Seabird Survey Report

1-6 August 2018

Integrated Statistics, Northeast Fisheries Science Center Contractor

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Objective:

The primary goal of conducting seabird surveys aboard NOAA ship Henry B. Bigelow in August 2018 was to use a one-way ship transit to gather abundance and distribution data for seabirds. Our secondary objective was to collect abundance and distribution data for other marine megafauna including marine mammals, sea turtles, sharks, and other large pelagic fishes. The ship departed Miami, Florida, visited the Atlantic Undersea Test and Evaluation Center (AUTEC) range at Andros Island, Bahamas to collect acoustic data for the ship, and then transited north to NAVSTA Newport, Rhode Island.

In order to maximize the value of seabird data collected during this short, opportunistic transit (not a dedicated, stand-alone biological survey), we requested a course approximating the steep contour of the continental shelf edge during a large portion of the transit, especially as we headed north between Cape Hatteras and the Hudson Canyon; the ship's officers graciously honored this request when operations and conditions allowed. This route allowed us to sample the steep shelf contour as well as cross over several productive shelf-edge canyons.

Collecting and interpreting this data in conjunction with other biological data and abiotic factors will help establish baseline status and distribution information for a suite of relatively poorly known organisms, and will also help to illustrate any changes occurring in the marine ecosystem in the western North Atlantic between Florida, the Bahamas, and New England. The data collected during this short cruise are only a small piece in the larger puzzle of our understanding of this complex marine ecosystem.

Methods:

The protocol used for this survey is based on a standardized 300 meter strip transect survey used by various agencies in North America and Europe (e.g., Anon 2011, Ballance 2011; Tasker 2004).

The survey strip is 300 meters wide; observers collect data on all seabirds within that strip, between the bow and 90 degrees to one side of the ship (chosen based on viewing conditions). Observations can be made in seas up to Beaufort 7, in light rain, fog, and ship

speeds between 8-12 knots (below 8 knots, the data becomes questionable for use in abundance estimates).

Surveys were conducted from the flying bridge (15 m) of NOAA ship Henry B. Bigelow (R 225).

We used the software "SeeBird version 4.3.7" loaded on a Panasonic Toughbook computer to collect data. This software draws GPS coordinates and time from the ship's computer system through a NMEA data feed so each observation receives a Lat/Long, time stamp, and ship's course. During this particular cruise, course data was not reliably included with the computer feed, so this category should be regarded with caution in the data; to account for this, observers manually entered the course in the "notes" field during course changes. The standard data collected for observations included species, distance, number of individuals, association, behavior, and if possible or applicable, age, sex, and plumage status. Flocks of seabirds were recorded in the regular sighting data module, with species counted within a given flock given a special "flock" notation in the comment section, along with an estimated distance to that flock from the transect line. While SeeBird was not specifically designed to collect data on non-avian marine megafauna, observations of these animals were recorded as well.

During daylight hours on survey days, observers alternated on two-hour shifts to prevent observer fatigue. Observers utilized binoculars (10x42 or 8x42) for general scanning purposes within the survey strip. Identifications were frequently confirmed or supported using digital SLR cameras with 400 mm lenses. It should be emphasized that photographic documentation of seabirds is an integral part of the identification and therefore the survey process, and camera equipment should be a standard part of the seabird observer's toolkit. To estimate distance, observers used custom range finders based on height above water and the observers' personal body measurement (Heinemann 1981); at the beginning of the cruise, we checked our distance estimates at the dock in Miami using GPS measurements and satellite imagery, and then used fixed points on the ship's jack staff relative to the ocean and horizon to continually check at-sea estimates.

Results:

The ship covered approximately 1400 nautical miles between Miami, Florida, the AUTEC range at Andros Island, Bahamas, and the continental shelf north to Newport, Rhode Island.

Seabird Sightings

During the survey, we recorded a total of 1,858 total birds, including 463 birds within the 300 meter strip closest to the ship ("in the zone"). Seabird activity was relatively light overall, typical of summer in this region; Wilson's Storm-Petrel and Sooty Tern were the most common seabird species that we identified; it should be noted that the Sooty Terns were primarily found in warm, subtropical water in the Florida-Bahamas region. The number of Black-capped Petrels (117) that we detected offshore from South Carolina and North Carolina on 4-5 August is notable since this endangered species is thought to have a world population of only ~5000

individuals (Farnsworth 2010). Two regionally rare seabird species were observed during the cruise: White-tailed Tropicbird (2) and White-faced Storm-Petrel (5). Both are expected in very small numbers during the region in August, but their presence was still welcomed by the excited observers. Small numbers of a broad diversity of migrating shorebirds and a few songbirds were found during the survey, too. Seabird taxonomy/ names refer to new 2018 eBird nomenclature.

Table 1. Total Number of Birds Observed

Common Name	**Scientific Name**	**Total**	**# in zone**
Black-bellied Plover	*Pluvialis squatarola*	1	0
Ruddy Turnstone	*Arenaria interpres*	2	2
Stilt Sandpiper	*Calidris himantopus*	1	1
Least Sandpiper	*Calidris minutilla*	2	2
Pectoral Sandpiper	*Calidris melanotos*	8	8
Peep (small sandpiper) sp.	*Calidris sp. (small)*	2	2
Short-billed Dowitcher	*Limnodromus griseus*	11	11
Dowitcher sp.	*Limnodromus sp.*	1	1
Red-necked Phalarope	*Phalaropus lobatus*	13	7
Phalarope sp.	*Phalaropus sp.*	1	0
Solitary Sandpiper	*Tringa solitaria*	6	6
Greater Yellowlegs	*Tringa melanoleuca*	1	0
Shorebird sp.	*Charadriiformes sp.*	10	0
Pomarine Jaeger	*Stercorarius pomarinus*	1	1
Laughing Gull	*Leucophaeus atricilla*	67	35
Brown Noddy	*Anous stolidus*	48	9
Sooty Tern	*Onychoprion fuscatus*	327	59
Bridled Tern	*Onychoprion anaethetus*	50	15
Sooty/ Bridled Tern	*Onychoprion fuscatus/ anaethetus*	70	0
Least Tern	*Sternula antillarum*	2	2
Tern sp.	*Sterninae sp.*	3	0
White-tailed Tropicbird	*Phaethon lepturus*	2	1
Wilson's Storm-Petrel	*Oceanites oceanicus*	485	220
White-faced Storm-Petrel	*Pelagodroma marina*	5	2
Leach's Storm-Petrel	*Oceanodroma leucorhoa*	2	0
Band-rumped Storm-Petrel	*Oceanodroma castro*	6	1
Storm-petrel sp.	*Oceanitidae/ Hydrobatidae sp.*	453	0
Black-capped Petrel	*Pterodroma hasitata*	117	25
Cory's Shearwater	*Calonectris diomedea*	97	37
Great Shearwater	*Ardenna gravis*	12	4
Audubon's Shearwater	*Puffinus lherminieri*	29	9
Magnificent Frigatebird	*Fregata magnificens*	17	0

Brown Booby	*Sula leucogaster*	1	0
Barn Swallow	*Hirundo rustica*	4	2
Prairie Warbler	*Setophaga discolor*	1	1

Non-avian sightings

We detected 793 non-avian animals (including 789 mammals) during the survey, with 189 individuals inside the zone. Due to the difficulty of accurately counting groups of marine mammals at sea, these numbers should be considered estimates instead of exact counts. Most marine mammal sightings were either too brief or too distant to facilitate species-level identification – 83% of the marine mammals recorded (658/789) were recorded with general identifications. Cetaceans were relatively scarce during the majority of this short cruise. Our only exceptional observation was of large numbers of Pilot Whales (*Globicephala sp.)* along the continental shelf edge offshore from the Mid-Atlantic coastline on 5-6 August – many groups of 10-50 animals were seen at the surface during calm conditions.

Few fish and zero marine turtles were observed during the survey.

Table 2. Non-avian fauna

Mammals		**Total**	**# in zone**
Atlantic Spotted Dolphin	*Stenella frontalis*	46	40
Common Bottlenose Dolphin	*Tursiops truncatus*	50	20
Risso's Dolphin	*Grampus griseus*	8	0
Short-beaked Common Dolphin	*Delphinus delphis*	26	0
Dolphin sp.	*Delphinidae sp.*	171	2
Pilot Whale sp.	*Globicephala sp.*	466	125
Odontocete sp.	*Odontoceti (general)*	20	0
Whale sp.	*Odontoceti (whale)*	1	0
Fin Whale	*Balaenoptera physalus*	1	0
Ocean Sunfish	*Mola mola*	2	0
Portuguese Man-o-War	*Physalia physalis*	2	2

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