

Waterbird Migration Observations from Otter Cliffs in Acadia National Park

Fall 2015



By

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Abstract

The fall 2015 waterbird count at Otter Cliffs in Acadia National Park tallied 43,736 individuals of 30 species from the 18th of October to the 18th of November. Total hours of observation were 112.5 from 28 days of coverage. Of the four full days of observation lost, 3 were due to rain and/or fog, and one was due to a personal appointment. Twenty-four days received coverage in the morning, twenty-three days received coverage in the afternoon and/or evening, and eighteen days received coverage in both the morning and afternoon/evening. The average number of waterbirds observed per hour was 389. The five most common species in order of decreasing abundance were: Double-crested Cormorant (n=23,498), Common Eider (n=9,461), Northern Gannet (n=2,072), Surf Scoter (n=639), and Red-throated Loon (n=633). Three additional categories were more common than some of the above species but were not identifiable to a single species, and thus, not included. These categories were: Dark-winged Scoter (n=2,488), Duck Sp. (n=1,257), and Scoter Sp. (n=641). Species seen that are thought to be uncommon or rare for the count included Northern Pintail (n=3), Harlequin Duck (n=2), American Oystercatcher (date, n=1), Parasitic Jaeger (n=2), Jaeger species (n=7), Iceland Gull (n=1), and Iceland/Glaucous Gull (n=2).

Introduction

The fall 2015 waterbird count at Otter Cliffs is the first known waterbird count to have existed on Mount Desert Island (MDI) for an extended period of coverage, with the total numbers of each species seen each day being documented. However, a waterbird count had been conducted the past four falls at Schoodic Point in Acadia National Park, near Winter Harbor, ME. Seth Benz started the sea watch in the fall of 2011 and has been the primary observer there. He counted from 7am to 9am for approximately 2 days a week from September to November (Benz). In 2014, he (and a few others) recorded ~9,000 migrating waterbirds (Benz). Based upon some daily numbers Seth recorded from the fall of 2014 at Schoodic Point, the author's own prior experience conducting waterbird counts across the country, and an interest in learning more about migratory waterbirds over the course of a season on the northern part of the east coast, it was decided to investigate counting waterbirds at logical places on MDI. The first site where counting took place was at the point of Otter Point, Acadia National Park. I started counting waterbirds here on the evening of August 27th. Observations here are further expanded upon in the discussion section. Additionally, I spent one morning and one evening in September at the Seawall Picnic area with no migrants observed. Seeing as there would likely be no flight paths through this area based upon the geography of the islands, I gave up counting at this site for the rest of the season. I continued counting at Otter Point for 9 days between August 27th and October 2nd. Counting here was frustrating though, as most birds were very distant and/or on the horizon. In fact, most birds were passing *behind* Baker Island, which is 4.8 miles away! It did appear though that when the birds were picked up initially (the northeast most part of the flight path) that there was a slightly better chance of identifying the bird. Given this, along with the knowledge that for every 50 feet or so, one can see roughly a few miles further out to sea, I decided to count from Otter Cliffs. At 110 feet high, this significantly increased the distance I was able to see out to sea and increased the number of migrants seen and identified. I went on to

count daily from October 18th to November 18th and the data presented here is based upon that time frame unless otherwise stated.

Methods

The study area for the Fall 2015 waterbird count was located at the scenic overlook for Otter Cliffs in Acadia National Park, off of Park Loop Road. From the parking area for Otter Cliffs, there is a short trail (along Ocean Path) that overlooks the ocean. Approximately half way down this path is where observations took place. Waterbirds were counted in the mornings generally within 2 hours of sunrise and roughly 2-3 hours before sunset. There was no consistency as to the length of time spent or whether the count occurred in just the morning, just the evening, or both. In general, 2-3 hours were spent in the morning and 2-3 hours in the mid-afternoon to the evening. Waterbirds were recorded in the app BirdLog NA, and updated throughout the count period as needed. Subsequently, the data was then entered into an excel table with time of observation and number of each species recorded. Only waterbirds determined to be migrants were counted. Any locals or birds resting on the water were not counted. Weather elements, including wind speed, wind direction, visibility, precipitation, and sometimes cloud cover, were recorded at Otter Cliffs between November 4th and 18th. Equipment used involved Eagle Optics Ranger ED 8x42 binoculars, Bushnell Legend 8x42 binoculars, and a Celestron Regal 100 F-ED mounted on a Bogen Manfrotto 055XB tripod with a 128RC head. Migrating waterbirds were scanned for frequently (at least once every minute) using both binoculars and the scope. If the flight line(s) favored using one method of scanning vs another, this was adjusted the same day in order to detect the most migrants. Most often, this favored scanning with the spotting scope as most days birds were distant and would be missed with binoculars (See Figure 1.).

Results and Discussion

Initial Observations

Initial Observations took place in August and September at various sites on MDI. A total of 1,313 migrants of 16 species were recorded. The results are presented in Table 1. Some species still seemed to be local birds, particularly Gannets and Eiders, while others were clearly migrants. Scoters, Loons, and Cormorants were clearly already moving, along with Phalaropes and Terns. In fact, Phalaropes and Terns were only recorded during these initial observations. Visitor activity to the count site was at its peak during these initial observations.

Weather

Temperatures overall seemed above average for the season. Locals stated that there is usually a good snowfall involving several inches before mid-November, but that wasn't the case this year. Winds with a northerly component to them were the most prevalent. Some form of precipitation was present on 9 days. Of these, 3 days of coverage were lost to rain/fog, and 1 day was ended early due to fog rolling in. Unfortunately, weather (wind speed, wind direction, visibility, precipitation, and sometimes cloud cover) was only recorded on site from November

4th to 18th. The rest of the weather variables (temperature, humidity, and barometric pressure) were filled in on these dates from the weather recorded on nearby Cadillac Mountain. The weather used from Cadillac Mt. was that which was recorded to the nearest time of waterbird counting each day. From October 18th through November 3rd, all weather variables recorded are those from Cadillac Mt. In general, most morning weather measurements used from Cadillac Mt. were from between 9:15 and 10:15, while most afternoon measurements used were from between 1:10 and 2:10. There is some room for error by using this method and weather correlations have been interpreted loosely as a result. Overall, there were no favorable weather conditions for large daily totals (Table 12). This may be due to the relatively small sample size, but peak AM/PM counts (defined as more than 1,000 birds/counting period) had wide ranging weather variables and no consistent favorable conditions. Interestingly, the best (5,998 waterbirds) and third best (2,580 waterbirds) days for volume of migration were on southeast winds, the complete opposite of the expected favorable direction of NW. These two days alone accounted for 20% of the seasonal waterbird total. While seemingly unusual, there is one significant aspect that may explain this. The majority of the flight line each day is typically far out and flying from NW to SE. On days with SE winds, this would push the birds further in and therefore closer to land. I believe that most days with NW winds have many birds migrating beyond the view of Otter Cliffs and flight lines even further out. On days with SE winds, this would potentially push some flight lines that are typically not seen each day or at all into view. See Figure 1. for estimated flight lines and occurrence. Furthermore, on two relatively modest days of migration, November 11th and 12th, I wrote in my notes that large flight lines were likely further out. Fog prevented some viewing, but when I was able to see, large lines of Double-crested Cormorants kept coming into view that I didn't pick up originally, or Cormorant lines I initially picked up disappeared out of view. This is discussed further in the Recommendations section. Based upon species peaks and weather there are very few species that can be said to have favorable weather conditions to migrate past Otter Cliffs. For those that might have favorable conditions, they are discussed in the individual species accounts below.

AM/PM Counts

Waterbird counts were conducted in both the morning (AM) and the afternoon/evening (PM). For further analysis, these counts were divided into AM/PM tables. Flights were considered AM if they started and ended before 1 PM. The exception to this was on October 22nd when the morning flight was excellent and continued until being fogged in at 2:05 PM. This entire flight was considered an AM flight. Flights were considered PM if they started after 1 PM. There were two additional days that didn't fall into these criteria and were therefore left out when analyses/interpretations were done for AM/PM flights. These dates were November 5th and November 12th.

General Flight Summary

The fall 2015 waterbird count at Otter Cliffs in Acadia National Park tallied 43,736 individuals of 30 species from the 18th of October to the 18th of November. Total hours of observation were 112.5 from 28 days of coverage. Of the four full days of observation lost, 3 were due to rain and/or fog, and one was due to a personal appointment. Twenty-four days received coverage in the morning, twenty-three days received coverage in the afternoon and/or

evening, and eighteen days received coverage in both the morning and afternoon/evening. The average number of waterbirds observed per hour was 389. The five most common species in order of decreasing abundance were: Double-crested Cormorant (n=23,498), Common Eider (n=9,461), Northern Gannet (n=2,072), Surf Scoter (n=639), and Red-throated Loon (n=633). Three additional categories were more common than some of the above species but were not identifiable to a single species, and thus, not included. These categories were: Dark-winged Scoter (n=2,488), Duck Sp. (n=1,257), and Scoter Sp. (n=641).

It is hard to know for the species recorded if they were in average, above average, or below average numbers but I have some guesses as to what they might be for some species if the count was extended to a longer season.

Scaup were virtually absent from the count. I guess this is probably typical at Otter Cliffs given the length of coverage but it is amazing, given that thousands migrate past the Avalon Seawatch (Behrens, Cox).

Common Eiders appeared to be in below average numbers. Eiders begin moving in September and good numbers were probably recorded before the start date this year. Given that just over 2,000 were recorded in the first 2 morning counts of the season, it is extremely likely that thousands more migrate between September 15th and October 18th. In fact, it wouldn't be surprising if the number of Eiders recorded this season is matched in that time period.

Harlequin Ducks were probably recorded in below average numbers. Up to a few hundred winter south of MDI, so the season total of 2 was one of the biggest surprises of the season.

All Scoter species and categories were almost certainly below average numbers. All scoter species and categories peaked just 5 days into counting on October 22nd. Additionally, this date was just the second morning count of the season and 80% of the seasonal total (that was able to be broken down into AM/PM flights) of scoter species and categories combined occurred in the morning flights. Furthermore, the Avalon Seawatch tallies hundreds of thousands of scoters each season compared to just 4,300 seen this season at Otter Cliffs. Thousands of more scoters likely migrate between September 15th and October 18th.

Long-tailed Duck, Bufflehead, and Red-breasted Mergansers all seem to be in below average numbers, based upon numbers and info described in the book Peterson Reference Guide to Seawatching.

Loon species seem to be in near average numbers. However, this is rather surprising. Red-throated Loons peaked right in the middle of the season but the seasonal total was only 633. The Avalon Seawatch records tens of thousands in a typical season which makes the number recorded at Otter Cliffs rather mysterious. If larger numbers do pass by Otter Cliffs, the only explanation is that the bulk of loons migrate further offshore.

Northern Gannets were likely recorded in below average numbers. The Gannet seasonal total of 2,072 is another mysterious one. They peaked early in the season at Otter Cliffs, so hundreds to a few thousand probably migrate between September 15th and October 18th. The

peak high count for Gannets at Dyer Point, another waterbird count with sporadic coverage just a few hours south of MDI, is nearly 1,500 on October 25th (Lovitch, Behrens, and Cox). This lines up rather nicely with the peak day of October 22nd this year, further suggesting that more Gannets migrate earlier. How many more remains a big question. The Avalon Seawatch records tens of thousands more Gannets than was recorded at Otter Cliffs. Interestingly though, the top 3 daily counts for Gannets at Avalon are either on November 10th or 11th (Behrens, Cox), nearly a full 3 weeks later than the peak at Otter Cliffs. Numbers of Gannets at Otter Cliffs decline sharply as November progresses. In fact, the peak day in November was only 200. So it's likely an average season at Otter Cliffs from September 15th to November 15th would probably record 3-7,000 Gannets a season, still significantly short of Avalon's typical season total (Behrens, Cox). If 10-20,000+ Gannets are moving past Otter Cliffs in a season, they are doing so further offshore.

Double-crested Cormorants were seen in below average numbers. Cormorants have the most protracted migration of any waterbird species. Hundreds were seen migrating as early as late August and as late as the 2nd week of November. A total of 763 were seen in August/September and an additional 3,465 were tallied from the hawk watch on Cadillac Mt. Clearly, thousands more migrate from at least mid-August to October 18th and after November 18th. If counts were done every day between August 15th and November 30th, from sunrise to sunset at least 15,000 more would be tallied. Many more probably migrated within the observation period this season but were out of view, migrating further offshore. While 23,500 is a good number of migrants, it pales in comparison to the few hundred thousand Cormorants Avalon gets in a typical season. There are thousands of more Cormorants that could be tallied with a longer observation period and a further offshore count.

Great Cormorants were almost certainly below average. Dozens more probably migrated but Cormorant lines are typically long and far out, reducing the time and ability to pick out individual Great Cormorants. Distance also reduced the ability to call any small Cormorant flock that seemed better for being a pure flock of Greats rather than Double-crested confidently.

A total of 9 jaegers were a bit more than I was expecting, but probably near the average if the season was between October 18th and November 18th. In recent years jaegers have been occurring in good numbers during the first few weeks of the Avalon Seawatch (late September to mid-October) and peaks at other sites ranging from Newfoundland to Massachusetts also peak within this time period (Behrens, Cox). Based upon this, 10-30 more jaegers are probably more typical in a season at Otter Cliffs.

Bonaparte's Gull and Black-legged Kittiwakes were among the biggest disappointments in terms of numbers. Given the length of coverage perhaps the low numbers are average but it is baffling as to why. Dozens to thousands of each species can be seen just a little north at Quoddy Head State Park. Hundreds to thousands pass by at other sites along the east coast in fall, particularly in Massachusetts. Why they don't pass by Otter Cliffs in good numbers is quite perplexing. This is complicated further by the fact that a few hundred Bonaparte's Gulls were present in October just north of MDI on Thompson Island.

Species seen that are thought to be uncommon or rare for the count included Northern Pintail (n=3), Harlequin Duck (n=2), American Oystercatcher (date, n=1), Parasitic Jaeger (n=2), Jaeger species (n=7), Iceland Gull (n=1), and Iceland/Glaucous Gull (n=2).

Species that were surprisingly not tallied during the count included Northern Shoveler, Green-winged Teal, Redhead, Ring-necked Duck, King Eider, Common Goldeneye, Common Merganser, any tubenose (during official season), Great Blue Heron, a few shorebird species, Purple Sandpiper, any Phalaropes (during official season), and a Pomarine Jaeger/Skua species.

Species Summaries

Anatidae

16,240 waterfowl of 14 species migrated by Otter Cliffs this fall. This total makes up 37% of the seasonal flight. The five most numerous waterfowl identifiable to species in order of decreasing abundance were Common Eider, Surf Scoter, Black Scoter, Long-tailed Duck, and Canada Goose. There is some correlation that ducks preferred to migrate on days with light or no wind.

A total of 406 Canada Geese were recorded this season. The first date recorded was on October 18th, while the last day they were recorded was on November 18th. They peaked on November 9th, with 206 observed migrating. The peak time period for Canada Geese was between November 9th and 15th. Though the sample size was small, Canada Geese had a slight preference for migrating in the morning.

A total of 3 Mallards were recorded this season, with a peak of 2 on November 5th. The early date detected was October 26th and the last date was November 5th. Eighty-eight American Black Ducks were recorded this season, peaking on November 5th, with 66. They were first recorded on October 24th and last recorded on November 11th. American Black Ducks had a peak migration period of November 5th to November 11th. A total of 3 Northern Pintail were recorded this season. This total occurred on one date, November 5th.

Aythya were recorded in poor numbers with just 3 Greater Scaup, 2 Lesser Scaup, and 14 Scaup sp. recorded. Scaup were first recorded on October 22nd and last recorded on November 5th.

A total of 9,461 Common Eiders were recorded this season, peaking on November 3rd, with 2,141 seen. The first date Eiders were detected was on October 18th and the last date migrants were observed was on November 17th. Common Eiders had a protracted migration, without a real peak period, and were recorded on 25 of the 28 days. Common Eiders had a slight preference to migrate in the morning, rather than the afternoon/evening. Common Eiders made up 22% of the season's waterbird total.

A total of just 2 Harlequin Ducks were recorded. One was on October 30th and the other on November 5th.

A total of 639 Surf Scoters were seen this season. They peaked on October 22nd with 375 recorded. The first date they were observed was October 20th, while the last date was November 5th. A total of 151 White-winged Scoters were recorded this season. They were first observed on October 18th, last observed on November 18th, and peaked on October 22nd, with 44. White-winged Scoters didn't have a peak migration period. A total of 429 Black Scoters migrated by Otter Cliffs, with a peak of 297 on October 22nd. Black Scoters were first seen on October 20th and last seen on November 10th. A combined total of 3,129 Dark-winged Scoters/Scoter Sp. were seen this season, peaking on October 22nd, with 1,570. Surf and Black Scoters had a peak period between October 20th and October 24th. All 3 scoter species preferred to migrate in the morning, with White-winged Scoters slightly preferring to migrate during this time, and both Black and Surf Scoters significantly preferring to migrate during this time.

Long-tailed Ducks were first detected on October 20th, last detected on November 13th, and had a seasonal total of 407. They peaked on November 5th, with 281 recorded, and had a peak period of November 3rd to 12th. They had a slight preference to migrate in the morning. Bufflehead occurred on just 2 days, November 8th and 9th, and had a peak count of 30 on the earlier date.

A total of 208 Red-breasted Mergansers were recorded this season. The early date was October 20th, while the last date was November 17th. They peaked on November 5th, with 108. There was no overall peak period for Red-breasted Mergansers. Red-breasted Mergansers strongly preferred to migrate in the morning.

Gaviidae

A total of 633 Red-throated Loons were recorded this season between October 18th and November 18th. The peak occurred on November 5th, with 139 passing by. The peak period for Red-throated Loons was between November 2nd and November 12th. They preferred to migrate in the morning rather than the afternoon/evening and strongly prefer to migrate without any wind. Common Loons were recorded between October 18th and November 17th, with a peak day of 70 on November 11th. The season total was 520. Common Loons had a similar peak period as Red-throated Loons, but there were nice numbers throughout October as well. Common Loons strongly preferred to migrate in the morning. In addition to these totals, 191 loons were unable to be identified to species. Both loon species were seen on 24 days of observation.

Podicipedidae

Just 2 Horned Grebes were tallied this season; both occurred on October 22nd. Red-necked Grebes had an early date of October 21st, a late date of November 17th, and a peak date of November 10th, with 35 tallied. Red-necked Grebes had a peak period from October 28th to November 12th and had a slight preference to migrate in the afternoon/evening.

Sulidae

The season total for Northern Gannets was 2,072. They were seen on every day but one this season, ranging from the first date of the season to the last. They peaked on October 22nd with 401 recorded. Gannets had a peak period between October 20th and November 5th. They had a very slight preference to migrate in the morning.

Phalacrocoracidae

A total of 23,498 Double-crested Cormorants were recorded this season. They were seen on 24 of 28 days of observation and peaked on October 24th, with 3,389 recorded. An additional 1,227 Cormorants were recorded from the hawk watch on this date but are not included in this day's total. Double-crested Cormorants were first recorded on October 18th and last recorded on November 17th (during the official count period). Double-crested Cormorants had peak days throughout the entire count period. They had a strong preference to migrate in the afternoon/evening hours, especially the last 1.5 hours of daylight. The season total of Double-crested Cormorants made up a remarkable 54% of the seasonal waterbird total.

The season total for Great Cormorants was 18, with a peak number and date of 9 on October 24th. They were first recorded on October 24th and last recorded on November 11th.

Haematopodidae

A single American Oystercatcher was recorded on November 17th, a nice surprise for the season.

Stercorariidae

A total of 2 Parasitic Jaegers and 7 Jaeger Sp. were recorded this season. Jaegers were first recorded on October 20th and last recorded on November 12th. All 9 occurrences of jaegers were on different days.

Alcidae

The season total for Razorbills was 39 birds. Razorbills were first detected on October 22nd and last seen on November 12th. They peaked on November 12th, with 15 birds. Razorbills were only recorded during the morning watches and had a preference to migrate on days with North or Northwest winds. Just 3 Black Guillemots were determined to be migrants and peaked on November 10th. November 9th and 10th were the only days migrants were recorded. A total of 34 additional, unknown alcids were recorded this season. Almost all of these were recorded in the morning and they also were recorded mostly on days with North or Northwest winds.

Laridae

A total of 13 Bonaparte's Gulls were recorded this season. The first were detected on October 31st and the last on November 11th. The peak was 7 on November 8th. A total of 32

Black-legged Kittiwakes were recorded this season, with the peak of 10 occurring on November 3rd. The first Kittiwake was seen on October 20th and the last on November 18th. Kittiwakes strongly preferred to migrate in the afternoon/evening. This season, 6 Laughing Gulls were recorded. The first was seen on October 20th, the peak was 3 on October 22nd, and the last was seen on November 4th. A total of 1 Iceland Gull and 2 Iceland/Glaucous Gulls were recorded this season. These were recorded on October 20th, November 2nd, and November 5th.

Recommendations

- Baker Island!!! The logistics of it remain hard, but Baker Island would be the ideal place to count waterbirds migrating past MDI. Counting from the eastern shoreline of Baker Island would be most ideal for 5 reasons: 1) A counter would be much closer to the main flight line of waterbirds, increasing the number of species seen and identified. 2) There are very likely new flight lines that would be visible from Baker Island but not Otter Cliffs. 3) Most of the flight lines that pass between Baker Island and the MDI shoreline would still be visible from Baker Island. 4) The length of observation with each individual would be longer due to the greater field of view. 5) With the greater field of view, there would be more ways to work around staring into the sun, which prevented birds from being identified for several reasons, including being backlit.
- Start the season earlier, if possible, to record more migrants and especially those that are done migrating before October 18th. Some species peaked early in the season, suggesting the first few weeks of October would tally good numbers of these species.
- Create a daily data sheet for recording waterbirds in the field, broken down into hour blocks. Also, record weather every single hour on the data sheet at the waterbird counting site.
- Find a good place to scan without being interfered with by visitors, particularly early in the season. This is challenging as visitors constantly walk by the current observation site frequently, resulting in having to re-scan and sometimes missing birds. The best site to be out of the way of people the entire time counting should be scouted for before the season starts.

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Works Cited

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Figure 1. Otter Cliffs Waterbird Flight Paths

