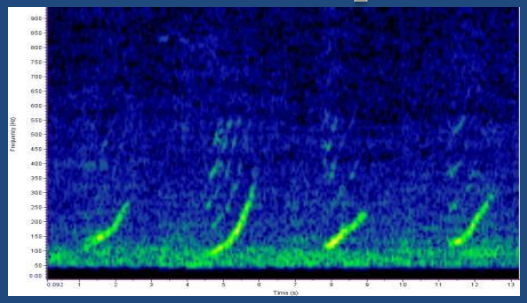
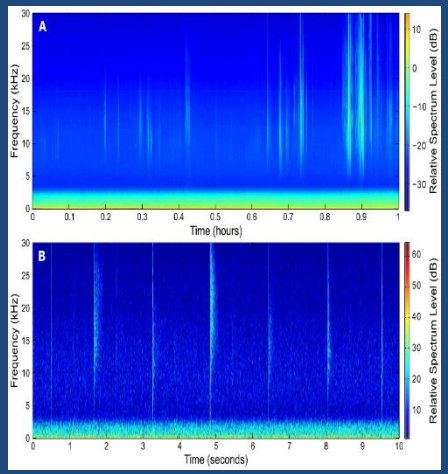
Large scale monitoring of acoustic soundscapes and species distribution patterns across the western Atlantic ocean.

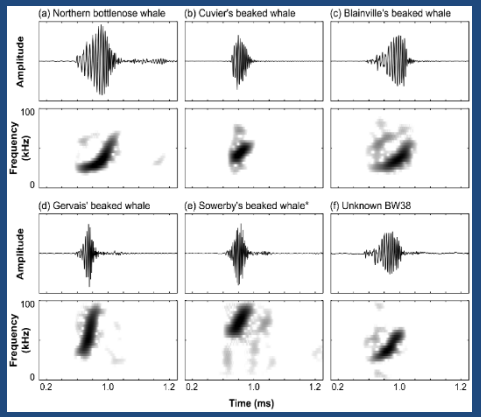
Sofie Van Parijs

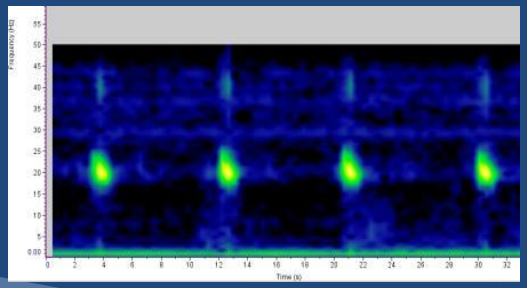
Northeast Fisheries Science Center

Low-High Frequency Marine Mammal Species

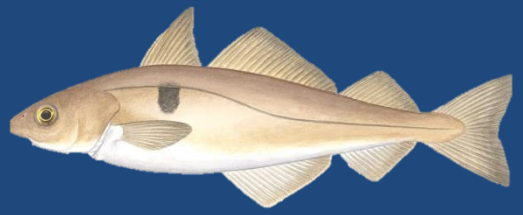


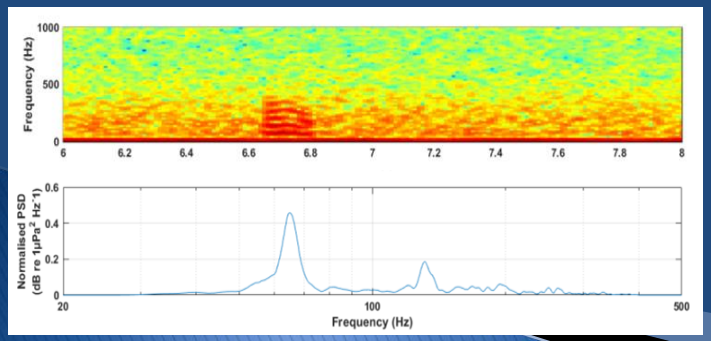


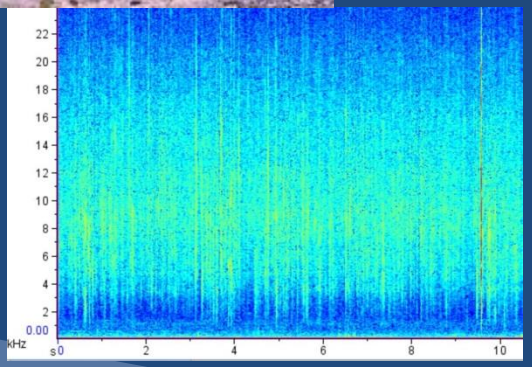


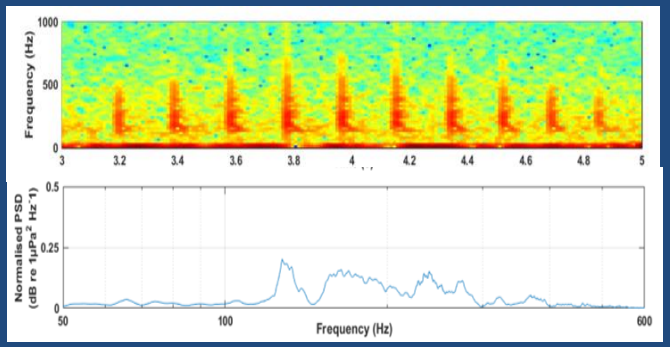


Fishes and invertebrates









MARU

(Marine Autonomous Recording Unit)

Cornell University

HARP

(High-frequency Acoustic Recording Package)

Scripps Institution of Oceanography

AMAR

(Autonomous Multichannel Acoustic Recorder)

Jasco Applied Sciences

GLIDERS

(Autonomous Vehicles)

WHOI/Webb Teledyne

SOUNDTRAP

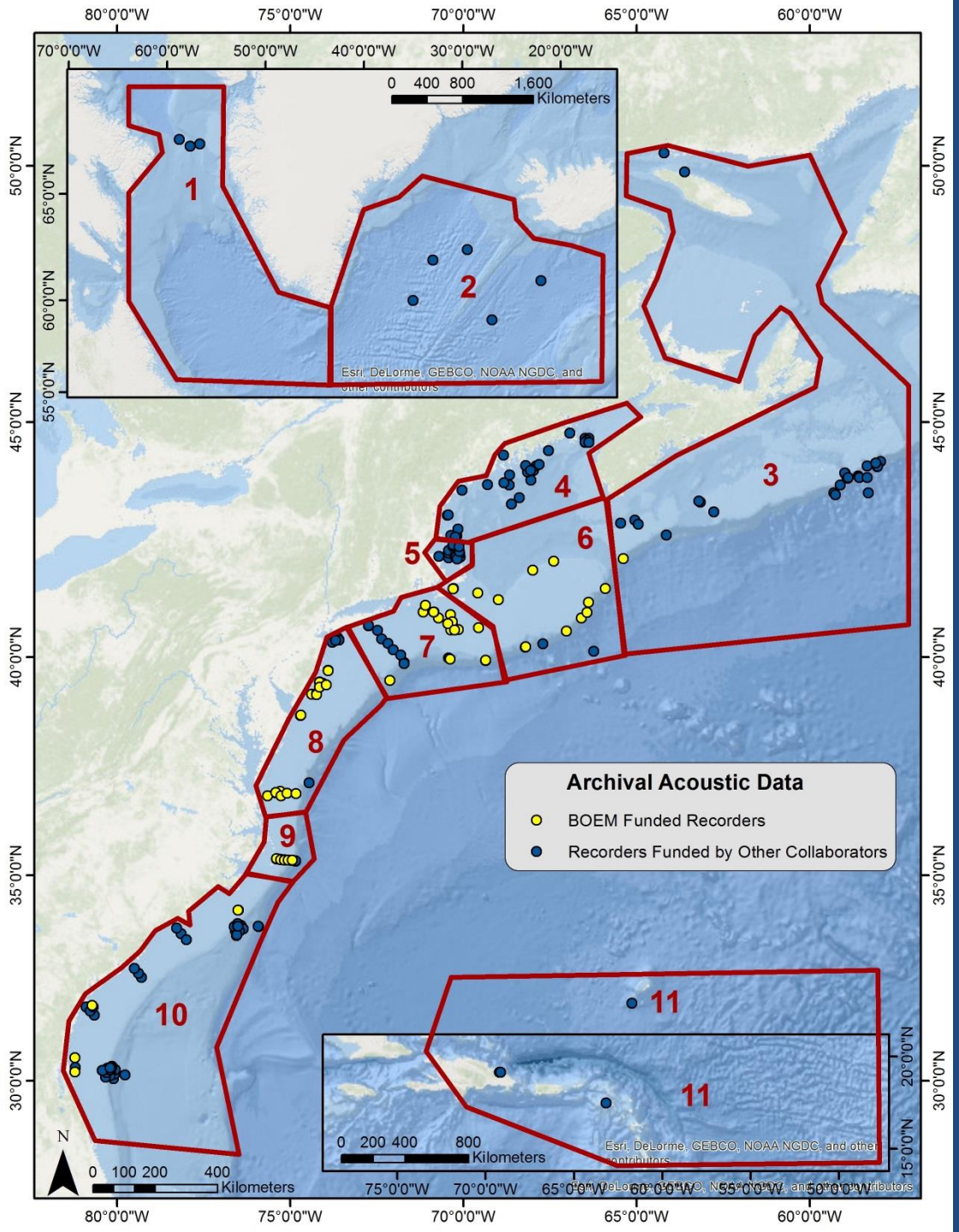
Ocean Acoustics Instruments

HARU

(Haruphone)

NOAA PMEL &
Oregon State University

Recorder Types



LARGE SPATIAL SCALES & LONG TERM MONITORING

Available Recorders: 2004 – 2014

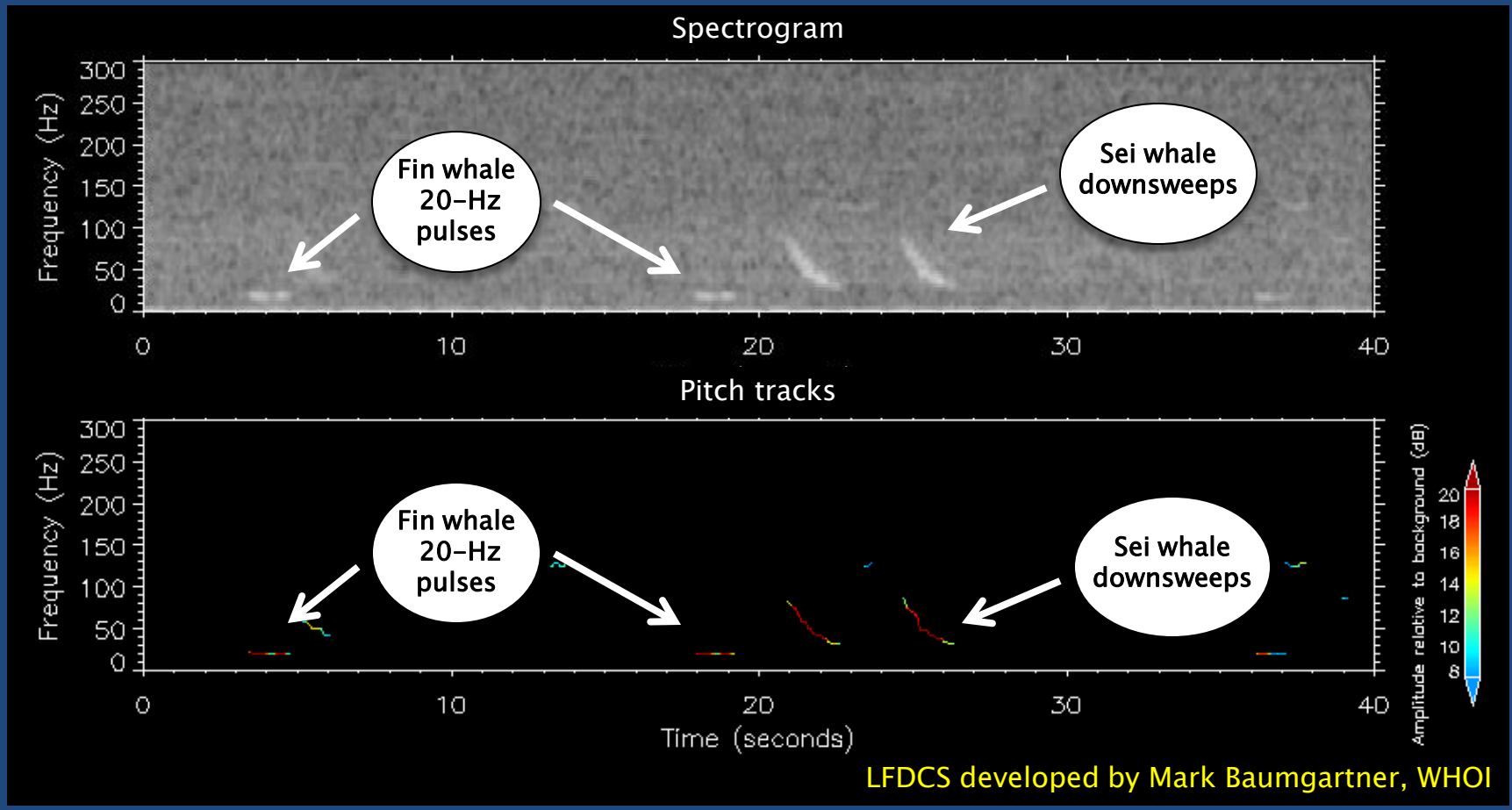
Data Contributors

- Sean Todd; College of the Atlantic
- Chris Clark, Russ Charif, Holger Klinck, Aaron Rice; Cornell University
- Hilary Moors-Murphy; Department of Fisheries and Oceans Canada
- Andy Read, Joy Stanistreet, Lynne Hodge; Duke University
- Kathleen Dudzinski; Dolphin Communication Project
- Julien Delarue, Bruce Martin; JASCO Applied Sciences
- Erin Summers; Maine Department of Marine Resources
- Joel Bell, Jaqueline Bort, Anu Kumar; NAVFAC Naval Facilities Engineering Command
- Scott Kraus; New England Aquarium
- Gary Buchanan; New Jersey Department of Environmental Protection
- Catherine Berchok; NOAA National Marine Mammal Laboratory
- Lance Garrison, Melissa Soldevilla; NOAA Southeast Fisheries Science Center
- Mike Thompson, David Wiley, Leila Hatch; NOS Stellwagen Bank National Marine Sanctuary
- Dave Mellinger, Sharon Nieukirk; Oregon State University
- Helen Bailey; University of Maryland
- Kate Stafford; University of Washington
- Denise Risch, Scottish Association for Marine Science
- Ana Sirovic, John Hildebrand; Scripps Institution of Oceanography
- Susan Parks; Syracuse University

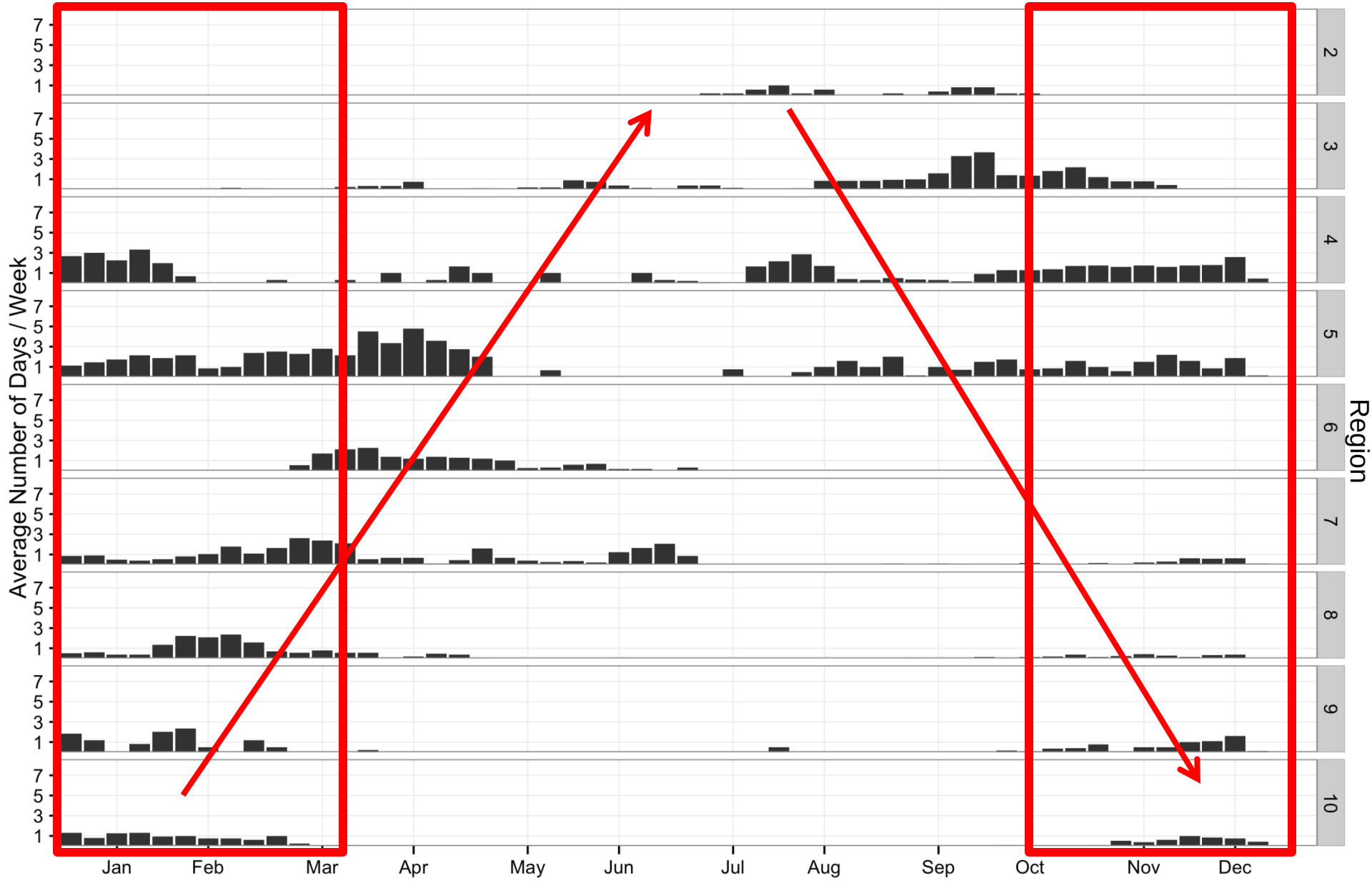
Thank You!

LFDCS: Low-frequency detection and classification system

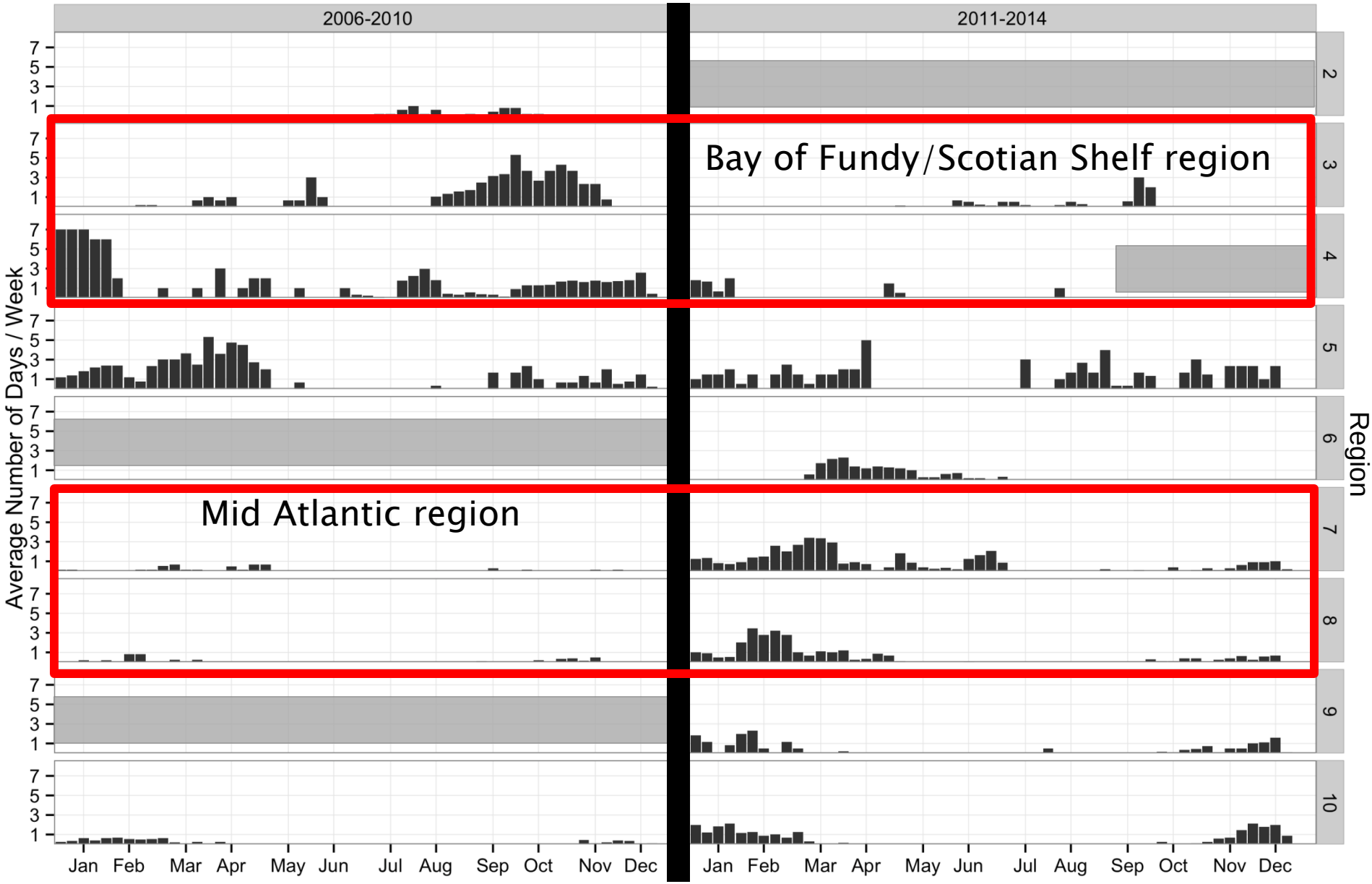
- Detects sounds and pitch tracks
- Classifies pitch tracks based on call library
- NARW, fin, humpback, sei and blue



Daily Presence Results: 2004-2014



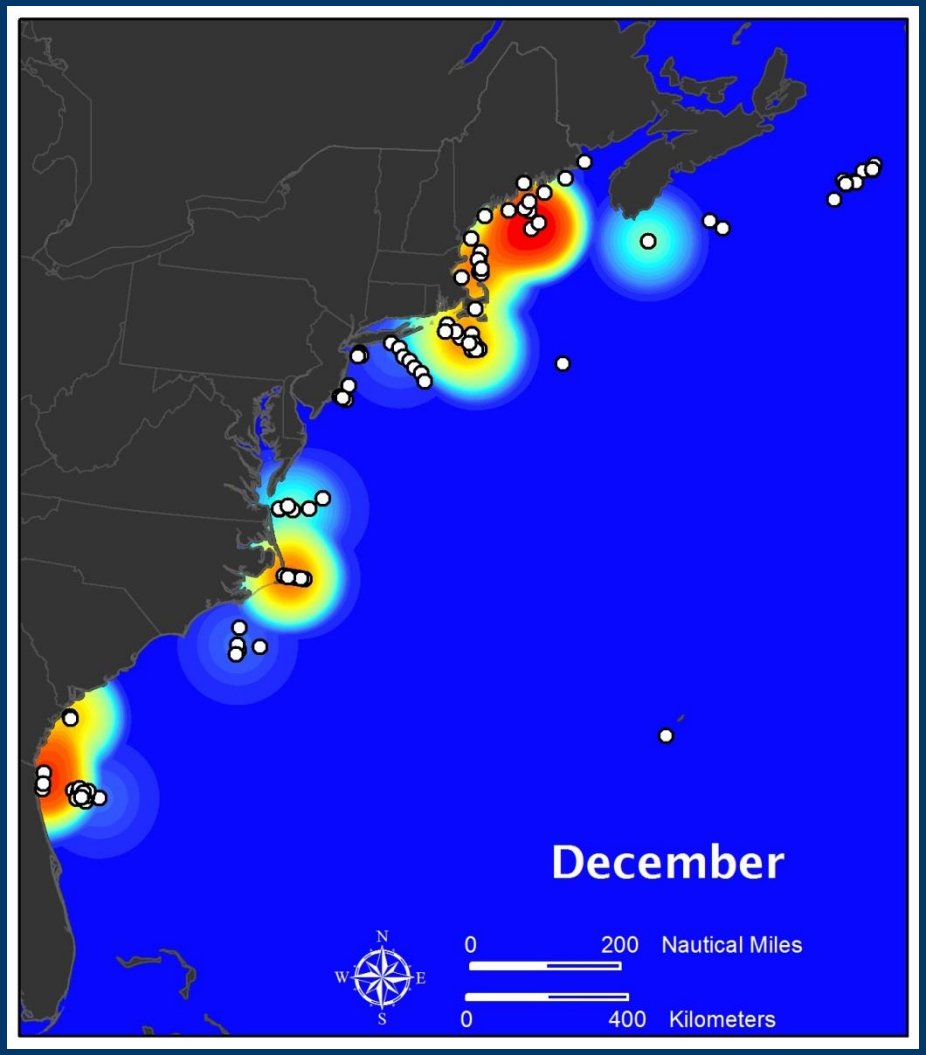
Daily Presence: comparison over time

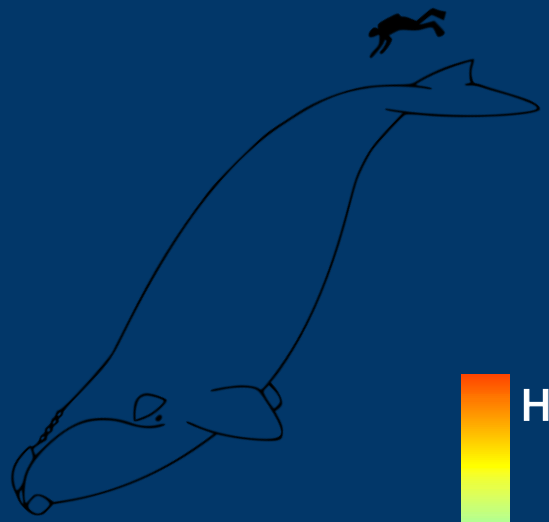


NOAA FISHERIES SERVICE
Northeast Fisheries Science Center
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION

Right Whale Monthly Presence

2004 – 2014



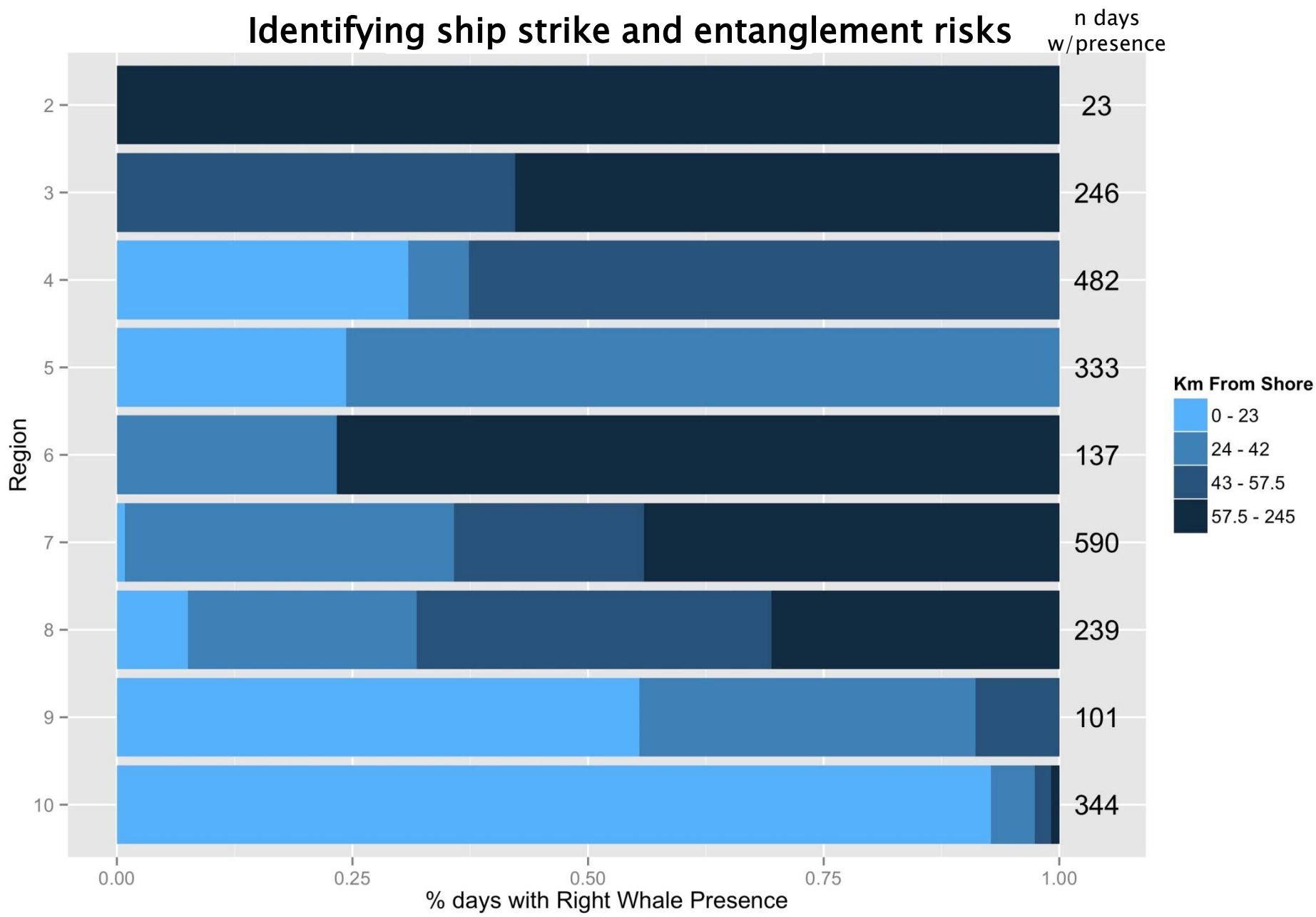


High

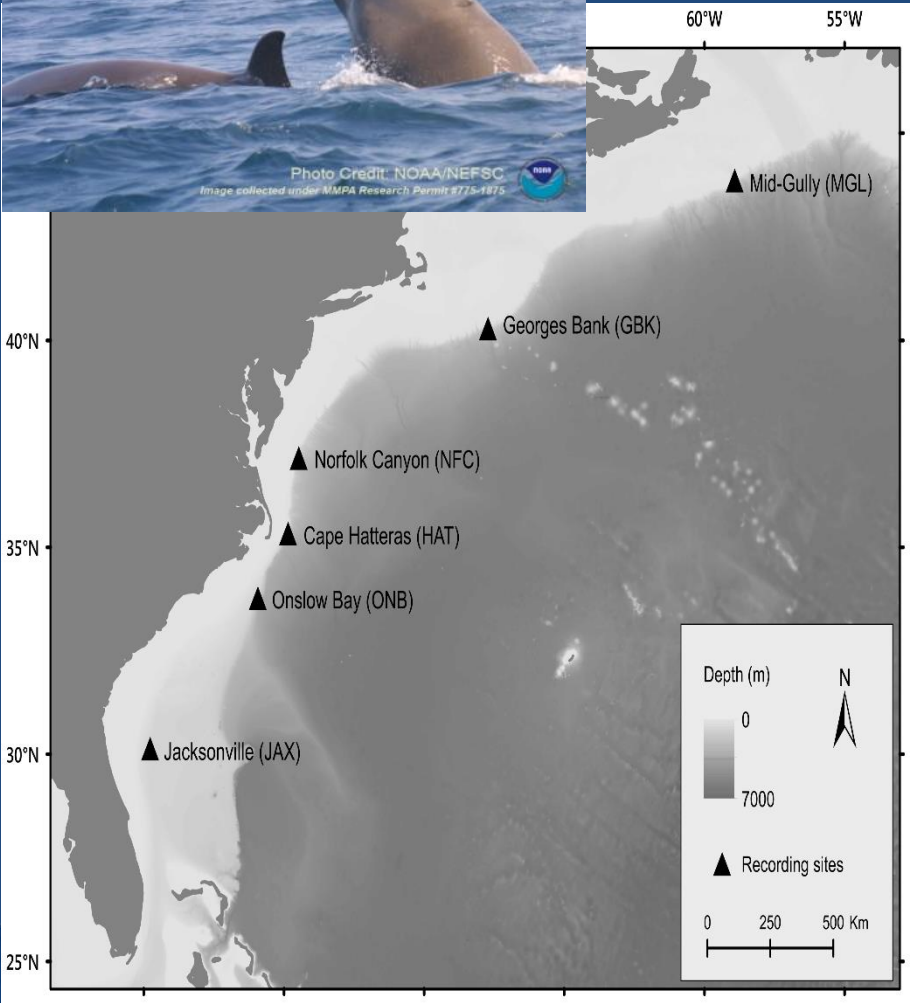
Low

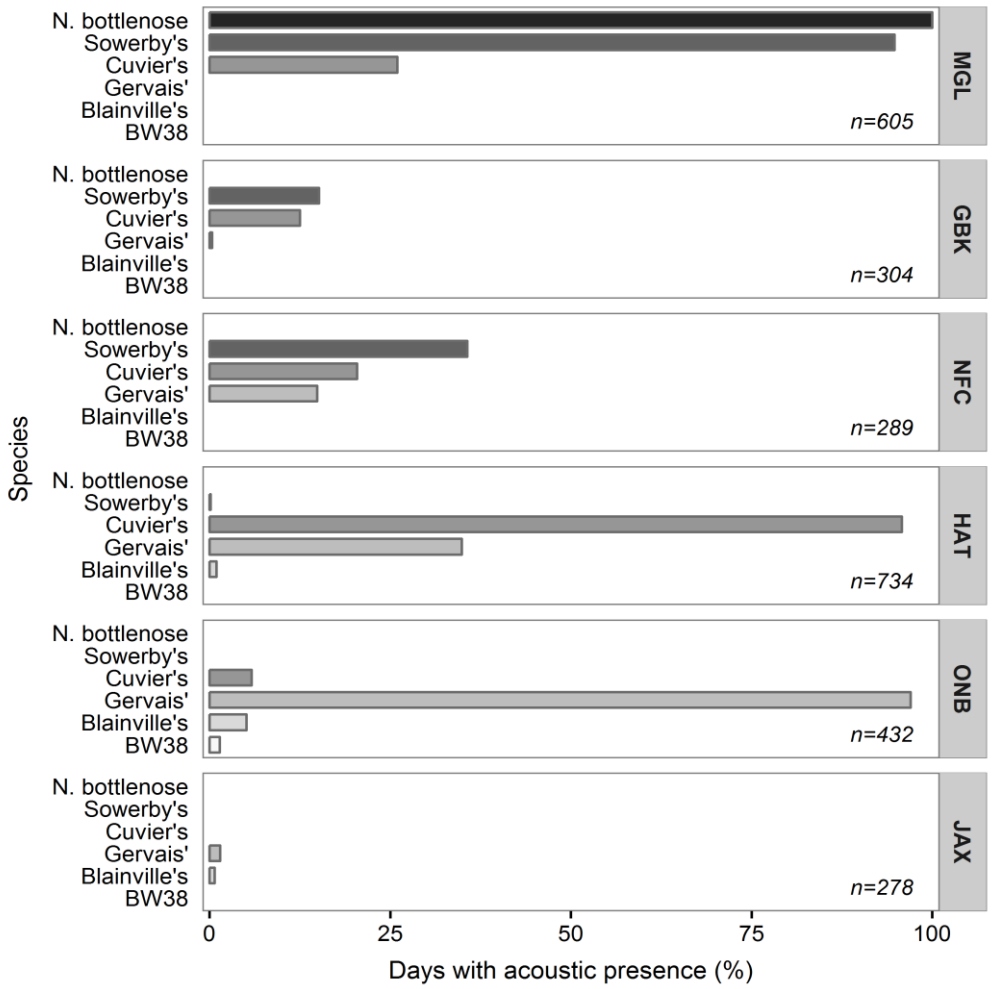
Figure adapted from Mike Thompson, NOAA/SBNMS

Distance to Shore Breakdown



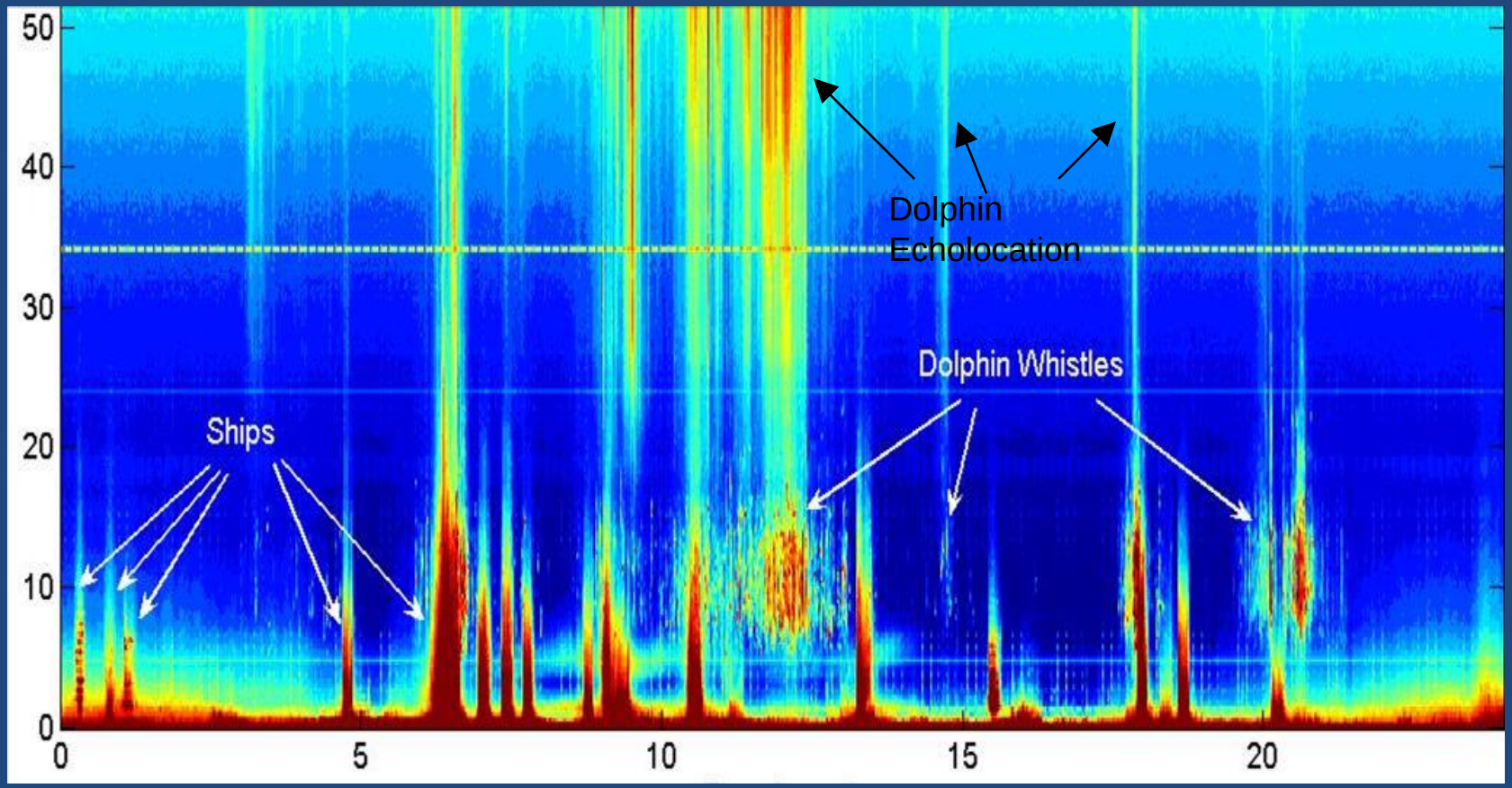
Beaked whales: 2011 – 2015





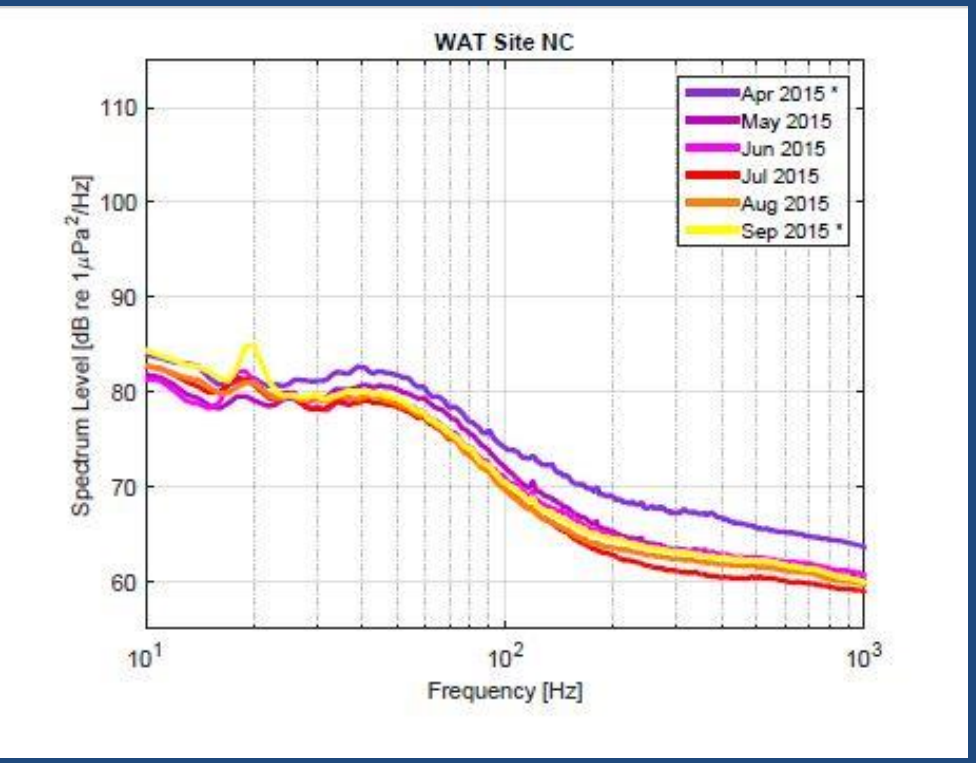
Stanistreet et al. 2017. Using passive acoustic monitoring to document the distribution of beaked whale species in the western North Atlantic Ocean. Can J. Aq. Fish. Sci.

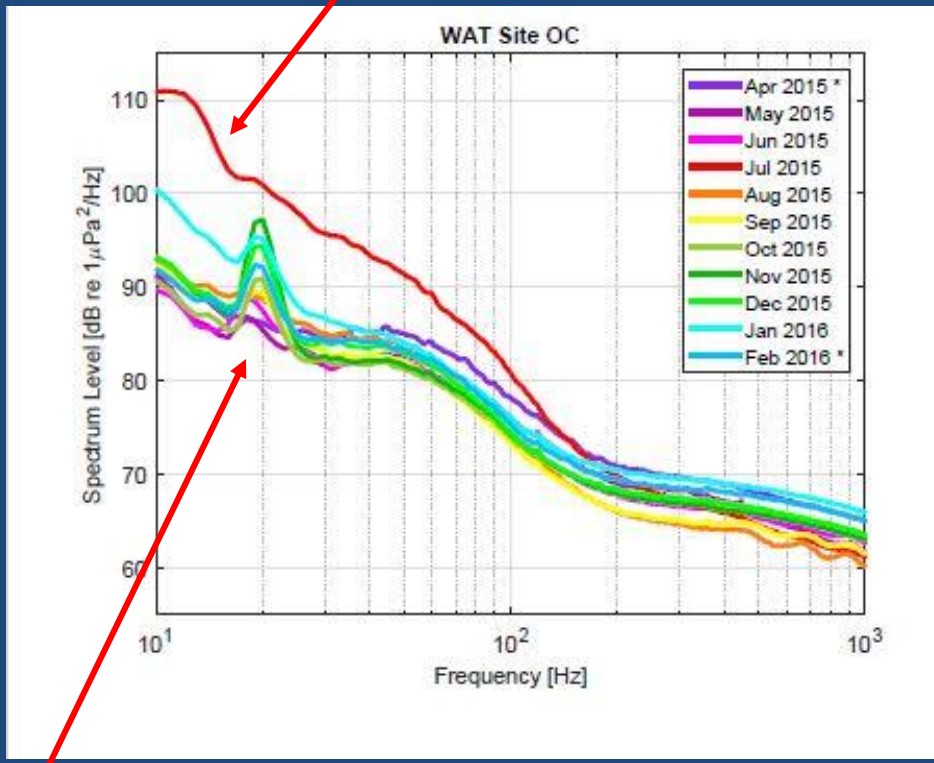
Soundscapes: Assessing Anthropogenic & Biological Contributors



Long Term Soundscapes

High currents



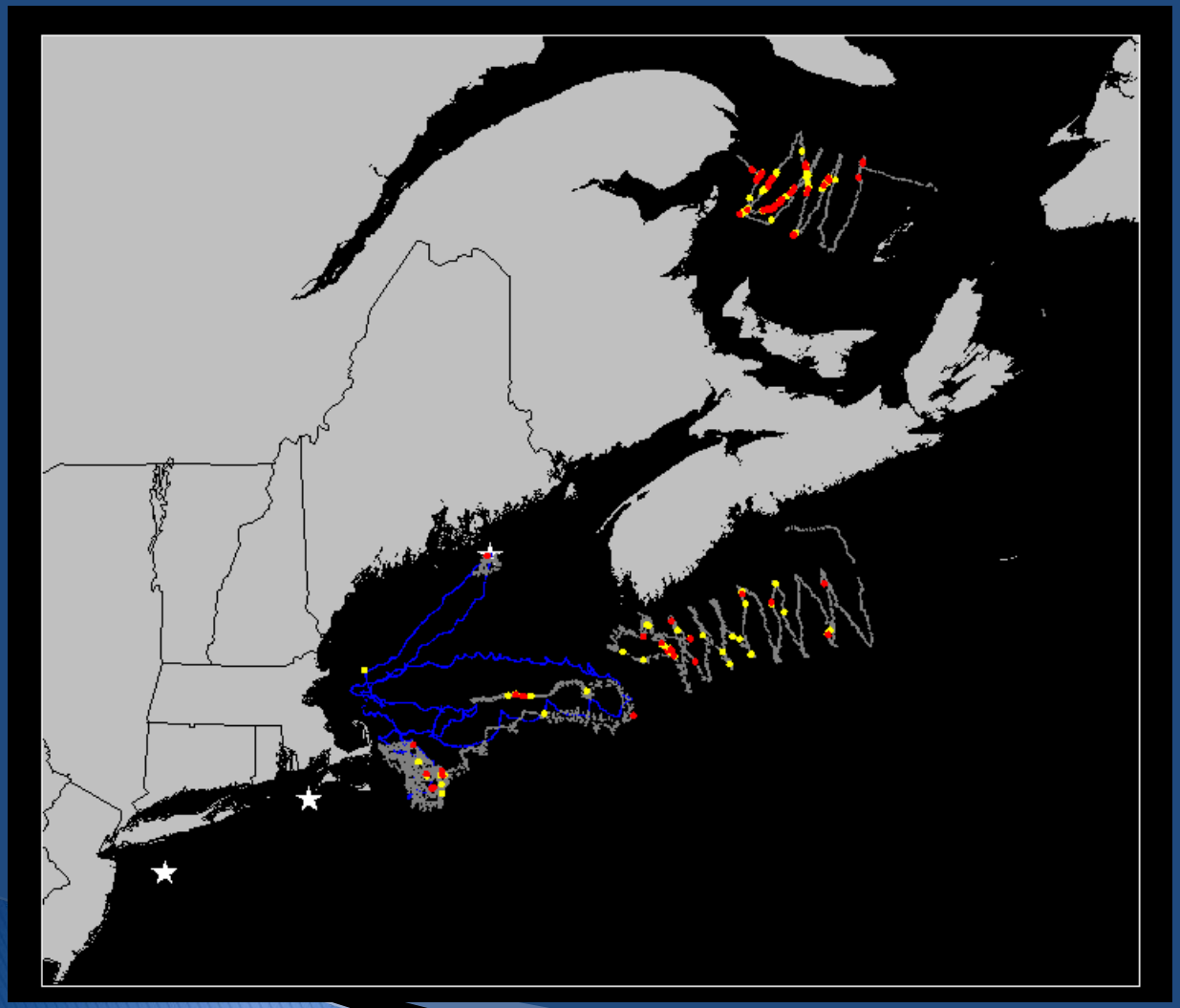


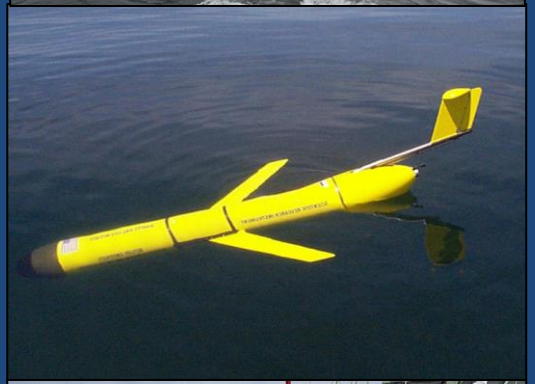
Nantucket Canyon

Fin whales

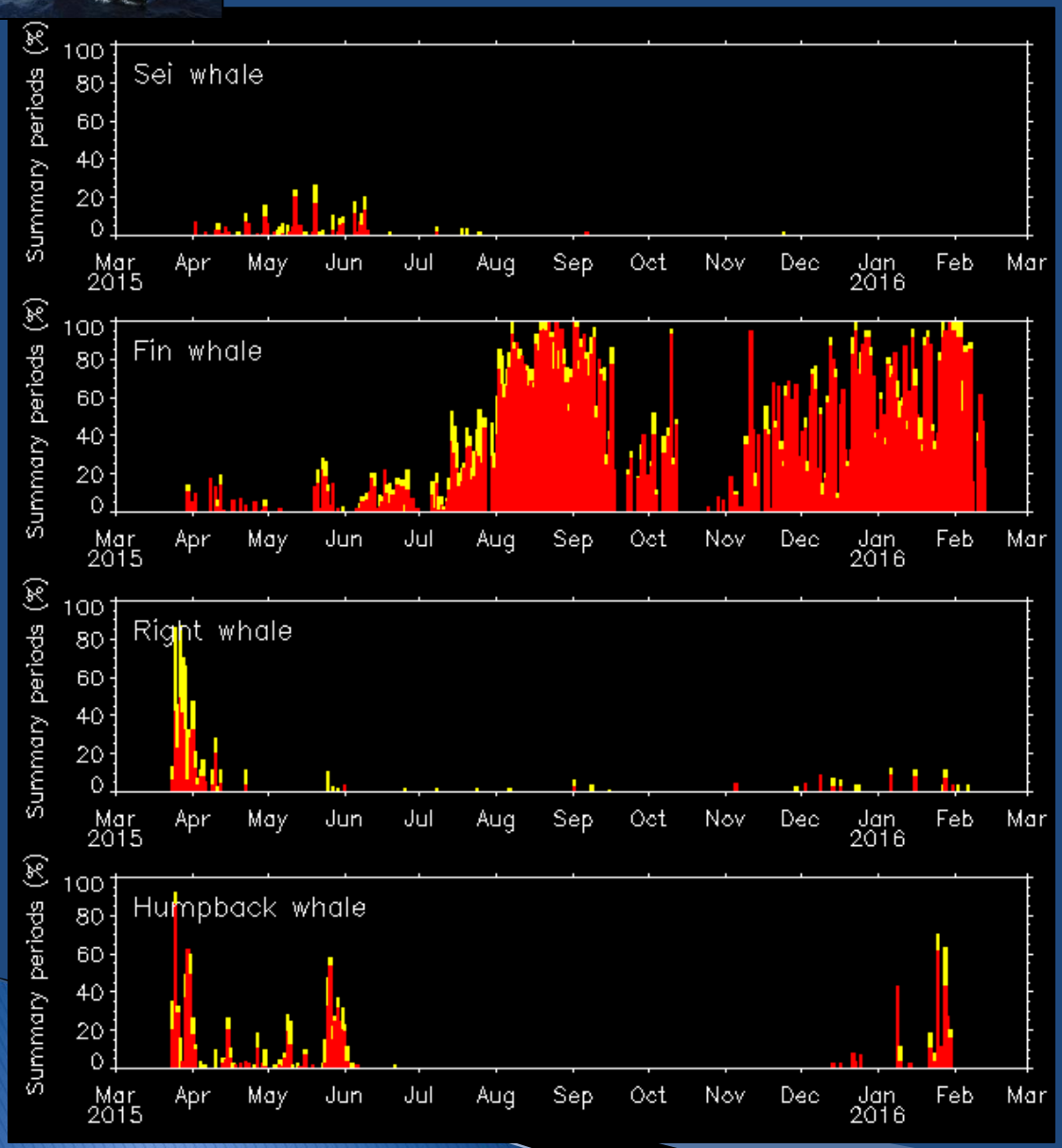
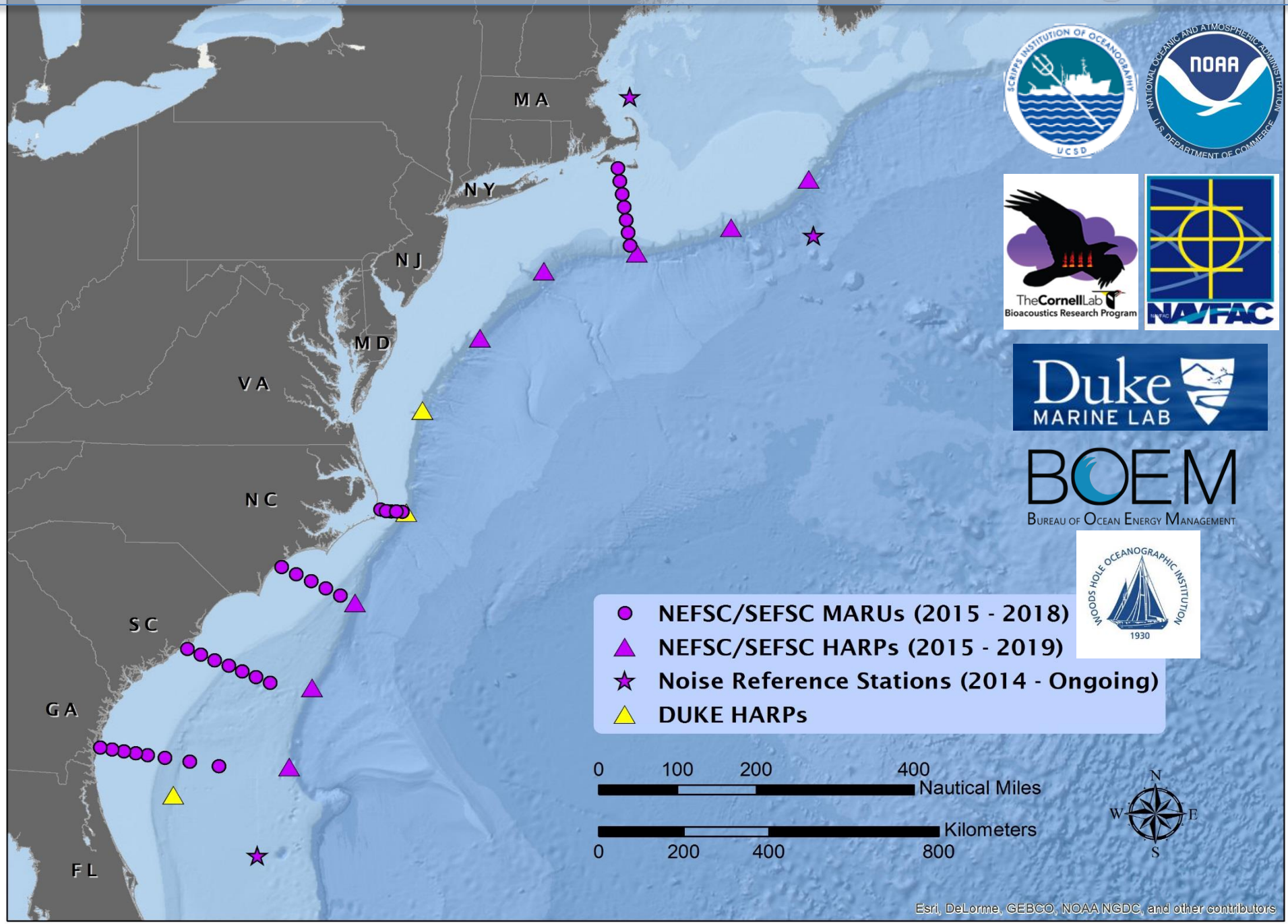
Oceanographers Canyon

Monitoring & Mitigation: Real time data





Daily Presence of Species



Current Acoustic Deployments