

WHOI-Duke Fellowship Summary

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For three weeks in July 2014, I was very fortunate to participate in the Woods Hole Oceanographic Institution (WHOI)-Duke Fellowship program. During this time I worked in the lab of Dr. Gareth Lawson who also serves as a member on my PhD committee. For my dissertation research, I am examining the fine scale foraging behavior of humpback whales in Southeast Alaska by combining Digital acoustic recording tag (Dtag) data on the fine scale movements of foraging whales with scientific echosounder data on prey collected around the foraging tagged whale. I am interested in how the characteristics of prey (density, depth, patch size) affect the foraging behavior of the whales and in the individual roles whales are playing in bubble-net feeding groups.

While working with Dr. Lawson, I made great progress analyzing my scientific echosounder (prey) data for my dissertation. We discussed many specifics of acoustic data analysis including background noise removal, threshold determination, estimating herring and krill target strength and biomass, 3D interpolation of acoustic data, acoustic literature, and categorizing different animals in the water column. (See Figure 1 for an example of acoustic data I analyzed.)

During my short time at WHOI, I took advantage of as many resources as possible. In addition to my regular meetings with Dr. Lawson, I attended Biology departmental seminars and participated in a Marine Mammal Center interest group meeting, where students, postdocs, and faculty from WHOI and employees from NOAA's Northeast Fisheries Science Center gathered to discuss their research. I also met with several research scientists at WHOI, including Dr. Peter Wiebe and Dr. Andy Solow, in addition to Dr. Mike Jech from NOAA's Northeast Fisheries Science Center to solicit their expertise on analysis ideas for my dissertation research.

I have benefited greatly from my involvement in the WHOI-Duke Fellowship Program. It has allowed me to make connections at WHOI I may not have made otherwise (I first met Dr. Lawson during my first time in the program in 2010) and make progress towards the completion of my dissertation by giving me access to people and resources not available at Duke. I am extremely grateful for the opportunity to participate in the WHOI-Duke Fellowship Program.

For a weblog about our data collection in Alaska:

<http://superpod.ml.duke.edu/johnston/2013/05/13/humpback-whale-research-in-southeast-alaska/>

For a link to my information on Duke's website:

<http://nicholas.duke.edu/people/phdstudents/julia-burrows>

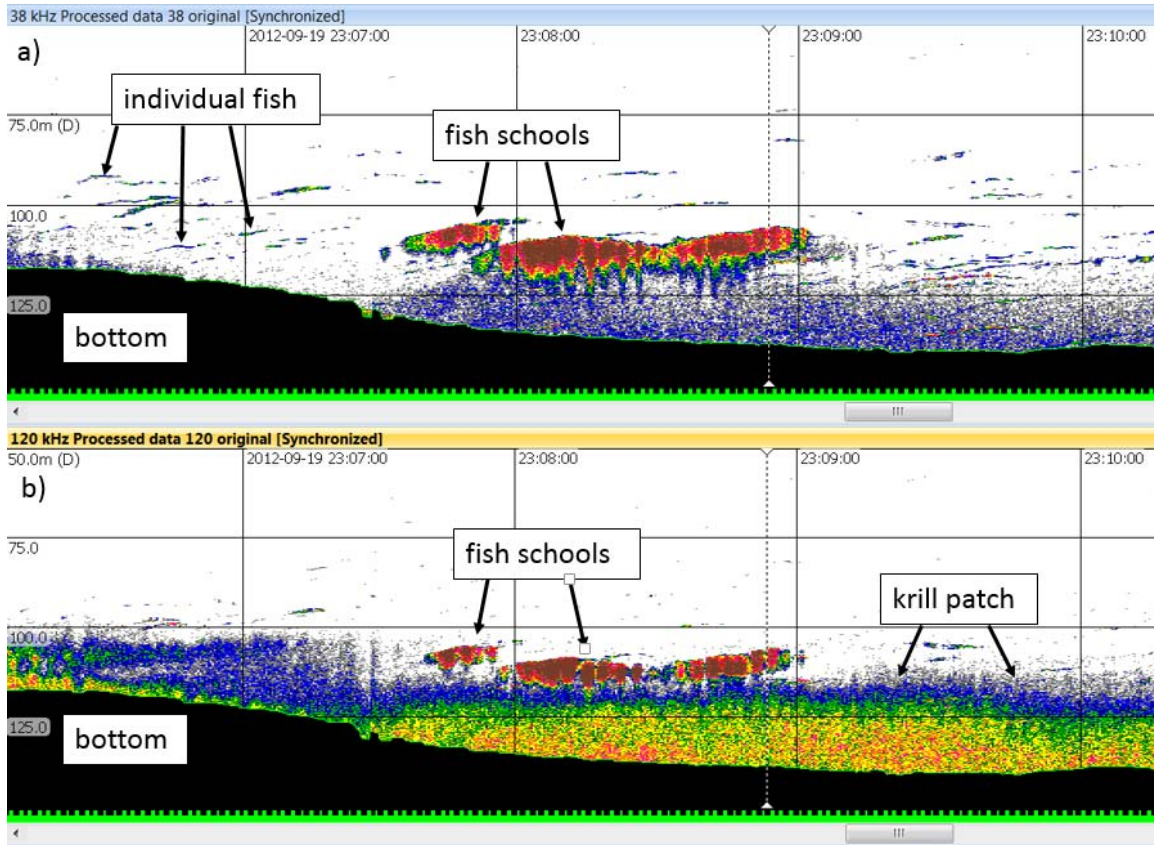


Figure 1. Echogram of (a) 38 and (b) 120 kHz echosounder data collected in Sitka Sound, Alaska in September 2012. The bottom is colored black at both frequencies. The x-axis is time and the y-axis is depth. A layer of krill can be seen at ~125 m deep in the (b) 120 kHz data. Individual fish and fish schools are marked. The whale tagged when these data were collected fed on the krill patch near the bottom (~125 m).