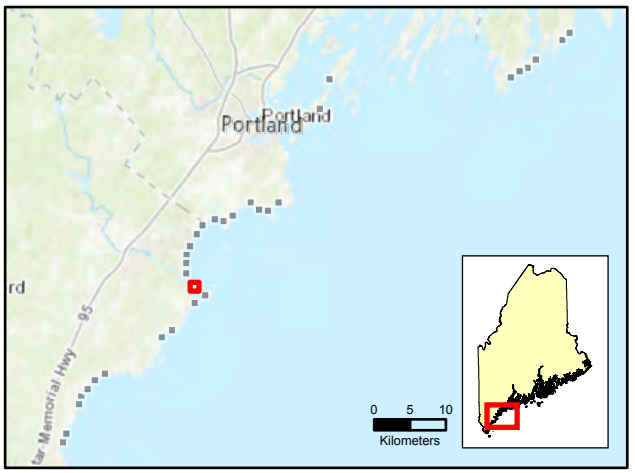


Map Prepared by Maine Department of Inland Fisheries & Wildlife

November, 25, 2024

2024 Piping Plover Nest Locations

Hills Beach



Nest Location & Outcome

Hatched

Foraging Area

0 40 80 160 240 320 Meters

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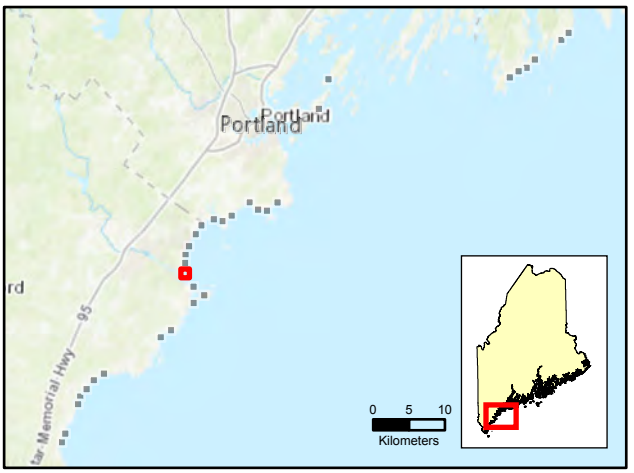
Universal Transverse Mercator (UTM) Projection
North American Datum (NAD) 1983
Data Sources: MEGIS; MDIFW; Maine Audubon

Map Prepared by Maine Department of Inland Fisheries & Wildlife

November, 25, 2024

2024 Piping Plover Nest Locations

Ferry Beach



Nest Location & Outcome

Hatched

Foraging Area

Meters

0 70 140 280 420 560

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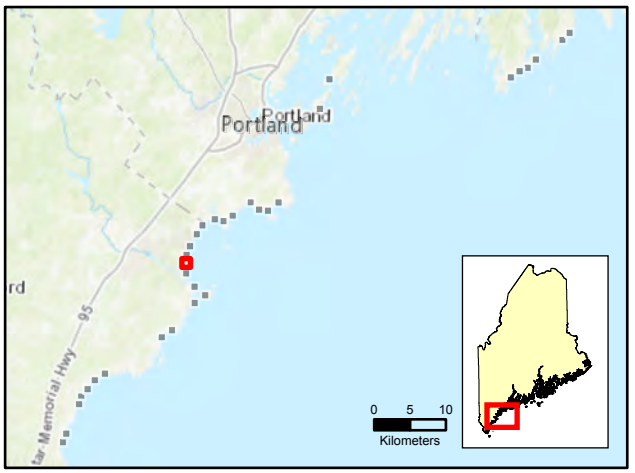
Universal Transverse Mercator (UTM) Projection
North American Datum (NAD) 1983
Data Sources: MEGIS; MDIFW; Maine Audubon

Map Prepared by Maine Department of Inland Fisheries & Wildlife

November, 25, 2024

2024 Piping Plover Nest Locations

Ferry Beach - Saco



Map Prepared by Maine Department of Inland Fisheries & Wildlife

November, 25, 2024

Nest Location & Outcome

Predation

Foraging Area

Essential Habitat

0 70 140 280 420 560 Meters

Universal Transverse Mercator (UTM) Projection
North American Datum (NAD) 1983
Data Sources: MEGIS; MDIFW; Maine Audubon

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2024 Piping Plover Nest Locations

Goosefare Brook / Ocean Park

Nest Location & Outcome

- Hatched
- Predation
- Washout

- Foraging Area
- Essential Habitat

0 40 80 160 240 320 Meters

Universal Transverse Mercator (UTM) Projection
North American Datum (NAD) 1983
Data Sources: MEGIS; MDIFW; Maine Audubon

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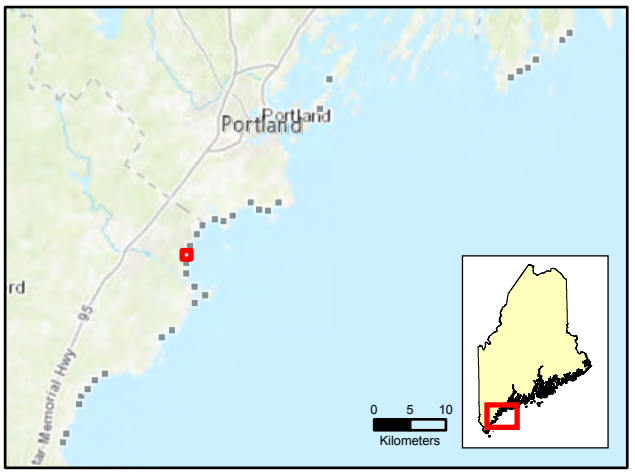


Map Prepared by Maine Department of Inland Fisheries & Wildlife

November, 25, 2024

2024 Piping Plover Nest Locations

Old Orchard Beach

Nest Location & Outcome

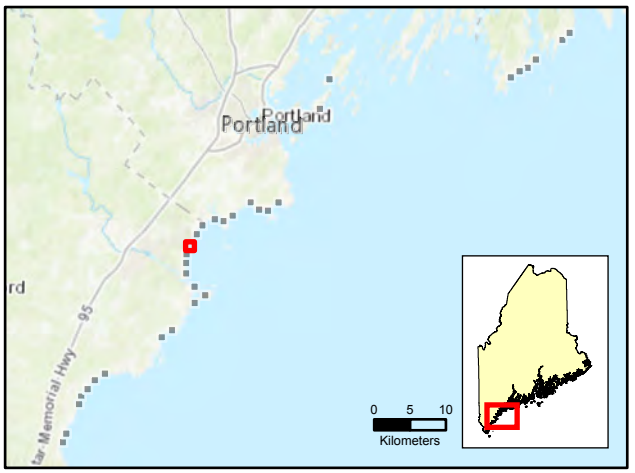
- Hatched
- Predation

- Foraging Area
- Essential Habitat

0 55 110 220 330 440 Meters

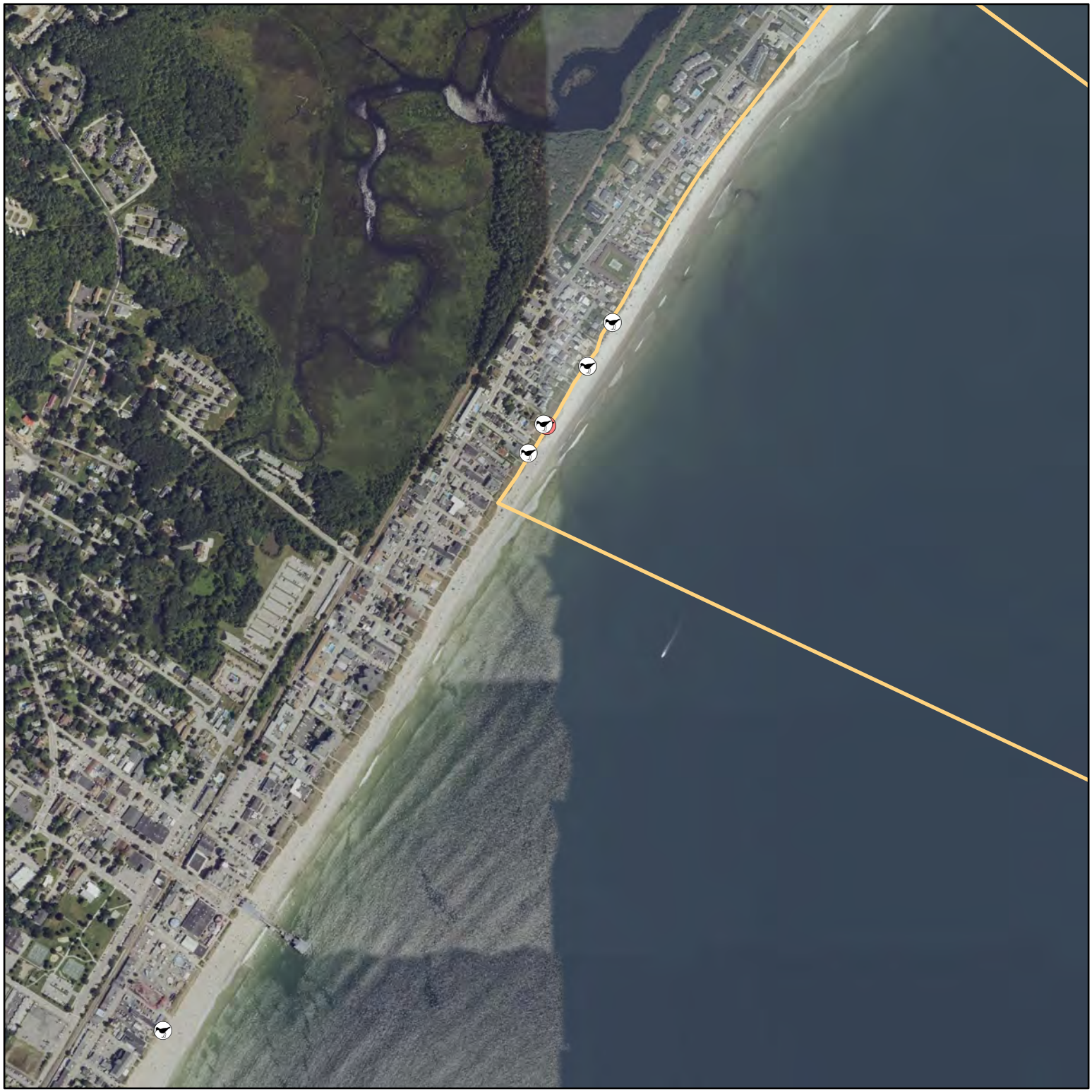
Universal Transverse Mercator (UTM) Projection
North American Datum (NAD) 1983
Data Sources: MEGIS; MDIFW; Maine Audubon

N W E S



Map Prepared by Maine Department of Inland Fisheries & Wildlife

November, 25, 2024



2024 Piping Plover Nest Locations

Old Orchard Beach - Surfside / Grand Beach

Nest Location & Outcome

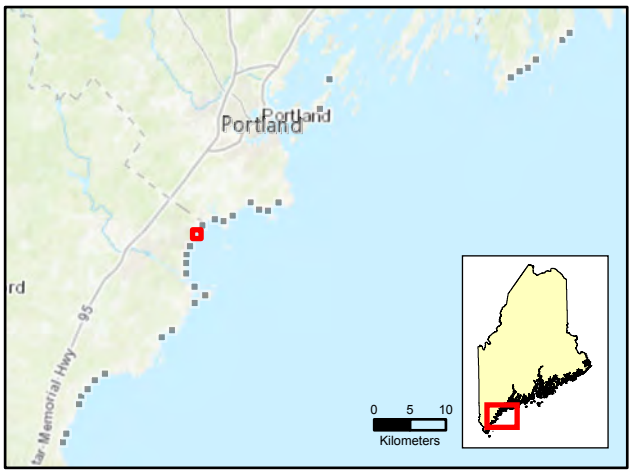
- Abandoned
- Predation

Essential Habitat

0 70 140 280 420 560 Meters

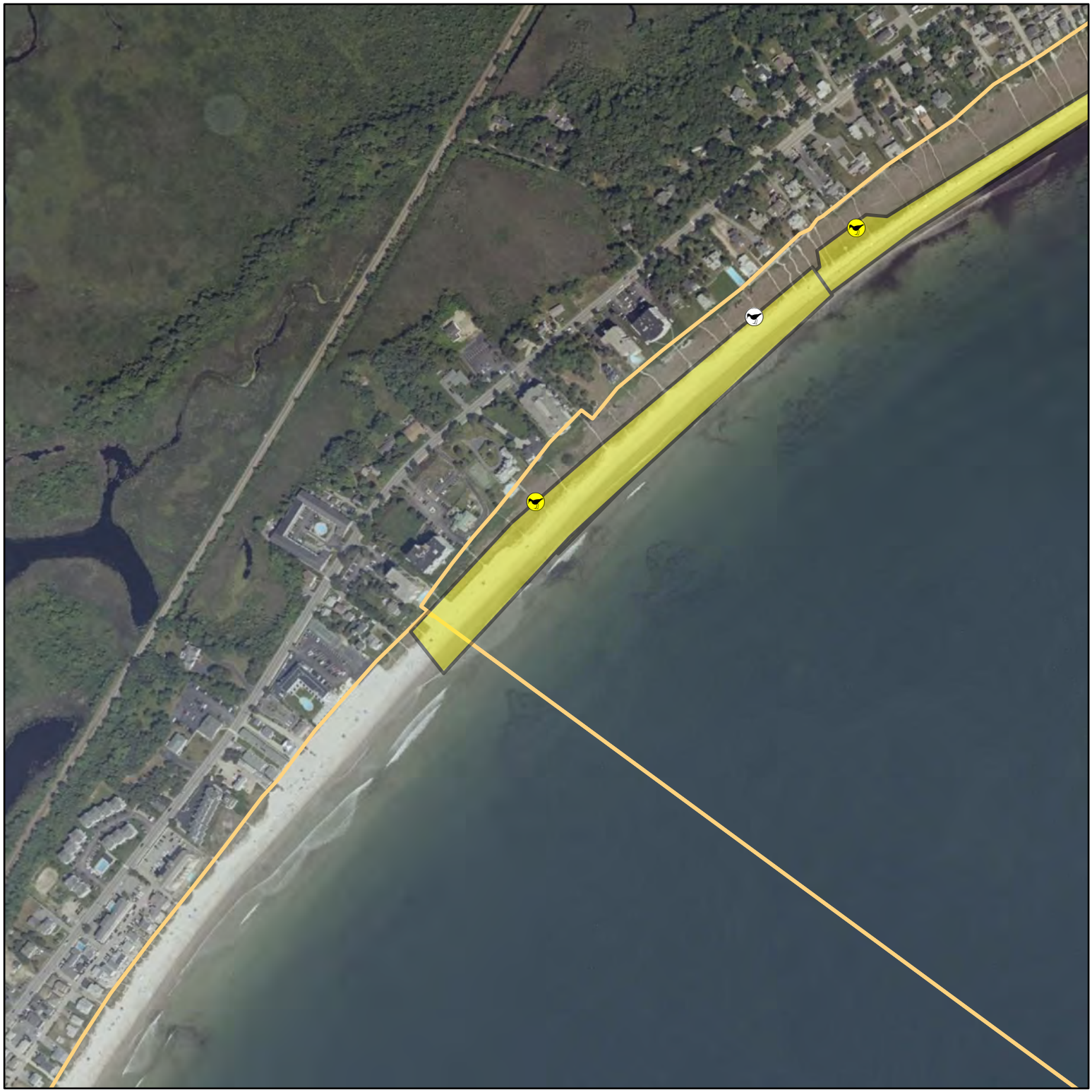
N W E S

Universal Transverse Mercator (UTM) Projection
North American Datum (NAD) 1983
Data Sources: MEGIS; MDIFW; Maine Audubon



Map Prepared by Maine Department of Inland Fisheries & Wildlife

November, 25, 2024



2024 Piping Plover Nest Locations

Old Orchard Beach - Grand Beach

Nest Location & Outcome

- Hatched
- Predation

- Foraging Area
- Essential Habitat

0 40 80 160 240 320 Meters

Universal Transverse Mercator (UTM) Projection
North American Datum (NAD) 1983
Data Sources: MEGIS; MDIFW; Maine Audubon

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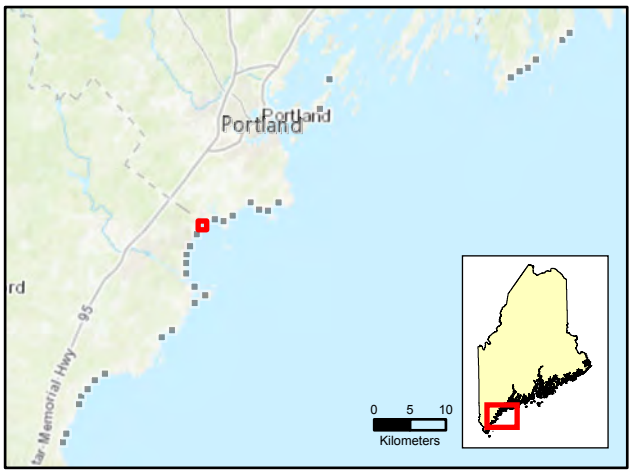
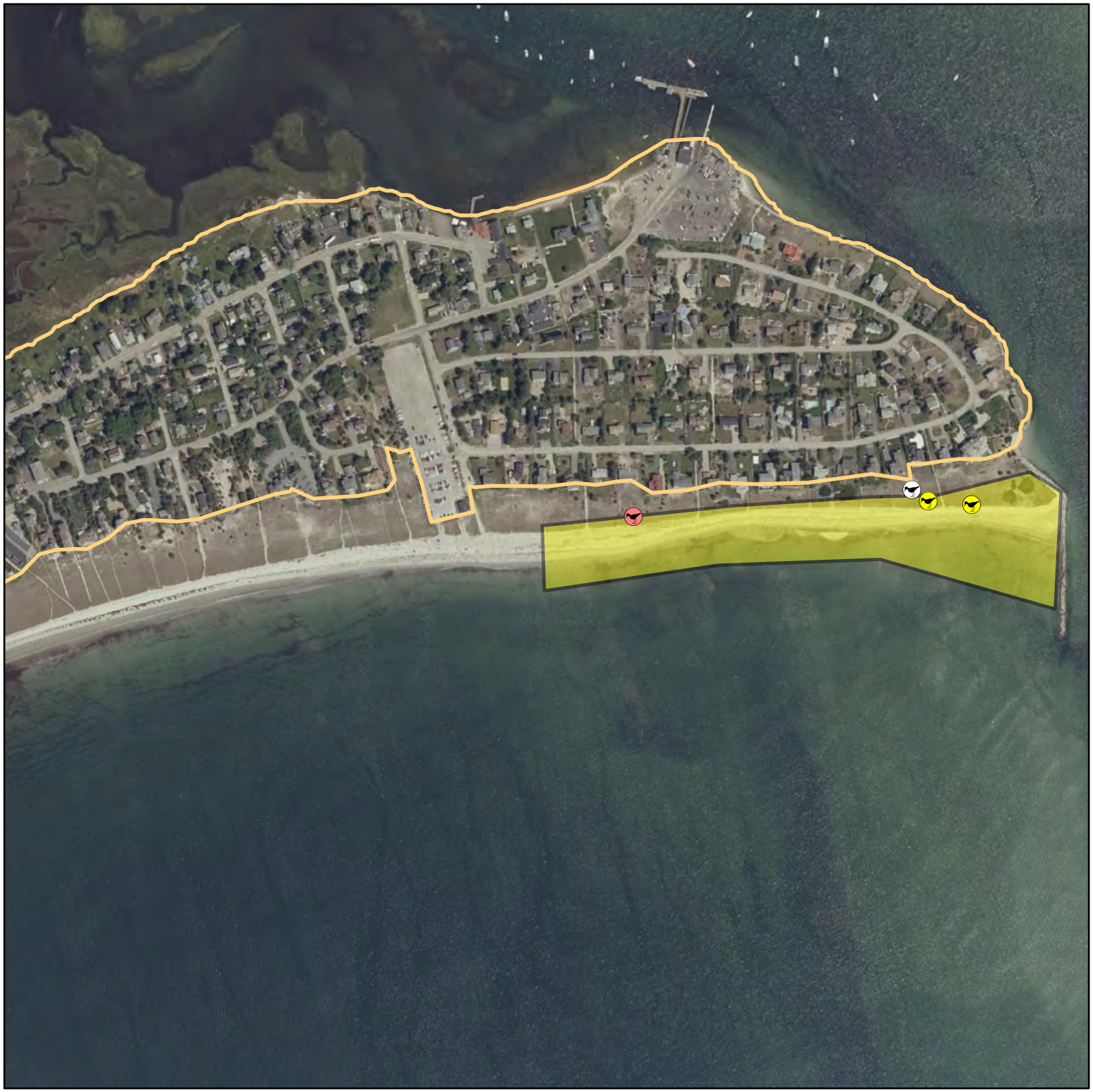


Map Prepared by Maine Department of Inland Fisheries & Wildlife

November, 25, 2024



2024 Piping Plover Nest Locations

Pine Point

Nest Location & Outcome

- Abandoned
- Hatched
- Predation

- Foraging Area
- Essential Habitat

0 40 80 160 240 320 Meters

Universal Transverse Mercator (UTM) Projection
North American Datum (NAD) 1983
Data Sources: MEGIS; MDIFW; Maine Audubon

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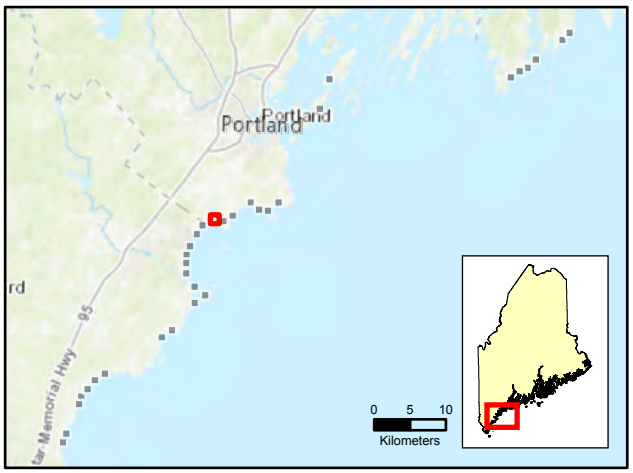
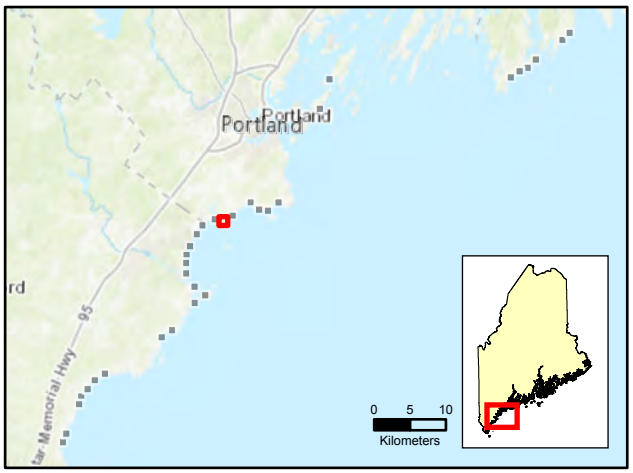


Map Prepared by Maine Department of Inland Fisheries & Wildlife

November, 25, 2024

2024 Piping Plover Nest Locations

Western Beach



Nest Location & Outcome

- Hatched
- Predation

- Foraging Area
- Essential Habitat

0 40 80 160 240 320 Meters

N
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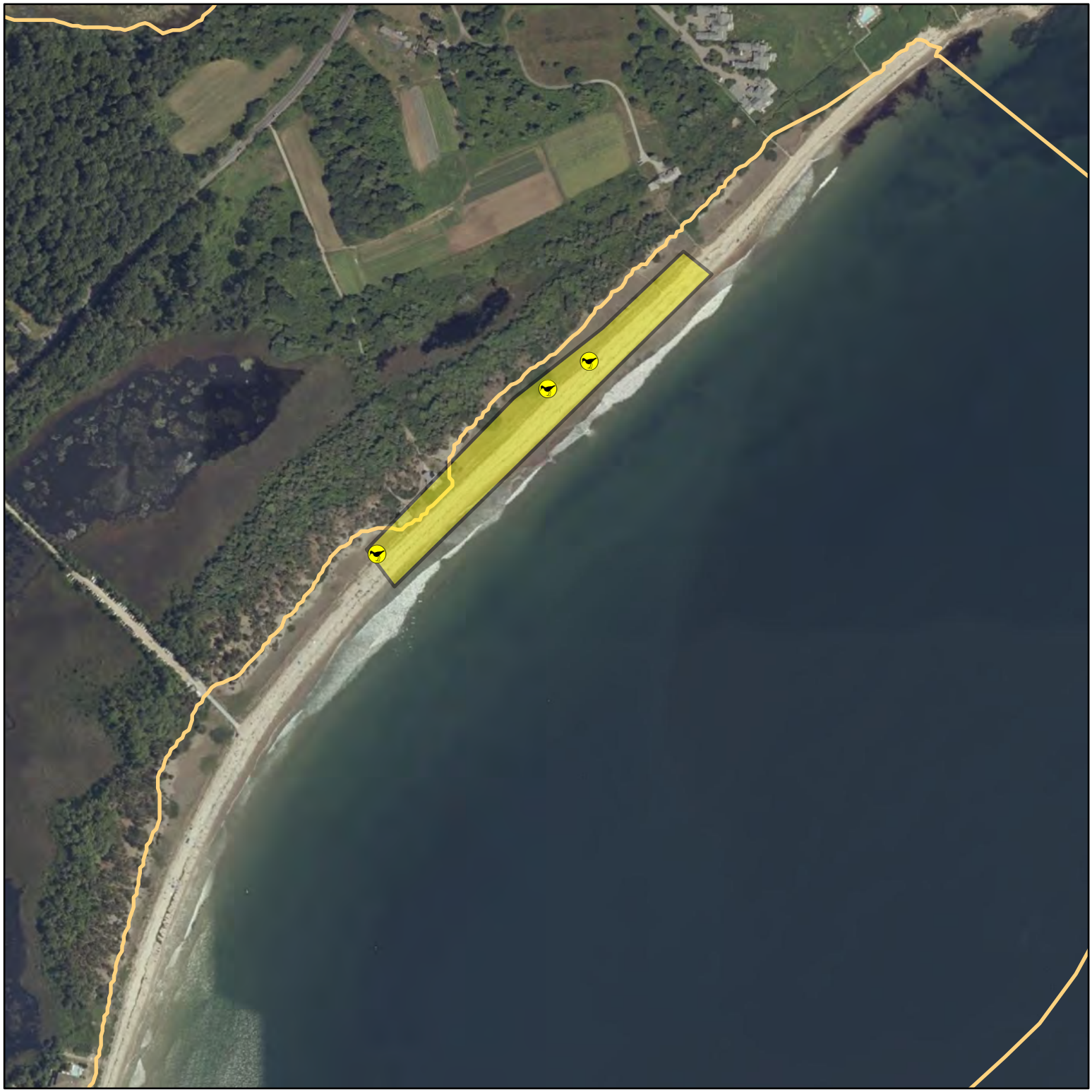
Universal Transverse Mercator (UTM) Projection
North American Datum (NAD) 1983
Data Sources: MEGIS; MDIFW; Maine Audubon

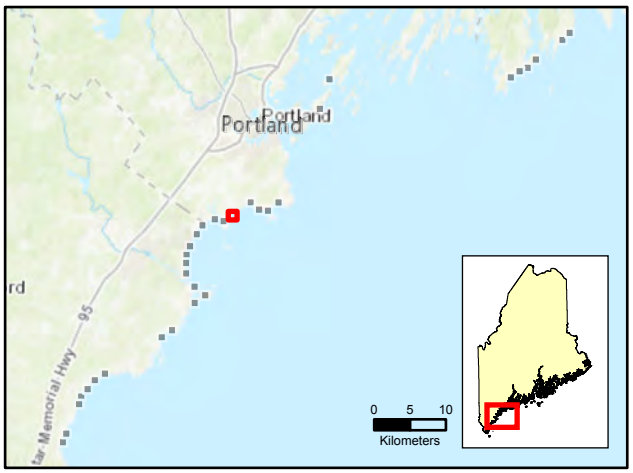
Map Prepared by Maine Department of Inland Fisheries & Wildlife

November, 25, 2024



2024 Piping Plover Nest Locations

Scarborough Beach



Map Prepared by Maine Department of Inland Fisheries & Wildlife

November, 25, 2024

Nest Location & Outcome

Hatched

Foraging Area

Essential Habitat

0 40 80 160 240 320 Meters

Universal Transverse Mercator (UTM) Projection
North American Datum (NAD) 1983
Data Sources: MEGIS; MDIFW; Maine Audubon

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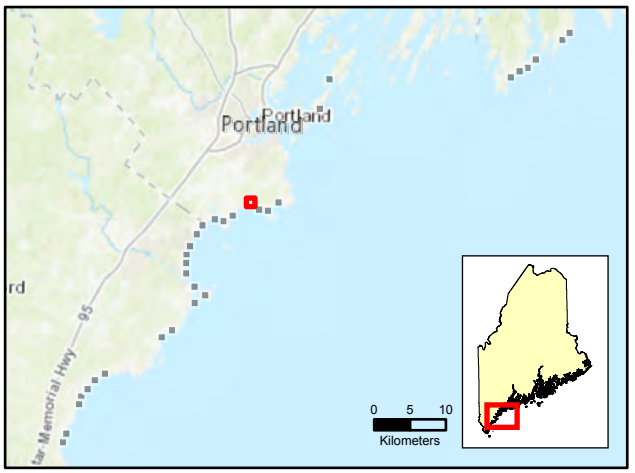
2024 Piping Plover Nest Locations

Higgins Beach



Map Prepared by Maine Department of Inland Fisheries & Wildlife

November, 25, 2024

Nest Location & Outcome

- Hatched
- Washout

- Foraging Area
- Essential Habitat

0 40 80 160 240 320 Meters

N
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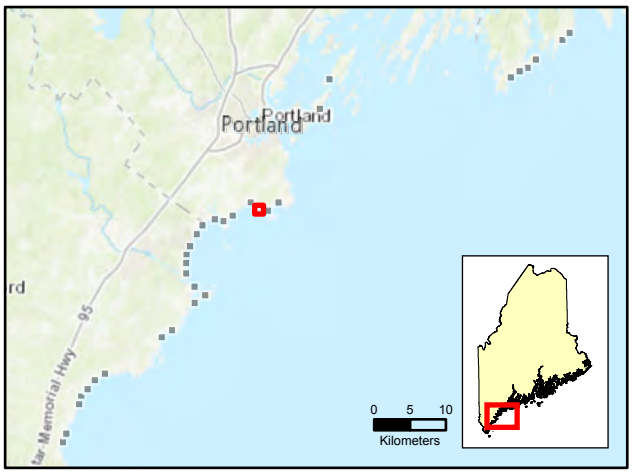
Universal Transverse Mercator (UTM) Projection
North American Datum (NAD) 1983
Data Sources: MEGIS; MDIFW; Maine Audubon

2024 Piping Plover Nest Locations

Ram Island - Nano's Beach



Nest Location & Outcome

Predation

Essential Habitat

0 40 80 160 240 320 Meters

N
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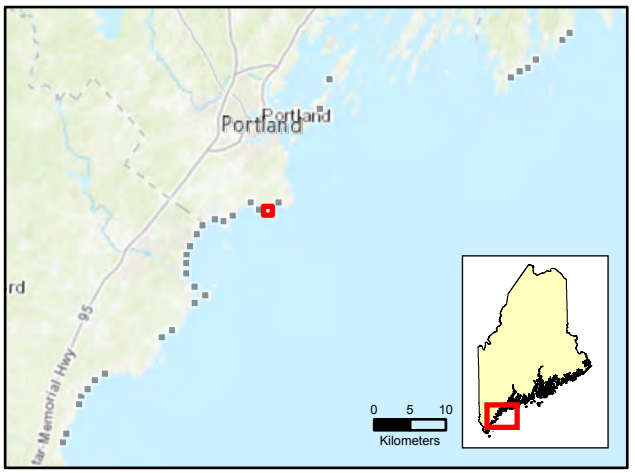
Universal Transverse Mercator (UTM) Projection
North American Datum (NAD) 1983
Data Sources: MEGIS; MDIFW; Maine Audubon

Map Prepared by Maine Department of Inland Fisheries & Wildlife

November, 25, 2024

2024 Piping Plover Nest Locations

Ram Island - Breakwater



Map Prepared by Maine Department of Inland Fisheries & Wildlife

November, 25, 2024

Nest Location & Outcome

Hatched

Foraging Area

Essential Habitat

0 40 80 160 240 320 Meters

Universal Transverse Mercator (UTM) Projection
North American Datum (NAD) 1983
Data Sources: MEGIS; MDIFW; Maine Audubon

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2024 Piping Plover Nest Locations

Crescent Beach State Park

Nest Location & Outcome

- Hatched
- Predation

- Foraging Area
- Essential Habitat

0 40 80 160 240 320 Meters

Universal Transverse Mercator (UTM) Projection
North American Datum (NAD) 1983
Data Sources: MEGIS; MDIFW; Maine Audubon

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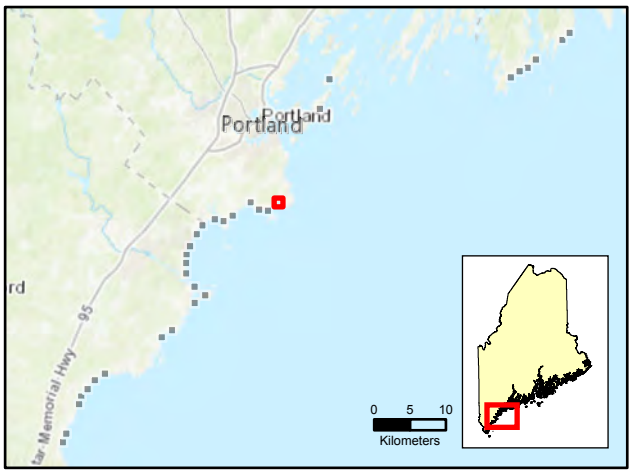
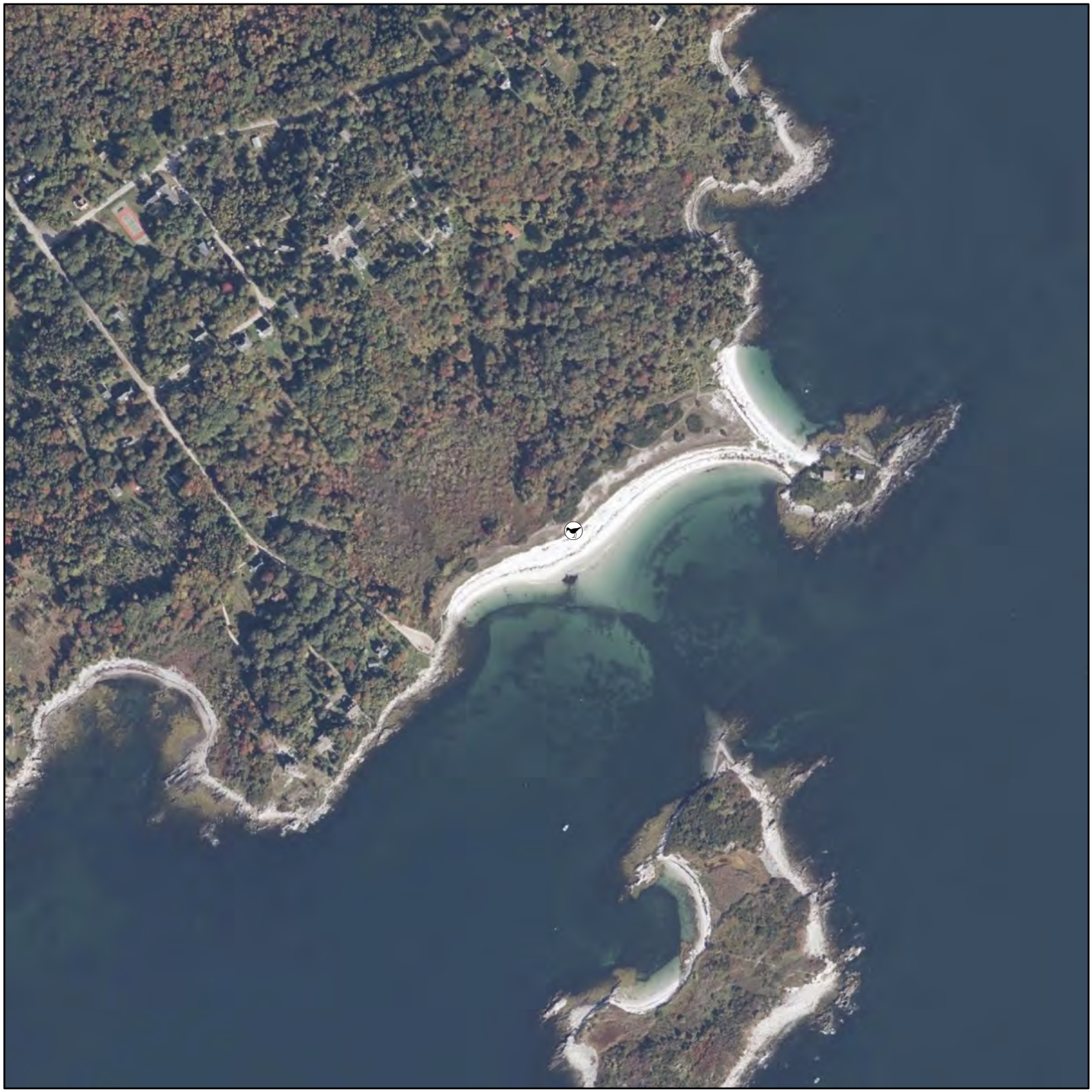


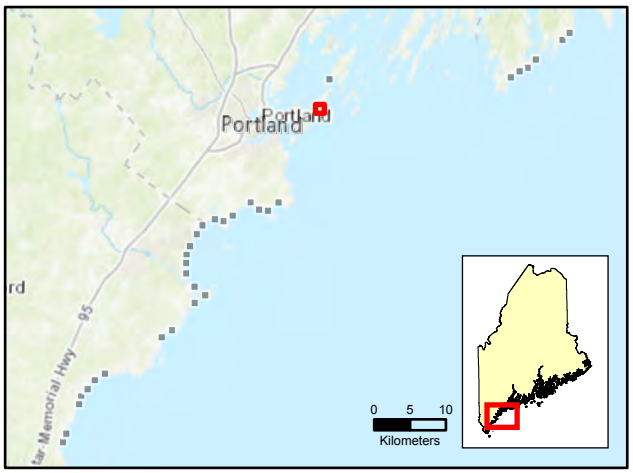
Map Prepared by Maine Department of Inland Fisheries & Wildlife

November, 25, 2024



2024 Piping Plover Nest Locations

Long Island



Nest Location & Outcome

Predation

0 40 80 160 240 320 Meters

Universal Transverse Mercator (UTM) Projection
North American Datum (NAD) 1983
Data Sources: MEGIS; MDIFW; Maine Audubon

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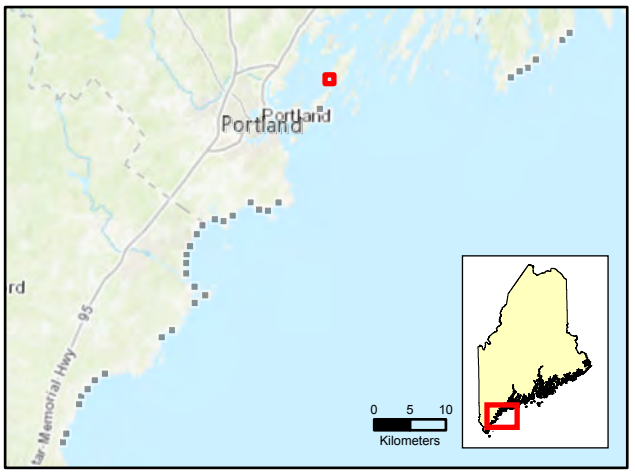
Map Prepared by Maine Department of Inland Fisheries & Wildlife

November, 25, 2024

2024 Piping Plover Nest Locations

Indian Point - Chebeague Island



Map Prepared by Maine Department of Inland Fisheries & Wildlife

November, 25, 2024

Nest Location & Outcome

Hatched

Foraging Area

0 40 80 160 240 320 Meters

Universal Transverse Mercator (UTM) Projection
North American Datum (NAD) 1983
Data Sources: MEGIS; MDIFW; Maine Audubon

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2024 Piping Plover Nest Locations

Seawall Beach

Nest Location & Outcome

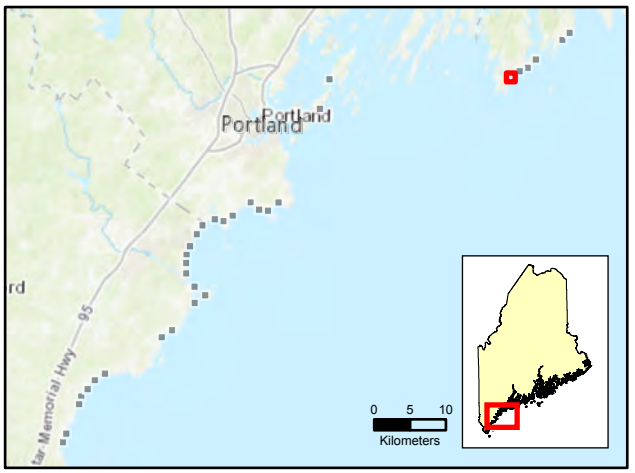
- Hatched
- Predation

- Foraging Area
- Essential Habitat

0 70 140 280 420 560 Meters

Universal Transverse Mercator (UTM) Projection
North American Datum (NAD) 1983
Data Sources: MEGIS; MDIFW; Maine Audubon

N W E S



Map Prepared by Maine Department of Inland Fisheries & Wildlife

November, 25, 2024

2024 Piping Plover Nest Locations

Seawall Beach (East) / Popham Beach (West)

Nest Location & Outcome

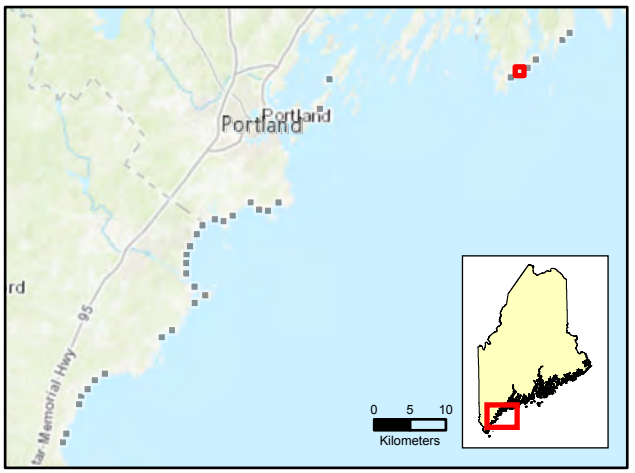
- Hatched
- Predation
- Washout

- Foraging Area
- Essential Habitat

0 40 80 160 240 320 Meters

Universal Transverse Mercator (UTM) Projection
North American Datum (NAD) 1983
Data Sources: MEGIS; MDIFW; Maine Audubon

N W E S

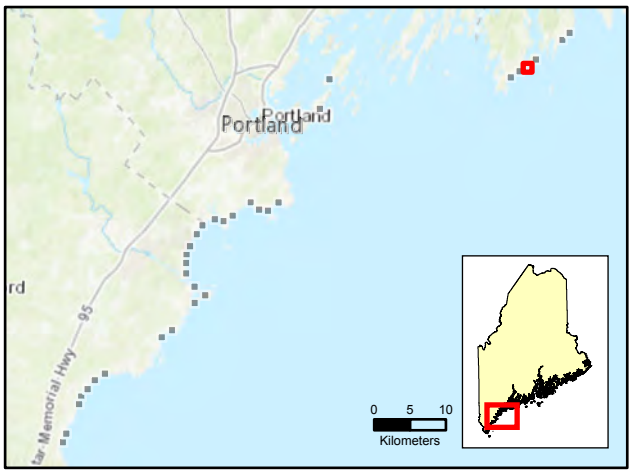


Map Prepared by Maine Department of Inland Fisheries & Wildlife

November, 25, 2024

2024 Piping Plover Nest Locations

Popham Beach



Map Prepared by Maine Department of Inland Fisheries & Wildlife

November, 25, 2024

Nest Location & Outcome

Hatched

Foraging Area

Essential Habitat

0 40 80 160 240 320 Meters

Universal Transverse Mercator (UTM) Projection
North American Datum (NAD) 1983
Data Sources: MEGIS; MDIFW; Maine Audubon

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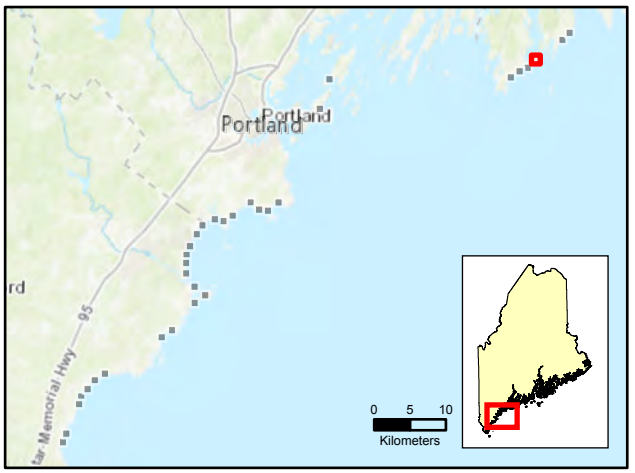
2024 Piping Plover Nest Locations

Hunnewell Beach



Map Prepared by Maine Department of Inland Fisheries & Wildlife

November, 25, 2024

Nest Location & Outcome

Hatched

Foraging Area

Essential Habitat

0 40 80 160 240 320 Meters

Universal Transverse Mercator (UTM) Projection
North American Datum (NAD) 1983
Data Sources: MEGIS; MDIFW; Maine Audubon

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2024 Piping Plover Nest Locations

Reid State Park - Half Mile Beach

Nest Location & Outcome

- Abandoned
- Hatched

- Foraging Area
- Essential Habitat

0 40 80 160 240 320 Meters

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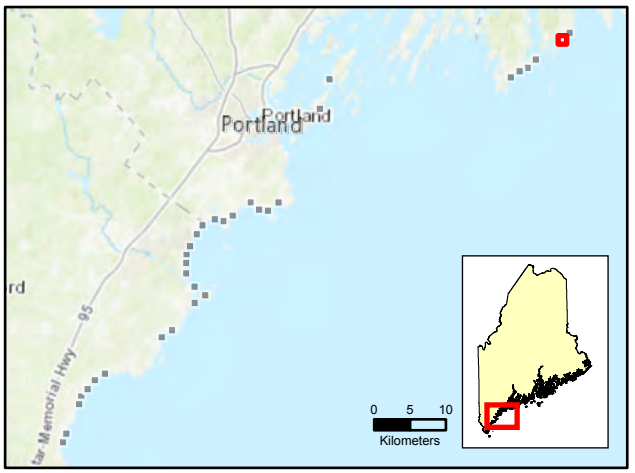

Universal Transverse Mercator (UTM) Projection
North American Datum (NAD) 1983
Data Sources: MEGIS; MDIFW; Maine Audubon

Map Prepared by Maine Department of Inland Fisheries & Wildlife

November, 25, 2024

2024 Piping Plover Nest Locations

Reid State Park - Mile Beach

Nest Location & Outcome

Hatched

Foraging Area

Essential Habitat

Meters

0 40 80 160 240 320

Universal Transverse Mercator (UTM) Projection
North American Datum (NAD) 1983
Data Sources: MEGIS; MDIFW; Maine Audubon

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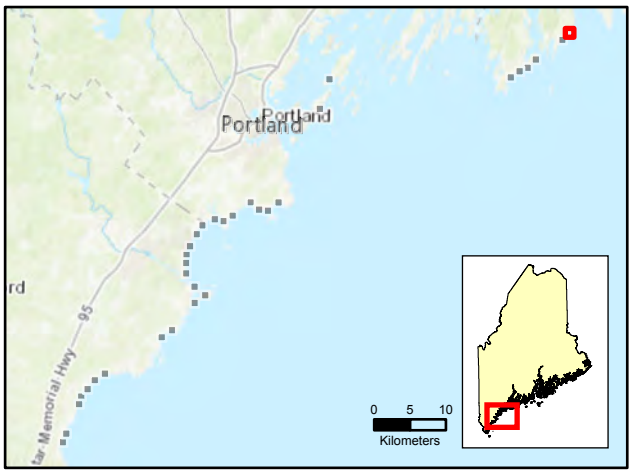

Map Prepared by Maine Department of Inland Fisheries & Wildlife

November, 25, 2024