

¹Nilsson, P., ¹Cummings, E., ²Foley, H., ¹Hardee, R., ²Holt, R., ¹McAlarney, R., ¹McLellan, W. A., ¹Pabst, D. A. and ²Read, A. J.

¹Biology & Marine Biology, University of North Carolina Wilmington, ²Nicholas School of the Environment, Duke University

ABSTRACT

The summer feeding grounds of the minke whale (*Balaenoptera acutorostrata*) in the western North Atlantic are well-documented, but its winter distribution and the location of its calving grounds are currently unknown. Sporadic winter sightings and strandings in the Caribbean and Florida suggest an offshore breeding and calving area somewhere in this region (Mitchell 1991). We present recent sightings of minke whales in the South Atlantic Bight during winter, and examine these together with historical sighting and stranding records from the region. We conducted monthly aerial surveys at two proposed U.S. Naval training exercise areas in Onslow Bay, North Carolina (June 2007 to April 2011) and off Jacksonville, Florida (January 2009 to April 2011). Minke whales were observed nine times (13 individuals) in the Jacksonville site: six singles, two pairs, and one mom/neonate pair with an adult escort. In the Onslow Bay site, minke whales were encountered twice (one single and one mom/calf pair). All sightings occurred in winter, between late December and February, in waters offshore of the continental shelf-break. A review of historical (1980-2010) sightings (n=22, provided by the North Atlantic Right Whale Consortium) and strandings (n=9, provided by NOAA Fisheries) in the mid- and southeast Atlantic, revealed that most minke whale sightings occurred during winter and spring (15 and 4, respectively), rather than in summer and fall (3 and 0, respectively). Most winter sightings (10 of 15) occurred off Florida, while all spring and summer sightings (7) occurred off North Carolina and Virginia. All strandings were of calves and occurred in North Carolina, with most in winter and spring (7 of 9). These data suggest that the southeastern U.S. may be an important habitat for minke whales in winter, and may include their calving grounds.

Background

The summer feeding grounds of the common minke whale (*Balaenoptera acutorostrata*) in the western North Atlantic are well-documented (Donovan 1991), however, its winter distribution and the location of its calving grounds remain unknown. Scattered and infrequent sightings and strandings during winter in Florida and the Caribbean hint at a southerly, and potentially offshore, breeding and calving area located somewhere in this region (Mitchell 1991). We present recent sightings of minke whales in the South Atlantic Bight off the US east coast during winter, and examine these together with historical sighting and stranding records from the region.

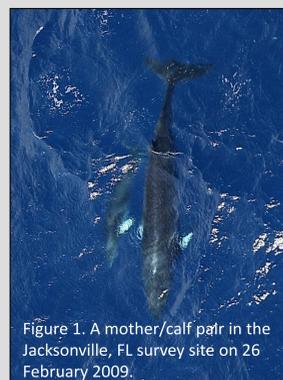


Figure 1. A mother/calf pair in the Jacksonville, FL survey site on 26 February 2009.



Figure 2. Minke whale mother/calf pair in the Onslow Bay, NC proposed USWTR site on 25 February 2011.

Methods

Monthly aerial surveys were conducted year round at two proposed Under Sea Warfare Training Range (USWTR) sites located offshore in Onslow Bay, NC (June 2007 - April 2011) and offshore of Jacksonville, FL (January 2009 - April 2011). Surveys were flown in a Cessna Skymaster, at 305 m altitude and 185km/h speed. We also reviewed historical (1980-2010) minke whale sightings (n=22, courtesy of the North Atlantic Right Whale Consortium) and stranding records (n=9, courtesy of NOAA Fisheries and the NC Stranding Partners) in the US mid- and southeast Atlantic and compared these to the recent wintertime sightings. Seasons were defined as follows: spring (March to May), summer (June to August), fall (September to November) and winter (December to February).

Literature Cited

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 Hodge, L. 2011. Temporal patterns in the occurrence of mysticete calls in Onslow Bay, North Carolina in Monitoring Marine Mammals in Onslow Bay, North Carolina, Using Passive Acoustics. Phd Dissertation. Duke University, NC
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Results

Minke whales were encountered nine times (13 individuals) in the proposed USWTR site off Jacksonville, FL: six single adults, two adult pairs as well as one mother/calf pair with an adult escort. In the Onslow Bay, NC site, minkes were encountered twice (one single whale and one mother/calf pair). Despite year-round aerial survey effort, sightings in both sites occurred exclusively in winter, between late December and February, and offshore of the continental shelf-break (Fig 3).

An analysis of historical sighting and stranding data sets from the Mid-Atlantic and southeastern US indicated that minke whale encounters occurred mainly during winter and spring (15 and 4, respectively), rather than during summer and fall (3 and 0, respectively; Fig 5). The majority of winter sightings (10 of 15) occurred off Florida, whereas all spring and summer sightings (7) occurred off Virginia and North Carolina (Fig 5). All strandings were of calves and occurred in North Carolina, with most during winter and spring (7 of 9: Fig 3).

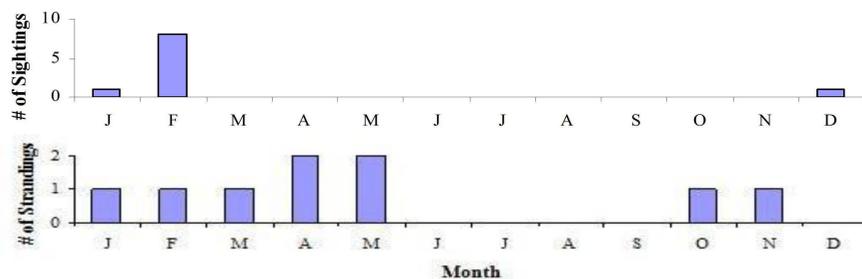
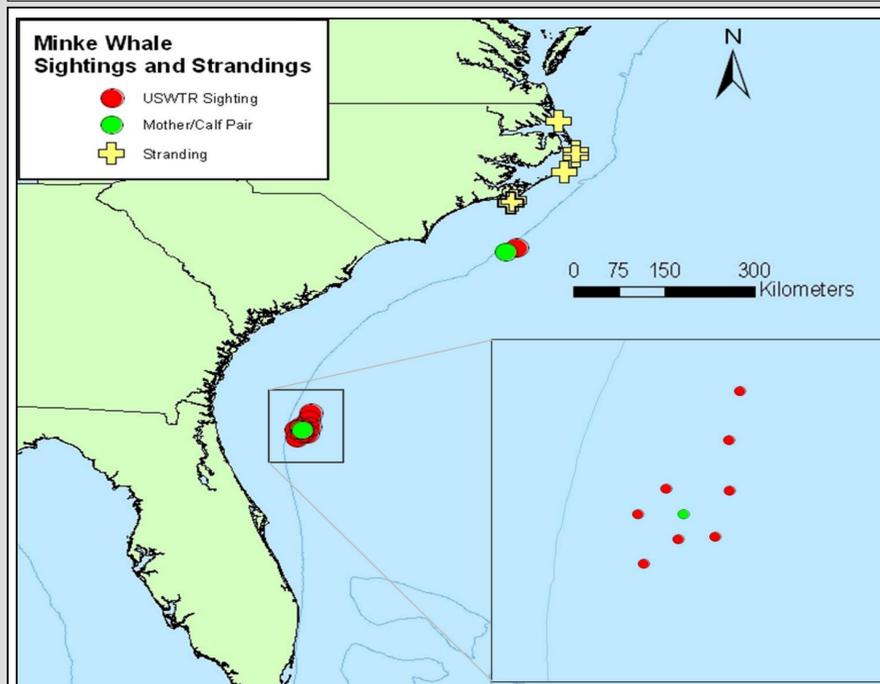


Figure 3. Map displays minke whale sightings during monthly, year-round aerial surveys of two proposed USWTR sites off NC (2007-2011) and FL (2009-2011), and strandings of minke whales along the US southeast coast (1980-2011). Histograms display monthly pattern of plotted minke whale sightings and strandings along the US southeast coast.

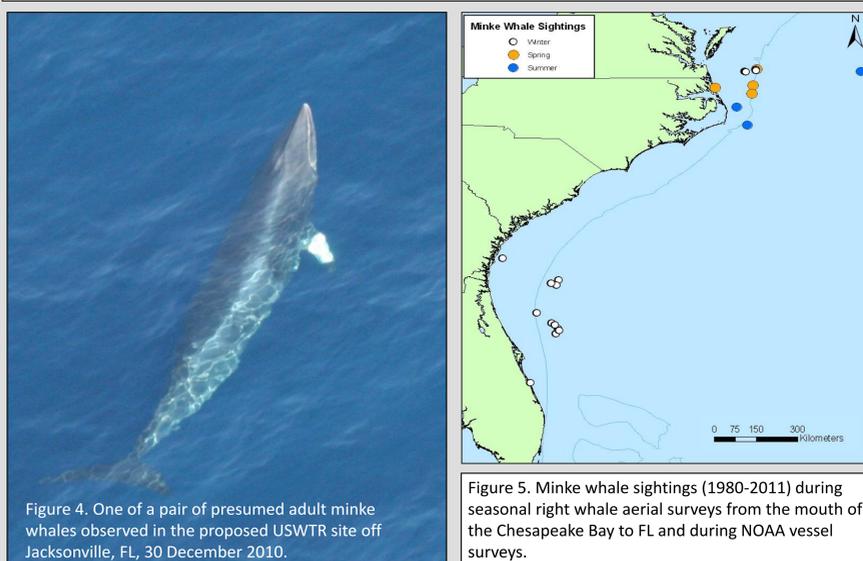


Figure 4. One of a pair of presumed adult minke whales observed in the proposed USWTR site off Jacksonville, FL, 30 December 2010.

Figure 5. Minke whale sightings (1980-2011) during seasonal right whale aerial surveys from the mouth of the Chesapeake Bay to FL and during NOAA vessel surveys.

Discussion

The combined sightings and strandings data suggest that minke whales are present in the South Atlantic Bight predominantly in winter and spring. All sightings of minkes off of Florida occurred in winter, which may reflect a seasonal distribution pattern, but also likely reflects the seasonally focused right whale aerial survey effort here in winter. Year-round USWTR surveys, though, also detected minkes only in winter here, and the only calf sightings in either USWTR survey area occurred in winter. Similarly, minke whale calls were exclusively detected between November and April on stationary, high frequency acoustic recording packages (HARPs), deployed in Onslow Bay, NC (Hodge 2011). The sightings of two mother/calf pairs (in NC and FL, both in February) and the inter-annual consistency of February sightings in the Florida site suggest that the waters off the southeastern U.S. may be an important habitat for minke whales during winter, either as a migration corridor and/or as a part of their calving grounds.

Acknowledgements

We would like to thank pilots Bob Sticle, David Huddle, Collin Mendenhall, Wayne McKendry, Ron Shrek, Ryan MacGregor, Jerry Morris and Orion Aviation owner/operator Edward Coffman. We would further like to acknowledge the Right Whale Consortium for historic sightings and the SE Region Stranding Network, NOAA Fisheries Miami for additional strandings data. Surveys are conducted under NOAA Scientific Permit No. 948-1692-00 held by UNCW. This research was conducted under a General Authorization from the National Marine Fisheries Service (GA No. 808-1584 and 808-1798-01/02). Funding provided by Naval Facilities Engineering Command.