

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

2014 SUMMARY REPORT



A Flock of Red Knots at the Intertidal Zone on North Core Banks. Britt Brown, NPS Photo 2014

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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 (Federal Register, 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 other areas 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 2014 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 2014.

Our survey frequency and timing followed the International Shorebird Census guidelines for spring and fall. Counts were done near the 5th, 15th, 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 with 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 321 birds per count. SCB averaged 71 birds per count. NCB had the highest count of 2,666 birds on May 15. SCB highest count of 365 birds was on May 5. The peak numbers for the core banks were during spring migration with 2,874 birds counted on the May 15 census. The spring migration from 15 March to 5 June averaged 773 birds. There was also a small peak in late July when fall migrants moved back through (Figure 1). The fall migration from 15 July to 25 October averaged 81 birds. Additional counts outside of the methodology yielded 16 birds on January 16th on Shackleford Banks and 67 birds on November 4th on NCB. Red knots were distributed over the length of the core banks (Figure 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 89 birds/ kilometer compared to 34 birds/ kilometer in 1992-1993, Table 1 (Dinsmore et al, 1998). This the highest relative abundance recorded. Relative abundance has fluctuated for this migratory species from a low of 14 in 2009 to this high of 89 in 2014. Peak counts during spring migration ranged from April 15 to May 25. NCB has averaged more birds overall and had the highest peak counts. Monitoring data from 2006 to 2014 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 9 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, 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, 1992-2014.

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

*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.

Figure 1. Number of Red Knots Counted at Cape Lookout National Seashore in 2014.

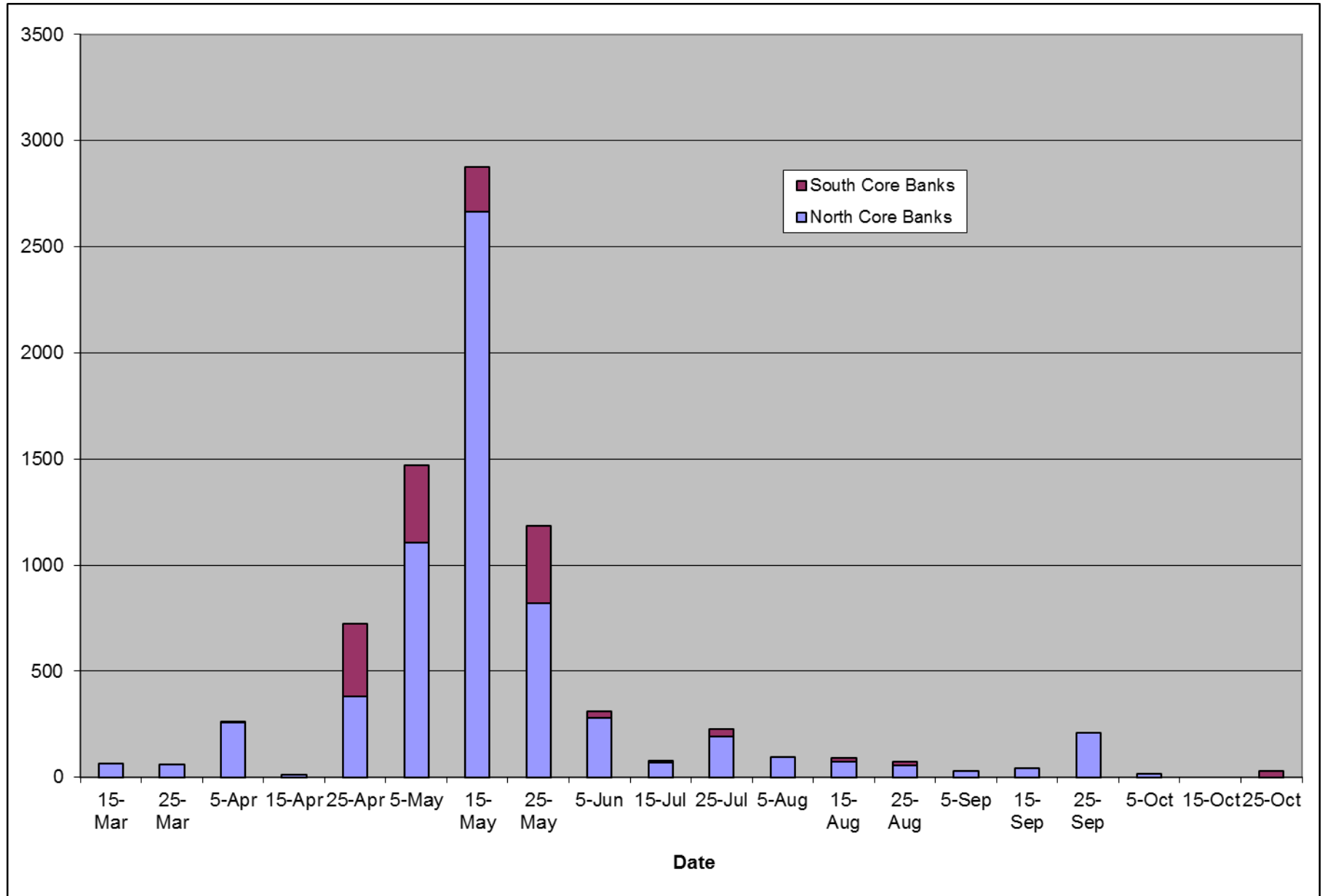


Figure 2. Geographic Distribution of Red Knots Counted on North Core Banks with Total Counts per Mile Section (# 501) in 2014.

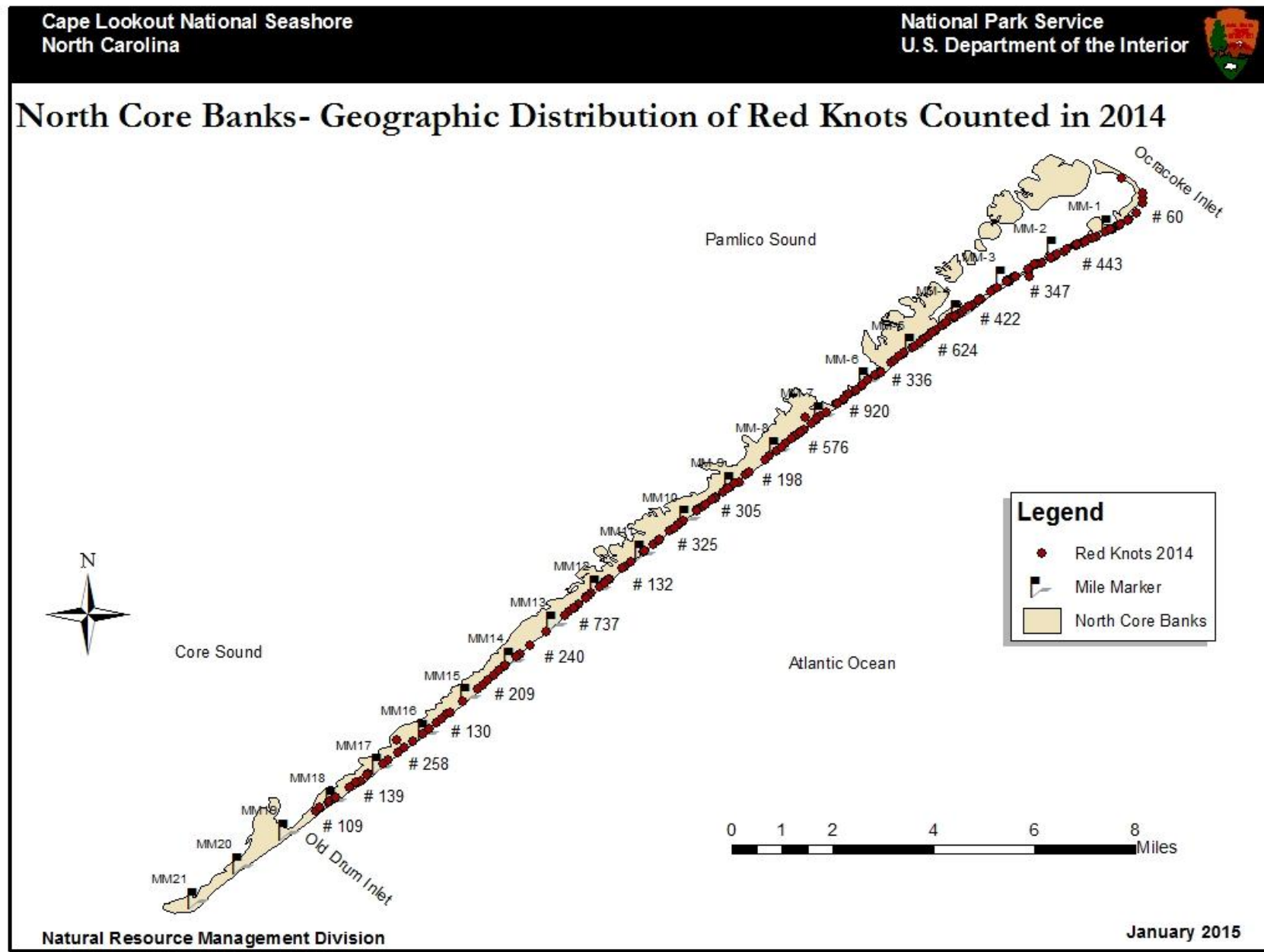


Figure 3. Geographic Distribution of Red Knots Counted on South Core Banks with Total Counts per Mile Section (# 15) in 2014.

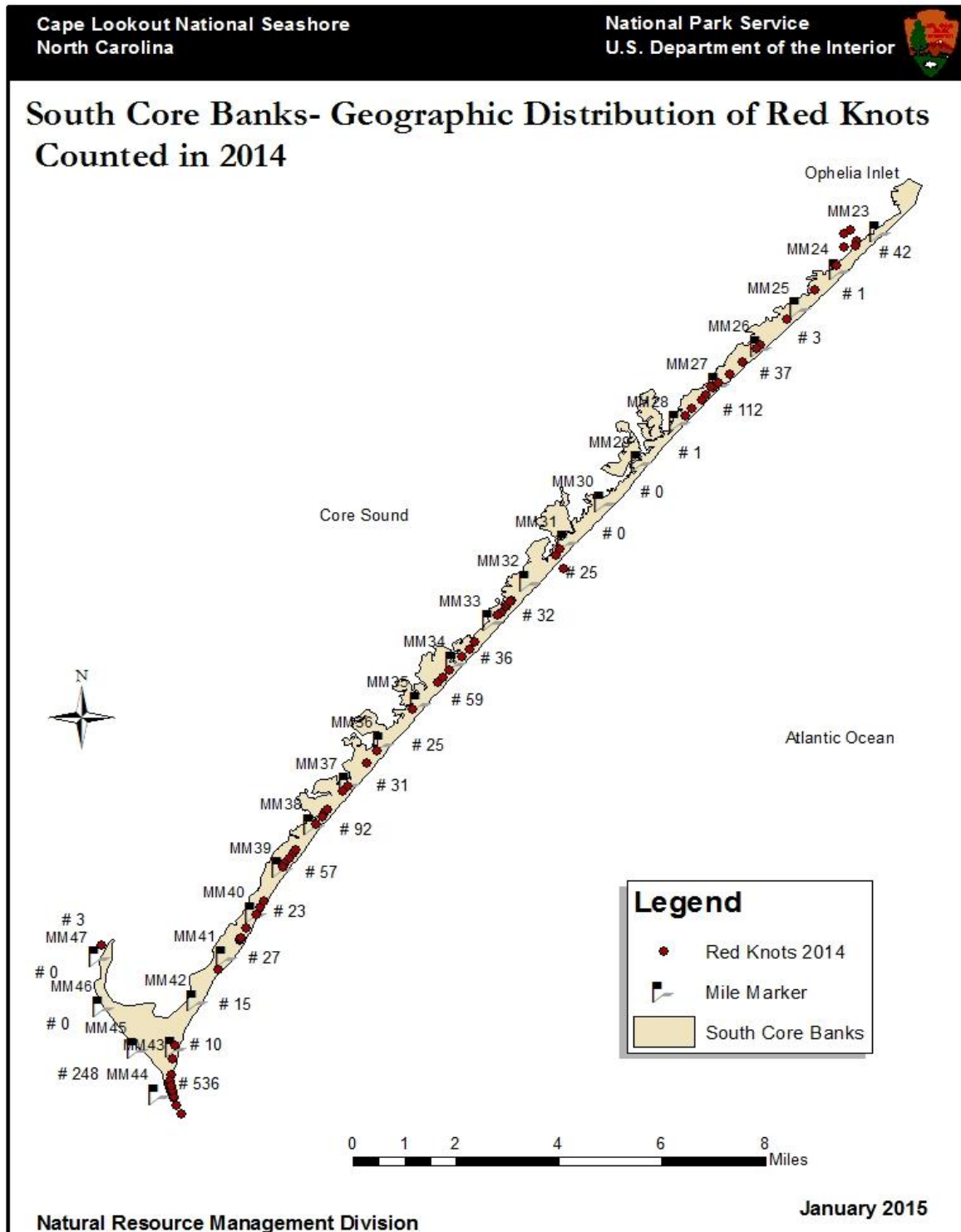
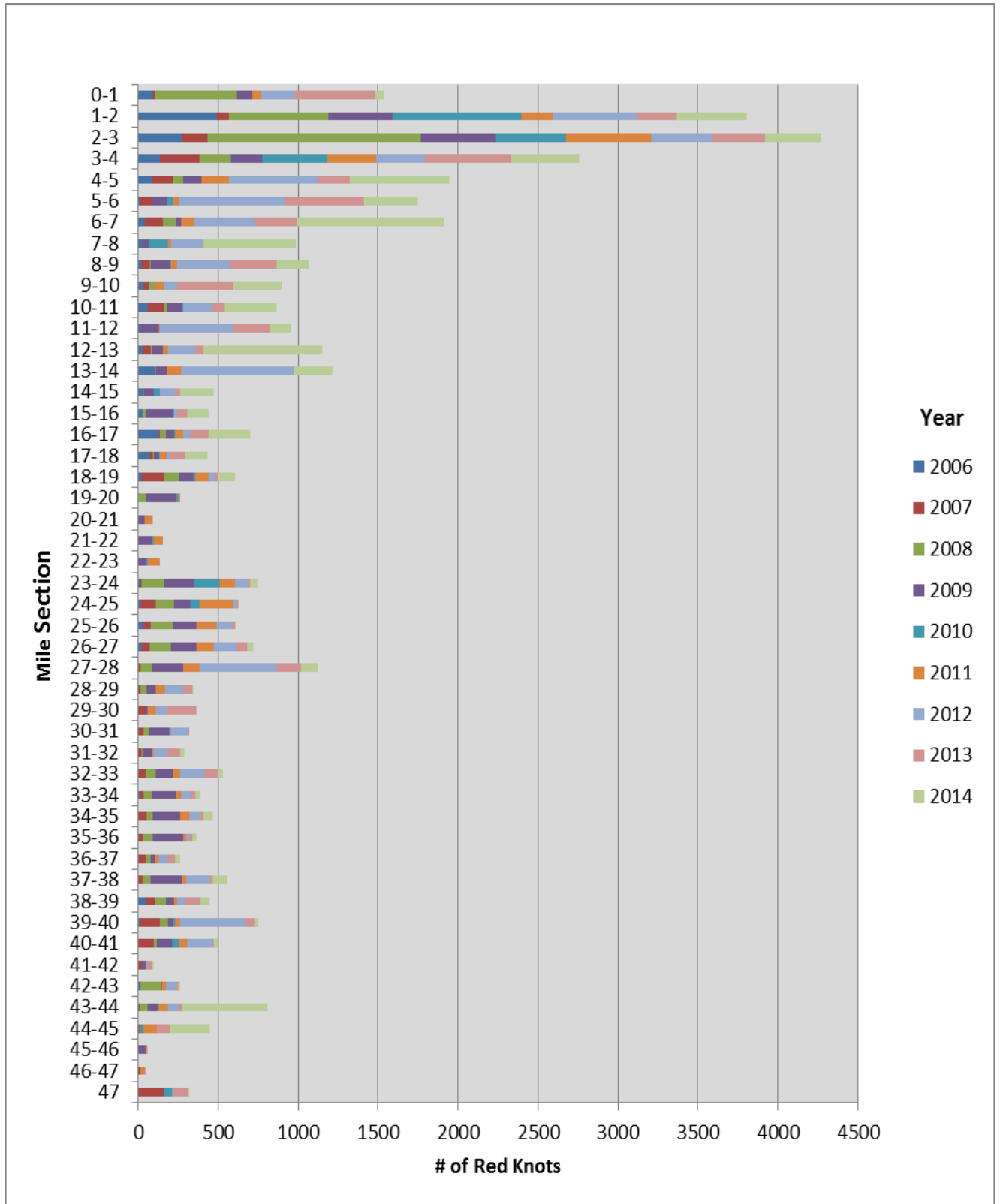


Figure 4. The Number of Red Knots by Mile Section from 2006 to 2014.



Appendix 2. 2014 Red Knot Band Re-Sight Data.

Month	Day	Observer	Island	#REKN	Mile	Latitude	Longitude	Disturb.	Tide	Ac.	Comments (Bands)
4	25	Felicia Herman	SCB	108	44.24	34.58576	-76.53224	B	8	*	Bands = Green 272, Green (flew away before getting band)
7	25	Chelsey Stephenson	NCB	21	2.15	35.04389	-76.06266	A	5	*	UL- light green flag (200), LL- none, UR- green flag (w/ transmitter?), LR- metal
7	25	Chelsey Stephenson	NCB	4	10.29	34.96621	-76.17159	A	7	*	UL- metal, LL-metal; UR- light green flag (no code), LR- none
7	25	Felicia Herman	SCB	2	32.53	34.73087	-76.43752	A	5	*	Green band KEB on left leg, plain white band on right
8	5	Chelsey Stephenson	NCB	24	2.48	35.04110	-76.06837	A	4	*	UL- light green flag (344), LL-none; UR- green flag (w/ transmitter?), LR- metal
9	25	Chelsey Stephenson	NCB	5	4.88	35.02891	-76.08813	A	5	*	UL- light green flag (OOE), LL-none; UR- none, LR- silver
9	25	Chelsey Stephenson	NCB	44	1.70	35.04684	-76.05699	A	5	*	UL- light green flag (T3Y), LL-none, UR-none, LR- silver
10	25	Brooke Wheatley	SCB	10	38.90	34.65338	-76.50139	B	5	*	Green flag 42P upper left

Appendix 3. Red Knot Count Data from 2006 to 2014 by Mile Section.

	2006	2007	2008	2009	2010	2011	2012	2013	2014	Sum	Average
0-1	89	14	515	93	3	53	211	501	60	1539	171
1-2	491	78	618	404	804	196	526	249	443	3809	423
2-3	273	160	1333	473	437	530	383	334	347	4270	474
3-4	136	246	196	197	405	307	303	544	422	2756	306
4-5	87	132	61	115	1	169	552	207	624	1948	216
5-6	8	79	0	92	41	33	666	492	336	1747	194
6-7	40	116	83	31	0	81	376	267	920	1914	213
7-8	26	6	0	33	121	20	197	4	576	983	109
8-9	18	54	4	123	5	41	328	295	198	1066	118
9-10	36	26	47	2	0	48	87	348	305	899	100
10-11	57	102	20	98	3	0	186	74	325	865	96
11-12	7	0	0	119	0	6	463	228	132	955	106
12-13	24	56	5	66	0	35	174	51	737	1148	128
13-14	100	0	11	69	0	89	705	2	240	1216	135
14-15	29	0	4	64	35	6	94	29	209	470	52
15-16	29	0	19	172	1	0	20	67	130	438	49
16-17	126	10	35	50	6	56	42	114	258	697	77
17-18	72	20	2	33	7	47	18	96	139	434	48
18-19	21	139	98	89	8	84	39	17	109	604	67
19-20			49	190	9	15				263	66
20-21				38	0	53				91	30
21-22				81	14	59				154	51
22-23				45	16	77				138	46
23-24	17	6	137	192	155	101	78	15	42	743	83
24-25	15	96	112	103	58	211	23	3	1	622	69
25-26	30	45	144	142	0	129	99	13	3	605	67
26-27	21	53	128	163	0	109	140	66	37	717	80
27-28	0	15	68	200	0	99	481	152	112	1127	125
28-29	0	14	41	52	0	61	114	58	1	341	38
29-30	0	40	2	14	0	52	71	183	0	362	40
30-31	0	32	30	128	7	9	105	5	0	316	35
31-32	0	20	10	51	0	16	84	79	25	285	32

32-33	0	45	63	109	0	42	158	79	32	528	59
33-34	5	29	51	150	0	36	57	27	36	391	43
34-35	0	50	39	172	0	57	72	18	59	467	52
35-36	4	25	64	187	0	19	19	18	25	361	40
36-37	0	44	36	26	0	23	54	46	31	260	29
37-38	0	25	55	195	0	22	150	16	92	555	62
38-39	47	59	68	47	0	22	51	93	57	444	49
39-40	11	122	55	31	12	31	407	59	23	751	83
40-41	0	94	23	96	42	52	157	8	27	499	55
41-42	0	19	0	26	0	8	8	21	15	97	11
42-43	14	0	127	8	0	23	65	14	10	261	29
43-44	0	9	48	65	4	61	65	20	536	808	90
44-45	0	5	10	0	20	82	2	77	248	444	49
45-46	0	0	0	48	0	4	3	3	0	58	6
46-47	0	14	1	0	0	24	1	2	0	42	5
47	0	158	0	4	48	0	7	97	3	317	35