

NOAA-University of New Hampshire Joint Hydrographic Center

Research Plan for the New 5-year Cooperative Agreement



Joint Hydrographic Center

NOAA-UNH Joint Hydrographic Center



Primary facility on the campus of the University of New Hampshire in Durham, NH

Waterfront facility in nearby New Castle, NH



Joint Hydrographic Center

The Center Staff

14 Research and Teaching Faculty

17 Affiliate Faculty members

22 Research Scientists and Staff

5 Admin Staff

14 NOAA Scientists

31 M.S. and Ph.D. graduate students

6 International GEBCO/Nippon Foundation Scholars



Joint Hydrographic Center

Value from Industry Partnerships

- 52 Industry Partners
 - Manufacturers
 - Software Providers
 - Service Providers & Practitioners
 - Non-Profit & Philanthropic organizations

- Leverage partner contributions
- Stay in touch with and benefit from private sector developments
- Maintain pathway from research to operations
- Provide student opportunities
- Foster hydrographic community interactions

And for industry partners!

Access to research and code

Collaboration

Rights to license

Use of facilities



The Cooperative Agreement

A cooperative agreement is a grant in which the federal government has substantial participation

- The agreement was awarded competitively
- Notice of Funding Opportunity released March 2020
- Based on the competition, the University of New Hampshire was selected, and the award was issued August 26, 2020
- The performance period is Jan 1 2021 – Dec 31 2025



Programmatic themes for the next 5 years

- Advance the Technology to Map U.S. Waters
 - Data Acquisition
 - Data Value (Processing and Interpretation)
- Advance the Technology for Digital Navigation Services
 - Tools for the Navigator
 - Electronic Charting Products
- Develop and Advance Marine Geospatial and Soundscape Expertise
 - Acoustic propagation and effects
 - Education and outreach



Advance the Technology to Map U.S. Waters

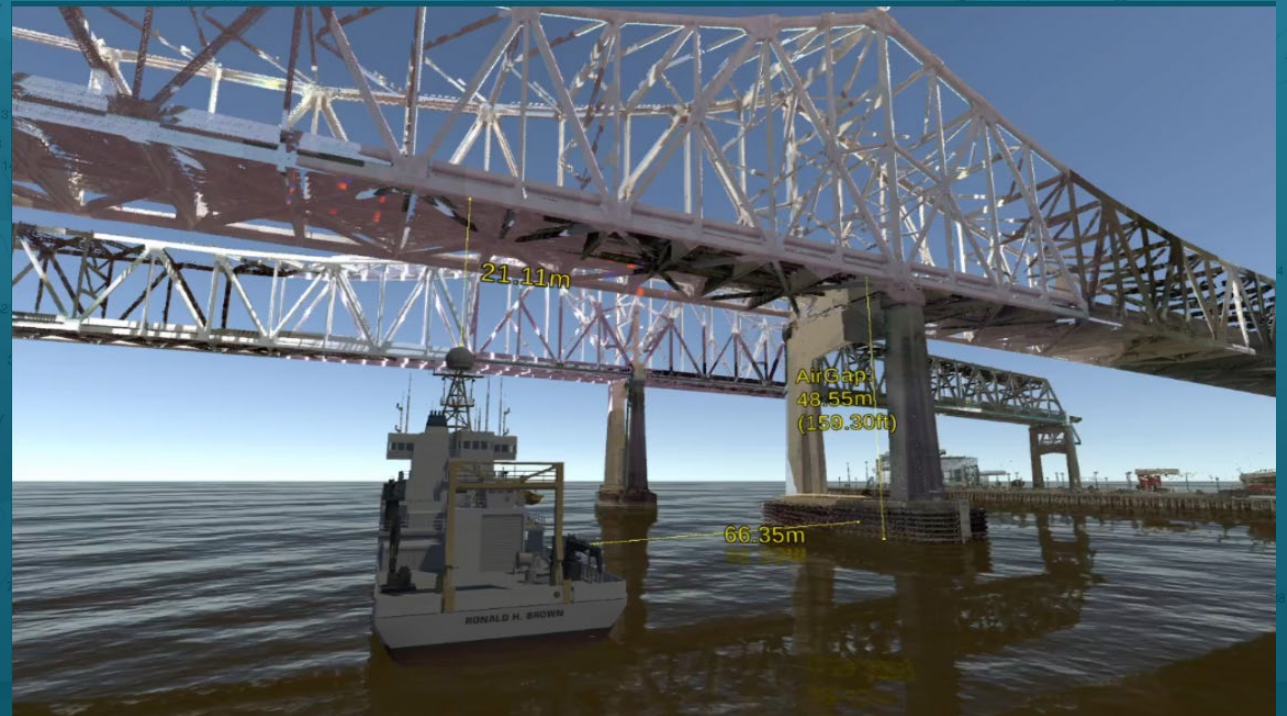
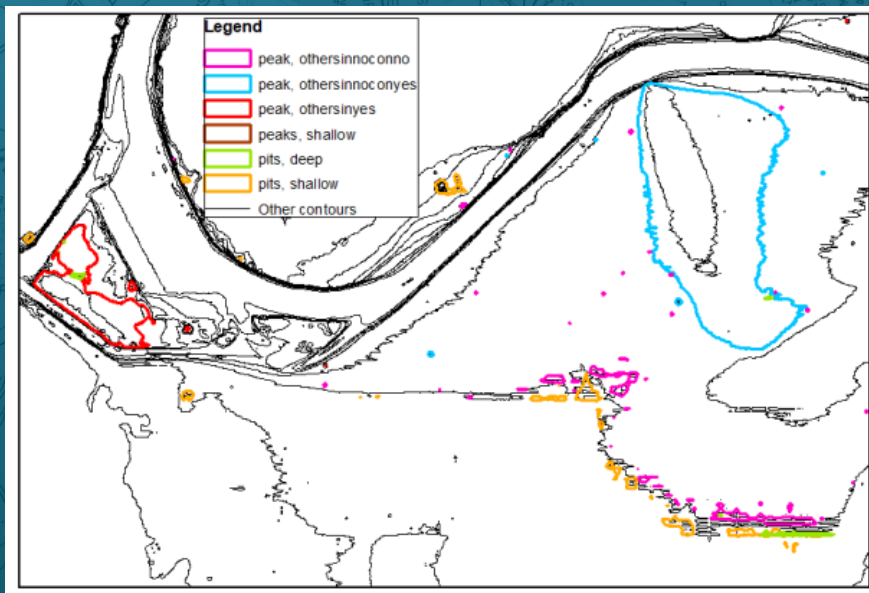
Adding value to data

- More efficient data processing
 - Autonomous processing, Cloud, AI, & Machine Learning
 - Interactive tools and editing environment
 - Acoustic and lidar data
- Visualization, interpretation and products
 - Bathymetry, object detection, water column, seafloor backscatter, change detection



Advance the Technology for Digital Navigation Services

- Automated cartography tools
- Virtual Reality → Augmented Reality
- Display of weather, currents, and hydrodynamic model outputs



Develop and Advance Marine Geospatial and Soundscape Expertise

- Model a sounder
- Understand the effect

JASA ARTICLE

11 June 2020



The effect of two 12 kHz multibeam mapping surveys on the foraging behavior of Cuvier's beaked whales off of southern California^{a)}

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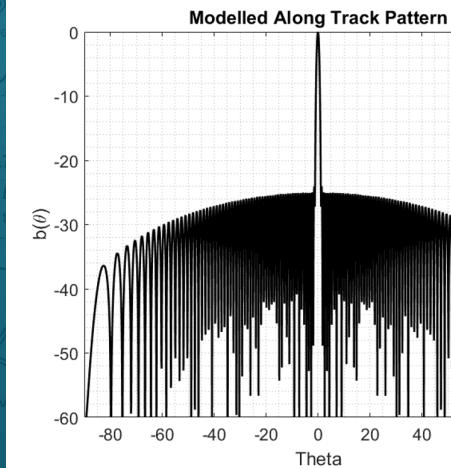
ABSTRACT:

The impact of multibeam echosounder (MBES) operations on marine mammals has been less studied compared to military sonars. To contribute to the growing body of MBES knowledge, echolocation clicks of foraging Cuvier's beaked whales were detected on the Southern California Antisubmarine Warfare Range (SOAR) hydrophones during two MBES surveys and assembled into foraging events called group vocal periods (GVPs). Four GVP characteristics were analyzed *Before*, *During*, and *After* 12 kHz MBES surveys at the SOAR in 2017 and 2019 to assess differences in foraging behavior with respect to the mapping activity. The number of GVP per hour increased *During* and *After* MBES surveys compared with *Before*. There were no other differences between non-MBES and MBES periods for the three other characteristics: the number of clicks per GVP, GVP duration, and click rate. These results indicate that there was not a consistent change in foraging behavior during the MBES surveys that would suggest a clear response. The animals did not leave the range nor stop foraging during MBES activity. These results are in stark contrast to those of analogous studies assessing the effect of Naval mid-frequency active sonar on beaked whale foraging, where beaked whales stopped echolocating and left the area. © 2020 Acoustical Society of America. <https://doi.org/10.1121/10.0001385>

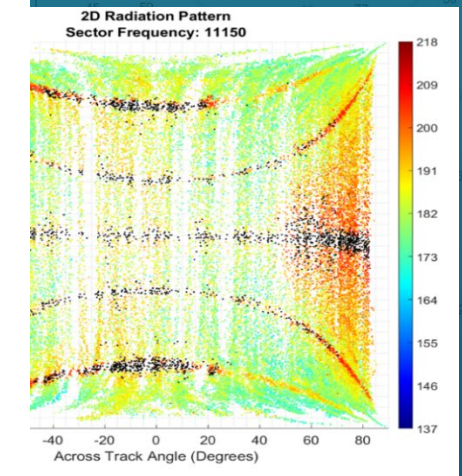
(Received 6 December 2019; revised 10 April 2020; accepted 17 May 2020; published online 11 June 2020)

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Pages: 3849–3858

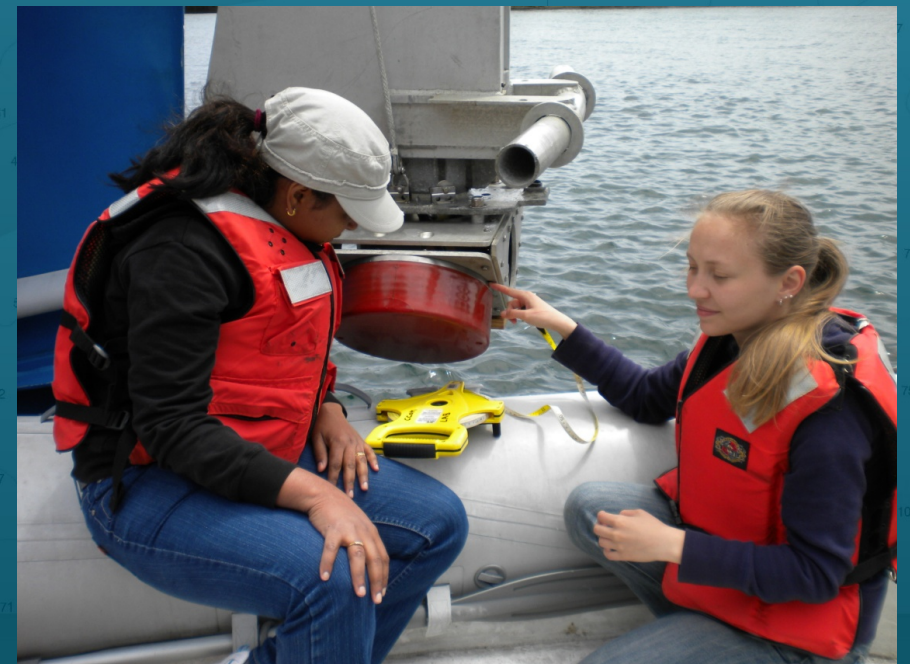


Echo
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Develop and Advance Marine Geospatial and Soundscape Expertise

- Deliver Quality Education
 - Engage students in online and blended classes
 - Maintain and support student research projects
 - Graduate capable, forward-thinking hydrographers



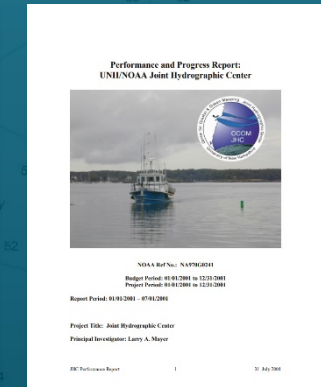
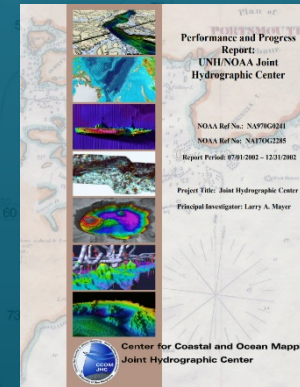
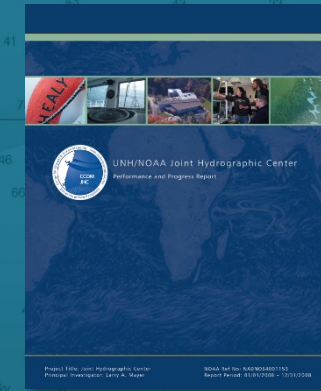
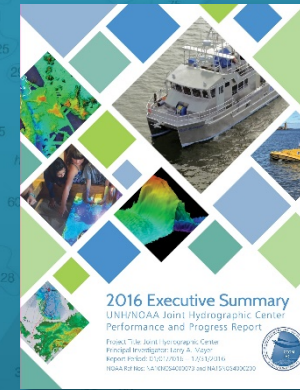
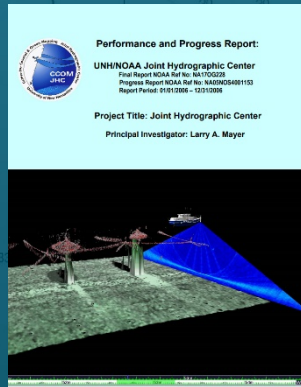
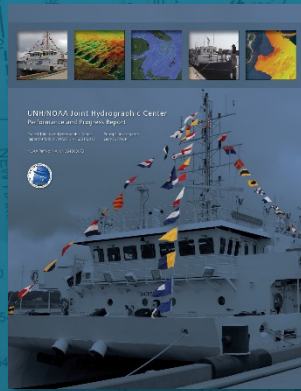
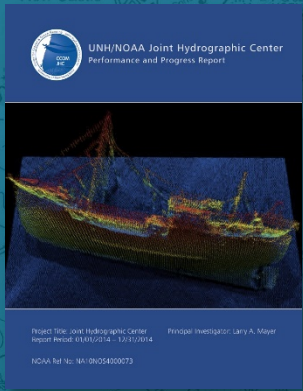
Progress Reports 2001-2019



UNH/NOAA Joint Hydrographic Center 2019 Performance and Progress Report



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Joint Hydrographic Center

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