Aerial Surveys of Arctic Marine Mammals (ASAMM)

Megan Ferguson
Janet Clarke
National Marine Mammal Laboratory
Primary Objectives

- Monitor bowhead whale migration temporally and spatially
- Investigate inter-annual variation in marine mammal abundance, distribution, habitat and behaviors (e.g., feeding, calving/pupping, etc.)
- Provide objective wide-area context for understanding marine mammal ecology in the Alaskan Arctic
## 2011 Flight Effort

### Table:

<table>
<thead>
<tr>
<th>Month</th>
<th>Transect Distance (Km)</th>
<th>Total Distance (Km)</th>
<th>Transect Time (Hr)</th>
<th>Total Time (Hr)</th>
</tr>
</thead>
<tbody>
<tr>
<td>June</td>
<td>4,157</td>
<td>10,097</td>
<td>19.9</td>
<td>40</td>
</tr>
<tr>
<td>July</td>
<td>5,041</td>
<td>14,229</td>
<td>24.3</td>
<td>56</td>
</tr>
<tr>
<td>August</td>
<td>8,637</td>
<td>23,013</td>
<td>41.4</td>
<td>90</td>
</tr>
<tr>
<td>September</td>
<td>17,605</td>
<td>40,902</td>
<td>82.1</td>
<td>163</td>
</tr>
<tr>
<td>October</td>
<td>4,566</td>
<td>11,939</td>
<td>21.3</td>
<td>45</td>
</tr>
<tr>
<td>TOTAL</td>
<td>40,006</td>
<td>100,180</td>
<td>189</td>
<td>394</td>
</tr>
</tbody>
</table>

Barrow–based: 17 June–21 October
Deadhorse–based: 19 August–24 October
## 2011 Sighting Summary

**Total # of Sightings/Total # of Individuals**  
**All Effort**

<table>
<thead>
<tr>
<th>Month</th>
<th>Bowhead Whale</th>
<th>Gray Whale</th>
<th>Beluga Whale</th>
<th>Minke Whale</th>
<th>Unidentified Cetacean*</th>
<th>Bearded Seal</th>
<th>Ringed Seal</th>
<th>Walrus</th>
<th>Unidentified Pinniped**</th>
<th>Polar Bear</th>
</tr>
</thead>
<tbody>
<tr>
<td>June</td>
<td>5/7</td>
<td>51/69</td>
<td>20/608</td>
<td>0</td>
<td>5/7</td>
<td>15/16</td>
<td>0</td>
<td>194/3,157</td>
<td>140/163</td>
<td>1/1</td>
</tr>
<tr>
<td>July</td>
<td>15/18</td>
<td>73/117</td>
<td>60/397</td>
<td>3/4</td>
<td>5/6</td>
<td>30/31</td>
<td>0</td>
<td>69/401</td>
<td>119/244</td>
<td>0</td>
</tr>
<tr>
<td>August</td>
<td>5/6</td>
<td>42/51</td>
<td>33/90</td>
<td>1/1</td>
<td>7/8</td>
<td>4/4</td>
<td>6/7</td>
<td>346/50,113</td>
<td>148/184</td>
<td>1/7</td>
</tr>
<tr>
<td>September</td>
<td>38/50</td>
<td>54/77</td>
<td>168/389</td>
<td>1/1</td>
<td>2/2</td>
<td>29/31</td>
<td>1/1</td>
<td>186/56,866</td>
<td>546/866</td>
<td>15/28</td>
</tr>
<tr>
<td>October</td>
<td>24/31</td>
<td>14/16</td>
<td>18/24</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>24/1,378</td>
<td>113/156</td>
<td>4/16</td>
</tr>
<tr>
<td>TOTAL</td>
<td><strong>87/112</strong></td>
<td><strong>234/330</strong></td>
<td><strong>299/1,508</strong></td>
<td><strong>5/6</strong></td>
<td><strong>19/23</strong></td>
<td><strong>78/82</strong></td>
<td><strong>7/8</strong></td>
<td><strong>819/111,915†</strong></td>
<td>1,066/1,613</td>
<td><strong>21/52</strong></td>
</tr>
</tbody>
</table>

* includes any cetacean that could not be identified to species, regardless of size  
** includes any pinniped that could not be identified to species, regardless of size  
† includes repeat sightings of walrus haulout near Pt. Lay
2011 Bowhead Whale Sightings

Bowhead Whale Sightings
- June
- July
- August
- September
- October

Survey Blocks
- Offshore Oil and Gas Lease Areas

* All effort
July 2011 Bowhead Whales
Central Alaskan Beaufort Sea

- Minimum of 12 bowhead whales in immediate vicinity of satellite tagged bowhead whale

Four bowhead whales farther east

Position of tagged whale provided by John Citta (ADFG)
2011 Gray Whale Distribution*

* All effort
17 July 2011, northeast of Pt. Lay

* All effort
2011 Beluga Sightings*

Beluga Sightings
- June
- July
- August
- September
- October

Survey Blocks:
- Offshore Oil and Gas Lease Areas

Note: All effort
2011 Walrus Sightings*

Walrus haulout near Pt. Lay; 17 August to 6 October; ranging in size from 1,000 to ~18,000 walruses

* All effort
1982–2011 ASAMM Bowhead Whale Sightings
Years with Light Ice Coverage

* Transect only
1982–2011 ASAMM Bowhead Whale Feeding and Milling by Month and Group Size*

* All effort

Years with Light Ice Coverage

* Transect only
Habitat Preference

* Transect only
1982–2011 ASAMM Beluga Sightings
Years with Light Ice Coverage

* Transect only
2012 Field Plans

- Chukchi Component (COMIDA): Barrow–based
  - Dates: 1 July to 31 October
- Beaufort Component (BWASP): Deadhorse–based
  - Dates: 16 July to 20 October

2012 Ongoing Analyses

- New bowhead whale migration corridor analysis
- Updates to Moore (2000) papers on bowhead whale/gray whale/beluga habitat preferences
- Integration of visual data with acoustic data
- Bearded seal and other pinniped habitat analysis
- Collaborations with other researchers (e.g., aerial data with industry vessel data)
- Spatial and temporal changes in walrus distribution and occurrence
Acknowledgements

- BOEM: Jeff Denton and Chuck Monnett
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- NOAA AOC: Rob Miletic, Robert Mitchell, Sandor Silagi and Kristie Twining
- DOI Aviation Management: Jan Bennett, Lark Wuerth

Additional Slides
Daily Flight Summaries posted on NMML website to allow for rapid dissemination of information to interested parties

http://www.afsc.noaa.gov/nmml/cetacean/bwasp/index.php
2011 Pinniped and Polar Bear Sightings*

* All effort
1982–2011 ASAMM Bowhead Whale Feeding and Milling by Year and Group Size
Gray Whale Sighting Rates per Month

![Graph showing the sighting rates of gray whales per month from June to October for the years 1982-1991, 2008-2010, and 2011. The graph indicates that the highest sighting rates occurred in August for all three periods, with a peak of approximately 0.012 whales per tr km. The lowest sighting rates were in October for all periods, ranging from 0.002 to 0.004 whales per tr km.](image-url)