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Introduction

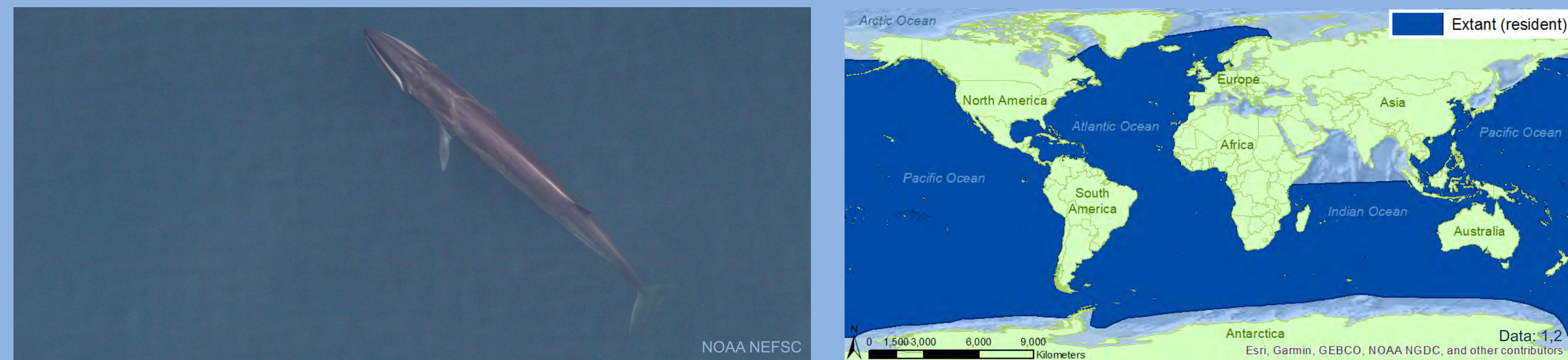


Figure 1. Sei whales (*Balaenoptera borealis*) are endangered, but their distribution and migratory patterns are poorly understood. Much of what is currently known about sei whale distribution¹ is based on historical whaling records, and the limited recent research relies mainly on visual sightings.

Passive Acoustic Monitoring

Passive acoustic monitoring allows for up to continuous collection of acoustic data that can be used to determine baleen whale presence. Between 2004 and 2014, 283 recorders were deployed in the western North Atlantic Ocean from Florida to Greenland.

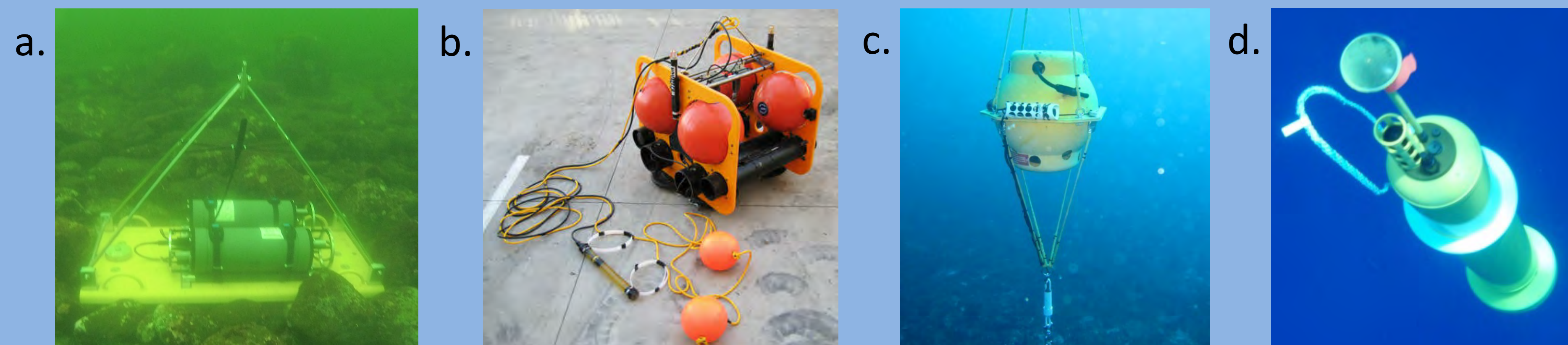


Figure 2. Acoustic data was collected using four different types of bottom-mounted acoustic recorders: **a.)** Autonomous Multichannel Acoustic Recorders; JASCO Applied Sciences) **b.)** High-frequency Acoustic Recording Packages; Scripps IO) **c.)** Marine Autonomous Recording Units; Cornell University and **d.)** Haruphones; NOAA PMEL and Oregon State University.

Manual Verification of LFDCS Detections

Recordings were processed with an automated low-frequency detection and classification system (LFDCS)³ and analyzed for sei whale calls. Detections were manually verified to determine sei whale presence.

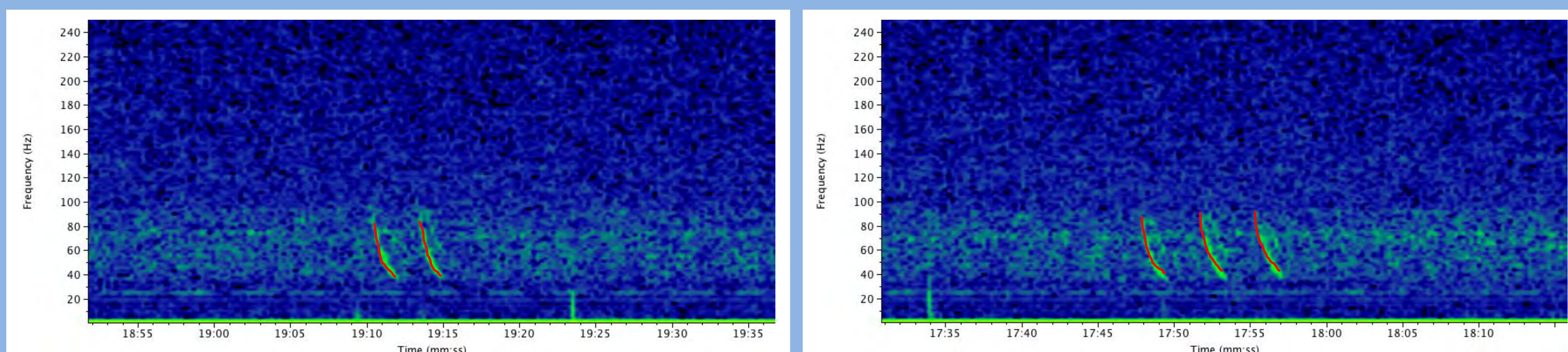


Figure 3. Spectrograms showing sei whale doublet (left) and triplet (right) downsweeps with corresponding pitch tracks (red) as marked in LFDCS^{3,4}.

Results

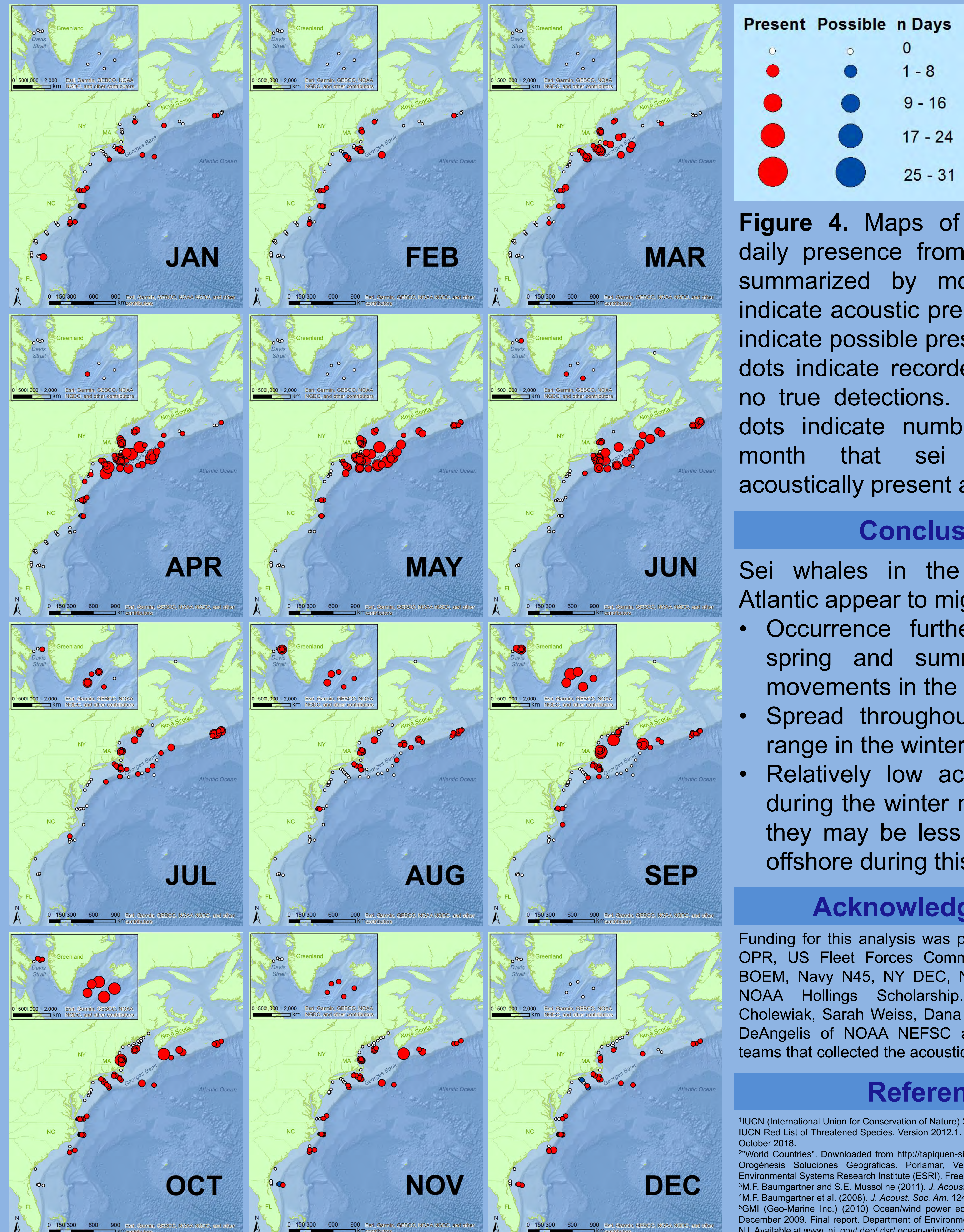


Figure 4. Maps of true sei whale daily presence from 2004 to 2014, summarized by month. Red dots indicate acoustic presence, blue dots indicate possible presence, and white dots indicate recorder locations with no true detections. The size of the dots indicate number of days per month that sei whales were acoustically present at that location.

Conclusions

Sei whales in the western North Atlantic appear to migrate seasonally.

- Occurrence further north in the spring and summer; southward movements in the fall
- Spread throughout most of their range in the winter
- Relatively low acoustic presence during the winter months suggests they may be less vocal or further offshore during this season.

Acknowledgements

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