Aerial Survey and Field Observations of North Atlantic Right Whales (*Eubalaena glacialis*) off The Florida East Coast

December 2003 – March 2004
Final Report

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INTRODUCTION

The North Atlantic right whale is one of the most endangered large whales in the world with a population estimate of 300 individuals (NMFS 2005). The North Atlantic right whale is listed as "endangered" under the Endangered Species Act of 1973 (ESA) and as an Appendix I species under the Convention for the International Trade in Endangered Species. Protection is afforded to this species in U.S. and territorial waters under the Marine Mammal Protection Act of 1972 and the ESA (NMFS 2005). While inhabiting Florida waters, protection is offered through the Florida Endangered and Threatened Species Act. In addition, the Southeast U.S. Right Whale Recovery Plan Implementation Team (SEIT) was developed in 1993 as an advisory group to aid efforts to protect, manage and research right whales in the southeastern U.S. calving area. The Florida Fish and Wildlife Conservation Commission (FWC) has participated as a member of the SEIT since its inception.

The Georgia Bight along the Atlantic coastal waters of Georgia and Florida is the only known calving area of the North Atlantic right whale (Kraus *et al*. 1993). This area was deemed essential to the future survival of the species and designated as the Southeast U.S. (SEUS) Critical Habitat by the National Marine Fisheries Service (NMFS) in 1994. The SEUS Critical Habitat encompasses the waters from 31° 15'N to 30° 15'N from the shoreline out to 15 nm, and the waters between 30° 15'N and 28° 00'N from the shoreline out to five nm (50 CFR Part 226).

The FWC's Fish and Wildlife Research Institute (FWRI) staff has been conducting aerial surveys within the SEUS Critical Habitat with varied coverage and effort since 1991. These surveys are part of the Early Warning System (EWS) used to detect and report the presence of right whales in Florida waters (Thomas and Ciano 1999; Ciano and Thomas 2001). The 2003-2004 right whale calving season was the thirteenth season during which aerial surveys were conducted by the FWC-FWRI (Brooks et al. 1993; Brooks 1994; Brooks 1995; Brooks and Thomas 1996; Thomas and Brooks 1997; Thomas 1998; Thomas and Ciano 1999; Thomas and Ciano 2000; Ciano and Thomas 2001; Smith and Windham-Reid 2002; Windham-Reid and Smith 2003). Funding was made available for the 2003-2004 calving season that enabled FWRI to contribute to the

EWS surveys on a daily basis (weather dependent) within a dedicated survey area. These surveys directly contribute to the first objective of the Recovery Plan for the North Atlantic Right Whale (NMFS 2005): "reduce ship collisions with right whales" by disseminating sighting information to all mariners within the calving region via the U.S. Navy, U.S. Coast Guard, harbor pilot associations and port authorities. In addition to FWRI's EWS participation, FWRI photo-documents whales and in the event of sighting an entangled or injured whale, staff initiates a response effort and documents the injuries for disentanglement/response planning.

The aim of this report is to present findings from aerial survey and field observations during the 2003-2004 calving season. Conducting aerial surveys in the SEUS and disseminating whale location information to mariners remains the best available method for reducing the likelihood of vessel/whale collisions. These surveys were funded primarily by the National Marine Fisheries Service with support from the Florida Fish and Wildlife Conservation Commission.

METHODS

The 2003-2004 FWRI EWS aerial surveys, designated as Florida Warning System (FWS) on the EWS pager system, began December 4, 2003 and were completed on March 31, 2004. Two survey configurations or combinations of the two were flown during the 2003-2004 calving season: 10 east/west lines and two north/south coastal tracks. The 2002-2004 survey effort is depicted in Figure 1. The survey waypoints at the eastern and western ends of each trackline are listed in Table 1. The FWRI team surveyed the southern section of the SEUS critical habitat from Ponte Vedra Beach (30°14'N) to North Crescent Beach (29°47.0) from the shoreline (east/west) from 30°14'N to 29°47'N out to 080°47'W and when time and/or conditions permitted, flew two lines parallel to the shoreline (coastal track lines) from Crescent Beach (29°47'N) to as far as Melbourne (28°12'N). Coastal track lines were flown parallel to the shoreline at distances approximately one nautical mile and four nautical miles. Each completed east/west survey has a length of 334nm (including transits). Each completed coastal survey has a length of 272nm (including transits).

East/west aerial surveys were scheduled up to 7 days per week and flown every good weather day. Survey protocols are outlined in Scott and Gilbert (1982) for the Cetacean and Turtle Assessment Program (CeTAP 1982). Survey personnel included a pilot and a co-pilot, and one observer on each side of the aircraft visually scanning out to approximately 2nm. Typically the observer in the right rear seat of the aircraft also functioned as the data recorder. Observations of all large whales and leatherback sea turtles, as well as environmental conditions, marine debris, and vessel activity were recorded in a computer-based data logging program with locations, headings and altitudes being automatically recorded from the platform's Global Positioning System (GPS) every ten seconds or recorded by hand and entered into an Access-based database. Surveys were flown under visual flight rules (VFR) conditions. Environmental conditions necessary to conduct a survey included visibility greater than 2nm, winds less than 17kts and a minimum ceiling of 366m over the survey area. The aircraft flew at an altitude of 305m with a ground speed of 100kts. The survey platform was a twin engine Cessna 337 equipped with a yoke mounted GPS unit. Additionally, the aircraft was equipped with two aviation very high frequency (VHF) radios and one VHF handheld marine radio, flares and an inflatable life raft. Each person onboard also wore a Nomex flight suit and a personal flotation device (PFD) equipped with a safety knife, signaling mirror, high-pitch safety whistle and a GPS-linked emergency position indicator radio beacon (G-EPIRB).

Right whales were identified primarily by the callosity patterns located on the top of the head between the tip of the rostrum and the blowhole (Payne *et al.* 1983; Kraus *et al.* 1986). In addition to callosity patterns, any scars observed were photographed and recorded for ID purposes. During the 2003-2004 survey season photographs were taken with a Canon EOS D60 Digital SLR camera and a Canon EOS3 SLR camera using 200 ASA Kodak Gold print film. Both cameras were equipped with Canon-image-stabilizing-fixed-300mm-(f4.0)-lenses. The right side observer photographed the animals through the opened right front window of the plane. The digital SLR was used as the primary camera while the film SLR was utilized as the back up camera. The use of a digital format camera allowed for expeditious image review for rapid whale identification utilizing image-downloading programs. The film camera served as a back-up tool in case

the primary, digital camera malfunctioned or any digital image files were prematurely deleted. This process allowed researchers to efficiently and rapidly document the individuals encountered and easily share image files with other survey teams during the calving season.

During aerial surveys, Early Warning System cooperators including FWRI are asked to record information on whales observed in close proximity to vessels. Information recorded includes date, location, time, vessel type, headings, and any reactions of whales or vessels. These reports, commonly referred to as "close call" reports are forwarded to FWRI where they are entered into a database and mapped.

When not flying, trained and permitted (under Permit No. 633-1483-03) FWRI staff conduct cruises to collect skin and blubber samples from right whales as part of a multi-agency effort. These biopsy cruises are often coordinated with the aerial teams who relay the identity and location of targeted whales to the biopsy team. A crossbow and biopsy darts are used to collect the sample. Ideally, the biopsy sample contains both skin and blubber. The skin samples will be used to generate information on kinship, mating system, individual gender and identification, stock identity, and genetic variability within the population. The blubber portion of the samples will be used to determine contaminant levels and to gain information about feeding ecology and nutritional condition.

RESULTS

Aerial Surveys

The FWRI aerial survey team conducted 77 aerial surveys from December 4, 2003 to March 31, 2004 over the southern EWS and coastal survey areas These flights cover the southern portion of the Southeast U.S. critical habitat. Survey dates and the ranges flown on each survey are listed in Table 2. Flight effort increased for FWRI from the previous season (2002-2003) due to the increase in funding and the designation of a dedicated survey area that was designed to cover the southeast corner of the Mandatory Ship Reporting (MSR) boundary.

Five survey flights were shortened due to unfavorable weather conditions. Two surveys were not completed because the team was diverted to assist with an entangled whale. One survey was cut short due to controlled zones (or hot areas) closed by the military within the survey area, and one survey was shortened so the team could look for the cow of a stranded calf. In addition, two ancillary/verification flights were conducted during the calving season for a total of 79 fly-days and 367.8 flight hours.

The FWRI aerial survey team sighted its first right whale of the season on December 18, 2003 and its last whale on March 19, 2004. The survey team spotted 53 groups of right whales comprising 92 individuals (Figure 2). Right whales were sighted on 33 different days during the aerial survey season and are represented in Table 3; a breakdown of number of FWRI surveys flown per season compared with the number of sightings is shown in Figure 3.

Photographs of right whales taken during the aerial surveys were compared with the Catalog of Identified Right Whales from the Western North Atlantic. These results are preliminary pending final analysis from the New England Aquarium. Identified cows with young of the year included Eg#'s: 1123, 1266, 1321, 1509, 1701, 1705, and 2330. Twelve other known whales and ten whales not yet assigned a number were identified. Table 4 presents the preliminary demographic breakdown of individuals sighted by the FWRI aerial team.

"Close Call" Documentation

Close Call reports from the 2003-2004 season received by FWRI are summarized in Table 5. Of the 14 close call reports received for the 2003-2004 season, two resulted in an apparent behavioral/directional change. The first incident involved two recreational vessels that came within three meters of a cow/calf pair; the pair subsequently changed direction. The second incident occurred when a container ship came within one and a half miles of a single whale. Communication with the vessel resulted in a change in the ship's course, and the whale's response was a slight change in direction from northeast to north.

Biopsies

FWRI staff conducted six right whale biopsy cruises during the 2003-2004 season as part of a multi-organizational effort for right whale genetic and health analyses. Five biopsy samples were collected three of which contained both skin and blubber (Table 6).

Other Events

Several unusual right whale occurrences were documented during the 2003-2004 season and are detailed here in chronological order.

- On January 21 and 25, 2004, right whale(s) were observed within the St. Johns River system near Jacksonville, Florida. On both occasions the whale(s) were protected by law enforcement and researchers who designated a safety perimeter until the whales left the river. FWRI assisted in the efforts to keep mariners away from the animals; they also recorded location coordinates and shot the only photos from one of the events.

- On January 9, 2004, a right whale with half of a fluke cut off was observed swimming off Juno Beach, Florida. FWRI staff in a FWC Law Enforcement (LE) helicopter took photographs of the whale. Upon further examination, it was determined that the trauma was from an old injury and the animal had been previously identified with the scar.

- On January 30, 2004, FWRI staff in St. Petersburg fielded a call which resulted in a confirmed right whale cow/calf pair sighting off Miami Beach, Florida. The pair was thoroughly documented and the mother was subsequently identified as #2360 (Figure 4).

- On February 3, 2004 a live right whale calf stranded on Amelia Island, Florida. The whale died during transport off the beach to a holding facility. FWRI helped coordinate the response and assisted in the

transport of the carcass to the University of Florida where staff helped conduct the necropsy.

- On March 17, 2004 an entangled right whale, dubbed "Kingfisher," was observed off of St. Augustine, Florida. A rapid response by disentanglement personnel resulted in the whale being satellite tagged which facilitated multiple attempts at disentangling the whale in the subsequent weeks. FWRI successfully attached the satellite tag to the whale. FWRI provided a support vessel and crew on two occasions during the disentanglement attempts. FWRI staff members certified in disentanglement assisted the Large Whale Disentanglement Network, following Kingfisher all the way up the east coast to Wilmington, N.C. The disentanglement attempts were unsuccessful. The whale was last seen a few weeks later off the New England coast, where it lost its satellite tag.

- A right whale cow/calf pair was photographed on April 9, 2004 approximately one mile off Panama City Beach, Florida. The whales were seen around 13:00 and attracted a small spectator fleet in close proximity to the whales. To our knowledge, the last live sighting of a right whale in the Gulf of Mexico was 1963 (Moore and Clark 1963). NMFS asked the FWC for assistance in further characterizing these whales in the event of a new sighting. Staff were asked to observe and photograph the right whale pair so that location, behavior, identity, heading and status (injury or entanglement) could be ascertained. FWC-LE aircraft and observers with camera equipment were asked to be on stand-by. FWC-LE was also asked to provide on-water officers to ensure a wide-berth for the whales (NMFS regulation is 500 yards) should they be re-sighted. A Panama City News-Herald newspaper story ran on April 15, 2004 which asked readers to call the FWC's Wildlife Alert (1-888-404-FWCC) number if the whales were spotted. FWC-LE dispatchers were instructed to log the caller's information and contact Blair Mase (NMFS-Miami) at her pager. New England aquarium staff later confirmed that the pair of whales seen off Miami and the Panhandle region were the same cow/calf pair (#2360 and

calf) and that the pair was sighted, near New England's Great South Channel on May 31, 2004 confirming a return from the Gulf Of Mexico. Follow-up investigations detailed at least six large whale sightings in the Panhandle region between March 14, 2004 and April 9, 2004. Three of these were confirmed by photographs to be right whales (Figure 5).

SUMMARY and RECOMMENDATIONS

The series of unusual events which occurred during the season and the collaborative approach to responding to them highlight and reinforce the value of a response network. Three of the events took place outside of the EWS survey region and one of these events occurred after the survey season ended when most of the observers had left the area. In these cases, the established network in the state of Florida including FWC-LE and FWRI allowed for rapid response, alerts, documentation, and resolution of these events. The relationship between stranding response teams and right whale conservation programs should be supported and strengthened. Right whale-specific training and equipment for network responders in areas such as necropsy, live stranding response, disentanglement, and photography should be implemented.

The FWRI aerial team continued to observe instances of harassment by small vessels. Again this season, small recreational vessels were observed altering the behavior of a cow/calf pair within the critical habitat. With the steady growth along Florida's east coast and the increase in the number of boat registrations, it is likely that whale/vessel interactions will continue to be a management concern.

With the increased number of aerial surveys, safety guidelines for aerial surveys should be continually reviewed and modified to reflect upgraded research methods due to changing technology. The evaluation of safety protocols should include assessments of the durability and longevity of safety equipment. This assessment would allow for the development of replacement cycles for worn or obsolete equipment. Regular exchange between management and experienced right whale aerial biologists participating in the monitoring effort will help to facilitate and fine-tune these processes.

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Figure 1. 2003-2004 FWRI survey effort.

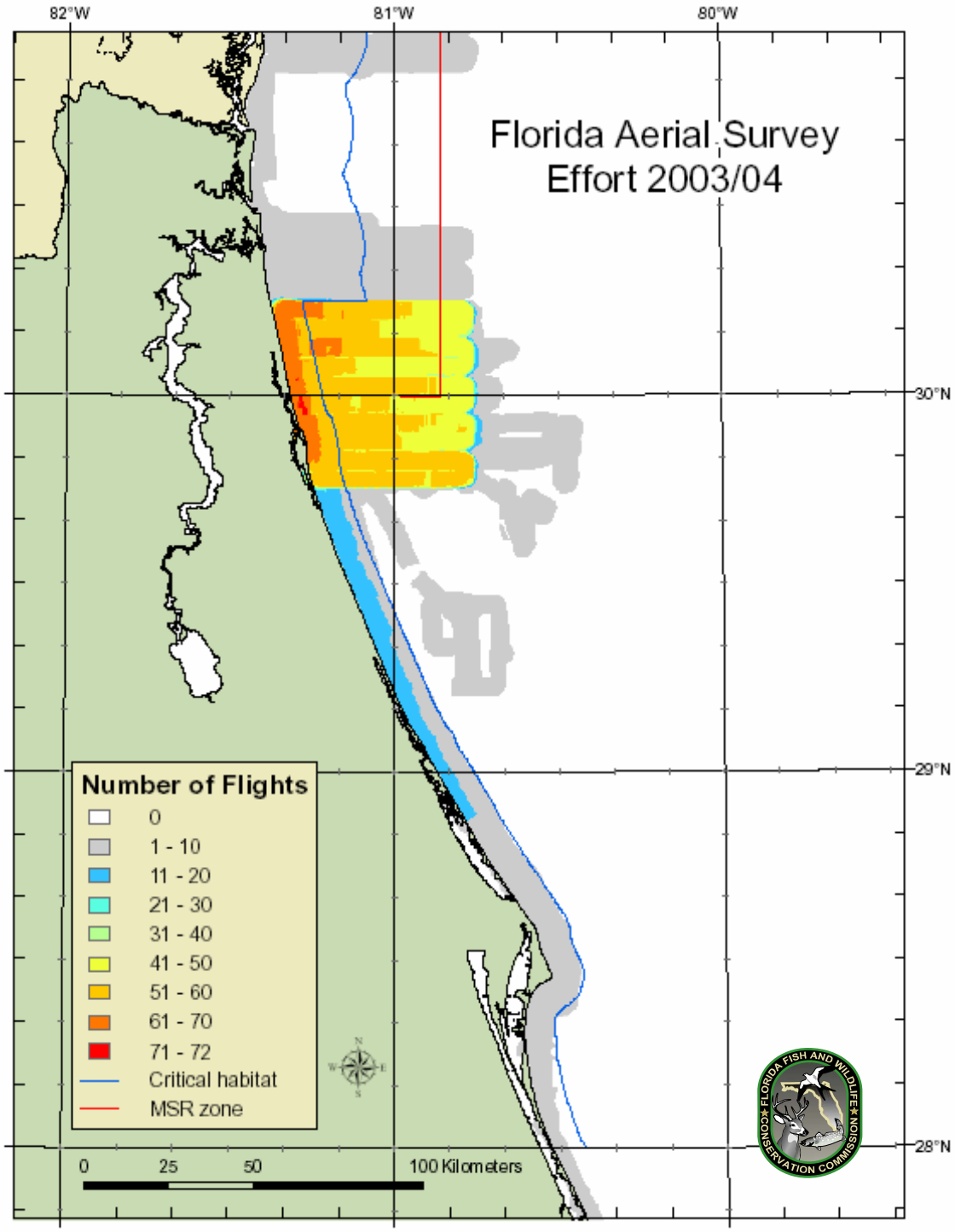

Figure 2. 2003-2004 FWRI right whale sightings.

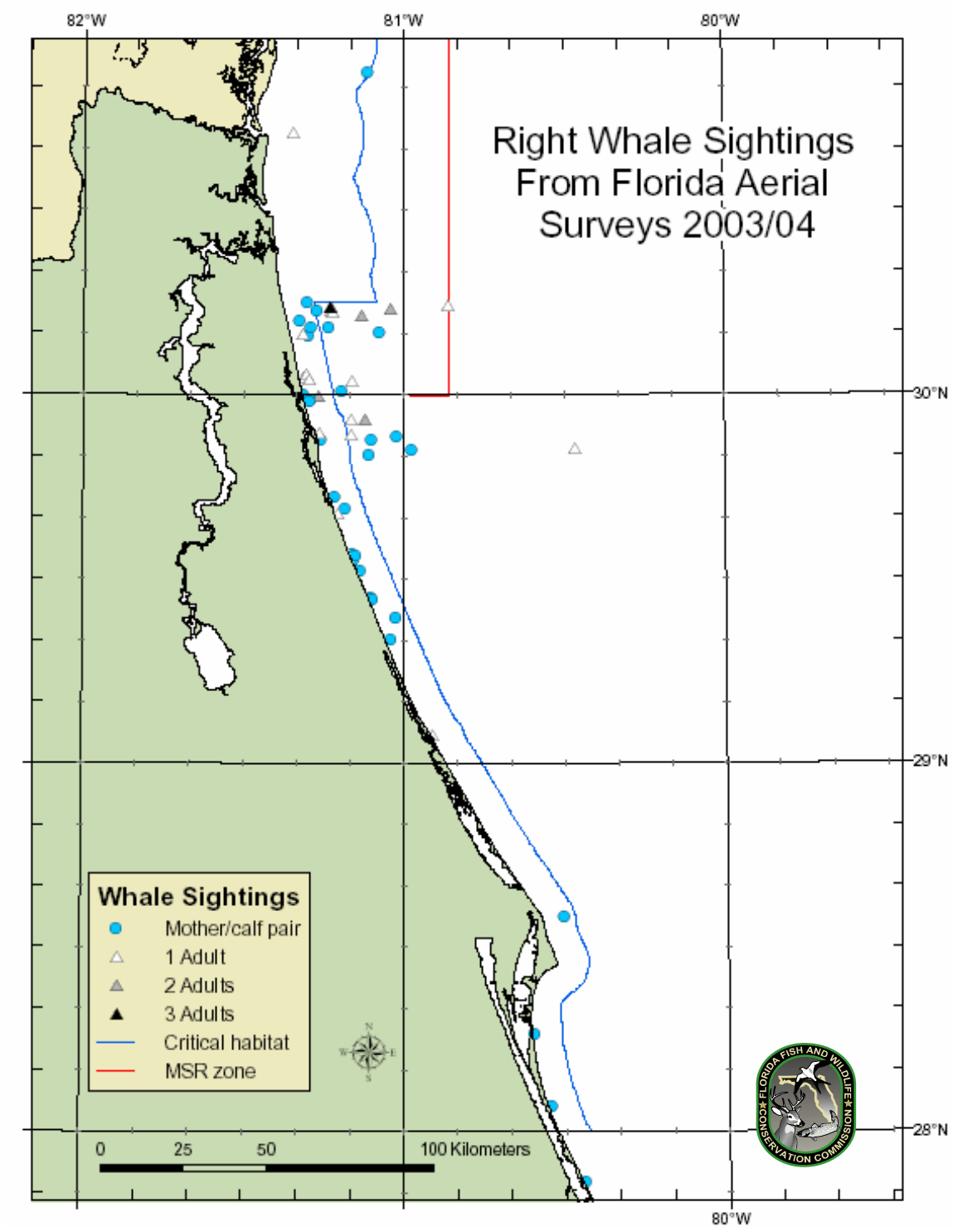

Figure 3. Number of surveys compared to number of sightings since 1991.

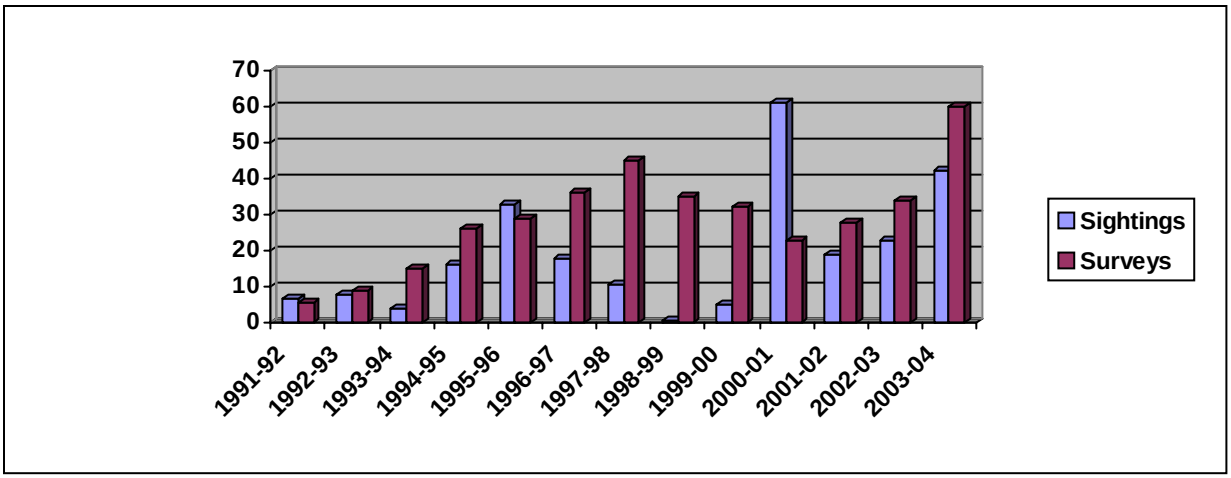

Figure 4. Right whale sightings off Miami, January 30, 2004.

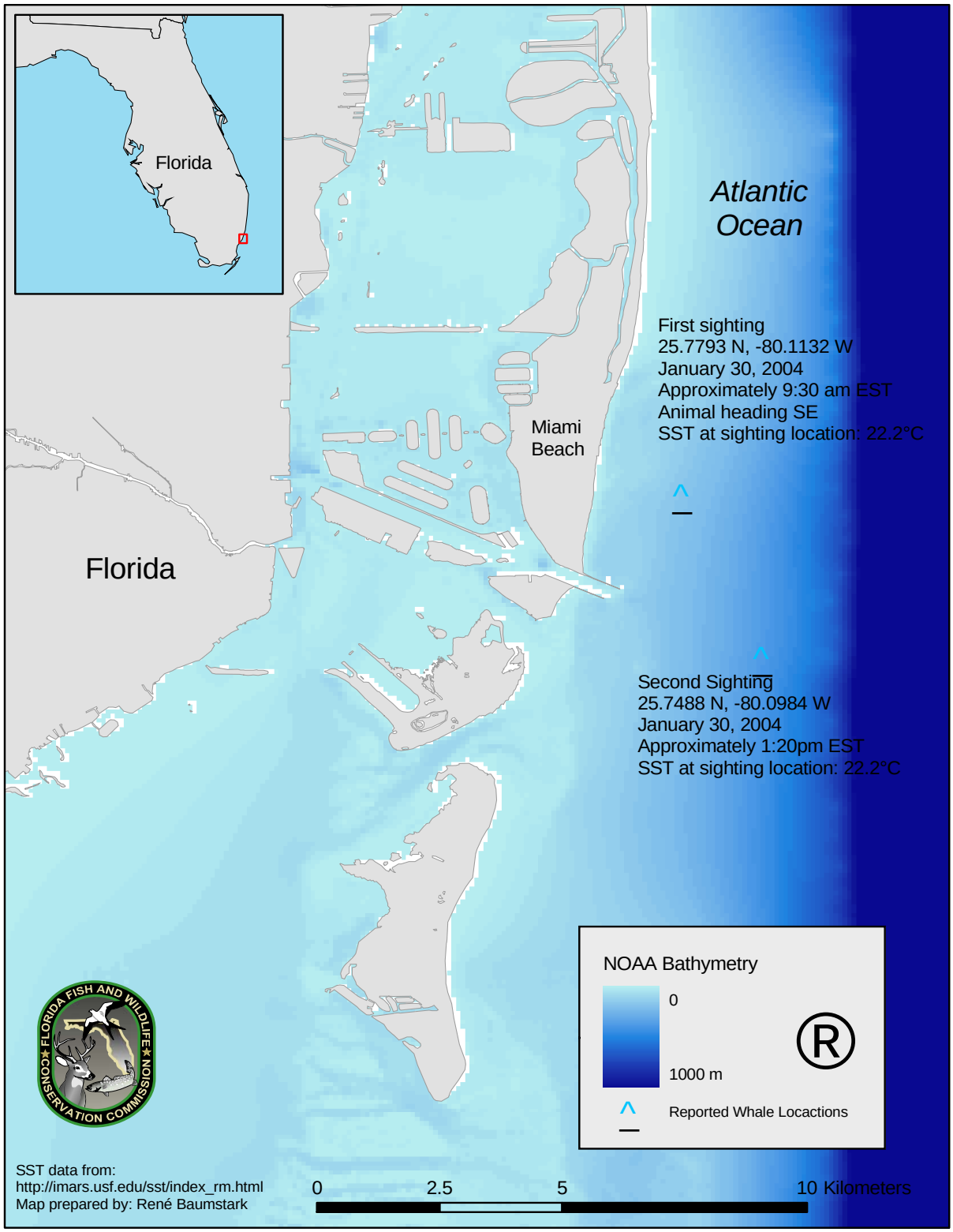

Figure 5. Panhandle whale sightings and sea surface temperatures.

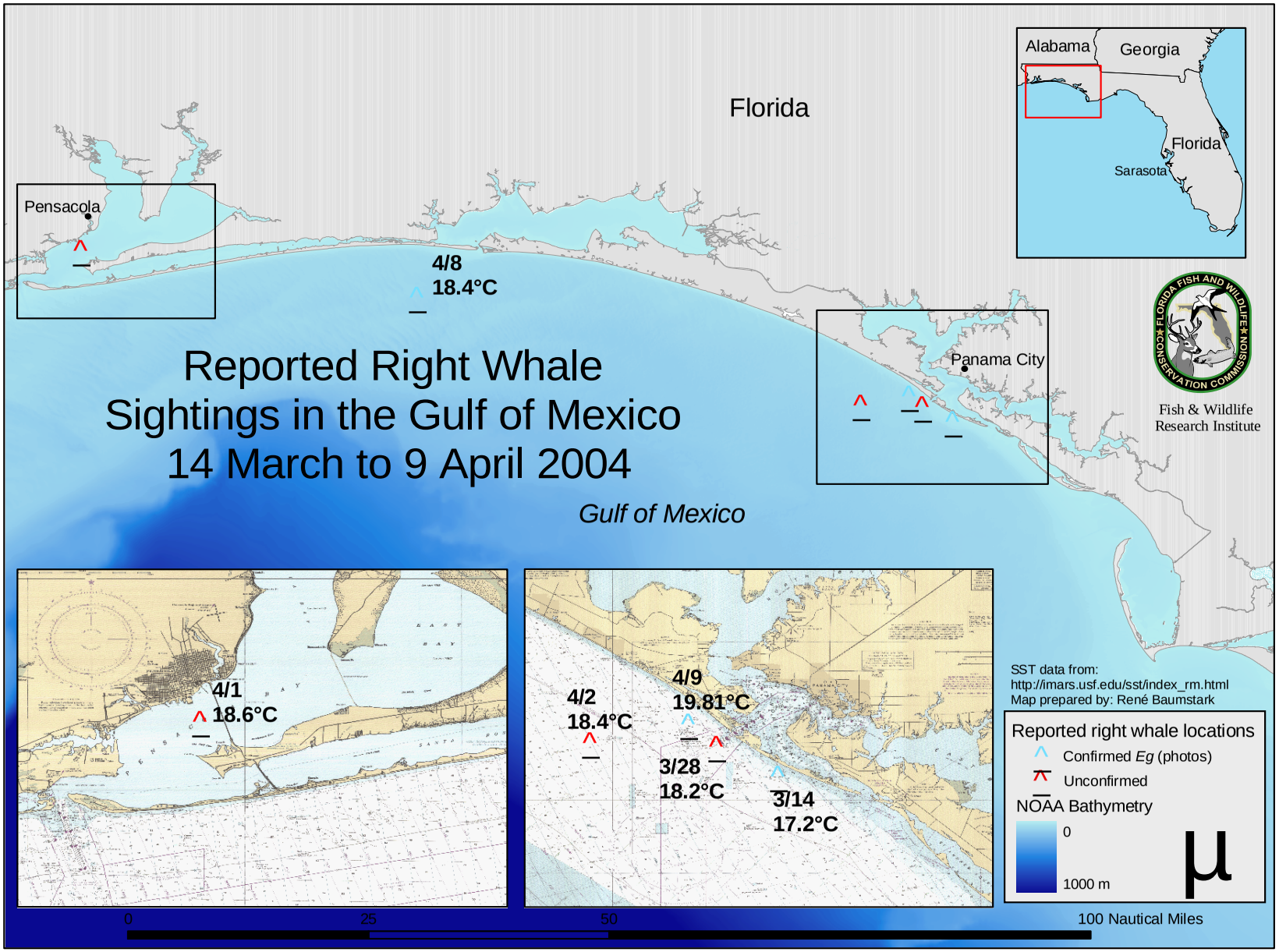

Table 1. Survey waypoints.

Line	Latitude	Longitude
1	30° 14.0	From coastline out to out to 80°47.0
2	30° 11.0	From coastline out to out to 80°47.0
3	30 08.0	From coastline out to out to 80°47.0
4	30 05.0	From coastline out to out to 80°47.0
5	30 02.0	From coastline out to out to 80°47.0
6	29 59.0	From coastline out to out to 80°47.0
7	29 56.0	From coastline out to out to 80°47.0
8	29 53.0	From coastline out to out to 80°47.0
9	29 50.0	From coastline out to out to 80°47.0
10	29 47.0	From coastline out to out to 80°47.0

Table 2. List of survey dates and ranges flown.

DATE	SURVEY TYPE	MILES	NOTES
04Dec2003	10 E/W lines	N/A	FWRI north / NEAq south areas
07Dec2003	10 E/W lines	281.4 miles	
08Dec2003	10 E/W lines	281.4 miles	
09Dec2003	10 E/W lines	281.4 miles	
12Dec2003	10 E/W lines	281.4 miles	
13Dec2003	10 E/W lines	281.4 miles	
15Dec2003	10 E/W lines	281.4 miles	
16Dec2003	10 E/W lines	281.4 miles	
18Dec2003	0 E/W lines	N/A	High sea state, coastal only
19Dec2003	0 E/W lines	N/A	¼ completed of all ten lines
21Dec2003	10 E/W lines	281.4 miles	
22Dec2003	10 E/W lines	281.4 miles	
23Dec2003	10 E/W lines	281.4 miles	
24Dec2003	10 E/W lines	281.4 miles	
25Dec2003	10 E/W lines	281.4 miles	
26Dec2003	10 E/W lines	281.4 miles	
27Dec2003	6 E/W lines	171.1 miles	Plus coastal to Canaveral
28Dec2003	10 E/W lines	281.4 miles	
29Dec2003	10 E/W lines	281.4 miles	
30Dec2003	10 E/W lines	281.4 miles	
31Dec2003	10 E/W lines	281.4 miles	
01Jan2004	10 E/W lines	281.4 miles	
02Jan2004	10 E/W lines	281.4 miles	
03Jan2004	10 E/W lines	281.4 miles	
04Jan2004	10 E/W lines	281.4 miles	
05Jan2004	10 E/W lines	281.4 miles	
08Jan2004	10 E/W lines	281.4 miles	
09Jan2004	10 E/W lines	281.4 miles	
12Jan2004	10 E/W lines + Coastal	496.4 miles	to Canaveral
13Jan2004	10 E/W lines	281.4 miles	
14Jan2004	10 E/W lines + Coastal	496.4 miles	to Canaveral
16Jan2004	10 E/W lines + Coastal	496.4 miles	to Canaveral
17Jan2004	10 E/W lines	281.4 miles	
19Jan2004	8 E/W lines	230.9 miles	Late start due to weather
20Jan2004	4 E/W lines	120.6 miles	Inclement weather
21Jan2004	10 E/W lines + Coastal	496.4 miles	to Canaveral
22Jan2004	10 E/W lines	281.4 miles	
24Jan2004	10 E/W lines	281.4 miles	
25Jan2004	10 E/W lines	281.4 miles	
29Jan2004	10 E/W lines + Coastal	496.4 miles	to Canaveral
30Jan2004	10 E/W lines	281.4 miles	
31Jan2004	10 E/W lines	281.4 miles	
03Feb2004	4 E/W lines	N/A	Attempt relocate stranded Eg's Mom

04Feb2004	10 E/W lines + Coastal	281.4 miles	to 29° 35.1
05Feb2004	10 E/W lines	N/A	Warship exercises (4 lines cut short)
08Feb2004	10 E/W lines	281.4 miles	
09Feb2004	10 E/W lines	281.4 miles	
10Feb2004	10 E/W lines	281.4 miles	
16Feb2004	10 E/W lines	281.4 miles	
19Feb2004	10 E/W lines	281.4 miles	
20Feb2004	10 E/W lines	281.4 miles	
21Feb2004	10 E/W lines	281.4 miles	
22Feb2004	10 E/W lines + Coastal	327.0 miles	to Daytona
23Feb2004	10 E/W lines + Coastal	496.4 miles	to Canaveral
29Feb2004	10 E/W lines	281.4 miles	
01Mar2004	10 E/W lines + Coastal	515.0 miles	to Cocoa
02Mar2004	10 E/W lines + Coastal	530.0 miles	to Melbourne
03Mar2004	10 E/W lines	281.4 miles	
04Mar2004	10 E/W lines	281.4 miles	Late start – Sea fog
05Mar2004	10 E/W lines	281.4 miles	
06Mar2004	10 E/W lines	281.4 miles	
07Mar2004	10 E/W lines	281.4 miles	Late start – low ceiling
09Mar2004	10 E/W lines + Georgia	281.4 miles	also 31° 08.0 thru 30°53.0
11Mar2004	10 E/W lines	281.4 miles	
12Mar2004	10 E/W lines + Coastal	496.4 miles	to Canaveral
13Mar2004	10 E/W lines	281.4 miles	
15Mar2004	10 E/W lines	281.4 miles	
18Mar2004	3 E/W lines	N/A	relocate entangled whale
19Mar2004	2 E/W lines + Georgia	N/A	4 Georgia lines and entangled whale
20Mar2004	10 E/W lines	281.4 miles	few lines cut short due to fog
21Mar2004	10 E/W lines	281.4 miles	
24Mar2004	6 E/W lines	175.0 miles	High sea state
26Mar2004	10 E/W lines	281.4 miles	6 Georgia lines + 4 FWRI lines
27Mar2004	10 E/W lines	281.4 miles	
28Mar2004	10 E/W lines	281.4 miles	
30Mar2004	10 E/W lines	281.4 miles	
31Mar2004	10 E/W lines + Coastal	281.4 miles	to Flagler

Table 3. 2003-2004 right whale sightings

Date	Time	Latitude	Longitude	Type
2003-12-18	1213	29.991000	-81.307000	2 Adults
2003-12-18	1340	29.995670	-81.267170	2 Adults
2003-12-19	1052	30.046500	-81.316000	1 Adult
2003-12-19	1123	30.056000	-81.305500	1 Adult
2003-12-21	1223	29.931500	-81.121330	2 Adults
2003-12-21	1313	29.888830	-81.164170	1 Adult
2004-01-03	1035	30.166670	-81.315000	1 Adult
2004-01-04	1209	30.038500	-81.295170	1 Adult
2004-01-04	1433	30.034330	-81.162670	1 Adult
2004-01-12	1128	30.009330	-81.193500	Mother/calf pair
2004-01-12	1511	29.335830	-81.042500	Mother/calf pair
2004-01-14	842	30.225830	-81.222670	1 Adult
2004-01-14	1223	29.689670	-81.183830	Mother/calf pair
2004-01-16	924	30.249830	-81.303000	Mother/calf pair
2004-01-17	1342	29.898170	-81.265670	1 Adult
2004-01-19	1605	29.930670	-81.164000	1 Adult
2004-01-21	1624	30.201830	-81.325330	Mother/calf pair
2004-01-21	1638	29.998500	-81.314330	Mother/calf pair
2004-01-22	943	30.228000	-81.273500	Mother/calf pair
2004-01-22	1344	29.884830	-81.023000	Mother/calf pair
2004-01-24	1028	29.722500	-81.217000	Mother/calf pair
2004-01-25	1102	30.182670	-81.290670	Mother/calf pair
2004-02-03	1640	29.078170	-80.911500	1 Adult
2004-02-04	1329	29.567670	-81.161670	Mother/calf pair
2004-02-05	1031	30.158330	-81.300670	Mother/calf pair
2004-02-05	1314	29.877170	-81.259000	Mother/calf pair
2004-02-05	1412	29.566170	-81.150830	Mother/calf pair
2004-02-10	1424	29.449330	-81.103830	Mother/calf pair
2004-02-10	1504	29.444670	-81.099500	Mother/calf pair
2004-02-16	1015	30.170500	-81.076830	Mother/calf pair
2004-02-20	1139	30.215000	-81.132500	2 Adults
2004-02-20	1455	29.393330	-81.025170	Mother/calf pair
2004-02-22	1244	29.878830	-81.101330	Mother/calf pair
2004-02-23	1154	29.547170	-81.157830	Mother/calf pair
2004-02-23	1501	29.523330	-81.136170	Mother/calf pair
2004-02-29	1428	29.833670	-81.108670	Mother/calf pair
2004-03-01	945	30.235170	-81.041830	2 Adults
2004-03-01	1428	29.677000	-81.205830	1 Adult
2004-03-01	1539	28.264670	-80.597830	Mother/calf pair
2004-03-01	1706	29.979670	-81.296330	Mother/calf pair
2004-03-02	1149	29.984500	-81.290330	Mother/calf pair
2004-03-02	1528	28.070000	-80.545330	Mother/calf pair
2004-03-02	1551	28.584170	-80.506830	Mother/calf pair
2004-03-03	938	30.230500	-81.228170	1 Adult
2004-03-03	946	30.236000	-81.231000	3 Adults
2004-03-03	1704	27.861170	-80.441670	Mother/calf pair

Table 3. 2003-2004 right whale sightings (cont.)

2004-03-04	1128	30.239000	-81.227000	2 Adults
2004-03-05	1349	29.848500	-80.976330	Mother/calf pair
2004-03-07	1044	30.183000	-81.235830	Mother/calf pair
2004-03-09	1141	30.874000	-81.115170	Mother/calf pair
2004-03-11	949	30.242330	-80.862500	1 Adult
2004-03-18	1522	29.853670	-80.466670	1 Adult
2004-03-19	1209	30.711500	-81.347500	1 Adult

Table 4. Preliminary demographic breakdown of individuals identified from FWRI aerial surveys 2003-2004.

Cows w/YOY					Other			
ID NO	**SEX**	**YOB**			**ID NO**	**SEX**	**YOB**	
1123	F	1981			1817	F		
1509	F				3317	U	Y	
1266	F				1946	F		
2330	F				3345	U	Y	
1701	F	1987			1151	F		
1705	F	1987			3351	U	Y	
1321	F				2360	U		
					3302	U		
					1708	M		
					2427	M		
					2710	F		
					1911	F		
					10 individuals*	U	J	

F - female, M - male, U - unknown, YOY – young of year, YOB - year of birth, Y – yearling, J - juvenile
* Currently not assigned catalog numbers

Table 5. “Close Calls” recorded during the 2003/2004 season.

Report number	Date	Reporting Agency	Vessel Type (and size, if indicated)	Closest distance between vessel and whale (in meters)	Whale response noted?	Description of response
1	18-Dec-03	FWC	30 foot shrimp boat	9	No	
2	19-Dec-03	FWC	17 foot shrimp boat	402	No	
3	30-Dec-03	EWS	Coast Guard	1609	No	
4	02-Jan-04	FWC	Shrimp boat	402	No	
5	14-Jan-04	EWS	Tug and barge	3218	No	
6	21-Jan-04	EWS	Container ship	402	No	
7	25-Jan-04	EWS	Large merchant vessel	91	No	
8	30-Jan-04	WT	Dredge	1609	No	
9	03-Feb-04	FWC	75 foot Recreational	13	No	
			20 foot Coast Guard	402		
			Recreational	3219		
10	05-Feb-04	FWC	100 foot shrimp boat	402	No	
11	19-Feb-04	EWS	Tug and barge	3219	No	
12	03-Mar-04	EWS	Recreational	3	Yes	Changed Direction
			Recreational	3		
13	09-Mar-04	EWS	Tug and barge	Unknown	No	
14	19-Mar-04	WT	Container ship	2414	Yes	Heading change NE to N while swimming 6-7 knots

Table 6. FWRI biopsy sampling results from 2003-2004 season (Permit No. 633-1483-03).

Whales Darted by FWRI on Vessel Cruises

Date	Time	Area	Sampled By	Type of Sample	Pre-approach Behavior	Whale's reaction	Post-darting behavior	Comments
1/1/2004	1706	Florida	A. Windham FWRI	skin blubber	logging	no obvious reaction	logging then M/C pair slowly left area	
1/2/2004	1439	Florida	J. Smith FWRI	skin	Tt in immediate area of M/C logging & some slight avoidance, calf active w/ cow	no obvious reaction	same behaviors as pre-approach did not leave area	positioned biopsy vessel between an oncoming shrimping vessel and the M/C pair
1/2/2004	1439	Florida	A. Windham FWRI	skin	Tt in immediate area of M/C logging & some slight avoidance, calf active w/ cow	calf defecation from the sound of the missed arrow hitting the water's surface	same behaviors as pre-approach did not leave area	positioned biopsy vessel between an oncoming shrimping vessel and the M/C pair
2/10/2004	1537	Florida	J. Smith FWRI	skin blubber	spyhopping and logging	no obvious reaction	same behaviors as pre-approach	
2/23/2004	1410	Florida	A. Windham FWRI	skin blubber	logging, spyhop, calf interacting with cow Tt in area	no obvious reaction	same behaviors as pre-approach	

Tt = *Tursiops truncatus*
M/C = Mother/calf pair

Appendix 2.

SeaVet I Large Whale Conservation Course Outline

- Overview of Cetaceans
  - Odontoceti (toothed whales)
    - Physeteridae (sperm whale)
    - Kogiidae (pygmy and dwarf sperm whales)
    - Ziphiidae (beaked whales)
    - Monodontidae (one-toothed whales)
    - Delphinidae (common dolphins)
    - Phocoenidae (porpoises)
    - Plantanisidae (river dolphins)
  - Mysticeti (baleen whales)
    - Balaenopteridae (rorquals)
    - Eschrichtiidae (gray whale)
    - Balaenidae (right whales)
- Right whales
  - Description
    - Morphologic and identifying characteristics
    - Historic threats
    - Distribution
    - Prey preference and abundance
  - Life History
    - Feeding ecology
    - Feeding mechanisms
    - Behavior
      - Sexual
      - Social
    - Geographic differences
    - Critical habitats
  - Conservation
    - History
      - Whaling
      - Population estimates
      - Calving rates
    - Threats
      - Habitat degradation
      - Genetic bottleneck
      - Anthropogenic
        - Fatal collisions with large vessels
        - Entanglements in fishing gear
        - Harassment
    - Efforts
      - Early Warning System
        - Aerial surveys
        - Vessel surveys
      - Management options

        - Recovery Plan
            - Implementation teams
        - Legal protection
            - Endangered Species Act
            - Marine Mammal Protection Act
            - NOAA established critical habitats
            - State protection
        - Education and outreach
    - Research
        - Genetics
        - Acoustics
        - Behavioral
        - Distribution
        - Reproduction
    - Disentanglement
    - Stranding protocols
        - Live triage response
- Mortality
    - Necropsies
        - Protocol for sampling carcass
    - Case studies

SOUTHEAST U.S. RIGHT WHALE RECOVERY PLAN IMPLEMENTATION TEAM

17 October 2003
Cecil Commerce Center Conference Center- Jacksonville, Florida
DRAFT AGENDA

Meeting Purposes:

- Update the SEUS Implementation Team on recent SEIT activities
- Identify specific action items for achieving Recovery Plan tasks through education and outreach activities

10:00 - 10:30am Welcome and Introductions

- Review meeting purpose
- Introductions
- SEIT Overview and Mission — Jamison Smith, FWC

10:30 – 11:00pm Update on Right Whale Conservation Activities and Information

- Report of Technical Committee Working Group — Jim Hain, ASOWH
- GIS project updates (MSR, "close-call" database, habitat analysis) — Leslie Ward/Cherie Keller, FWC

11:00 – 12:00pm Considerations for Developing Education and Outreach Activities

- Threats to Right Whales as Discerned from Right Whale Mortality Database — Amy Knowlton, NEAq
- Overview of Shipstrike, Public Education and Outreach Document — Don Lewis, NOAA

12:00 - 1:15pm Lunch Break

1:15 - 3:00pm Breakout Groups

Identifying top priorities, relative risk to right whales, performance objectives, mechanisms to educate groups, initiate implementation of action items.

Topics to include:

- Military (Including, but not limited to: USCG and Navy)
- Deep Draft (Including, but not limited to: Commercial, Party & Daytrip vessels and Tug and Tow)
- Misc. Vessel (Including, but not limited to: Less than 50ft, Greater than 50ft and Small recreational craft)

3:15 – 4:15pm Findings from Breakout Groups

4:15 – 5:00pm Open Forum for Discussion

- Funding for potential SEIT projects
- Prioritize projects and goals

SOUTHEAST U.S. RIGHT WHALE RECOVERY PLAN IMPLEMENTATION TEAM

04-05 May 2004
Radisson Riverwalk Hotel
Jacksonville, Florida
DRAFT

Tuesday, May 04

10:00 - 12:00pm NOAA Aerial Survey Contractor Meeting

12:00 – 1:00pm Lunch Break

- Lunch will be provided so a working lunch is anticipated

1:00 – 5:00pm Development of a Live Right Whale Stranding Contingency Plan

(Draft agenda provided by NOAA- Blair Mase-Guthrie)

Purpose: Using collective knowledge and recent experience, participants in this workshop will list criteria, and options for live right whale response in the Southeast Region.

1:00-1:20	**1. Welcome and orientation to workshop goals and methods** • Blair Mase- NOAA Fisheries
1:20-1:40	2. Lessons Learned from live right whale stranding (EgNEFL0403): • Jessica Gribbon – NOAA Fisheries
1:40- 2:45	3. Review and identify criteria and options for live right whale response • Facilitators
2:45-3:00	**Break**
3:00-4:30	4. Further Development of 2 and 3 Above • Facilitators

4:30-5:00	**Summary and Closing Remarks** • Blair Mase – NOAA Fisheries
5:00	**Adjourn**

Wednesday, May 05

8:00 – 8:15am Welcome, Introductions, History and Mission of Implementation Team

- SEIT Overview and Mission — Jamison Smith, FWC
  - Update from previous meeting
  - Misc. SEIT Issues

8:15am – 9:15am Early Warning System

- Overview of 2003-2004 Right Whale Calving Season — Monica Zani, NEAq
- Close Calls — Tricia Naessig, WT
- Unusual Events — Alicia Windham-Reid, FWC
- Volunteer Sighting Network — Jim Hain, ASWH
- Overview of NRW sightings for 2003-2004 Season — LT Josh Russell, FacsFacJax

9:15am – 10:30am Other Management Items

- Mortalities — Blair Mase, NOAA
- Status of Ship Strike Strategy — Aleria Jensen, NOAA Fisheries
- Critical Habitat — Barb Zoodsma, NOAA Fisheries

- St. Augustine Right Whale/Boat Encounter — NOAA Fisheries LE

10:30am – 10:45pm Break

10:45am – 12:00pm Outreach

- Updated revisions for NOAA's SEUS Atlantic Coast Pilot — Nick Chrobak, NOAA
- NOAA Weather Radio — Nick Chrobak, NOAA
- CD/DVD — Jamison Smith, FWC
- NFWF Grant — Alicia Windham-Reid
- Sources for Industry PSA's — FWC, JAXPORT
- NE Projects — Pat Gerrior
- SOP for Right Whales Entering Rivers — USCG, Harbor Pilots

12:00 – 1:00pm Lunch Break

- Lunch will be provided so a working lunch is anticipated

1:00 – 4:00pm Misc. Updates from SE/MidAtlantic

- 'Kingfisher' Disentanglement Overview and Update — NOAA, FWC
- Superbowl issues — All

Open Discussion

4:00pm Adjourn