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## BANDED ROYAL TERNS RECOVERED AT SEBASTIAN INLET, FLORIDA

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Along the Atlantic coast of the United States, Royal Terns (*Sterna maxima*) winter from North Carolina south through Florida (Clapp et al. 1983). Although the species is fairly common along both coasts of Florida the entire year, the local population is greatly increased in winter by terns migrating from breeding colonies farther north (Van Velzen 1968, Van Velzen 1971, Clapp et al. 1983, Robertson and Woolfenden 1992). Wintering Royal Terns also are found at some inland, freshwater lakes and rivers in central and southern Florida (Barbour and Schreiber 1978, Egensteiner et al. in press). Florida recoveries of banded migrants from Virginia (Van Velzen 1968) and the Carolinas (Van Velzen 1971) have been previously reported. This note reports the data obtained from 41 Royal Tern bands recovered by park service staff from Sebastian Inlet State Recreation Area (SISRA) during the years 1979 to 1992.

SISRA consists of 234 ha located about 22.6 km north of Vero Beach, at the juncture of Brevard and Indian River counties. The Sebastian Inlet essentially bisects SISRA. The area is managed by the Florida Department of Environmental Protection (FDEP), Florida Park Service.

Approximately three miles of State Road A-1-A pass through SISRA. A two-lane bridge crosses Sebastian Inlet, and provides considerable data on marine bird use of the area in the form of road kills resulting from collisions with motor vehicles. At least 84 Royal Terns, 11 Brown Pelicans (*Pelecanus occidentalis*), two Sandwich Terns (*Sterna sandvicensis*), and one Black Skimmer (*Rynchops niger*) have been killed in this manner since the initiation of regular road kill surveys in 1989 (FDEP, unpubl. data). Opportunistic collection of dead, banded birds has been sporadically conducted in SISRA since 1979. Royal Tern bands were recovered mostly in winter, at the bridge site and adjacent Atlantic coast beach of Sebastian Inlet.

Forty-one bands were recovered from terns banded at eight locations (Table 1). The subset of these data encompassing only the period of more intensive surveys by SISRA staff (1989-1992) includes recoveries ( $n=23$ ) from five of these sites: near Lola, 1 band (4.3%); near Kiptopeke, 2 bands (8.7%); approx. 18 km S of Wanchese, 3 bands (13.0%); near Beaufort, 8 bands (34.8%); and near Kure Beach, 9 bands (39.1%).

All of the Royal Terns recovered near Sebastian Inlet were banded as immature (too young to fly) birds in their northern colonies. Ages of birds recovered during 1979 to 1992 ranged from approximately 5 months to 3 yr 10 months. Ages of birds recovered during the subset period of 1989 to 1992 ranged from approximately 5 months to 1 yr 6 months, with a preponderance of approximately 0.5 yr ( $n=11$ ) and 1.5 yr ( $n=7$ ) age class birds. Most recoveries were made during winter. The recoveries from 1989 to 1992 were most often made in December (7 bands, 30.4%) and January (11 bands, 47.8%).

Similar trends have been noted in previous studies. Van Velzen (1968) analyzed data from Royal Terns banded in Virginia and reported that recoveries in Florida occurred from November through June, with about one third of these obtained during January; all birds were less than one year old. Van Velzen (1971) also analyzed data from 21 recovered Royal Terns banded in South Carolina and reported that most were found in the initial fall and winter after they were banded. Most of these birds were recovered at various locations in Florida, including one at Sebastian Inlet (Van Velzen

**Table 1. Locations where Royal Terns were banded.**

Approximate location*	Number of bands recovered	Percent**
14.5 km E of Birdnest, Virginia	2	4.9
Cape Lookout, North Carolina	2	4.9
Hatteras, North Carolina	2	4.9
Lola, North Carolina	3	7.3
Kiptopeke, Virginia	4	9.8
18 km S of Wanchese, North Carolina	5	12.2
Beaufort, North Carolina	11	26.8
Kure Beach, North Carolina	12	29.3
Total	41	100.1

\* All locations obtained from individual USFWS recovery certificates.

\*\*All percentages are rounded up; therefore, total percentage is slightly greater than 100.

1971). The SISRA staff recoveries at Sebastian Inlet show very similar patterns of seasonal use and age classes as these studies.

Data presented herein suggest that the Sebastian Inlet area may be a much frequented wintering or winter staging area for some Royal Terns migrating southward from the banding locations we have identified. More specifically, there may be a temporal abundance at the inlet of first and second year birds from these locations during winter, particularly December and January. Alternately, these recoveries may be more a general function of high juvenile mortality and less a trend of local age class wintering. Furthermore, more intensive banding efforts at some breeding grounds during various years, and increased survey frequency during some months, may have amplified band recovery patterns. Additional research would be helpful to determine why the area is frequented by these migrants. Buckley and Buckley (1972:344) reported that Royal Tern breeding colonies in Virginia and North Carolina were consistently located "at or very near an inlet between bay and ocean." Perhaps a similar attraction for inlets may influence some Royal Terns in winter at Sebastian Inlet.

We thank the many staff members at SISRA that over the years doggedly collected bands from Royal Terns. This report is dedicated to their efforts. William McGarvey, Greg Toppin, and Kim Chase supplied computer assistance. Peter Merritt, James Rodgers, Jeffery Gore, and Ted Below provided review comments which improved the manuscript. Micou Browne supplied unpublished data. The U.S. Fish and Wildlife Service promptly provided us with band recovery certificates on 41 separate occasions.

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