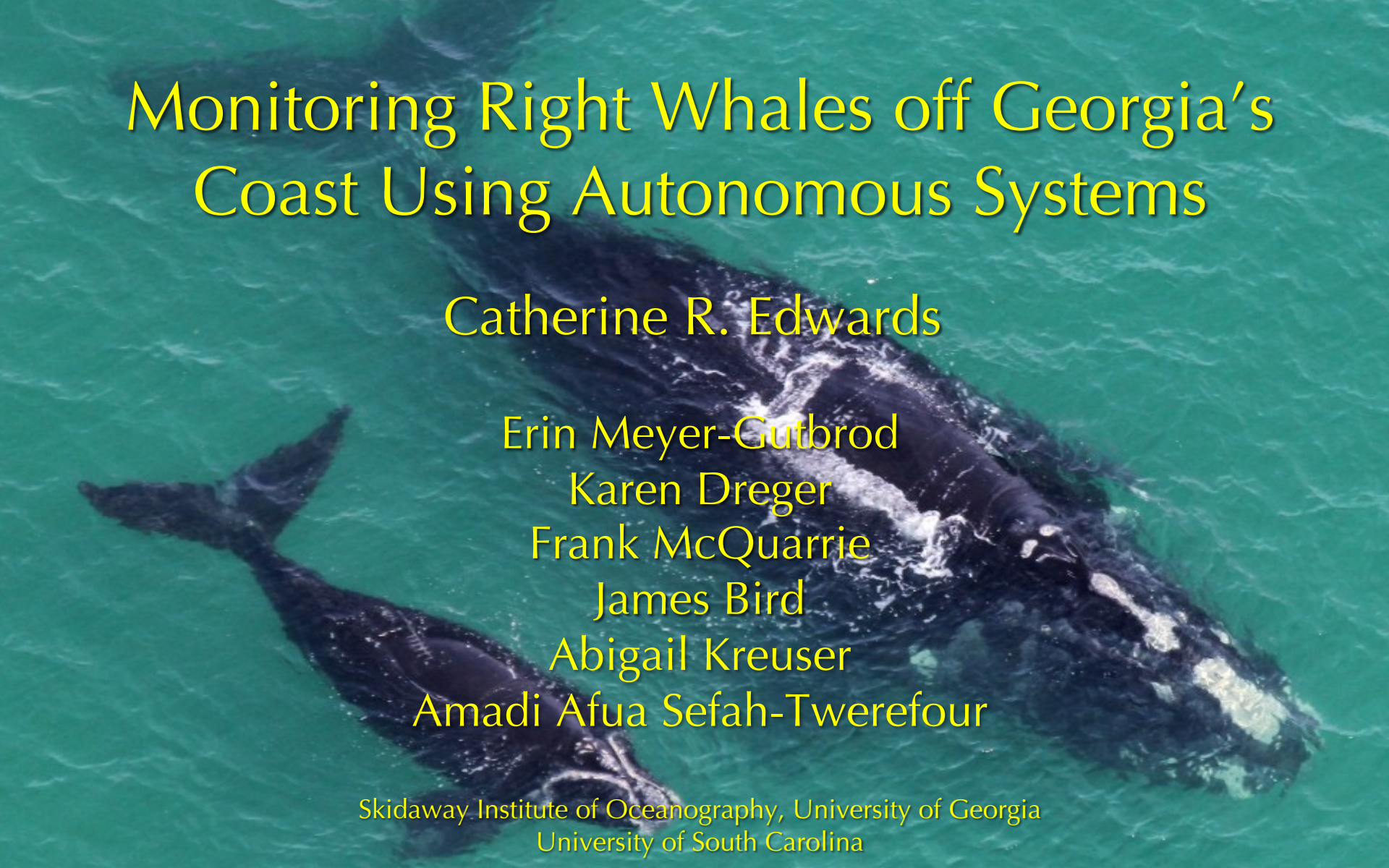
Monitoring Right Whales off Georgia's Coast Using Autonomous Systems



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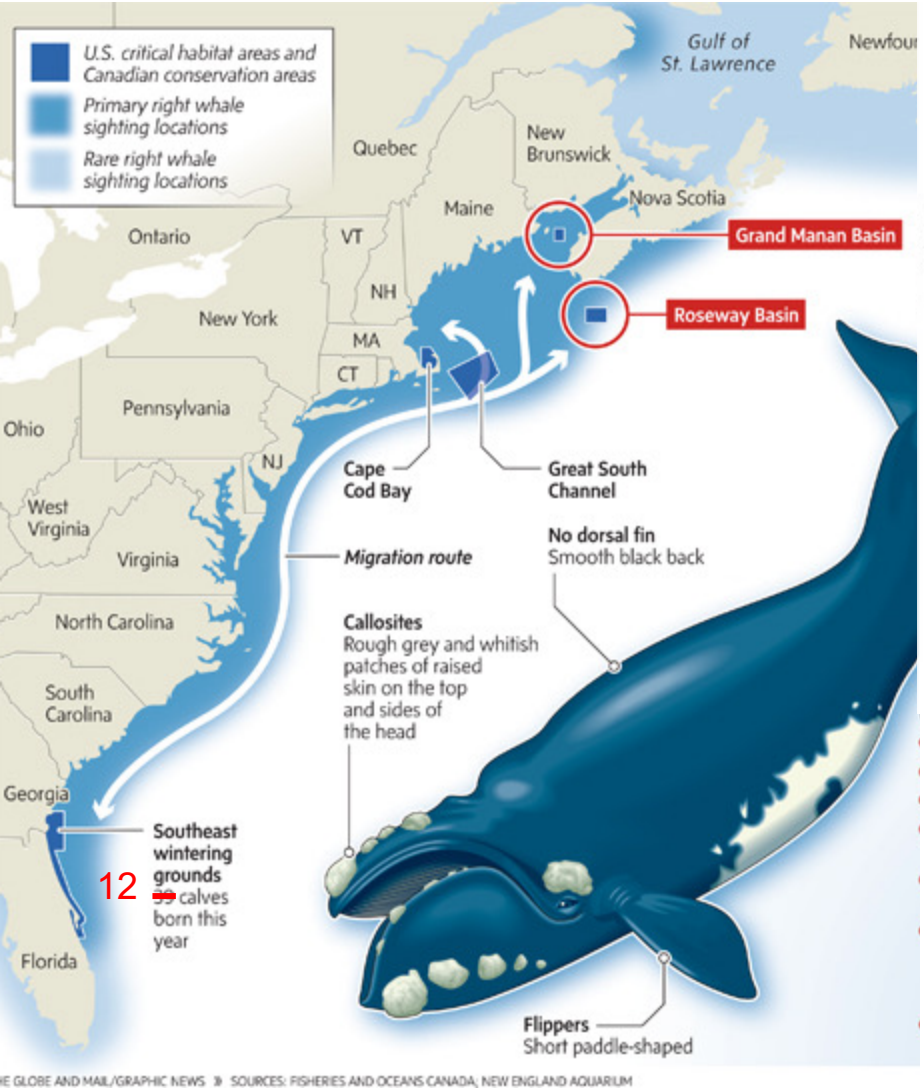

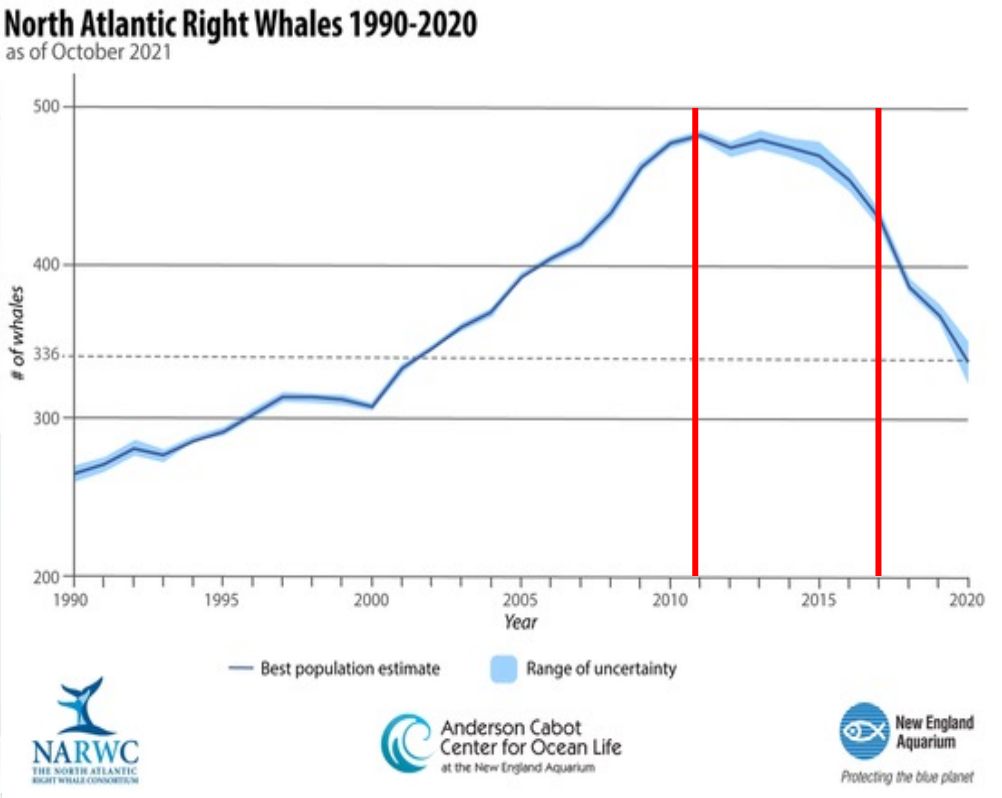

2010: RW birth rates begin to decline

2017: Unexpected Mortality Event begins

Low compliance to vessel speed restrictions during calving migration out of Charleston and Savannah harbors

Seasonal Ticker

Charleston: 9.3% Compliance, 13.66 kn Mean VSPD

Savannah: 9.42% Compliance, 13.45 kn Mean VSPD

MARITIME WHALE

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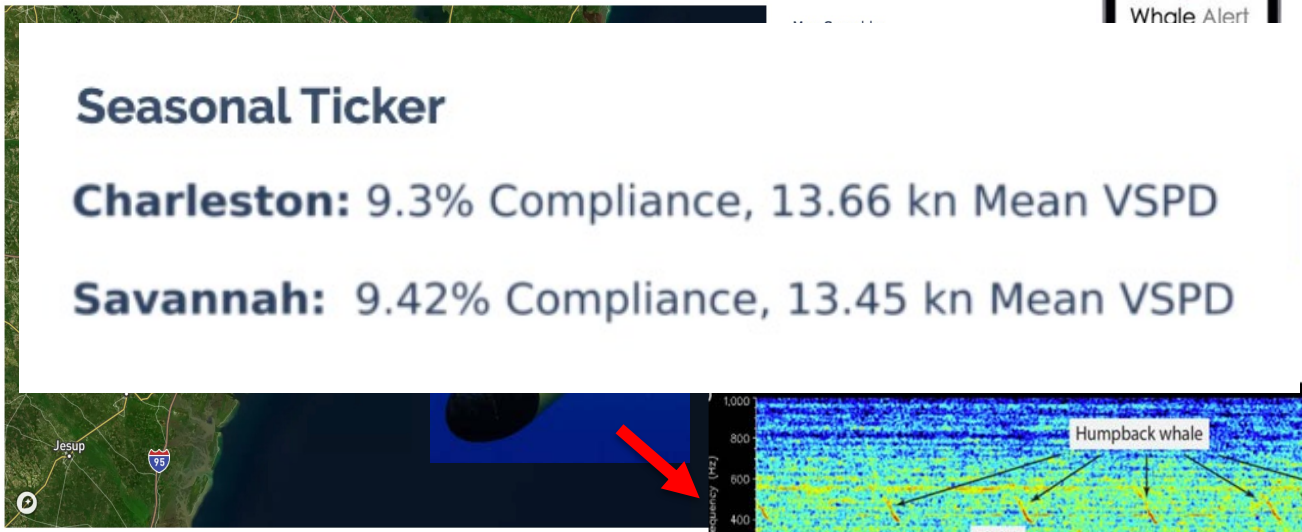
10 knot speed limit (November 1 - April 30)

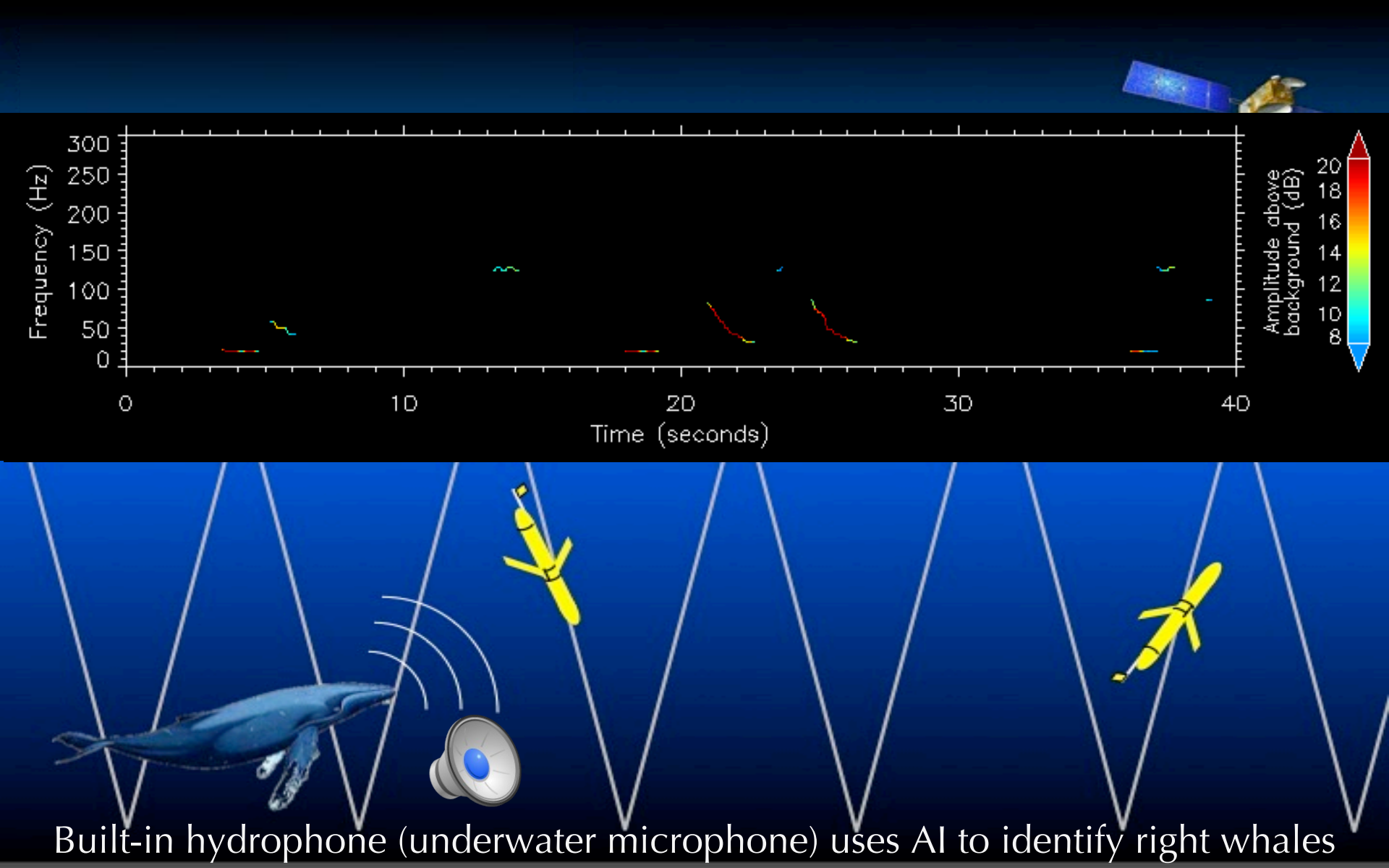


This interactive map shows Panamax and Post-Panamax vessels at their maximum speeds from Nove
to April 30. Hover to view details.

Port of Savannah – 4th busiest in US (4.6 million TEU/yr)

Port of Charleston – 2.6 million TEU/yr

https://www.maritimewhale.com/



Built-in hydrophone (underwater microphone) uses AI to identify right whales

Passive acoustic monitoring with gliders

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- Integrate and test near real-time passive acoustic monitoring capability on SkIO glider
- Initial deployment off GA during calving season
- Validate, develop best practices for use in shallow water
- Look for temporal/spatial changes in calving ground use
- Trigger dynamic vessel management in near real-time

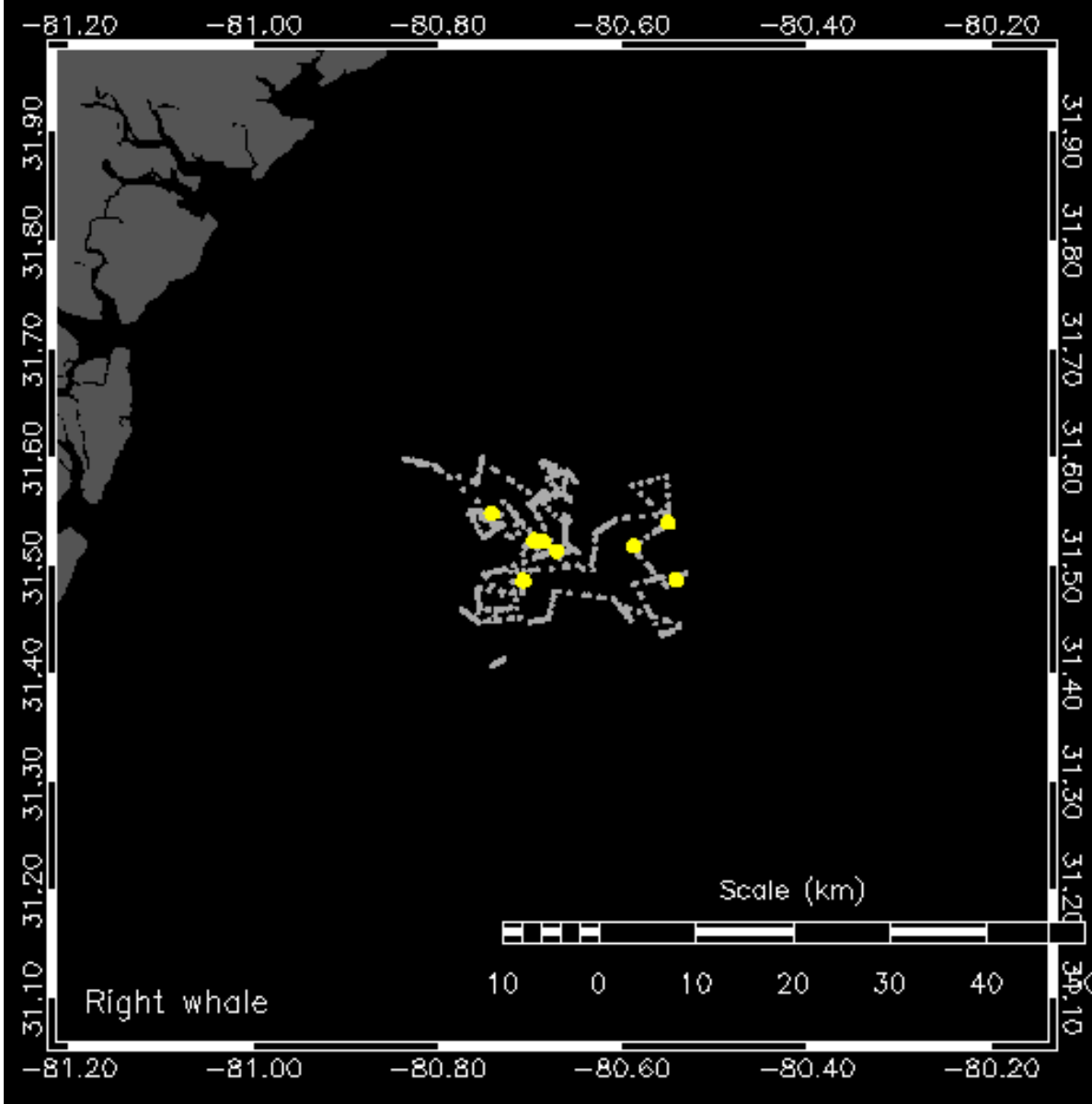

G3 SLOCUM GLIDER

Feb. 2023: 15-day mission off GA

Ended by hardware failure

Experimented with modes of motion

8 days with detections of right whales



WhaleMap

More Information

Data | Colors | Layers

Choose date(s):

- ○ Specific date
- ◉ Date range
- ○ Range among years

2023-01-21 to 2023-02-03

Choose platform(s):

Slocum Glider | Plane | Vessel | RPAS | Buoy | Opportunistic

Choose species:

Right whale

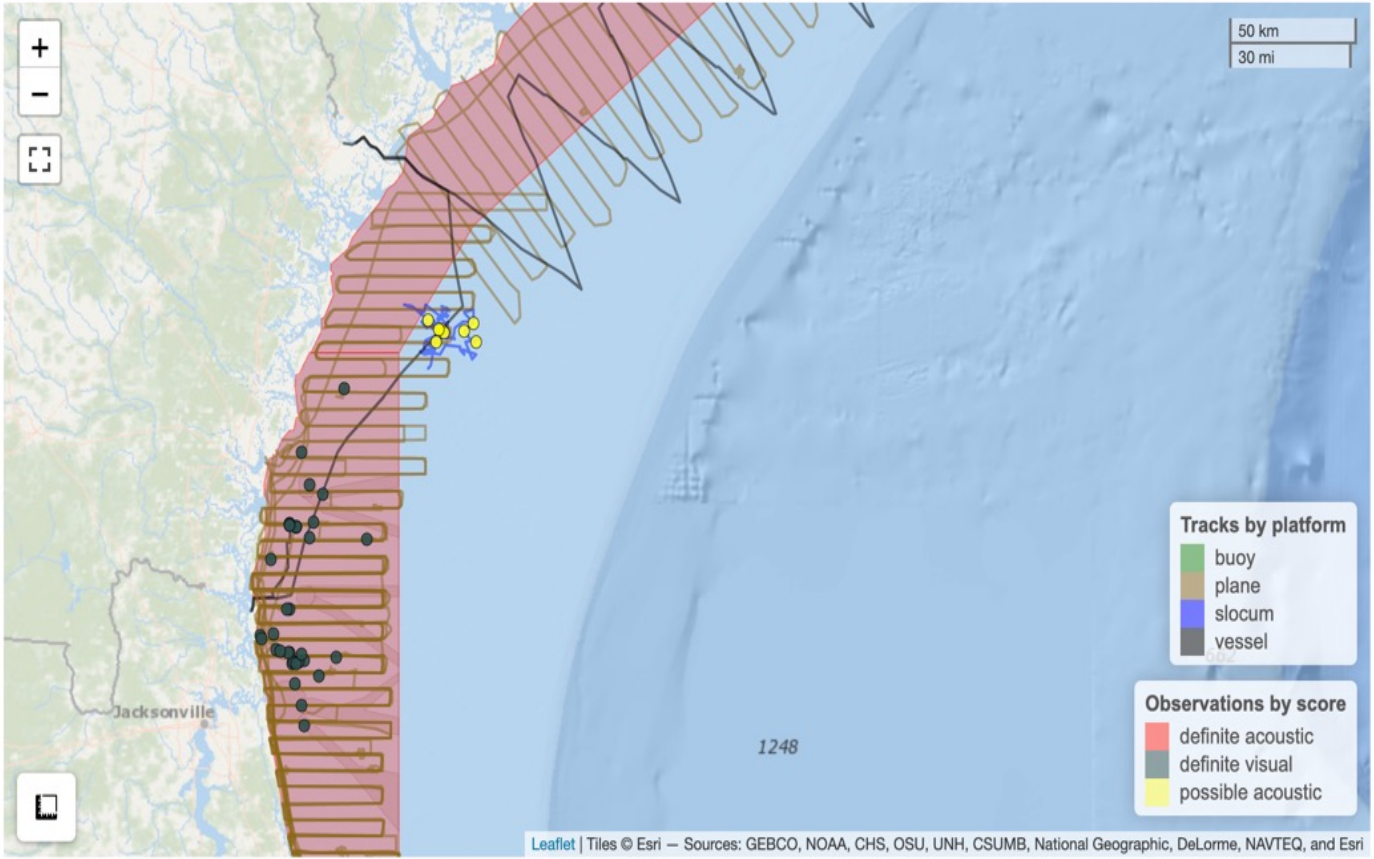
Choose data source(s):

NARWC | WhaleMap | WhaleInsight | RWSAS

Choose data layer(s):

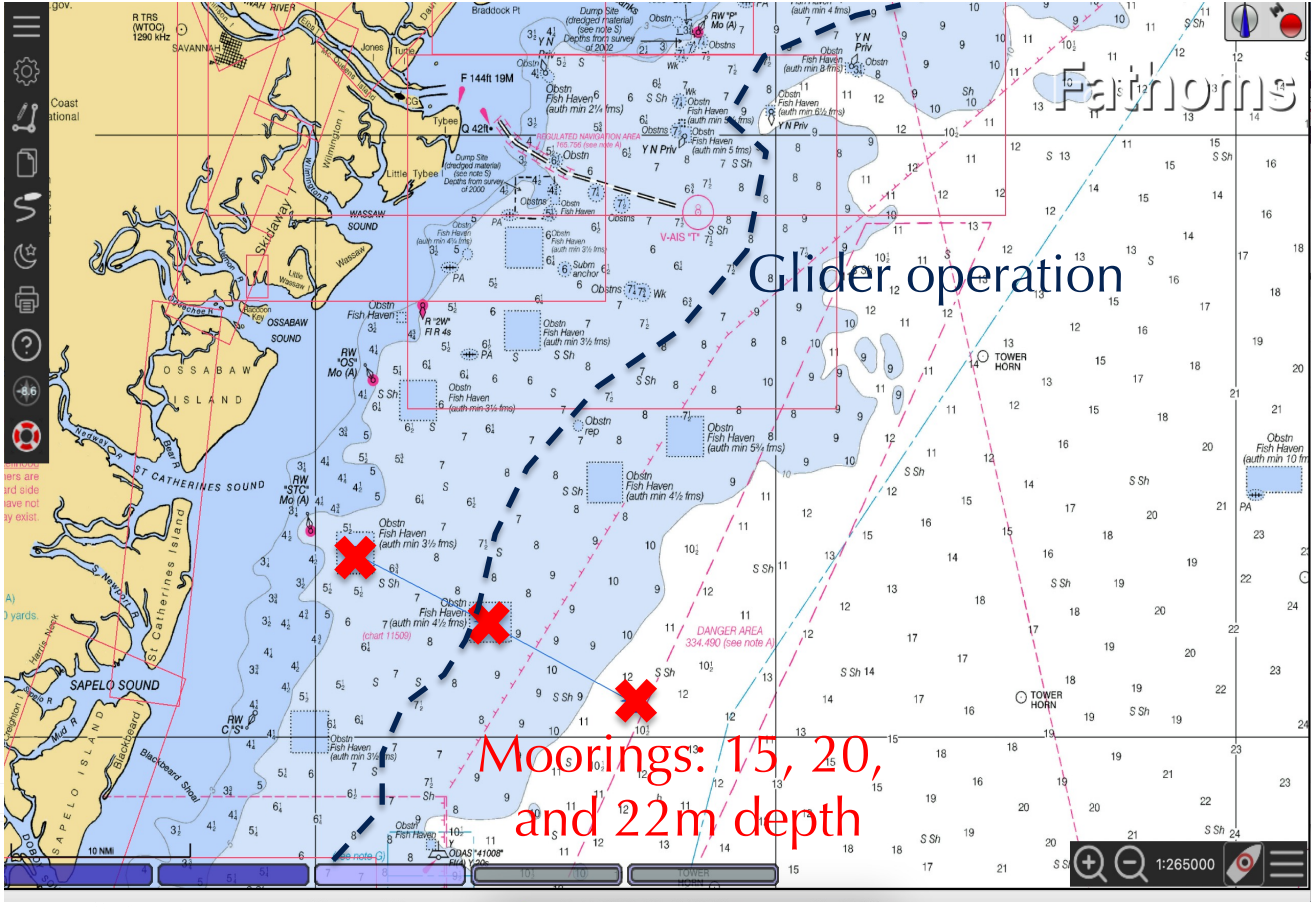
Go!

Map



These data are preliminary data, subject to change, and not to be used without permission from the contributor(s)

Moored hydrophones: validation, range



What is effective detection range?

What factors drive changes in detection range?

How can we use this knowledge to our advantage to design the robotic network?

Acknowledgments

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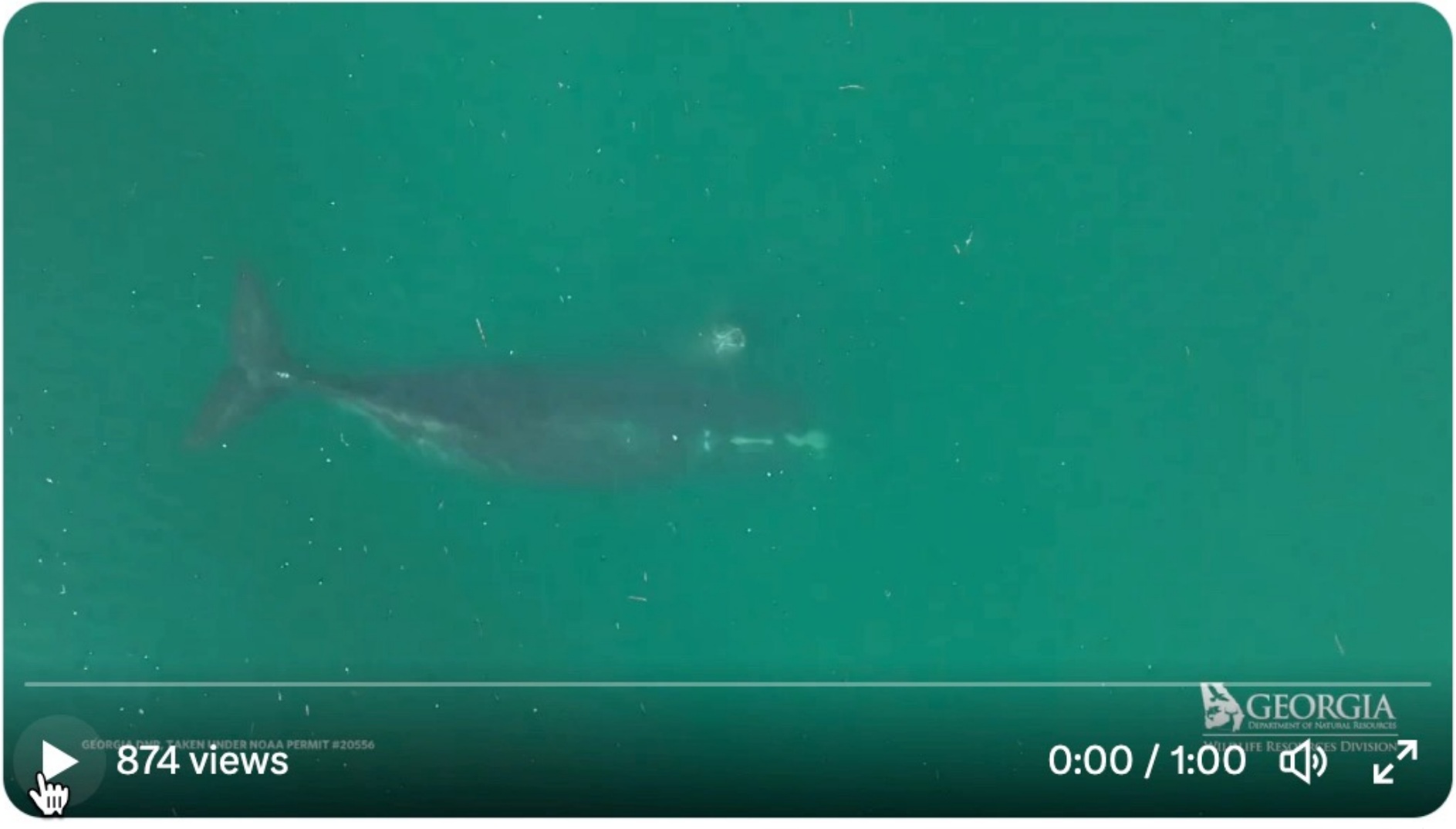
SECOORA
Southeast Coastal Ocean Observing Regional Association

Mark Baumgartner, WHOI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