

**Aerial Surveys for Ship Strike Mitigation and Other Field Observations of North Atlantic
Right Whales (*Eubalaena glacialis*) off the East Coast of Florida
December 2007-March 2008**

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TABLE OF CONTENTS

INTRODUCTION	3
METHODS	5
<i>AERIAL SURVEYS</i>	5
<i>DATA COLLECTION</i>	5
<i>WHALE/SHIP INTERACTION DOCUMENTATION</i>	8
RESULTS	9
<i>AERIAL SURVEY</i>	9
<i>WHALE/SHIP INTERACTION DOCUMENTATION</i>	9
EVENTS	10
<i>DISENTANGLEMENT RESPONSES</i>	10
<i>STRANDING RESPONSES</i>	11
<i>OTHER</i>	11
DISCUSSION	13
WORKS CITED	16
ACKNOWLEDGEMENTS	18
LIST OF FIGURES	
FIGURE 1: FWRI AERIAL SURVEY TRACK LINES MAP	19
FIGURE 2: FWRI SEWS SURVEY TRACK LINES EFFORT MAP	20
FIGURE 3: FWRI AERIAL SURVEY RIGHT WHALE SIGHTINGS MAP	21
FIGURE 4: FWRI AERIAL SURVEY MONTHLY RIGHT WHALE SIGHTINGS MAP	22
FIGURE 5: SIGHTING DISTANCE DIAGRAMS	23
FIGURE 6: SEUS WHALE/VESSEL INTERACTIONS MAP	24
FIGURE 7: FWRI OPORTUNISTIC LAND-BASED RIGHT WHALE SIGHTINGS MAP	25
FIGURE 8: RIGHT WHALE SIGHTING OFF MIAMI: SEA SURFACE TEMPERATURE MAP	26
FIGURE 9: WHALE ALERT GEOGRAPHIC “BINS” MAP	27
LIST OF TABLES	
TABLE 1: FWRI SURVEY WAYPOINTS AND NAUTICAL MILEAGE	28
TABLE 2: FWRI AERIAL SURVEY ACTIVITIES	29
TABLE 3: FWRI AERIAL SURVEY SIGHTINGS	35
TABLE 4: FWRI RIGHT WHALE SIGHTING DISTANCES AND AVERAGE	40
TABLE 5: FWRI WHALE/VESSEL INTERACTIONS	41
TABLE 6: FWRI OPPORTUNISTIC LAND-BASED SIGHTINGS	42
TABLE 7: LIST OF ACRONYMS	43
LIST OF APPENDICES	
APPENDIX 1: FWRI WHALE/VESSEL INTERACTION PDF	44
APPENDIX 2: FWRI COASTAL SURVEY: RED TIDE REPORT	48

INTRODUCTION

The North Atlantic right whale (*Eubalaena glacialis*) is among the rarest of all large whales with an estimated population of less than 400 individuals (Right Whale Consortium 2007). Hunted to near extinction, the population has shown little or no signs of recovery since receiving international protection from commercial whaling in 1935 and federal protection under the Endangered Species Conservation Act in 1970 and, subsequently, the Marine Mammal Protection Act in 1972 and Endangered Species Act in 1973 (NMFS, 2005). This lack of recovery is principally attributed to deaths from human related activities, mainly ship collisions and fishing gear entanglements (NMFS, 2005). Since the completion of the first Recovery Plan in 1991, efforts to protect right whales in the western Atlantic have increased substantially to include Regional Recovery Plan Implementation Teams and the Atlantic Large Whale Take Reduction Team (ALWTRT). The National Marine Fisheries Service (NMFS), in collaboration with the Southeastern U.S. Right Whale Recovery Plan Implementation Team (SEIT) and ALWTRT, is continually assessing current right whale regulations and developing new recommendations and management techniques (NMFS, 2005). Should human related fatalities continue at the current pace some population models predict the extinction of right whales in the relatively near future (Fujiwara and Caswell, 2001).

Ship strikes are a major cause of mortality to right whales (Knowlton and Kraus, 2001). An average of 1.8 right whales were reportedly killed or seriously injured by ship strike from 2001-2005 (NMFS, 2007). Only a small number of whales in the Catalog of Identified Right Whales have scars from ship propellers; however, a large number of carcasses have ship propeller wounds (Kraus 1990). According to Kraus (1990), this indicates that currently a high proportion of collisions between whales and vessels are fatal. Pace and Silber (2005) reported the probability of serious injury or death increases rapidly with increasing vessel speed and most severe and lethal injuries caused by ship strikes occur when vessels are traveling at speeds greater than or equal to 14 knots (Laist et al., 2001, Jensen and Silber, 2003). Right whale mom/calf pairs in the SEUS are likely particularly susceptible to ship collisions because they spend a large amount of time near the surface and they may be limited by the calf's ability to dive and maneuver through the water (Ward-Geiger et al., 2005). There are four major entrance channels within the SEUS critical habitat; Brunswick, St. Mary's River, St. Johns River, and Port Canaveral. After an increase of 9% in total vessel calls at JAXPORT from FY 2005 to FY 2006 the amount of commercial vessel traffic in the St. Johns River remained constant from FY 2006 to FY 2007 (Jacksonville Port Authority).

The Southeast U.S. (SEUS) is one of only five "high use" areas identified for North Atlantic right whales (NMFS, 2005) and the coastal waters of Georgia and northeastern Florida are the only known calving grounds (Kraus et al., 1993). Calving occurs from December through March (Kraus et al., 1986) and the SEUS wintering population consists mostly of mom/calf pairs, juveniles, and a few adult males and non-calving adult females. In 1994, NMFS designated the waters from 31°15N to 30°15N from the shoreline out to 15 nm and the waters from 30°15N to 28°00N from the shoreline out to five nm as critical habitat. In addition, NMFS published the Right Whale Minimum Approach Regulation (1997), prohibiting all approaches (vessel, aircraft, or other means) within 500 yards of any right whale (NMFS, 2005). A Mandatory Ship Reporting System (MSRS) was federally implemented in the SEUS in 1999. The MSRS requires all commercial vessels 300 gross tons or greater to report into a shore-based station when entering designated right whale habitat. In return, the vessels are provided with the latest right whale sighting locations and information on how to avoid collisions with right whales

(NMFS, 2005). The MSRS is active from November 15th to April 16th: the time frame when right whales are typically found in the SEUS. According to Ward-Geiger et al. (2005), the average reported speed of vessels entering the MSRS WHALESSOUTH area from 1999-2002 was 15.72 knots. Currently, the National Oceanic and Atmospheric Administration recommends vessels travel at 10 knots or less when consistent with safe navigation within the SEUS critical habitat and MSRS WHALESSOUTH area. In 2006, NMFS proposed a rule to implement a seasonal speed restriction of 10 knots for all vessels 65 ft in length or greater traveling in seasonal management areas during times when and areas where right whales occur along the U.S. East Coast including the SEUS critical habitat and MSRS. In addition, NMFS proposed the establishment of temporary “dynamic management areas” to protect right aggregations outside the designated seasonal management areas (71 FR 36299, June 26, 2006).

During the 1993-1994 calving season, several agencies, including the Florida Fish and Wildlife Conservation Commission (FWC), began an extensive aerial survey network known as the Early Warning System (EWS) developed to reduce or eliminate ship strikes (NMFS, 2005). The EWS quickly provided valuable right whale sighting information to the U.S. Navy, U.S. Coast Guard (USCG), U.S. Army Corp of Engineers, harbor pilots, and port authorities. The EWS was improved with the dissemination of information to the general public through USCG Broadcast Notices to Mariners and broadcasts over NOAA Weather Radio. With the incorporation of the Navy’s Fleet Area Control and Surveillance Facility Jacksonville (FACSFACJAX) as the sighting collection and dissemination center for all aerial survey aircraft, right whale sighting information was processed and transmitted to mariners in near-real time. Further refinements to the EWS whale alert pager system during the 2007-2008 calving season allowed the aerial survey teams to target vessel operators in specific geographic locations; thus, providing vessel operators with the most applicable whale sighting information for their area of operation (Appendix 1). Presently, aerial surveys remain the best available method to detect right whales and alert mariners about the presence of right whales in the SEUS critical habitat in order to reduce the risk of ship collisions with whales (NMFS, 2005). FWC’s Fish and Wildlife Research Institute (FWRI) has been conducting right whale aerial surveys in the SEUS with varied coverage and effort since the late 1980’s. The current three-plane EWS survey format was implemented during the 2002-2003 calving season. The FWRI provides aerial survey coverage of the southern portions of the EWS, SEUS critical habitat, and MSRS. Although ship strike mitigation remains the focal objective, the EWS surveys collect photo documentation of right whales; monitor vessel activity; and provide assistance during critical right whale events (such as disentanglements and strandings). The photographic data collected in the SEUS is used to assess demographics and survival estimates of right whales. In addition, FWRI in cooperation with NMFS and other state and local agencies updates and develops new brochures, training videos, and publications to educate shipping industries and the general public about right whale conservation efforts.

This report summarizes FWRI aerial survey data and other field observations for the 2007-2008 calving season. Funding for the FWRI aerial surveys was provided by NMFS.

METHODS

Aerial Surveys

FWRI conducted right whale aerial surveys seven days a week, weather permitting, during the period December 1, 2007, to March 31, 2008. The survey configuration remained the same as the previous three seasons (2004-2005, 2005-2006, and 2006-2007). The FWRI survey consisted of the ten southernmost east/west track lines (lines #25-34) within the EWS framework (Table 1) and was referred to as the Southern EWS (SEWS). Typically flown from north to south, the track lines covered the southern portions of the EWS, SEUS critical habitat, and MSRS WHALESSOUTH area from Ponte Vedra Beach (30°14.0N) to Crescent Beach (29°47.0N) from approximately 0.5 nm east of the shoreline out to 080°47.0W (Figure 1).

The survey aircraft were twin engine Cessna 337s operated and maintained by Orion Aviation under provisions of FAA 14 CFR Part 135. In accordance with FAA 14 CFR Part 135 and additional NOAA requirements the aircraft were equipped with IFR certification, yoke mounted GPS unit, Emergency Locator Transmitter (ELT), 2-B:C rating fire extinguisher, primary and secondary VHF radios, marine band radio with linkage to intercom system, DC power for observer tablet PC, additional GPS with direct linkage to the tablet PC, and extended over water operations emergency equipment as listed in 14 CFR Part 135.167 including a registered 406 MHz emergency position indicator radio beacon (EPIRB) and an inflatable life raft. Aerial observers were required to wear a Nomex flight suit and an aviation style personal flotation device (PFD) equipped with a safety knife, signaling mirror, high-pitch safety whistle, strobe light, streamer, and a McMurdo Fastfind Plus 406 MHz personal EPIRB with built in GPS receiver. Surveys were flown under visual flight rules (VFR) conditions and a flight plan was filed with the FAA for each day of survey. Aircraft typically departed the airport at 0900 hrs and returned before sunset. In addition, flights were required not to extend beyond 45 minutes reserve fuel. Environmental conditions necessary to conduct a survey included visibility greater than three nautical miles (nm), winds less than seventeen knots, a minimum ceiling of 1200 ft over the survey area and airport, and sea state of Beaufort five or less, and a sea state of Beaufort three or less was preferred because the detectability of whales has been shown to decrease in sea states greater than or equal to a Beaufort four (Hain et al., 1999).

Survey protocols are outlined in Scott and Gilbert (1982) for the Cetacean and Turtle Assessment Program (CeTAP 1982). The aircraft flew at a target speed of 100 kts and a height of 1000 ft. In order to take into account aircraft fluctuations a speed threshold of 200 kts and an allowable height range of 800 ft-1200 ft were set. Survey personnel included a pilot, co-pilot, and two observers. One observer sat on each side of the aircraft and visually scanned the survey area out to approximately two nautical miles. Typically the observer seated in the left rear seat recorded the data and the observer seated in the right rear seat conducted photo-identification during a sighting.

Data Collection

The survey crew used a Fujitsu ST5000 tablet PC to collect electronic data while in the aircraft. The tablet PC was small enough to comfortably sit in an observer's lap without obscuring his/her field of vision or presenting a safety hazard. Survey data were recorded at 30 second time intervals in Logger 2000, a computer-based data logging program, which automatically retrieved locations, headings, and altitudes from the GPS and stored them in an

Access database. The use of the tablet PC and several drop-down options in Logger 2000 allowed for swift data entry and minimized the time spent looking away from the water. However, if the GPS or computer malfunctions, locations, headings, and altitudes were hand recorded at intervals of five minutes on hard copy datasheets and later entered into an Excel Spreadsheet.

Environmental data entered into the database consisted of weather, visibility, cloud cover, Beaufort sea state, and the severity of the glare on both sides of the plane. Environmental data were updated throughout the survey when conditions changed. Large whale sighting observations included the initial and final sighting locations, number of whales per sighting, number of calves per sighting, heading, behaviors, observer reliability (measure of certainty of whale identification,) and confidence (measure of certainty of number of whales observed.) Observed vessel information included type of vessel, location, heading, length, and speed. The vessel location was mainly recorded by flying directly over the vessel to obtain a GPS location. If the aircraft was unable to fly directly over a vessel the distance was estimated visually by the observers. The heading, length, and speed of the vessels were verified by the use of an onboard class B AIS (Automatic Identification System) transponder. Only vessels 300 ft or larger sighted within 2 nm of the track lines or any vessel involved in a whale/vessel interaction were recorded.

Access macros developed by FWRI staff were used to scan data for errors and compliance with the guidelines set by the North Atlantic Right Whale Consortium Database (NARWD) Manager. The data were then exported to Excel format for final submission to the NARWD Manager. A spreadsheet developed to track the sighting distance between the aircraft and whale(s) was maintained by the FWRI survey team and provided to FWRI GIS staff for analysis at the end of the season. In addition to the electronic data collected, hard copy data sheets were compiled. Cover sheet information included the survey crew, flight hours, nautical miles flown, environmental data, and summary of the day's sightings and events. Whale sighting sheets included a drawing of the callosity patterns of whale(s) seen, initial and final sighting times and locations, behaviors, and ancillary photography information (such as images taken.)

The EWS whale alert pager network facilitated the near real time transmission of right whale sighting information via email, text message, and alphanumeric pager system to the U.S. Navy, USCG NAVTEX, harbor pilots, aerial survey teams, NOAA, state agencies, and volunteer networks. The FWRI aerial survey team used satellite phone or marine band VHF radio to relay the date, final sighting time and position, number of whales, number of calves, and heading to the FWRI ground contact for broadcast on the EWS whale alert pager network. Whale sighting location details were kept to a minimum when using marine band VHF radio in order to avoid potential harassment of whales by vessel operators in the surrounding area. The FWRI ground contact was responsible for sending the whale alert via email and following up with any reporting errors, entering FWRI sightings into the MSRS WHALESSOUTH database within an hour of each sighting, maintaining a near real time knowledge of the position and maneuvers of the aircraft during survey, and acting as a liaison between ground crews and the aircraft during entanglement, stranding, or other events.

FWRI prepared and submitted weekly performance reports to NOAA Fisheries. The weekly reports consisted of a survey activities report and a right whale sightings report. The survey activities report included: survey date, survey file name, completed track lines, aircraft Hobbs time elapsed, total track line nautical miles flown, total track line nautical miles flown in

sea state ≤ 3 , number of whales seen, and any other pertinent right whale related information. The right whale sightings report included: survey date, time (local), survey name, latitude (in decimal degrees), longitude (in decimal degrees), RIWH letter (from photography datasheets), NARWC Id number (as this information becomes available from the NARWC manager), agency notified (i.e., FACSFACJAX) and time, NRW number and comments (to include information such as w/ calf or calf).

Photo-identification

Individual right whales were identified by the location, shape, and topography of the callosities that occur along the rostrum (Crone and Kraus 1990). In addition, Hamilton and Martin (1999) note that callosities on the upper margins of the lower jaw (known as lip callosities), behind the blowholes, on the chin, along the mandible, and above the eye are key marks to help identify individual whales. White scars from past entanglements, vessel strikes, and other causes rarely fade over time and become unique characteristics (Hamilton and Martin 1999). Crenations along the lower lip (also called lip ridges) can be distinctive and were particularly useful in the identification of calves because the callosity patterns of calves are not fully developed until they are 7-12 months old (Hamilton and Martin 1999).

During the 2007-2008 calving season, FWRI aerial photographs were taken with a Canon EOS 20D Digital SLR camera equipped with a Canon EF 100-400mm f/4.5-5.6L IS USM lens. A Canon EOS D60 Digital SLR camera was utilized as a back up camera. Digital format cameras allowed for expeditious image review in the aircraft and also allowed FWRI to easily share image files with the New England Aquarium, NOAA Fisheries, Provincetown Center for Coastal Studies (PCCS) disentanglement team, and other collaborators throughout the calving season.

The observer on the right side of the aircraft photographed the whale(s) through the opened right rear window. Photographs were taken on the TV function with a shutter speed of 1000 (shutter speed decreased in low light). Whenever feasible, priority was given to obtain a full top view head shot of the whale(s) in order to document a full set of callosities. Once the callosities were fully recorded, photographs of the body and fluke were attempted in order to document any scars and the overall body condition of the whale. A twenty minute time limit was set to photograph small groups of whales in order to ensure adequate time to finish the survey. Larger (less common) groups of whales were allotted more time as long as it did not jeopardize the completion of the survey.

FWRI created and maintained a website that allowed aerial survey teams to view images and preliminary whale identifications during the 2005-2006 season. Throughout the 2006-2007 and 2007-2008 seasons the website was further developed to enhance communication among aerial survey teams and to include near real time updates for biopsy team members. The FWRI aerial survey team reviewed all new FWRI images throughout the season and made preliminary matches to the catalog of identified right whales. At the end of the season photographs and sighting data were submitted to the NEA for final identification and inclusion in the North Atlantic Right Whale Identification Database – the central repository for archiving and maintaining images and sighting data on right whales.

Whale/Vessel Interaction Documentation

Prior to the beginning of the 2005-2006 season, FWRI staff in collaboration with all aerial survey teams, NOAA Fisheries, and NOAA law enforcement created a whale/vessel interaction form for use by the aerial survey teams. The enhanced form standardized the data collection of all whale/vessel interactions among various teams and facilitated a detailed account of these incidents. During the 2006-2007 and 2007-2008 calving seasons this updated form was used by all aerial survey teams in the SEUS to record whale/vessel interactions or “close calls” and 500 yard rule violations. All whale/vessel interaction forms were forwarded to NOAA Fisheries and FWRI where they were combined into one database and mapped.

RESULTS

Aerial Survey

The FWRI aerial survey team flew 70 surveys of varying coverage out of an available 122 days between December 1, 2007 and March 31, 2008 (Table 2). Fifty-two full SEWS surveys (281.6nm each), fourteen partial SEWS surveys, and four two-plane contingency plan surveys were completed. Three of the four two-plane contingency plan surveys were also partial SEWS surveys. Thus, the FWRI team flew at least a portion of the SEWS survey 57% of the available days (Figure 2). The majority of partial surveys resulted from poor weather conditions; however, a few surveys were shortened because of disentanglement support, two-plane contingency plans, and airspace conflicts with USCG training in OPAREA 27C. Three opportunistic coastal surveys of varying distances were also flown in conjunction with the SEWS survey. Eighty-nine percent of FWRI surveys were flown during favorable sea state conditions (Beaufort sea state 3 or less).

The first right whale sighting in the SEWS occurred on December 5, 2007 and the last was on March 12, 2007. The last FWRI sighting occurred outside the SEWS survey area on March 29, 2007 during a two-plane contingency flight. The FWRI aerial survey team had 86 sightings* consisting of 218 whales (not unique individuals) (Table 3). Of the 86 sightings, 39 were mom/calf pairs, two were mom/yearling pairs, 13 were single adults, 18 were pairs of adults, and 14 were groups of three or more whales (Figures 3 and 4). Preliminary photo analysis indicates FWRI documented 99 individual right whales (excluding calves) of which 14 could be unique to the FWRI survey. The estimated average sighting distance** was 1.03 nautical miles (Table 4, Figure 5). The FWRI team sighted 13 of the 19 females observed with calves in the SEWS (either pregnant or with a calf). The greatest number of sightings the FWRI team had in a single survey was eight (January 29th during a disentanglement event) and the greatest number of sightings during a single SEWS survey was four (February 3rd and February 15th). The largest number of whales sighted in a single day was 26 (January 22nd). The FWRI team had 15 sightings of 28 whales in December, 28 sightings of 69 whales in January, 35 sightings of 99 whales in February, and eight sightings of 22 whales in March. In addition, the FWRI team documented 68 leatherback turtles and a badly decomposed whale carcass (see EVENTS - *Hubbs-0816-Mn*). No humpback whales were sighted during the 2007-2008 season.

Whale/Vessel Interaction Documentation

During the 2007-2008 season, FWRI documented two whale/vessel interactions (Table 5). The first interaction was observed from land and involved an aircraft and a resting mother/calf pair. The second interaction was observed from the air and involved a commercial fishing vessel and three traveling adult whales (Figure 6). A change in whale behavior was observed during the first interaction between the aircraft and the mother/calf pair (Appendix 1).

* A sighting is any observed whale or group of whales at a given time and location. A sighting may consist of one to many whales, but an individual whale may not be counted more than once during a sighting. An individual whale may be part of more than one sighting per day and/or more than one sighting over a period of many days throughout the entire calving season.

** The sighting distance is the perpendicular measurement (a conservative estimate) from the survey track line to the right whale sighting location. This estimate assumes the plane was flying exactly on the track line and only sightings observed while on track line were used to calculate the average sighting distance.

EVENTS

Disentanglement Responses

Eg# 3333

On January 29, 2008 the FWRI aerial survey team was alerted to the presence of entangled juvenile male right whale, Eg# 3333, off Jacksonville, FL by the NEA aerial survey team. The NEA team advised they were on scene with the whale and would need to land to download photographs. The FWRI team was on the ground refueling at the time of the sighting and after coordinating with NOAA Fisheries' Southeast Region Right Whale Coordinator the FWRI team took off and headed directly to the sighting location in order to relieve the NEA team. Upon approach the NEA team advised there were several small groups of whales in the vicinity and the entangled whale, Eg# 3333, was diving and staying down for approximately 10 minutes each dive. Eg# 3333 and companion whale, Eg# 3314 "Yellowfin", were observed by the FWRI team diving for 11-12 minutes with 2-3 minute surfacing intervals (similar to the pattern described by the NEA team.) The FWRI team was coordinating with response vessels from GA and FL which were both already on the water and en route to the sighting location. After the third surfacing of Eg# 3333 and Eg# 3314 at 14:43 hours the FWRI survey team began to vector the nearby GA Hurricane into close range of the whales. However, when the whales surfaced at 14:55 hours for the fourth time Eg# 3333 was no longer in the same location with Eg #3314; Eg# 3314 had been joined by a different juvenile whale. The FWRI survey team, GA Hurricane, and FL Orion searched the area in an attempt to relocate Eg# 3333 until 1700 hours without success. All sighting data and photographs were forwarded to NOAA Fisheries, PCCS, and NEA. Further documentation was obtained on February 2, 2008 off Sapelo Island, GA, by the Wildlife Trust Northern EWS aerial survey team. On May 7, 2008 Eg# 3333 was sighted in the Great South Channel by the NOAA/NEFSC aerial survey team and appeared to be gear free.

Eg# 3530 "Ruffian"

On January 29, 2008 Eg# 3530 "Ruffian" was observed by the NEA aerial survey team with numerous fresh wounds believed to have been caused by an entanglement. Due to the nature of his injuries, Ruffian was the target of several aerial and vessel documentation attempts throughout the 2007-2008 calving season. The last of these attempts occurred on February 20, 2008 when FWRI along with NOAA Fisheries and University of Florida staff responded to document Ruffian using a thermal imaging camera. The FWRI aerial survey team was the last team to site Ruffian in the SEUS on February 21, 2008. This was FWRI's only aerial sighting of Ruffian and he was observed surface resting alone, but in close proximity to nine other whales. All sighting data and photographs were forwarded to NOAA Fisheries, PCCS, and NEA. Since March 28, 2008 Ruffian has been sighted several times feeding in Cape Cod Bay by PCCS and his injuries continue to heal.

Eg# 3346 "Kingfisher"

Since his birth during the 2002-2003 calving season, Eg# 3346 "Kingfisher" has been sighted each winter in the SEUS calving ground. Kingfisher was the target of a large scale disentanglement effort during the 2003-2004 calving season and since then has been observed with a small portion of remaining gear wrapped around his right flipper. The FWRI aerial survey team sighted Kingfisher in the SEUS on February 11, 2008 and February 12, 2008. On February 15, 2008 FWRI staff responded by vessel to further document Kingfisher's health status and entanglement. All sighting data and photographs were forwarded to NOAA Fisheries, PCCS, and NEA. Analysis of the photographs revealed Kingfisher to be in good health and his

entanglement status continues to be classified by PCCS as “monitor.” Kingfisher was sighted in the Great South Channel on March 14, 2008 by the NOAA/NEFSC aerial survey team and again on May 25, 2008 by NOAA vessel.

Stranding Responses

Hubbs-0803-Eg

On January 25, 2008 a citizen reported a dead whale floating off Ormond Beach, FL to FWC Law Enforcement at 1-888-404-FWCC. FWRI staff coordinated with Volusia County Stranding Network to secure the male neonate right whale carcass and transport it off the beach the following morning. FWRI staff photographed and trailered the carcass to The University of Florida College of Veterinary Medicine for necropsy on January 26, 2008 where FWRI staff also participated in the necropsy. Necropsy findings suggest the calf did not live long past birth and cause of death was determined to be natural (complications at birth). EWS aerial survey data from before and after the carcass was discovered were compiled in an effort to identify the mother of the dead calf, however; no identification has been made to date.

EgNEFL0802

On February 15, 2008 FWRI staff received a report of a dead manatee from the staff at Huguenot Memorial Park in Jacksonville, FL. Upon arrival it was determined the carcass was a neonate right whale calf. The carcass was badly decomposed and missing the flukes and majority of the rostrum. FWRI and park staff loaded the carcass on a trailer and transported it to a secure location inside the park where it remained overnight. On February 16, 2008 FWRI staff coordinated and participated in the necropsy. Cause of death was determined to be natural (complications at birth), but due to the extent of decomposition of the carcass it was difficult to determine how long the calf lived (although some finding suggest it was a short period of time). EWS aerial survey data from before the carcass was discovered were compiled and examined in conjunction with sightings subsequent to the necropsy in an effort to identify the mother of the dead calf. EWS aerial survey data was able to rule out all possible known mothers with the exception of RW#3180 “Dragon”. It is known through aerial survey data that “Dragon” lost her 2008 calf shortly after giving birth and just prior to the discovery of the carcass.

Hubbs-0816-Mn (previously Hubbs-0816-Unk)

On March 3, 2008 the FWRI aerial survey team responded to a report from the Marineland Right Whale Project of a large brown mass floating off Palm Coast, FL. The FWRI team photographed the mass and determined it was likely the badly decomposed remains of a large whale. FWRI staff responded by vessel, but a change in weather brought high seas that began to carry the carcass towards the beach. The vessel response was aborted and alternatively FWRI staff drove to the location where the carcass was likely to make landfall. FWRI, Hubbs-Seaworld, and Marineland Right Whale Project staff were able to recover two mandibles from the carcass. The mandibles were used to determine that the carcass was an adult humpback whale.

Other

Opportunistic Sightings and Verifications by Land

In addition to the aerial survey sightings, FWRI staff documented 10 right whale sightings from land during the 2007-2008 calving season (Table 6). These sightings occurred opportunistically as well as in collaboration with efforts of the Marine Resource Council (MRC)

and Marineland Right Whale Project. The majority of these sightings occurred on days when weather conditions prohibited aerial survey efforts. Although unable to fly, FWRI staff remained attentive and ready to respond to public sightings which resulted in the documentation of right whale sightings that would have otherwise gone unverified or unobserved. The first sighting occurred on December 5, 2007 and the sightings continued through February 27, 2008. All 10 of the sightings were of mother/calf pairs (Figure 7). FWRI staff also observed from land a whale/vessel interaction and 500 yard rule violation involving an aircraft. Responding to land-based sightings gave FWRI staff a valuable opportunity to interact with and offer educational information to home owners and beachgoers from Atlantic Beach, FL to Crescent Beach, FL.

FWRI Coastal Red Tide Reconnaissance Flight

Prior to the start of the 2007-2008 right whale calving season observations of red tide blooms, uncommon to the region, were documented off northeast Florida. By December 2007 the red tide had shifted south and reports of dead dolphins, turtles, and fish were being called in from New Smyrna Beach, FL to south of Cape Canaveral, FL. The coastal habitat affected by the red tide overlapped with the Right Whale Critical Habitat and by mid-December 2007 the presence of right whales in Florida was well documented. On December 20, 2007, the FWRI aerial survey team flew a coastal survey from St. Augustine, FL south to the edge of the Right Whale Critical Habitat (28°00N) near Melbourne, FL. Areas of red tide were documented near New Smyrna, FL; Cape Canaveral, FL; and Melbourne, FL. No right whales were sighted during the flight (Appendix 2).

Right Whale Sighting off Miami, FL

On the morning of March 22, 2008 NOAA Fisheries received a report from the USCG of two right whales approximately 18 miles SW of Key Biscayne, FL. FWRI staff sent a whale alert to the EWS network and a USCG Broadcast Notice to Mariners was set to run throughout the weekend informing vessels in the area to be on the look out for whales and maintain a distance of 500 yards. The sighting occurred in the vicinity of a significant change in water depth and a sea surface temperature of approximately 24 degrees Celsius (Figure 8). Attempts by NOAA Fisheries and FWRI to further document the whales were hindered by inclement weather conditions. Photos and video taken by the USCG were forwarded to NOAA Fisheries and FWRI. FWRI included the sighting in opportunistic data submissions to the NARWD Manager and the New England Aquarium. Preliminary photo analysis indicates the whales could be two adult females, Eg# 3010 and Eg# 3123, sighted by the FWRI SEWS aerial survey team traveling south off St. Augustine, FL on March 12, 2008. Confirmation by the New England Aquarium is still pending. On March 24, 2008 FWRI staff traced and verified a report of two whales described as right whales (no photos available) approximately two miles off Dania Beach, FL. FWRI staff made inquiries into a few unverified sightings off Ft. Lauderdale, FL and St. Lucie Inlet following March 24, 2008, but the original reporting sources of these sightings could not be located.

DISCUSSION and RECOMMENDATIONS

The FWRI aerial survey team documented a total of 218 right whales in 86 sightings* during the 2007-2008 season compared to 208 right whales in 82 sightings during the 2006-2007 season and 148 right whales in 58 sightings during the 2005-2006 season. During the 2007-2008 season FWRI had an average of 1.2 sightings per survey which is a slight increase over an average of 1.0 sighting per survey during the 2006-2007 season and 0.75 sightings per survey during the 2005-2006 season. Despite the difference in average sightings per survey, an average 2.5 right whales per sighting was observed during all three seasons. While the total number of right whales sighted by FWRI during the 2006-2007 season (208) were comparatively consistent to the 2007-2008 season (218), the number of individual right whales documented increased by 58% from 63 in 2006-2007 to 99 in 2007-2008. Although final analysis of the photographs is not complete, it is clear that a large number of juvenile whales were present in the SEUS this season as was the case for the past two seasons. This increase of juvenile whales is reflective of the number of calves born in the SEUS in recent years (New England Aquarium). During the 2007-2008 season these juvenile whales were often observed in surface active groups (SAGs) or milling over several square miles in loosely associated aggregations. According to Knowlton and Kraus (2001) right whale calves and juveniles accounted for 50% of the confirmed ship strike deaths between 1970 and 1999. Since 1999, at least five more calves/juvenile whales have died from ship strike. The increased number of juvenile whales combined with a consistently high number of births and increased vessel traffic may lead to more ship strike injuries and deaths in the SEUS. Management tactics aimed at reducing the occurrence and severity of whale/vessel interactions and increasing the knowledge base of known ship strike incidents should be supported.

Throughout the 2007-2008 season, FWRI staff in consultation with NOAA Fisheries and other EWS network members enhanced the format and dissemination of the EWS whale alerts. The whale alert email subject format was revised to begin with "WHALE" and included the distance and bearing to the nearest sea buoy. Instead of calling the sightings into FACS FACJAX for dissemination the whale alerts were sent via email directly by the aerial survey teams using a distribution list created and maintained by FWRI staff. The whale alerts were routed by the aerial survey teams into specific geographical "bins" (Figure 9). The creation of these bins allowed vessel operators and shipping interests to receive only the whale alerts relevant to their operational area. Throughout the season FWRI staff sent the whale alerts for volunteer sighting network and OTHER reporting source sightings. Having a biologist evaluate OTHER reporting source sightings before sending a whale alert eliminated duplicate alerts from being sent; expedited the sighting verification process; and increased the reliability of each OTHER reporting source whale alert. Continued improvements to the whale alert system should be considered for the 2008-2009 season. Some future improvements could include the use of a

* The number of total right whales sighted (i.e. 218, 208, and 148) is not the same as unique individual right whales sighted. Unique individual right whales are identified during photo analysis. An individual right whale may be seen multiple times throughout the calving season and, therefore, be part of more than one sighting, but is counted as "unique" only once per season. The number of total right whales sighted is the sum of all right whales counted during each FWRI sighting throughout the calving season. Individual right whales can be observed during multiple sightings on multiple days and this is why the total number of right whales is more than the total of unique individual right whales. A sighting is any observed whale or group of whales at a given time and location. A sighting may consist of one to many whales, but an individual whale may not be counted more than once during a sighting. An individual whale may be part of more than one sighting per day and/or more than one sighting over a period of many days throughout the entire calving season.

graphic and/or website to display the location of whale sightings, the addition of acoustic right whale detections to the whale alert pager network, and the integration of AIS as a means to communicate right whale sighting locations to mariners. Evaluation of the reliability of OTHER reporting source sightings should continue and reporting inconsistencies among OTHER reporting sources, such as USCG and U.S. Navy, should be addressed prior to the beginning of the 2008-2009 season.

The USCG Broadcast Notices to Mariners (BNM) are recognized as a valuable tool to inform the general boating community, mainly recreational vessels, of the presence of right whales. However, some inconsistencies in the BNM were observed during the 2007-2008 season. There is a difference between the way sector Charleston and sector Jacksonville relay whale sighting information to the public. Sector Charleston provides a distance and bearing from a known location on land to the right whale sighting location and sector Jacksonville provides a geographical range (i.e. Jacksonville to St. Augustine inlet) for the right whale sighting. Both methods have advantages and disadvantages, but the inconsistency may be confusing to vessel operators that can pick up both sectors on VHF. Sector Jacksonville, the sector FWRI staff could reliably hear from St. Augustine, also had some variation from day to day in right whale broadcast procedures. An evaluation and/or review of USCG right whale BNM at the Fall 2008 SEUS Right Whale Recovery Plan Implementation Team (SEIT) meeting may be advantageous in order to ensure a reliable and accurate message is being transmitted consistently.

Although aerial surveys are an efficient tool for ship strike mitigation on days with favorable weather conditions, they are limited by weather and available daylight and therefore cannot provide information 24/7. The partnerships created by participants of the EWS network enable the near real time transmission of right whale sighting information from aerial survey aircraft directly to the vessels traversing through the SEUS Critical Habitat and MSRS zone. However, in order to improve ship strike mitigation in the absence of aerial survey effort, vessels must be willing to adhere to recommended NOAA Fisheries guidelines by reducing speed, posting lookouts, and avoiding locations where right whales have been reported. The addition of auto-detection acoustic buoys in the SEUS would supplement the aerial survey effort and could provide right whale location information to vessels during periods of time when survey aircraft can not fly. In addition to filling the gap in coverage when surveys can not be flown, adjustments to the EWS survey configuration may help balance the survey durations and ease the threat of running out of survey daylight and/or survey hours. Adjustments in survey coverage may also help alleviate the pressure to fully cover the respective shipping channels.

Each season FWRI staff continue to express their respect and appreciation for the safety requirements implemented by NOAA Fisheries prior to the 2003-2004 season. The safety requirements have provided aerial observers and pilots with reliable equipment and essential safety training. No new safety features were implemented by the FWRI aerial survey during the 2007-2008 season; however, flight following (implemented in the 2006-2007 season) continued to be the backbone of FWRI's safety protocol. The flight following system allowed the FWRI ground contact to monitor the survey plane's location and altitude in near real time. New safety technology and training for the EWS aerial surveys should continually be assessed by the aerial observers and NOAA Fisheries and implemented as they become available.

There is a need for educational material that would describe how to identify right whales, what to do and what not to do when you see a right whale from the beach or a vessel, and how to

properly report sightings from the different platforms. Recent educational flyers developed by NOAA Fisheries provide an excellent description of right whales and what to do if you see one, but available funding limited the printing of these flyers at the time of their development. FWRI plans to research the costs associated with printing additional flyers and upon review by the SEIT Education and Outreach Steering Committee use available right whale funding to have educational materials printed. Increased distribution of educational flyers prior to the beginning of the 2008-2009 season would greatly enhance sighting reports in Florida and possibly decrease kayaker, surfer, and vessel interactions with whales along the coast. Responding to public sighting reports offers FWRI staff a good way to educate homeowners, beachgoers, and boat owners in person, generate local support for right whale conservation, and possible decrease whale/vessel interactions along Florida's coast.

FWRI continues to be a significant contributor to right whale conservation efforts in Florida and the entire SEUS. Although a lack of funding recently limited the range of the FWRI surveys it is well documented that a significant number of right whales, including mother/calf pairs, utilize the coastal waters of Florida during the winter months. Continued partnership between NOAA Fisheries and FWRI will improve protective measures for right whales in the SEUS and allow for the further development of educational materials as well as large whale aerial survey, disentanglement, biopsy, and stranding programs in Florida.

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FIGURE 1: FWRI AERIAL SURVEY TRACK LINES MAP

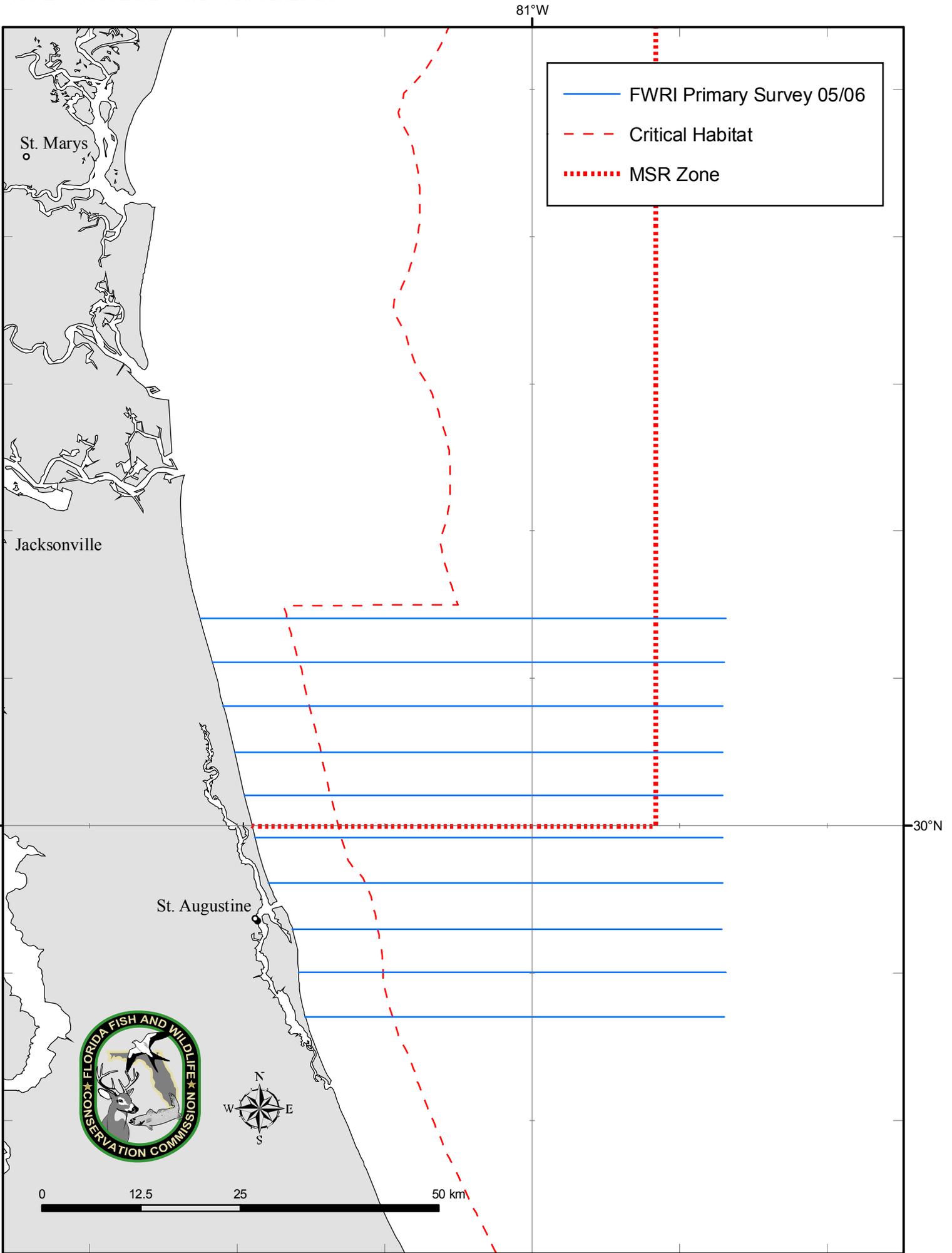


FIGURE 2: FWRI SEWS SURVEY TRACK LINES EFFORT MAP

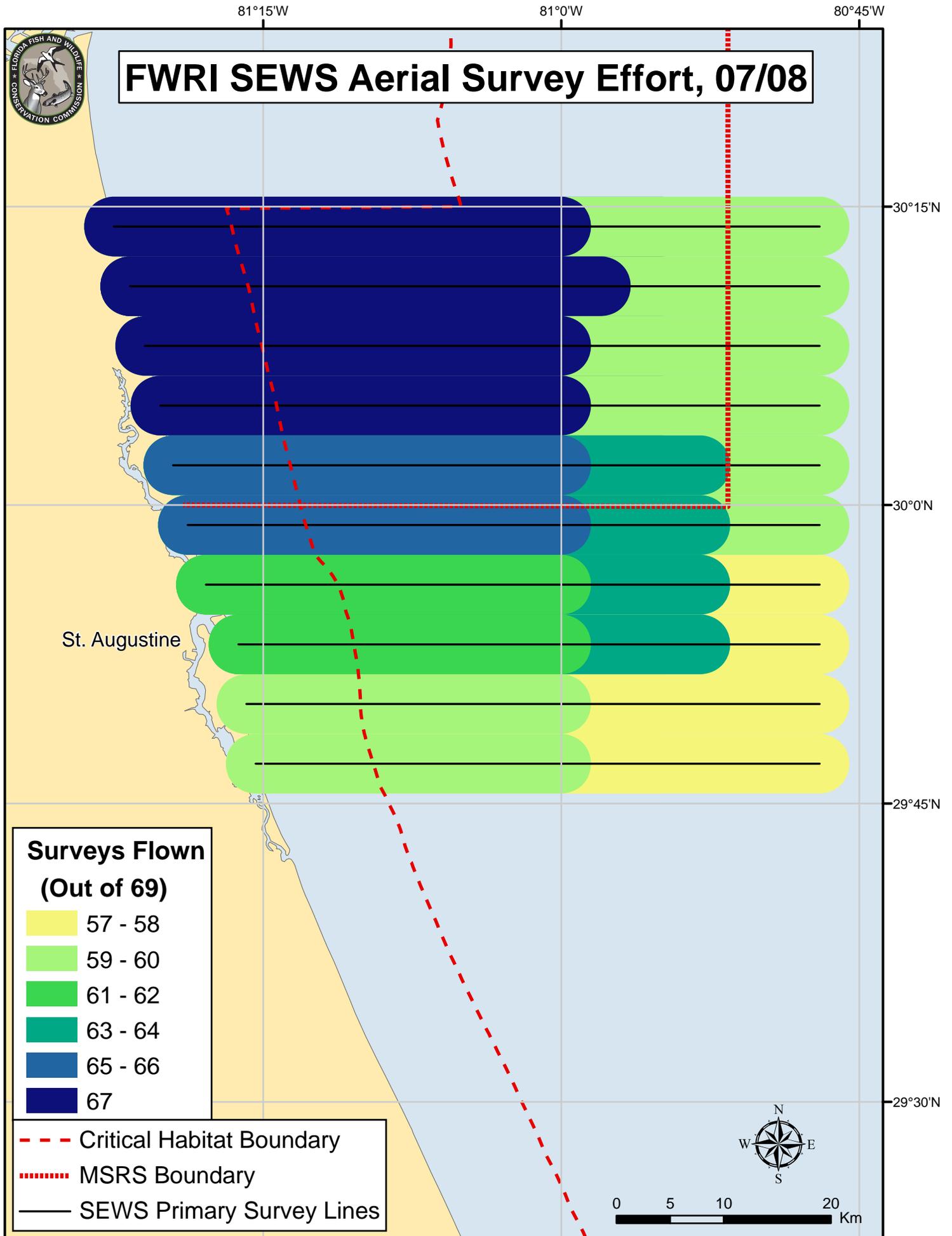
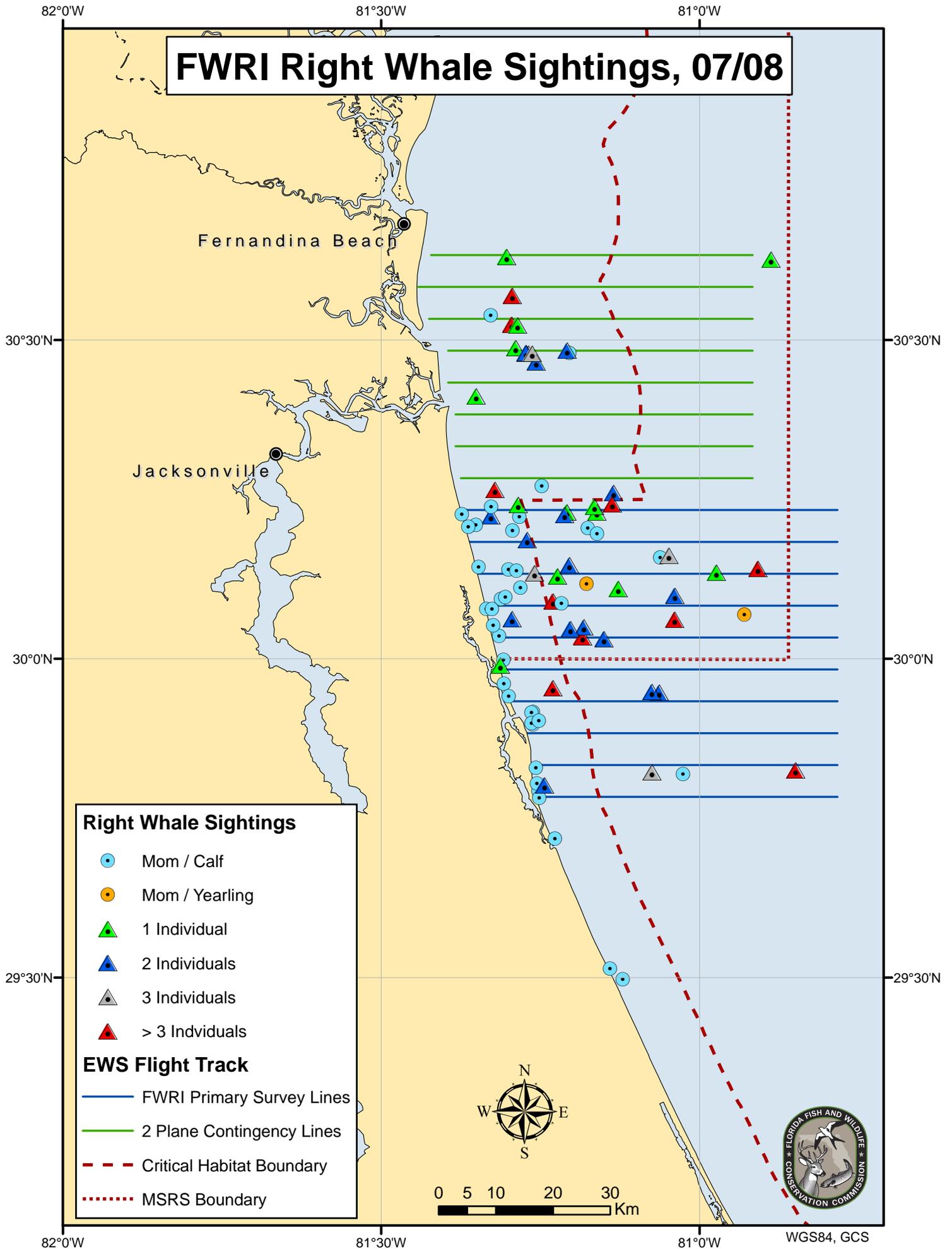


FIGURE 3: FWRI AERIAL SURVEY RIGHT WHALE SIGHTINGS MAP



FWRI Right Whale Sightings By Month, 07/08

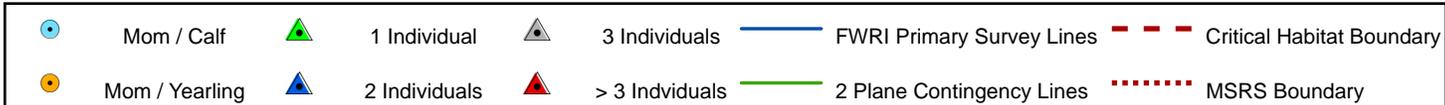
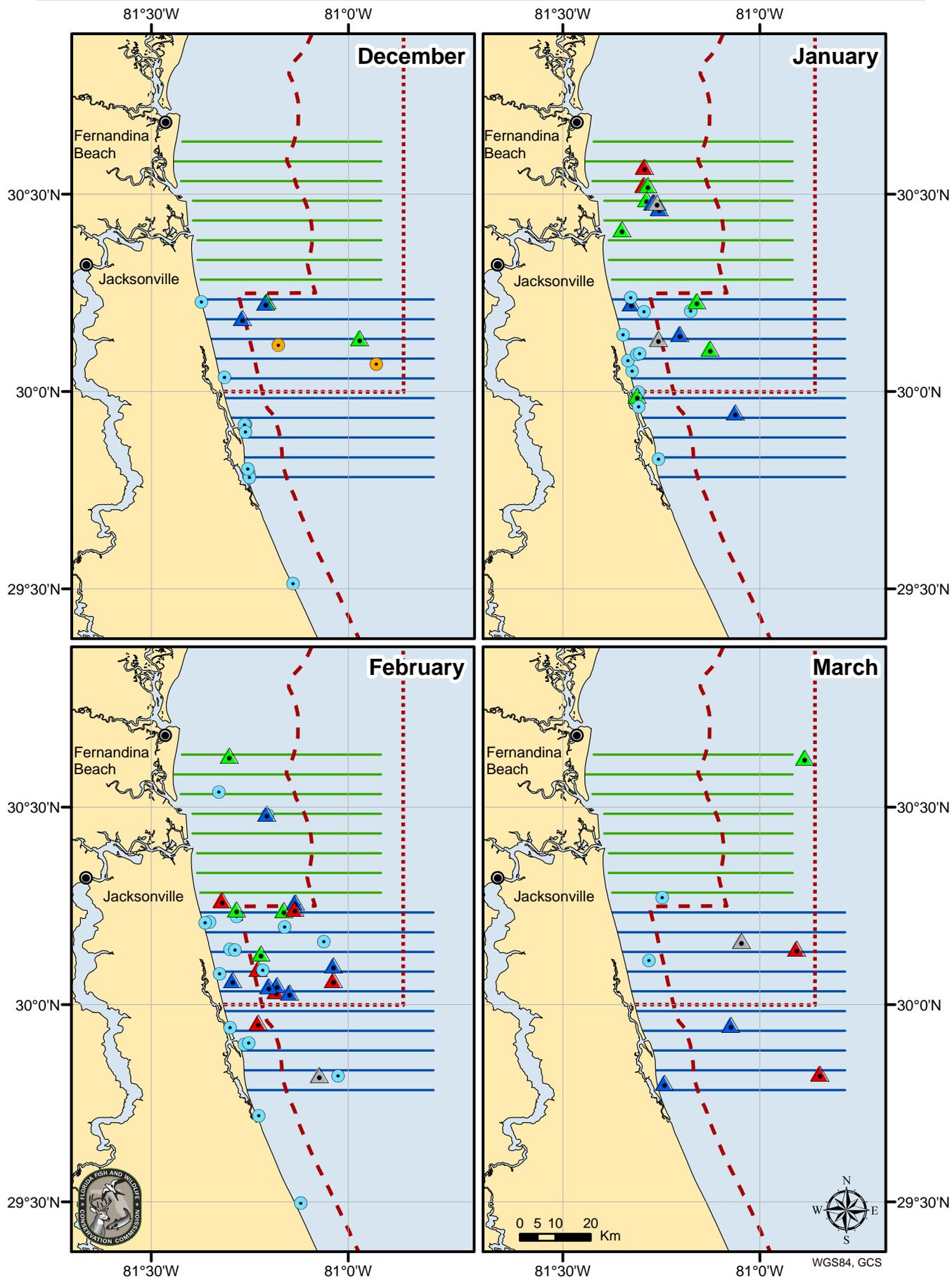
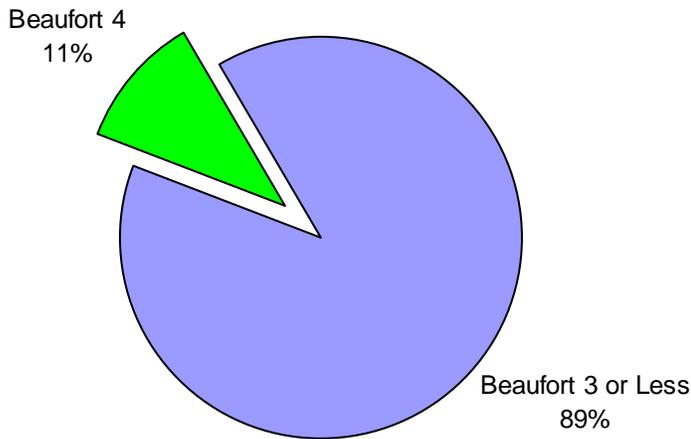


FIGURE 5: SIGHTING DISTANCE DIAGRAMS

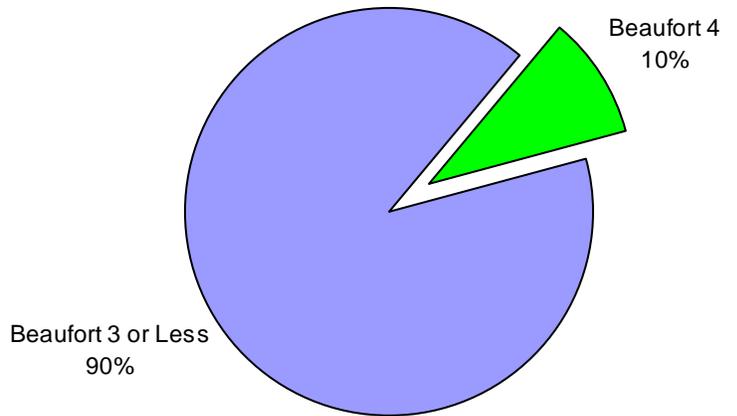
**Percentage of Surveys Flown
in Beaufort Sea State 4
and Beaufort Sea State 3 or Less**

■ Beaufort 3 or Less ■ Beaufort 4



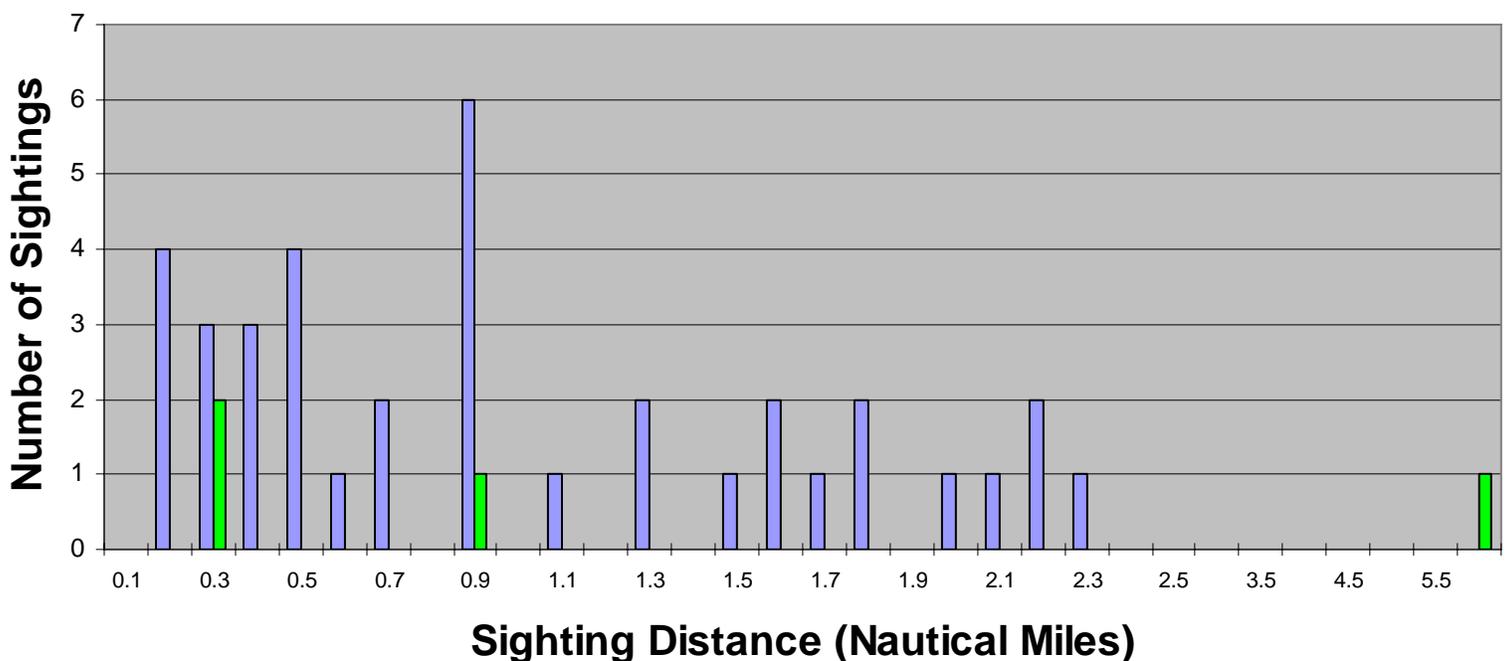
**Number and Percentage of Sightings
in Beaufort Sea State 4
and Beaufort Sea State 3 or Less**

■ Beaufort 4 ■ Beaufort 3 or Less



Sighting Distance in Beaufort Sea State 4 and
Beaufort Sea State 3 or Less**

■ Beaufort 3 or Less ■ Beaufort 4



**The sighting distance (n=41) is the perpendicular measurement (a conservative estimate) from the survey track line to the right whale sighting location. This estimate assumes the plane was flying exactly on the track line and only sightings observed while on track line were used to calculate the average sighting distance.

FIGURE 6: SEUS WHALE/VESSEL INTERACTIONS MAP

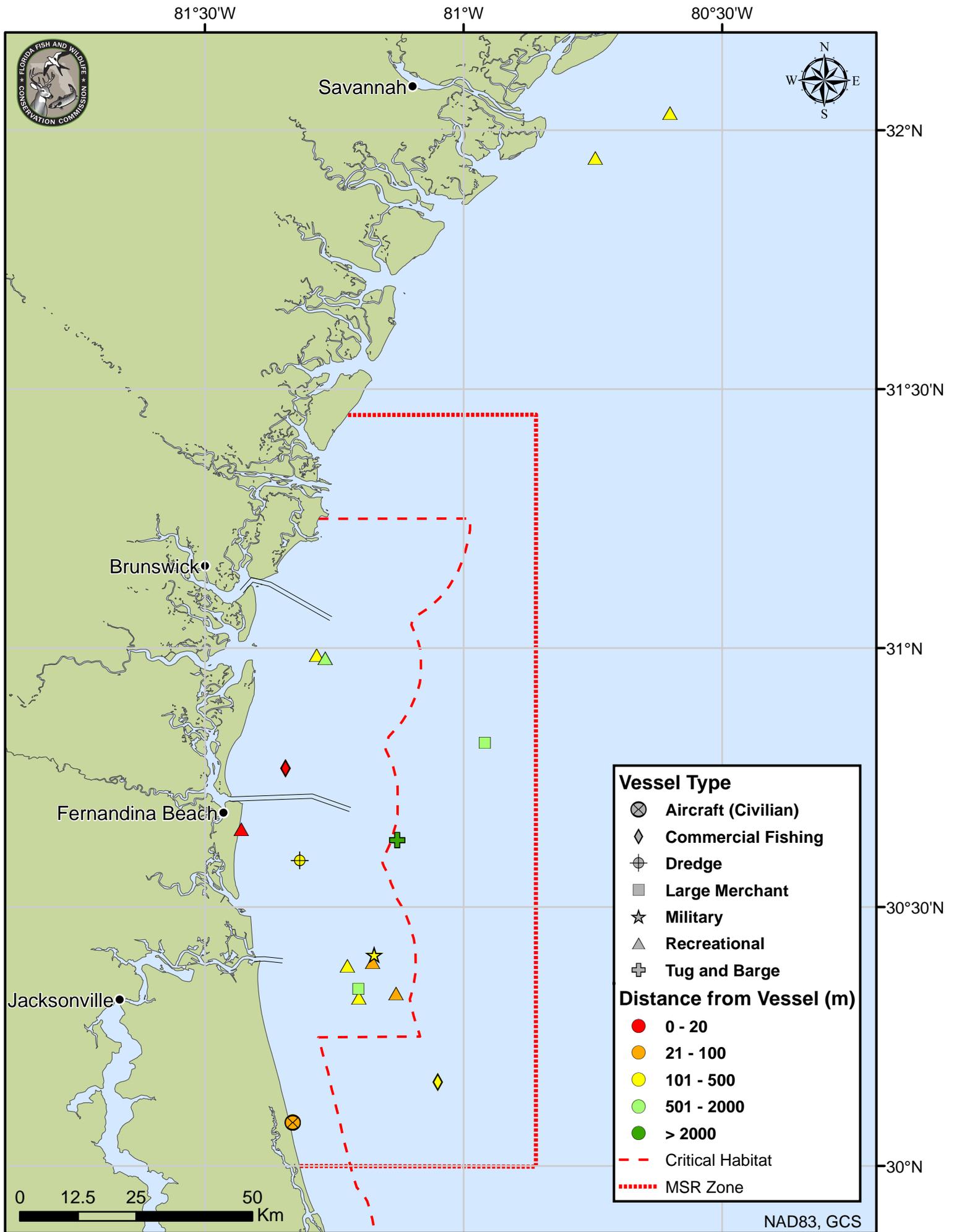


FIGURE 7:

FWRI Land-Based Right Whale Sightings, 07/08

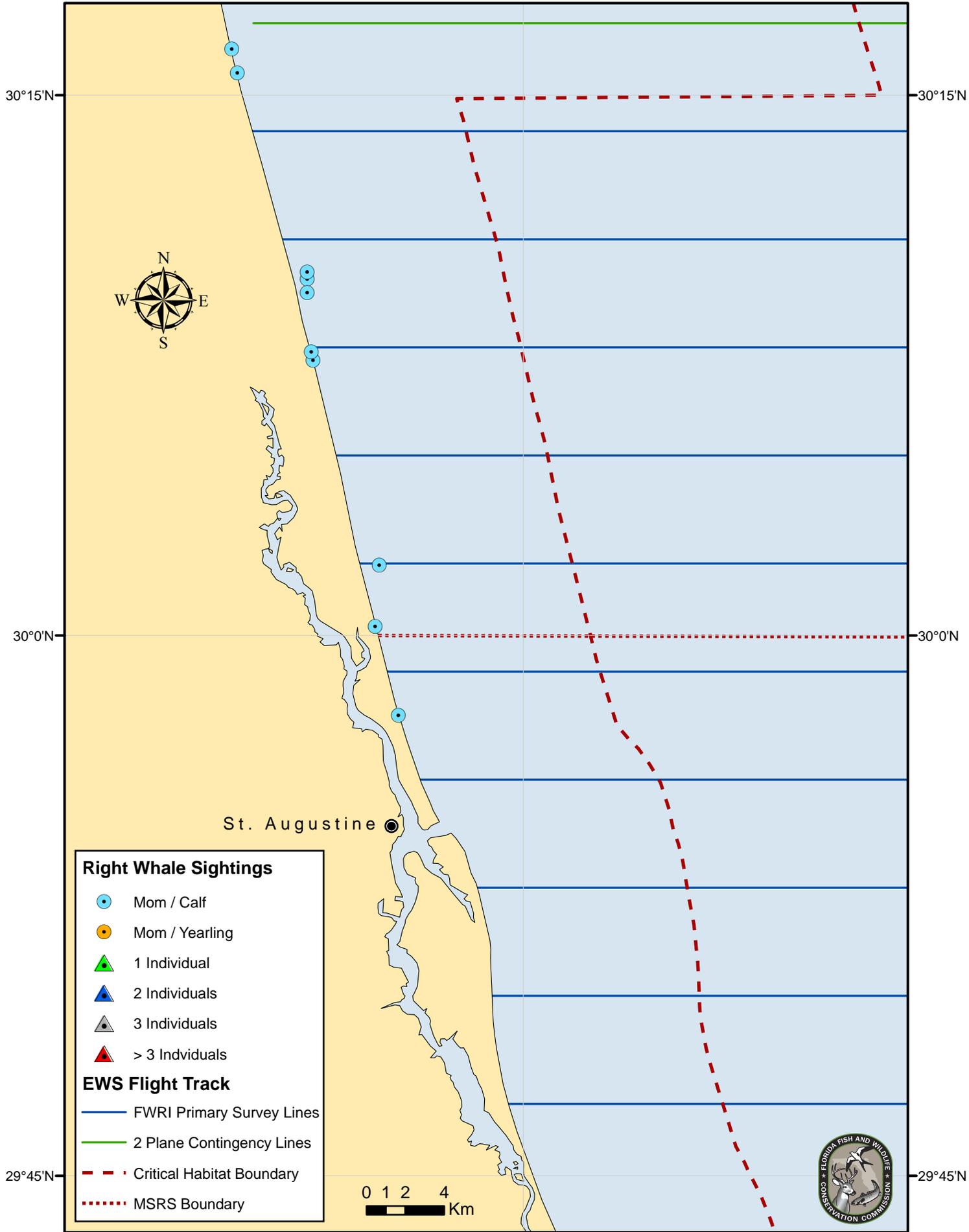


FIGURE 8: RIGHT WHALE SIGHTING OFF MIAMI: SEA SURFACE TEMPERATURE MAP

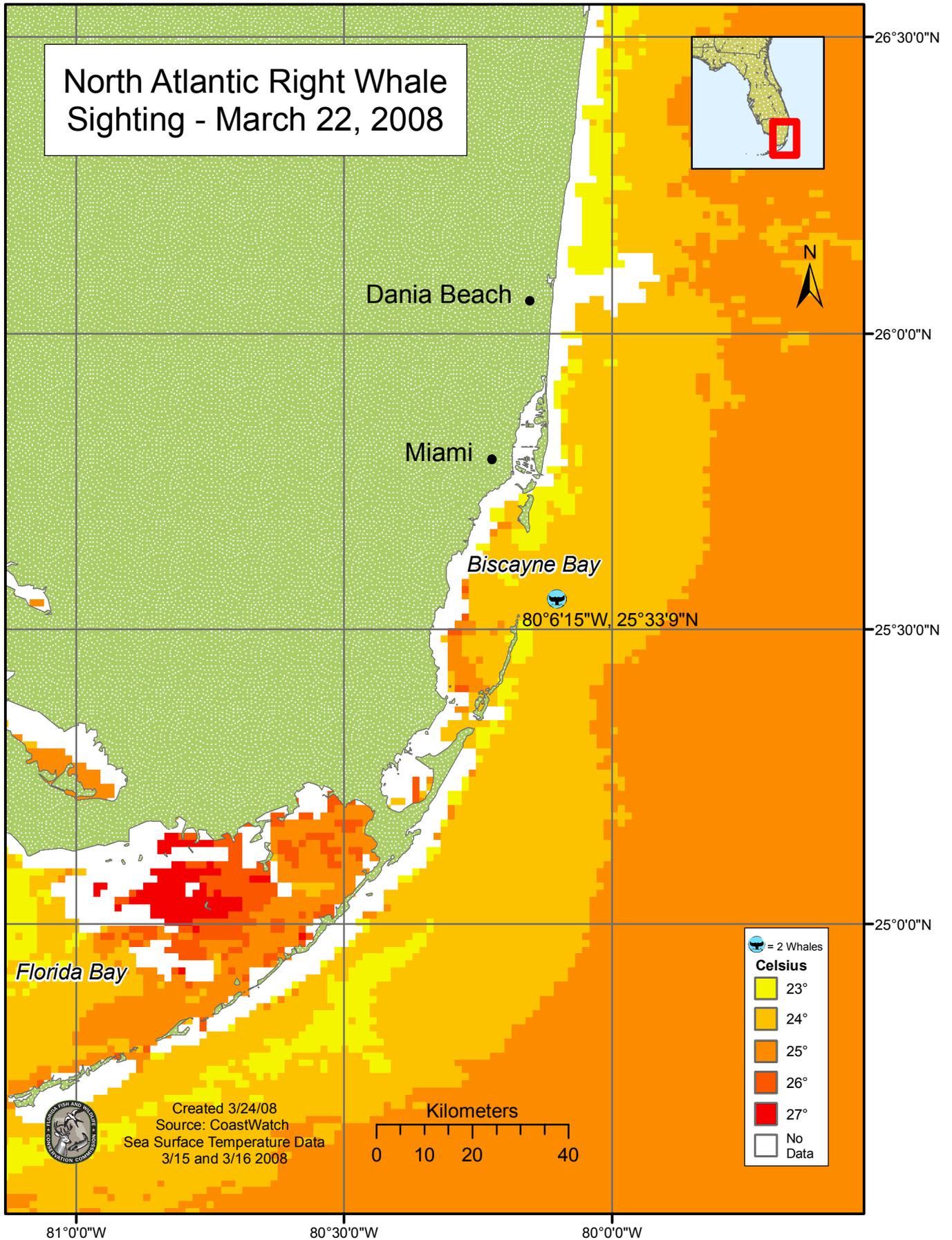


FIGURE 9: WHALE ALERT GEOGRAPHIC "BINS" MAP

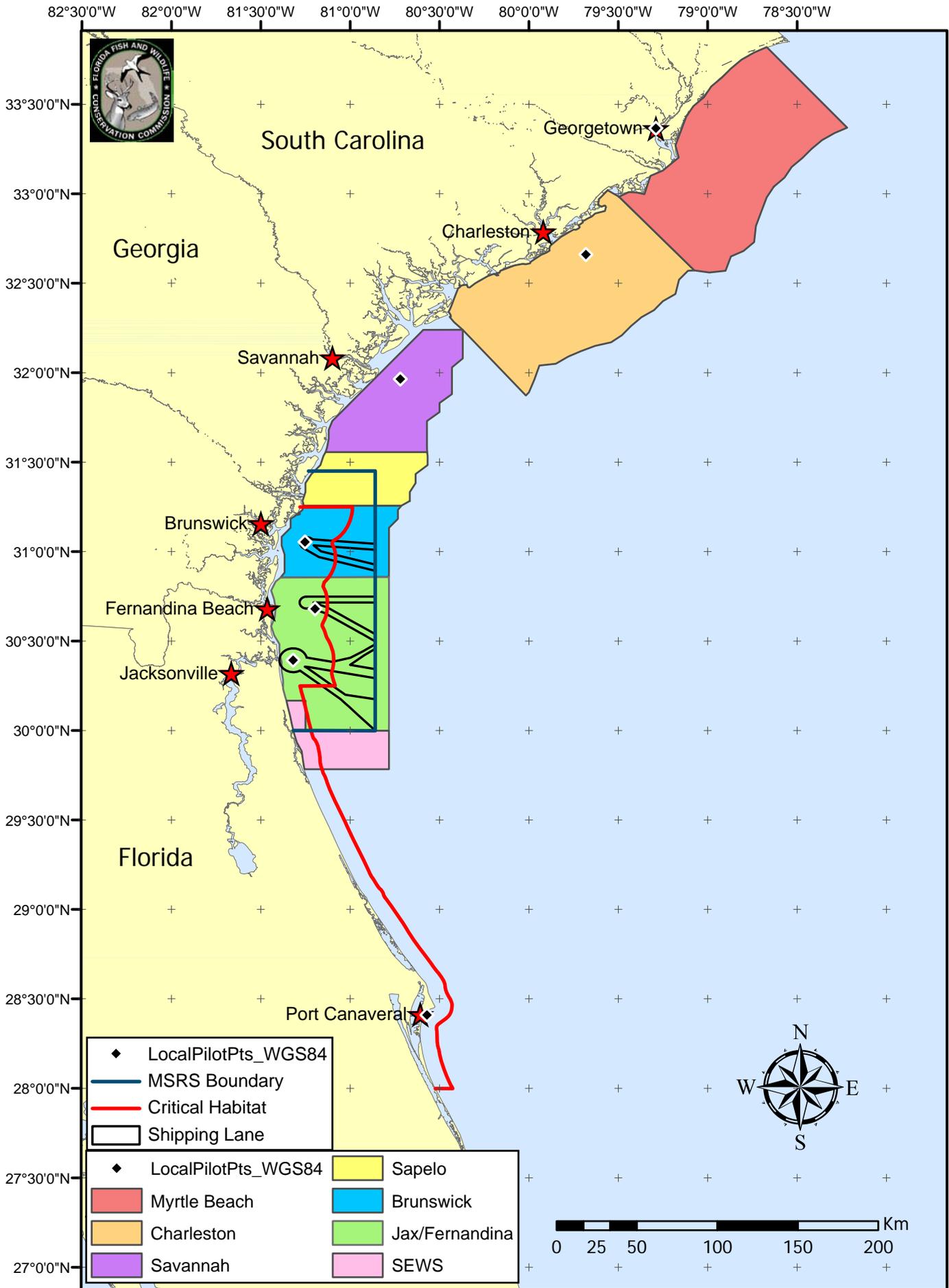


TABLE 1. FWRI SURVEY WAYPOINTS AND NAUTICAL MILEAGE

All EWS Waypoints

EWS Line	Latitude	Longitude (Eastern Point)
1	31°26.0	-080°38.0
2	31°23.0	-080°38.0
3	31°20.0	-080°40.0
4	31°17.0	-080°40.0
5	31°14.0	-080°44.0
6	31°11.0	-080°44.0
7	31°08.0	-080°47.0
8	31°05.0	-080°47.0
9	31°02.0	-080°47.0
10	30°59.0	-080°47.0
11	30°56.0	-080°47.0
12	30°53.0	-080°47.0
13	30°50.0	-080°47.0
14	30°47.0	-080°47.0
15	30°44.0	-080°47.0
16	30°41.0	-080°47.0
17	30°38.0	-080°47.0
18	30°35.0	-080°47.0
19	30°32.0	-080°47.0
20	30°29.0	-080°47.0
21	30°26.0	-080°47.0
22	30°23.0	-080°47.0
23	30°20.0	-080°47.0
24	30°17.0	-080°47.0
25	30°14.0	-080°47.0
26	30°11.0	-080°47.0
27	30°08.0	-080°47.0
28	30°05.0	-080°47.0
29	30°02.0	-080°47.0
30	29°59.0	-080°47.0
31	29°56.0	-080°47.0
32	29°53.0	-080°47.0
33	29°50.0	-080°47.0
34	29°47.0	-080°47.0

FWRI Primary Survey Waypoints

EWS Line	Latitude	Longitude (Eastern Point)	Nautical Mileage
25	30°14.0	-080°47.0	30.87
26	30°11.0	-080°47.0	30.60
27	30°08.0	-080°47.0	29.97
28	30°05.0	-080°47.0	29.07
29	30°02.0	-080°47.0	28.80
30	29°59.0	-080°47.0	28.35
31	29°56.0	-080°47.0	27.00
32	29°53.0	-080°47.0	26.10
33	29°50.0	-080°47.0	25.65
34	29°47.0	-080°47.0	25.20

2 Plane Contingency Plan
FWRI waypoints

EWS Line	Latitude	Longitude (Eastern Point)
13	30°50.0	-080°55.0
14	30°47.0	-080°55.0
15	30°44.0	-080°55.0
16	30°41.0	-080°55.0
17	30°38.0	-080°55.0
18	30°35.0	-080°55.0
19	30°32.0	-080°55.0
20	30°29.0	-080°55.0
21	30°26.0	-080°55.0
22	30°23.0	-080°55.0
23	30°20.0	-080°55.0
24	30°17.0	-080°55.0
25	30°14.0	-080°55.0
26	30°11.0	-080°55.0
27	30°08.0	-080°55.0
28	30°05.0	-080°55.0
29	30°02.0	-080°55.0
30	29°59.0	-080°55.0

1 Plane Contingency Plan
Waypoints

EWS Line	Latitude	Longitude (Eastern Point)
5	31°14.0	-081°00.0
6	31°11.0	-081°00.0
7	31°08.0	-081°00.0
8	31°05.0	-081°00.0
9	31°02.0	-081°00.0
10	30°59.0	-081°00.0
11	30°56.0	-081°00.0
12	30°53.0	-081°00.0
13	30°50.0	-081°00.0
14	30°47.0	-081°00.0
15	30°44.0	-081°00.0
16	30°41.0	-081°00.0
17	30°38.0	-081°00.0
18	30°35.0	-081°00.0
19	30°32.0	-081°00.0
20	30°29.0	-081°00.0
21	30°26.0	-081°00.0
22	30°23.0	-081°00.0
23	30°20.0	-081°00.0
24	30°17.0	-081°00.0
25	30°14.0	-081°00.0

Total Nautical Mileage for FWRI Primary Survey: 281.6

TABLE 2: FWRI AERIAL SURVEY ACTIVITIES

Date	Survey File Name	Full SEWS	None	Partial SEWS	2-Plane Cont	EWS Lines (SEWS 25-34)	Number of Sightings	Number of Whales	M/C Pair	Hobbs	Nautical Miles Flown	Nautical miles flown sea state < 3	Whale/Ship Interaction Yes?	Coastal	Comments
1-Dec-07	fwri20071201		X												No Fly- high wind
2-Dec-07	fwri20071202	X				25-34	0	0	0	4.3	281.61	281.61			All 10 lines completed N to S
3-Dec-07	fwri20071203		X												No fly- low ceiling and high wind
4-Dec-07	fwri20071204		X												No fly- high wind
5-Dec-07	fwri20071205	X				25-34	1	2	1	5.4	281.61	281.61			All 10 lines completed N to S
6-Dec-07	fwri20071206	X				25-34	1	2	1	4.0	281.61	281.61			Standby until 1230 due to high offshore winds. All 10 lines flown N to S. Boxed in area from 3014N to 3017N to verify whale sighting before going on track.
7-Dec-07	fwri20071207			X		25-28	1	2	0	2.5	120.51	120.51			Flew 4 lines (25-28) N to S. Survey was aborted due to low ceiling.
8-Dec-07	fwri20071208		X												No fly- fog
9-Dec-07	fwri20071209	X				25-34	1	2	1	4.2	281.61	281.61			All 10 lines completed N to S
10-Dec-07	fwri20071210	X				25-34	1	2	1	4.6	281.61	281.61			Standby until 1000 due to low ceilings. All 10 lines completed N to S. Flew south to Flagler area after survey to verify sighting.
11-Dec-07	fwri20071211	X				25-34	0	0	0	4.5	281.61	281.61			Standby until 1000 due to low ceiling. Lines 29-25 (3002N-3014N) flown S to N and then transitioned south along the 8047W to line 34 (2947N), land to refuel, completed lines 30-33 (2959N-2950N) N to S. Lines flown out of order to avoid active 27C.
12-Dec-07	fwri20071212	X				25-34	1	2	1	5.3	281.61	281.61			Standby until 1000 due to fog/low ceiling. All 10 lines completed N to S. GPS error/outage for afternoon flight, hand data taken.
13-Dec-07	fwri20071213			X		25-34	1	2	1	3.9	213.29	213.29			Standby until 1000 due to fog/low ceiling and computer issues. Flew lines 31-34 S to N then flew lines 25-30 N to S but had to cut short due to offshore fog (lines cut at different locations).
14-Dec-07	fwri20071214			X		25-32	0	0	0	3.7	230.76	230.76			Standby until 1300 due to fog. Attempted a Coastal survey for red tide, aborted due to low ceiling. Flew 8 lines (25-32) N to S.
15-Dec-07	fwri20071215		X												No fly- fog and then high wind
16-Dec-07	fwri20071216		X												No fly- high wind and rain
17-Dec-07	fwri20071217		X												No fly- high wind
18-Dec-07	fwri20071218		X												No fly- plane exhaust system repair

TABLE 2: FWRI AERIAL SURVEY ACTIVITIES

Date	Survey File Name	Full SEWS	None	Partial SEWS	2-Plane Cont	EWS Lines (SEWS 25-34)	Number of Sightings	Number of Whales	M/C Pair	Hobbs	Nautical Miles Flown	Nautical miles flown sea state < 3	Whale/Ship Interaction Yes?	Coastal	Comments
19-Dec-07	fwri20071219	X				25-34	1	2	0	4.4	281.61	281.61			Standby until 1000 due to plane maintenance. All 10 lines completed N to S.
20-Dec-07	fwri20071220	X				25-34	0	0	0	6.7	281.61	281.61		Yes	Coastal survey to 2800N to investigate red tide reports and possible whale/red tide interactions. Completed all 10 lines S to N after coastal.
21-Dec-07	fwri20071221		X												No fly- high wind
22-Dec-07	fwri20071222		X												No fly- high wind and rain
23-Dec-07	fwri20071223	X				25-34	1	2	1	4.6	281.61	281.61			Standby until 1200 due to fog/low ceilings. All 10 lines completed. Lines 25-32 flown N to S. Lines 33-34 flown S to N.
24-Dec-07	fwri20071224		X												No fly- high wind
25-Dec-07	fwri20071225		X												No fly- high wind and rain
26-Dec-07	fwri20071226		X												No fly- low ceiling Stand by until 1200
27-Dec-07	fwri20071227	X				25-34	0	0	0	3.7	281.61	281.61			All 10 lines completed S to N
28-Dec-07	fwri20071228	X				25-34	3	5	1	5.6	281.61	281.61			All 10 lines completed N to S
29-Dec-07	fwri20071229	X				25-34	2	3	1	4.3	281.61	281.61			Standby due to low ceiling. All 10 lines S to N.
30-Dec-07	fwri20071230			X		25-30	1	2	0	2.7	165.66	133.54			Standby due to fog. 6 lines (25-30) completed N to S. Cut lines 29-30 at 8053W due to increased beaufort. Remaining survey aborted due low ceilings and approaching storm clouds.
31-Dec-07	fwri20071231	X				25-34	0	0	0	4.2	281.61	281.61			Standby until 1230 due to high wind. All 10 lines completed N to S.
1-Jan-08	fwri20080101		X												No fly- high wind
2-Jan-08	fwri20080102		X												No fly- high wind
3-Jan-08	fwri20080103		X												No fly- high wind
4-Jan-08	fwri20080104		X												No fly- high wind
5-Jan-08	fwri20080105			X		25-34	2	4	1	4.8	271.21	271.21			Lines 31-32 cut short at 8053W due to low rain clouds. Lines flown N to S. Verified report near St.Aug pier.
6-Jan-08	fwri20080106	X				25-34	2	3	1	5.5	281.61	281.61			All 10 lines completed N to S. Flew to Mayport to assist with whale between jetties at St. Johns entrance before survey.
7-Jan-08	fwri20080107	X				25-34	1	2	0	5.0	281.61	281.61			All 10 lines completed N to S. Landed after first two lines due to gauge issue, checked OK, survey continued.
8-Jan-08	fwri20080108	X				25-34	1	2	1	4.1	281.61	281.61			All 10 lines completed N to S

TABLE 2: FWRI AERIAL SURVEY ACTIVITIES

Date	Survey File Name	Full SEWS	None	Partial SEWS	2-Plane Cont	EWS Lines (SEWS 25-34)	Number of Sightings	Number of Whales	M/C Pair	Hobbs	Nautical Miles Flown	Nautical miles flown sea state < 3	Whale/Ship Interaction Yes?	Coastal	Comments
9-Jan-08	fwri20080109	X				25-34	1	1	0	4.3	281.61	281.61			All 10 lines completed N to S
10-Jan-08	fwri20080110	X				25-34	1	2	1	5.0	281.61	281.61			All 10 lines completed N to S. 337CH down for 100hr maintenance, switched planes to 1353L.
11-Jan-08	fwri20080111		X												No fly - high wind. Standby due to high wind.
12-Jan-08	fwri20080112			X		27-34	0	0	0	3.1	220.14	220.14			Standby due to low ceiling. 8 lines (27-34) flown S to N. Lines 25-26 were cut due to approaching storm.
13-Jan-08	fwri20080113		X												No fly - rain. Standby due to rain
14-Jan-08	fwri20080114		X												No fly- high wind offshore
15-Jan-08	fwri20080115			X		25-34	1	2	1	3.0	173.61	26.48			Lines 25-26 cut short at 8055W, lines 27-34 cut short at 8100W due to high sea state off shore.
16-Jan-08	fwri20080116		X												No fly- high wind and rain
17-Jan-08	fwri20080117		X												No fly - high wind and rain
18-Jan-08	fwri20080118		X												No fly - low ceilings
19-Jan-08	fwri20080119		X												No fly- rain
20-Jan-08	fwri20080120		X												No fly- high wind
21-Jan-08	fwri20080121		X												No fly- high wind
22-Jan-08	fwri20080122				X	17-30	5	26	0	7.0	328.91	256.41			2 plane contingency. All 14 lines flown N to S. Cut line 20 (30 29) short due to fog bank.
23-Jan-08	fwri20080123				X	23-24	0	0	0	1.2	49.32	49.32			2 plane contingency. Standby due to low clouds, 2 lines (23-24/3017N and 3020N) completed S to N before ceiling dropped and had to cancel survey.
24-Jan-08	fwri20080124			X		25-26, 31-34	3	6	3	3.4	171.36	171.36			Standby due to fog. Flew lines 31-34 N to S, and 25-26 S to N. Due to 27C active and late takeoff could not fly lines 27-30.
25-Jan-08	fwri20080125		X												No fly- high wind
26-Jan-08	fwri20080126		X												No fly-high wind and rain
27-Jan-08	fwri20080127		X												No fly- high wind
28-Jan-08	fwri20080128	X				25-34	1	1	0	4.0	281.61	27.73			All 10 lines flown N to S

TABLE 2: FWRI AERIAL SURVEY ACTIVITIES

Date	Survey File Name	Full SEWS	None	Partial SEWS	2-Plane Cont	EWS Lines (SEWS 25-34)	Number of Sightings	Number of Whales	M/C Pair	Hobbs	Nautical Miles Flown	Nautical miles flown sea state < 3	Whale/Ship Interaction Yes?	Coastal	Comments
29-Jan-08	fwri20080129			X		25-28	8	15	2	7.0	120.51	63.99			4 lines flown N to S (4 sightings/7whales). JMG replaced Ellen Hines (flying with KAJ) after 4 lines and refuel. Entangled whale Eg#3333, relieved CEWS plane after refuel. Visual on entangled whale as well as several other groups of whales in area north of Jax channel already documented by the CEWS plane. Provided aerial support for vessel response, but lost sight of entangled whale due to behavior and numerous other whales in the area.
30-Jan-08	fwri20080130		X												Standby until 1000 due to high wind and rain
31-Jan-08	fwri20080131			X		25-30	2	5	1	3.7	177.66	177.66			Delayed take off due to brake fluid leak. Lines 25-30 flown N to S. 45 min standby in afternoon due to rain. Cancelled rest of survey due to rain.
1-Feb-08	fwri20080201		X												No fly- high wind
2-Feb-08	fwri20080202			X		25-34	0	0	0	3.4	241.16	64.52			All 10 lines flown N to S, lines 31-34 cut short at 8100W due to high sea state offshore.
3-Feb-08	fwri20080203	X				25-34	4	8	3	5.2	281.61	281.61			All 10 lines flown N to S
4-Feb-08	fwri20080204			X		29-34	2	4	2	2.6	161.10	161.10			Standby due to fog, 6 lines (29-34) completed south to north. Aborted remaining survey due to fog to the north.
5-Feb-08	fwri20078205	X				25-34	2	4	2	4.4	281.61	281.61			Standby due to fog. All 10 lines flown N to S.
6-Feb-08	fwri20080206		X												No fly - high wind. No standby.
7-Feb-08	fwri20080207	X				25-34	2	3	1	5.1	281.61	281.61			All 10 lines flown N to S, flew south to 2927N to verify sighting.
8-Feb-08	fwri20080208	X				25-34	0	0	0	4.2	281.61	222.42			All 10 lines flown N to S
9-Feb-08	fwri20080209	X				25-34	1	2	1	4.3	281.61	273.79			All 10 lines flown N to S
10-Feb-08	fwri20080210		X												No fly- high wind
11-Feb-08	fwri20080211			X		25-34	5	24	1	5.6	238.41	36.36			All 10 lines flown N to S. Lines 25-30 cut short at 8055W due to high sea state.
12-Feb-08	fwri20080212			X		25-30	2	10	0	3.5	177.66	149.86			6 lines (25-30) flown N to S. Survey aborted due to wind sheer and approaching front.
13-Feb-08	fwri20080213		X												No fly- high wind

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Date	Survey File Name	Full SEWS	None	Partial SEWS	2-Plane Cont	EWS Lines (SEWS 25-34)	Number of Sightings	Number of Whales	M/C Pair	Hobbs	Nautical Miles Flown	Nautical miles flown sea state < 3	Whale/Ship Interaction Yes?	Coastal	Comments
14-Feb-08	fwri20080214	X				25-34	2	4	2	5.3	281.61	281.61			10 lines completed S to N. Attempted to fly N to S, but encountered low ceilings and patchy fog so redirected and flew S to N. Re-surveyed line 3014N at end of survey.
15-Feb-08	fwri20080215	X				25-34	4	13	1	5.5	281.61	281.61			All 10 lines completed N to S
16-Feb-08	fwri20080216	X				25-34	1	2	1	4.4	281.61	281.61			All 10 lines completed N to S
17-Feb-08	fwri20080217	X				25-34	0	0	0	3.8	281.61	238.45			All 10 lines completed N to S
18-Feb-08	fwri20080218		X												No fly- high wind
19-Feb-08	fwri20080219		X												No fly- high wind
20-Feb-08	fwri20080220	X				25-34	1	1	0	4.3	281.61	281.61			All 10 lines completed N to S
21-Feb-08	fwri20080221	X				25-34	2	10	0	4.5	281.61	255.43			All 10 lines completed N to S
22-Feb-08	fwri20080222		X												No fly - low ceilings and building winds.
23-Feb-08	fwri20080223	X				25-34	0	0	0	3.9	281.61	250.63			All 10 lines flown S to N. Standby until 1330 due to low ceiling. Takeoff delayed until 1400 due to gear valve malfunction. 1353L down for 100 hour maintenance switched back to 337CH. AIS down.
24-Feb-08	fwri20080224	X				25-34	0	0	0	4.3	281.61	281.61			Standby due to low ceiling. All 10 lines N to S
25-Feb-08	fwri20080225				X	17-30	4	7	2	5.8	328.91	328.91			Standby due to fog. Flew lines 17-22 S to N then lines 23-30 N to S.
26-Feb-08	fwri20870226		X												No fly- low ceilings and building wind
27-Feb-08	fwri20080227		X												No fly- high wind
28-Feb-08	fwri20080228			X		25-34	1	3	0	3.9	249.61	249.61			All 10 lines flown N to S. Lines 25-28 cut at 8055W due to time constraints. Standby until 1330 due to offshore winds.
29-Feb-08	fwri20080229	X				25-34	2	4	1	5.3	281.61	281.61			All 10 lines completed N to S. Standby to troubleshoot Logger error associated with leap year.
1-Mar-08	fwri20080301	X				25-34	2	8	1	4.2	281.61	281.61			All 10 lines completed S to N
2-Mar-08	fwri20080302	X				25-34	2	6	0	4.9	281.61	281.61			All 10 lines completed N to S
3-Mar-08	fwri20080303	X				25-34	0	0	0	4.3	281.61	116.46			All 10 lines completed. Lines 25-30 N to S, lines 31-34 S to N. Flew to Flagler after refuel to verify a floating possible badly decomposed dead whale.
4-Mar-08	fwri20080304		X												No fly- high wind
5-Mar-08	fwri20080305	X				25-34	1	2	1	4.1	281.61	281.61			Standby due to high winds. All 10 lines completed N to S.
6-Mar-08	fwri20080306	X				25-34	1	3	0	4.4	281.61	281.61	yes		All 10 lines completed N to S

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7-Mar-08	fwri20080307		X												No fly- rain
8-Mar-08	fwri20080308		X												No fly- high wind
9-Mar-08	fwri20080309		X												No fly-high wind and sea state
10-Mar-08	fwri20080310	X				25-34	0	0	0	4.0	281.61	281.61			All 10 lines completed N to S
11-Mar-08	fwri20080311	X				25-34	0	0	0	5.2	389.05	389.05		Yes	All 10 lines completed N to S. Coastal survey down to 28°58'N
12-Mar-08	fwri20080312	X				25-35	1	2	0	5.5	389.05	170.39		Yes	All 10 lines completed N to S. Coastal survey down to 28°58'N
13-Mar-08	fwri20080313	X				25-34	0	0	0	3.8	281.61	184.73			All 10 lines flown N to S
14-Mar-08	fwri20080314	X				25-34	0	0	0	3.5	281.61	281.61			All 10 lines flown N to S
15-Mar-08	fwri20080315	X				25-34	0	0	0	3.8	281.61	241.68			Stand by due to fog. All 10 lines flown N to S.
16-Mar-08	fwri20080316		X												No fly- high wind
17-Mar-08	fwri20080317		X												No fly- high wind
18-Mar-08	fwri20080318		X												No fly- high wind
19-Mar-08	fwri20080319		X												No fly- high wind
20-Mar-08	fwri20080320		X												No fly- high wind
21-Mar-08	fwri20080321	X				25-34	0	0	0	3.9	281.61	85.31			All 10 lines flown N to S
22-Mar-08	fwri20080322	X				25-34	0	0	0	3.9	281.61	281.61			All 10 lines flown N to S
23-Mar-08	fwri20080323	X				25-34	0	0	0	3.7	281.61	137.25			All 10 lines flown N to S
24-Mar-08	fwri20080324		X												No fly- high wind
25-Mar-08	fwri20080325		X												No fly- high wind
26-Mar-08	fwri20080326	X				25-34	0	0	0	4.1	281.61	281.61			All 10 lines flown N to S
27-Mar-08	fwri20080327	X				25-34	0	0	0	6.7	281.61	281.61			All 10 lines flown N to S. Reported small overturned vessel outside St. Aug inlet to USCG. USCG requested assistance to help responding vessel locate overturned vessel. Tracking equipment test after survey.
28-Mar-08	fwri20080328	X				25-34	0	0	0	4.3	281.61	281.61			All 10 lines flown N to S. Switched planes to 1375L.
29-Mar-08	fwri20080329				X	17-30	1	1	0	4.8	328.91	328.91			Flew lines 17-24 S to N and lines 25-30 N to S.
30-Mar-08	fwri20080330		X												No fly- high wind and low ceiling
31-Mar-08	fwri20080331		X												No fly- high wind and low ceiling

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Date	Time (L)	Survey Name	Latitude (Dec Degrees)	Longitude (Dec Degrees)	RIWH Letter	NARWC ID No Or Intermatch Code	Sex/Age	Calf	Behaviors*	Last Sighting Time (L)	Time (L) Paged	NRW Number	Comments
12/5/2007	1116	SEWS	30.03623	-81.31473	A	2753	F/11		W/CALF, NURS, BODO	1143	1157	SEWS001	FIRST SIGHTING WITH CALF
12/5/2007	1116	SEWS	30.03623	-81.31473	B	2008CalfOf2753		X	CALF W/MOM, NURS, BODO	1143	1157	SEWS001	
12/6/2007	1309	SEWS	30.22663	-81.37345	A	2753	F/11		W/CALF, BODO	1315	1323	SEWS002	
12/6/2007	1309	SEWS	30.22663	-81.37345	B	2008CalfOf2753		X	CALF W/MOM, BODO	1315	1323	SEWS002	
12/7/2007	0957	SEWS	30.18616	-81.27232	A	3314	F/5			1023	1028	SEWS003	
12/7/2007	0957	SEWS	30.18616	-81.27232	B	2790	F/ADULT			1023	1028	SEWS003	
12/9/2007	1147	SEWS	29.79314	-81.25320	A	2753	F/11		W/CALF, BODO	1156	1205	SEWS004	
12/9/2007	1147	SEWS	29.79314	-81.25320	B	2008CalfOf2753		X	CALF W/MOM, BODO	1156	1205	SEWS004	
12/10/2007	1414	SEWS	29.51381	-81.14067	A	2753	F/11		W/CALF, NURS	1418	1423	SEWS005	
12/10/2007	1414	SEWS	29.51381	-81.14067	B	2008CalfOf2753		X	CALF W/MOM, NURS	1418	1423	SEWS005	
12/12/2007	1344	SEWS	29.91650	-81.26167	A	2753	F/11		W/CALF, BODO	1418	1423	SEWS006	
12/12/2007	1344	SEWS	29.91650	-81.26167	B	2008CalfOf2753		X	CALF W/MOM, BODO	1418	1423	SEWS006	
12/13/2007	1054	SEWS	29.78222	-81.25170	A	2753	F/11		W/CALF	1058	1105	SEWS007	
12/13/2007	1054	SEWS	29.78222	-81.25170	B	2008CalfOf2753		X	CALF W/MOM	1058	1105	SEWS007	
12/19/2007	1143	SEWS	30.06954	-80.92967	A	1701	F/21		W/YRLG, NURS, BOD CNT	1201	1204	SEWS008	
12/19/2007	1143	SEWS	30.06954	-80.92967	B	2007CalfOf1701	UNK/1		YRLG W/MOM, NURS, BOD CNT	1201	1204	SEWS008	
12/23/2007	1602	SEWS	29.80435	-81.25535	A	2753	F/11		W/CALF	1619	1625	SEWS009	
12/23/2007	1602	SEWS	29.80435	-81.25535	B	2008CalfOf2753		X	CALF W/MOM	1619	1625	SEWS009	
12/28/2007	0929	SEWS	30.22983	-81.21022	A	CT06SEUS08			LOG	0947	1023	SEWS010	
12/28/2007	0939	SEWS	30.22565	-81.21355	B	2006CalfOf1946	UNK/2	X	LBTL, UW EXH	1014	1023	SEWS011	
12/28/2007	0939	SEWS	30.22565	-81.21355	C	3520	F/3		W/CALF, NURS, BOD CNT, ROLL, HD LFT, WH CHN, WH BEL	1014	1023	SEWS011	
12/28/2007	1444	SEWS	29.91599	-81.26392	D	2753	F/11		W/CALF, NURS, BOD CNT, ROLL, HD LFT, WH CHN, WH BEL	1454	1507	SEWS012	
12/28/2007	1444	SEWS	29.91599	-81.26392	E	2008CalfOf2753		X	CALF W/MOM, NURS, BOD CNT, WH CHN, WH BEL	1454	1507	SEWS012	
12/29/2007	1240	SEWS	29.89736	-81.26177	A	2753	F/11		W/CALF	1250	1256	SEWS013	
12/29/2007	1240	SEWS	29.89736	-81.26177	B	2008CalfOf2753		X	CALF W/MOM	1250	1256	SEWS013	
12/29/2007	1550	SEWS	30.13571	-80.97511	C	CT06SEUS08				1601	1610	SEWS014	
12/30/2007	1130	SEWS	30.11796	-81.17776	A	3360	F/ADULT		W/YRLG, BOD CNT	1155	1200	SEWS015	
12/30/2007	1130	SEWS	30.11796	-81.17776	B	2007CalfOf3360	UNK/1		YRLG W/MOM, BOD CNT	1155	1200	SEWS015	
1/5/2008	1029	SEWS	30.14698	-81.20616	A	2042	F/18			1055	1100	SEWS016	
1/5/2008	1029	SEWS	30.14698	-81.20616	B	3103	F/7			1055	1100	SEWS016	
1/5/2008	1314	SEWS	29.82908	-81.25708	C	1802	F/20		W/CALF, NURS	1324	1334	SEWS017	FIRST SIGHTING WITH CALF
1/5/2008	1314	SEWS	29.82908	-81.25708	D	2008CalfOf1802		X	CALF W/MOM, NURS	1324	1334	SEWS017	
1/6/2008	0959	SEWS	29.99842	-81.30794	A	2753	F/11		W/CALF, BOD CNT, BODO	1005	1013	SEWS018	
1/6/2008	0959	SEWS	29.99842	-81.30794	B	2008CalfOf2753		X	CALF W/MOM, BOD CNT, BODO	1005	1013	SEWS018	
1/6/2008	1049	SEWS	30.41169	-81.35292	C	2007CalfOf2645	UNK/1			1111	1114	SEWS019	Yearling between jetties at St. Johns River entrance. USCG vessel responded to escort. B. Zoodma, L. Conger, C. George, K. Jackson, and K. Sparks responded on R/V Hurricane. FWRI/SEWS survey plane responded to area because NEA/CEWS plane grounded due to fog in Fernandina.
1/7/2008	1331	SEWS	29.94730	-81.06506	A	1703	F/21		SFC TR, SUB TR	1353	1355	SEWS020	
1/7/2008	1331	SEWS	29.94730	-81.06506	B	2790	F/ADULT		SFC TR, SUB TR	1353	1355	SEWS020	
1/8/2008	0931	SEWS	30.05258	-81.32423	A	2753	F/11		W/CALF, BODO	0936	0943	SEWS021	
1/8/2008	0931	SEWS	30.05258	-81.32423	B	2008CalfOf2753		X	CALF W/MOM, BODO	0936	0943	SEWS021	

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Date	Time (L)	Survey Name	Latitude (Dec Degrees)	Longitude (Dec Degrees)	RIWH Letter	NARWC ID No Or Intermatch Code	Sex/Age	Calf	Behaviors*	Last Sighting Time (L)	Time (L) Paged	NRW Number	Comments
1/9/2008	0918	SEWS	29.98985	-81.31441	A	2007CalfOf2645	UNK/1			0927	0931	SEWS022	Paged out as SEWS030
1/10/2008	0944	SEWS	30.20470	-81.17566	A	1802	F/20		W/CALF, BOD CNT	0952	0958	SEWS023	Paged out as SEWS022
1/10/2008	0944	SEWS	30.20470	-81.17566	B	2008CalfOf1802		X	CALF W/MOM, BOD CNT	0952	0958	SEWS023	"
1/15/2008	1103	SEWS	29.96070	-81.30732	A	2753	F/11		W/CALF	1113	1120	SEWS024	
1/15/2008	1103	SEWS	29.96070	-81.30732	B	2008CalfOf2753		X	CALF W/MOM	1113	1120	SEWS024	
1/22/2008	1014	SEWS	30.56946	-81.29570	A	3230	F/6		SAG	1103	1120	SEWS025	
1/22/2008	1014	SEWS	30.56946	-81.29570	B	CT12SEUS08			SAG	1103	1120	SEWS025	
1/22/2008	1014	SEWS	30.56946	-81.29570	C	BK04SEUS08			SAG	1103	1120	SEWS025	
1/22/2008	1014	SEWS	30.56946	-81.29570	D	2920	UNK/UNK		SAG	1103	1120	SEWS025	
1/22/2008	1014	SEWS	30.56946	-81.29570	E	BK05SEUS08			SAG	1103	1120	SEWS025	
1/22/2008	1014	SEWS	30.56946	-81.29570	F	3540	F/3		SAG	1103	1120	SEWS025	
1/22/2008	1014	SEWS	30.56946	-81.29570	G	BK03BOF07			SAG	1103	1120	SEWS025	
1/22/2008	1014	SEWS	30.56946	-81.29570	H	2740	M/11		SAG	1103	1120	SEWS025	
1/22/2008	1014	SEWS	30.56946	-81.29570	I	CT07SEUS08			SAG	1103	1120	SEWS025	
1/22/2008	1014	SEWS	30.56946	-81.29570	J	CT13SEUS08			SAG	1103	1120	SEWS025	
1/22/2008	1014	SEWS	30.56946	-81.29570	K	3541	M/3		SAG	1103	1120	SEWS025	
1/22/2008	1014	SEWS	30.56946	-81.29570	L	3460	UNK/4		SAG	1103	1120	SEWS025	
1/22/2008	1014	SEWS	30.56946	-81.29570	M	0			SAG	1103	1120	SEWS025	
1/22/2008	1014	SEWS	30.56946	-81.29570	N	0			SAG	1103	1120	SEWS025	
1/22/2008	1142	SEWS	30.47877	-81.27052	O	3103	F/7				1228	SEWS026	Had to land quickly, no last pass time
1/22/2008	1142	SEWS	30.47877	-81.27052	P	2042	F/18				1228	SEWS026	"
1/22/2008	1320	SEWS	30.52392	-81.29662	Q	3540	F/3		SAG	1340	1424	SEWS027	
1/22/2008	1320	SEWS	30.52392	-81.29662	R	2740	M/11		SAG	1340	1424	SEWS027	
1/22/2008	1320	SEWS	30.52392	-81.29662	S	3405	F/4		SAG, BEL/BEL	1340	1424	SEWS027	
1/22/2008	1320	SEWS	30.52392	-81.29662	T	3541	M/3		SAG	1340	1424	SEWS027	
1/22/2008	1320	SEWS	30.52392	-81.29662	1	CT13SEUS08			SAG	1340	1424	SEWS027	
1/22/2008	1320	SEWS	30.52392	-81.29662	2	3460	UNK/4		SAG	1340	1424	SEWS027	
1/22/2008	1320	SEWS	30.52392	-81.29662	3	2743	M/11		SAG	1340	1424	SEWS027	
1/22/2008	1344	SEWS	30.52329	-81.28748	U	2743	M/11			1350	1425	SEWS028	
1/22/2008	1353	SEWS	30.46508	-81.25813	V	3103	F/7		BOD CNT, ROLL	1409	1426	SEWS029	
1/22/2008	1353	SEWS	30.46508	-81.25813	W	2042	F/18		BOD CNT	1409	1426	SEWS029	
1/24/2008	1329	SEWS	30.0785	-81.33509	A	2753	F/11		W/CALF, BOD CNT, ROLL, WH CHN, WH BEL	1357	1408	SEWS031	
1/24/2008	1329	SEWS	30.0785	-81.33509	B	2008CalfOf2753		X	CALF W/MOM, BOD CNT	1357	1408	SEWS031	
1/24/2008	1338	SEWS	30.09363	-81.31201	C	3292	F/6		W/CALF, BOD CNT, BODO	1352	1407	SEWS030	
1/24/2008	1338	SEWS	30.09363	-81.31201	D	2008CalfOf3292		X	CALF W/MOM, BOD CNT, BODO	1352	1407	SEWS030	
1/28/2008	0934	SEWS	30.22971	-81.16311	A	CT10SEUS08			BRCH, MOPN	0942	0956	SEWS032	
1/29/2008	0953	SEWS	30.22349	-81.32930	A	2042	F/18		LOG	1007	1016	SEWS033	Called in with 2nd sighting of m/c pair
1/29/2008	0953	SEWS	30.22349	-81.32930	B	3103	F/7		LOG	1007	1016	SEWS033	"
1/29/2008	0953	SEWS	30.23817	-81.32751	C	3293	F/ADULT		W/CALF, NURS, LOG	1007	1016	SEWS033	Called in with 1st sighting of 2 adults
1/29/2008	0953	SEWS	30.23817	-81.32751	D	2008CalfOf3293		X	CALF W/MOM, NURS	1007	1016	SEWS033	"
1/29/2008	1111	SEWS	30.20154	-81.29369	E	1243	F/26		W/CALF, LOG, HD LFT	1119	1131	SEWS034	
1/29/2008	1111	SEWS	30.20154	-81.29369	F	2008CalfOf1243		X	CALF W/MOM, ROLL	1119	1131	SEWS034	
1/29/2008	1137	SEWS	30.10963	-81.12936	G	1703	F/21		BODO	1149	1159	SEWS035	
1/29/2008	1401	SEWS	30.48738	-81.29061	H				LBTL	N/A	N/A	N/A	Whales sighted while searching for entangled whale. Whales already documented by CEWS, so not called in by SEWS.
1/29/2008	1415	SEWS	30.47834	-81.27437	I	3314	F/5			1455	N/A	N/A	"
1/29/2008	1415	SEWS	30.47834	-81.27437	J	3333	M/5		ENTGL	1455	N/A	N/A	"

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Date	Time (L)	Survey Name	Latitude (Dec Degrees)	Longitude (Dec Degrees)	RIWH Letter	NARWC ID No Or Intermatch Code	Sex/Age	Calf	Behaviors*	Last Sighting Time (L)	Time (L) Paged	NRW Number	Comments
1/29/2008	1504	SEWS	30.48	-81.27383	K	3314	F/5			N/A	N/A	N/A	"
1/29/2008	1504	SEWS	30.48	-81.27383	L	2006CalfOf1503	UNK/2			N/A	N/A	N/A	"
1/29/2008	1645	SEWS	30.479	-81.26441	M	CT11SEUS08			SAG	N/A	N/A	N/A	"
1/29/2008	1645	SEWS	30.479	-81.26441	N	3545	M/3		SAG	N/A	N/A	N/A	"
1/29/2008	1645	SEWS	30.479	-81.26441	O	3405	F/4		SAG	N/A	N/A	N/A	"
1/31/2008	1015	SEWS	30.14405	-81.34725	A	2753	F/11		W/CALF, BOD CNT, BODO	1028	1033	SEWS036	
1/31/2008	1015	SEWS	30.14405	-81.34725	B	2008CalfOf2753		X	CALF W/MOM, BOD CNT, BODO, ROLL, WH CHN, WH BEL	1028	1033	SEWS036	
1/31/2008	1116	SEWS	30.13455	-81.26095	C	CT03SEUS08			SFC TR	1139	1143	SEWS037	
1/31/2008	1116	SEWS	30.13455	-81.26095	D	3180	F/7		SFC TR	1139	1143	SEWS037	
1/31/2008	1116	SEWS	30.13455	-81.26095	E	3010	F/ADULT		SFC TR	1139	1143	SEWS037	
2/3/2008	0917	SEWS	29.94127	-81.29980	A	3292	F/6		W/CALF	0927	0937	SEWS038	
2/3/2008	0917	SEWS	29.94127	-81.29980	B	2008CalfOf3292		X	CALF W/MOM	0927	0937	SEWS038	
2/3/2008	0948	SEWS	30.20967	-81.35159	C	2753	F/11		W/CALF, BOD CNT	1006	1011	SEWS039	
2/3/2008	0948	SEWS	30.20967	-81.35159	D	2008CalfOf2753		X	CALF W/MOM, BOD CNT	1006	1011	SEWS039	
2/3/2008	1041	SEWS	30.19673	-81.16119	E	2790	F/ADULT		W/CALF, NURS	1050	1112	SEWS040	FIRST SIGHTING WITH CALF
2/3/2008	1041	SEWS	30.19673	-81.16119	F	2008CalfOf2790		X	CALF W/MOM, NURS	1050	1112	SEWS040	
2/3/2008	1139	SEWS	30.06242	-81.29600	G	3103	F/7			1153	1206	SEWS041	
2/3/2008	1139	SEWS	30.06242	-81.29600	H	2042	F/18			1153	1206	SEWS041	
2/4/2008	1343	SEWS	29.89883	-81.26391	A	3292	F/6		W/CALF	1348	1351	SEWS042	
2/4/2008	1343	SEWS	29.89883	-81.26391	B	2008CalfOf3292		X	CALF W/MOM	1348	1351	SEWS042	
2/4/2008	1356	SEWS	29.71845	-81.22725	C	1622	F/ADULT		W/CALF, NURS	1404	1421	SEWS043	
2/4/2008	1356	SEWS	29.71845	-81.22725	D	2008CalfOf1622		X	CALF W/MOM, NURS	1404	1421	SEWS043	
2/5/2008	1111	SEWS	29.90253	-81.25241	A	2753	F/11		W/CALF	1116	1122	SEWS044	
2/5/2008	1111	SEWS	29.90253	-81.25241	B	2008CalfOf2753		X	CALF W/MOM	1116	1122	SEWS044	
2/5/2008	1215	SEWS	30.14012	-81.30007	C	3292	F/6		W/CALF	1221	1225	SEWS045	
2/5/2008	1215	SEWS	30.14012	-81.30007	D	2008CalfOf3292		X	CALF W/MOM	1221	1225	SEWS045	
2/7/2008	1029	SEWS	30.12938	-81.22463	A	CT14SEUS08				1044	1049	SEWS046	
2/7/2008	1406	SEWS	29.49756	-81.12077	B	2753	F/11		W/CALF, BOD CNT	1415	1446	SEWS047	
2/7/2008	1406	SEWS	29.49756	-81.12077	C	2008CalfOf2753		X	CALF W/MOM, BOD CNT	1415	1446	SEWS047	
2/9/2008	0921	SEWS	30.20679	-81.36342	A	3292	F/6		W/CALF	0931	0938	SEWS048	
2/9/2008	0921	SEWS	30.20679	-81.36342	B	2008CalfOf3292		X	CALF W/MOM	0931	0938	SEWS048	
2/11/2008	0905	SEWS	29.95379	-81.23192	A	2007CalfOf2614	UNK/1		SAG, BODO, BEL/BEL	0938	0942	SEWS049	
2/11/2008	0905	SEWS	29.95379	-81.23192	B	BK03BOF07			SAG, BODO	0938	0942	SEWS049	
2/11/2008	0905	SEWS	29.95379	-81.23192	C	3340	M/5		SAG, BODO, BEL/BEL	0938	0942	SEWS049	
2/11/2008	0905	SEWS	29.95379	-81.23192	D	3541	M/3		SAG, BODO	0938	0942	SEWS049	
2/11/2008	0905	SEWS	29.95379	-81.23192	E				SAG, BODO	0938	0942	SEWS049	
2/11/2008	0905	SEWS	29.95379	-81.23192	F	3040	M/UNK		SAG, BODO	0938	0942	SEWS049	
2/11/2008	0905	SEWS	29.95379	-81.23192	G				SAG, BODO	0938	0942	SEWS049	
2/11/2008	0954	SEWS	30.07775	-81.32612	H	1802	F/20		W/CALF, BOD CNT	1010	1014	SEWS050	
2/11/2008	0954	SEWS	30.07775	-81.32612	I	2008CalfOf1802		X	CALF W/MOM, BOD CNT	1010	1014	SEWS050	
2/11/2008	1019	SEWS	30.26516	-81.32301	J				SAG	1034	1039	SEWS051	
2/11/2008	1019	SEWS	30.26516	-81.32301	K				SAG	1034	1039	SEWS051	
2/11/2008	1019	SEWS	30.26516	-81.32301	L				SAG	1034	1039	SEWS051	
2/11/2008	1019	SEWS	30.26516	-81.32301	M	3346	M/5		SAG, ENTGL	1034	1039	SEWS051	"Kingfisher"
2/11/2008	1019	SEWS	30.26516	-81.32301	N	3540	F/3		SAG	1034	1039	SEWS051	
2/11/2008	1113	SEWS	30.03409	-81.18547	O				SAG	1127	1130	SEWS052	
2/11/2008	1113	SEWS	30.03409	-81.18547	P	3411	F/4		SAG	1127	1130	SEWS052	
2/11/2008	1113	SEWS	30.03409	-81.18547	Q	CT23SEUS08			SAG	1127	1130	SEWS052	
2/11/2008	1113	SEWS	30.03409	-81.18547	R	SE07CT15			SAG	1127	1130	SEWS052	
2/11/2008	1113	SEWS	30.03409	-81.18547	S				SAG	1127	1130	SEWS052	
2/11/2008	1113	SEWS	30.03409	-81.18547	T				SAG	1127	1130	SEWS052	
2/11/2008	1113	SEWS	30.03409	-81.18547	U				SAG	1127	1130	SEWS052	

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2/11/2008	1113	SEWS	30.03409	-81.18547	1	CT22SEUS08			SAG	1127	1130	SEWS052	
2/11/2008	1130	SEWS	30.04949	-81.18350	V	3460	UNK/4			1142	1145	SEWS053	
2/11/2008	1130	SEWS	30.04949	-81.18350	W	CT12SEUS08				1142	1145	SEWS053	
2/12/2008	1041	SEWS	30.09024	-81.23155	A	3540	F/3		SAG	1123	1131	SEWS054	
2/12/2008	1041	SEWS	30.09024	-81.23155	B				SAG	1123	1131	SEWS054	
2/12/2008	1041	SEWS	30.09024	-81.23155	C				SAG, BEL/BEL	1123	1131	SEWS054	
2/12/2008	1041	SEWS	30.09024	-81.23155	D				SAG, BEL/BEL	1123	1131	SEWS054	
2/12/2008	1041	SEWS	30.09024	-81.23155	E	3346	M/5		SAG, ENTGL	1123	1131	SEWS054	"Kingfisher"
2/12/2008	1041	SEWS	30.09024	-81.23155	F				SAG	1123	1131	SEWS054	
2/12/2008	1041	SEWS	30.09024	-81.23155	G				SAG	1123	1131	SEWS054	
2/12/2008	1041	SEWS	30.09024	-81.23155	H				SAG	1123	1131	SEWS054	
2/12/2008	1137	SEWS	30.047	-81.20440	I					1151	1154	SEWS055	
2/12/2008	1137	SEWS	30.047	-81.20440	J					1151	1154	SEWS055	
2/14/2008	1240	SEWS	30.13845	-81.28764	A	1308	F/25		W/CALF, BOD CNT, BODO	1254	1258	SEWS056	
2/14/2008	1240	SEWS	30.13845	-81.28764	B	2008CalfOf1308		X	CALF W/MOM, BOD CNT, BODO	1254	1258	SEWS056	
2/14/2008	1307	SEWS	30.15918	-81.06193	C	2330	UNK/ADULT		W/CALF	1329	1334	SEWS057	
2/14/2008	1307	SEWS	30.15918	-81.06193	D	2008CalfOf2330		X	CALF W/MOM	1329	1334	SEWS057	
2/15/2008	0925	SEWS	30.22247	-81.28291	A	1308	F/25		W/CALF, BOD CNT	0931	0942	SEWS058	
2/15/2008	0925	SEWS	30.22247	-81.28291	B	2008CalfOf1308		X	CALF W/MOM, BOD CNT	0931	0942	SEWS058	
2/15/2008	0953	SEWS	30.25999	-81.13673	C	SE06BK10				0953	1002	SEWS059	
2/15/2008	0953	SEWS	30.25999	-81.13673	D	3157	F/7			0953	1002	SEWS059	
2/15/2008	1058	SEWS	30.06211	-81.04061	E	2427	M/14		SAG	1130	1205	SEWS060	
2/15/2008	1058	SEWS	30.06211	-81.04061	F	3343	M/5		SAG	1130	1205	SEWS060	
2/15/2008	1058	SEWS	30.06211	-81.04061	G	2007CalfOf2614	UNK/1		SAG	1130	1205	SEWS060	
2/15/2008	1058	SEWS	30.06211	-81.04061	H	CT24SEUS08			SAG	1130	1205	SEWS060	
2/15/2008	1058	SEWS	30.06211	-81.04061	I	CT11SEUS08			SAG	1130	1205	SEWS060	
2/15/2008	1058	SEWS	30.06211	-81.04061	J	BK01BOF07			SAG	1130	1205	SEWS060	
2/15/2008	1058	SEWS	30.06211	-81.04061	K	SE07CT15			SAG	1130	1205	SEWS060	
2/15/2008	1154	SEWS	30.09928	-81.04055	L	CT23SEUS08				1154	1207	SEWS061	
2/15/2008	1154	SEWS	30.09928	-81.04055	M	1249	M/26			1154	1207	SEWS061	
2/16/2008	1035	SEWS	30.08715	-81.21711	A	2753	F/11		W/CALF, BOD CNT	1052	1058	SEWS062	
2/16/2008	1035	SEWS	30.08715	-81.21711	B	2008CalfOf2753		X	CALF W/MOM, BOD CNT	1052	1058	SEWS062	
2/20/2008	0927	SEWS	30.24116	-81.28664	A	3420	F/4		BODO, BRCH	0942	0950	SEWS063	
2/21/2008	0928	SEWS	30.23903	-81.16659	A	3530	M/3		LOG	1000	1012	SEWS064	"Ruffian"
2/21/2008	0934	SEWS	30.24311	-81.13850	B	3343	M/5		SAG, BODO	1000	1012	SEWS064	
2/21/2008	0934	SEWS	30.24311	-81.13850	C	1706	F/21		SAG, BODO	1000	1012	SEWS064	
2/21/2008	0934	SEWS	30.24311	-81.13850	D	3442	M/4		SAG, BODO	1000	1012	SEWS064	
2/21/2008	0934	SEWS	30.24311	-81.13850	E	3420	F/4		SAG, BODO	1000	1012	SEWS064	
2/21/2008	0934	SEWS	30.24311	-81.13850	F	3150	M/7		SAG, BODO	1000	1012	SEWS064	
2/21/2008	0934	SEWS	30.24311	-81.13850	G				SAG, BODO	1000	1012	SEWS064	
2/21/2008	0934	SEWS	30.24311	-81.13850	H	CT28SEUS08			SAG, BODO	1000	1012	SEWS064	
2/21/2008	0934	SEWS	30.24311	-81.13850	I	3245	M/6		SAG, BODO	1000	1012	SEWS064	
2/21/2008	0934	SEWS	30.24311	-81.13850	J	BK01BOF07			SAG, BODO	1000	1012	SEWS064	
2/25/2008	1050	SEWS	30.47979	-81.20468	A	2790	F/ADULT		W/CALF	1118	1124	SEWS065	
2/25/2008	1050	SEWS	30.47979	-81.20468	B	2008CalfOf2790		X	CALF W/MOM	1118	1124	SEWS065	
2/25/2008	1050	SEWS	30.47979	-81.20468	C	3142	F/7			1118	1124	SEWS065	
2/25/2008	1050	SEWS	30.47979	-81.20468	D	3240	F/6			1118	1124	SEWS065	
2/25/2008	1146	SEWS	30.53863	-81.32813	E	3130	F/7		W/CALF	1213	1222	SEWS066	
2/25/2008	1146	SEWS	30.53863	-81.32813	F	2008CalfOf3130		X	CALF W/MOM	1213	1222	SEWS066	
2/25/2008	1256	SEWS	30.63082	-81.30488	G	3420	F/4		BODO	1307	1324	SEWS067	
2/28/2008	1643	SEWS	29.82219	-81.07655	A				SAG, FLIP, UW EXH	1656	1703	SEWS068	
2/28/2008	1643	SEWS	29.82219	-81.07655	B				SAG	1656	1703	SEWS068	
2/28/2008	1643	SEWS	29.82219	-81.07655	C	BK11SEUS08			SAG	1656	1703	SEWS068	
2/29/2008	1145	SEWS	30.03107	-81.15169	A				SUB TR	1204	1212	SEWS069	

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2/29/2008	1145	SEWS	30.03107	-81.15169	B	BK11SEUS08			SUB TR	1204	1212	SEWS069	
2/29/2008	1407	SEWS	29.81918	-81.02585	C	1703	F/21		W/CALF, BOD CNT	1422	1429	SEWS070	
2/29/2008	1407	SEWS	29.81918	-81.02585	D	2008CalfOf1703		X	CALF W/MOM, BOD CNT	1422	1429	SEWS070	
3/1/2008	1103	SEWS	30.1117	-81.28123	A	1703	F/21		W/CALF	1111	1117	SEWS071	
3/1/2008	1103	SEWS	30.1117	-81.28123	B	2008CalfOf1703		X	CALF W/MOM	1111	1117	SEWS071	
3/1/2008	1145	SEWS	30.14233	-80.90750	C				SAG	1206	1209	SEWS072	
3/1/2008	1145	SEWS	30.14233	-80.90750	D				SAG	1206	1209	SEWS072	
3/1/2008	1145	SEWS	30.14233	-80.90750	E				SAG	1206	1209	SEWS072	
3/1/2008	1145	SEWS	30.14233	-80.90750	F				SAG	1206	1209	SEWS072	
3/1/2008	1145	SEWS	30.14233	-80.90750	G				SAG	1206	1209	SEWS072	
3/2/2008	1220	SEWS	29.94816	-81.07657	A					1238	1244	SEWS073	
3/2/2008	1220	SEWS	29.94816	-81.07657	B	1712	M/21			1238	1244	SEWS073	
3/2/2008	1321	SEWS	29.82521	-80.85075	C	2010	M/18		SAG	1343	1346	SEWS074	
3/2/2008	1321	SEWS	29.82521	-80.85075	D	3120	M/7		SAG	1343	1346	SEWS074	
3/2/2008	1321	SEWS	29.82521	-80.85075	E	BK13SEUS08			SAG	1343	1346	SEWS074	
3/2/2008	1321	SEWS	29.82521	-80.85075	F				SAG	1343	1346	SEWS074	
3/5/2008	1224	SEWS	30.27094	-81.24768	A	1245	F/26		W/CALF	1229	1236	SEWS075	
3/5/2008	1224	SEWS	30.27094	-81.24768	B	2008CalfOf1245		X	CALF W/MOM	1229	1236	SEWS075	
3/6/2008	1036	SEWS	30.16206	-81.05008	A	2795	M/ADULT		SUB TR	1105	1112	SEWS076	
3/6/2008	1036	SEWS	30.16206	-81.05008	B	1278	M/ADULT		SUB TR	1105	1112	SEWS076	
3/6/2008	1036	SEWS	30.16206	-81.05008	C	1423	UNK/ADULT		SUB TR	1105	1112	SEWS076	
3/12/2008	1600	SEWS	29.80182	-81.24525	A	3010	F/ADULT		BOD CNT	1619	1639	SEWS077	
3/12/2008	1600	SEWS	29.80182	-81.24525	B	3123	F/7		BOD CNT	1619	1639	SEWS077	
3/29/2008	1119	SEWS	30.62598	-80.88933	A					1135	1139	SEWS078	

*Behavior Codes: AGG VSL = Aggressive Vessel,AVD = Avoidance,BOD CNT = Body Contact,BODO = Associated with Bottlenose Dolphins,BEL/BEL = Belly to Belly Contact,BEL UP = Belly Up,BRCH = Breach,BUBLS = Bubbles Observed,CHN BRCH = Chin Breach,ENTGL = Entangled,FLIP = Flipper Slapping,HD LFT = Head Lift,LBTL = Lobtail,LOG = Logging,MOPN = Mouth Open,NURS = Nursing,POST = Posturing,RAND SUB TR = Random Subsurface Travel,ROLL = Rolling (not in SAG),SAG = Surface Active Group,SFC TR = Surface Travel,SPY = Spyhopping,SUB TR = Subsurface Travel,UW EXH = Underwater Exhale,W/UNPH EG(S) = With Unphotographed Eg(s),WH BEL = White Belly,WH CHN = White Chin,YRLG = Yearling

TABLE 4: FWRI RIGHT WHALE SIGHTING DISTANCES AND AVERAGE

Date	Transect Line LAT	Transect Line LAT	Cloud Cover	Visibility	Beaufort	Wx	GlareL	GlareR	Whale Sighting First Pass LAT	Whale Sighting First Pass LONG	Perpendicular Sighting Distance
12/5/2007	30°02.0	30.03333	<10%	>4nm	1	HAZE	1	2	30.03623	-81.31473	0.1738
12/7/2007	30°11.0	30.18333	11-50%	3nm	3	HAZE	2	1	30.18616	-81.27232	0.1696
12/19/2007	30°05.0	30.08333	11-50%	>4nm	2	CLEAR	3	1	30.06954	-80.92967	0.8276
12/28/2007	30°14.0	30.23333	51-90%	>4nm	2	HAZE	1	2	30.22983	-81.21022	0.2102
12/29/2007	30°08.0	30.13333	11-50%	>4nm	3	CLEAR	3	1	30.13571	-80.97511	0.1426
12/30/2007	30°05.0	30.08333	51-90%	>4nm	2	HAZE	3	1	30.11796	-81.17776	2.0776
1/5/2008	30°11.0	30.18333	51-90%	>4nm	3	HAZE	2	2	30.14698	-81.20616	2.1812
1/7/2008	29°56.0	29.93333	<10%	>4nm	1	CLEAR	1	3	29.94730	-81.06506	0.8380
1/10/2008	30°14.0	30.23333	<10%	>4nm	1	CLEAR	1	2	30.20470	-81.17566	1.7180
1/22/2008	30°35.0	30.58333	11-50%	>4nm	4	HAZE	2	1	30.56946	-81.29570	0.8324
1/22/2008	30°29.0	30.48333	11-50%	>4nm	4	HAZE	3	1	30.47877	-81.27052	0.2738
1/24/2008	30°08.0	30.13333	>90%	>4nm	2	HAZE	1	2	30.09678	-81.30513	2.1932
1/28/2008	30°14.0	30.23333	<10%	>4nm	4	CLEAR	1	2	30.22971	-81.16311	0.2174
1/29/2008	30°14.0	30.23333	11-50%	>4nm	2	CLEAR	1	2	30.22349	-81.32930	0.5906
1/29/2008	30°11.0	30.18333	11-50%	>4nm	2	CLEAR	3	2	30.20154	-81.29369	1.0924
1/29/2008	30°08.0	30.13333	11-50%	>4nm	2	CLEAR	1	2	30.10963	-81.12936	1.4222
2/3/2008	30°11.0	30.18333	11-50%	>4nm	2	HAZE	2	1	30.19673	-81.16119	0.8038
2/3/2008	30°05.0	30.08333	11-50%	>4nm	2	HAZE	3	1	30.06242	-81.29600	1.2548
2/5/2008	30°08.0	30.13333	<10%	>4nm	2	HAZE	1	3	30.14012	-81.30007	0.4072
2/11/2008	30°14.0	30.23333	<10%	>4nm	3	CLEAR	1	3	30.26516	-81.32301	1.9096
2/11/2008	30°08.0	30.13333	<10%	>4nm	4	CLEAR	1	3	30.03409	-81.18547	5.9546
2/12/2008	30°05.0	30.08333	>90%	>4nm	2	GRAY	2	2	30.09024	-81.23155	0.4144
2/12/2008	30°02.0	30.03333	>90%	>4nm	2	GRAY	2	2	30.04700	-81.20440	0.8200
2/14/2008	30°08.0	30.13333	11-50%	>4nm	3	HAZE	1	3	30.13845	-81.28764	0.3070
2/14/2008	30°08.0	30.13333	11-50%	>4nm	3	HAZE	1	3	30.15918	-81.06193	1.5508
2/15/2008	30°14.0	30.23333	11-50%	>4nm	2	HAZE	1	3	30.22247	-81.28291	0.6518
2/15/2008	30°14.0	30.23333	11-50%	>4nm	2	HAZE	1	3	30.25999	-81.13673	1.5994
2/15/2008	30°05.0	30.08333	51-90%	>4nm	2	HAZE	3	1	30.06211	-81.04061	1.2734
2/16/2008	30°05.0	30.08333	<10%	>4nm	2	CLEAR	2	1	30.08715	-81.21711	0.2290
2/20/2008	30°14.0	30.23333	<10%	>4nm	2	CLEAR	1	3	30.24116	-81.28664	0.4696
2/21/2008	30°14.0	30.23333	>90%	>4nm	2	GRAY	2	2	30.23903	-81.16659	0.3418
2/25/2008	30°29.0	30.48333	<10%	>4nm	3	HAZE	2	2	30.47979	-81.20468	0.2126
2/25/2008	30°32.0	30.53333	<10%	>4nm	2	HAZE	3	1	30.53863	-81.32813	0.3178
2/28/2008	29°50.0	29.83333	<10%	>4nm	3	CLEAR	1	2	29.82219	-81.07655	0.6686
2/29/2008	30°02.0	30.03333	<10%	>4nm	3	CLEAR	1	2	30.03107	-81.15169	0.1358
2/29/2008	29°50.0	29.83333	11-50%	>4nm	2	CLEAR	1	3	29.81918	-81.02585	0.8492
3/1/2008	30°05.0	30.08333	51-90%	>4nm	2	CLEAR	1	3	30.11117	-81.28123	1.6702
3/2/2008	29°56.0	29.93333	<10%	>4nm	3	HAZE	1	3	29.94816	-81.07657	0.8896
3/2/2008	29°50.0	29.83333	<10%	>4nm	3	HAZE	1	3	29.82521	-80.85075	0.4874
3/5/2008	30°14.0	30.23333	<10%	>4nm	2	CLEAR	1	3	30.27094	-81.24768	2.2564
3/6/2008	30°08.0	30.13333	11-50%	>4nm	2	CLEAR	1	2	30.16206	-81.05008	1.7236

AVERAGE SIGHTING DISTANCE: 1.0283

TABLE 5: FWRI WHALE/VESSEL INTERACTIONS

Date	Unique ID	Team	Survey Area	Whale EGNO (preliminary)	Initial Whale LAT	Initial Whale LONG	Vessel #	Close Approach	Vessel Type	Estimated Initial Vessel Speed (kts)	Closest Distance (m)	Initial Whale Behavior	Reaction to Vessel	Comm Attempted	Communication Notes	Vessel Actions
12/5/2007	1	FWC	SEWS	2753 and calf	30.08417	-81.33	1	Yes	Aircraft (Civilian)	Fast	61	Surface Resting	Yes (swimming moderate pace)	No	No communication method available air to ground.	Aircraft circled whales at 200-300ft for approx 5 minutes and then continued on.
3/6/2008	165	FWC	SEWS	2795, 1278, 1423.	30.16206	-81.05008	1	No	Commercial Fish	7	366	Swimming/Traveling	No	Yes	Hailed on VHF 16. Captain answered after 3 calls, switched to 78. Captain asked for the position of the whales relative to his vessel and which direction was best to avoid them. A west/northwest direction was suggested. The captain said he would standby 78 for further assistance until he was clear of the whale's position and could resume his initial heading.	Vessel immediately slowed from 7kts to 4 kts and altered course to avoid whale's position.

TABLE 6: FWRI OPPORTUNISTIC LAND-BASED SIGHTINGS - IDENTIFICATIONS ARE PRELIMINARY

Date	Time (L)	Latitude (Dec Degrees)	Longitude (Dec Degrees)	RIWH Letter	NARWC ID No Or Intermatch Code	Sex/Age	Calf	Behaviors*	Last Sighting Time (L)	Time (L) Notified	Whale Alert Number	Comments
12/5/2007	1140	30.03267	-81.31667	A	2753	F/11		W/CALF, BODO	1213			Called in by plane, no whale alert ID assigned
12/5/2007	1140	30.03267	-81.31667	B	2008CalfOf2753		X	CALF W/MOM	1213			
12/15/2007	1130	29.96317	-81.30783	A	2753	F/11		W/CALF, SUB TR	1235	1141	MRC001	
12/15/2007	1130	29.96317	-81.30783	B	2008CalfOf2753		X	CALF W/MOM, SUB TR	1235	1141	MRC001	
12/18/2007	0845	30.16500	-81.35000	A	2753	F/11		W/CALF	0950	0947	MRC002	
12/18/2007	0845	30.16500	-81.35000	B	2008CalfOf2753		X	CALF W/MOM	0950	0947	MRC002	
12/20/2007	1600	30.27150	-81.38500	A	2753	F/11		W/CALF, BODO, BOD CNT, FLIP	1640	1636	MRC003	
12/20/2007	1600	30.27150	-81.38500	B	2008CalfOf2753		X	CALF W/MOM, BODO, BOD CNT	1640	1636	MRC003	
12/21/2007	1135	30.12733	-81.34733	A	2753	F/11		W/CALF		1226	MRC004	
12/21/2007	1135	30.12733	-81.34733	B	2008CalfOf2753		X	CALF W/MOM		1226	MRC004	
1/11/2008	1610	30.16817	-81.35000	A	2753	F/11		W/CALF, BOD CNT	1640	1640	MRC010	
1/11/2008	1610	30.16817	-81.35000	B	2008CalfOf2753		X	CALF W/MOM, BOD CNT	1640	1640	MRC010	
1/13/2008	1640	30.15867	-81.35000	A	2753	F/11		W/CALF, BOD CNT	1710	1702	MRC012	
1/13/2008	1640	30.15867	-81.35000	B	2008CalfOf2753		X	CALF W/MOM, BOD CNT	1710	1702	MRC012	
1/14/2008	1104	30.13133	-81.34817	A	1622	F/ADULT		W/CALF		1114	MRC013	
1/14/2008	1104	30.13133	-81.34817	B	2008CalfOf1622		X	CALF W/MOM		1114	MRC013	
1/15/2008	1509	30.00422	-81.31857	A	2753	F/11		W/CALF, LOG, NURS, BOD CNT, BODO		1513	MRC014	
1/15/2008	1509	30.00422	-81.31857	B	2008CalfOf2753		X	CALF W/MOM, LOG, NURS, BOD CNT, BODO		1513	MRC014	
2/27/2008	1256	30.26035	-81.38240	A	1245	F/26		W/CALF, NURS, BOD CNT, BODO	1415	1407	OTHER111	
2/27/2008	1256	30.26035	-81.38240	B	2008CalfOf1245		X	CALF W/MOM, NURS, BOD CNT, BODO	1415	1407	OTHER111	

*Behavior Codes: AGG VSL = Aggressive Vessel, AVD = Avoidance, BOD CNT = Body Contact, BODO = Associated with Bottlenose Dolphins, BEL/BEL = Belly to Belly Contact, BEL UP = Belly Up, BRCH = Breach, BUBLS = Bubbles Observed, CHN BRCH = Chin Breach, ENTGL = Entangled, FLIP = Flipper Slapping, HD LFT = Head Lift, LBTL = Lobtial, LOG = Logging, MOPN = Mouth Open, NURS = Nursing, POST = Posturing, RAND SUB TR = Random Subsurface Travel, ROLL = Rolling (not in SAG), SAG = Surface Active Group, SFC TR = Surface Travel, SPY = Spyhopping, SUB TR = Subsurface Travel, UW EXH = Underwater Exhale, W/UNPH EG(S) = With Unphotographed Eg(s), WH BEL = White Belly, WH CHN = White Chin, YRLG = Yearling

Table 7: Acronyms

ALWTRT	Atlantic Large Whale Take Reduction Team
BMN	USCG Broadcast Notices to Mariners
CEWS	Central Early Warning System
EWS	Early Warning System
FACSFACJAX	Navy's Fleet Area Control and Surveillance Facility Jacksonville
FWC	Florida Fish and Wildlife Conservation Commission
FWRI	Fish and Wildlife Research Institute (part of FWC)
GIS	Geographic Information Systems
MSRS	Mandatory Ship Reporting System
NARWC	North Atlantic Right Whale Catalog
NARWD	North Atlantic Right Whale Consortium Database
NEA	New England Aquarium
NEWS	Northern Early Warning System
NMFS	National Marine Fisheries Service
NOAA	National Oceanic and Atmospheric Administration
PCCS	Provincetown Center for Coastal Studies
RIWH	Right Whale
SEIT	Southeastern U.S. Right Whale Recovery Plan Implementation Team
SEUS	Southeast U.S.
SEWS	Southern Early Warning System
USCG	U.S. Coast Guard

Whale/Vessel Interaction (Close Call) Report Form

Date Unique Report #

Observer's Last Name(s)	<input type="text" value="Gwalthney"/>	Contact	<input type="text" value="Katie Jackson: 904-237-4220"/>
Survey Agency or Organization:	<input type="text" value="FWC"/>		
Survey Area	<input type="text" value="SEWS"/>		
Are there photos?	<input type="text" value="Yes"/>	Location/name of photo files	<input type="text"/>
Is there video?	<input type="text" value="No"/>	Location/name of video files	<input type="text"/>

Whale Information (Initial)

Time of initial whale sighting (local, 24 hour) Total number of whales Number of calves

Whale IDs

Whale's initial activity (select the one that best fits; use description for additional activities)

Select:

Description of whale activity

Heading of Whale/Whale group

Whale's initial latitude Whale's initial longitude (NAD 83 datum assumed)

Whale Information (Post Interaction)

Time whale was observed at the last location (local, 24 hour)

Whale's last latitude Whale's last longitude (NAD 83 datum assumed)

Did the whale change course? Did the whale's activity change?

New heading of Whale/Whale group

Description of activity/direction change:

Additional Information

Whale/Vessel Interaction (Close Call) Report Form

 Date Unique Report #

Vessel Information

 Is this a close approach (500 yard rule?) Yes Homeport State Reg. #

 Vessel of (one sheet for each vessel) Time vessel was spotted (24 hour)

 Vessel Length (feet) Vessel Name

 Vessel Code Vessel Type:

 Vessel Description

 Vessel Speed (knots) Vessel Speed (Qualitative):

 Method of determining speed Vessel Heading

 Inbound/Outbound: Destination Port

 Origin Port

Description of vessel's initial location relative to whale(s)

 Vessel's initial latitude Vessel's initial longitude (NAD 83 datum assumed)

 Closest distance between whale and vessel Units:

 Was communication attempted? (Did you try to hail them?):

 Was communication achieved? (Did they respond?):

 Did the vessel's heading change?: Yes New Heading

 Did the vessel's speed change?: No New Speed (knots)

 New Vessel Speed Qualitative:

Description of vessel's last location relative to whale(s)

Notes on the communication effort

 Time of vessel's last recorded location (local, 24 hour)

 Vessel's last latitude Vessel's last longitude (NAD 83 datum assumed)

Additional whale information specific to this vessel

Whale/Vessel Interaction (Close Call) Report Form

Date Unique Report #

Observer's Last Name(s)	<input type="text" value="Gwalthney and Accardo"/>	Contact	<input type="text" value="Katie Jackson 904-237-4220"/>
Survey Agency or Organization:	<input type="text" value="FWC"/>		
Survey Area	<input type="text" value="SEWS/FWS555"/>		
Are there photos?	<input type="text" value="Yes"/>	Location/name of photo files	<input type="text" value="2008-03-06-FWRI-A/IMG_7858 and 7859"/>
Is there video?	<input type="text" value="No"/>	Location/name of video files	<input type="text"/>

Whale Information (Initial)

Time of initial whale sighting (local, 24 hour)	<input type="text" value="1036"/>	Total number of whales	<input type="text" value="3"/>	Number of calves	<input type="text" value="0"/>
Whale IDs	<input type="text" value="2795, 1278, 1423. All preliminary IDs."/>				
Whale's initial activity (select the one that best fits; use description for additional activities)	Select: <input type="text" value="Swimming/Traveling"/>				
Description of whale activity	<input type="text" value="Whales swimming steadily in one direction, long dives (up to 9 minutes) with short surface intervals."/>				
Heading of Whale/Whale group	<input type="text" value="SSE"/>				
Whale's initial latitude	<input type="text" value="30.16206"/>	Whale's initial longitude	<input type="text" value="-81.05008"/>	(NAD 83 datum assumed)	

Whale Information (Post Interaction)

Time whale was observed at the last location (local, 24 hour)	<input type="text" value="1105"/>				
Whale's last latitude	<input type="text" value="30.15417"/>	Whale's last longitude	<input type="text" value="-81.04617"/>	(NAD 83 datum assumed)	
Did the whale change course?	<input type="text" value="No"/>	Did the whale's activity change?	<input type="text" value="No"/>		
New heading of Whale/Whale group	<input type="text"/>				
Description of activity/direction change:	<input type="text" value="Same activity and direction as previously stated, no change in activity or direction of movement."/>				

Additional Information

After sighting the whales and while photographing them we noticed a small vessel heading in their general direction. As the vessel approached we flew over to photograph and obtain the vessel's name and FL number if possible. Then we began attempts to establish communication with the vessel. No photos with vessel and whales in the same frame.

Whale/Vessel Interaction (Close Call) Report Form

Date Unique Report #

Vessel Information

Is this a close approach (500 yard rule?) Homeport State Reg. #

Vessel of (one sheet for each vessel) Time vessel was spotted (24 hour)

Vessel Length (feet) Vessel Name

Vessel Code Vessel Type:

Vessel Description

Vessel Speed (knots) Vessel Speed (Qualitative):

Method of determining speed Vessel Heading

Inbound/Outbound: Destination Port

Origin Port

Description of vessel's initial location relative to whale(s)

Vessel was ~1NM (SW) from the whales location and headed on a course that would have come very close, if not right to, their location.

Vessel's initial latitude Vessel's initial longitude (NAD 83 datum assumed)

Closest distance between whale and vessel Units:

Was communication attempted? (Did you try to hail them?):

Was communication achieved? (Did they respond?):

Did the vessel's heading change?: New Heading

Did the vessel's speed change?: New Speed (knots)

New Vessel Speed Qualitative:

Description of vessel's last location relative to whale(s)

After the vessel changed course the whales surfaced off their starboard quarter.

Notes on the communication effort

Vessel was hailed by name on Channel 16. Vessel responded to the 3rd hail and switched to working channel 78. Vessel operator was cooperative, courteous, and professional. He asked for the location of the whales relative to his vessel and asked which direction he should head to avoid the whales. We informed the captain that a west or northwest heading would steer the vessel away from the whales and he quickly altered course to the west. The vessel operator said that he would stay on his new course and standby on 78 for further information/instruction from us. After we finished documenting the sighting and called in the sighting location we again made contact with the vessel on 78. We updated the captain with the current position of the whales relative to his vessel. He asked if he could resume his original heading (NE) without causing further incident and we agreed that would be acceptable.

Time of vessel's last recorded location (local, 24 hour)

Vessel's last latitude Vessel's last longitude (NAD 83 datum assumed)

Additional whale information specific to this vessel

Once the captain had established a visual on the whale, the vessel altered course back to the NE (original heading). At this time the whales were located over 500 yards to the vessels aft.

FWRI Coastal Survey
St. Augustine, FL to Melbourne, FL

RED TIDE REPORT

Observers: Corey Accardo and Melanie White

INSHORE (1 Mile off Coast):

Ponce Inlet

Just outside of breakers out to ~1 mile offshore
Northern Latitude 29.11951, Longitude -80.94931
Southern Latitude 29.09235, Longitude -80.92704
Thin wisps to small patches
Dark maroon in color
Nothing dead seen in water
Photos #5144-5146



IMG_5144 Ponce Inlet Area



IMG_5145 Ponce Inlet Area

New Smyrna Beach

From breakers out to ~3/4 miles offshore
Northern Latitude 29.04591, Longitude -80.88692
Southern Latitude 28.98442, Longitude -80.84739
Multiple small patches
Brick red to terracotta in color
Nothing dead seen in water
3-4 dolphins swimming just on the eastern edge of the tide
No photos taken

South of Port Canaveral

From breakers out to ~1 mile offshore
Northern Latitude 28.33398, Longitude -80.59354
Southern Latitude 28.00341, Longitude -80.50332
Heavily concentrated
Thinned out at ~28°07N, from breakers out to ~1/4 mile offshore
(Latitude 28.14041, Longitude -80.56818)
Became more concentrated and back out to ~1 mile offshore at 28°00N and
continued south an unknown distance (Survey ended at 28°00N)
(Latitude 28.01196, Longitude -80.51808)
Deep brown to reddish in color
Nothing dead seen in water
Photos # 5148-5162



IMG_5153 South of Port Canaveral



IMG_5157 South of Port Canaveral



IMG_5160 South of Port Canaveral

OFFSHORE (3 Miles off Coast):

Patrick Air Force Base

~2.5 miles offshore, ~10-50 meters wide

Northern Latitude 28.31712, Longitude -80.55894

Southern Latitude 28.2755, Longitude -80.56576

Concentrated patch

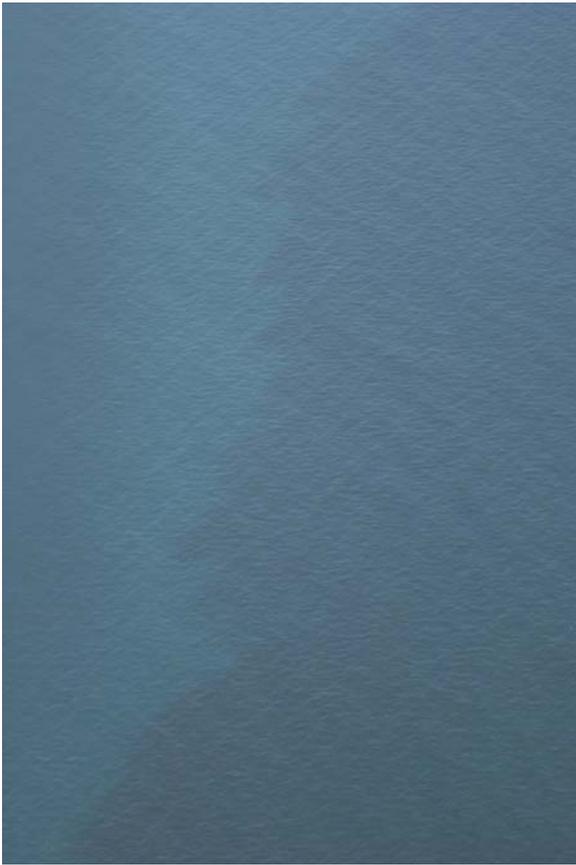
Tawny red to light brown in color

Nothing dead seen in water

Photos # 5163-5181



IMG_5178 Offshore Patrick Air Force Base



IMG_5173 Offshore Patrick Air Force Base



IMG_5174 Offshore Patrick Air Force Base