GULF of ALASKA

gulfofalaska.nprb.org

Benthic Habitat Research

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Introduction and Objectives

The Gulf of Alaska (GOA) Project seeks to identify and quantify major ecosystem processes that regulate recruitment strength of five important groundfish species in the eastern and central GOA.

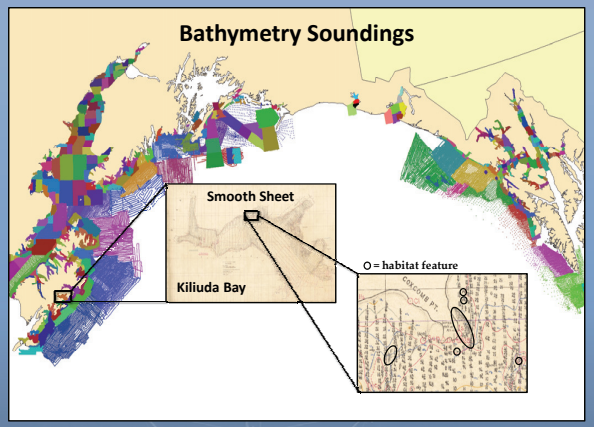
We hypothesize that settlement to preferred habitat is one of the critical regulators of early life survival through a biophysical gauntlet from the offshore pelagic zone to the nearshore demersal zone.

The Benthic Habitat Research project is responsible for characterizing offshore to nearshore benthic habitat by region. Objectives are to:

1) Collect, clean, and validate bathymetry data
2) Digitize sediments and habitat features
3) Construct grids and calculate seafloor measures
4) Estimate species specific preferred habitat
5) Generate suitability maps to test hypothesis

Datasets and Area of Study

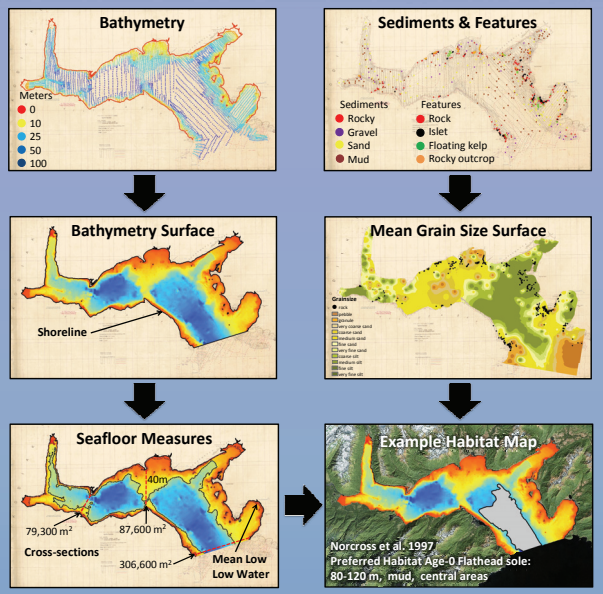
- NOS smooth sheets - http://www.ngdc.noaa.gov
- usSEABED - http://walrus.wr.usgs.gov/usseabed/



Characterization Framework

1) Georegister and datum shift the smooth sheet
2) Correct, update, and clean bathymetry data
3) Digitize sediments and habitat features
4) Convert verbal to numerical values (usSEABED)
5) Grid bathymetry and sediments (ArcMap)
6) Calculate seafloor measures and add imagery

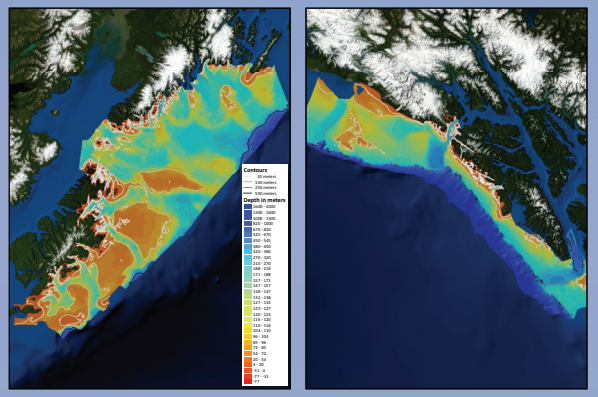
Example: Kiliuda Bay



A literature synopsis of benthic habitat preferences and associations will then be completed for each of the five focal species. Preferred habitat base models can then be developed for each species.

Progress and Preliminary Results

Draft bathymetry grids were completed for both regions (maps below). 85% and 10% of sediments have been digitized for central and eastern GOA , respectively. Seafloor metrics and suitability maps are being developed for nearshore bays.



Discussion and Acknowledgements

Bathymetry grids reveal greater detail of numerous seafloor features on major banks and canyons.

When combined with the base habitat preference models, these grids will help quantify the available spatial area for successful settlement of age-0 fish during the final stage of the gauntlet.

The resulting habitat suitability maps will be used as a survival measure within the individual based models developed for each of the five focal species.

Additionally, the maps may be used by other GOA project components to inform survey planning.

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