

CENTER FOR COASTAL & OCEAN MAPPING NOAA-UNH JOINT HYDROGRAPHIC CENTER

SONAR CAPABILITIES

CENTER FOR COASTAL
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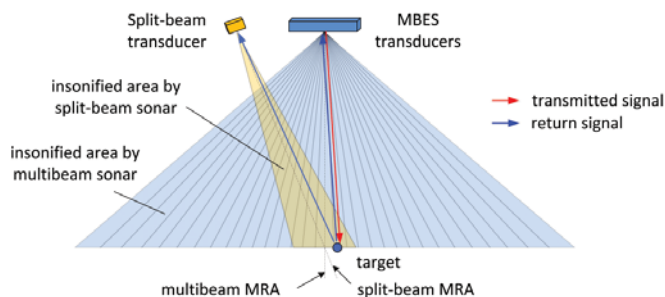
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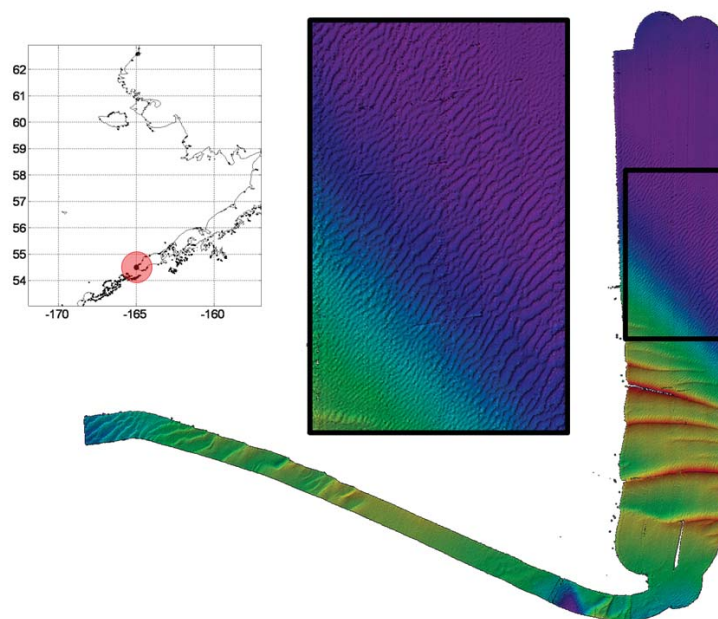
Much of our work in the Center involves the use of highly sophisticated sonar systems like multibeam echo sounders (MBES) and phase differencing bathymetric sonars (PDBS).



We are constantly striving to better understand the characteristics and fundamental performance limitations of the systems we use, and to develop new capabilities for existing systems. Much of this work involves aspects of sonar calibration, both in the acoustic test tank at the Chase Ocean Engineering Lab and in the field.

Our lab takes advantage of our 18Lx12Wx6D meter tank, out-fitted with a computer controlled transducer rotor (0.025 degree resolution) and custom-build data-acquisition system. We characterize MBES and PDBS systems running standard calibrations (e.g., beam patterns, sensitivity), but are also working on extending these techniques to the field with the use of standard target spheres that can be positioned using an 'auxiliary' split-beam transducer. The goal is to perform *in situ* calibrations at an accuracy that is close to what we can achieve in our calibration tank. The initial results for a 200 kHz Reson 7125 MBES (shown below) look promising. The results of the calibration work are used to refine our understanding of how these systems work and allow us to increase the fidelity of some of the data products generated by these systems.

Not all of our work occurs in a laboratory setting. In the field, we are working to increase the utility of the sonars we use. For example, we have developed software routines to turn the Simrad ME70 MBES, which was originally designed for mapping pelagic fish schools, into a hybrid multibeam/phase differencing system capable of collecting thousands of soundings per ping. We also work in the opposite direction, testing the ability of MBES's designed for hydrography to collect acoustic backscatter from targets (e.g., marine organisms, gas plumes) within the water column. These aspects of our work are closely related to the Center's IOCM and midwater mapping efforts.



Simrad ME70 Bathymetry Example: Unimak Pass sand waves.

