2023 Maine Coastal Birds Project Report

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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 increase every year as the population grows and birds choose different nesting sites.

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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.

Maine's Least Tern population appears to be generally increasing, 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 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 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 2023, coordinated state-wide counts took place from June 12 to 16. 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 were synchronized or cell phones were used, 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; most abandonments we observed were attributed to other factors such as domestic pet or human disturbance. 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 Higgins 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.

Predators

Targeted predator 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 and Crescent Surf Beach by Wildlife Services.

Game cameras were set up in 2023 to help identify problem predators at Goose Rocks, Old Orchard, Laudholm and Crescent Surf Beaches.

Public Outreach Programs 2023

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 every beach-front landowner 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 375 copies of the newsletter.

The COVID-19 pandemic greatly limited our ability to engage with people face-to-face on the beach and dramatically altered how we interacted with beachgoers. During 2023, we continued alternative outreach methods that we initiated in 2020, such as increased social media efforts and 'beach walk' series of educational signs. Also in 2023 we employed a full-time outreach coordinator, allowing for an increased social media presence and new targeted outreach efforts. A large focus was dedicated to relaunching our *Pets for Plovers* campaign, encouraging pet owners to support plover conservation. Additionally, we set up informational tables at large scale events around the beach communities, presented at local libraries, and hosted a plover celebration at Crescent Beach State Park.

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. Forty-four details occurred; patrols were conducted at beaches from Ogunquit to Popham Beach State Park in Phippsburg. 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 additional conducted 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-one 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 2023, and they followed up with investigations on several incidents including injured chicks at two separate beaches, a displaced egg from the nest cup, mysterious nest loss, 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 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 16, coordinated walking nest census counts documented a minimum of 187 nesting pairs of Least Terns in Maine. This was 90 pairs fewer than last year's 277 pairs and was the second lowest pair count in the past ten years. This low population count could be attributed to varied disturbance 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 seven nests on Laudholm, 73 nests on Crescent Surf, 76 nests on Stratton Island, eight nests on Goose Rocks, 20 nests on Higgins, and three nests on Seawall. After the census window ended, we recorded high counts of nine nests on Laudholm, 77 nests on Crescent Surf, ten nests on Goose Rocks, 11 nests on Seawall, and three nests on Half-Mile Beach at Reid State Park. The Least Terns on Laudholm fledged a minimum of one chick, Crescent surf a minimum of eight chicks, and Stratton Island fledged a minimum of four chicks. Goose Rocks, Higgins, Seawall, and Reid did not fledge any chicks, which left the state with a minimum total of 13 fledglings and an estimated productivity of 0.07 fledglings per pair. This was the lowest number of fledglings and the lowest productivity since monitoring began in 1977.

Site Summaries for Least Terns

Following are summaries of Least Tern population estimates, comparisons to other years, and predator 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 2023 sites, in previous years Least Terns have also nested at Wells Beach, Ram Island, and Popham Beach State Park. We will continue to monitor these sites in the future for any Least Tern activity.

Laudholm Farm Beach, Wells
Rachel Carson NWR

Population Estimate: Seven Least Tern pairs were nesting during the walking nest count census conducted on June 15. One fledgling count was conducted on July 18 where a minimum of one fledgling was observed. All terns left the beach before a second count was conducted. Laudholm experienced weeklong 11-foot tidal over-wash events once a month which contributed to nest and chick loss and eroded the beach. This summer experienced long periods of rain and fog which led to some chick loss. There was also suspected but unconfirmed red fox predation after the electric net fence dropped below an effective voltage and a fox got inside.

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.

Predator Management: Predator management was not conducted at Laudholm Farm Beach. An electric net fence was set up around the colony but temporarily removed during the 11-foot tide cycles then replaced after they passed. Bird spikes were affixed to the top of the symbolic fencing posts to dissuade avian predators from using them as perches.

Crescent Surf Beach, Kennebunk
Rachel Carson NWR

Population Estimate: 73 Least Tern pairs were nesting during the walking nest count census conducted on June 15. One fledgling count was conducted on July 18 where a minimum of eight fledglings were recorded. All terns had left the beach by the time a second fledgling count would have been conducted. Crescent Surf experienced weeklong 11-foot tidal over-wash events once a month which caused major nest loss and beach erosion. The long periods of rain and fog this summer contributed to chick loss along with a Cooper's Hawk that was actively hunting tern fledglings. There was also suspected but unconfirmed red fox predation after the electric net fence dropped below an effective voltage and a fox got inside. The beach was narrow again this year, and the 11-foot tides in combination with a narrow beach meant that the electric fence was not an effective management tool 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.

Predator Management: USDA Wildlife Services removed specialist predators from the Crescent Surf Beach area throughout the breeding season. An electric net fence was set up around most of the colony but temporarily removed during the 11-foot tide cycles then replaced after they passed. Bird spikes were affixed to the top of the symbolic fencing posts to dissuade avian predators from using them as perches.

Goose Rocks Beach, Kennebunkport
Maine Audubon

Population Estimate: A colony of roughly 35 Least Terns attempted to nest on Goose Rocks Beach. During the census there were a total of eight nests and a seasonal high count of ten. No chicks hatched or fledged. There was constant heavy nest predation from skunks, fox, and crow throughout the entire nesting season.

Comparison: In 2022, five nest attempts hatched two chicks and fledged one. A small colony of Least Terns attempted to nest in 2021. There were ten nesting attempts, but no chicks survived until fledging and the colony abandoned the site in late July. No nesting attempts were made in 2020 or 2019, although courtship was observed. Two nesting attempts were made in 2018 but no chicks hatched. At least seven pairs attempted to nest in 2017 but all were unsuccessful. Ten pairs of Least Terns made nest attempts on Goose Rocks in 2016 fledging at least seven chicks. No nesting attempts were made at Goose Rocks between 2012-2015. In 2011 a season high of 46 birds were documented and produced a minimum of 12 fledglings. In 2010, a small colony set up after failures at Crescent Surf and Stratton Island, however no chicks survived.

Predator Management: None.

Western/Ferry Beach, Scarborough
Maine Audubon

Population Estimate: Least Terns did not attempt to nest on Western Beach for the fourth consecutive year in a row.

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.

Predator Management: None.

Stratton Island
National Audubon Society

Population Estimate: 76 nests were counted during the nest census conducted on June 15 and a total of 91 nest attempts were recorded throughout the season. In late June, Black-crowned Night Herons predated the majority of the island's chicks and the colony never really recovered. Some Least Terns attempted to re-nest but faced challenges with heavy encroachment by nesting Common Terns which were observed kleptoparasitizing food-carrying Least Terns and were witnessed attacking Least Tern chicks out of aggression. Gulls may have impacted nesting as well. A minimum of four fledglings were produced from the Least Tern colony this year.

Comparison: In 2022, at least 14 fledglings were produced from 91 pairs. Black-crowned Night Heron predation was the biggest struggle. In 2021 at least 63 pairs nested on Stratton Island but abandoned after two nights of Black- crowned Night-heron predation and tropical storm Elsa, resulting in no chicks fledged. Least terns did not nest on Stratton Island in 2020, but this site had historically been the second largest colony in the state before that. 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.

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

Higgins Beach, Scarborough
Maine Audubon

Population Estimate: A total of 20 nests were counted during the census with an estimated flock size of 55. There appeared to be a second wave of nesting, but a fox made it inside the electric fence and predated the entire colony before another nest count could be completed. The Least Terns remained around for a couple of weeks after the predation event but never successfully re-nested. One chick was seen during one visit, but no chicks fledged. The electric fence not functioning consistently throughout the season; insufficient battery power and low voltage were ongoing problems. Eventually a fox breached the fence and got into the colony, predating all nests.

Comparison: 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.

Predator Management: An electric net fence was set up surrounding most of the colony but had continual problems of low voltage and fox tracks were seen inside the fenced area.

Seawall Beach, Phippsburg
Maine Audubon

Population Estimate: In 2023, there was a small colony of about ten adults with three nests during the census count. The colony grew to 50 adults later in the season with a high count of 11 nests. Predators were a constant challenge and extensive fox tracks were consistently observed, in addition to evidence of crow and skunk predation. Twice weekly visits would yield new nests and during following visits eggshells and predator tracks were observed throughout the colony. No chicks hatched or fledged.

Comparison: Last year a high count of 27 nests were counted and a total of two chicks fledged. In 2021, 39 chicks fledged from a minimum of 60 nesting pairs, although only 13 nests were recorded during the window count. In 2020, a small colony of Least Terns nested on Seawall Beach. Of the seven nests, at least one chick fledged. A single Least Tern nest was found in 2016 on Seawall, but otherwise terns have not attempted to nest at Seawall Beach since 2005. That year a 17-nest colony was decimated by a fox or coyote.

Predator Management: None.

Reid State Park, Georgetown
Maine Audubon

Population Estimate: A small colony of six arrived and nested late in the season on Half-Mile Beach at Reid State Park. Three nests were counted and one chick hatched. The chick did not fledge.

Comparison: Least Terns have not nested at Reid State Park since 2006. A single nesting pair was documented in 2006, but no fledglings produced.

Predator Management: None.

Piping Plovers

A total of 157 pairs of Piping Plovers nested at 29 Maine beaches in 2023 (Tables 4, 8), 17 more than last year's high count. A total of 201 fledglings were produced in 2023, resulting in a productivity of 1.28 chicks/pair, the lowest productivity since 2007 and less than our recovery goals of 1.5 chicks fledged per pair (Table 3). Chicks had a 50% survivorship (Table 7). Of the 212 nesting attempts in 2023, 22 were lost to over-washing tide, 16 were abandoned prior to hatch, 49 nests were predated, and 14 were lost to other unknown causes (Table 5). Of the 212 nesting attempts, 67 were exclosed (Table 6). The nesting outcomes were 45 of the exclosed nests successfully hatched, 12 exclosed nests were abandoned, eight were lost to tide, and two had an adult predated in the exclosure which resulted in abandonment (Table 6). Of the 145 unexclosed nests, 66 hatched, 49 were predated, 14 were lost to over-wash, four abandoned prior to hatch and another 12 were lost to unknown causes (Table 6). Crows and other birds predated at least 13 nests, while mammalian predators consumed 17 nests, and the remaining 19 were lost to an unknown predator (Table 6). Overall, 53% 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, Popham, and Ogunquit 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 at sites such as Higgins and Seawall once Least Tern colonies arrived, to reduce the risk of terns walking into then flying around inside them.

Predator management measures were conducted by USDA Wildlife Services biologists at two sites with nesting Piping Plovers: Ogunquit and Crescent Surf. Wildlife Services activity at Ogunquit was constrained by intense human activity; Wildlife Services observed regular unpermitted and destructive activities on Ogunquit in 2020, 2021, 2022, and 2023. 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 increased 12% from 2022 to 2023, from 140 pairs to 157 pairs (Table 4). The increase of 17 pairs resulted in several record high numbers for Maine, including record high breeding pairs on the following beaches: Moody, Wells, Goose Rocks, Fortunes Rocks, Hills, Old Orchard, Higgins, Long Island, Chebeague Island, and Seawall. For nine consecutive years we have detected at least 60 pairs of nesting plovers in Maine, and for the past five years we have had 89 or more nesting pairs. These ever-increasing numbers demonstrate the effectiveness of our multi-leveled conservation efforts using outreach, enforcement, and predator control in addition to fencing and other more traditional management techniques.

In 2014, 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 2023, with 12 beaches hosting at least five nesting pairs, eight beaches fledging at least ten chicks, and two new nesting sites (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 makes 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 hosted 16 breeding pairs of Piping Plovers this season. A total of 23 nest attempts were made with 15 of those hatching. Ogunquit fledged the second highest number of chicks from a beach this season with 24 chicks reaching flight age, with a productivity rate of 1.5 fledglings per pair. An adult was predated from Pair 2 by a kestrel when trying to exit its exclosure. Biologists found parts of the deceased bird and observed the kestrel actively hunting over the dune area between markers 9 and 12. The exclosure was removed and the remaining adult re-nested later in the season only a foot away from the original nest cup with a new mate. Three nests were suspected to be predated during hatch, due to inconspicuous nest locations. A total of five nests were predated; three by fox, one by crow, one unknown but suspected fox or skunk.

USDA Wildlife Services removed specialist predators from Ogunquit Beach throughout the breeding season.

Beach	Nest	Discovery	Eggs	# Hatched	Nest Loss Date	Nest Fate	Actual Hatch	Exclosed	Actual Fledge	#Fledged
Ogunquit	01A	4/22/23	2	0	5/1/23	W	--	Y	--	0
Ogunquit	02A	4/24/23	4	0	5/5/23	P/A	--	Y*	--	0
Ogunquit	03A	4/26/23	4	4	--	H	5/23/23	N	--	0
Ogunquit	04A	5/2/23	4	4	--	H	6/2/23	N	6/27/23	3
Ogunquit	05A	5/2/23	4	0	5/26/23	P	--	N	--	0
Ogunquit	06A	5/2/23	4	4	--	H	5/31/23	N	6/25/23	3
Ogunquit	07A	5/9/23	4	0	5/26/23	P	--	N	--	0
Ogunquit	08A	5/9/23	4	4	--	H	6/8/23	N	7/3/23	3
Ogunquit	09A	5/9/23	4	4	--	H	6/16/23	N	7/11/23	2
Ogunquit	10A	5/9/23	4	4	--	H	6/3/23	N	--	0
Ogunquit	12A	5/11/23	4	0	5/26/23	P	--	N	--	0
Ogunquit	01B	5/16/23	4	4	--	H	6/12/23	N	7/7/23	2
Ogunquit	02B	5/19/23	4	4	--	H	6/21/23	N	--	0
Ogunquit	13A	5/19/23	4	0	6/19/23	P	--	N	--	0
Ogunquit	14A	5/19/23	4	4	--	H	6/21/23	N	7/16/23	3
Ogunquit	15A	5/19/23	4	4	--	H	6/19/23	N	--	0
Ogunquit	16A	5/26/23	4	0	6/21/23	P	--	N	--	0
Ogunquit	17A	5/30/23	4	4	--	H	7/3/23	N	7/28/23	2
Ogunquit	07B	6/2/23	4	2	--	H	7/7/23	N	--	0
Ogunquit	03B	6/2/23	4	4	--	H	7/2/23	N	--	0
Ogunquit	05B	6/12/23	3	0	6/29/23	U	--	N	--	0
Ogunquit	10B	6/15/23	3	3	--	H	7/13/23	N	8/7/23	3
Ogunquit	18A	6/19/23	4	4	--	H	6/16/23	N	7/11/23	3
									Total Fledged	24

*exclosure removed due to predator keying into it

Moody Beach, Wells
Maine Audubon

A record high four pairs of Piping Plovers chose to nest on Moody Beach. Five nest attempts were made with only two of those attempts successfully hatching. Two chicks survived until fledge from one brood, for a productivity of 0.5 fledglings per pair. Pair 4's nest was washed over by the tide but managed to recover two of the four eggs and continue incubation. A third egg was laid about a week later but the nest was washed again and completely lost.

Beach	Nest	Discovery	Eggs	# Hatched	Nest Loss Date	Nest Fate	Actual Hatch	Exclosed	Actual Fledge	# Fledged
Moody	01A	05/09/23	4	4	--	H	6/10/23	Y	7/5/23	2
Moody	02A	5/11/23	3	3	--	H	6/15/23	Y	--	0
Moody	03A	5/22/23	4	0	6/6/23	W	--	N	--	0
Moody	04A	5/22/23	4	0	6/19/23	W	--	N	--	0
Moody	03B	6/19/23	3	0	7/28/23	A	--	N	--	0
									Total Fledged	2

Wells Beach, Wells
Maine Audubon

Another record high number of breeding pairs nested on Wells Beach this season. The 16 pairs hatched 14 of the 19 nest attempts, successfully fledging 29 chicks - the highest number of chicks fledged from one beach this year. Wells Beach productivity was 1.8 fledged chicks per pair. Pair 11 nested nearby public way four but on a busy weekend one injured chick and an adult were spotted all the way down by the stairway entrance in front of Lafayette's Oceanfront Resort. Beachgoers had observed the chick since morning with adults swapping off care duty. By the time this was reported to Volunteer Plover Coordinator Suzanne Craig, the chick was deceased.

Beach	Nest	Discovery	Eggs	# Hatched	Nest Loss Date	Nest Fate	Actual Hatch	Exclosed	Actual Fledge	# Fledged
Wells	01A	4/20/23	4	0	5/1/23	W	--	N	--	0
Wells	02A	4/20/23	4	4	--	H	5/24/23	Y	6/19/23	2
Wells	03A	4/21/23	4	4	--	H	5/26/23	N	6/28/23	4
Wells	04A	4/21/23	3	3	--	H	5/27/23	Y	6/24/23	3
Wells	05A	4/25/23	2	0	5/1/23	W	--	Y	--	0
Wells	06A	5/5/23	4	0	5/11/23	A	--	Y	--	0
Wells	05B	5/5/23	4	4	--	H	6/8/23	N	7/3/23	4
Wells	07A	5/5/23	4	4	--	H	6/1/23	Y	7/3/23	1
Wells	08A	5/5/23	3	3	--	H	6/8/23	N	7/3/23	1
Wells	01B	5/8/23	4	2	--	H	6/7/23	Y	7/2/23	2
Wells	10A	5/11/23	4	0	5/19/23	P	--	N	--	0
Wells	11A	5/11/23	4	4	--	H	6/8/23	N	7/3/23	3
Wells	13A	5/13/23	4	3	--	H	6/12/23	N	7/7/23	3
Wells	12A	5/13/23	4	0	6/6/23	W	--	N	--	0
Wells	09A	5/16/23	4	3	--	H	6/14/23	N	7/11/23	1
Wells	14A	5/19/23	4	4	--	H	6/14/23	N	--	0
Wells	06B	5/23/23	4	4	--	H	6/25/23	N	7/20/23	1
Wells	15A	5/25/23	4	4	--	H	6/25/23	N	7/20/23	1

Wells	16A	5/26/23	4	4	--	H	6/25/23	N	7/20/23	3
									Total Fledged	29

Drakes Island, Wells
Maine Audubon

Drakes Island Beach had one breeding pair that hatched three of its four eggs. All three chicks survived until fledging, for a productivity rate of three fledglings per pair. The nest was located close to the main entrance of the beach but the brood quickly moved up the beach to a less busy area. A Killdeer pair nested nearby to where the Piping Plover brood had moved. Biologists frequently observed the Killdeer and Piping Plover adults being territorial. One Killdeer chick had a leg injured, was taken to a rehabilitator, but euthanized due to the severity of the injury.

Beach	Nest	Discovery	Eggs	# Hatched	Nest Loss Date	Nest Fate	Actual Hatch	Exclosed	Actual Fledge	# Fledged
Drakes	01A	5/30/23	4	3	--	H	6/29/23	N	7/24/23	3

Laudholm Beach, Wells
Rachel Carson NWR

Three pairs of Piping Plovers made five nest attempts and fledged five chicks on Laudholm Beach in 2023. The beach productivity rate was 1.6 fledged birds per pair. The cause of abandonment for Nest 1A is unknown, though weather (temperatures in the low 40's, precipitation, and constant wind) is suspected to have played a role. The cause of chick loss is largely unknown. During the time periods when chicks went missing, crow and human tracks were recorded inside the closed area, photographers were witnessed disturbing broods, people dragged logs across the beach to build a structure, a drone was witnessed flushing birds on the beach, and 11-foot tides were recorded. Any of these occurrences or another undetected issue could have led to chick loss.

Beach	Nest	Discovery	Eggs	# Hatched	Nest Loss Date	Nest Fate	Actual Hatch	Exclosed	Actual Fledge	# Fledged
Laudholm	01A	5/3/23	1	0	5/8/23	A	--	Y	--	0
Laudholm	02A	5/11/23	4	4	--	H	6/13/23	Y	7/8/23	4
Laudholm	03A	5/15/23	4	0	6/6/23	W	--	Y	--	0
Laudholm	01B	5/22/23	4	3	--	H	6/22/23	Y	7/17/23	1
Laudholm	03B	6/12/23	4	4	--	H	7/11/23	Y	--	0
									Total Fledged	5

Crescent Surf Beach, Kennebunk
Rachel Carson NWR

This year, eight pairs of Piping Plovers made 11 nest attempts and fledged 13 chicks. Productivity was 1.6 fledglings per a pair. Four of the 11 nest attempts were unable to be exclosed as one nest was on a dune ledge and the other three were in areas at high risk of tidal over-wash. One of the abandoned nests was due to one of the adults being predated by a raptor and the remaining adult did not attempt to continue tending the nest. The cause of abandonment for the other nest is unknown, though cold and wet weather may have played a role. The cause of chick loss is also unknown due to lack of direct evidence. Weather events, 11-foot tides, dog tracks, and a large group of gulls were recorded during time periods when chicks went missing. Crescent Surf Beach experienced scarping and erosion from the monthly 11-foot tides which narrowed the beach throughout the season and reduced space for the birds to utilize during high tide.

USDA Wildlife Services removed specialist predators from the beach throughout the breeding season.

Beach	Nest	Discovery	Eggs	# Hatched	Nest Loss Date	Nest Fate	Actual Hatch	Exclosed	Actual Fledge	# Fledged
Crescent Surf	01A	5/2/23	1	0	5/5/23	W	--	N	--	0
Crescent Surf	02A	5/2/23	1	0	5/5/23	A	--	Y	--	0
Crescent Surf	03A	5/8/23	4	4	--	H	6/4/23	Y	6/29/23	4
Crescent Surf	01B	5/11/23	4	4	--	H	6/12/23	N	7/7/23	3
Crescent Surf	02B	5/15/23	4	4	--	H	6/17/23	Y	7/12/23	3
Crescent Surf	04A	5/16/23	4	4	--	H	6/17/23	Y	7/12/23	2
Crescent Surf	05A	5/19/23	4	0	6/6/23	W	--	Y	--	0
Crescent Surf	06A	6/5/23	4	0	6/16/23	A	--	Y	--	0
Crescent Surf	07A	6/5/23	3	3	--	H	7/3/23	Y	7/28/23	1
Crescent Surf	05B	6/19/23	4	0	7/3/23	W	--	N	--	0
Crescent Surf	08A	6/27/23	3	0	7/3/23	W	--	N	--	0
									Total Fledged	13

Parsons Beach, Kennebunk
Rachel Carson NWR

Four pairs of Piping Plovers nested on Parsons Beach in 2023. Five nest attempts fledged twelve chicks. Productivity was three fledglings per pair, well above our recovery goal of 1.5. Only one nest was able to be exclosed as three nests did not receive landowner permission for management, and one nest was in a rocky area preventing an exclosure from being hammered in. The cause of chick loss is unknown due to lack of evidence though rain events did occur during the time periods when chicks went missing as well as fox and dog tracks were recorded, but nothing directly suggested that was the cause.

Beach	Nest	Discovery	Eggs	# Hatched	Nest Loss Date	Nest Fate	Actual Hatch	Exclosed	Actual Fledge	# Fledged
Parsons	01A	5/10/23	4	4	--	H	6/10/23	Y	7/5/23	3
Parsons	02A	5/18/23	4	4	--	H	6/19/23	N	7/14/23	4
Parsons	03A	5/22/23	4	4	--	H	6/22/23	N	7/17/23	4
Parsons	04A	5/22/23	4	0	6/5/23	W	--	N	--	0
Parsons	04B	6/13/23	4	2	--	H	7/14/23	N	8/8/23	1
									Total Fledged	12

Marshall Point, Kennebunkport
Rachel Carson NWR

One pair of Piping Plovers made one nest attempt which was lost to tidal over-wash on Marshall Point. All but one egg was washed on June 5 and the pair continued tending the one egg until it was also washed on June 7. The pair did not attempt to nest on the beach again and was seen foraging on the beach for a few more weeks before moving on.

Beach	Nest	Discovery	Eggs	# Hatched	Nest Loss Date	Nest Fate	Actual Hatch	Exclosed	Actual Fledge	# Fledged
Marshall Point	01A	5/25/23	3	0	6/7/23	W	--	Y	--	0

Goose Rocks Beach, Kennebunkport
Maine Audubon

A total of 15 pairs nested on Goose Rocks Beach for a total of 21 nest attempts. Of these attempts, 17 were on the end of the beach nearest to Batson River, with six of these attempts successfully hatching. Goose Rocks Beach productivity rate was 1.1 chicks fledged per pair. The Batson River end of the beach experienced a very high level of fox activity this year; three exclosed, four-egg nests were abandoned after fox tracks were found circling the exclosure. A game camera even captured foxes within a few feet of the exclosures. The section of the beach east of Dinghy Point experienced a higher level of success. Four nest attempts yielded three hatches and six fledglings from the east end.

Beach	Nest	Discovery	Eggs	# Hatched	Nest Loss Date	Nest Fate	Actual Hatch	Exclosed	Actual Fledge	# Fledged
Goose Rocks	01A	4/28/23	4	4	--	H	6/1/23	Y	6/26/23	1
Goose Rocks	02A	4/29/23	4	0	5/26/23	A	--	Y*	--	0
Goose Rocks	03A	5/8/23	4	0	5/24/23	A	--	Y*	--	0
Goose Rocks	04A	5/8/23	4	0	5/26/23	A	--	Y*	--	0
Goose Rocks	05A	5/8/23	4	0	6/8/23	P	--	N	--	0
Goose Rocks	06A	5/8/23	4	2	--	H	6/11/23	N	7/7/23	2
Goose Rocks	07A	5/15/23	4	0	6/13/23	P	--	Y*	--	0
Goose Rocks	08A	5/15/23	4	4	--	H	6/16/23	N	7/11/23	4
Goose Rocks	09A	5/30/23	4	3	--	H	6/29/23	N	7/24/23	3
Goose Rocks	10A	5/30/23	2	0	6/6/23	A	--	N	--	0
Goose Rocks	04B	5/30/23	4	0	6/22/23	U	--	N	--	0
Goose Rocks	11A	6/1/23	1	0	6/1/23	P	--	N	--	0
Goose Rocks	12A	6/1/23	3	0	6/6/23	W	--	N	--	0
Goose Rocks	13A	6/1/23	4	4	--	H	6/23/23	N	--	0
Goose Rocks	10B	6/8/23	4	0	7/1/23	P	--	N	--	0
Goose Rocks	03B	6/13/23	3	3	--	H	7/10/23	N	8/4/23	2
Goose Rocks	14A	6/13/23	4	0	6/29/23	P	--	N	--	0
Goose Rocks	05B	6/19/2023	4	3	--	H	7/17/23	N	8/12/23	2
Goose Rocks	15A	6/19/2023	3	3	--	H	7/20/23	N	8/14/23	2
Goose Rocks	16A	6/19/2023	4	0	6/26/23	P	--	N	--	0

Goose Rocks	07B	6/19/2023	4	4	--	H	7/16/23	N	8/12/23	1
									Total Fledged	**17**

*exclosure removed due to predator activity

Fortunes Rocks Beach, Biddeford
Maine Audubon

Fortunes Rocks Beach was home to a record high number of Piping Plovers this summer. 2023 holds a new record for number of nesting pairs and fledged the second highest number of chicks since Maine Audubon began monitoring this site. The productivity rate for Fortunes Rocks Beach was two fledglings per pair. Six pairs nested on the main stretch of beach and five of those successfully hatched and reared 12 chicks to fledging age. Two pairs attempted to nest on Bathhouse/City-owned beach area; three nest attempts were made though none hatched.

Beach	Nest	Discovery	Eggs	# Hatched	Nest Loss Date	Nest Fate	Actual Hatch	Exclosed	Actual Fledge	# Fledged
Fortunes Rocks	01A	4/25/23	2	0	5/1/23	W	--	Y	--	0
Fortunes Rocks	01B	5/8/23	3	3	--	H	6/9/23	N	7/4/23	2
Fortunes Rocks	02A	5/8/23	4	4	--	H	6/9/23	N	7/4/23	3
Fortunes Rocks	03A	5/8/23	4	3	--	H	6/1/23	Y	6/27/23	2
Fortunes Rocks	04A	5/11/23	4	4	--	H	6/13/23	Y	7/7/23	4
Fortunes Rocks	05A	5/15/23	4	4	--	H	6/15/23	N	7/10/23	1
Fortunes Rocks	06A	5/26/23	3	0	6/6/23	W	--	N	--	0
Fortunes Rocks	07A	6/16/23	4	0	6/26/23	P	--	N	--	0
Fortunes Rocks	06B	6/16/23	4	0	6/19/2023	P	--	N	--	0
Fortunes Rocks	07B	6/26/23	1	0	6/29/23	U	--	N	--	0
Fortunes Rocks	08A	6/29/23	1	0	7/5/23	P	--	N	--	0
									Total Fledged	**12**

Hills Beach, Biddeford
Maine Audubon

Hills Beach had a record number of nesting pairs and record high number of chicks fledged off the beach in 2023. Three pairs of Piping Plovers nested on Hills Beach, two on the portion of the beach near Surf Ave and one on the stretch of beach near Golden Ave. A total of ten chicks successfully fledged; seven fledged from the Surf Ave pairs and three fledged from the single pair at Golden Ave. Productivity for Hills Beach was 3.3 fledglings per pair. Stake and twine fencing was greatly limited by beach configurations and landowners.

Beach	Nest	Discovery	Eggs	# Hatched	Nest Loss Date	Nest Fate	Actual Hatch	Exclosed	Actual Fledge	# Fledged
Hills	01A	5/8/23	4	4	--	H	6/6/23	N	--	0
Hills	02A	5/12/23	4	4	--	H	6/13/23	N	7/7/23	4
Hills	03A	5/24/23	4	4	--	H	6/22/23	N	7/17/23	3
Hills	01B	6/16/2023	4	4	--	H	7/12/23	N	7/6/23	3
									Total Fledged	**10**

Ferry Beach, Saco
Maine Audubon

Ferry Beach had three pairs attempt to nest during 2023 with a total of five nest attempts. A high tide event in early June washed Nest 2A and washed the young brood from 1A. The last three nesting attempts were predated by canines, and both fox and dog tracks were observed around the nests. Ferry had a variety of other predators that were either seen or reported that made it difficult to effectively protect both the nests and the adults. A cat was reported, and tracks were seen which made exclosing a concern for adult survival. Additionally, crow, fox, and dog were all predators present on the beach during the nesting season. No chicks survived to fledge this year.

Beach	Nest	Discovery	Eggs	# Hatched	Nest Loss Date	Nest Fate	Actual Hatch	Exclosed	Actual Fledge	# Fledged
Ferry	01A	5/10/23	3	3	--	H	6/4/23	N	--	0
Ferry	02A	5/29/23	4	0	6/5/23	W	--	N	--	0
Ferry	03A	6/12/23	4	0	6/20/23	P	--	N	--	0
Ferry	01B	6/12/23	4	0	7/10/23	P	--	N	--	0
Ferry	03B	6/27/23	3	0	7/10/23	P	--	N	--	0
									Total Fledged	**0**

Goosefare Brook, Saco
Rachel Carson NWR

One pair of Piping Plovers made one nest attempt at Goosefare Brook and fledged two chicks. Rain events did occur during the time periods when chicks went missing, and crow, gull, and fox tracks were often

recorded on the beach throughout the season. Goosefare Brook also continued to face issues with people and dogs entering the closed area. Similar to last year, the beach experienced severe erosion from the river and 11-foot tide events that created a steep bank near the nest. The refuge placed signs on either end of the bank stating “Danger! Keep off eroding edge” however people continued to walk on it or walked through the closed area.

Beach	Nest	Discovery	Eggs	# Hatched	Nest Loss Date	Nest Fate	Actual Hatch	Exclosed	Actual Fledge	# Fledged
Goosefare Brook	01A	5/12/23	4	4	--	H	6/13/23	Y	7/8/23	2

Ocean Park Beach, Old Orchard
Maine Audubon

Ocean Park hosted two pairs of Piping Plovers in 2023. One of these pairs showed up later in the season and may have moved from Ferry Beach after losing a nest in the high tide event of early June. Unfortunately, both nests were predated by fox. Chicks have not successfully fledged on Ocean Park since 2019, when one chick hatched and made it to fledging age.

Beach	Nest	Discovery	Eggs	# Hatched	Nest Loss Date	Nest Fate	Actual Hatch	Exclosed	Actual Fledge	# Fledged
Ocean Park	01A	6/7/23	4	0	6/20/23	P	--	N	--	0
Ocean Park	02A	6/12/23	3	0	7/10/23	P	--	N	--	0
									Total Fledged	**0**

Old Orchard Beach, Old Orchard
Maine Audubon

Old Orchard Beach hosted a record-breaking thirteen pairs of Piping Plovers that made a total of 18 nest attempts in 2023. Five nests were lost to various predators, but crows were the most common challenge. The eggs from one nest disappeared one by one; a chipmunk was the suspected culprit. Nine nests hatched, but only eight chicks belonging to three discrete broods fledged off of Old Orchard Beach in total for a productivity rate of 0.6 fledglings per pair. Two apparently unwell chicks from Nest 9A were found one morning, a little way away from where they hatched east of the pier just three days prior. After some more observation and conversation with volunteer coordinator Missy Mans, the two chicks were taken to a wildlife rehabilitator since the parents were not actively caring for them. One chick died in transit, and the other died after arrival. The cause of death was deemed likely to be starvation and hypothermia due to exposure. Only hours later, one chick from the same brood was picked up by a child, then taken and placed into a bucket by an adult. A game warden was contacted, and a biologist was able to reunite the chick with its parents and sibling; unfortunately, this chick and the remaining fourth chick went missing within the following 24 hours. Heavy raking by the town contributes to challenges for the plovers on Old Orchard Beach, as many chicks from other broods disappeared throughout the season. Off-leash dog disturbance is a significant obstacle for nesting plovers on Old Orchard Beach. The municipality allows dogs off leash in the mornings before 9am, and biologists, volunteers, and law enforcement alike witnessed and intervened on several occasions where dogs chased plovers.

Beach	Nest	Discovery	Eggs	# Hatched	Nest Loss Date	Nest Fate	Actual Hatch	Exclosed	Actual Fledge	# Fledged
Old Orchard	01A	4/28/23	4	4	--	H	6/1/23	Y	--	0
Old Orchard	02A	5/9/23	4	4	--	H	6/4/23	N	7/3/23	4
Old Orchard	03A	5/10/23	4	0	5/29/23	P	--	N	--	0
Old Orchard	04A	5/10/23	4	4	--	H	6/11/23	N	7/6/23	2
Old Orchard	05A	5/15/23	4	0	6/5/23	U	--	N	--	0
Old Orchard	06A	5/18/23	1	0	5/22/23	W	--	N	--	0
Old Orchard	07A	5/19/23	1	0	5/22/23	P	--	N	--	0
Old Orchard	06B	5/22/23	4	2	--	H	6/20/23	N	--	0
Old Orchard	08A	5/22/23	4	0	6/7/23	W	--	Y	--	0
Old Orchard	07B	5/23/23	4	4	--	H	6/23/23	Y	7/18/23	2
Old Orchard	09A	5/26/23	4	4	--	H	6/26/23	Y	--	0
Old Orchard	10A	5/26/23	4	4	--	H	6/25/23	Y	--	0
Old Orchard	11A	5/29/23	4	4	--	H	6/27/23	N	--	0
Old Orchard	12A	5/27/23	4	0	6/15/2023	P	--	N	--	0
Old Orchard	13A	6/2/23	4	3	--	H	7/2/23	N	--	0
Old Orchard	03B	6/3/23	1	0	6/5/23	P	--	N	--	0
Old Orchard	03C	6/9/23	4	0	6/12/23	P	--	N	--	0
Old Orchard	03D	7/3/23	1	0	7/3/23	A	--	N	--	0
									Total Fledged	**8**

Pine Point, Scarborough
Maine Audubon

Pine Point hosted two pairs of Piping Plovers with a total of three nest attempts. The first pairs' initial nest, situated not too far from the entrance, was exclosed and later abandoned. The re-nest and nest of the other pair were much farther down the beach, closer to the jetty. Both nests hatched and fledged most of their chicks, for a record-breaking total of seven fledglings, and a productivity rate of 3.5 fledged chicks per pair.

Beach	Nest	Discovery	Eggs	# Hatched	Nest Loss Date	Nest Fate	Actual Hatch	Exclosed	Actual Fledge	# Fledged
Pine Point	01A	5/4/23	4	0	5/29/23	A	--	Y	--	0
Pine Point	01B	6/5/23	4	4	--	H	7/4/23	N	7/29/23	4
Pine Point	02A	6/5/23	4	4	--	H	7/2/23	N	7/27/23	3
									Total Fledged	**7**

Western Beach, Scarborough
Maine Audubon

This summer, six pairs of Piping Plovers chose Western Beach as a nesting site. Nine nesting attempts resulted in four hatched nests. Of the 14 eggs that hatched, ten chicks fledged from the beach, for a productivity rate of 1.7 fledglings per pair. The predator load was heavy on the beach, and fox tracks were regularly observed within the nesting areas. The fox partially dug under an exclosure and caused the abandonment of a full clutch by a banded bird, L-80, and his mate. After the incident, L-80 was never spotted again. Another banded bird, 739, and his mate hatched four chicks from their exclosed nest and were able to fledge two.

Beach	Nest	Discovery	Eggs	# Hatched	Nest Loss Date	Nest Fate	Actual Hatch	Exclosed	Actual Fledge	# Fledged
Western	01A	4/27/23	4	0	6/2/23	A	--	Y	--	0
Western	02A	4/27/23	4	4	--	H	5/30/23	Y	6/24/23	2
Western	03A	5/9/23	2	0	5/13/23	P	--	N	--	0
Western	03B	5/21/23	4	4	--	H	6/23/23	Y	7/18/23	2
Western	04A	5/15/23	4	0	5/26/23	P	--	N	--	0
Western	04B	5/31/23	2	2	--	H	7/1/23	N	7/26/23	2
Western	05A	5/17/23	4	4	--	H	6/16/23	N	7/11/23	4
Western	06A	5/17/23	4	0	6/7/23	A	--	Y	--	0
Western	06B	6/14/23	4	0	7/11/23	P	--	N	--	0
									Total Fledged	**10**

Scarborough Beach State Park, Scarborough
Maine Audubon

Five pairs of Piping Plovers nested at Scarborough Beach State Park. Eight nesting attempts led to four hatched nests. Of those nests, 14 eggs hatched, eight chicks fledged, and productivity was 1.6 fledged chicks per pair. High tides disrupted the egg-laying process, and three nests were flooded. Fox and other predators were a challenge for plovers on the beach. A lone chick from Brood 4B was separated from its parent on a busy beach weekend, and it merged with Brood 5A with a chick of similar age; both chicks fledged under the care of an adult from Brood 5A.

Beach	Nest	Discovery	Eggs	# Hatched	Nest Loss Date	Nest Fate	Actual Hatch	Exclosed	Actual Fledge	# Fledged
SBSP	01A	5/2/23	1	0	5/9/23	W	--	N	--	0
SBSP	01B	5/15/23	4	4	--	H	6/13/23	Y	7/8/23	3
SBSP	02A	5/9/23	4	4	--	H	6/6/23	N	7/1/23	3
SBSP	03A	5/8/23	2	0	5/9/23	P	--	N	--	0
SBSP	03B	5/31/23	4	0	6/7/23	W	--	Y	--	0
SBSP	04A	5/15/23	4	0	6/14/23	W	--	N	--	0
SBSP	04B	6/23/23	4	2	--	H	7/23/23	N	8/17/23	1
SBSP	05A	6/14/23	4	4	--	H	7/17/23	N	8/11/23	1
									Total Fledged	8

Higgins Beach, Scarborough
Maine Audubon

Seven pairs of Piping Plovers nested on Higgins Beach with ten nest attempts. Out of the six nests that successfully hatched, two broods were successful, fledging a total of seven chicks. Higgins Beach productivity rate was one fledgling per pair. The Higgins Beach birds suffered from high predation due to both foxes and crows. Three nests were predated. High tides were also a challenge, and one nest was lost to the ocean. Most of the chicks that went missing were suspected to be predated, but the high tides also could have been responsible for some chick mortality. In early June, a Least Tern colony settled at Higgins Beach, adding to the factors that disrupted the nesting Piping Plovers. All of the Least Tern nests were predated by foxes and crows, alongside the three plover nests that were active during this time.

Beach	Nest	Discovery	Eggs	# Hatched	Nest Loss Date	Nest Fate	Actual Hatch	Exclosed	Actual Fledge	# Fledged
Higgins	01A	4/21/23	4	3	--	H	5/22/23	Y	6/16/23	3
Higgins	02A	4/25/23	4	4	--	H	5/29/23	Y	--	0
Higgins	03A	5/1/23	4	3	--	H	6/1/23	Y	--	0
Higgins	04A	5/1/23	4	4	--	H	6/1/23	Y	6/26/23	4
Higgins	05A	5/8/23	4	4	--	H	6/7/23	Y	--	0
Higgins	06A	5/10/23	4	0	6/6/23	W	--	N	--	0

Higgins	07A	5/17/23	4	3	--	H	6/14/23	N	--	0
Higgins	06B	6/14/23	4	0	6/30/23	P	--	N	--	0
Higgins	08A	6/14/23	3	0	6/26/23	P	--	N	--	0
Higgins	05B	6/19/23	3	0	6/30/23	P	--	N	--	0
									Total Fledged	7

Breakwater Beach- Ram Island, Cape Elizabeth
Maine Audubon

One pair of Piping Plovers nested on Breakwater Beach. The pair had one known nesting attempt, which was exclosed. The brood vanished days after hatching and was suspected lost to predation.

Beach	Nest	Discovery	Eggs	# Hatched	Nest Loss Date	Nest Fate	Actual Hatch	Exclosed	Actual Fledge	# Fledged
Break water	01A	06/14/23	4	4	--	H	7/14/23	Y	--	0

Nano's Beach- Ram Island, Cape Elizabeth
Maine Audubon

One pair of Piping Plovers nested on Nano's Beach. The partner disappeared and the nest was subsequently abandoned. The male plover in this pair was one-footed, which made it easily identifiable. After that nest failed, we observed a one-footed male nest on Higgins Beach, which we suspect was the same bird.

Beach	Nest	Discovery	Eggs	# Hatched	Nest Loss Date	Nest Fate	Actual Hatch	Exclosed	Actual Fledge	# Fledged
Nano	01A	5/16/23	4	0	5/22/23	A	--	Y	--	0

Crescent Beach State Park, Cape Elizabeth
Maine Audubon

Two pairs of Piping Plovers nested on Crescent Beach State Park. Both nests were successful, hatching and fledging all of their chicks. Seven chicks fledged in total, which broke the previous record of five from 2022. The productivity rate for Crescent Beach State Park was 3.5 fledged chicks per pair. A newly developed volunteer program at this beach raised awareness about the birds and contributed greatly to their success. A volunteer witnessed the predation of one chick from Pair 1 by a hawk just days after its fledge date.

Beach	Nest	Discovery	Eggs	# Hatched	Nest Loss Date	Nest Fate	Actual Hatch	Exclosed	Actual Fledge	# Fledged
Crescent SP	01A	5/15/23	4	4	--	H	6/10/23	Y	7/5/23	4
Crescent SP	02A	6/9/23	3	3	--	H	7/11/23	Y	8/5/23	3
									Total Fledged	**7**

South Beach, Long Island
Maine Audubon

For the first time since monitoring began, a pair of Piping Plovers nested on South Beach on Long Island in Casco Bay. Two pairs were spotted on the island late May by a birder, and in early June a nest was discovered during the census. The nest was exclosed, but a fox attempted to dig under the exclosure, likely during hatching. Four chicks were observed a couple days later, then only two, then no chicks or adults. Fox tracks and food scraps were observed on the beach, and it is suspected that the chicks were predated. The community of Long Island embraced having Piping Plovers on their beach by rescheduling beach events and recommending leashing dogs on the beach. Monitoring this pair was a challenge due to the island nesting location, and we heavily relied on a volunteer to check on this pair throughout its nesting season.

Beach	Nest	Discovery	Eggs	# Hatched	Nest Loss Date	Nest Fate	Actual Hatch	Exclosed	Actual Fledge	# Fledged
Long Island	01A	6/9/23	4	4	--	H	7/9/23	Y	--	0

Indian Point, Chebeague Island
Maine Audubon & Chebeague and Cumberland Land Trust

The first recorded pair of Piping Plovers nesting on Chebeague Island settled on Indian Point in 2023. This nest was discovered during the early June census. The pair successfully hatched and fledged all four chicks. The Chebeague and Cumberland Land Trust has an easement on the beach property where the birds nested and were instrumental in the success. The land trust restricted dogs on the beach during the nesting season, monitored the site, educated the community, and managed volunteers that were dedicated to the birds.

Beach	Nest	Discovery	Eggs	# Hatched	Nest Loss Date	Nest Fate	Actual Hatch	Exclosed	Actual Fledge	# Fledged
Chebeague Island-IP	01A	6/9/23	4	4	--	H	6/25/23	N	7/22/23	4

Seawall Beach, Phippsburg
Maine Audubon

In 2023, Seawall Beach had a record high of 17 pairs of nesting Piping Plovers and 24 nest attempts. A heavy predator load of foxes, skunks, and crows greatly reduced nest and brood success, with only nine chicks reaching fledge age. Seawall Beach had a productivity rate of 0.5 fledged chicks per pair. High tides/storm surge, blowing sand, and predation were all challenges throughout the season. Seven nests were lost to unknown causes, as it was not feasible to identify the source of nest loss during our bi-weekly visits.

Beach	Nest	Discovery	Eggs	# Hatched	Nest Loss Date	Nest Fate	Actual Hatch	Exclosed	Actual Fledge	# Fledged
Seawall	01A	5/12/23	4	4	--	H	6/15/23	N	7/10/23	1
Seawall	02A	5/12/23	1	0	5/16/23	A	--	Y	--	0
Seawall	03A	5/12/23	1	0	5/16/23	U	--	N	--	0

Seawall	04A	5/16/23	4	4	--	H	6/21/23	N	--	0
Seawall	05A	5/16/23	4	0	6/13/23	P	--	N	--	0
Seawall	06A	5/16/23	4	0	5/25/23	P	--	N	--	0
Seawall	07A	5/16/23	4	0	5/25/23	P	--	N	--	0
Seawall	08A	5/18/23	4	0	6/20/23	P	--	N	--	0
Seawall	09A	5/18/23	4	4	--	H	6/22/23	N	7/17/23	3
Seawall	10A	5/18/23	4	0	5/25/23	P	--	N	--	0
Seawall	12A	5/18/23	4	3	--	H	7/4/23	N	7/29/23	1
Seawall	03B	5/23/23	4	4	--	H	6/22/23	N	7/17/23	4
Seawall	13A	5/23/23	4	0	6/20/23	U	--	N	--	0
Seawall	02B	5/29/23	2	0	6/5/23	U	--	N	--	0
Seawall	10B	6/5/23	4	0	6/27/23	P	--	N	--	0
Seawall	14A	6/5/23	4	0	6/27/23	U	--	N	--	0
Seawall	15A	6/8/23	4	4	--	H	6/23/23	N	--	0
Seawall	16A	6/8/23	4	0	6/30/23	U	--	N	--	0
Seawall	02C	6/15/23	4	0	6/27/23	P	--	N	--	0
Seawall	17A	6/20/23	2	0	6/27/23	U	--	N	--	0
Seawall	18A	6/20/23	4	0	6/27/23	U	--	N	--	0
Seawall	05B	6/23/23	2	0	6/27/23	P	--	N	--	0
Seawall	16B	7/5/23	2	0	7/19/23	P	--	N	--	0
Seawall	16C	7/19/23	1	0	7/25/23	A	--	N	--	0
									Total Fledged	9

Popham Beach State Park, Phippsburg
Maine Audubon

Ten pairs of Piping Plovers attempted 14 nests at Popham Beach State Park. Six nests successfully hatched 22 chicks, but only four chicks made it to fledging. Popham had a productivity rate of 0.4 fledged chicks per pair. Predation by crows, foxes, and skunks reduced plover productivity. After a predated adult plover was found near an exclosure, surrounding exclosures were removed. Following the removal of exclosures, many of the unexclosed nests were predated. After a couple of weeks, evidence showed the threat of the aerial predator was no longer an issue so exclosures were used at suitable nest sites.

Beach	Nest	Discovery	Eggs	# Hatched	Nest Loss Date	Nest Fate	Actual Hatch	Exclosed	Actual Fledge	# Fledged
Popham	01A	5/4/23	4	3	--	H	5/29/23	Y	6/23/23	2
Popham	02A	5/8/23	4	0	5/18/23	P/A	--	Y*	--	0
Popham	03A	5/12/23	4	4	--	H	6/11/23	Y	--	0
Popham	04A	5/12/23	4	0	6/5/23	P	--	Y*	--	0

Popham	05A	5/12/23	4	0	5/29/23	P	--	N	--	0
Popham	05B	6/8/23	4	4	--	H	7/12/23	Y	--	0
Popham	06A	5/16/23	4	0	6/8/23	P	--	N	--	0
Popham	06B	6/8/23	1	0	6/8/23	P	--	N	--	0
Popham	07A	5/16/23	4	0	5/25/23	P	--	N	--	0
Popham	07B	6/5/23	4	4	--	H	7/11/23	Y	8/5/2023	2
Popham	08A	6/8/23	2	0	6/8/23	P	--	N	--	0
Popham	08B	6/20/23	3	3	--	H	7/13/23	Y	--	0
Popham	09A	6/8/23	4	4	--	H	7/3/23	Y	--	0
Popham	10A	6/20/23	3	0	7/5/23	P	--	N	--	0
									Total Fledged	4

*exclosure removed due to aerial predator

Hunnewell Beach, Phippsburg
Maine Audubon

A single pair of Piping Plovers nested on Hunnewell Beach for the first time since 2001. The pair successfully hatched and fledged four chicks.

Beach	Nest	Discovery	Eggs	# Hatched	Nest Loss Date	Nest Fate	Actual Hatch	Exclosed	Actual Fledge	# Fledged
Hunnewell	01A	6/8/23	4	4	--	H	6/25/23	N	7/20/23	4

Indian Point, Georgetown
Maine Audubon
Indian Point is a site that had not seen activity since 2001. In 2023, a landowner reached out to park staff at Reid State Park stating that they had a Piping Plover nest on their beach. During the next visit, biologists confirmed the nest and put up symbolic fencing. The pair hatched two of their four eggs and successfully raised one chick to fledge despite fox and gull activity.

Beach	Nest	Discovery	Eggs	# Hatched	Nest Loss Date	Nest Fate	Actual Hatch	Exclosed	Actual Fledge	# Fledged
Indian Point	01A	6/5/23	4	2	--	H	6/30/23	N	7/25/2023	1

Half Mile Beach- Reid State Park, Georgetown
Maine Audubon

Half Mile Beach hosted two nesting pairs of Piping Plovers in 2023 with a productivity rate of one fledged chick per pair. Both nests hatched, but the nest near the main entrance steadily lost chicks each visit and fledged none of their four chicks. The second pair, which nested on the back side of the beach near the Little River, hatched all three of their eggs and successfully fledged two chicks.

Beach	Nest	Discovery	Eggs	# Hatched	Nest Loss Date	Nest Fate	Actual Hatch	Exclosed	Actual Fledge	# Fledged
Half Mile	01A	5/10/23	4	4	--	H	6/5/23	N	--	0
Half Mile	02A	5/10/23	3	3	--	H	6/5/23	Y	6/30/23	2
									Total Fledged	2

Mile Beach- Reid State Park, Georgetown
Maine Audubon

Mile Beach had two nesting pairs in 2023 with a productivity rate of 0.5 fledglings per pair. Nest 1 was exclosed and hatched all four of their eggs but only fledged one chick. Nest 2 was unexclosed and found predated by fox on its hatch date; this may suggest that the eggs had started hatching and the activity and noise attracted the predator.

Beach	Nest	Discovery	Eggs	# Hatched	Nest Loss Date	Nest Fate	Actual Hatch	Exclosed	Actual Fledge	# Fledged
Mile	01A	5/16/23	4	4	--	H	6/17/23	Y	7/16/23	1
Mile	02A	5/31/23	4	0	6/28/23	P	--	N	--	0
									Total Fledged	1

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 since the onset of the COVID pandemic, especially as it coincided 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.

We continued signage to engage beach goers, including putting up plover story- board educational signs that greeted people as they walked on the beach, similar to what we began in 2020. These were very popular at the sites where they were displayed, and we used the newly developed signage to educate about what an exclosure is and encourage people to move away from fencing. Exclosure story-boards were placed at high-trafficked exclosure sites that had small symbolic fencing buffers in Ogunquit, Old Orchard, Goose Rocks, Higgins, Popham Beach State Park, and Wells. These signs directed beachgoers to back away and move further down the beach, and educational signs with more information were placed at a distance explaining exclosures as a plover management strategy.

However, outreach on the beaches in 2023 proved to be problematic. A wet and rainy summer resulted in reduced beach traffic on most days and uninterested parties on the few good beach days. Attending local events and hosting presentations helped increase our outreach numbers for 2023.

Maine Audubon hosted a ‘plover party’ at Crescent Beach State Park on July 27th. Severe storm warnings and a shark sighting on the day limited attendance, but the approximately 75 attendees gave

very positive feedback on the event, which included face painting, a visit by Portland Mariner mascot Beacon the puffin, crafts, beach walks, and general education.

Our outreach efforts

- **1,214** Instagram followers- connected with and interacted with via Instagram platform with stories and information
    - Average 41 “shares”, 4 “saves”, 4 comments per post
    - Up to 313 “likes” per post
    - Up to 1414 “accounts reached” per post
- **350** people educated through virtual and on-beach Trainings
- **2,084** opportunistic interactions on the beach
- **145** people engaged through educational tabling at beach entrances
- **1,570** interactions through beach community events, including our plover party
- **360** people educated at libraries, presentations, and beach walks

Maine Audubon connected with a minimum of 5,723 people in 2023, but the reality is probably many more.

Maine Audubon biologists also worked closely with communications staff to create blogposts, videos, and social media content, and also spoke with newspaper and television reporters’ numerous times throughout the nesting season about the project.

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 2023, a minimum of 178 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 88, Crescent Surf 12, Parsons 51, and Goosefare Brook 27. The plover technician led an educational program 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 also perform outreach on Laudholm. RCNWR also 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 13,000 followers.

CONCLUSIONS AND RECOMMENDATIONS FOR 2024

Overall we are pleased to note that intensive field work, predator management, law enforcement, and active beach outreach programs continue to aid in the recovery of Maine’s Piping Plover and Least Tern populations. Nine consecutive years of over 60 pairs of nesting Piping Plovers and three consecutive years of over 100 pairs indicates the current multi-pronged management program is benefitting the species. This is a remarkable success story only possible because of the dedication of each of the partners, landowners, municipalities and volunteers involved, and especially our seasonal field crew.

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 houses that live along the beach.

This year's low productivity rate of 1.28 is below the current recovery goal of 1.5 chicks per pair and Maine's lowest since 2007, however we still produced more fledglings than in any other year other than 2021 and 2022. We continue to see a correlation between beaches with strong town support and volunteer monitoring with plover productivity. Two new nesting sites that have not hosted nesting plovers since monitoring demonstrates the long-term effectiveness of our recovery efforts. The new high of 157 nesting pair and 201 fledglings in 2023 demonstrate that Maine beaches are capable of sustaining more nesting Piping Plovers than our previous 42 years of experience had indicated. 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, thus serving as a source population for the range.

Least Tern productivity in 2023 was 0.07, the lowest productivity recorded since monitoring began in 1977. Least Tern longevity means their population is more resilient in the face of poor productivity, however with the second lowest population count in 10 years and lowest productivity ever, more attention to Least Terns may be necessary in future years.

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.

A side project of Maine Audubon and Rachel Carson National Wildlife Refuge in 2023 was piloting a 'shorebird ambassador' volunteer outreach program. This was enthusiastically received by volunteers and over 30 shorebird ambassadors immediately committed to the project. We developed a training program based on USFWS models, and offered both virtual and on-beach trainings for volunteers who received custom lanyards with a mini shorebird identification guide. We created outreach materials such as postcards and stickers to provide volunteers with 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 2024:

Electric Fencing

The solar-powered electric net fence used at the tern colony at Laudholm, Crescent Surf, and Higgins Beach, 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 predator 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 Popham 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 to reinvigorate the *Pets for Plovers* campaign and start a shorebird ambassador program that expanded our outreach efforts for conservation of coastal birds. We were able to create a website (petsforplovers.org), connect with veterinarians, and engage with new audiences on the beach thanks to additional financial support, and we would like to continue this in 2024. 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 excited about 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 2024, 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 will encounter even more birds in 2024 than in 2023.

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 Wells Beach, Moody Beach, Ferry 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 to best 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 Beaches 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, and both had high productivity. The success can be linked to a variety of factors including leaving wrack on the beach but 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.

Predator Management

Predator management from USDA Wildlife Services continues to be integral to Maine's Piping Plover and Least Tern populations. Wildlife Services operated at only two of our 31 sites, but remain important to the overall state productivity numbers, as sites like Crescent Surf Beach continue to be essential for both endangered beach-nesting species. Predator 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 Crescent Surf Beach 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 predator 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 were a particular problem and linked to a number of plover harassment incidents. In 2024 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 Old Orchard, Pine Point, and Fortune's Rocks, but tend to be less successful.

Table 1: Number of Nesting Least Tern Pairs and Fledglings ( ) at each Nesting Site in Maine, 1977-2023

YEAR	WELLS	LAUDHOLM FARM	CRESCENT SURF	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)

[ ] 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, 1977-2023

Year	Chicks fledged/pair	Productivity
1977	50/55	0.9
1978	66/93	0.7
1979	31/78	0.4
1980	34/62	0.5
1981	21/78	0.3
1982	26/39	0.7
1983	29/54	0.5
1984	82/88	0.9
1985	12/131	0.1
1986	30/124	0.2
1987	12/89	0.1
1988	40/98	0.4
1989	8/83	0.1
1990	44/65	0.7
1991	25/52	0.5
1992	123/94	1.3
1993	114/125	0.9
1994	79/89	0.9
1995	16/100	0.2
1996	30/60	0.5
1997	11/50	0.2
1998	12/86	0.1
1999	67/62	1.1
2000	81/126	0.6
2001	63/120	0.5
2002	155/121	1.3
2003	66/156	0.4
2004	69/146	0.5
2005	20/114	0.2
2006	26/134	0.2
2007	112/150	0.7
2008	89/166	0.5
2009	78/170	0.5
2010	50/212	0.2
2011	113/205	0.6
2012	155/191*	0.8
2013	172/224	0.8
2014	72/249	0.3
2015	153/233	0.7
2016	36/238	0.2
2017	19/255	0.1
2018	69/186	0.4
2019	61/296	0.2
2020	116/258	0.4
2021	134/228	0.6
2022	40/277	0.1
2023	**13/187**	**0.07**

Table 3: Productivity of Piping Plovers in Maine, 1981-2023

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**

Table 4: Number of Nesting Piping Plover Pairs and Fledglings at Each Site in Maine, 1981-2023

Year	OGUNQUIT	MOODY	WELLS	DRAKLES LAUDISLAND	OCRELMSC FARM	URF	IEANEDMNSAR BSHEACH	AGLOLO POINT	FEO RROCKS	UNEHISL RLOCK	S BEACH	FERRY	GOOSBERFOAR	OLDO OK E RPCHINARD	E POINT	WESCTERN	SARBOROHHUGH	GGINS	RAM ISCLAND	RESCE	SOUNTHCTHI BNEBEACH	DIEAANG C	HEPADO BNSEEACH	EAWALL	POPHA T	HUNNEINDWELL	IREANI PD OINT	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	-	-	0	-				9(24)	0	0	-	3(2)	**15(31)**
1987	[1(0)]	0	0	-	0	1(0)	-	0	1(4)	-		-	-	-	1(0)	0	-	-	0	-				8(17)	0	0	-	1(0)	**12(21)**
1988	[1(0)]	0	0	-	0	1(2)	-	0	2(3)	-		-	-	-	0	0	-	-	0	-				7(3)	1(3)	6(2)	-	3(0)	**20(15)**
1989	0	0	0	-	0	2(3)	-	0	2(8)	-		-	-	-	0	0	-	-	0	-				7(11)	3(11)	1(3)	-	1(2)	**16(38)**
1990	0	0	0	-	0	3(4)	-	0	2(4)	-		-	-	-	0	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)	0	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)	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)**

[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 adjeacent to Goosefare Brook, but on OOB side. Counted in OOB total.

Table 5: Causes of Nest Losses for Piping Plovers, 2002-2023

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

Table 6: Number of Nests Hatched, Destroyed, and Abandoned in Exclosed vs. Unexclosed Piping Plover Nests in 2023

Nesting Outcome	Unexclosed	Exclosed	Total
Predated-Avian	13	0	13
Predated-Mammalian	17	0	17
Predated-Unknown	19	0	19
Predated Adult / Abandoned	0	2	2
Tide	14	8	22
Abandoned	4	12	16
Other (unknown)	12	0	12
Unsuccessful Nests SUBTOTALS	***79***	***22***	**101**
Successfully hatched	***66***	***45***	**111**

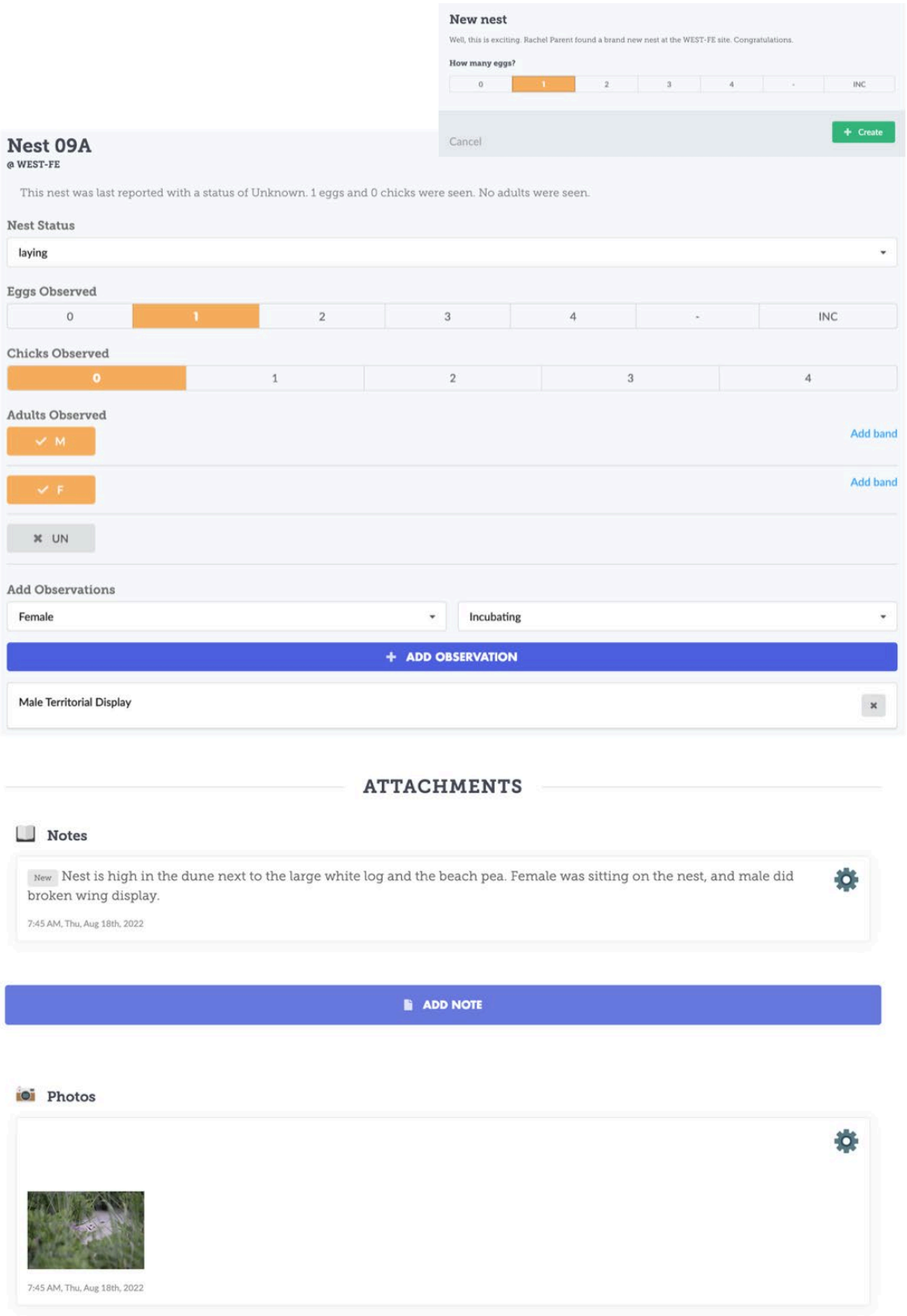
Table 7: Estimated Piping Plover Productivity Loss from Egg to Fledgling, 2002-2023

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**

Table 8: List of Regularly Monitored Beaches and Observed Piping Plover Activity in 2023

Town	Beach	Pairs	Nest Attempts	Fledged	Nest Outcomes
Ogunquit	Ogunquit	16	23	24	15H, 5P, 1W, 1U, 1P/A
Wells	Moody	4	5	2	2H, 2W, 1A
Wells	Wells	16	19	29	14H, 1P, 2W, 1A, 1UH
Wells	Drakes Island	1	1	3	1H
Wells	Laudholm Farm	3	5	5	1A, 1W, 3H
Kennebunk	Crescent Surf	8	11	13	1B, 2A, 5H, 3W
Kennebunk	Parsons	5	5	12	4H, 1W
Kennebunk	Marshall Point	1	1	0	1W
Kennebunkport	Goose Rocks	15	21	17	9H, 6P, 1W, 4A, 1U
Biddeford	Fortunes Rocks	8	11	12	5H, 3P, 2W, 1U
Biddeford	Hills	3	4	10	4H
Saco	Ferry	2	5	0	1H, 3P, 1W
Saco	Goosefare Brook	1	1	2	1H
Old Orchard	Ocean Park	2	2	0	2P
Old Orchard	Old Orchard	13	18	8	9H, 5P, 2W, 1A, 1U
Scarborough	Pine Point	2	3	7	2H, 1A
Scarborough	Western	6	9	10	4H, 3P, 2A
Scarborough	Scarborough	5	8	8	4H, 1P, 3W
Scarborough	Higgins	7	10	7	6H, 3P, 1W
Cape Elizabeth	Ram Island	2	2	0	1H, 1A
Cape Elizabeth	Crescent Beach SP	2	2	7	2H
Long Island	South Beach	1	1	0	1H
Chebeague Is	Indian Point	1	1	4	1H
Phippsburg	Seawall	17	24	9	6H, 9P, 2A, 7U
Phippsburg	Popham Beach	10	14	4	6H, 7P, 1P/A
Phippsburg	Hunnewell	1	1	4	1H
Georgetown	Indian Point	1	1	1	1H
Georgetown	Reid- Mile	2	2	1	1H, 1P
Georgetown	Reid- Half Mile	2	2	2	2H
TOTALS		**157**	**212**	**201**	

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

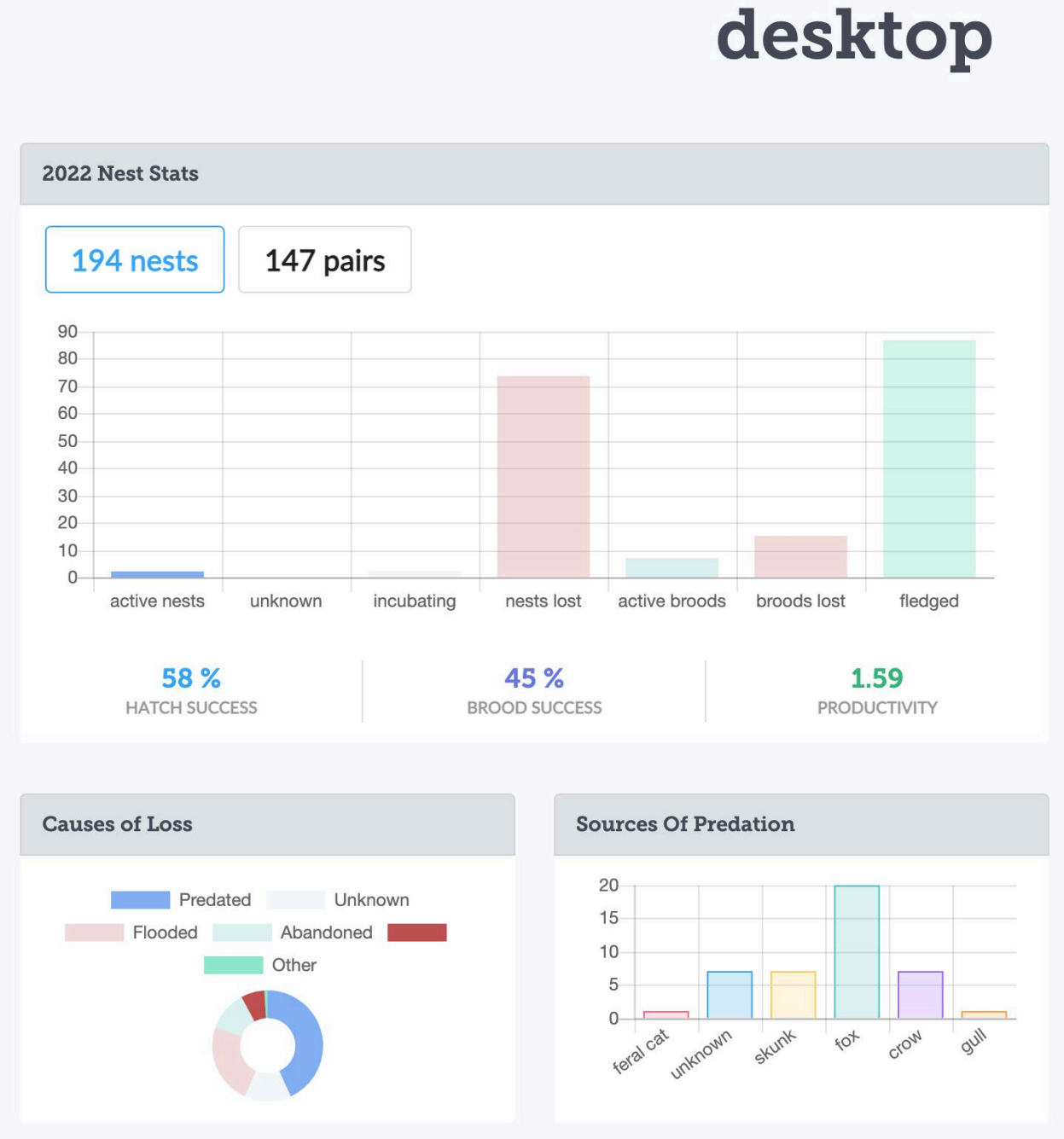
Nest History

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

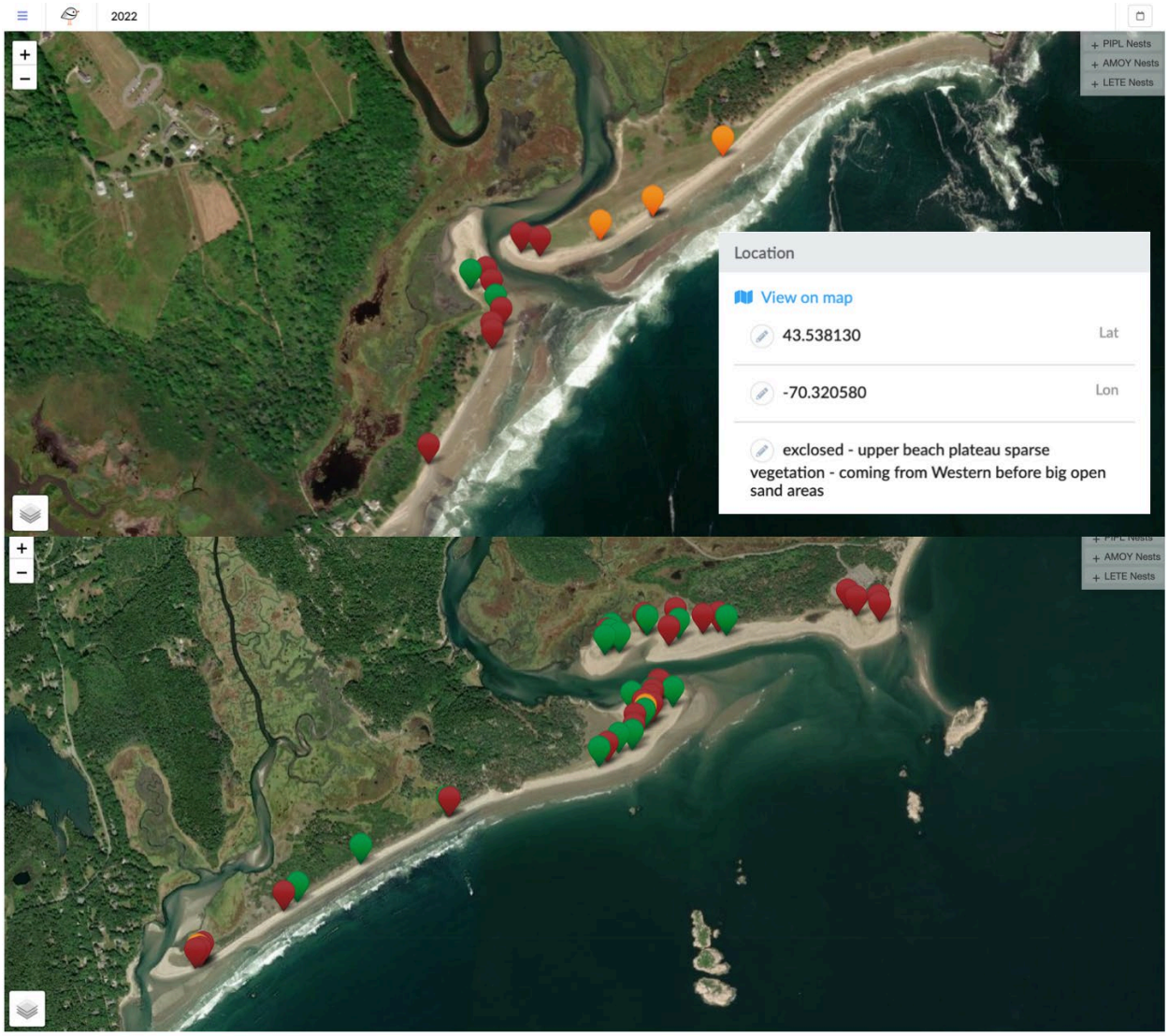
Estimated Fledge	07/05/22
Actual Fledge	07/05/22
Date Fledge Determined	07/06/22
Date Brood Banded	n/a
First Brood Observation	n/a
Last Brood Observation	n/a
Max Chicks	4
Chicks Fledged	4
Chicks Unfledged	0

Appendix IV: NestStory Desktop Statistics and Tables



Appendix V: NestStory Planner

Appendix VI: NestStory Maps and Nest Locations



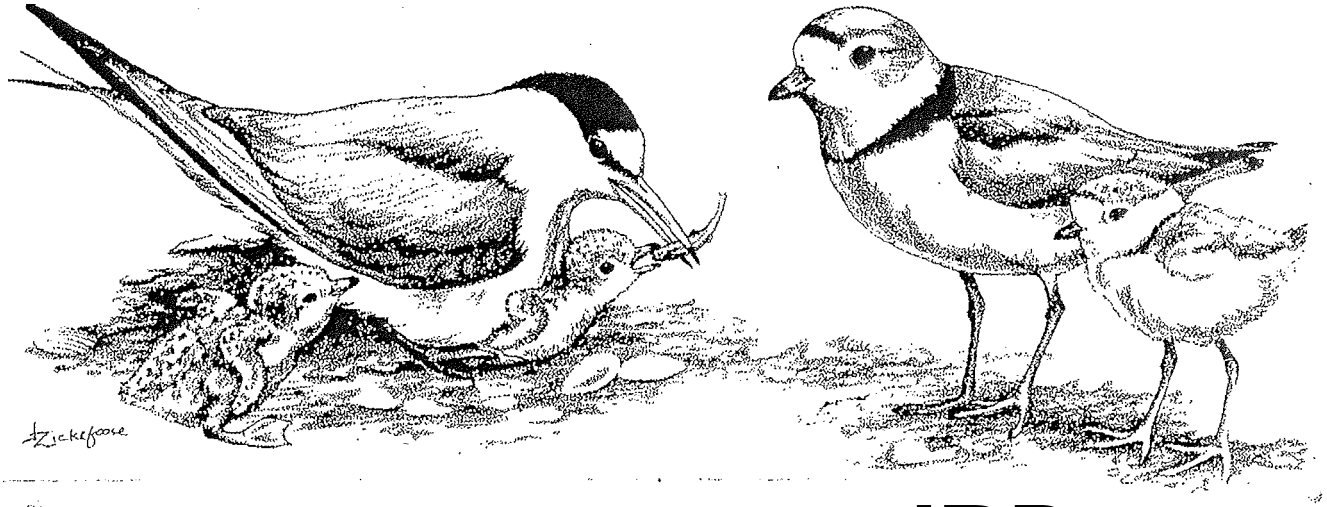
Appendix VII: Piping Plover Census for Maine Sites, 2023

2023 Piping Plover Census						
Town	**Beach**	**# Adults**	**# Pairs**	**# Nests**	**# Chicks**	**Comments**
Biddeford	Fortune's Rock Beach	14	7	4	Y	
	Granite Pt Beach	0	0	0	NA	
	Hattie's Beach	*with Fortune's Rock Beach				
	Hills Beach	6	3	2	N	
Cape Elizabeth	Crescent Beach State Park	4	2	2	N	
	Ram Island	4	2	0	N	
Chebeague Island	Indian Point	2	1	1	N	
Georgetown	Indian Point	2	1	1	N	
	Reid State Park	10	5	2	Y	Banded GF A50 nesting
Kennebunk	Crescent Surf	18	9	5	Y	
	Colony Beach	0	0	0	NA	
	Gooch's Beach	0	0	0	NA	
	Kennebunk Beach	0	0	0	NA	
	Parsons Beach	10	5	3	N	
Kennebunkport	Goose Rocks Beach	26	13	7	Y	
	Marshall Point	2	1	0	N	
Kittery	Crescent Beach	0	0	0	NA	
	Seapoint Beach	0	0	0	NA	
Long Island	South Beach	2	1	1	N	
Ogunquit	Ogunquit Beach	32	16	10	Y	Banded GF 464 nesting
Old Orchard Beach	Ocean Park	2	1	1	N	
	Old Orchard Beach-S	0	0	0	N	
	Old Orchard Beach-N	22	11	8	Y	
Phippsburg	Head Beach	0	0	0	NA	
	Hunnewell Beach	2	1	1	N	
	Popham Beach State Park	20	10	4	Y	
	Seawall Beach	36	18	12	N	
Saco	Ferry Beach	4	2	2	N	
	Goosefare Brook	2	1	1	N	
Scarborough	Higgins Beach	14	7	1	Y	
	Pine Point	4	2	2	N	
	Scarborough Beach	12	6	3	Y	
	Western/Ferry Beach	14	7	3	Y	Banded GF L80 & GF 739 nesting
Wells	Drake's Island	2	1	1	N	
	Laudholm Farm	6	3	2	N	
	Moody Beach	8	4	3	N	
	Wells Beach	34	17	7	Y	
York	Cape Neddick Beach	0	0	0	NA	
	TOTAL		**157**			

Appendix VIII: Restricted Area Sign

RESTRICTED AREA

This area is a natural breeding ground for Terns and Plovers



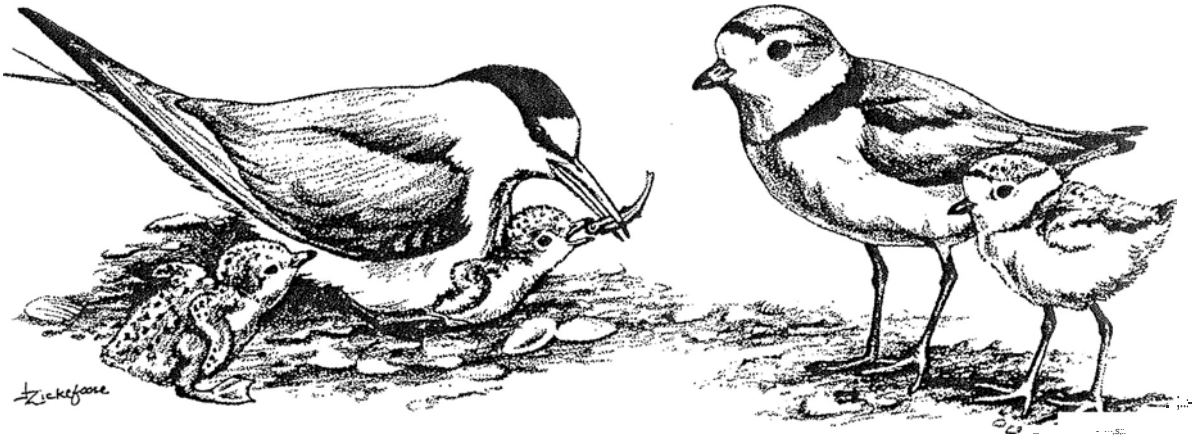
THESE RARE BIRDS, THEIR NESTS AND EGGS ARE PROTECTED

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).

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 PROTEGES

PAR LES LOIS DU **MAINE** ET LES LOIS FEDERALES
Sera Arretee et Condamnee a L'amende
Toute Personne Trouvee Coupable D'avoir Tue, Harcele
Ou Trouble de Quelque Faqon Que ce Soit
Les Oiseaux Qui Font Leurs Nids Dans Cette Zone.

IUUSIRATION BY.uE ZJCI<l:FOOSE, HADIYME, CT 06439

VOSSSGNS,MANUUS,NV 13104-0553 (315) 682-64i6

Appendix IX: Plover, Tern, and Shorebird Signs

1. - 278 signs

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.

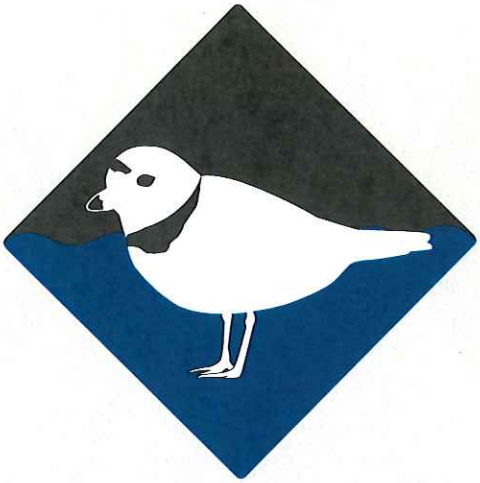
MAINE
DEPT. OF INLAND FISHERIES AND WILDLIFE

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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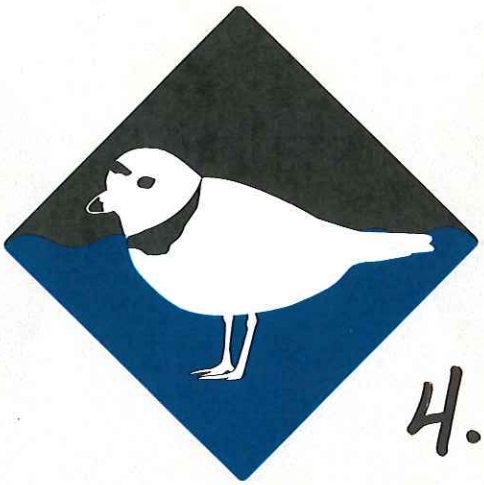

Thousands of sandpipers and plovers stop along Maine's coast to rest and refuel for a nonstop flight to South America (2000 miles or more)!

4.- 33 signs

YOU CAN HELP

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

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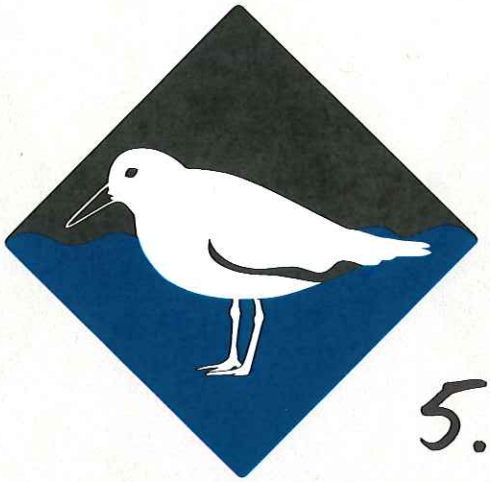
ATTENTION

Signs with this symbol are posted where migrating sandpipers are resting and feeding.

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)!

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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ATTENTION

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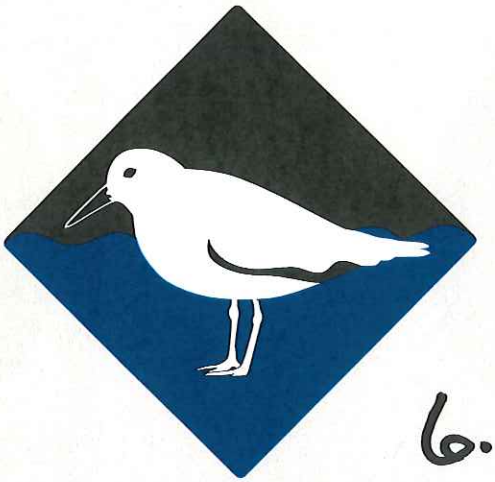
Weighing only a few ounces, shorebirds complete annual migrations between arctic nesting areas and South American winter habitats.



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)!

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

mefishwildlife.com (207) 287-8000

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Maine Audubon

Coastal Birds 2023

Newsletter

Year in Summary: Record Highs and Lows

Maine Audubon's Coastal Birds Project has grown over the years since monitoring began in 1981. The Piping Plover population has reached numbers that have far exceeded what we once thought could be possible. The countless hours spent by all stakeholders working together to ensure that these birds and humans can share the beach is immeasurable. It takes hard work from state and federal biologists, volunteers, beach front landowners, town employees, town, state, and federal law enforcement, state park employees, lifeguards, and more!

For the sixth consecutive season, in 2023 we saw a record high number of breeding pairs of Piping Plovers. The state was home to 157 breeding pairs this nesting season, with some pairs nesting in places never before occupied or that had been vacant for many years. However, only a total of 201 chicks survived until fledge age. This resulted in our productivity being 1.28, our lowest productivity since 2007 and less than our recovery goals of 1.5 chicks fledged per pair.

Although our fledgling numbers were lower than we'd like, we had success stories from some unexpected nesting sites. Some of these successes can be attributed to countless hours spent by dedicated volunteers, increasing public awareness of beach-nesting birds through outreach efforts, as well as a little bit of luck. Drakes Island, Hills Beach, Pine Point, Chebeague Island, Crescent Beach State Park, and Hunnewell fledged more chicks than usual. Two of our southernmost beaches, Ogunquit and Wells, continue to wow with their numbers, although they were lower than last season. Ogunquit hosted 16 nesting pairs, which fledged 24 chicks, and Wells had a record high 16 pairs that fledged 29 chicks.

These incredible little birds never cease to amaze; when Piping Plovers arrive in March, the beach can be an extremely unfavorable place—sometimes it's even snowing! As their chicks start to hatch, it can be grueling hot with not a cloud in the sky to provide shade, not to mention the hordes of people the birds need to navigate through to forage. Piping Plovers continue to incubate their nests or brood their chicks in all conditions. Their adaptability to the harsh beach environment is quite impressive. These birds seem to get tougher and tougher every year.

When monitoring an endangered species population, it is always good to proceed with caution. Despite an increase in our breeding pairs, the low fledge rate could be a cause for concern. Piping Plovers migrate as far south as the Caribbean for the winter, then have to make the trek all the way back up to Maine for the breeding season. A lot of variables are at play that are in nature's hands during these long migrations.

We are optimistic that Maine's robust plover community can continue to help these birds thrive during their breeding season for many years to come.

Piping Plovers

Plovers in New Places

As breeding pairs of Piping Plovers increase each year, it has long been expected that nesting plovers would start to appear in unusual places. And summer 2023 was the season for that! Two islands in Casco Bay were used as nesting sites this year for the first time, as well as sites in Georgetown and Phippsburg that hadn't been utilized since 2001.

Mattie Welch, a homeowner in Georgetown, alerted us to a nest near her home on Indian Point across the way from Half Mile Beach, at Reid State Park. This pair successfully fledged one chick. Hunnewell in Phippsburg hosted a pair of nesting plovers that hatched and fledged all four chicks.

This spring, birder Tara Langford reached out to tell us she had seen two pairs of Piping Plovers engaging in nesting activity on Long Island in Casco Bay. We have long watched the island's South Beach as a possible nesting site and we try to visit once a summer. However we have only heard reports of plovers using the beach during migration in the fall. In June, during the annual plover census, a crew from Maine Department of Inland Fisheries & Wildlife went out to investigate. Sure enough, they discovered a Piping Plover pair with a nest on Long Island and also found a nest on Indian Point on Chebeague Island. These pairs are the first ever Casco Bay nesters since we began monitoring in 1981!

Thankfully, both island communities embraced their newest residents. The Chebeague and Cumberland Land Trust is the keeper of an easement at the nesting site; as engaged stewards, they enthusiastically helped with monitoring the nest and keeping the birds safe. The town and residents of Long Island went above and beyond as well, and even moved their Annual Lobster Bake to a different beach to give the birds space.

Both island nests successfully hatched all four chicks. Unfortunately, the chicks on Long were only observed for a couple of days before the brood began to disappear, likely due to predators. Chebeague saw incredible results, successfully fledging all four chicks that hatched. Thank you to the countless volunteers, landowners, and beachgoers who kept eyes out for these birds!

Long Island

Chebeague Island

Volunteers

Making a Difference at Crescent Beach

Wildlife at many of our public sandy beaches in Maine face the same challenge: the sheer volume of visitors during tourist season. Crescent Beach State Park in Cape Elizabeth is no different. In April, Maine Audubon and state park staff met with two plover lovers who felt that it was time for Crescent to have an official volunteer group. Thus, Peter Cohen and Dutch Walsh became the volunteer coordinators for Crescent Beach and made quick work of finding enough interested parties for us to run a volunteer training in May.

This small but passionate group of volunteers was a fantastic help to our conservation efforts at Crescent Beach this season. This year, Crescent was home to two nesting pairs which hatched and fledged a total of seven chicks. This broke last year's record of five fledgers! The impressive effort and organization of the newly created volunteer force contributed to the success of the birds. They did a wonderful job educating the public, raising awareness, and making sure interested beachgoers kept their distance from nesting and brooding Piping Plovers. It was extremely helpful having so many dedicated volunteers on the beach! A huge thank you to Peter, Dutch, Park Manager Kurt Shoener, and all of the volunteers and Crescent Beach State Park staff. May the Crescent Beach monitoring program continue to thrive in the coming years!

Drake's Island Success

Drakes Island, in Wells, is typically home to one nesting pair of Piping Plovers during the breeding season. It is a challenging site to manage for plovers because of its cobble beach which makes it almost impossible to build exclosures, and many domestic dogs, as well as other predators, are present. A small but dedicated volunteer group monitors the beach and the birds every day throughout the season.

Last year, volunteers were ecstatic that there were two nesting pairs—a first since we have been monitoring on Drakes Island! Sadly, zero chicks fledged last season. This season brought new hope, with three of four eggs hatching and all three chicks successfully fledging. Huge thanks to the Drakes Island volunteer team for remaining steadfast. We hope for more successes in the future!

Photo: Bud/Flickr

Least Terns & Shorebirds

Least Terns Struggle to Fledge Chicks

In 2023, seven sites in Maine hosted nesting Least Terns: Laudholm Beach, a beach in Kennebunk, Goose Rocks Beach, Stratton Island, Higgins Beach, Seawall Beach, and Reid State Park. Our coordinated surveys in June resulted in a count of 193 nesting pairs in Maine, which was 84 pairs fewer than last year's 277 pairs and was the second lowest pair count in the past ten years.

The continual loss of nests and subsequent renesting at various sites makes it impossible to accurately count and track numbers, so it is unclear if estimates reflect an actual decline in population. These 193 pairs produced a minimum of 13 fledglings for a statewide productivity of 0.07 fledglings per pair. This is the lowest number of fledglings and lowest productivity recorded since monitoring and management of Least Terns began in 1977.

The terns on mainland sites faced issues with tidal overwash, beach erosion, extended periods of rain and fog, and predation. Birds moved frequently between sites, making tracking challenging. Only beaches in Wells and Kennebunk produced any fledglings.

Stratton Island counted 76 pairs during the census window but recorded 91 nests overall for the season producing a minimum of four fledglings. Once again, Stratton Island struggled with Black-crowned Night Herons which predated the majority of the chicks. The Least Terns here also dealt with encroachment by nesting Common Terns, who steal food from Least Terns and attack Least Tern chicks.

Least Terns are a relatively long-lived bird with an average lifespan of 15 years. The oldest recorded individual lived at least 24 years. Least Terns, given the necessary space to nest and care for young, are a relatively resilient species. This resiliency along with continued cooperation and partnerships with biologists, landowners, and land managers provides opportunities for this state endangered bird to rebound.

It's Not All About the Plovers

Photo: Doug Hitchcox

Along with the wonderful Piping Plover, the Coastal Birds Crew monitors other species along the coast. Shorebirds, as a group, include sandpipers, plovers, avocets, oystercatchers, and phalaropes; they range from the size of a small sparrow to around 20 inches long, or about the size of a crow.

American Oystercatchers are a large shorebird characterized by their striking black, white, and orange coloring. While in other states, like New York, they are known to nest on the beach alongside Piping Plovers, the pair monitored by Maine Audubon was found nesting on Goose Rocks. The Oystercatchers laid three eggs on a rocky outcropping that also hosted a Common Tern colony and multiple Common Eider nests. We were able to confirm that the nest hatched, but weather and tide conditions prevented further monitoring. While there are other pairs that nest in Maine, this pair is only monitored by Maine Audubon due to its proximity to Goose Rocks Beach.

ANNOUNCING: SHOREBIRD AMBASSADORS

Maine beaches are important not just for birds that nest there, they are also essential to thousands of migratory shorebirds that are resting and refueling on epic journeys from the Arctic to as far south as Argentina. Species such as Semipalmated Sandpipers, Ruddy Turnstones, Black-bellied Plovers, Sanderlings, and the federally threatened Red Knot, can all be seen in large mixed flocks. Fall migration is the busiest time for these species in Maine, which actually begins around mid-July. Many of these shorebirds make a 2,000 mile nonstop transoceanic flight, with some flying up to 20,000 miles round trip in one year! In order to survive migration, the birds must have space to rest and feed extensively to build up fat reserves for long flights. Disturbance by people and pets can have dire consequences.

That's one of the reasons why Maine Audubon launched a new shorebird ambassador program this fall, with the goal of educating beachgoers about these incredible migrating shorebirds. Volunteers have been trained to provide others on the beach with educational materials, including postcards and stickers, all about shorebirds, including ways we can help them. To reduce disturbance, remember to walk far around the flock and leash dogs when nearby, as causing the flock to fly away takes precious energy that could be used for migrating instead. If you are interested in becoming a shorebird ambassador, please email **shorebird@maineaudubon.org** for more information.

Top to bottom: Semipalmated Sandpiper; Ruddy Turnstone; Black-bellied Plover; Sanderling

Photos: Doug Hitchcox

PETS FOR PLOVERS

This spring, we re-launched Maine Audubon's Pets for Plovers program.The intent of the project is to encourage people to leash dogs on beaches where dogs are allowed and provide an indoor-only lifestyle for cats. The endangered Piping Plover, along with other coastal birds, relies on Maine beaches to nest, feed, and recharge for migration. Human disturbance, roaming dogs, and outdoor cats are among the top threats to the survival of plover chicks and also adult birds.

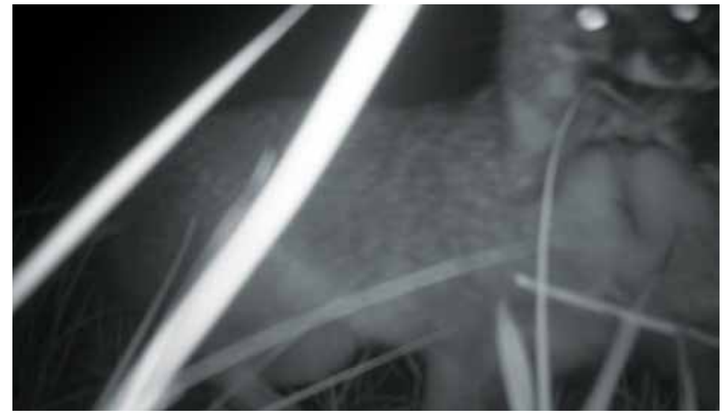
Even a friendly dog is still viewed as a predator and can harm plovers. Not only are dogs able to predate both adults and eggs, but the mere act of disturbing a nest causes the adults to expend precious energy to defend their eggs or flee. Keeping dogs leashed and cats indoors isn't just good for the birds. Cats can be exposed to a number of threats when left to roam outside; these dangers may include predators, harsh weather, and disease.

In revamping this program, a pledge was introduced to encourage accountability among beachgoers. People who demonstrated respect for plovers on the beach, kept animals safely at home, or leashed pets were encouraged to sign the pledge and were rewarded with Pets for Plovers gear including bandanas, stickers, and leashes. Pet owners are integral to our conservation efforts. Thank you to the countless people that are doing the right thing.

Sign the pledge at: **petsforplovers.org**

2023: The Year of the Predator

Compared to past seasons recently, the 2023 breeding season witnessed a significant uptick in predators feeding on the Piping Plover population. Foxes, crows, and birds of prey, among others, all contributed to the loss of nests and chicks. Predators are a perennial challenge for beach-nesting birds, but this year marks Maine's lowest productivity since 2007.



A photo of a Gray Fox carrying a bird, taken by a game camera directly outside a Piping Plover nesting site at Goose Rocks Beach.

Every year, foxes, crows, skunks, and other predators—adaptable and opportunistic scavengers—pose a threat to Piping Plovers eggs and chicks. Piping Plovers always have to grapple with nest and brood loss; however, in recent years, the plovers were still experiencing a high level of success in spite of predator presence.

This year, a record number of breeding plover pairs created a more reliable source of food for predators. While exclosures and other predator mitigation strategies can help, many predators still find a way. Several nests were abandoned after fox tracks were seen circling or digging at the base of the exclosure; the photo above was taken from a game camera directly outside one such nesting site. The presence of birds of prey, such as hawks and falcons, further compounded the problem. These skilled hunters can take advantage of exclosures to find and capture even adult plovers.

How can we help? Here are some strategies we employ:

Nest Protection: Deploying protective exclosures around nesting areas to safeguard eggs and newly hatched chicks from predators while allowing the birds to access their nests

Habitat Restoration: Restoring and preserving natural nesting habitats, reducing human disturbances, and creating buffer zones around nesting sites to limit the impact of human activities

Public Awareness: Educating the public about the significance of protecting Piping Plovers and their habitats, urging responsible pet ownership, and promoting eco-friendly practices on beaches

As we witness these tiny shorebirds facing such daunting challenges, it is imperative for humans to take responsibility and work collectively to conserve and protect these species and the coastal ecosystem they call home.

Banded Beauties

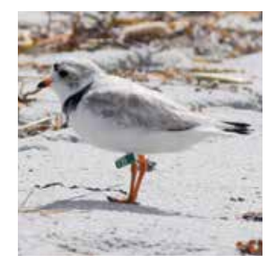


Photo: Rachel Parent

One method used by ornithologists to study birds is banding: placing uniquely numbered leg bands on individual birds. This allows researchers to track their movements, monitor their survival rates, and gain insights into their behavior and migration patterns.While there are currently no banding efforts for plovers here in Maine, other states band migrating and wintering Piping Plovers, and in 2023 four banded Piping Plovers called our beaches home.

To read more about banding and Piping Plovers, visit: **maineaudubon.org/piplbanding**

2023 Piping Plover

NESTING DATA

Town	Beach	Pairs	Nest Attempts	Fledglings
Ogunquit	Ogunquit	16	23	24
Wells	Moody	4	5	2
	Wells	16	19	29
	Drakes Island	1	1	3
	Laudholm Farm	3	5	5
Kennebunk	All Beaches	13	16	25
Kennebunkpt.	Marshall Point	1	1	0
	Goose Rocks	15	21	17
Biddeford	Fortunes Rock	8	11	12
	Hills	3	4	10
Saco	Ferry	2	5	0
	Goosefare Brk	1	1	2
Old Orchard Beach	Ocean Park	2	2	0
	Old Orchard	13	18	8
Scarborough	Pine Point	2	3	7
	Western/Ferry	6	9	10
	Scarb. SP	5	8	8
	Higgins	7	10	7
Cape Eliz.	Ram Island	2	2	0
	Crescent SP	2	2	7
Phippsburg	Seawall	17	24	9
	Popham SP	10	14	4
	Hunnewell	1	1	4
Georgetown	Indian Point	1	1	1
	Reid SP-Mile	2	2	1
	Reid SP-Half Mile	2	2	2
Totals		**157**	**212**	**201**

SP = State Park

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The Coastal Birds Crew: (*left to right, top*): Nicole Snow, intern; Norah Adler, intern; Gabby Ochoa, seasonal biologist; Silas Weden, seasonal biologist; Rachel Parent, seasonal biologist; (*left to right, bottom*): Laura Williams, wildlife biologist; Laura Minich Zitske, wildlife biologist and Coastal Birds Director; Mia Khavari, intern; McKenzie Whelan, seasonal outreach coordinator

2023 Coastal Birds Project

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.

Appendix XI: UTM Coordinates and Nesting Outcomes for 2023 Piping Plover Nests

Site	Nest Code	Latitude	Longitude	Discovery	Status	Nest Outcome	Chicks	Loss Date	Suspected Cause Of Nest Loss	Suspected Predator	Expected Hatch	Actual Hatch	# Hatched	Exclosed?	Date Exclosed	Expected Fledge	Actual Fledge	# Fledged
BREA	01A	43.55362	-70.24353	2023-06-14	brood lost	H	4				2023-07-14	2023-07-14	4	Y	2023-06-14	0000-00-00	0000-00-00	0
CRES-SP	01A	43.56288	-70.23109	2023-05-15	fledged	H	4				2023-06-11	2023-06-10	4	Y	2023-05-15	2023-07-05	2023-07-05	4
CRES-SP	02A	43.56413	-70.22784	2023-06-09	fledged	H	3				2023-07-14	2023-07-11	3	Y	2023-06-09	2023-08-05	2023-08-05	3
Crescent Surf	01A	43.336994	-70.535996	2023-05-02	lost	B	0	2023-05-05 08:11:00	buried		0000-00-00	0000-00-00	0			0000-00-00	0000-00-00	0
Crescent Surf	02A	43.335501	-70.539165	2023-05-02	lost	A	0	2023-05-05 08:11:00	abandoned		0000-00-00	0000-00-00	0	Y	2023-05-02	0000-00-00	0000-00-00	0
Crescent Surf	03A	43.337644	-70.535149	2023-05-08	fledged	H	4				2023-06-04	2023-06-04	4	Y	2023-05-08	2023-06-29	2023-06-29	4
Crescent Surf	01B	43.336844	-70.536436	2023-05-11	fledged	H	4				2023-06-11	2023-06-12	4			2023-07-07	2023-07-07	3
Crescent Surf	02B	43.335838	-70.538212	2023-05-15	fledged	H	4				2023-06-14	2023-06-17	4	Y	2023-05-15	2023-07-12	2023-07-12	3
Crescent Surf	04A	43.335347	-70.540605	2023-05-16	fledged	H	4				2023-06-17	2023-06-17	4	Y	2023-05-16	2023-07-12	2023-07-12	2
Crescent Surf	05A	43.336181	-70.53748	2023-05-19	lost	W	0	2023-06-06 00:00:00	flooded		2023-06-23	0000-00-00	0	Y	2023-05-23	0000-00-00	0000-00-00	0
Crescent Surf	06A	43.338103	-70.534482	2023-06-05	lost	A	0	2023-06-16 00:00:00	abandoned		2023-07-03	0000-00-00	0	Y	2023-06-06	0000-00-00	0000-00-00	0
Crescent Surf	07A	43.335986	-70.537969	2023-06-05	fledged	H	3				2023-06-30	2023-07-03	3	Y	2023-06-06	2023-07-28	2023-07-27	1
Crescent Surf	05B	43.336402	-70.537128	2023-06-19	lost	W	0	2023-07-03 00:00:00	flooded		2023-07-15	0000-00-00	0			0000-00-00	0000-00-00	0
Crescent Surf	08A	43.335393	-70.539878	2023-06-27	lost	W	0	2023-07-03 00:00:00	flooded		0000-00-00	0000-00-00	0			0000-00-00	0000-00-00	0
DRAK	01A	43.319966	-70.555189	2023-05-30	fledged	H	3				2023-07-01	2023-06-29	3			2023-07-24	2023-07-24	3
FERR-Saco	01A	43.48965	-70.38576	2023-05-10	brood lost	H	3				2023-06-06	2023-06-04	3			0000-00-00	0000-00-00	0
FERR-Saco	02A	43.48846	-70.38576	2023-05-29	lost	W	0	2023-06-05 10:08:00	flooded		2023-06-29	0000-00-00	0			0000-00-00	0000-00-00	0
FERR-Saco	03A	43.481	-70.3846	2023-06-12	lost	PU	0	2023-06-20 10:44:00	predated	other	2023-07-11	0000-00-00	0			0000-00-00	0000-00-00	0
FERR-Saco	01B	43.48988	-70.38574	2023-06-12	lost	PM	0	2023-07-10 09:21:00	predated	fox	2023-07-16	0000-00-00	0			0000-00-00	0000-00-00	0
FERR-Saco	03B	43.47285	-70.3842	2023-06-27	lost	PU	0	2023-07-10 09:09:00	predated	unknown	2023-07-27	0000-00-00	0			0000-00-00	0000-00-00	0
FORT	01A	43.43539	-70.36917	2023-04-25	lost	W	0	2023-05-01 10:46:00	flooded		0000-00-00	0000-00-00	0	Y	2023-04-25	0000-00-00	0000-00-00	0
FORT	01B	43.43549	-70.369142	2023-05-08	fledged	H	3				2023-06-07	2023-06-09	3			2023-07-04	2023-07-04	2
FORT	02A	43.43449	-70.37039	2023-05-08	fledged	H	4				2023-06-09	2023-06-09	4			2023-07-04	2023-07-04	3
FORT	03A	43.4323	-70.37287	2023-05-08	fledged	H	3				2023-06-01	2023-06-01	3	Y	2023-05-08	2023-06-26	2023-06-26	2
FORT	04A	43.43747	-70.36627	2023-05-11	fledged	H	4				2023-06-14	2023-06-13	4	Y	2023-05-11	2023-07-08	2023-07-07	4
FORT	05A	43.43527	-70.36933	2023-05-15	fledged	H	4				2023-06-18	2023-06-15	4			2023-07-10	2023-07-10	1
FORT	06A	43.43354	-70.37139	2023-05-26	lost	W	0	2023-06-06 11:25:00	flooded		0000-00-00	0000-00-00	0			0000-00-00	0000-00-00	0
FORT	07A	43.44245	-70.35004	2023-06-16	lost	PM	0	2023-06-26 09:37:00	predated	fox	2023-07-17	0000-00-00	0			0000-00-00	0000-00-00	0
FORT	06B	43.43353	-70.3715	2023-06-16	lost	PM	0	2023-06-19 00:00:00	predated	fox	2023-07-11	0000-00-00	0			0000-00-00	0000-00-00	0
FORT	07B	43.44256	-70.34838	2023-06-26	lost	U	0	2023-06-29 15:01:00	unknown		0000-00-00	0000-00-00	0			0000-00-00	0000-00-00	0
FORT	08A	43.44255	-70.34806	2023-06-29	lost	PU		2023-07-05 09:35:00	predated	unknown	0000-00-00	0000-00-00	0			0000-00-00	0000-00-00	0
GOOS	01A	43.39811	-70.41158	2023-04-28	fledged	H	4				2023-06-02	2023-06-01	4	Y	2023-04-28	2023-06-26	2023-06-26	1
GOOS	02A	43.39027	-70.42657	2023-04-29	lost	A	0	2023-05-30 13:42:00	abandoned		2023-06-03	0000-00-00	0	Y	2023-05-03	0000-00-00	0000-00-00	0
GOOS	03A	43.3897	-70.42736	2023-05-08	lost	A	0	2023-05-24 10:38:00	abandoned		2023-06-07	0000-00-00	0	Y	2023-05-08	0000-00-00	0000-00-00	0
GOOS	04A	43.39004	-70.4273	2023-05-08	lost	A	0	2023-05-26 10:01:00	abandoned		2023-06-12	0000-00-00	0	Y	2023-05-08	0000-00-00	0000-00-00	0
GOOS	05A	43.40124	-70.40636	2023-05-08	lost	PU	0	2023-06-08 00:00:00	predated	unknown	2023-06-11	0000-00-00	0			0000-00-00	0000-00-00	0
GOOS	06A	43.389321	-70.428238	2023-05-08	fledged	H	2				2023-06-11	2023-06-11	2			2023-07-06	2023-07-07	2
GOOS	07A	43.38878	-70.42827	2023-05-15	lost	PM	0	2023-06-13 10:21:00	predated	fox	2023-06-15	0000-00-00	0	Y	2023-05-15	0000-00-00	0000-00-00	0
GOOS	08A	43.39093	-70.42543	2023-05-15	fledged	H	4				2023-06-18	2023-06-16	4			2023-07-11	2023-07-11	4
GOOS	09A	43.40044	-70.40867	2023-05-30	fledged	H	3				2023-06-30	2023-06-29	3			2023-07-24	2023-07-24	3
GOOS	10A	43.3916	-70.42495	2023-05-30	lost	A	0	2023-06-08 00:00:00	abandoned		0000-00-00	0000-00-00	0			0000-00-00	0000-00-00	0
GOOS	04B	43.39003	-70.42687	2023-05-30	lost	U	0	2023-06-22 11:23:00	unknown		2023-07-01	0000-00-00	0			0000-00-00	0000-00-00	0
GOOS	11A	43.389	-70.42817	2023-06-01	lost	PU	0	2023-06-01 08:48:00	predated	unknown	0000-00-00	0000-00-00	0			0000-00-00	0000-00-00	0
GOOS	12A	43.38933	-70.42752	2023-06-01	lost	W	0	2023-06-06 12:55:00	flooded		0000-00-00	0000-00-00	0			0000-00-00	0000-00-00	0
GOOS	13A	43.3905	-70.42679	2023-06-01	brood lost	H	4				2023-06-22	2023-06-23	4			2023-07-24	0000-00-00	0
GOOS	10B	43.39182	-70.42467	2023-06-08	lost	PM	0	2023-07-01 11:00:00	predated	fox	2023-07-08	0000-00-00	0			0000-00-00	0000-00-00	0
GOOS	03B	43.38944	-70.42741	2023-06-13	fledged	H	3				2023-07-14	2023-07-10	3			2023-08-04	2023-08-05	2
GOOS	14A	43.389744	-70.427088	2023-06-13	lost	PU	0	2023-06-29 12:16:00	predated	unknown	2023-07-10	0000-00-00	0			0000-00-00	0000-00-00	0
GOOS	05B	43.40185	-70.39949	2023-06-19	fledged	H	3				2023-07-18	2023-07-17	3			2023-08-12	2023-08-12	2
GOOS	15A	43.38808	-70.4288	2023-06-19	fledged	H	3				2023-07-20	2023-07-20	3			2023-08-14	2023-08-14	2
GOOS	16A	43.38843	-70.42851	2023-06-19	lost	PU	0	2023-06-26 11:23:00	predated	unknown	0000-00-00	0000-00-00	0			0000-00-00	0000-00-00	0
GOOS	07B	43.38827	-70.42793	2023-06-19	fledged	H	4				2023-07-18	2023-07-16	4			2023-08-12	2023-08-12	1
Goosefare Brook	01A	43.495748	-70.385126	2023-05-12	fledged	H	4				2023-06-12	2023-06-13	4	Y	2023-05-12	2023-07-08	2023-07-08	2
HALF	01A	43.77338	-69.73467	2023-05-10	brood lost	H	4				2023-06-07	2023-06-05	4			2023-06-30	0000-00-00	0
HALF	02A	43.77213	-69.73845	2023-05-10	fledged	H	3				2023-06-05	2023-06-05	3	Y	2023-05-15	2023-06-30	2023-06-30	2
HIGG	01A	43.56242	-70.27267	2023-04-21	fledged	H	3				2023-05-25	2023-05-22	3	Y	2023-04-25	2023-06-16	2023-06-16	3
HIGG	02A	43.56225	-70.27293	2023-04-25	brood lost	H	4				2023-06-02	2023-05-29	4	Y	2023-04-25	2023-06-23	0000-00-00	0
HIGG	03A	43.56323	-70.27159	2023-05-01	brood lost	H	3				2023-06-02	2023-06-01	3	Y	2023-05-05	2023-06-26	0000-00-00	0
HIGG	04A	43.56203	-70.27339	2023-05-01	fledged	H	4				2023-06-02	2023-06-01	4	Y	2023-05-02	2023-06-26	2023-06-26	4
HIGG	05A	43.562823	-70.272121	2023-05-08	brood lost	H	4				2023-06-08	2023-06-07	4	Y	2023-05-10	2023-07-02	0000-00-00	0
HIGG	06A	43.56272	-70.27179	2023-05-10	lost	W	0	2023-06-06 09:28:00	flooded		2023-06-12	0000-00-00	0			0000-00-00	0000-00-00	0
HIGG	07A	43.56229	-70.27272	2023-05-17	brood lost	H	3				2023-06-15	2023-06-14	3			2023-07-09	0000-00-00	0
HIGG	06B	43.56279	-70.2723	2023-06-14	lost	PM	0	2023-06-30 09:06:00	predated	fox	2023-07-15	0000-00-00	0			0000-00-00	0000-00-00	0
HIGG	08A	43.5634	-70.27182	2023-06-14	lost	PM		2023-06-26 11:08:00	predated	fox	2023-07-12	0000-00-00	0			0000-00-00	0000-00-00	0
HIGG	05B	43.56249	-70.27248	2023-06-19	lost	PA	0	2023-06-30 09:04:00	predated	crow	2023-07-21	0000-00-00	0			0000-00-00	0000-00-00	0
HILL	01A	43.458665	-70.374689	2023-05-08	brood lost	H	4				2023-06-07	2023-06-06	4			2023-07-02	0000-00-00	0
HILL	02A	43.451495	-70.363845	2023-05-12	fledged	H	4				2023-06-14	2023-06-13	4			2023-07-08	2023-07-07	4

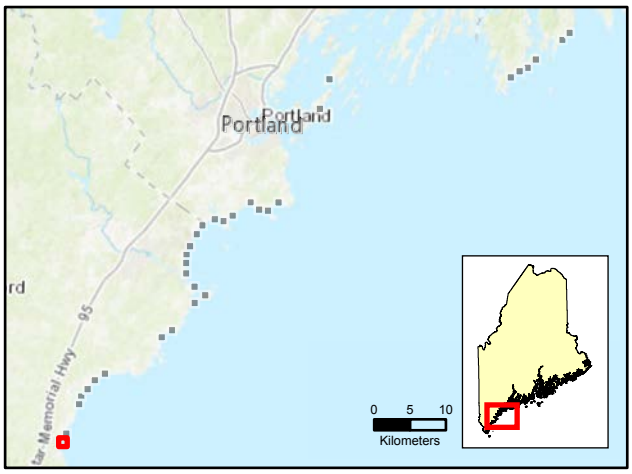
HILL	03A	43.45029	-70.36171	2023-05-24	fledged	H	4				2023-06-24	2023-06-22	4			2023-07-17	2023-07-17	3	
HILL	01B	43.45925	-70.37467	2023-06-16	fledged	H	4				2023-07-16	2023-07-12	4			2023-08-06	2023-08-05	3	
HUNN	01A	43.74431	-69.77968	2023-06-08	fledged	H	4				2023-06-21	2023-06-25	4			2023-07-20	2023-07-20	4	
INDI	01A	43.77454	-69.73902	2023-06-05	fledged	H	2				2023-06-29	2023-06-30	2			2023-07-25	2023-07-25	1	
INPT-CHEAB	01A	43.720385	-70.140611	2023-06-09	fledged	H	4				2023-06-30	2023-06-25	4			2023-07-20	2023-07-22	4	
Laudholm	01A	43.335055	-70.54225	2023-05-03	lost	A	0	2023-05-08 09:23:00	abandoned		0000-00-00	0000-00-00	0	Y	2023-05-03	0000-00-00	0000-00-00	0	
Laudholm	02A	43.334705	-70.542094	2023-05-11	fledged	H	4				2023-06-13	2023-06-13	4	Y	2023-05-11	2023-07-08	2023-07-08	4	
Laudholm	03A	43.334137	-70.541536	2023-05-15	lost	W	0	2023-06-06 00:00:00	flooded		2023-06-14	0000-00-00	0	Y	2023-05-15	0000-00-00	0000-00-00	0	
Laudholm	01B	43.334849	-70.542147	2023-05-22	fledged	H	3				2023-06-23	2023-06-22	3	Y	2023-05-24	2023-07-17	2023-07-17	1	
Laudholm	03B	43.334	-70.541632	2023-06-12	brood lost	H	4				2023-07-13	2023-07-11	4	Y	2023-06-12	2023-08-05	0000-00-00	0	
LONG	01A	43.68125	-70.156727	2023-06-09	brood lost	H	4				2023-07-10	2023-07-09	4	Y	2023-06-21	0000-00-00	0000-00-00	0	
Marshall Point	01A	43.386559	-70.428626	2023-05-25	lost	W	0	2023-06-07 00:00:00	flooded		0000-00-00	0000-00-00	0	Y	2023-05-25	0000-00-00	0000-00-00	0	
MILE	01A	43.780094	-69.726247	2023-05-16	fledged	H	4				2023-06-15	2023-06-17	4	Y	2023-05-25	2023-07-16	2023-07-16	1	
MILE	02A	43.77883	-69.72796	2023-05-31	lost	PM	0	2023-06-30 10:56:00	predated	fox	2023-06-29	0000-00-00	0			0000-00-00	0000-00-00	0	
MOOD	01A	43.26977	-70.58558	2023-05-09	fledged	H	3				2023-06-11	2023-06-10	4	Y	2023-05-16	2023-07-05	2023-07-05	2	
MOOD	02A	43.269038	-70.585934	2023-05-11	brood lost	H	3				2023-06-14	2023-06-15	3	Y	2023-05-16	2023-07-10	0000-00-00	0	
MOOD	03A	43.271389	-70.584593	2023-05-22	lost	W		2023-06-06 13:38:00	flooded		2023-06-24	0000-00-00	0			0000-00-00	0000-00-00	0	
MOOD	04A	43.270956	-70.584795	2023-05-22	lost	W		2023-06-19 00:00:00	flooded		2023-06-24	0000-00-00	0			0000-00-00	0000-00-00	0	
MOOD	03B	43.271355	-70.584569	2023-06-19	lost	A	0	2023-07-28 12:08:00	abandoned		2023-07-21	0000-00-00	0			0000-00-00	0000-00-00	0	
NANO	01A	43.55402	-70.26202	2023-05-16	lost	PM	0	2023-05-22 16:06:00	predated	fox	2023-06-13	0000-00-00	0	Y	2023-05-16	0000-00-00	0000-00-00	0	
OCPA	01A	43.50153	-70.38211	2023-06-07	lost	PM	0	2023-06-20 10:20:00	predated	fox	2023-07-06	0000-00-00	0			0000-00-00	0000-00-00	0	
OCPA	02A	43.49794	-70.38384	2023-06-12	lost	PM	0	2023-07-10 09:22:00	predated	fox	2023-07-13	0000-00-00	0			0000-00-00	0000-00-00	0	
OGUN	01A	43.261776	-70.589375	2023-04-22	lost	W		2023-05-01 00:00:00	flooded		0000-00-00	0000-00-00	0	Y	2023-05-24	0000-00-00	0000-00-00	0	
OGUN	02A	43.265779	-70.587819	2023-04-24	lost	P/A	0	2023-05-05 00:00:00	predated		2023-05-25	0000-00-00	0	Y	2023-04-26	0000-00-00	0000-00-00	0	
OGUN	03A	43.25629	-70.59169	2023-04-26	brood lost	H	0				2023-05-25	2023-05-23	4			0000-00-00	0000-00-00	0	
OGUN	04A	43.265152	-70.588143	2023-05-02	fledged	H	4				2023-06-03	2023-06-02	4			2023-06-27	2023-06-27	3	
OGUN	05A	43.264963	-70.588223	2023-05-02	lost	PM	0	2023-05-26 11:10:00	predated	fox	2023-05-29	0000-00-00	0			0000-00-00	0000-00-00	0	
OGUN	06A	43.257193	-70.591364	2023-05-02	fledged	H	4				2023-05-30	2023-05-31	4			2023-06-25	2023-06-25	3	
OGUN	07A	43.263244	-70.58906	2023-05-09	lost	PM	0	2023-05-26 11:21:00	predated	fox	2023-06-11	0000-00-00	0			0000-00-00	0000-00-00	0	
OGUN	08A	43.261258	-70.589782	2023-05-09	fledged	H	4				2023-06-07	2023-06-08	4			2023-07-03	2023-07-03	3	
OGUN	09A	43.259626	-70.590444	2023-05-09	fledged	H	4				2023-06-11	2023-06-16	4			2023-07-11	2023-07-11	2	
OGUN	10A	43.257377	-70.591303	2023-05-09	brood lost	H	1				2023-06-02	2023-06-03	4			2023-06-28	0000-00-00	0	
OGUN	12A	43.25444	-70.59227	2023-05-11	lost	PM	0	2023-05-26 12:57:00	predated	fox	2023-06-07	0000-00-00	0			0000-00-00	0000-00-00	0	
OGUN	01B	43.261644	-70.589588	2023-05-16	fledged	H	4				2023-06-14	2023-06-12	4			2023-07-07	2023-07-07	2	
OGUN	02B	43.265785	-70.587893	2023-05-19	brood lost	H	4				2023-06-22	2023-06-21	4			0000-00-00	0000-00-00	0	
OGUN	13A	43.264173	-70.588591	2023-05-19	lost	PU	0	2023-06-19 13:15:00	predated	unknown	2023-06-17	0000-00-00	0			0000-00-00	0000-00-00	0	
OGUN	14A	43.259835	-70.590384	2023-05-19	fledged	H	4				2023-06-21	2023-06-21	4			2023-07-16	2023-07-16	3	
OGUN	15A	43.260588	-70.590098	2023-05-19	brood lost	H	4				2023-06-12	2023-06-19	4			0000-00-00	0000-00-00	0	
OGUN	16A	43.258994	-70.590592	2023-05-26	lost	PA	0	2023-06-21 13:22:00	predated	crow	2023-06-28	0000-00-00	0			0000-00-00	0000-00-00	0	
OGUN	17A	43.255262	-70.591971	2023-05-30	fledged	H	4				2023-07-03	2023-07-03	4			2023-07-28	2023-07-28	2	
OGUN	07B	43.263674	-70.588775	2023-06-02	brood lost	H	2				2023-07-03	2023-07-07	2			2023-08-01	0000-00-00	0	
OGUN	03B	43.25547	-70.591938	2023-06-02	brood lost	H	0				2023-07-03	2023-07-02	4			2023-07-27	0000-00-00	0	
OGUN	05B	43.264666	-70.588333	2023-06-12	lost	U	0	2023-06-29 00:00:00	unknown		2023-07-13	0000-00-00	0			0000-00-00	0000-00-00	0	
OGUN	10B	43.257538	-70.591187	2023-06-15	fledged	H	3				2023-07-14	2023-07-13	3			2023-08-07	2023-08-07	3	
OGUN	18A	43.267255	-70.587134	2023-05-19	fledged	H	3				0000-00-00	2023-06-16	4			2023-07-14	2023-07-11	3	
OOB	01A	43.51125	-70.376345	2023-04-28	brood lost	H	4				2023-06-04	2023-06-01	4	Y	2023-04-28	2023-06-26	0000-00-00	0	
OOB	02A	43.523765	-70.366101	2023-05-09	fledged	H	4				2023-06-04	2023-06-04	4			2023-06-29	2023-07-03	4	
OOB	03A	43.53481	-70.35407	2023-05-10	lost	PU	0	2023-05-29 12:15:00	predated	other	2023-06-10	0000-00-00	0			0000-00-00	0000-00-00	0	
OOB	04A	43.52628	-70.36402	2023-05-10	fledged	H	4				2023-06-13	2023-06-11	4			2023-07-06	2023-07-06	2	
OOB	05A	43.51172	-70.37576	2023-05-15	lost	U	0	2023-06-05 10:59:00	unknown		2023-06-16	0000-00-00	0			0000-00-00	0000-00-00	0	
OOB	06A	43.52299	-70.36659	2023-05-18	lost	W	0	2023-05-22 00:00:00	flooded		0000-00-00	0000-00-00	0			0000-00-00	0000-00-00	0	
OOB	07A	43.53072	-70.35975	2023-05-19	lost	PA		2023-05-22 14:31:00	predated	crow	0000-00-00	0000-00-00	0			0000-00-00	0000-00-00	0	
OOB	06B	43.5294	-70.36109	2023-05-22	brood lost	H	2				2023-06-22	2023-06-20	2	Y	1969-12-31	2023-07-15	0000-00-00	0	
OOB	08A	43.5294	-70.36109	2023-05-22	lost	W	0	2023-06-07 14:13:00	flooded		2023-06-24	0000-00-00	0	Y	2023-05-24	0000-00-00	0000-00-00	0	
OOB	07B	43.531106	-70.359186	2023-05-23	fledged	H	4				2023-06-26	2023-06-23	4	Y	2023-05-23	2023-07-18	2023-07-18	2	
OOB	09A	43.51712	-70.37143	2023-05-26	brood lost	H	4				2023-06-29	2023-06-26	4	Y	2023-05-31	2023-07-21	0000-00-00	0	
OOB	10A	43.52761	-70.36286	2023-05-26	brood lost	H	4				2023-06-27	2023-06-25	4	Y	2023-05-29	2023-07-20	0000-00-00	0	
OOB	11A	43.5245	-70.3654	2023-05-29	brood lost	H	4				2023-06-29	2023-06-27	4			2023-07-22	0000-00-00	0	
OOB	12A	43.5293	-70.36141	2023-05-27	lost	PU		2023-06-15 12:23:00	predated	unknown	2023-06-30	0000-00-00	0			0000-00-00	0000-00-00	0	
OOB	13A	43.52506	-70.36477	2023-06-02	brood lost	H	3				2023-07-03	2023-07-02	3			2023-07-27	0000-00-00	0	
OOB	03B	43.53285	-70.35688	2023-06-03	lost	PU	0	2023-06-05 00:00:00	predated	unknown	0000-00-00	0000-00-00	0			0000-00-00	0000-00-00	0	
OOB	03C	43.535136	-70.353605	2023-06-09	incubating	PA	0	2023-06-12 14:17:00	predated	crow	0000-00-00	0000-00-00	0			0000-00-00	0000-00-00	0	
OOB	03D	43.53518	-70.35353	2023-07-03	lost	A	0	2023-07-03 11:49:00	abandoned		0000-00-00	0000-00-00	0			0000-00-00	0000-00-00	0	**#REF!**
Parsons	01A	43.343118	-70.522443	2023-05-10	fledged	H	4				2023-06-11	2023-06-10	4	Y	2023-05-10	2023-07-05	2023-07-05	3	
Parsons	02A	43.34498	-70.516457	2023-05-18	fledged	H	4				2023-06-19	2023-06-19	4			2023-07-14	2023-07-14	4	
Parsons	03A	43.342214	-70.52474	2023-05-22	fledged	H	4				2023-06-23	2023-06-22	4			2023-07-17	2023-07-17	4	
Parsons	04A	43.341474	-70.526165	2023-05-22	lost	W	0	2023-06-05 00:00:00	flooded		2023-06-24	0000-00-00	0			0000-00-00	0000-00-00	0	
Parsons	04B	43.341436	-70.526337	2023-06-13	fledged	H	1				2023-07-14	2023-07-14	2			2023-08-08	2023-08-08	1	

PINE	01A	43.54072	-70.33512	2023-05-04	lost	A	0	2023-05-31 00:00:00	abandoned		2023-06-09	0000-00-00	0	Y	2023-05-04	0000-00-00	0000-00-00	0	
PINE	01B	43.54108	-70.33057	2023-06-05	fledged	H	4				2023-07-07	2023-07-04	4			2023-07-29	2023-07-29	4	
PINE	02A	43.54109	-70.32975	2023-06-05	fledged	H	4				2023-07-03	2023-07-02	4			2023-07-27	2023-07-27	3	
POPH	01A	43.73418	-69.81081	2023-05-04	fledged	H	3				2023-05-30	2023-05-29	3	Y	2023-05-08	2023-06-23	2023-06-23	2	
POPH	02A	43.73446	-69.81032	2023-05-08	lost	P/A	0	2023-05-18 12:16:00	predated	other raptor	2023-06-08	0000-00-00	0	Y	2023-05-12	0000-00-00	0000-00-00	0	
POPH	03A	43.73519	-69.8062	2023-05-12	brood lost	H	4				2023-06-11	2023-06-11	4	Y	2023-05-12	2023-07-07	0000-00-00	0	
POPH	04A	43.73455	-69.80943	2023-05-12	lost	PU	0	2023-06-05 13:14:00	predated	unknown	2023-06-13	0000-00-00	0	Y	2023-05-12	0000-00-00	0000-00-00	0	
POPH	05A	43.73479	-69.80681	2023-05-12	lost	PU	0	2023-05-29 12:36:00	predated	unknown	2023-06-13	0000-00-00	0			0000-00-00	0000-00-00	0	
POPH	06A	43.73485	-69.80865	2023-05-16	lost	PA	0	2023-06-08 11:06:00	predated	crow	2023-06-15	0000-00-00	0			0000-00-00	0000-00-00	0	
POPH	07A	43.73455	-69.81028	2023-05-16	lost	PA	0	2023-05-25 09:47:00	predated	crow	2023-06-19	0000-00-00	0			0000-00-00	0000-00-00	0	
POPH	07B	43.73426	-69.80979	2023-06-05	fledged	H	4				2023-07-04	2023-07-11	4	Y	2023-06-08	2023-08-05	2023-08-05	2	
POPH	08A	43.73546	-69.80209	2023-06-08	lost	PA	0	2023-06-08 10:21:00	predated	crow	0000-00-00	0000-00-00	0			0000-00-00	0000-00-00	0	
POPH	06B	43.73482	-69.80868	2023-06-08	lost	PA	0	2023-06-08 11:12:00	predated	crow	0000-00-00	0000-00-00	0			0000-00-00	0000-00-00	0	
POPH	09A	43.73896	-69.79392	2023-06-08	brood lost	H	3				2023-06-21	2023-07-03	4	Y	2023-06-08	2023-07-28	0000-00-00	0	
POPH	05B	43.73465	-69.80721	2023-06-08	brood lost	H	3				2023-07-10	2023-07-12	4	Y	2023-06-08	2023-08-06	0000-00-00	0	
POPH	08B	43.73539	-69.80113	2023-06-20	brood lost	H	3				2023-07-18	2023-07-13	3	Y	2023-06-20	2023-08-07	0000-00-00	0	
POPH	10A	43.73526	-69.80778	2023-06-20	lost	PU	0	2023-07-05 00:00:00	predated	unknown	2023-07-18	0000-00-00	0			0000-00-00	0000-00-00	0	
SCAR	01A	43.54745	-70.30423	2023-05-02	lost	W	0	2023-05-09 00:00:00	flooded		0000-00-00	0000-00-00	0			0000-00-00	0000-00-00	0	
SCAR	02A	43.54602	-70.30629	2023-05-09	fledged	H	4				2023-06-09	2023-06-06	4			2023-07-01	2023-07-01	3	
SCAR	03A	43.54923	-70.30182	2023-05-08	lost	PA	0	2023-05-09 00:00:00	predated	crow	0000-00-00	0000-00-00	0			0000-00-00	0000-00-00	0	
SCAR	01B	43.54766	-70.30397	2023-05-15	fledged	H	4				2023-06-16	2023-06-13	4	Y	2023-05-15	2023-07-08	2023-07-08	3	
SCAR	04A	43.54116	-70.3106	2023-05-15	lost	W	0	2023-06-14 12:43:00	flooded		2023-06-16	0000-00-00	0			0000-00-00	0000-00-00	0	
SCAR	03B	43.54907	-70.302	2023-05-31	lost	W	0	2023-06-07 10:57:00	flooded		2023-06-29	0000-00-00	0	Y	2023-06-01	0000-00-00	0000-00-00	0	
SCAR	05A	43.54701	-70.30479	2023-06-14	fledged	H	4				2023-07-17	2023-07-17	4			2023-08-11	2023-08-11	1	
SCAR	04B	43.54142	-70.31053	2023-06-23	fledged	H	1				2023-07-23	2023-07-23	2			2023-08-17	2023-08-17	1	
SEAW	01A	43.722478	-69.832022	2023-05-12	fledged	H	4				2023-06-11	2023-06-15	4			2023-07-10	2023-07-10	1	
SEAW	02A	43.732	-69.80722	2023-05-12	lost	A	0	2023-05-16 14:34:00	abandoned		0000-00-00	0000-00-00	0	Y	2023-05-12	0000-00-00	0000-00-00	0	
SEAW	03A	43.73056	-69.80908	2023-05-12	lost	U	0	2023-05-16 14:32:00	unknown		0000-00-00	0000-00-00	0			0000-00-00	0000-00-00	0	
SEAW	04A	43.72632	-69.82339	2023-05-16	brood lost	H	4				2023-06-19	2023-06-21	4			2023-07-16	0000-00-00	0	
SEAW	05A	43.72422	-69.82809	2023-05-16	lost	PA	0	2023-06-13 11:28:00	predated	crow	2023-06-17	0000-00-00	0			0000-00-00	0000-00-00	0	
SEAW	06A	43.73225	-69.80852	2023-05-16	lost	PU	0	2023-05-25 00:00:00	predated	unknown	2023-06-17	0000-00-00	0			0000-00-00	0000-00-00	0	
SEAW	07A	43.73207	-69.80805	2023-05-16	lost	PU	0	2023-05-25 11:54:00	predated	unknown	2023-06-17	0000-00-00	0			0000-00-00	0000-00-00	0	
SEAW	08A	43.73114	-69.80844	2023-05-18	lost	PM	0	2023-06-20 13:17:00	predated	skunk	2023-06-24	0000-00-00	0			0000-00-00	0000-00-00	0	
SEAW	09A	43.73133	-69.80805	2023-05-18	fledged	H	4				2023-06-24	2023-06-22	4			2023-07-17	2023-07-17	3	
SEAW	10A	43.73176	-69.80883	2023-05-18	lost	PU	0	2023-05-25 00:00:00	predated	unknown	2023-06-17	0000-00-00	0			0000-00-00	0000-00-00	0	
SEAW	12A	43.73192	-69.80845	2023-05-18	fledged	H	3				2023-06-22	2023-07-04	3			2023-07-29	2023-07-29	1	
SEAW	03B	43.73027	-69.8098	2023-05-23	fledged	H	4				2023-06-24	2023-06-22	4			2023-07-17	2023-07-17	4	
SEAW	13A	43.73253	-69.80708	2023-05-23	lost	U		2023-06-20 14:23:00	unknown		2023-06-18	0000-00-00	0			0000-00-00	0000-00-00	0	
SEAW	02B	43.732184	-69.806826	2023-05-29	lost	U	0	2023-06-05 11:39:00	unknown		0000-00-00	0000-00-00	0			0000-00-00	0000-00-00	0	
SEAW	10B	43.731934	-69.809008	2023-06-05	lost	PU	0	2023-06-27 00:00:00	predated	unknown	2023-07-04	0000-00-00	0			0000-00-00	0000-00-00	0	
SEAW	14A	43.732752	-69.807437	2023-06-05	lost	U	0	2023-06-27 10:29:00	unknown		2023-07-04	0000-00-00	0			0000-00-00	0000-00-00	0	
SEAW	15A	43.7305	-69.80895	2023-06-08	brood lost	H	4				2023-06-27	2023-06-23	4			2023-07-18	0000-00-00	0	
SEAW	16A	43.72727	-69.82102	2023-06-08	lost	U	0	2023-06-30 12:34:00	unknown		2023-06-27	0000-00-00	0			0000-00-00	0000-00-00	0	
SEAW	02C	43.73202	-69.80692	2023-06-15	lost	PU	0	2023-06-27 10:19:00	predated	unknown	2023-07-12	0000-00-00	0			0000-00-00	0000-00-00	0	
SEAW	17A	43.731726	-69.807249	2023-06-20	lost	U		2023-06-27 10:13:00	unknown		2023-07-18	0000-00-00	0			0000-00-00	0000-00-00	0	
SEAW	18A	43.732404	-69.80696	2023-06-20	lost	U	0	2023-06-27 10:44:00	unknown		2023-07-18	0000-00-00	0			0000-00-00	0000-00-00	0	
SEAW	05B	43.72323	-69.82997	2023-06-23	lost	PA	0	2023-06-27 12:17:00	predated	crow	0000-00-00	0000-00-00	0			0000-00-00	0000-00-00	0	
SEAW	16B	43.7283	-69.81841	2023-07-05	lost	PA	0	2023-07-19 14:04:00	predated	crow	2023-08-07	0000-00-00	0			0000-00-00	0000-00-00	0	
SEAW	16C	43.728252	-69.818409	2023-07-19	lost	A	0	2023-07-25 12:24:00	abandoned		0000-00-00	0000-00-00	0			0000-00-00	0000-00-00	0	
WELL	01A	43.313884	-70.560989	2023-04-20	lost	W		2023-05-01 00:00:00	flooded		2023-05-24	0000-00-00	0			0000-00-00	0000-00-00	0	
WELL	02A	43.316064	-70.55943	2023-04-20	fledged	H	4				2023-05-24	2023-05-24	4	Y	2023-05-02	2023-06-18	2023-06-19	2	
WELL	03A	43.310676	-70.563175	2023-04-21	fledged	H	4				2023-05-27	2023-05-26	4			2023-06-20	2023-06-28	4	
WELL	04A	43.312803	-70.561708	2023-04-21	fledged	H	3				2023-05-28	2023-05-27	3	Y	2023-04-26	2023-06-24	2023-06-24	3	
WELL	05A	43.314834	-70.560227	2023-04-25	lost	W		2023-05-01 00:00:00	flooded		0000-00-00	0000-00-00	0	Y	2023-04-26	0000-00-00	0000-00-00	0	
WELL	06A	43.316444	-70.559542	2023-05-05	lost	A	0	2023-05-11 08:36:00	abandoned		2023-06-02	0000-00-00	0	Y	2023-05-05	0000-00-00	0000-00-00	0	
WELL	05B	43.314986	-70.560285	2023-05-05	fledged	H	4				2023-06-09	2023-06-08	4			2023-07-03	2023-07-03	4	
WELL	07A	43.314565	-70.560518	2023-05-05	fledged	H	1				2023-06-09	2023-06-01	4	Y	2023-05-16	2023-07-03	2023-07-03	1	
WELL	08A	43.311816	-70.562544	2023-05-05	fledged	H	3				2023-06-10	2023-06-08	3			2023-07-03	2023-07-03	1	
WELL	01B	43.313697	-70.561282	2023-05-08	fledged	H	2				2023-06-11	2023-06-07	2	Y	2023-05-09	2023-07-02	2023-07-02	2	
WELL	10A	43.317152	-70.558136	2023-05-11	lost	PA	0	2023-05-19 08:50:00	predated	crow	2023-06-06	0000-00-00	0			0000-00-00	0000-00-00	0	
WELL	11A	43.309075	-70.564078	2023-05-11	fledged	H	4				2023-06-09	2023-06-08	4			2023-07-03	2023-07-03	3	
WELL	13A	43.30767	-70.564812	2023-05-13	fledged	H	3				2023-06-15	2023-06-12	3			2023-07-07	2023-07-07	3	
WELL	12A	43.306541	-70.565467	2023-05-13	lost	O (UH)	0	2023-06-26 09:27:00	other		2023-06-16	0000-00-00	0			0000-00-00	0000-00-00	0	
WELL	09A	43.315737	-70.55964	2023-05-16	fledged	H	3				2023-06-15	2023-06-14	3			2023-07-09	2023-07-11	1	
WELL	14A	43.309676	-70.563751	2023-05-19	brood lost	H	3				2023-06-16	2023-06-14	4			2023-07-09	0000-00-00	0	
WELL	06B	43.316494	-70.559683	2023-05-23	fledged	H	3				2023-06-25	2023-06-25	4			2023-07-20	2023-07-20	1	
WELL	15A	43.310782	-70.563009	2023-05-25	fledged	H	4				2023-06-26	2023-06-25	4			2023-07-20	2023-07-20	1	
WELL	16A	43.31634	-70.559145	2023-05-26	fledged	H	4				2023-06-26	2023-06-25	4			2023-07-20	2023-07-20	3	

WEST-FE	01A	43.53859	-70.32112	2023-04-27	lost	A	0	2023-06-02 07:33:00	abandoned		2023-06-04	0000-00-00	0	Y	2023-04-27	0000-00-00	0000-00-00	0	
WEST-FE	02A	43.53918	-70.32204	2023-04-27	fledged	H	4				2023-05-31	2023-05-30	4	Y	2023-05-02	2023-06-24	2023-06-24	2	
WEST-FE	03A	43.53894	-70.32158	2023-05-09	lost	PM	0	2023-05-13 00:00:00	predated	fox	0000-00-00	0000-00-00	0			0000-00-00	0000-00-00	0	
WEST-FE	04A	43.53815	-70.32055	2023-05-15	lost	PM	0	2023-05-26 08:58:00	predated	fox	2023-06-14	0000-00-00	0			0000-00-00	0000-00-00	0	
WEST-FE	05A	43.53664	-70.31912	2023-05-17	fledged	H	4				2023-06-16	2023-06-16	4			2023-07-11	2023-07-11	4	
WEST-FE	06A	43.53951	-70.32246	2023-05-17	lost	A	0	2023-06-07 09:33:00	abandoned		2023-06-21	0000-00-00	0	Y	2023-05-19	0000-00-00	0000-00-00	0	
WEST-FE	03B	43.53888	-70.32155	2023-05-21	fledged	H	4				2023-06-24	2023-06-23	4	Y	2023-05-22	2023-07-18	2023-07-18	2	
WEST-FE	04B	43.53761	-70.32	2023-05-31	fledged	H	2				2023-06-30	2023-07-01	2			2023-07-26	2023-07-26	2	
WEST-FE	06B	43.53994	-70.3238	2023-06-14	lost	PM	0	2023-07-11 10:04:00	predated	fox	2023-07-14	0000-00-00	0			0000-00-00	0000-00-00	0	
						***H-hatched, O-other, UH-unhatched, W-washed, B-buried, P/A-predated adult then abandoned, PA-predated avian, PM-predated mammal, PU-predated unknown, U-unknown, A-abandoned**												

2023 Piping Plover Nest Locations

Ogunquit Beach



Map Prepared by Maine Department of Inland Fisheries & Wildlife

January, 02, 2024

Nest Location & Outcome

- Hatched
- Predation
- Washout

- 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

2023 Piping Plover Nest Locations

Ogunquit Beach / Moody Beach

Nest Location & Outcome

- Abandoned
- Hatched
- Predation
- Unknown
- Washout

- 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

N
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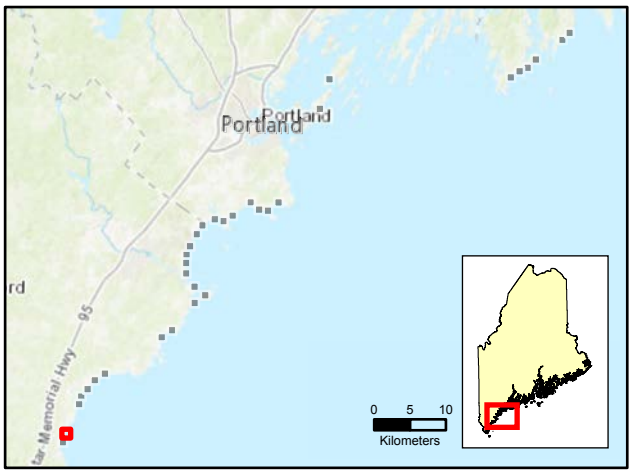
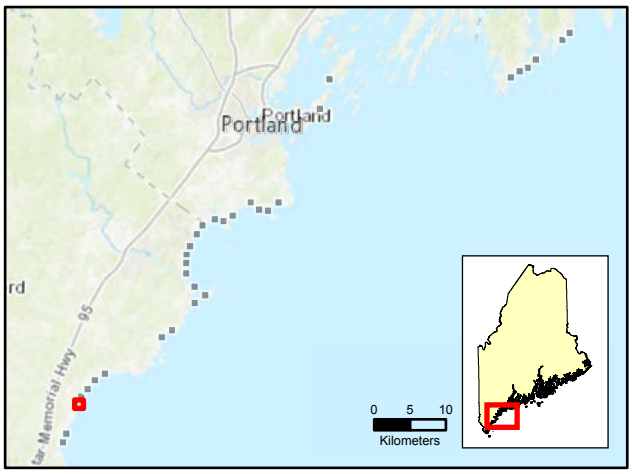


Map Prepared by Maine Department of Inland Fisheries & Wildlife

January, 02, 2024

2023 Piping Plover Nest Locations

Wells Beach - South



Map Prepared by Maine Department of Inland Fisheries & Wildlife

January, 02, 2024

Nest Location & Outcome

Hatched

Unhatched

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

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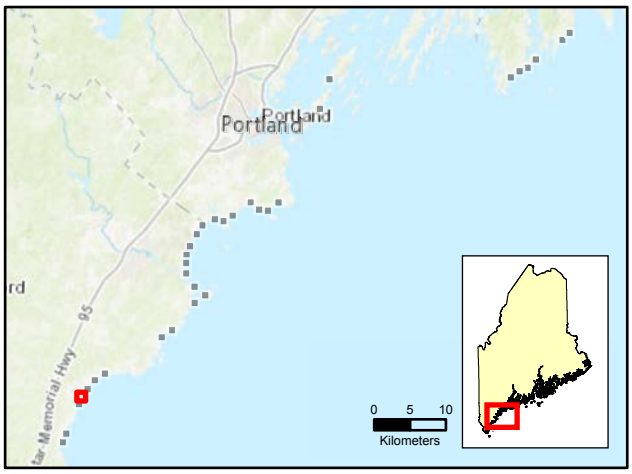
2023 Piping Plover Nest Locations

Wells Beach - North



Map Prepared by Maine Department of Inland Fisheries & Wildlife

January, 02, 2024

Nest Location & Outcome

- Abandoned
- Hatched
- Predation
- Washout

Foraging Area

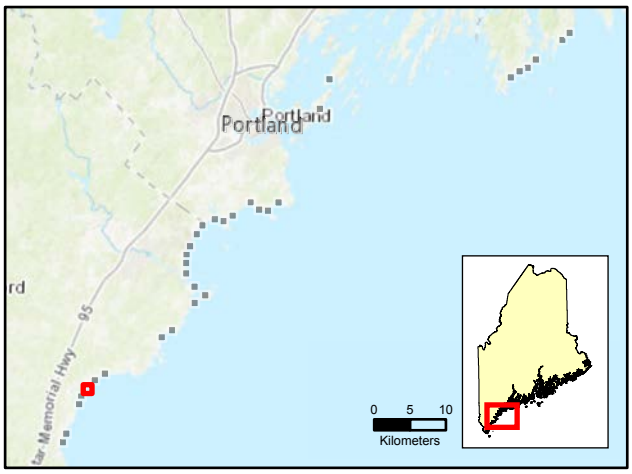
0 55 110 220 330 440 Meters

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

N W E S

2023 Piping Plover Nest Locations

Drakes Island Beach



Map Prepared by Maine Department of Inland Fisheries & Wildlife

January, 02, 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

N
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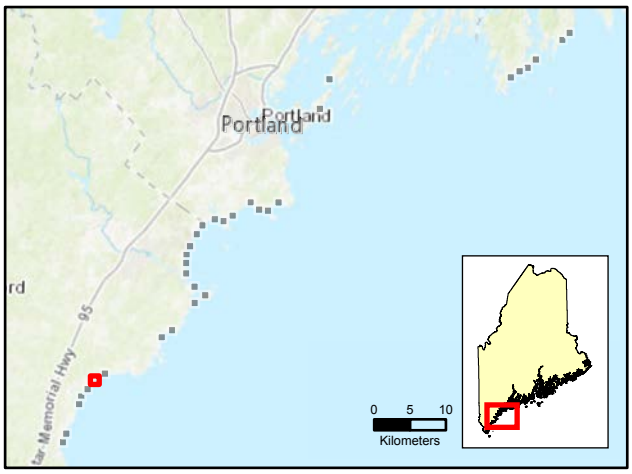
2023 Piping Plover Nest Locations

Laudholm Farm / Crescent Surf



Map Prepared by Maine Department of Inland Fisheries & Wildlife

January, 02, 2024

Nest Location & Outcome

- Abandoned
- Buried
- Hatched
- 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
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2023 Piping Plover Nest Locations

Parsons Beach

Map Prepared by Maine Department of Inland Fisheries & Wildlife

January, 02, 2024

Nest Location & Outcome

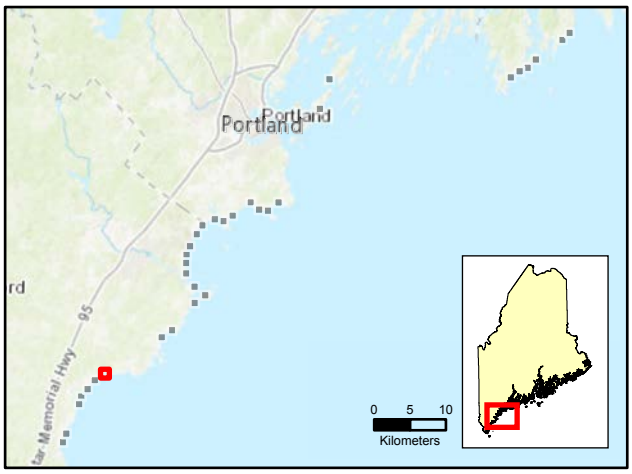
- Hatched
- Washout

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



2023 Piping Plover Nest Locations

Goose Rocks / Marshall Point

Nest Location & Outcome

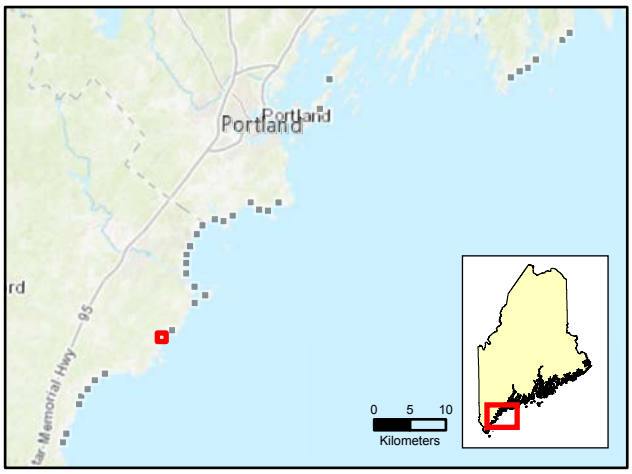
- Abandoned
- Hatched
- Predation
- Unknown
- Washout

- 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

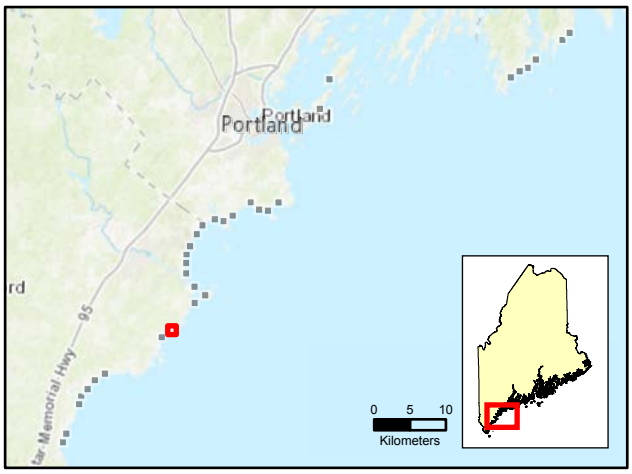


Map Prepared by Maine Department of Inland Fisheries & Wildlife

January, 02, 2024

2023 Piping Plover Nest Locations

Goose Rocks (East)



Map Prepared by Maine Department of Inland Fisheries & Wildlife

January, 02, 2024

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

N
W E
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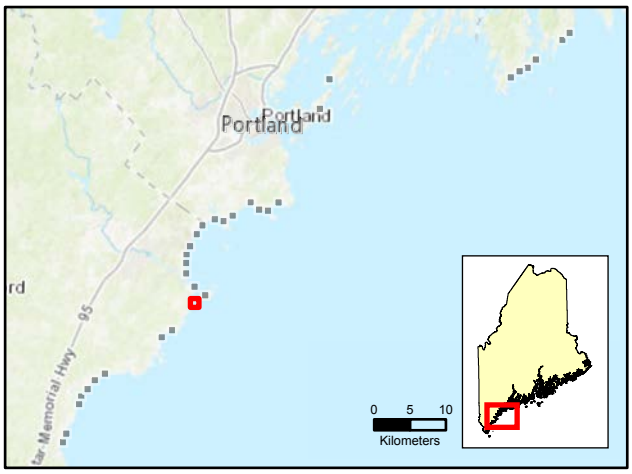
2023 Piping Plover Nest Locations

Fortunes Rocks



Map Prepared by Maine Department of Inland Fisheries & Wildlife

January, 02, 2024

Nest Location & Outcome

- Hatched
- Predation
- Washout

- 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

2023 Piping Plover Nest Locations

Fortunes Rocks - Public Beach

Map Prepared by Maine Department of Inland Fisheries & Wildlife

January, 02, 2024

Nest Location & Outcome

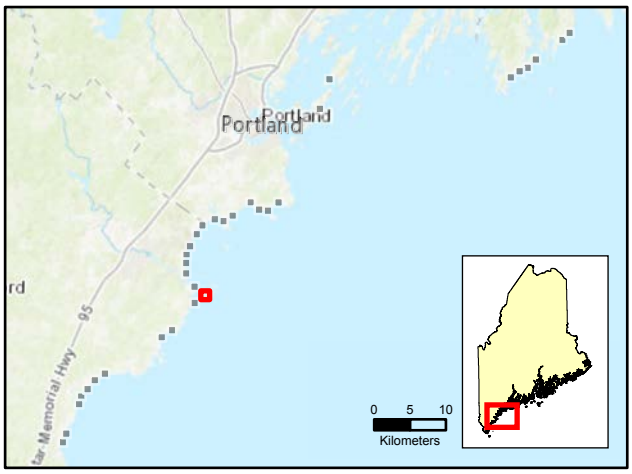
- Hatched
- Predation
- Unknown

- Foraging Area
- Essential Habitat

0 70 140 280 420 560 Meters

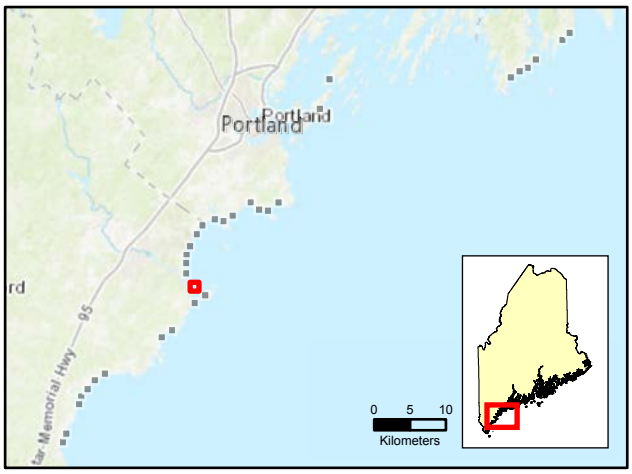
Universal Transverse Mercator (UTM) Projection
North American Datum (NAD) 1983
Data Sources: MEGIS; MDIFW; Maine Audubon

N W E S



2023 Piping Plover Nest Locations

Hills Beach



Map Prepared by Maine Department of Inland Fisheries & Wildlife

January, 02, 2024

Nest Location & Outcome

Hatched

Foraging Area

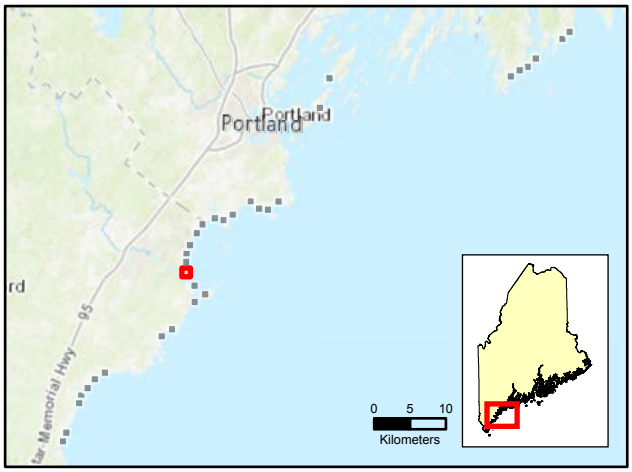
0 40 80 160 240 320 Meters

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

N
W E
S

2023 Piping Plover Nest Locations

Ferry Beach



Map Prepared by Maine Department of Inland Fisheries & Wildlife

January, 02, 2024

Nest Location & Outcome

Predation

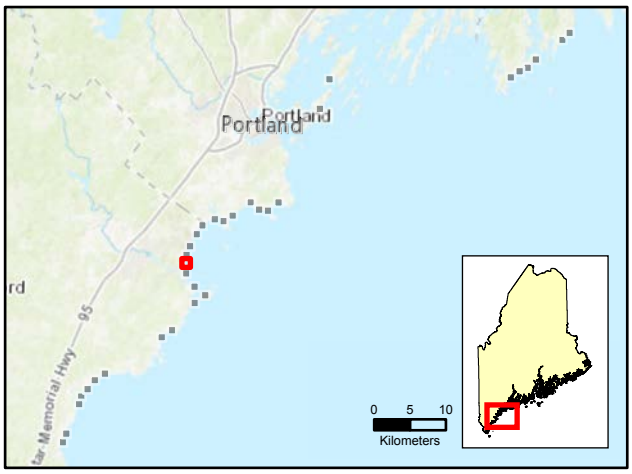
0 70 140 280 420 560 Meters

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

N
W E
S

2023 Piping Plover Nest Locations

Ferry Beach - Saco



Map Prepared by Maine Department of Inland Fisheries & Wildlife

January, 02, 2024

Nest Location & Outcome

- Hatched
- Predation
- Washout

- Foraging Area
- Essential Habitat

Meters

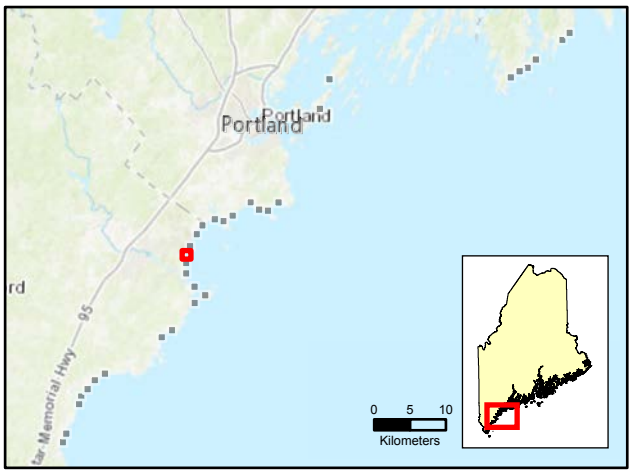
0 70 140 280 420 560

N W E S

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

2023 Piping Plover Nest Locations

Goosefare Brook / Ocean Park



Map Prepared by Maine Department of Inland Fisheries & Wildlife

January, 02, 2024

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

N
W E
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2023 Piping Plover Nest Locations

Old Orchard Beach

Map Prepared by Maine Department of Inland Fisheries & Wildlife

January, 02, 2024

Nest Location & Outcome

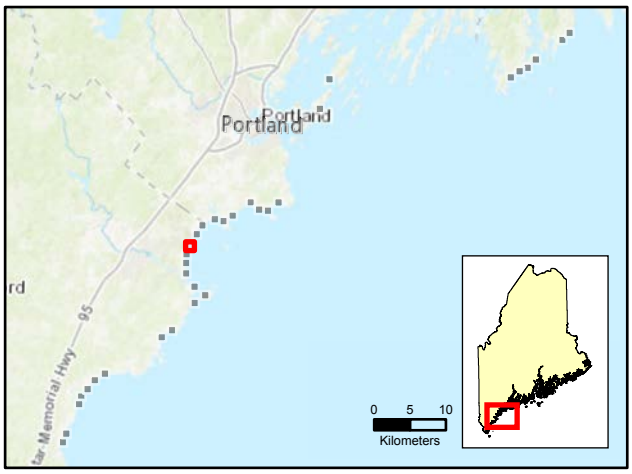
- Hatched
- Predation
- Unknown

- Foraging Area
- Essential Habitat

0 55 110 220 330 440 Meters

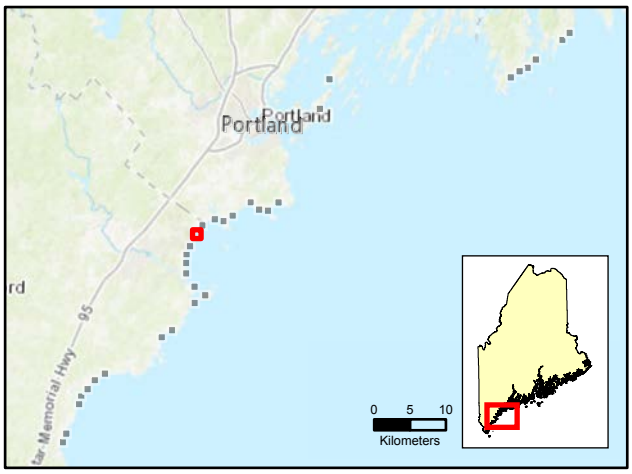
Universal Transverse Mercator (UTM) Projection
North American Datum (NAD) 1983
Data Sources: MEGIS; MDIFW; Maine Audubon

N W E S



2023 Piping Plover Nest Locations

Old Orchard Beach - Surfside / Grand Beach



Map Prepared by Maine Department of Inland Fisheries & Wildlife

January, 02, 2024

Nest Location & Outcome

- Hatched
- Predation
- Washout

- 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

2023 Piping Plover Nest Locations

Old Orchard Beach - Grand Beach

Map Prepared by Maine Department of Inland Fisheries & Wildlife

January, 02, 2024

Nest Location & Outcome

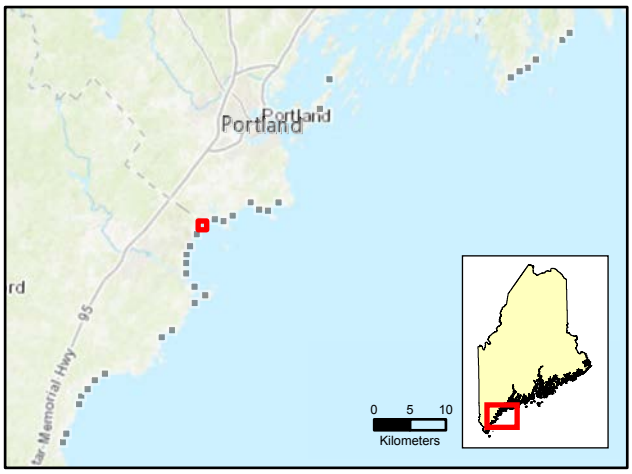
- Abandoned
- Hatched
- Predation
- Washout

- 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



2023 Piping Plover Nest Locations

Pine Point

Map Prepared by Maine Department of Inland Fisheries & Wildlife

January, 02, 2024

Nest Location & Outcome

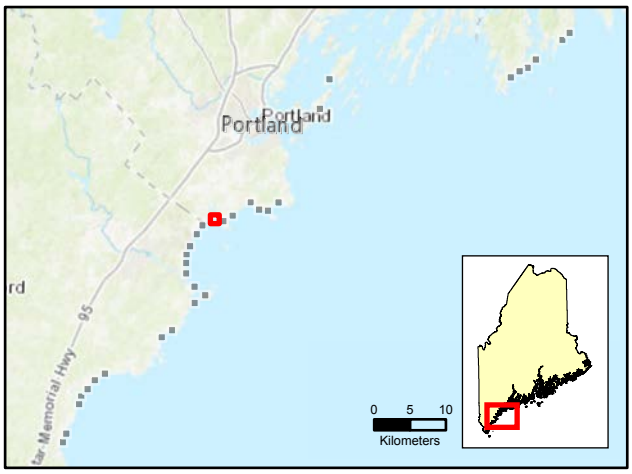
- Abandoned
- Hatched

- Foraging Area
- Essential Habitat

0 40 80 160 240 320 Meters

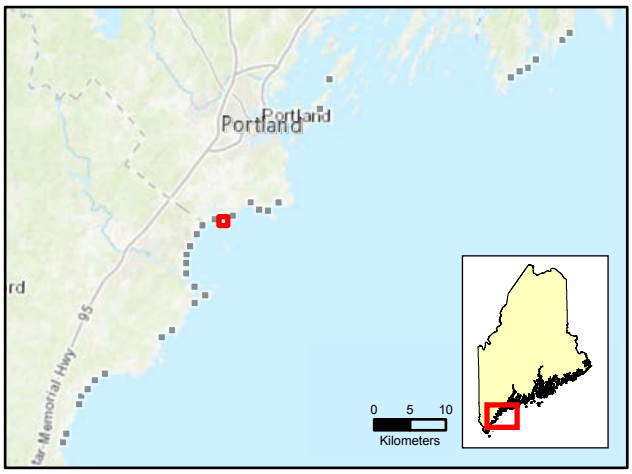
Universal Transverse Mercator (UTM) Projection
North American Datum (NAD) 1983
Data Sources: MEGIS; MDIFW; Maine Audubon

N W E S



2023 Piping Plover Nest Locations

Western Beach



Map Prepared by Maine Department of Inland Fisheries & Wildlife

January, 02, 2024

Nest Location & Outcome

- Abandoned
- Hatched
- Predation

- Foraging Area
- Essential Habitat

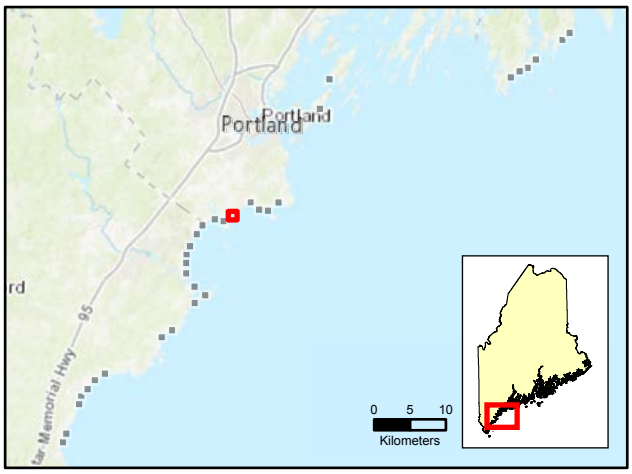
0 40 80 160 240 320 Meters

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

N W E S

2023 Piping Plover Nest Locations

Scarborough Beach



Map Prepared by Maine Department of Inland Fisheries & Wildlife

January, 02, 2024

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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2023 Piping Plover Nest Locations

Higgins Beach

Map Prepared by Maine Department of Inland Fisheries & Wildlife

January, 02, 2024

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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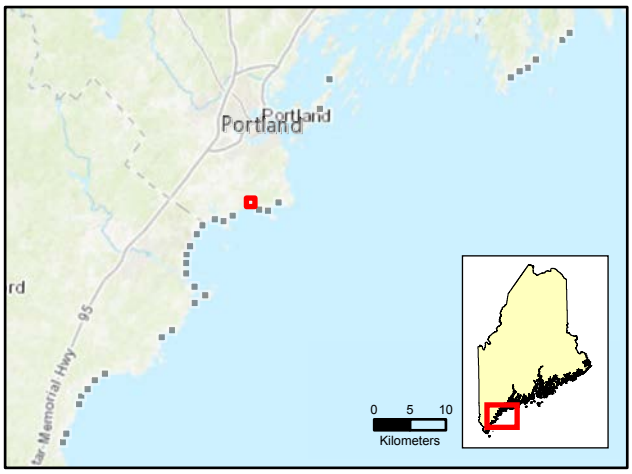


2023 Piping Plover Nest Locations

Ram Island - Nano's Beach

Map Prepared by Maine Department of Inland Fisheries & Wildlife

January, 02, 2024

Nest Location & Outcome

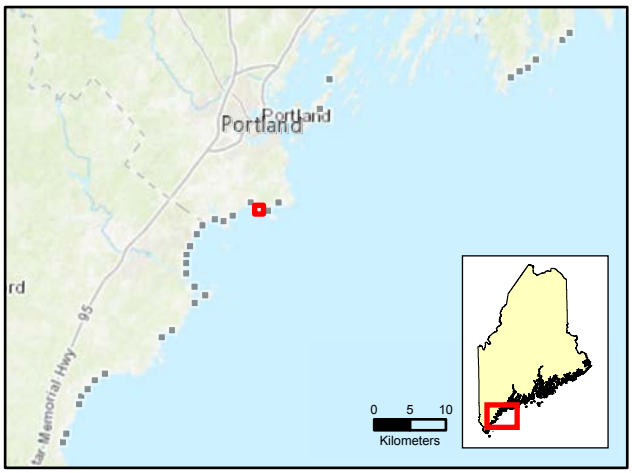
Predation

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



2023 Piping Plover Nest Locations

Ram Island - Breakwater

Map Prepared by Maine Department of Inland Fisheries & Wildlife

January, 02, 2024

Nest Location & Outcome

Hatched

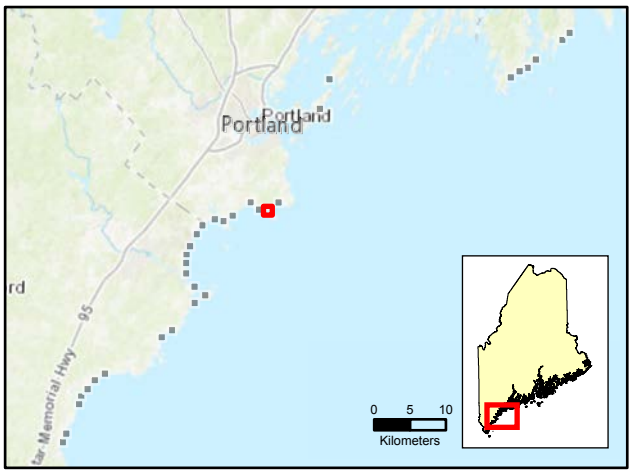
Foraging Area

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

N W E S



2023 Piping Plover Nest Locations

Crescent Beach State Park

Map Prepared by Maine Department of Inland Fisheries & Wildlife

January, 02, 2024

Nest Location & Outcome

Hatched

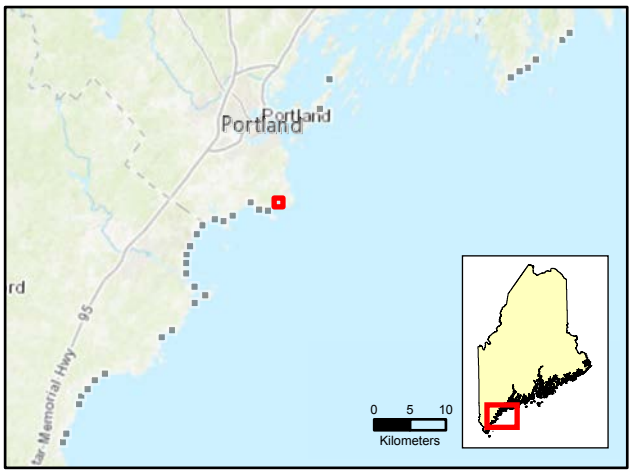
Foraging Area

Essential Habitat

0 40 80 160 240 320 Meters

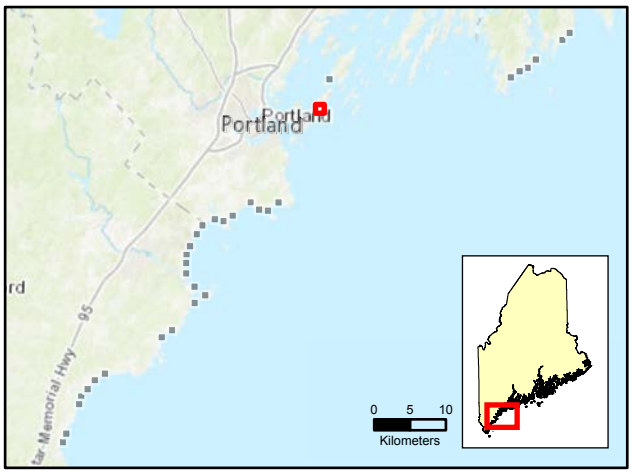
Universal Transverse Mercator (UTM) Projection
North American Datum (NAD) 1983
Data Sources: MEGIS; MDIFW; Maine Audubon

N W E S



2023 Piping Plover Nest Locations

Long Island



Map Prepared by Maine Department of Inland Fisheries & Wildlife

January, 02, 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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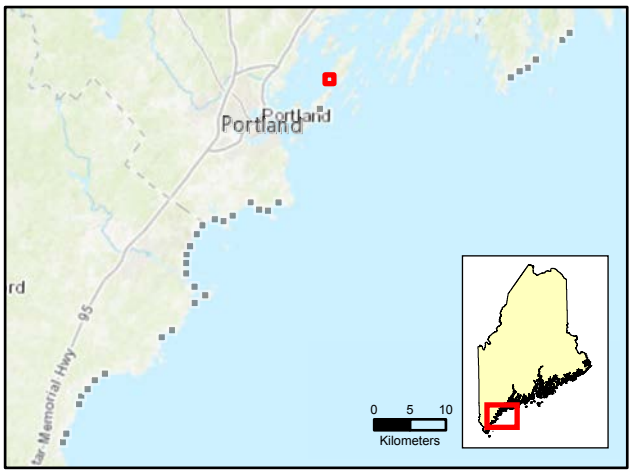
2023 Piping Plover Nest Locations

Indian Point - Chebeague Island



Map Prepared by Maine Department of Inland Fisheries & Wildlife

January, 02, 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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2023 Piping Plover Nest Locations

Seawall Beach

Map Prepared by Maine Department of Inland Fisheries & Wildlife

January, 02, 2024

Nest Location & Outcome

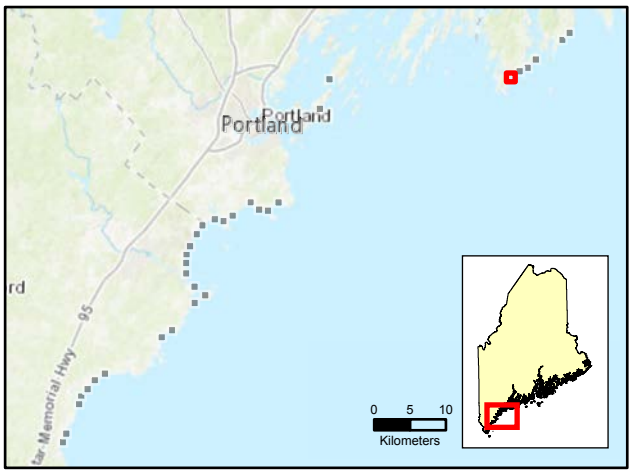
- Abandoned
- Hatched
- Predation
- Unknown

- 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



2023 Piping Plover Nest Locations

Seawall Beach (East) / Popham Beach (West)

Map Prepared by Maine Department of Inland Fisheries & Wildlife

January, 02, 2024

Nest Location & Outcome

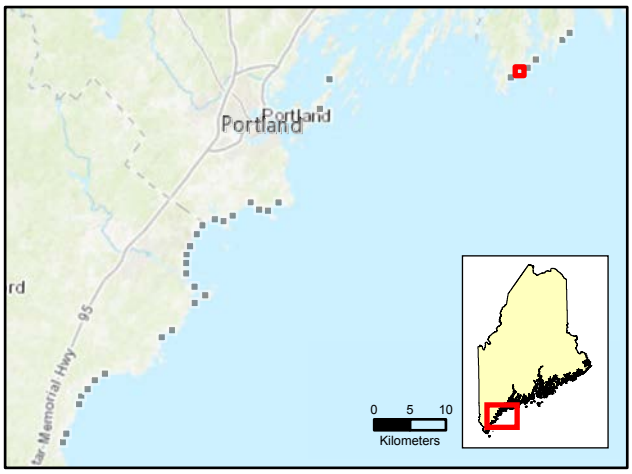
- Abandoned
- Hatched
- Predation
- Unknown

- Foraging Area
- Essential Habitat

0 40 80 160 240 320 Meters

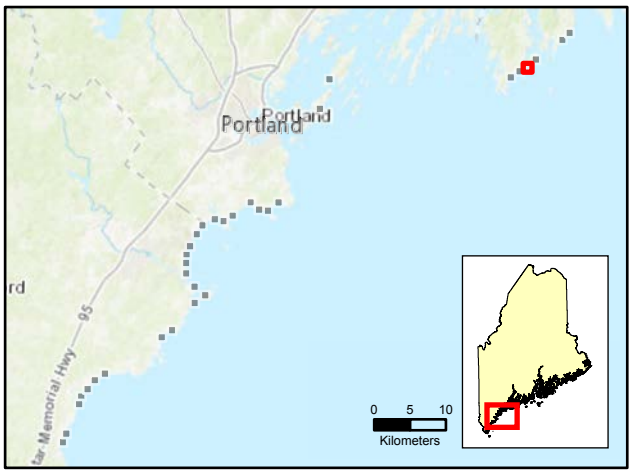
Universal Transverse Mercator (UTM) Projection
North American Datum (NAD) 1983
Data Sources: MEGIS; MDIFW; Maine Audubon

N W E S



2023 Piping Plover Nest Locations

Popham Beach



Map Prepared by Maine Department of Inland Fisheries & Wildlife

January, 02, 2024

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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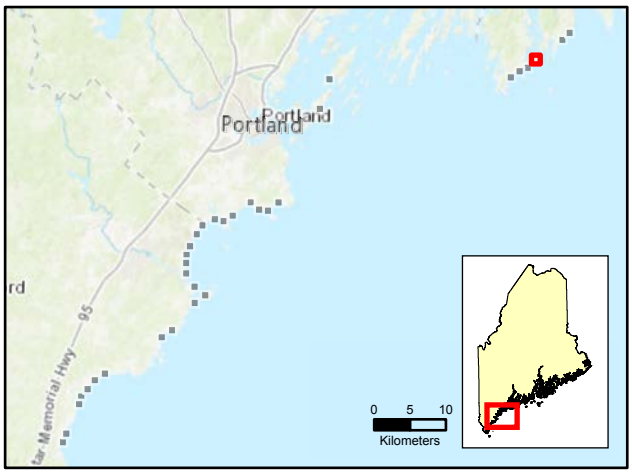
2023 Piping Plover Nest Locations

Hunnewell Beach



Map Prepared by Maine Department of Inland Fisheries & Wildlife

January, 02, 2024

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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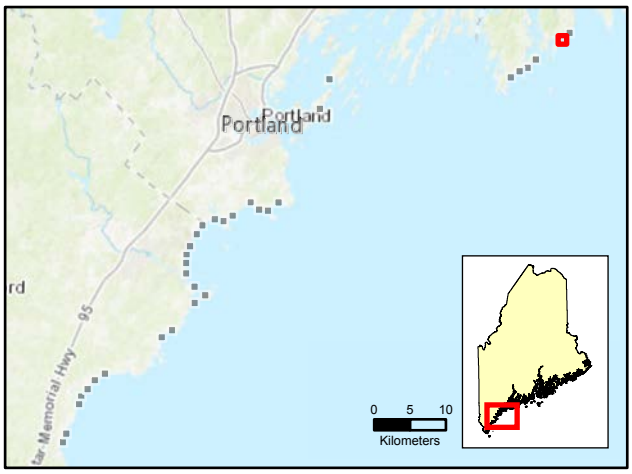
2023 Piping Plover Nest Locations

Reid State Park - Half Mile Beach



Map Prepared by Maine Department of Inland Fisheries & Wildlife

January, 02, 2024

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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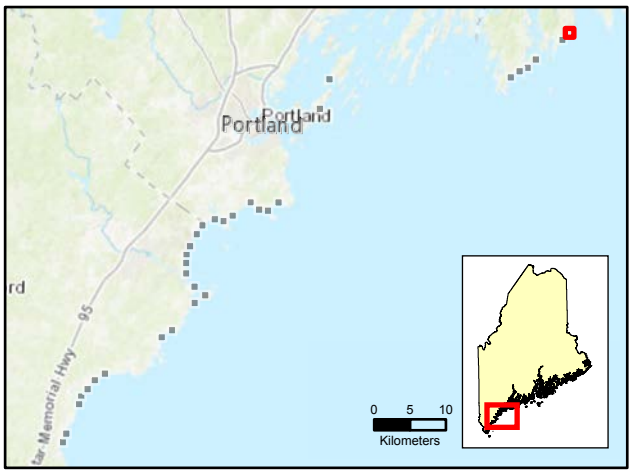
2023 Piping Plover Nest Locations

Reid State Park - Mile Beach



Map Prepared by Maine Department of Inland Fisheries & Wildlife

January, 02, 2024

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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