

Recoveries of Black Skimmers (*Rynchops niger*) Banded in South Carolina

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Abstract

Analysis of 79 recoveries of Black Skimmer chicks banded in South Carolina from 1930–1999 suggests a 2% recovery rate. The majority of recoveries occurred in Florida (58%) but they ranged from Alabama and Tennessee to Nova Scotia. Most of the recoveries during the breeding season occurred in South Carolina indicating skimmers tend to return to colonies near their natal sites to breed. Skimmers that hatch in South Carolina primarily winter on the Atlantic and Gulf coasts of Florida although smaller numbers may stay year-round in South Carolina. 54% of the recoveries of dead birds were first-year birds, suggesting that this age class is more vulnerable than after-first-year birds. Human-related causes of death included entanglement in fishing gear, motor vehicle strikes or gunshot wounds.

Introduction

The Black Skimmer (*Rynchops niger*) is a coastal seabird that has an extensive distribution in North and Central America. Breeding colonies are observed along the Atlantic coast as far north as Massachusetts and as far south as parts of Mexico (Gochfeld and Burger 1994; Clapp et al. 1983). On the east coast of North America, wintering birds are more common from South Carolina to Florida (Post and Gauthreaux 1989), along the Gulf Coast, on the coast of Mexico, and on the coast of Central America as far south as Costa Rica (Gochfeld and Burger 1994). They are rarely seen north of North Carolina or as far south as Panama in the winter (Ridgely and Gwynne 1989 cited in Gochfeld and Burger 1994). Some Black Skimmers are non-migratory and may have year-round presence in areas such as Florida and the Gulf Coast of the United States (Gochfeld and Burger 1994). In South Carolina, Black Skimmers congregate at breeding sites in late April or early May. Nesting may continue into August or September (Burger and Gochfeld 1990).

Limited information about migratory patterns is available, partly due to relatively few band recoveries and limited band recovery studies. Although

45,592 Black Skimmers have been banded in the United States, only 1,424 (3%) have been recovered (U.S. Geological Survey 2010), and there are no published reports of recovered Black Skimmers banded in South Carolina. This study will analyze recoveries of Black Skimmers banded in South Carolina to identify wintering sites, ages, and causes of mortality.

Methods

This study analyzed 79 band recoveries between 1930 and 1999 of Black Skimmers banded in South Carolina, based on data provided by the Bird Banding Laboratory of U. S. Geological Survey. The distance between banding and recovery locations was calculated from longitude and latitude information. One record did not have latitude and longitude of recovery and is not included in recovery location results. Nine recoveries were not included in the distance calculation because they are outside normal breeding or wintering range of this species and are possible errors. One recovery was from Canada, and eight recoveries were located inland. Five of the recovery locations have the same longitude and latitude as a banding location and were also not included in calculation of distance moved. Means are reported \pm SE. Locations were mapped using a Geographic Information System (ESRI 2009).

For this analysis, because all skimmers were banded as chicks, skimmers that were recovered within one year of banding date were categorized as first-year birds. Several birds were caught and released or the band was read with a scope and therefore there was no information concerning the condition of bird at recovery. These band recoveries are not included in the calculation of age or causes of death. Breeding season recoveries were defined as those from May through August and winter recoveries from December through February.

Results

Between 1930 and 1955, the Bird Banding Lab estimated 2,000 skimmers were banded in South Carolina and 36 (2%) were recovered. Between 1956 and 1999, 2,599 skimmers were banded in South Carolina and 44 (2%) were recovered. Skimmers recovered originated from eight locations and were banded as unfledged chicks from July to August and one in September. A majority of band recoveries were in Florida, but ranged from Alabama and Tennessee to Nova Scotia (Table 1) (Figure 1). Only five recoveries were reported north of South Carolina: Maryland, 31 July 1965;

Table 1. Number of recoveries of Black Skimmers banded as chicks in South Carolina.

State	Number of Recoveries (%)
Florida	45(58)
South Carolina	17(22)
Georgia	9(11)
North Carolina	3(4)
Other (Alabama, Maryland, Tennessee, Canada)	4(5)
Total	78(100)

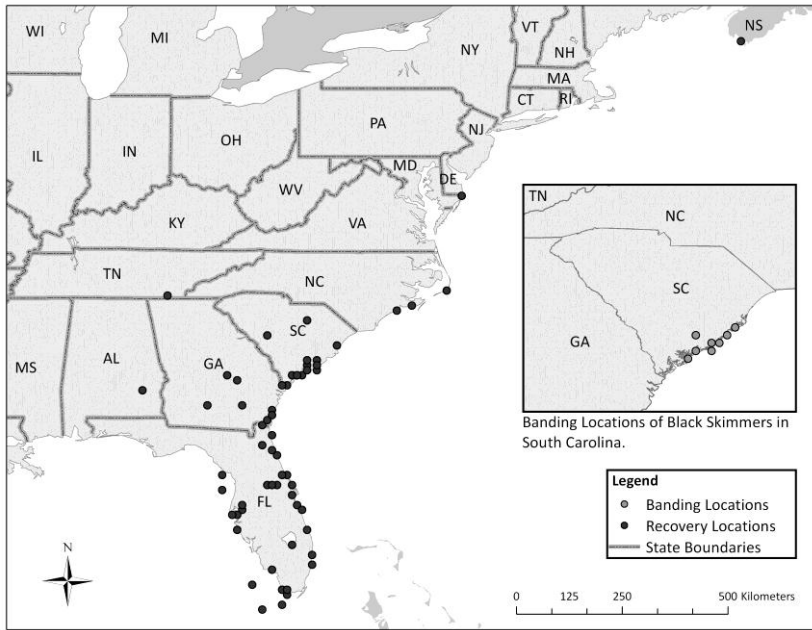


Figure 1. Banding and recovery locations of Black Skimmers banded as chicks in South Carolina.

North Carolina, 26 November 1983, 5 November 1938, and 24 January 1940; and Canada, 31 October 1968. Recoveries from the breeding season were from the Gulf Coast of Florida (2 years old, N = 1), Georgia (9 years, N = 2), South Carolina (2–9 years, N = 7), and Maryland (9 years, N = 1). Winter recoveries were from four states: Florida (N = 32), Georgia (N = 4), South Carolina (N = 3) and North Carolina (N = 1).

Band recoveries peaked in 1931, 1940 and 1971. Only two recoveries have been reported since 1983 and none after 1999 (Figure 2). Distances moved from banding location to recovery location ranged from 19 to 908 km. The average distance from the banding location to the recovery location was 454 ± 31 km (19–908 km, N=64 recoveries). Average distance of first-year birds was 446 ± 40 km (18–908 km, N=33) and the distance for birds older than one year was 517 ± 44 km (60–822 km, N = 19).

The band number was reported but no other information was provided for 13% (N=10) of recoveries or the bird was alive when recovered in 9% (N=7) of recoveries. Six of the alive recoveries included location information and are from: Maryland (9 years old, caught during banding effort in July), South Carolina (1 year, captured for scientific purposes and released in June), South Carolina (6 years, captured during banding effort in September), Georgia (first-year, captured for scientific purposes and released in February), Florida (12 years, caught by hand in March) and Florida (4 years, band read from telescope in January).

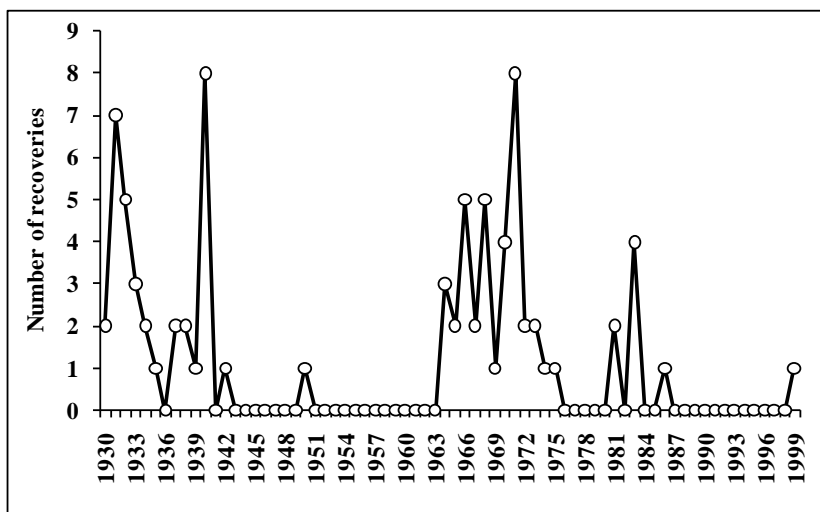


Figure 2. Number of recoveries of Black Skimmers banded as chicks in South Carolina from 1930 to 1999.

Of the birds found dead, the cause of death was unknown for 61% (N=38) of the recoveries. Only 30% (N=24) of the total records have the cause of death included with the recovery location. The majority of the birds in this study that were shot were recovered in the 1930s and 1940s and one in 1968. The cause of death for the oldest skimmer (age 16 years) was predation by a cat (Table 2). A majority of the birds found dead (55%, N=33) were first-year birds. The oldest bird recovered was 16 years old (Figure 3).

Table 2. Causes of mortality by age class of recovered Black Skimmers banded as chicks in South Carolina.

Cause	First-year (% of total dead recoveries)	After first-year (% of total dead recoveries)
Cause unknown (found dead)	20 (32)	18 (29)
Shotgun wound	4 (6)	6 (10)
Natural causes (predation, injury, disease, starvation)	6 (10)	0 (0)
Fishing gear entanglement	1 (2)	4 (6)
Motor vehicle strike	2 (3)	1 (2)
Total	33 (53)	29 (47)

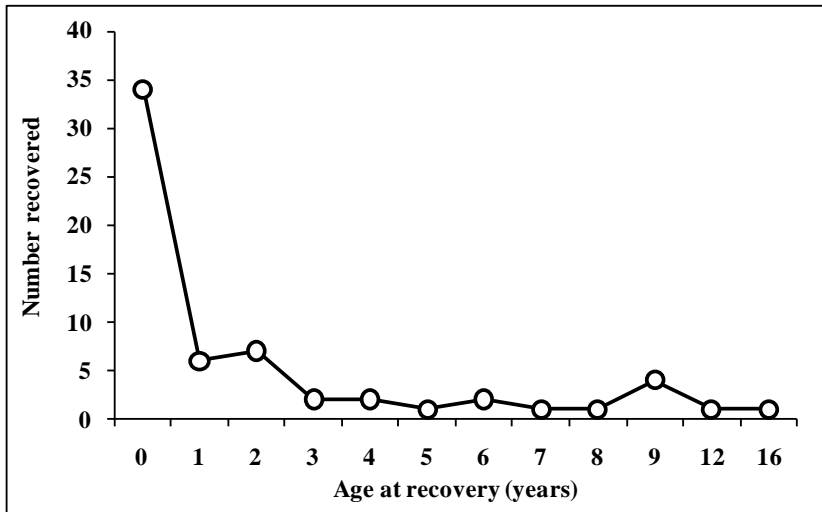


Figure 3. Number and age of recovered Black Skimmers from South Carolina.

Discussion

Skimmers that hatch in South Carolina primarily winter on the Atlantic and Gulf coasts of Florida although smaller numbers may stay year round in South Carolina. The majority of the skimmers recovered in the breeding season were recovered in South Carolina, although the recovery in Maryland indicates some may breed far from their natal site. This movement is consistent with migration patterns in nearby states. Between 1958 and 1963, Black Skimmer chicks were banded on Little Egg Island, Georgia (N=826) (Kale 1967). Nine of these chicks were recovered dead, all in Florida and during the non-breeding season. The average distance from the banding location to the recovery location was 223 km. Between 1996 and 1998, a small number of chicks were banded on the Gulf Coast of Florida (N=207) (Sprandel et al. 1999). Of the fourteen chicks that were re-sighted, all but one individual were re-sighted on the Florida Gulf Coast panhandle; the exception was re-sighted on the coast of Alabama. The average distance from the banding location to the recovery location was 332 km.

Black Skimmers are rarely observed inland in the northern hemisphere (Clapp et al. 1983), although some recoveries in this study were from inland Alabama, Georgia, Tennessee and South Carolina. Inland breeding colonies have been present at the Salton Sea in California since the 1970s (Gochfeld and Burger 1994; Grant and Hogg 1976) and several individuals have been observed inland in Mexico (Williams 1982), but inland recoveries on the Atlantic Coast are rare. Hurricanes or strong storms could account for inland recoveries. In 1958, a hurricane on the east coast of the United States

displaced Black Skimmers to Newfoundland, marking the first year that skimmers were reported that far north. The recovered birds were from colonies in Virginia, North Carolina and New Jersey (Tuck 1968; Tordoff and Southern 1959). In this study, one recovery was in Nova Scotia, Canada in October 1968. There were several hurricanes on the east coast in the fall of 1968 (Sugg and Hebert 1969), and this could be an explanation for the South Carolina recovery in Canada.

Age of recovered skimmers ranged from 0–20 years. Similar to other studies (Burger and Gochfeld 1990), first-year birds in this study were more vulnerable to natural causes of death compared to after-first-year skimmers. The oldest bird recovered, 16 years, was approaching the age of the oldest known skimmer, 20 years (Clapp et al. 1982), but did not die from natural causes. Disease, inclement weather, food shortage, fishing gear entanglement and predation have previously been documented as causes for Black Skimmer mortality (Burger and Gochfeld 1990; Clapp et al. 1983). Gunshot wounds (N=2, Tuck 1968) and vehicle strikes (N=2, Kale 1967) have been reported in other studies but in smaller numbers. Other studies have documented shorebirds and seabirds being hit by motor vehicles (Schorger 1954), especially on bridges over marshes or over causeways.

Recovery locations may not be inclusive of all places that birds banded in South Carolina could be recovered. Results of recovery locations depend on the intensity and location of banding and recovery efforts. If banding and recovery efforts are more uniform and inclusive over time, recovery patterns could be different than the results displayed in this analysis. Since no recoveries of Black Skimmers have been reported since 1999, continued banding can expand knowledge about more recent causes of mortality and migratory patterns. Since only 2% of banded birds were recovered, a large banding effort is needed for even a small number of recoveries. The need for more information about migratory patterns was underscored during the 2010 Deepwater Horizon oil spill in the Gulf coast. This band recovery study demonstrates that skimmers breeding on the Atlantic coast travel to the Gulf coast during the non-breeding season and consequently are vulnerable to environmental hazards on both coasts. Knowledge of a species' movement patterns during the non-breeding season is important in interpreting population trends observed on breeding grounds.

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