2016 Eastern Bering Sea Upper Continental Slope Bottom Trawl Survey

Gerald Hoff
Alaska Fisheries Science Center
Eastern Bering Sea slope survey -overview


Random stratified survey with effort distributed based on estimated survey area

“Full” survey is 200 successful bottom trawls

6 sub-areas and 5 depth strata in each area (200 meter intervals from 200-1200 m)

**Unique Features of EBS slope survey**
- 30 minute tows
- 2.5 knot trawling speed
- PolyNor’Eastern net
- Autotrawl
- 2MT doors
- 4 point door connection
- mud sweep gear footrope
- Entire Catch work –up (no subsampling)
- One Chief Scientist for 15 years (consistency)
Eastern Bering Sea Slope Survey

Alaska

Eastern Bering Sea (shelf)
Eastern Bering Sea slope survey -2016


- 58 meter FV/RV Cape Flattery

- 4 Legs from 10-22 day legs--Survey Dates from May 30-August 10

- Deployed 17 scientist

- ~ 25 additional scientific projects

- New vessel and skipper to survey

- New length and specimen applications for data acquisition-electronic android tablets

- Random otolith collections for most species (except Arrowtooth and Turbot)

- Environmental data: O2, pH, temperature, salinity, light, turbidity, depth
Cape Flattery
Bering Canyon

Pribilof Canyon

Southern Eastern Bering Sea

○ Trawl Station in 2016

Bering Canyon
Zhemchug Canyon
Northern Bering Sea
Pervenets Canyon
Inter Zhemchug-Pervenets
Navarin Canyon
Zhemchug Canyon
Inter Pribilof-Zhemchug

= Trawl Station in 2016
### Surface Temperatures

Highest for survey since 2000

### Bottom Temperatures

Nearly constant

<table>
<thead>
<tr>
<th>Year</th>
<th>Bottom minimum</th>
<th>Bottom maximum</th>
<th>Surface minimum</th>
<th>Surface maximum</th>
</tr>
</thead>
<tbody>
<tr>
<td>2000</td>
<td>2.4</td>
<td>3.7</td>
<td>4.1</td>
<td>9.6</td>
</tr>
<tr>
<td>2002</td>
<td>2.1</td>
<td>4.3</td>
<td>6</td>
<td>9.3</td>
</tr>
<tr>
<td>2004</td>
<td>2.3</td>
<td>4.6</td>
<td>4.5</td>
<td>10.9</td>
</tr>
<tr>
<td>2008</td>
<td>2.4</td>
<td>4.1</td>
<td>3.9</td>
<td>10.4</td>
</tr>
<tr>
<td>2010</td>
<td>2.2</td>
<td>4</td>
<td>2.1</td>
<td>7.8</td>
</tr>
<tr>
<td>2012</td>
<td>2</td>
<td>3.8</td>
<td>1.6</td>
<td>8</td>
</tr>
<tr>
<td>2016</td>
<td>2.3</td>
<td>4.6</td>
<td>7.7</td>
<td>12.8</td>
</tr>
<tr>
<td>Common name</td>
<td>Scientific name</td>
<td>Age structures</td>
<td>Stomachs</td>
<td>Lengths</td>
</tr>
<tr>
<td>--------------------------</td>
<td>-------------------------------</td>
<td>----------------</td>
<td>----------</td>
<td>---------</td>
</tr>
<tr>
<td>Arrowtooth Flounder</td>
<td>Atheresthes stomias</td>
<td>445</td>
<td>332</td>
<td>3483</td>
</tr>
<tr>
<td>Kamchatka Flounder</td>
<td>Atheresthes evermanni</td>
<td>744</td>
<td>334</td>
<td>2719</td>
</tr>
<tr>
<td>Greenland Turbot</td>
<td>Reinhardtius hippoglossoides</td>
<td>652</td>
<td>131</td>
<td>1763</td>
</tr>
<tr>
<td>Sablefish</td>
<td>Anoplopoma fimbria</td>
<td>455</td>
<td></td>
<td>577</td>
</tr>
<tr>
<td>Roughey Rockfish</td>
<td>Sebastes aleutianus</td>
<td>24</td>
<td></td>
<td>25</td>
</tr>
<tr>
<td>Blackspotted Rockfish</td>
<td>Sebastes melanostictus</td>
<td>143</td>
<td></td>
<td>137</td>
</tr>
<tr>
<td>Pacific Ocean Perch</td>
<td>Sebastes alutus</td>
<td>404</td>
<td>249</td>
<td>3398</td>
</tr>
<tr>
<td>Shortraker Rockfish</td>
<td>Sebastes borealis</td>
<td>349</td>
<td>46</td>
<td>346</td>
</tr>
</tbody>
</table>
~70% of Total Biomass

- Shortspine Thornyhead
- Walleye Pollock
- Alaska Skate
- Arrowtooth Flounder
- Popeye Grenadier
- Pacific Ocean Perch
- Giant Grenadier
Arrowtooth Flounder

- Biomass (mt)
- Year

Greenland Turbot

- Biomass (mt)
- Year

Kamchatka Flounder

- Biomass (mt)
- Year
Giant Grenadier

Population

PAFL length (mm)