Final

Protected Species Monitoring in Navy OPAREAs – Aerial Surveys off Cape Hatteras: January 2014 – December 2014

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Prepared by
Erin Cummings, Ryan McAlarney,
Bill McLellan, and Ann Pabst

Department of Biology and Marine Biology
University of North Carolina Wilmington
601 S. College Road
Wilmington, NC 28403

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Virginia Beach, VA

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Cover Photo Credit: Gervais' beaked whale (*Mesoplodon europaeus*). Photo collected by the University of North Carolina Wilmington under NOAA scientific permit # 16473.

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Table of Contents

Acronyms and Abbreviations vi
1. Introduction 1
2. Summary of Cape Hatteras Aerial Surveys 1
3. Methods – Survey Design and Logistics 2
4. Results 5
4.1 Marine Mammal Sightings 10
4.1.1 Dolphins 14
Bottlenose dolphin (*Tursiops truncatus*) 14
Atlantic spotted dolphin (*Stenella frontalis*) 18
Short-beaked common dolphin (*Delphinus delphis*) 20
Clymene dolphin (*Stenella clymene*) 22
Risso's dolphin (*Grampus griseus*) 24
Striped dolphin *(Stenella coeruleoalba*) 26
4.1.2 Whales 28
Short-finned pilot whale (*Globicephala macrorhynchus*) 28
Cuvier's beaked whale (*Ziphius cavirostris*) 30
Mesoplodont beaked whale (*Mesoplodon* spp.) 32
Sperm whale (*Physeter macrocephalus*) 34
Gervais' beaked whale (*Mesoplodon europaeus*) 366
4.2 Sea Turtles 38
Loggerhead sea turtle (*Caretta caretta*) 38
Leatherback sea turtle (*Dermochelys coriacea*) 38
4.3 Fish 44
4.3.1 Chondrichthyan fishes 444
4.3.2 Other fishes 49
4.4 Vessel Sightings 50
4.4.1 Commercial 50
4.4.2 Military Vessels 522
4.4.3 Other Vessels 54
5. Acknowledgements 57
6. Literature Cited 577

Appendices

A Aerial Daily Sheet

B Event Codes and Species List

C Notes on Sighting Summary Sheets

D Sighting Summary Sheets

Figures

Figure 1. Survey tracklines and realized effort in the Cape Hatteras, North Carolina, survey area. 4

Figure 2a. Total distance surveyed per Beaufort Sea State from January 2014 to December 2014 during aerial surveys in the Cape Hatteras, North Carolina, survey area. 6

Figure 2b. Effort by Beaufort Sea State for each day from January 2014 to December 2014 during aerial surveys in the Cape Hatteras, North Carolina, survey area. 6

Figure 2c. Average Beaufort Sea State for each month from January 2014 to December 2014 during aerial surveys in the Cape Hatteras, North Carolina, survey area. 7

Figure 3a. Number of cetacean sightings per Beaufort Sea State from January 2014 to December 2014 during aerial surveys in the Cape Hatteras, North Carolina, survey area. 8

Figure 3b. Cetacean sightings per 1,000 km flown by Beaufort Sea State from January 2014 to December 2014 during aerial surveys in the Cape Hatteras, North Carolina, survey area. 8

Figure 3c. Cetacean sightings per 1,000 km surveyed and the average Beaufort Sea State per month from January 2014 to December 2014 during aerial surveys in the Cape Hatteras, North Carolina, survey area. 9

Figure 4a. Sighting distances by Beaufort Sea State for 122 of 126 on effort cetacean sightings from January 2014 to December 2014 during aerial surveys in the Cape Hatteras, North Carolina, survey area. 9

Figure 4b. Average sighting distances by Beaufort Sea State for 122 of 126 on effort cetacean sightings from January 2014 to December 2014 during aerial surveys in the Cape Hatteras, North Carolina, survey area. Error bars denote standard deviation for each category. 10

Figure 5. All cetacean sightings during aerial surveys conducted in the Cape Hatteras, North Carolina, survey area from January 2014 to December 2014. 13

Figure 6. Bottlenose dolphin (*Tursiops truncatus*) sightings indicating group size. Red outlines denote off-effort sightings. 17

Figure 7. Atlantic spotted dolphin (*Stenella frontalis*) sightings indicating group size. 19

Figure 8. Short-beaked common dolphin (*Delphinus delphis*) sightings indicating group size. ..21

Figure 9. Clymene dolphin (*Stenella clymene*) sightings indicating group size. 23

Figure 10. Risso's dolphin (*Grampus griseus*) sightings indicating group size. Red outline denotes off-effort sightings. 25
Figure 11. Striped dolphin (*Stenella coeruleoalba*) sighting. 27
Figure 12. Short-finned pilot whale (*Globicephala macrorhynchus*) sightings indicating group size. Red outlines denote off-effort sightings. 29
Figure 13. Cuvier's beaked whale (*Ziphius cavirostris*) sightings indicating group size. Red outline denotes an off-effort sighting. 31
Figure 14. Unidentified *Mesoplodon* sightings. Red outline denotes an off-effort sighting. 33
Figure 15. Sperm whale (*Physeter macrocephalus*) sightings. 35
Figure 16. Gervais' beaked whale (*Mesoplodon europaeus*) sighting. 377
Figure 17. Loggerhead sea turtle (*Caretta caretta*) sightings. 411
Figure 18. Leatherback sea turtle (*Dermochelys coriacea)* sightings. 42
Figure 19a. Total number of sea turtle sightings by Beaufort Sea State in the Cape Hatteras, North Carolina, survey area from January 2014 to December 2014. 43
Figure 19b. Sea turtle sightings per 1,000 km flown by Beaufort Sea State in the Cape Hatteras, North Carolina, survey area from January 2014 to December 2014. 433
Figure 19c. Sea turtle sightings per 1,000 km surveyed and the average Beaufort Sea State per month in the Cape Hatteras, North Carolina, survey area from January 2014 to December 2014. 444
Figure 20. Manta ray (*Manta birostris*), ocean sunfish (*Mola mola*), cownose ray (*Rhinoptera bonasus),* bluefin tuna (*Thunnus thynnus*) and unidentified Chondrichthyan fish sightings. 48
Figure 21. Commercial vessel sightings. 51
Figure 22. Military vessel sightings. 53
Figure 23. Other vessel sightings. 56

Tables

Table 1. Coordinates for trackline end points for the Cape Hatteras, North Carolina, survey area. 3
Table 2. Tracklines, km flown, and Hobbs hours (engine-on time) during aerial surveys of the Cape Hatteras, North Carolina, survey area from January 2014 to December 2014. 5
Table 3a. Total numbers of sightings and individuals for each species by month from January 2014 to December 2014 for the Cape Hatteras, North Carolina, survey area. 11
Table 3b. Cetacean discovery curve from May 2011 to December 2014 for the Cape Hatteras, North Carolina, survey area. 12
Table 4. Bottlenose dolphin (*Tursiops truncatus*) sightings in the Cape Hatteras, North Carolina, survey area from January 2014 to December 2014. Asterisk denotes an off-effort sighting. 15

Table 5. Atlantic spotted dolphin (*Stenella frontalis)* sightings in the Cape Hatteras, North Carolina, survey area from January 2014 to December 2014. 18

Table 6. Short-beaked common dolphin (*Delphinus delphis*) sightings in the Cape Hatteras, North Carolina, survey area from January 2014 to December 2014. 20

Table 7. Clymene dolphin (*Stenella clymene*) sightings in the Cape Hatteras, North Carolina, survey area from January 2014 to December 2014. 22

Table 8. Risso's dolphin (*Grampus griseus*) sightings in the Cape Hatteras, North Carolina, survey area from January 2014 to December 2014. Asterisk denotes off-effort sightings. 24

Table 9. Striped dolphin (*Stenella coeruleoalba*) sighting in the Cape Hatteras, North Carolina, survey area from January 2014 to December 2014. 26

Table 10. Short-finned pilot whale (*Globicephala macrorhynchus)* sightings in the Cape Hatteras, North Carolina, survey area from January 2014 to December 2014. 28

Table 11. Cuvier's beaked whale (*Ziphius cavirostris)* sightings in the Cape Hatteras, North Carolina, survey area from January 2014 to December 2014. 30

Table 12. Unidentified *Mesoplodon* sightings in the Cape Hatteras, North Carolina, survey area from January 2014 to December 2014. 32

Table 13. Sperm whale (*Physeter macrocephalus*) sightings in the Cape Hatteras, North Carolina, survey area from January 2014 to December 2014. 34

Table 14. Gervais' beaked whale (*Mesoplodon europaeus*) sighting in the Cape Hatteras, North Carolina, survey area from January 2014 to December 2014. 36

Table 15. Loggerhead sea turtle (*Caretta caretta)* sightings in the Cape Hatteras, North Carolina, survey area from January 2014 to December 2014. 39

Table 16. Leatherback sea turtle (*Dermochelys coriacea)* sightings in the Cape Hatteras, North Carolina, survey area from January 2014 to December 2014. 40

Table 17. Unidentified Chondrichthyan fish sightings in the Cape Hatteras, North Carolina, survey area from January 2014 to December. 2014 45

Table 18. Manta ray (*Manta birostris)* sightings in the Cape Hatteras, North Carolina, survey area from January 2014 to December 2014. 466

Table 19. Cownose ray (*Rhinoptera bonasus)* sightings in the Cape Hatteras, North Carolina, survey area from January 2014 to December 2014. 477

Table 20. Ocean sunfish (*Mola mola)* sightings in the Cape Hatteras, North Carolina, survey area from January 2014 to December 2014 49

Table 21. Bluefin tuna (*Thunnus thynnus)* sighting in the Cape Hatteras, North Carolina, survey area from January 2014 to December 2014. 49

Table 22. Commercial vessel sightings in the Cape Hatteras, North Carolina, survey area from January 2014 to December 2014. 50

Table 23. Military vessel sightings in the Cape Hatteras, North Carolina, survey area from January 2014 to December 2014. 52

Table 24. Other vessel sightings in the Cape Hatteras, North Carolina, survey area from January 2014 to December 2014. 54

Acronyms and Abbreviations

BSS	Beaufort Sea State
km	kilometer(s)
m	meter(s)
NMFS	National Marine Fisheries Service
Stdv	standard deviation
U.S.	United States

1. Introduction

This report forms part of a multi-institutional monitoring project intended to provide information on the species composition, population identity, density, and baseline behavior of marine mammals and sea turtles present in United States (U.S.) Navy range complexes along the U.S. Atlantic Coast. This program began in 2007, with baseline aerial and vessel surveys and a passive acoustic monitoring program in Onslow Bay, North Carolina, and has since expanded to include survey areas off Jacksonville, Florida, and Cape Hatteras, North Carolina. In Onslow Bay, 6 years of monitoring have yielded a comprehensive picture of the density, distribution, and abundance of marine mammals and sea turtles and provided new insights into residency patterns among pelagic delphinid cetaceans in that region (Read *et al*. 2014). More than 5 years of monitoring in Jacksonville has provided similar information on the density and distribution of marine mammals and sea turtles in this area. In Cape Hatteras, almost 4 years of surveys have also provided preliminary information on the complex patterns of distribution and diversity of the marine mammals and sea turtles in this highly productive area. The current report builds on this past body of work and describes aerial survey monitoring activities that occurred between January 2014 and December 2014 in the Cape Hatteras study area.

2. Summary of Cape Hatteras Aerial Surveys

This document is an annual progress report to the U.S. Department of the Navy on aerial surveys conducted in the Cape Hatteras, North Carolina, survey area between January 2014 and December 2014. The goal was to conduct 2 days of effort each month, flying a subset of the 26 tracklines that cover the area. Survey effort occurred in 8 of 12 months; unfavorable weather conditions and/or plane complications precluded any effort during January, March, September, and November. Two or more survey days were achieved for 6 of the 8 months, with a single day of effort occurring in February and May. A total of 96 tracklines (6982.1 kilometers [km]) over 15 days was covered in the Cape Hatteras survey area during this reporting period. A single day of effort was flown in support of retrieving a digital acoustic recording tag deployed during vessel work off Cape Hatteras. This day is documented in our summary of survey effort but is not included in any on-effort totals or calculations.

A total of 126 sightings of 3,043 cetaceans were encountered while on-effort during the 15 days of aerial surveys in the survey area. Ten species of cetaceans were photo-documented, including bottlenose dolphins (*Tursiops truncatus*; 57 sightings of 1,277 individuals), short-finned pilot whales (*Globicephala macrorhynchus*; 21 sightings of 156 individuals), Cuvier's beaked whales (*Ziphius cavirostris*; 13 sightings of 39 individuals), Atlantic spotted dolphins (*Stenella frontalis*; 11 sightings of 579 individuals), mesoplodont beaked whales (*Mesoplodon* spp; 4 sightings of 9 individuals), short-beaked common dolphins (*Delphinus delphis*; 4 sighting of 227 individuals), sperm whales (*Physeter macrocephalus*; 4 sightings of 4 individuals), Clymene dolphins (*Stenella clymene,* 3 sightings of 519 individuals), Risso's dolphins (*Grampus griseus*; 1 sightings of 25 individuals), striped dolphins (*Stenella coeruleoalba,* 1 sighting of 160 individuals), and Gervais' beaked whale (*Mesoplodon europaeus,* 2 sightings of 3 individual). There were 5 delphinid sightings (45 individuals) where species identity could not be established with 100 percent certainty, and these are recorded as "unidentified delphinid."

Twenty off-effort sightings were also recorded. These include 10 sightings of bottlenose dolphins (150 individuals), 6 sightings of short-finned pilot whales (68 individuals), 2 sightings of Risso's dolphins, and 1 sighting each of Cuvier's beaked whale (3 individuals) and mesoplodont beaked whales (4 individuals). These off-effort sightings are included in species sighting maps and tables but are excluded from all other calculations.

Sixty-five sighting of 75 sea turtles were recorded during this survey period. Sixty-six individuals were identified as loggerhead (*Caretta caretta*) and five as leatherback (*Dermochelys coriacea*) turtles. No species identification could be established for four individuals, and these were listed as "unidentified sea turtle." Sea turtles were detected during 12 of 15 survey days, with highest abundances observed in May.

While survey conditions were dominated by Beaufort Sea State (BSS) 1 to 3, at times surveys were conducted in higher sea states. Other aerial surveys demonstrated that the rate of cetacean sightings is negatively affected by an increase in the BSS (e.g., Gómez de Segura et al. 2006, DeMaster et al. 2001, McAlarney et al. 2013). Effort corrected cetacean sightings this year off Cape Hatteras followed this general trend—sighting rates dropped from 40.37 to 4.07 sightings per 1,000 km as BSS increased from 1 to 4. This year, despite the low amount of effort in a BSS 5, 6 sightings were recorded. Sea turtle sightings also showed a decrease in corrected sighting rate in seas greater than a 2.

In addition to cetaceans and sea turtles, other pelagic marine vertebrates (e.g., manta rays [*Manta birostris*], ocean sunfish [*Mola mola*], cownose rays [*Rhinoptera bonasus*], bluefin tuna [*Thunnus thynnus*] and unidentified sharks) were observed. Commercial, military, and recreational vessels were also encountered in the survey area.

3. Methods – Survey Design and Logistics

Aerial survey effort was initiated in the waters off Cape Hatteras, North Carolina, in May 2011 to assess the distribution and abundance of offshore cetacean species and sea turtles. These surveys are part of U.S. Navy's marine species monitoring program for Atlantic Fleet Training and Testing, established to document marine species that could potentially be impacted by naval activities. The approximately 16,000-square kilometer Cape Hatteras survey area covers continental shelf waters as well as deeper waters beyond the shelf break (**Table 1, Figure 1**). The survey area incorporates a large portion of the Cape Hatteras Special Research Area, which supports current research assessing fishery interactions between short-finned pilot whales and the local fisheries. The Cape Hatteras survey area excludes coastal waters to minimize survey effort in areas where the spatial distribution and relative abundance of coastal bottlenose dolphins has previously been established (Torres et al. 2003, 2005). Twenty-six tracklines, ranging from 73.5 to 81.5 km in length and orientated perpendicular to the coastline, are evenly placed across the survey area.

Survey flights originated from the Fixed-base Operator in the Dare County Regional Airport in Manteo, North Carolina, with additional effort being conducted from Wilmington, North Carolina. Utilizing both airports maximized "on-effort" survey time by decreasing transit time to and from

the tracklines surveyed. A complete description of survey methods can be found in the Methodology section in McAlarney et al. (2015)

Table 1. Coordinates for trackline end points for the Cape Hatteras, North Carolina, survey area.

Transect Line	Eastern Waypoint		Western Waypoint	
Line	Latitude	Longitude	Latitude	Longitude
45	36.122344	-75.161133	36.122344	-74.333672
44	36.048500	-75.161133	36.048500	-74.333672
43	35.978439	-75.161133	35.978439	-74.333672
42	35.906486	-75.161133	35.906486	-74.333672
41	35.832642	-75.161133	35.832642	-74.333672
40	35.762581	-75.161133	35.762581	-74.333672
39	35.690628	-75.161133	35.690628	-74.333672
38	35.620569	-75.161133	35.620569	-74.333672
37	35.550508	-75.161133	35.550508	-74.333672
36	35.480450	-75.161133	35.480450	-74.333672
35	35.410389	-75.161133	35.410389	-74.333672
34	35.340331	-75.161133	35.340331	-74.333672
33	35.319019	-75.242561	35.139689	-74.384097
32	35.319019	-75.242561	34.948447	-74.469303
31	35.319019	-75.242561	34.868919	-74.649186
30	35.270736	-75.303628	34.817794	-74.711672
29	35.219611	-75.371792	34.768564	-74.776050
28	35.169908	-75.435697	34.721228	-74.840431
27	35.118783	-75.502444	34.668208	-74.908594
26	35.073339	-75.562089	34.617083	-74.971081
25	35.023633	-75.625994	34.571642	-75.039247
24	34.972511	-75.691319	34.522408	-75.097944
23	34.919967	-75.760906	34.469392	-75.166111
22	34.870261	-75.824811	34.418267	-75.226703
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20	34.770853	-75.954044	34.315878	-75.364928

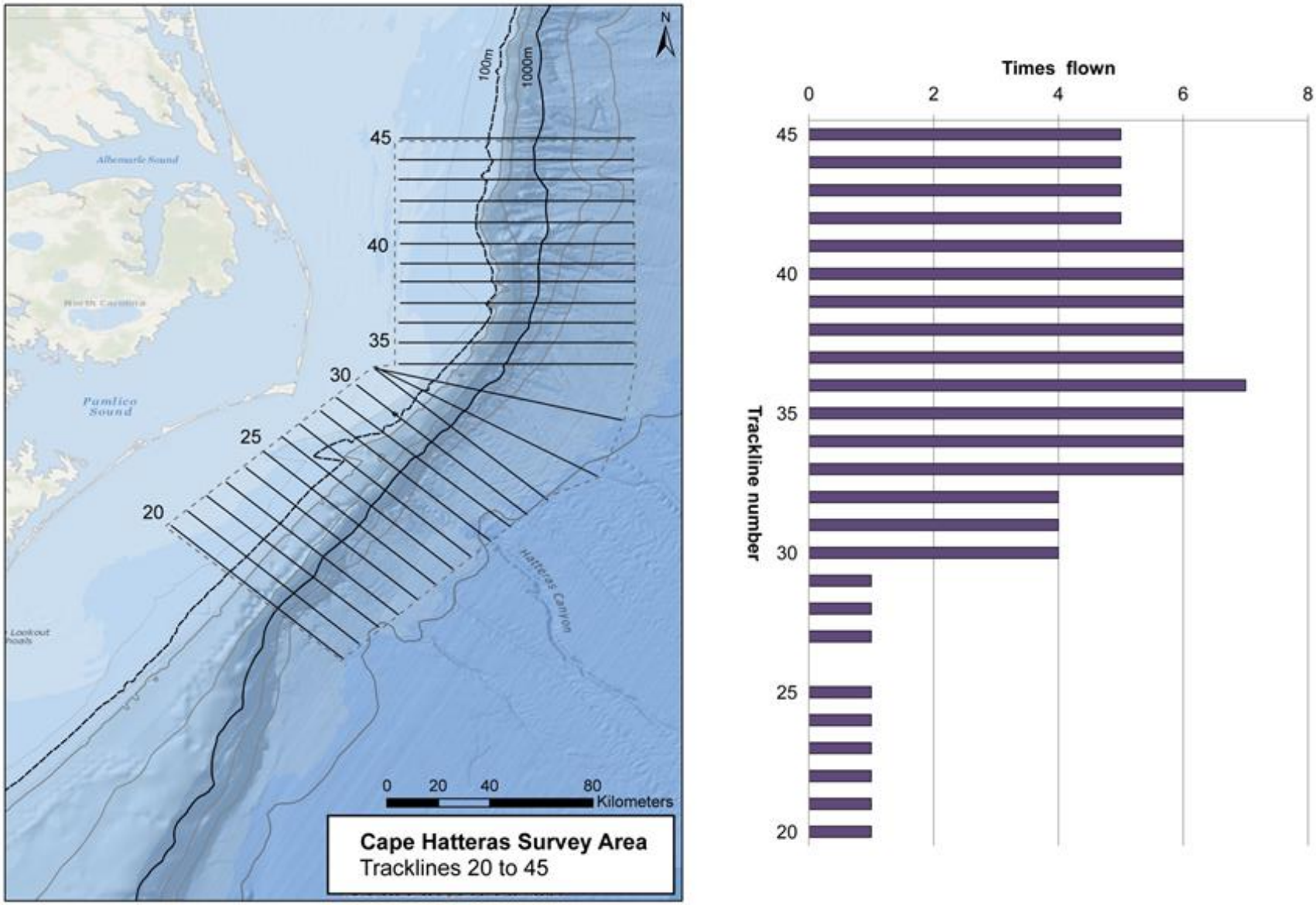


Figure 1. Survey tracklines and realized effort in the Cape Hatteras, North Carolina, survey area.

4. Results

Ninety-six tracklines totaling 6982 km were surveyed from January 2014 to December 2014 (**Table 2**). Conditions during the 15 survey days ranged from BSS 1 to 6 with nearly 80 percent of effort in sea states of BSS 3 or lower [BSS 1: 520km (7.45 percent), BSS 2: 2,595km (37.17 percent), BSS 3: 2,371km (33.96 percent), BSS 4: 983km (14.09 percent), BSS 5: 471km (6.76 percent), BSS 6: 39km (<1 percent) (**Figure 2a and b**). A weighted average BSS value was calculated each survey month to compare conditions across time. The weighted average was calculated by taking the distance flown at each sea state multiplied by the BSS number (i.e., BSS 1 distances would be multiplied by 1). These values were summed and divided by the total distance flown that month. Survey effort was terminated when BSS values persisted above 4 (**Figure 2c**).

Table 2. Tracklines, km flown, and Hobbs hours (engine-on time) during aerial surveys of the Cape Hatteras, North Carolina, survey area from January 2014 to December 2014. Trackline numbers are listed in the order in which they were flown. Totals exclude 29 May search effort.

Date	Tracklines Flown AM	Tracklines Flown PM	Total km Flown	Hobbs Hours
24-Feb-2014	40 - 37	36 - 33	583.3	6.7
3-Apr-2014	42 - 45	32 - 29	564.3	6.4
24-Apr-2014	20 - 21	NA	149.1	3.3
26-Apr-2014	NA	25 - 22	290.7	3.7
14-May-2014	37 - 40	41 - 42	408.8	7.7
10-Jun-2014	43 - 42	40, 41, 44, 45	442.4	6.3
11-Jun-2014	36 - 31	28 - 27	628.1	7.6
30-Jul-2014	30 - 33	38 - 41	605.0	6.3
31-Jul-2014	45 - 42	37 - 34	587.7	6.6
20-Aug-2014	30 - 33	42 - 45	595.3	6.4
21-Aug-2014	41 - 38	37 - 34	567.1	8.0
6-Oct-2014	NA	36 - 41	408.4	4.1
7-Oct-2014	30, 33 - 35	45 - 43, 41	579.3	6.5
3-Dec-2014	NA	36 - 33	289.2	3.4
15-Dec-2014	NA	36 - 39	283.8	3.2
15 days	96 tracklines		6982.1 km	86.2 hrs
29-May-2014	DTAG search		955.6	5.4

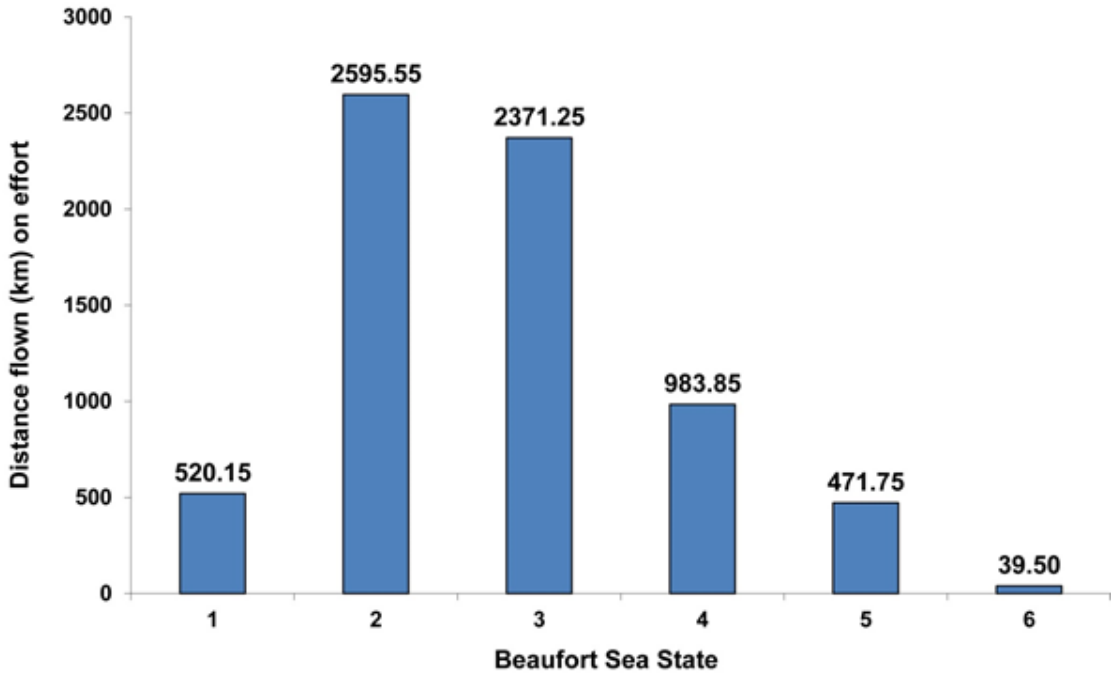


Figure 2a. Total distance surveyed per Beaufort Sea State from January 2014 to December 2014 during aerial surveys in the Cape Hatteras, North Carolina, survey area.

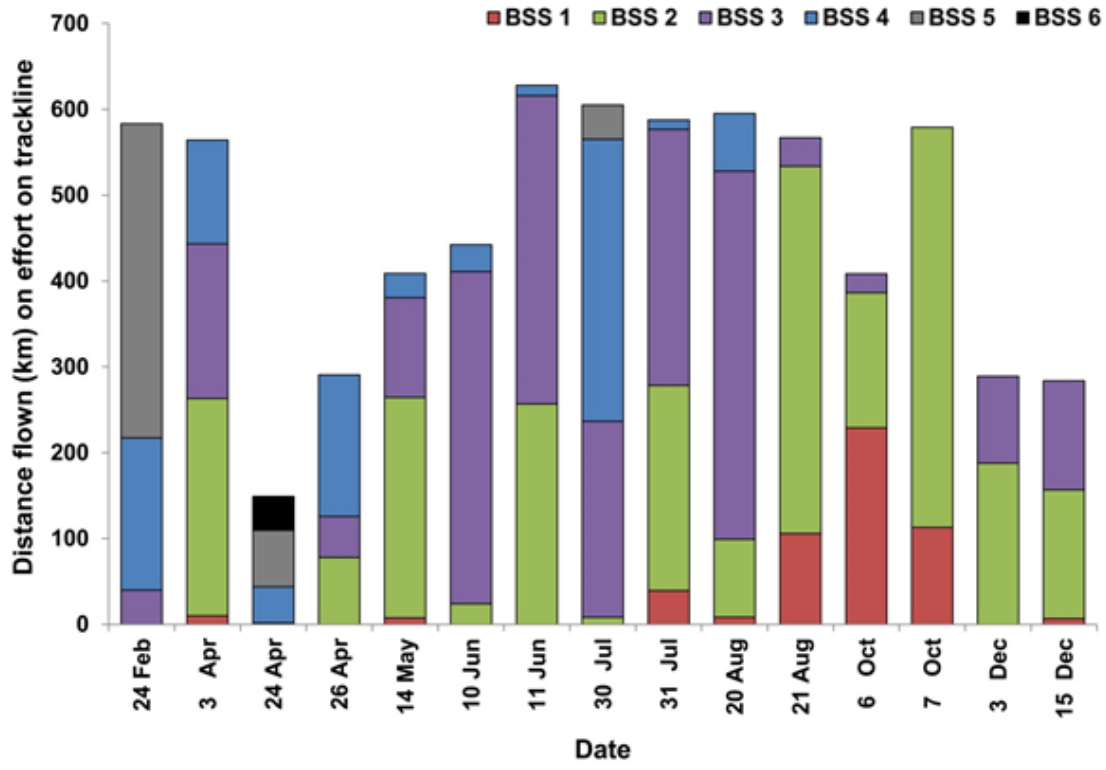


Figure 2b. Effort by Beaufort Sea State for each survey day from January 2014 to December 2014 during aerial surveys in the Cape Hatteras, North Carolina, survey area.

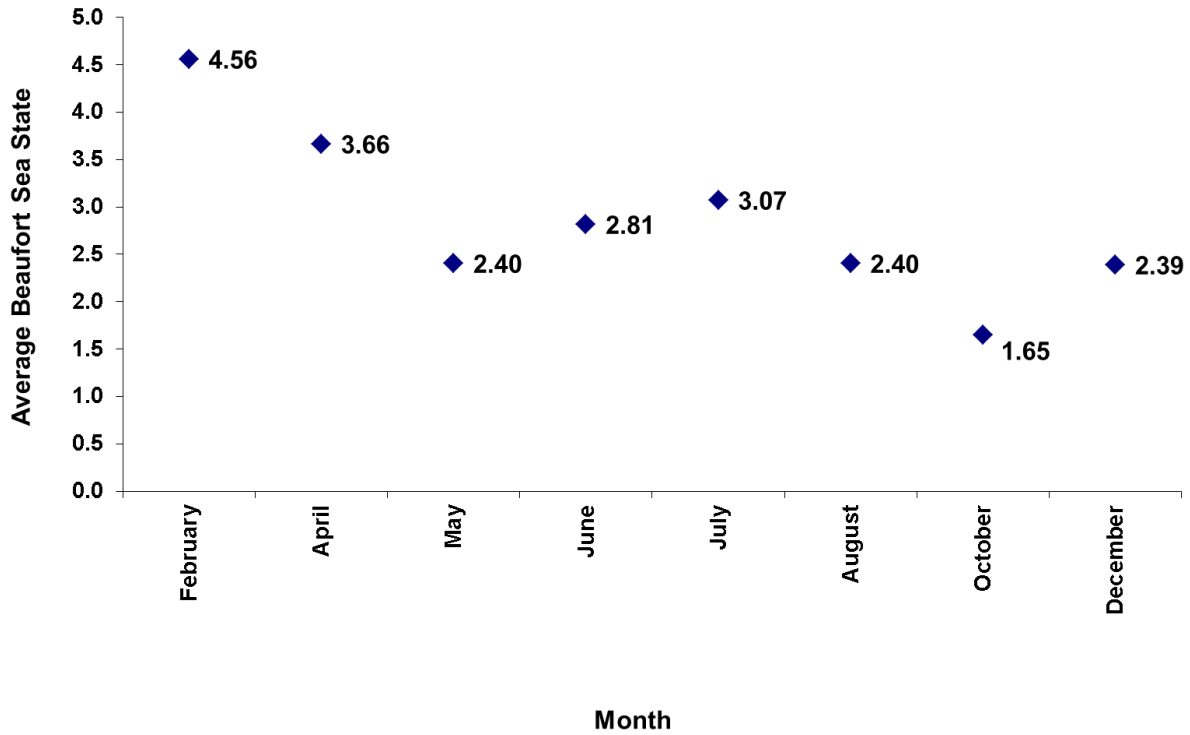


Figure 2c. Average Beaufort Sea State for each month from January 2014 to December 2014 during aerial surveys in the Cape Hatteras, North Carolina, survey area. Values are distance-weighted means.

The majority of cetacean sightings (92 percent) also occurred in BSS of 3 or less (**Figure 3a**). Cetacean sighting rates decreased as BSS increased, with 40.37 sightings/1,000 km surveyed in BSS 1, 26.97 sightings/1,000 km surveyed in BSS 2, 10.54 sightings/1,000 km surveyed in BSS 3, 4.07 sightings/1,000 km surveyed in BSS 4, and 12.78 sightings/1,000 km surveyed in BSS 5 (**Figure. 3b**). Sighting rates per month ranged from 6.71 to 66.05. Sighting rate was highest in May, with 27 sightings recorded over six tracklines (**Figure 3c**).

Eighty percent of the sightings occurred within 1.2 km of the trackline (**Figure 4a**). Mean sighting distance for all cetacean sightings was 0.87 km (standard deviation [Stdv]=0.56). Sighting distances across sea states varied by just over 0.3 km (**Figure 4b**). Average sighting distances are normally calculated after removing outliers, defined as any value in excess of three Stdv from the mean (mean=0.87 km, Stdv=0.56, 0.87+[3x0.56]=2.55 km, Outlier > 2.55 km). A single sighting distance was identified as an outlier during this reporting period (in this case, a 3.74-km sighting distance in BSS 2). In addition, 3 sightings did not have associated sighting distances and were excluded from these calculations.

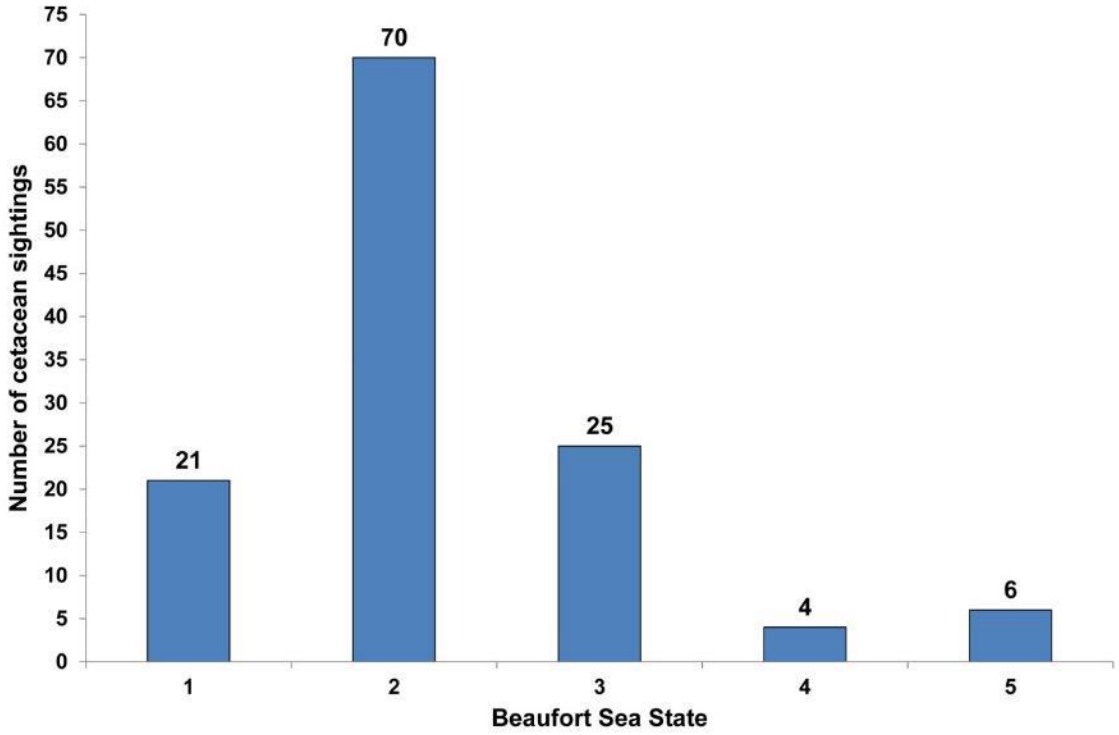


Figure 3a. Number of cetacean sightings per BSS category from January 2014 to December 2014 during aerial surveys in the Cape Hatteras, North Carolina, survey area.

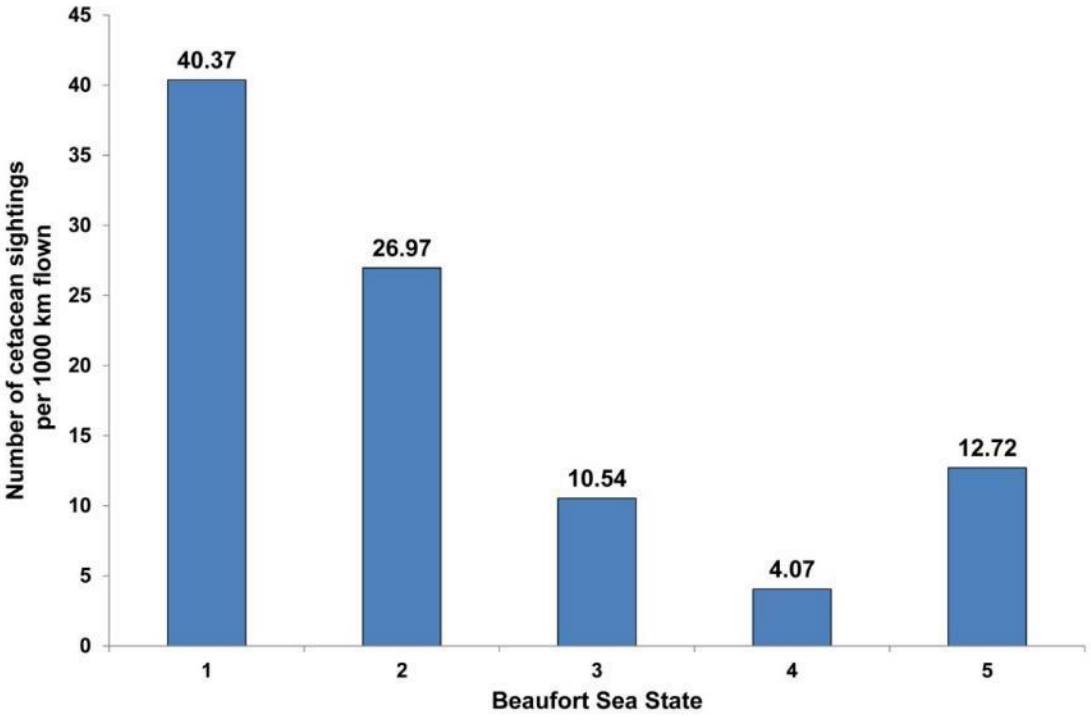


Figure 3b. Cetacean sightings per 1,000 km flown by BSS category from January 2014 to December 2014 during aerial surveys in the Cape Hatteras, North Carolina, survey area.

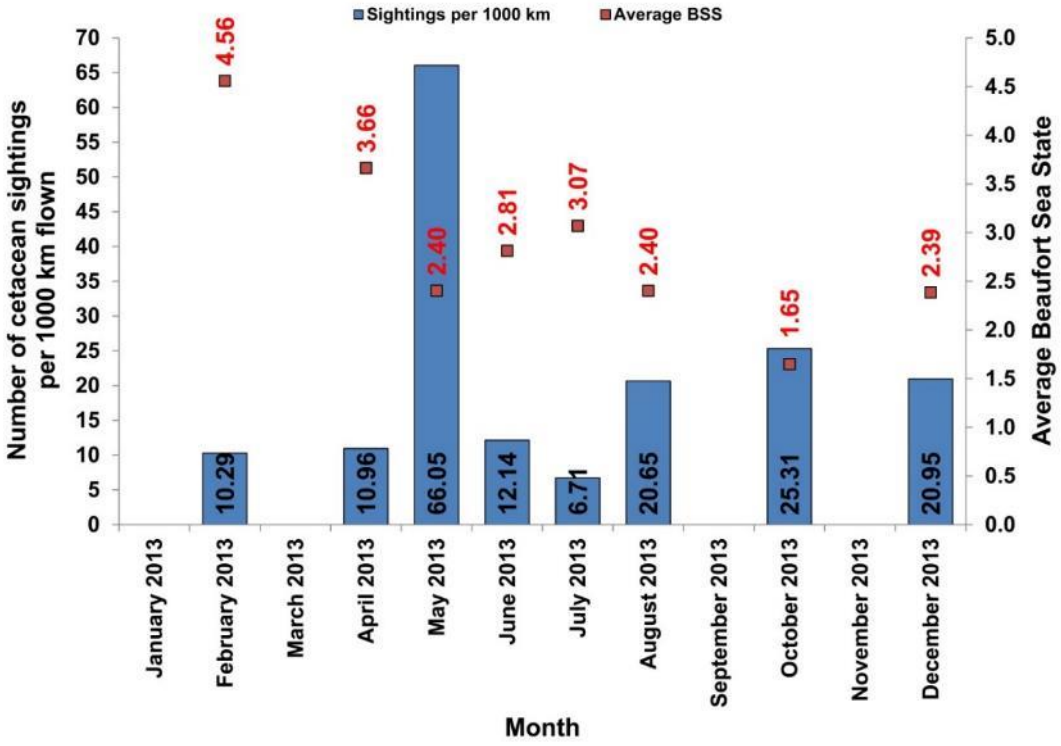


Figure 3c. Cetacean sightings per 1,000 km surveyed and the average Beaufort Sea State per month from January 2014 to December 2014 during aerial surveys in the Cape Hatteras, North Carolina, survey area.

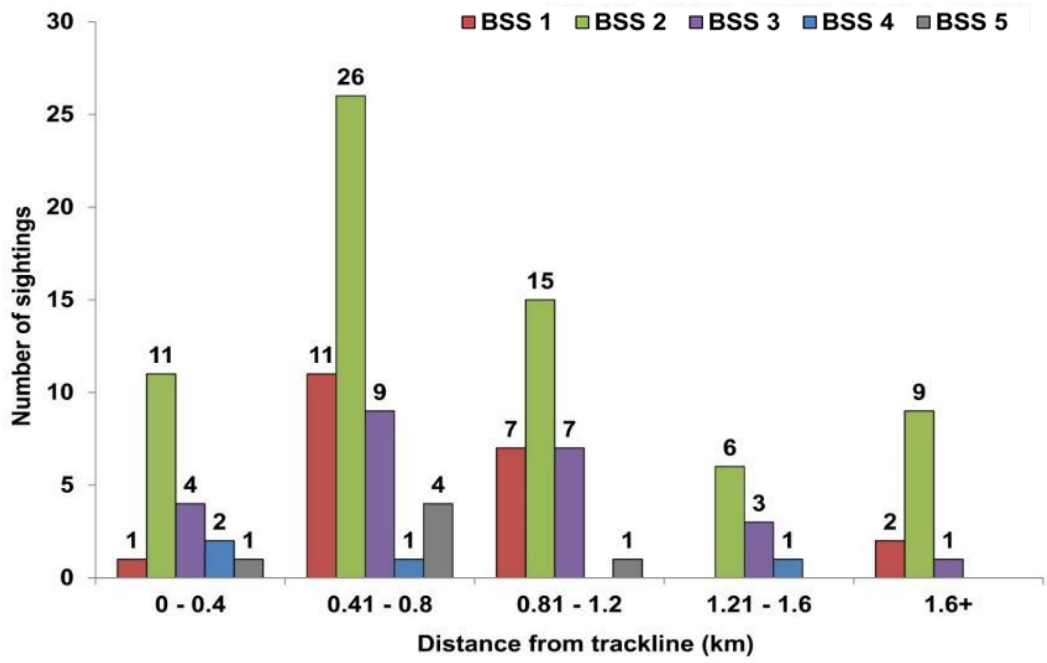


Figure 4a. Sighting distances by Beaufort Sea State for 122 of 126 on-effort cetacean sightings from January 2014 to December 2014 during aerial surveys in the Cape Hatteras, North Carolina, survey area.

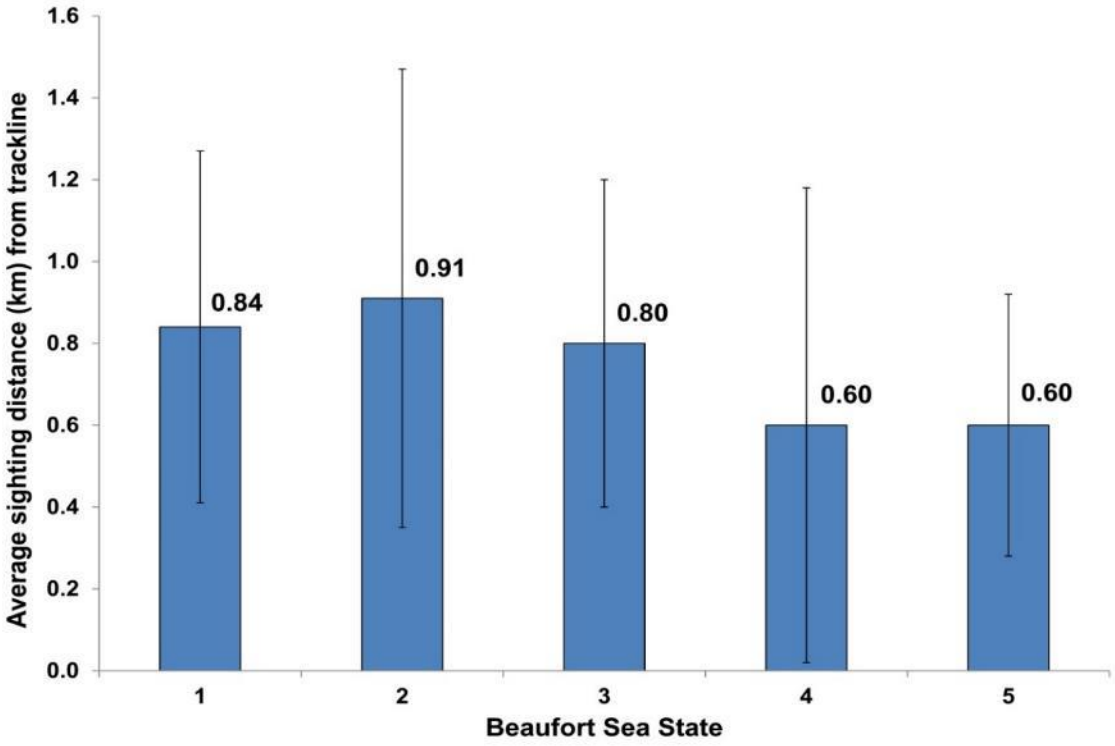


Figure 4b. Average sighting distances by Beaufort Sea State for 122 of 126 on-effort cetacean sightings from January 2014 to December 2014 during aerial surveys in the Cape Hatteras, North Carolina, survey area. Error bars denote standard deviation for each category.

4.1 Marine Mammal Sightings

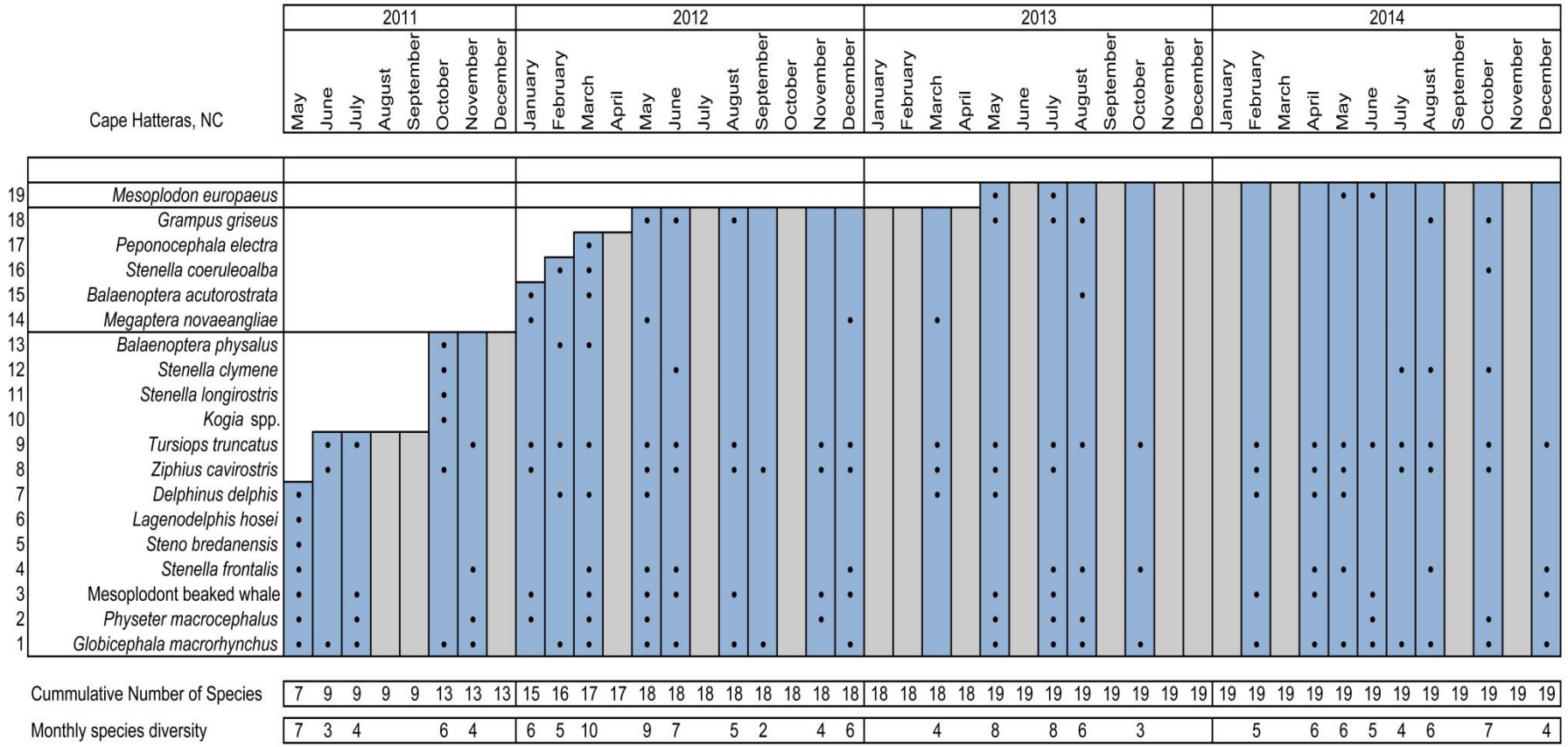
A total of 126 sightings of 3,043 individual cetaceans representing 10 species was observed while on effort during the reporting period (**Table 3a and b, Figure 5**). Summary information follows below for each species individually. One endangered species, the sperm whale, was encountered in the survey area. Four identified cetacean species and one mesoplodont whale had additional sightings that were recorded while off-effort. A sighting was considered off-effort if it occurred while transiting to or from the survey area or between tracklines. Any cetaceans the survey team encountered while investigating a separate sighting cue were also labeled off-effort. If two species were seen associated with the same sighting cue both were considered on-effort. The off-effort sightings are included in the tables and maps for each species but are excluded from any calculations. The total number of individuals listed represents the best estimate of group size. Information on individual sighting summaries are in **Appendices A, B, and C**. Daily sightings are summarized in **Appendix D.**

Table 3a. Total numbers of sightings and individuals for each species by month from January 2014 to December 2014 for the Cape Hatteras, North Carolina, survey area.

		2014												Total
		January	February	March	April	May	June	July	August	September	October	November	December	
Tursiops truncatus	Sightings		1		3	12	5	5	8		15		8	57
	# of individuals		6		109	284	139	89	249		261		140	1277
Globicephala macrorhynchus	Sightings		1		3	4	3	1	3		6			21
	# of individuals		8		20	17	22	11	12		66			156
Ziphius cavirostris	Sightings		1			4		1	6		1			13
	# of individuals		2			10		3	21		3			39
Stenella frontalis	Sightings				2	3			4				2	11
	# of individuals				31	170			126				252	579
Mesoplodon spp.	Sightings		1		1		1						1	4
	# of individuals		1		3		4						1	9
Delphinus delphis	Sightings		1		1	2								4
	# of individuals		25		90	112								227
Physeter macrocephalus	Sightings						3				1			4
	# of individuals						3				1			4
Stenella clymene	Sightings							1	1		1			3
	# of individuals							34	310		175			519
Grampus griseus	Sightings								1					1
	# of individuals								25					25
Stenella coeruleoalba	Sightings										1			1
	# of individuals										160			160
Mesoplodon europaeus	Sightings					1	1							2
	# of individuals					1	2							3
Unidentified delphinid	Sightings		1		1	1			1				1	5
	# of individuals		1		40	1			1				2	45
	Total sightings	0	6	0	11	27	13	8	24	0	25	0	12	126
	Total individuals	0	43	0	293	595	170	137	744	0	666	0	395	3043

Caretta caretta	Sightings		1		11	19	3	4	6		8		4	56
	# of individuals		1		12	24	3	5	6		9		6	66
Dermochelys coriacea	Sightings					1			2		2			5
	# of individuals					1			2		2			5
Unidentified sea turtle	Sightings					3		1						4
	# of individuals					3		1						4
	Total sightings	0	1	0	11	23	3	5	8	0	10	0	4	65
	Total individuals	0	1	0	12	28	3	6	8	0	11	0	6	75

Table 3b. Cetacean discovery curve from May 2011 to December 2014 for the Cape Hatteras, North Carolina, survey area. Dots denote months in which a species was observed. Grey bars denote months in which no survey effort was conducted.



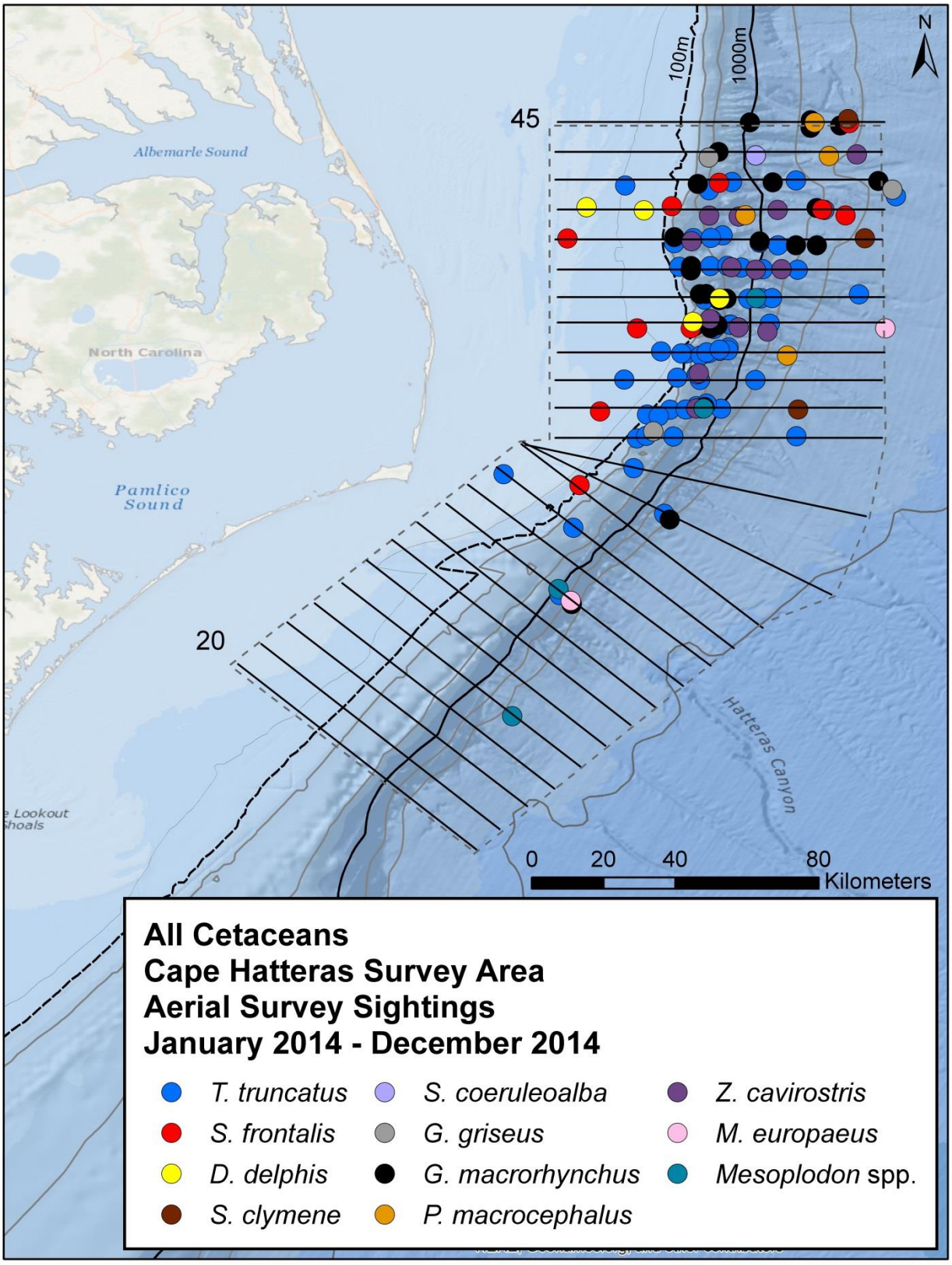


Figure 5. All cetacean sightings during aerial surveys conducted in the Cape Hatteras, North Carolina, survey area from January 2014 to December 2014.

4.1.1 Dolphins

Bottlenose dolphin (*Tursiops truncatus*)

This species was the most commonly observed cetacean species, with 57 sightings totaling 1,277 individuals (**Table 4, Figure 6**). Bottlenose dolphins were observed during every month of survey effort this reporting period, with groups ranging in size between 3 and 75 individuals (mean=22.4, Stdv=17.15). In addition, on 9 occasions, bottlenose dolphins were observed while circling on other cetaceans and were therefore off-effort. A single sighting was also recorded on the offshore end of our survey area and also considered as off-effort. The majority of sightings occurred greater than 37 km from shore and in waters beyond the 100-m isobath. Based on the distance from shore (i.e., greater than 34 km), most of these bottlenose dolphins were likely the offshore ecotype (Torres et al. 2003).

Table 4. Bottlenose dolphin (*Tursiops truncatus*) sightings in the Cape Hatteras, North Carolina, survey area from January 2014 to December 2014. Asterisk denotes an off-effort sighting.

Date	Time	Way Point	Latitude	Longitude-1	Track Number	BSS	Angle out	Degree Forward	Best #	
24-Feb-2014	10:31:22	8	35.687676	-74.646775	39	5	2	100°	6	
3-Apr-2014	10:13:06	35	35.958279	-74.773794	43	2	3	90°	45	
3-Apr-2014	13:24:44	75	35.147577	-74.885572	32	4	3	80°	50	
3-Apr-2014	14:21:52	92	35.246811	-75.288832	30	2	3	85°	14	
14-May-2014	9:44:35	5	35.549491	-74.830139	37	2	3	45°	17	
14-May-2014	9:57:12	10	35.544244	-74.794597	37	3	3	90°	35	
14-May-2014	10:03:15	16	35.556165	-74.746493	37	3	3	60°	30	
14-May-2014	10:34:28	27	35.624151	-74.620843	38	3	3	60°	30	
14-May-2014	10:45:22	31	35.621748	-74.720131	38	2	2	90°	35	
14-May-2014	10:55:37	37	35.610573	-74.761540	38	2	3	90°	13	
14-May-2014	11:30:00	58	35.684385	-74.784359	39	2	2	90°	18	
14-May-2014	11:42:32	68	35.687398	-74.642629	39	2	2	60°	25	
14-May-2014	12:06:25	75	35.759083	-74.550740	40	3	2	60°	20	
14-May-2014	14:34:51	104	35.825679	-74.860908	41	2	1	60°	3	
14-May-2014	14:47:10	109	35.826718	-74.646118	41	2	1	90°	30	
14-May-2014	14:51:39	112	35.820201	-74.600435	41	2	2	90°	28	
10-Jun-2014	12:48:04	5	35.982904	-74.555494	43	3	3	90°	28	
10-Jun-2014	13:07:29	11	35.942989	-74.304671		3	1	90°	15	*
11-Jun-2014	10:08:53	13	35.411078	-74.743025	35	2	1	90°	20	
11-Jun-2014	10:20:44	17	35.417460	-74.805003	35	2	2	90°	5	
11-Jun-2014	10:25:25	21	35.408691	-74.870979	35	3	2	90°	11	
11-Jun-2014	15:15:34	54	34.944339	-75.148141	28	2	1	65°	75	
30-Jul-2014	15:07:03	33	35.764501	-74.692256	40	3	2	100°	12	
30-Jul-2014	15:21:36	37	35.760797	-74.638481	40	3	1	90°	19	
30-Jul-2014	15:50:49	45	35.838177	-74.812620	41	3	2	90°	30	
31-Jul-2014	9:39:54	10	35.978672	-74.716027	43	2	3	90°	10	
31-Jul-2014	12:34:52	36	35.550087	-74.773581	37	3	2	60°	18	
21-Aug-2014	9:51:40	19	35.830003	-74.646142	41	1	1	90°	3	*
21-Aug-2014	11:14:58	56	35.686775	-74.674022	39	1	2	90°	25	
21-Aug-2014	11:19:41	60	35.688087	-74.615322	39	1	1	90°	18	
21-Aug-2014	11:28:21	65	35.697388	-74.397280	39	2	3	60°	8	
21-Aug-2014	12:02:55	79	35.633304	-74.765548	38	1	3	60°	6	*
21-Aug-2014	14:25:49	90	35.549617	-74.842753	37	3	2	90°	18	
21-Aug-2014	14:29:56	94	35.551838	-74.779627	37	3	2	90°	65	
21-Aug-2014	14:36:04	98	35.564075	-74.724393	37	2	2	90°	70	
21-Aug-2014	15:10:45	104	35.499642	-74.799134	36	2	2	90°	50	*
21-Aug-2014	15:45:11	116	35.409052	-74.831991	35	2	2	45°	30	
21-Aug-2014	15:51:39	120	35.411552	-74.790620	35	2	1	90°	15	
6-Oct-2014	13:32:22	5	35.488780	-74.853017	36	1	2	100°	58	
6-Oct-2014	14:10:19	17	35.557580	-74.725570	37	1	2	90°	14	
6-Oct-2014	14:21:19	21	35.554681	-74.893634	37	1	1	90°	5	

Table 4 (Continued). Bottlenose dolphin (*Tursiops truncatus*) sightings in the Cape Hatteras, North Carolina, survey area from January 2014 to December 2014. Asterisk denotes an off-effort sighting.

Date	Time	Way Point	Latitude	Longitude-1	Track Number	BSS	Angle out	Degree Forward	Best #	
6-Oct-2014	14:47:07	31	35.625262	-74.777806	38	1	3	90°	18	*
6-Oct-2014	14:51:16	34	35.621207	-74.718835	38	1	1	90°	3	
6-Oct-2014	15:45:13	58	35.766494	-74.847871	40	2	1	90°	3	
6-Oct-2014	15:49:01	62	35.768524	-74.770008	40	2	1	45°	25	
6-Oct-2014	15:54:56	66	35.768950	-74.727308	40	2	3	90°	23	
6-Oct-2014	16:19:35	75	35.845395	-74.739520	41	2	3	110°	48	
7-Oct-2014	9:31:02	5	35.112898	-75.114017	30	2	2	90°	19	
7-Oct-2014	10:20:12	13	35.262031	-74.962463	33	2	2	100°	5	
7-Oct-2014	10:48:40	22	35.336623	-74.954327	34	2	1	45°	11	
7-Oct-2014	10:58:42	28	35.341593	-74.862898	34	2	1	90°	10	
7-Oct-2014	11:39:47	35	35.396552	-74.928698	35	2	2	90°	5	*
7-Oct-2014	14:07:02	46	36.114337	-74.518623	45	2	3	90°	4	
7-Oct-2014	15:15:33	73	35.970069	-74.983792	43	2	2	90°	14	*
7-Oct-2014	15:26:12	77	35.973951	-74.801637	43	2	2	100°	6	
7-Oct-2014	16:07:05	85	35.838749	-74.768829	41	1	1	90°	18	*
7-Oct-2014	16:11:39	89	35.841045	-74.860159	41	1	2	90°	7	
3-Dec-2014	13:49:12	10	35.482830	-74.796031	36	2	1	90°	10	
3-Dec-2014	13:58:28	14	35.482990	-74.657102	36	2	1	90°	8	*
3-Dec-2014	14:40:24	25	35.423764	-74.779659	35	3	1	90°	12	
3-Dec-2014	14:51:02	30	35.392593	-74.899244	35	2	3	100°	30	
3-Dec-2014	15:11:40	38	35.342983	-74.930861	34	2	2	90°	8	
3-Dec-2014	15:31:13	45	35.342167	-74.554054	34	2	1	90°	45	
15-Dec-2014	13:01:55	5	35.483773	-74.985981	36	2	2	80	15	
15-Dec-2014	13:11:15	10	35.49704	-74.803593	36	2	2	70	11	
15-Dec-2014	13:38:52	17	35.558677	-74.746475	37	3	2	60	13	*
15-Dec-2014	14:10:11	28	35.612007	-74.818964	38	2	2	90	30	

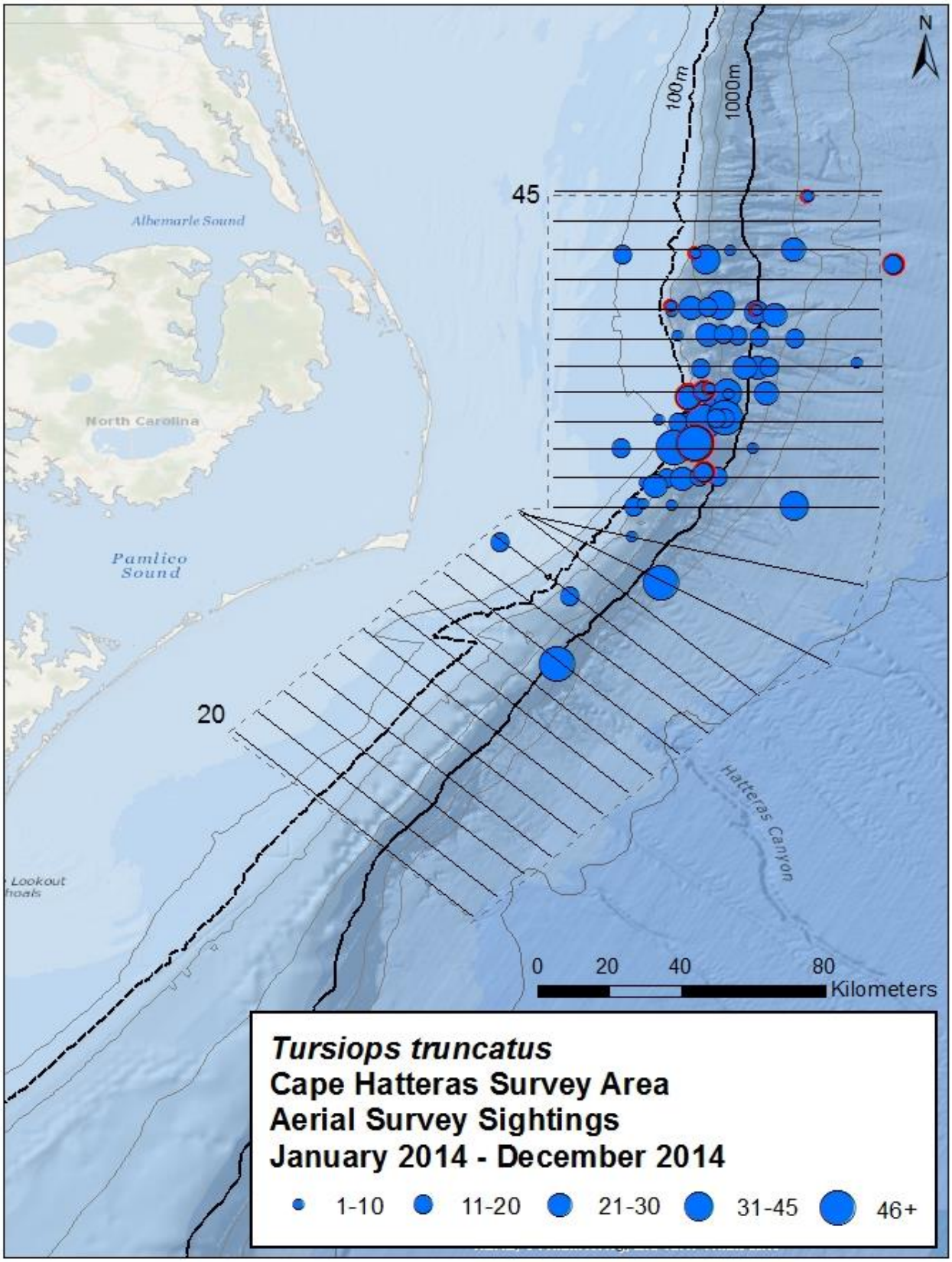


Figure 6. Bottlenose dolphin (*Tursiops truncatus*) sightings indicating group size. Red outlines denote off-effort sightings.

Atlantic spotted dolphin (*Stenella frontalis*)

Eleven sightings of 579 individuals were observed while on effort in the Cape Hatteras survey area. Group size ranged between 4 and 225 (mean=52.6, Stdv=68.35) (**Table 5, Figure 7**). There are two distinct forms, or ecotypes, of the Atlantic spotted dolphin in the western North Atlantic: a heavily spotted, larger form that typically occurs on the continental shelf and is most often encountered around the 200-m isobath or in shallower water, and a less spotted and smaller form that occurs farther offshore and around islands (Perrin et al. 1987, 1994). Examination of photos collected during each sighting suggests that both ecotypes are present within the survey area.

Table 5. Atlantic spotted dolphin (*Stenella frontalis)* sightings in the Cape Hatteras, North Carolina, survey area from January 2014 to December 2014.

Date	Time	Way Point	Latitude	Longitude-1	Track Number	BSS	Angle out	Degree Forward	Best #
3-Apr-2014	11:01:31	52	36.126218	-74.421556	45	1	3	90°	26
3-Apr-2014	14:01:00	85	35.219710	-75.098169	31	3	2	90°	5
14-May-2014	15:15:47	126	35.895316	-74.431015	42	2	4	40°	35
14-May-2014	15:25:17	130	35.909803	-74.489880	42	2	3	69°	25
14-May-2014	16:05:05	147	35.918036	-74.866781	42	2	1	45°	110
20-Aug-2014	15:51:51	28	35.977119	-74.748172	43	3	2	60°	105
20-Aug-2014	16:32:08	38	36.039893	-74.774045	44	3	3	90°	11
21-Aug-2014	9:13:56	4	35.837440	-75.128497	41	2	2	90°	6
21-Aug-2014	15:36:17	111	35.404239	-75.046843	35	2	1	90°	4
15-Dec-2014	14:02:08	24	35.612414	-74.953734	38	2	2	45	27
15-Dec-2014	14:10:11	28	35.612007	-74.818964	38	2	2	90	225

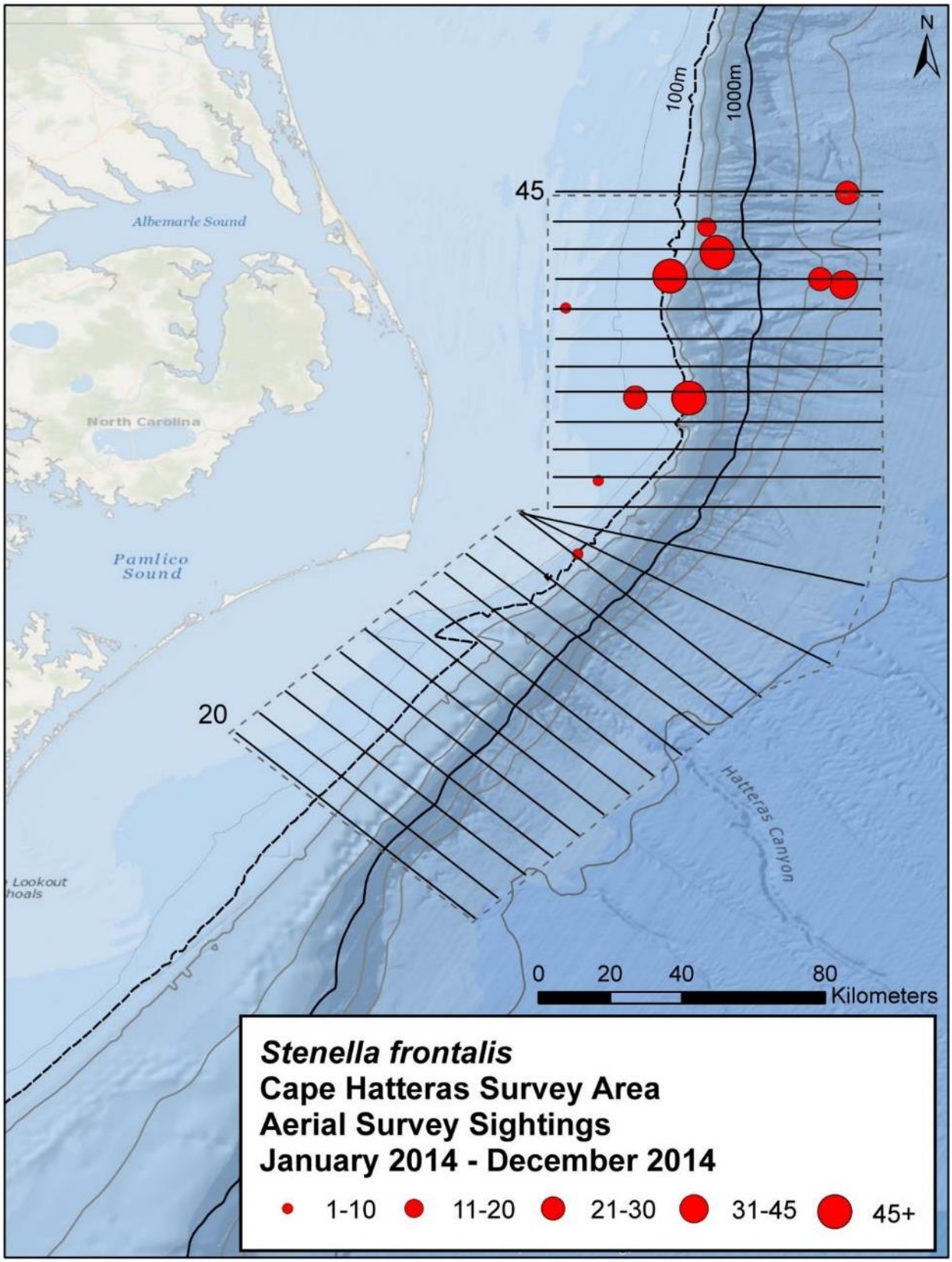


Figure 7. Atlantic spotted dolphin (*Stenella frontalis*) sightings indicating group size.

Short-beaked common dolphin (*Delphinus delphis*)

Four sightings of 227 individuals were observed from inshore of the 50-m isobath to seaward of the 500-m isobath (**Table 6, Figure 8**). Group sizes were highly variable; 2 groups had fewer than 25 animals, while 2 other groups contained 90 and 100 individuals.

Table 6. Short-beaked common dolphin (*Delphinus delphis*) sightings in the Cape Hatteras, North Carolina, survey area from January 2014 to December 2014.

Date	Time	Way Point	Latitude	Longitude-1	Track Number	BSS	Angle out	Degree Forward	Best #
24-Feb-2014	10:36:33	12	35.687347	-74.746603	39	5	1	90°	25
3-Apr-2014	9:09:18	4	35.915979	-75.080779	42	2	3	90°	90
14-May-2014	11:01:42	43	35.628279	-74.813888	38	2	3	90°	100
14-May-2014	16:15:06	151	35.907764	-74.936583	42	2	2	45°	12

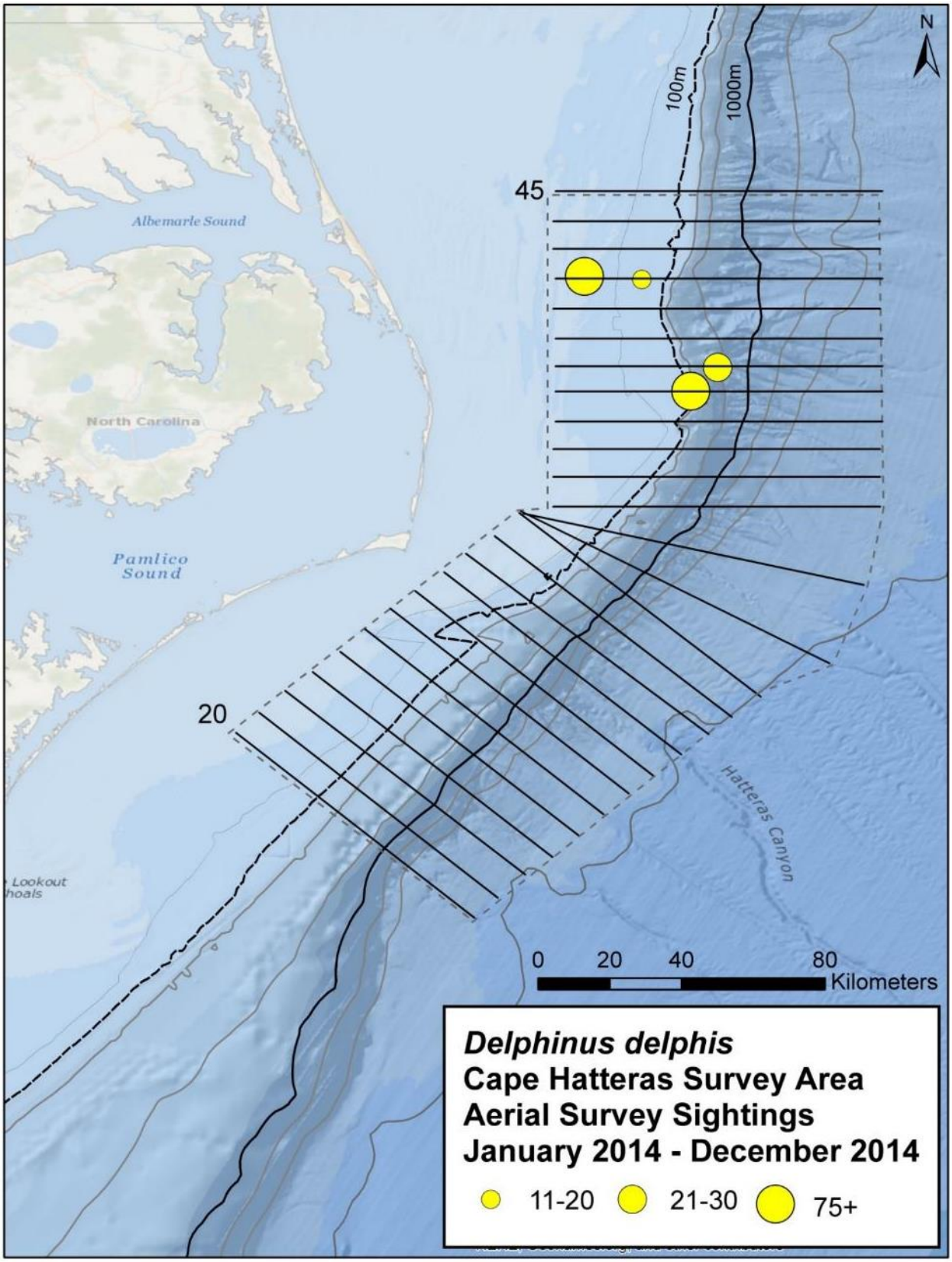


Figure 8. Short-beaked common dolphin (*Delphinus delphis*) sightings indicating group size.

Clymene dolphin (*Stenella clymene*)

Three sightings totaling 519 individuals were observed seaward of the 1,500-m isobath. Group size ranged between 34 and 310 (mean=173, Stdv=138) (**Table 7, Figure 9**).

Table 7. Clymene dolphin (*Stenella clymene*) sightings in the Cape Hatteras, North Carolina, survey area from January 2014 to December 2014.

Date	Time	Way Point	Latitude	Longitude-1	Track Number	BSS	Angle out	Degree Forward	Best #
31-Jul-2014	13:51:30	52	35.408966	-74.549891	35	3	1	90°	34
21-Aug-2014	10:01:37	25	35.837720	-74.382366	41	2	2	90°	310
7-Oct-2014	14:20:30	51	36.136632	-74.424683	45	2	2	110°	175

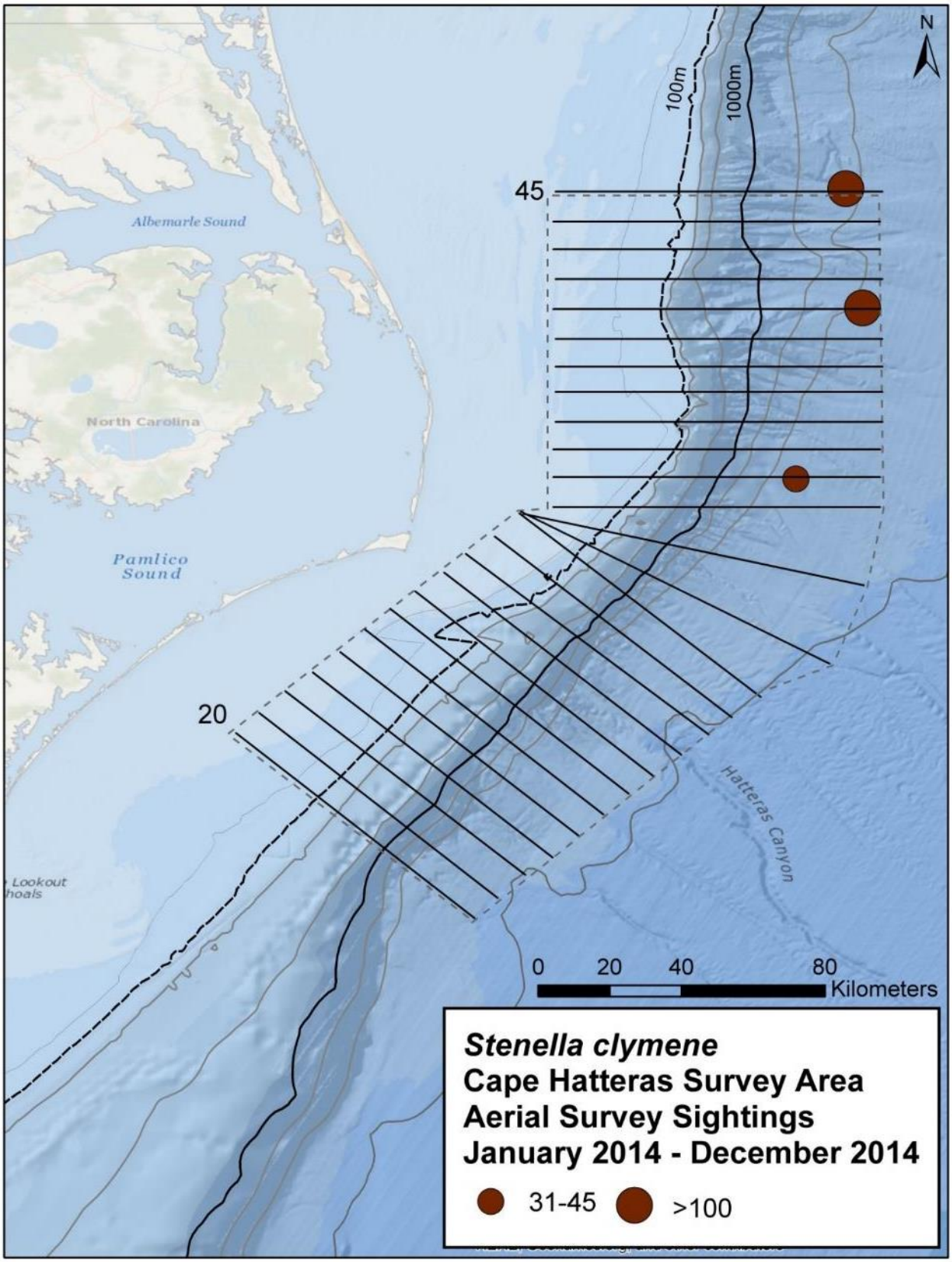


Figure 9. Clymene dolphin (*Stenella clymene*) sightings indicating group size.

Risso's dolphin (*Grampus griseus*)

This species was encountered once while on effort, with 2 additional off-effort sightings. The 3 sightings totaled 66 individuals (**Table 8, Figure 10**). Sightings occurred from inshore of the 500-m isobath to greater than the 2,000-m isobath.

Table 8. Risso's dolphin (*Grampus griseus*) sightings in the Cape Hatteras, North Carolina, survey area from January 2014 to December 2014. Asterisk denotes off-effort sightings.

Date	Time	Way Point	Latitude	Longitude-1	Track Number	BSS	Angle out	Degree Forward	Best #	
20-Aug-2014	16:32:08	38	36.039893	-74.774045	44	3	3	90°	30	*
21-Aug-2014	16:33:34	126	35.354309	-74.913192	34	2	2	90°	25	
7-Oct-2014	15:41:51	81	35.959681	-74.313449		2	2	90°	11	*

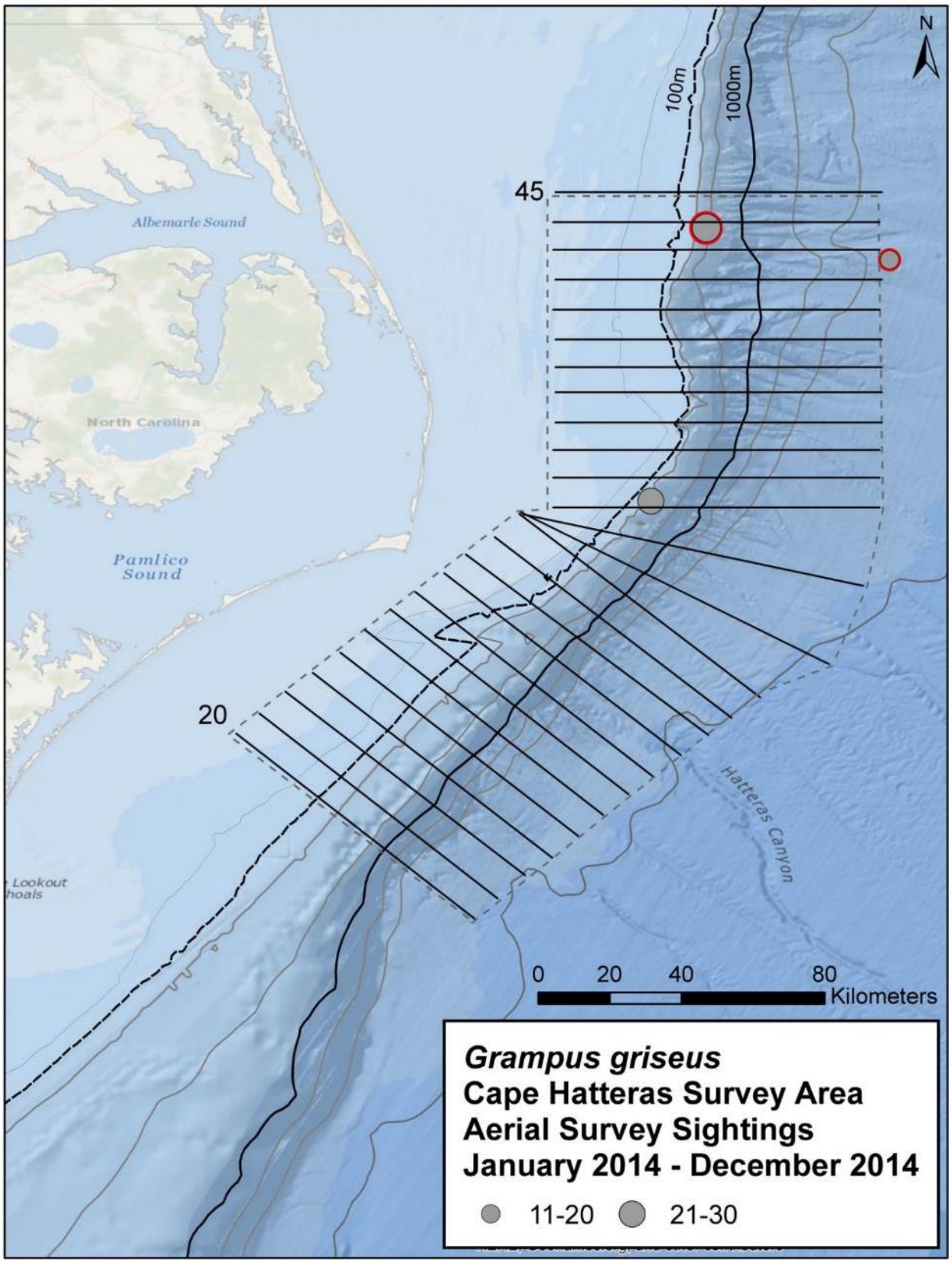


Figure 10. Risso's dolphin (*Grampus griseus*) sightings indicating group size. Red outline denotes off-effort sightings.

Striped dolphin *(Stenella coeruleoalba)*

One large group of 160 striped dolphins was observed during this reporting period in the northern portion of our survey area beyond the 1,000-m isobath **(Table 9, Figure 11).**

Table 9. Striped dolphin (*Stenella coeruleoalba*) sighting in the Cape Hatteras, North Carolina, survey area from January 2014 to December 2014.

Date	Time	Way Point	Latitude	Longitude-1	Track Number	BSS	Angle out	Degree Forward	Best #
7-Oct-2014	14:37:32	60	36.045670	-74.656272	44	2	3	100°	160

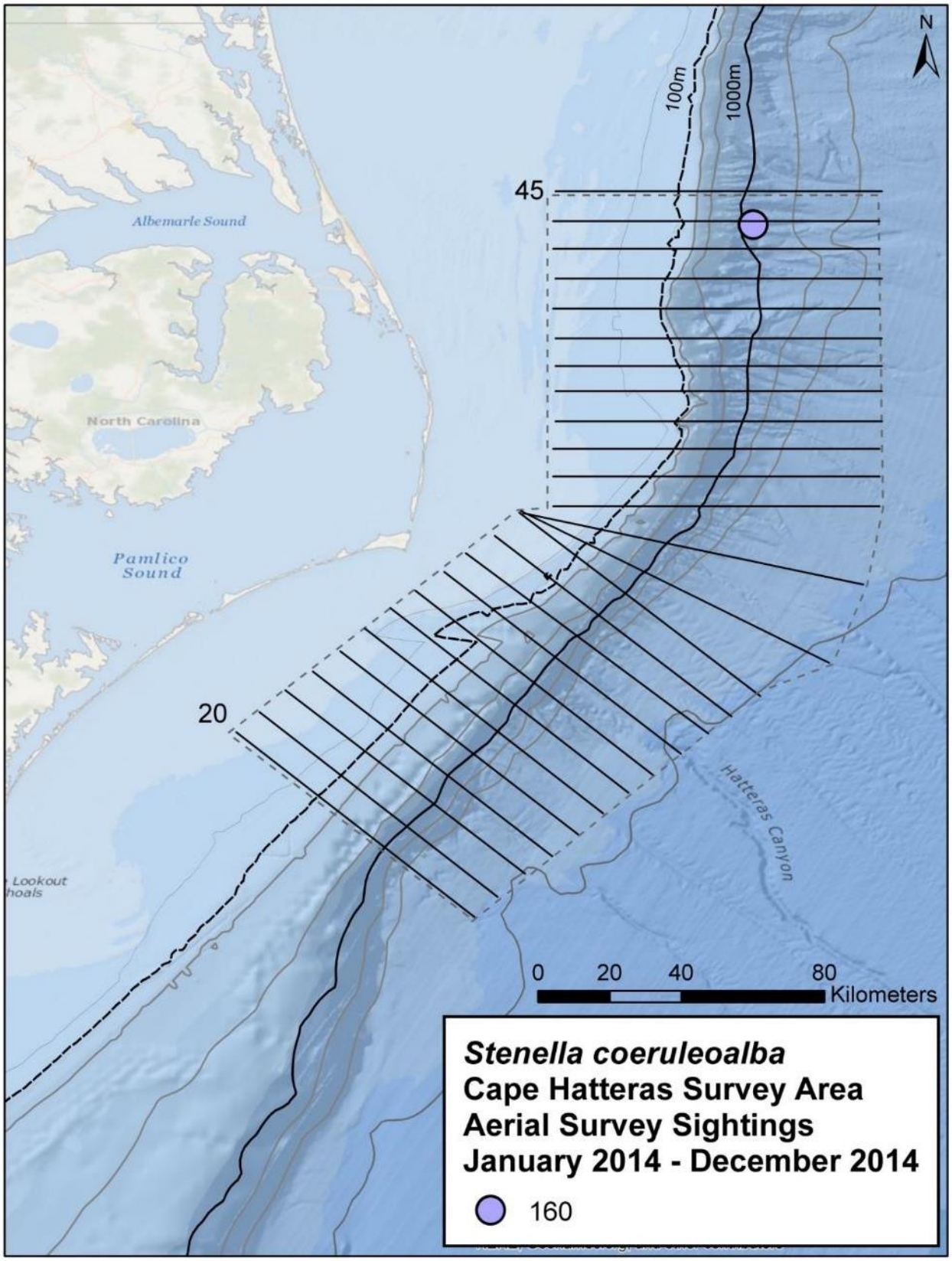


Figure 11. Striped dolphin (*Stenella coeruleoalba*) sighting.

4.1.2 Whales

Short-finned pilot whale (*Globicephala macrorhynchus*)

This species was observed on effort 21 times for a total of 156 individuals, and was seen in 7 of the 8 months in which surveys were conducted. Group sizes ranged from one to 22 individuals (mean=7.4, Stdv=5.03) (**Table 10**). Six additional off-effort sightings, totaling 68 individuals, were observed within the range but while circling other animals. Sightings of pilot whales in the western North Atlantic occur primarily near the continental shelf break (Waring et al. 2014), and sightings in the Cape Hatteras survey area followed this pattern. Pilot whales were observed from the 100-m isobath to waters greater than 2,000 m in bottom depth (**Figure 12**). The geographic extent of our survey area encompasses waters shared by both species of *Globicephala* (summarized in Waring et al. 2014). A careful examination of all photos suggests that all sightings were of short-finned pilot whales.

Table 10. Short-finned pilot whale (*Globicephala macrorhynchus)* sightings in the Cape Hatteras, North Carolina, survey area from January 2014 to December 2014. Asterisk denotes on off-effort sighting.

Date	Time	Way Point	Latitude	Longitude-1	Track Number	BSS	Angle out	Degree Forward	Best #	
24-Feb-2014	14:36:49	44	35.415513	-74.784742	35	5	1	90°	8	
3-Apr-2014	9:54:28	27	35.981248	-74.348632	43	2	3	100°	4	
3-Apr-2014	10:04:39	31	35.978036	-74.613446	43	2	1	90°	12	
3-Apr-2014	11:11:27	56	36.128206	-74.670684	45	2	2	90°	4	
14-May-2014	10:55:05	36	35.619918	-74.751659	38	2	3	90°	6	*
14-May-2014	10:56:45	38	35.612502	-74.769744	38	2	3	90°	21	*
14-May-2014	11:37:23	63	35.682821	-74.747796	39	2	3	90°	5	
14-May-2014	12:24:54	85	35.756989	-74.819301	40	2	3	90°	5	
14-May-2014	14:58:10	116	35.820436	-74.555163	41	2	1	90°	1	
14-May-2014	15:01:23	120	35.820149	-74.503056	41	2	3	90°	6	
10-Jun-2014	13:20:37	15	35.913741	-74.503312	42	3	3	90°	5	
10-Jun-2014	16:56:18	44	36.133635	-74.517946	45	3	2	65°	4	*
11-Jun-2014	12:02:48	35	35.133515	-74.871922	32	3	2	90°	9	
11-Jun-2014	15:36:55	63	34.921359	-75.117792	28	2	2	90°	8	
31-Jul-2014	10:39:09	23	36.120205	-74.444252	45	2	1	90°	11	
21-Aug-2014	9:37:51	14	35.830652	-74.817217	41	1	1	90°	5	*
21-Aug-2014	9:51:40	19	35.830003	-74.646142	41	1	1	90°	7	
21-Aug-2014	10:39:17	41	35.768151	-74.818190	40	1	1	90°	3	
21-Aug-2014	11:05:31	52	35.698250	-74.780508	39	1	3	90°	2	
6-Oct-2014	14:43:04	29	35.617092	-74.810555	38	1	2	45°	16	
6-Oct-2014	15:17:02	43	35.686410	-74.729675	39	1	2	60°	22	
6-Oct-2014	15:20:52	47	35.697785	-74.795965	39	1	2	60°	5	
7-Oct-2014	14:07:02	46	36.114337	-74.518623	45	2	3	90°	18	*
7-Oct-2014	14:48:21	64	36.054179	-74.749565	44	2	2	90°	4	
7-Oct-2014	15:26:12	77	35.973951	-74.801637	43	2	2	100°	13	
7-Oct-2014	16:11:39	89	35.841045	-74.860159	41	1	2	90°	6	
15-Dec-2014	14:10:11	28	35.612007	-74.818964	38	2	2	90	14	*

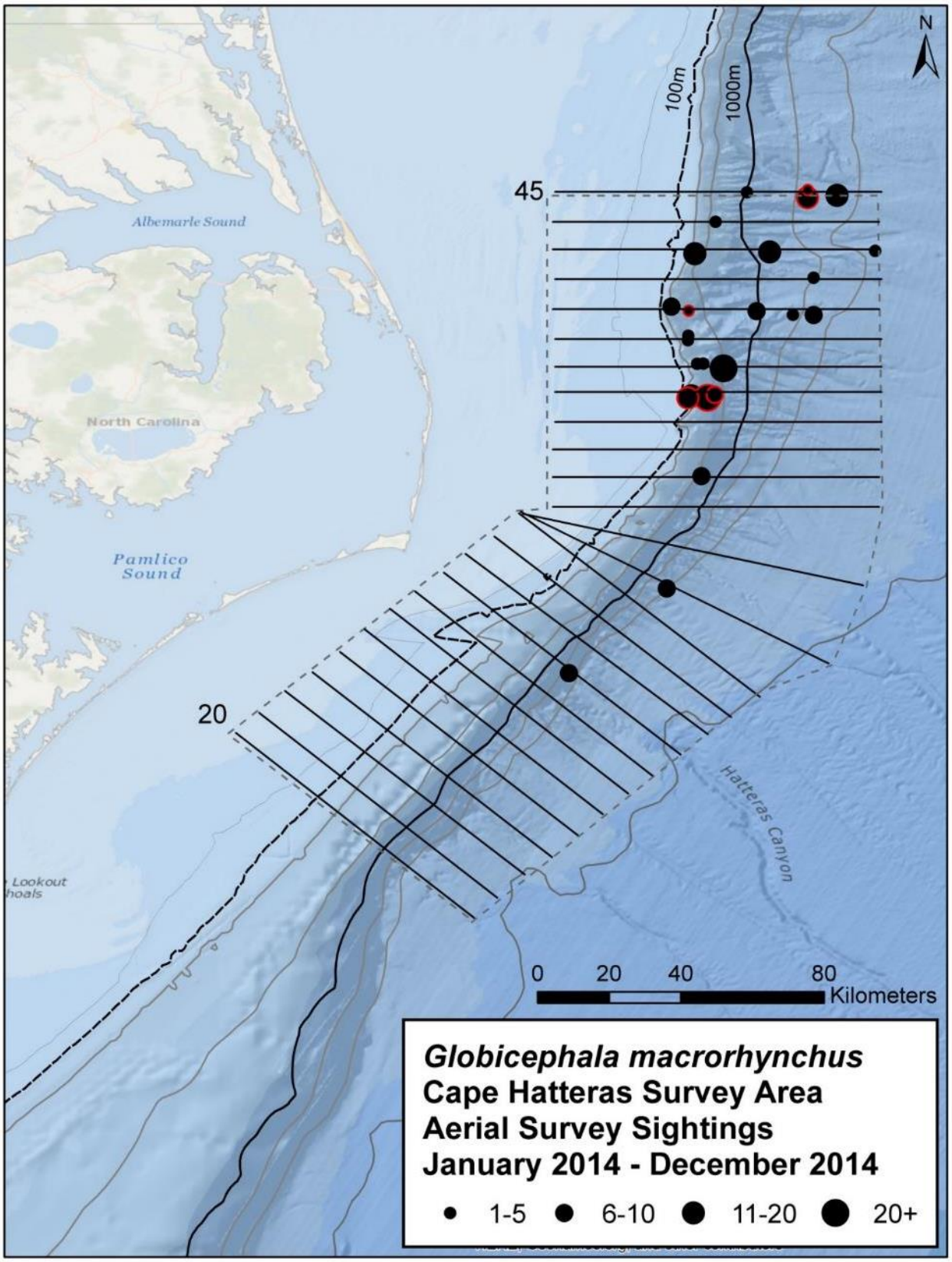


Figure 12. Short-finned pilot whale (*Globicephala macrorhynchus*) sightings indicating group size. Red outlines denote off-effort sightings.

Cuvier's beaked whale (*Ziphius cavirostris*)

Thirteen sightings of 39 individuals occurred while on effort in the Cape Hatteras survey area, and this species was observed in 5 of the 8 months in which surveys were conducted (**Table 11, Figure 13**). Group sizes ranged from single animals up to 7 individuals. An additional, off-effort sighting of 3 animals was also recorded. Sightings occurred from just offshore of the 200-m isobath to beyond the 2,000-m isobath.

Table 11. Cuvier's beaked whale (*Ziphius cavirostris)* sightings in the Cape Hatteras, North Carolina, survey area from January 2014 to December 2014. Asterisk denotes an off-effort sightings.

Date	Time	Way Point	Latitude	Longitude-1	Track Number	BSS	Angle out	Degree Forward	Best #	
24-Feb-2014	11:27:46	27	35.614788	-74.699189	38	5	2	90°	2	
3-Apr-2014	9:44:33	19	35.908877	-74.483757	42	3	3	80°	3	*
14-May-2014	12:10:22	79	35.760635	-74.591612	40	3	1	90°	2	
14-May-2014	15:37:40	135	35.908866	-74.601054	42	2	2	60°	4	
14-May-2014	15:46:44	139	35.892112	-74.698554	42	2	4	60°	1	
14-May-2014	15:50:41	142	35.894905	-74.773044	42	2	4	30°	3	
31-Jul-2014	13:29:46	47	35.411690	-74.805410	35	4	2	90°	3	
21-Aug-2014	9:37:51	14	35.830652	-74.817217	41	1	1	90°	1	
21-Aug-2014	10:27:44	32	35.758877	-74.656274	40	1	2	90°	1	
21-Aug-2014	10:31:56	36	35.765342	-74.717086	40	1	1	90°	4	
21-Aug-2014	11:46:55	72	35.604293	-74.626744	38	1	3	45°	7	
21-Aug-2014	11:58:25	77	35.635736	-74.770966	38	1	3	60°	4	
21-Aug-2014	15:10:45	104	35.499642	-74.799134	36	2	2	90°	4	
7-Oct-2014	14:28:22	56	36.047983	-74.402421	44	2	2	45°	3	

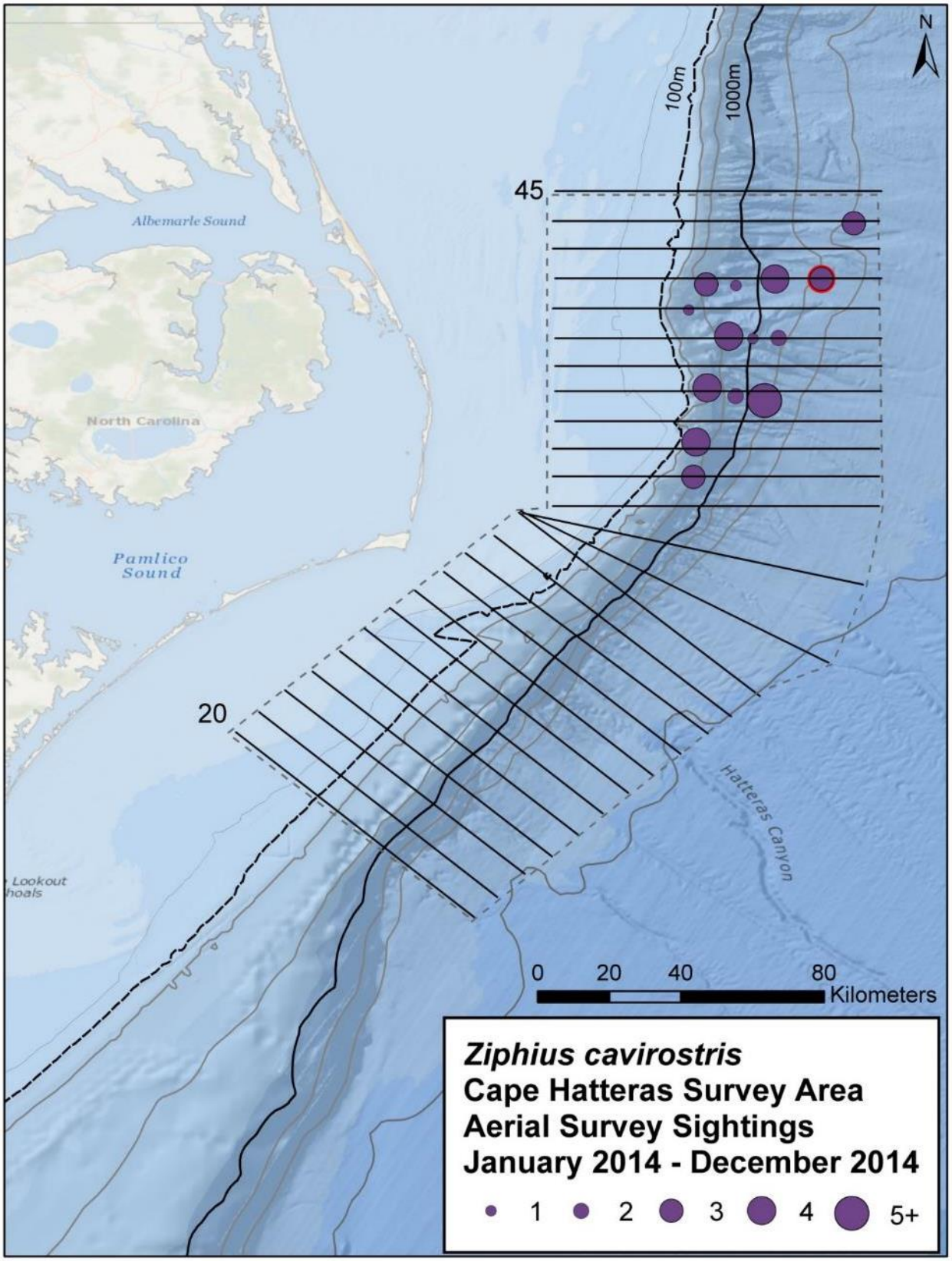


Figure 13. Cuvier's beaked whale (*Ziphius cavirostris*) sightings indicating group size. Red outline denotes an off-effort sighting.

Mesoplodont beaked whale (*Mesoplodon* spp.)

Beaked whales determined not to be Cuvier's beaked whales were observed on 4 occasions, but could not be positively identified to species (**Table 12, Figure 14**). Since no species identification could be established, they are listed here as *Mesoplodon* spp. An additional, off-effort sighting of 4 animals also was recorded. Sightings occurred from just inshore of the 1,000-m isobath to waters with bottom depths greater than 2,000 m.

Table 12. Unidentified *Mesoplodon* sightings in the Cape Hatteras, North Carolina, survey area from January 2014 to December 2014. Asterisk denotes an off-effort sighting.

Date	Time	Way Point	Latitude	Longitude-1	Track Number	BSS	Angle out	Degree Forward	Best #	
24-Feb-2014	10:28:00	7	35.688058	-74.655201	39	5	2	100°	1	
26-Apr-2014	14:32:35	33	34.640826	-75.267237	24	4	2	60°	3	
11-Jun-2014	15:18:51	56	34.959325	-75.150947	28	2	2	90°	4	*
11-Jun-2014	15:26:43	59	34.929970	-75.119988	28	2	2	90°	4	
3-Dec-2014	14:27:53	23	35.411723	-74.787013	35	3	1	100°	1	

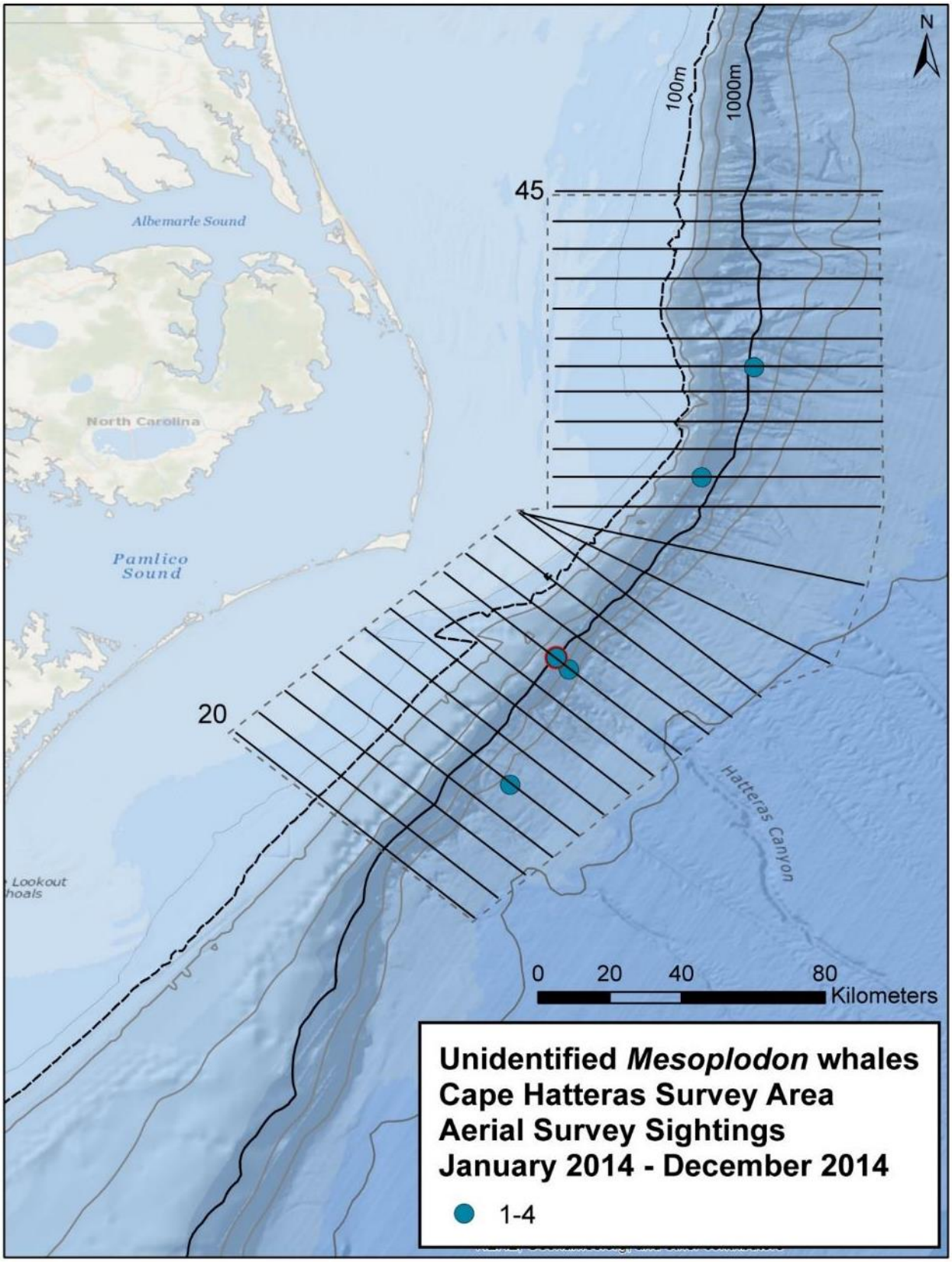


Figure 14. Unidentified *Mesoplodon* sightings. Red outline denotes an off-effort sighting.

Sperm whale (*Physeter macrocephalus*)

On 4 occasions, lone sperm whales were observed between the 500-m and 2,000-m isobaths in the northern portion of the Cape Hatteras survey area (**Table 13, Figure 15**). Sightings occurred in only 2 of the 8 months surveyed.

Table 13. Sperm whale (*Physeter macrocephalus*) sightings in the Cape Hatteras, North Carolina, survey area from January 2014 to December 2014.

Date	Time	Way Point	Latitude	Longitude-1	Track Number	BSS	Angle out	Degree Forward	Best #
10-Jun-2014	13:32:05	18	35.895542	-74.682089	42	3	3	90°	1
10-Jun-2014	16:27:27	36	36.043944	-74.472669	44	3	3	90°	1
10-Jun-2014	16:48:30	42	36.127594	-74.508850	45	3	1	90°	1
6-Oct-2014	14:01:06	13	35.544066	-74.577211	37	1	3	90°	1

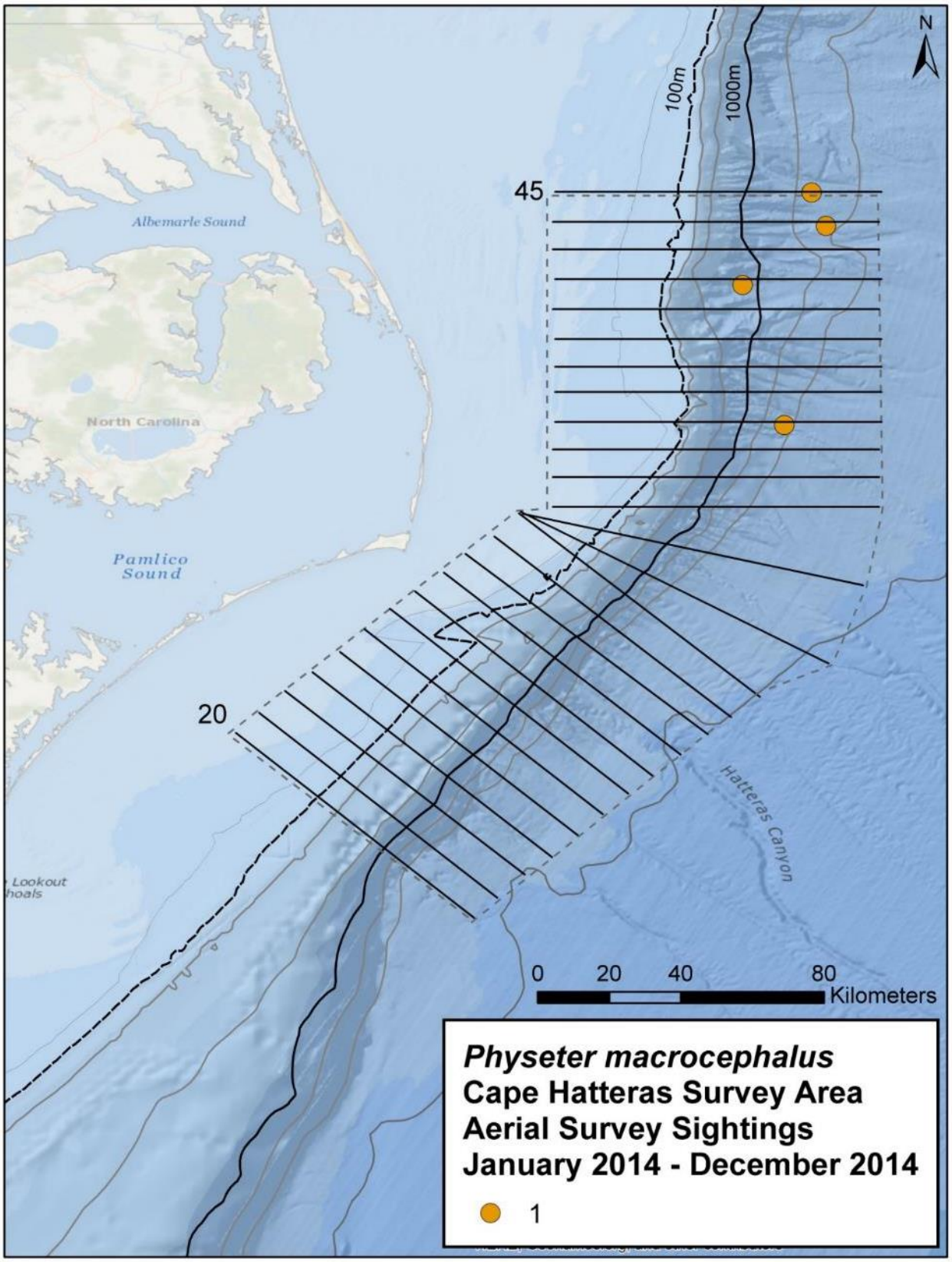


Figure 15. Sperm whale (*Physeter macrocephalus*) sightings.

Gervais' beaked whale (*Mesoplodon europaeus*)

As detailed above, the examination of images collected from a 14 May 2014 beaked whale sighting again revealed erupted teeth in one individual, which allowed it to be identified as Gervais' beaked whale (**Table 14, Figure 16**). This species was previously documented in the Cape Hatteras survey area during aerial survey effort in 2013 (McAlarney et al. 2013).

Table 14. Gervais' beaked whale (*Mesoplodon europaeus*) sighting in the Cape Hatteras, North Carolina, survey area from January 2014 to December 2014.

Date	Time	Way Point	Latitude	Longitude-1	Track Number	BSS	Angle out	Degree Forward	Best #
14-May-2014	10:21:25	22	35.612333	-74.331114	38	4	3	90°	1
11-Jun-2014	15:26:43	59	34.929970	-75.119988	28	2	2	90°	2

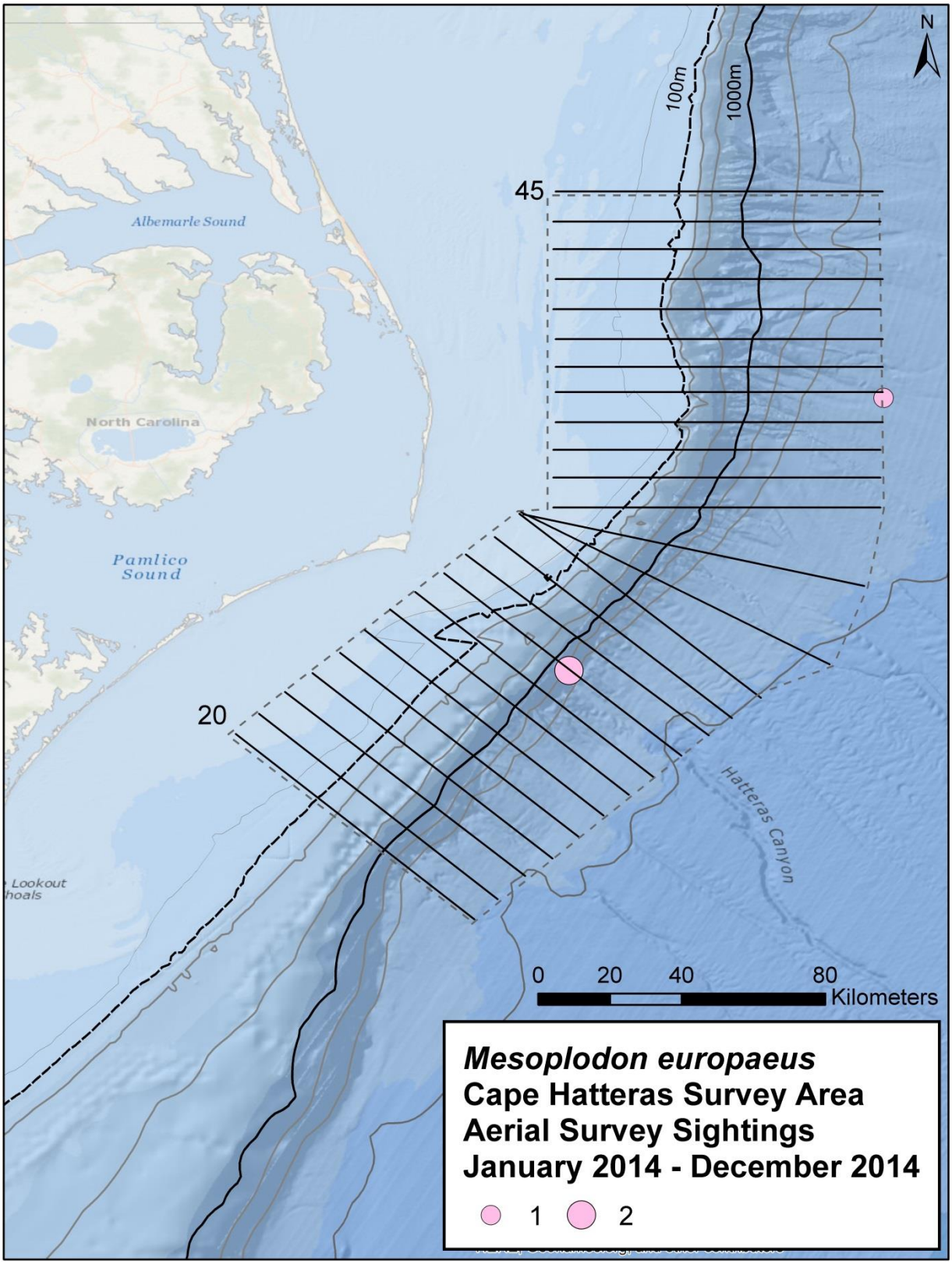


Figure 16. Gervais' beaked whale (*Mesoplodon europaeus*) sighting.

4.2 Sea Turtles

There were 65 sightings totaling 75 individuals of 2 sea turtle species during the reporting period (**Tables 15 and 16, Figures 17-19**). Sighting rates were negatively correlated with BSS, with rates sharply declining at BSS higher than 2 (**Figures 19a-b**). Sea turtles were recorded in every month surveyed, with highest sightings in May (**Figure 19c**). Loggerhead sea turtles represented the majority (88 percent) of total sea turtles sighted. The only other sea turtle species identified in the Cape Hatteras survey area was the leatherback sea turtle (6.6 percent of total sea turtles sighted). For the remaining 5 percent of sightings, species identification could not be made with 100 percent certainty and they are, therefore, listed as “unidentified sea turtles.”

Loggerhead sea turtle (*Caretta caretta*)

Sightings of loggerhead sea turtles occurred in all 8 months surveyed, for a total of 66 animals (**Table 15, Figure 17**). The vast majority of sightings were over the continental shelf inshore of the 100-m isobath.

Leatherback sea turtle (*Dermochelys coriacea*)

Five sightings of lone leatherback sea turtles were observed from the inshore waters out to the 100-m isobath (**Table 16, Figure 18**).

Table 15. Loggerhead sea turtle (*Caretta caretta)* sightings in the Cape Hatteras, North Carolina, survey area from January 2014 to December 2014.

Date	Time	Way Point	Latitude	Longitude-1	Track Number	BSS	Angle out	Degree Forward	Best #
24-Feb-2014	11:02:17	17	35.688032	-75.127017	39	4	1	90°	1
3-Apr-2014	9:20:33	8	35.907206	-74.987036	42	2	3	90°	2
3-Apr-2014	10:26:15	38	35.978325	-74.971115	43	2	1	80	1
3-Apr-2014	11:21:04	63	36.122276	-74.996043	45	2	1	90°	1
3-Apr-2014	13:12:09	70	35.307831	-75.215536	32	2	2	75°	1
3-Apr-2014	13:12:42	71	35.297711	-75.191346	32	2	2	75°	1
3-Apr-2014	14:12:10	88	35.296578	-75.212699	31	2	3	90°	1
3-Apr-2014	14:12:56	50	35.314784	-75.236897	31	3	2	90°	1
3-Apr-2014	15:10:39	100	35.197294	-75.357535	29	2	3	90°	1
26-Apr-2014	14:46:53	35	34.933562	-75.640632	24	2	2	90°	1
26-Apr-2014	14:51:43	40	34.910790	-75.741878	23	2	1	90°	1
26-Apr-2014	15:37:15	47	34.856943	-75.807193	22	2	2	90°	1
14-May-2014	11:00:10	24	35.619016	-74.802866	38	2	2	90°	1
14-May-2014	11:09:50	29	35.619252	-74.955472	38	3	1	90°	1
14-May-2014	11:10:43	46	35.619046	-74.982809	38	2	3	90°	1
14-May-2014	11:11:04	30	35.618924	-74.992992	38	3	1	90°	2
14-May-2014	11:13:42	47	35.618919	-75.072605	38	2	3	90°	1
14-May-2014	11:14:25	48	35.618838	-75.094997	38	2	3	110°	1
14-May-2014	11:14:42	49	35.618806	-75.104031	38	2	2	90°	1
14-May-2014	11:16:16	50	35.619122	-75.152705	38	2	2	110°	1
14-May-2014	11:21:14	54	35.688120	-75.084578	39	2	2	90°	3
14-May-2014	12:31:08	89	35.757433	-74.951926	40	2	3	80°	1
14-May-2014	12:32:56	55	35.757414	-75.011644	40	2	1	90°	2
14-May-2014	14:27:36	95	35.827275	-75.060256	41	2	3	90°	1
14-May-2014	14:27:55	60	35.827297	-75.048423	41	2	1	90°	2
14-May-2014	14:28:39	96	35.827664	-75.021912	41	2	2	90°	1
14-May-2014	14:28:59	97	35.827662	-75.009983	41	2	3	90°	1
14-May-2014	14:29:56	98	35.827589	-74.976954	41	2	3	90°	1
14-May-2014	14:31:01	100	35.827513	-74.940368	41	2	1	40°	1
14-May-2014	16:20:26	154	35.903905	-74.980480	42	2	2	40°	1
14-May-2014	16:29:36	158	35.905842	-75.045303	42	2	2	50°	1
11-Jun-2014	11:39:18	31	35.276795	-75.043306	33	3	2	90°	1
11-Jun-2014	14:56:47	48	35.154241	-75.419703	28	2	1	90°	1
11-Jun-2014	16:17:50	48	35.113423	-75.496578	27	2	1	90°	1
30-Jul-2014	14:53:32	31	35.763488	-74.923633	40	3	1	90°	1
31-Jul-2014	9:07:11	4	35.907654	-74.947258	42	2	2	90°	1
31-Jul-2014	11:00:48	28	36.122252	-74.948566	45	1	1	90°	2
31-Jul-2014	13:25:54	44	35.409473	-74.912504	35	3	2	90°	1
20-Aug-2014	16:11:40	31	35.976863	-75.009983	43	3	2	90°	1
20-Aug-2014	16:12:24	32	35.976764	-75.036049	43	3	2	90°	1
21-Aug-2014	10:59:35	47	35.691595	-74.909169	39	2	1	90°	1

Table 15 (Continued). Loggerhead sea turtle (*Caretta caretta)* sightings in the Cape Hatteras, North Carolina, survey area from January 2014 to December 2014.

Date	Time	Way Point	Latitude	Longitude-1	Track Number	BSS	Angle out	Degree Forward	Best #
21-Aug-2014	11:00:04	25	35.691568	-74.890503	39	2	2	90°	1
21-Aug-2014	16:10:04	73	35.340539	-74.437214	34	2	1	90°	1
21-Aug-2014	16:38:21	130	35.345262	-74.961152	34	2	2	90°	1
6-Oct-2014	13:25:07	2	35.480748	-75.050613	36	1	2	90°	2
6-Oct-2014	14:27:15	24	35.549829	-75.040600	37	1	2	90°	1
7-Oct-2014	10:45:30	19	35.341685	-75.024860	34	1	2	90°	1
7-Oct-2014	11:46:12	28	35.407987	-75.122444	35	2	1	90°	1
7-Oct-2014	11:46:27	38	35.407900	-75.134337	35	2	2	90°	1
7-Oct-2014	13:57:00	44	36.123844	-74.871670	45	2	2	90°	1
7-Oct-2014	14:57:25	47	36.048205	-74.930561	44	2	2	60°	1
7-Oct-2014	15:06:29	70	35.976951	-75.153472	43	1	1	90°	1
3-Dec-2014	13:39:02	3	35.479167	-75.124513	36	2	2	90°	1
3-Dec-2014	13:40:03	4	35.479935	-75.084762	36	2	1	90°	1
3-Dec-2014	14:59:04	33	35.411190	-75.069219	35	2	2	90°	2
3-Dec-2014	15:09:08	36	35.340553	-74.967429	34	2	2	90°	2

Table 16. Leatherback sea turtle (*Dermochelys coriacea)* sightings in the Cape Hatteras, North Carolina, survey area from January 2014 to December 2014.

Date	Time	Way Point	Latitude	Longitude-1	Track Number	BSS	Angle out	Degree Forward	Best #
14-May-2014	11:24:58	55	35.688707	-74.932990	39	2	3	90°	1
21-Aug-2014	9:27:40	8	35.835372	-74.982459	41	1	2	100°	1
21-Aug-2014	15:22:52	107	35.479335	-74.983964	36	2	2	90°	1
6-Oct-2014	14:16:13	13	35.549251	-74.870499	37	1	2	90°	1
6-Oct-2014	14:40:48	20	35.621356	-74.855971	38	1	2	90°	1

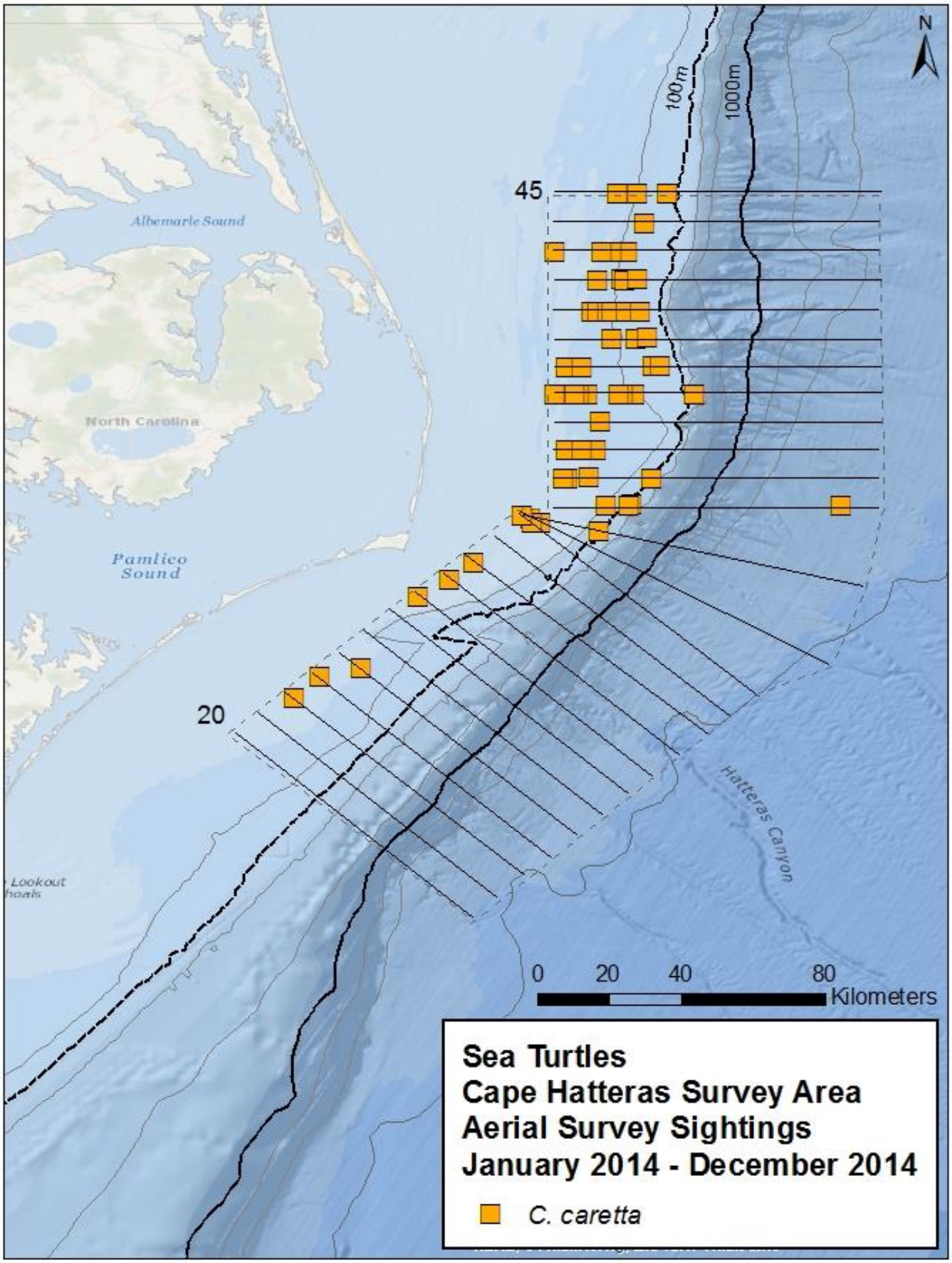


Figure 17. Loggerhead sea turtle (*Caretta caretta*) sightings.

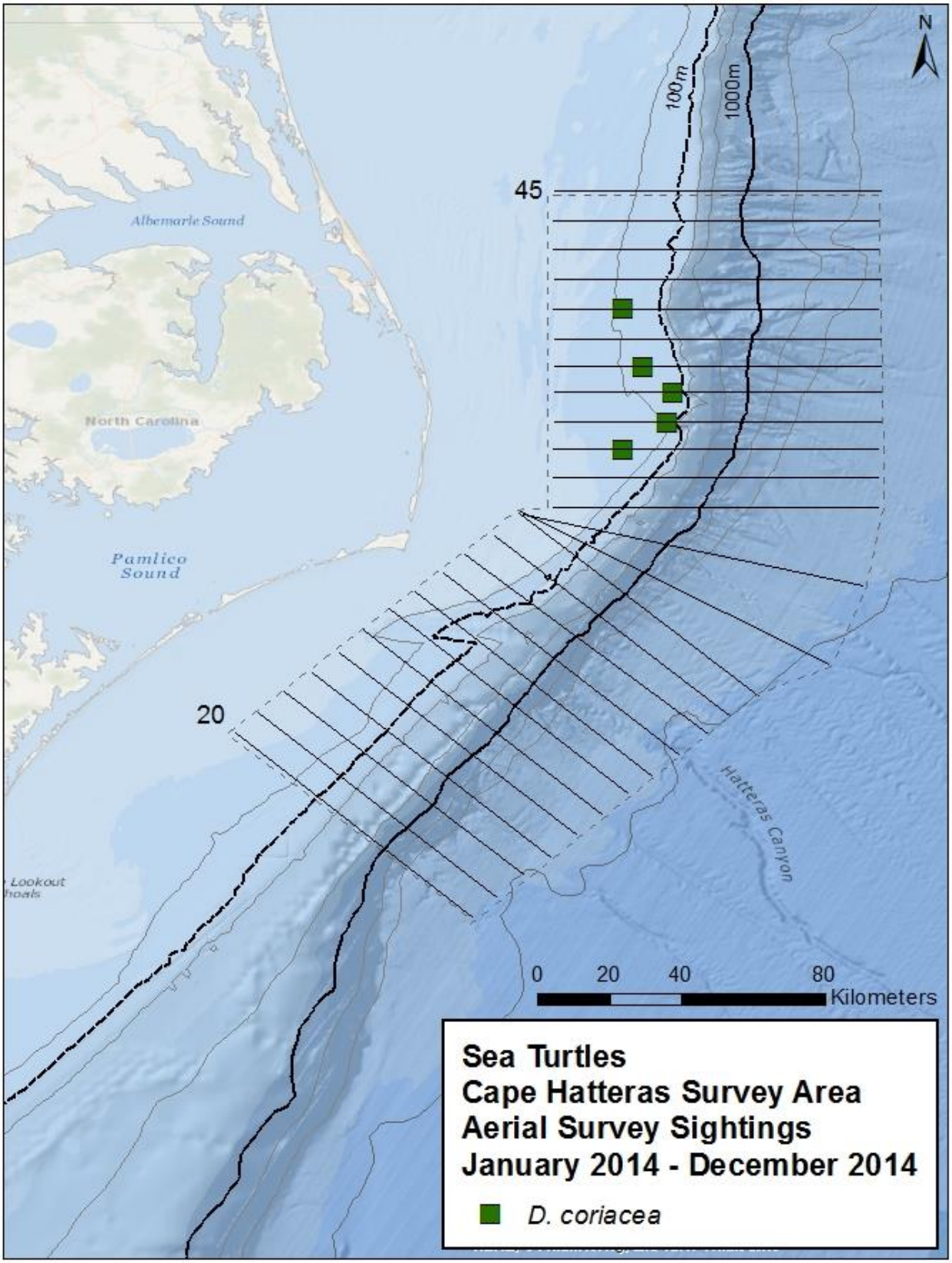


Figure 18. Leatherback sea turtle (*Dermochelys coriacea)* sightings.

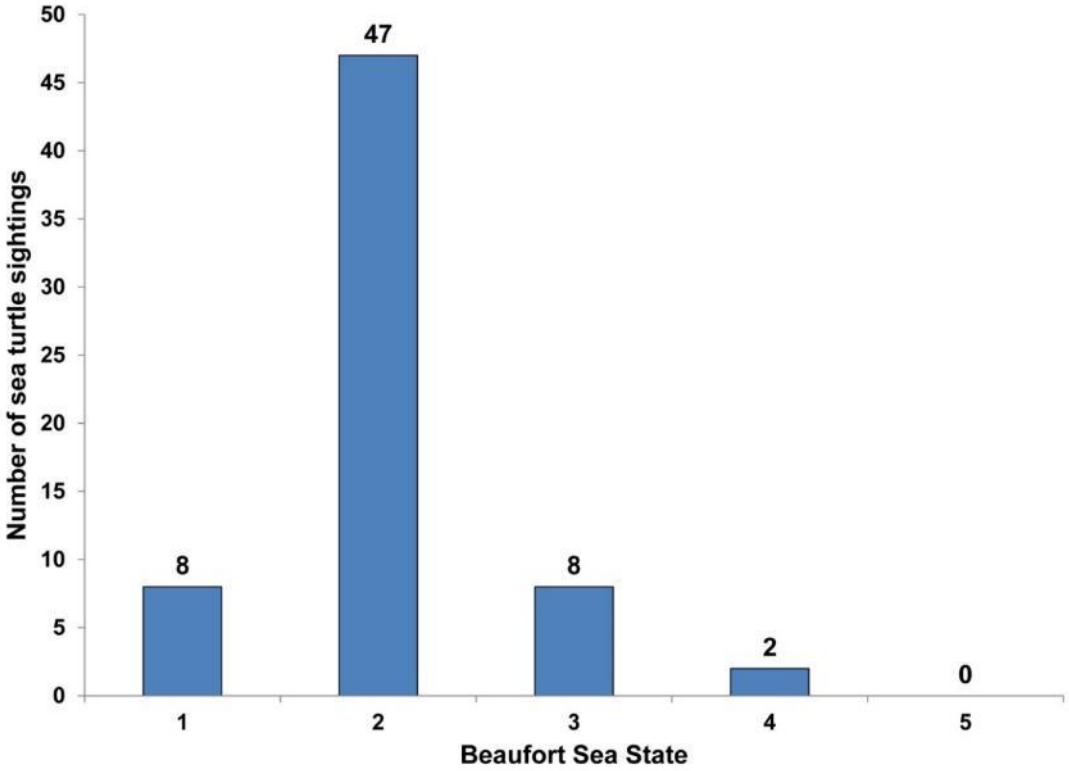


Figure 19a. Total number of sea turtle sightings by BSS category in the Cape Hatteras, North Carolina, survey area from January 2014 to December 2014.

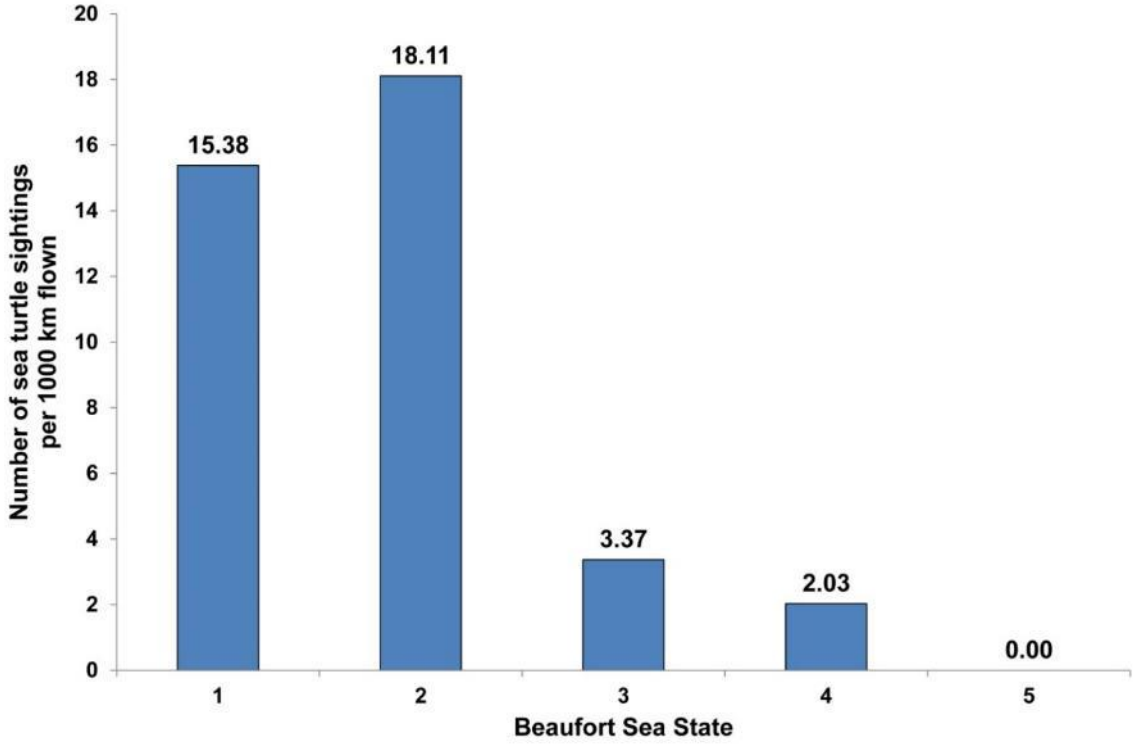


Figure 19b. Sea turtle sightings per 1,000 km flown by BSS category in the Cape Hatteras, North Carolina, survey area from January 2014 to December 2014.

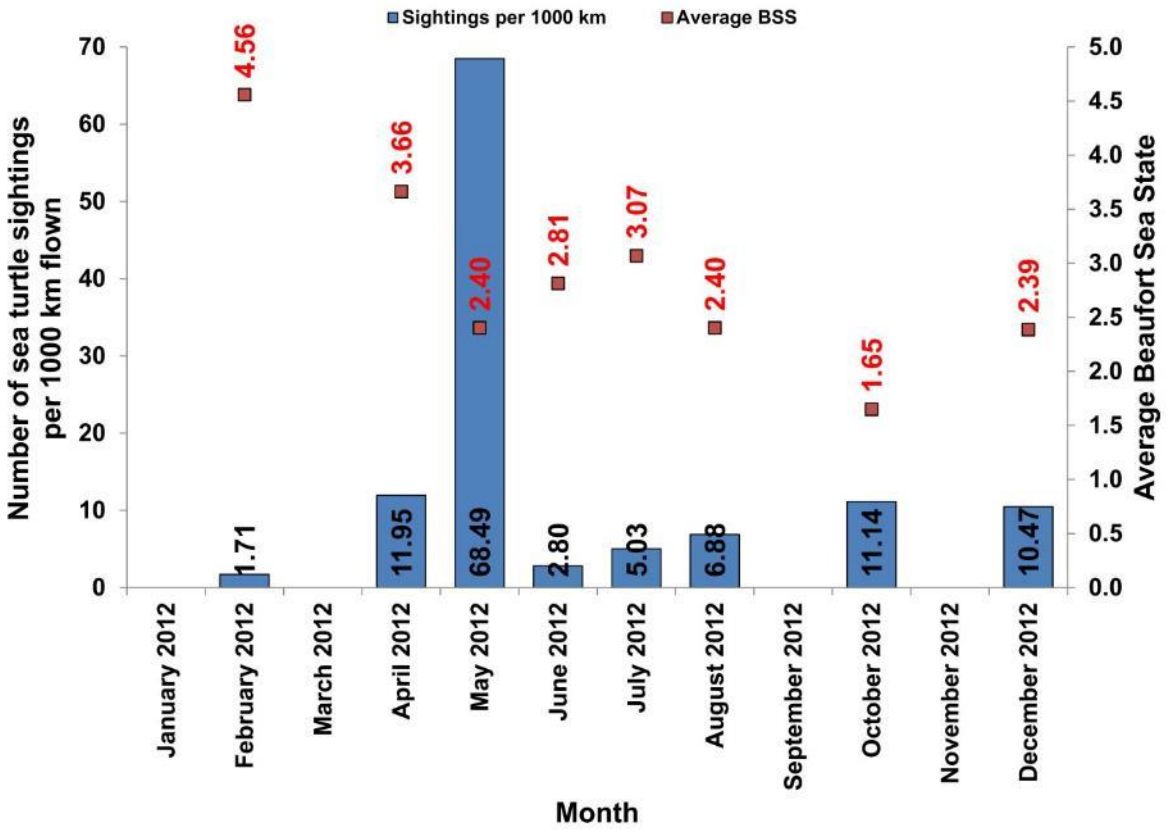


Figure 19c. Sea turtle sightings per 1,000 km surveyed and the average Beaufort Sea State per month in the Cape Hatteras, North Carolina, survey area from January 2014 to December 2014.

4.3 Fish

4.3.1 Chondrichthyan fishes

Forty-one sightings of unidentified sharks or rays were recorded during the reporting period largely inshore of the 100-m isobath (**Tables 17-19, Figure 20**). Fifty-seven manta rays were observed during the study period, and occurred in 7 of the 8 months surveyed. All five sightings of large groups of cownose rays occurred in June on the northernmost tracklines.

1 **Table 17. Unidentified Chondrichthyan fish sightings in the Cape Hatteras, North Carolina, survey**
2 **area from January 2014 to December. 2014**

Date	Time	Way Point	Latitude	Longitude-1	Track Number	BSS	Angle out	Degree Forward	Best #	Comments
24-Feb-2014	10:49:02	13	35.688317	-74.917204	39	4	1	90°	1	Hammerhead shark
24-Feb-2014	11:13:06	21	35.619859	-74.876368	38	5	3	90°	1	Shark
24-Feb-2014	11:15:11	23	35.619408	-74.793827	38	5	2	90°	1	Shark
24-Feb-2014	11:54:10	27	35.553581	-74.828747	37	5	1	90°	1	Hammerhead shark
24-Feb-2014	14:54:39	40	35.406956	-74.921190	35	5	1	90°	1	Hammerhead shark
24-Feb-2014	14:56:03	42	35.406991	-74.976164	35	4	1	90°	3	Hammerhead shark
24-Feb-2014	15:06:22	46	35.337734	-75.039281	34	3	1	90°	5	Shark
3-Apr-2014	9:48:35	22	35.907171	-74.378064	42	3	3	75°	1	Ray
3-Apr-2014	10:11:07	15	35.978696	-74.740493	43	2	3	90°	2	Ray
26-Apr-2014	13:55:59	26	34.926365	-75.497334	25	2	2	90°	1	Hammerhead shark
26-Apr-2014	14:53:17	41	34.876938	-75.699604	23	2	2	90°	1	Hammerhead shark
14-May-2014	14:30:39	99	35.827517	-74.952948	41	2	1	90°	1	Hammerhead shark
14-May-2014	14:32:26	101	35.827446	-74.893867	41	2	2	30°	2	Hammerhead shark
10-Jun-2014	15:53:37	23	35.826217	-74.852364	41	3	2	90°	7	Ray
31-Jul-2014	10:17:06	18	36.049757	-74.854340	44	2	1	90°	1	Hammerhead shark
31-Jul-2014	10:55:54	27	36.122412	-74.766006	45	1	3	90°	1	Shark
21-Aug-2014	9:26:20	7	35.835149	-75.036977	41	1	1	90°	1	Hammerhead shark
21-Aug-2014	9:29:49	9	35.835424	-74.894548	41	1	1	90°	1	Shark
21-Aug-2014	10:57:46	46	35.691406	-74.981764	39	2	1	90°	1	Shark
6-Oct-2014	15:32:10	34	35.689881	-75.084018	39	1	1	90°	1	Shark
7-Oct-2014	15:02:07	49	36.047672	-75.118395	44	2	2	90°	2	Shark
7-Oct-2014	15:18:22	55	35.978293	-74.959545	43	2	2	90°	2	Hammerhead shark
15-Dec-2014	13:07:33	8	35.480256	-74.853485	36	2	2	90	3	Hammerhead shark

3

Table 18. Manta ray (*Manta birostris)* sightings in the Cape Hatteras, North Carolina, survey area from January 2014 to December 2014.

Date	Time	Way Point	Latitude	Longitude-1	Track Number	BSS	Angle out	Degree Forward	Best #
24-Feb-2014	11:14:02	22	35.619301	-74.839894	38	5	3	90°	1
3-Apr-2014	13:56:27	82	35.152402	-75.022706	31	3	2	100°	1
26-Apr-2014	15:22:50	43	34.567383	-75.421584	22	4	3	90°	1
14-May-2014	10:59:39	41	35.617291	-74.787603	38	2	2	45°	1
14-May-2014	11:31:52	59	35.678509	-74.786083	39	2	3	90°	1
14-May-2014	12:23:24	84	35.756814	-74.834781	40	2	1	90°	1
14-May-2014	12:28:00	53	35.760033	-74.853284	40	2	2	90°	4
14-May-2014	14:32:41	61	35.827341	-74.885443	41	2	1	90°	1
14-May-2014	14:33:20	102	35.827437	-74.864247	41	2	2	45°	1
14-May-2014	15:57:50	145	35.906594	-74.821886	42	2	2	45°	15
14-May-2014	15:57:52	86	35.906559	-74.822587	42	2	2	90°	5
31-Jul-2014	9:02:25	3	35.907120	-75.114908	42	2	1	90°	1
31-Jul-2014	9:09:25	5	35.907814	-74.868434	42	2	2	90°	1
31-Jul-2014	10:50:36	26	36.122243	-74.568850	45	2	2	90°	1
31-Jul-2014	10:54:35	25	36.122360	-74.716695	45	2	2	90°	2
31-Jul-2014	11:01:12	27	36.123128	-74.963774	45	2	2	90°	1
20-Aug-2014	16:22:16	36	36.049736	-75.056590	44	3	2	90°	2
21-Aug-2014	9:50:32	17	35.834541	-74.649730	41	1	1	90°	1
21-Aug-2014	10:59:57	48	35.691595	-74.894828	39	2	1	90°	1
6-Oct-2014	15:27:03	50	35.689965	-74.981189	39	1	1	90°	1
6-Oct-2014	15:38:16	56	35.763445	-75.092662	40	2	1	90°	1
6-Oct-2014	16:26:30	53	35.833553	-74.892337	41	1	1	90°	1
7-Oct-2014	10:46:09	15	35.341837	-74.999377	34	2	1	90°	1
7-Oct-2014	11:30:31	25	35.408396	-74.840916	35	2	1	90°	1
7-Oct-2014	15:02:42	50	36.047788	-75.141824	44	2	1	90°	1
3-Dec-2014	13:46:14	7	35.480257	-74.837483	36	2	1	90°	4
3-Dec-2014	13:46:25	3	35.480363	-74.831721	36	2	2	90°	1
3-Dec-2014	14:47:49	18	35.410968	-74.869605	35	2	2	90°	4

Table 19. Cownose ray (*Rhinoptera bonasus)* sightings in the Cape Hatteras, North Carolina, survey area from January 2014 to December 2014.

Date	Time	Way Point	Latitude	Longitude-1	Track Number	BSS	Angle out	Degree Forward	Best #
10-Jun-2014	16:15:02	34	36.044116	-74.999392	44	3	2	90°	50
10-Jun-2014	16:15:51	26	36.044152	-74.964922	44	3	3	90°	75
10-Jun-2014	16:15:59	35	36.044284	-74.959367	44	3	1	90°	125
10-Jun-2014	17:14:43	33	36.122554	-74.991218	45	3	3	90°	50
10-Jun-2014	17:17:44	49	36.122563	-75.082645	45	3	1	90°	40

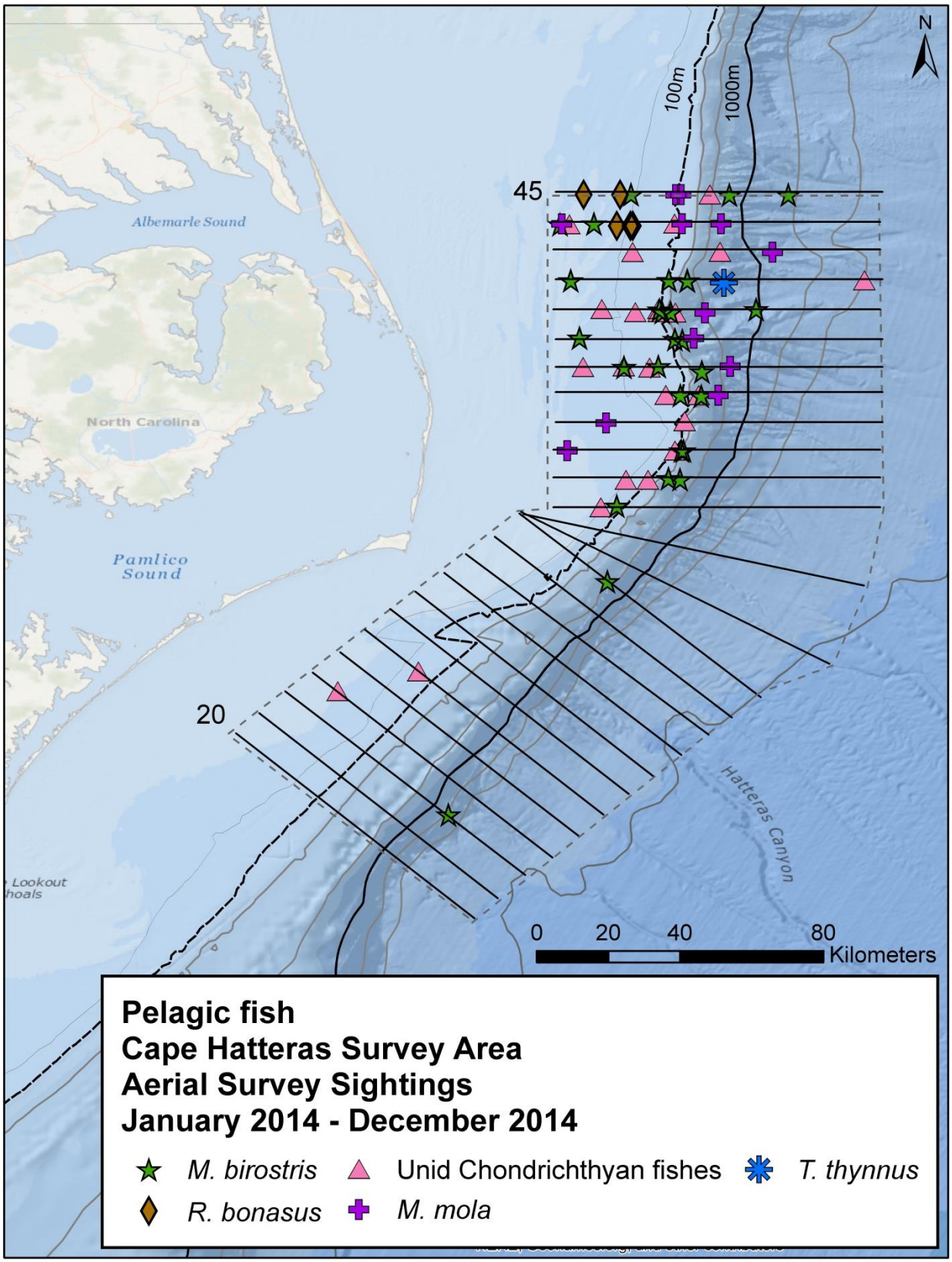


Figure 20. Manta ray (*Manta birostris*), ocean sunfish (*Mola mola*), cownose ray (*Rhinoptera bonasus),* bluefin tuna (*Thunnus thynnus*) and unidentified Chondrichthyan fish sightings.

4.3.2 Other fishes

Twelve sightings of ocean sunfish were recorded, with the majority offshore of the 100-m isobath (**Table 20 and 21, Figure 20**). A group of 12 bluefin tuna was encountered in waters with a bottom depth of approximately 750 m. The bluefin tuna sighting was initially thought to be marine mammals, because of the disturbance created at the surface.

Table 20. Ocean sunfish (*Mola mola)* sightings in the Cape Hatteras, North Carolina, survey area from January 2014 to December 2014

Date	Time	Way Point	Latitude	Longitude-1	Track Number	BSS	Angle out	Degree Forward	Best #
3-Apr-2014	10:44:43	24	36.049496	-74.835852	44	2	1	90°	1
3-Apr-2014	10:47:07	46	36.049481	-74.737786	44	2	1	80°	1
3-Apr-2014	11:17:51	60	36.122430	-74.838945	45	2	2	75°	1
3-Apr-2014	11:18:06	33	36.122569	-74.851232	45	2	1	90°	1
14-May-2014	14:42:36	107	35.826010	-74.777943	41	2	2	45°	1
31-Jul-2014	9:35:35	8	35.977998	-74.608435	43	2	1	100°	1
20-Aug-2014	16:20:11	35	36.049391	-75.137180	44	3	2	90°	1
21-Aug-2014	10:36:03	39	35.762350	-74.806442	40	1	1	90°	1
21-Aug-2014	11:12:56	29	35.691711	-74.714859	39	1	2	90°	1
21-Aug-2014	11:56:33	75	35.619455	-74.744962	38	1	2	90°	1
6-Oct-2014	14:26:53	16	35.549866	-75.026187	37	1	2	90°	1
15-Dec-2014	12:56:31	3	35.480446	-75.123788	36	2	2	80	1

Table 21. Bluefin tuna (*Thunnus thynnus)* sighting in the Cape Hatteras, North Carolina, survey area from January 2014 to December 2014.

Date	Time	Way Point	Latitude	Longitude-1	Track Number	BSS	Angle out	Degree Forward	Best #
3-Apr-2014	9:31:25	12	35.900844	-74.730408	42	3	3	100°	12

4.4 Vessel Sightings

4.4.1 Commercial

A total of 38 commercial vessels (e.g., tankers, car carriers, and container vessels) was observed in the survey area (**Table 22, Figure 21**).

Table 22. Commercial vessel sightings in the Cape Hatteras, North Carolina, survey area from January 2014 to December 2014.

Date	Time	Way Point	Latitude	Longitude-1	Track Number	BSS	Angle out	Degree Forward	Best #	Comments
24-Feb-2014	10:35:16	8	35.687835	-74.723891	39	5	3	45°	1	Cargo vessel
24-Feb-2014	10:49:41	14	35.688274	-74.941322	39	4	3	90°	1	Cargo vessel
24-Feb-2014	11:45:42	32	35.553335	-74.485099	37	5	4	110°	1	Cargo vessel
24-Feb-2014	11:52:44	33	35.553672	-74.771051	37	5	4	90°	1	Cargo vessel
3-Apr-2014	13:55:00	47	35.116965	-74.976007	31	3	4	60°	1	Tanker
3-Apr-2014	13:56:38	83	35.156888	-75.028511	31	3	3	120°	1	Cruise ship
3-Apr-2014	14:36:12	55	35.109635	-75.110083	30	3	3	60°	1	Tanker
26-Apr-2014	14:19:03	30	34.600024	-75.198532	24	4	2	60°	1	Cargo vessel
14-May-2014	9:33:00	3	35.552104	-75.122989	37	2	3	45°	2	Cargo vessel
14-May-2014	12:32:22	90	35.757442	-74.992509	40	2	3	90°	2	Cargo ships
10-Jun-2014	12:57:00	8	35.974751	-74.477264	43	3	4	45°	1	Cargo vessel
11-Jun-2014	14:58:42	36	35.117929	-75.368312	28	2	4	45°	1	Comercial fishing vessel
30-Jul-2014	10:14:04	3	35.135178	-75.112557	30	4	2	60°	1	Cargo Vessel
30-Jul-2014	11:50:11	14	35.293319	-75.138359	33	4	4	45°	1	Tanker
30-Jul-2014	14:05:25	19	35.621075	-74.808891	38	3	3	90°	2	Commercial fishing vessel
30-Jul-2014	14:38:53	25	35.689706	-74.974756	39	3	4	60°	1	Car carrier
30-Jul-2014	14:51:31	30	35.763635	-74.997500	40	3	1	90°	1	Tanker
31-Jul-2014	9:35:30	10	35.978033	-74.605365	43	2	3	45°	1	Cargo vessel
31-Jul-2014	10:13:41	16	36.049528	-74.979138	44	1	2	45°	1	Cargo vessel
31-Jul-2014	11:04:47	29	36.121943	-75.097365	45	1	1	45°	1	Cargo vessel
31-Jul-2014	13:19:06	43	35.405507	-75.156171	35	3	1	45°	1	Cruise ship
31-Jul-2014	14:26:38	50	35.340889	-74.994703	34	3	2	45°	1	Cargo vessel
20-Aug-2014	12:04:57	10	35.236610	-75.133594	31	3	3	30°	2	Tug and Container vessel
20-Aug-2014	15:33:43	24	35.907502	-74.491933	42	3	2	90°	1	Cargo vessel
21-Aug-2014	12:09:59	82	35.619214	-74.998985	38	2	4	45°	1	Cargo vessel
21-Aug-2014	15:40:49	65	35.409468	-74.941761	35	2	1	90°	1	Commercial fishing vessel
21-Aug-2014	16:37:50	129	35.344633	-74.940663	34	2	3	45°	1	Cargo vessel
6-Oct-2014	13:29:54	3	35.481099	-74.868264	36	1	4	45°	1	Cargo vessel
7-Oct-2014	10:07:06	10	35.178191	-74.567644	33	1	3	60°	1	Headboat
7-Oct-2014	10:10:31	9	35.205486	-74.698404	33	2	4	45°	1	Tanker
7-Oct-2014	11:03:30	22	35.341992	-74.779977	34	2	3	45°	1	Tanker
7-Oct-2014	14:59:30	48	36.048071	-75.013705	44	2	4	45°	1	Cargo vessel
3-Dec-2014	13:40:56	5	35.479958	-75.049912	36	2	4	45°	1	Tanker
3-Dec-2014	14:10:23	10	35.480367	-74.445021	36	3	2	60°	1	Tanker
3-Dec-2014	15:49:29	51	35.158289	-74.470457	33	2	4	90°	1	Tanker
15-Dec-2014	13:59:57	22	35.62028	-75.008971	38	2	2	90	1	Commercial fishing vessel
15-Dec-2014	14:21:21	22	35.627945	-74.705347	38	2	3	30	1	Cargo vessel
15-Dec-2014	14:49:34	35	35.691553	-75.009876	39	2	2	90	2	Commercial fishing vessel

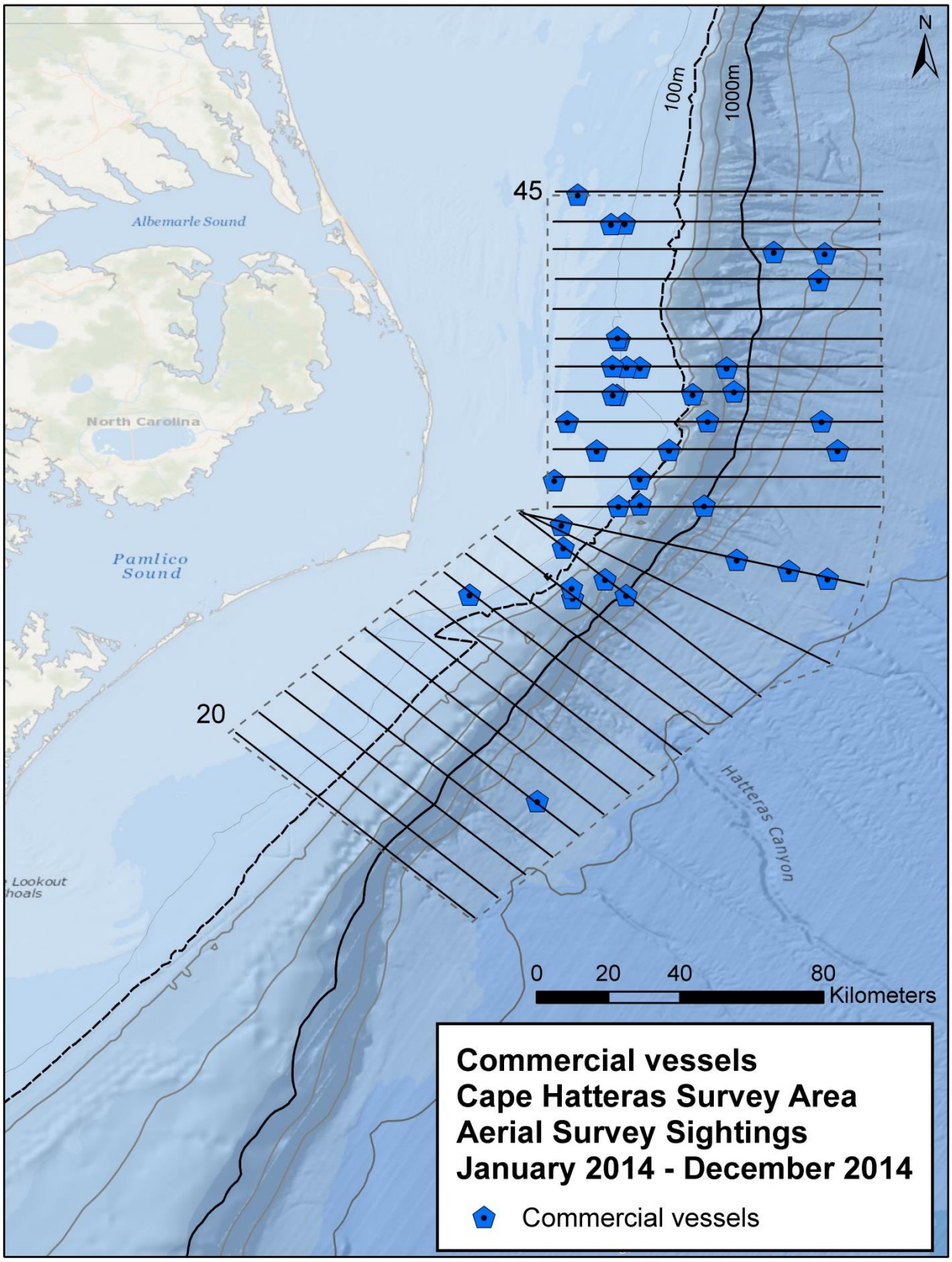


Figure 21. Commercial vessel sightings.

4.4.2 Military Vessels

Four military vessels were observed at the survey area (**Table 23, Figure 22**).

Table 23. Military vessel sightings in the Cape Hatteras, North Carolina, survey area from January 2014 to December 2014.

Date	Time	Way Point	Latitude	Longitude-1	Track Number	BSS	Angle out	Degree Forward	Best #	Comments
30-Jul-2014	14:11:44	23	35.621364	-74.580159	38	4	2	30°	2	Two military vessels transferring cargo
30-Jul-2014	15:40:58	39	35.802732	-74.503543	41	4	2	60°	2	Resight of military vessels
31-Jul-2014	10:53:21	24	36.122444	-74.671120	45	2	4	45°	1	Military vessel
20-Aug-2014	12:00:59	11	35.159525	-75.030914	31	3	4	60°	1	Military vessel

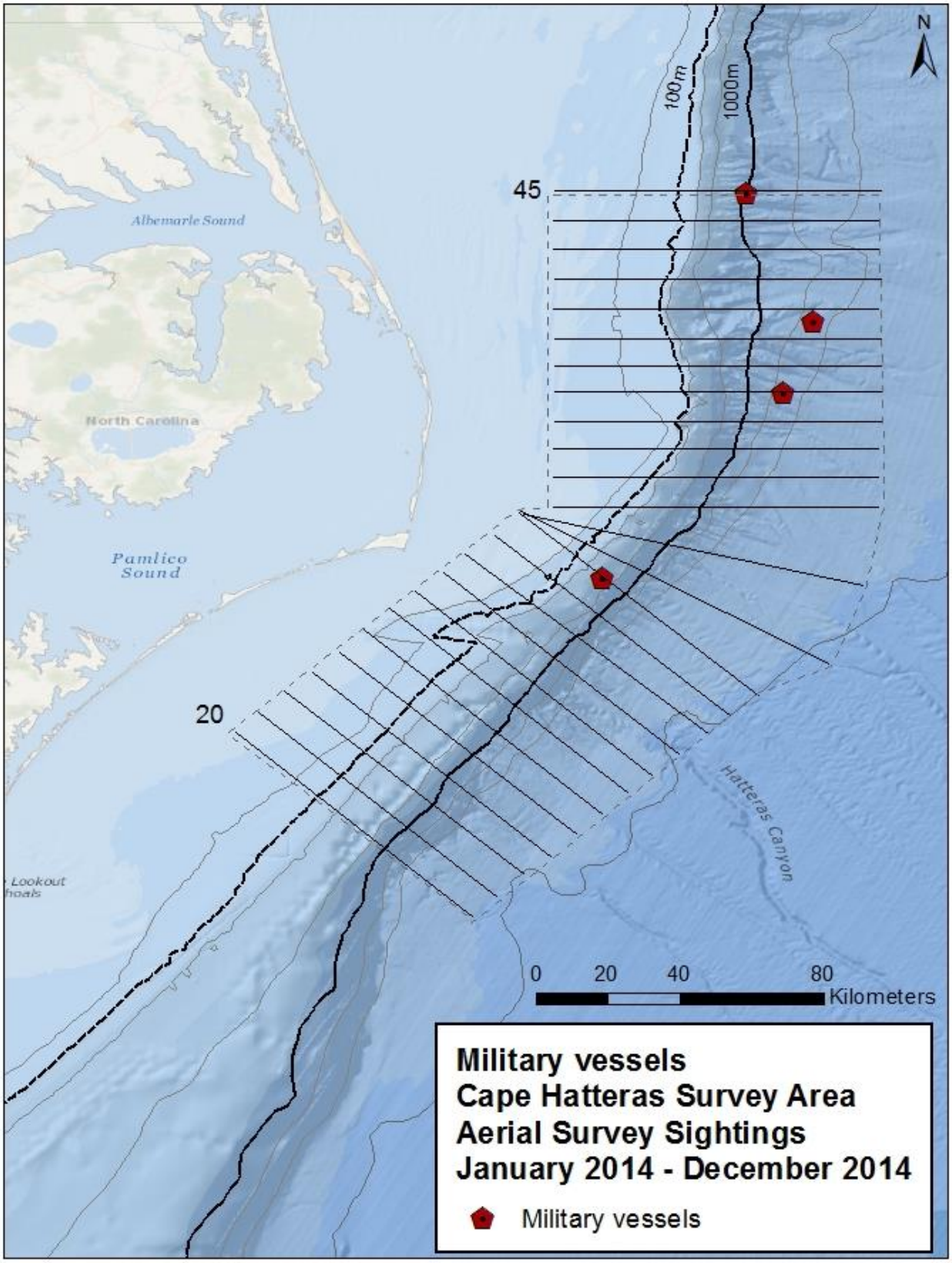


Figure 22. Military vessel sightings.

4.4.3 Other Vessels

A total of 93 other vessels was recorded in the survey area (**Table 24, Figure 23**). Besides 5 sailboats and a single motor yacht, all other vessel sightings were categorized as recreational sport-fishing vessels.

Table 24. Other vessel sightings in the Cape Hatteras, North Carolina, survey area from January 2014 to December 2014.

Date	Time	Way Point	Latitude	Longitude-1	Track Number	BSS	Angle out	Degree Forward	Best #	Comments
24-Feb-2014	10:01:22	4	35.757897	-74.790101	40	5	3	90°	1	Recreational fishing vessel
24-Feb-2014	10:45:27	11	35.687989	-74.777922	39	5	3	90°	4	Recreational fishing vessel
3-Apr-2014	10:43:12	45	36.049435	-74.898324	44	2	1	90°	1	Recreational fishing vessel
3-Apr-2014	10:45:25	25	36.049483	-74.807555	44	2	1	90°	1	Recreational fishing vessel
3-Apr-2014	11:16:30	59	36.122106	-74.773985	45	2	4	90°	1	Recreational fishing vessel
3-Apr-2014	11:16:46	32	36.122264	-74.786727	45	2	2	90°	1	Recreational fishing vessel
26-Apr-2014	13:56:47	28	34.908392	-75.474008	25	3	1	60°	1	Recreational fishing vessel
26-Apr-2014	14:15:48	29	34.534774	-75.113770	24	4	2	60°	1	Recreational fishing vessel
26-Apr-2014	14:43:00	36	34.853047	-75.533495	24	3	3	90°	1	Recreational fishing vessel
26-Apr-2014	14:55:18	38	34.834314	-75.642576	23	2	3	60°	3	Recreational fishing vessel
26-Apr-2014	15:34:14	46	34.795927	-75.725450	22	2	1	90°	1	Recreational fishing vessel
14-May-2014	11:25:25	56	35.688638	-74.914380	39	2	3	90°	1	Recreational fishing vessel
14-May-2014	12:30:16	54	35.757500	-74.923840	40	2	3	60°	1	Sailboat
10-Jun-2014	13:48:23	21	35.903531	-75.086462	42	3	2	60°	1	Sailboat
10-Jun-2014	15:13:46	18	35.757491	-75.147220	40	3	2	90°	8	Recreational fishing vessel
10-Jun-2014	15:19:46	19	35.758531	-74.904674	40	3	3	60°	3	Recreational fishing vessel
11-Jun-2014	9:25:01	5	35.475728	-74.828502	36	3	3	60°	2	Recreational fishing vessel
11-Jun-2014	10:41:25	15	35.410845	-74.967528	35	2	4	65°	1	Recreational fishing vessel
11-Jun-2014	11:51:34	23	35.252066	-75.098181	32	3	4	45°	1	Recreational fishing vessel
11-Jun-2014	11:53:41	24	35.221891	-75.034961	32	3	3	45°	1	Recreational fishing vessel
11-Jun-2014	12:44:38	29	35.228237	-75.119850	31	3	3	90°	1	Recreational fishing vessel
11-Jun-2014	14:57:42	49	35.136591	-75.395050	28	2	2	45°	1	Recreational fishing vessel
11-Jun-2014	15:02:38	51	35.041321	-75.264968	28	2	3	90°	1	Recreational fishing vessel
11-Jun-2014	15:02:44	39	35.039317	-75.262319	28	2	3	45°	1	Recreational fishing vessel
30-Jul-2014	11:48:26	13	35.281389	-75.069981	33	4	4	90°	1	Motor yacht
30-Jul-2014	14:04:13	21	35.621216	-74.853725	38	3	2	60°	2	Recreational fishing vessel
30-Jul-2014	14:35:08	27	35.690210	-74.837310	39	3	2	90°	3	Recreational fishing vessel
30-Jul-2014	14:35:37	24	35.690044	-74.854334	39	3	4	90°	2	Recreational fishing vessel
30-Jul-2014	14:49:26	28	35.763420	-75.078242	40	3	3	45°	1	Recreational fishing vessel
30-Jul-2014	14:50:19	30	35.763373	-75.043813	40	3	2	60°	2	Recreational fishing vessel
30-Jul-2014	14:57:10	31	35.763736	-74.795650	40	3	2	30°	1	Recreational fishing vessel
30-Jul-2014	15:55:05	48	35.836744	-74.834334	41	3	1	45°	1	Recreational fishing vessel
31-Jul-2014	9:11:44	3	35.907725	-74.786471	42	2	3	90°	1	Sailboat
31-Jul-2014	9:58:14	13	35.977672	-74.887975	43	2	2	60°	1	Recreational fishing vessel
31-Jul-2014	10:20:21	18	36.049674	-74.735679	44	2	3	45°	1	Sailboat
31-Jul-2014	12:28:19	35	35.551450	-74.875895	37	3	3	90°	1	Recreational fishing vessel
31-Jul-2014	12:29:04	36	35.551563	-74.848649	37	3	2	90°	4	Recreational fishing vessel
31-Jul-2014	12:29:22	34	35.551473	-74.837200	37	3	3	60°	6	Recreational fishing vessel
31-Jul-2014	13:22:20	43	35.409112	-75.042967	35	3	1	90°	1	Recreational fishing vessel
20-Aug-2014	11:17:44	3	35.179876	-75.180663	30	3	4	60°	1	Recreational fishing vessel
20-Aug-2014	12:15:04	14	35.254565	-75.106147	32	4	4	60°	1	Recreational fishing vessel

Table 24 (Continued). Other vessel sightings in the Cape Hatteras, North Carolina, survey area from January 2014 to December 2014.

Date	Time	Way Point	Latitude	Longitude-1	Track Number	BSS	Angle out	Degree Forward	Best #	Comments
21-Aug-2014	9:30:16	10	35.835415	-74.876281	41	1	3	60°	1	Recreational fishing vessel
21-Aug-2014	9:57:45	22	35.834409	-74.504981	41	1	2	60°	1	Recreational fishing vessel
21-Aug-2014	9:59:35	11	35.834067	-74.434817	41	2	2	90°	1	Recreational fishing vessel
21-Aug-2014	10:49:24	22	35.761757	-75.122668	40	2	1	90°	1	Recreational fishing vessel
21-Aug-2014	11:00:26	49	35.691623	-74.876016	39	2	1	60°	1	Recreational fishing vessel
21-Aug-2014	14:14:37	88	35.551276	-74.864932	37	3	2	90°	3	Recreational fishing vessel
21-Aug-2014	14:14:52	49	35.551437	-74.854310	37	2	2	90°	1	Recreational fishing vessel
21-Aug-2014	15:42:18	114	35.409429	-74.886025	35	2	1	60°	1	Recreational fishing vessel
6-Oct-2014	14:15:17	12	35.549767	-74.831486	37	1	3	90°	1	Recreational fishing vessel
6-Oct-2014	14:27:41	17	35.549822	-75.057420	37	1	2	90°	1	Recreational fishing vessel
6-Oct-2014	14:40:48	27	35.621369	-74.855506	38	1	2	45°	1	Recreational fishing vessel
6-Oct-2014	15:15:19	41	35.690079	-74.722244	39	1	3	60°	1	Recreational fishing vessel
6-Oct-2014	15:43:27	38	35.763711	-74.884280	40	2	1	90°	1	Recreational fishing vessel
7-Oct-2014	10:42:42	14	35.341295	-75.137201	34	2	2	45°	1	Sailboat
7-Oct-2014	11:30:23	33	35.408291	-74.835529	35	2	2	60°	1	Recreational fishing vessel
3-Dec-2014	13:46:43	8	35.480209	-74.817833	36	2	3	90°	3	Recreational fishing vessel
15-Dec-2014	13:45:57	14	35.551523	-74.849019	37	2	2	60	1	Recreational fishing vessel
15-Dec-2014	13:59:25	17	35.620089	-75.030707	38	2	2	30	1	Recreational fishing vessel
15-Dec-2014	13:59:57	22	35.62028	-75.008971	38	2	2	90	2	Recreational fishing vessel

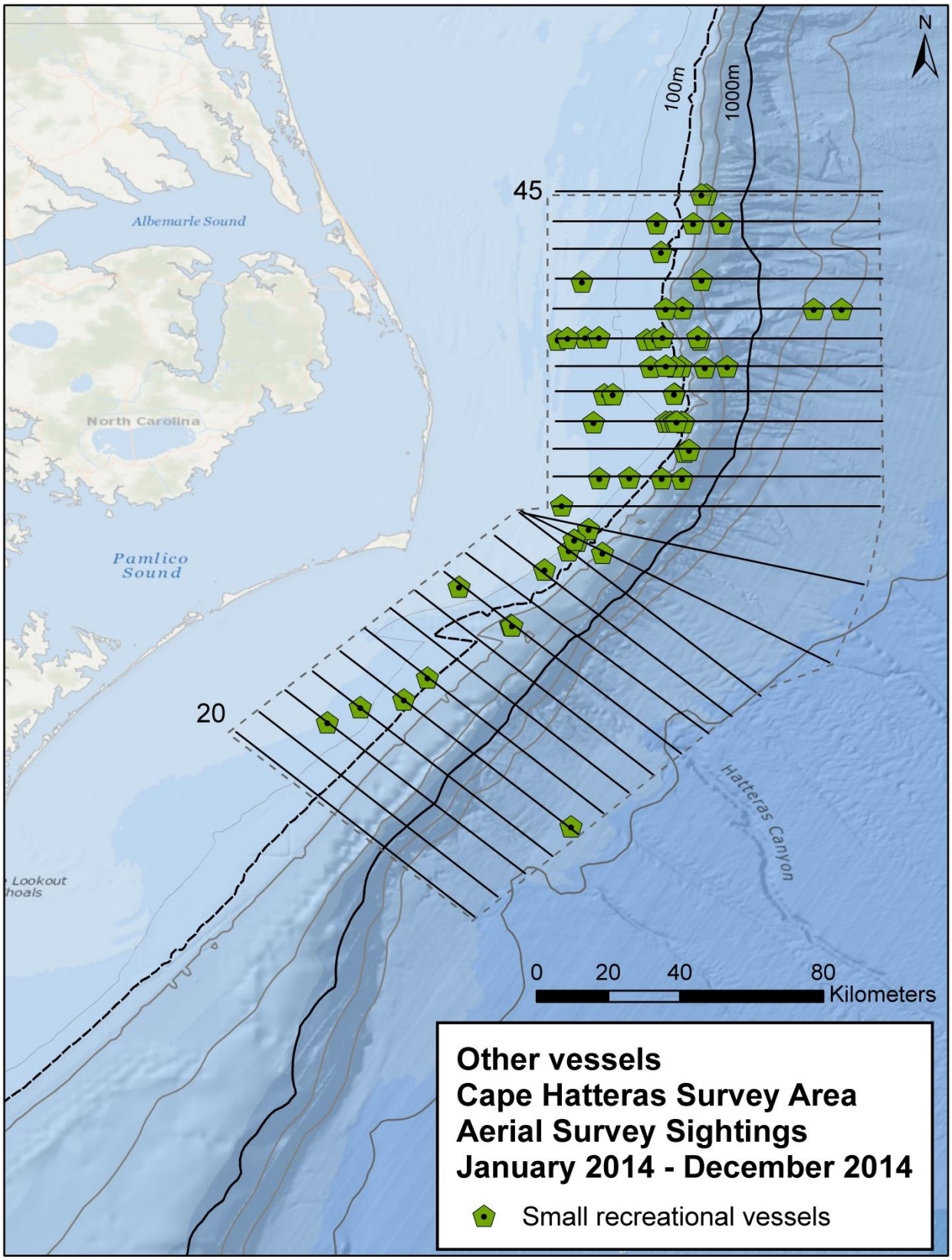


Figure 23. Other vessel sightings.

5. Acknowledgements

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A

Aerial Daily Sheet

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Appendix A

AERIAL SURVEY DATA SHEET

Date:_____ **Observer Side:**_____ **GPS#:**_____ **Page__ of___**

Pilot/Co-Pilot_____ **Observers Left/Right:**_____ **Hobbs:**_____

Time	Waypoint #	Event	Heading	Track #	Observer R / L	Visibility	BSS	Cloud	Glare L	Glare R	Vertical Angle	Horizontal degree	Sighting Cue	Species	Reliability	Min #	Max #	Best Est	Comments

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B

Event Codes and Species List

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Codes for Variables on USWTR Aerial Survey Data Sheet

Date: Month, Day, Year

Track#: opportunistic track line=99

Event:

1.1 = On effort/on track
1.2 = Off effort

3.1 = Change in environmental conditions

10.0 = Opportunistic sighting(s)
PF = Preflight
XB = Cross Beach
WU = Wheels Up
WD = Wheels Down
TE = Transit Leg on Effort

2.0 = Sighting-breaking track/off effort (real time)
2.3 = Vessel sighting

2.4 = Sighting of marine mammal (real location)
2.41 = Location of Sighting Cue, No Animals sighted
2.42 = Break from sighting

2.7 = Sighting of sea turtle (real location)
2.8 = Sighting of large vessel (Military, commercial, etc.)
2.9 = Unidentified sighting, requires comments

Confidence of cue
1 = definite
2 = probable
3 = possible/unsure

Beaufort Sea State:
0 = slick, calm, mirror-like
1 = small waves
2 = whitecaps 0-33%, waves 1-2 feet
3 = whitecaps 33-50%, waves 2-3 feet
4 = whitecaps 50-65%, waves 3-5 feet
5 = whitecaps >65%, waves >5 feet
6 = too rough too survey

Cloud Cover:
01 = clear
02 = partly cloudy
03 = continuous layer of clouds
04 = rain
05 = haze
99 = other, requires comments

Glare
0 = No glare
1 = 0-25 %
2 = 25 -50 %
3 = >50%

Visibility:
1 = clear to horizon
2 = half the distance to the horizon
3 = less than half the distance to the horizon

Sighting Cues:
1 = Blow
2 = Splash
3 = Body Part
4 = Breach
5 = Other (needs comments)

Vertical Angle is given in rough increments of 20 degrees with 1 being directly on the trackline and 4 being anything outside of survey wide to horizon

Horizontal Angle is given assuming the nose of the plane is 0 degrees and directly off the wing is 90 degrees – measurements are taken from 1-180 on each side of the plane.

Species List for Aerial Surveys		
Common Name	**Scientific Name**	**Species Code**
Cetaceans		
North Atlantic right whale	*Eubalaena glacialis*	Egl
Minke whale	*Balaenoptera acutorostrata*	Bac
sei whale	*Balaenoptera borealis*	Bbo
fin whale	*Balaenoptera physalus*	Bph
Brydes whale	*Balaenoptera edeni*	Bed
humpback whale	*Megaptera novaeangliae*	Mno
unidentified balaenopterid	Family *Balaenopteridae*	BALA
sperm whale	*Physeter macrocephalus*	Pma
pygmy sperm whale	*Kogia breviceps*	Kbr
dwarf sperm whale	*Kogia sima*	Ksi
unidentified Kogia	*Kogia* spp.	KOGI
Northern bottlenose whale	*Hyperoodon ampullatus*	Ham
Cuvier's beaked whale	*Ziphius cavirostris*	Zca
Mesoplodon beaked whale	Genus *Mesoplodon*	MESO
unidentified beaked whale	Family *Ziphiidae*	ZIPH
harbor porpoise	*Phocoena phocoena*	Pph
killer whale	*Orcinus orca*	Oor
melon-headed whale	*Peponocephala electra*	Pel
pygmy killer whale	*Feresa attenuata*	Fat
false killer whale	*Pseudorca crassidens*	Pcr
Risso's dolphin	*Grampus griseus*	Ggr
long-finned pilot whale	*Globicephala melas*	Gme
short-finned pilot whale	*Globicephala macrorhynchus*	Gma
unidentified pilot whale	Genus *Globicephala*	GLOB
rough-toothed dolphin	*Steno bredanensis*	Sbr
Atlantic white-sided dolphin	*Lagenorhynchus acutus*	Lac
Fraser's dolphin	*Lagenodelphis hosei*	Lho
common dolphin	*Delphinus delphis*	Dde
bottlenose dolphin	*Tursiops truncatus*	Ttr
spotted dolphin	*Stenella frontalis*	Sfr
striped dolphin	*Stenella coeruleoalba*	Sco
spinner dolphin	*Stenella longirostris*	Scl
unidentified *Stenella*	Genus *Stenella*	STEN
unidentified delphinid	Family *Delphinidae*	DELP
unidentified cetacean		CETA
Pinnipeds		
gray seal	*Halichoerus grypus*	Hgr
harbor seal	*Phoca vitulina*	Pvi
harp seal	*Phoca groenlandica*	Pgr
hooded seal	*Cystophora cristata*	Ccr
unidentified phocid	Family *Phocidae*	PHOC
Sea Turtles		
loggerhead	*Caretta caretta*	Cca
leatherback	*Dermochelys coriacea*	Dco
green	*Chelonia mydas*	Cmy
Kemp's ridley	*Lepidochelys kempii*	Lke
hawksbill	*Eretmochelys imbricata*	Eim
unidentified sea turtle		TURT
Other interesting sightings		
ocean sunfish	*Mola mola*	Mmo
basking shark	*Cetorhinus maximus*	Cma
whale shark	*Rhincodon typus*	Rty
manta ray	*Manta birostris*	Mbi
cownose rays	*Rhinoptera bonasus*	Rbo

C

Notes on Sighting Summary Sheets

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The Sighting Summary Sheet

The Sighting Summary, adapted from the Sighting Data Sheet used in the field, integrates data gathered in the field with results from lab analyses to provide a full summary of each marine mammal sighting (note – this sheet only deals with marine mammal sightings). A Sighting Summary is to be completed for all sightings, including sightings made while off-effort during transits between survey legs, as well as sighting cues that never led to a sighting that was relocated.

The Sighting Summary sheet is broken into four sections; "Initial Sighting on Track", "Time and Position of Sighting", "Final Time and Position of Sighting", and "Behavior and Additional Comments". Each section and sub-heading will be detailed below.

Initial Sighting on Track

Time: The time the "break track" GPS way-point was taken.
WP#: GPS way-point number of the break track.
Lat/Long: The latitude and longitude associated with the break track way-point.
Track Line: The track line surveyed when the sighting was made.
On/Off Effort: Whether the sighting was made during an active survey track line (*i.e.* on effort) or during transit BETWEEN track lines (*i.e.* off effort). Sightings made during off effort transit to and from the range are NOT included in the sighting summaries.
Sighting Cue: Whether the initial sighting was a splash, a breach or body part.
Vertical Angle: Vertical "angle" between 1 and 4, the lower edge of view ("1") to the horizon ("4"). A subjective and relative measure of how far away from the track line the initial sighting occurred.
Horizontal Bearing in Degrees: The horizontal degrees from front to back (0 to 180) at which the sighting occurred.
Observer: Three lettered initial of the observer who made the sighting.
Observer Side: On which side of the plane in the direction of travel the sighting occurred.

Time and Position of Sighting

Time: The time the GPS way-point was taken while relocating animals and circling above.
WP#: GPS way-point number of the sighting.
Lat/Long: The latitude and longitude associated with the way point obtained while circling over animals.
Beaufort Sea State: The sea state observed during the sighting.
Species: Scientific binomial name of the marine mammal species involved in the sighting. When species identity could not be established unequivocally, the next higher taxonomic level to which identity could be established was used. If a cetacean was identified as a dolphin but images obtained during the encounter were not sufficient to establish species ID, the designation "unidentified delphinid" or "*T. truncatus/S. frontalis*" is used. If the animal could be ID'd as a cetacean only, then "unidentified cetacean" is used. If a large body was observed but it could not be established whether a cetacean, fish/shark or turtle was involved in the sighting, the designation "unidentified marine vertebrate" is used.
Criteria used to identify species: Which species specific diagnostic features were used in classifying a sighting to species (see information on diagnosis of species).
Best images used for species ID: The images obtained during the sighting that best displayed the features used to establish species.
Numbers (Low/ High/ Best): Low, high, and best estimate of number of animals involved in the sighting.
Calves observed? Whether any calves were observed during the encounter. A conservative measure is used, in that only animals roughly half the size of the associated larger animal (the presumed mother) are designated as calves.
Calculated Distance from Track Line: The distances between the break track waypoint (2.0) and the initial position of each sighting (2.4) is calculated using the online software Scripts Movable

Type (http://www.movable-type.co.uk/scripts/latlong.html). Since there is a bias in estimating the location of a group of mobile marine mammals from a fast moving airplane, the distances calculated between break track and sighting are rounded to 0.1 km.
Photographer: Three lettered initials of observer seated in the right camera seat.
Card #: Memory card on which the photos from the particular sighting was made.
Frame Numbers: Starting and ending frame number.
Spacer: Image used to separate sighting to clarify when one sighting ends and the next begins. Image typically of interior of plane or a 45 degree angle shot of the horizon. If taking a shot of the interior of the plane, put the camera focus setting on "manual", take the picture, then immediately set it back to "automatic".

Final Time and Position of Sighting

Time: WP#: Lat: Long: Calculated Distance traveled: ➔ see section above.

Behavior and Additional Comments

Any behavioral notes obtained during the sighting (*e.g.* group formation, relative travel speed, feeding events or presumed copulation attempts, presence of other cetaceans or sharks in or around the animal(s) in the sighting, interaction with inanimate objects such marine debris). This section also includes notes on altitude of the survey plane during the encounter as well as any indications (or lack thereof) of the animal(s) reacting to the presence of the plane.

D

Sighting Summary Sheets

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Monday, February 24, 2014 Sighting # 1

Initial sighting on Track

Time: 10:24 WP#: 6 Lat: 35.688405 Long: -74.655531
Vertical Angle: 2 Horizontal Bearing in Degrees: 100 Sighting Cue: Body
On/Off Effort: On Trackline: 39 Beaufort Sea State: 5
Observer: Erin Observer side: Right

Actual Time and Position of Sighting

Time: 10:28 WP#: 7 Lat: 35.688058 Long: -74.655201
Species: *Unidentified Mesoplodon* Numbers (Low/High/Best): 1 / 1 / 1
Features used in Species ID: Long, slender, gray body

Representative images used for Species ID: NA
Photographer: Erin Frame numbers: N/A Spacer: N/A
Calculated distance from Trackline: 0.05 km

Final Time and Position of Sighting

Time: 10:33 WP#: 9 Lat: 35.687911 Long: -74.651066
Calculated Distance Traveled: 0.37 km

Behavior and Additional Comments

Mesoplodon and tursiops spotted together, fast travel, no photos

Monday, February 24, 2014 Sighting # 2

Initial sighting on Track

Time: 10:24 WP#: 6 Lat: 35.688405 Long: -74.655531
Vertical Angle: 2 Horizontal Bearing in Degrees: 100 Sighting Cue: Body
On/Off Effort: On Trackline: 39 Beaufort Sea State: 5
Observer: Erin Observer side: Right

Actual Time and Position of Sighting

Time: 10:31 WP#: 8 Lat: 35.687676 Long: -74.646775
Species: *Tursiops truncatus* Numbers (Low/High/Best): 6 / 6 / 6
Features used in Species ID: White peduncle

Representative images used for Species ID: 1916
Photographer: Erin Frame numbers: 1915 - 1917 Spacer: 1918
Calculated distance from Trackline: 0.79 km

Final Time and Position of Sighting

Time: 10:33 WP#: 9 Lat: 35.687911 Long: -74.651066
Calculated Distance Traveled: 0.39 km

Behavior and Additional Comments

Sighted with mesoplodon, had a white peduncle, stayed subsurface so no good photos, fast travel

Monday, February 24, 2014 Sighting # 3

Initial sighting on Track

Time: 10:35 WP#: 11 Lat: 35.688437 Long: -74.752467
Vertical Angle: 1 Horizontal Bearing in Degrees: 90 Sighting Cue: Body
On/Off Effort: On Trackline: 39 Beaufort Sea State: 5
Observer: Erin Observer side: Right

Actual Time and Position of Sighting

Time: 10:36 WP#: 12 Lat: 35.687347 Long: -74.746603
Species: *Delphinus delphis* Numbers (Low/High/Best): 20 / 30 / 25
Features used in Species ID: Multi colored (gray, cream, white)

Representative images used for Species ID: 1930, 1931, 1935
Photographer: Erin Frame numbers: 1919 - 1940 Spacer: 1941
Calculated distance from Trackline: 0.54 km

Final Time and Position of Sighting

Time: 10:43 WP#: 14 Lat: 35.689492 Long: -74.741339
Calculated Distance Traveled: 0.53 km

Behavior and Additional Comments

Tight group initially and then dispersed as we flew over

Monday, February 24, 2014 Sighting # 4

Initial sighting on Track

Time: 10:52 WP#: 16 Lat: 35.687297 Long: -75.070023
Vertical Angle: 2 Horizontal Bearing in Degrees: 85 Sighting Cue: Body
On/Off Effort: On Trackline: 39 Beaufort Sea State: 5
Observer: Sarah Observer side: Left

Actual Time and Position of Sighting

Time: 11:00 WP#: 17 Lat: 35.684639 Long: -75.074405
Species: *Unidentified Delphinid* Numbers (Low/High/Best): 1 / 1 / 1
Features used in Species ID: N/A

Representative images used for Species ID: N/A
Photographer: N/A Frame numbers: N/A Spacer: N/A
Calculated distance from Trackline: 0.49 km

Final Time and Position of Sighting

Time: 11:00 WP#: 17 Lat: 35.684639 Long: -75.074405
Calculated Distance Traveled: N/A

Behavior and Additional Comments

Single animal traveling subsurface, no resight, no photos

Monday, February 24, 2014 Sighting # 5

Initial sighting on Track

Time: 11:24 WP#: 27 Lat: 35.619551 Long: -74.693183
Vertical Angle: 2 Horizontal Bearing in Degrees: 90 Sighting Cue: Body
On/Off Effort: On Trackline: 38 Beaufort Sea State: 5
Observer: Sarah Observer side: Left

Actual Time and Position of Sighting

Time: 11:27 WP#: 27 Lat: 35.614788 Long: -74.699189
Species: *Ziphius cavirostris* Numbers (Low/High/Best): 2 / 2 / 2
Features used in Species ID: Brown body, white head

Representative images used for Species ID: 1954
Photographer: Erin Frame numbers: 1942 - 1957 Spacer: 1958
Calculated distance from Trackline: 0.76 km

Final Time and Position of Sighting

Time: 11:31 WP#: 28 Lat: 35.619667 Long: -74.680991
Calculated Distance Traveled: 1.73 km

Behavior and Additional Comments

Two animals, only one spotted initially and seen at surface, short dives and subsurface fast travel

Monday, February 24, 2014 Sighting # 6

Initial sighting on Track

Time: 14:31 WP#: 43 Lat: 35.406959 Long: -74.783273
Vertical Angle: 1 Horizontal Bearing in Degrees: 90 Sighting Cue: Body
On/Off Effort: On Trackline: 35 Beaufort Sea State: 5
Observer: Erin Observer side: Right

Actual Time and Position of Sighting

Time: 14:36 WP#: 44 Lat: 35.415513 Long: -74.784742
Species: *Globicephala macrorhynchus* Numbers (Low/High/Best): 8 / 8 / 8
Features used in Species ID: Black, torpedo shaped, gray suspenders, large dorsal fin, blunt head

Representative images used for Species ID: 1964
Photographer: Erin Frame numbers: 1964 - 1966 Spacer: 1967
Calculated distance from Trackline: 0.96 km

Final Time and Position of Sighting

Time: 14:49 WP#: 45 Lat: 35.401691 Long: -74.754152
Calculated Distance Traveled: 3.17 km

Behavior and Additional Comments

Subsurface fast travel

Thursday, April 3, 2014 Sighting # 1

Initial sighting on Track

Time: 9:07 WP#: 3 Lat: 35.907516 Long: -75.075910
Vertical Angle: 3 Horizontal Bearing in Degrees: 90 Sighting Cue: Body
On/Off Effort: On Trackline: 42 Beaufort Sea State: 2
Observer: Sarah Observer side: Left

Actual Time and Position of Sighting

Time: 9:09 WP#: 4 Lat: 35.915979 Long: -75.080779
Species: *Delphinus delphis* Numbers (Low/High/Best): 80 / 120 / 90
Features used in Species ID: Dark dorsal surface, midline coloration of yellow from eye to d fin white from d fin to peduncle.
Representative images used for Species ID: 2635, 2636, 2646, 2647
Photographer: Ryan Frame numbers: 2628-2647 Spacer: 2649
Calculated distance from Trackline: 1.04 km

Final Time and Position of Sighting

Time: 9:13 WP#: 5 Lat: 35.911749 Long: -75.094628
Calculated Distance Traveled: 1.33 km

Behavior and Additional Comments

Subsurface travel, traveling south - spread out. A few small groups sighted at first (n=8) at end of sighting many large groups >80 animals.

Thursday, April 3, 2014 Sighting # 2

Initial sighting on Track

Time: 9:39 WP#: 17 Lat: 35.907406 Long: -74.472191
Vertical Angle: 3 Horizontal Bearing in Degrees: 80 Sighting Cue: Body
On/Off Effort: Off Trackline: 42 Beaufort Sea State: 3
Observer: Pilot Observer side: Left

Actual Time and Position of Sighting

Time: 9:44 WP#: 19 Lat: 35.908877 Long: -74.483757
Species: *Ziphius cavirostris* Numbers (Low/High/Best): 3 / 3 / 3
Features used in Species ID: Large wrinkled/ scared body, white coloration to body, small pectoral fins, small d fin placed well back on body. Barnacles at rostrum tip (attached to teeth) of one individual.
Representative images used for Species ID: 2651, 2652, 2653
Photographer: Ryan Frame numbers: 2650-2665 Spacer: 2666
Calculated distance from Trackline: 1.05 km

Final Time and Position of Sighting

Time: 9:46 WP#: 20 Lat: 35.909443 Long: -74.486481
Calculated Distance Traveled: 0.25 km

Behavior and Additional Comments

Slow travel south subsurface, surface frequently, white and gray coloration.

Thursday, April 3, 2014 Sighting # 3

Initial sighting on Track

Time: 9:52 WP#: 26 Lat: 35.978291 Long: -74.356637
Vertical Angle: 3 Horizontal Bearing in Degrees: 100 Sighting Cue: Splash
On/Off Effort: On Trackline: 43 Beaufort Sea State: 2
Observer: Ryan Observer side: Right

Actual Time and Position of Sighting

Time: 9:54 WP#: 27 Lat: 35.981248 Long: -74.348632
Species: *Globicephala macrorhynchus* Numbers (Low/High/Best): 4 / 4 / 4
Features used in Species ID: Black bodies with large square heads. Dorsal fin placed 1/3 back animals body and large at the base. Pectoral fins do not extend far back on animals body
Representative images used for Species ID: 2695, 2697, 2713, 2714-2718, 2723, 2737
Photographer: Ryan Frame numbers: 2690-2738 Spacer: 2739
Calculated distance from Trackline: 0.79 km

Final Time and Position of Sighting

Time: 9:57 WP#: 28 Lat: 35.978176 Long: -74.350160
Calculated Distance Traveled: 0.37 km

Behavior and Additional Comments

Traveling at a fair pace, not spending much time at the surface.

Thursday, April 3, 2014 Sighting # 4

Initial sighting on Track

Time: 10:03 WP#: 30 Lat: 35.978545 Long: -74.613777
Vertical Angle: 1 Horizontal Bearing in Degrees: 90 Sighting Cue: Body
On/Off Effort: On Trackline: 43 Beaufort Sea State: 2
Observer: Ryan Observer side: Right

Actual Time and Position of Sighting

Time: 10:04 WP#: 31 Lat: 35.978036 Long: -74.613446
Species: *Globicephala macrorhynchus* Numbers (Low/High/Best): 10 / 12 / 12
Features used in Species ID: Black bodies with large square heads. Dorsal fin placed 1/3 back animals body and large at the base. Pectoral fins do not extend far back on animals body
Representative images used for Species ID: 2745, 2747
Photographer: Ryan Frame numbers: 2741-2750 Spacer: 2751
Calculated distance from Trackline: 0.1 km

Final Time and Position of Sighting

Time: 10:08 WP#: 32 Lat: 35.974911 Long: -74.619040
Calculated Distance Traveled: 0.61 km

Behavior and Additional Comments

Subsurface travel, slow, 1 group.

Thursday, April 3, 2014 Sighting # 5

Initial sighting on Track

Time: 10:12 WP#: 34 Lat: 35.978764 Long: -74.783328
Vertical Angle: 3 Horizontal Bearing in Degrees: 90 Sighting Cue: Splash
On/Off Effort: On Trackline: 43 Beaufort Sea State: 2
Observer: Sarah Observer side: Left

Actual Time and Position of Sighting

Time: 10:13 WP#: 35 Lat: 35.958279 Long: -74.773794
Species: *Tursiops truncatus* Numbers (Low/High/Best): 35 / 50 / 45
Features used in Species ID: Robust body appearance, white peduncles present.

Representative images used for Species ID: 2756, 2757, 2771, 2775
Photographer: Ryan Frame numbers: 2752-2776 Spacer: 2777
Calculated distance from Trackline: 2.4 km

Final Time and Position of Sighting

Time: 10:22 WP#: 36 Lat: 35.962353 Long: -74.786019
Calculated Distance Traveled: 1.2 km

Behavior and Additional Comments

White peduncles, a lot near the surface, non-directional travel
One on side at the surface
2 large groups (10-12 in each) few smaller groups 5-7
While circling group dispersed leaving only a few small groups

Thursday, April 3, 2014 Sighting # 6

Initial sighting on Track

Time: 11:00 WP#: 51 Lat: 36.122064 Long: -74.428161
Vertical Angle: 3 Horizontal Bearing in Degrees: 90 Sighting Cue: Splash
On/Off Effort: On Trackline: 45 Beaufort Sea State: 1
Observer: Ryan Observer side: Right

Actual Time and Position of Sighting

Time: 11:01 WP#: 52 Lat: 36.126218 Long: -74.421556
Species: *Stenella frontalis* Numbers (Low/High/Best): 24 / 30 / 26
Features used in Species ID: Offshore ecotype - less spotting, still have white tip to rostrum.
Lighter lateral blaze to mid dorsal fin.
Representative images used for Species ID: 2786, 2787, 2791, 2800, 2819
Photographer: Ryan Frame numbers: 2778-2827 Spacer: 2828
Calculated distance from Trackline: 0.75 km

Final Time and Position of Sighting

Time: 11:05 WP#: 53 Lat: 36.140448 Long: -74.437612
Calculated Distance Traveled: 2.14 km

Behavior and Additional Comments

Thursday, April 3, 2014 Sighting # 7

Initial sighting on Track

Time: 11:10 WP#: 55 Lat: 36.122485 Long: -74.671861
Vertical Angle: 2 Horizontal Bearing in Degrees: 90 Sighting Cue: Body
On/Off Effort: On Trackline: 45 Beaufort Sea State: 2
Observer: Ryan Observer side: Right

Actual Time and Position of Sighting

Time: 11:11 WP#: 56 Lat: 36.128206 Long: -74.670684
Species: *Globicephala macrorhynchus* Numbers (Low/High/Best): 4 / 4 / 4
Features used in Species ID: Black body with square head, large dorsal fin place 1/3 back on animals body.
Representative images used for Species ID: 2842, 2855, 2865, 2866
Photographer: Ryan Frame numbers: 2837-2878 Spacer: 2879
Calculated distance from Trackline: 0.64 km

Final Time and Position of Sighting

Time: 11:14 WP#: 57 Lat: 36.129980 Long: -74.680734
Calculated Distance Traveled: 0.92 km

Behavior and Additional Comments

Traveling at the surface.

Thursday, April 3, 2014 Sighting # 8

Initial sighting on Track

Time: NA WP#: NA Lat: NA Long: NA
Vertical Angle: 2 Horizontal Bearing in Degrees: 80 Sighting Cue: Body
On/Off Effort: On Trackline: 45 Beaufort Sea State: 2
Observer: Sarah Observer side: Left

Actual Time and Position of Sighting

Time: 11:24 WP#: 65 Lat: 36.121732 Long: -75.159214
Species: *Unidentified Delphinid* Numbers (Low/High/Best): 30 / 50 / 40
Features used in Species ID: Small bodied animals surfacing regularly - species not established
Representative images used for Species ID: NA
Photographer: NA Frame numbers: NA Spacer: NA
Calculated distance from Trackline: NA

Final Time and Position of Sighting

Time: NA WP#: NA Lat: NA Long: NA
Calculated Distance Traveled: NA

Behavior and Additional Comments

Low clouds at 200ft - could see animal but unable to get good photographs through the clouds.

Thursday, April 3, 2014 Sighting # 9

Initial sighting on Track

Time: 13:20 WP#: 74 Lat: 35.148260 Long: -74.884677
Vertical Angle: 3 Horizontal Bearing in Degrees: 80 Sighting Cue: Body
On/Off Effort: On Trackline: 32 Beaufort Sea State: 4
Observer: Sarah Observer side: Left

Actual Time and Position of Sighting

Time: 13:24 WP#: 75 Lat: 35.147577 Long: -74.885572
Species: *Tursiops truncatus* Numbers (Low/High/Best): 40 / 60 / 50
Features used in Species ID: Robust body appearance, uniform grey coloration, white peduncles present
Representative images used for Species ID: 2902, 2905, 2917, 2918, 2921
Photographer: Ryan Frame numbers: 2897 to 2922 Spacer: 2923
Calculated distance from Trackline: 0.11 km

Final Time and Position of Sighting

Time: 13:27 WP#: 76 Lat: 35.153476 Long: -74.879811
Calculated Distance Traveled: 0.83 km

Behavior and Additional Comments

One large group traveling sub surface.

Thursday, April 3, 2014 Sighting # 10

Initial sighting on Track

Time: 13:59 WP#: 84 Lat: 35.218199 Long: -75.108975
Vertical Angle: 2 Horizontal Bearing in Degrees: 90 Sighting Cue: Body
On/Off Effort: On Trackline: 31 Beaufort Sea State: 3
Observer: Ryan Observer side: Right

Actual Time and Position of Sighting

Time: 14:01 WP#: 85 Lat: 35.219710 Long: -75.098169
Species: *Stenella frontalis* Numbers (Low/High/Best): 4 / 5 / 5
Features used in Species ID: Clear spotting pattern on individuals body.
Representative images used for Species ID: 2946 - 2948
Photographer: Ryan Frame numbers: 2924 to 2951 Spacer: 2952
Calculated distance from Trackline: 0.96 km

Final Time and Position of Sighting

Time: 14:08 WP#: 86 Lat: 35.234415 Long: -75.080367
Calculated Distance Traveled: 2.3 km

Behavior and Additional Comments

Sub surface travel, infrequent surfacings.

Thursday, April 3, 2014 Sighting # 11

Initial sighting on Track

Time: 14:20 WP#: 31 Lat: 35.246967 Long: -75.276689
Vertical Angle: 3 Horizontal Bearing in Degrees: 85 Sighting Cue: Body
On/Off Effort: On Trackline: 30 Beaufort Sea State: 2
Observer: Sarah Observer side: Left

Actual Time and Position of Sighting

Time: 14:21 WP#: 92 Lat: 35.246811 Long: -75.288832
Species: *Tursiops truncatus* Numbers (Low/High/Best): 12 / 15 / 14
Features used in Species ID: Uniform grey coloration

Representative images used for Species ID: 2969-2975
Photographer: Ryan Frame numbers: 2953 to 2978 Spacer: 2979
Calculated distance from Trackline: 1.1 km

Final Time and Position of Sighting

Time: 14:30 WP#: 93 Lat: 35.260739 Long: -75.270196
Calculated Distance Traveled: 2.2 km

Behavior and Additional Comments

First sighting a group of four individuals, which was joined by another group of four. When we went to rejoin trackline a second group of ~8 individuals was observed.

Saturday, April 26, 2014 Sighting # 1

Initial sighting on Track

Time: 14:21 WP#: 32 Lat: 34.640294 Long: -75.251515
Vertical Angle: 2 Horizontal Bearing in Degrees: 60 Sighting Cue: Body
On/Off Effort: On Trackline: 24 Beaufort Sea State: 4
Observer: Ryan Observer side: Right

Actual Time and Position of Sighting

Time: 14:32 WP#: 33 Lat: 34.640826 Long: -75.267237
Species: *Unidentified Mesoplodon* Numbers (Low/High/Best): 3 / 3 / 3
Features used in Species ID: Uniform grey coloration, small pectoral fins, small dorsal fin placed well back on animals body
Representative images used for Species ID: NA
Photographer: NA Frame numbers: NA Spacer: NA
Calculated distance from Trackline: 1.4 km

Final Time and Position of Sighting

Time: NA WP#: NA Lat: NA Long: NA
Calculated Distance Traveled: NA

Behavior and Additional Comments

No resight after initial observation, none of the animals had any white or copper body coloration.

Wednesday, May 14, 2014 Sighting # 1

Initial sighting on Track

Time: 9:40 WP#: 4 Lat: 35.551481 Long: -74.830757
Vertical Angle: 3 Horizontal Bearing in Degrees: 45 Sighting Cue: Body
On/Off Effort: On Trackline: 37 Beaufort Sea State: 2
Observer: Sarah Observer side: Left

Actual Time and Position of Sighting

Time: 9:44 WP#: 5 Lat: 35.549491 Long: -74.830139
Species: *Tursiops truncatus* Numbers (Low/High/Best): 16 / 18 / 17
Features used in Species ID: Robust body appearance, uniform grey coloration with slightly lighter grey blaze from apex of melon to dorsal fin, some animals with appearance of white peduncle.
Representative images used for Species ID: 3693, 3710, 3714
Photographer: Ryan Frame numbers: 3690 to 3718 Spacer: 3719
Calculated distance from Trackline: 0.23 km

Final Time and Position of Sighting

Time: 9:53 WP#: 6 Lat: 35.554123 Long: -74.838944
Calculated Distance Traveled: 0.95 km

Behavior and Additional Comments

Sighting made up of three groups of animals G1=7 animals, G2=a pair of animals, G3=8 animals
Towards the end of the sighting the groups all joined together and began surfacing as one.

Wednesday, May 14, 2014 Sighting # 2

Initial sighting on Track

Time: 9:55 WP#: 9 Lat: 35.550582 Long: -74.797911
Vertical Angle: 2 Horizontal Bearing in Degrees: 90 Sighting Cue: Body
On/Off Effort: On Trackline: 37 Beaufort Sea State: 3
Observer: Sarah Observer side: Left

Actual Time and Position of Sighting

Time: 9:57 WP#: 10 Lat: 35.544244 Long: -74.794597
Species: *Tursiops truncatus* Numbers (Low/High/Best): 20 / 40 / 35
Features used in Species ID: Robust body appearance, large dorsal fin, uniform grey coloration with lighter grey blaze to dorsal fin, appearance of white peduncle coloration
Representative images used for Species ID: 3729, 3732
Photographer: Ryan Frame numbers: 3720 to 3734 Spacer: 3735
Calculated distance from Trackline: 0.77 km

Final Time and Position of Sighting

Time: 9:59 WP#: 11 Lat: 35.547869 Long: -74.798545
Calculated Distance Traveled: 0.54 km

Behavior and Additional Comments

Multiple disperse groups, a single large group of 15 to 20 with smaller groups down to single animals in the same area.

Wednesday, May 14, 2014 Sighting # 3

Initial sighting on Track

Time: 10:01 WP#: 15 Lat: 35.551201 Long: -74.749278
Vertical Angle: 3 Horizontal Bearing in Degrees: 60 Sighting Cue: Body
On/Off Effort: On Trackline: 37 Beaufort Sea State: 3
Observer: Sarah Observer side: Left

Actual Time and Position of Sighting

Time: 10:03 WP#: 16 Lat: 35.556165 Long: -74.746493
Species: *Tursiops truncatus* Numbers (Low/High/Best): 20 / 40 / 30
Features used in Species ID: Robust body appearance, broad dorsal fin, uniform grey coloration with lighter grey blaze to dorsal fin, some hint of white peduncle coloration.
Representative images used for Species ID: 3736, 3740
Photographer: Ryan Frame numbers: 3736 to 3747 Spacer: 3748
Calculated distance from Trackline: 0.61 km

Final Time and Position of Sighting

Time: 10:06 WP#: 17 Lat: 35.557195 Long: -74.752482
Calculated Distance Traveled: 0.55 km

Behavior and Additional Comments

Multiple groups of different sizes, subsurface travel.

Wednesday, May 14, 2014 Sighting # 4

Initial sighting on Track

Time: 10:20 WP#: 21 Lat: 35.618197 Long: -74.329629
Vertical Angle: 3 Horizontal Bearing in Degrees: 90 Sighting Cue: Body
On/Off Effort: On Trackline: 38 Beaufort Sea State: 4
Observer: Sarah Observer side: Left

Actual Time and Position of Sighting

Time: 10:21 WP#: 22 Lat: 35.612333 Long: -74.331114
Species: *Mesoplodon europaeus* Numbers (Low/High/Best): 1 / 1 / 1
Features used in Species ID: Larger animal grey coloration with a hint of darker grey "tiger stripes" on dorsal surface, dorsal fin placed well back on body, small pectoral fins, presence of teeth observed.
Representative images used for Species ID: 3753, 3759, 3761
Photographer: Ryan Frame numbers: 3749 to 3763 Spacer: 3764
Calculated distance from Trackline: 0.67 km

Final Time and Position of Sighting

Time: 10:23 WP#: 23 Lat: 35.614830 Long: -74.331108
Calculated Distance Traveled: 0.28 km

Behavior and Additional Comments

Surfacing frequently in roughly the same location before final deep dive from surface.
Adult male because of presence of erupted teeth from lower jaw.

Wednesday, May 14, 2014 Sighting # 5

Initial sighting on Track

Time: 10:33 WP#: 26 Lat: 35.619281 Long: -74.617608
Vertical Angle: 3 Horizontal Bearing in Degrees: 60 Sighting Cue: Body
On/Off Effort: On Trackline: 38 Beaufort Sea State: 3
Observer: Ryan Observer side: Right

Actual Time and Position of Sighting

Time: 10:34 WP#: 27 Lat: 35.624151 Long: -74.620843
Species: *Tursiops truncatus* Numbers (Low/High/Best): 25 / 35 / 30
Features used in Species ID: Robust body appearance, uniform grey coloration with slightly lighter grey blaze up to dorsal fin, white peduncles present on some animals.
Representative images used for Species ID: 3768, 3769, 3772
Photographer: Ryan Frame numbers: 3765 to 3779 Spacer: 3780
Calculated distance from Trackline: 0.62 km

Final Time and Position of Sighting

Time: 10:41 WP#: 28 Lat: 35.626109 Long: -74.616485
Calculated Distance Traveled: 0.45 km

Behavior and Additional Comments

One big group with a few smaller ones, groups traveling subsurface.

Wednesday, May 14, 2014 Sighting # 6

Initial sighting on Track

Time: 10:44 WP#: 30 Lat: 35.619277 Long: -74.719390
Vertical Angle: 2 Horizontal Bearing in Degrees: 90 Sighting Cue: Splash
On/Off Effort: On Trackline: 38 Beaufort Sea State: 2
Observer: Ryan Observer side: Right

Actual Time and Position of Sighting

Time: 10:45 WP#: 31 Lat: 35.621748 Long: -74.720131
Species: *Tursiops truncatus* Numbers (Low/High/Best): 25 / 40 / 35
Features used in Species ID: Robust body appearance, uniform grey coloration with slightly lighter grey blaze to dorsal fin, appearance of white peduncle coloration.
Representative images used for Species ID: 3790, 3795, 3797
Photographer: Ryan Frame numbers: 3781 to 3797 Spacer: 3798
Calculated distance from Trackline: 0.28 km

Final Time and Position of Sighting

Time: NA WP#: NA Lat: NA Long: NA
Calculated Distance Traveled: NA

Behavior and Additional Comments

Two groups of animals.

Wednesday, May 14, 2014 Sighting # 7

Initial sighting on Track

Time: 10:49 WP#: 35 Lat: 35.619816 Long: -74.764302
Vertical Angle: 3 Horizontal Bearing in Degrees: 90 Sighting Cue: Body
On/Off Effort: On Trackline: 38 Beaufort Sea State: 2
Observer: Sarah Observer side: Left

Actual Time and Position of Sighting

Time: 10:55 WP#: 37 Lat: 35.610540 Long: -74.761540
Species: *Tursiops truncatus* Numbers (Low/High/Best): 10 / 15 / 13
Features used in Species ID: Robust body appearance, white peduncle present.

Representative images used for Species ID: 3810, 3816
Photographer: Ryan Frame numbers: 3807 to 3819 Spacer: 3820
Calculated distance from Trackline: 1.06 km

Final Time and Position of Sighting

Time: 10:58 WP#: 39 Lat: 35.607683 Long: -74.764573
Calculated Distance Traveled: 0.42 km

Behavior and Additional Comments

Bottlenose dolphins were the initial group of animals seen from trackline. Sightings 8 & 9 off effort.

Wednesday, May 14, 2014 Sighting # 8

Initial sighting on Track

Time: 10:49 WP#: 35 Lat: 35.619816 Long: -74.764302
Vertical Angle: 3 Horizontal Bearing in Degrees: 90 Sighting Cue: Body
On/Off Effort: Off Trackline: 38 Beaufort Sea State: 2
Observer: Sarah Observer side: Left

Actual Time and Position of Sighting

Time: 10:55 WP#: 36 Lat: 35.619918 Long: -74.751659
Species: *Globicephala macrorhynchus* Numbers (Low/High/Best): 6 / 6 / 6
Features used in Species ID: Black body with white "suspenders" and coloration to peduncle region, large square head, broad based dorsal fin placed 1/3 back on animals body.
Representative images used for Species ID: 3800
Photographer: Ryan Frame numbers: 3799 to 3805 Spacer: 3806
Calculated distance from Trackline: 1.14 km

Final Time and Position of Sighting

Time: 10:58 WP#: 39 Lat: 35.607683 Long: -74.764573
Calculated Distance Traveled: 1.79 km

Behavior and Additional Comments

Single group.

Wednesday, May 14, 2014 Sighting # 9

Initial sighting on Track

Time: 10:49 WP#: 35 Lat: 35.619816 Long: -74.764302
Vertical Angle: 3 Horizontal Bearing in Degrees: 90 Sighting Cue: Body
On/Off Effort: Off Trackline: 38 Beaufort Sea State: 2
Observer: Sarah Observer side: Left

Actual Time and Position of Sighting

Time: 10:56 WP#: 38 Lat: 35.612502 Long: -74.769744
Species: *Globicephala macrorhynchus* Numbers (Low/High/Best): 20 / 22 / 21
Features used in Species ID: Black body with white "suspenders" ans coloration to peduncle region, large square head, broad based dorsal fin place 1/3 back on animals body.
Representative images used for Species ID: 3828
Photographer: Ryan Frame numbers: 3821 to 3831 Spacer: 3832
Calculated distance from Trackline: 0.95 km

Final Time and Position of Sighting

Time: 10:58 WP#: 39 Lat: 35.607683 Long: -74.764573
Calculated Distance Traveled: 0.71 km

Behavior and Additional Comments

Wednesday, May 14, 2014 Sighting # 10

Initial sighting on Track

Time: 11:00 WP#: 42 Lat: 35.619301 Long: -74.818393
Vertical Angle: 3 Horizontal Bearing in Degrees: 90 Sighting Cue: Splash
On/Off Effort: On Trackline: 38 Beaufort Sea State: 2
Observer: Ryan Observer side: Right

Actual Time and Position of Sighting

Time: 11:01 WP#: 43 Lat: 35.628279 Long: -74.813888
Species: *Delphinus delphis* Numbers (Low/High/Best): 90 / 120 / 100
Features used in Species ID: Black dorsal surface, smaller more falcate dorsal fin, yellow midline coloration to ventral surface at dfin, white coloration from dfin back to peduncle.
Representative images used for Species ID: 3843, 3847
Photographer: Ryan Frame numbers: 3833 to 3862 Spacer: 3863
Calculated distance from Trackline: 1.08 km

Final Time and Position of Sighting

Time: 11:05 WP#: 44 Lat: 35.625677 Long: -74.822810
Calculated Distance Traveled: 0.86 km

Behavior and Additional Comments

Large group lots of disturbance at the surface, group traveling in a consistent direction and speed.

Wednesday, May 14, 2014 Sighting # 11

Initial sighting on Track

Time: 11:28 WP#: 57 Lat: 35.688579 Long: -74.783241
Vertical Angle: 2 Horizontal Bearing in Degrees: 90 Sighting Cue: Body
On/Off Effort: On Trackline: 39 Beaufort Sea State: 2
Observer: Sarah Observer side: Left

Actual Time and Position of Sighting

Time: 11:30 WP#: 58 Lat: 35.684385 Long: -74.784359
Species: *Tursiops truncatus* Numbers (Low/High/Best): 16 / 20 / 18
Features used in Species ID: Broad dorsal fin, robust body appearance, uniform grey coloration lighter grey blaze to dorsal fin.
Representative images used for Species ID: 3866 to 3867
Photographer: Ryan Frame numbers: 3864 to 3877 Spacer: 3878
Calculated distance from Trackline: 0.48 km

Final Time and Position of Sighting

Time: 11:34 WP#: 60 Lat: 35.676232 Long: -74.793633
Calculated Distance Traveled: 1.23 km

Behavior and Additional Comments

First observed the group logging at the surface, calf present in the group.

Wednesday, May 14, 2014 Sighting # 12

Initial sighting on Track

Time: 11:35 WP#: 62 Lat: 35.689643 Long: -74.739442
Vertical Angle: 3 Horizontal Bearing in Degrees: 90 Sighting Cue: Body
On/Off Effort: On Trackline: 39 Beaufort Sea State: 2
Observer: Sarah Observer side: Left

Actual Time and Position of Sighting

Time: 11:37 WP#: 63 Lat: 35.682821 Long: -74.747796
Species: *Globicephala macrorhynchus* Numbers (Low/High/Best): 3 / 5 / 5
Features used in Species ID: Large black body, square head, broad based dorsal fin placed 1/3 back on animals body.
Representative images used for Species ID: 3880, 3885
Photographer: Ryan Frame numbers: 3879 to 3889 Spacer: 3890
Calculated distance from Trackline: 1.07 km

Final Time and Position of Sighting

Time: 11:39 WP#: 64 Lat: 35.686546 Long: -74.749584
Calculated Distance Traveled: 0.44 km

Behavior and Additional Comments

Logging at the surface.

Wednesday, May 14, 2014 Sighting # 13

Initial sighting on Track

Time: 11:41 WP#: 67 Lat: 35.688555 Long: -74.645758
Vertical Angle: 2 Horizontal Bearing in Degrees: 60 Sighting Cue: Spalsh
On/Off Effort: On Trackline: 39 Beaufort Sea State: 2
Observer: Ryan Observer side: Right

Actual Time and Position of Sighting

Time: 11:42 WP#: 68 Lat: 35.687398 Long: -74.642629
Species: *Tursiops truncatus* Numbers (Low/High/Best): 20 / 26 / 25
Features used in Species ID: Robust body appearance, uniform grey coloration with lighter grey blaze to dorsal fin.
Representative images used for Species ID: 3896, 3897, 3898
Photographer: Ryan Frame numbers: 3891 to 3902 Spacer: 3903
Calculated distance from Trackline: 0.31 km

Final Time and Position of Sighting

Time: 11:44 WP#: 69 Lat: 35.691920 Long: -74.646168
Calculated Distance Traveled: 0.60 km

Behavior and Additional Comments

Consistent rate of travel, surfacing frequently.

Wednesday, May 14, 2014 Sighting # 14

Initial sighting on Track

Time: 12:03 WP#: 74 Lat: 35.757888 Long: -74.567205
Vertical Angle: 2 Horizontal Bearing in Degrees: 60 Sighting Cue: Body
On/Off Effort: On Trackline: 40 Beaufort Sea State: 3
Observer: Sarah Observer side: Left

Actual Time and Position of Sighting

Time: 12:06 WP#: 75 Lat: 35.759083 Long: -74.550740
Species: *Tursiops truncatus* Numbers (Low/High/Best): 15 / 20 / 20
Features used in Species ID: Robust body appearance, uniform grey coloration with lighter blaze to dorsal fin.
Representative images used for Species ID: 3906, 3909
Photographer: Ryan Frame numbers: 3904 to 3916 Spacer: 3917
Calculated distance from Trackline: 1.49 km

Final Time and Position of Sighting

Time: 12:09 WP#: 76 Lat: 35.760285 Long: -74.587104
Calculated Distance Traveled: 3.28 km

Behavior and Additional Comments

Subsurface travel.

Wednesday, May 14, 2014 Sighting # 15

Initial sighting on Track

Time: 12:09 WP#: 78 Lat: 35.759975 Long: -74.596551
Vertical Angle: 1 Horizontal Bearing in Degrees: 90 Sighting Cue: Body
On/Off Effort: On Trackline: 40 Beaufort Sea State: 3
Observer: Ryan Observer side: Right

Actual Time and Position of Sighting

Time: 12:10 WP#: 79 Lat: 35.760635 Long: 74.591612
Species: *Ziphius cavirostris* Numbers (Low/High/Best): 2 / 2 / 2
Features used in Species ID: Large bodied with broad fluke. Dorsal fin placed well back on animals body, small pectoral fins, light grey to white / copper coloration to body.
Representative images used for Species ID: 3918
Photographer: Ryan Frame numbers: 3918 to 3932 Spacer: 3933
Calculated distance from Trackline: 0.45 km

Final Time and Position of Sighting

Time: 12:14 WP#: 80 Lat: 35.763145 Long: -74.614009
Calculated Distance Traveled: 2.0 km

Behavior and Additional Comments

Subsurface travel, surfacing regularly in the beginning, one animal dove while the second remained for another few minutes before diving.

Wednesday, May 14, 2014 Sighting # 16

Initial sighting on Track

Time: 12:21 WP#: 83 Lat: 35.757727 Long: -74.826644
Vertical Angle: 3 Horizontal Bearing in Degrees: 90 Sighting Cue: Splash
On/Off Effort: On Trackline: 40 Beaufort Sea State: 2
Observer: Ryan Observer side: Right

Actual Time and Position of Sighting

Time: 12:24 WP#: 85 Lat: 35.756989 Long: -74.819301
Species: *Globicephala macrorhynchus* Numbers (Low/High/Best): 5 / 5 / 5
Features used in Species ID: Black bodied animals with white "suspenders" joining white on peduncle, squared off head, broad based dorsal fin place 1/3 back animals body.
Representative images used for Species ID: 3937
Photographer: Ryan Frame numbers: 3934 to 3939 Spacer: 3940
Calculated distance from Trackline: 0.67 km

Final Time and Position of Sighting

Time: 12:27 WP#: 87 Lat: 35.771574 Long: -74.831414
Calculated Distance Traveled: 1.96 km

Behavior and Additional Comments

Group remaining below the surface, briefly surfacing, not staying at the surface long.

Wednesday, May 14, 2014 Sighting # 17

Initial sighting on Track

Time: 14:33 WP#: 103 Lat: 35.827362 Long: -74.859288
Vertical Angle: 1 Horizontal Bearing in Degrees: 60 Sighting Cue: Body
On/Off Effort: On Trackline: 41 Beaufort Sea State: 2
Observer: Ryan Observer side: Right

Actual Time and Position of Sighting

Time: 14:34 WP#: 104 Lat: 35.825679 Long: -74.860908
Species: *Tursiops truncatus* Numbers (Low/High/Best): 3 / 3 / 3
Features used in Species ID: Robust body appearance, uniform grey coloration with lighter grey blaze to dorsal fin.
Representative images used for Species ID: 3946, 3947
Photographer: Ryan Frame numbers: 3941 to 3951 Spacer: 3952
Calculated distance from Trackline: 0.24 km

Final Time and Position of Sighting

Time: 14:40 WP#: 105 Lat: 35.833948 Long: -74.835409
Calculated Distance Traveled: 2.47 km

Behavior and Additional Comments

Wednesday, May 14, 2014 Sighting # 18

Initial sighting on Track

Time: 14:46 WP#: 108 Lat: 35.82731 Long: -74.648524
Vertical Angle: 1 Horizontal Bearing in Degrees: 90 Sighting Cue: Body
On/Off Effort: On Trackline: 41 Beaufort Sea State: 2
Observer: Ryan Observer side: Right

Actual Time and Position of Sighting

Time: 14:47 WP#: 109 Lat: 35.826718 Long: -74.646118
Species: *Tursiops truncatus* Numbers (Low/High/Best): 25 / 35 / 30
Features used in Species ID: Robust body appearance, broad dorsal fin, uniform grey coloration with lighter grey blaze to dorsal fin.
Representative images used for Species ID: 3953, 3954, 3967
Photographer: Ryan Frame numbers: 3953 to 3969 Spacer: 3970
Calculated distance from Trackline: 0.23 km

Final Time and Position of Sighting

Time: 14:49 WP#: 110 Lat: 35.826196 Long: -74.635088
Calculated Distance Traveled: 1.0 km

Behavior and Additional Comments

Group traveling together, slow pace with lots of surfacings.

Wednesday, May 14, 2014 Sighting # 19

Initial sighting on Track

Time: 14:50 WP#: 111 Lat: 35.825511 Long: -74.5594491
Vertical Angle: 2 Horizontal Bearing in Degrees: 90 Sighting Cue: Body
On/Off Effort: On Trackline: 41 Beaufort Sea State: 2
Observer: Ryan Observer side: Right

Actual Time and Position of Sighting

Time: 14:51 WP#: 112 Lat: 35.820201 Long: -74.600435
Species: *Tursiops truncatus* Numbers (Low/High/Best): 25 / 30 / 28
Features used in Species ID: Robust body appearance, white peduncles present.

Representative images used for Species ID: 3976, 3980
Photographer: Ryan Frame numbers: 3971 to 3982 Spacer: 3983
Calculated distance from Trackline: 3.74 km

Final Time and Position of Sighting

Time: 14:52 WP#: 113 Lat: 35.820527 Long: -74.590074
Calculated Distance Traveled: 0.93 km

Behavior and Additional Comments

Sighting composed of two groups observed near on another.

Wednesday, May 14, 2014 Sighting # 20

Initial sighting on Track

Time: 14:56 WP#: 115 Lat: 35.826434 Long: -74.550603
Vertical Angle: 1 Horizontal Bearing in Degrees: 90 Sighting Cue: body
On/Off Effort: On Trackline: 41 Beaufort Sea State: 2
Observer: Sarah Observer side: Left

Actual Time and Position of Sighting

Time: 14:58 WP#: 116 Lat: 35.820436 Long: -74.555163
Species: *Globicephala macrorhynchus* Numbers (Low/High/Best): 1 / 1 / 1
Features used in Species ID: Black coloration, square head, broad based dorsal fin placed 1/3 the way back on the animals body.

Representative images used for Species ID: 3988, 3989, 3990, 3991
Photographer: Ryan Frame numbers: 3984 to 3986 Spacer: 3987
Calculated distance from Trackline: 0.79 km

Final Time and Position of Sighting

Time: 14:58 WP#: 117 Lat: 35.829208 Long: -74.557705
Calculated Distance Traveled: 1.00 km

Behavior and Additional Comments

Wednesday, May 14, 2014 Sighting # 21

Initial sighting on Track

Time: 15:00 WP#: 119 Lat: 35.827037 Long: -74.512991
Vertical Angle: 3 Horizontal Bearing in Degrees: 90 Sighting Cue: Body
On/Off Effort: On Trackline: 41 Beaufort Sea State: 2
Observer: Ryan Observer side: Right

Actual Time and Position of Sighting

Time: 15:01 WP#: 120 Lat: 35.820149 Long: -74.503056
Species: *Globicephala macrorhynchus* Numbers (Low/High/Best): 6 / 6 / 6
Features used in Species ID: Black body with white "suspenders" joining peduncle. square head, broad based dorsal fin placed 1/3 back on animals body.
Representative images used for Species ID: 3999, 4003
Photographer: Ryan Frame numbers: 3993 to 4005 Spacer: 4006
Calculated distance from Trackline: 1.18 km

Final Time and Position of Sighting

Time: 15:03 WP#: 121 Lat: 35.827419 Long: -74.504456
Calculated Distance Traveled: 0.82 km

Behavior and Additional Comments

Typical Pilot whale behavior.

Wednesday, May 14, 2014 Sighting # 22

Initial sighting on Track

Time: 15:14 WP#: 125 Lat: 35.903877 Long: -74.435561
Vertical Angle: 4 Horizontal Bearing in Degrees: 40 Sighting Cue: Splash
On/Off Effort: On Trackline: 42 Beaufort Sea State: 2
Observer: Sarah Observer side: Left

Actual Time and Position of Sighting

Time: 15:15 WP#: 126 Lat: 35.895316 Long: -74.431015
Species: *Stenella frontalis* Numbers (Low/High/Best): 30 / 37 / 35
Features used in Species ID: Alternating light and dark body coloration, white tip to rostrum more prominent white blaze to dorsal fin, slight spotting pattern.
Representative images used for Species ID: 4012, 4035, 4036
Photographer: Ryan Frame numbers: 4007 to 4038 Spacer: 4039
Calculated distance from Trackline: 1.03 km

Final Time and Position of Sighting

Time: 15:21 WP#: 127 Lat: 35.898807 Long: -74.416349
Calculated Distance Traveled: 1.38 km

Behavior and Additional Comments

Tail slapping, active jumping and fast movement.

Wednesday, May 14, 2014 Sighting # 23

Initial sighting on Track

Time: 15:24 WP#: 129 Lat: 35.905527 Long: -74.483339
Vertical Angle: 3 Horizontal Bearing in Degrees: 60 Sighting Cue: Body
On/Off Effort: On Trackline: 42 Beaufort Sea State: 2
Observer: Ryan Observer side: Right

Actual Time and Position of Sighting

Time: 15:25 WP#: 130 Lat: 35.909803 Long: -74.489880
Species: *Stenella frontalis* Numbers (Low/High/Best): 23 / 27 / 25
Features used in Species ID: Alternating light and dark body coloration, white tip to rostrum
clear lighter blaze from eye and apex of melon to dorsal fin.
Representative images used for Species ID: 4040, 4044, 4046, 4047, 4057, 4071
Photographer: Ryan Frame numbers: 4040 to 4076 Spacer: 4077
Calculated distance from Trackline: 0.76 km

Final Time and Position of Sighting

Time: 15:28 WP#: 132 Lat: 35.919569 Long: -74.484402
Calculated Distance Traveled: 1.19 km

Behavior and Additional Comments

Subsurface travel, groups staying together.

Wednesday, May 14, 2014 Sighting # 24

Initial sighting on Track

Time: 15:33 WP#: 134 Lat: 35.9044 Long: -74.619096
Vertical Angle: 2 Horizontal Bearing in Degrees: 60 Sighting Cue: Body
On/Off Effort: On Trackline: 42 Beaufort Sea State: 2
Observer: Sarah Observer side: Left

Actual Time and Position of Sighting

Time: 15:37 WP#: 135 Lat: 35.908866 Long: -74.601054
Species: *Ziphius cavirostris* Numbers (Low/High/Best): 4 / 4 / 4
Features used in Species ID: Brown-copper colored body with white head forward of blowhole
small pectoral fins, small dorsal fin placed well back on animals body. broad flukes
Representative images used for Species ID: 4078, 4080, 4083, 4088, 4092, 4094, 4102
Photographer: Ryan Frame numbers: 4078 to 4105 Spacer: 4106
Calculated distance from Trackline: 1.7 km

Final Time and Position of Sighting

Time: 15:38 WP#: 136 Lat: 35.899032 Long: -74.613941
Calculated Distance Traveled: 1.6 km

Behavior and Additional Comments

Logging/ milling at the surface. Frequently surfacing to take single breaths.
Finally dove out of sight.

Wednesday, May 14, 2014 Sighting # 25

Initial sighting on Track

Time: 15:42 WP#: 138 Lat: 35.894552 Long: -74.724217
Vertical Angle: 4 Horizontal Bearing in Degrees: 60 Sighting Cue: Body
On/Off Effort: On Trackline: 42 Beaufort Sea State: 2
Observer: Sarah Observer side: Left

Actual Time and Position of Sighting

Time: 15:46 WP#: 139 Lat: 35.892112 Long: -74.698554
Species: *Ziphius cavirostris* Numbers (Low/High/Best): 1 / 1 / 1
Features used in Species ID: Large bodied animal with small pectoral fins and dorsal fin.
white body coloration forward of dorsal fin.
Representative images used for Species ID: NA
Photographer: Ryan Frame numbers: NA Spacer: NA
Calculated distance from Trackline: 2.32 km

Final Time and Position of Sighting

Time: NA WP#: NA Lat: NA Long: NA
Calculated Distance Traveled: NA

Behavior and Additional Comments

Estimated location
Saw animal twice before it dove, unable to collect photographs.

Wednesday, May 14, 2014 Sighting # 26

Initial sighting on Track

Time: 15:49 WP#: 141 Lat: 35.904348 Long: -74.787981
Vertical Angle: 4 Horizontal Bearing in Degrees: 30 Sighting Cue: Body
On/Off Effort: On Trackline: 42 Beaufort Sea State: 2
Observer: Sarah Observer side: Left

Actual Time and Position of Sighting

Time: 15:50 WP#: 142 Lat: 35.894905 Long: -74.773044
Species: *Ziphius cavirostris* Numbers (Low/High/Best): 3 / 3 / 3
Features used in Species ID: Large bodied animal with small pectoral fins and dorsal fin.
white body coloration forward of dorsal fin.
Representative images used for Species ID: NA
Photographer: NA Frame numbers: NA Spacer: NA
Calculated distance from Trackline: 1.71 km

Final Time and Position of Sighting

Time: 15:56 WP#: 143 Lat: 35.896534 Long: -74.782855
Calculated Distance Traveled: 0.91 km

Behavior and Additional Comments

Sighting began with one animal with others appear later.
Unable to collect photographs before animals dove from the surface.

Wednesday, May 14, 2014 Sighting # 27

Initial sighting on Track

Time: 15:58 WP#: 146 Lat: 35.907254 Long: -74.856818
Vertical Angle: 1 Horizontal Bearing in Degrees: 45 Sighting Cue: Body
On/Off Effort: On Trackline: 42 Beaufort Sea State: 2
Observer: Sarah Observer side: Left

Actual Time and Position of Sighting

Time: 16:05 WP#: 147 Lat: 35.918036 Long: -74.866781
Species: *Stenella frontalis* Numbers (Low/High/Best): 100 / 125 / 110
Features used in Species ID: White tip to rostrum, prominent light blaze to dorsal fin, slight spotting pattern present.
Representative images used for Species ID: 4109, 4118
Photographer: Ryan Frame numbers: 4107 to 4149 Spacer: 4150
Calculated distance from Trackline: 1.50 km

Final Time and Position of Sighting

Time: 16:10 WP#: 148 Lat: 35.914968 Long: -74.861049
Calculated Distance Traveled: 0.62 km

Behavior and Additional Comments

Three groups all actively traveling at the surface at a high rate of speed.

Wednesday, May 14, 2014 Sighting # 28

Initial sighting on Track

Time: 16:13 WP#: 150 Lat: 35.907025 Long: -74.914525
Vertical Angle: 2 Horizontal Bearing in Degrees: 45 Sighting Cue: Body
On/Off Effort: On Trackline: 42 Beaufort Sea State: 2
Observer: Sarah Observer side: Left

Actual Time and Position of Sighting

Time: 16:15 WP#: 151 Lat: 35.907764 Long: -74.936583
Species: *Delphinus delphis* Numbers (Low/High/Best): 10 / 12 / 12
Features used in Species ID: Dark dorsal surface with yellow coloration along mindline from rostrum to dorsal fin, lighter white coloration from peduncle to midline dorsal fin.
Representative images used for Species ID: 4158, 4160
Photographer: Ryan Frame numbers: 4151 to 4172 Spacer: 4173
Calculated distance from Trackline: 1.99 km

Final Time and Position of Sighting

Time: 16:16 WP#: 152 Lat: 35.907748 Long: -74.908175
Calculated Distance Traveled: 2.56 km

Behavior and Additional Comments

Traveling as a group, first subsurface then making more surfacings.

Wednesday, May 14, 2014 Sighting # 29

Initial sighting on Track

Time: 16:21 WP#: 155 Lat: 35.903892 Long: -75.00229
Vertical Angle: 1 Horizontal Bearing in Degrees: 45 Sighting Cue: Body
On/Off Effort: On Trackline: 42 Beaufort Sea State: 2
Observer: Sarah Observer side: Left

Actual Time and Position of Sighting

Time: 16:28 WP#: 156 Lat: 35.899753 Long: -75.001304
Species: *Unidentified Delphinid* Numbers (Low/High/Best): 1 / 1 / 1
Features used in Species ID:

Representative images used for Species ID: NA
Photographer: NA Frame numbers: NA Spacer: NA
Calculated distance from Trackline: 0.47 km

Final Time and Position of Sighting

Time: NA WP#: NA Lat: NA Long: NA
Calculated Distance Traveled: NA

Behavior and Additional Comments

Unable to relocate animal, did see it surface once before diving out of sight.

Tuesday, June 10, 2014 Sighting # 1

Initial sighting on Track

Time: 12:42 WP#: 4 Lat: 35.974760 Long: -74.557798
Vertical Angle: 3 Horizontal Bearing in Degrees: 90 Sighting Cue: Splash
On/Off Effort: On Trackline: 43 Beaufort Sea State: 3
Observer: Erin Observer side: Left

Actual Time and Position of Sighting

Time: 12:48 WP#: 5 Lat: 35.982904 Long: -74.555494
Species: *Tursiops truncatus* Numbers (Low/High/Best): 20 / 30 / 28
Features used in Species ID: Uniform gray, robust

Representative images used for Species ID: 4359, 4369, 4374
Photographer: Ryan Frame numbers: 4339 - 4377 Spacer: 4378
Calculated distance from Trackline: 0.93 km

Final Time and Position of Sighting

Time: 12:51 WP#: 6 Lat: 35.985278 Long: -74.553644
Calculated Distance Traveled: 0.31 km

Behavior and Additional Comments

Doing high jumps when first sighted, playful, then traveled together when we flew over, belly showing

Tuesday, June 10, 2014 Sighting # 2

Initial sighting on Track

Time: 13:03 WP#: 10 Lat: 35.933827 Long: -74.309142
Vertical Angle: 1 Horizontal Bearing in Degrees: 90 Sighting Cue: Body
On/Off Effort: Off Trackline: 43-42 Beaufort Sea State: 3
Observer: Erin Observer side: Left

Actual Time and Position of Sighting

Time: 13:07 WP#: 11 Lat: 35.942989 Long: -74.304671
Species: *Tursiops truncatus* Numbers (Low/High/Best): 10 / 20 / 15
Features used in Species ID: Uniform gray, white peduncles, robust

Representative images used for Species ID: 4382, 4385
Photographer: Ryan Frame numbers: 4379 - 4387 Spacer: 4388
Calculated distance from Trackline: 1.10 km

Final Time and Position of Sighting

Time: 13:09 WP#: 12 Lat: 35.949863 Long: -74.301303
Calculated Distance Traveled: 0.82 km

Behavior and Additional Comments

Traveling east in a V shape, with uniform distance

Tuesday, June 10, 2014 Sighting # 3

Initial sighting on Track

Time: 13:18 WP#: 14 Lat: 35.903559 Long: -74.507192
Vertical Angle: 3 Horizontal Bearing in Degrees: 90 Sighting Cue: Body
On/Off Effort: On Trackline: 42 Beaufort Sea State: 3
Observer: Ryan Observer side: Right

Actual Time and Position of Sighting

Time: 13:20 WP#: 15 Lat: 35.913741 Long: -74.503312
Species: *Globicephala macrorhynchus* Numbers (Low/High/Best): 3 / 8 / 5
Features used in Species ID: Black, bullet shaped, blunt head

Representative images used for Species ID: 4392, 4399
Photographer: Ryan Frame numbers: 4389 - 4405 Spacer: 4460
Calculated distance from Trackline: 1.19 km

Final Time and Position of Sighting

Time: N/A WP#: N/A Lat: N/A Long: N/A
Calculated Distance Traveled: N/A

Behavior and Additional Comments

GPS issues

Tuesday, June 10, 2014 Sighting # 4

Initial sighting on Track

Time: 13:30 WP#: 17 Lat: 35.903951 Long: -74.671611
Vertical Angle: 3 Horizontal Bearing in Degrees: 90 Sighting Cue: Blow
On/Off Effort: On Trackline: 42 Beaufort Sea State: 3
Observer: Erin Observer side: Left

Actual Time and Position of Sighting

Time: 13:32 WP#: 18 Lat: 35.895542 Long: -74.682089
Species: *Physeter macrocephalus* Numbers (Low/High/Best): 1 / 1 / 1
Features used in Species ID: Large, gray, wrinkly skin, blunt head, forward blow

Representative images used for Species ID: 4413, 4419
Photographer: Ryan Frame numbers: 4407 - 4424 Spacer: 4425
Calculated distance from Trackline: 1.33 km

Final Time and Position of Sighting

Time: 13:33 WP#: 19 Lat: 35.893035 Long: -74.675676
Calculated Distance Traveled: 0.64 km

Behavior and Additional Comments

Slow travel on surface

Tuesday, June 10, 2014 Sighting # 5

Initial sighting on Track

Time: 16:27 WP#: 36 Lat: 36.043944 Long: -74.472669
Vertical Angle: 3 Horizontal Bearing in Degrees: 90 Sighting Cue: Blow
On/Off Effort: On Trackline: 44 Beaufort Sea State: 3
Observer: Erin Observer side: Left

Actual Time and Position of Sighting

Time: 16:27 WP#: 36 Lat: 36.043944 Long: -74.472669
Species: *Physeter macrocephalus* Numbers (Low/High/Best): 1 / 1 / 1
Features used in Species ID: Uniform gray, forward blow, blunt head

Representative images used for Species ID: N/A
Photographer: Ryan Frame numbers: N/A Spacer: N/A
Calculated distance from Trackline: 1.61 km

Final Time and Position of Sighting

Time: 16:33 WP#: 37 Lat: 36.049045 Long: -74.455886
Calculated Distance Traveled: N/A

Behavior and Additional Comments

Forward blow in the distance, could see wake behind it

Tuesday, June 10, 2014 Sighting # 6

Initial sighting on Track

Time: 16:47 WP#: 41 Lat: 36.120521 Long: -74.517999
Vertical Angle: 1 Horizontal Bearing in Degrees: 90 Sighting Cue: Body
On/Off Effort: On Trackline: 45 Beaufort Sea State: 3
Observer: Ryan Observer side: Right

Actual Time and Position of Sighting

Time: 16:48 WP#: 42 Lat: 36.127594 Long: -74.508850
Species: *Physeter macrocephalus* Numbers (Low/High/Best): 1 / 1 / 1
Features used in Species ID: Uniform gray, blunt head, wrinkled skin, large, forward blow

Representative images used for Species ID: N/A
Photographer: Ryan Frame numbers: N/A Spacer: N/A
Calculated distance from Trackline: 1.14 km

Final Time and Position of Sighting

Time: 16:54 WP#: 43 Lat: 36.129997 Long: -74.51000
Calculated Distance Traveled: 0.28 km

Behavior and Additional Comments

No resight, Final position assumed location.

Tuesday, June 10, 2014 Sighting # 7

Initial sighting on Track

Time: 16:47 WP#: 41 Lat: 36.120521 Long: -74.517999
Vertical Angle: 2 Horizontal Bearing in Degrees: 65 Sighting Cue: Body
On/Off Effort: Off Trackline: 45 Beaufort Sea State: 3
Observer: Ryan Observer side: Right

Actual Time and Position of Sighting

Time: 16:54 WP#: 44 Lat: 36.133635 Long: -74.517946
Species: *Globicephala macrorhynchus* Numbers (Low/High/Best): 4 / 4 / 4
Features used in Species ID: Black, blunt head, torpedo shaped body

Representative images used for Species ID: 4427, 4434
Photographer: Ryan Frame numbers: 4427 - 4436 Spacer: 4437
Calculated distance from Trackline: 1.46 km

Final Time and Position of Sighting

Time: 16:56 WP#: 45 Lat: 36.136422 Long: -74.499382
Calculated Distance Traveled: 1.70 km

Behavior and Additional Comments

While looking for the Pma we sighted Gma therefore causing it to be off effort

Wednesday, June 11, 2014 Sighting # 1

Initial sighting on Track

Time: 10:05 WP#: 12 Lat: 35.409597 Long: -74.755159
Vertical Angle: 1 Horizontal Bearing in Degrees: 90 Sighting Cue: Body
On/Off Effort: On Trackline: 35 Beaufort Sea State: 2
Observer: Erin Observer side: Right

Actual Time and Position of Sighting

Time: 10:08 WP#: 13 Lat: 35.411078 Long: -74.743025
Species: *Tursiops truncatus* Numbers (Low/High/Best): 18 / 22 / 20
Features used in Species ID: Robust body appearance, uniform grey coloration, large dorsal fin.

Representative images used for Species ID: 4440, 4443, 4451
Photographer: Erin Frame numbers: 4438 to 4453 Spacer: 4455
Calculated distance from Trackline: 1.11 km

Final Time and Position of Sighting

Time: 10:17 WP#: 14 Lat: 35.406971 Long: -74.746938
Calculated Distance Traveled: 0.58 km

Behavior and Additional Comments

Traveling slowly just below the surface along a grass line, disperse group. White peduncles on some animals, milling behavior.

Wednesday, June 11, 2014 Sighting # 2

Initial sighting on Track

Time: 10:19 WP#: 16 Lat: 35.413648 Long: -74.802569
Vertical Angle: 2 Horizontal Bearing in Degrees: 90 Sighting Cue: Body
On/Off Effort: On Trackline: 35 Beaufort Sea State: 2
Observer: Erin Observer side: Right

Actual Time and Position of Sighting

Time: 10:22 WP#: 17 Lat: 35.417460 Long: -74.805003
Species: *Tursiops truncatus* Numbers (Low/High/Best): 4 / 5 / 5
Features used in Species ID: Robust body appearance. Uniform grey coloration with slight blaze along side.

Representative images used for Species ID: 4458, 4459, 4460
Photographer: Erin Frame numbers: 4456 - 4465 Spacer: 4466
Calculated distance from Trackline: 0.48 km

Final Time and Position of Sighting

Time: 10:21 WP#: 18 Lat: 35.417757 Long: -74.805226
Calculated Distance Traveled: 0.04 km

Behavior and Additional Comments

Small group- slow travel, splashing at the surface. Jumping clear of water

Wednesday, June 11, 2014 Sighting # 3

Initial sighting on Track

Time: 10:24 WP#: 20 Lat: 35.414155 Long: -74.878423
Vertical Angle: 2 Horizontal Bearing in Degrees: 90 Sighting Cue: Body
On/Off Effort: On Trackline: 35 Beaufort Sea State: 3
Observer: Ryan Observer side: Left

Actual Time and Position of Sighting

Time: 10:25 WP#: 21 Lat: 35.408691 Long: -74.870979
Species: *Tursiops truncatus* Numbers (Low/High/Best): 10 / 12 / 11
Features used in Species ID: Uniform grey coloration, robust body appearance.

Representative images used for Species ID: NA
Photographer: Erin Frame numbers: NA Spacer: NA
Calculated distance from Trackline: 0.91 km

Final Time and Position of Sighting

Time: 10:36 WP#: 22 Lat: 35.407173 Long: -74.868745
Calculated Distance Traveled: 0.26 km

Behavior and Additional Comments

Slow travel close together. No images collected.

Wednesday, June 11, 2014 Sighting # 4

Initial sighting on Track

Time: 11:59 WP#: 34 Lat: 35.138752 Long: -74.869523
Vertical Angle: 2 Horizontal Bearing in Degrees: 90 Sighting Cue: Body
On/Off Effort: On Trackline: 32 Beaufort Sea State: 3
Observer: Erin Observer side: Right

Actual Time and Position of Sighting

Time: 12:02 WP#: 35 Lat: 35.133515 Long: -74.871922
Species: *Globicephala macrorhynchus* Numbers (Low/High/Best): 8 / 10 / 9
Features used in Species ID: Large black body with square head, no rostrum, large dorsal fin placed 1/3 back the animals body.

Representative images used for Species ID: 4472, 4475
Photographer: ERin Frame numbers: 4467 - 4477 Spacer: 4478
Calculated distance from Trackline: 0.62 km

Final Time and Position of Sighting

Time: 12:05 WP#: 36 Lat: 35.140640 Long: -74.864352
Calculated Distance Traveled: 1.05 km

Behavior and Additional Comments

Disperse group / singles - calves present.

Wednesday, June 11, 2014 Sighting # 5

Initial sighting on Track

Time: 15:06 WP#: 52 Lat: 34.957952 Long: -75.153157
Vertical Angle: 1 Horizontal Bearing in Degrees: 65 Sighting Cue: Body
On/Off Effort: On Trackline: 28 Beaufort Sea State: 2
Observer: Erin Observer side: Right

Actual Time and Position of Sighting

Time: 15:15 WP#: 54 Lat: 34.944339 Long: -75.148141
Species: *Tursiops truncatus* Numbers (Low/High/Best): 70 / 80 / 75
Features used in Species ID: Robust body appearance, uniform grey coloration. White peduncle

Representative images used for Species ID: 4485, 4500
Photographer: Erin Frame numbers: 4479 - 4489 Spacer: 4490
Calculated distance from Trackline: 1.58 km

Final Time and Position of Sighting

Time: 15:18 WP#: 55 Lat: 34.964300 Long: -75.151228
Calculated Distance Traveled: 2.24 km

Behavior and Additional Comments

White peduncles.

Wednesday, June 11, 2014 Sighting # 6

Initial sighting on Track

Time: 15:06 WP#: 52 Lat: 34.957952 Long: -75.153157
Vertical Angle: 2 Horizontal Bearing in Degrees: 90 Sighting Cue: Body
On/Off Effort: Off Trackline: 28 Beaufort Sea State: 2
Observer: Ryan Observer side: Left

Actual Time and Position of Sighting

Time: 15:18 WP#: 56 Lat: 34.959325 Long: -75.150947
Species: *Unidentified Mesoplodon* Numbers (Low/High/Best): 4 / 4 / 4
Features used in Species ID: Long body, small pectoral and dorsal fins, pointed rostrum, broad fluke.

Representative images used for Species ID: NA
Photographer: NA Frame numbers: NA Spacer: NA
Calculated distance from Trackline: 0.25 km

Final Time and Position of Sighting

Time: NA WP#: NA Lat: NA Long: NA
Calculated Distance Traveled: NA

Behavior and Additional Comments

No resight. Seen while off effort for sighting 5

Wednesday, June 11, 2014 Sighting # 7

Initial sighting on Track

Time: 15:25 WP#: 58 Lat: 34.926040 Long: -75.116690
Vertical Angle: 2 Horizontal Bearing in Degrees: 90 Sighting Cue: Body
On/Off Effort: On Trackline: 28 Beaufort Sea State: 2
Observer: Ryan Observer side: Left

Actual Time and Position of Sighting

Time: 15:26 WP#: 59 Lat: 34.929970 Long: -75.119988
Species: *Mesoplodon europaeus* Numbers (Low/High/Best): 2 / 2 / 2
Features used in Species ID: Darker grey coloration on animals dorsal midline, "striping" pattern observed on one animal.
Representative images used for Species ID: 4506, 4507, 4510
Photographer: Erin Frame numbers: 4505 - 4519 Spacer: 4519
Calculated distance from Trackline: 0.53 km

Final Time and Position of Sighting

Time: 15:34 WP#: 60 Lat: 34.957675 Long: -75.117043
Calculated Distance Traveled: 3.09 km

Behavior and Additional Comments

Pair of animals one roughly 1/2 to 3/4 the length of the other. Pair dove and was not observed again.

Initial review of photographs suggested species identification was M. mirus. Subsequent photographic review of all beaked whale sightings to date resulted in reclassification to M. europaeus.

Wednesday, June 11, 2014 Sighting # 8

Initial sighting on Track

Time: 15:25 WP#: 58 Lat: 34.926040 Long: -75.116690
Vertical Angle: 2 Horizontal Bearing in Degrees: 90 Sighting Cue: Body
On/Off Effort: On Trackline: 28 Beaufort Sea State: 2
Observer: Ryan Observer side: Left

Actual Time and Position of Sighting

Time: 15:26 WP#: 59 Lat: 34.929970 Long: -74.119988
Species: *Unidentified Mesoplodon* Numbers (Low/High/Best): 4 / 4 / 4
Features used in Species ID: Tiger striping.
Representative images used for Species ID: No images collected
Photographer: Erin Frame numbers: NA Spacer: 4519
Calculated distance from Trackline: 0.53 km

Final Time and Position of Sighting

Time: 15:34 WP#: 60 Lat: 34.957675 Long: -75.117043
Calculated Distance Traveled: 3.09 km

Behavior and Additional Comments

Second group of beaked whales than the first but in the plane were believed to part of sighting 7
All animals comparable in size.

Wednesday, June 11, 2014 Sighting # 9

Initial sighting on Track

Time: 15:35 WP#: 62 Lat: 34.926012 Long: -75.117891
Vertical Angle: 2 Horizontal Bearing in Degrees: 90 Sighting Cue: Body
On/Off Effort: On Trackline: 28 Beaufort Sea State: 2
Observer: Erin Observer side: Right

Actual Time and Position of Sighting

Time: 15:36 WP#: 63 Lat: 34.921359 Long: -75.117792
Species: *Globicephala macrorhynchus* Numbers (Low/High/Best): 8 / 8 / 8
Features used in Species ID: Large black body, square head, large dorsal fin place 1/3 back the animals body.
Representative images used for Species ID: 4521, 4522, 4527
Photographer: Erin Frame numbers: 452 - 4528 Spacer: 4529
Calculated distance from Trackline: 0.52 km

Final Time and Position of Sighting

Time: 15:39 WP#: 64 Lat: 34.921710 Long: -75.124346
Calculated Distance Traveled: 0.60 km

Behavior and Additional Comments

Wednesday, July 30, 2014 Sighting # 1

Initial sighting on Track

Time: 14:59 WP#: 32 Lat: 35.763857 Long: -74.696433
Vertical Angle: 2 Horizontal Bearing in Degrees: 100 Sighting Cue: Body
On/Off Effort: On Trackline: 40 Beaufort Sea State: 3
Observer: Erin Observer side: Left

Actual Time and Position of Sighting

Time: 15:07 WP#: 33 Lat: 35.764501 Long: -74.692256
Species: *Tursiops truncatus* Numbers (Low/High/Best): 12 / 12 / 12
Features used in Species ID: Uniform gray, robust

Representative images used for Species ID: 5347, 5348, 5349
Photographer: Ryan Frame numbers: 5345 - 5351 Spacer: 5352
Calculated distance from Trackline: 0.38 km

Final Time and Position of Sighting

Time: 15:18 WP#: 34 Lat: 35.765724 Long: -74.691527
Calculated Distance Traveled: 0.15 km

Behavior and Additional Comments

2 groups, 5 in one and 7 in the other, traveling subsurface

Wednesday, July 30, 2014 Sighting # 2

Initial sighting on Track

Time: 15:19 WP#: 36 Lat: 35.764289 Long: -74.636873
Vertical Angle: 1 Horizontal Bearing in Degrees: 90 Sighting Cue: Body
On/Off Effort: On Trackline: 40 Beaufort Sea State: 3
Observer: Ryan Observer side: Right

Actual Time and Position of Sighting

Time: 15:21 WP#: 37 Lat: 35.760797 Long: -74.638481
Species: *Tursiops truncatus* Numbers (Low/High/Best): 14 / 24 / 19
Features used in Species ID: Uniform gray, robust, white peduncles

Representative images used for Species ID: 5356, 5357
Photographer: Ryan Frame numbers: 5353 - 5366 Spacer: 5367
Calculated distance from Trackline: 0.41 km

Final Time and Position of Sighting

Time: 15:24 WP#: 38 Lat: 35.767168 Long: -74.631246
Calculated Distance Traveled: 0.96 km

Behavior and Additional Comments

traveling subsurface, 2 groups, white peduncles

Wednesday, July 30, 2014 Sighting # 3

Initial sighting on Track

Time: 15:49 WP#: 44 Lat: 35.832863 Long: -74.811354
Vertical Angle: 2 Horizontal Bearing in Degrees: 90 Sighting Cue: Body
On/Off Effort: On Trackline: 41 Beaufort Sea State: 3
Observer: Ryan Observer side: Right

Actual Time and Position of Sighting

Time: 15:50 WP#: 45 Lat: 35.838177 Long: -74.812620
Species: *Tursiops truncatus* Numbers (Low/High/Best): 25 / 35 / 30
Features used in Species ID: Uniform gray, robust

Representative images used for Species ID: 5382, 5383
Photographer: Ryan Frame numbers: 5368 - 5391 Spacer: 5392
Calculated distance from Trackline: 0.60 km

Final Time and Position of Sighting

Time: 15:53 WP#: 46 Lat: 35.841517 Long: -74.809947
Calculated Distance Traveled: 0.44 km

Behavior and Additional Comments

Traveling in a tight group on the surface or just below

Thursday, July 31, 2014 Sighting # 1

Initial sighting on Track

Time: 9:38 WP#: 9 Lat: 35.977883 Long: -74.722359
Vertical Angle: 3 Horizontal Bearing in Degrees: 90 Sighting Cue: Splash
On/Off Effort: On Trackline: 43 Beaufort Sea State: 2
Observer: Erin Observer side: Right

Actual Time and Position of Sighting

Time: 9:39 WP#: 10 Lat: 35.978672 Long: -74.716027
Species: *Tursiops truncatus* Numbers (Low/High/Best): 10 / 10 / 10
Features used in Species ID: Robust body appearance, uniform grey coloration, white peduncle on some animals.
Representative images used for Species ID: 5396, 5399, 5413
Photographer: Erin Frame numbers: 5393 - 5414 Spacer: 5415
Calculated distance from Trackline: 0.58 km

Final Time and Position of Sighting

Time: 9:54 WP#: 11 Lat: 35.972624 Long: -74.740517
Calculated Distance Traveled: 2.3 km

Behavior and Additional Comments

Single animals scattered and on group of six close together. Took longer to get on the animals.

Thursday, July 31, 2014 Sighting # 2

Initial sighting on Track

Time: 10:38 WP#: 22 Lat: 36.1220047 Long: -74.447709
Vertical Angle: 1 Horizontal Bearing in Degrees: 90 Sighting Cue: Splash
On/Off Effort: On Trackline: 45 Beaufort Sea State: 2
Observer: Ryan Observer side: Left

Actual Time and Position of Sighting

Time: 10:40 WP#: 23 Lat: 36.120205 Long: -74.444252
Species: *Globicephala macrorhynchus* Numbers (Low/High/Best): 9 / 12 / 11
Features used in Species ID: Large square head, dorsal fin place 1/3 back the animals body black body coloration.
Representative images used for Species ID: 5419, 5421, 5424, 5427
Photographer: Erin Frame numbers: 5416 - 5429 Spacer: 5430
Calculated distance from Trackline: 0.37 km

Final Time and Position of Sighting

Time: 10:46 WP#: 24 Lat: 36.118085 Long: -74.457737
Calculated Distance Traveled: 1.23 km

Behavior and Additional Comments

Spread out hanging at the surface.

Thursday, July 31, 2014 Sighting # 3

Initial sighting on Track

Time: 12:34 WP#: 35 Lat: 35.551207 Long: -74.776497
Vertical Angle: 2 Horizontal Bearing in Degrees: 60 Sighting Cue: Body
On/Off Effort: On Trackline: 37 Beaufort Sea State: 3
Observer: Ryan Observer side: Left

Actual Time and Position of Sighting

Time: 12:35 WP#: 36 Lat: 35.550087 Long: -74.773581
Species: *Tursiops truncatus* Numbers (Low/High/Best): 15 / 20 / 18
Features used in Species ID: Robust body appearance, uniform grey coloration, white peduncles on some of the aniamls.
Representative images used for Species ID: 5436, 5438
Photographer: Erin Frame numbers: 5431 - 5443 Spacer: 5444
Calculated distance from Trackline: 0.29 km

Final Time and Position of Sighting

Time: 12:38 WP#: 37 Lat: 35.551801 Long: -74.776907
Calculated Distance Traveled: 0.36 km

Behavior and Additional Comments

Loosely packed group with singles on exterior

white peduncles

Thursday, July 31, 2014 Sighting # 4

Initial sighting on Track

Time: 13:28 WP#: 46 Lat: 35.409565 Long: -74.805680
Vertical Angle: 2 Horizontal Bearing in Degrees: 90 Sighting Cue: Body
On/Off Effort: On Trackline: 35 Beaufort Sea State: 4
Observer: Ryan Observer side: Left

Actual Time and Position of Sighting

Time: 13:29 WP#: 47 Lat: 35.411690 Long: -74.805410
Species: *Ziphius cavirostris* Numbers (Low/High/Best): 2 / 3 / 3
Features used in Species ID: Long large body, small pectoral fins, small rostrum, lighter under side of jaw
Representative images used for Species ID: 5448
Photographer: Erin Frame numbers: 5445 - 5449 Spacer: 5450
Calculated distance from Trackline: 0.23 km

Final Time and Position of Sighting

Time: 13:40 WP#: 48 Lat: 35.413471 Long: -74.806969
Calculated Distance Traveled: NA

Behavior and Additional Comments

Difficult to relocate.

Thursday, July 31, 2014 Sighting # 5

Initial sighting on Track

Time: 13:50 WP#: 51 Lat: 35.409371 Long: -74.544041
Vertical Angle: 1 Horizontal Bearing in Degrees: 90 Sighting Cue: Splash
On/Off Effort: On Trackline: 35 Beaufort Sea State: 3
Observer: Ryan Observer side: Left

Actual Time and Position of Sighting

Time: 13:51 WP#: 52 Lat: 35.408966 Long: -74.549891
Species: *Stenella clymene* Numbers (Low/High/Best): 32 / 35 / 34
Features used in Species ID: High arch of lighter ventral coloration between eye and dorsal fin, white coloration on either side of rostrum with dark line down center to the tip of rostrum.
Representative images used for Species ID: 5471, 5472, 5479
Photographer: Erin Frame numbers: 5451 - 5486 Spacer: 5487
Calculated distance from Trackline: 0.53 km

Final Time and Position of Sighting

Time: 14:00 WP#: 53 Lat: 35.410264 Long: -74.550363
Calculated Distance Traveled: 0.15 km

Behavior and Additional Comments

Many animals in multiple groups
Charging groups - lots of splashing at the surface.

Wednesday, August 20, 2014 Sighting # 1

Initial sighting on Track

Time: 11:30 WP#: 3 Lat: 34.909150 Long: -74.819449
Vertical Angle: 3 Horizontal Bearing in Degrees: 120 Sighting Cue: Body
On/Off Effort: On Trackline: 30 Beaufort Sea State: 3
Observer: Erin Observer side: Right

Actual Time and Position of Sighting

Time: 11:36 WP#: 4 Lat: 34.902346 Long: -74.828905
Species: *Unidentified Delphinid* Numbers (Low/High/Best): 1 / 1 / 1
Features used in Species ID: dolphin-like

Representative images used for Species ID: NA
Photographer: NA Frame numbers: NA Spacer: NA
Calculated distance from Trackline: 1.15 km

Final Time and Position of Sighting

Time: NA WP#: NA Lat: NA Long: NA
Calculated Distance Traveled: NA

Behavior and Additional Comments

Single animal 1st observed, not relocated - dolphin like appearance.

Wednesday, August 20, 2014 Sighting # 2

Initial sighting on Track

Time: 15:51 WP#: 27 Lat: 35.983278 Long: -74.752310
Vertical Angle: 2 Horizontal Bearing in Degrees: 60 Sighting Cue: Breach
On/Off Effort: On Trackline: 43 Beaufort Sea State: 3
Observer: Erin Observer side: Right

Actual Time and Position of Sighting

Time: 15:51 WP#: 28 Lat: 35.977119 Long: -74.748172
Species: *Stenella frontalis* Numbers (Low/High/Best): 100 / 110 / 105
Features used in Species ID: Spotting pattern along animals side.

Representative images used for Species ID: 5632, 5635, 5657
Photographer: Erin Frame numbers: 5628 - 5671 Spacer: 5672
Calculated distance from Trackline: 0.78 km

Final Time and Position of Sighting

Time: 16:05 WP#: 29 Lat: 35.987930 Long: -74.763621
Calculated Distance Traveled: 1.83 km

Behavior and Additional Comments

Three different groups >20 in each, milling around, slow travel. More groups encountered upon circling

Wednesday, August 20, 2014 Sighting # 3

Initial sighting on Track

Time: 16:29 WP#: 37 Lat: 36.050038 Long: -74.767715
Vertical Angle: 3 Horizontal Bearing in Degrees: 90 Sighting Cue: Body
On/Off Effort: On Trackline: 44 Beaufort Sea State: 3
Observer: Erin Observer side: Right

Actual Time and Position of Sighting

Time: 16:32 WP#: 38 Lat: 36.039893 Long: -74.774045
Species: *Stenella frontalis* Numbers (Low/High/Best): 10/ / 12 / 11
Features used in Species ID: Spotting pattern on sides

Representative images used for Species ID: 5673 & 5674
Photographer: Erin Frame numbers: 5673 & 5674 Spacer: NA
Calculated distance from Trackline: 1.26 km

Final Time and Position of Sighting

Time: 16:38 WP#: 39 Lat: 36.036678 Long: -74.780858
Calculated Distance Traveled: 3 km

Behavior and Additional Comments

Acting similar to animals in sighting #2 ~ north of where sighting #2 occurred.
Scattered groups, subsurface travel.

Wednesday, August 20, 2014 Sighting # 4

Initial sighting on Track

Time: 16:29 WP#: 37 Lat: 36.050038 Long: -74.767715
Vertical Angle: 3 Horizontal Bearing in Degrees: 90 Sighting Cue: Splash
On/Off Effort: Off Trackline: 44 Beaufort Sea State: 3
Observer: Erin Observer side: Right

Actual Time and Position of Sighting

Time: 16:32 WP#: 38 Lat: 36.039893 Long: -74.774045
Species: *Grampus griseus* Numbers (Low/High/Best): 30 / 30 / 30
Features used in Species ID: Cleft in center of melon, scarring along animals body.

Representative images used for Species ID: 5675, 5682, 5687, 5688, 5695
Photographer: Erin Frame numbers: 5675 to 5697 Spacer: 5698
Calculated distance from Trackline: 1.5 km

Final Time and Position of Sighting

Time: 16:38 WP#: 39 Lat: 36.036678 Long: -74.780858
Calculated Distance Traveled: 0.61 km

Behavior and Additional Comments

Encountered while circling group #3

Thursday, August 21, 2014 Sighting # 1

Initial sighting on Track

Time: 9:11 WP#: 3 Lat: 35.834021 Long: -75.119671
Vertical Angle: 2 Horizontal Bearing in Degrees: 90 Sighting Cue: Breach
On/Off Effort: On Trackline: 41 Beaufort Sea State: 2
Observer: Erin Observer side: Left

Actual Time and Position of Sighting

Time: 9:13 WP#: 4 Lat: 35.837440 Long: -75.128497
Species: *Stenella frontalis* Numbers (Low/High/Best): 4 / 8 / 6
Features used in Species ID: Distinct white blaze, spotting down body

Representative images used for Species ID: 5701, 5714, 5716
Photographer: Ryan Frame numbers: 5699 - 5718 Spacer: 5719
Calculated distance from Trackline: 0.88 km

Final Time and Position of Sighting

Time: 9:23 WP#: 5 Lat: 35.844258 Long: -75.129784
Calculated Distance Traveled: 0.77 km

Behavior and Additional Comments

Traveling subsurface, regular surfacing

Thursday, August 21, 2014 Sighting # 2

Initial sighting on Track

Time: 9:35 WP#: 13 Lat: 35.835238 Long: -74.809307
Vertical Angle: 1 Horizontal Bearing in Degrees: 90 Sighting Cue: Body
On/Off Effort: Off Trackline: 41 Beaufort Sea State: 1
Observer: Ryan Observer side: Right

Actual Time and Position of Sighting

Time: 9:37 WP#: 14 Lat: 35.830652 Long: -74.817217
Species: *Globicephala macrorhynchus* Numbers (Low/High/Best): 5 / 5 / 5
Features used in Species ID: Blunt head, dark body

Representative images used for Species ID: 5722, 5723
Photographer: Ryan Frame numbers: 5720 - 5724 Spacer: 5725
Calculated distance from Trackline: 0.88 km

Final Time and Position of Sighting

Time: N/A WP#: N/A Lat: N/A Long: N/A
Calculated Distance Traveled: N/A

Behavior and Additional Comments

Milling subsurface in a straight line, did not get a final position

Thursday, August 21, 2014 Sighting # 3

Initial sighting on Track

Time: 9:35 WP#: 13 Lat: 35.835238 Long: -74.809307
Vertical Angle: 1 Horizontal Bearing in Degrees: 90 Sighting Cue: Body
On/Off Effort: On Trackline: 41 Beaufort Sea State: 1
Observer: Ryan Observer side: Right

Actual Time and Position of Sighting

Time: 9:37 WP#: 14 Lat: 35.830652 Long: -74.817217
Species: *Ziphius cavirostris* Numbers (Low/High/Best): 1 / 1 / 1
Features used in Species ID: Large body, small pectorals, dorsal fin set way back on body, white and brown coloration
Representative images used for Species ID: 5726, 5727
Photographer: Ryan Frame numbers: 5726 - 5735 Spacer: 5736
Calculated distance from Trackline: 0.87 km

Final Time and Position of Sighting

Time: 9:45 WP#: 15 Lat: 35.834306 Long: -74.787964
Calculated Distance Traveled: 2.67 km

Behavior and Additional Comments

Thursday, August 21, 2014 Sighting # 4

Initial sighting on Track

Time: 9:50 WP#: 18 Lat: 35.834328 Long: -74.644325
Vertical Angle: 1 Horizontal Bearing in Degrees: 90 Sighting Cue: Body
On/Off Effort: On Trackline: 41 Beaufort Sea State: 1
Observer: Ryan Observer side: Right

Actual Time and Position of Sighting

Time: 9:51 WP#: 19 Lat: 35.830003 Long: -74.646142
Species: *Globicephala macrorhynchus* Numbers (Low/High/Best): 5 / 8 / 7
Features used in Species ID: Black bodied, blunt head
Representative images used for Species ID:
Photographer: Ryan Frame numbers: 5737 - 5771 Spacer: 5772
Calculated distance from Trackline: 0.51 km

Final Time and Position of Sighting

Time: 9:54 WP#: 20 Lat: 35.837266 Long: -74.651371
Calculated Distance Traveled: 0.94 km

Behavior and Additional Comments

Some diving and some staying on the surface milling

Thursday, August 21, 2014 Sighting # 5

Initial sighting on Track

Time: 9:50 WP#: 18 Lat: 35.834328 Long: -74.644325
Vertical Angle: 1 Horizontal Bearing in Degrees: 90 Sighting Cue: Body
On/Off Effort: Off Trackline: 41 Beaufort Sea State: 1
Observer: Ryan Observer side: Right

Actual Time and Position of Sighting

Time: 9:51 WP#: 19 Lat: 35.830003 Long: -74.646142
Species: *Tursiops truncatus* Numbers (Low/High/Best): 3 / 3 / 3
Features used in Species ID: Robust, uniform gray

Representative images used for Species ID: 5745 + 5746
Photographer: Ryan Frame numbers: 5745 - 5761 Spacer: 5752
Calculated distance from Trackline: 0.51 km

Final Time and Position of Sighting

Time: 9:54 WP#: 20 Lat: 35.837266 Long: -74.651371
Calculated Distance Traveled: 0.94 km

Behavior and Additional Comments

milling just below the surface

Thursday, August 21, 2014 Sighting # 6

Initial sighting on Track

Time: 10:01 WP#: 24 Lat: 35.833922 Long: -74.376423
Vertical Angle: 2 Horizontal Bearing in Degrees: 90 Sighting Cue: Splash
On/Off Effort: On Trackline: 41 Beaufort Sea State: 2
Observer: Erin Observer side: Left

Actual Time and Position of Sighting

Time: 10:01 WP#: 25 Lat: 35.837720 Long: -74.382366
Species: *Stenella clymene* Numbers (Low/High/Best): 280 / 350 / 310
Features used in Species ID: White blaze from eye to pectoral, white bridge on rostrum

Representative images used for Species ID: 5775, 5783, 5784, 5785, 5797, 5799, 5809, 5810
Photographer: Ryan Frame numbers: 5773 - 5816 Spacer: 5817
Calculated distance from Trackline: 0.68 km

Final Time and Position of Sighting

Time: 10:09 WP#: 26 Lat: 35.847176 Long: -74.378318
Calculated Distance Traveled: 1.11 km

Behavior and Additional Comments

very large group, space out, traveling very fast, hitting the surface hard, breaching

Thursday, August 21, 2014 Sighting # 7

Initial sighting on Track

Time: 10:25 WP#: 31 Lat: 35.762201 Long: -74.663800
Vertical Angle: 2 Horizontal Bearing in Degrees: 90 Sighting Cue: Body
On/Off Effort: On Trackline: 40 Beaufort Sea State: 1
Observer: Erin Observer side: Left

Actual Time and Position of Sighting

Time: 10:27 WP#: 32 Lat: 35.758877 Long: -74.656274
Species: *Ziphius cavirostris* Numbers (Low/High/Best): 1 / 1 / 1
Features used in Species ID: Large, white and brown body, small pectorals

Representative images used for Species ID: 5828, 5829, 5832, 5834
Photographer: Ryan Frame numbers: 5818 - 5838 Spacer: 5839
Calculated distance from Trackline: 0.77 km

Final Time and Position of Sighting

Time: 10:29 WP#: 33 Lat: 35.764798 Long: -74.656023
Calculated Distance Traveled: 0.67 km

Behavior and Additional Comments

Logging just below the surface then coming up for breaths

Thursday, August 21, 2014 Sighting # 8

Initial sighting on Track

Time: 10:31 WP#: 35 Lat: 35.762334 Long: -74.722561
Vertical Angle: 1 Horizontal Bearing in Degrees: 90 Sighting Cue: Body
On/Off Effort: On Trackline: 40 Beaufort Sea State: 1
Observer: Ryan Observer side: Right

Actual Time and Position of Sighting

Time: 10:31 WP#: 36 Lat: 35.765342 Long: -74.717086
Species: *Ziphius cavirostris* Numbers (Low/High/Best): 4 / 4 / 4
Features used in Species ID: large body, small pectorals, dorsal fin set back, brown and white body

Representative images used for Species ID: 5844, 5846, 5864, 5866, 5875, 5879
Photographer: Ryan Frame numbers: 5840 - 5882 Spacer: 5883
Calculated distance from Trackline: 0.60 km

Final Time and Position of Sighting

Time: 10:33 WP#: 37 Lat: 35.765464 Long: -74.725969
Calculated Distance Traveled: 0.80 km

Behavior and Additional Comments

Logging at the surface

Thursday, August 21, 2014 Sighting # 9

Initial sighting on Track

Time: 10:36 WP#: 40 Lat: 35.762365 Long: -74.819266
Vertical Angle: 1 Horizontal Bearing in Degrees: 90 Sighting Cue: Body
On/Off Effort: On Trackline: 40 Beaufort Sea State: 1
Observer: Erin Observer side: Left

Actual Time and Position of Sighting

Time: 10:39 WP#: 41 Lat: 35.768151 Long: -74.818190
Species: *Globicephala macrorhynchus* Numbers (Low/High/Best): 3 / 3 / 3
Features used in Species ID: Dark bodied, blunt head

Representative images used for Species ID: 5892, 5895
Photographer: Ryan Frame numbers: 5884 - 5895 Spacer: 5896
Calculated distance from Trackline: 0.65 km

Final Time and Position of Sighting

Time: 10:40 WP#: 42 Lat: 35.768916 Long: -74.817740
Calculated Distance Traveled: 0.09 km

Behavior and Additional Comments

Slow travel

Thursday, August 21, 2014 Sighting # 10

Initial sighting on Track

Time: 11:02 WP#: 51 Lat: 35.691932 Long: -74.779221
Vertical Angle: 3 Horizontal Bearing in Degrees: 90 Sighting Cue: Body
On/Off Effort: On Trackline: 39 Beaufort Sea State: 1
Observer: Erin Observer side: Left

Actual Time and Position of Sighting

Time: 11:05 WP#: 52 Lat: 35.698250 Long: -74.780508
Species: *Globicephala macrorhynchus* Numbers (Low/High/Best): 2 / 2 / 2
Features used in Species ID: Dark bodied, blunt head

Representative images used for Species ID: 5897
Photographer: Ryan Frame numbers: 5897 - 5905 Spacer: 5906
Calculated distance from Trackline: 0.71 km

Final Time and Position of Sighting

Time: 11:10 WP#: 53 Lat: 35.699888 Long: -74.785366
Calculated Distance Traveled: 0.48 km

Behavior and Additional Comments

Moving slowly subsurface, not on the surface long until dove

Thursday, August 21, 2014 Sighting # 11

Initial sighting on Track

Time: 11:13 WP#: 55 Lat: 35.691591 Long: -74.675202
Vertical Angle: 2 Horizontal Bearing in Degrees: 90 Sighting Cue: Splash
On/Off Effort: On Trackline: 39 Beaufort Sea State: 1
Observer: Ryan Observer side: Right

Actual Time and Position of Sighting

Time: 11:14 WP#: 56 Lat: 35.686775 Long: -74.674022
Species: *Tursiops truncatus* Numbers (Low/High/Best): 18 / 30 / 25
Features used in Species ID: Uniform gray, robust

Representative images used for Species ID: 5908, 5920, 5927
Photographer: Ryan Frame numbers: 5907 - 5927 Spacer: 5928
Calculated distance from Trackline: 0.55 km

Final Time and Position of Sighting

Time: 11:17 WP#: 57 Lat: 35.687390 Long: -74.685054
Calculated Distance Traveled: 1.0 km

Behavior and Additional Comments

Spread out, lots of splashing

Thursday, August 21, 2014 Sighting # 12

Initial sighting on Track

Time: 11:19 WP#: 59 Lat: 35.691892 Long: -74.609075
Vertical Angle: 1 Horizontal Bearing in Degrees: 90 Sighting Cue: Body
On/Off Effort: On Trackline: 39 Beaufort Sea State: 1
Observer: Ryan Observer side: Right

Actual Time and Position of Sighting

Time: 11:19 WP#: 60 Lat: 35.688087 Long: -74.615322
Species: *Tursiops truncatus* Numbers (Low/High/Best): 10 / 20 / 18
Features used in Species ID: Uniform gray, robust

Representative images used for Species ID: 5933, 5934
Photographer: Ryan Frame numbers: 5929 - 5942 Spacer: 5943
Calculated distance from Trackline: 0.71 km

Final Time and Position of Sighting

Time: 11:21 WP#: 61 Lat: 35.696007 Long: -74.617566
Calculated Distance Traveled: 0.90 km

Behavior and Additional Comments

Fast subsurface travel

Thursday, August 21, 2014 Sighting # 13

Initial sighting on Track

Time: 11:27 WP#: 64 Lat: 35.691501 Long: -74.399362
Vertical Angle: 3 Horizontal Bearing in Degrees: 60 Sighting Cue: Splash
On/Off Effort: On Trackline: 39 Beaufort Sea State: 2
Observer: Erin Observer side: Left

Actual Time and Position of Sighting

Time: 11:28 WP#: 65 Lat: 35.697388 Long: -74.397280
Species: *Tursiops truncatus* Numbers (Low/High/Best): 7 / 10 / 8
Features used in Species ID: Uniform gray, robust, white peduncles

Representative images used for Species ID: 5951, 5955
Photographer: Ryan Frame numbers: 5944 - 5955 Spacer: 5956
Calculated distance from Trackline: 0.68 km

Final Time and Position of Sighting

Time: 11:34 WP#: 66 Lat: 35.697797 Long: -74.398515
Calculated Distance Traveled: 0.12 km

Behavior and Additional Comments

Spread out, fast travel, white peduncles

Thursday, August 21, 2014 Sighting # 14

Initial sighting on Track

Time: 11:46 WP#: 71 Lat: 35.619479 Long: -74.618450
Vertical Angle: 3 Horizontal Bearing in Degrees: 45 Sighting Cue: Splash
On/Off Effort: On Trackline: 38 Beaufort Sea State: 1
Observer: Erin Observer side: Left

Actual Time and Position of Sighting

Time: 11:46 WP#: 72 Lat: 35.604293 Long: -74.626744
Species: *Ziphius cavirostris* Numbers (Low/High/Best): 7 / 7 / 7
Features used in Species ID: Large body, short pectorals, dorsal fin set way back on body
brown and white scaring

Representative images used for Species ID: 5968, 5970, 5973, 5984, 5987
Photographer: Ryan Frame numbers: 5957 - 6049 Spacer: 6050
Calculated distance from Trackline: 1.85 km

Final Time and Position of Sighting

Time: 11:53 WP#: 73 Lat: 35.598640 Long: -74.619020
Calculated Distance Traveled: 0.94 km

Behavior and Additional Comments

Traveling subsurface, not coming up often, surfacing together

Thursday, August 21, 2014 Sighting # 15

Initial sighting on Track

Time: 11:56 WP#: 76 Lat: 35.619693 Long: -74.759101
Vertical Angle: 3 Horizontal Bearing in Degrees: 60 Sighting Cue: Splash
On/Off Effort: On Trackline: 38 Beaufort Sea State: 1
Observer: Ryan Observer side: Right

Actual Time and Position of Sighting

Time: 11:58 WP#: 77 Lat: 35.635736 Long: -74.770966
Species: *Ziphius cavirostris* Numbers (Low/High/Best): 4 / 4 / 4
Features used in Species ID: Large body, brown and white, dorsal fin set back on body, small pectorals
Representative images used for Species ID: 6060, 6062, 6063, 6064
Photographer: Ryan Frame numbers: 6053 - 6063 Spacer: 6064
Calculated distance from Trackline: 2.08 km

Final Time and Position of Sighting

Time: 12:01 WP#: 78 Lat: 35.642296 Long: -74.772263
Calculated Distance Traveled: 0.74 km

Behavior and Additional Comments

Traveling subsurface

Thursday, August 21, 2014 Sighting # 16

Initial sighting on Track

Time: 11:56 WP#: 76 Lat: 35.619693 Long: -74.759101
Vertical Angle: 3 Horizontal Bearing in Degrees: 60 Sighting Cue: Splash
On/Off Effort: Off Trackline: 38 Beaufort Sea State: 1
Observer: Ryan Observer side: Right

Actual Time and Position of Sighting

Time: 12:02 WP#: 79 Lat: 35.633304 Long: -74.765548
Species: *Tursiops truncatus* Numbers (Low/High/Best): 6 / 6 / 6
Features used in Species ID: Robust, uniform gray
Representative images used for Species ID: 6078
Photographer: Ryan Frame numbers: 6051 - 6081 Spacer: 6082
Calculated distance from Trackline: 1.62 km

Final Time and Position of Sighting

Time: 12:04 WP#: 80 Lat: 35.634738 Long: -74.764406
Calculated Distance Traveled: 0.19 km

Behavior and Additional Comments

Staying in a tight group, circling

Thursday, August 21, 2014 Sighting # 17

Initial sighting on Track

Time: 14:15 WP#: 89 Lat: 35.551916 Long: -74.844257
Vertical Angle: 2 Horizontal Bearing in Degrees: 90 Sighting Cue: Body
On/Off Effort: On Trackline: 37 Beaufort Sea State: 3
Observer: Erin Observer side: Left

Actual Time and Position of Sighting

Time: 14:25 WP#: 90 Lat: 35.549617 Long: -74.842753
Species: *Tursiops truncatus* Numbers (Low/High/Best): 6 / 10 / 8
Features used in Species ID: Robust, uniform gray

Representative images used for Species ID: 6092
Photographer: Ryan Frame numbers: 6086 - 6095 Spacer: 6096
Calculated distance from Trackline: 0.29 km

Final Time and Position of Sighting

Time: 14:27 WP#: 91 Lat: 35.558798 Long: -74.835459
Calculated Distance Traveled: 1.22 km

Behavior and Additional Comments

Possible avoidance, staying in a tight group

Thursday, August 21, 2014 Sighting # 18

Initial sighting on Track

Time: 14:28 WP#: 93 Lat: 35.552126 Long: -74.781068
Vertical Angle: 2 Horizontal Bearing in Degrees: 90 Sighting Cue: Body
On/Off Effort: On Trackline: 37 Beaufort Sea State: 3
Observer: Erin Observer side: Left

Actual Time and Position of Sighting

Time: 14:29 WP#: 94 Lat: 35.551838 Long: -74.779627
Species: *Tursiops truncatus* Numbers (Low/High/Best): 50 / 80 / 65
Features used in Species ID: Robust, uniform gray

Representative images used for Species ID: 6101, 6102, 6104
Photographer: Ryan Frame numbers: 6097 - 6107 Spacer: 6108
Calculated distance from Trackline: 0.13 km

Final Time and Position of Sighting

Time: 14:32 WP#: 95 Lat: 35.556344 Long: -74.767748
Calculated Distance Traveled: 1.19 km

Behavior and Additional Comments

Traveling subsurface, breaching

Thursday, August 21, 2014 Sighting # 19

Initial sighting on Track

Time: 14:35 WP#: 97 Lat: 35.549913 Long: -74.719834
Vertical Angle: 2 Horizontal Bearing in Degrees: 90 Sighting Cue: Body
On/Off Effort: On Trackline: 37 Beaufort Sea State: 2
Observer: Erin Observer side: Left

Actual Time and Position of Sighting

Time: 14:36 WP#: 98 Lat: 35.564075 Long: -74.724393
Species: *Tursiops truncatus* Numbers (Low/High/Best): 60 / 80 / 70
Features used in Species ID: Uniform gray, robust

Representative images used for Species ID: 6115, 6116, 6117
Photographer: Ryan Frame numbers: 6109 - 6118 Spacer: 6119
Calculated distance from Trackline: 1.63 km

Final Time and Position of Sighting

Time: 14:38 WP#: 99 Lat: 35.571725 Long: -74.719112
Calculated Distance Traveled: 0.98 km

Behavior and Additional Comments

Multiple groups, traveling, regular surfacing

Thursday, August 21, 2014 Sighting # 20

Initial sighting on Track

Time: 15:05 WP#: 103 Lat: 35.479077 Long: -74.803202
Vertical Angle: 2 Horizontal Bearing in Degrees: 90 Sighting Cue: Body
On/Off Effort: On Trackline: 36 Beaufort Sea State: 2
Observer: Erin Observer side: Left

Actual Time and Position of Sighting

Time: 15:10 WP#: 104 Lat: 35.499642 Long: -74.799134
Species: *Ziphius cavirostris* Numbers (Low/High/Best): 4 / 4 / 4
Features used in Species ID: Large body, brown and white scaring, small pectorals

Representative images used for Species ID: No images
Photographer: Ryan Frame numbers: N/A Spacer: N/A
Calculated distance from Trackline: 2.32 km

Final Time and Position of Sighting

Time: N/A WP#: N/A Lat: N/A Long: N/A
Calculated Distance Traveled: N/A

Behavior and Additional Comments

4 in a line, no resight

Thursday, August 21, 2014 Sighting # 21

Initial sighting on Track

Time: 15:05 WP#: 103 Lat: 35.479077 Long: -74.803202
Vertical Angle: 2 Horizontal Bearing in Degrees: 90 Sighting Cue: Body
On/Off Effort: Off Trackline: 36 Beaufort Sea State: 2
Observer: Erin Observer side: Left

Actual Time and Position of Sighting

Time: 15:10 WP#: 104 Lat: 35.499642 Long: -74.799134
Species: *Tursiops truncatus* Numbers (Low/High/Best): 40 / 55 / 50
Features used in Species ID: Robust, uniform gray

Representative images used for Species ID: 6124
Photographer: Ryan Frame numbers: 6120 - 6125 Spacer: 6126
Calculated distance from Trackline: 2.32 km

Final Time and Position of Sighting

Time: 15:15 WP#: 105 Lat: 35.485141 Long: -74.815529
Calculated Distance Traveled: 2.19 km

Behavior and Additional Comments

Thursday, August 21, 2014 Sighting # 22

Initial sighting on Track

Time: 15:34 WP#: 110 Lat: 35.409293 Long: -75.041092
Vertical Angle: 1 Horizontal Bearing in Degrees: 90 Sighting Cue: Body
On/Off Effort: On Trackline: 35 Beaufort Sea State: 2
Observer: Ryan Observer side: Right

Actual Time and Position of Sighting

Time: 15:36 WP#: 111 Lat: 35.404239 Long: -75.046843
Species: *Stenella frontalis* Numbers (Low/High/Best): 4 / 4 / 4
Features used in Species ID: Spotting down body

Representative images used for Species ID: 6128, 6132
Photographer: Ryan Frame numbers: 6127 - 6136 Spacer: 6137
Calculated distance from Trackline: 0.77 km

Final Time and Position of Sighting

Time: 15:38 WP#: 112 Lat: 35.408571 Long: -75.044437
Calculated Distance Traveled: 0.53 km

Behavior and Additional Comments

Spaced out

Thursday, August 21, 2014 Sighting # 23

Initial sighting on Track

Time: 15:43 WP#: 115 Lat: 35.409466 Long: -74.844046
Vertical Angle: 2 Horizontal Bearing in Degrees: 45 Sighting Cue: Splash
On/Off Effort: On Trackline: 35 Beaufort Sea State: 2
Observer: Erin Observer side: left

Actual Time and Position of Sighting

Time: 15:45 WP#: 116 Lat: 35.409052 Long: -74.831991
Species: *Tursiops truncatus* Numbers (Low/High/Best): 20 / 40 / 30
Features used in Species ID: Uniform gray, robust

Representative images used for Species ID: 6138, 6139
Photographer: Ryan Frame numbers: 6138 - 6146 Spacer: 6147
Calculated distance from Trackline: 1.09 km

Final Time and Position of Sighting

Time: 15:46 WP#: 117 Lat: 35.420612 Long: -74.833489
Calculated Distance Traveled: 1.29 km

Behavior and Additional Comments

One large group and several individuals spaced out

Thursday, August 21, 2014 Sighting # 24

Initial sighting on Track

Time: 15:48 WP#: 119 Lat: 35.409954 Long: -74.787764
Vertical Angle: 1 Horizontal Bearing in Degrees: 90 Sighting Cue: Body
On/Off Effort: On Trackline: 35 Beaufort Sea State: 2
Observer: Erin Observer side: Left

Actual Time and Position of Sighting

Time: 15:51 WP#: 120 Lat: 35.411552 Long: -74.790620
Species: *Tursiops truncatus* Numbers (Low/High/Best): 15 / 15 / 15
Features used in Species ID: Uniform gray, robust

Representative images used for Species ID:
Photographer: Ryan Frame numbers: 6148 - 6156 Spacer: 6157
Calculated distance from Trackline: 0.31 km

Final Time and Position of Sighting

Time: 15:52 WP#: 121 Lat: 35.410857 Long: -74.777243
Calculated Distance Traveled: 1.22 km

Behavior and Additional Comments

In a tight group

Thursday, August 21, 2014 Sighting # 25

Initial sighting on Track

Time: 16:22 WP#: 125 Lat: 35.340915 Long: -74.912991
Vertical Angle: 2 Horizontal Bearing in Degrees: 90 Sighting Cue: Splash
On/Off Effort: On Trackline: 34 Beaufort Sea State: 2
Observer: Ryan Observer side: Right

Actual Time and Position of Sighting

Time: 16:33 WP#: 126 Lat: 35.354309 Long: -74.913192
Species: *Grampus griseus* Numbers (Low/High/Best): 18 / 28 / 25
Features used in Species ID: Gray with white scaring, blunt head with cleft in the middle

Representative images used for Species ID: 6163, 6164, 6170, 6173
Photographer: Ryan Frame numbers: 6158 - 6176 Spacer: 6177
Calculated distance from Trackline: 1.49 km

Final Time and Position of Sighting

Time: 16:36 WP#: 127 Lat: 35.352727 Long: -74.905927
Calculated Distance Traveled: 0.68 km

Behavior and Additional Comments

2 groups

Monday, October 6, 2014 Sighting # 1

Initial sighting on Track

Time: 13:30 WP#: 4 Lat: 35.481272 Long: -74.845916
Vertical Angle: 2 Horizontal Bearing in Degrees: 100 Sighting Cue: Blow
On/Off Effort: On Trackline: 36 Beaufort Sea State: 1
Observer: Erin Observer side: Left

Actual Time and Position of Sighting

Time: 13:32 WP#: 5 Lat: 35.488780 Long: -74.853017
Species: *Tursiops truncatus* Numbers (Low/High/Best): 50 / 65 / 58
Features used in Species ID: Uniform gray, robust, white peduncles

Representative images used for Species ID: 6494, 6511, 6517, 6524, 6525
Photographer: Ryan Frame numbers: 6461 - 6527 Spacer: 6528
Calculated distance from Trackline: 1.05 km

Final Time and Position of Sighting

Time: 13:39 WP#: 6 Lat: 35.491052 Long: -74.859467
Calculated Distance Traveled: 0.64 km

Behavior and Additional Comments

traveling slowly subsurface, white peduncles, tight group, another 50+ animals around cargo vessel

Monday, October 6, 2014 Sighting # 2

Initial sighting on Track

Time: 14:00 WP#: 12 Lat: 35.550037 Long: -74.580442
Vertical Angle: 3 Horizontal Bearing in Degrees: 90 Sighting Cue: Blow
On/Off Effort: On Trackline: 37 Beaufort Sea State: 1
Observer: Erin Observer side: Left

Actual Time and Position of Sighting

Time: 14:01 WP#: 13 Lat: 35.544066 Long: -74.577211
Species: *Physeter macrocephalus* Numbers (Low/High/Best): 1 / 1 / 1
Features used in Species ID: large, blunt head, forward blow, wrinkly body

Representative images used for Species ID: 6545, 6547, 6553, 6557, 6577
Photographer: Ryan Frame numbers: 6529 - 6581 Spacer: 6582
Calculated distance from Trackline: 0.73 km

Final Time and Position of Sighting

Time: 14:05 WP#: 14 Lat: 35.547245 Long: -74.574814
Calculated Distance Traveled: 0.41 km

Behavior and Additional Comments

Logging at the surface, arching its back to lift its head out of the water, turned upside down opening its mouth, looks like its chewing on sargassum

Monday, October 6, 2014 Sighting # 3

Initial sighting on Track

Time: 14:09 WP#: 16 Lat: 35.550327 Long: -74.724287
Vertical Angle: 2 Horizontal Bearing in Degrees: 90 Sighting Cue: Body
On/Off Effort: On Trackline: 37 Beaufort Sea State: 1
Observer: Ryan Observer side: Right

Actual Time and Position of Sighting

Time: 14:10 WP#: 17 Lat: 35.557580 Long: -74.725570
Species: *Tursiops truncatus* Numbers (Low/High/Best): 10 / 18 / 14
Features used in Species ID: Uniform gray, robust, white peduncles

Representative images used for Species ID: 6609 - 6611
Photographer: Ryan Frame numbers: 6583 - 6614 Spacer: 6615
Calculated distance from Trackline: 0.81 km

Final Time and Position of Sighting

Time: 14:12 WP#: 18 Lat: 35.556424 Long: -74.718964
Calculated Distance Traveled: 0.61 km

Behavior and Additional Comments

Traveling subsurface in a tight group, moving into line formation

Monday, October 6, 2014 Sighting # 4

Initial sighting on Track

Time: 14:16 WP#: 20 Lat: 35.550057 Long: -74.898846
Vertical Angle: 1 Horizontal Bearing in Degrees: 90 Sighting Cue: Body
On/Off Effort: On Trackline: 37 Beaufort Sea State: 1
Observer: Ryan Observer side: Right

Actual Time and Position of Sighting

Time: 14:21 WP#: 21 Lat: 35.554681 Long: -74.893634
Species: *Tursiops truncatus* Numbers (Low/High/Best): 5 / 5 / 5
Features used in Species ID: Uniform gray, robust, white peduncles

Representative images used for Species ID: 6623, 6633
Photographer: Ryan Frame numbers: 6616 - 6636 Spacer: 6637
Calculated distance from Trackline: 0.70 km

Final Time and Position of Sighting

Time: 14:23 WP#: 22 Lat: 35.554154 Long: -74.891820
Calculated Distance Traveled: 0.17 km

Behavior and Additional Comments

Dove when we flew over, spread out

Monday, October 6, 2014 Sighting # 5

Initial sighting on Track

Time: 14:42 WP#: 28 Lat: 35.622855 Long: -74.818984
Vertical Angle: 2 Horizontal Bearing in Degrees: 45 Sighting Cue: Body
On/Off Effort: On Trackline: 38 Beaufort Sea State: 1
Observer: Erin Observer side: Ryan

Actual Time and Position of Sighting

Time: 14:43 WP#: 29 Lat: 35.617092 Long: -74.810555
Species: *Globicephala macrorhynchus* Numbers (Low/High/Best): 10 / 20 / 16
Features used in Species ID: Black body, blunt head

Representative images used for Species ID: 6640
Photographer: Ryan Frame numbers: 6638 - 6665 Spacer: 6666
Calculated distance from Trackline: 1.00 km

Final Time and Position of Sighting

Time: 14:45 WP#: 30 Lat: 35.618982 Long: -74.798384
Calculated Distance Traveled: 1.12 km

Behavior and Additional Comments

Logging, spaced out

Monday, October 6, 2014 Sighting # 6

Initial sighting on Track

Time: N/A WP#: N/A Lat: N/A Long: N/A
Vertical Angle: 2 Horizontal Bearing in Degrees: 90 Sighting Cue: Body
On/Off Effort: Off Trackline: 38 Beaufort Sea State: 1
Observer: Erin Observer side: Left

Actual Time and Position of Sighting

Time: 14:47 WP#: 31 Lat: 35.625262 Long: -74.777806
Species: *Tursiops truncatus* Numbers (Low/High/Best): 15 / 20 / 18
Features used in Species ID: Uniform gray, robust, white peduncles

Representative images used for Species ID: N/A
Photographer: N/A Frame numbers: N/A Spacer: N/A
Calculated distance from Trackline: N/A

Final Time and Position of Sighting

Time: N/A WP#: N/A Lat: N/A Long: N/A
Calculated Distance Traveled: N/A

Behavior and Additional Comments

We weren't on effort yet from sighting 5 before we saw splashes. Animals were traveling fast, darting breaching

Monday, October 6, 2014 Sighting # 7

Initial sighting on Track

Time: 14:50 WP#: 33 Lat: 35.621824 Long: -74.717810
Vertical Angle: 1 Horizontal Bearing in Degrees: 90 Sighting Cue: Body
On/Off Effort: On Trackline: 38 Beaufort Sea State: 1
Observer: Erin Observer side: Left

Actual Time and Position of Sighting

Time: 14:51 WP#: 34 Lat: 35.621207 Long: -74.718835
Species: *Tursiops truncatus* Numbers (Low/High/Best): 3 / 3 / 3
Features used in Species ID: Uniform gray, robust, white peduncles

Representative images used for Species ID: 6669, 6679, 6685, 6686
Photographer: Ryan Frame numbers: 6667 - 6704 Spacer: 6705
Calculated distance from Trackline: 0.12 km

Final Time and Position of Sighting

Time: 14:53 WP#: 35 Lat: 35.624439 Long: -74.716039
Calculated Distance Traveled: 0.44 km

Behavior and Additional Comments

White peduncles, fast travel

Wednesday, October 8, 2014 Sighting # 8

Initial sighting on Track

Time: 15:15 WP#: 42 Lat: 35.690228 Long: -74.729466
Vertical Angle: 2 Horizontal Bearing in Degrees: 60 Sighting Cue: Splash
On/Off Effort: On Trackline: 39 Beaufort Sea State: 1
Observer: Ryan Observer side: Right

Actual Time and Position of Sighting

Time: 15:17 WP#: 43 Lat: 35.686410 Long: -74.729675
Species: *Globicephala macrorhynchus* Numbers (Low/High/Best): 15 / 30 / 22
Features used in Species ID: Large square head, black body coloration, dorsal fin placed 1/3 back the animals body.

Representative images used for Species ID: 6706
Photographer: Ryan Frame numbers: 6706 - 6718 Spacer: 6719
Calculated distance from Trackline: 0.43 km

Final Time and Position of Sighting

Time: 15:17 WP#: 44 Lat: 35.691720 Long: -74.728522
Calculated Distance Traveled: 0.60 km

Behavior and Additional Comments

Logging, some traveling

Monday, October 6, 2014 Sighting # 9

Initial sighting on Track

Time: 15:19 WP#: 46 Lat: 35.690296 Long: -74.799012
Vertical Angle: 2 Horizontal Bearing in Degrees: 60 Sighting Cue: Splash
On/Off Effort: On Trackline: 39 Beaufort Sea State: 1
Observer: Ryan Observer side: Right

Actual Time and Position of Sighting

Time: 15:20 WP#: 47 Lat: 35.697785 Long: -74.795965
Species: *Globicephala macrorhynchus* Numbers (Low/High/Best): 5 / 5 / 5
Features used in Species ID: Black body, blunt head

Representative images used for Species ID: 6737
Photographer: Ryan Frame numbers: 6720 - 6740 Spacer: 6741
Calculated distance from Trackline: 0.88 km

Final Time and Position of Sighting

Time: 15:22 WP#: 48 Lat: 35.697552 Long: -74.793922
Calculated Distance Traveled: 0.19 km

Behavior and Additional Comments

Logging

Monday, October 6, 2014 Sighting # 10

Initial sighting on Track

Time: 15:44 WP#: 57 Lat: 35.763720 Long: -74.843478
Vertical Angle: 1 Horizontal Bearing in Degrees: 90 Sighting Cue: Body
On/Off Effort: On Trackline: 40 Beaufort Sea State: 2
Observer: Erin Observer side: Left

Actual Time and Position of Sighting

Time: 15:45 WP#: 58 Lat: 35.766494 Long: -74.847871
Species: *Tursiops truncatus* Numbers (Low/High/Best): 3 / 3 / 3
Features used in Species ID: Uniform gray, robust, white peduncles

Representative images used for Species ID: 6751, 6755
Photographer: Ryan Frame numbers: 6742 - 6762 Spacer: 6763
Calculated distance from Trackline: 0.50 km

Final Time and Position of Sighting

Time: 15:46 WP#: 59 Lat: 35.765614 Long: -74.841377
Calculated Distance Traveled: 0.59 km

Behavior and Additional Comments

Swimming tail to nose, one belly up

Monday, October 6, 2014 Sighting # 11

Initial sighting on Track

Time: 15:48 WP#: 61 Lat: 35.763615 Long: -74.772734
Vertical Angle: 1 Horizontal Bearing in Degrees: 45 Sighting Cue: Body
On/Off Effort: On Trackline: 40 Beaufort Sea State: 2
Observer: Erin Observer side: Left

Actual Time and Position of Sighting

Time: 15:49 WP#: 62 Lat: 35.768524 Long: -74.770008
Species: *Tursiops truncatus* Numbers (Low/High/Best): 19 / 28 / 25
Features used in Species ID: Uniform gray, robust, white peduncles

Representative images used for Species ID: 6764, 6776, 6780, 6784
Photographer: Ryan Frame numbers: 6764 - 6785 Spacer: 6786
Calculated distance from Trackline: 0.60 km

Final Time and Position of Sighting

Time: 15:50 WP#: 63 Lat: 35.765033 Long: -74.776973
Calculated Distance Traveled: 0.74 km

Behavior and Additional Comments

Large group, spaced out into multiple groups

Monday, October 6, 2014 Sighting # 12

Initial sighting on Track

Time: 15:52 WP#: 65 Lat: 35.764301 Long: -74.722325
Vertical Angle: 3 Horizontal Bearing in Degrees: 90 Sighting Cue: Splash
On/Off Effort: On Trackline: 40 Beaufort Sea State: 2
Observer: Erin Observer side: Left

Actual Time and Position of Sighting

Time: 15:44 WP#: 66 Lat: 35.768950 Long: -74.727308
Species: *Tursiops truncatus* Numbers (Low/High/Best): 19 / 27 / 23
Features used in Species ID: Uniform gray, robust, white peduncles

Representative images used for Species ID: 6788
Photographer: Ryan Frame numbers: 6787 - 6802 Spacer: 6803
Calculated distance from Trackline: 0.69 km

Final Time and Position of Sighting

Time: 15:56 WP#: 67 Lat: 35.763592 Long: -74.716328
Calculated Distance Traveled: 1.16 km

Behavior and Additional Comments

A couple of subgroups

Monday, October 6, 2014 Sighting # 13

Initial sighting on Track

Time: 16:18 WP#: 74 Lat: 35.833682 Long: -74.739678
Vertical Angle: 3 Horizontal Bearing in Degrees: 110 Sighting Cue: Splash
On/Off Effort: On Trackline: 41 Beaufort Sea State: 2
Observer: Ryan Observer side: Right

Actual Time and Position of Sighting

Time: 16:19 WP#: 75 Lat: 35.845395 Long: -74.739520
Species: *Tursiops truncatus* Numbers (Low/High/Best): 40 / 60 / 48
Features used in Species ID: Uniform gray, robust body appearance.

Representative images used for Species ID: 6804, 6805, 6813, 6816, 6819
Photographer: Ryan Frame numbers: 6804 - 6821 Spacer: 6822
Calculated distance from Trackline: 1.30 km

Final Time and Position of Sighting

Time: 16:22 WP#: 76 Lat: 35.848310 Long: -74.731329
Calculated Distance Traveled: 0.81 km

Behavior and Additional Comments

Multiple groups, breaching, splashing, showing some avoidance, fast travel

Tuesday, October 7, 2014 Sighting # 1

Initial sighting on Track

Time: 9:29 WP#: 4 Lat: 35.117907 Long: -75.109235
Vertical Angle: 2 Horizontal Bearing in Degrees: 90 Sighting Cue: Splash
On/Off Effort: On Trackline: 30 Beaufort Sea State: 2
Observer: Erin Observer side: Right

Actual Time and Position of Sighting

Time: 9:31 WP#: 5 Lat: 35.112898 Long: -75.114017
Species: *Tursiops truncatus* Numbers (Low/High/Best): 18 / 20 / 19
Features used in Species ID: Uniform gray coloration, robust body appearance, white peduncles present on some animals.
Representative images used for Species ID: 6824 & 6837
Photographer: Erin Frame numbers: 6823 - 6842 Spacer: 6843
Calculated distance from Trackline: 0.71 km

Final Time and Position of Sighting

Time: 9:35 WP#: 6 Lat: 35.115858 Long: -75.121304
Calculated Distance Traveled: 0.74 km

Behavior and Additional Comments

Lots of subsurface traveling, multiple subgroups, animals rolling and belly to belly swimming

Calf present

Tuesday, October 7, 2014 Sighting # 2

Initial sighting on Track

Time: 10:17 WP#: 12 Lat: 35.260828 Long: -74.965360
Vertical Angle: 2 Horizontal Bearing in Degrees: 100 Sighting Cue: Splash
On/Off Effort: On Trackline: 33 Beaufort Sea State: 2
Observer: Erin Observer side: Right

Actual Time and Position of Sighting

Time: 10:20 WP#: 13 Lat: 35.262031 Long: -74.962463
Species: *Tursiops truncatus* Numbers (Low/High/Best): 5 / 5 / 5
Features used in Species ID: uniform gray coloration, robust body appearance.
Representative images used for Species ID: 6857 & 6861
Photographer: Erin Frame numbers: 6844 - 6867 Spacer: 6868
Calculated distance from Trackline: 0.30 km

Final Time and Position of Sighting

Time: 10:31 WP#: 14 Lat: 35.258736 Long: -74.963126
Calculated Distance Traveled: 0.37 km

Behavior and Additional Comments

Pair of animals first observed then third and fourth animals showed up, white peduncles present.
Lots of subsurface traveling- difficult to photograph.

Tuesday, October 7, 2014 Sighting # 3

Initial sighting on Track

Time: 10:47 WP#: 21 Lat: 35.341900 Long: -74.956121
Vertical Angle: 1 Horizontal Bearing in Degrees: 45 Sighting Cue: Splash
On/Off Effort: On Trackline: 34 Beaufort Sea State: 2
Observer: Erin Observer side: Right

Actual Time and Position of Sighting

Time: 10:48 WP#: 22 Lat: 35.336623 Long: -74.954327
Species: *Tursiops truncatus* Numbers (Low/High/Best): 10 / 12 / 11
Features used in Species ID:

Representative images used for Species ID:
Photographer: Erin Frame numbers: 6869 - 6876 Spacer: 6877
Calculated distance from Trackline: 0.61 km

Final Time and Position of Sighting

Time: 10:52 WP#: 23 Lat: 35.337926 Long: -74.959729
Calculated Distance Traveled: 0.51 km

Behavior and Additional Comments

Scattered fast travel, moving subsurface, two additional groups joined the first.

Tuesday, October 7, 2014 Sighting # 4

Initial sighting on Track

Time: 10:57 WP#: 27 Lat: 35.339975 Long: -74.863113
Vertical Angle: 1 Horizontal Bearing in Degrees: 90 Sighting Cue: Body
On/Off Effort: On Trackline: 34 Beaufort Sea State: 2
Observer: Erin Observer side: Right

Actual Time and Position of Sighting

Time: 10:58 WP#: 28 Lat: 35.341593 Long: -74.862898
Species: *Tursiops truncatus* Numbers (Low/High/Best): 9 / 11 / 10
Features used in Species ID: Uniform gray coloration, robust body appearance, white peduncles present on some of animals.
Representative images used for Species ID: 6879, 6885, 6889
Photographer: Erin Frame numbers: 6878 - 6896 Spacer: 6897
Calculated distance from Trackline: 0.18 km

Final Time and Position of Sighting

Time: 11:01 WP#: 29 Lat: 35.342087 Long: -74.851690
Calculated Distance Traveled: 1.0 km

Behavior and Additional Comments

Tuesday, October 7, 2014 Sighting # 5

Initial sighting on Track

Time: 11:32 WP#: 34 Lat: 35.408195 Long: -74.935486
Vertical Angle: 2 Horizontal Bearing in Degrees: 90 Sighting Cue: Splash
On/Off Effort: On Trackline: 35 Beaufort Sea State: 2
Observer: Ryan Observer side: Left

Actual Time and Position of Sighting

Time: 11:39 WP#: 35 Lat: 35.396552 Long: -74.928698
Species: *Tursiops truncatus* Numbers (Low/High/Best): 5 / 6 / 5
Features used in Species ID: Uniform gray, robust, white peduncles

Representative images used for Species ID:
Photographer: Erin Frame numbers: None Spacer: None
Calculated distance from Trackline: 1.4 km

Final Time and Position of Sighting

Time: 11:40 WP#: 36 Lat: 35.400808 Long: -74.926392
Calculated Distance Traveled: 0.52 km

Behavior and Additional Comments

Small tight group, difficult to relocate after initial observation - no photos.

Tuesday, October 7, 2014 Sighting # 6

Initial sighting on Track

Time: 14:05 WP#: 45 Lat: 36.123144 Long: -74.510901
Vertical Angle: 3 Horizontal Bearing in Degrees: 90 Sighting Cue: Splash
On/Off Effort: Off Trackline: 45 Beaufort Sea State: 2
Observer: Bob Observer side: Right

Actual Time and Position of Sighting

Time: 14:07 WP#: 46 Lat: 36.114337 Long: -74.518623
Species: *Tursiops truncatus* Numbers (Low/High/Best): 4 / 5 / 4
Features used in Species ID: White peduncles.

Representative images used for Species ID: 6903, 6905, 6910, 6918, 6924
Photographer: Erin Frame numbers: 6902 to 6936 Spacer: 6937
Calculated distance from Trackline: 1.2 km

Final Time and Position of Sighting

Time: 14:11 WP#: 47 Lat: 36.112890 Long: -74.517714
Calculated Distance Traveled: 0.18 km

Behavior and Additional Comments

Mixed group with sighting 7.

Tuesday, October 7, 2014 Sighting # 7

Initial sighting on Track

Time: 14:05 WP#: 45 Lat: 36.123144 Long: -74.510901
Vertical Angle: 3 Horizontal Bearing in Degrees: 90 Sighting Cue: Spalsh
On/Off Effort: Off Trackline: 45 Beaufort Sea State: 2
Observer: Bob Observer side: Right

Actual Time and Position of Sighting

Time: 14:07 WP#: 46 Lat: 36.114337 Long: -74.518623
Species: *Globicephala macrorhynchus* Numbers (Low/High/Best): 15 / 20 / 18
Features used in Species ID: Large square head, black body coloration, large dorsal fin placed 1/3 back on animals body.
Representative images used for Species ID: 6903, 6905, 6910, 6918, 6924
Photographer: Erin Frame numbers: 6902 to 6936 Spacer: 6937
Calculated distance from Trackline: 1.2 km

Final Time and Position of Sighting

Time: 14:11 WP#: 47 Lat: 36.112890 Long: -74.517714
Calculated Distance Traveled: 0.18 km

Behavior and Additional Comments

Observed while circling group in sighting 6

Tuesday, October 7, 2014 Sighting # 8

Initial sighting on Track

Time: 14:14 WP#: 49 Lat: 36.123203 Long: -74.421153
Vertical Angle: 2 Horizontal Bearing in Degrees: 110 Sighting Cue: Splash
On/Off Effort: On Trackline: 45 Beaufort Sea State: 2
Observer: Ryan Observer side: Left

Actual Time and Position of Sighting

Time: 14:20 WP#: 51 Lat: 36.136632 Long: -74.424683
Species: *Stenella clymene* Numbers (Low/High/Best): 150 / 200 / 175
Features used in Species ID: Rostrum with white tip followed by dark like that runs down the center of rostrum to base of melon, lighter boarders to dark central line.
Representative images used for Species ID: 6953, 6954, 6958
Photographer: Erin Frame numbers: 6938 - 6972 Spacer: 6973
Calculated distance from Trackline: 1.53 km

Final Time and Position of Sighting

Time: 14:21 WP#: 52 Lat: 36.124269 Long: -74.405285
Calculated Distance Traveled: 2.2 km

Behavior and Additional Comments

Large group, quick travel, mainly subsurface with quick surfacings.

Tuesday, October 7, 2014 Sighting # 9

Initial sighting on Track

Time: 14:27 WP#: 55 Lat: 36.047724 Long: -74.40037
Vertical Angle: 2 Horizontal Bearing in Degrees: 45 Sighting Cue: Body
On/Off Effort: On Trackline: 44 Beaufort Sea State: 2
Observer: Erin Observer side: Right

Actual Time and Position of Sighting

Time: 14:28 WP#: 56 Lat: 36.047983 Long: -74.402421
Species: *Ziphius cavirostris* Numbers (Low/High/Best): 3 / 3 / 3
Features used in Species ID: Light anterior portion of animal with darker body coloration near flukes, small dorsal fin set well back on animals body, small pectoral fins.
Representative images used for Species ID: 6974, 6987, 6988
Photographer: Erin Frame numbers: 6974 - 6992 Spacer: 6993
Calculated distance from Trackline: 0.19 km

Final Time and Position of Sighting

Time: 14:30 WP#: 57 Lat: 36.048287 Long: -74.412134
Calculated Distance Traveled: 0.87 km

Behavior and Additional Comments

A couple quick surfacing then the group was gone.

Tuesday, October 7, 2014 Sighting # 10

Initial sighting on Track

Time: 14:36 WP#: 59 Lat: 36.048223 Long: -74.661121
Vertical Angle: 3 Horizontal Bearing in Degrees: 100 Sighting Cue: Splash
On/Off Effort: On Trackline: 44 Beaufort Sea State: 2
Observer: Ryan Observer side: Left

Actual Time and Position of Sighting

Time: 14:37 WP#: 60 Lat: 36.045670 Long: -74.656272
Species: *Stenella coeruleoalba* Numbers (Low/High/Best): 150 / 170 / 160
Features used in Species ID: White mid-line coloration that continues ventrally. Prominent light blaze from eye region up to level of dorsal fin.
Representative images used for Species ID: 7002, 7009, 7025, 7026
Photographer: Erin Frame numbers: 6994 - 7049 Spacer: 7050
Calculated distance from Trackline: 0.52 km

Final Time and Position of Sighting

Time: 14:42 WP#: 61 Lat: 36.052271 Long: -74.655545
Calculated Distance Traveled: 0.74 km

Behavior and Additional Comments

Big group

Tuesday, October 7, 2014 Sighting # 11

Initial sighting on Track

Time: 14:45 WP#: 63 Lat: 36.048319 Long: -74.760608
Vertical Angle: 2 Horizontal Bearing in Degrees: 90 Sighting Cue: Body
On/Off Effort: On Trackline: 44 Beaufort Sea State: 2
Observer: Erin Observer side: Right

Actual Time and Position of Sighting

Time: 14:48 WP#: 64 Lat: 36.054179 Long: -74.749565
Species: *Globicephala macrorhynchus* Numbers (Low/High/Best): 4 / 4 / 4
Features used in Species ID: Large square head, black body coloration, wide based dorsal fin placed 1/3 back the animals body.
Representative images used for Species ID: 7053
Photographer: Erin Frame numbers: 7051 - 7060 Spacer: 7061
Calculated distance from Trackline: 1.19 km

Final Time and Position of Sighting

Time: 14:51 WP#: 65 Lat: 36.058800 Long: -74.753009
Calculated Distance Traveled: 0.60 km

Behavior and Additional Comments

Tuesday, October 7, 2014 Sighting # 12

Initial sighting on Track

Time: 15:10 WP#: 72 Lat: 35.978772 Long: -74.984192
Vertical Angle: 2 Horizontal Bearing in Degrees: 90 Sighting Cue: Splash
On/Off Effort: On Trackline: 43 Beaufort Sea State: 2
Observer: Erin Observer side: Right

Actual Time and Position of Sighting

Time: 15:15 WP#: 73 Lat: 35.970069 Long: -74.983792
Species: *Tursiops truncatus* Numbers (Low/High/Best): 12 / 15 / 14
Features used in Species ID: Uniform gray coloration, robust body appearance, most animals with white peduncles.
Representative images used for Species ID: 7073, 7074, 7075
Photographer: Erin Frame numbers: 7062 - 7076 Spacer: 7077
Calculated distance from Trackline: 0.97 km

Final Time and Position of Sighting

Time: 15:16 WP#: 74 Lat: 35.971902 Long: -74.984721
Calculated Distance Traveled: 0.22 km

Behavior and Additional Comments

One densely packed group - little travel.

Tuesday, October 7, 2014 Sighting # 13

Initial sighting on Track

Time: 15:22 WP#: 76 Lat: 35.979114 Long: -74.805010
Vertical Angle: 2 Horizontal Bearing in Degrees: 100 Sighting Cue: Splash
On/Off Effort: On Trackline: 43 Beaufort Sea State: 2
Observer: Erin Observer side: Right

Actual Time and Position of Sighting

Time: 15:26 WP#: 77 Lat: 35.973951 Long: -74.801637
Species: *Globicephala macrorhynchus* Numbers (Low/High/Best): 12 / 15 / 13
Features used in Species ID: Blunt head, black body

Representative images used for Species ID: No photos of Gma
Photographer: Erin Frame numbers: 7078 - 7083 Spacer: 7084
Calculated distance from Trackline: 0.65 km

Final Time and Position of Sighting

Time: 15:27 WP#: 78 Lat: 35.968415 Long: -74.808078
Calculated Distance Traveled: 0.85 km

Behavior and Additional Comments

Combo sighting with #14

Tuesday, October 7, 2014 Sighting # 14

Initial sighting on Track

Time: 15:22 WP#: 76 Lat: 35.979114 Long: -74.805010
Vertical Angle: 2 Horizontal Bearing in Degrees: 100 Sighting Cue: Splash
On/Off Effort: Off Trackline: 43 Beaufort Sea State: 2
Observer: Erin Observer side: Right

Actual Time and Position of Sighting

Time: 15:26 WP#: 77 Lat: 35.973951 Long: -74.801637
Species: *Tursiops truncatus* Numbers (Low/High/Best): 6 / 7 / 6
Features used in Species ID: Dark body coloration, robust appearance.

Representative images used for Species ID: 7081
Photographer: Erin Frame numbers: 7078 - 7083 Spacer: 7084
Calculated distance from Trackline: 0.65 km

Final Time and Position of Sighting

Time: 15:27 WP#: 78 Lat: 35.968415 Long: -74.808078
Calculated Distance Traveled: 0.85 km

Behavior and Additional Comments

Combo sighting with #13

Tuesday, October 7, 2014 Sighting # 15

Initial sighting on Track

Time: 15:41 WP#: 81 Lat: 35.959681 Long: -74.313449
Vertical Angle: 2 Horizontal Bearing in Degrees: 90 Sighting Cue: Body
On/Off Effort: Off Trackline: 43 to 41 Beaufort Sea State: 2
Observer: Erin Observer side: Right

Actual Time and Position of Sighting

Time: 15:41 WP#: 81 Lat: 35.959681 Long: -74.313449
Species: *Grampus griseus* Numbers (Low/High/Best): 10 / 12 / 11
Features used in Species ID: Pointed rostrum, with appearance of central cleft, tall falcate dorsal fin, high inter individual color variation due to scarring.
Representative images used for Species ID: 7096, 7099
Photographer: Erin Frame numbers: 7085 - 7105 Spacer: 7106
Calculated distance from Trackline: NA

Final Time and Position of Sighting

Time: NA WP#: NA Lat: NA Long: NA
Calculated Distance Traveled: NA

Behavior and Additional Comments

Tuesday, October 7, 2014 Sighting # 16

Initial sighting on Track

Time: 16:00 WP#: 84 Lat: 35.833557 Long: -74.778320
Vertical Angle: 1 Horizontal Bearing in Degrees: 90 Sighting Cue: Body
On/Off Effort: On Trackline: 41 Beaufort Sea State: 1
Observer: Ryan Observer side: Left

Actual Time and Position of Sighting

Time: 16:07 WP#: 85 Lat: 35.838749 Long: -74.768829
Species: *Tursiops truncatus* Numbers (Low/High/Best): 15 / 20 / 18
Features used in Species ID: Uniform gray coloration, robust body appearance, some individuals with white peduncle coloration.
Representative images used for Species ID: 7117
Photographer: Erin Frame numbers: 7107 - 7131 Spacer: 7132
Calculated distance from Trackline: 1.03 km

Final Time and Position of Sighting

Time: 16:08 WP#: 86 Lat: 35.838570 Long: -74.774780
Calculated Distance Traveled: 0.54 km

Behavior and Additional Comments

Animals dove and were not relocated for ~5 minutes. White peduncles present on some animals.

Tuesday, October 7, 2014 Sighting # 17

Initial sighting on Track

Time: 16:10 WP#: 88 Lat: 35.833434 Long: -74.857368
Vertical Angle: 2 Horizontal Bearing in Degrees: 90 Sighting Cue: Splash
On/Off Effort: On Trackline: 41 Beaufort Sea State: 1
Observer: Erin Observer side: Right

Actual Time and Position of Sighting

Time: 16:11 WP#: 89 Lat: 35.841045 Long: -74.860159
Species: *Globicephala macrorhynchus* Numbers (Low/High/Best): 6 / 6 / 6
Features used in Species ID: Large square head, black body coloration, large dorsal fin placed 1/3 back the animals body.
Representative images used for Species ID: 7152, 7155
Photographer: Erin Frame numbers: 7133 - 7158 Spacer: 7159
Calculated distance from Trackline: 0.88 km

Final Time and Position of Sighting

Time: 16:14 WP#: 90 Lat: 35.842369 Long: -74.855211
Calculated Distance Traveled: 0.47 km

Behavior and Additional Comments

Tuesday, October 7, 2014 Sighting # 18

Initial sighting on Track

Time: 16:10 WP#: 88 Lat: 35.833434 Long: -74.857368
Vertical Angle: 2 Horizontal Bearing in Degrees: 90 Sighting Cue: Splash
On/Off Effort: Off Trackline: 41 Beaufort Sea State: 1
Observer: Erin Observer side: Right

Actual Time and Position of Sighting

Time: 16:11 WP#: 89 Lat: 35.841045 Long: -74.860159
Species: *Tursiops truncatus* Numbers (Low/High/Best): 7 / 7 / 7
Features used in Species ID: Uniform gray coloration, robust body appearance, one animal with white peduncle coloration.
Representative images used for Species ID: 7138
Photographer: Erin Frame numbers: 7133 - 7158 Spacer: 7159
Calculated distance from Trackline: 0.88 km

Final Time and Position of Sighting

Time: 16:14 WP#: 90 Lat: 35.842369 Long: -74.855211
Calculated Distance Traveled: 0.47 km

Behavior and Additional Comments

Wednesday, December 3, 2014 Sighting # 1

Initial sighting on Track

Time: 13:47 WP#: 9 Lat: 35.480310 Long: -74.786721
Vertical Angle: 1 Horizontal Bearing in Degrees: 90 Sighting Cue: Splash
On/Off Effort: On Trackline: 36 Beaufort Sea State: 2
Observer: Erin Observer side: Left

Actual Time and Position of Sighting

Time: 13:49 WP#: 10 Lat: 35.482830 Long: -74.796031
Species: *Tursiops truncatus* Numbers (Low/High/Best): 7/12/10
Features used in Species ID: Uniform gray, white peduncles, robust

Representative images used for Species ID: 7337, 7339, 7341, 7344
Photographer: Ryan Frame numbers: 7330 - 7347 Spacer: 7348
Calculated distance from Trackline: 0.89 km

Final Time and Position of Sighting

Time: 13:52 WP#: 11 Lat: 35.487824 Long: -74.777607
Calculated Distance Traveled: 1.76 km

Behavior and Additional Comments

tight group, breaching

Wednesday, December 3, 2014 Sighting # 2

Initial sighting on Track

Time: 13:55 WP#: 13 Lat: 35.480941 Long: -74.651206
Vertical Angle: 1 Horizontal Bearing in Degrees: 90 Sighting Cue: Body
On/Off Effort: On Trackline: 36 Beaufort Sea State: 2
Observer: Erin Observer side: Left

Actual Time and Position of Sighting

Time: 13:58 WP#: 14 Lat: 35.482990 Long: -74.657102
Species: *Tursiops truncatus* Numbers (Low/High/Best): 5/10/8
Features used in Species ID: Uniform gray, robust, white peduncles

Representative images used for Species ID: 7349
Photographer: Ryan Frame numbers: 7349 - 7349 Spacer: 7350
Calculated distance from Trackline: 0.58 km

Final Time and Position of Sighting

Time: 14:05 WP#: 15 Lat: 35.490994 Long: -74.645855
Calculated Distance Traveled: 1.35 km

Behavior and Additional Comments

Traveling fast just below the surface, staying in pairs

Wednesday, December 3, 2014 Sighting # 3

Initial sighting on Track

Time: 14:28 WP#: 23 Lat: 35.411723 Long: -74.787013
Vertical Angle: 1 Horizontal Bearing in Degrees: 100 Sighting Cue: Body
On/Off Effort: On Trackline: 35 Beaufort Sea State: 3
Observer: Erin Observer side: Left

Actual Time and Position of Sighting

Time: N/A WP#: N/A Lat: N/A Long: N/A
Species: *Unidentified Mesoplodon* Numbers (Low/High/Best): 1 / 1 / 1
Features used in Species ID: Long body, short pectorals, dorsal fin set way back on body

Representative images used for Species ID: N/A
Photographer: Ryan Frame numbers: N/A Spacer: N/A
Calculated distance from Trackline: N/A

Final Time and Position of Sighting

Time: 14:36 WP#: 24 Lat: 35.408420 Long: -74.793461
Calculated Distance Traveled: N/A

Behavior and Additional Comments

No resight

Wednesday, December 3, 2014 Sighting # 4

Initial sighting on Track

Time: N/A WP#: N/A Lat: N/A Long: N/A
Vertical Angle: N/ Horizontal Bearing in Degrees: N/A Sighting Cue: Splash
On/Off Effort: Off Trackline: 35 Beaufort Sea State: 3
Observer: Erin Observer side: Left

Actual Time and Position of Sighting

Time: 14:40 WP#: 25 Lat: 35.423764 Long: -74.779659
Species: *Tursiops truncatus* Numbers (Low/High/Best): 10 / 15 / 12
Features used in Species ID: Uniform gray, robust, white peduncles

Representative images used for Species ID: 7355, 7357, 7359, 7361
Photographer: Ryan Frame numbers: 7351 - 7366 Spacer: 7367
Calculated distance from Trackline: N/A

Final Time and Position of Sighting

Time: 14:45 WP#: 26 Lat: 35.439733 Long: -74.785834
Calculated Distance Traveled: 1.86 km

Behavior and Additional Comments

Lots of splashing and breaching

Wednesday, December 3, 2014 Sighting # 5

Initial sighting on Track

Time: 14:48 WP#: 29 Lat: 35.409423 Long: -74.901268
Vertical Angle: 3 Horizontal Bearing in Degrees: 100 Sighting Cue: Splash
On/Off Effort: On Trackline: 35 Beaufort Sea State: 2
Observer: Erin Observer side: Left

Actual Time and Position of Sighting

Time: 14:51 WP#: 30 Lat: 35.392593 Long: -74.899244
Species: *Tursiops truncatus* Numbers (Low/High/Best): 25 / 35 / 30
Features used in Species ID: Uniform gray, robust, white peduncles

Representative images used for Species ID: 7399, 7400, 7401
Photographer: Ryan Frame numbers: 7368 - 7402 Spacer: 7403
Calculated distance from Trackline: 1.88 km

Final Time and Position of Sighting

Time: 14:54 WP#: 31 Lat: 35.397156 Long: -74.892137
Calculated Distance Traveled: 0.82 km

Behavior and Additional Comments

2 groups, lots of breaching, staying tight within the group

Wednesday, December 3, 2014 Sighting # 6

Initial sighting on Track

Time: 15:10 WP#: 37 Lat: 35.340589 Long: -74.925931
Vertical Angle: 2 Horizontal Bearing in Degrees: 90 Sighting Cue: Body
On/Off Effort: On Trackline: 34 Beaufort Sea State: 2
Observer: Erin Observer side: Left

Actual Time and Position of Sighting

Time: 15:11 WP#: 38 Lat: 35.342983 Long: -74.930861
Species: *Tursiops truncatus* Numbers (Low/High/Best): 7 / 10 / 8
Features used in Species ID: Uniform gray, robust, white peduncles

Representative images used for Species ID: 7406, 7408, 7409
Photographer: Ryan Frame numbers: 7404 - 7409 Spacer: 7410
Calculated distance from Trackline: 0.52 km

Final Time and Position of Sighting

Time: 15:13 WP#: 39 Lat: 35.346484 Long: -74.924807
Calculated Distance Traveled: 0.67 km

Behavior and Additional Comments

Traveling subsurface, dove deep when we flew over, white peduncles

Wednesday, December 3, 2014 Sighting # 7

Initial sighting on Track

Time: 15:15 WP#: 41 Lat: 35.341106 Long: -74.861526
Vertical Angle: 2 Horizontal Bearing in Degrees: 90 Sighting Cue: Body
On/Off Effort: On Trackline: 34 Beaufort Sea State: 2
Observer: Erin Observer side: Left

Actual Time and Position of Sighting

Time: N/A WP#: N/A Lat: N/A Long: N/A
Species: *Unidentified Delphinid* Numbers (Low/High/Best): 2 / 2 / 2
Features used in Species ID: N/A

Representative images used for Species ID: N/A
Photographer: Ryan Frame numbers: N/A Spacer: N/A
Calculated distance from Trackline: N/A

Final Time and Position of Sighting

Time: 15:21 WP#: 42 Lat: 35.334056 Long: -74.861528
Calculated Distance Traveled: N/A

Behavior and Additional Comments

No resight, not photos, a pair of animals, white peduncles

Wednesday, December 3, 2014 Sighting # 8

Initial sighting on Track

Time: 15:29 WP#: 44 Lat: 35.340513 Long: -74.549761
Vertical Angle: 1 Horizontal Bearing in Degrees: 90 Sighting Cue: Splash
On/Off Effort: On Trackline: 34 Beaufort Sea State: 2
Observer: Erin Observer side: Left

Actual Time and Position of Sighting

Time: 15:31 WP#: 45 Lat: 35.342167 Long: -74.554054
Species: *Tursiops truncatus* Numbers (Low/High/Best): 35 / 50 / 45
Features used in Species ID: Uniform gray, robust, white peduncles

Representative images used for Species ID: 7425, 7426
Photographer: Ryan Frame numbers: 7411 - 7430 Spacer: 7431
Calculated distance from Trackline: 0.43 km

Final Time and Position of Sighting

Time: 15:35 WP#: 46 Lat: 35.344833 Long: -74.544292
Calculated Distance Traveled: 0.93 km

Behavior and Additional Comments

Large group, 1-3 body lengths from each other, white peduncles, traveling West

Monday, December 15, 2014 Sighting # 1

Initial sighting on Track

Time: 13:00 WP#: 4 Lat: 35.480102 Long: -74.979639
Vertical Angle: 2 Horizontal Bearing in Degrees: 80 Sighting Cue: Splash
On/Off Effort: On Trackline: 36 Beaufort Sea State: 2
Observer: Sarah Observer side: Left

Actual Time and Position of Sighting

Time: 13:01 WP#: 5 Lat: 35.483773 Long: -74.985981
Species: *Tursiops truncatus* Numbers (Low/High/Best): 12 / 18 / 15
Features used in Species ID: Robust body appearance, uniform grey coloration cranial to d fin, white coloration over peduncle.
Representative images used for Species ID: 7479, 7482, 7486, 7488
Photographer: Ryan Frame numbers: 7475 - 7492 Spacer: 7493
Calculated distance from Trackline: 0.70 km

Final Time and Position of Sighting

Time: 13:04 WP#: 6 Lat: 35.487761 Long: -74.976016
Calculated Distance Traveled: 1.0 km

Behavior and Additional Comments

Slow travel, in multiple groups

Monday, December 15, 2014 Sighting # 2

Initial sighting on Track

Time: 13:08 WP#: 9 Lat: 35.482191 Long: -74.804827
Vertical Angle: 2 Horizontal Bearing in Degrees: 70 Sighting Cue: Splash
On/Off Effort: On Trackline: 36 Beaufort Sea State: 2
Observer: Sarah Observer side: Left

Actual Time and Position of Sighting

Time: 13:11 WP#: 10 Lat: 35.49704 Long: -74.803593
Species: *Tursiops truncatus* Numbers (Low/High/Best): 10 / 12 / 11
Features used in Species ID: Robust body appearance, grey coloration and white peduncle patch.
Representative images used for Species ID: 7494 - 7496
Photographer: Ryan Frame numbers: 7494 - 7503 Spacer: 7504
Calculated distance from Trackline: 1.66 km

Final Time and Position of Sighting

Time: 13:13 WP#: 11 Lat: 35.498596 Long: -74.797861
Calculated Distance Traveled: 0.54 km

Behavior and Additional Comments

Moderate rate of travel, at least two calves present.

Monday, December 15, 2014 Sighting # 3

Initial sighting on Track

Time: 13:37 WP#: 16 Lat: 35.552125 Long: -74.742452
Vertical Angle: 2 Horizontal Bearing in Degrees: 60 Sighting Cue: Splash
On/Off Effort: On Trackline: 37 Beaufort Sea State: 3
Observer: Ryan Observer side: Right

Actual Time and Position of Sighting

Time: 13:38 WP#: 17 Lat: 35.558677 Long: -74.746475
Species: *Tursiops truncatus* Numbers (Low/High/Best): 12 / 15 / 13
Features used in Species ID: Robust body appearance, small rostrum, uniform grey coloration.

Representative images used for Species ID: 7505, 7506
Photographer: Ryan Frame numbers: 7505 - 7516 Spacer: 7517
Calculated distance from Trackline: 0.81 km

Final Time and Position of Sighting

Time: 13:42 WP#: 18 Lat: 35.557004 Long: -74.736451
Calculated Distance Traveled: 0.93 km

Behavior and Additional Comments

Loosely disperse group.

Monday, December 15, 2014 Sighting # 4

Initial sighting on Track

Time: 14:01 WP#: 23 Lat: 35.620395 Long: -74.96031
Vertical Angle: 2 Horizontal Bearing in Degrees: 45 Sighting Cue: Splash
On/Off Effort: On Trackline: 38 Beaufort Sea State: 5
Observer: Ryan Observer side: Right

Actual Time and Position of Sighting

Time: 14:02 WP#: 24 Lat: 35.612414 Long: -74.953734
Species: *Stenella frontalis* Numbers (Low/High/Best): 25 / 27 / 30
Features used in Species ID: White tip to rostrum, some animals with spotting pattern along lateral surface of body.

Representative images used for Species ID: 7533, 7534, 7539, 7541, 7551
Photographer: Ryan Frame numbers: 7518 - 7556 Spacer: 7557
Calculated distance from Trackline: 1.1 km

Final Time and Position of Sighting

Time: 14:06 WP#: 25 Lat: 35.61178 Long: -74.950969
Calculated Distance Traveled: 0.26 km

Behavior and Additional Comments

Looked dark in lighter water, group milling then fast travel.

Monday, December 15, 2014 Sighting # 5

Initial sighting on Track

Time: 14:09 WP#: 27 Lat: 35.620373 Long: -74.820784
Vertical Angle: 2 Horizontal Bearing in Degrees: 90 Sighting Cue: Splash
On/Off Effort: On Trackline: 38 Beaufort Sea State: 2
Observer: Ryan Observer side: Right

Actual Time and Position of Sighting

Time: 14:10 WP#: 28 Lat: 35.612007 Long: -74.818964
Species: *Stenella frontalis* Numbers (Low/High/Best): 150 / 250 / 225
Features used in Species ID: White tip to rostrum, light blaze from eye region to region of d fin no spotting observed.
Representative images used for Species ID: 7558 - 7560
Photographer: Ryan Frame numbers: 7558 - 7618 Spacer: 7619
Calculated distance from Trackline: 0.94 km

Final Time and Position of Sighting

Time: 14:18 WP#: 29 Lat: 35.604456 Long: -74.80639
Calculated Distance Traveled: 1.41 km

Behavior and Additional Comments

Very large group of smaller sized dolphins, lots of splashing at the surface. Lots of sub groups of 25 to 35 individuals - all showing fast travel with rapid surfacings. Sighting 6 & 7 were observed in among Sighting 5 animals but showed little "association"

Monday, December 15, 2014 Sighting # 6

Initial sighting on Track

Time: 14:09 WP#: 27 Lat: 35.620373 Long: -74.820784
Vertical Angle: 2 Horizontal Bearing in Degrees: 90 Sighting Cue: Splash
On/Off Effort: Off Trackline: 38 Beaufort Sea State: 2
Observer: Ryan Observer side: Right

Actual Time and Position of Sighting

Time: 14:10 WP#: 28 Lat: 35.612007 Long: -74.818964
Species: *Globicephala macrorhynchus* Numbers (Low/High/Best): 12 / 15 / 14
Features used in Species ID: Large black bodied animals, square head, broad based dorsal fin placed 1/3 back the animals body.
Representative images used for Species ID: 7568, 7569
Photographer: Ryan Frame numbers: 7568, 7569 Spacer: NA
Calculated distance from Trackline: 0.94 km

Final Time and Position of Sighting

Time: 14:18 WP#: 29 Lat: 35.604456 Long: -74.80639
Calculated Distance Traveled: 1.41 km

Behavior and Additional Comments

Two tightly packed groups observed in among sighting 5.

Monday, December 15, 2014 Sighting # 7

Initial sighting on Track

Time: 14:09 WP#: 27 Lat: 35.620373 Long: -74.820784
Vertical Angle: 2 Horizontal Bearing in Degrees: 90 Sighting Cue: Splash
On/Off Effort: Off Trackline: 38 Beaufort Sea State: 2
Observer: Ryan Observer side: Right

Actual Time and Position of Sighting

Time: 14:10 WP#: 28 Lat: 35.612007 Long: -74.818964
Species: *Tursiops truncatus* Numbers (Low/High/Best): 28 / 32 / 30
Features used in Species ID: Robust body appearance, larger than other animals in sighting 5.
White peduncle coloration present.
Representative images used for Species ID: 7570, 7571
Photographer: Ryan Frame numbers: 7570 - 7574 Spacer: 7575
Calculated distance from Trackline: 0.94 km

Final Time and Position of Sighting

Time: 14:18 WP#: 29 Lat: 35.604456 Long: -74.80639
Calculated Distance Traveled: 1.41 km

Behavior and Additional Comments

Mixed in with sighting 5 animals.