

Appendix E

Hatteras/Onslow Bay/JAX Monthly Progress Reports

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Monitoring of Protected Species in the Hatteras, Onslow and JAX Sites Progress Report to HDR: August 1 2011 through August 31 2011

Hatteras Aerial Survey Activity

No aerial surveys were conducted this month in the Hatteras survey area.

Aerial Survey Days Conducted at Hatteras = 0 days

Onslow Bay Vessel Activity

A vessel survey was conducted on 11 August 2011 in a Beaufort Sea State 2 to 4 (Table 1). No cetaceans or sea turtles were observed while on effort.

Vessel Survey Days Conducted at Onslow Bay = 1 day

Onslow Bay HARP

Two HARPs were recovered on June 10, 2011 and one was redeployed during this reporting period on August 18, 2011 at 33.77794N, -75.92641W (952m depth) (Table 2, Figure 1). The recovered instrument had recorded for the duration of the deployment and the data are currently being processed.

JAX Aerial Survey Activity

Over the course of two days the aerial survey team flew two complete sets of tracklines (20 in total with a third day for transit) under good conditions (Table 3). Sightings of cetaceans and sea turtles were high on both days despite a slight decline in survey conditions in the afternoon of the second day. On August 17th survey conditions were very good with a BSS 1 dominating the morning lines with only a slight increase to a BSS 2 in the afternoon. A total of 14 cetacean sightings were made of three species as well as one sighting of an unidentified cetacean (Table 4, Figure 2). The most frequently observed cetacean were bottlenose dolphins (*Tursiops truncatus*) with 10 sightings for 69 individuals – group sizes of this species ranged from small groups below ten individuals to medium sized groups of ~24 animals. We recorded two sightings of spotted dolphins (*Stenella frontalis*) and one sighting of a group of four Risso's dolphin (*Grampus griseus*) seen in the far offshore portion of the range. Finally a single animal approximately 6-8m in length and uniformly light grey in coloration was seen on the inshore end of trackline 3. It was initially observed logging at the surface taking a series of breaths before diving out of sight – no images were collected. A large number of sea turtles were also encountered on the 17th with loggerheads (*Caretta caretta*) dominating the sightings and four leatherbacks (*Dermochelys coriacea*) also being recorded (Table 5, Figure 3).

On the 18th survey conditions were moderate to good which resulted in 13 cetacean sightings as well as 70 turtle sightings. Again bottlenose dolphins dominated the sightings with 6 encounters for 79 individuals, followed by spotted dolphins with 4 encounters for 58 animals. A single sighting of short-finned pilot whales (*Globicephala macrorhynchus*) was observed on the offshore end of trackline 2. There was also a single sighting of a pair of dolphins that were unable to be relocated and are labeled here as unidentified delphinids (Table 4, Figure 2). Again, loggerheads scattered throughout the range dominated the turtle sightings, but we did encounter four leatherback turtles (*Dermochelys coriacea*) just west of the shelf break (Table 5, Figure 3).

Aerial Survey Days Conducted at JAX = 2 days

Jacksonville Vessel Survey Activity

A vessel survey was scheduled for August 22 - 26, 2011 in the JAX field site but was canceled due to an impending hurricane.

Vessel Survey Days Conducted at JAX = 0 days

Jacksonville HARP

A HARP redeployment was attempted on August 23, 2011 for the offshore site A, 30.28333N, 80.21666W (85m depth) but was aborted during transit due to unfavorable weather conditions.

Table 1. Vessel survey effort table for the Onslow Bay study area for August 2011.

Date	Sea State	Km surveyed	Survey Time (hrs:min)	At Sea Time	Platform
1-Jul-11	2 to 3	102.0	6:11	11:00	Sensation

Table 2. HARP deployment for the Onslow Bay study area for August 2011

Site	Deployment Date	Retrieval Date	Latitude	Longitude	Depth	Sampling Rate	Duty Cycle	Amount of Data
Onslow E	18-Aug-11	n/a	33.77794	-75.92641	952m	200 kHz	5-min on/5-min off	2 TB

Table 3. Aerial survey effort table for the Jacksonville study area for August 2011.

Date	Line	Sea State	Kilometers Flown	HOBBS Hours
17-Aug-2011	10	0 to 2	83.3	8.1
17-Aug-2011	9	1 to 2	84.3	
17-Aug-2011	8	1 to 2	87.6	
17-Aug-2011	7	1 to 2	85.3	
17-Aug-2011	6	1 to 2	85.9	
17-Aug-2011	5	1 to 2	86.5	
17-Aug-2011	4	2	84.9	
17-Aug-2011	3	2	87.1	
17-Aug-2011	2	2 to 3	83.7	
17-Aug-2011	1	2 to 3	85.4	
18-Aug-2011	1	1 to 2	86.7	7.4
18-Aug-2011	2	2 to 3	71.0	
18-Aug-2011	3	2 to 3	83.3	
18-Aug-2011	4	2 to 3	85.9	
18-Aug-2011	5	2 to 4	85.9	
18-Aug-2011	6	2 to 3	72.2	
18-Aug-2011	7	2 to 3	75.7	
18-Aug-2011	8	2 to 3	65.9	
18-Aug-2011	9	2 to 4	83.4	
18-Aug-2011	10	2 to 4	84.0	

Table 4. Cetacean sightings for aerial surveys in Jacksonville study area for August 2011.

Date	Time	On/Off Effort	Latitude	Longitude	Track Number	Species	Common Name	Group Size
17-Aug-11	8:54	On	30.567801	-80.653477	10	T. truncatus	Bottlenose dolphin	15
17-Aug-11	9:04	On	30.566900	-80.599104	10	S. frontalis	Spotted dolphin	17
17-Aug-11	9:11	On	30.574196	-80.472735	10	T. truncatus	Bottlenose dolphin	15
17-Aug-11	9:44	On	30.503179	-79.850363	9	G. griseus	Risso's dolphin	4
17-Aug-11	10:01	On	30.491920	-80.271451	9	T. truncatus	Bottlenose dolphin	2
17-Aug-11	10:21	On	30.499007	-80.685826	9	T. truncatus	Bottlenose dolphin	1
17-Aug-11	11:23	On	30.357457	-80.446147	7	S. frontalis	Spotted dolphin	18
17-Aug-11	13:59	On	30.171744	-80.678577	4	T. truncatus	Bottlenose dolphin	4
17-Aug-11	14:07	On	30.168431	-80.535960	4	T. truncatus	Bottlenose dolphin	9
17-Aug-11	14:32	On	30.161176	-80.024868	4	T. truncatus	Bottlenose dolphin	6
17-Aug-11	15:14	On	30.031953	-80.683372	2	Unid. Cetacean	Unid. Cetacean	1
17-Aug-11	15:34	On	30.025702	-80.486462	2	T. truncatus	Bottlenose dolphin	3
17-Aug-11	15:58	On	30.029594	-80.027030	2	T. truncatus	Bottlenose dolphin	4
17-Aug-11	16:19	On	29.967220	-80.009970	1	T. truncatus	Bottlenose dolphin	10
18-Aug-11	9:33	On	30.028955	-79.930610	2	G. macrorhynchus	Short-finned pilot whale	13
18-Aug-11	9:44	On	30.029663	-80.070879	2	T. truncatus	Bottlenose dolphin	24
18-Aug-11	10:01	On	30.033624	-80.477832	2	S. frontalis	Spotted dolphin	17
18-Aug-11	10:28	On	30.101288	-80.240282	3	Unid. Delphinid	Unid. Delphinid	2
18-Aug-11	10:42	On	30.110885	-80.022385	3	T. truncatus	Bottlenose dolphin	10
18-Aug-11	12:18	On	30.302488	-80.525608	6	S. frontalis	Spotted dolphin	12
18-Aug-11	14:12	On	30.391684	-80.202370	7	S. frontalis	Spotted dolphin	28
18-Aug-11	14:40	On	30.436006	-80.331779	8	S. frontalis	Spotted dolphin	10
18-Aug-11	15:08	On	30.500294	-80.498198	9	T. truncatus	Bottlenose dolphin	3
18-Aug-11	15:16	On	30.497217	-80.309981	9	T. truncatus	Bottlenose dolphin	16
18-Aug-11	15:54	On	30.562645	-80.494513	10	T. truncatus	Bottlenose dolphin	8
18-Aug-11	16:02	On	30.557425	-80.547583	10	T. truncatus	Bottlenose dolphin	18
18-Aug-11	16:09	On	30.567225	-80.592630	10	S. frontalis	Spotted dolphin	8

Table 5. Sea turtle sightings for aerial surveys in Jacksonville study area for August 2011.

Date	Time	On/Off Effort	Latitude	Longitude	Track Number	Species	Common Name	Group Size
17-Aug-11	9:06	On	30.565881	-80.585782	10	C. caretta	Loggerhead sea turtle	3
17-Aug-11	9:09	On	30.568741	-80.488367	10	C. caretta	Loggerhead sea turtle	2
17-Aug-11	9:15	On	30.563146	-80.437980	10	C. caretta	Loggerhead sea turtle	1
17-Aug-11	9:57	On	30.499239	-80.186864	9	C. caretta	Loggerhead sea turtle	1
17-Aug-11	10:06	On	30.501027	-80.349122	9	C. caretta	Loggerhead sea turtle	1
17-Aug-11	10:06	On	30.500888	-80.355941	9	C. caretta	Loggerhead sea turtle	2
17-Aug-11	10:08	On	30.499303	-80.435222	9	C. caretta	Loggerhead sea turtle	1
17-Aug-11	10:13	On	30.499601	-80.613717	9	C. caretta	Loggerhead sea turtle	2
17-Aug-11	10:28	On	30.432504	-80.635589	8	C. caretta	Loggerhead sea turtle	3
17-Aug-11	10:29	On	30.432474	-80.628287	8	C. caretta	Loggerhead sea turtle	1
17-Aug-11	10:34	On	30.434456	-80.450754	8	C. caretta	Loggerhead sea turtle	2
17-Aug-11	10:34	On	30.435008	-80.426299	8	C. caretta	Loggerhead sea turtle	1
17-Aug-11	11:27	On	30.365777	-80.557872	7	C. caretta	Loggerhead sea turtle	1
17-Aug-11	11:35	On	30.300873	-80.658987	6	C. caretta	Loggerhead sea turtle	1
17-Aug-11	12:24	On	30.229886	-80.600048	5	C. caretta	Loggerhead sea turtle	1
17-Aug-11	12:26	On	30.230205	-80.685807	5	C. caretta	Loggerhead sea turtle	1
17-Aug-11	14:05	On	30.167096	-80.558009	4	C. caretta	Loggerhead sea turtle	1
17-Aug-11	14:15	On	30.168099	-80.453457	4	C. caretta	Loggerhead sea turtle	2
17-Aug-11	14:16	On	30.167820	-80.427686	4	C. caretta	Loggerhead sea turtle	3
17-Aug-11	14:59	On	30.096845	-80.302581	3	C. caretta	Loggerhead sea turtle	1
17-Aug-11	15:03	On	30.104058	-80.425937	3	C. caretta	Loggerhead sea turtle	4
17-Aug-11	15:05	On	30.102558	-80.517492	3	C. caretta	Loggerhead sea turtle	2
17-Aug-11	15:08	On	30.097777	-80.616981	3	C. caretta	Loggerhead sea turtle	3
17-Aug-11	15:27	On	30.032429	-80.677258	2	C. caretta	Loggerhead sea turtle	1
17-Aug-11	15:29	On	30.033600	-80.603071	2	C. caretta	Loggerhead sea turtle	3
17-Aug-11	15:30	On	30.033939	-80.593851	2	C. caretta	Loggerhead sea turtle	1
17-Aug-11	15:32	On	30.033809	-80.514284	2	C. caretta	Loggerhead sea turtle	1
17-Aug-11	15:47	On	30.033285	-80.381384	2	C. caretta	Loggerhead sea turtle	1
17-Aug-11	16:31	On	29.965288	-80.333939	1	C. caretta	Loggerhead sea turtle	3
17-Aug-11	16:36	On	29.964796	-80.515443	1	C. caretta	Loggerhead sea turtle	3
17-Aug-11	16:38	On	29.966710	-80.568780	1	C. caretta	Loggerhead sea turtle	1
17-Aug-11	14:23	On	30.165547	-80.199566	4	D. coriacea	Leatherback sea turtle	1
17-Aug-11	14:56	On	30.094358	-80.180583	3	D. coriacea	Leatherback sea turtle	1
17-Aug-11	16:26	On	29.964671	-80.150416	1	D. coriacea	Leatherback sea turtle	1
17-Aug-11	16:33	On	29.962540	-80.384560	1	D. coriacea	Leatherback sea turtle	1
17-Aug-11	11:44	On	30.300001	-80.346473	6	Unid. Sea turtle	Unid. Sea turtle	1
18-Aug-11	9:04	On	29.963450	-80.565897	1	C. caretta	Loggerhead sea turtle	3
18-Aug-11	9:04	On	29.963379	-80.563167	1	C. caretta	Loggerhead sea turtle	1
18-Aug-11	9:08	On	29.967366	-80.421225	1	C. caretta	Loggerhead sea turtle	2
18-Aug-11	9:10	On	29.970272	-80.348470	1	C. caretta	Loggerhead sea turtle	1
18-Aug-11	9:11	On	29.970764	-80.322390	1	C. caretta	Loggerhead sea turtle	3

Table 5 (continued). Sea turtle sightings for aerial surveys in Jacksonville study area for August 2011.

Date	Time	On/Off Effort	Latitude	Longitude	Track Number	Species	Common Name	Group Size
18-Aug-11	9:57	On	30.031406	-80.384422	2	C. caretta	Loggerhead sea turtle	2
18-Aug-11	9:57	On	30.031338	-80.364304	2	C. caretta	Loggerhead sea turtle	1
18-Aug-11	10:09	On	30.031369	-80.576541	2	C. caretta	Loggerhead sea turtle	4
18-Aug-11	10:09	On	30.030599	-80.583251	2	C. caretta	Loggerhead sea turtle	1
18-Aug-11	10:11	On	30.028927	-80.639644	2	C. caretta	Loggerhead sea turtle	1
18-Aug-11	10:17	On	30.096113	-80.665818	3	C. caretta	Loggerhead sea turtle	3
18-Aug-11	10:20	On	30.103202	-80.538321	3	C. caretta	Loggerhead sea turtle	2
18-Aug-11	10:22	On	30.104325	-80.484565	3	C. caretta	Loggerhead sea turtle	1
18-Aug-11	11:10	On	30.168182	-80.330197	4	C. caretta	Loggerhead sea turtle	1
18-Aug-11	11:13	On	30.164358	-80.416435	4	C. caretta	Loggerhead sea turtle	3
18-Aug-11	11:13	On	30.163268	-80.430200	4	C. caretta	Loggerhead sea turtle	1
18-Aug-11	11:16	On	30.163628	-80.541499	4	C. caretta	Loggerhead sea turtle	2
18-Aug-11	11:19	On	30.166326	-80.630271	4	C. caretta	Loggerhead sea turtle	3
18-Aug-11	11:26	On	30.231150	-80.621084	5	C. caretta	Loggerhead sea turtle	2
18-Aug-11	11:27	On	30.231647	-80.604949	5	C. caretta	Loggerhead sea turtle	2
18-Aug-11	12:11	On	30.301314	-80.489350	6	C. caretta	Loggerhead sea turtle	1
18-Aug-11	13:59	On	30.369864	-80.618647	7	C. caretta	Loggerhead sea turtle	1
18-Aug-11	14:01	On	30.370584	-80.532780	7	C. caretta	Loggerhead sea turtle	1
18-Aug-11	14:02	On	30.370532	-80.482387	7	C. caretta	Loggerhead sea turtle	3
18-Aug-11	14:05	On	30.370071	-80.372267	7	C. caretta	Loggerhead sea turtle	3
18-Aug-11	14:37	On	30.433621	-80.251964	8	C. caretta	Loggerhead sea turtle	1
18-Aug-11	14:47	On	30.435587	-80.406547	8	C. caretta	Loggerhead sea turtle	2
18-Aug-11	14:47	On	30.435629	-80.408666	8	C. caretta	Loggerhead sea turtle	1
18-Aug-11	14:52	On	30.432343	-80.591836	8	C. caretta	Loggerhead sea turtle	1
18-Aug-11	14:54	On	30.431213	-80.657758	8	C. caretta	Loggerhead sea turtle	2
18-Aug-11	15:04	On	30.500667	-80.512825	9	C. caretta	Loggerhead sea turtle	1
18-Aug-11	15:13	On	30.500630	-80.364348	9	C. caretta	Loggerhead sea turtle	2
18-Aug-11	15:52	On	30.566069	-80.473927	10	C. caretta	Loggerhead sea turtle	3
18-Aug-11	15:52	On	30.566310	-80.462781	10	C. caretta	Loggerhead sea turtle	2
18-Aug-11	16:08	On	30.567230	-80.583904	10	C. caretta	Loggerhead sea turtle	2
18-Aug-11	11:27	On	30.231816	-80.599948	5	D. coriacea	Leatherback sea turtle	1
18-Aug-11	9:07	On	29.965274	-80.460184	1	D. coriacea	Leatherback sea turtle	1
18-Aug-11	9:10	On	29.969546	-80.374012	1	D. coriacea	Leatherback sea turtle	1
18-Aug-11	10:25	On	30.102597	-80.354238	3	D. coriacea	Leatherback sea turtle	1
18-Aug-11	9:15	On	29.968061	-80.172194	1	Unid. Sea turtle	Unid. Sea turtle	1

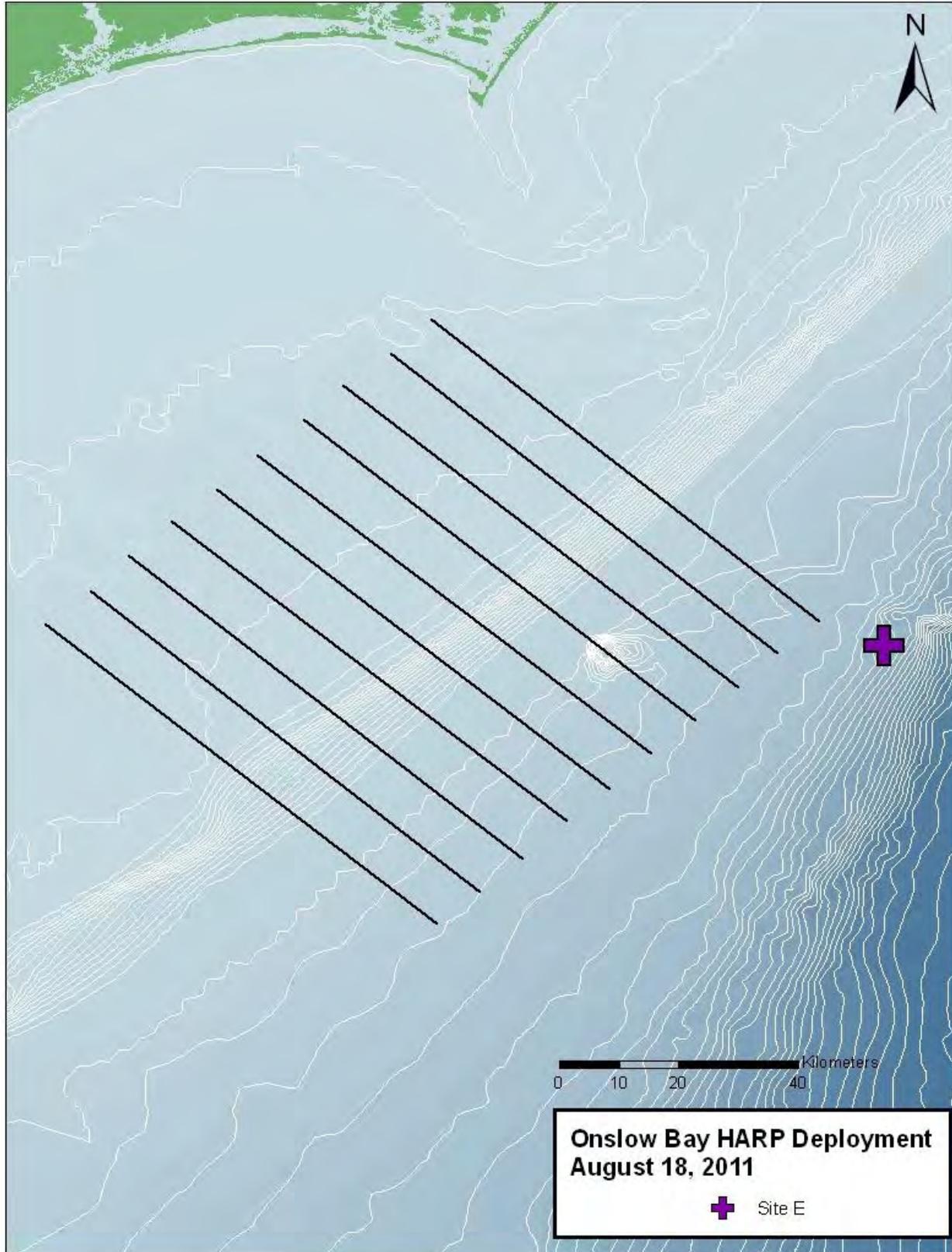


Figure 1. HARP deployment for the Onslow Bay study area for August 2011.

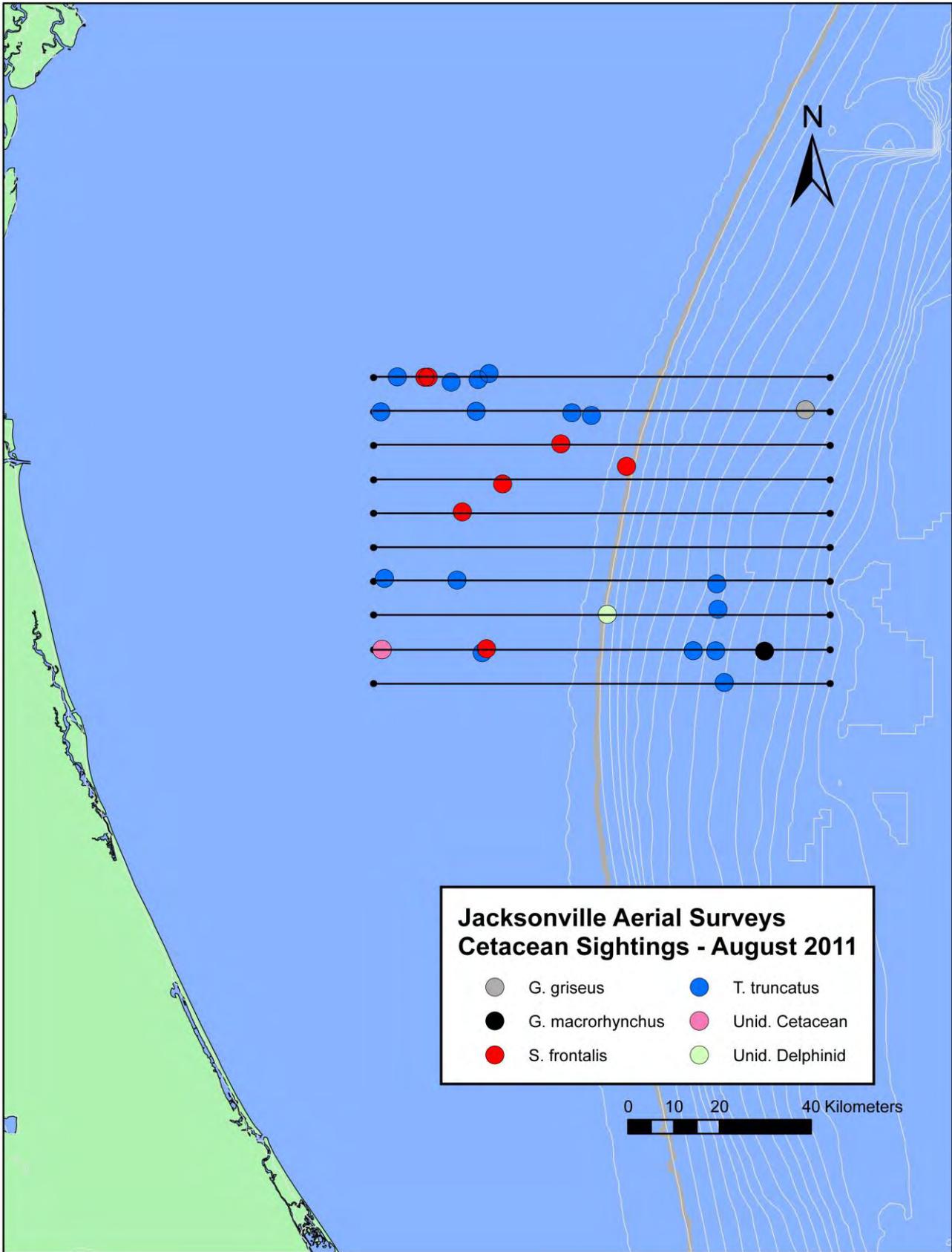


Figure 2. Cetaceans observed during aerial surveys in the Jacksonville study area for August 2011.

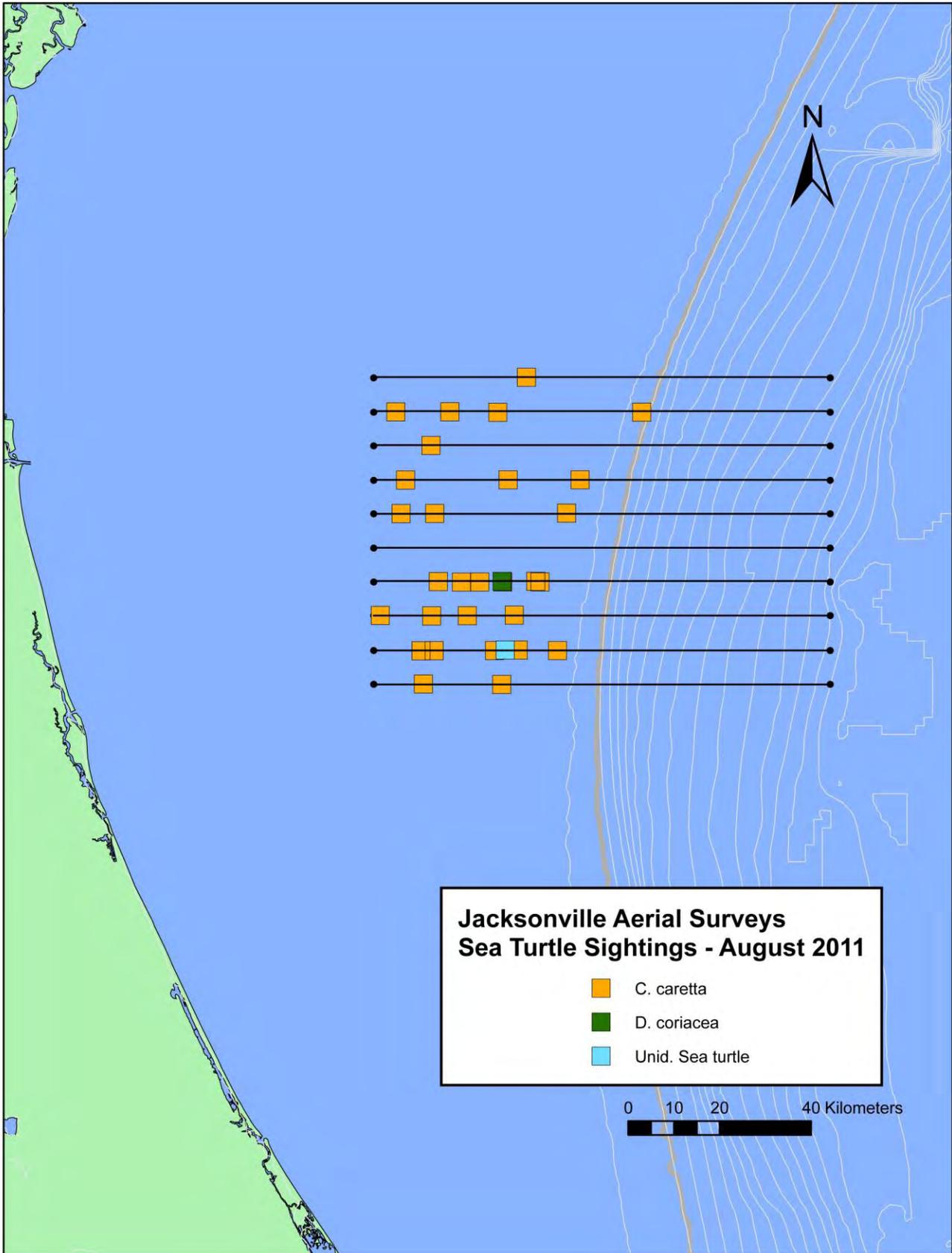


Figure 3. Sea turtles observed during aerial surveys in the Jacksonville study area for August 2011.

Monitoring of Protected Species in the Hatteras, Onslow and JAX Sites Progress Report to HDR: September 1 2011 through September 30 2011

Hatteras Aerial Survey Activity

On September 20th pilots flew from Siler City to Wilmington in anticipation of a weather window off Cape Hatteras on the 21st and 22nd. For the following two days unexpected spring-like dense fog along the coast prevented any survey effort from being conducted. While this is not considered a survey day we report it here as there were costs associated with mobilizing the flight crew.

Aerial Survey Days Conducted at Hatteras = 0 days

Onslow Bay Vessel Activity

A vessel survey was conducted on September 12, 2011 in a Beaufort Sea State 2 to 4 (Table 1). There was one sighting of approximately 40 spotted dolphins in the northern portion of the study area (Figure 1). Two biopsy samples and 157 photo-id images were obtained from the group (Table 1). There were no sea turtles observed during this survey.

Vessel Survey Days Conducted at Onslow Bay = 1 day

Onslow Bay HARP

There were no HARP deployments or retrievals in Onslow Bay during this reporting period. One HARP remains at 33.77794N, -75.92641W (952m depth) as described in the August 2011 report.

JAX Aerial Survey Activity

This month naval activities were conducted in the Jacksonville FL survey area from the 15th to the 18th. Our survey team was asked to provide additional survey effort prior to or after these exercises if weather permitted. Conditions forecasted for both these periods were less than ideal and precluded any survey effort from being conducted. Two days of survey effort were conducted at the very end of the month during which 16 lines were covered under fair to good conditions (Table 3). On the 29th survey conditions were poor during our first six tracklines which resulted in only a single cetacean sighting (Table 4, Figure 2). Decreasing sea states in the afternoon allowed the team to make nine cetacean sightings on the remaining four lines. The following day mechanical issues restricted flights to six tracklines in the afternoon during which an additional seven cetacean sightings were made. Sea turtle sightings were roughly equal across the two days and were dominated by Loggerheads (Table 5, Figure 3).

Aerial Survey Days Conducted at JAX = 2 days

Jacksonville Vessel Survey Activity

There were no vessel surveys conducted in the Jacksonville study area during this reporting period due to unfavorable weather conditions.

Vessel Survey Days Conducted at JAX = 0 days

Jacksonville HARP

There were no HARP deployments or retrievals in the Jacksonville study area during this reporting period.

Table 1. Vessel survey effort table for the Onslow Bay study area for September 2011.

Date	Sea State	Km surveyed	Survey Time (hrs:min)	At Sea Time	Platform
12-Sep-11	2-4	65.7	4:39	10:25	Sensation

Table 2. Cetacean sightings for vessel surveys in the Onslow Bay study area for September 2011.

Date	Time	Latitude	Longitude	Species	Common Name	Group Size	Biopsy samples	Photo-id Images
12-Sep-11	7:30	34.26344	-76.67474	<i>S. frontalis</i>	Atlantic spotted dolphin	40	2	157

Table 3. Aerial survey effort table for the Jacksonville study area for September 2011.

Date	Line	Sea State	Kilometers Flown	HOBBS Hours
29-Sep-11	1	3 to 4	86.0	7.0
29-Sep-11	2	3 to 4	86.5	
29-Sep-11	3	3 to 4	86.6	
29-Sep-11	4	2 to 3	86.4	
29-Sep-11	5	2 to 3	86.6	
29-Sep-11	6	2 to 3	81.7	
29-Sep-11	7	2 to 3	86.6	
29-Sep-11	8	2 to 3	84.5	
29-Sep-11	9	2 to 3	84.3	
29-Sep-11	10	2 to 3	84.6	
30-Sep-11	10	2 to 3	84.3	4.3
30-Sep-11	9	2 to 3	85.5	
30-Sep-11	8	2 to 3	82.2	
30-Sep-11	7	2 to 3	85.8	
30-Sep-11	6	2 to 3	85.6	
30-Sep-11	1	2 to 3	86.2	

Table 4. Cetacean sightings for aerial surveys in the Jacksonville study area for September 2011.

Date	Time	On/Off Effort	Latitude	Longitude	Track Number	Species	Common Name	Group Size
29-Sep-11	11:29	On	30.303628	-80.631996	6	<i>S. frontalis</i>	Atlantic spotted dolphin	16
29-Sep-11	13:38	On	30.366795	-79.972312	7	<i>T. truncatus</i>	Bottlenose dolphin	1
29-Sep-11	14:08	On	30.433527	-80.356491	8	<i>S. frontalis</i>	Atlantic spotted dolphin	1
29-Sep-11	14:20	On	30.433188	-80.549888	8	<i>S. frontalis</i>	Atlantic spotted dolphin	7
29-Sep-11	14:35	On	30.506057	-80.431239	9	<i>T. truncatus</i>	Bottlenose dolphin	7
29-Sep-11	15:04	On	30.572807	-80.038414	10	<i>T. truncatus</i>	Bottlenose dolphin	15
29-Sep-11	15:08	On	30.560653	-80.093260	10	<i>G. griseus</i>	Risso's dolphin	45
29-Sep-11	15:20	On	30.563689	-80.303858	10	<i>S. frontalis</i>	Atlantic spotted dolphin	1
29-Sep-11	15:25	On	30.569054	-80.391592	10	<i>S. frontalis</i>	Atlantic spotted dolphin	35
29-Sep-11	15:34	On	30.566402	-80.602615	10	<i>S. frontalis</i>	Atlantic spotted dolphin	15
30-Sep-11	12:40	On	30.572877	-79.915296	10	<i>T. truncatus</i>	Bottlenose dolphin	16
30-Sep-11	13:10	On	30.497738	-80.463178	9	<i>S. frontalis</i>	Atlantic spotted dolphin	4
30-Sep-11	13:20	On	30.499540	-80.523346	9	<i>T. truncatus</i>	Bottlenose dolphin	10
30-Sep-11	13:30	On	30.506798	-80.562044	9	<i>T. truncatus</i>	Bottlenose dolphin	8
30-Sep-11	13:46	On	30.434095	-80.526551	8	<i>S. frontalis</i>	Atlantic spotted dolphin	18
30-Sep-11	13:51	On	30.443182	-80.393243	8	<i>T. truncatus</i>	Bottlenose dolphin	10
30-Sep-11	14:51	On	30.291755	-80.503113	6	<i>T. truncatus</i>	Bottlenose dolphin	1

Table 5. Sea turtle sightings for aerial surveys in Jacksonville study area for September 2011.

Date	Time	On/Off Effort	Latitude	Longitude	Track Number	Species	Common Name	Group Size
29-Sep-11	9:38	On	30.031704	-80.439366	2	<i>C. caretta</i>	Loggerhead turtle	1
29-Sep-11	9:51	On	30.101070	-80.593138	3	<i>C. caretta</i>	Loggerhead turtle	1
29-Sep-11	10:27	On	30.164638	-80.327114	4	<i>C. caretta</i>	Loggerhead turtle	1
29-Sep-11	10:29	On	30.165355	-80.389031	4	<i>C. caretta</i>	Loggerhead turtle	1
29-Sep-11	10:31	On	30.164817	-80.458554	4	<i>C. caretta</i>	Loggerhead turtle	3
29-Sep-11	10:35	On	30.164623	-80.610378	4	<i>C. caretta</i>	Loggerhead turtle	1
29-Sep-11	10:41	On	30.233283	-80.659800	5	<i>C. caretta</i>	Loggerhead turtle	1
29-Sep-11	10:48	On	30.232651	-80.393361	5	<i>C. caretta</i>	Loggerhead turtle	1
29-Sep-11	10:50	On	30.233062	-80.344901	5	<i>C. caretta</i>	Loggerhead turtle	3
29-Sep-11	11:21	On	30.299234	-80.371533	6	<i>C. caretta</i>	Loggerhead turtle	3
29-Sep-11	11:23	On	30.299291	-80.434733	6	<i>C. caretta</i>	Loggerhead turtle	2
29-Sep-11	13:15	On	30.366111	-80.497510	7	<i>C. caretta</i>	Loggerhead turtle	1
29-Sep-11	13:23	On	30.365869	-80.459998	7	<i>C. caretta</i>	Loggerhead turtle	3
29-Sep-11	13:23	On	30.366166	-80.436141	7	<i>C. caretta</i>	Loggerhead turtle	1
29-Sep-11	13:25	On	30.367543	-80.375219	7	<i>C. caretta</i>	Loggerhead turtle	3
29-Sep-11	14:14	On	30.433270	-80.438060	8	<i>C. caretta</i>	Loggerhead turtle	1
29-Sep-11	14:22	On	30.432637	-80.600900	8	<i>C. caretta</i>	Loggerhead turtle	2
29-Sep-11	14:30	On	30.496935	-80.595272	9	<i>C. caretta</i>	Loggerhead turtle	2
29-Sep-11	14:33	On	30.501518	-80.471165	9	<i>C. caretta</i>	Loggerhead turtle	2
29-Sep-11	15:29	On	30.568546	-80.428485	10	<i>C. caretta</i>	Loggerhead turtle	1
29-Sep-11	15:29	On	30.567809	-80.449738	10	<i>C. caretta</i>	Loggerhead turtle	2
29-Sep-11	15:30	On	30.566468	-80.488219	10	<i>C. caretta</i>	Loggerhead turtle	3
29-Sep-11	15:32	On	30.565295	-80.543866	10	<i>C. caretta</i>	Loggerhead turtle	1
30-Sep-11	12:21	On	30.566751	-80.600272	10	<i>C. caretta</i>	Loggerhead turtle	1
30-Sep-11	12:25	On	30.567970	-80.464621	10	<i>C. caretta</i>	Loggerhead turtle	1
30-Sep-11	13:07	On	30.498591	-80.391286	9	<i>C. caretta</i>	Loggerhead turtle	2
30-Sep-11	13:09	On	30.499322	-80.458424	9	<i>C. caretta</i>	Loggerhead turtle	2
30-Sep-11	13:35	On	30.498948	-80.618736	9	<i>C. caretta</i>	Loggerhead turtle	1
30-Sep-11	13:43	On	30.434298	-80.604430	8	<i>C. caretta</i>	Loggerhead turtle	2
30-Sep-11	13:43	On	30.434308	-80.596629	8	<i>C. caretta</i>	Loggerhead turtle	1
30-Sep-11	13:44	On	30.434837	-80.558453	8	Unid. sea turtle	Unid. sea turtle	1
30-Sep-11	13:50	On	30.434257	-80.423374	8	<i>C. caretta</i>	Loggerhead turtle	1
30-Sep-11	14:34	On	30.364026	-80.444215	7	<i>C. caretta</i>	Loggerhead turtle	1
30-Sep-11	14:45	On	30.297559	-80.597321	6	<i>C. caretta</i>	Loggerhead turtle	1
30-Sep-11	14:47	On	30.301185	-80.534749	6	<i>C. caretta</i>	Loggerhead turtle	2
30-Sep-11	14:52	On	30.299378	-80.465556	6	<i>C. caretta</i>	Loggerhead turtle	3
30-Sep-11	14:56	On	30.300901	-80.345038	6	<i>C. caretta</i>	Loggerhead turtle	1
30-Sep-11	15:29	On	30.232714	-80.366305	5	<i>C. caretta</i>	Loggerhead turtle	1
30-Sep-11	15:29	On	30.232719	-80.366978	5	<i>C. caretta</i>	Loggerhead turtle	4
30-Sep-11	15:36	On	30.230386	-80.617708	5	<i>C. caretta</i>	Loggerhead turtle	2

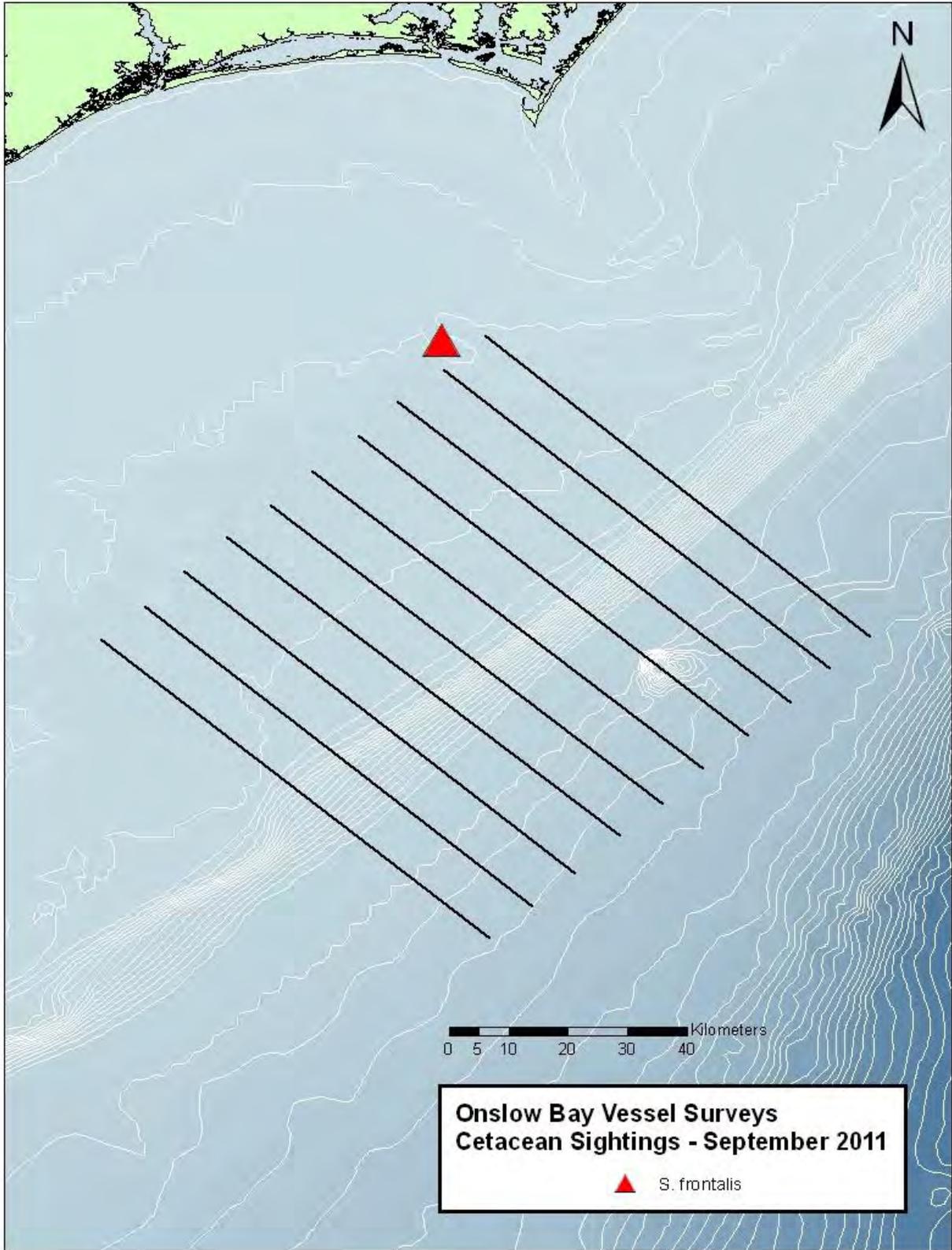


Figure 1. Cetaceans observed during vessel surveys in the Onslow Bay study area for September 2011.

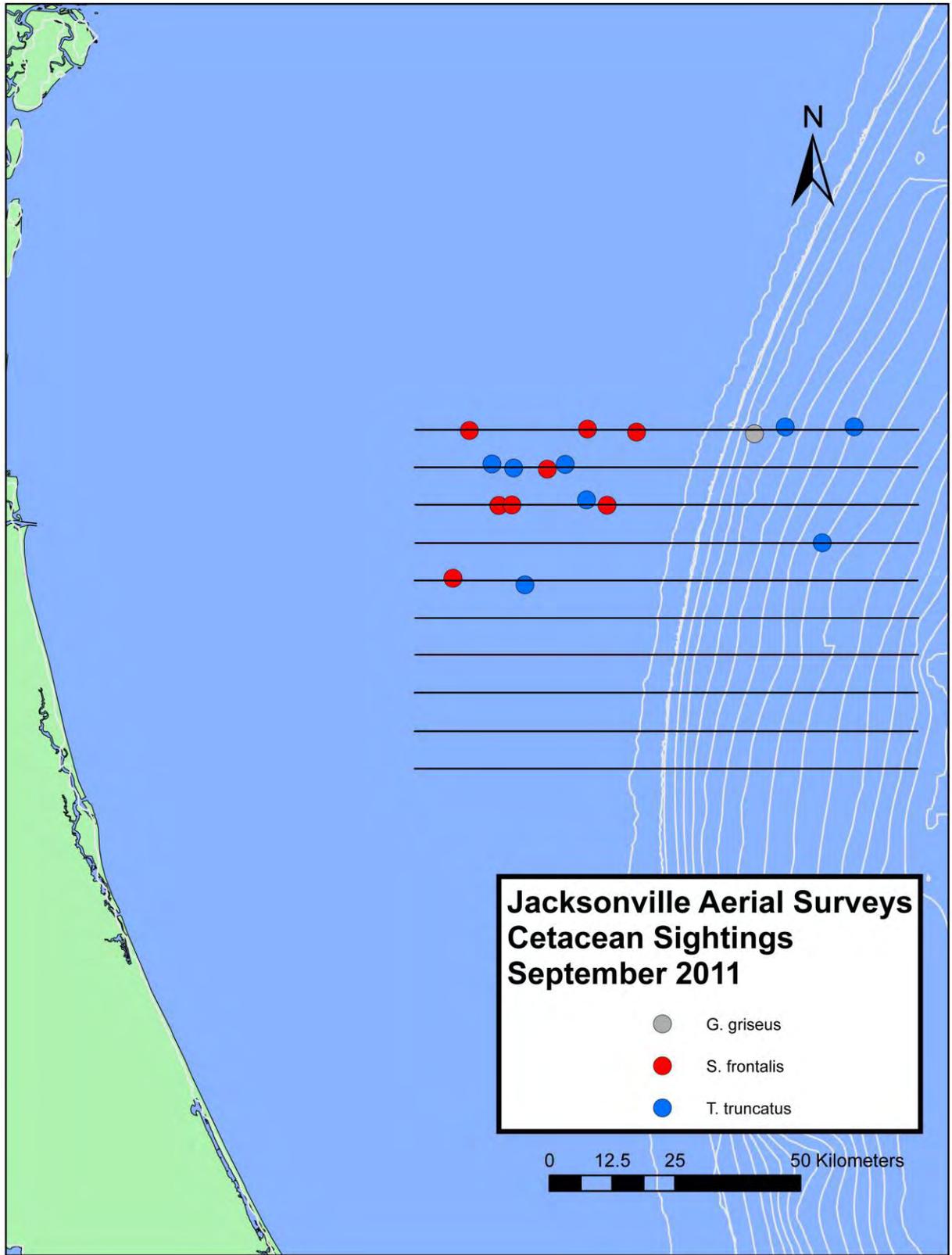


Figure 2. Cetaceans observed during aerial surveys in the Jacksonville study area for September 2011.

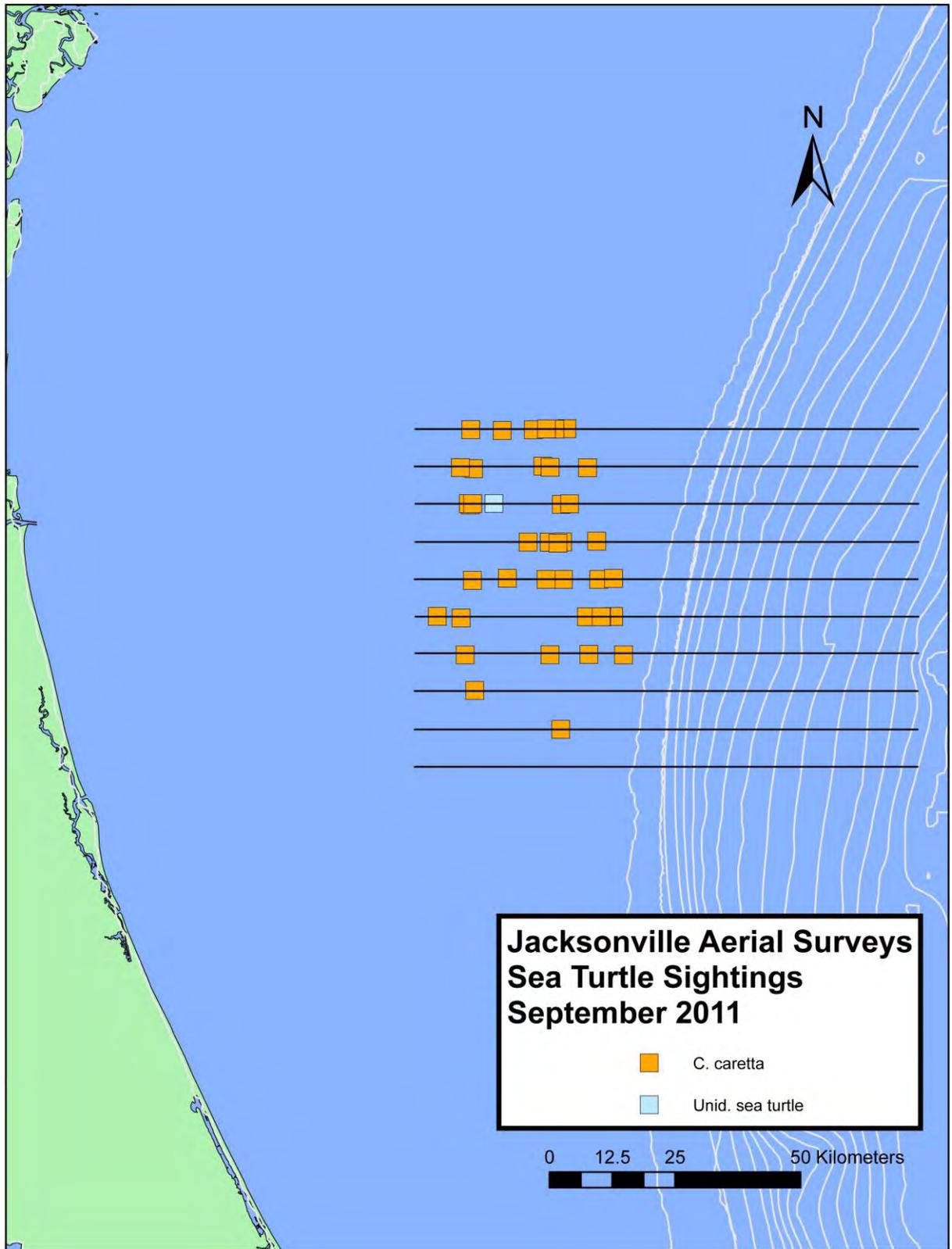


Figure 3. Sea turtles observed during aerial surveys in the Jacksonville study area for September 2011.

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Monitoring of Protected Species in the Hatteras, Onslow and JAX Sites Progress Report to HDR: October 1 2011 through October 31 2011

Travel

William McLellan traveled together with the aerial survey team to Jacksonville, Florida to present current AFAST activities to the Southeast Implementation Team meeting on 17 and 18 October.

Hatteras Aerial Survey Activity

Two days of aerial effort were conducted this month in conditions that were well below what would normally be targeted. This was done in efforts to minimize large gaps in our knowledge about the year round abundance and distribution of marine mammals found in this site. The team covered 16 tracklines in the northern portion of the range with sea states between a BSS 4 and 5 (Table 1). Surprisingly, a total of ten on effort sightings were made during this effort of six species (Table 2, Figure 1) including short-finned pilot whales (*Globicephala macrorhynchus*), and Cuvier's beaked whale (*Ziphius cavirostris*), both which have previously been observed in this area. The team also encountered four species of cetaceans not yet observed during our present survey effort off Cape Hatteras. A single fin whale (*Balaenoptera physalus*), representing the first balaenopterid in the range, was seen on line 32. This species is identifiable by its large fusiform body shape; lighter colored pectorals as well as white coloration of the right lower jaw (Appendix 1, Figures 1 & 2). The survey team had previously observed this species in Onslow Bay, NC in March of 2010 and present the images collected from that sighting here for comparison. A single sighting of a Kogiid whale (*Kogia* spp.) was observed on line 44. These animals are identifiable by their small dorsal and pectoral fins, as well as a tapered head giving them a profile most similar to a shark when viewed from above. This species was encountered by the JAX USWTR team back in November of 2009 and we present the images collected from that sighting here for comparison (Appendix 1, Figures 3 & 4). The team also encountered a large mixed group of two delphinid species on the offshore end of line 44 that are new to this survey. One species identified as Clymene dolphins (*Stenella clymene*) is most easily identified by their rostrum coloration which is white with a dark line down the center ending with a white tip to the rostrum and dark feathering off the rostral mid-line. This coloration can be seen in our images when compared to reference images (Appendix 1, Figures 5 & 6). Spinner dolphins (*Stenella longirostris*) were also identified in this group and are easily separated from Clymene dolphins as their rostrums are much longer and uniform in coloration. Some of the spinner dolphins we photographed had dorsal fins that were canted forward, a trait characteristic of adult males of this species (Appendix 1, Figure 7). As expected the high sea states made sighting of sea turtles difficult and as such the team recorded a single loggerhead (*Caretta caretta*) and one leatherback (*Dermochelys coriacea*) (Table 3, Figure 1).

Aerial Survey Days Conducted at Hatteras = 2 days

Onslow Bay Vessel Activity

There were no vessel surveys conducted in the Jacksonville study area during this reporting period due to unfavorable weather conditions.

Vessel Survey Days Conducted at Onslow Bay = 0 day

Onslow Bay HARP

There were no HARP deployments or retrievals in Onslow Bay during this reporting period. One HARP remains at 33.77794N, -75.92641W (952m depth) as described in the August 2011 report.

JAX Aerial Survey Activity

Effort was conducted on a single day during which all ten tracklines were covered (Table 4). Survey conditions were very good with sea states ranged between a BSS 1 and 2 and resulted in ten on effort cetacean sightings. Species observed include bottlenose dolphins (*Tursiops truncatus*), spotted dolphins (*Stenella frontalis*), Risso's dolphins (*Grampus griseus*) and rough-toothed dolphins (*Steno bredanensis*) (Table 5, Figure 2). This final species was present in a larger group of 43 individuals that remained stationary at the surface throughout our observation. Prior to this sighting this species had not been observed in the range since October of 2010. The good survey conditions also allowed for a number of sea turtle sightings which were dominated by loggerheads and leatherbacks (Table 6, Figure 3). A second day of survey effort was planned but deteriorating weather conditions forced the team to cancel flights.

Aerial Survey Days Conducted at JAX = 1 days

Jacksonville Vessel Survey Activity

There were no vessel surveys conducted in the Jacksonville study area during this reporting period due to unfavorable weather conditions.

Vessel Survey Days Conducted at JAX = 0 days

Jacksonville HARP

There were no HARP deployments or retrievals in the Jacksonville study area during this reporting period

Table 1. Aerial survey effort table for the Hatteras study area for October 2011.

Date	Line	Sea State	Kilometers Flown	HOBBS Hours
25-Oct-11	36	5	70.6	5.3
25-Oct-11	37	5	74.8	
25-Oct-11	38	5	74.2	
25-Oct-11	39	5	74.5	
25-Oct-11	40	4 to 5	74.2	
25-Oct-11	41	4 to 5	74.2	
26-Oct-11	45	4 to 5	74.1	7.8
26-Oct-11	44	4 to 5	71.6	
26-Oct-11	43	4 to 5	73.3	
26-Oct-11	42	4 to 5	74.7	
26-Oct-11	41	4 to 5	72.2	
26-Oct-11	40	4 to 5	74.7	
26-Oct-11	32	4 to 5	79.0	
26-Oct-11	33	5	79.9	
26-Oct-11	34	5	75.1	
26-Oct-11	35	5	72.3	

Table 2. Cetacean sightings for aerial surveys in the Hatteras study area for October 2011.

Date	Time	On/Off Effort	Latitude	Longitude	Track Number	Species	Common Name	Group Size
25-Oct-11	11:27	On	35.4784650	-74.7799120	36	Unid. Delphinid	Unidentified delphinid	2
25-Oct-11	11:40	On	35.4687250	-74.6683040	36	<i>Z. cavirostris</i>	Cuvier's beaked whale	1
25-Oct-11	12:33	On	35.6233820	-74.7858170	38	<i>G. macrorhynchus</i>	Short-finned pilot whale	13
26-Oct-11	10:19	On	36.0332850	-74.4566280	44	<i>S. clymene</i>	Clymene dolphin	70
26-Oct-11	10:19	On	36.0332850	-74.4566280	44	<i>S. longirostris</i>	Spinner dolphin	70
26-Oct-11	10:35	On	36.0536620	-74.4976800	44	<i>Kogia spp.</i>	Unidentified <i>Kogia</i>	1
26-Oct-11	12:14	On	35.8345320	-74.4190030	41	<i>G. macrorhynchus</i>	Short-finned pilot whale	3
26-Oct-11	12:35	On	35.7676740	-74.3605490	40	<i>G. macrorhynchus</i>	Short-finned pilot whale	4
26-Oct-11	14:35	On	35.2094520	-74.9836970	32	<i>B. physalus</i>	Fin whale	1
26-Oct-11	16:09	On	35.4209410	-74.8812850	35	Unid. delphinid	Unidentified delphinid	9

Table 3. Sea turtle sightings for aerial surveys in the Hatteras study area for October 2011.

Date	Time	On/Off Effort	Latitude	Longitude	Track Number	Species	Common Name	Group Size
25-Oct-11	12:46	On	35.618351	-74.505412	38	<i>D. coriacea</i>	Leatherback sea turtle	1
25-Oct-11	13:58	On	35.823223	-75.010487	41	<i>C. caretta</i>	Loggerhead sea turtle	2

Table 4. Aerial survey effort table for the Jacksonville study area for October 2011.

Date	Line	Sea State	Kilometers Flown	HOBBS Hours
17-Oct-11	1	1 to 2	84.9	7.1
17-Oct-11	2	1 to 2	86.3	
17-Oct-11	3	1 to 2	84.4	
17-Oct-11	4	1 to 2	84.1	
17-Oct-11	5	1 to 2	86.3	
17-Oct-11	6	1 to 2	86.3	
17-Oct-11	7	1 to 2	83.7	
17-Oct-11	8	1 to 2	84.7	
17-Oct-11	9	1 to 2	84.4	
17-Oct-11	10	1 to 2	84.9	

Table 5. Cetacean sightings for aerial surveys in the Jacksonville study area for October 2011.

Date	Time	On/Off Effort	Latitude	Longitude	Track Number	Species	Common Name	Group Size
17-Oct-11	9:48	On	29.958840	-80.143059	1	<i>T. truncatus</i>	Bottlenose dolphin	15
17-Oct-11	10:45	On	30.097670	-80.452633	3	<i>S. frontalis</i>	Atlantic spotted dolphin	50
17-Oct-11	11:00	On	30.106111	-80.342728	3	Unid. Delphinid	Unid. Delphinid	1
17-Oct-11	11:43	On	30.160961	-80.504487	4	<i>T. truncatus</i>	Bottlenose dolphin	4
17-Oct-11	14:35	On	30.365875	-80.164744	7	<i>G. griseus</i>	Risso's dolphin	11
17-Oct-11	14:41	On	30.362687	-80.118399	7	<i>G. griseus</i>	Risso's dolphin	10
17-Oct-11	15:11	On	30.434682	-80.024715	8	<i>T. truncatus</i>	Bottlenose dolphin	3
17-Oct-11	15:52	On	30.497693	-80.014938	9	<i>G. griseus</i>	Risso's dolphin	10
17-Oct-11	15:59	Off	30.537579	-79.790389		<i>T. truncatus</i>	Bottlenose dolphin	4
17-Oct-11	16:09	On	30.579420	-79.850618	10	<i>T. truncatus</i>	Bottlenose dolphin	40
17-Oct-11	16:20	On	30.566635	-80.227814	10	<i>S. bredanensis</i>	Rough-toothed dolphin	43

Table 6. Sea turtle sightings for aerial surveys in Jacksonville study area for October 2011.

Date	Time	On/Off Effort	Latitude	Longitude	Track Number	Species	Common Name	Group Size
17-Oct-11	9:35	On	29.965284	-80.580642	1	<i>C. caretta</i>	Loggerhead sea turtle	1
17-Oct-11	9:38	On	29.966110	-80.466365	1	<i>C. caretta</i>	Loggerhead sea turtle	1
17-Oct-11	9:41	On	29.966022	-80.381953	1	<i>C. caretta</i>	Loggerhead sea turtle	1
17-Oct-11	9:44	On	29.965657	-80.266205	1	<i>C. caretta</i>	Loggerhead sea turtle	1
17-Oct-11	10:22	On	30.031681	-80.263838	2	<i>C. caretta</i>	Loggerhead sea turtle	1
17-Oct-11	10:26	On	30.030858	-80.394612	2	<i>D. coriacea</i>	Leatherback sea turtle	1
17-Oct-11	10:27	On	30.031147	-80.416332	2	<i>C. caretta</i>	Loggerhead sea turtle	1
17-Oct-11	10:29	On	30.031609	-80.513335	2	Unid. sea turtle	Unid. sea turtle	2
17-Oct-11	10:34	On	30.033538	-80.666439	2	<i>C. caretta</i>	Loggerhead sea turtle	1
17-Oct-11	10:42	On	30.100285	-80.531554	3	<i>C. caretta</i>	Loggerhead sea turtle	2
17-Oct-11	10:52	On	30.100321	-80.417718	3	<i>C. caretta</i>	Loggerhead sea turtle	2
17-Oct-11	10:53	On	30.100558	-80.399157	3	<i>D. coriacea</i>	Leatherback sea turtle	1
17-Oct-11	11:32	On	30.166403	-80.313562	4	<i>D. coriacea</i>	Leatherback sea turtle	1
17-Oct-11	11:33	On	30.165898	-80.360974	4	<i>D. coriacea</i>	Leatherback sea turtle	1
17-Oct-11	11:36	On	30.165484	-80.467844	4	<i>C. caretta</i>	Loggerhead sea turtle	3
17-Oct-11	11:55	On	30.233466	-80.589218	5	<i>C. caretta</i>	Loggerhead sea turtle	1
17-Oct-11	11:56	On	30.235228	-80.532857	5	<i>C. caretta</i>	Loggerhead sea turtle	2
17-Oct-11	11:59	On	30.237357	-80.427994	5	<i>C. caretta</i>	Loggerhead sea turtle	2
17-Oct-11	12:33	On	30.299728	-80.366458	6	<i>C. caretta</i>	Loggerhead sea turtle	1
17-Oct-11	12:35	On	30.301910	-80.428242	6	<i>C. caretta</i>	Loggerhead sea turtle	1
17-Oct-11	14:21	On	30.366029	-80.642414	7	<i>D. coriacea</i>	Leatherback sea turtle	1
17-Oct-11	14:22	On	30.366138	-80.612691	7	<i>D. coriacea</i>	Leatherback sea turtle	1
17-Oct-11	14:27	On	30.365695	-80.442669	7	Unid. sea turtle	Unid. sea turtle	1
17-Oct-11	14:30	On	30.366456	-80.328760	7	<i>C. caretta</i>	Loggerhead sea turtle	1
17-Oct-11	15:22	On	30.432073	-80.448196	8	<i>C. caretta</i>	Loggerhead sea turtle	2
17-Oct-11	15:24	On	30.432859	-80.499521	8	<i>C. caretta</i>	Loggerhead sea turtle	1
17-Oct-11	15:25	On	30.434184	-80.555784	8	<i>D. coriacea</i>	Leatherback sea turtle	1
17-Oct-11	15:32	On	30.497972	-80.652627	9	<i>C. caretta</i>	Loggerhead sea turtle	1
17-Oct-11	15:34	On	30.499587	-80.563584	9	<i>C. caretta</i>	Loggerhead sea turtle	1
17-Oct-11	15:37	On	30.500455	-80.457373	9	<i>D. coriacea</i>	Leatherback sea turtle	1
17-Oct-11	15:37	On	30.500393	-80.451484	9	<i>D. coriacea</i>	Leatherback sea turtle	1
17-Oct-11	15:45	On	30.499871	-80.147733	9	<i>D. coriacea</i>	Leatherback sea turtle	1
17-Oct-11	16:27	On	30.567168	-80.268947	10	<i>D. coriacea</i>	Leatherback sea turtle	1
17-Oct-11	16:32	On	30.564243	-80.491197	10	<i>C. caretta</i>	Loggerhead sea turtle	1
17-Oct-11	16:33	On	30.564535	-80.530931	10	<i>D. coriacea</i>	Leatherback sea turtle	1
17-Oct-11	16:34	On	30.564585	-80.564397	10	<i>C. caretta</i>	Loggerhead sea turtle	3

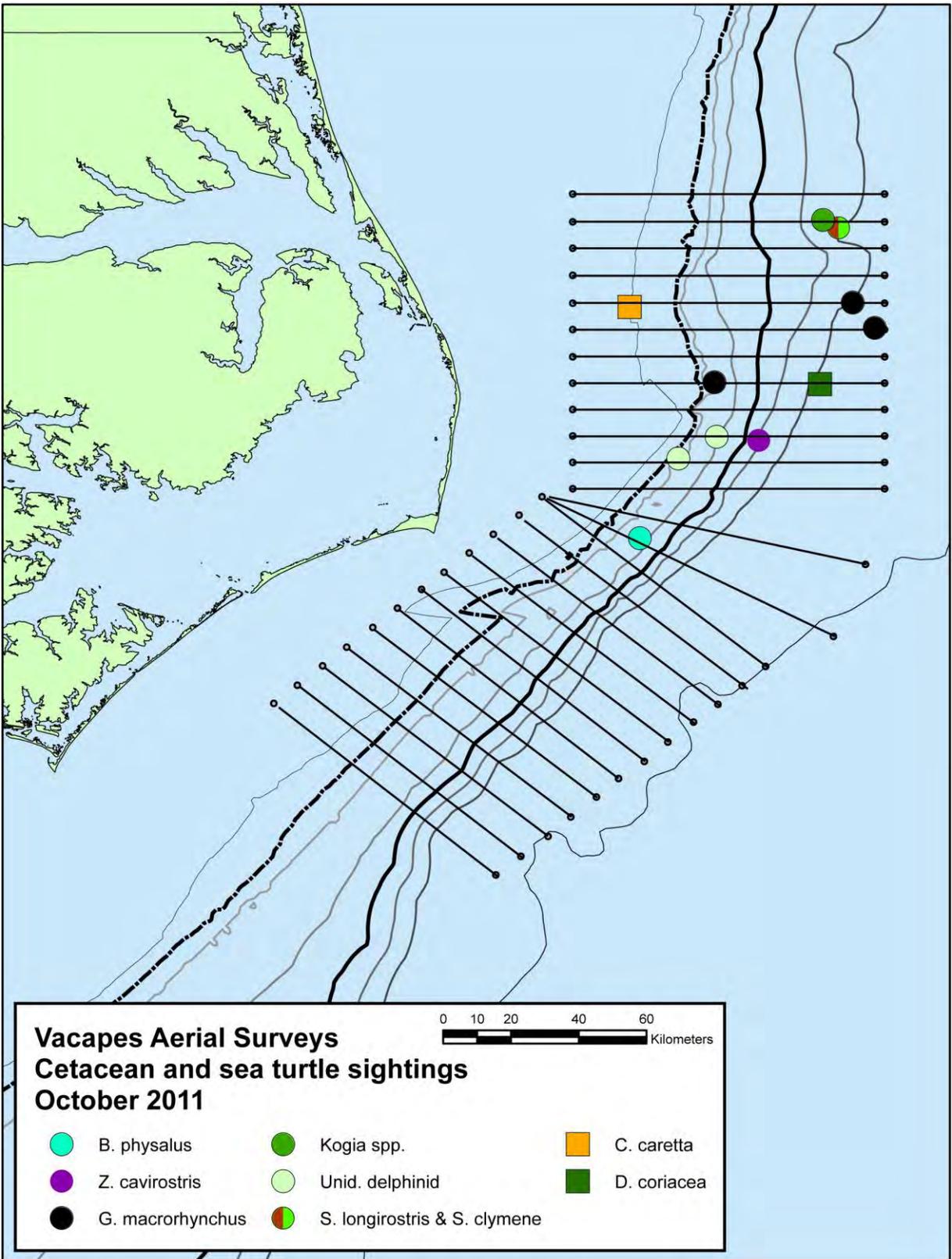


Figure 1. Cetaceans and sea turtles observed during aerial surveys in the Hatteras study area for October 2011.

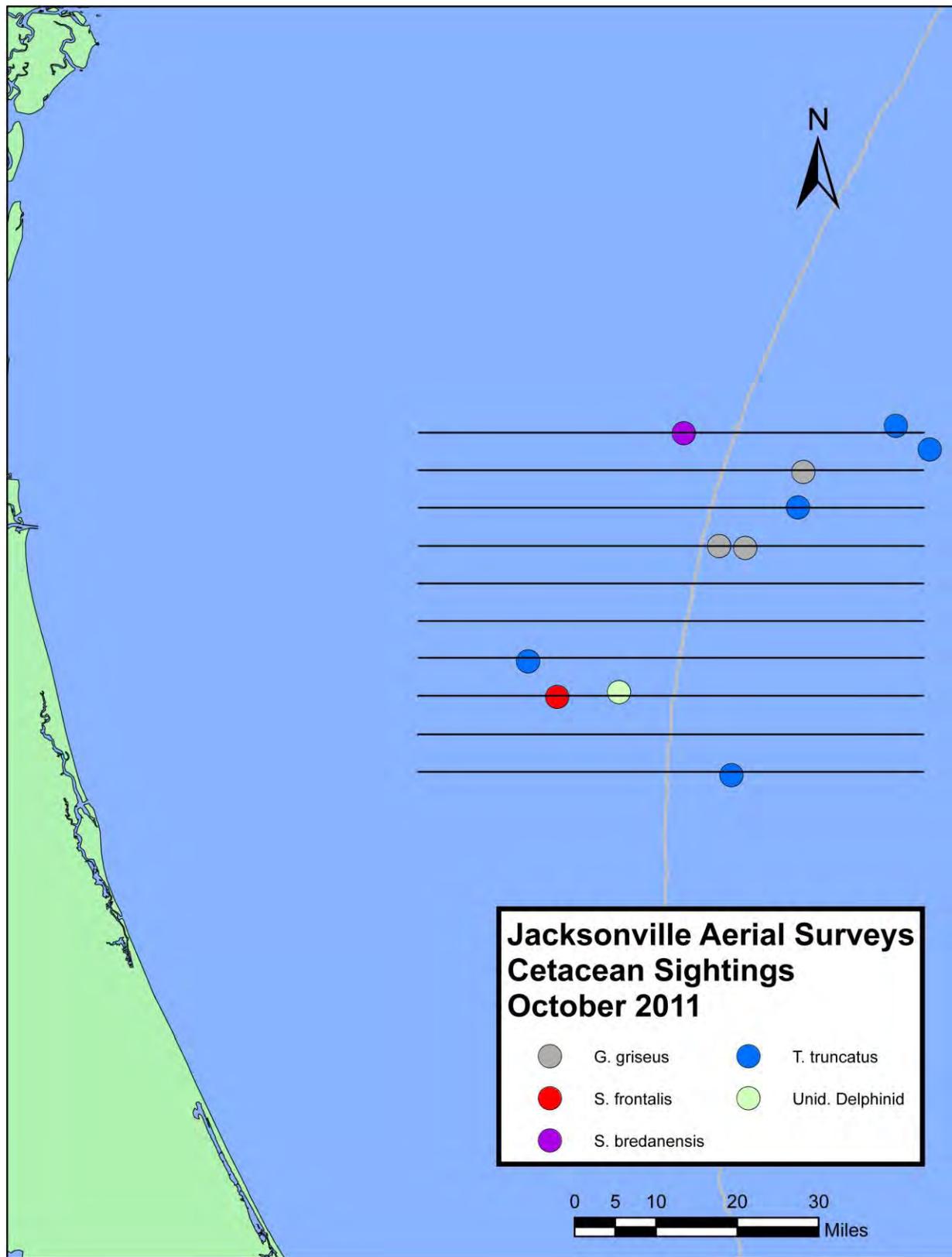


Figure 2. Cetaceans observed during aerial surveys in the Jacksonville study area for October 2011.

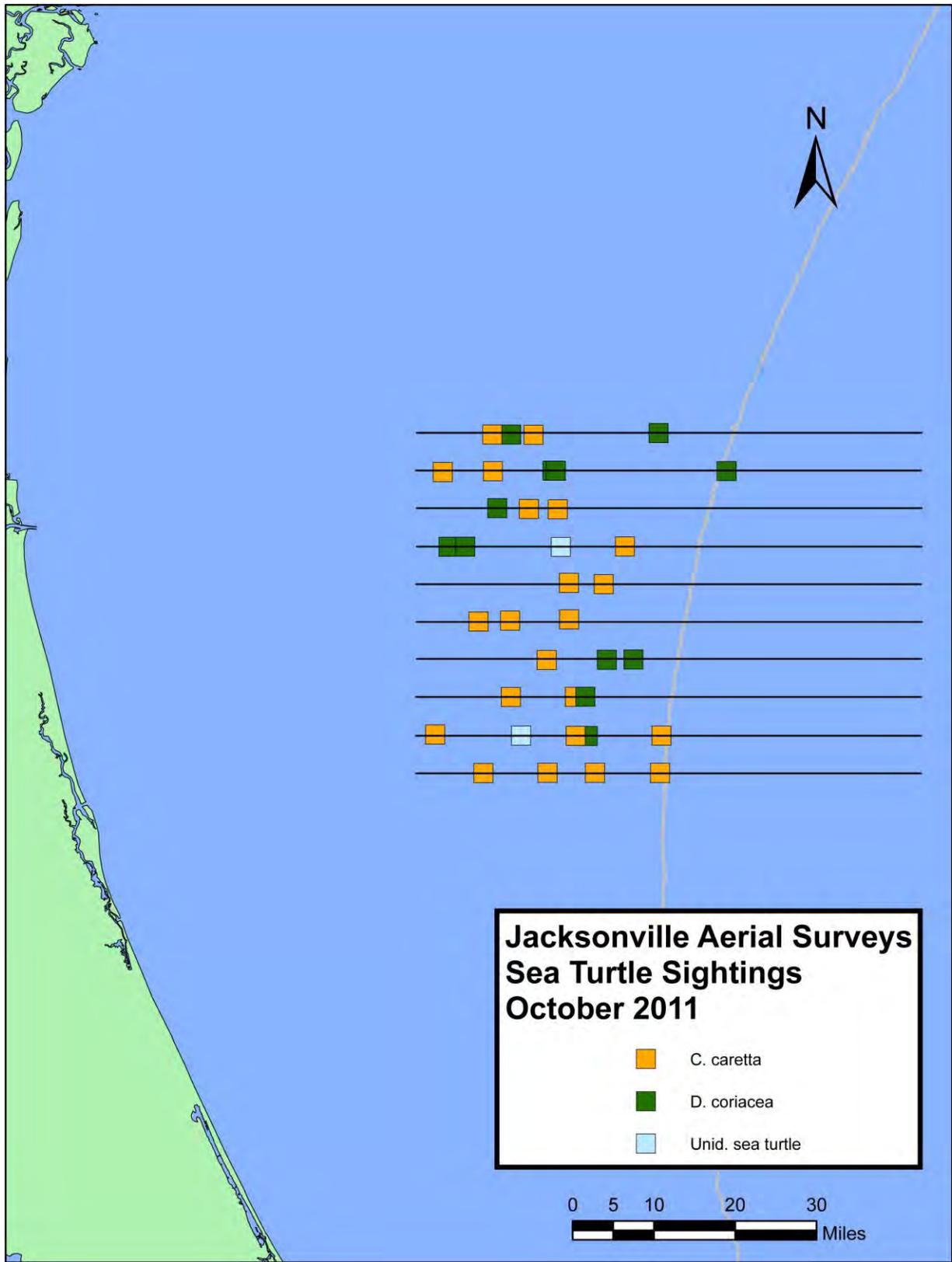
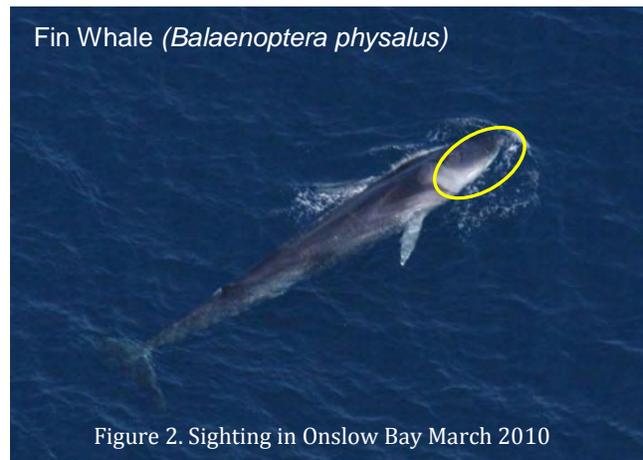
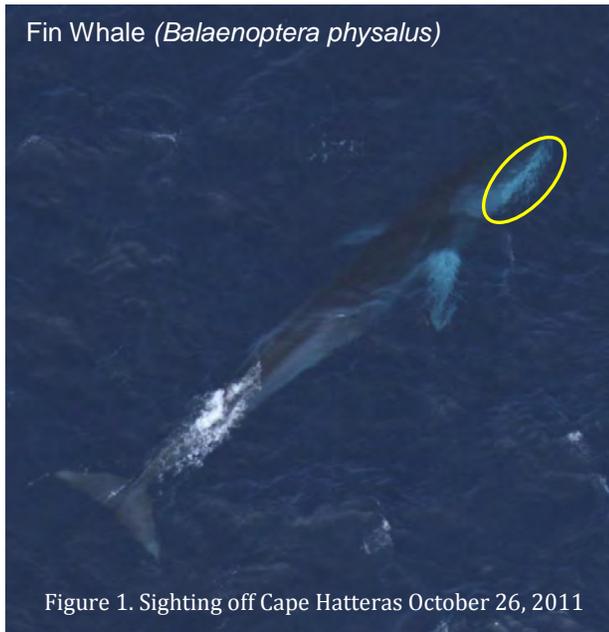


Figure 3. Sea turtles observed during aerial surveys in the Jacksonville study area for October 2011.

Appendix 1.





Monitoring of Protected Species in the Hatteras, Onslow and JAX Sites Progress Report to HDR: November 1 2011 through November 30 2011

Travel

All team members traveled to the “19th Biennial Conference on The Biology of Marine Mammals” from 27 Nov – 3 Dec in Tampa, Florida. The team presented on a large number of topics, including:

Occurrence and distribution of marine mammals in a proposed Undersea Warfare Training Range off Jacksonville, FL

Foley, Heather; Nilsson, Peter; Hardee, Rachel; Holt, Richard; McLellan, William; Pabst, D. Ann; Read, Andrew

Cetacean species diversity observed during four years of survey effort in Onslow Bay, NC, USA

McAlarney, Ryan; McLellan, William A.; Pabst, D. Ann; Cummings, Erin W.; Urian, Kim W.; Nilsson, Peter B.; Waples, Danielle; Dunn, Jennifer; Johnston, Dave J.; Read, Andy J.

Recent winter sightings of minke whales (*Balaenoptera acutorostrata*) in the South Atlantic Bight

Nilsson, Peter; Cummings, Erin; Foley, Heather; Hardee, Rachel; Holt, Richard; McAlarney, Ryan; McLellan, William A.; Pabst, Ann; Read, Andrew

Cetacean abundance off the North Carolina coast of the USA

Pabst, D. Ann; Read, Andrew J.; McLellan, William A.; Johnston, David J.; McAlarney, Ryan J.; Urian, Kim W.; Cummings, Erin W.; Nilsson, Peter B.; Dunn, Jennifer; Waples, Danielle; Burt, M. L.; Borchers, David L.; Paxton, Charles

Passive acoustic monitoring of cetaceans off Jacksonville Florida

Soldevilla, Melissa S.; Williams, Lynne E.; Johnston, David W.; Wiggins, Sean M.; Hildebrand, John A.; Pabst, Ann; McLellan, William; Foley, Heather; Nilsson, Peter; Holt, Richard; Hardee, Rachel; Read, Andrew J.

Hatteras Aerial Survey Activity

On November 12th eight tracklines were flown under forecasted good conditions, but in reality were poor conditions, resulting in a single sea turtle sighting (Table 1 & 3, Figure 1). The following day seas were calm in the morning and built throughout the day. Four species of cetaceans were encountered totaling thirteen sightings over six tracklines (Table 2, Figure 1). These short, yet productive weather windows will allow the team to gain a better understanding of the animals present in the winter months despite the variable weather patterns.

Aerial Survey Days Conducted at Hatteras = 2 days

Onslow Bay Vessel Activity

A vessel survey was conducted on 21 November 2011 in a Beaufort Sea State 3 to 4 (Table 4). There was one sighting of five spotted dolphins in the southwestern portion of the study area (Figure 2) and 10 photo-id images were obtained from the group (Table 5). There was one loggerhead observed during this survey (Table 6, Figure 2).

Vessel Survey Days Conducted at Onslow Bay = 1 day

Onslow Bay HARP

There were no HARP deployments or retrievals in Onslow Bay during this reporting period. One HARP remains at 33.77794N, -75.92641W (952m depth) as described in the August 2011 report. The HARP is scheduled to be retrieved between February and March 2012.

JAX Aerial Survey Activity

No aerial surveys were conducted this month in the Jacksonville survey area.

Aerial Survey Days Conducted at JAX = 0 days

Jacksonville Vessel Survey Activity

There were no vessel surveys conducted in the Jacksonville study area during this reporting period due to unfavorable weather conditions.

Vessel Survey Days Conducted at JAX = 0 days

Jacksonville HARP

There were no HARP deployments or retrievals in the Jacksonville study area during this reporting period.

Table 1. Aerial survey effort in the Hatteras study area for November 2011.

Date	Line	Sea State	Kilometers Flown	HOBBS Hours
12-Nov-11	45	4 to 5	74.2	5.1
12-Nov-11	44	4 to 5	73.7	
12-Nov-11	43	4 to 5	74.2	
12-Nov-11	42	4 to 5	73.7	
12-Nov-11	41	4 to 5	74.9	
12-Nov-11	40	4 to 5	73.8	
12-Nov-11	39	4 to 5	74.0	
12-Nov-11	38	4 to 5	74.3	
13-Nov-11	37	2	70.8	6.3
13-Nov-11	36	2 to 3	73.1	
13-Nov-11	35	2 to 3	69.8	
13-Nov-11	34	1 to 4	68.3	
13-Nov-11	33	1 to 4	80.0	
13-Nov-11	32	2 to 4	82.4	

Table 2. Cetacean sightings for aerial surveys in the Hatteras study area for November 2011.

Date	Time	On/Off Effort	Latitude	Longitude	Track Number	Species	Common Name	Group Size
13-Nov-11	9:25	On	35.551333	-74.834995	37	Unidentified delphinid	Unidentified delphinid	3
13-Nov-11	9:42	On	35.545902	-74.476016	37	<i>S. frontalis</i>	Atlantic spotted dolphin	13
13-Nov-11	10:05	On	35.562103	-74.373883	37	<i>S. frontalis</i>	Atlantic spotted dolphin	21
13-Nov-11	10:25	On	35.504660	-74.699905	36	<i>T. truncatus</i>	Bottlenose dolphin	30
13-Nov-11	10:44	On	35.402847	-75.072340	35	<i>T. truncatus</i>	Bottlenose dolphin	20
13-Nov-11	10:53	On	35.404918	-74.930050	35	<i>T. truncatus</i>	Bottlenose dolphin	40
13-Nov-11	10:59	On	35.424983	-74.824943	35	<i>P. macrocephalus</i>	Sperm whale	1
13-Nov-11	11:03	Off	35.424565	-74.794380	35	<i>T. truncatus</i>	Bottlenose dolphin	15
13-Nov-11	11:14	On	35.420423	-74.509397	35	<i>T. truncatus</i>	Bottlenose dolphin	12
13-Nov-11	11:33	On	35.349782	-74.721951	34	<i>G. macrorhynchus</i>	Short-finned pilot whale	3
13-Nov-11	11:37	Off	35.347230	-74.758430	34	<i>T. truncatus</i>	Bottlenose dolphin	12
13-Nov-11	11:43	On	35.349374	-74.864955	34	<i>T. truncatus</i>	Bottlenose dolphin	30
13-Nov-11	13:48	On	35.247398	-74.884306	33	Unidentified delphinid	Unidentified delphinid	15

Table 3. Sea turtle sightings for aerial surveys in the Hatteras study area for November 2011.

Date	Time	On/Off Effort	Latitude	Longitude	Track Number	Species	Common Name	Group Size
12-Nov-11	10:35	On	36.126493	-75.117137	45	<i>C. caretta</i>	Loggerhead turtle	1
13-Nov-11	9:17	On	35.552712	-74.836032	37	<i>C. caretta</i>	Loggerhead turtle	1
13-Nov-11	10:52	On	35.408820	-74.940878	35	<i>D. coriacea</i>	Leatherback turtle	1

Table 4. Vessel survey effort table in the Onslow Bay study area for November 2011.

Date	Sea State	Km surveyed	Survey Time (hrs:min)	At Sea Time	Platform
21-Nov-11	3-4	47.0	3:44	9:37	Sensation

Table 5. Cetacean sightings during vessel surveys in the Onslow Bay study area for November 2011.

Date	Time	Latitude	Longitude	Species	Common Name	Group Size	Biopsy samples	Photo-id Images
21-Nov-11	8:30	33.78931	-76.83564	<i>S. frontalis</i>	Atlantic spotted dolphin	5	0	10

Table 6. Sea turtle sightings during vessel surveys in the Onslow Bay study area for November 2011.

Date	Time	Latitude	Longitude	Species	Common Name	Group Size
21-Nov-11	12:52	33.94693	-76.6352	<i>C. caretta</i>	Loggerhead sea turtle	1

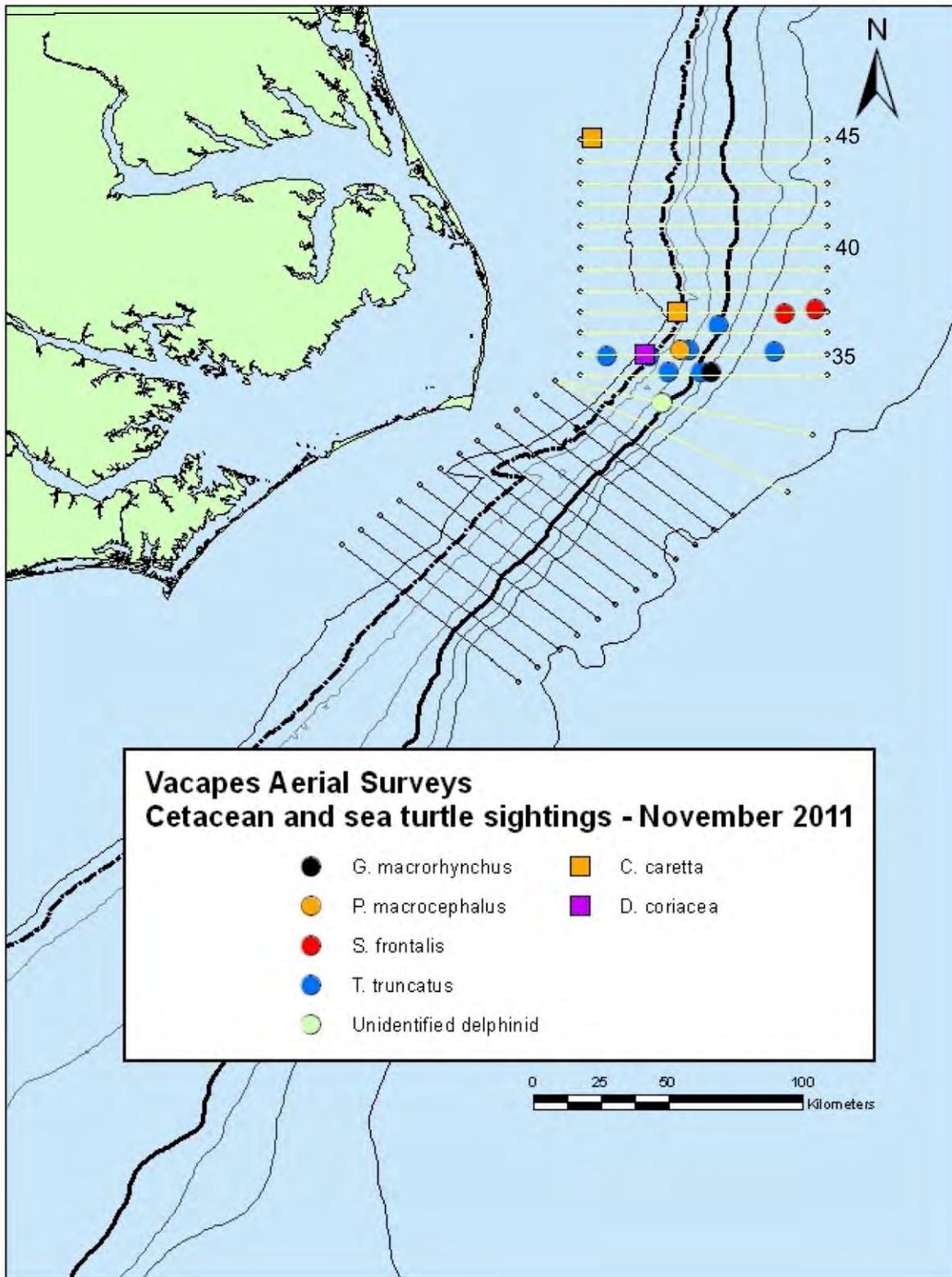


Figure 1. Cetaceans and sea turtles observed during aerial surveys in the Hatteras study area for November 2011. The lighter yellow lines (lines 32 - 45) were those flown during the reporting period. The sightings conditions on lines 33- 37 were ideal with a marked increase in encounters noted.

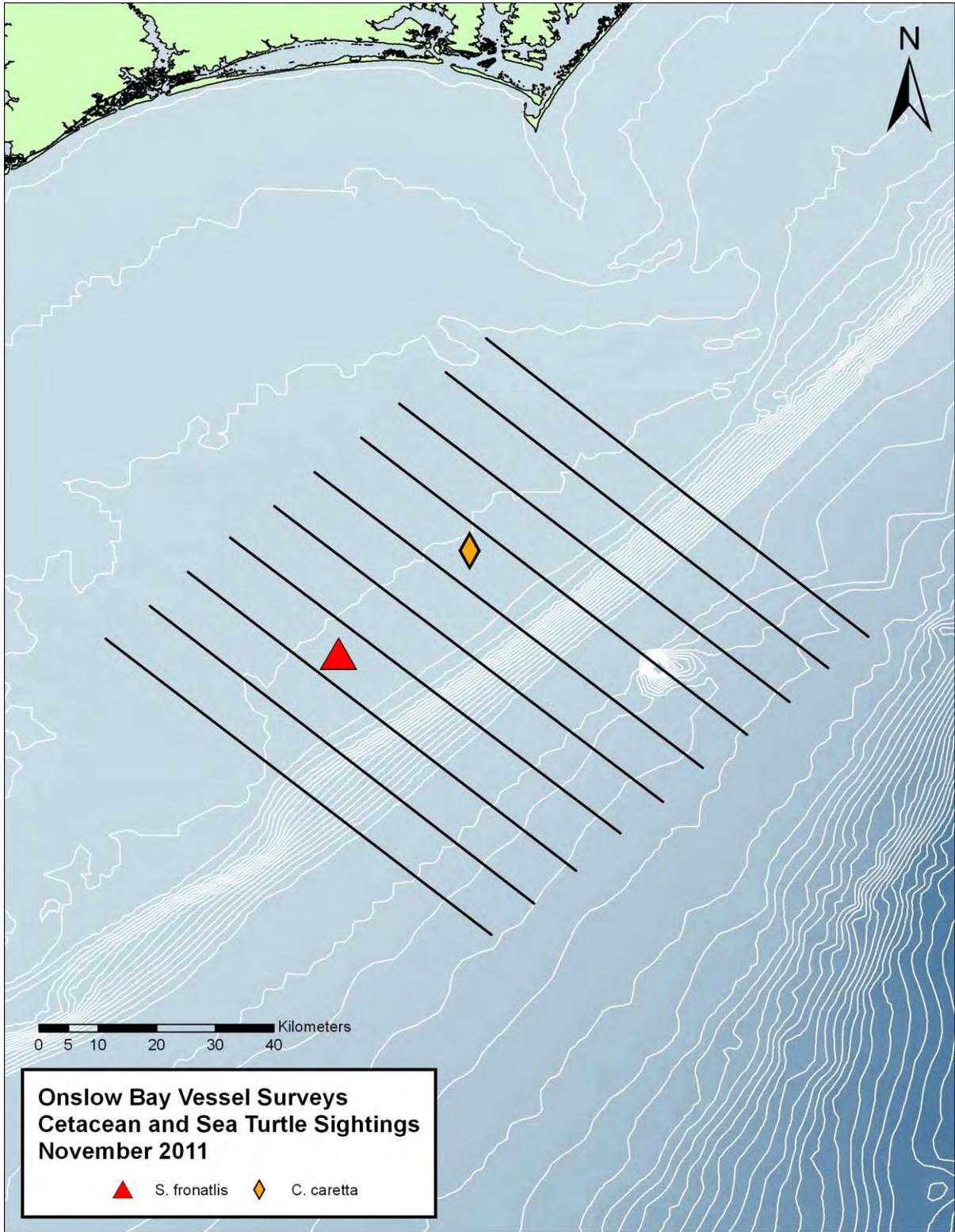


Figure 2. Cetaceans and sea turtles observed during vessel surveys in the Onslow Bay study area for November 2011.

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Monitoring of Protected Species in the Hatteras, Onslow and JAX Sites Progress Report to HDR: December 1 2011 through December 31 2011

From November 27th – December 3rd 2011 the research teams from Duke and UNCW attended the Society for Marine Mammalogy 19th Biennial Conference that was held in Tampa, Florida. Five posters and one oral presentation were given that were generated from the survey data collected in Onslow Bay, NC and Jacksonville, FL. All presentations were well received by the group of international researchers in attendance and have sparked good follow-up discussions.

Aerial and Vessel Activity

The combination of attending the marine mammal meetings and approaching holidays created a narrow window in which to conduct surveys. Unfortunately, unfavorable weather conditions during this time period prevented aerial or vessel activities.

The aerial survey contract has been extended with Orion Aviation into 2012.

Onslow Bay HARP

There were no HARP deployments or retrievals in Onslow Bay during this reporting period. One HARP remains at 33.77794N, -75.92641W (952m depth) as described in the August 2011 report. The HARP is scheduled to be retrieved between February and March 2012.

Jacksonville HARP

There were no HARP deployments or retrievals in the Jacksonville study area during this reporting period.

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Monitoring of Protected Species in the Hatteras, Onslow and JAX Sites Progress Report to HDR: January 1, 2012 through January 31, 2012

January Expenses

In January 2012, salaries for Duke employees were charged to TO 14, while vessel surveys and associated fuel, travel, and supplies were charged to TO 5. All UNCW salaries and aerial surveys were charged to TO 14.

Hatteras Aerial Survey Activity

Two days of aerial survey effort were conducted in the VACAPES survey area covering 18 tracklines. Survey conditions were fair (BSS 3-5) with the team recording ten cetacean sightings during the course of the two days of effort (Table 1 and 2). Two species of baleen whales were observed this month that had not previously been recorded during effort off of Cape Hatteras (Figure 1). On the 30th a single humpback whale (*Megaptera novaeangliae*) was observed on the inshore end of line 25, just south of the Cape Hatteras point. On the 31st a pair of minke whales (*Balaenoptera acutorostrata*) was observed on the offshore end of trackline number 35. During both sightings none of the animals showed any signs of avoidance behavior. Both these species have been previously observed by the survey team in the Onslow Bay, NC and Jacksonville, FL survey areas. Distinguishing characteristics established during those encounters were used to positively identify the animals observed in the VACAPES survey area. Three sightings of sea turtle were recorded including one loggerhead sea turtle (*Caretta caretta*), one leatherback sea turtle (*Dermochelys coriacea*) and one unidentified turtle (Table 3, Figure 1).

While it does not fall under the current reporting period a third day of survey effort was conducted on February 1st in which eight tracklines were covered (data will be presented in February's monthly report). This is the first time a complete set of 26 tracklines has been covered during consecutive days of survey effort.

Aerial Survey Days Conducted at Hatteras = 2 days

Onslow Bay Vessel Activity

A vessel survey was conducted on 31 January 2012 in a Beaufort Sea State 2-3 (Table 4). Survey effort was focused in the eastern portion of the survey area, along the 1000 – 2000m contour line (Figure 2). There were four cetacean observations consisting of two bottlenose dolphin (*Tursiops truncatus*) sightings, one *Mesoplodon* spp. sighting, and one unidentified whale sighting (Table 5, Figure 3). One hundred eighty photo-id images were obtained, resulting in two confirmed *Tursiops* re-sightings, Ttr 1-004 and Ttr 6-010 (Table 5, Figure 4). Ttr 1-004 was first sighted in Onslow Bay on 01 October 2009, and again on 04 November 2010 and 31 January 2012. Ttr 6-010 was originally sighted on 23 September 2007, and re-sighted on 31 January 2012. Two biopsy samples were collected from bottlenose dolphins exhibiting white coloration on their peduncles (Table 5). The discoloration of the peduncle is a common phenotypic characteristic among offshore bottlenose dolphins. There were no sea turtle sightings during this reporting period.

Vessel Survey Days Conducted at Onslow Bay = 1 day

Onslow Bay HARP

There were no HARP deployments or retrievals in Onslow Bay during this reporting period. One HARP remains at 33.77794N, -75.92641W (952m depth) as described in the August 2011 report. The HARP is scheduled to be retrieved between February and March 2012.

JAX Aerial Survey Activity

Areas of dense fog conditions at both the airport and shore-side of the survey area caused survey effort in Jacksonville, FL to be spread out over three days. Survey conditions were good with Beaufort Sea State between 2 and 3 for all days (Table 6). On January 23rd six tracklines were flown resulting in six cetacean sightings mixed between bottlenose dolphins and Atlantic spotted dolphins (*Stenella frontalis*) (Table 7, Figure 5). The following day a complete set of ten tracklines were flown with eight cetacean sightings mixed between bottlenose and Atlantic spotted dolphins. On the 25th four tracklines were flown and seven cetacean sightings were made including one group of Risso's dolphin (*Grampus griseus*) and a single humpback whale. The Risso's dolphins were observed on the offshore end of trackline seven while the humpback whale was observed breaching inside of the shelf break on trackline five. Loggerhead sea turtles dominated our turtle sightings, while all others were unidentified except for a single sighting of a leatherback sea turtle (Table 8, Figure 6). During surveys on January 24th and 25th communication with the Duke survey vessels R/V *Starbuck* and R/V *Stellwagen* were maintained in order to relay any sightings in the vicinity of their survey area.

Aerial Survey Days Conducted at JAX = 3 days

Jacksonville Vessel Survey Activity

Vessel surveys were conducted from 07 January 2012 – 09 January 2012 and 24 January 2012 – 25 January 2012 in a Beaufort Sea State 1 to 3 (Table 9). Surveys were based from the R/V *Stellwagen* and the R/V *Starbuck*. The R/V *Starbuck* was deployed from the R/V *Stellwagen* each day to transit a portion of the survey area (Figure 7). There were 25 cetacean sightings observed totaling 164 individual bottlenose and spotted dolphins (Table 10, Figure 8). The majority of bottlenose dolphins observed were of the offshore morphotype, exhibiting white coloration on their peduncle. Twenty-one biopsy samples were collected and 670 photo-id images were obtained (Table 10). Singleton loggerheads dominated the 19 sea turtle sightings, though one leatherback was observed (Table 11, Figure 9).

Vessel Survey Days Conducted at JAX = 5 days

Jacksonville HARP

There was one HARP deployed on 24 January 2012 at Site A, located in the middle of the range, at 30.28475, -80.22111 and 76.5m depth (Figure 10). The HARP is scheduled to be retrieved between July and August 2012.

Table 1. Aerial survey effort table for the Hatteras study area for January 2012.

Date	Line	Sea State	Kilometers Flown	HOBBS Hours
30-Jan-2012	20	4 to 5	74.2	7.8
30-Jan-2012	21	4 to 5	73.8	
30-Jan-2012	22	4 to 5	74.3	
30-Jan-2012	23	4 to 5	73.8	
30-Jan-2012	24	4 to 5	73.4	
30-Jan-2012	25	4 to 5	71.4	
30-Jan-2012	26	3 to 5	73.6	
30-Jan-2012	27	3 to 5	73.6	
30-Jan-2012	28	2 to 5	73.7	
30-Jan-2012	29	3 to 5	73.4	
31-Jan-2012	39	4 to 5	78.7	7.5
31-Jan-2012	38	3 to 4	72.3	
31-Jan-2012	37	3 to 4	75.0	
31-Jan-2012	36	4 to 5	73.0	
31-Jan-2012	35	3 to 4	73.1	
31-Jan-2012	34	3 to 4	74.6	
31-Jan-2012	33	3 to 4	78.0	
31-Jan-2012	32	3 to 4	81.4	

Table 2. Cetacean sightings for aerial surveys in the Hatteras study area for January 2012.

Date	Time	On/Off Effort	Latitude	Longitude	Track Number	Species	Common Name	Group Size
30-Jan-12	9:41	On	34.456357	-75.556625	20	Unidentified delphinid		1
30-Jan-12	11:45	On	34.88733	-75.433136	25	<i>T. truncatus</i>	Bottlenose dolphin	3
30-Jan-12	12:03	On	35.048412	-75.558142	25	<i>M. novaeangliae</i>	Humpback whale	1
31-Jan-12	10:38	On	35.691736	-74.630091	39	<i>Z. cavirostris</i>	Cuvier's beaked whale	1
31-Jan-12	11:46	On	35.560197	-74.700421	37	<i>Mesoplodon spp.</i>	Unidentified beaked whale	4
31-Jan-12	12:21	On	35.487627	-74.803840	36	<i>Mesoplodon spp.</i>	Unidentified beaked whale	3
31-Jan-12	12:21	Off	35.487627	-74.803840	36	<i>T. truncatus</i>	Bottlenose dolphin	6
31-Jan-12	14:28	On	35.418673	-74.516484	35	<i>Balaenoptera acutorostrata</i>	Minke whale	2
31-Jan-12	15:35	On	35.227815	-74.785030	33	<i>P. macrocephalus</i>	Sperm whale	1

Table 3. Sea turtle sightings for aerial surveys in the Hatteras study area for January 2012.

Date	Time	On/Off Effort	Latitude	Longitude	Track Number	Species	Common Name	Group Size
30-Jan-12	14:19	On	34.982313	-75.442413	26	<i>C. caretta</i>	Loggerhead sea turtle	1
30-Jan-12	14:57	On	35.046635	-75.407384	27	Unidentified sea turtle		1
31-Jan-12	15:14	On	35.340399	-74.981557	34	<i>D. coriacea</i>	Leatherback sea turtle	1

Table 4. Vessel survey effort table for the Onslow Bay study area for January 2012.

Date	Sea State	Km surveyed	Survey Time (hrs:min)	At Sea Time	Platform
31-Jan-12	2-3	27.0	4:22	10:13	Sensation

Table 5. Cetacean sightings during vessel surveys in the Onslow Bay study area for January 2012.

Date	Time	Latitude	Longitude	Species	Common Name	Group Size	Biopsy samples	Photo-id Images
31-Jan-12	9:06	34.00423	-76.01622	<i>T. truncatus</i>	Bottlenose dolphin	20	2	167
31-Jan-12	12:22	33.75776	-75.84635		Unidentified whale	1	0	0
31-Jan-12	13:17	33.79999	-75.85713		<i>Mesoplodon</i> sp.	4	0	5
31-Jan-12	14:03	33.92055	-75.93716	<i>T. truncatus</i>	Bottlenose dolphin	3	0	8

Table 6. Aerial survey effort table for the Jacksonville study area for January 2012.

Date	Line	Sea State	Kilometers Flown	HOBBS Hours
23-Jan-2012	10	2 to 3	83.7	4.5
23-Jan-2012	9	2 to 3	71.6	
23-Jan-2012	8	2 to 3	73.3	
23-Jan-2012	7	2 to 3	79.5	
23-Jan-2012	6	2 to 3	84.5	
23-Jan-2012	5	2 to 3	86.0	
24-Jan-2012	1	2 to 3	87.2	7.9
24-Jan-2012	2	2 to 3	84.7	
24-Jan-2012	3	2 to 3	83.9	
24-Jan-2012	4	2 to 3	86.4	
24-Jan-2012	5	2 to 3	86.1	
24-Jan-2012	6	2 to 3	84.6	
24-Jan-2012	7	2 to 3	81.6	
24-Jan-2012	8	2 to 3	86.2	
24-Jan-2012	9	2 to 3	85.6	
24-Jan-2012	6	2 to 3	84.7	
25-Jan-2012	5	2 to 3	81.2	4.4
25-Jan-2012	6	2 to 3	86.0	
25-Jan-2012	7	2 to 3	85.0	
25-Jan-2012	8	2	76.3	

Table 7. Cetacean sightings for aerial surveys in the Jacksonville study area for January 2012.

Date	Time	On/Off Effort	Latitude	Longitude	Track Number	Species	Common Name	Group Size
23-Jan-12	13:21	On	30.569777	-80.445247	10	<i>T. truncatus</i>	Bottlenose dolphin	1
23-Jan-12	13:36	On	30.557850	-80.333953	10	<i>S. frontalis</i>	Atlantic spotted dolphin	75
23-Jan-12	14:16	On	30.518887	-80.210413	9	<i>T. truncatus</i>	Bottlenose dolphin	5
23-Jan-12	14:30	On	30.494180	-80.356793	9	<i>S. frontalis</i>	Atlantic spotted dolphin	4
23-Jan-12	15:23	On	30.369298	-80.280478	7	<i>T. truncatus</i>	Bottlenose dolphin	30
23-Jan-12	16:25	On	30.233261	-80.356791	5	<i>T. truncatus</i>	Bottlenose dolphin	85
24-Jan-12	9:56	On	29.965240	-80.047545	1	<i>T. truncatus</i>	Bottlenose dolphin	10
24-Jan-12	10:36	On	30.032596	-80.062563	2	<i>T. truncatus</i>	Bottlenose dolphin	10
24-Jan-12	13:02	On	30.308654	-80.568021	6	<i>T. truncatus</i>	Bottlenose dolphin	1
24-Jan-12	14:50	On	30.367200	-80.664158	7	<i>T. truncatus</i>	Bottlenose dolphin	1
24-Jan-12	15:01	On	30.369999	-80.329043	7	<i>T. truncatus</i>	Bottlenose dolphin	1
24-Jan-12	15:19	On	30.367006	-79.885305	7	<i>T. truncatus</i>	Bottlenose dolphin	20
24-Jan-12	15:56	On	30.431846	-80.639311	8	<i>S. frontalis</i>	Atlantic spotted dolphin	4
24-Jan-12	16:52	On	30.306925	-80.344782	6	<i>T. truncatus</i>	Bottlenose dolphin	8
25-Jan-12	9:50	On	30.196954	-80.335528	5	<i>M. novaeangliae</i>	Humpback whale	1
25-Jan-12	10:20	On	30.232391	-80.254267	5	<i>T. truncatus</i>	Bottlenose dolphin	7
25-Jan-12	10:32	On	30.238935	-80.070583	5	<i>T. truncatus</i>	Bottlenose dolphin	4
25-Jan-12	11:31	On	30.355313	-80.367444	7	<i>T. truncatus</i>	Bottlenose dolphin	2
25-Jan-12	11:40	On	30.370021	-80.316988	7	<i>S. frontalis</i>	Atlantic spotted dolphin	15
25-Jan-12	12:06	On	30.369693	-79.833103	7	<i>G. griseus</i>	Risso's dolphin	5
25-Jan-12	12:37	On	30.438325	-80.293544	8	<i>S. frontalis</i>	Atlantic spotted dolphin	52

Table 8. Sea turtle sightings for aerial surveys in the Jacksonville study area for January 2012.

Date	Time	On/Off Effort	Latitude	Longitude	Track Number	Species	Common Name	Group Size
23-Jan-12	13:14	On	30.567502	-80.655764	10	<i>C. caretta</i>	Loggerhead sea turtle	2
23-Jan-12	13:14	On	30.567679	-80.640008	10		Unidentified sea turtle	1
23-Jan-12	13:15	On	30.567293	-80.600892	10	<i>C. caretta</i>	Loggerhead sea turtle	1
23-Jan-12	13:17	On	30.567330	-80.535374	10		Unidentified sea turtle	3
23-Jan-12	13:44	On	30.567855	-80.255747	10	<i>C. caretta</i>	Loggerhead sea turtle	1
23-Jan-12	14:11	On	30.500095	-80.196812	9	<i>C. caretta</i>	Loggerhead sea turtle	1
23-Jan-12	14:24	On	30.499981	-80.264428	9	<i>C. caretta</i>	Loggerhead sea turtle	1
23-Jan-12	14:36	On	30.504147	-80.409327	9	<i>D. coriacea</i>	Leatherback sea turtle	1
23-Jan-12	14:39	On	30.501364	-80.506400	9	<i>C. caretta</i>	Loggerhead sea turtle	1
23-Jan-12	14:41	On	30.500220	-80.577427	9	<i>C. caretta</i>	Loggerhead sea turtle	1
23-Jan-12	14:45	On	30.436019	-80.529695	8	<i>C. caretta</i>	Loggerhead sea turtle	1
23-Jan-12	14:46	On	30.436554	-80.497053	8		Unidentified sea turtle	3
23-Jan-12	14:47	On	30.435744	-80.433259	8	<i>C. caretta</i>	Loggerhead sea turtle	2
23-Jan-12	14:50	On	30.432806	-80.326035	8	<i>C. caretta</i>	Loggerhead sea turtle	3
23-Jan-12	14:52	On	30.431819	-80.266100	8	<i>C. caretta</i>	Loggerhead sea turtle	2
23-Jan-12	14:54	On	30.432589	-80.178342	8	<i>C. caretta</i>	Loggerhead sea turtle	1
23-Jan-12	15:21	On	30.365067	-80.251321	7		Unidentified sea turtle	1
23-Jan-12	15:43	On	30.301246	-80.659971	6	<i>C. caretta</i>	Loggerhead sea turtle	1
23-Jan-12	15:45	On	30.301034	-80.568405	6	<i>C. caretta</i>	Loggerhead sea turtle	1
23-Jan-12	15:48	On	30.299538	-80.477207	6	<i>C. caretta</i>	Loggerhead sea turtle	1
23-Jan-12	15:50	On	30.298970	-80.378227	6	<i>C. caretta</i>	Loggerhead sea turtle	4
23-Jan-12	15:52	On	30.300476	-80.309482	6		Unidentified sea turtle	1
23-Jan-12	16:21	On	30.231086	-80.258395	5	<i>C. caretta</i>	Loggerhead sea turtle	1
23-Jan-12	16:36	On	30.231915	-80.462334	5	<i>C. caretta</i>	Loggerhead sea turtle	1
24-Jan-12	11:43	On	30.168955	-80.140984	4	<i>C. caretta</i>	Loggerhead sea turtle	1
24-Jan-12	11:47	On	30.167342	-80.269580	4	<i>C. caretta</i>	Loggerhead sea turtle	1
24-Jan-12	11:49	On	30.165295	-80.340069	4		Unidentified sea turtle	1
24-Jan-12	12:05	On	30.232113	-80.600481	5		Unidentified sea turtle	1
24-Jan-12	12:45	On	30.302269	-80.322899	6	<i>C. caretta</i>	Loggerhead sea turtle	1
24-Jan-12	14:52	On	30.365781	-80.596974	7		Unidentified sea turtle	2
24-Jan-12	14:54	On	30.365028	-80.537089	7	<i>C. caretta</i>	Loggerhead turtle	1
24-Jan-12	14:57	On	30.366003	-80.433005	7	<i>C. caretta</i>	Loggerhead sea turtle	2
24-Jan-12	14:59	On	30.367510	-80.366139	7	<i>C. caretta</i>	Loggerhead sea turtle	1
24-Jan-12	15:06	On	30.366009	-80.273319	7		Unidentified sea turtle	1
24-Jan-12	15:06	On	30.366476	-80.257614	7		Unidentified sea turtle	1
24-Jan-12	15:41	On	30.432721	-80.186161	8		Unidentified sea turtle	1
24-Jan-12	15:47	On	30.432687	-80.380116	8	<i>C. caretta</i>	Loggerhead sea turtle	2
24-Jan-12	15:53	On	30.432309	-80.597609	8	<i>C. caretta</i>	Loggerhead sea turtle	1
24-Jan-12	15:54	On	30.432272	-80.611698	8		Unidentified sea turtle	2
24-Jan-12	16:06	On	30.500034	-80.609319	9	<i>C. caretta</i>	Loggerhead sea turtle	3
24-Jan-12	16:06	On	30.500075	-80.604010	9		Unidentified sea turtle	1
24-Jan-12	16:11	On	30.500316	-80.398078	9	<i>C. caretta</i>	Loggerhead sea turtle	2
24-Jan-12	16:15	On	30.500405	-80.281196	9	<i>C. caretta</i>	Loggerhead sea turtle	2
24-Jan-12	16:16	On	30.500446	-80.213089	9	<i>C. caretta</i>	Loggerhead sea turtle	2
24-Jan-12	16:50	On	30.299740	-80.328559	6	<i>C. caretta</i>	Loggerhead sea turtle	1
25-Jan-12	11:10	On	30.298853	-80.597509	6	<i>C. caretta</i>	Loggerhead sea turtle	1
25-Jan-12	11:21	On	30.367364	-80.486713	7	<i>C. caretta</i>	Loggerhead sea turtle	2
25-Jan-12	11:23	On	30.366807	-80.422319	7	<i>C. caretta</i>	Loggerhead sea turtle	1
25-Jan-12	12:46	On	30.434893	-80.360845	8		Unidentified sea turtle	1
25-Jan-12	12:47	On	30.434645	-80.370112	8		Unidentified sea turtle	2

Table 9. Vessel survey effort table for the Jacksonville study area for January 2012.

Date	Sea State	Km surveyed	Survey Time (hrs:min)	At Sea Time	Platform
7-Jan-12	3	55.6	4:55	7:45	Starbuck
8-Jan-12	1-2	148.2	9:34	9:34	Starbuck
9-Jan-12	1-3	75.4	5:15	7:42	Starbuck
24-Jan-12	2-3	111.3	6:35	15:58	Starbuck
25-Jan-12	1-3	150.0	7:32	14:50	Starbuck

Table 10. Cetacean sightings during vessel surveys in the Jacksonville study area for January 2012.

Date	Time	Latitude	Longitude	Species	Common Name	Group Size	Biopsy samples	Photo-id Images
7-Jan-12	11:34	30.50184	-80.71114	<i>T. truncatus</i>	Bottlenose dolphin	2	0	0
7-Jan-12	12:25	30.49944	-80.66624	<i>S. frontalis</i>	Atlantic spotted dolphin	15	1	98
7-Jan-12	14:17	30.52695	-80.53007		Unidentified delphinid	3	0	0
7-Jan-12	14:46	30.53505	-80.48754	<i>T. truncatus</i>	Bottlenose dolphin	3	0	21
8-Jan-12	8:27	30.30251	-80.69211	<i>T. truncatus</i>	Bottlenose dolphin	2	0	0
8-Jan-12	10:04	30.12917	-80.59816	<i>T. truncatus</i>	Bottlenose dolphin	2	0	2
8-Jan-12	11:02	30.09093	-80.56292	<i>T. truncatus</i>	Bottlenose dolphin	1	1	40
8-Jan-12	12:05	30.08271	-80.55196	<i>T. truncatus</i>	Bottlenose dolphin	2	1	36
8-Jan-12	13:02	30.04913	-80.53959	<i>T. truncatus</i>	Bottlenose dolphin	5	0	2
8-Jan-12	13:51	30.04362	-80.48119	<i>T. truncatus</i>	Bottlenose dolphin	2	2	22
8-Jan-12	14:22	30.04381	-80.42507	<i>T. truncatus</i>	Bottlenose dolphin	2	0	0
8-Jan-12	16:06	30.21387	-80.37461	<i>S. frontalis</i>	Atlantic spotted dolphin	6	3	99
8-Jan-12	16:57	30.25730	-80.45955	<i>T. truncatus</i>	Bottlenose dolphin	7	0	3
8-Jan-12	17:18	30.31471	-80.54945		Unidentified delphinid	2	0	0
8-Jan-12	17:19	30.43930	-80.71871		Unidentified delphinid	2	0	0
9-Jan-12	8:51	30.55233	-80.40503	<i>T. truncatus</i>	Bottlenose dolphin	2	0	1
9-Jan-12	9:55	30.56861	-80.29877	<i>S. frontalis</i>	Atlantic spotted dolphin	35	4	80
9-Jan-12	11:56	30.56802	-80.44309	<i>T. truncatus</i>	Bottlenose dolphin	2	1	34
9-Jan-12	13:05	30.55868	-80.69808	<i>T. truncatus</i>	Bottlenose dolphin	20	0	0
24-Jan-12	10:30	30.04674	-80.62529	<i>T. truncatus</i>	Bottlenose dolphin	1	0	0
24-Jan-12	12:27	30.03581	-80.27944	<i>T. truncatus</i>	Bottlenose dolphin	9	2	28
24-Jan-12	14:41	30.04477	-80.01291	<i>T. truncatus</i>	Bottlenose dolphin	9	1	24
25-Jan-12	10:35	30.39181	-80.39072	<i>T. truncatus</i>	Bottlenose dolphin	4	1	27
25-Jan-12	11:50	30.36125	-80.32012	<i>S. frontalis</i>	Atlantic spotted dolphin	25	2	113
25-Jan-12	15:08	30.27838	-80.30796	<i>T. truncatus</i>	Bottlenose dolphin	8	2	40

Table 11. Sea turtle sightings during vessel surveys in the Jacksonville study area for January 2012.

Date	Time	Latitude	Longitude	Species	Common Name	Group Size
7-Jan-12	14:26	30.52881	-80.52291	<i>C. caretta</i>	Loggerhead sea turtle	1
7-Jan-12	14:56	30.53563	-80.48869	Unidentified sea turtle		1
7-Jan-12	16:46	30.51769	-80.63006	<i>C. caretta</i>	Loggerhead sea turtle	1
8-Jan-12	10:10	30.12728	-80.59263	<i>C. caretta</i>	Loggerhead sea turtle	1
8-Jan-12	10:28	30.13513	-80.59181	<i>D. coriacea</i>	Leatherback sea turtle	1
8-Jan-12	11:10	30.08998	-80.56569	<i>C. caretta</i>	Loggerhead sea turtle	1
8-Jan-12	13:43	30.04635	-80.50339	<i>C. caretta</i>	Loggerhead sea turtle	1
8-Jan-12	13:46	30.04716	-80.49131	<i>C. caretta</i>	Loggerhead sea turtle	1
8-Jan-12	13:52	30.04313	-80.48047	<i>C. caretta</i>	Loggerhead sea turtle	1
8-Jan-12	14:22	30.04378	-80.42519	<i>C. caretta</i>	Loggerhead sea turtle	1
8-Jan-12	15:03	30.06384	-80.32413	<i>C. caretta</i>	Loggerhead sea turtle	1
8-Jan-12	15:52	30.18344	-80.32745	<i>C. caretta</i>	Loggerhead sea turtle	1
8-Jan-12	16:00	30.20237	-80.35318	<i>C. caretta</i>	Loggerhead sea turtle	1
9-Jan-12	10:56	30.55439	-80.30574	<i>C. caretta</i>	Loggerhead sea turtle	1
9-Jan-12	11:44	30.56025	-80.41771	<i>C. caretta</i>	Loggerhead sea turtle	1
9-Jan-12	13:01	30.55874	-80.67901	<i>C. caretta</i>	Loggerhead sea turtle	1
24-Jan-12	11:29	30.04120	-80.43899	<i>C. caretta</i>	Loggerhead sea turtle	1
25-Jan-12	10:24	30.37499	-80.42109	<i>C. caretta</i>	Loggerhead sea turtle	1
25-Jan-12	13:06	30.37451	-80.27050	<i>C. caretta</i>	Loggerhead sea turtle	1

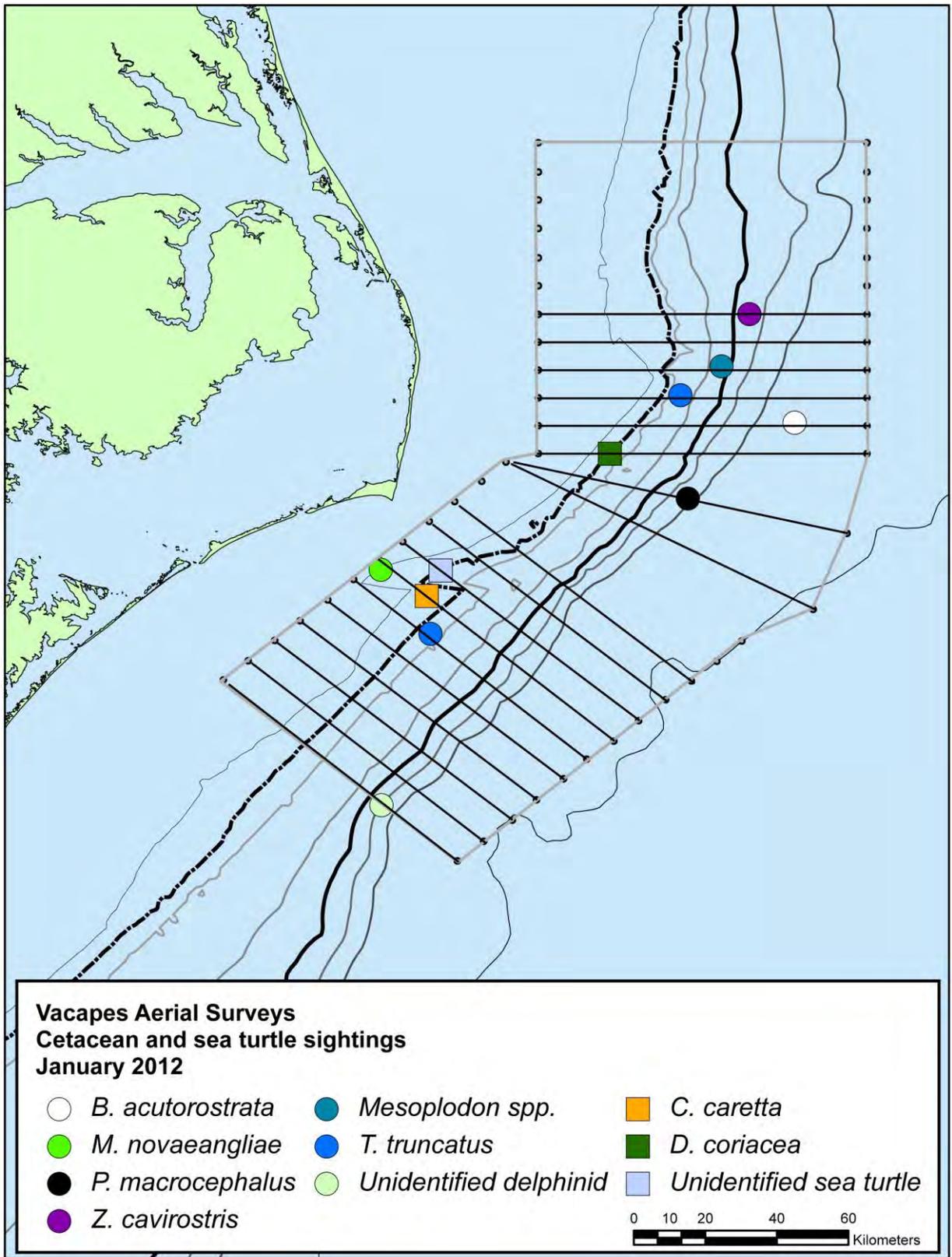


Figure 1. Cetaceans and sea turtles observed during aerial surveys in the Hatteras study area for January 2012. Lines illustrate tracklines covered during January.

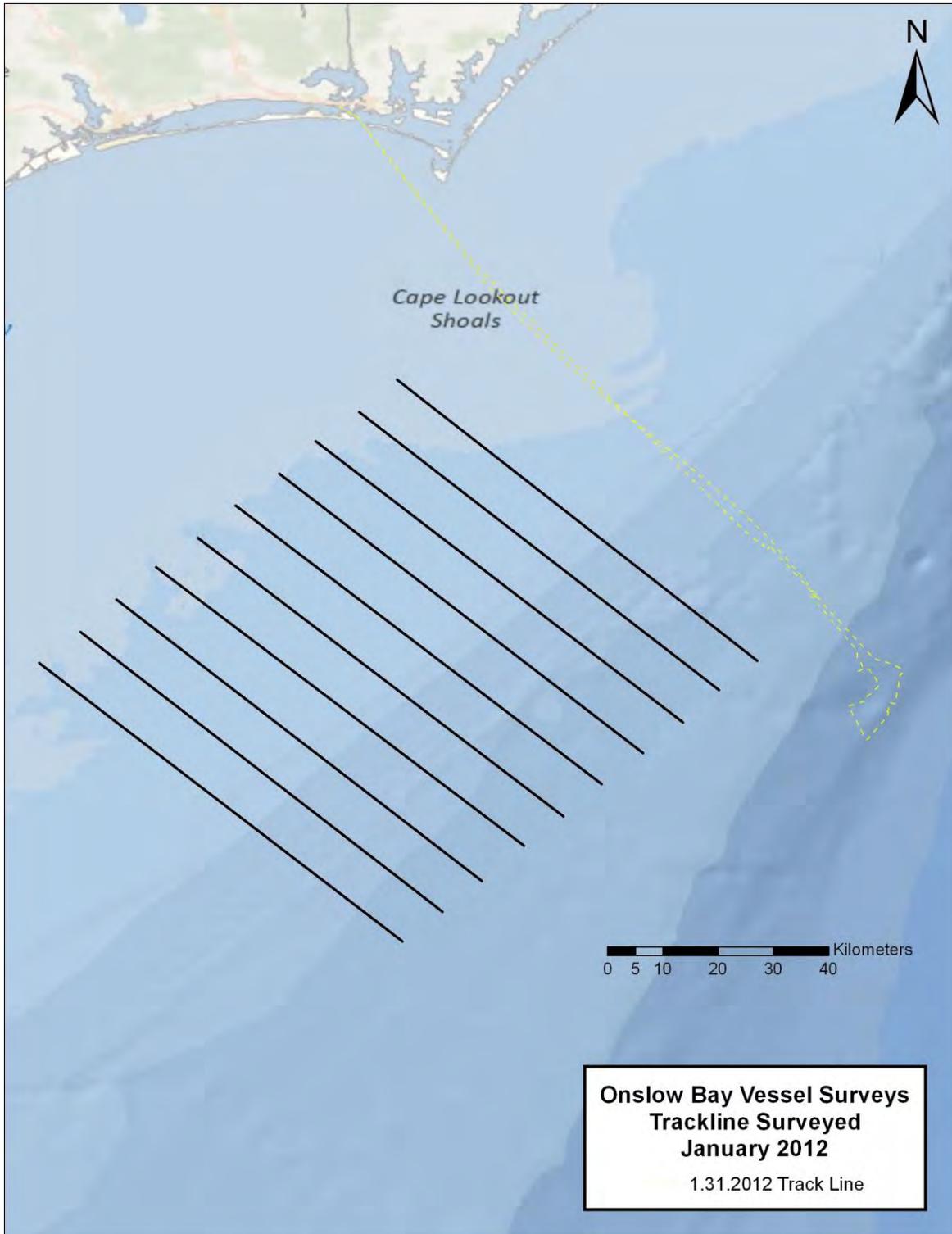


Figure 2. Vessel tracklines surveyed in the Onslow Bay study area for January 2012.

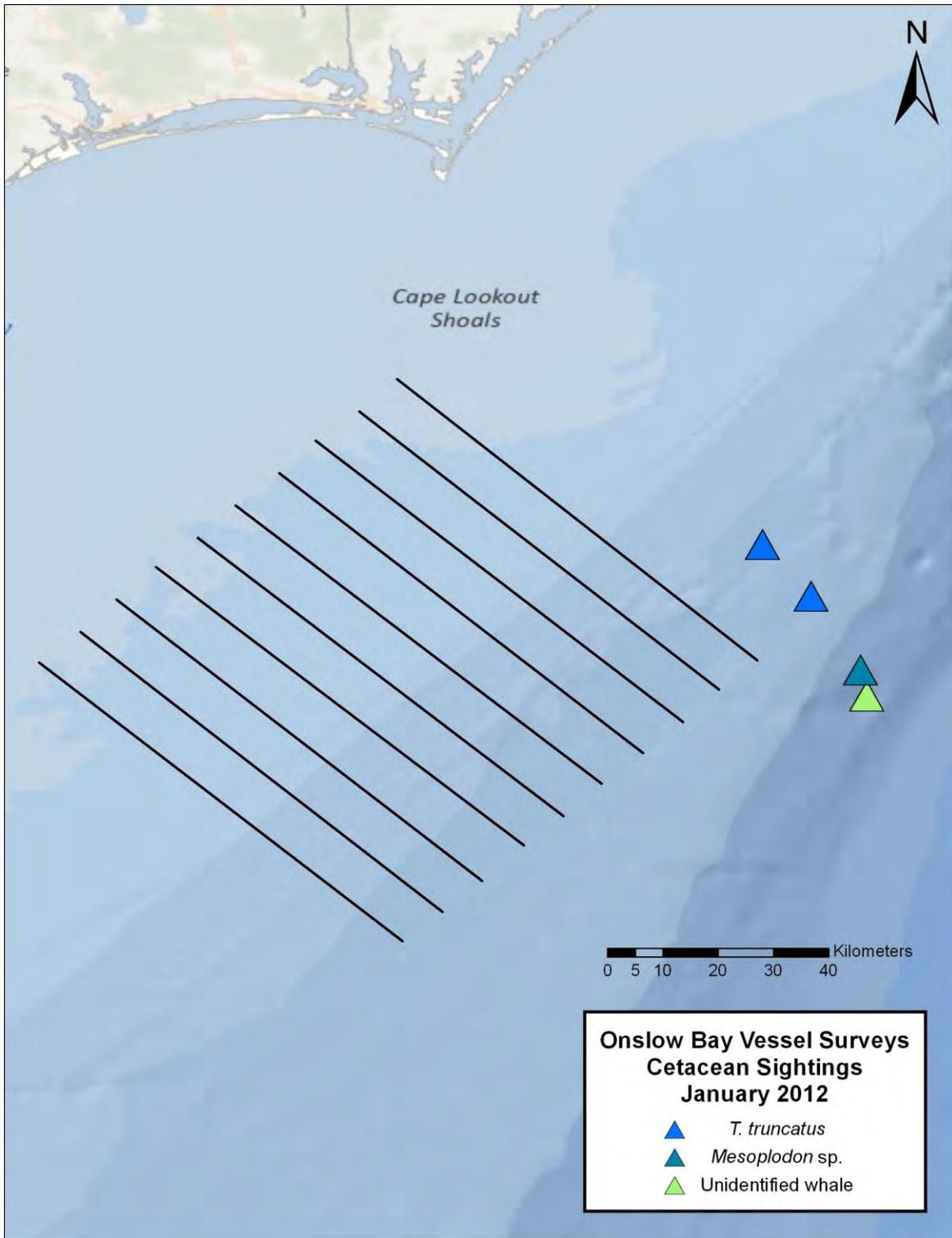


Figure 3. Cetaceans observed during vessel surveys in the Onslow Bay study area for January 2012.

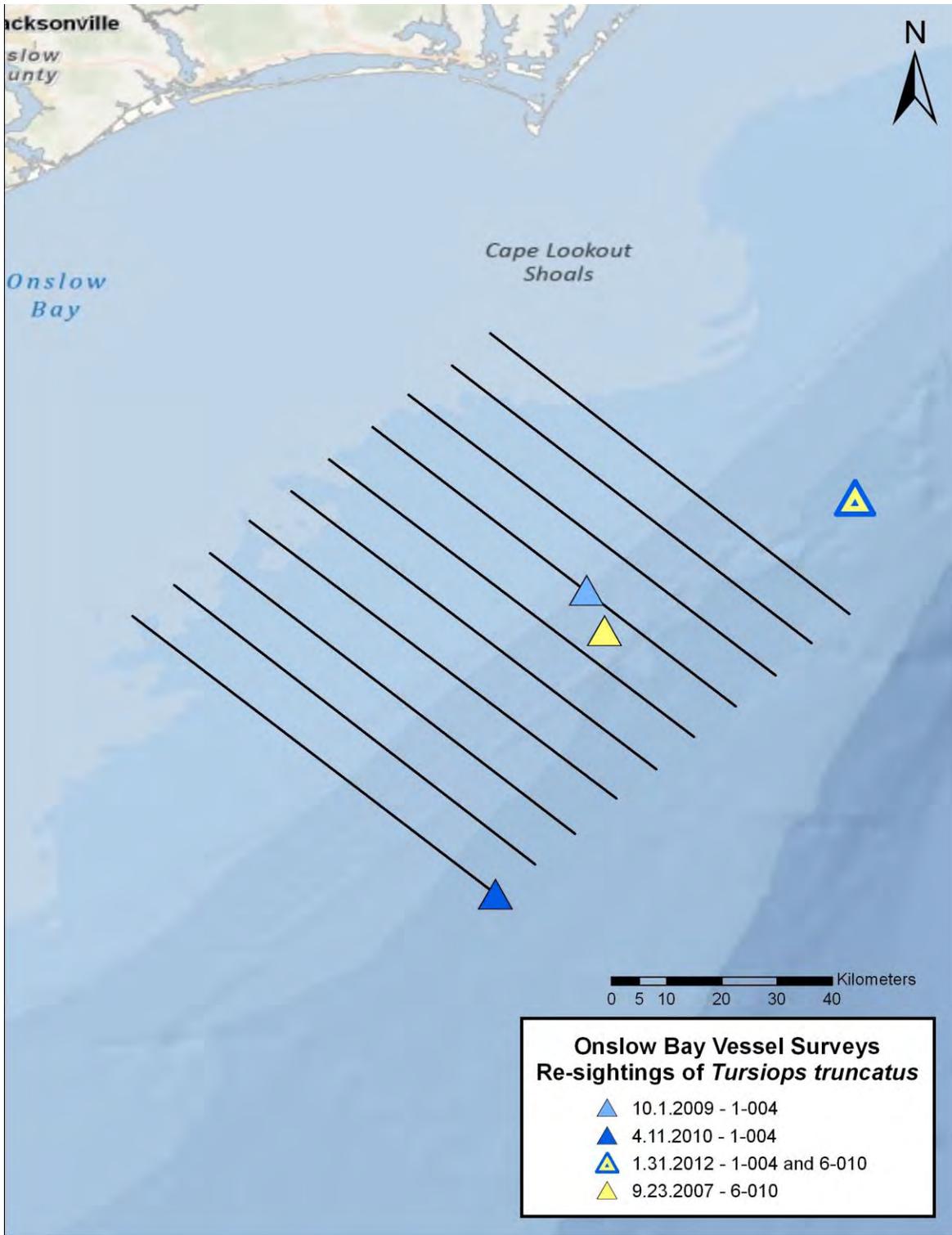


Figure 4. Cetaceans re-sighted during vessel surveys in the Onslow Bay study area for January 2012.

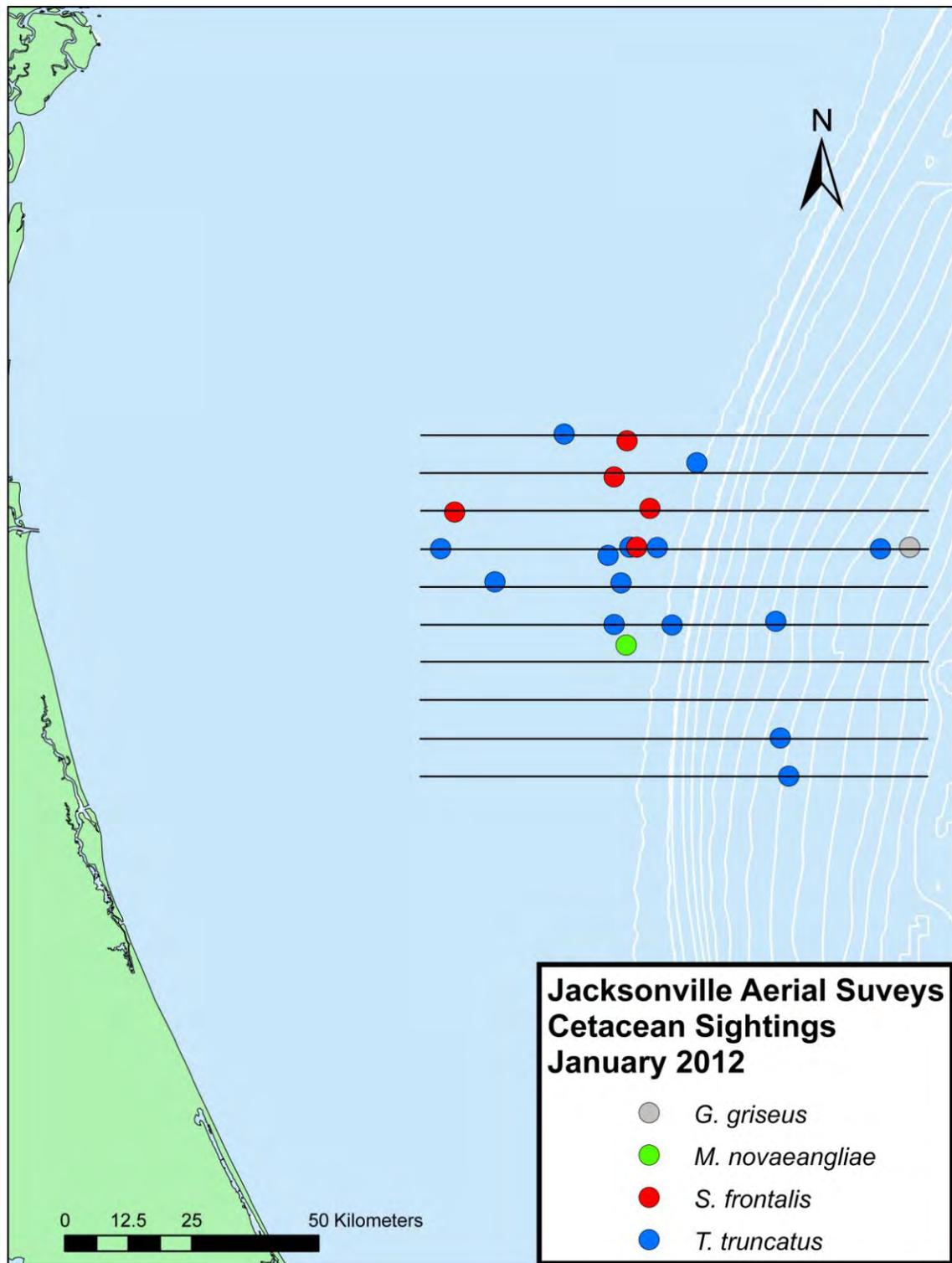


Figure 5. Cetaceans observed during aerial surveys in the Jacksonville study area for January 2012. Lines illustrate tracklines covered twice in January.

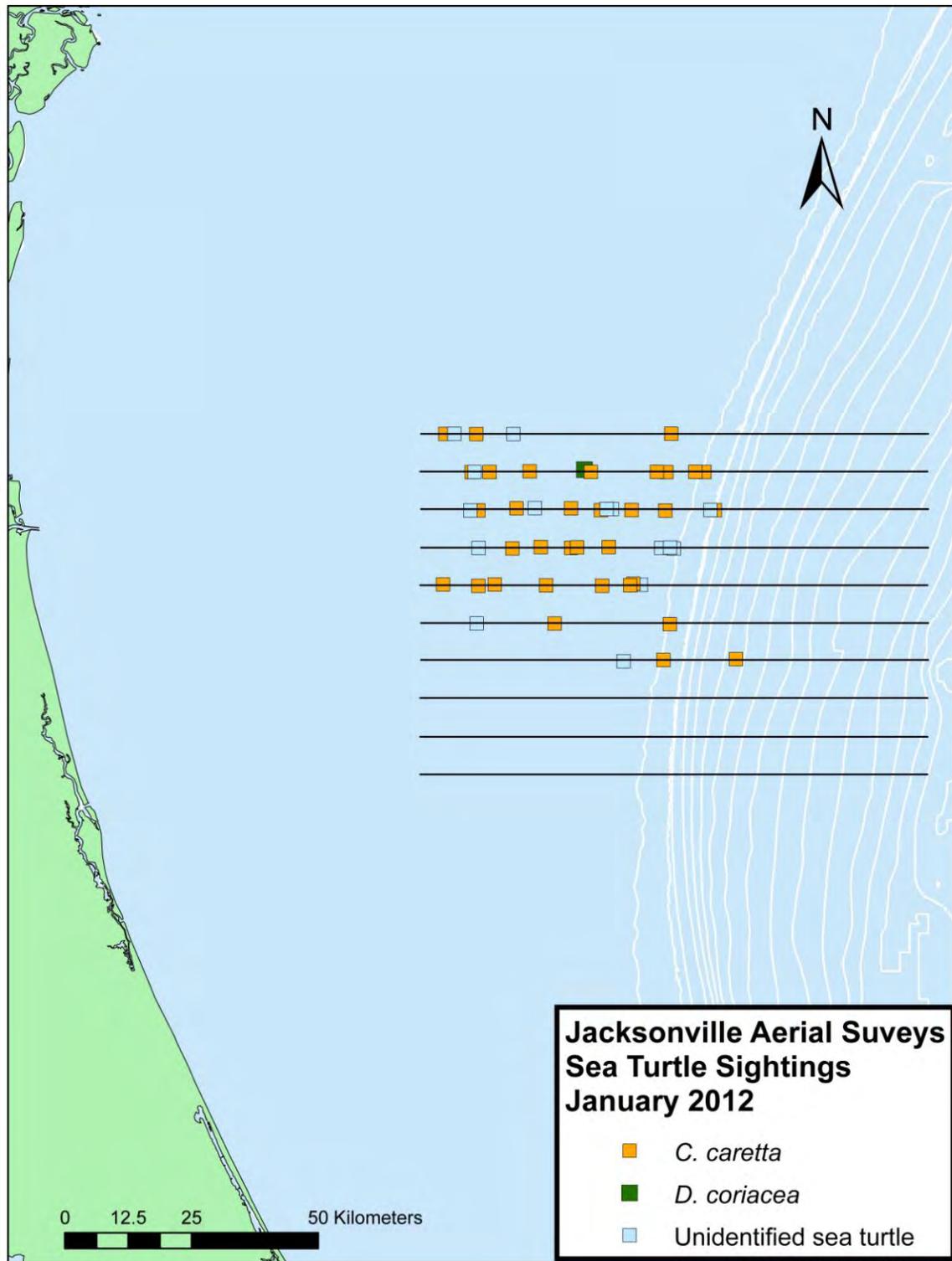


Figure 6. Sea turtles observed during aerial surveys in the Jacksonville study area for January 2012. Lines illustrate tracklines covered twice in January.

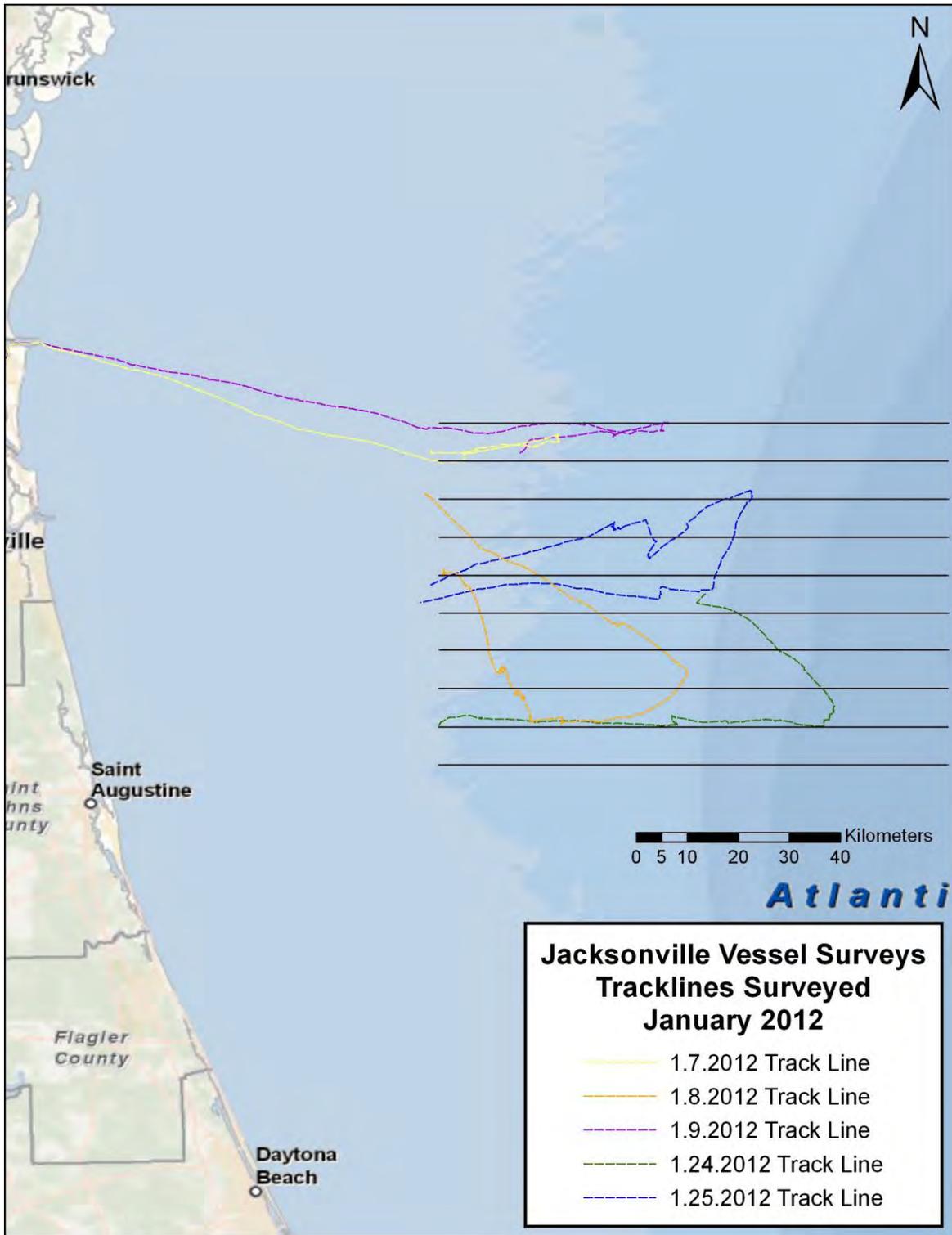


Figure 7. Vessel tracklines surveyed in the Jacksonville study area for January 2012.

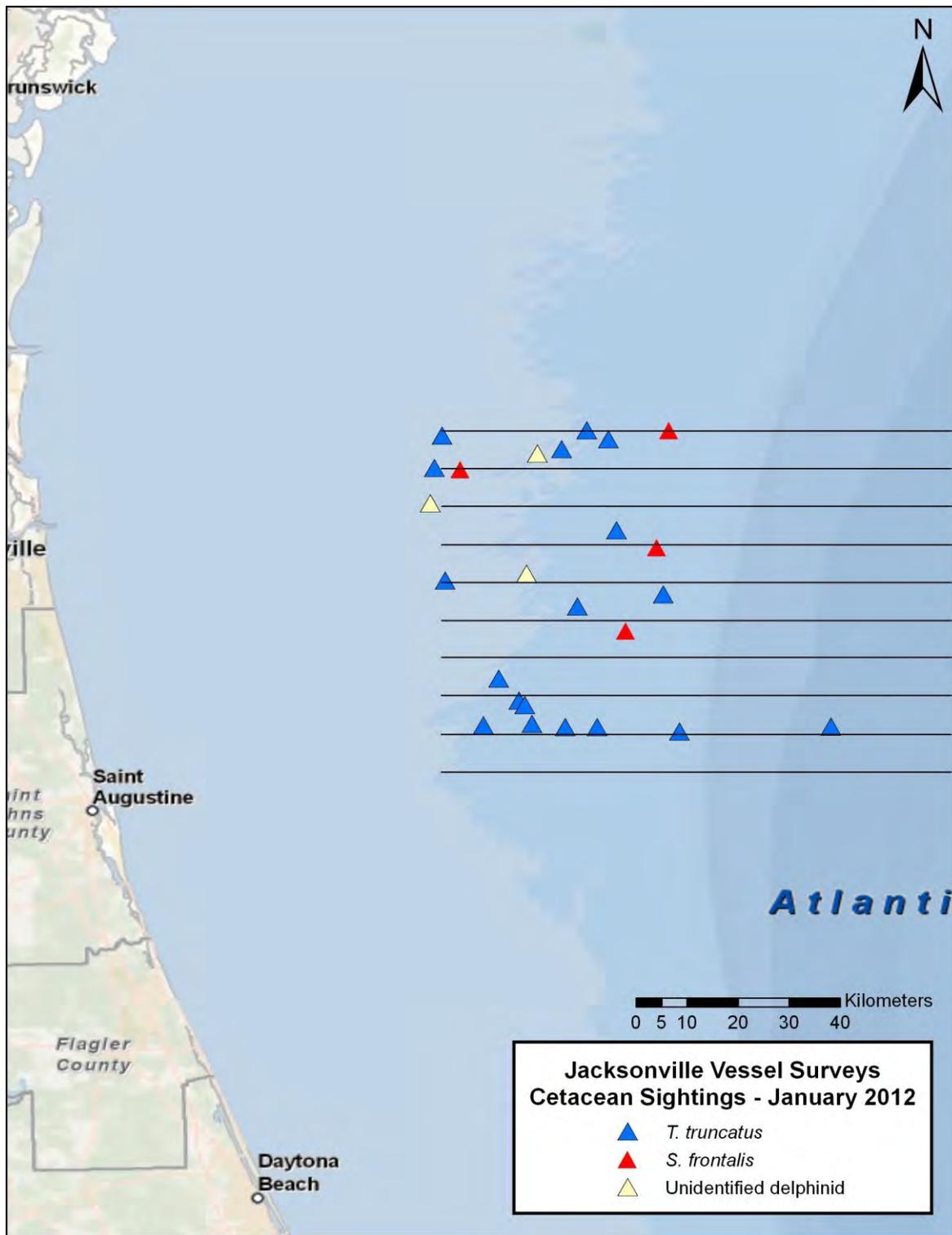


Figure 8. Cetaceans observed during vessel surveys in the Jacksonville study area for January 2012.

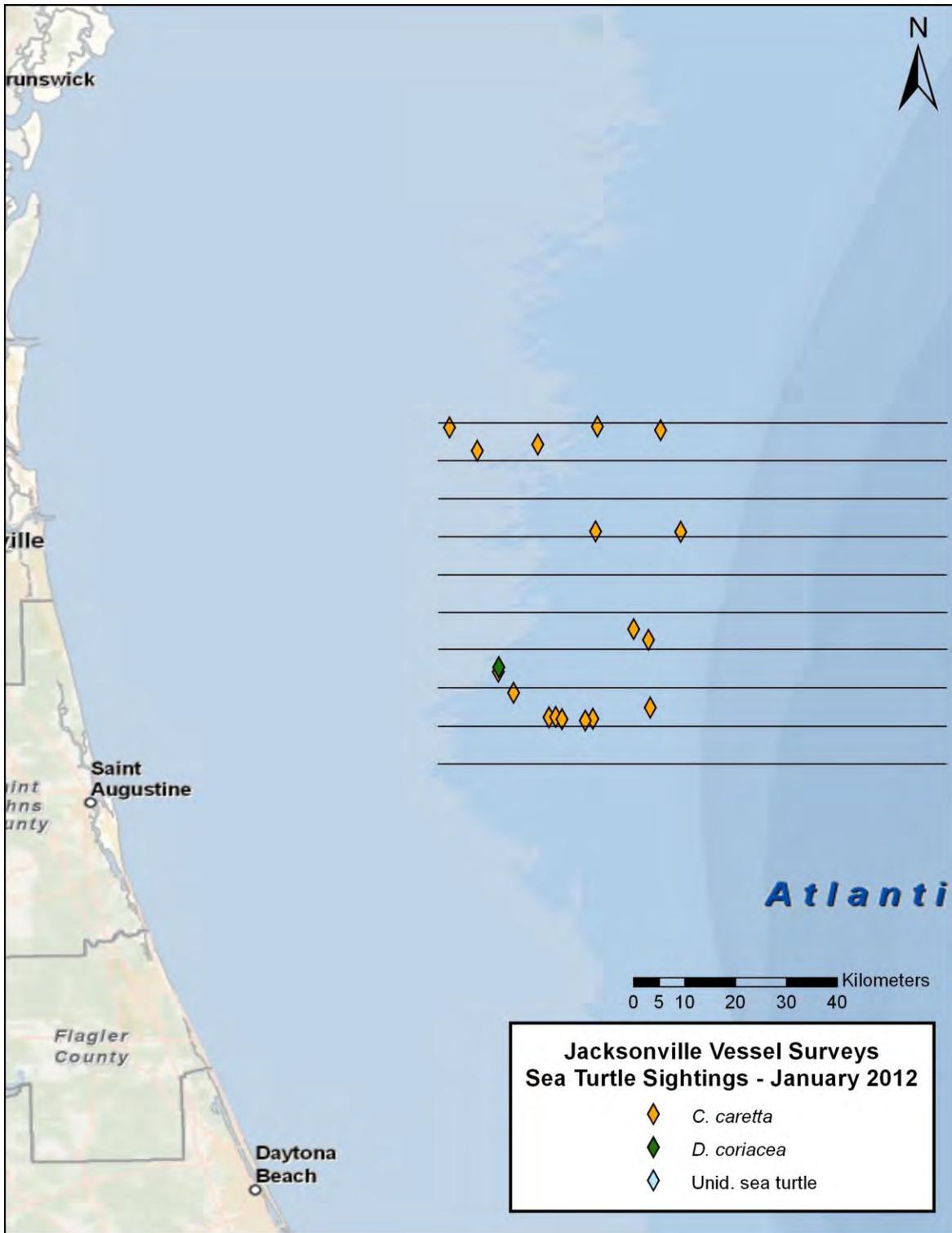


Figure 9. Sea turtles observed during vessel surveys in the Jacksonville study area for January 2012.

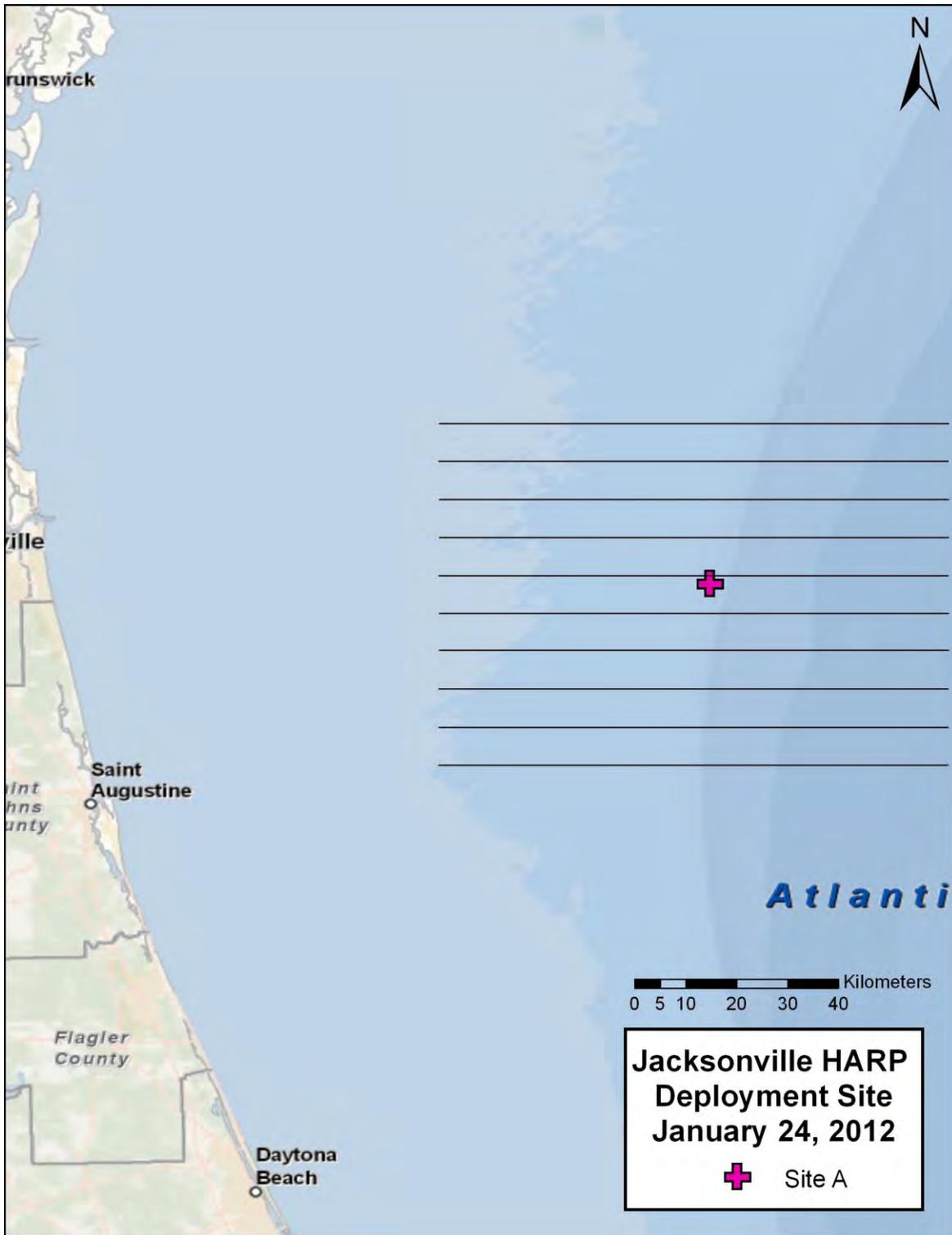


Figure 10. HARP location in the Jacksonville study area.

Monitoring of Protected Species in the Hatteras, Onslow and JAX Sites Progress Report to HDR: February 1 2012 through February 29 2012

February Expenses

There were no major purchases in February.

Hatteras Aerial Survey Activity

One day of aerial survey effort was conducted on 1 February 2012 in the VACAPES survey area, covering 8 tracklines (Table 1). Survey conditions were moderate/poor throughout the day. The team observed nine cetaceans including two groups of striped dolphins (*Stenella coeruleoalba*) which have not yet be recorded during our current effort off of Cape Hatteras (Table 2, Figure 1). Both of these groups were very large consisting of 250 and 450 individuals and moving fast through the water. Distinguishing features established during necropsies were used to positively identify this species. They have a dark gray stripe which encircles the eye then widens and leads towards the anus (Figure 2). Only one sighting of an unidentified sea turtle was recorded (Table 3, Figure 1).

Aerial Survey Days Conducted at Hatteras = 1 days

Hatteras Vessel Survey Activity

A vessel survey was conducted on 27 February 2012 in the middle of the VACAPES survey area, covering nearly 78 kilometers while on effort (Figure 3). Survey conditions ranged from good to fair (BSS 2-4) throughout the day (Table 4). Seven cetacean sightings were recorded: three bottlenose dolphins, three sperm whales, and a single group of short-finned pilot whales (Table 5, Figure 4). Approximately 275 photo-identification images were collected and one biopsy sample (ZTS_12_17) was obtained during a bottlenose dolphin encounter (Table 6, Figure 5).

Vessel Survey Days Conducted at Hatteras = 1 day

Onslow Bay Vessel Activity

A vessel survey was conducted aboard the F/V *Sensation* on 8 February 2012 in a Beaufort Sea State 2-4, covering approximately 78 kilometers (Table 7). Survey effort was focused in the center of the survey area; however, no cetaceans or sea turtles were observed (Figure 6).

Vessel Survey Days Conducted at Onslow Bay = 1 day

Onslow Bay HARP

There were no HARP deployments or retrievals in Onslow Bay during this reporting period. One HARP remains at 33.77794N, -75.92641W (952m depth) as described in the August 2011 report. The HARP is scheduled to be retrieved between February and March 2012.

Onslow Bay Photo-ID Effort

On 12 September 2011, we conducted a vessel survey in Onslow Bay and collected two biopsy samples from spotted dolphins. Photo-identification analysis conducted this month revealed that one of the sampled spotted dolphins (ZTS_11_019) was matched to an animal photographed on both 28 June 2001 and on 24 June 2002 (Sf-8004) during surveys conducted in near-shore, coastal waters of Onslow Bay (Figure 7). In addition to this month's long-term match, several other re-sightings span periods of up to four years or more, suggesting at least some dolphin residency in the Onslow Bay study area.

JAX Aerial Survey Activity

Due to inclement weather, no aerial surveys were conducted in the Jacksonville survey area during this month.

Aerial Survey Days Conducted at JAX = 0 days

Jacksonville Vessel Survey Activity

Due to inclement weather, no vessel surveys were conducted in the Jacksonville survey area during this month.

Vessel Survey Days Conducted at JAX = 0 days

Jacksonville HARP

There were no HARP deployments in Jacksonville during this reporting period. One HARP remains at Site A: 30.28475, -80.22111 (76.5m depth), as described in the January 2012 report. The HARP is scheduled to be retrieved between July and August 2012.

Table 1. Aerial survey effort table for the Hatteras study area for February 2012.

Date	Line	Sea State	Kilometers Flown	HOBBS Hours
1-Feb-2012	45	3 to 4	73.0	7.2
1-Feb-2012	44	4 to 5	74.3	
1-Feb-2012	43	4 to 5	70.5	
1-Feb-2012	42	4 to 5	74.0	
1-Feb-2012	41	4 to 5	73.3	
1-Feb-2012	40	4 to 5	74.9	
1-Feb-2012	31	5	71.8	
1-Feb-2012	30	5	72.8	

Table 2. Cetacean sightings for aerial surveys in the Hatteras study area for February 2012.

Date	Time	On/Off Effort	Latitude	Longitude	Track Number	Species	Common Name	Group Size
1-Feb-12	9:37	On	36.118833	-74.602939	45	<i>Stenella coeruleoalba</i>	Striped dolphin	450
1-Feb-12	10:32	On	35.972639	-74.790403	43	<i>Balaenoptera physalus</i>	Fin whale	1
1-Feb-12	11:41	On	35.834085	-74.463784	41	<i>Globicephala macrorhynchus</i>	Short-finned pilot whale	15
1-Feb-12	12:10	On	35.764195	-74.823749	40	<i>Globicephala macrorhynchus</i>	Short-finned pilot whale	4
1-Feb-12	12:12	On	35.768284	-74.819007	40	<i>Delphinus delphis</i>	Common dolphin	18
1-Feb-12	12:12	On	35.768284	-74.819007	40	<i>Tursiops truncatus</i>	Bottlenose dolphin	9
1-Feb-12	12:31	On	35.772974	-74.846489	40	<i>Stenella coeruleoalba</i>	Striped dolphin	250
1-Feb-12	14:50	On	35.031185	-74.841419	31	<i>Balaenoptera physalus</i>	Fin whale	2
1-Feb-12	15:15	On	34.979976	-74.790353	31	Unidentified baleen whale		1

Table 3. Sea turtle sightings for aerial surveys in the Hatteras study area for February 2012.

Date	Time	On/Off Effort	Latitude	Longitude	Track Number	Species	Common Name	Group Size
1-Feb-12	9:24	On	36.126549	-75.098245	45	Unidentified sea turtle		1

Table 4. Vessel survey effort table for the Hatteras study area for February 2012.

Date	Sea State	Km surveyed	Survey Time (hrs:min)	At Sea Time	Platform
27-Feb-12	2-4	77.8	5:56	10:15	F/V <i>Sea Creature</i>

Table 5. Cetacean sightings during vessel surveys in the Hatteras study area for February 2012.

Date	Time	Latitude	Longitude	Species	Common Name	Group Size	Biopsy Samples	Photo-id images
27-Feb-12	8:32	35.32475	-74.97490	<i>T. truncatus</i>	Bottlenose dolphin	12	1	101
27-Feb-12	9:43	35.31228	-74.94492	<i>T. truncatus</i>	Bottlenose dolphin	25	0	0
27-Feb-12	10:10	35.27835	-74.86606	<i>P. macrocephalus</i>	Sperm whale	2	0	64
27-Feb-12	11:07	35.19706	-74.82328	<i>G. macrorhynchus</i>	Short-finned pilot whale	30	0	1
27-Feb-12	12:25	35.20783	-74.87241	<i>P. macrocephalus</i>	Sperm whale	1	0	29
27-Feb-12	12:42	35.22635	-74.86561	<i>T. truncatus</i>	Bottlenose dolphin	5	0	11
27-Feb-12	13:05	35.22117	-74.88532	<i>P. macrocephalus</i>	Sperm whale	3	0	70

Table 6. Biopsy sample taken during vessel surveys in the Hatteras study area for February 2012.

Date	Time	Sighting #	Sample #	Species	Latitude	Longitude
27-Feb-12	9:07	1	ZTS_12_17	<i>Tursiops truncatus</i>	35.325665	-74.9543384

Table 7. Vessel survey effort table for the Onslow Bay study area for February 2012.

Date	Sea State	Km surveyed	Survey Time (hrs:min)	At Sea Time	Platform
8-Feb-12	2-4	77.8	4:37	10:05	F/V <i>Sensation</i>

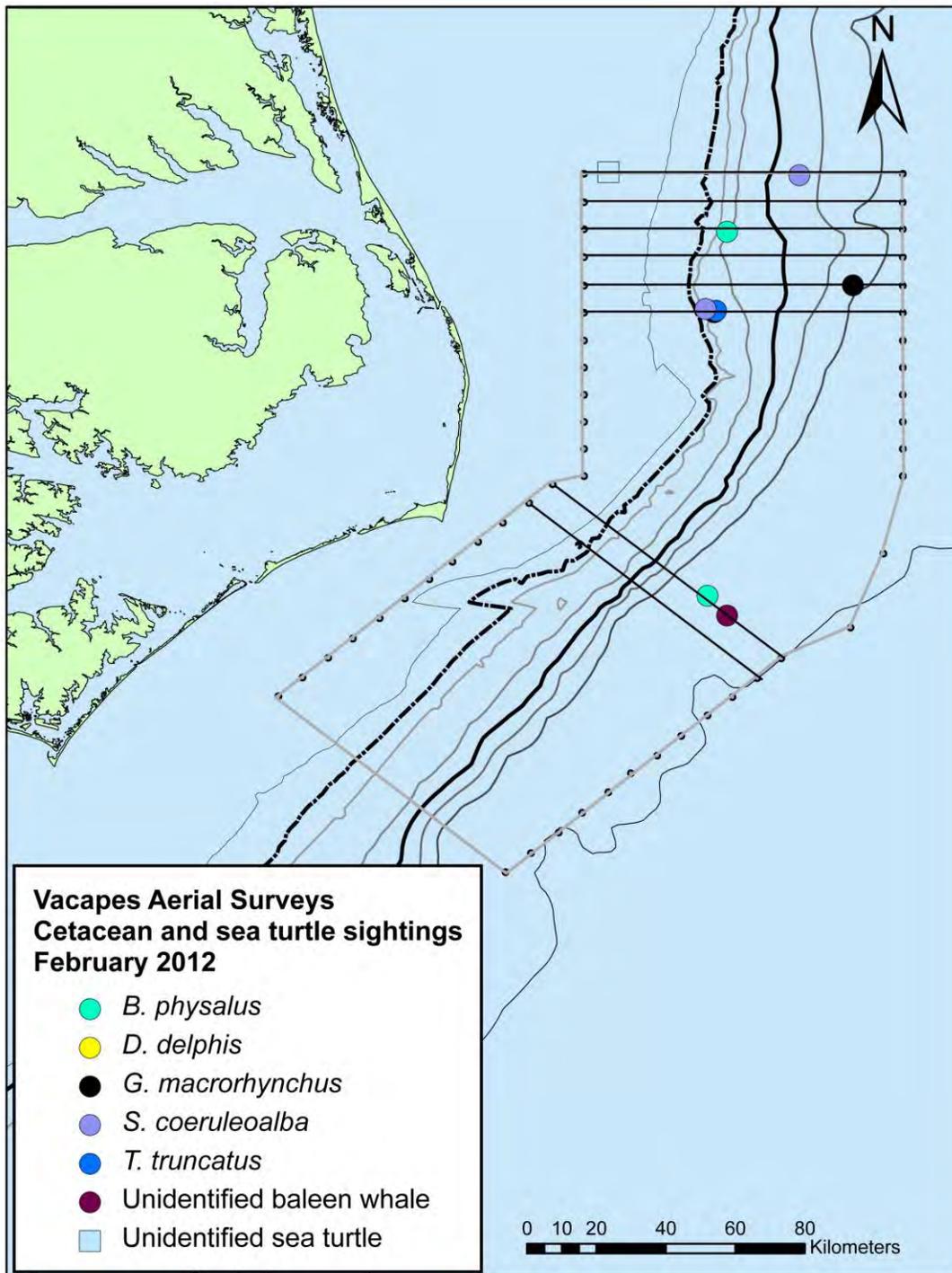
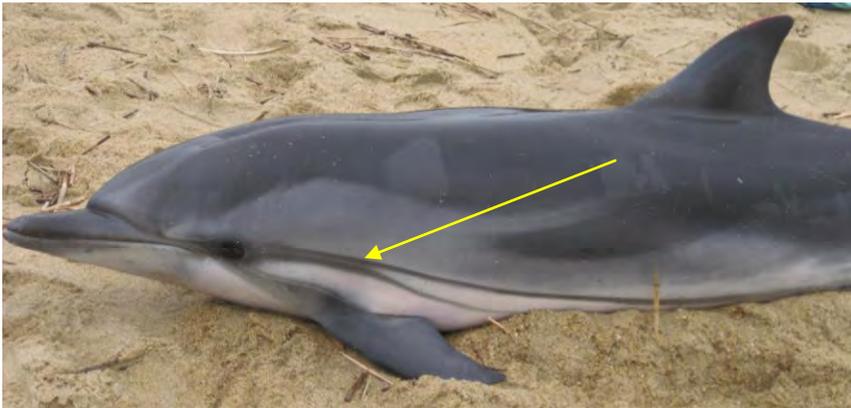


Figure 1. Cetaceans and sea turtles observed during aerial surveys in the Hatteras study area for February 2012. Lines indicate aerial survey coverage.



Striped Dolphin

- Dark gray stripe encircling eye, widens and extends to anus
- Dark gray dorsal cape
- Eye to flipper stripe

Figure 2. Characteristics of striped dolphins used for species identification of a new species sighted in the Hatteras study area for February 2012 (top images). The image on the bottom is from a stranded animal taken by the UNCW marine mammal stranding team in Kitty Hawk, NC.

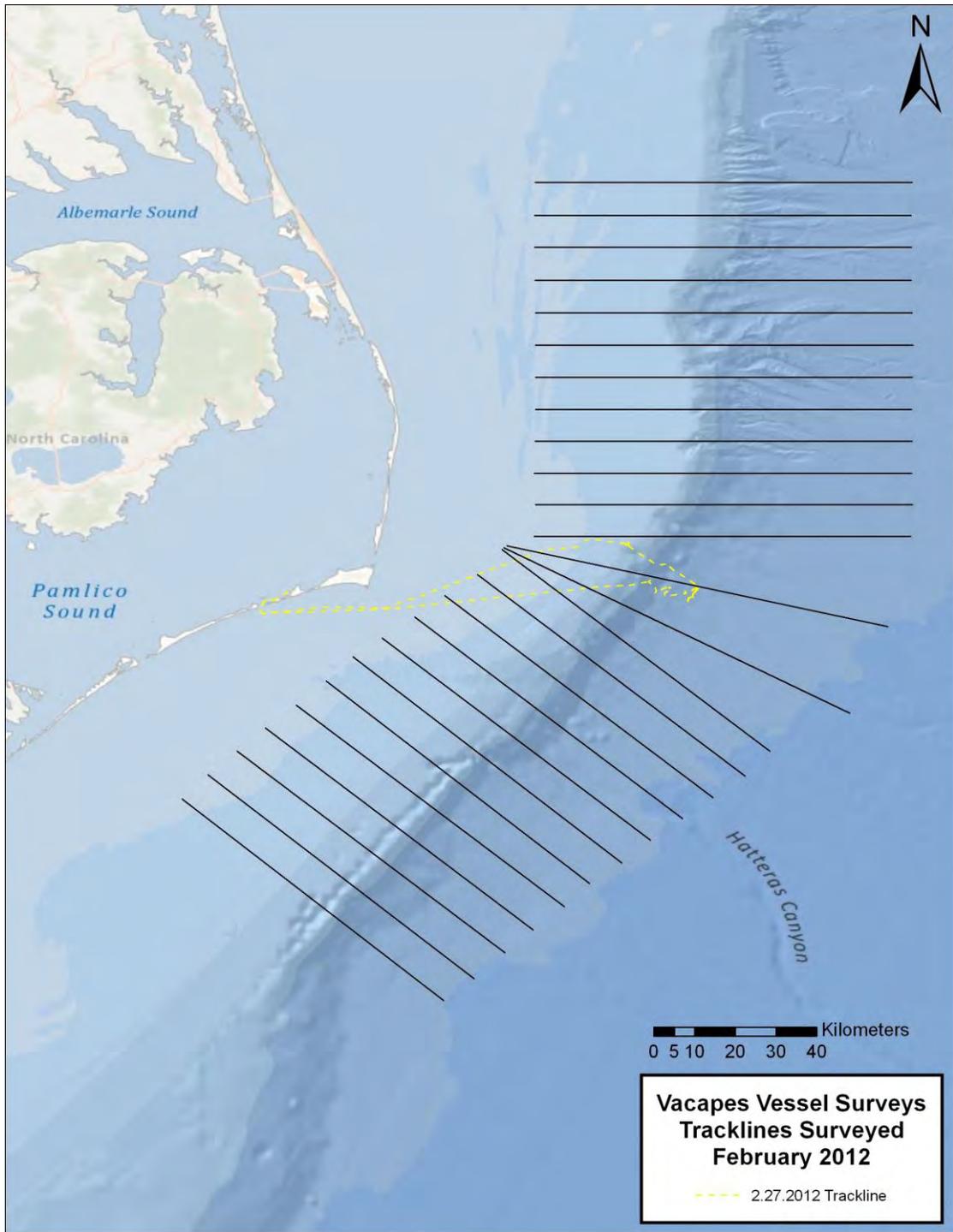


Figure 3. Vessel tracklines surveyed in the Hatteras study area for February 2012.

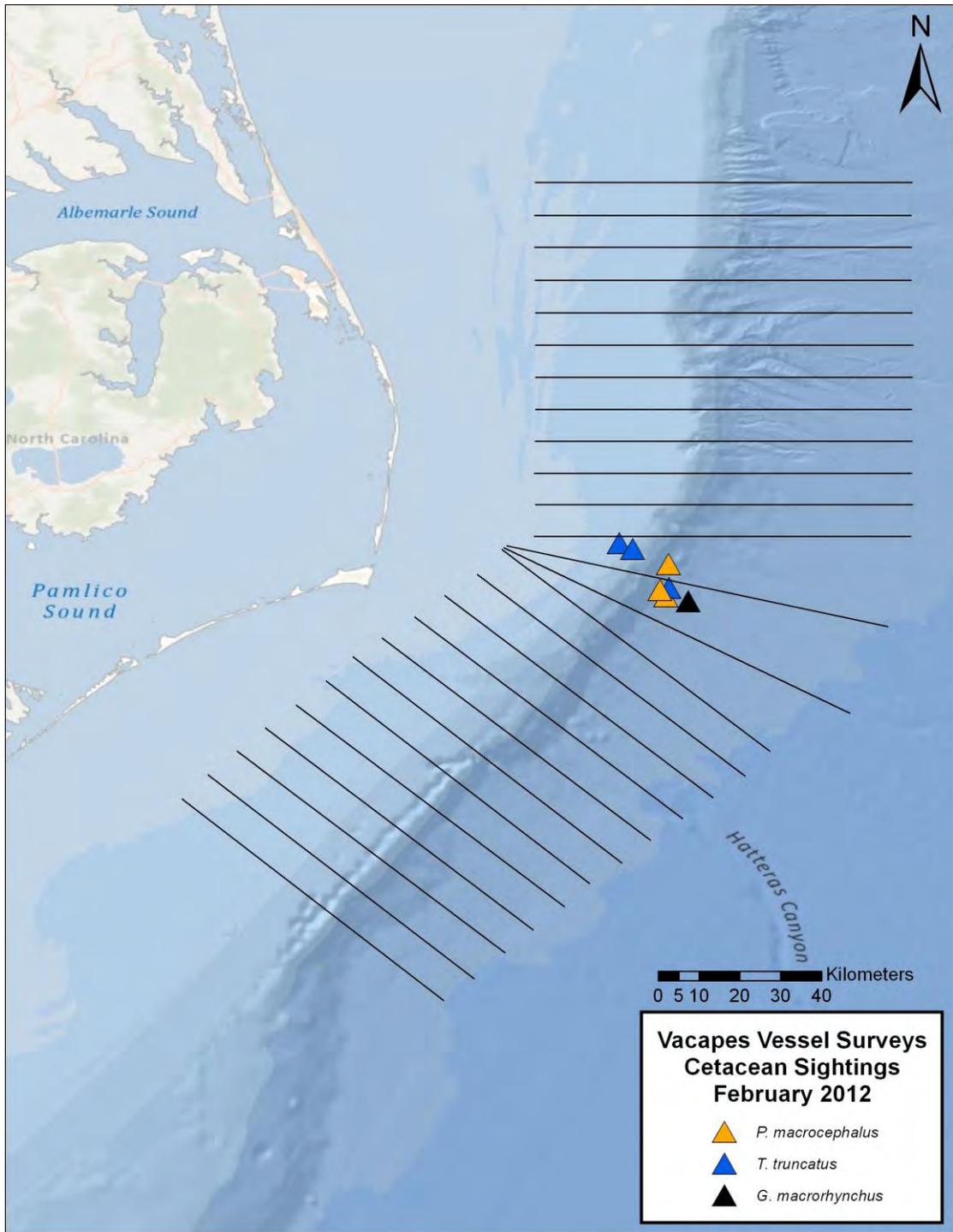


Figure 4. Cetaceans observed during vessel surveys in the Hatteras study area for February 2012.

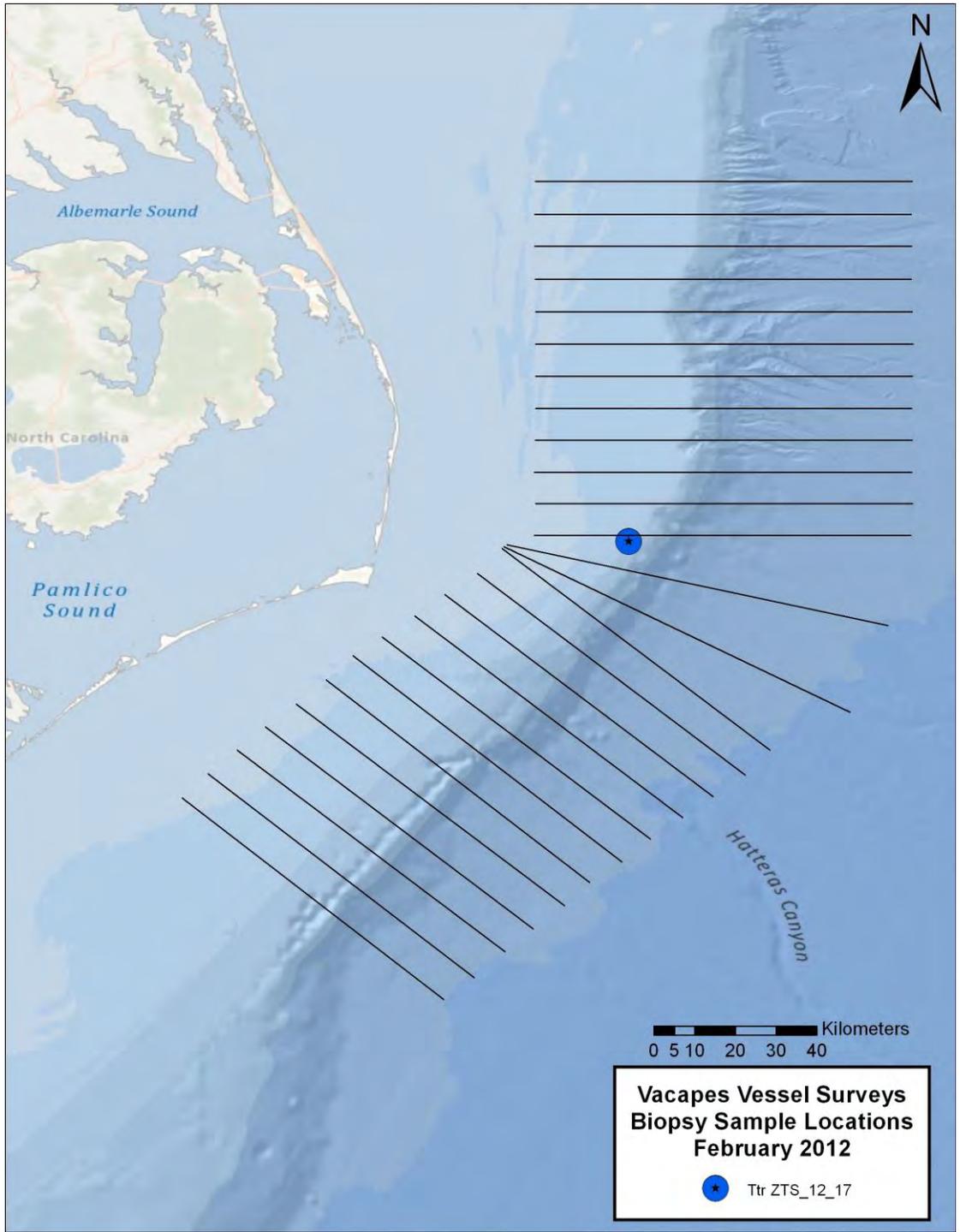


Figure 5. Biopsy sample location during vessel surveys in the Hatteras study area for February 2012

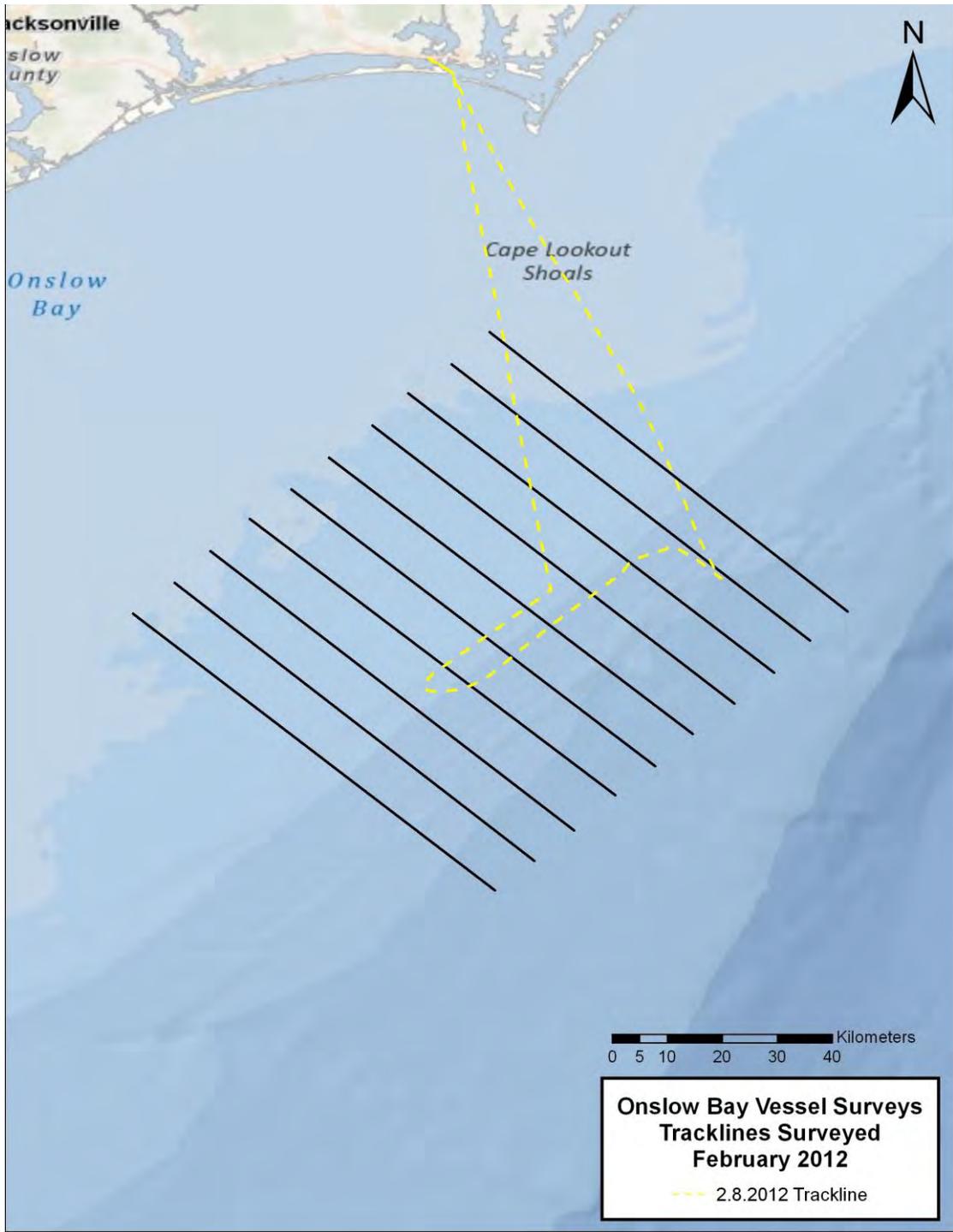


Figure 6. Vessel tracklines surveyed in the Onslow Bay study area for February 2012.

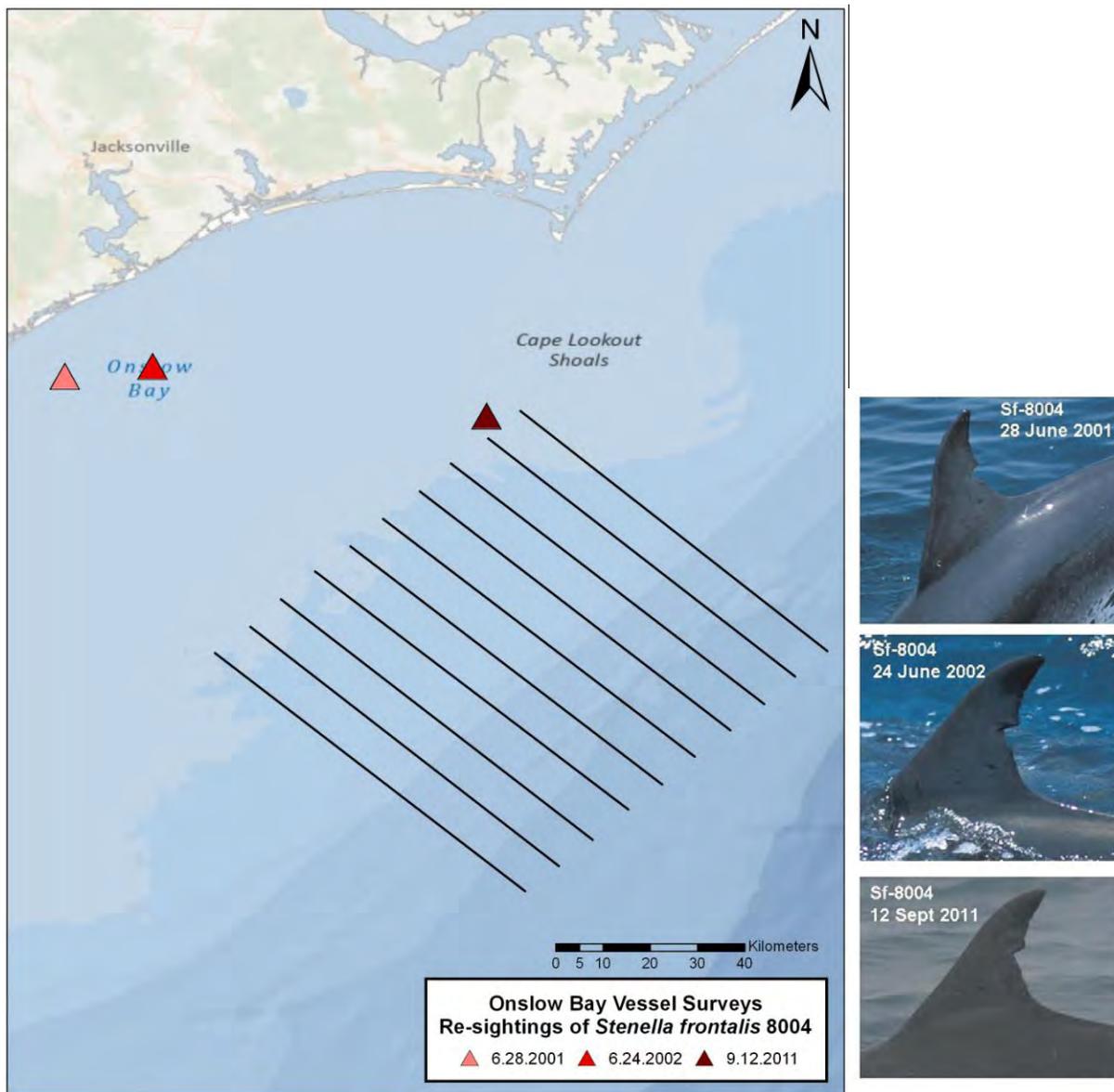


Figure 7. Cetacean photo-identification matches for vessel surveys in the Onslow Bay study area for February 2012.

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Monitoring of Protected Species in the Hatteras, Onslow and JAX Sites Progress Report to HDR: March 1 2012 through March 31 2012

The annual AFAST programmatic review was held at UNC Wilmington on 20 March. Members of the research team from Duke University Marine Lab joined the UNCW research team to meet with the Navy and HDR.

March Expenses

In March 2012, salaries for Duke employees were charged to TO 14, while vessel surveys and associated fuel, travel, and supplies were charged to TO 5. All HARP related activities were charged to TO 14. All UNCW salaries and aerial surveys were also charged to TO 14.

UNCW incurred expenses for report processing and hosting the meeting.

Hatteras Aerial Survey Activity

Favorable weather conditions during two days of survey effort conducted in the Cape Hatteras survey area resulted in 31 cetacean sightings across 12 species (Table 1 and 2, Figure 1). A minke whale mom / calf pair was observed while on effort on the 14th and was observed again on the 15th while transiting between tracklines. The survey team also documented a humpback whale carcass that was heavily scavenged on the inshore end of trackline 37. Mixed-species herds of dolphins were observed again this month as two groups of common and striped dolphins were seen on the 15th. White-beaked dolphins and melon-headed whales were two new species observed this month. Characteristics indicative of white-beaked dolphins are a very short, thick beak, tall dorsal fin, broad pectoral fins and a highly variable color pattern. Melon-headed whales have a tall dorsal fin, bulbous melon, sickle shaped or longer pectorals depending on sex and black in color (Figure 2). The improved sea state conditions also allowed for a number of loggerhead sea turtle sightings to be made in the range (Table 3, Figure 3). With the large number of species observed sea surface temperatures were overlaid on sightings to illustrate water temperature boundaries (Figure 13).

Aerial Survey Days Conducted at Hatteras = 2 days

Hatteras Vessel Survey Activity

A vessel survey was conducted on 15 March 2012 in the center of the VACAPES survey area, covering 106.5 kilometers while on effort (Figure 4). Survey conditions ranged from excellent to fair (BSS 1-3) throughout the day (Table 4). Seven cetacean sightings were recorded: two bottlenose dolphin, one sperm whale, two common dolphins, one Cuvier's beaked whale and one humpback whale. Additionally, one unidentified sea turtle was observed (Table 5 and 7, Figure 5). Approximately 300 photo-identification images were collected and two biopsy samples (ZTS-12-18 and ZTS-12-19) were obtained during a bottlenose dolphin encounter (Table 6, Figure 6).

Vessel Survey Days Conducted at Hatteras = 1 day

Hatteras Harp

There was one HARP deployed on 15 March 2012 at Site A, located in the center of the survey area, at 35.34054, -74.85761 and 950 m depth (Figure 7). The HARP is scheduled to be retrieved in August 2012.

Onslow Bay Vessel Activity

There were no vessel surveys conducted in the Onslow Bay survey area during this month due to inclement weather.

Vessel Survey Days Conducted at Onslow Bay = 0 day

Onslow Bay HARP

There were no HARP deployments or retrievals in Onslow Bay during this reporting period. One HARP remains at 33.77794, -75.92641 (952 m depth), as described in the August 2011 report. The HARP is scheduled to be retrieved as soon as weather permits.

Jacksonville Aerial Survey Activity

One aerial survey day was conducted on 29 March 2012 covering eight tracklines (Table 8). Naval activity was high this day causing the team to skip tracklines and/ or truncate lines early. Beaufort Sea State was high in the morning when no cetacean sightings were observed. However, weather was more favorable in the afternoon lending to six cetacean sightings of both Atlantic spotted dolphin and bottlenose dolphins (Table 9, Figure 8). Several sightings of loggerhead sea turtles were made during this survey (Table 10, Figure 9).

Aerial Survey Days Conducted at JAX = 1 days

Jacksonville Vessel Survey Activity

A vessel survey was conducted on 30 March 2012 in the southwest portion of the Jacksonville survey area covering 131.0 kilometers while on effort (Figure 10). Survey conditions ranged from good to fair (BSS 2-4) throughout the day (Table 11). Two cetacean sightings were recorded: one bottlenose dolphin and one Atlantic spotted dolphin. Four loggerhead sea turtles and one leatherback sea turtle were also observed (Table 12, 14, Figure 11). Approximately 20 photo-identification images were collected and one biopsy sample (ZTS-12-20) was obtained during the bottlenose dolphin encounter (Table 13, Figure 12).

Vessel Survey Days Conducted at JAX = 1 day

Jacksonville HARP

There were no HARP deployments in Jacksonville during this reporting period. One HARP remains at Site A: 30.28475, -80.22111 (76.5 m depth), as described in the January 2012 report. The HARP is scheduled to be retrieved between July and August 2012.

Table 1. Aerial survey effort table for the Hatteras study area for March 2012.

Date	Trackline	Sea state	Km Flown	Hobbs hours
14-Mar-2012	20	2 to 4	74.0	7.6
14-Mar-2012	21	3 to 4	73.6	
14-Mar-2012	22	2 to 4	73.9	
14-Mar-2012	23	3 to 4	73.8	
14-Mar-2012	24	2 to 3	76.9	
14-Mar-2012	25	3	68.5	
14-Mar-2012	26	2 to 3	70.0	
14-Mar-2012	27	2 to 3	73.3	
14-Mar-2012	28	2 to 3	73.6	
14-Mar-2012	29	1 to 3	71.8	
14-Mar-2012	30	1 to 2	68.0	
14-Mar-2012	31	2 to 3	71.2	
15-Mar-2012	32	2	77.6	
15-Mar-2012	33	2	74.2	
15-Mar-2012	37	2 to 3	74.0	
15-Mar-2012	38	3	68.2	
15-Mar-2012	45	2 to 3	66.9	
15-Mar-2012	44	2 to 3	69.8	
15-Mar-2012	43	2 to 3	68.7	
15-Mar-2012	39	3	71.0	

Table 2. Cetacean sightings for aerial surveys in the Hatteras study area for March 2012.

Date	Time	On / Off Effort	Latitude	Longitude	Track Number	Species	Common name	Group Size
14-Mar-12	11:59	On	34.753415	-75.273994	25	<i>G. macrorhynchus</i>	Short-finned pilot whale	21
14-Mar-12	12:08	On	34.823642	-75.371893	25	<i>T. truncatus</i>	Bottlenose dolphin	14
14-Mar-12	14:32	On	34.82944	-75.255250	26	<i>G. macrorhynchus</i>	Short-finned pilot whale	16
14-Mar-12	14:40	On	34.811058	-75.216392	26		Unidentified Cetacean	1
14-Mar-12	15:40	On	34.785733	-74.933775	28		Unidentified Cetacean	1
14-Mar-12	16:27	On	34.959386	-74.896202	30	<i>P. macrocephalus</i>	Sperm whale	1
14-Mar-12	16:41	On	34.933077	-74.838806	30	<i>B. acutorostrata</i>	Minke whale	2
14-Mar-12	17:02	On	35.159333	-75.040836	31	<i>P. electra</i>	Melon-headed whale	185
15-Mar-12	9:42	On	35.143693	-74.887270	32		<i>Mesoplodon</i> spp.	3
15-Mar-12	9:53	On	35.101080	-74.777675	32	<i>S. frontalis</i>	Atlantic spotted dolphin	26
15-Mar-12	10:10	Off	35.032775	-74.405086	NA	<i>B. acutorostrata</i>	Minke whale	2
15-Mar-12	10:24	On	35.151913	-74.430711	33	<i>B. physalus</i>	Fin whale	1
15-Mar-12	10:37	Off	35.198969	-74.674666	33	<i>B. acutorostrata</i>	Minke whale	2
15-Mar-12	10:38	On	35.201177	-74.673247	33	<i>G. macrorhynchus</i>	Short-finned pilot whale	25
15-Mar-12	10:49	On	35.239920	-74.805528	33	<i>L. albirostris</i>	White-beaked dolphin	210
15-Mar-12	11:21	On	35.550984	-74.773731	37	<i>T. truncatus</i>	Bottlenose dolphin	28
15-Mar-12	11:31	On	35.558571	-74.689945	37	<i>T. truncatus</i>	Bottlenose dolphin	8
15-Mar-12	11:35	On	35.554330	-74.566584	37		Unidentified Cetacean	1
15-Mar-12	12:10	On	35.628645	-74.682070	38	<i>T. truncatus</i>	Bottlenose dolphin	35
15-Mar-12	12:18	On	35.633265	-74.735229	38	<i>T. truncatus</i>	Bottlenose dolphin	40
15-Mar-12	12:32	On	35.622075	-75.060253	38	<i>M. novaeangliae</i>	Humpback whale	1
15-Mar-12	14:18	On	36.126358	-74.845911	45	<i>T. truncatus</i>	Bottlenose dolphin	8
15-Mar-12	14:28	On	36.136306	-74.671118	45	<i>T. truncatus</i>	Bottlenose dolphin	4
15-Mar-12	14:33	On	36.125825	-74.614163	45	<i>T. truncatus</i>	Bottlenose dolphin	26
15-Mar-12	14:47	On	36.126091	-74.417143	45	<i>D. delphis</i>	Common dolphin	75
15-Mar-12	14:47	On	36.126091	-74.417143	45	<i>S. coeruleoalba</i>	Striped dolphin	75
15-Mar-12	14:59	On	36.051086	-74.393703	44	<i>B. physalus</i>	Fin whale	3
15-Mar-12	15:42	On	35.989608	-74.849415	43	<i>T. truncatus</i>	Bottlenose dolphin	20
15-Mar-12	15:48	On	35.982781	-74.763415	43	<i>T. truncatus</i>	Bottlenose dolphin	15
15-Mar-12	16:01	Off	35.981214	-74.345163	43	<i>D. delphis</i>	Common dolphin	110
15-Mar-12	16:01	On	35.980901	-74.353094	43	<i>G. macrorhynchus</i>	Short-finned pilot whale	18
15-Mar-12	16:01	Off	35.981214	-74.345163	43	<i>S. coeruleoalba</i>	Striped dolphin	110
15-Mar-12	16:28	On	35.688026	-74.499732	39		Unidentified Cetacean	2
15-Mar-12	16:41	On	35.693636	-74.757051	39	<i>D. delphis</i>	Common dolphin	125

Table 3. Sea turtle sightings for aerial surveys in the Hatteras study area for March 2012.

Date	Time	On / Off Effort	Latitude	Longitude	Track Number	Species	Common Name	Group Size
14-Mar-12	11:15	On	34.807049	-75.612704	23	<i>C. caretta</i>	Loggerhead sea turtle	1
14-Mar-12	11:20	On	34.917775	-75.759217	23		Unidentified sea turtle	1
14-Mar-12	15:10	On	35.04928	-75.412273	27	<i>C. caretta</i>	Loggerhead sea turtle	2
14-Mar-12	16:04	On	35.112704	-75.231516	29	<i>C. caretta</i>	Loggerhead sea turtle	1
14-Mar-12	16:09	On	35.219367	-75.373094	29	<i>C. caretta</i>	Loggerhead sea turtle	1
15-Mar-12	12:28	On	35.624351	-74.968183	38	<i>C. caretta</i>	Loggerhead sea turtle	1
15-Mar-12	12:29	On	35.622425	-75.008358	38	<i>C. caretta</i>	Loggerhead sea turtle	2
15-Mar-12	14:10	On	36.123597	-75.038748	45		Unidentified sea turtle	1
15-Mar-12	15:25	On	36.047686	-75.105060	44	<i>C. caretta</i>	Loggerhead sea turtle	2

Table 4. Vessel survey effort table for the Hatteras study area for March 2012.

Date	Sea State	Km surveyed	Survey Time (hrs:min)	At Sea Time	Platform
15-Mar-12	1-3	106.5	6:00	10:32	F/V <i>Sea Creature</i>

Table 5. Cetacean sightings during vessel surveys in the Hatteras study area for March 2012.

Date	Time	Latitude	Longitude	Species	Common Name	Group Size	Biopsy Samples	Photo-id images
15-Mar-12	9:30	35.33286	-74.83520	<i>P. macrocephalus</i>	Sperm whale	1	0	8
15-Mar-12	10:07	35.47135	-74.79906	<i>Z. cavirostris</i>	Cuviers beaked whale	2	0	0
15-Mar-12	10:20	35.46951	-74.80684	<i>T. truncatus</i>	Bottlenose dolphin	40	0	20
15-Mar-12	11:14	35.56340	-74.78881	<i>D. delphis</i>	Common dolphin	750	0	36
15-Mar-12	11:39	35.60939	-74.78642	<i>T. truncatus</i>	Bottlenose dolphin	100	2	138
15-Mar-12	13:27	35.57420	-74.79146	<i>D. delphis</i>	Common dolphin	400	0	59
15-Mar-12	16:07	35.17975	-75.52872	<i>M. novaeangliae</i>	Humpback whale	1	0	39

Table 6. Biopsy sample taken during vessel surveys in the Hatteras study area for March 2012.

Date	Time	Latitude	Longitude	Species	Common Name	Group Size	Sighting #	Sample #
15-Mar-12	11:43	35.60738	-74.78570	<i>Tursiops truncatus</i>	Bottlenose dolphin	3	5	ZTS-12-18
15-Mar-12	11:55	35.59564	-74.78589	<i>Tursiops truncatus</i>	Bottlenose dolphin	3	5	ZTS-12-19

Table 7. Sea turtle sightings during vessel surveys in the Hatteras study area for March 2012.

Date	Time	Latitude	Longitude	Species	Common Name	Group Size
15-Mar-12	13:24	35.57758	-74.79057		Unidentified sea turtle	1

Table 8. Aerial survey effort table for the Jacksonville study area for March 2012.

Date	Line	Sea State	Kilometers Flown	HOBBS Hours
29-Mar-2012	8	3 to 4	86.3	6
29-Mar-2012	7	3 to 4	85.9	
29-Mar-2012	6	3 to 4	82.0	
29-Mar-2012	5	2 to 4	86.1	
29-Mar-2012	4	2 to 3	48.5	
29-Mar-2012	3	2 to 3	48.5	
29-Mar-2012	2	2	55.3	
29-Mar-2012	1	2	59.1	

Table 9. Cetacean sightings for aerial surveys in the Jacksonville study area for March 2012.

Date	Time	On/Off Effort	Latitude	Longitude	Track Number	Species	Common Name	Group Size
29-Mar-12	15:10	On	30.096882	-80.440277	3	<i>S. frontalis</i>	Atlantic spotted dolphin	44
29-Mar-12	15:28	On	30.101111	-80.507489	3	<i>S. frontalis</i>	Atlantic spotted dolphin	6
29-Mar-12	15:47	On	30.029672	-80.519755	2	<i>S. frontalis</i>	Atlantic spotted dolphin	3
29-Mar-12	15:51	On	30.031855	-80.476396	2	<i>S. frontalis</i>	Atlantic spotted dolphin	13
29-Mar-12	15:57	On	30.029261	-80.439651	2	<i>T. truncatus</i>	Bottlenose dolphin	4
29-Mar-12	16:20	On	29.971966	-80.092957	1	<i>T. truncatus</i>	Bottlenose dolphin	8

Table 10. Sea turtle sightings for aerial surveys in the Jacksonville study area for March 2012.

Date	Time	On/Off Effort	Latitude	Longitude	Track Number	Species	Common Name	Group Size
29-Mar-12	11:13	On	30.433357	-80.051229	8	<i>C. caretta</i>	Loggerhead sea turtle	1
29-Mar-12	11:42	On	30.365938	-80.489748	7	<i>C. caretta</i>	Loggerhead sea turtle	1
29-Mar-12	14:45	On	30.165577	-80.650119	4	<i>C. caretta</i>	Loggerhead sea turtle	1
29-Mar-12	14:46	On	30.165806	-80.600523	4	<i>C. caretta</i>	Loggerhead sea turtle	1
29-Mar-12	14:48	On	30.165917	-80.526160	4	<i>C. caretta</i>	Loggerhead sea turtle	1
29-Mar-12	14:52	On	30.166364	-80.392297	4	<i>C. caretta</i>	Loggerhead sea turtle	1
29-Mar-12	15:09	On	30.100615	-80.418746	3	<i>C. caretta</i>	Loggerhead sea turtle	1
29-Mar-12	15:35	On	30.100198	-80.628695	3	<i>C. caretta</i>	Loggerhead sea turtle	1
29-Mar-12	15:42	On	30.030844	-80.631153	2	<i>C. caretta</i>	Loggerhead sea turtle	1
29-Mar-12	15:44	On	30.031357	-80.574786	2	<i>C. caretta</i>	Loggerhead sea turtle	1
29-Mar-12	16:29	On	29.966042	-80.350415	1	<i>C. caretta</i>	Loggerhead sea turtle	1
29-Mar-12	16:31	On	29.965974	-80.413241	1	<i>C. caretta</i>	Loggerhead sea turtle	2
29-Mar-12	11:59	On	30.300099	-80.342932	6	<i>C. caretta</i>	Loggerhead sea turtle	1
29-Mar-12	12:31	On	30.232872	-80.380188	5	<i>C. caretta</i>	Loggerhead sea turtle	1
29-Mar-12	14:52	On	30.166338	-80.413665	4	<i>C. caretta</i>	Loggerhead sea turtle	2
29-Mar-12	15:07	On	30.100611	-80.371715	3	<i>C. caretta</i>	Loggerhead sea turtle	3
29-Mar-12	15:33	On	30.103228	-80.543958	3	<i>C. caretta</i>	Loggerhead sea turtle	1
29-Mar-12	15:36	On	30.100125	-80.652350	3	<i>C. caretta</i>	Loggerhead sea turtle	2
29-Mar-12	15:37	On	30.100052	-80.685309	3	<i>C. caretta</i>	Loggerhead sea turtle	3
29-Mar-12	15:44	On	30.031343	-80.566586	2	<i>C. caretta</i>	Loggerhead sea turtle	3
29-Mar-12	16:28	On	29.966036	-80.321870	1	<i>C. caretta</i>	Loggerhead sea turtle	2
29-Mar-12	16:33	On	29.965862	-80.497539	1	<i>C. caretta</i>	Loggerhead sea turtle	2
29-Mar-12	16:34	On	29.965774	-80.536903	1	<i>C. caretta</i>	Loggerhead sea turtle	2
29-Mar-12	16:37	On	29.965533	-80.632278	1	<i>C. caretta</i>	Loggerhead sea turtle	2

Table 11. Vessel survey effort table for the Jacksonville study area for March 2012.

Date	Sea State	Km surveyed	Survey Time (hrs:min)	At Sea Time	Platform
30-Mar-12	2-4	131.0	7:20	11:15	R/V <i>Starbuck</i>

Table 12. Cetacean sightings during vessel surveys in the Jacksonville study area for March 2012.

Date	Time	Latitude	Longitude	Species	Common Name	Group Size	Biopsy Samples	Photo-id images
30-Mar-12	10:17	29.96272	-80.68112	<i>Stenella frontalis</i>	Atlantic spotted dolphin	1	0	0
30-Mar-12	11:21	29.98047	-80.52766	<i>Tursiops truncatus</i>	Bottlenose dolphin	2	1	20

Table 13. Biopsy samples taken during vessel surveys in the Jacksonville study area for March 2012.

Date	Time	Latitude	Longitude	Species	Common Name	Group Size	Sighting #	Sample #
30-Mar-12	11:28	29.98758	-80.52506	<i>Tursiops truncatus</i>	Bottlenose dolphin	2	2	ZTS-12-20

Table 14. Sea turtle sightings during vessel surveys in the Jacksonville study area for March 2012.

Date	Time	Latitude	Longitude	Species	Common Name	Group Size
30-Mar-12	12:41	30.08129	-80.34201	<i>Caretta caretta</i>	Loggerhead sea turtle	1
30-Mar-12	15:45	30.22590	-80.33625	<i>Caretta caretta</i>	Loggerhead sea turtle	1
30-Mar-12	16:11	30.19662	-80.42101	<i>Caretta caretta</i>	Loggerhead sea turtle	1
30-Mar-12	16:23	30.18517	-80.44653	<i>Caretta caretta</i>	Loggerhead sea turtle	1
30-Mar-12	16:41	30.08891	-80.77534	<i>Dermochelys coriacea</i>	Leatherback sea turtle	1

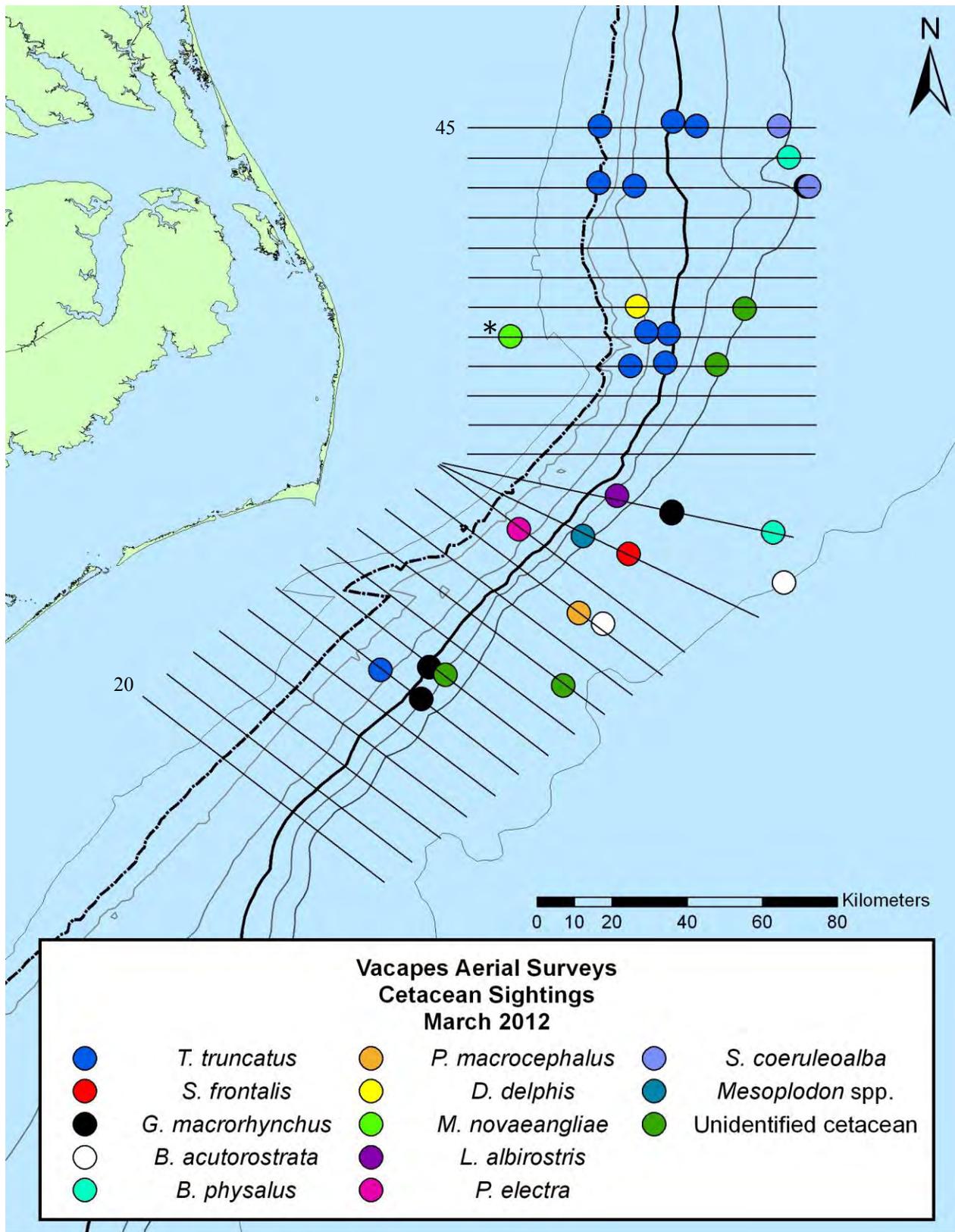
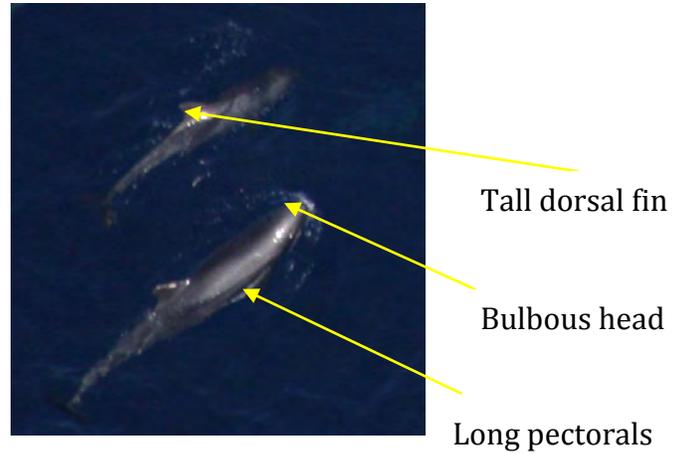
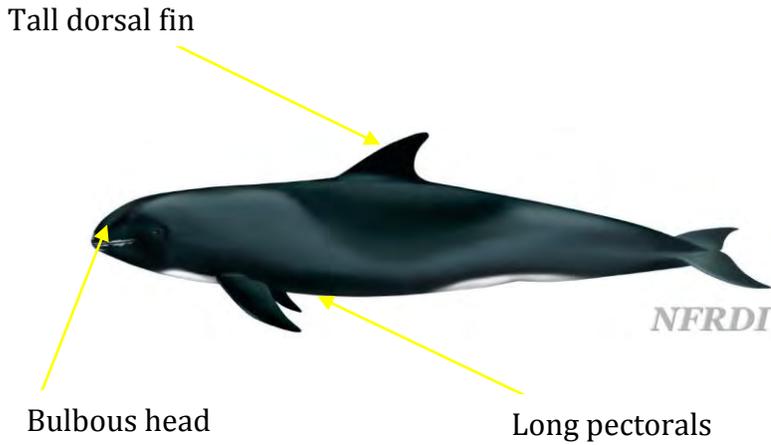


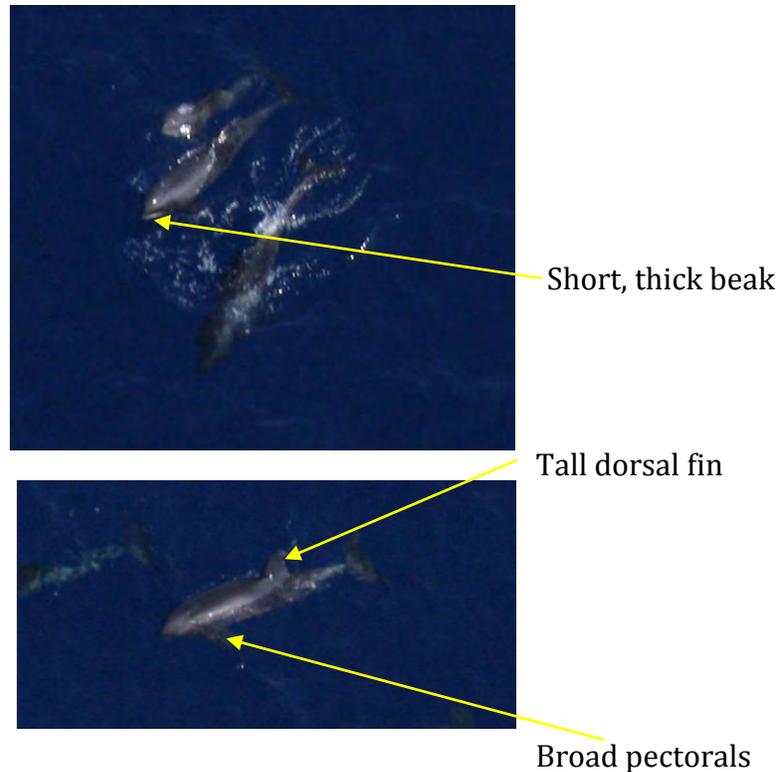
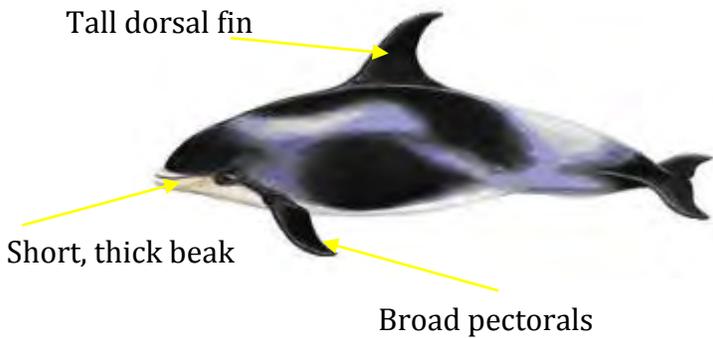
Figure 1. Cetaceans observed during aerial surveys in the Hatteras study area for March 2012. Lines indicate tracklines that were flown. * Denotes *M. novaeangliae* carcass found floating during the survey.

Figure 2. Characteristics from text books and websites (left) were used as comparison to our images (right) for species identification of the two new species sighted in the Hatteras study area for March 2012.

Melon-headed whale



White-beaked dolphin



http://download.nfrdi.re.kr/ofiris/upload_file/ofiris/PW/mltim/master_img/004/Peponocephala%20electra.jpg
[http://www.elding.is/elding/upload/images/whales_\(fauna\)/142888_white_beaked_dolphin.jpg](http://www.elding.is/elding/upload/images/whales_(fauna)/142888_white_beaked_dolphin.jpg)

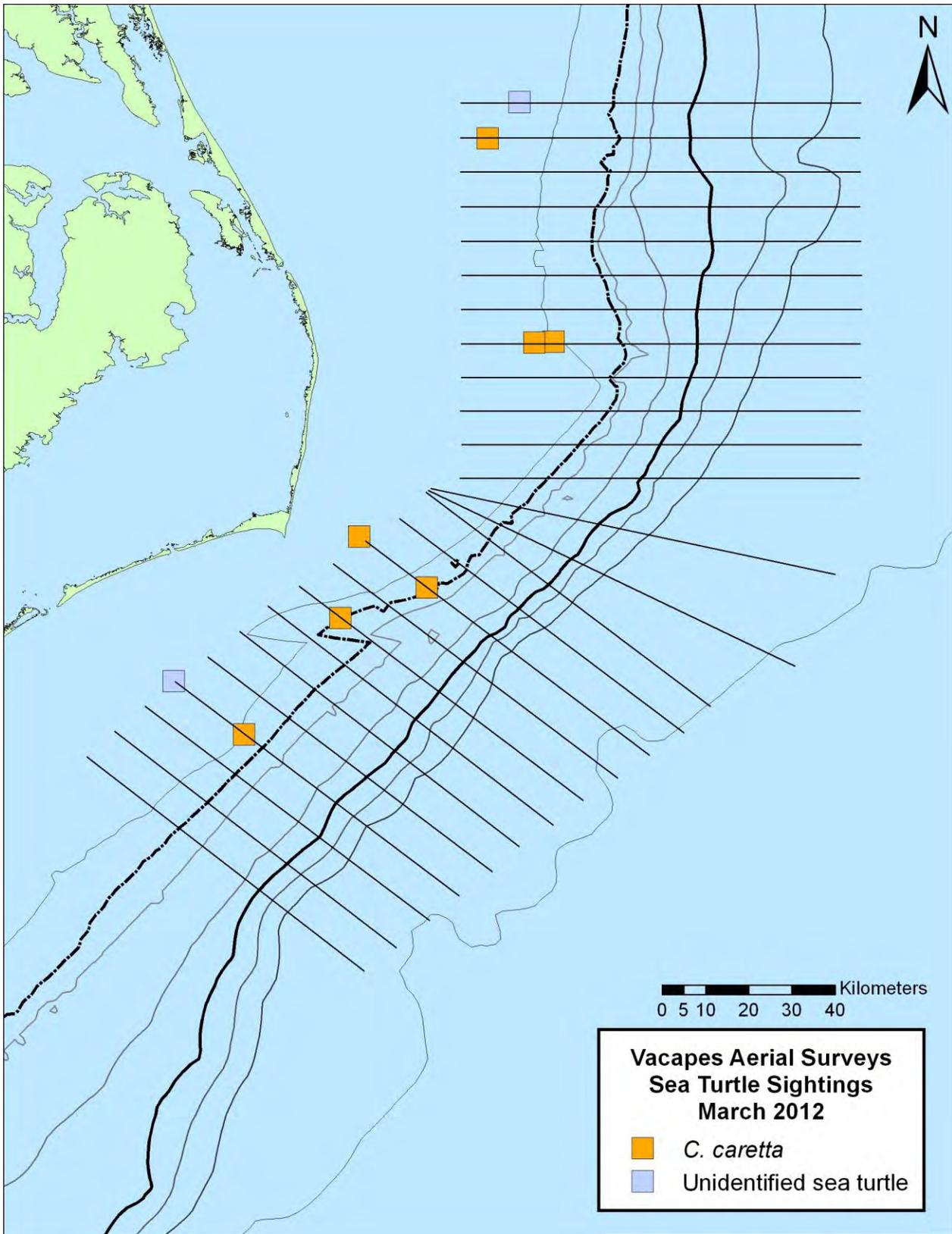


Figure 3. Sea turtles observed during aerial surveys in the Hatteras study area for March 2012. Lines indicate tracklines that were flown.

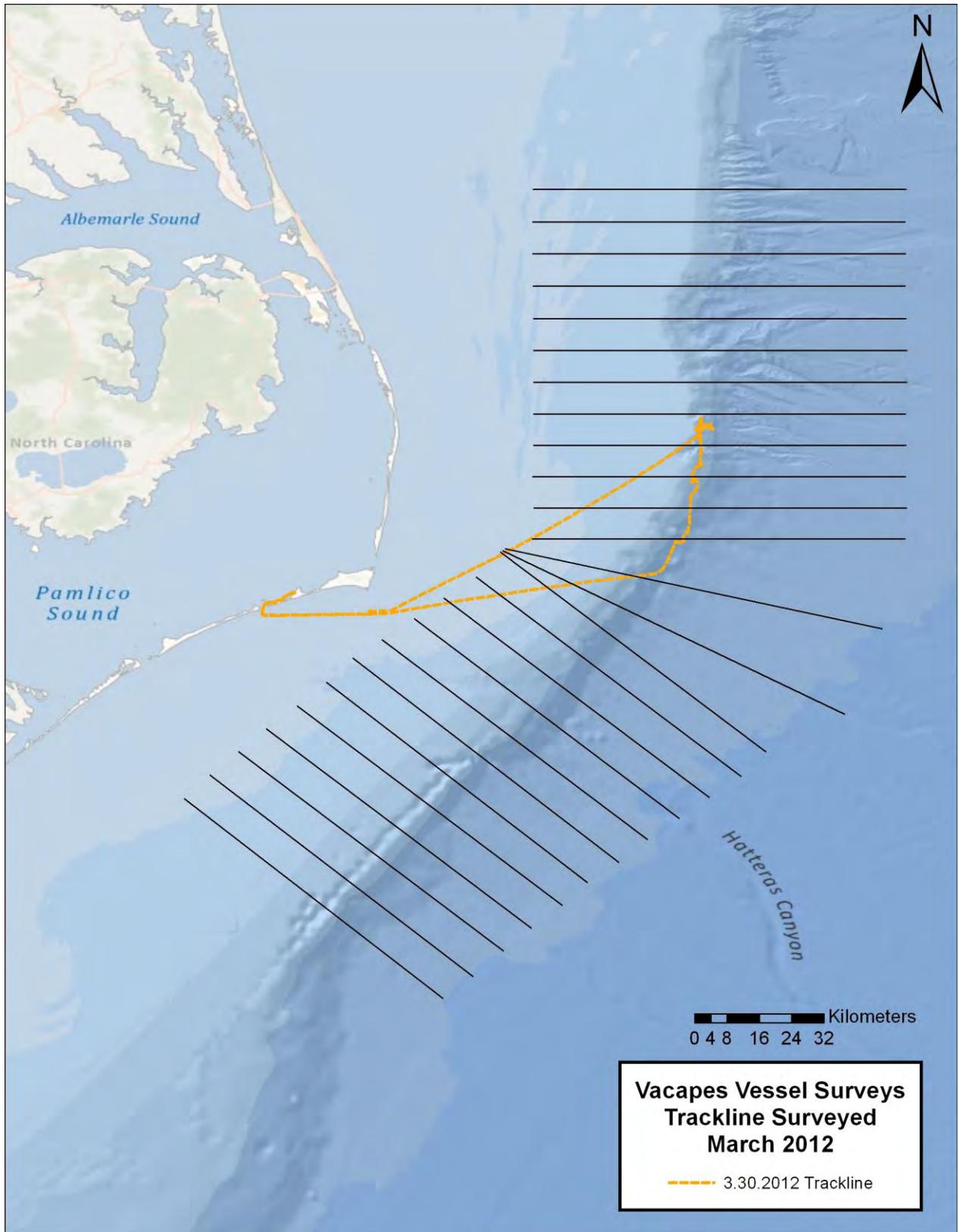


Figure 4. Vessel tracklines surveyed in the Hatteras study area for March 2012

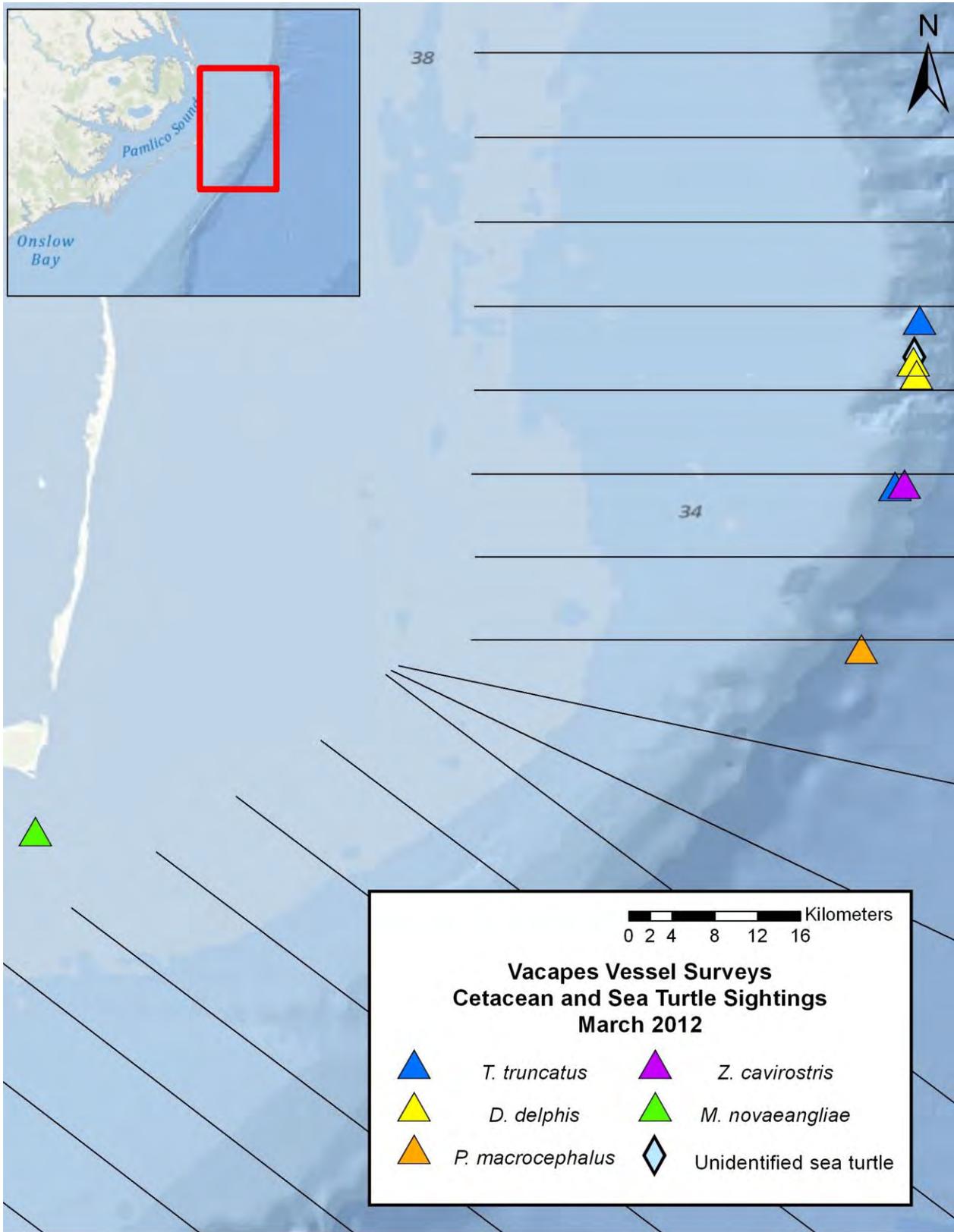


Figure 5. Cetaceans and sea turtles observed during vessel surveys in the Hatteras study area for March 2012.

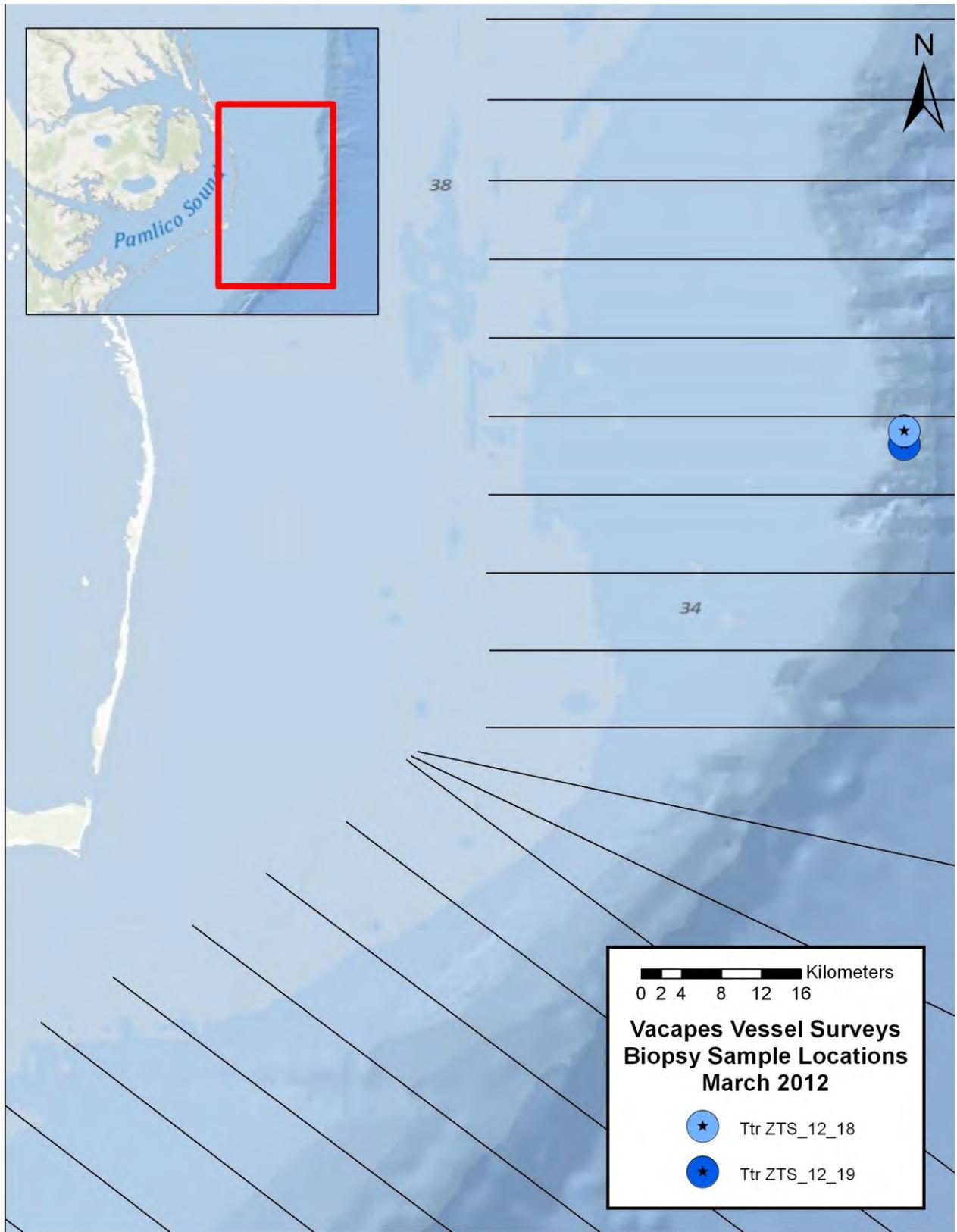


Figure 6. Biopsy sample location during vessel surveys in the Hatteras study area for March 2012.

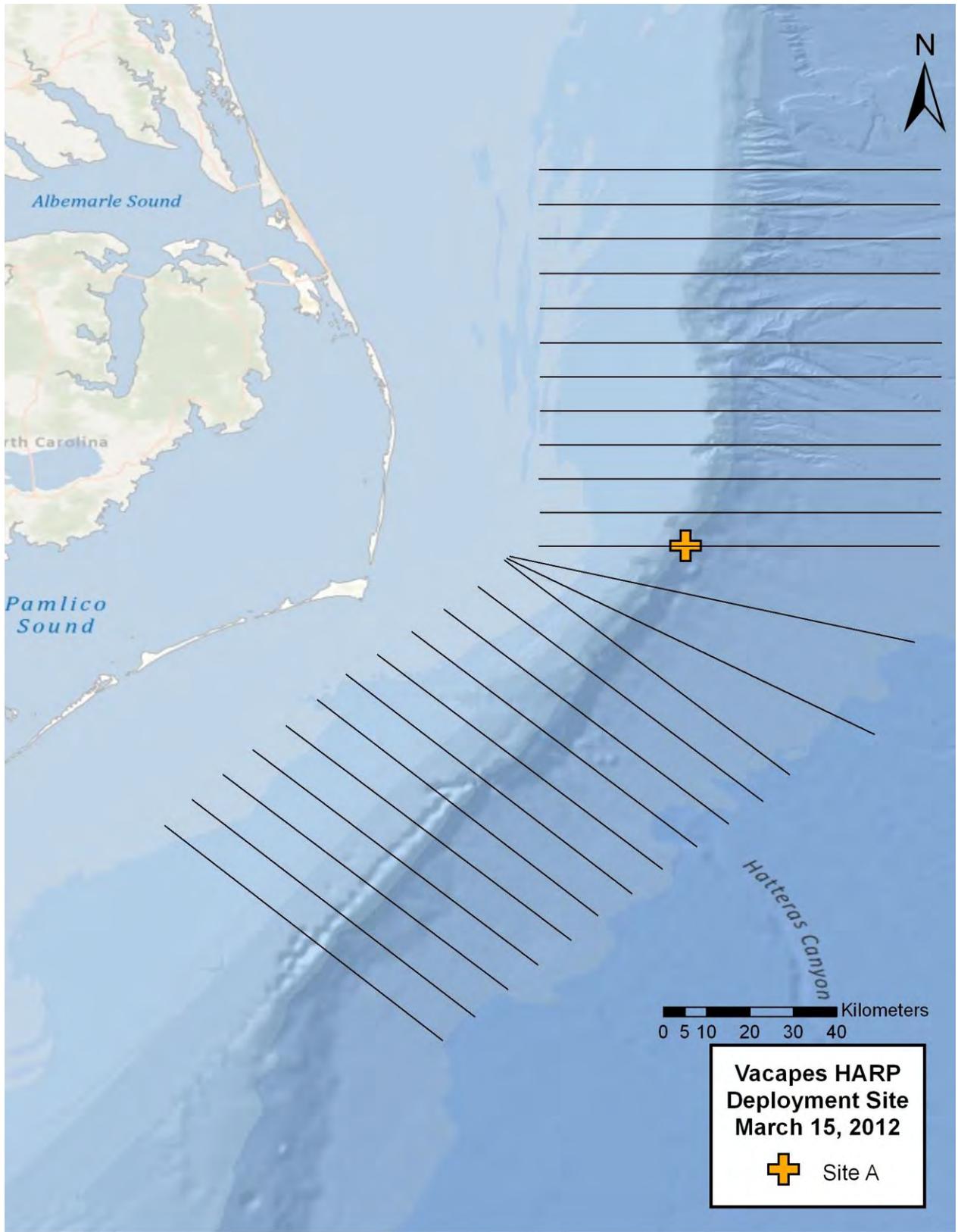


Figure 7. Location of Hatteras HARP.

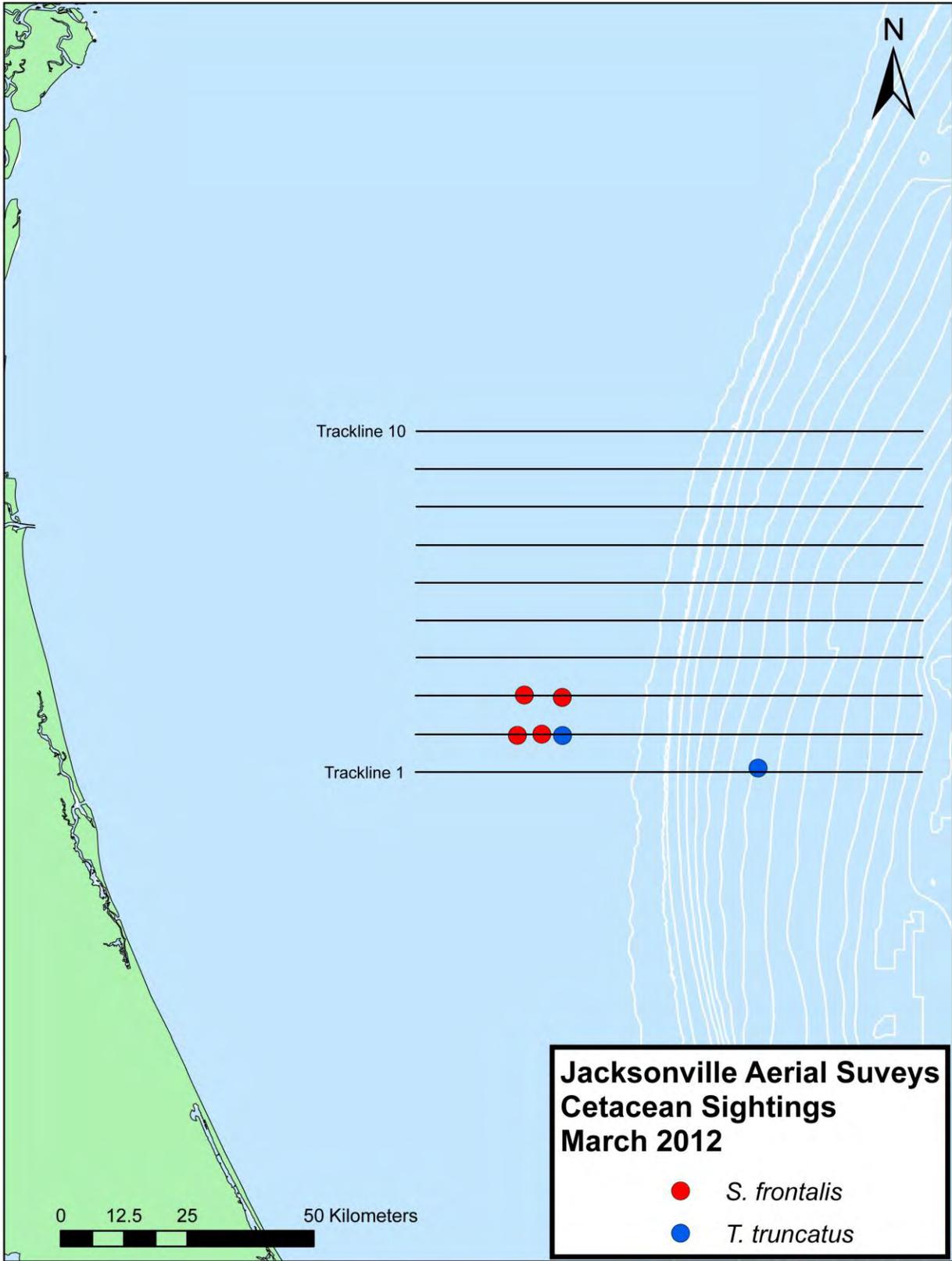


Figure 8. Cetaceans observed during aerial surveys in the Jacksonville study area for March 2012.

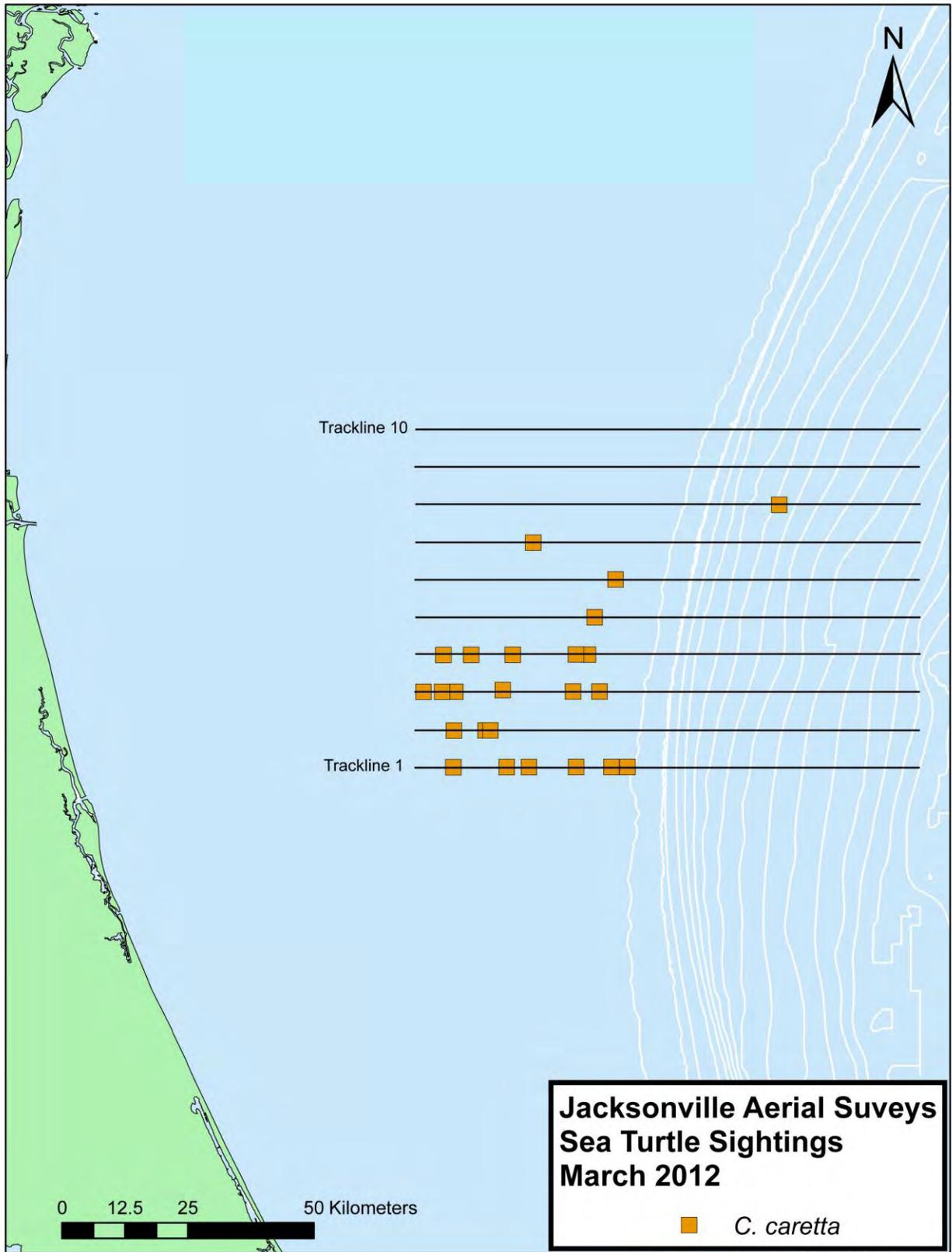


Figure 9. Sea turtles observed during aerial surveys in the Jacksonville study area for March 2012.

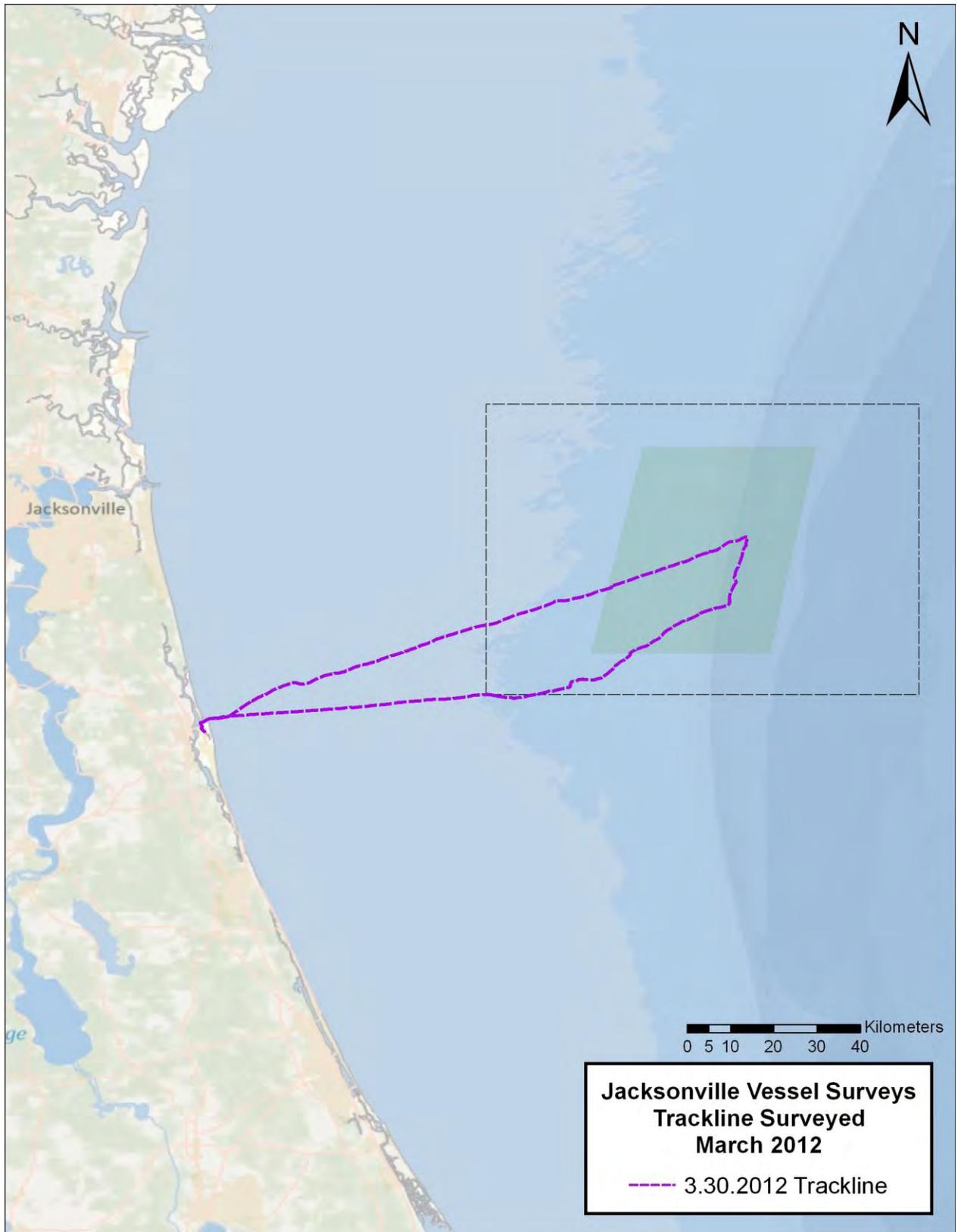


Figure 10. Vessel tracklines surveyed in the Jacksonville study area for March 2012.

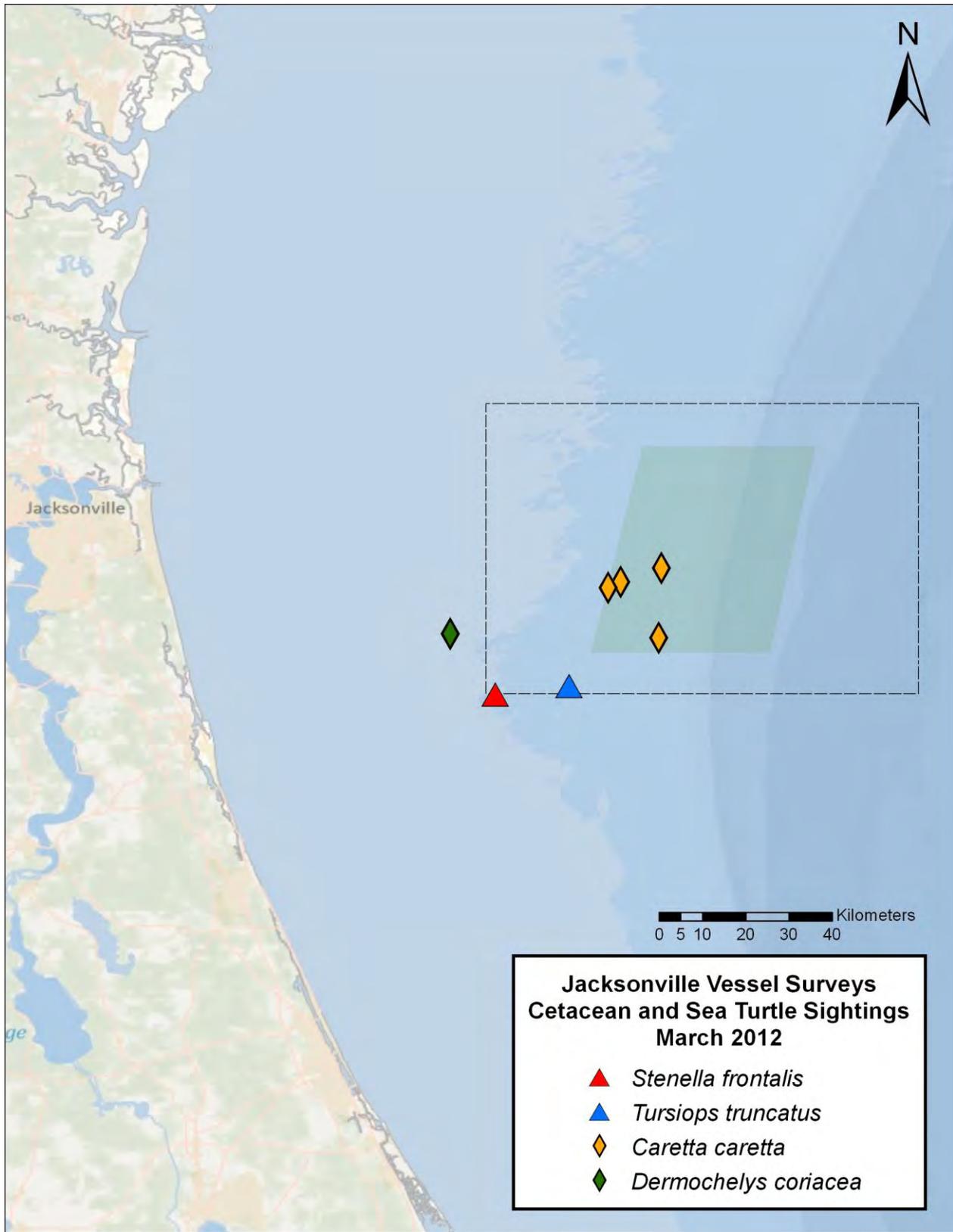


Figure 11. Cetaceans and sea turtles observed during vessel surveys in the Jacksonville study area for March 2012.

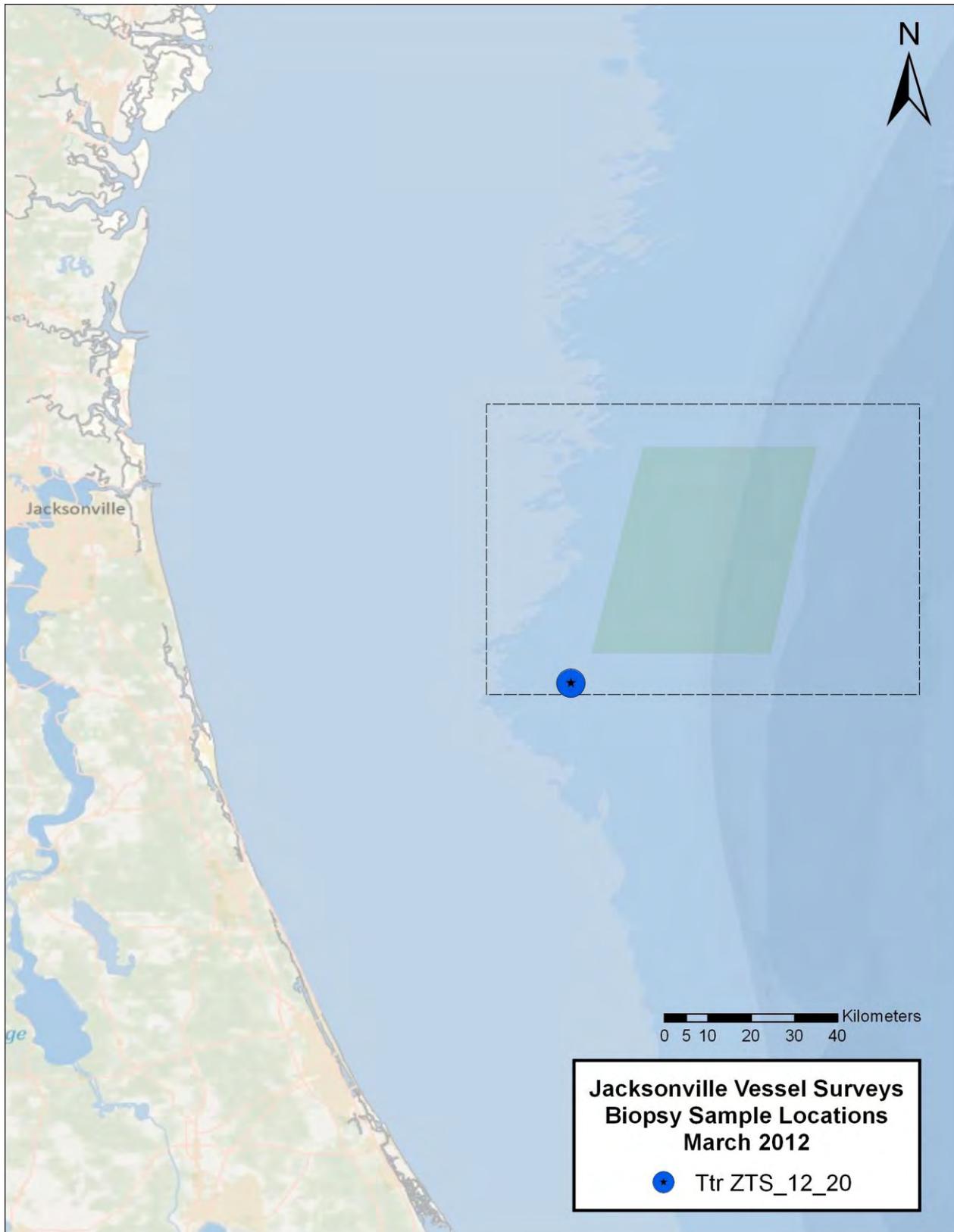


Figure 12. Biopsy sample location during vessel surveys in the Jacksonville study area for March 2012.

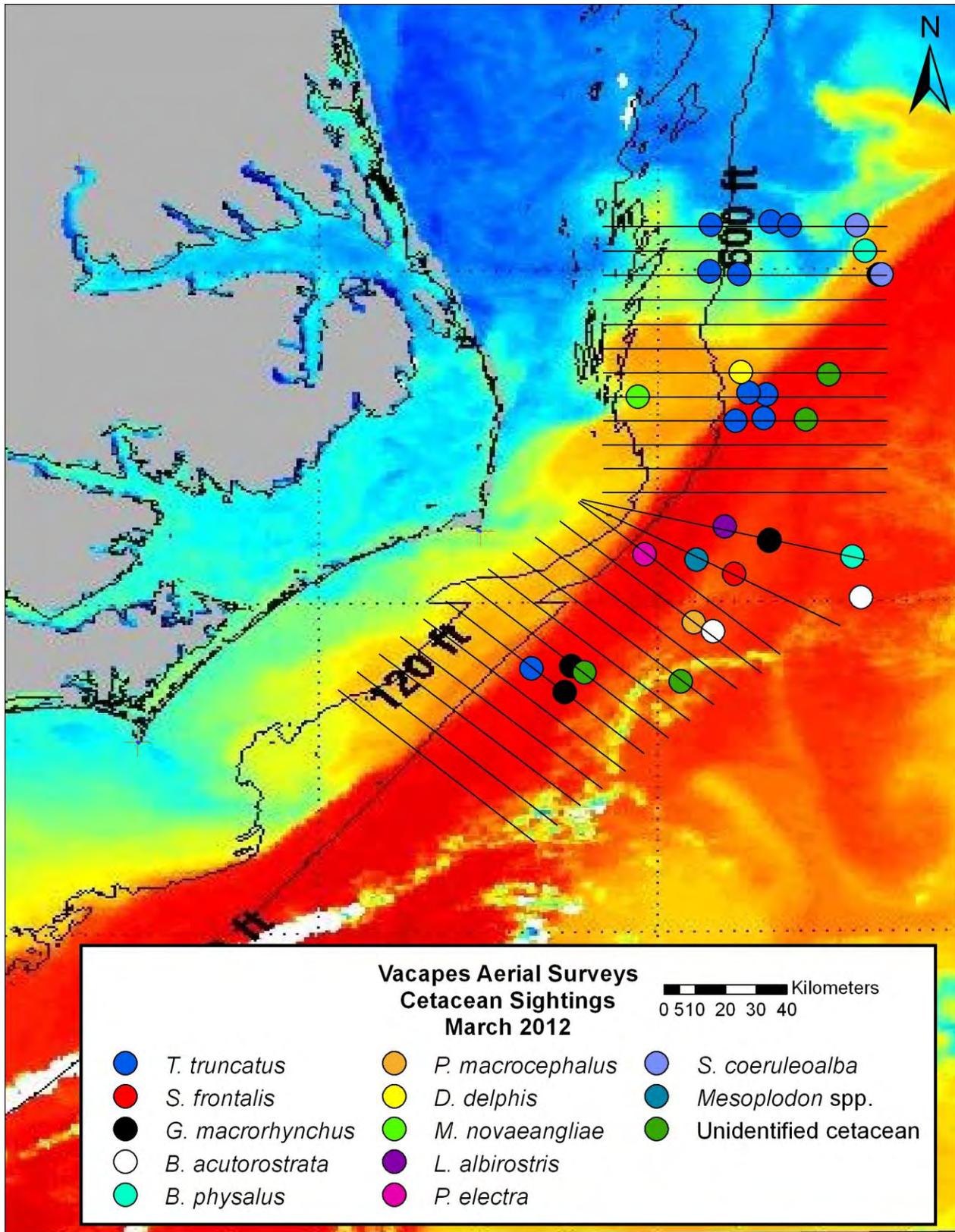


Figure 13. Sea surface temperatures for 15 March overlaid on cetacean sightings during aerial surveys of the Hatteras study area March 2012.

Monitoring of Protected Species in the Hatteras, Onslow and JAX Sites Progress Report to HDR: April 1 2012 through April 30 2012

April Expenses

In April 2012, salaries for Duke employees were charged to TO 14, while vessel surveys and associated fuel, travel, and supplies were charged to TO 5. Any HARP related activities were charged to TO 14. All UNCW salaries and aerial surveys were charged to TO 14.

Hatteras Aerial Survey Activity

No surveys were conducted in the Cape Hatteras survey area during this reporting period.

Aerial Survey Days Conducted at Hatteras = 0 days

Hatteras Vessel Survey Activity

No vessels surveys were conducted this month in the Hatteras survey area.

Vessel Survey Days Conducted at Hatteras = 0 days

Hatteras Harp

There were no HARP deployments or retrievals in Hatteras during this reporting period. One HARP remains at Site A; 35.34054, -74.85761 and 950 m depth, as described in the March 2012 report. The HARP is scheduled to be retrieved in August 2012.

Onslow Bay Vessel Activity

There were no vessel surveys conducted in the Onslow Bay survey area during this month due to inclement weather.

Vessel Survey Days Conducted at Onslow Bay = 0 days

Onslow Bay HARP

There were no HARP deployments or retrievals in Onslow Bay during this reporting period. One HARP remains at 33.77794, -75.92641 (952 m depth), as described in the August 2011 report. The HARP is scheduled to be retrieved as soon as weather permits.

Jacksonville Aerial Survey Activity

Two days of survey effort in conditions ranging from BSS 2 to 5 were conducted on the 18th and 19th of April 2012 (Table 1). Groups of bottlenose dolphins and Atlantic spotted dolphins were each recorded three times in the survey area (Table 2, Figure 1). Turtle sightings were dominated by loggerheads although three leatherback sea turtles were observed inshore of the shelf break (Table 3, Figure 1).

Aerial Survey Days Conducted at JAX = 2 days

Jacksonville Vessel Survey Activity

A vessel survey was conducted on 03 April 2012 in the northwest portion of the Jacksonville survey area covering 112 kilometers while on effort (Figure 2). Survey conditions ranged from excellent to good (BSS 1-2) throughout the day (Table 4). Seven Atlantic spotted dolphin sightings were recorded, as well as 18 sea turtles including loggerhead, leatherback, and unidentified sea turtles (Table 5 & 6, Figure 3 & 4). Approximately 238 photo-identification images were collected and nine biopsy samples were obtained during four Atlantic spotted dolphin encounters (Table 5 & 7, Figure 5).

A second vessel survey was conducted from a new survey platform, the F/V *Wahoo II*, on 19 April 2012. Conditions ranged from fair to poor (BSS 2-3) with a high sea swell precluding any marine mammal sightings. Due to the sea conditions, survey effort was concentrated on the northwestern edge of the survey range (Figure 2). Two loggerhead sea turtles were observed during this survey (Figure 4).

Vessel Survey Days Conducted at JAX = 2 days

Jacksonville HARP

There were no HARP deployments in Jacksonville during this reporting period. One HARP remains at Site A: 30.28475, -80.22111 (76.5 m depth), as described in the January 2012 report. The HARP is scheduled to be retrieved between July and August 2012.

Table 1. Aerial survey effort table for the Jacksonville study area for April 2012.

Date	Line	Sea State	Kilometers Flown	HOBBS Hours
18-Apr-2012	10	3 to 4	85.9	6.9
18-Apr-2012	9	3 to 4	85.5	
18-Apr-2012	8	3 to 4	85.7	
18-Apr-2012	7	3 to 4	86.2	
18-Apr-2012	6	3 to 4	87.0	
18-Apr-2012	5	3 to 4	86.5	
18-Apr-2012	1	2 to 3	85.9	
18-Apr-2012	2	2 to 3	86.2	
18-Apr-2012	3	2 to 3	86.1	
18-Apr-2012	4	2 to 3	86.4	
19-Apr-2012	1	3 to 5	86.3	6.4
19-Apr-2012	2	3 to 5	85.7	
19-Apr-2012	3	3 to 4	86.1	
19-Apr-2012	4	3 to 4	86.2	
19-Apr-2012	5	3	86.1	
19-Apr-2012	6	2 to 3	85.1	
19-Apr-2012	7	2 to 3	86.3	
19-Apr-2012	8	2 to 3	86.3	
19-Apr-2012	9	2 to 4	90	
19-Apr-2012	10	2 to 4	84.2	

Table 2. Cetacean sightings during aerial surveys in the Jacksonville study area for April 2012.

Date	Time	On/Off Effort	Latitude	Longitude	Track Number	Species	Common Name	Group Size
18-Apr-12	13:22	On	29.968271	-80.382697	1	<i>T. truncatus</i>	Bottlenose dolphin	3
18-Apr-12	14:42	On	30.102057	-80.076377	3	<i>T. truncatus</i>	Bottlenose dolphin	8
18-Apr-12	15:23	On	30.173850	-80.401034	4	<i>S. frontalis</i>	Atlantic spotted dolphin	50
19-Apr-12	9:34	On	30.032347	-80.262068	2	<i>T. truncatus</i>	Bottlenose dolphin	28
19-Apr-12	11:33	On	30.310782	-80.369910	6	<i>S. frontalis</i>	Atlantic spotted dolphin	20
19-Apr-12	14:56	On	30.573341	-80.520768	10	<i>S. frontalis</i>	Atlantic spotted dolphin	38

Table 3. Sea turtle sightings during aerial surveys in the Jacksonville study area for April 2012.

Date	Time	On/Off Effort	Latitude	Longitude	Track Number	Species	Common Name	Group Size
18-Apr-12	9:08	On	30.566413	-80.158997	10	C. caretta	Loggerhead sea turtle	1
18-Apr-12	9:56	On	30.434294	-80.422103	8	C. caretta	Loggerhead sea turtle	1
18-Apr-12	10:29	On	30.367434	-80.310509	7	C. caretta	Loggerhead sea turtle	1
18-Apr-12	10:51	On	30.300563	-80.400465	6	C. caretta	Loggerhead sea turtle	1
18-Apr-12	11:24	On	30.234844	-80.312213	5	C. caretta	Loggerhead sea turtle	1
18-Apr-12	11:24	On	30.234374	-80.300022	5	C. caretta	Loggerhead sea turtle	1
18-Apr-12	14:37	On	30.099307	-80.189720	3	C. caretta	Loggerhead sea turtle	1
19-Apr-12	9:48	On	30.030832	-80.490290	2	C. caretta	Loggerhead sea turtle	1
19-Apr-12	10:03	On	30.101364	-80.435450	3	C. caretta	Loggerhead sea turtle	1
19-Apr-12	10:50	On	30.234347	-80.677805	5	C. caretta	Loggerhead sea turtle	1
19-Apr-12	11:45	On	30.303089	-80.674046	6	D. coriacea	Leatherback sea turtle	1
19-Apr-12	11:45	On	30.302725	-80.657434	6	C. caretta	Loggerhead sea turtle	1
19-Apr-12	13:17	On	30.367870	-80.602153	7	C. caretta	Loggerhead sea turtle	1
19-Apr-12	13:55	On	30.434085	-80.342227	8	C. caretta	Loggerhead sea turtle	1
19-Apr-12	14:01	On	30.432040	-80.548825	8	C. caretta	Loggerhead sea turtle	1
19-Apr-12	14:02	On	30.433067	-80.592436	8	D. coriacea	Leatherback sea turtle	1
19-Apr-12	14:10	On	30.499120	-80.618707	9	C. caretta	Loggerhead sea turtle	2
19-Apr-12	14:11	On	30.499802	-80.575189	9	C. caretta	Loggerhead sea turtle	2
19-Apr-12	14:12	On	30.500773	-80.533136	9	D. coriacea	Leatherback sea turtle	1
19-Apr-12	14:13	On	30.500468	-80.519810	9	C. caretta	Loggerhead sea turtle	3
19-Apr-12	14:19	On	30.498441	-80.309270	9	C. caretta	Loggerhead sea turtle	1
19-Apr-12	14:54	On	30.567464	-80.489518	10	C. caretta	Loggerhead sea turtle	2

Table 4. Vessel survey effort table for the Jacksonville study area for April 2012.

Date	Sea State	Km surveyed	Survey Time (hrs:min)	At Sea Time	Platform
3-Apr-12	1-2	111.0	6:23	10:41	R/V <i>Starbuck</i>
19-Apr-12	2-3	70.9	4:15	10:28	F/V <i>Wahoo II</i>

Table 5. Cetacean sightings during vessel surveys in the Jacksonville study area for April 2012.

Date	Time	Latitude	Longitude	Species	Common Name	Group Size	Biopsy Samples	Photo-id images
3-Apr-12	10:18	30.58499	-80.78770	<i>S. frontalis</i>	Atlantic spotted dolphin	7	2	133
3-Apr-12	10:45	30.57497	-80.74696	<i>S. frontalis</i>	Atlantic spotted dolphin	2	0	4
3-Apr-12	11:01	30.57168	-80.72892	<i>S. frontalis</i>	Atlantic spotted dolphin	15	1	11
3-Apr-12	11:17	30.57341	-80.70124	<i>S. frontalis</i>	Atlantic spotted dolphin	2	0	3
3-Apr-12	12:57	30.59672	-80.43699	<i>S. frontalis</i>	Atlantic spotted dolphin	12	2	37
3-Apr-12	14:39	30.51509	-80.32767	<i>S. frontalis</i>	Atlantic spotted dolphin	4	2	34
3-Apr-12	15:56	30.48770	-80.50785	<i>S. frontalis</i>	Atlantic spotted dolphin	4	2	21

Table 6. Sea turtle sightings during vessel surveys in the Jacksonville study area for April 2012.

Date	Time	Latitude	Longitude	Species	Common Name	Group Size
3-Apr-12	11:26	30.56961	-80.68411	<i>Caretta caretta</i>	Loggerhead sea turtle	1
3-Apr-12	11:33	30.56991	-80.66811	<i>Dermochelys coriacea</i>	Leatherback sea turtle	1
3-Apr-12	12:11	30.59251	-80.56103	<i>Caretta caretta</i>	Loggerhead sea turtle	1
3-Apr-12	13:33	30.58566	-80.40822	<i>Caretta caretta</i>	Loggerhead sea turtle	1
3-Apr-12	13:38	30.58131	-80.38930	<i>Caretta caretta</i>	Loggerhead sea turtle	3
3-Apr-12	13:54	30.56496	-80.32273	<i>Caretta caretta</i>	Loggerhead sea turtle	1
3-Apr-12	13:57	30.56408	-80.31120	<i>Caretta caretta</i>	Loggerhead sea turtle	1
3-Apr-12	14:06	30.54881	-80.29303	<i>Caretta caretta</i>	Loggerhead sea turtle	1
3-Apr-12	14:07	30.54684	-80.29203	<i>Caretta caretta</i>	Loggerhead sea turtle	1
3-Apr-12	14:12	30.53233	-80.27777	<i>Dermochelys coriacea</i>	Leatherback sea turtle	1
3-Apr-12	14:37	30.51631	-80.32857	Unidentified sea turtle		1
3-Apr-12	15:12	30.52234	-80.33443	<i>Caretta caretta</i>	Loggerhead sea turtle	1
3-Apr-12	15:14	30.52274	-80.34369	<i>Caretta caretta</i>	Loggerhead sea turtle	1
3-Apr-12	15:20	30.52077	-80.36923	<i>Caretta caretta</i>	Loggerhead sea turtle	1
3-Apr-12	15:45	30.50381	-80.45624	<i>Caretta caretta</i>	Loggerhead sea turtle	1
3-Apr-12	16:25	30.46851	-80.53420	<i>Caretta caretta</i>	Loggerhead sea turtle	1
3-Apr-12	16:34	30.46036	-80.57900	<i>Caretta caretta</i>	Loggerhead sea turtle	1
3-Apr-12	16:44	30.44787	-80.63764	Unidentified sea turtle		1
19-Apr-12	12:13	30.49084	-80.62481	<i>Caretta caretta</i>	Loggerhead sea turtle	1
19-Apr-12	12:17	30.48970	-80.63243	<i>Caretta caretta</i>	Loggerhead sea turtle	1

Table 7. Biopsy samples taken during vessel surveys in the Jacksonville study area for April 2012.

Date	Time	Latitude	Longitude	Species	Common Name	Group Size	Sighting #	Sample #
3-Apr-12	10:25	30.58428	-80.77390	<i>S. frontalis</i>	Atlantic spotted dolphin	3	1	ZTS_12_21
3-Apr-12	10:27	30.58594	-80.77408	<i>S. frontalis</i>	Atlantic spotted dolphin	7	1	ZTS_12_22
3-Apr-12	11:05	30.57251	-80.73276	<i>S. frontalis</i>	Atlantic spotted dolphin	5	3	HJF_12_06
3-Apr-12	13:12	30.59342	-80.44105	<i>S. frontalis</i>	Atlantic spotted dolphin	5	8	HJF_12_07
3-Apr-12	13:16	30.59335	-80.44049	<i>S. frontalis</i>	Atlantic spotted dolphin	5	8	HJF_12_08
3-Apr-12	14:47	30.51811	-80.32497	<i>S. frontalis</i>	Atlantic spotted dolphin	4	17	ZTS_12_23
3-Apr-12	14:52	30.52029	-80.32563	<i>S. frontalis</i>	Atlantic spotted dolphin	1	17	ZTS_12_24
3-Apr-12	16:02	30.48547	-80.50648	<i>S. frontalis</i>	Atlantic spotted dolphin	4	22	HJF_12_09
3-Apr-12	16:09	30.4816	-80.50565	<i>S. frontalis</i>	Atlantic spotted dolphin	4	22	HJF_12_10

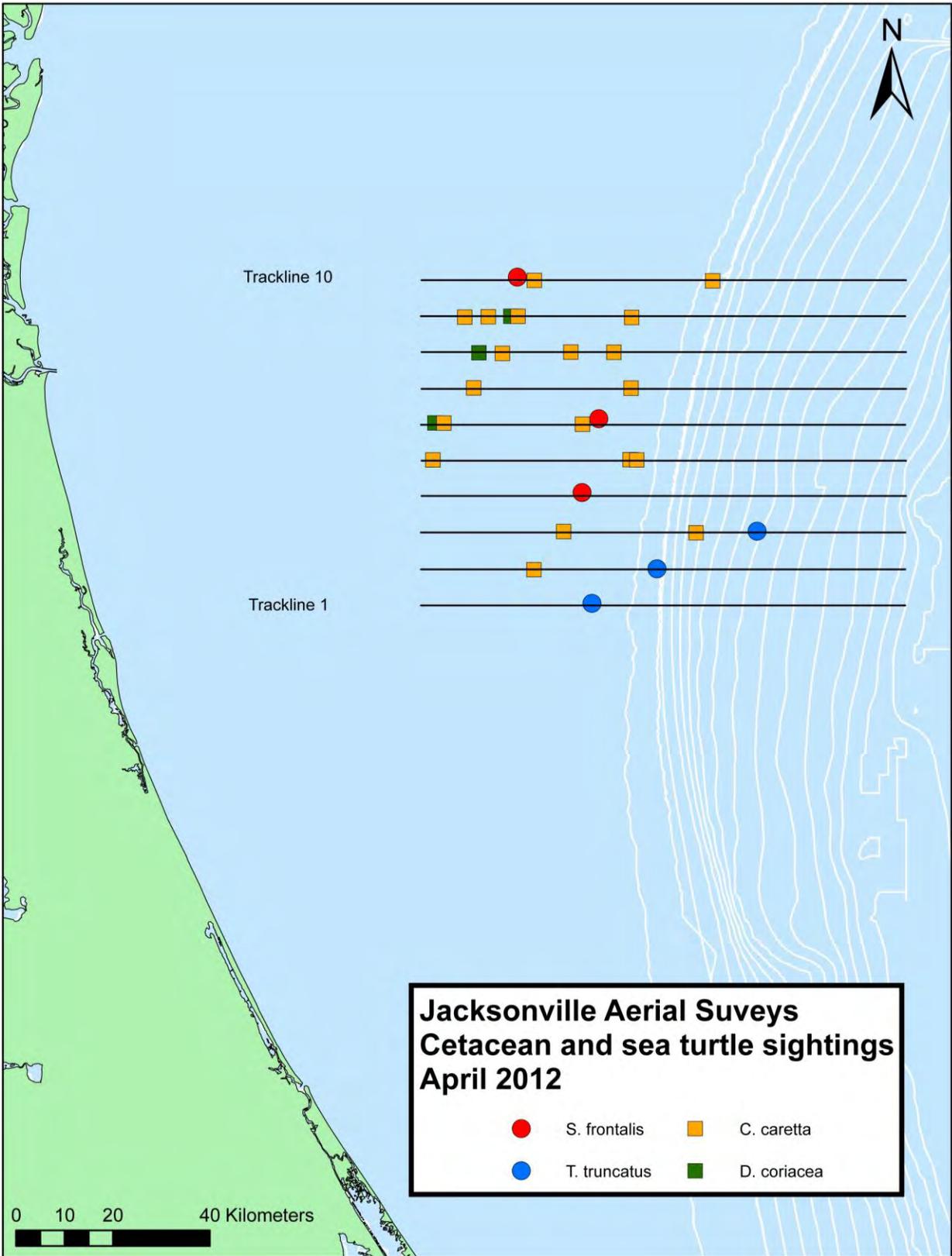


Figure 1. Cetaceans and sea turtles observed during aerial surveys in the Jacksonville study area for April 2012.

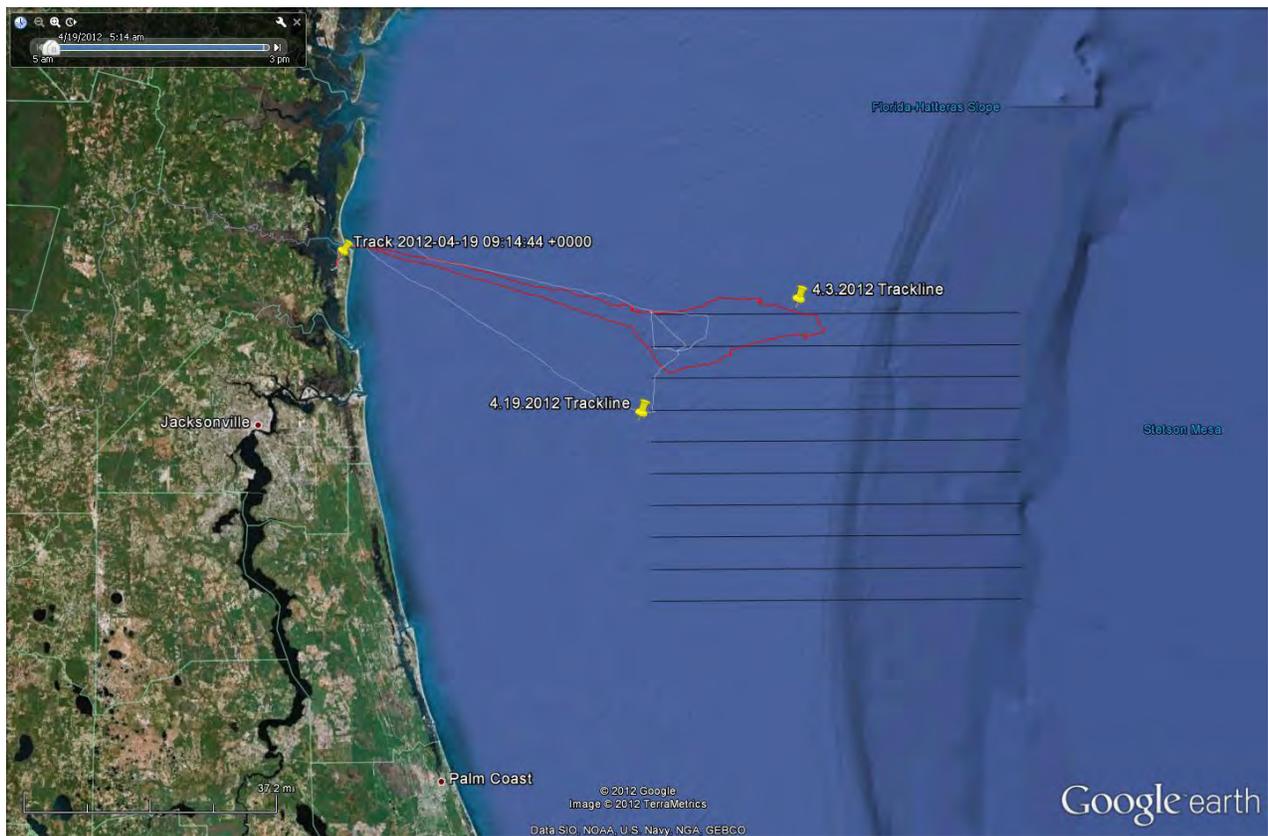


Figure 2. Vessel tracklines surveyed in the Jacksonville study area for April 2012.

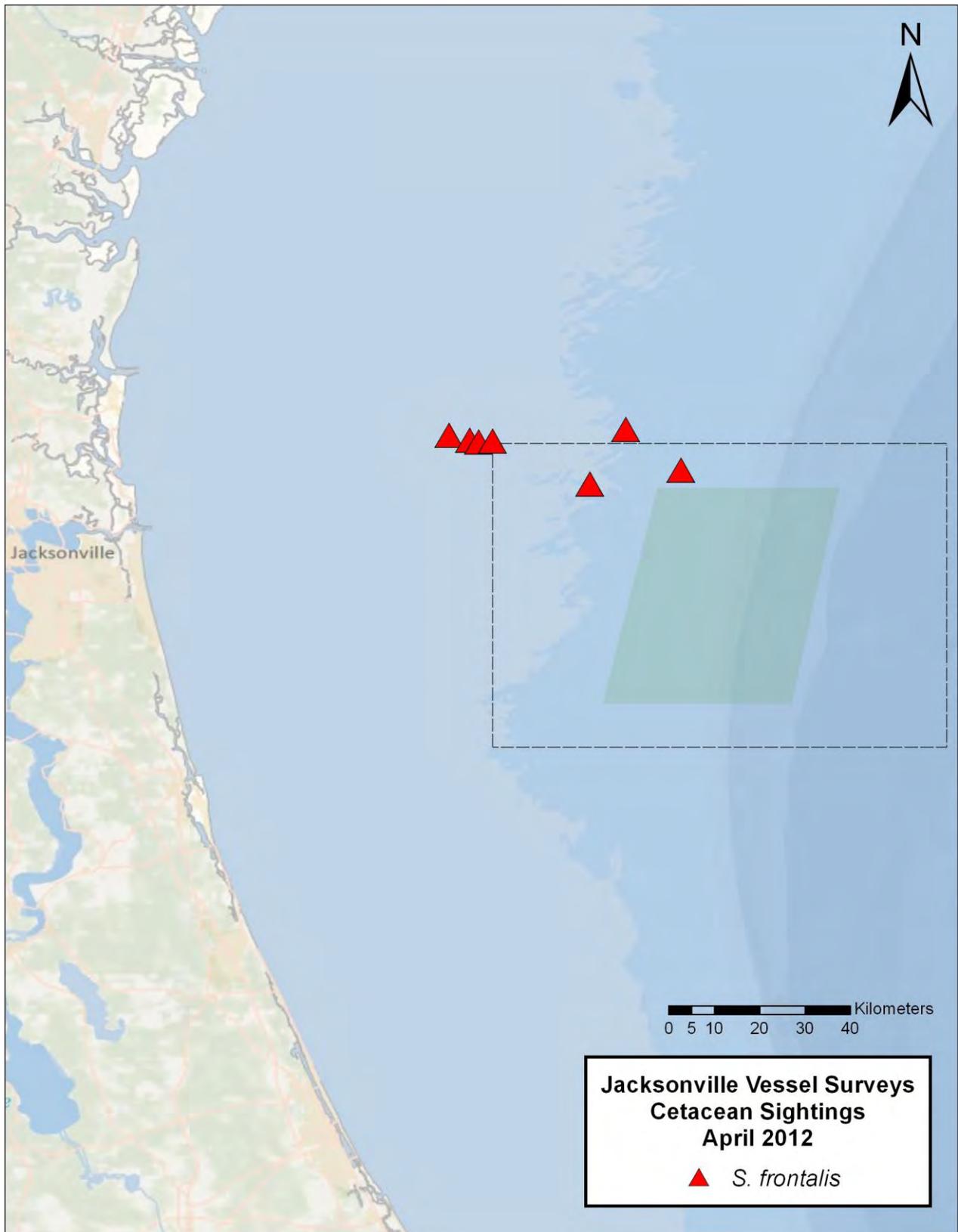


Figure 3. Cetaceans observed during vessel surveys in the Jacksonville study area for April 2012.

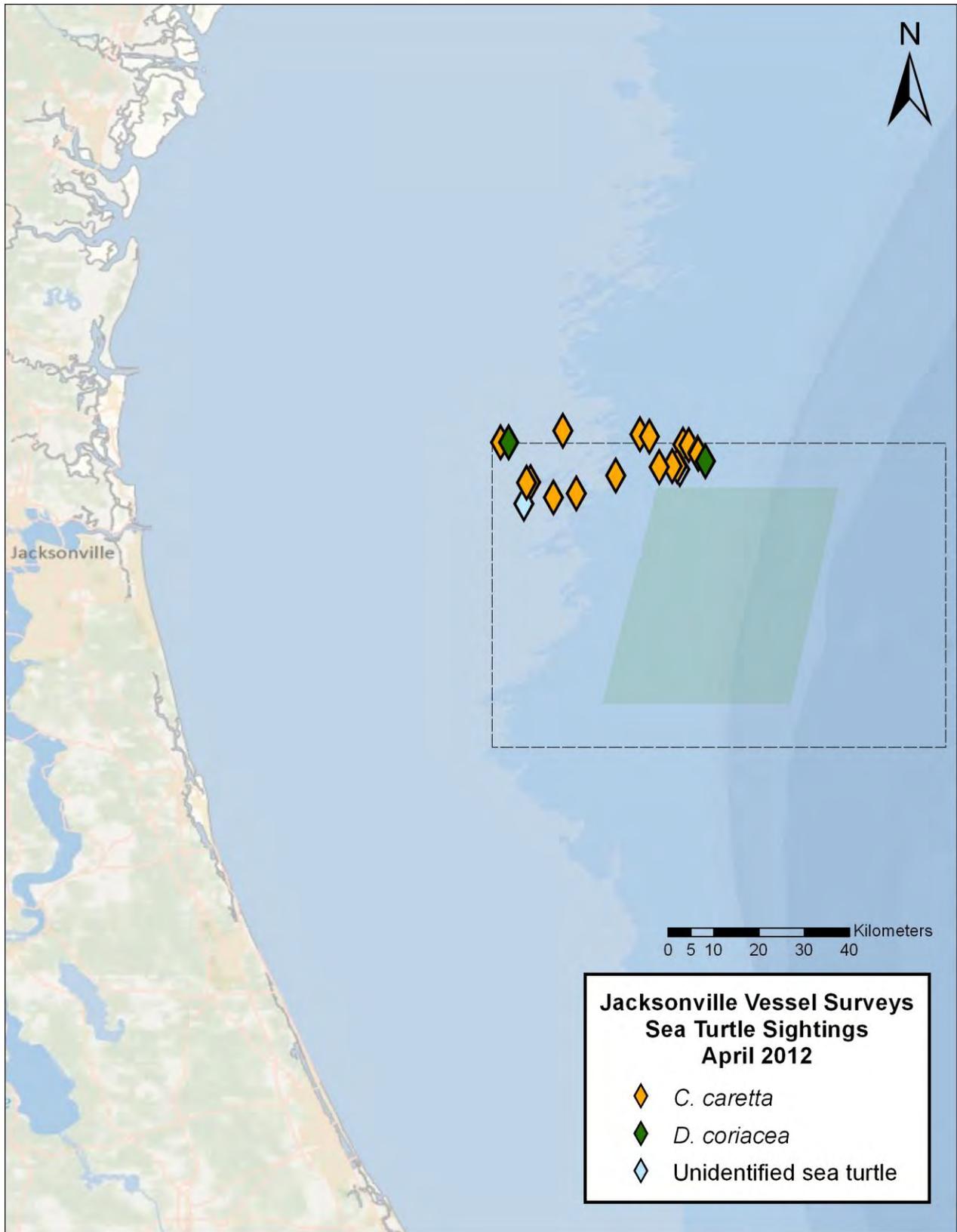


Figure 4. Sea turtles observed during vessel surveys in the Jacksonville study area for April 2012.

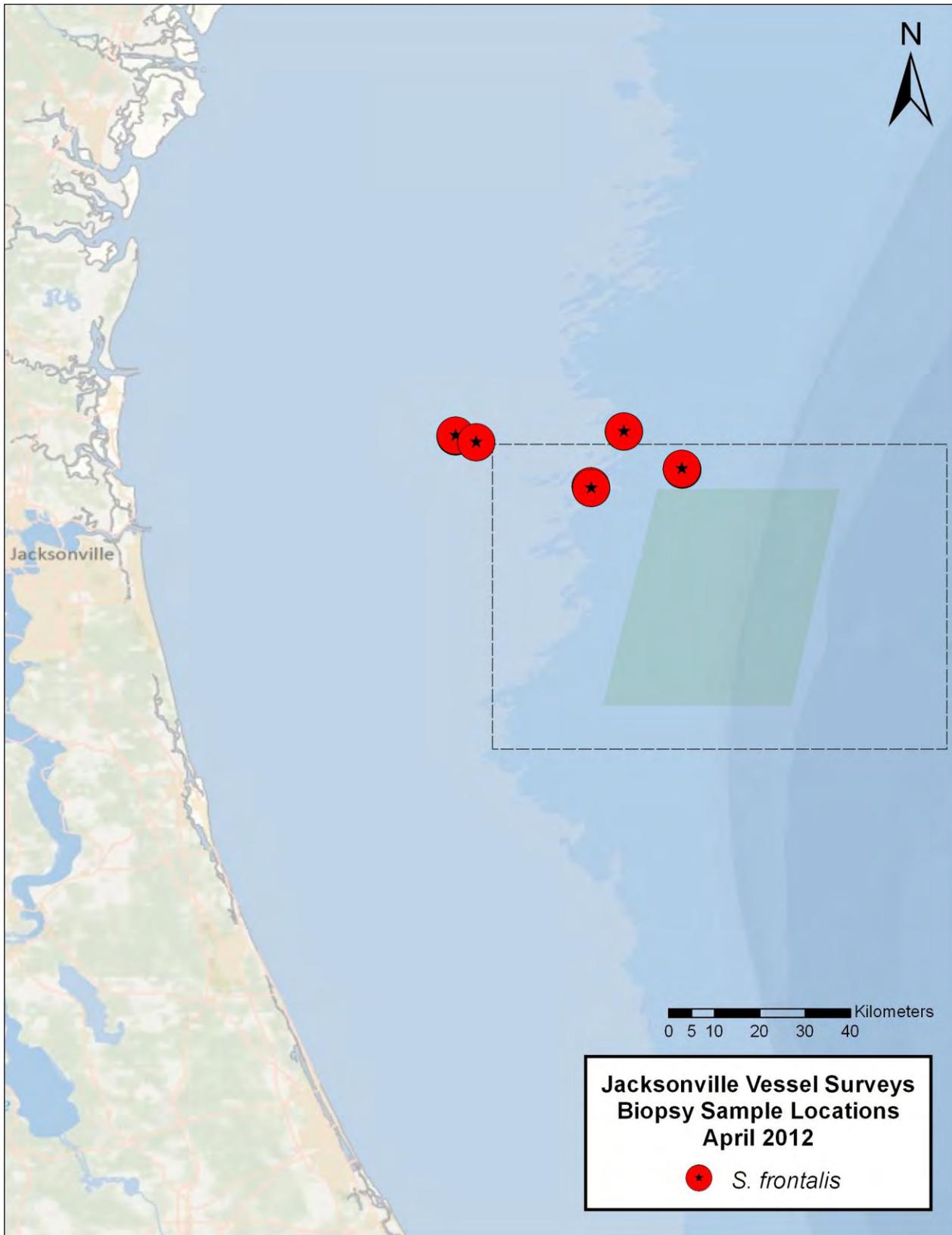


Figure 5. Biopsy sample locations during vessel surveys in the Jacksonville study area for April 2012.

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Monitoring of Protected Species in the Hatteras, Onslow and JAX Sites Progress Report to HDR: May 1 2012 through May 31 2012

May Expenses

In May 2012, salaries for Duke employees were charged to TO 14, while vessel surveys and associated fuel, travel, and supplies were charged to TO 5. Any HARP-related activities were charged to TO 14. All UNCW salaries and aerial surveys were also charged to TO 14.

Travel

William McLellan traveled to Jacksonville, Florida to present to the Southeast Implementation Team Forum on 3 years of aerial survey results generated at the JAX USWTR site. The data represent the only effort consistently conducted in the area just offshore of the current right whale critical habitat. Right whale and other large whale sightings collected during the JAX USWTR effort have all been entered onto the OBIS SEAMAP website for use by management and interested parties.

Publications

Hodge, Lynne E.W., Bell, Joel T., Kumar, Anurag, and Andrew J. Read. 2012. The influence of habitat and time of day on the occurrence of odontocete vocalizations in Onslow Bay, North Carolina. Submitted to Marine Mammal Science.

Task Order 9

We have completed our analysis of surface observations of pilot whales exposed to the EK-60 sound source. Running a mixed model with individual whale as a random effect and treatment (control, experimental playback, playback, post) as a fixed effect, there was no significant effect of treatment on any of the parameters we examined (group spread, synchrony of surfacing, synchrony of heading, behavioral state) (Table 1). We also ran a model to test whether the proportion of missed points (observer error) or unavailable points (when the whale was on a dive) was influenced by treatment. Treatment only significantly influenced the proportion of missed points (with the post treatment having significantly more missed points) (Figure 1). These results support our hypothesis that the EK-60 playback does not affect surface behavior. We are continuing analyses of dive behavior of pilot whales during playbacks.

Table 1. The effect of treatment on surface behavior.

	Group Spread	Synch Surf	Synch Hdg	Behavior	Missed	Unavailable
Treatment	0.2786	0.6331	0.829	0.7173	0.0161	0.8565

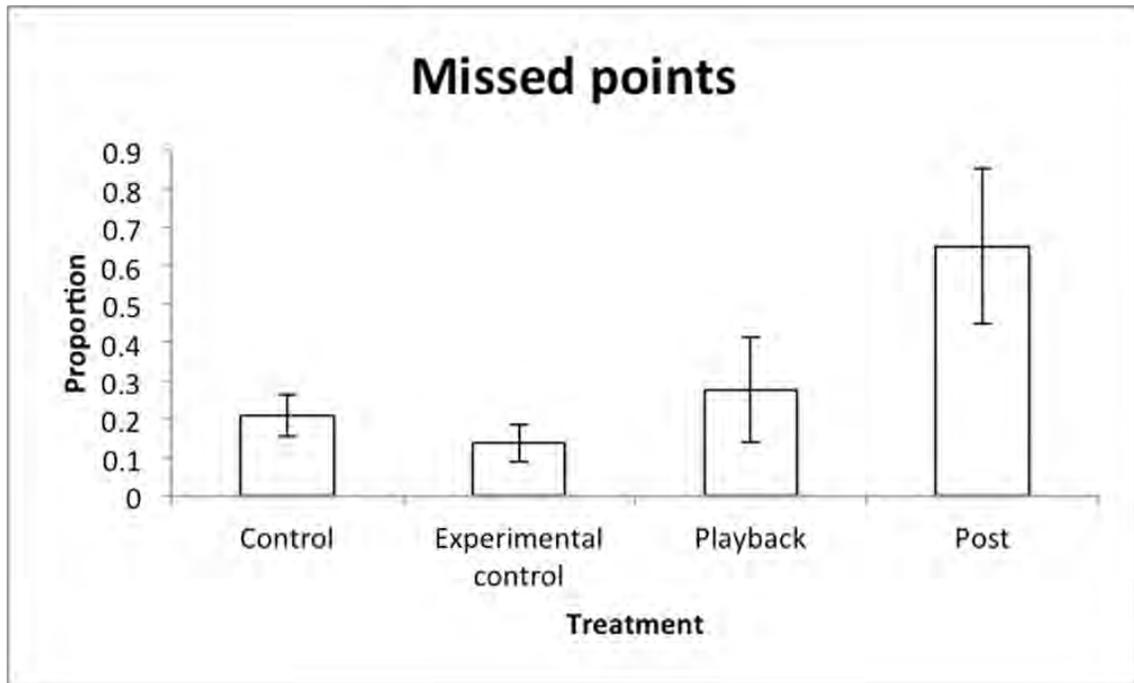


Figure 1. The proportion of missed points observed during each treatment.

Hatteras Aerial Survey Activity

Favorable weather conditions during two days of survey effort conducted in the Cape Hatteras survey area resulted in 31 cetacean sightings across eight species (Table 2 and 3, Figure 2). On May 3rd low clouds covering the northern lines restricted flights to those lines nearest to Cape Hatteras. One partial and eight complete tracklines were covered with three cetacean sightings being recorded. A single sighting of 13 Risso's dolphins on trackline 32 marks the first aerial observation of this species in this survey area since effort began in May of 2011. On May 4th sea state and cloud cover both improved allowing for 28 cetacean sightings across eight tracklines. Sightings of loggerhead sea turtles were restricted to inside the 100m isobath and were more abundant on the 4th (Table 4, Figure 3). The appearance of a whale shark on the far western end of trackline 45 marks the first aerial observation of this species in the Cape Hatteras survey area during our current effort (Table 5, Figure 3).

Aerial Survey Days Conducted at Hatteras = 2 days

Hatteras Vessel Survey Activity

Vessel surveys were conducted from three research platforms on 03 May 2012, 04 May 2012, and 12 May 2012 in the Hatteras study area. Survey effort for all vessels totaled 382.4 km in excellent to moderate sighting conditions (BSS 0-4) (Table 6). As the majority of cetacean sightings and biopsy samples were collected from the R/V *Exocetus*, only its survey tracklines are plotted (Figure 4). Fifty cetacean sightings were observed consisting of 15 bottlenose dolphin sightings, one Atlantic spotted dolphin sighting, 24 pilot whale sightings, nine common dolphin sightings, and one fin whale sighting (Table 7, Figure 5). Thirty four biopsy samples were obtained during 19 separate encounters and approximately 1216 photo-identification images were taken (Table 8, Figure 6). One loggerhead sea turtle sighting was observed on 03 May 12 (Table 9, Figure 5).

Vessel Survey Days Conducted at Hatteras = 3 day

Hatteras Harp

There were no HARP deployments or retrievals in Hatteras during this reporting period. One HARP remains at Site A; 35.34054, -74.85761 and 950 m depth, as described in the March 2012 report. The HARP is scheduled to be retrieved in August 2012.

Onslow Bay Vessel Activity

There were no vessel surveys conducted in the Onslow Bay survey area during this month due to inclement weather.

Vessel Survey Days Conducted at Onslow Bay = 0 day

Onslow Bay HARP

There were no HARP deployments or retrievals in Onslow Bay during this reporting period. One HARP remains at 33.77794, -75.92641 (952 m depth), as described in the August 2011 report. The HARP is scheduled to be retrieved as soon as weather permits.

Jacksonville Aerial Survey Activity

Flights on the 16th and 17th of May resulted in two complete sets of tracklines being surveyed in conditions of low sea state (Table 10). Low clouds and patchy showers in the afternoon of May 16th caused the last three tracklines to be truncated due to reduce visibility. Sea state and cloud cover decreased overnight resulting in ideal survey conditions on May 17th. A total of ten cetacean sightings of three species were observed this month (Table 11, Figure 7). Sightings of sea turtles were dominated by loggerheads although a few leatherbacks were also recorded (Table 12, Figure 7).

Aerial Survey Days Conducted at JAX = 2 days

Jacksonville Vessel Survey Activity

There were no vessel surveys conducted in the Jacksonville survey area during this month due to inclement weather.

Vessel Survey Days Conducted at JAX = 0 day

Jacksonville HARP

There were no HARP deployments in Jacksonville during this reporting period. One HARP remains at Site A: 30.28475, -80.22111 (76.5 m depth), as described in the January 2012 report. The HARP is scheduled to be retrieved between July and August 2012.

Table 2. Aerial survey effort table for the Hatteras study area for May 2012.

Date	Trackline	Sea state	Km Flown	Hobbs hours
3-May-2012	28	2 to 3	72.7	6.9
3-May-2012	29	2 to 3	74.1	
3-May-2012	30	2 to 3	72.4	
3-May-2012	31	2 to 3	72.5	
3-May-2012	32	2 to 3	80.7	
3-May-2012	33	2 to 3	80.1	
3-May-2012	34	2 to 3	75.0	
3-May-2012	35	3 to 4	74.9	
3-May-2012	36	3	20.0	
4-May-2012	45	1	68.3	
4-May-2012	44	1	70.4	
4-May-2012	43	1	66.2	
4-May-2012	42	1	70.5	
4-May-2012	41	1	68.1	
4-May-2012	40	1 to 2	66.7	
4-May-2012	39	1 to 2	68	
4-May-2012	38	2 to 3	66.5	

Table 3. Cetacean sightings for aerial surveys in the Hatteras study area for May 2012.

Date	Time	On / Off Effort	Latitude	Longitude-1	Track Number	Species	Common name	Group Size
3-May-12	11:20	On	35.104194	-75.087699	32	<i>G. griseus</i>	Risso's dolphin	13
3-May-12	15:22	Off	35.324588	-75.206974	33-34	<i>S. frontalis</i>	Atlantic spotted dolphin	19
3-May-12	16:11	On	35.406789	-74.929029	37	<i>T. truncatus</i>	Bottlenose dolphin	4
4-May-12	9:52	On	36.112706	-74.990582	45	<i>S. frontalis</i>	Atlantic spotted dolphin	48
4-May-12	10:11	On	36.113022	-74.660513	45	<i>D. delphis</i>	Common dolphin	37
4-May-12	10:14	On	36.118288	-74.558515	45	<i>D. delphis</i>	Common dolphin	40
4-May-12	10:21	On	36.129849	-74.468156	45	<i>P. macrocephalus</i>	Sperm whale	2
4-May-12	10:25	Off	36.126969	-74.460064	45	<i>T. truncatus</i>	Bottlenose dolphin	7
4-May-12	10:32	On	36.116379	-74.394527	45	<i>T. truncatus</i>	Bottlenose dolphin	39
4-May-12	10:42	Off	36.125553	-74.342572	45	<i>T. truncatus</i>	Bottlenose dolphin	8
4-May-12	11:00	On	36.038311	-74.582717	44	<i>Mesoplodon</i> spp.	<i>Mesoplodon</i> spp.	1
4-May-12	11:05	On	36.041401	-74.684002	44	<i>D. delphis</i>	Common dolphin	45
4-May-12	11:39	On	35.988005	-74.735377	43	<i>D. delphis</i>	Common dolphin	225
4-May-12	11:43	On	35.977379	-74.634714	43	<i>Z. cavirostris</i>	Cuvier's beaked whale	2
4-May-12	11:52	On	35.979662	-74.557988	43	<i>S. frontalis</i>	Atlantic spotted dolphin	58
4-May-12	11:53	On	35.973742	-74.529780	43	<i>T. truncatus</i>	Bottlenose dolphin	13
4-May-12	12:14	On	35.907999	-74.635989	42	<i>T. truncatus</i>	Bottlenose dolphin	23
4-May-12	13:57	On	35.821674	-74.724824	41	<i>Z. cavirostris</i>	Cuvier's beaked whale	3
4-May-12	14:00	On	35.843667	-74.666141	41	<i>T. truncatus</i>	Bottlenose dolphin	32
4-May-12	14:06	On	35.825246	-74.586393	41	<i>T. truncatus</i>	Bottlenose dolphin	40
4-May-12	14:23	On	35.758378	-74.497698	40	<i>T. truncatus</i>	Bottlenose dolphin	34
4-May-12	14:28	On	35.767991	-74.577045	40	<i>T. truncatus</i>	Bottlenose dolphin	50
4-May-12	14:36	On	35.761736	-74.656952	40	<i>G. macrorhynchus</i>	Short-finned pilot whale	5
4-May-12	14:49	On	35.748995	-74.799130	40	<i>G. macrorhynchus</i>	Short-finned pilot whale	11
4-May-12	15:15	On	35.692604	-74.734785	39	<i>Mesoplodon</i> spp.	<i>Mesoplodon</i> spp.	1
4-May-12	15:22	On	35.685520	-74.688836	39	<i>T. truncatus</i>	Bottlenose dolphin	30
4-May-12	15:26	On	35.682618	-74.603401	39	<i>Mesoplodon</i> spp.	<i>Mesoplodon</i> spp.	1
4-May-12	15:45	On	35.621951	-74.681484	38	<i>T. truncatus</i>	Bottlenose dolphin	48
4-May-12	15:53	On	35.625957	-74.760278	38	<i>T. truncatus</i>	Bottlenose dolphin	8
4-May-12	16:03	On	35.620312	-74.795580	38	<i>T. truncatus</i>	Bottlenose dolphin	2
4-May-12	16:11	On	35.629127	-75.069973	38	<i>M. novaeangliae</i>	Humpback whale	1

Table 4. Sea turtle sightings for aerial surveys in the Hatteras study area for May 2012.

Date	Time	On / Off Effort	Latitude	Longitude-1	Track Number	Species	Common Name	Group Size
3-May-12	10:22	On	35.109130	-75.355676	28	<i>C. caretta</i>	Loggerhead sea turtle	1
3-May-12	11:02	On	35.099645	-75.210582	29	<i>C. caretta</i>	Loggerhead sea turtle	1
3-May-12	11:12	On	35.245574	-75.271762	30	<i>C. caretta</i>	Loggerhead sea turtle	1
3-May-12	15:31	On	35.337961	-74.971990	34	<i>C. caretta</i>	Loggerhead sea turtle	1
4-May-12	9:48	On	36.119271	-75.116694	45	<i>C. caretta</i>	Loggerhead sea turtle	1
4-May-12	9:50	On	36.124978	-75.042079	45	<i>C. caretta</i>	Loggerhead sea turtle	1
4-May-12	9:51	On	36.123250	-75.000243	45	<i>C. caretta</i>	Loggerhead sea turtle	1
4-May-12	11:16	On	36.041886	-74.987632	44	<i>C. caretta</i>	Loggerhead sea turtle	1
4-May-12	11:19	On	36.042330	-75.130373	44	<i>C. caretta</i>	Loggerhead sea turtle	1
4-May-12	11:20	On	36.042565	-75.143855	44	<i>C. caretta</i>	Loggerhead sea turtle	3
4-May-12	11:24	On	35.973601	-75.095511	43	<i>C. caretta</i>	Loggerhead sea turtle	3
4-May-12	11:25	On	35.973452	-75.052896	43	<i>C. caretta</i>	Loggerhead sea turtle	3
4-May-12	11:25	On	35.973402	-75.049213	43	<i>C. caretta</i>	Loggerhead sea turtle	2
4-May-12	11:27	On	35.975784	-74.990315	43	<i>C. caretta</i>	Loggerhead sea turtle	4
4-May-12	12:23	On	35.904163	-75.003967	42	<i>C. caretta</i>	Loggerhead sea turtle	1
4-May-12	12:25	On	35.906719	-75.060310	42	<i>C. caretta</i>	Loggerhead sea turtle	3
4-May-12	12:26	On	35.904858	-75.089952	42	<i>C. caretta</i>	Loggerhead sea turtle	4
4-May-12	13:45	On	35.835026	-75.152188	41		Unidentified sea turtle	1
4-May-12	13:46	On	35.833303	-75.104231	41	<i>C. caretta</i>	Loggerhead sea turtle	1
4-May-12	14:57	On	35.757121	-74.998814	40		Unidentified sea turtle	1
4-May-12	15:00	On	35.755940	-75.119142	40	<i>C. caretta</i>	Loggerhead sea turtle	1
4-May-12	15:06	On	35.685444	-75.027899	39	<i>C. caretta</i>	Loggerhead sea turtle	1
4-May-12	16:05	On	35.619490	-74.893894	38	<i>C. caretta</i>	Loggerhead sea turtle	1
4-May-12	16:09	On	35.616549	-75.030994	38	<i>C. caretta</i>	Loggerhead sea turtle	3

Table 5. Whale shark sighting during aerial surveys in the Hatteras study area for May 2012.

Date	Time	On / Off Effort	Latitude	Longitude-1	Track Number	Species	Common Name	Group Size
4-May-12	10:37	On	36.120074	-74.339752	45	<i>R. typus</i>	Whale shark	1

Table 6. Vessel survey effort table for the Hatteras study area for May 2012.

Date	Sea State	Km surveyed	Survey Time (hrs:min)	At Sea Time	Platform
3-May-12	2-4	40.0	3:37	3:37	R/V <i>Exocetus</i>
3-May-12	3-4	34.4	3:14	3:14	R/V <i>Wavelet</i>
3-May-12	n/a	n/a	n/a	19:00	R/V <i>SRVx</i>
4-May-12	0-1	88.5	9:10	9:10	R/V <i>Exocetus</i>
4-May-12	0-2	39.0	9:47	9:47	R/V <i>Wavelet</i>
4-May-12	n/a	21.6	6:24	24:00	R/V <i>SRVx</i>
12-May-12	2-3	74.9	9:40	10:15	R/V <i>Exocetus</i>
12-May-12	2-3	39.6	11:14	11:30	R/V <i>Wavelet</i>
12-May-12	n/a	44.4	13:21	24:00	R/V <i>SRVx</i>

Table 7. Cetacean sightings during vessel surveys in the Hatteras study area for May 2012.

Date	Time	Latitude	Longitude	Species	Common Name	Group Size	Biopsy Samples	Photo-id images
3-May-12	14:24	35.32082	-74.93017	<i>T. truncatus</i>	Bottlenose dolphin	5	0	0
3-May-12	14:42	35.37069	-74.90216	<i>T. truncatus</i>	Bottlenose dolphin	6	0	0
3-May-12	14:45	35.39150	-74.86758	<i>T. truncatus</i>	Bottlenose dolphin	8	0	0
3-May-12	15:05	35.41724	-74.87065	<i>T. truncatus</i>	Bottlenose dolphin	6	0	0
3-May-12	15:26	35.46554	-74.81459	<i>T. truncatus</i>	Bottlenose dolphin	9	0	0
3-May-12	15:53	35.51108	-74.80909	<i>T. truncatus</i>	Bottlenose dolphin	8	1	7
3-May-12	16:16	35.51998	-74.80069	<i>T. truncatus</i>	Bottlenose dolphin	1	0	0
3-May-12	16:24	35.52789	-74.79877	<i>T. truncatus</i>	Bottlenose dolphin	4	1	13
4-May-12	6:25	35.75758	-74.80231	<i>G. macrorhynchus</i>	Short-finned pilot whale	35	2	16
4-May-12	6:38	35.75997	-74.80291	<i>G. macrorhynchus</i>	Short-finned pilot whale	4	0	27
4-May-12	7:31	35.77239	-74.78662	<i>G. macrorhynchus</i>	Short-finned pilot whale	2	0	49
4-May-12	7:40	35.77897	-74.78685	<i>G. macrorhynchus</i>	Short-finned pilot whale	16	0	76
4-May-12	8:07	35.78198	-74.79107	<i>G. macrorhynchus</i>	Short-finned pilot whale	15	2	22
4-May-12	8:28	35.77750	-74.79748	<i>G. macrorhynchus</i>	Short-finned pilot whale	12	2	5
4-May-12	8:38	35.77391	-74.79969	<i>G. macrorhynchus</i>	Short-finned pilot whale	15	0	186
4-May-12	9:02	35.77903	-74.81185	<i>G. macrorhynchus</i>	Short-finned pilot whale	10	2	9
4-May-12	9:39	35.73380	-74.80877	<i>T. truncatus</i>	Bottlenose dolphin	7	0	46
4-May-12	9:51	35.73409	-74.80820	<i>T. truncatus</i>	Bottlenose dolphin	4	2	2
4-May-12	10:05	35.72094	-74.81472	<i>T. truncatus</i>	Bottlenose dolphin	7	2	31
4-May-12	12:06	35.86798	-74.81832	<i>G. macrorhynchus</i>	Short-finned pilot whale	200	0	0
4-May-12	12:11	35.87120	-74.81889	<i>G. macrorhynchus</i>	Short-finned pilot whale	25	2	67
4-May-12	13:18	35.89091	-74.80133	<i>T. truncatus</i>	Bottlenose dolphin	18	0	54
4-May-12	13:40	35.88188	-74.76211	<i>D. delphis</i>	Common dolphin	25	1	41
4-May-12	14:30	35.90865	-74.80591	<i>D. delphis</i>	Common dolphin	75	0	0
4-May-12	14:55	35.85173	-74.80334	<i>D. delphis</i>	Common dolphin	50	0	23
4-May-12	15:41	35.92730	-74.81920	<i>T. truncatus</i>	Bottlenose dolphin	20	0	0
4-May-12	17:39	35.93250	-74.80820	<i>B. physalus</i>	Fin whale	3	0	4
12-May-12	6:25	35.74843	-74.79619	<i>S. frontalis</i>	Atlantic spotted dolphin	80	0	0
12-May-12	6:40	35.71658	-74.80292	<i>G. macrorhynchus</i>	Short-finned pilot whale	225	3	16
12-May-12	7:21	35.73322	-74.80705	<i>G. macrorhynchus</i>	Short-finned pilot whale	15	0	0
12-May-12	7:27	35.73501	-74.80724	<i>G. macrorhynchus</i>	Short-finned pilot whale	18	0	0
12-May-12	7:29	35.73337	-74.80549	<i>D. delphis</i>	Common dolphin	90	0	0
12-May-12	7:40	35.74128	-74.80586	<i>G. macrorhynchus</i>	Short-finned pilot whale	5	0	14
12-May-12	7:49	35.74329	-74.80684	<i>G. macrorhynchus</i>	Short-finned pilot whale	12	0	0
12-May-12	8:11	35.75157	-74.80600	<i>G. macrorhynchus</i>	Short-finned pilot whale	50	0	12
12-May-12	8:47	35.76180	-74.81129	<i>G. macrorhynchus</i>	Short-finned pilot whale	4	0	66
12-May-12	9:13	35.77386	-74.82154	<i>G. macrorhynchus</i>	Short-finned pilot whale	9	1	37
12-May-12	9:24	35.77905	-74.82572	<i>G. macrorhynchus</i>	Short-finned pilot whale	20	2	26
12-May-12	9:48	35.78925	-74.80994	<i>G. macrorhynchus</i>	Short-finned pilot whale	12	2	23
12-May-12	10:36	35.81605	-74.83760	<i>D. delphis</i>	Common dolphin	10	0	214
12-May-12	10:43	35.76249	-74.81832	<i>T. truncatus</i>	Bottlenose dolphin	1	0	22
12-May-12	11:29	35.81415	-74.83582	<i>D. delphis</i>	Common dolphin	40	2	0
12-May-12	11:32	35.82182	-74.84522	<i>T. truncatus</i>	Bottlenose dolphin	3	0	0
12-May-12	13:33	35.82878	-74.84924	<i>D. delphis</i>	Common dolphin	500	0	0
12-May-12	15:33	35.83531	-74.84611	<i>D. delphis</i>	Common dolphin	30	0	5
12-May-12	15:40	35.83111	-74.84867	<i>D. delphis</i>	Common dolphin	400	2	33
12-May-12	15:53	35.82910	-74.84933	<i>G. macrorhynchus</i>	Short-finned pilot whale	100	2	22
12-May-12	16:21	35.82927	-74.85794	<i>G. macrorhynchus</i>	Short-finned pilot whale	12	2	8
12-May-12	16:33	35.82852	-74.86164	<i>G. macrorhynchus</i>	Short-finned pilot whale	15	0	15
12-May-12	16:48	35.83122	-74.85789	<i>G. macrorhynchus</i>	Short-finned pilot whale	80	1	25

Table 8. Biopsy sample taken during vessel surveys in the Hatteras study area for May 2012.

Date	Time	Latitude	Longitude	Species	Common Name	Group Size	Sighting #	Sample #
3-May-12	15:55	35.51199	-74.80915	<i>T. truncatus</i>	Bottlenose dolphin	8	W5	AJR-12-01
3-May-12	16:29	35.52964	-74.79842	<i>T. truncatus</i>	Bottlenose dolphin	4	E5	ASF-12-01
4-May-12	6:40	35.76007	-74.79821	<i>G. macrorhynchus</i>	Short-finned pilot whale	18	E5	DWJ-12-01
4-May-12	8:03	35.78338	-74.79190	<i>G. macrorhynchus</i>	Short-finned pilot whale	18	E5	DWJ-12-02
4-May-12	8:33	35.77425	-74.79953	<i>G. macrorhynchus</i>	Short-finned pilot whale	12	E6	ASF-12-02
4-May-12	8:35	35.77460	-74.79988	<i>G. macrorhynchus</i>	Short-finned pilot whale	12	E6	ASF-12-03
4-May-12	9:07	35.77925	-74.81310	<i>G. macrorhynchus</i>	Short-finned pilot whale	5	E8	DWJ-12-03
4-May-12	9:11	35.78006	-74.81227	<i>G. macrorhynchus</i>	Short-finned pilot whale	6	E8	DWJ-12-04
4-May-12	9:56	35.73668	-74.80759	<i>T. truncatus</i>	Bottlenose dolphin	4	E10	ASF-12-05
4-May-12	9:57	35.73619	-74.80826	<i>T. truncatus</i>	Bottlenose dolphin	4	E10	ASF-12-06
4-May-12	10:23	35.71665	-74.81758	<i>T. truncatus</i>	Bottlenose dolphin	4	E11	DWJ-12-05
4-May-12	10:42	35.71770	-74.82387	<i>T. truncatus</i>	Bottlenose dolphin	4	E11	DWJ-12-06
4-May-12	10:48	35.80625	-74.82287	<i>G. macrorhynchus</i>	Short-finned pilot whale	5	E1	DMW-12-03
4-May-12	10:56	35.80745	-74.82513	<i>G. macrorhynchus</i>	Short-finned pilot whale	5	E1	AJR-12-02
4-May-12	13:18	35.88414	-74.80476	<i>G. macrorhynchus</i>	Short-finned pilot whale	5	E12	ASF-12-07
4-May-12	13:21	35.88541	-74.80557	<i>G. macrorhynchus</i>	Short-finned pilot whale	8	E12	ASF-12-08
4-May-12	13:43	35.88314	-74.76342	<i>D. delphis</i>	Common dolphin	25	E13	DWJ-12-07
12-May-12	9:17	35.77638	-74.82158	<i>G. macrorhynchus</i>	Short-finned pilot whale	9	E7	ASF-12-09
12-May-12	9:26	35.78000	-74.82639	<i>G. macrorhynchus</i>	Short-finned pilot whale	20	E8	ASF-12-10
12-May-12	9:29	35.78094	-74.82723	<i>G. macrorhynchus</i>	Short-finned pilot whale	20	E8	ASF-12-11
12-May-12	9:52	35.79140	-74.81110	<i>G. macrorhynchus</i>	Short-finned pilot whale	12	E9	DWJ-12-08
12-May-12	9:54	35.79263	-74.81215	<i>G. macrorhynchus</i>	Short-finned pilot whale	12	E9	DWJ-12-09
12-May-12	11:31	35.81242	-74.83441	<i>D. delphis</i>	Common dolphin	40	E11	DWJ-12-10
12-May-12	11:36	35.81386	-74.83308	<i>D. delphis</i>	Common dolphin	40	E11	DWJ-12-11
12-May-12	13:02	35.81615	-74.85230	<i>G. macrorhynchus</i>	Short-finned pilot whale	5	S2	DMW-12-04
12-May-12	15:45	35.82757	-74.85163	<i>D. delphis</i>	Common dolphin	70	E13	DWJ-12-12
12-May-12	15:48	35.82890	-74.84965	<i>D. delphis</i>	Common dolphin	100	E13	DWJ-12-13
12-May-12	15:56	35.82943	-74.84890	<i>G. macrorhynchus</i>	Short-finned pilot whale	3	E14	ASF-12-12
12-May-12	15:59	35.82955	-74.84869	<i>G. macrorhynchus</i>	Short-finned pilot whale	8	E14	ASF-12-13
12-May-12	16:23	35.82953	-74.85886	<i>G. macrorhynchus</i>	Short-finned pilot whale	8	E15	DWJ-12-14
12-May-12	16:29	35.82831	-74.85901	<i>G. macrorhynchus</i>	Short-finned pilot whale	8	E15	DWJ-12-15
12-May-12	16:43	35.86056	-74.84271	<i>G. macrorhynchus</i>	Short-finned pilot whale	3	S2	ZTS-12-25
12-May-12	16:53	35.83246	-74.85738	<i>G. macrorhynchus</i>	Short-finned pilot whale	4	E17	ASF-12-14
12-May-12	19:07	35.89589	-74.82608	<i>G. macrorhynchus</i>	Short-finned pilot whale	3	S2	HJF-12-11

Table 9. Sea turtle sightings during vessel surveys in the Hatteras study area for May 2012.

Date	Time	Latitude	Longitude	Species	Common Name	Group Size
3-May-12	15:00	35.41730	-74.85256	<i>C. caretta</i>	Loggerhead sea turtle	1

Table 10. Aerial survey effort table for the Jacksonville study area for May 2012.

* denotes lines truncated due to reduced visibility.

Date	Trackline	Sea state	Km Flown	Hobbs hours
16-May-2012	10	2 to 3	83.5	6.3
16-May-2012	9	2 to 3	85.7	
16-May-2012	8	2 to 3	83.8	
16-May-2012	7	2 to 3	86.2	
16-May-2012	6	2 to 3	86.1	
16-May-2012	5	2 to 3	86.2	
16-May-2012	4	2 to 3	85.7	
16-May-2012	3	2 to 3	54.7*	
16-May-2012	2	2 to 3	53.5*	
16-May-2012	1	2 to 3	46.4*	
17-May-2012	5	1 to 3	84.8	7.7
17-May-2012	6	1 to 3	86.6	
17-May-2012	7	1 to 3	84.1	
17-May-2012	8	1 to 3	86.1	
17-May-2012	9	1 to 3	85.7	
17-May-2012	10	1 to 3	83.8	
17-May-2012	4	1 to 3	84.4	
17-May-2012	3	1 to 2	83.3	
17-May-2012	2	1 to 2	84.6	
17-May-2012	1	1 to 3	84.4	

Table 11. Cetacean sightings for aerial surveys in the Jacksonville study area for May 2012.

Date	Time	On / Off Effort	Latitude	Longitude-1	Track Number	Species	Common name	Group Size
16-May-12	8:57	On	30.570136	-80.230107	10	<i>S. frontalis</i>	Atlantic spotted dolphin	37
16-May-12	9:48	On	30.430951	-80.635714	8	<i>S. frontalis</i>	Atlantic spotted dolphin	7
16-May-12	10:08	On	30.419954	-80.444755	8	<i>S. frontalis</i>	Atlantic spotted dolphin	15
17-May-12	9:08	On	30.226719	-80.469996	5	<i>S. frontalis</i>	Atlantic spotted dolphin	14
17-May-12	10:15	On	30.354373	-80.593331	7	<i>S. frontalis</i>	Atlantic spotted dolphin	28
17-May-12	10:38	On	30.358238	-79.981219	7	<i>G. macrorhynchus</i>	Short-finned pilot whale	2
17-May-12	11:00	Off	30.399736	-79.790061	7 - 8	<i>G. macrorhynchus</i>	Short-finned pilot whale	2
17-May-12	14:55	On	30.185141	-80.468611	4	<i>S. frontalis</i>	Atlantic spotted dolphin	30
17-May-12	15:24	On	30.112312	-79.858667	3	<i>T. truncatus</i>	Bottlenose dolphin	20
17-May-12	16:22	Off	29.971244	-79.795325	2 - 1	<i>G. macrorhynchus</i>	Short-finned pilot whale	8

Table 12. Sea turtle sightings for aerial surveys in the Jacksonville study area for May 2012.

Date	Time	On / Off Effort	Latitude	Longitude-1	Track Number	Species	Common Name	Group Size
16-May-12	8:52	On	30.565342	-80.337144	10	<i>C. caretta</i>	Loggerhead sea turtle	1
16-May-12	9:36	On	30.501056	-80.472982	9	<i>C. caretta</i>	Loggerhead sea turtle	1
16-May-12	10:01	On	30.432699	-80.466753	8	<i>C. caretta</i>	Loggerhead sea turtle	1
16-May-12	10:17	On	30.432621	-80.363945	8	<i>C. caretta</i>	Loggerhead sea turtle	1
16-May-12	10:19	On	30.433801	-80.295960	8	<i>C. caretta</i>	Loggerhead sea turtle	1
16-May-12	10:54	On	30.367082	-80.508822	7	<i>C. caretta</i>	Loggerhead sea turtle	1
16-May-12	10:55	On	30.363639	-80.546786	7	<i>C. caretta</i>	Loggerhead sea turtle	1
16-May-12	10:57	On	30.364427	-80.596790	7	<i>C. caretta</i>	Loggerhead sea turtle	1
16-May-12	12:36	On	30.297614	-80.631316	6	<i>C. caretta</i>	Loggerhead sea turtle	1
16-May-12	12:37	On	30.297417	-80.595427	6	<i>C. caretta</i>	Loggerhead sea turtle	2
16-May-12	12:46	On	30.297945	-80.349245	6	<i>C. caretta</i>	Loggerhead sea turtle	2
16-May-12	13:20	On	30.228100	-80.314516	5	<i>C. caretta</i>	Loggerhead sea turtle	1
16-May-12	13:21	On	30.228676	-80.344261	5	<i>C. caretta</i>	Loggerhead sea turtle	1
16-May-12	13:24	On	30.230498	-80.468013	5		Unidentified sea turtle	1
16-May-12	13:26	On	30.232400	-80.531206	5		Unidentified sea turtle	1
16-May-12	13:29	On	30.229697	-80.637862	5	<i>C. caretta</i>	Loggerhead sea turtle	1
16-May-12	13:34	On	30.168005	-80.661515	4	<i>C. caretta</i>	Loggerhead sea turtle	2
17-May-12	9:00	On	30.235181	-80.635436	5	<i>C. caretta</i>	Loggerhead sea turtle	1
17-May-12	9:22	On	30.228812	-80.405995	5	<i>C. caretta</i>	Loggerhead sea turtle	1
17-May-12	9:23	On	30.230042	-80.359900	5	<i>C. caretta</i>	Loggerhead sea turtle	1
17-May-12	9:23	On	30.230417	-80.370395	5	<i>C. caretta</i>	Loggerhead sea turtle	1
17-May-12	9:26	On	30.226601	-80.267142	5	<i>C. caretta</i>	Loggerhead sea turtle	1
17-May-12	10:00	On	30.298737	-80.489108	6	<i>C. caretta</i>	Loggerhead sea turtle	2
17-May-12	10:02	On	30.297698	-80.561244	6	<i>C. caretta</i>	Loggerhead sea turtle	1
17-May-12	10:04	On	30.298184	-80.617778	6	<i>D. coriacea</i>	Leatherback sea turtle	1
17-May-12	10:10	On	30.362356	-80.650883	7	<i>D. coriacea</i>	Leatherback sea turtle	1
17-May-12	10:23	On	30.361843	-80.510286	7	<i>C. caretta</i>	Loggerhead sea turtle	1
17-May-12	11:17	On	30.432772	-80.268854	8	<i>C. caretta</i>	Loggerhead sea turtle	1
17-May-12	11:34	On	30.499292	-80.566093	9		Unidentified sea turtle	1
17-May-12	11:36	On	30.499051	-80.527044	9	<i>C. caretta</i>	Loggerhead sea turtle	2
17-May-12	12:16	On	30.565321	-80.501261	10	<i>C. caretta</i>	Loggerhead sea turtle	1
17-May-12	14:50	On	30.164664	-80.608910	4	<i>C. caretta</i>	Loggerhead sea turtle	1
17-May-12	14:50	On	30.164973	-80.597396	4	<i>C. caretta</i>	Loggerhead sea turtle	2
17-May-12	14:51	On	30.165238	-80.566838	4	<i>C. caretta</i>	Loggerhead sea turtle	2
17-May-12	14:51	On	30.165384	-80.550295	4	<i>D. coriacea</i>	Leatherback sea turtle	1
17-May-12	15:04	On	30.167013	-80.406862	4	<i>C. caretta</i>	Loggerhead sea turtle	3
17-May-12	15:50	On	30.100949	-80.612361	3	<i>C. caretta</i>	Loggerhead sea turtle	1
17-May-12	15:51	On	30.099994	-80.630689	3	<i>D. coriacea</i>	Leatherback sea turtle	1
17-May-12	15:57	On	30.030055	-80.621409	2	<i>C. caretta</i>	Loggerhead sea turtle	2
17-May-12	16:03	On	30.031578	-80.422592	2	<i>C. caretta</i>	Loggerhead sea turtle	1
17-May-12	16:07	On	30.031786	-80.277553	2	<i>C. caretta</i>	Loggerhead sea turtle	1
17-May-12	16:37	On	29.969491	-80.198278	1		Unidentified sea turtle	1
17-May-12	16:46	On	29.967269	-80.513122	1	<i>C. caretta</i>	Loggerhead sea turtle	1
17-May-12	16:50	On	29.965518	-80.686161	1	<i>C. caretta</i>	Loggerhead sea turtle	2

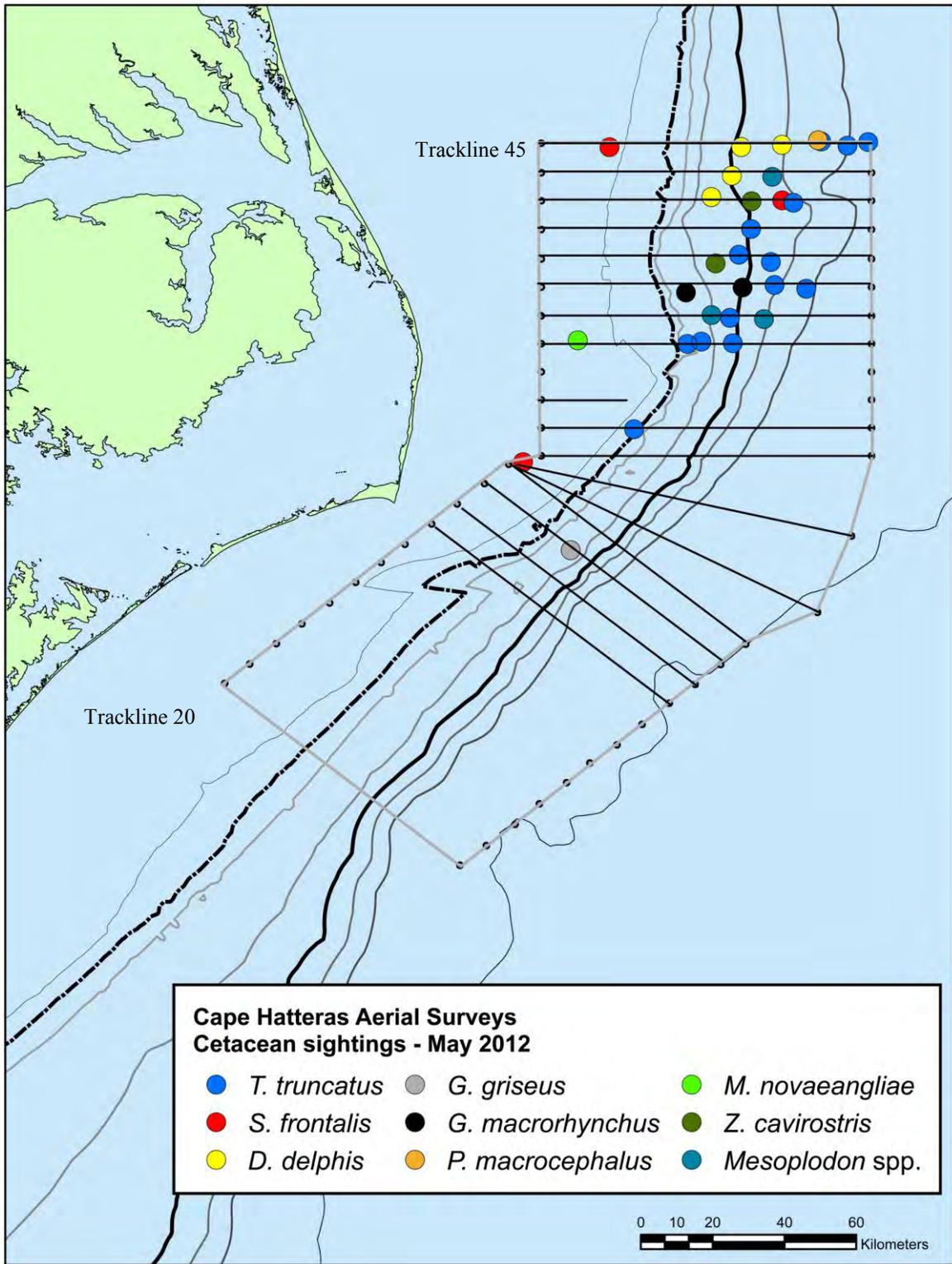


Figure 2. Cetaceans observed during aerial surveys in the Hatteras study area for May 2012. Lines indicate tracklines that were flown.

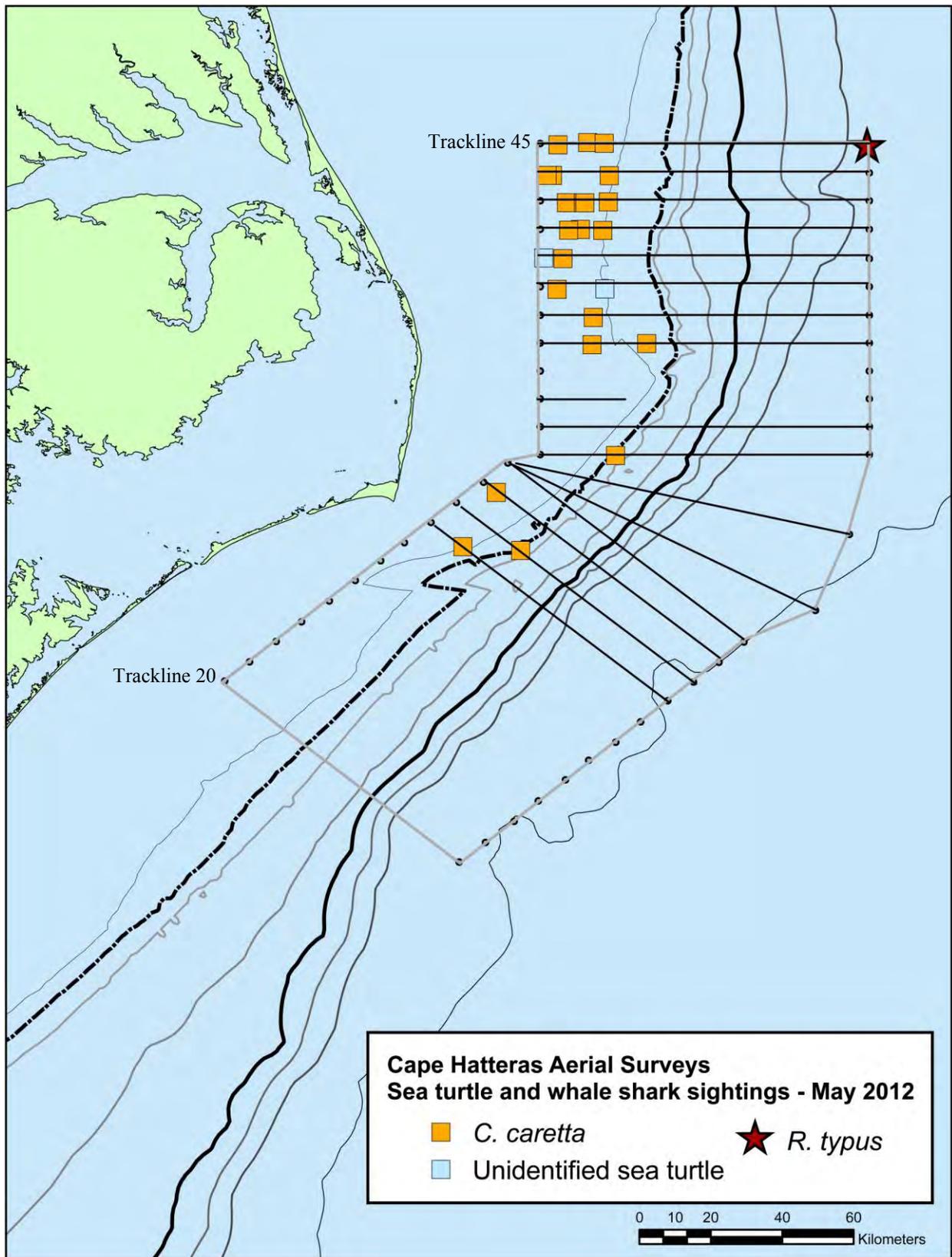


Figure 3. Sea turtles and whale shark observations during aerial surveys in the Hatteras study area for May 2012. Lines indicate tracklines that were flown.

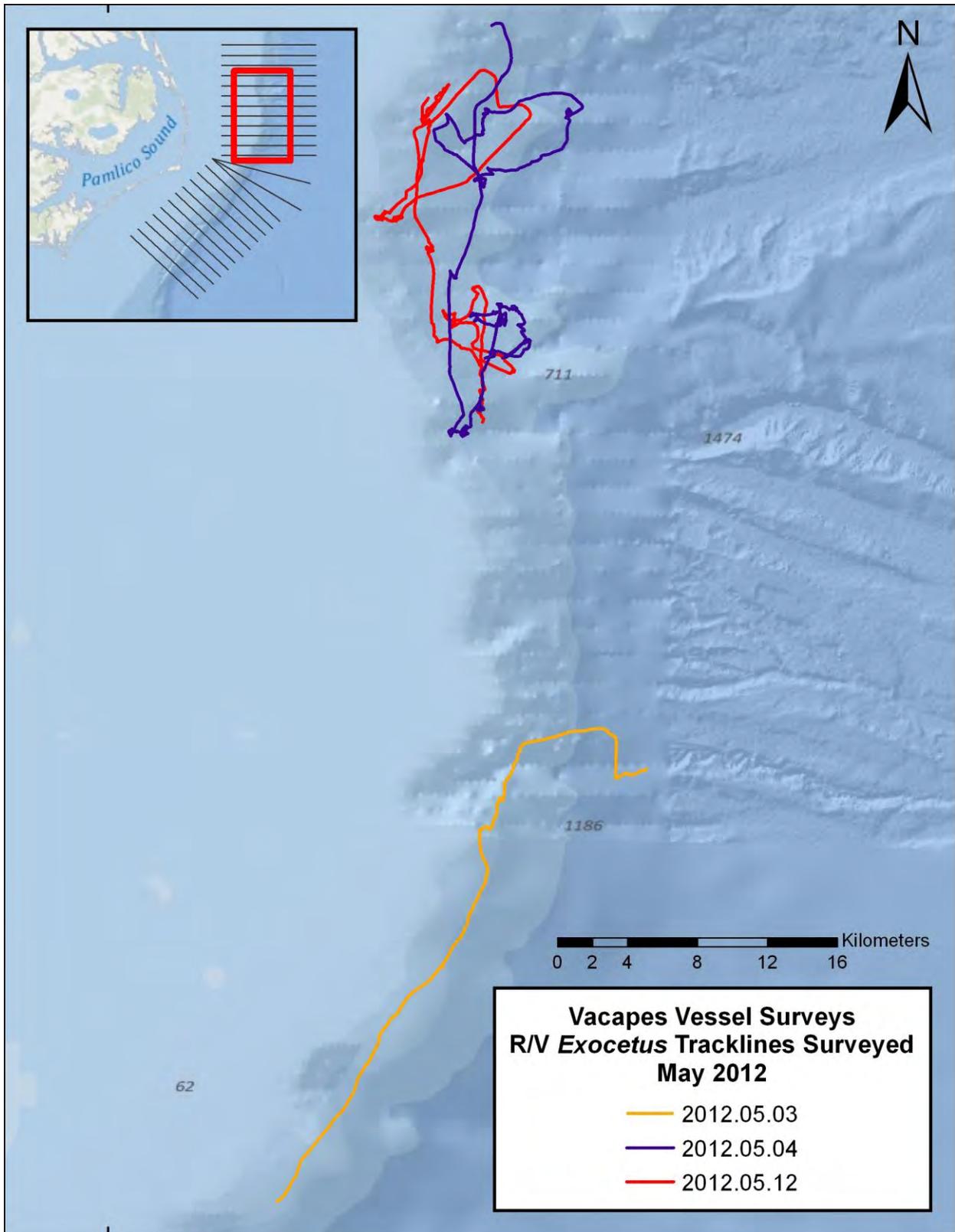


Figure 4. Vessel tracklines surveyed in the Hatteras study area for May 2012

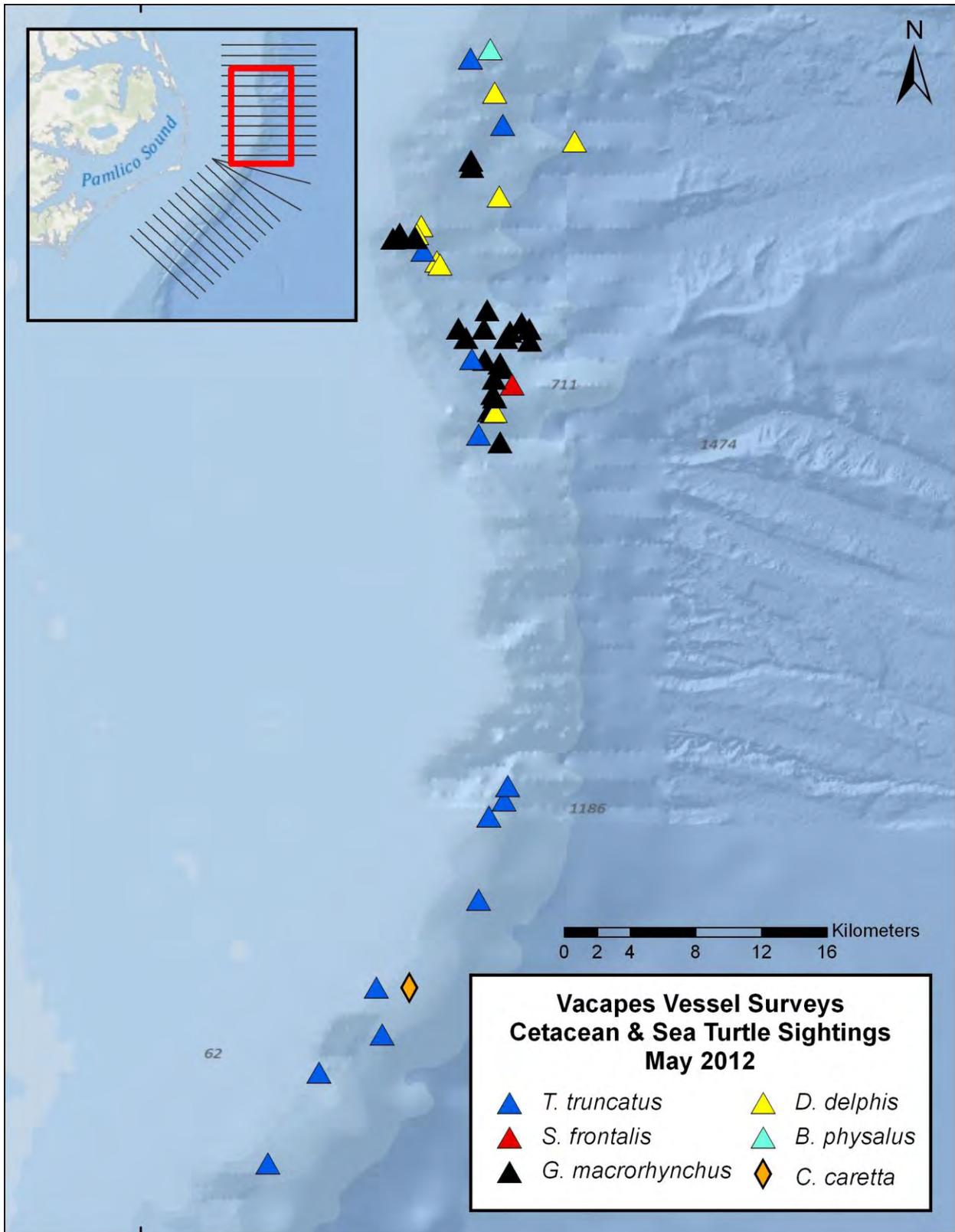


Figure 5. Cetaceans and sea turtles observed during vessel surveys in the Hatteras study area for May 2012.

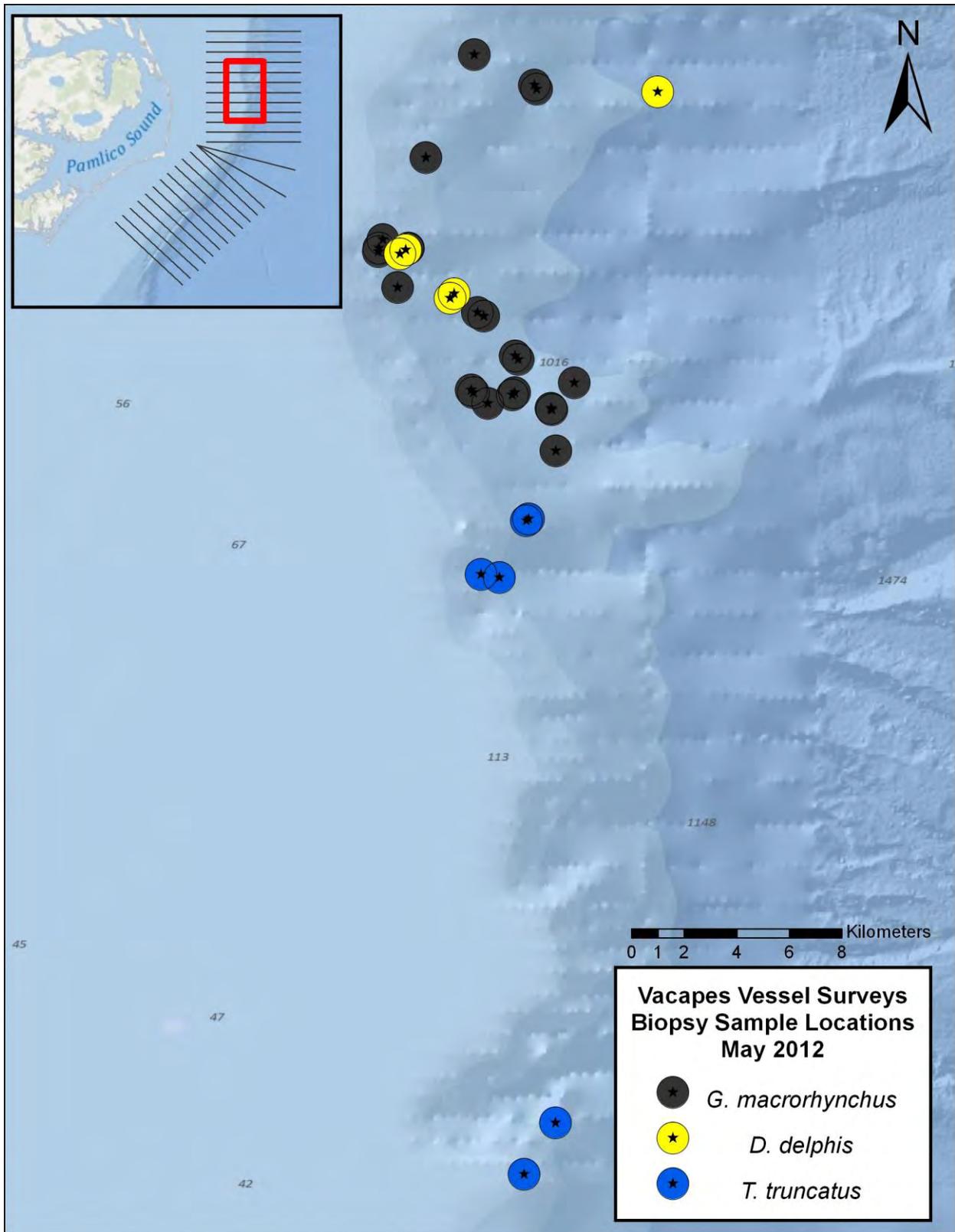


Figure 6. Biopsy sample location during vessel surveys in the Hatteras study area for May 2012.

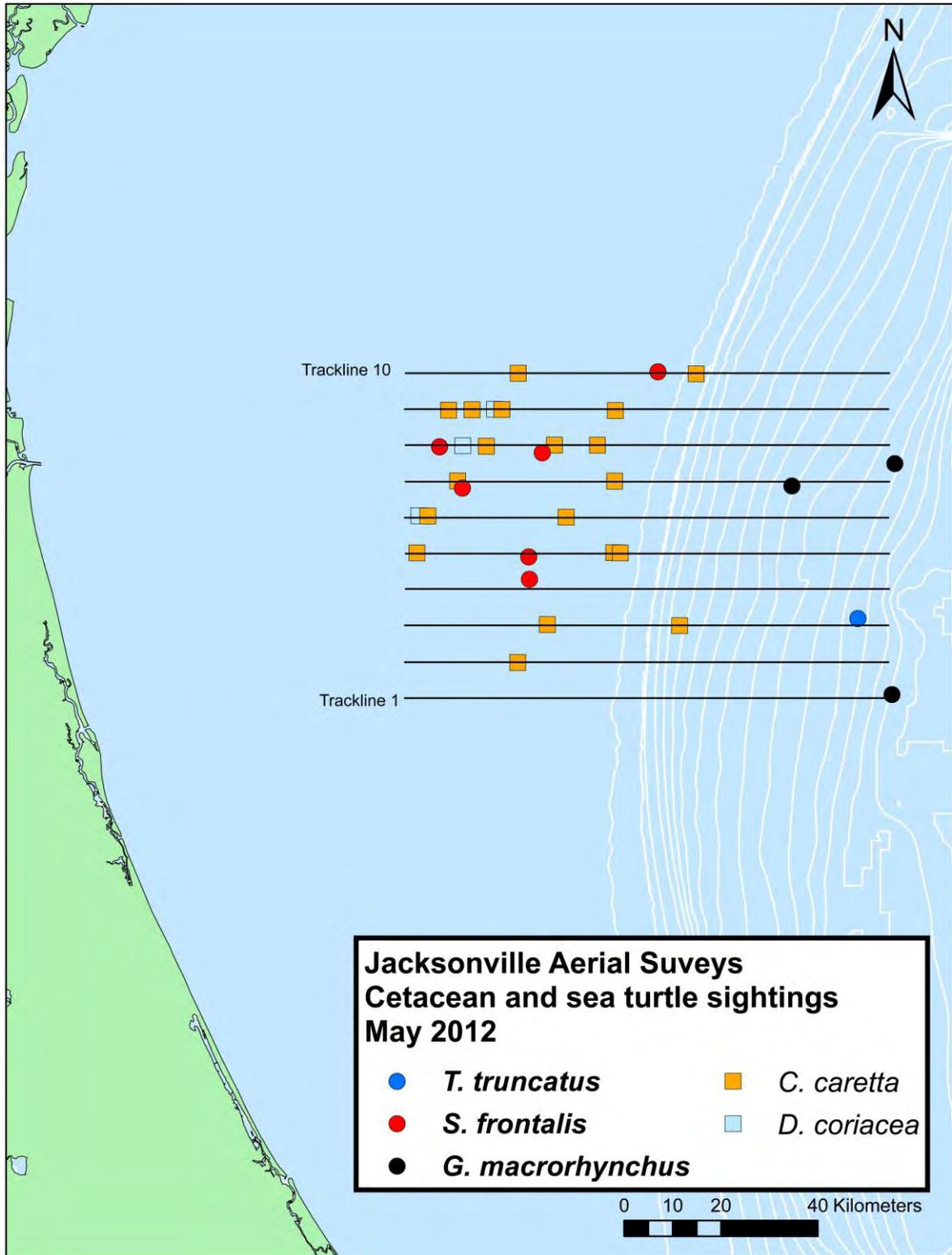


Figure 7. Cetaceans and sea turtles observed during aerial surveys in the Jacksonville study area for May 2012.

Monitoring of Protected Species in the Hatteras, Onslow and JAX Sites Progress Report to HDR: June 1 2012 through June 30 2012

June Expenses

In June 2012, salaries for Duke University employees were charged to TO 14, while vessel surveys and associated fuel, travel, and supplies were charged to TO 5. Any HARP-related activities were charged to TO 14. All UNCW salaries and aerial surveys were also charged to TO 14.

Task Order 9

Task Order 9 behavioral analyses are ongoing.

Cape Hatteras

Hatteras Aerial Survey Activity

Aerial surveys were conducted over three days with weather conditions ranging from great to fair and all 26 tracklines were surveyed (Table 1). On June 8th BSS ranged from 1-3 which resulted in sightings of four species; bottlenose dolphins, Risso's dolphins, Clymene dolphins and *Mesoplodonts*. On June 9th BSS ranged from 2-4 which resulted in four species being observed; short-finned pilot whales, bottlenose dolphins, Risso's dolphins and Cuvier's beaked whales. On June 10th BSS ranged from 2-4 which resulted in five species being observed; bottlenose dolphins, short-finned pilot whales, Atlantic spotted dolphins, Cuvier's beaked whales and Clymene dolphins (Table 2, Figure 1). During those three days of surveys there were eight loggerhead sea turtles sighted (Table 3, Figure 1).

Aerial Survey Days Conducted at Hatteras = 3 days

Hatteras Vessel Survey Activity

Vessel surveys were conducted from two research platforms on 09 – 11 June 2012 and 20 – 21 June 2012 in the Hatteras study area. Survey effort was concentrated along the shelf break off of Cape Hatteras, NC and totaled 124.9 km in excellent to moderate sighting conditions (BSS 0-4) (Table 4, Figure 2). Twenty cetacean sightings were observed consisting of thirteen bottlenose dolphin sightings, one Atlantic spotted dolphin sighting, and six pilot whale sightings (Table 5, Figure 3). Six biopsy samples were obtained during three separate encounters and approximately 1661 photo-identification images were taken (Table 6, Figure 4).

Vessel Survey Days Conducted at Hatteras = 5 days

Hatteras Harp

There were no HARP deployments or retrievals in Hatteras during this reporting period. One HARP remains at Site A; 35.34054, -74.85761 and 950 m depth, as described in the March 2012 report. The HARP is scheduled to be retrieved in August 2012.

Onslow Bay

Onslow Bay Vessel Activity

One vessel survey in the northern portion of the Onslow Bay survey area was conducted on 01 June 2012. Survey effort totaled 86.9 km in less than ideal sightings conditions (BSS 4) (Table 7, Figure 5). Two bottlenose dolphin sightings were recorded, and one biopsy sample was collected (Tables 8 and 9, Figures 6 and 7).

Vessel Survey Days Conducted at Onslow Bay = 1 day

Onslow Bay HARP

A HARP retrieval was attempted on 08 June 2012 but engine problems on the R/V *Cape Fear* prevented the site from being accessed. One HARP remains at 33.77794, -75.92641 (952 m depth), as described in the August 2011 report. The HARP is scheduled to be retrieved as soon as weather permits.

Jacksonville, FL

Jacksonville Aerial Survey Activity

Due to extensive survey work in Hatteras no surveys were conducted in the Jacksonville survey area.

Aerial Survey Days Conducted at JAX = 0 days

Jacksonville Vessel Survey Activity

Due to extensive survey work in Hatteras no surveys were conducted in the Jacksonville survey area.

Vessel Survey Days Conducted at JAX = 0 days

Jacksonville HARP

There were no HARP deployments in Jacksonville during this reporting period. One HARP remains at Site A: 30.28475, -80.22111 (76.5 m depth), as described in the January 2012 report. The HARP is scheduled to be retrieved between July and August 2012.

Table 1. Aerial survey effort table for the Hatteras study area for June 2012.

Date	Trackline	Sea State	Km Flown	Hobbs Hours
8-Jun-2012	20	3 to 4	74.6	7.0
8-Jun-2012	21	3	72.1	
8-Jun-2012	22	3	72.5	
8-Jun-2012	23	2 to 3	75.2	
8-Jun-2012	24	2	73.1	
8-Jun-2012	25	2	73.1	
8-Jun-2012	26	1 to 2	71.8	
8-Jun-2012	27	1	72.8	
9-Jun-2012	32	2 to 3	77.1	7.1
9-Jun-2012	33	2 to 3	81.0	
9-Jun-2012	34	3	72.9	
9-Jun-2012	35	3	74.0	
9-Jun-2012	45	3	73.5	
9-Jun-2012	44	3	73.6	
9-Jun-2012	43	3	69.8	
9-Jun-2012	42	3 to 4	69.7	
10-Jun-2012	31	3 to 4	73.85	7.4
10-Jun-2012	30	3 to 4	73.4	
10-Jun-2012	29	3 to 4	74.25	
10-Jun-2012	28	3 to 4	72.35	
10-Jun-2012	41	2 to 4	70.05	
10-Jun-2012	40	2 to 4	73.85	
10-Jun-2012	39	2 to 3	69.15	
10-Jun-2012	38	2 to 3	72.15	
10-Jun-2012	37	2 to 3	77.15	
10-Jun-2012	36	3	74.9	

Table 2. Cetacean sightings for aerial surveys in the Hatteras study area for June 2012.

Date	Time	On / Off Effort	Latitude	Longitude-1	Track Number	Species	Common Name	Group Size
8-Jun-12	10:18	On	34.535699	-75.645087	20		Unidentified Delphinid	8
8-Jun-12	11:49	On	34.723967	-75.511635	23	<i>T. truncatus</i>	Bottlenose dolphin	25
8-Jun-12	14:39	On	34.769632	-75.416677	24	<i>T. truncatus</i>	Bottlenose dolphin	15
8-Jun-12	15:37	On	34.811290	-75.211198	26	<i>G. griseus</i>	Risso's dolphin	8
8-Jun-12	15:47	On	34.802065	-75.194170	26	<i>S. clymene</i>	Clymene dolphin	65
8-Jun-12	16:01	On	34.747765	-75.130554	26		<i>Mesoplodon spp.</i>	2
9-Jun-12	9:15	On	35.205705	-74.956640	32	<i>G. macrorhynchus</i>	Short-finned pilot whale	9
9-Jun-12	10:24	On	35.343964	-74.889252	34	<i>T. truncatus</i>	Bottlenose dolphin	11
9-Jun-12	10:39	On	35.335487	-74.876690	34	<i>T. truncatus</i>	Bottlenose dolphin	34
9-Jun-12	11:04	On	35.412325	-74.494889	35	<i>Z. cavirostris</i>	Cuvier's beaked whale	2
9-Jun-12	11:20	On	35.409601	-74.851604	35	<i>T. truncatus</i>	Bottlenose dolphin	2
9-Jun-12	13:45	On	36.128285	-74.414388	45	<i>G. macrorhynchus</i>	Short-finned pilot whale	8
9-Jun-12	13:46	Off	36.131861	-74.410493	45	<i>G. griseus</i>	Risso's dolphin	7
9-Jun-12	14:08	On	36.058991	-74.471143	44	<i>G. macrorhynchus</i>	Short-finned pilot whale	2
9-Jun-12	14:20	On	36.048126	-74.642296	44	<i>G. macrorhynchus</i>	Short-finned pilot whale	31
9-Jun-12	14:33	On	36.049014	-74.720814	44	<i>T. truncatus</i>	Bottlenose dolphin	29
9-Jun-12	15:04	On	35.958967	-74.654650	43	<i>T. truncatus</i>	Bottlenose dolphin	21
9-Jun-12	15:16	On	35.996854	-74.512985	43	<i>T. truncatus</i>	Bottlenose dolphin	22
9-Jun-12	15:43	On	35.922541	-74.638361	42	<i>G. macrorhynchus</i>	Short-finned pilot whale	2
9-Jun-12	15:54	On	35.914315	-74.814962	42	<i>G. macrorhynchus</i>	Short-finned pilot whale	11
10-Jun-12	10:55	On	35.834870	-74.987720	41	<i>T. truncatus</i>	Bottlenose dolphin	8
10-Jun-12	11:08	On	35.823113	-74.674842	41	<i>G. macrorhynchus</i>	Short-finned pilot whale	7
10-Jun-12	11:21	On	35.830699	-74.380440	41	<i>T. truncatus</i>	Bottlenose dolphin	40
10-Jun-12	11:53	On	35.767227	-74.830361	40	<i>G. macrorhynchus</i>	Short-finned pilot whale	12
10-Jun-12	13:54	On	35.689751	-74.809128	39	<i>G. macrorhynchus</i>	Short-finned pilot whale	45
10-Jun-12	14:09	On	35.689615	-74.553820	39	<i>T. truncatus</i>	Bottlenose dolphin	35
10-Jun-12	14:32	On	35.622873	-74.662187	38	<i>S. frontalis</i>	Atlantic spotted dolphin	25
10-Jun-12	14:56	On	35.614247	-74.760269	38	<i>Z. cavirostris</i>	Cuvier's beaked whale	1
10-Jun-12	15:27	On	35.557147	-74.574964	37	<i>T. truncatus</i>	Bottlenose dolphin	35
10-Jun-12	15:34	On	35.556768	-74.461219	37	<i>S. clymene</i>	Clymene dolphin	100

Table 3. Sea turtle sightings for aerial surveys in the Hatteras study area for June 2012.

Date	Time	On / Off Effort	Latitude	Longitude-1	Track Number	Species	Common Name	Group Size
8-Jun-12	15:23	On	35.057983	-75.535721	26	<i>C. caretta</i>	Loggerhead sea turtle	2
9-Jun-12	9:28	On	35.133293	-74.825820	32	<i>C. caretta</i>	Loggerhead sea turtle	1
9-Jun-12	14:47	On	36.048442	-75.116901	44	<i>C. caretta</i>	Loggerhead sea turtle	1
9-Jun-12	14:55	On	35.980155	-75.004276	43	<i>C. caretta</i>	Loggerhead sea turtle	1
10-Jun-12	10:48	On	35.836235	-75.120106	41	<i>C. caretta</i>	Loggerhead sea turtle	1
10-Jun-12	15:13	On	35.552683	-75.065689	37	<i>C. caretta</i>	Loggerhead sea turtle	1
10-Jun-12	15:20	On	35.552466	-74.791101	37	<i>C. caretta</i>	Loggerhead sea turtle	1

Table 4. Vessel survey effort table for the Hatteras study area for June 2012.

Date	Sea State	Km surveyed	Survey Time (hrs:min)	At Sea Time	Platform
9-Jun-12	2-4	26.7	4:02	8:37	R/V <i>Exocetus</i>
10-Jun-12	2-3	19.2	5:53	10:34	R/V <i>Exocetus</i>
11-Jun-12	0-2	25.5	7:36	11:50	R/V <i>Exocetus</i>
20-Jun-12	1-3	45.4	6:32	10:25	R/V <i>Exocetus</i>
21-Jun-12	3	8.1	1:45	6:36	R/V <i>Exocetus</i>

Table 5. Cetacean sightings during vessel surveys in the Hatteras study area for June 2012.

Date	Time	Latitude	Longitude	Species	Common Name	Group Size	Biopsy Samples	Photo-id images
09-Jun-12	7:50	35.77431	-74.84212	<i>T. truncatus</i>	Bottlenose dolphin	125	0	0
09-Jun-12	8:26	35.67017	-74.80161	<i>G. macrorhynchus</i>	Short-finned pilot whale	500	0	215
09-Jun-12	8:29	35.70654	-74.80683	<i>T. truncatus</i>	Bottlenose dolphin	15	0	0
09-Jun-12	10:19	35.66924	-74.79764	<i>T. truncatus</i>	Bottlenose dolphin	25	0	4
10-Jun-12	7:55	35.66504	-74.79563	<i>T. truncatus</i>	Bottlenose dolphin	200	0	0
10-Jun-12	7:58	35.66462	-74.79564	<i>G. macrorhynchus</i>	Short-finned pilot whale	350	2	178
11-Jun-12	7:36	35.65376	-74.80552	<i>G. macrorhynchus</i>	Short-finned pilot whale	400	2	678
11-Jun-12	8:59	35.65407	-74.78836	<i>T. truncatus</i>	Bottlenose dolphin	50	0	0
20-Jun-12	7:44	35.64840	-74.82772	<i>T. truncatus</i>	Bottlenose dolphin	7	0	0
20-Jun-12	7:48	35.64935	-74.81069	<i>T. truncatus</i>	Bottlenose dolphin	5	0	0
20-Jun-12	8:02	35.67620	-74.80597	<i>T. truncatus</i>	Bottlenose dolphin	20	0	0
20-Jun-12	8:21	35.73983	-74.82216	<i>T. truncatus</i>	Bottlenose dolphin	12	0	0
20-Jun-12	8:50	35.86422	-74.84343	<i>G. macrorhynchus</i>	Short-finned pilot whale	75	2	551
20-Jun-12	10:07	35.86083	-74.75019	<i>S. frontalis</i>	Atlantic spotted dolphin	6	0	0
20-Jun-12	10:21	35.88327	-74.84688	<i>T. truncatus</i>	Bottlenose dolphin	30	0	9
20-Jun-12	13:44	35.85953	-74.85173	<i>T. truncatus</i>	Bottlenose dolphin	6	0	0
21-Jun-12	8:03	35.85997	-74.84825	<i>T. truncatus</i>	Bottlenose dolphin	4	0	0
21-Jun-12	8:05	35.85887	-74.84655	<i>G. macrorhynchus</i>	Short-finned pilot whale	150	0	26
21-Jun-12	8:07	35.84684	-74.84924	<i>G. macrorhynchus</i>	Short-finned pilot whale	21	0	0
21-Jun-12	9:24	35.87041	-74.84398	<i>T. truncatus</i>	Bottlenose dolphin	10	0	0

Table 6. Biopsy samples taken during vessel surveys in the Hatteras study area for June 2012.

Date	Time	Latitude	Longitude	Species	Common Name	Group Size	Sighting #	Sample #
10-Jun-12	12:28	35.681185	-74.802335	<i>G. macrorhynchus</i>	Short-finned pilot whale	2	2	ZTS-12-27
10-Jun-12	13:44	35.682097	-74.802442	<i>G. macrorhynchus</i>	Short-finned pilot whale	6	2	ZTS-12-28
12-Jun-12	14:20	35.722373	-74.816642	<i>G. macrorhynchus</i>	Short-finned pilot whale	2	1	HJF-12-12
12-Jun-12	14:45	35.723310	-74.817938	<i>G. macrorhynchus</i>	Short-finned pilot whale	3	1	HJF-12-13
20-Jun-12	13:09	35.877685	-74.854820	<i>G. macrorhynchus</i>	Short-finned pilot whale	3	5	ZTS-12-29
20-Jun-12	13:29	35.865643	-74.852736	<i>G. macrorhynchus</i>	Short-finned pilot whale	5	5	ZTS-12-30

Table 7. Vessel survey effort table for the Onslow Bay study area for June 2012.

Date	Sea State	Km surveyed	Survey Time (hrs:min)	At Sea Time	Platform
1-Jun-12	4	86.9	5:44	11:10	F/V <i>Sensation</i>

Table 8. Cetacean sightings during vessel surveys in the Onslow Bay study area for June 2012.

Date	Time	Latitude	Longitude	Species	Common Name	Group Size	Biopsy Samples	Photo-id images
1-Jun-12	11:50	34.09204	-75.80366	<i>T. truncatus</i>	Bottlenose dolphin	13	0	77
1-Jun-12	14:00	34.19700	-75.92630	<i>T. truncatus</i>	Bottlenose dolphin	6	1	70

Table 9. Biopsy samples taken during vessel surveys in the Onslow Bay study area for June 2012.

Date	Time	Latitude	Longitude	Species	Common Name	Group Size	Sighting #	Sample #
1-Jun-12	14:14	34.202150	-75.931940	<i>T. truncatus</i>	Bottlenose dolphin	3	2	ZTS_12_26

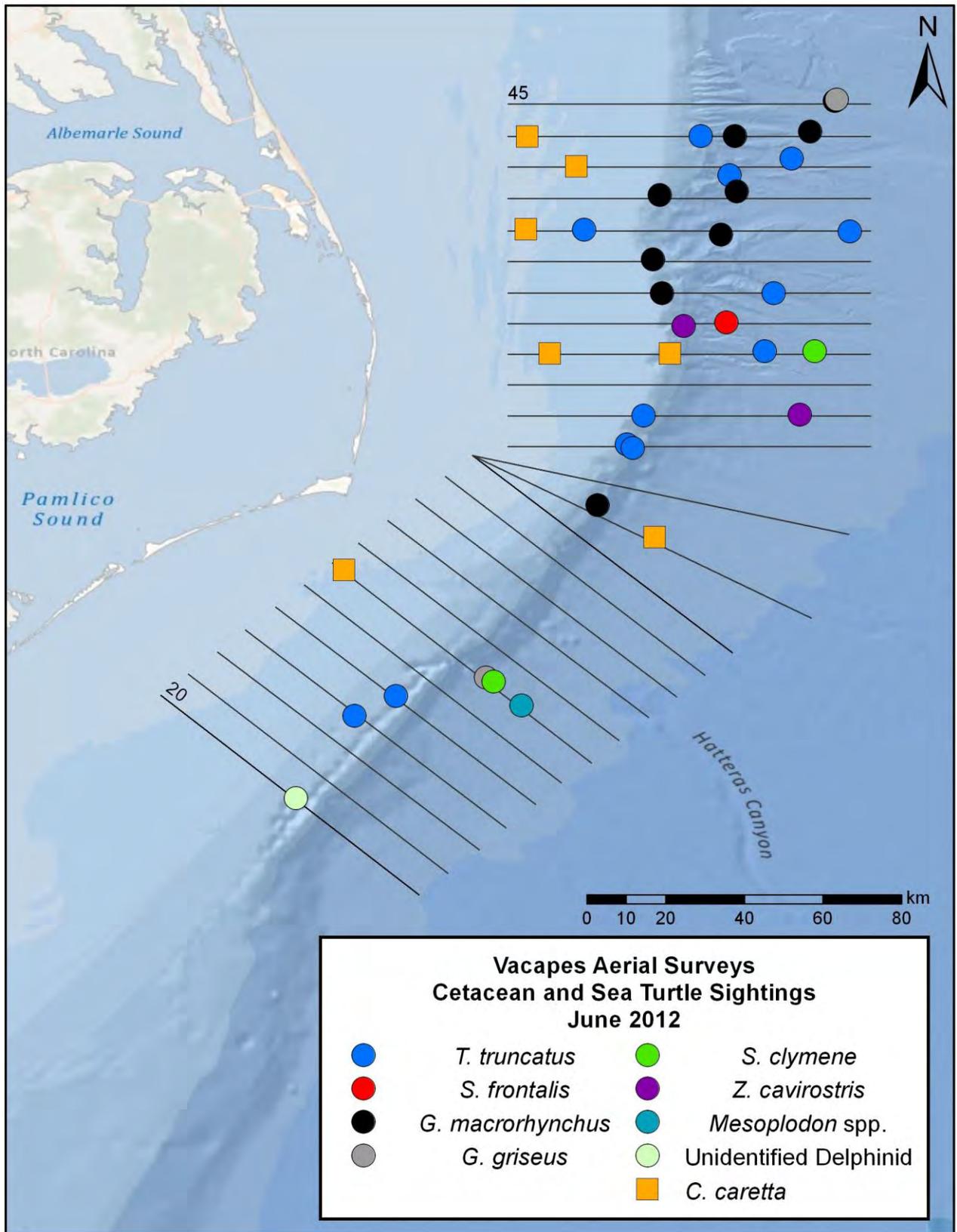


Figure 1. Cetaceans and sea turtles observed during aerial surveys in the Hatteras study area for June 2012. Tracklines show where effort was conducted.

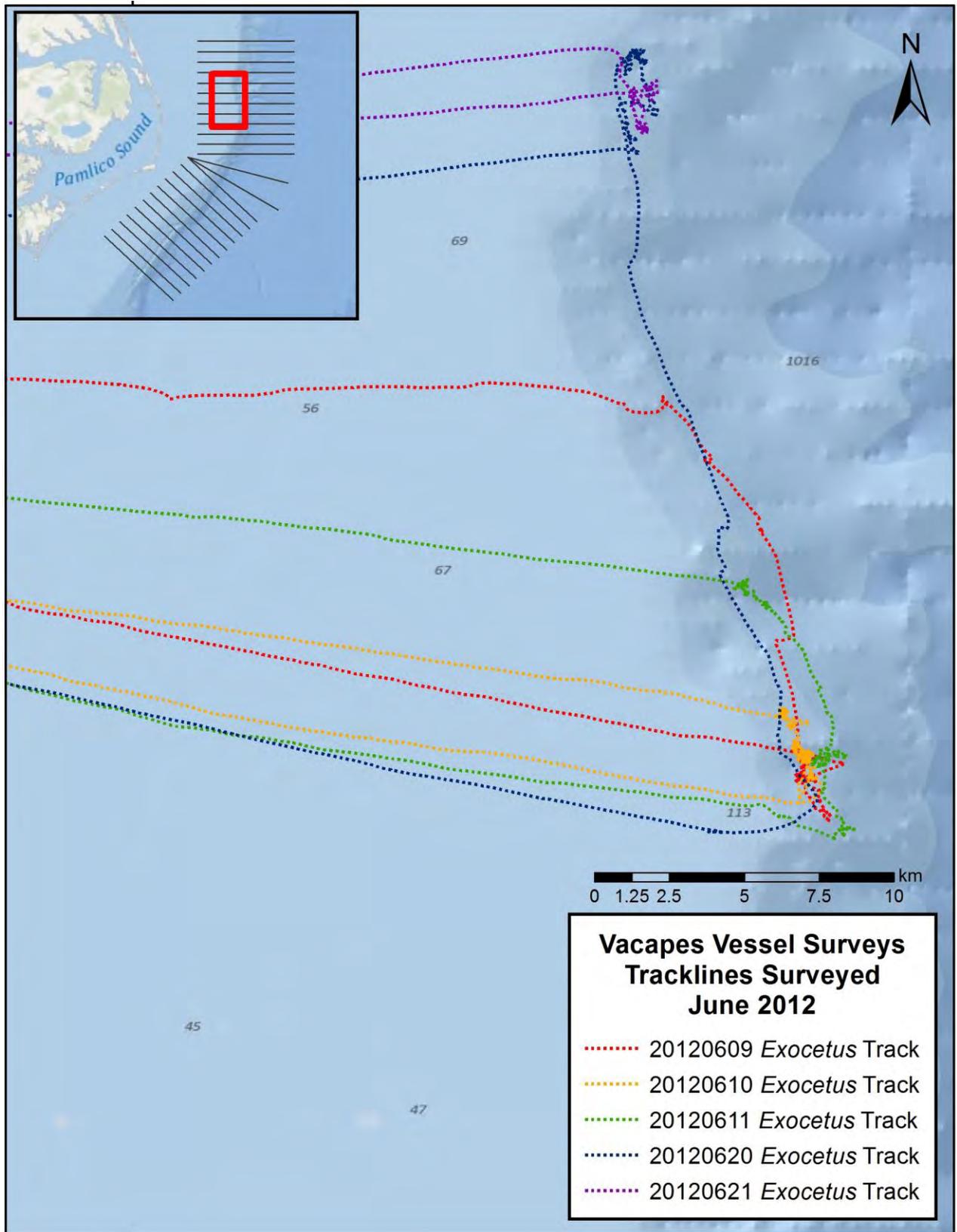


Figure 2. Vessel tracklines surveyed in the Hatteras study area for June 2012

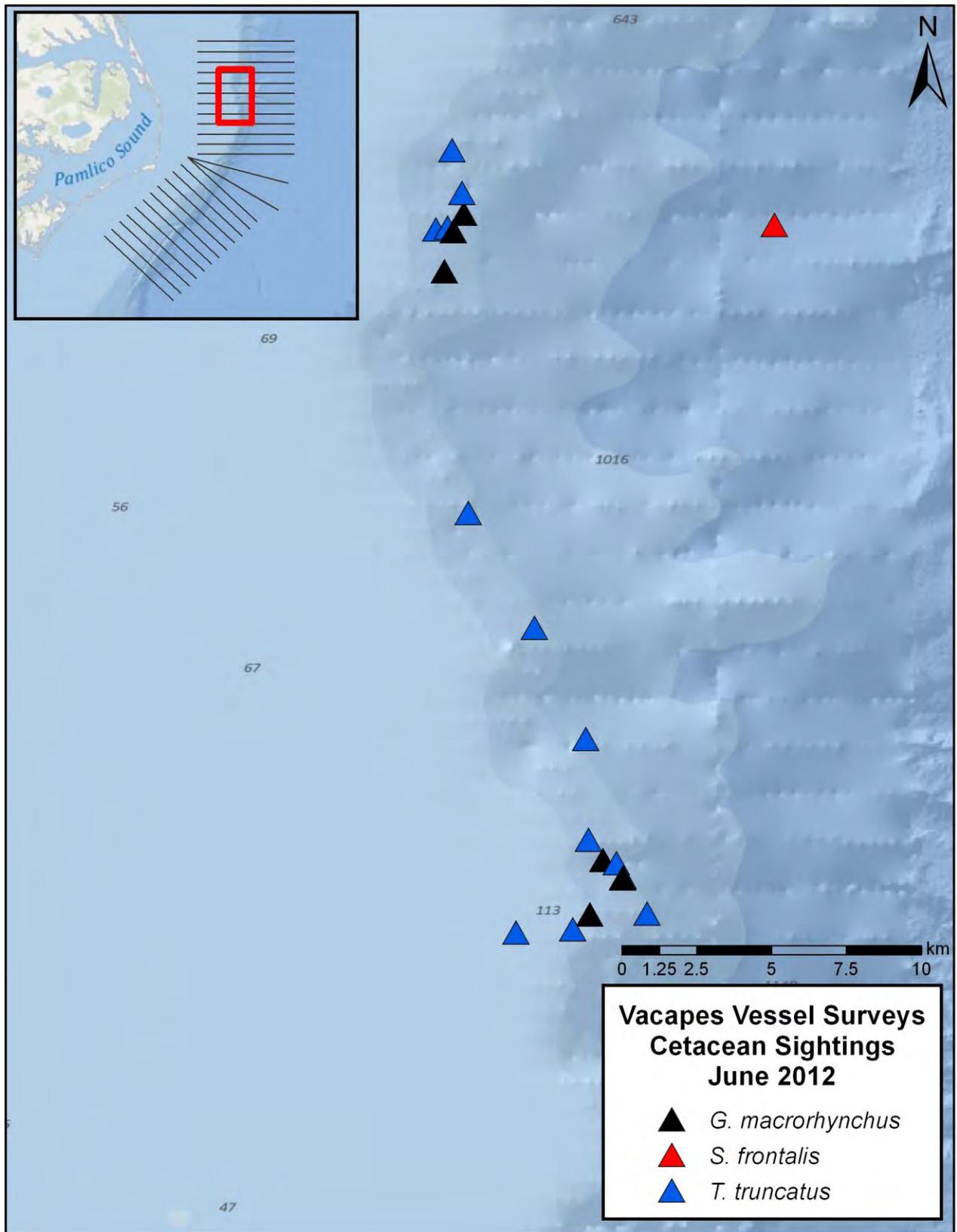


Figure 3. Cetaceans observed during vessel surveys in the Hatteras study area for June 2012.

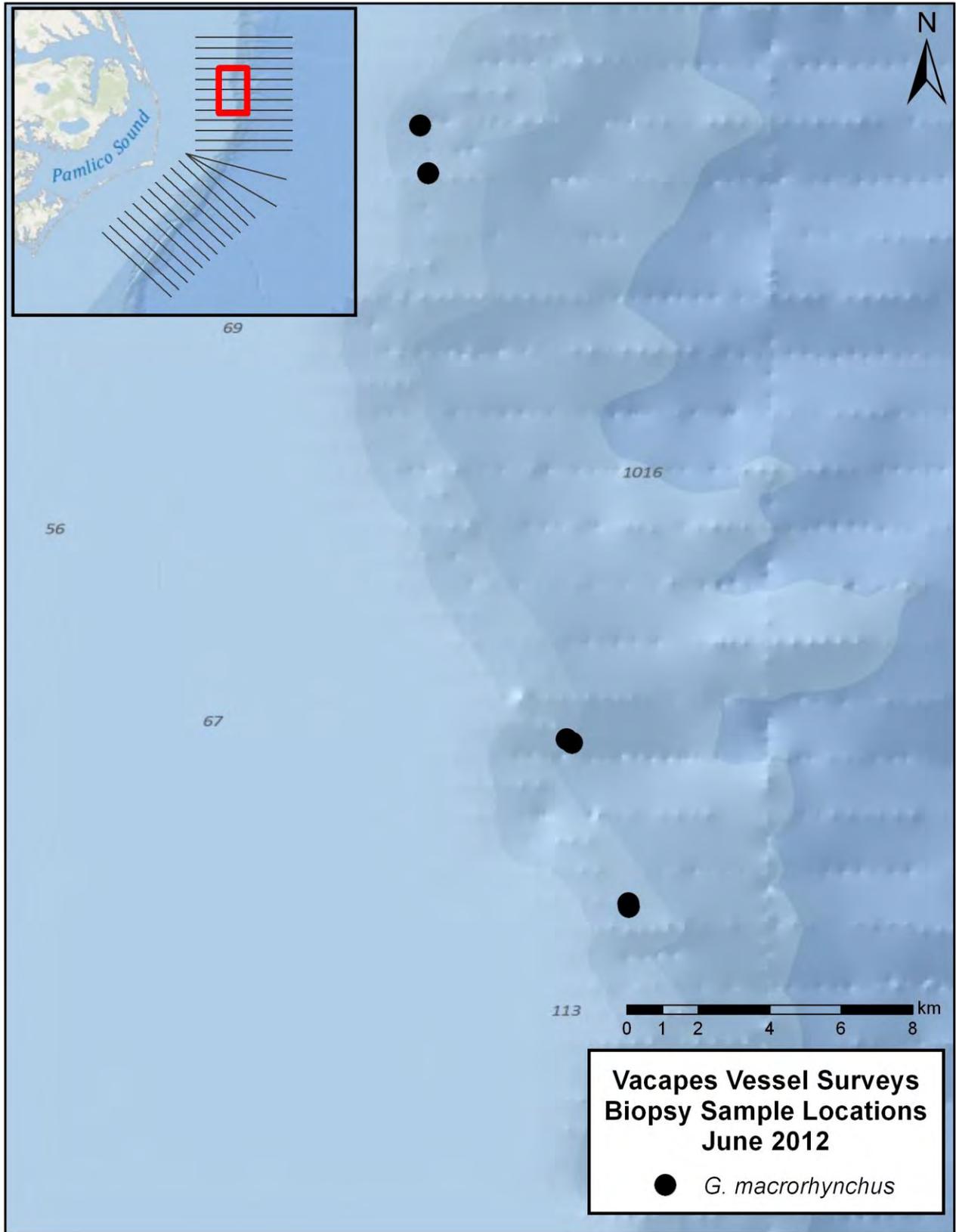


Figure 4. Biopsy sample locations during vessel surveys in the Hatteras study area for June 2012.

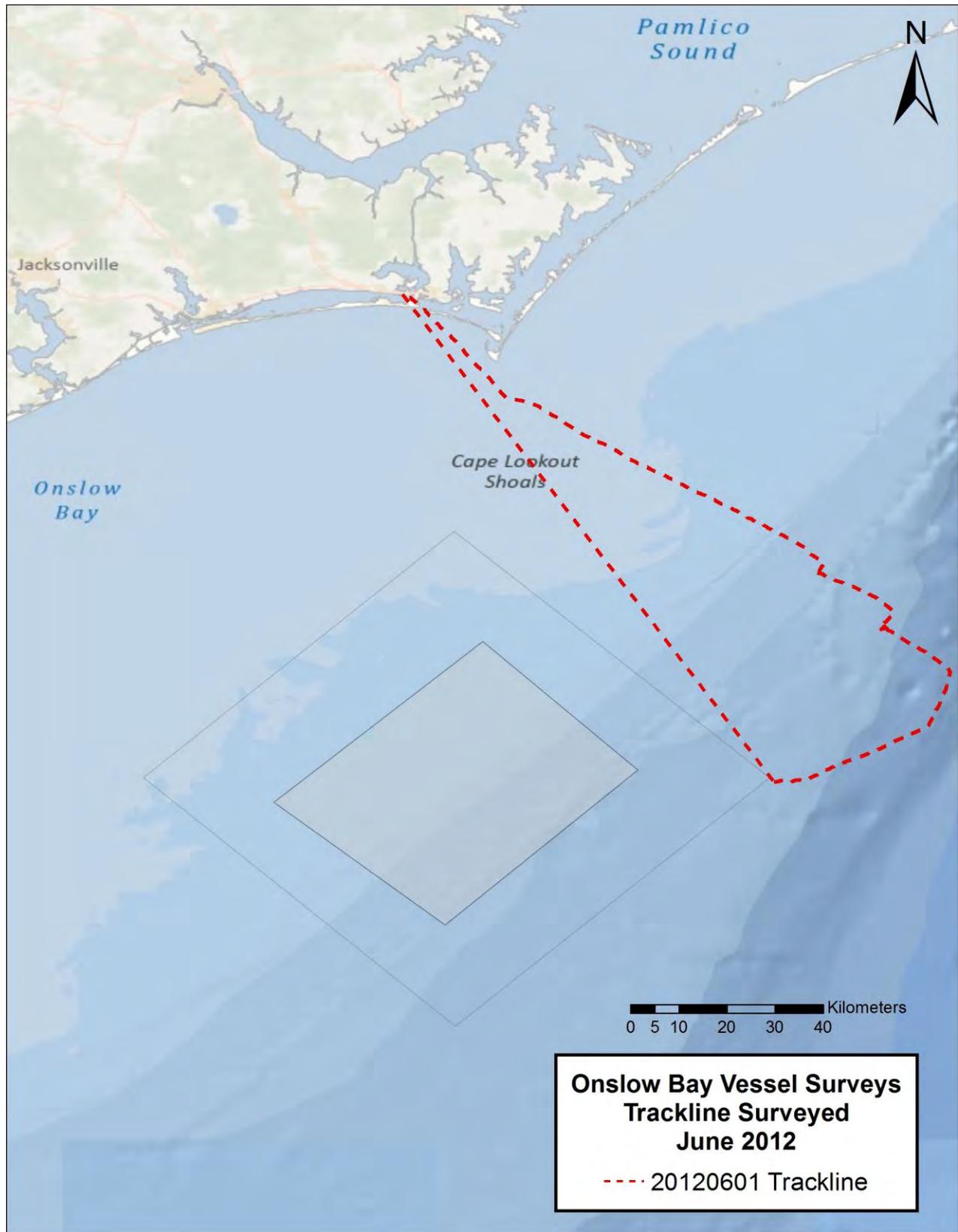


Figure 5. Vessel trackline surveyed in the Onslow Bay study area for June 2012.

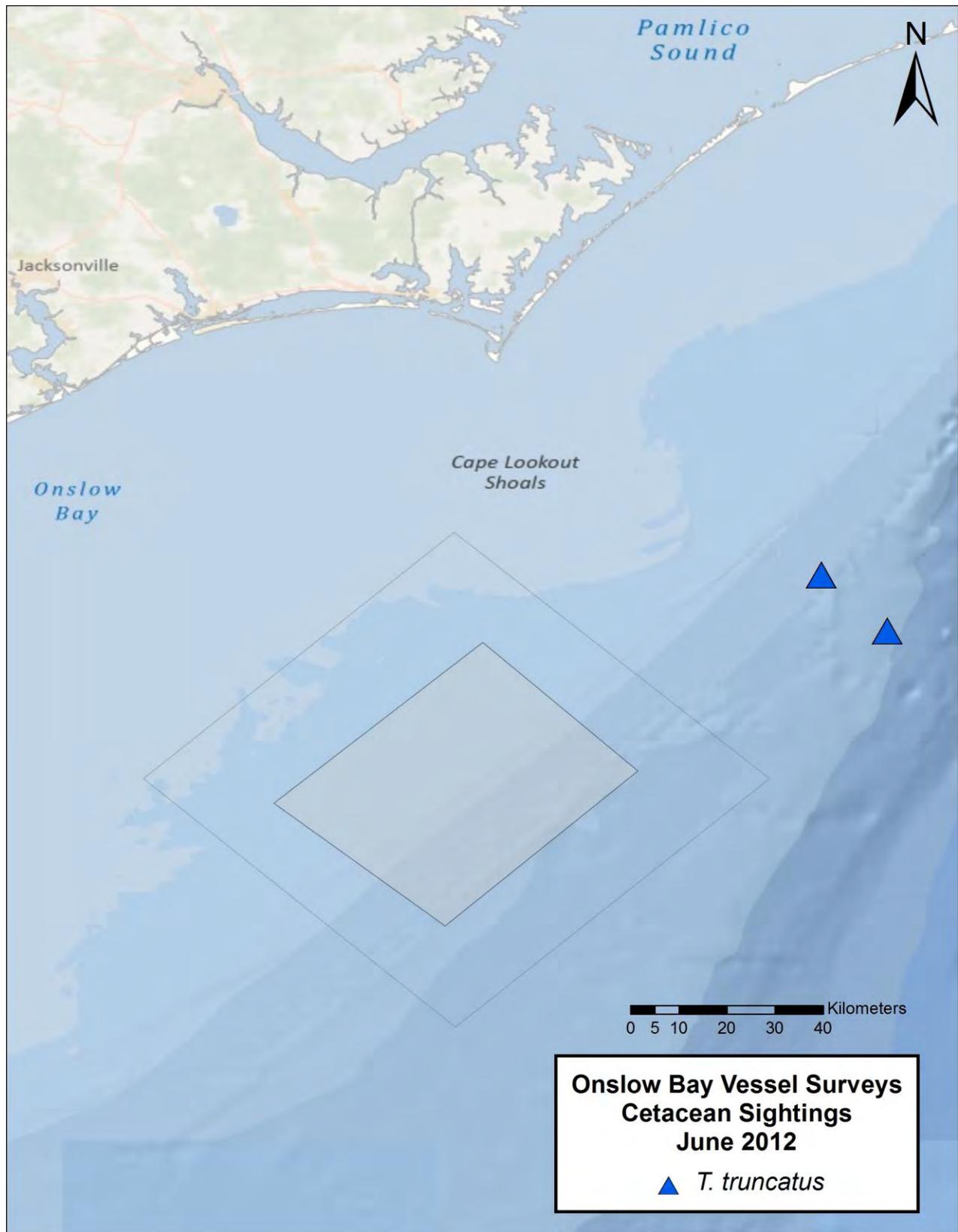


Figure 6. Cetaceans observed during vessel surveys in the Onslow Bay study area for June 2012.

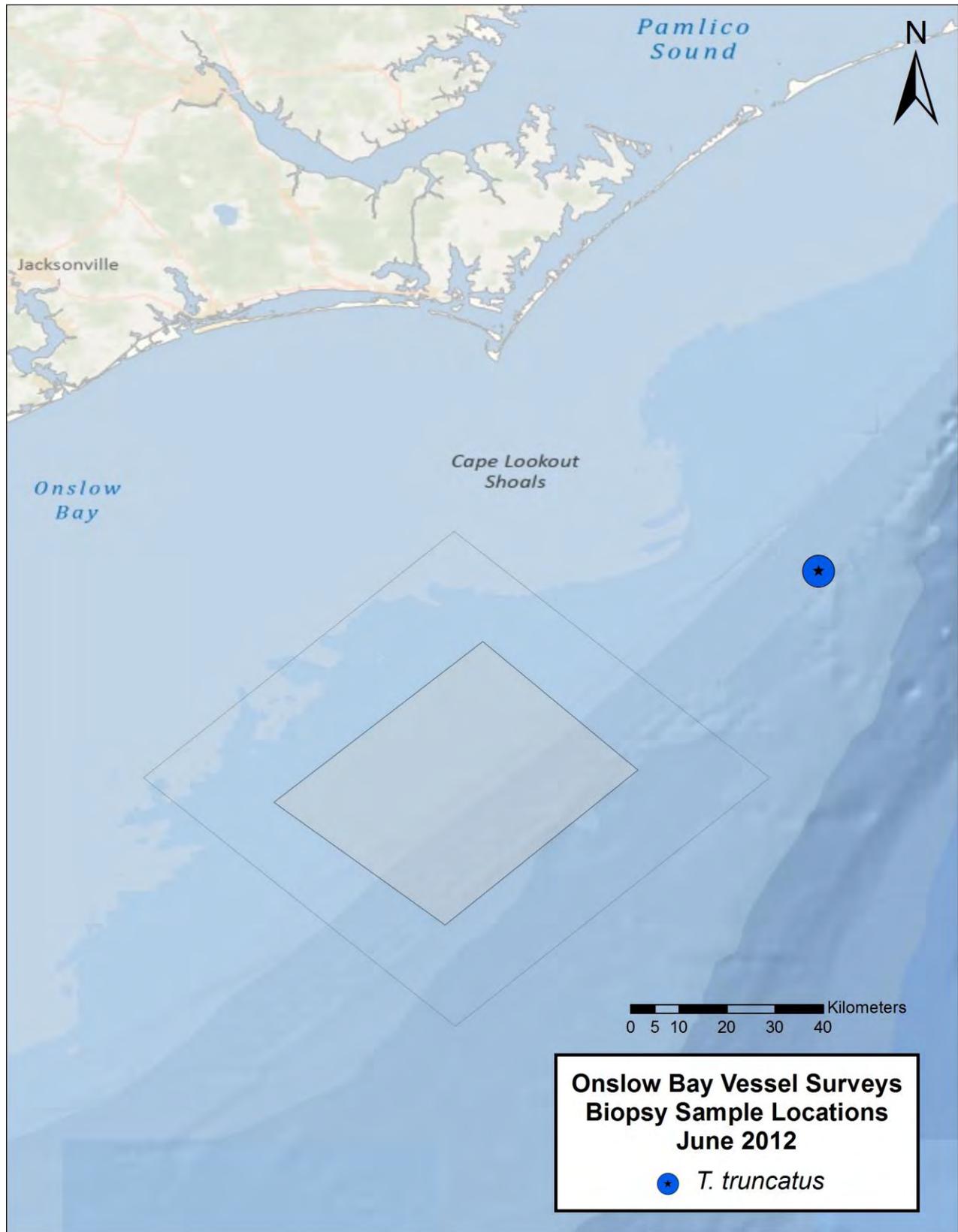


Figure 7. Biopsy sample locations during vessel surveys in the Onslow Bay study area for June 2012.

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Monitoring of Protected Species in the Hatteras, Onslow and JAX Sites Progress Report to HDR: July 1 2012 through July 31 2012

July Expenses

In July 2012, salaries for Duke University employees were charged to TO 14, while vessel surveys and associated fuel, travel, and supplies were charged to TO 5. HARP-related activities were charged to TO 14. All UNCW salaries and aerial surveys were also charged to TO 14.

Travel

Bill McLellan represented the monitoring project at the Mid-Atlantic Wildlife Surveys, Modeling, and Data Workshop July 24-25 in Silver Spring, MD, sponsored by the Department of Energy. The workshop was designed to share information and ensure that Mid-Atlantic survey efforts are well-coordinated, complementary and help meet baseline data and derived product needs for siting and permitting offshore wind facilities.

Task Order 9

Behavioral analyses are still ongoing as part of TO 9.

Hatteras Aerial Survey Activity

No aerial survey effort was conducted in the Cape Hatteras study area this month due to unfavorable weather conditions.

Aerial Survey Days Conducted at Hatteras = 0 days

Hatteras Vessel Survey Activity

No vessel survey effort was conducted in the Hatteras study area due to unfavorable weather conditions.

Vessel Survey Days Conducted at Hatteras = 0 days

Hatteras Harp

There were no HARP deployments or retrievals in Hatteras during this reporting period. One HARP remains at Site A (35.34054, -74.85761) at a depth of 950 m, as described in the March 2012 report. This HARP is scheduled to be retrieved in October 2012.

Onslow Bay Vessel Activity

No vessel survey effort was conducted in the Onslow Bay study area due to unfavorable weather conditions. Ongoing photo-identification analyses in the Onslow Bay study area yielded five new bottlenose dolphin ID's: Ttr 6-030, Ttr 7-029, Ttr 7-038, Ttr 9-038 and Ttr 9-039 (Figure 1).

Vessel Survey Days Conducted at Onslow Bay = 0 day

Onslow Bay HARP

One HARP was recovered and redeployed on 13 July 2012 at Site E (33.78666, -75.92915) in a depth of 914 m (Figure 2). The recovered HARP contained had just over three months of data, less than originally expected. We are working with engineers at Scripps to determine why this occurred, but it

may be that cold water temperatures (due to the greater depth) and larger hard drives incorporated drained the batteries faster than expected. The HARP currently deployed in Onslow Bay will, therefore, be retrieved in October 2012, at which time another HARP will be deployed with an extra battery pressure case.

Jacksonville Aerial Survey Activity

Flights on the 6th and 7th of July resulted in two complete sets of tracklines being surveyed in favorable sea state conditions (Table 1). On July 6th seven cetacean sightings were recorded of four species, including a group of Rough-toothed dolphins (*Steno bredanensis*) on the inshore end of line two (Table 2, Figure 3). The following day favorable seas persisted, resulting in nine cetacean sightings. On each day sea turtles were encountered inside of the 50-m isobaths with loggerheads (*Caretta caretta*) dominating the sightings (Table 3, Figure 3).

Aerial Survey Days Conducted at JAX = 2 days

Jacksonville Vessel Survey Activity

There were no vessel surveys conducted in the Jacksonville survey area during this month due to inclement weather. Ongoing photo-identification analyses in the JAX study area included two additions to our spotted dolphin catalog, Sfr 2-006 and Sfr 8-010 (Figure 4).

Vessel Survey Days Conducted at JAX = 0 days

Jacksonville HARP

There were no HARP deployments in Jacksonville during this reporting period. One HARP remains at Site A (30.28475, -80.22111) at a depth of 76.5 m, as described in the January 2012 report. The HARP is scheduled to be retrieved in August 2012.

Other Activities

Andy Read participated in a conference call with personnel from HDR and the NAVFAC on 10 July to plan reporting for the five-year AFAST Comprehensive Monitoring Plan. Work began on the Duke and UNCW contributions to this report in July.

Table 1. Aerial survey effort table for the Jacksonville study area in July 2012.

Date	Trackline	Sea State	Km Flown	Hobbs Hours
6-Jul-2012	10	3	86.0	7.6
6-Jul-2012	9	3	85.9	
6-Jul-2012	8	2 to 3	86.3	
6-Jul-2012	7	2 to 3	86.4	
6-Jul-2012	6	2 to 3	85.9	
6-Jul-2012	5	2 to 3	86.4	
6-Jul-2012	4	2 to 3	86.2	
6-Jul-2012	3	2 to 3	86.5	
6-Jul-2012	2	2 to 3	82.9	
6-Jul-2012	1	2 to 3	86.4	
7-Jul-2012	1	3	86.6	7.4
7-Jul-2012	2	2 to 3	86.8	
7-Jul-2012	3	3	86.2	
7-Jul-2012	4	2 to 3	84.3	
7-Jul-2012	5	2 to 3	85.3	
7-Jul-2012	6	2 to 3	86.2	
7-Jul-2012	7	1 to 2	78.5	
7-Jul-2012	8	2	77.2	
7-Jul-2012	9	1 to 2	84.2	
7-Jul-2012	10	1 to 2	86.0	

Table 2. Cetacean sightings for aerial surveys in the Jacksonville study area in July 2012.

Date	Time	On / Off Effort	Latitude	Longitude-1	Track Number	Species	Common Name	Group Size
6-Jul-12	9:32	On Effort	30.504503	-79.998388	9	<i>G. griseus</i>	Risso's dolphin	17
6-Jul-12	14:08	On Effort	30.100361	-80.196561	3	<i>T. truncatus</i>	Bottlenose dolphin	7
6-Jul-12	14:25	On Effort	30.105186	-80.481128	3	<i>S. frontalis</i>	Atlantic spotted dolphin	30
6-Jul-12	14:37	On Effort	30.096958	-80.625291	3	<i>S. frontalis</i>	Atlantic spotted dolphin	12
6-Jul-12	14:49	On Effort	30.033889	-80.680810	2	<i>S. bredanensis</i>	Rough-toothed dolphin	35
6-Jul-12	15:20	On Effort	30.029203	-80.080207	2	<i>G. griseus</i>	Risso's dolphin	18
6-Jul-12	15:54	On Effort	29.970666	-80.321597	1	<i>T. truncatus</i>	Bottlenose dolphin	6
7-Jul-12	10:45	On Effort	30.164944	-80.367496	4	<i>T. truncatus</i>	Bottlenose dolphin	8
7-Jul-12	10:54	On Effort	30.165538	-80.562010	4	<i>S. frontalis</i>	Atlantic spotted dolphin	2
7-Jul-12	11:15	On Effort	30.227034	-80.388729	5	<i>S. frontalis</i>	Atlantic spotted dolphin	8
7-Jul-12	12:08	On Effort	30.305426	-80.649478	6	<i>T. truncatus</i>	Bottlenose dolphin	3
7-Jul-12	13:42	On Effort	30.370784	-80.559474	7	<i>T. truncatus</i>	Bottlenose dolphin	2
7-Jul-12	14:02	On Effort	30.372047	-79.963499	7	<i>T. truncatus</i>	Bottlenose dolphin	8
7-Jul-12	14:17	On Effort	30.424355	-79.903836	8	<i>G. griseus</i>	Risso's dolphin	14
7-Jul-12	14:28	On Effort	30.434672	-79.932294	8	<i>T. truncatus</i>	Bottlenose dolphin	2
7-Jul-12	14:52	On Effort	30.438204	-80.411598	8	<i>S. frontalis</i>	Atlantic spotted dolphin	38

Table 3. Sea turtle sightings for aerial surveys in the Jacksonville study area in July 2012.

Date	Time	On / Off Effort	Latitude	Longitude-1	Track Number	Species	Common Name	Group Size
6-Jul-12	8:58	On Effort	30.572256	-80.621994	10	<i>C. caretta</i>	Loggerhead sea turtle	1
6-Jul-12	9:03	On Effort	30.568260	-80.461366	10	<i>C. caretta</i>	Loggerhead sea turtle	1
6-Jul-12	9:44	On Effort	30.493900	-80.250708	9	<i>C. caretta</i>	Loggerhead sea turtle	1
6-Jul-12	9:54	On Effort	30.499530	-80.594548	9	<i>C. caretta</i>	Loggerhead sea turtle	2
6-Jul-12	10:06	On Effort	30.434664	-80.440908	8	<i>C. caretta</i>	Loggerhead sea turtle	1
6-Jul-12	11:00	On Effort	30.300662	-80.504112	6	<i>D. coriacea</i>	Leatherback sea turtle	1
6-Jul-12	11:40	On Effort	30.232721	-80.452653	5		Unidentified sea turtle	1
6-Jul-12	11:41	On Effort	30.232727	-80.479206	5	<i>C. caretta</i>	Loggerhead sea turtle	1
6-Jul-12	11:42	On Effort	30.232834	-80.499869	5	<i>D. coriacea</i>	Leatherback sea turtle	1
6-Jul-12	11:44	On Effort	30.232016	-80.600842	5	<i>C. caretta</i>	Loggerhead sea turtle	1
6-Jul-12	11:46	On Effort	30.231544	-80.645421	5	<i>C. caretta</i>	Loggerhead sea turtle	2
6-Jul-12	13:27	On Effort	30.160331	-80.679757	4	<i>C. caretta</i>	Loggerhead sea turtle	2
6-Jul-12	13:30	On Effort	30.165447	-80.587993	4	<i>C. caretta</i>	Loggerhead sea turtle	1
6-Jul-12	13:34	On Effort	30.169242	-80.433571	4	<i>C. caretta</i>	Loggerhead sea turtle	2
6-Jul-12	14:22	On Effort	30.098936	-80.445747	3	<i>C. caretta</i>	Loggerhead sea turtle	1
6-Jul-12	15:03	On Effort	30.027378	-80.608809	2	<i>C. caretta</i>	Loggerhead sea turtle	1
6-Jul-12	15:06	On Effort	30.033238	-80.492129	2	<i>C. caretta</i>	Loggerhead sea turtle	1
6-Jul-12	15:08	On Effort	30.034275	-80.392864	2	<i>C. caretta</i>	Loggerhead sea turtle	3
6-Jul-12	15:09	On Effort	30.034470	-80.366432	2	<i>C. caretta</i>	Loggerhead sea turtle	1
6-Jul-12	16:10	On Effort	29.966835	-80.527848	1	<i>C. caretta</i>	Loggerhead sea turtle	2
6-Jul-12	16:10	On Effort	29.966723	-80.514699	1	<i>C. caretta</i>	Loggerhead sea turtle	1
7-Jul-12	9:55	On Effort	30.031347	-80.589141	2	<i>C. caretta</i>	Loggerhead sea turtle	1
7-Jul-12	10:03	On Effort	30.101067	-80.617521	3	<i>C. caretta</i>	Loggerhead sea turtle	1
7-Jul-12	10:07	On Effort	30.101840	-80.491498	3	<i>C. caretta</i>	Loggerhead sea turtle	1
7-Jul-12	10:51	On Effort	30.166494	-80.469591	4	<i>C. caretta</i>	Loggerhead sea turtle	1
7-Jul-12	11:01	On Effort	30.166454	-80.625526	4	<i>C. caretta</i>	Loggerhead sea turtle	1
7-Jul-12	11:02	On Effort	30.165657	-80.664484	4	<i>C. caretta</i>	Loggerhead sea turtle	1
7-Jul-12	11:08	On Effort	30.232266	-80.644050	5	<i>D. coriacea</i>	Leatherback sea turtle	1
7-Jul-12	11:13	On Effort	30.233423	-80.447272	5	<i>C. caretta</i>	Loggerhead sea turtle	1
7-Jul-12	11:56	On Effort	30.300029	-80.288361	6	<i>C. caretta</i>	Loggerhead sea turtle	1
7-Jul-12	12:01	On Effort	30.300649	-80.480022	6	<i>C. caretta</i>	Loggerhead sea turtle	1
7-Jul-12	12:01	On Effort	30.300646	-80.470605	6	<i>C. caretta</i>	Loggerhead sea turtle	1
7-Jul-12	12:03	On Effort	30.300630	-80.555378	6	<i>C. caretta</i>	Loggerhead sea turtle	2
7-Jul-12	12:04	On Effort	30.300176	-80.609426	6	<i>D. coriacea</i>	Leatherback sea turtle	1
7-Jul-12	12:05	On Effort	30.300164	-80.633274	6	<i>C. caretta</i>	Loggerhead sea turtle	2
7-Jul-12	12:05	On Effort	30.300186	-80.630821	6	<i>C. caretta</i>	Loggerhead sea turtle	1
7-Jul-12	13:39	On Effort	30.370364	-80.608476	7	<i>C. caretta</i>	Loggerhead sea turtle	1
7-Jul-12	13:46	On Effort	30.371259	-80.509841	7	<i>C. caretta</i>	Loggerhead sea turtle	1
7-Jul-12	13:52	On Effort	30.366664	-80.268908	7	<i>C. caretta</i>	Loggerhead sea turtle	1
7-Jul-12	14:42	On Effort	30.430130	-80.308014	8	<i>C. caretta</i>	Loggerhead sea turtle	3
7-Jul-12	14:58	On Effort	30.434524	-80.479283	8	<i>C. caretta</i>	Loggerhead sea turtle	4
7-Jul-12	15:00	On Effort	30.431395	-80.567943	8	<i>C. caretta</i>	Loggerhead sea turtle	3
7-Jul-12	15:01	On Effort	30.430466	-80.612538	8	<i>C. caretta</i>	Loggerhead sea turtle	1
7-Jul-12	15:01	On Effort	30.430744	-80.586973	8	<i>D. coriacea</i>	Leatherback sea turtle	1
7-Jul-12	15:02	On Effort	30.431078	-80.639977	8	<i>C. caretta</i>	Loggerhead sea turtle	5
7-Jul-12	15:03	On Effort	30.431631	-80.659447	8	<i>C. caretta</i>	Loggerhead sea turtle	1
7-Jul-12	15:03	On Effort	30.432398	-80.685624	8	<i>C. caretta</i>	Loggerhead sea turtle	3
7-Jul-12	15:04	On Effort	30.433585	-80.707478	8	<i>C. caretta</i>	Loggerhead sea turtle	1
7-Jul-12	15:10	On Effort	30.501522	-80.572115	9	<i>C. caretta</i>	Loggerhead sea turtle	4
7-Jul-12	15:11	On Effort	30.502444	-80.540985	9	<i>C. caretta</i>	Loggerhead sea turtle	1
7-Jul-12	15:13	On Effort	30.500747	-80.466550	9	<i>D. coriacea</i>	Leatherback sea turtle	1
7-Jul-12	15:14	On Effort	30.499485	-80.438705	9	<i>D. coriacea</i>	Leatherback sea turtle	1
7-Jul-12	15:52	On Effort	30.566451	-80.404868	10	<i>C. caretta</i>	Loggerhead sea turtle	3
7-Jul-12	15:55	On Effort	30.565841	-80.517845	10	<i>C. caretta</i>	Loggerhead sea turtle	3

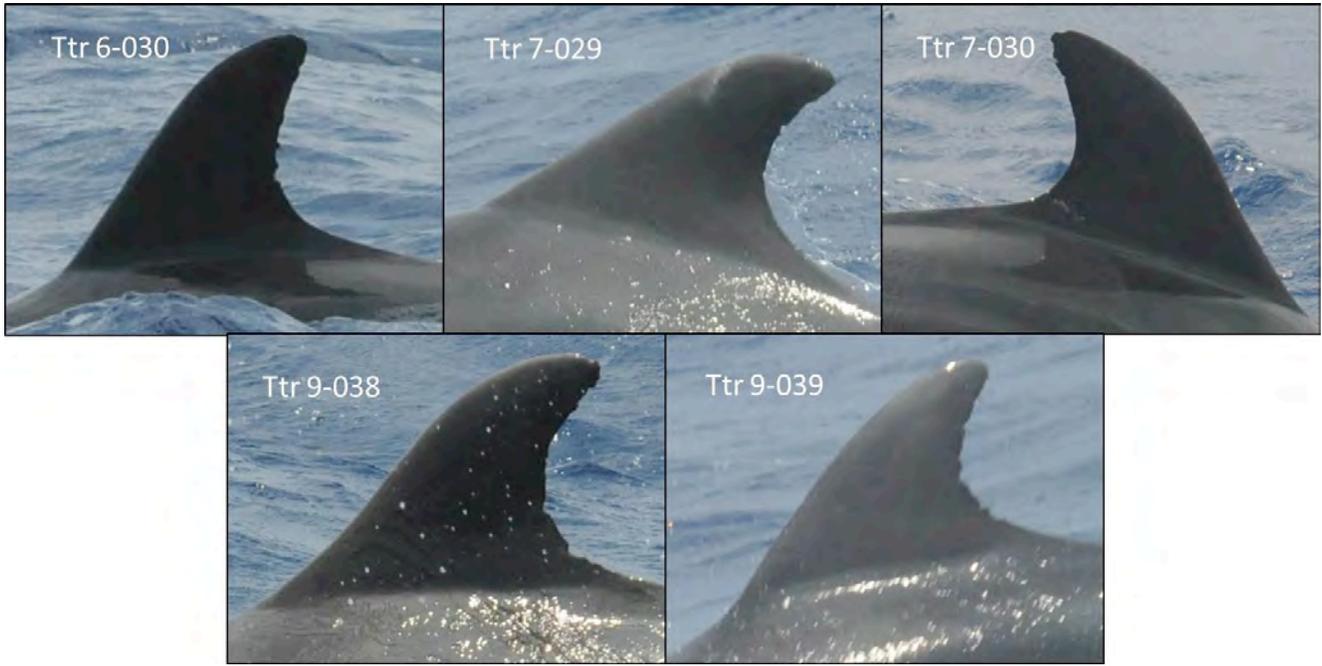


Figure 1. Dorsal fin images of bottlenose dolphins added to our Onslow Bay photo-ID catalog in July 2012.

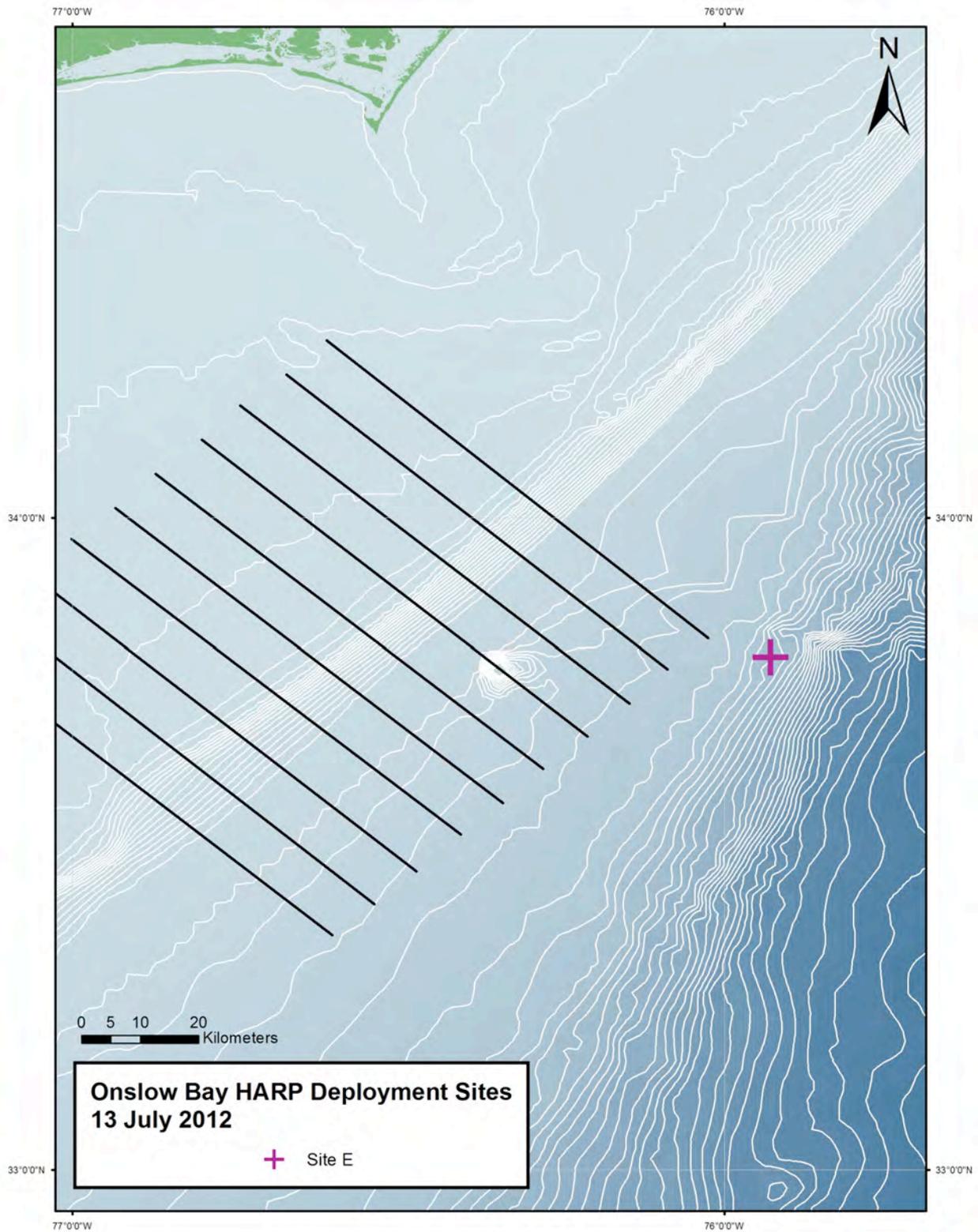


Figure 2. HARP recovery and redeployment in the Onslow Bay study area in July 2012.

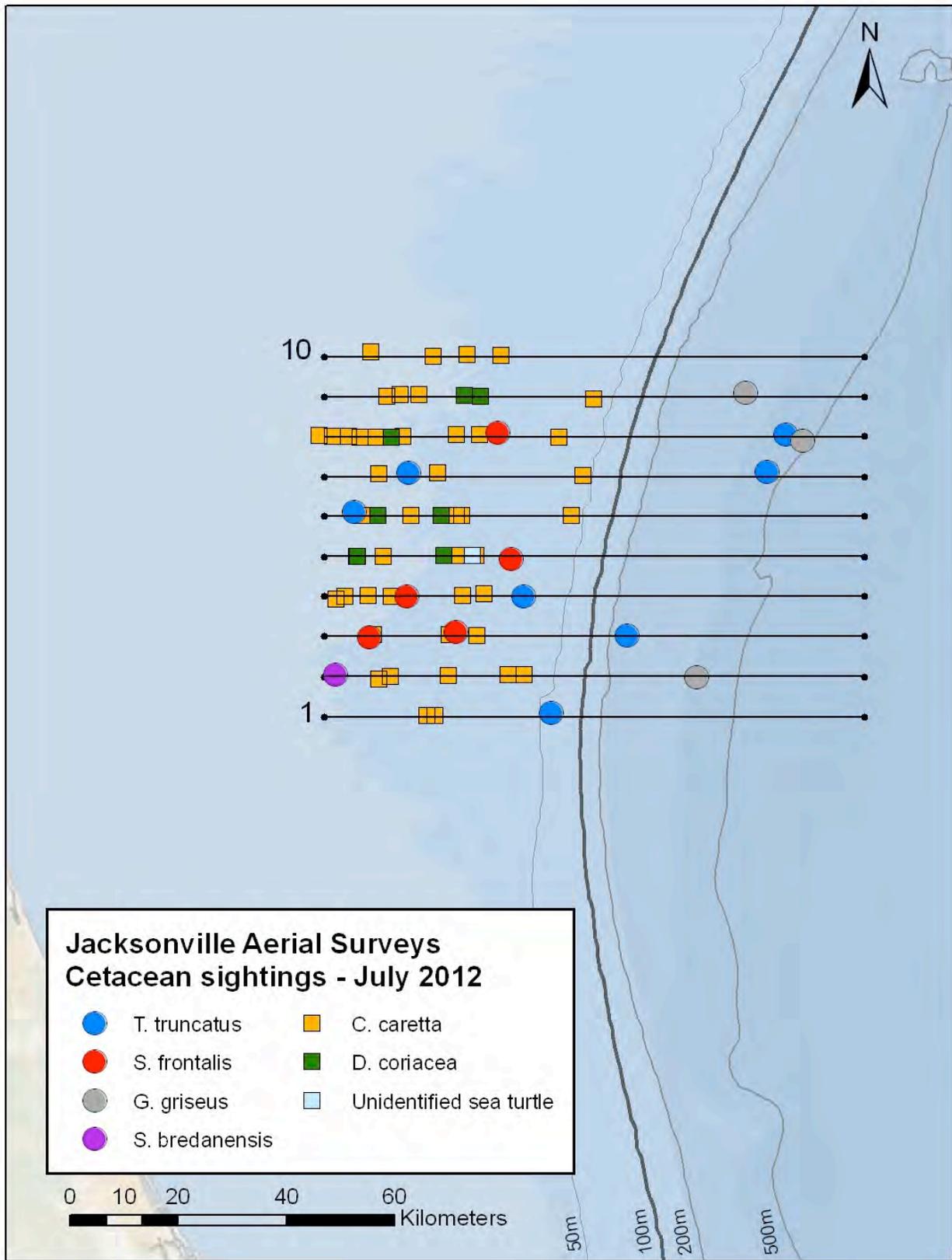


Figure 3. Cetaceans and sea turtles observed during aerial surveys in the Jacksonville study area in July 2012.



Figure 4. Dorsal fin images of Atlantic spotted dolphins added to our Jacksonville photo-ID catalog in July 2012.

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