

REPORT OF FINDINGS

TOPSAIL BEACH

2021-2022 BIRD MONITORING



Prepared for:

TI Coastal Services, Inc.

Prepared by:

Davey Resource Group, Inc.
3805 Wrightsville Avenue, Suite 15
Wilmington, NC 28403

December 20, 2022



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I. MONITORING OVERVIEW

Under contract with TI Coastal Services, Inc., Davey Resource Group, Inc. (DRG) conducted monitoring of the foraging areas of Topsail Inlet including the intertidal flats of the northern side of the inlet (at the southern tip of Serenity Point) and the intertidal shoals of the inlet. The general location map of the project area is depicted in Figure 1.

The DRG project team performed non-breeding surveys to document the abundance and distribution of piping plover and red knot twice each season (2x in Winter, 2x in Spring, and 2x in Fall) in accordance with the appendix of the project Biological Opinion entitled: "USFWS Raleigh North Carolina Field Office Piping Plover and Red Knot Survey Minimum Survey Requirements to Document Site Abundance and Distribution". In addition to piping plover and red knot, observations of other bird species within the monitored area were also documented during each survey event. Monitoring was performed in foraging and roosting areas of unvegetated supratidal and intertidal habitats at the southern extent of Serenity Point and the intertidal shoals of Topsail Inlet (monitoring did not include the northern shoreline of Lea Island). Monitoring was performed utilizing 10x binoculars and a spotting scope (60x). A boat was used each monitoring event to provide better documentation of the presence of birds on intertidal shoals within the inlet. Additionally, the beachfront of the northern inlet shoulder was walked to document species utilizing this area. Surveys were scheduled around the peak of migration (September in Fall and March in Spring) and winter surveys were conducted between December 1 and January 31. Surveys were conducted around low to mid-tide when birds would still be foraging. The DRG team photo-documented site conditions including representative species observed and habitat types used throughout the monitoring period. One drone flight per season (3x per year) was also conducted to document and evaluate the relative location and extent of bird habitats within and adjacent to the inlet project area.

The general survey area is depicted in Figure 1. DRG staff accessed the shoals by boat and then walked the inlet shoreline by foot. Observations were recorded on a field data sheet and then transferred to a spreadsheet. The spreadsheet was updated throughout the monitoring period and included other general observations such as weather conditions, tides and disturbance factors.



Figure 1: Bird Monitoring Area (Approx.) (Aerial from TI Coastal dated July 2020)

Habitat Conditions

Intertidal flats include the area of unvegetated bottom which lies between the high and low tide mark within estuarine and marine systems. These areas provide important foraging and roosting habitat for a variety of shorebirds and colonial waterbirds. Intertidal shoals were evaluated during low to mid-tides when they were most exposed. The inlet and back-barrier shoals tend to be more protected from human and predator disturbance. As a result, these areas were observed to support a higher diversity and abundance of birds during each monitoring event. Additional foraging and roosting habitat occurs along the intertidal shoreline north of the inlet (southern part of Serenity Point). Refer to Appendix A for drone images that illustrate the extent

of shoals and habitats suitable for foraging and roosting within and adjacent to the inlet project area over the course of the monitoring period.

II. MONITORING RESULTS

A. General Bird Species Information:

Species richness (defined as the number of species identified within the monitored area) during the winter, spring, and fall monitoring events was 35 species (compared to 34 species during the 2020/2021 monitoring season). The comprehensive data sheet depicting number of birds by species and monitoring event is provided as Appendix B. Over the course of the entire monitoring period, the most abundant species within and adjacent to the survey area (ranked in order) were: (1) Dunlin (*Calidris alpina*); (2) Sanderling (*Calidris alba*); (3) Laughing Gull (*Leucophaeus atricilla*); (4) Ring-Billed Gull (*Larus delawarensis*); and (5) Short-Billed Dowitcher (*Limnodromus griseus*). In addition to total abundance and ranks, the peak count (i.e. highest count of a species documented during a single monitoring event) for selected species by month are presented in Table 1. Peak counts were seasonally variable depending on species utilization of the project area and weather conditions. Shorebirds were most frequently observed foraging at the water's edge and in other low spots of the large intertidal shoals or roosting on the higher elevations of the shoals.

Table 1. Peak counts for selected species by season.

Species	Season		
	Winter	Spring	Fall
Black Skimmer	0	0	11
Black-Bellied Plover	16	16	19
Brown Pelican	70	26	9
Common Tern	2	4	0
Dunlin	213	85	0
Laughing Gull	141	13	71
Least Tern	0	102	0
Piping Plover	7	11	14
Ring-Billed Gull	93	47	61
Royal Tern	5	44	104
Sanderling	56	48	107
Sandwich Tern	50	17	130
Semipalmated Plover	17	43	27
Willet	2	18	5
Wilson's Plover	0	1	0

Additionally, eleven state or federally listed species were recorded during the monitoring period (refer to Table 2).

Table 2. State or federally listed species observed in Topsail Beach Project Area¹

Species	State Status	Federal Status
American Oystercatcher	Special Concern	---
Black Skimmer	Special Concern	---
Brown Pelican	Significantly Rare	---
Caspian Tern	Significantly Rare	---
Common Tern	Special Concern	---
Forster’s Tern	W2 Watchlist ³	---
Least Tern	Special Concern	---
Piping Plover	Threatened	Threatened, Atlantic Coast Population Endangered, Great Lakes Population ²
Sandwich Tern	W2 Watchlist ³	---
Tri-Colored Heron	Special Concern	---
Wilson’s Plover	Special Concern	---

¹ December 13, 2021 through September 22, 2022

² Typically only observed in the early Spring and Winter during migration

³ W2 = species rare, but relatively secure

Piping Plover

The piping plover (*Charadrius melodus*) is present throughout the year in North Carolina and utilizes the coastal habitats for foraging, roosting, nesting, wintering and migrating. Additionally, portions of the project area are classified as critical habitat for the wintering species. According to the Biological Assessment that was prepared for the Topsail Beach project, the area around New Topsail Inlet is one of the most important sites in the state for migrating and wintering piping plovers. Piping plover individuals were observed during every monitoring event. The number of piping plovers observed per event varied from 1 to 14 individuals (compared to 1 – 10 individuals during the 2020 – 2021 monitoring year). They were mostly observed foraging within the northern shoals. However, on March 29, 2022, one individual was observed foraging at the inlet.

Two banded piping plovers were documented in the project area during the monitoring period. Band information was emailed to the respective tracking offices to obtain information about each bird. One banded plover that was observed on 12/13/21 is from the threatened Atlantic Coast Population. This individual was banded on 5/16/2021 as a nesting female at Robert Moses State Park on Long Island, NY. Thus far, the only reports of her off the breeding grounds are from Topsail Inlet in 2021. The other banded piping plover was observed on 9/22/22 and is from the endangered Great Lakes Population. This female hatched in 2020 at Wilderness State Park, MI. In 2022 she began breeding at Whitefish Point in Michigan's upper peninsula. She and her mate

fledged one chick. According to the agency that tracks these birds, she was also seen at Topsail Island in February of 2021.

Red Knot

The red knot (*Calidris canutus rufa*) makes one of the longest distance annual migrations, traveling up to 19,000 miles between its breeding grounds in the Canadian Arctic and several wintering regions, including the Southeast United States (Niles *et al.* 2008). Large and small groups of red knots, sometimes numbering in the thousands, may occur in suitable habitats all along the Atlantic and Gulf coasts from Argentina to Canada during migration. Habitats used by red knots in spring/fall migrations and wintering areas are generally tidal habitats with large areas of exposed intertidal sediments. Red knots are most commonly observed migrating through this region during the late spring to early summer, but individuals may be observed throughout the year. As in the previous monitoring year, no red knots were observed during any of the monitoring events.

B. Disturbance Activities

It is well-documented that human disturbances can influence bird behavior such as roosting and foraging. The intertidal shoals around the inlet are inaccessible to foot traffic and generally protected from human disturbance except for boaters. Boaters and kayakers were observed on the northernmost shoals during the spring and fall monitoring events. Oftentimes, off-leash dogs were also present. Birds were found to either move to another end of the shoal or to the southern shoals to continue foraging.

The intertidal areas at the southern end of Serenity Point are directly connected to the beachfront and are more accessible by pedestrians and beachgoers. However, these intertidal areas are approximately 2,500 feet from the nearest home and even further away from the nearest public beach access point. Between 10 and 20 beachwalkers were typically observed along the walking path perimeter of the inlet during each monitoring event; though this was variable based upon season and weather conditions (highest number observed during early fall). Fishermen were often seen fishing at the inlet and beachwalkers were usually observed along the northwestern beach of Serenity Point. Additionally, the Town of Topsail Beach allows dogs on the beach throughout the year (must be leashed May 15th – September 30th). Leashed and unleashed dogs were regularly observed along the beachfront and at the inlet.

Fewer birds were observed utilizing intertidal areas at the inlet. This is likely due to the inlet having a smaller amount of intertidal foraging habitat and because more people visit this area than the shoals. It should be noted that monitoring was performed during the winter, spring, and fall seasons and, therefore, did not capture potential disturbances associated with periods of the highest recreational use during the summer season.

III. CONCLUSION

The 2021-2022 monitoring that was conducted within the Topsail Beach project area found that the intertidal areas near the inlet continue to provide foraging and roosting habitat for a variety of permanent and migratory shorebirds and waterbirds. These birds were found to use the shoals even when human disturbances were nearby. Piping plovers were observed utilizing the intertidal areas during the winter, spring, and fall seasons. Two banded individuals were observed: one from the threatened Atlantic Coast Population and one from the endangered Great Lakes Population. No red knots were observed.

REFERENCES

- Floyd, L., Carter, A., and York, D., 2009. Topsail Beach Interim (Emergency) Beach Fill Project: Final Biological Assessment, Section 7 Endangered Species Act. Wilmington, North Carolina: Coastal Planning & Engineering of North Carolina, Inc. 39p. Prepared for the Town of Topsail Beach, North Carolina.
- Niles, L., A. Sitters, P. Dey, A. Atkinson, K. Baker. 2008. Status of the red knot (*Calidris canutus rufus*) in the western hemisphere. *Studies in Avian Biology*, 36: 1-185.

**APPENDIX A.
SITE PHOTOS**

January 2022 Aerial Mosaic of Project Area (overlaid on Google Earth May 2021 Aerial)



March 2022 Aerial Mosaic of Project Area (overlaid on Google Earth May 2021 Aerial)



September 2022 Aerial Mosaic of Project Area (overlaid on Google Earth May 2021 Aerial)



Brown pelicans, terns, and gulls resting on shoal (12/13/21)



Piping plovers and dunlins foraging on intertidal shoal (12/13/21)



Banded piping plover foraging on shoal (12/13/21)



Aerial oblique of shoals looking northeast (1/28/22)



Aerial oblique of inlet and shoals looking northwest (3/13/22)



Laughing gull pair resting at inlet (3/18/22)



Dunlins and black-bellied plovers foraging on shoals (3/18/22)



Piping plovers and semi-palmated plovers foraging on shoal (3/29/22)



Terns and gulls resting on shoals (3/29/22)



Great egret and tri-colored heron wading (9/16/22)



Aerial oblique looking northwest across shoals and beachfront at low tide (9/20/22)



Aerial oblique looking southeast across shoals and beachfront (9/20/22)



Aerial oblique looking south across inlet (9/20/22)



Banded piping plover foraging on intertidal shoal (9/22/22)



Group of piping plovers foraging on shoal (9/22/22)



Terns resting on shoal (9/22/22)



Fishermen at inlet (9/22/22)



APPENDIX B.
BIRD MONITORING SPREADSHEET

