

2025 Morning Flight

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Introduction

This fall marked the first season of CVWO's Sunset Beach Morning Flight Count. Morning flight is understood to be a behavior to "correct course" during migration, typically exhibited by nocturnal migrant songbirds after a night of migration. During fall on the East Coast, this behavior is typically associated with certain weather conditions. Winds out of the northwest, often accompanying autumn cold fronts, provide a tailwind for many birds to use as they make their way south across the continent. Despite their benefits as a tailwind, strong northwesterly winds tend to displace a large number of migrants in eastern North America well east of their intended flight path. This displacement is called wind drift.

Many of these migrating birds thus find themselves in a perilous situation after experiencing wind drift: They are much closer to the coast than they intended, or even worse, find themselves flying out over the open water of the Chesapeake Bay or Atlantic Ocean as the sun rises. Flying over open water during the day is a dangerous energy expenditure for a nocturnal migrant that would much rather be refueling or resting in a habitat with cover.

Morning flight is generally thought to be an important way for birds to correct for wind drift and avoid further travel complications. It may also be exhibited by birds selecting foraging habitats in the early morning. The narrow, funnel-shaped peninsula of the Eastern Shore acts as a natural concentration point for migrants, waterlocked to the west and south by the Chesapeake Bay, and to the east by the Atlantic Ocean. Surrounded by water, migrants concentrate at the tip of the peninsula and correct course, sending them straight past Sunset Beach as they turn north to look for somewhere on the peninsula to forage, while other forward migrants continue south towards Fisherman's Island or across the Chesapeake Bay.

Birders have long known of the incredible morning flight spectacles that occur at Sunset Beach, but fall 2025 is the first time a daily count was conducted using standardized data collection protocols. CVWO has joined other ongoing morning flight counts elsewhere around the world, documenting this unique migratory behavior.

Documenting the volume and species composition of birds engaging in morning flight at Sunset Beach throughout the fall season was the primary goal of this project. Other birds and insects engaging in forward migration were also counted. This data will also inform habitat management decisions to support the diversity of migrant species moving through the Eastern Shore and will help further our understanding of the varying factors influencing morning flight behavior.

Methods

Morning flight counts were conducted daily at Sunset Beach from August 31 to November 15, 2025. Count duration was a minimum of three hours, beginning fifteen minutes before sunrise. Depending on the morning flight migratory activity, the count was extended by fifteen-minute increments. The only day on which no count was conducted was September 16, due to heavy rain in the morning. A total of 345 hours of observation were logged for the season.

Counts were conducted at the parking lot clearing just east of the Sunset Beach Bar and Grille, south of the gravel parking lot at the end of Wise Point Lane. The western edge of the parking lot affords the best vantage point of the Chesapeake Bay, and the counter was typically positioned there. Depending on flight dynamics and weather conditions, the count position shifted east approximately 20 meters to the opposite side of the parking lot to view the main western flightline in ideal lighting. Complete scans of the visible airspace at the count site over and surrounding the parking lot, campground, eastern horizon (Eastern Shore of Virginia National Wildlife Refuge), and Chesapeake Bay were completed approximately every five minutes.

Visitors were regular at the Sunset Beach Morning Flight Count, many of whom were interested birders making dedicated trips to the site following reports. Early in the season, many of the visitors to the site were interested passersby from the Sun Outdoors Campground who were curious about birds and migration. Interactions with visitors served as valuable interpretation and outreach opportunities for CVWO.

Results

Species Totals

All species in apparent visible active migration were counted. Flight species composition, direction and magnitude varied significantly day by day and throughout the season. An incredibly diverse array of species was detected in visible active migration at Sunset Beach. A total of 209 species were counted on Trektellen, along with one species of mammal (Eastern Red Bat), four butterflies and nine dragonfly species. A total of 330,864 individuals was counted throughout the season. Including resident species not counted on Trektellen, a total of 225 bird species were reported to eBird.

Species Diversity and Seasonal Variability

Breaking down the season by major taxonomic groups further highlights the diversity on display at this site. Totals of 25 species of waterfowl, 20 species of shorebird, 11 species of wading bird, 14 species of raptor, seven species of swallow, 11 species of sparrow and an impressive 31 species of warbler were counted. Diversity varied throughout the season, and the progression of fall migration brought different species to dominate the makeup of flights. The big flights of swallows and kingbirds in August faded out into September just as the trickle of warblers built into a flow in September, building to the rivers of Yellow-rumped Warblers in October before the season closed with massive flights of robins, waxwings, blackbirds and various waterfowl in November.

The most numerous migrants for the entire season were **American Robin** (101,916), **Yellow-rumped Warbler** (85,494), **Red-winged Blackbird** (43,406), **Tree Swallow** (20,324) and **Brown-headed Cowbird** (11,558). Though these species occur in massive flocks during their peak passage, the composition of flights varied considerably throughout the season, and dominant species shifted significantly across the 3.5-month season. When each month is separated out, the top species for each month more clearly portray the most abundant migrants throughout the season. The top five species by month are listed as follows:

August: Barn Swallow (2,411), Purple Martin (2,289), Red-winged Blackbird (2,290), Eastern Kingbird (1,907), White Ibis (794)

September: American Redstart (2,523), Tree Swallow (1,997), Northern Parula (1,696), Eastern Kingbird (1,300), White Ibis (774)

October: Yellow-rumped Warbler (64,555), Tree Swallow (16,878), Red-winged Blackbird (9,360), American Robin (7,060), Double-crested Cormorant (3,577)

November: American Robin (94,494), Red-winged Blackbird (31,427), Yellow-rumped Warbler (20,939), Brown-headed Cowbird (7,896), Cedar Waxwing (4,042)

Notable Flights

Flight volume and diversity varied considerably throughout the season. While significant migratory volume was frequently correlated with high species diversity, a high-volume flight of a single species contributing the vast majority of a day's total was not uncommon. Flight volume increased significantly towards the end of the season, coinciding with the peak migration windows for large flocking species such as American Robin, Yellow-rumped Warbler, Red-winged Blackbird, Brown-headed Cowbird and Tree Swallow.

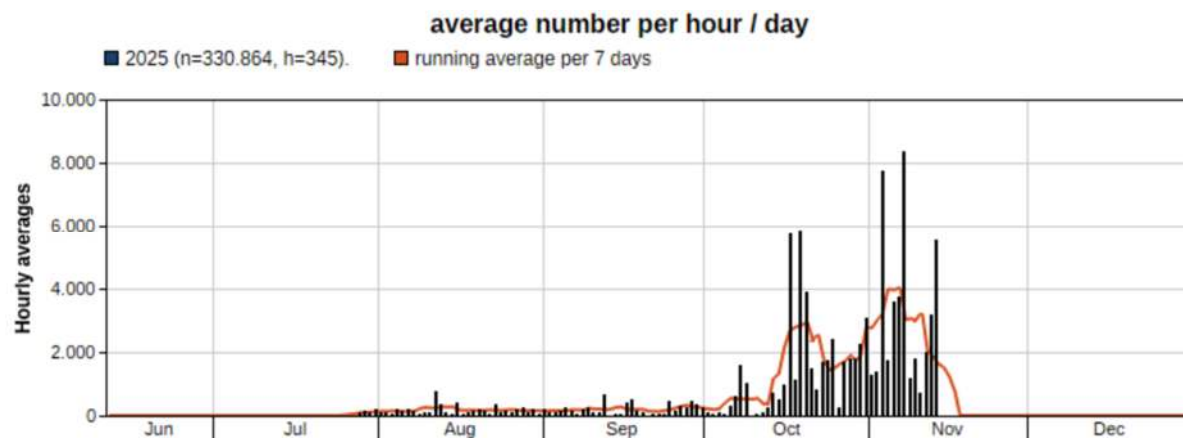


Figure 1. Average number of individuals per hour/day throughout the 2025 season.

Given that species composition and volume shifted throughout the fall, assessing the most numerous flights month by month more meaningfully highlights the days with high

migratory activity throughout the season. Other notable flights excelled in diversity rather than individual volume. Associated wind conditions are listed alongside each date.

August

Volume

August 15 (NNE-ENE 2-5 mph)
2,695 individuals, 58 species,

August 26 (NNE 15 mph)
1,204 individuals, 46 species

August 16 (NE 10-15 mph)
1,149 individuals, 45 species.

Diversity

August 15 (NNE-ENE 2-5 mph)
2,695 individuals, 58 species

August 30 (NNE 15 mph)
555 individuals, 52 species

August 31 (NE 15 mph)
813 individuals, 48 species.

September

Volume

September 15 (NE 15-21 mph)
2,224 individuals, 37 species

September 20 (NW 5 mph)
2,116 individuals, 61 species

September 27 (E 10 mph, rain to drizzle),
2,013 individuals, 60 species.

Diversity

September 20 (NW 5 mph)
2,116 individuals and 67 species

September 19 (WSW 10 mph)
1,552 individuals, 64 species

September 27 (E 10 mph, rain to drizzle)
2,013 individuals, 60 species.

October

Volume

*October 21 (WSW-SW 10 mph)
17,509 individuals, 34 species

*October 19 (SSW 15 mph)
17,229 individuals, 35 species

*October 22 (WSW)
11,645 individuals, 32 species

*Notably, all three of these flights were
vastly dominated by southbound Yellow-
rumped Warblers.

Diversity

October 9 (NNE 21 mph)
2,589 individuals, 71 species

October 16 (N 21 mph)
3,583 individuals, 65 species

October 25 (N 10 mph)
7,975 individuals, 59 species

November		
Volume		Diversity
November 9 (SE 10 mph) 38,480 individuals, 30 species		November 2 (NW 5 mph) 13,083 individuals, 72 species (season diversity record)
November 5 (SW 15 mph) 27,064 individuals, 35 species		November 7 (SSW 10 mph) 12,731 individuals, 63 species
November 15 (W 15 mph) 16,553 individuals, 40 species		November 14 (NNW 14 mph) 13,611 individuals, 52 species

Migration Summaries by Taxonomic Group

The following section will describe the overall trends across major taxonomic groups that occurred at Sunset Beach this fall. These summaries will provide a baseline for future comparison in the following seasons. Standout rarities are highlighted in bold, and notable single-day totals are reported as well.

Sunset Beach's vantage point overlooking the Chesapeake Bay affords an ideal point to count migrating waterbirds over the water, as well as any overland migrants in the visible airspace. Ducks, geese, and swans made up a significant total of the overall waterbird flight, with 5,864 total waterfowl counted for the season and 24 waterfowl species counted. A **Cackling Goose** was a nice early bird on October 16 with a skein of northbound Canadas. Notable flights included 276 **Wood Ducks** on November 2 and 878 **Blue-winged Teal** migrating ahead of a strong cold front on October 8. Rare on the Eastern Shore, a **Black-billed Cuckoo** snuck north through the shrubs on October 9. Providing a first record for the site, a **White-winged Dove** gave nice flyby views as it made a few laps on August 7.

A **Sora** that landed in the parking lot predawn on September 11 was an unexpected addition to the season total. An even more surprising sighting was a **Common Gallinule** in northbound flight over the Chesapeake Bay on October 9, a bizarre first for the site. Nineteen species of shorebird were counted this fall at Sunset Beach, and 1,256 individuals were counted. Uncommon migrants included an **American Golden Plover** on October 10, a Red Knot on August 2, and two White-rumped Sandpipers, one on September 21 and another on September 13. Terns had a good season with 562 counted, including three **Gull-billed Terns** and 12 **Black Terns**. Gull migration is difficult to determine at Sunset Beach with local species excluded from the count. The season concluded before many **Bonaparte's Gulls** could be counted, with only 11 tallied for the season. A total of five jaegers were recorded, with three seen well enough to be identified as **Parasitic Jaegers**.

Eleven **Red-throated Loons** were counted, alongside 182 **Common Loons**. **Wilson's Storm-Petrels** occurred on three days in August, with one on August 5, three on August 7, and two on August 21. **Northern Gannets** tallied 436, and **Brown Boobies** were detected out over the

bay twice, with four individuals on October 31 tying the Virginia high count as well as a solo bird on November 6. **Double-crested Cormorants** had a high total of 6,332 for the season, 1,150 of those passing on October 29. Five **American White Pelicans** were northbound low over the bay November 14.

Wading birds had a strong showing this season. **White Ibis** were the most abundant wader counted with 2,361 for the season. By contrast, only 53 **Glossy Ibis** were counted, 47 on August 15. A **Roseate Spoonbill** in a flock of eight Great Blue Herons on October 15 represented the third Northampton County record and a strange moment of birding déjà vu following the second county record on the same exact date two years prior, a flyover at Kiptopeke Hawkwatch also with eight Great Blue Herons. All 12 **Black-crowned Night-Herons** were in a tight southbound flock predawn on November 7. **Snowy Egrets** had a good flight with 111 for the season. **Western Cattle-Egrets** were detected twice, on August 2 and 7 on October 24. **Great Blue Herons** were the most numerous heron counted, totaling 310 with a high count of 64 on October 14.

Despite the count only running the first several hours of each morning, 3,599 raptors were still tallied. Turkey Vultures tallied 1,391, including an impressive flight of 675 on November 14. A site first, a **Swallow-tailed Kite** circled over on August 4, the only one detected on the Virginia Eastern Shore this fall. No **Golden Eagles** were counted at Sunset Beach this fall. **Sharp-shinned Hawks** tallied 1,343 and had their best flight of 229 on September 20, the day after the best flight of the season at the Kiptopeke Hawkwatch. **Mississippi Kites** were detected twice, with one on September 9 and two on September 21.

Four woodpeckers had significant migratory flights this season, including 63 **Red-headed**, 22 **Red-bellied Woodpeckers**, 71 **Yellow-bellied Sapsuckers**, and 1608 **Northern Flickers**. Typically, a very rare migrant on the Eastern Shore, a great fall for **Olive-sided Flycatchers** yielded two records at Sunset Beach, on September 3 and 26. None of the fifteen Trail's (Willow/Alder) Flycatchers were identified to species. **Eastern Kingbirds** totaled 3,807 with a high count of 583 on August 15. **Red-eyed Vireos** totaled 211, and the only other vireos counted were two **Philadelphia Vireos** and one of each **White-eyed** and **Blue-headed Vireos**. **Blue Jays** had a very poor flight with only 43 counted.

Cedar Waxwings had a very strong flight totaling 4,618, 1354 of which passed on November 8. Seven species of swallows were counted, with 31 **Bank Swallows**, 20,324 **Tree Swallows**, 2,346 **Purple Martins**, 35 **Northern Rough-winged Swallows**, 3,012 Barn Swallows, one **Cliff Swallow**, and one **Cave Swallow** on November 9 amid a large irruption flight into the northeast and mid-Atlantic. Moderate flights of 68 **Ruby-crowned** and 85 **Golden-crowned Kinglets** were counted, though neither had any standout single-day totals. The only wrens counted were three **Northern House Wrens**. **Blue-gray Gnatcatchers** had a strong flight with 622, 79 on August 16. **Red-breasted Nuthatches** had a modest irruption year with 47 counted.

Gray Catbirds had several good northbound flights through the parking lot shrubs, tallying 876, with 300 being the peak count on October 1, along with 17 of the season's 29 **Brown Thrashers**. **Eastern Bluebird** numbers were low compared to the Kiptopeke Hawkwatch,

with 236 counted. Fairly low *Catharus* thrush numbers were counted with 19 **Swainson's**, 5 **Hermit**, 2 **Gray-cheeked**, 2 **Gray-cheeked/Bicknell's**, and 12 **Veery**, almost entirely northbound. The aforementioned seasonal winners, **American Robins**, dominated the late season with 101,916 counted, of which 75,354 were southbound. The highest robin flight was on November 9, with 31,228. **American Pipits** totaled 225, and close to half passed south on November 9 with 95.

Despite an irruption year for Purple Finch, only 44 were detected at Sunset Beach. **House Finches** totaled 588, the only finch where northbound numbers eclipsed southbound. **American Goldfinch** numbers saw a notable uptick towards the end of the season, with a total of 422, 152 of which were on November 14. **Pine Siskins** trailed with 11 for the season. Two **Lark Sparrows** bookended the season with one on August 27 and another November 11. A **Clay-colored Sparrow** dropped in on September 28 and lingered for the next two days, entertaining visitors. **Chipping Sparrows** had the most notable sparrow flight with 372 counted, followed by **White-throated** with 112. Two out-of-place **Seaside Sparrows** were noted at the count site on August 9 and 21. One **Yellow-breasted Chat** was counted northbound on September 28.

Though surely low, as many high flocks were lost in the sky, **Bobolinks** still showed strongly with 1697. **Eastern Meadowlarks** had several good flights with 164, 49 of them on November 2. **Baltimore Oriole** numbers were apparently low at 114. Twenty-six **Orchard Orioles** were counted, all in August. Of the 43,406 **Red-winged Blackbirds**, 36,679 were southbound; likewise, 9,153 of the 11,558 **Brown-headed Cowbirds** were southbound as well. **Rusty Blackbirds** were picked out with regularity, and 224 were counted in total. **Common Grackles** did not appear in nearly the numbers as the other common blackbirds, tallying 1924. Thirteen of the season's 30 **Boat-tailed Grackles** flew north on October 4.

Warblers are one of the star taxonomic groups of morning flight. Nearly one in three birds counted at Sunset Beach this fall were warblers, with 98,392 counted across 31 species. One of the most significant warbler findings this fall was a strong flight of **Louisiana Waterthrushes**, generally thought to be a rarity on the Eastern Shore in fall migration. With eight of the nine counted for the season passing in August, it is likely this species largely migrates before many observers are looking. **Northern Waterthrushes** had one of the better warbler flights this fall, with 259 counted, as did **Black-and-white Warblers** with 307. **Nashville Warblers** had a good season with 15 counted. The only **Connecticut Warbler** was counted on October 9. The **Common Yellowthroat** flight is a unique feature of Sunset Beach, and 247 were counted this fall. Fairly rare on the Eastern Shore in fall, a **Hooded Warbler** was a nice highlight on September 8. **American Redstarts** and **Northern Parulas** came in second and third for warbler totals, with 3304 and 2014 counted, respectively. **Cape May Warblers** were generally numerous, with 483 for the season and 126 on September 27. **Northern Yellow Warblers** peaked earlier in the season than most other warblers, and 248 were counted for the season. **Blackpoll Warblers** were scarce this season, with only 20 counted. **Palm Warblers** put up a respectable 429 for the season. One **Canada Warbler** was counted on August 28. Five **Wilson's Warblers** were a good tally for this uncommon migrant.

Yellow-rumped Warblers accounted for the vast majority of the warbler flight, tallying 85,494. In stark contrast to other warblers that strongly trend northbound at Sunset Beach, 70,365 Yellow-rumped Warblers were southbound throughout the season and only 15,129 were northbound. Over half of the southbound Yellow-rumped Warblers occurred on three days, October 19 (16,762), October 21 (15,752) and October 22 (10,695), all featuring southwesterly winds.

Summer Tanagers were the most numerous of the two, with 67 as opposed to only 11 **Scarlet Tanagers**. Only two **Rose-breasted Grosbeaks** were counted, both on September 13. **Dickcissels** had a good season with 14 counted, with three being the peak count on October 21.

The only mammal species counted was **Eastern Red Bats** with six for the season, including four on August 30. **Monarchs** were the most abundant insect counted this season. A total of 282 Monarchs was counted, with a peak of 52 individuals occurring on October 9. Other butterflies counted included **Orange Sulphur**, **Common Buckeye**, and **Cloudless Sulphur**. **Common Green Darners** came in second with 110, peaking on August 15 at 33 individuals. Other dragonflies counted included **Comet Darner**, **Swamp Darner**, **Blue Dasher**, **Wandering Glider**, **Spot-winged Glider**, **Carolina Saddlebags**, **Black Saddlebags** and **Red Saddlebags**, a vagrant from the southeastern US.

Discussion

Impacts of Weather

As migratory dynamics changed throughout the season, the flight conditions that led to significant migratory movements also shifted. This section will highlight the highest-volume migration days throughout the season. Throughout the season, reverse migration morning flights of nocturnal migrants were strongly associated with ideal overnight migration conditions, typically associated with the passage of cold fronts. Traditionally, northwest winds are ideal for migratory landbird flights on the Eastern Shore as migrants from inland are wind-drifted inland and funneled down the peninsula, but this season demonstrated that significant flights and volume can still occur without a westerly component following fronts, as northeast winds were predominant in the first half of the season. Towards the end of the season, strong northwest winds in November tended to limit morning flight migratory activity, and days with calm winds or light southerly winds produced the most diverse flights.

Migratory Behavior

Primary flight direction varied distinctly across species, weather conditions, and time of year. Reverse migration was documented in a majority of the species detected, and northbound flight was the primary flight direction for 45% of the taxa counted, and nearly 25% of the individual migrants were northbound. When assessing the taxonomy of migratory behavior, species known to be nocturnal migrants trended strongly towards reverse migration behavior at Sunset Beach. Diurnal migrants, such as raptors, trended strongly towards southbound migration. Some species, such as Yellow-rumped Warbler and

American Robin, migrated in different directions depending on the weather on a given morning.

The position of the flightline of reverse migration on the peninsula also appears to be at least somewhat tied to wind direction. Though flightline data was not recorded this season, north winds with an easterly component seemed to produce a more easterly flightline for northbound migrants with birds tacking into the wind, while northwesterly winds produced a tighter westerly flightline along the western bay shore. Future seasons should continue to investigate these flight dynamics and the conditions affecting them.

Comparisons to Kiptopeke Hawkwatch

Sunset Beach had overall higher totals for reverse migrants than Kiptopeke Hawkwatch. Though a comparison of total seasonal tallies of northbound migrants between the two sites is not balanced given the difference in hours of observation (345 hours at Sunset and 960 hours at Kiptopeke), Sunset Beach still recorded more northbound migrants than Kiptopeke Hawkwatch, with 82,696 total northbound migrants at Sunset Beach compared to 55,060 northbound migrants at Kiptopeke Hawkwatch. This highlights the significance of Sunset Beach as a site to document northbound migration on the Eastern Shore.

Forward migrants detected in higher numbers at Kiptopeke Hawkwatch were more pronounced towards the end of the season, especially American Robin and multiple finch species. These discrepancies suggest that many birds may be dropping into habitat somewhere between the two sites. Further analyses comparing specific hourly bins of the morning hours at Kiptopeke Hawkwatch to the morning hours at Sunset Beach may reveal further trends and be useful for making inferences into habitat usage between Sunset Beach and Kiptopeke Hawkwatch.

Comparisons to Nearby Migration Sites

Overall migrant numbers this fall were comparable to the next closest and most geographically similar morning flight count, Cape May Bird Observatory's count at Higbee Dike. Cape May averaged 654 birds/hour for a total of 306,030 individuals, while Sunset Beach averaged 956 birds/hour over the course of the season for a total of 330,864 individuals. Most species totals were comparable between the two sites, though Sunset Beach generally recorded higher tallies of raptors and blackbirds, while Cape May recorded more reverse migrants. This trend is highlighted by comparing the number of northbound to southbound migrants at each site; at Cape May, approximately 62% of migrants were northbound, while at Sunset Beach, only 25% were northbound throughout the season. Further analyses comparing these two sites could investigate specific species and single-day totals comparing the impacts of weather on migration at both sites on the same day.

Blog and Social Media Efforts

A secondary duty of the Morning Flight Specialist position was to post daily summaries of count effort to the CVWO Blog and Facebook and Instagram pages. There was an overwhelmingly positive response to the renewed blog and social media efforts this season,

as communicated by a number of visitors, commenters on social media, and other readers and viewers. This section of the report will provide an overview of these outreach efforts.

Posts summarized the daily sightings at the Sunset Beach Morning Flight Count and, to a lesser extent, the Kiptopeke Hawkwatch, identified and assessed trends in migration, issued predictions for the next several days of migration based on forecasted weather, and linked to both Trektellen pages. Posts featured photography captured during the count, typically of a bird in flight. Efforts were made daily to capture high-quality images of representative species migrating on a given day or a highlight rarity to draw attention to social media posts. The overall intention behind posts was to illustrate what each day of migration on the Eastern Shore was like for a broad audience of birders, naturalists, and other CVWO followers.

Meta Business Suite provided insights into social media following and viewership over the course of the season. Both Facebook and Instagram saw staggering increases in views, followers, and content interactions over the three-and-a-half-month season in relation to these metrics before the start of the season. Facebook saw an 882% increase in followers, a 2,200% increase in views, and a 1,200% increase in content interactions. Instagram gains were even more dramatic, with an 184% increase in followers, a 3,300% increase in views, and a 12,400% increase in content interactions. Though no such statistical insights are available for the CVWO Blog, anecdotal feedback and word-of-mouth interest and enthusiasm from our readership suggest a similarly positive response.

The response to this increased online presence for CVWO indicates a broad interest from the public in our migration research and highlights the increased visibility that consistent outreach can generate. Increasing year-round social media presence and outreach efforts would continue to capitalize on this positive momentum.

Conclusions

The pilot season for the Sunset Beach Morning Flight Count was a resounding success, documenting the incredible migratory diversity and behavior at Sunset Beach. Totals of 330,864 individuals across 209 species were counted in active migration at Sunset Beach, highlighting the incredible volume and diversity of migrants at this critical migration corridor. This season has laid the groundwork for important long-term data collection at this site for future trend analysis and conservation efforts on the Eastern Shore. Outreach efforts through social media and the CVWO blog generated widespread interest and enthusiasm for this new migration research.

Acknowledgments

There are many individuals at CVWO and beyond whom I would like to thank for helping to make this first season at Sunset Beach such a success and possible in the first place. I would first like to thank Morning Flight Coordinator Andrew Rapp for his camaraderie, patience with many questions, and unyielding support for this project from its first inception through the end of the season, and for taking the time to spend many precious weekends counting

birds at Sunset Beach. I thank CVWO President Brian Taber and Vice President Nancy Barnhart for their receptiveness and enthusiasm starting this count. This pilot season would not have been possible without their guidance and support throughout the season. I would also like to thank Hawkwatch staff, Sage Church and Audrey Anderson, for their collaboration and good company at the platform and the Dutton House this season. I also extend special thanks to Mario Balitbit and Aylett Lipford for helping cover the count and their excellent spotting skills over the course of the season. Among many other birders and friends who visited Sunset Beach this fall, I would like to especially thank Will Burgoyne, Max Nootbaar, Matt Graul, Ezra Staengl, Theo Staengl, Amiel Hopkins, Claire Heh, Zach Kühn, Casey Manera, Nick Newberry, Andrew Baldelli, June McDaniels, Rob Bielawski, Jonathan Irons, Daniel Irons, Carson Lambert, Kai Dickson, Laura Dickson, and Wayne Valentine for their company during the count and assistance spotting many birds this season. I hope to see you all at Sunset Beach again in the future!

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Appendix: Species-specific Protocol

This section of the report will briefly summarize the treatment of each taxonomic group and specific species as counted during the 2025 pilot season. Species treatment is subject to revision in future years based on further deliberation between (e.g. between counters, Morning Flight Working Group) and further data collection.

Waterfowl (ducks, geese, and swans): Count all waterfowl in flight recording flight direction. Ducks sitting on Chesapeake Bay should be reported as local unless arrival or departure flight direction is observed, in which case flight direction should be reported.

Doves and pigeons: Count all doves and pigeons in high sustained flight with contextual discrimination. Mourning Doves may present an issue at this site due to roost flights and their late nesting at the site. Eurasian Collared-Doves may be local to the count site, use discretion counting this species. Rock Pigeons are not local in the immediate vicinity of the count site and may be counted in either flight direction.

Cuckoos: Count all cuckoos in flight past the count site.

Nightjars: Count all nightjars in flight past the count site.

Swifts: Like other aerial insectivores, Chimney Swifts present a significant challenge in determining whether birds are locally feeding or actively migrating. Pay attention to counts of feeding groups and whether these groups are moving directionally. Migrating aerial insectivores may move higher with more purpose than feeding groups.

Hummingbirds: Count hummingbirds in sustained directional flight, though beware local hummingbirds visiting trumpet vine early season.

Rails, coots, and gallinules: Count all rails, coots, and gallinules in flight past the count site.

Shorebirds: Count all shorebirds in flight past the count site with the exceptions of local Killdeer, Western Willets, Sanderlings and any other shorebirds that appear to be using the fields and or beach and not actively migrating.

Jaegers: Count all jaegers in flight past the count site.

Gulls: Gulls present another significant challenge in determining what birds are active migrants. In 2025, only “non-local” gulls (Bonaparte’s, Lesser Black-backed) were counted due to the challenging local and feeding movements of Laughing, Ring-billed, American Herring, and Great Black-backed Gulls that are typically seen daily throughout the season.

Terns: Similarly to gulls, terns present a significant challenge in determining what birds are active migrants. Forster’s and Royal Terns are present throughout the count season, and Caspian, Sandwich and Common Terns are regularly present through early October. Terns appearing to be in active migration, such as moving in tight flocks or making a distinctly concentrated directional movement, may be counted as migrants. Other locally uncommon species including Least, Black, and Gull-billed Terns are assumed to be transients, unless behavior indicates otherwise. Terns crossing over land from the seaside should be counted with a note on this specific behavior.

Loons: Count all loons in flight past the count site. Birds diving on the water may be reported as local.

Tubenoses: Count all tubenoses in flight past the count site.

Sulids: Count all sulids in flight past the count site, though beware feeding gannets not engaged in active migration.

Cormorants: The presence of high numbers of local Double-crested Cormorants in the vicinity presents a challenge. Count groups of cormorants in tight formation in sustained southbound flight as migrants.

Waders: Count all waders in flight past the count site with the exception of low-flying individuals that appear to be making local flights, such as Great Blue Herons on the beach. Migratory Great Blue Herons typically appear as high southbound birds.

Pelicans: Count any rare American White Pelicans flying past the count site. Though Brown Pelicans almost certainly occur as migrants, the ubiquitous presence of this species presents a significant challenge in determining which birds are migrants, and the species was not counted as a migrant in 2025.

Hawks: Count all hawks in apparent migratory flight past the count site. Bald Eagles are the most problematic local raptor and use discretion with counting this species. High soaring birds that set their wings and track south should be counted.

Kingfisher: Count all Belted Kingfishers in flight past the count site.

Woodpeckers: Count all woodpeckers in high flight past the count site, with attention paid to any individuals that appear to be lingering around the count site.

Falcons: Count all falcons in sustained flight past the count site. Though the vast majority of falcons will likely be southbound, occasional concentrated northbound flights will occur, such as American Kestrels in the face of inclement weather over the Chesapeake Bay.

Flycatchers: Count all flycatchers in sustained flight past the count site. Flocks of Eastern Kingbirds will often drop in between short migratory flights.

Vireos: Count all vireos in sustained flight past the count site.

Corvids: Count all high flocking Fish Crows and all Blue Jays in high sustained flight. The presence of local American Crow flocks presents difficulties for determining migrants, especially when large flocks form for the winter.

Parids: No Tufted Titmice were counted as migrants at Sunset Beach in 2025. This species likely occurs as an occasional migrant at the site, and behavior such as high sustained flight beyond the immediate forest edges should be watched for.

Lark: Count all Horned Larks in flight past the count site.

Swallows: Swallows present a significant challenge in determining whether birds are locally feeding or actively migrating. Pay attention to counts of feeding groups and whether these groups are moving directionally. Migrating aerial insectivores may move higher with more purpose than feeding groups. Large feeding flocks of Tree Swallows appear to move up and down the peninsula throughout the day. Swallow numbers should be cut off when birds get “swirly” or start coming back from the other direction.

Kinglets: Count all kinglets in flight past the count site.

Nuthatches: Count all Red-breasted and White-breasted Nuthatches in flight past the count site. Though theoretically possible as a disperser or migrant at the site, the presence of small flocks of Brown-headed Nuthatches that routinely cross the parking lot on the same flightline of migrant songbirds during the course of their daily feeding activities could complicate detection of migrants.

Creepers: Count all Brown Creepers in flight past the count site. The typical flight path for this species is low over the parking lot before alighting on the trunk of a pine north of the parking lot.

Wrens: Count all wrens in flight past the count site aside from Carolina Wren.

Starling: Count high flocks of starlings flying with purpose or mixed with blackbirds. Beware the regular presence of local flocks around the campsite.

Mimids: Count Gray Catbirds and Brown Thrashers in flight past the count site, typically crossing the gap through the shrubs on the west side of the parking lot or past the bathhouse on the east side. Northern Mockingbirds are a common local species at the count site, though high-flying migrants should be watched for.

Thrushes: Count all *Catharus* or Wood Thrushes in flight past the count site. Eastern Bluebirds may move short distances around the campsite later in the season, but high-flying birds should be counted. Some American Robins may be local to the area early in the season, but all in flight in late season should be counted as migrants.

Waxwing: Count all Cedar Waxwings in high sustained flight past the count site.

Old world sparrows: House Sparrows are theoretically possible as a migrant, though the presence of local birds around the campground presents a challenge in determining migrants.

Pipit: Count all American Pipits in flight past the count site.

Finches: House Finches are the most significant local finch. Count House Finches in high sustained flight. Other species should be clearer, though some early-season American Goldfinches may be local.

New world sparrows: Local sparrows may present an issue later in the season, especially when large mobile flocks of Chipping Sparrow and Dark-eyed Junco are actively moving around the campground. White-throated and Song Sparrows tend to follow the shrub flightline. Count all other sparrows in sustained flight past the count site.

Chat: Count all Yellow-breasted Chats in flight past the count site.

Blackbirds: Count all blackbirds in high sustained flight past the count site. Large flocks occasionally collect in the campground later in the season and entice other flocks to drop in. Care should be taken not to double-count these flocks.

Warblers: Count all warblers in flight past the count site. Yellow-rumped Warblers may present local issues later in the season.

Cardinals: Count all tanagers, grosbeaks, buntings, and Dickcissels in flight past the count site. Late-breeding Blue Grosbeaks and Indigo Buntings may be local around the area early in the season. Northern Cardinals are theoretically possible as migrants, and migratory behavior should be watched for.

Definitions

Reverse/reorientation migration: Migratory movement in a direction other than the seasonal migratory direction. For the purposes of this count, this applies to all northbound migrants.

Forward migration: Synonymous with onward or continued migration. Applies to both diurnal migrants moving in the primary flight direction of their seasonal migration direction as well as continued movements of nocturnal migrants in their seasonal migration direction. For the purposes of this count, this definition applies to all southbound migrants.