BEST/ BSIERP major issues

• What processes regulate the production, distribution and abundance of upper trophic level marine organism?
• How will these quantitatively change under various climate scenarios?
• How might these interact with direct or indirect human-induced impacts?
• What are the associated economic and sociological impacts?
Figure 2. Acoustic backscatter ($S_A \text{ m}^2 \text{ nmi}^{-2}$) attributed to A) fish and B) euphausiids along Healy’s and Miller Freeman’s tracklines. The 200, 100, 70 and 50m isobaths are shown as gray dotted lines, and the approximate position of the ice edge at the start of the cruise is given in red. Symbol size and color is proportional to the intensity of acoustic backscatter.
Combined counts of ice seals from helo and ship surveys
Eastern Bering Sea
April 14 - May 8, 2007

BEST Cruise, USCGC Healy

Relative number of ice seal species:
- SPOTTED
- RIBBON
- BEARDED
- UNK_PINNED

Total Sum of Counts:
<table>
<thead>
<tr>
<th>Species</th>
<th>HELO</th>
<th>SHIP</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPOTTED</td>
<td>808</td>
<td>430</td>
</tr>
<tr>
<td>RIBBON</td>
<td>201</td>
<td>195</td>
</tr>
<tr>
<td>BEARDED</td>
<td>177</td>
<td>184</td>
</tr>
<tr>
<td>UNK_PINNED</td>
<td>112</td>
<td>172</td>
</tr>
</tbody>
</table>
USFWS At-Sea Observer Program

Goals –
• Examine spring distribution & abundance of birds relative to oceanographic properties, productivity, and changing ice conditions.

• Update seabird data in North Pacific Pelagic Seabird Database.

Methods – Record all birds & mammals within 300m, strip transect. Surveyed 3,201 km.

Results – 15,596 birds of 34 species
Five spp accounted for 72% of all birds:
  Northern Fulmar (22%)
  Thick-billed Murre (22%)
  Glaucous Gull (10%)
  Black-legged Kittiwake (9%)
  Common Murre (9%)

Planktivores (Whiskered, Crested & Least Auklets) were very rare (< 0.1%). Note – Auklets were very abundant during SLIP in May-June, as ice left & plankton available.

Species of interest:
Spectacled Eider, Short-tailed albatross (Threatened/Endangered)
Ivory gull, Black Guillemot (Arctic)
Slaty-backed gull (Siberian)

High bird densities:
~ 61.5 N, 178W
~ 60N, 172 W
~ 58-59N, 170W
Upper trophic levels - initial addressable questions

- Spatial scales
- Patch dynamics - how do they vary among seals/ whales/ birds/ fish/ euphausiids copepods
- Large marine ecosystems