RED KNOT (*Calidris canutus rufa*) MONITORING AT CAPE LOOKOUT NATIONAL SEASHORE

2015 SUMMARY REPORT

A flagged Red Knot GF (CPM) and Sanderling Foraging in the Intertidal Zone on North Core Banks.
NPS Photo 2015

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Introduction

Serious declines in the population of red knots (*Calidrus canutus rufa*) led the U.S. Fish and Wildlife Service (USFWS) to provide protection under the Endangered Species Act. In December 2014, the red knot was designated as a threatened species (USFWS, 2014). Red knots use the Outer Banks of North Carolina as a stopover site in spring and fall migration. While not as important as some other coastal sites, the Outer Banks may still contribute to the survival of this species.

Previous monitoring of red knots at Cape Lookout National Seashore (CALO) was limited to surveys as part of a broader shorebird study in 1992 and 1993. North Core Banks had greater numbers of red knots than anywhere else in the Outer Banks (Dinsmore et al, 1998) but surveys in that study did not include any of the areas south of New Drum Inlet.

This report contains a summary of monitoring results for 2015 and comparisons to results from the earlier study and discussion of long-term monitoring of red knots at CALO.

Methods

Surveys for red knots were made of the entire ocean beach and inlet areas on North Core Banks (NCB) and South Core Banks (SCB) beginning in mid-March. The area between Old Drum Inlet and Ophelia Inlet was not monitored in 2015.

Our survey frequency and timing followed the International Shorebird Census guidelines for spring and fall. Counts were done near the 5^{th,} 15^{th,} and 25th of the month from March 15th to June 5th and from July 15th to October 15th.

Surveys were conducted by the park biologist or biological science technicians who have experience identifying shorebirds. Surveys were at different times of day, tides and weather conditions. Monitors recorded the number of red knots observed, the mile location, the latitude and longitude, the amount of human disturbance, tide level, and the accuracy of the count (See Appendix 1).

Results

Most of the red knots counted during our surveys were found on NCB with an average of 326 birds per count. SCB averaged 106 birds per count. NCB had the highest count of 2,201 birds on May 15. SCB highest count of 710 birds was on May 25. The peak numbers for the core banks were during spring migration with 2,757 birds counted during the May 15 census. The spring migration from 15 March to 5 June averaged 759 birds. There was also a small peak in late July through mid-August of fall migrants (Figure 1). The fall migration from 15 July to 25 October averaged 56 birds. Red knots were distributed over the length of the core banks (Figures 2 & 3). There were 8 banded birds re-sighted in the seashore, Appendix 2. The band re-sights were reported to www.report.bandedbirds.org

Discussion

Our monitoring confirmed the importance of the seashore as a stopover site for red knots, particularly during spring migration. The relative abundance of red knots on North Core Banks during peak spring migration was 74 birds/ kilometer compared to 34 birds/ kilometer in 1992-1993, Table 1 (Dinsmore et al, 1998). This is the second highest relative abundance recorded. Relative abundance has fluctuated for this migratory species from a low of 14 in 2009 to a high of 89 in 2014. Peak counts during spring migration ranged from April 25 to May 25. NCB has averaged more birds overall and had the highest peak counts. Monitoring data from 2006 to 2015 reveals the highest counts consistently occurred from Ocracoke Inlet to mile 7 on NCB and from Ophelia Inlet to mile 28 on SCB. Figure 4 illustrates the counts by mile section for the last 10 years of monitoring and Appendix 3 contains this data. Although the Outer Banks may not be as important as some other sites in the region such as Delaware Bay, the area still provides habitat that may be important for the recovery and long-term survival of red knots.

Table 1. Red knot Relative Abundance on North Core Banks, 1992-2015.

Year	Date	Peak Count	Kilometers	Relative Abundance
1992-1993			34	34
2006	5-May	618	30.3	20
2007	15-May	718	30.6	23
2008	15-Apr	1287	30.6	42
2009	25-May	525	36	14
2010	15-May	927	36	26
2011	15-May	648*	36	18
2012	25-April	1370	29.8	46
2013	25-May	854	29.8	29
2014	15-May	2666	29.8	89
2015	15-May	2201	29.8	74

*The year 2011 peak count was corrected from previous reports.

Literature Cited

Dinsmore, S.J., J.A. Collazo, and J.R. Walters. 1998. Seasonal numbers and distribution of shorebirds on North Carolina's Outer Banks. Wilson Bulletin 110:171-182.

U.S. Fish and Wildlife Service. 2014. Determination of Threatened and Endangered status of the Rufa Red Knot. Federal Register Vol.79 No.238:73706-73748.

Figure 1. Number of Red Knots Counted at Cape Lookout National Seashore in 2015.

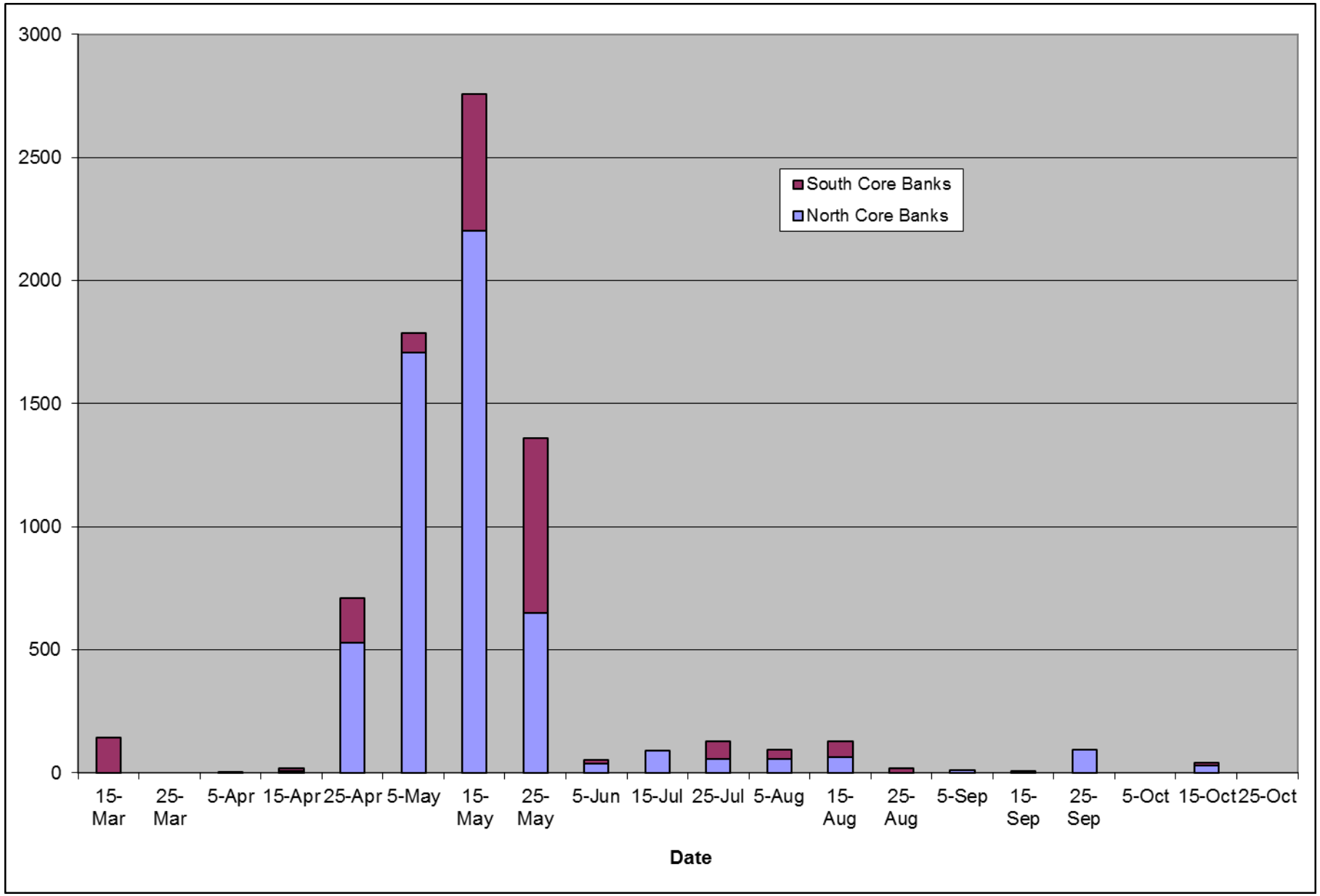


Figure 2. Geographic Distribution of Red Knots Counted on North Core Banks with Total Counts per Mile Section (# 501) in 2015.

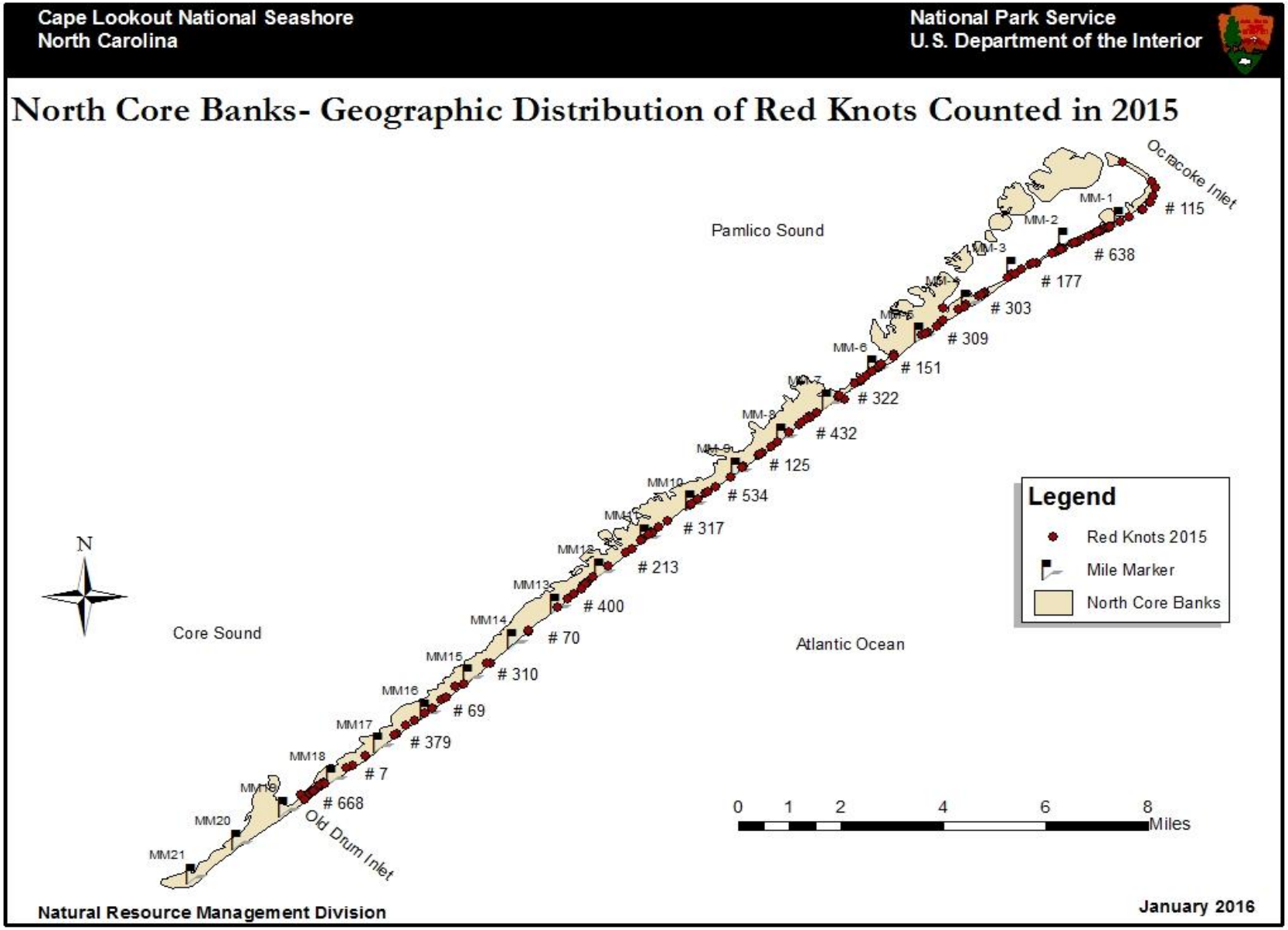


Figure 3. Geographic Distribution of Red Knots Counted on South Core Banks with Total Counts per Mile Section (# 15) in 2015.

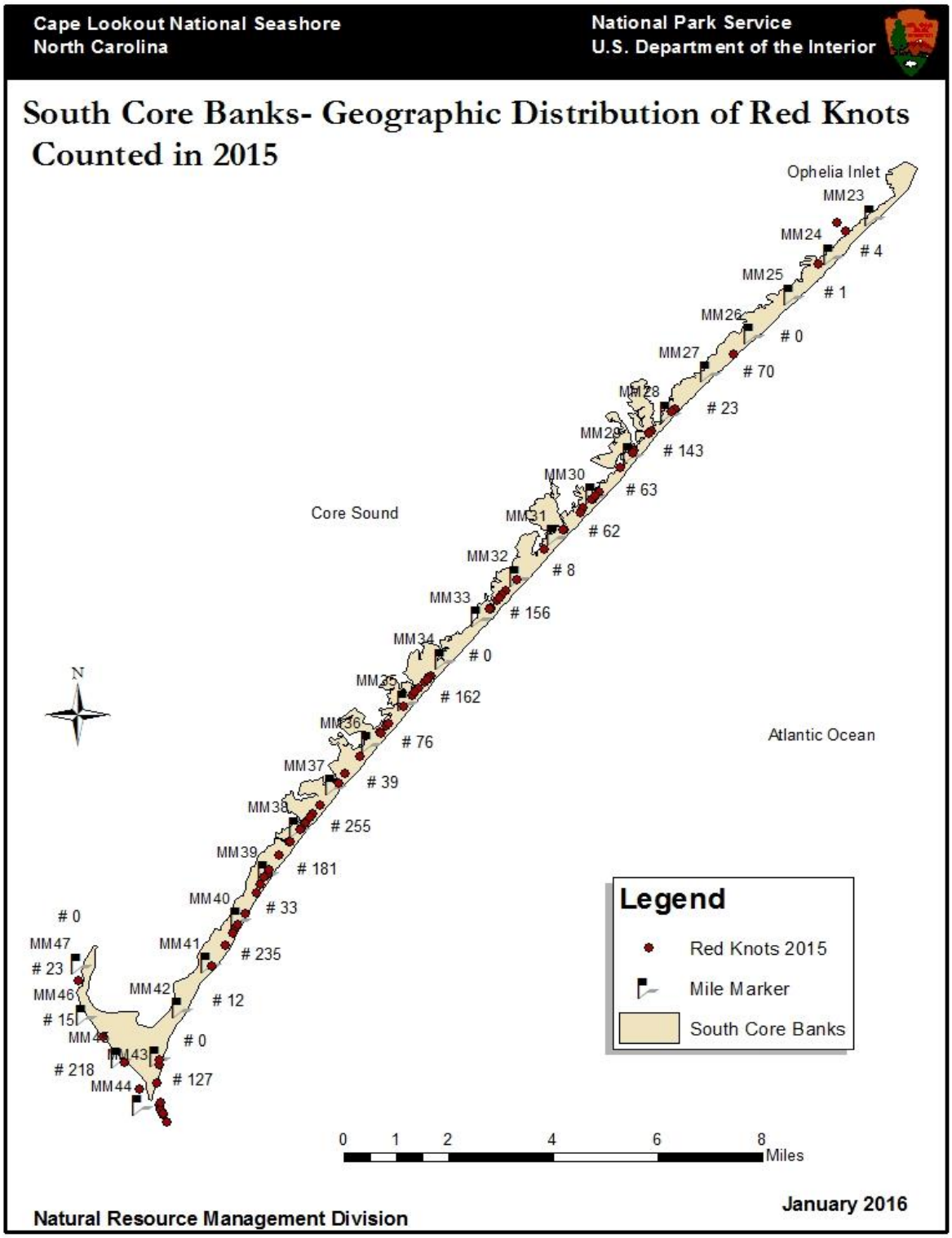
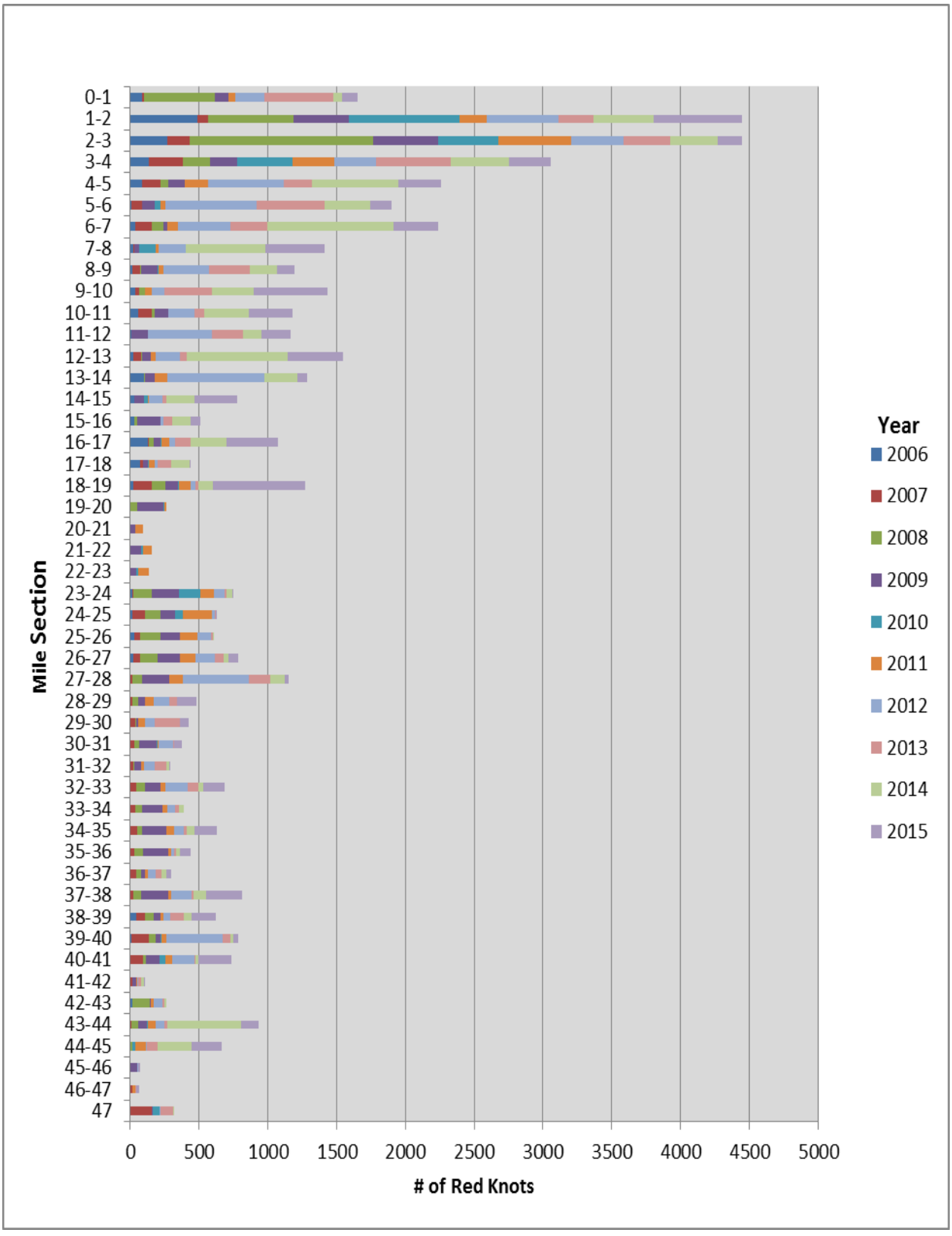


Figure 4. The Number of Red Knots by Mile Section from 2006 to 2015.



Appendix 1

RED KNOT (*Calidris canutus)* SURVEY DATA SHEET
Cape Lookout National Seashore

Name of Observer:_____

Date_____ Island_____ Start Time_____ End Time_____

# of REKN	Mile	Latitude (decimal degrees)	Longitude (decimal degrees)	Human Disturbance	Tide	Accuracy

Human disturbance: During this census, shorebirds were:
A=undisturbed, B=disturbed 1-2 times, C=3-4 times, D=5-10 times, E=>10 times, X= unknown

TIDE (coastal sites): 1=high, 2=near high/RISING, 3=near high/ FALLING, 4=half/RISING,5=half/FALLING, 6=near low/RISING, 7=near low/FALLING, 8=LOW, 9=unknown.

ACCURACY: Please indicate in each block whether your count is:
* a true count, ** an extrapolated estimate, or circle a "guestimate"

Appendix 2. 2015 Red Knot Band Re-Sight Data.

Month	Day	Observer	Island	#REKN	Mile	Latitude	Longitude	Disturb.	Tide	Ac.	Comments (Bands)
5	5	Jessica DeBoer	NCB	304	1.34	35.04942	-76.05152	B	8	*	Bands (total 5 banded adults): [UL: mint green flag w/ U78 in black] [UL: orange flag w/ EN1 in black; LR: blue band] [UL: yellow transmitter?; UR: mint green flag w/ 2AP in black] [UL: mint green flag] [UL: mint green flag]
7	15	Chelsey Stephenson	NCB	26	2.81	35.03832	-76.07339	A	8	*	UL-light green flag (3K1), LL-none; UR-none, LR-metal
8	15	Chelsey Stephenson	NCB	22	3.16	35.03557	-76.07762	A	5	*	UL: GF (AUM), LL: none; UR: white geolocater, LR: silver
9	5	Chelsey Stephenson	NCB	7	1.13	35.05086	-76.04812	A	6	*	UL: GF (CPM), LL: none; UR: none, LR: silver [photo taken]

Appendix 3. Red Knot Count Data from 2006 to 2015 by Mile Section.

Mile	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	Sum	Average
47	0	158	0	4	48	0	7	97	3	0	317	32
46-47	0	14	1	0	0	24	1	2	0	23	65	7
45-46	0	0	0	48	0	4	3	3	0	15	73	7
44-45	0	5	10	0	20	82	2	77	248	218	662	66
43-44	0	9	48	65	4	61	65	20	536	127	935	94
42-43	14	0	127	8	0	23	65	14	10	0	261	26
41-42	0	19	0	26	0	8	8	21	15	12	109	11
40-41	0	94	23	96	42	52	157	8	27	235	734	73
39-40	11	122	55	31	12	31	407	59	23	33	784	78
38-39	47	59	68	47	0	22	51	93	57	181	625	63
37-38	0	25	55	195	0	22	150	16	92	255	810	81
36-37	0	44	36	26	0	23	54	46	31	39	299	30
35-36	4	25	64	187	0	19	19	18	25	76	437	44
34-35	0	50	39	172	0	57	72	18	59	162	629	63
33-34	5	29	51	150	0	36	57	27	36	0	391	39
32-33	0	45	63	109	0	42	158	79	32	156	684	68
31-32	0	20	10	51	0	16	84	79	25	8	293	29
30-31	0	32	30	128	7	9	105	5	0	62	378	38
29-30	0	40	2	14	0	52	71	183	0	63	425	43
28-29	0	14	41	52	0	61	114	58	1	143	484	48
27-28	0	15	68	200	0	99	481	152	112	23	1150	115
26-27	21	53	128	163	0	109	140	66	37	70	787	79
25-26	30	45	144	142	0	129	99	13	3	0	605	61
24-25	15	96	112	103	58	211	23	3	1	1	623	62
23-24	17	6	137	192	155	101	78	15	42	4	747	75
22-23				45	16	77					138	46
21-22				81	14	59					154	51
20-21				38	0	53					91	30
19-20			49	190	9	15					263	66
18-19	21	139	98	89	8	84	39	17	109	668	1272	127
17-18	72	20	2	33	7	47	18	96	139	7	441	44
16-17	126	10	35	50	6	56	42	114	258	379	1076	108

Mile	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	Sum	Average
15-16	29	0	19	172	1	0	20	67	130	69	507	51
14-15	29	0	4	64	35	6	94	29	209	310	780	78
13-14	100	0	11	69	0	89	705	2	240	70	1286	129
12-13	24	56	5	66	0	35	174	51	737	400	1548	155
11-12	7	0	0	119	0	6	463	228	132	213	1168	117
10-11	57	102	20	98	3	0	186	74	325	317	1182	118
9-10	36	26	47	2	0	48	87	348	305	534	1433	143
8-9	18	54	4	123	5	41	328	295	198	125	1191	119
7-8	26	6	0	33	121	20	197	4	576	432	1415	142
6-7	40	116	83	31	0	81	376	267	920	322	2236	224
5-6	8	79	0	92	41	33	666	492	336	151	1898	190
4-5	87	132	61	115	1	169	552	207	624	309	2257	226
3-4	136	246	196	197	405	307	303	544	422	303	3059	306
2-3	273	160	1333	473	437	530	383	334	347	177	4447	445
1-2	491	78	618	404	804	196	526	249	443	638	4447	445
0-1	89	14	515	93	3	53	211	501	60	115	1654	165