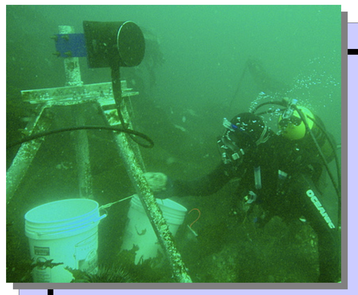
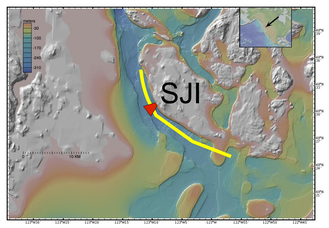


Hydroacoustic assessment of the prey field for killer whales in Haro Strait

Scott Veirs*, Beam Reach; Brian Moore & Robert McClure, Biosonics, Inc.;
Robert Otis, Ripon College; Jason Wood, The Whale Museum; and Val Veirs, Colorado College

Motivation

- How do killer whales and salmon interact?
- Can we assess orca prey in real-time?
- Should we manage salmon for killer whales?



Study Area

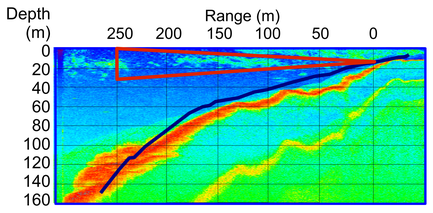
- San Juan Island (SJI)
- Haro Strait
- Core summer habitat of southern resident killer whales
- Marine Area 7 with seasonal fisheries
- Marine Preserves and no-take zones

Methods

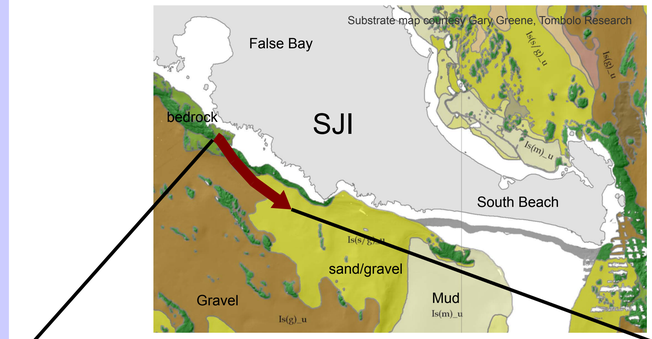
- Biosonics echosounder
- 200 kHz, 1.9 pings/s
- 6.6° circular split-beam
- Range 250m

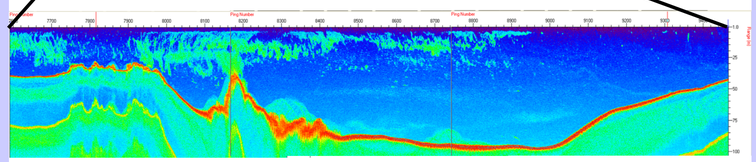
Mobile survey
- Vertical
- Apr – May, '08
- W side San Juan Island
- With/out whales present

Fixed survey
- Horizontal
- Aug – Dec, '08
- Lime Kiln, 15m

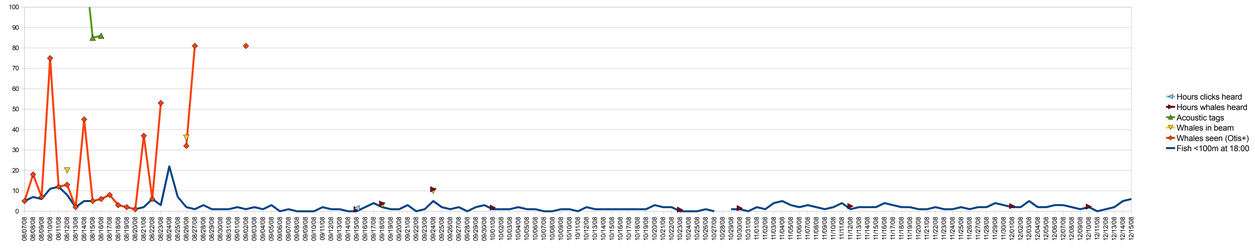


Mobile survey

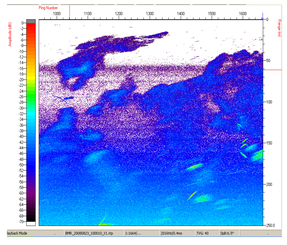




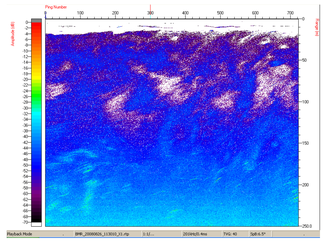
Fixed survey



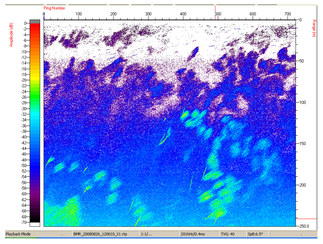
Orcas among salmon?



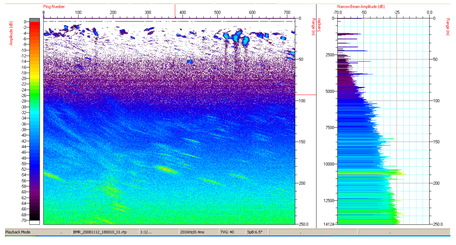
Fish at <20m & 100-250m



A pair of orcas among fish



Nearshore schools; offshore orcas



What we've learned

- Fish distributions are complex, but vary with:
  - rocky/relief
  - time (tidal currents?)
  - depth and distance from shoreline
- Some target strengths consistent w/salmon
- Target strengths of killer whales

Andy Holman with a Chinook (Puget Sound Anglers, SJI Chapter)

Thanks and contacts:

- Biosonics for very generous equipment loans and support.
- David Howitt and Jason Wood for dives

- Scott Veirs, scott@beamreach.org, (206) 251-5554
- Poster and data available at
- http://beamreach.org/wiki/index.php?title=Echosounder