Analyses:

Assessing habitat use relative to behavior and resource characteristics/availability for five common marine mammal species in the Southern California Bight

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1. Animals make choices re: resources
2. Resources *used disproportionately to availability*

*Models choice using quantifiable habitat characteristics*

**Habitat use & impacts**
- *fish, birds, mammals, polar bears*
  - oil / gas exploration
  - global warming
How do RSFs differ from density mapping?

* Density mapping estimates the *used* distribution only - Not what’s *available*.

* Ignoring *availability* can bias estimates of preference -- especially rare habitats
Questions & Goals

Do marine mammals in U.S. Navy SOCAL Range Complex

* prefer certain habitat?
* behave differently in different habitats?

GOAL:

1. Establish “baseline”
   * future changes?
   * anthropogenic activities?
Approach

* 127 flights 2008-2012
* Systematic line-transect
* “First-observed” behavior state
  * SLOW = rest, mill, slow travel, social, feed
  * FAST = medium or fast travel

Cold-Water Seasons 2008–2012

U.S. Navy SOCAL
Range Training Complex
Statistics

- Standard logistic regression
- AIC ranking – 127 models

- Randomly Selected 35,167 points

- 7 habitat variables
  1. Depth
  2. Distance to shore
  3. Slope
  4. “Northness”
  5. “Eastness”
  6. Latitude
  7. Longitude
## 5 Common Species

<table>
<thead>
<tr>
<th>Species</th>
<th># Sightings</th>
</tr>
</thead>
<tbody>
<tr>
<td>California sea lion</td>
<td>157</td>
</tr>
<tr>
<td>Risso’s dolphin</td>
<td>135</td>
</tr>
<tr>
<td>Fin whale</td>
<td>60</td>
</tr>
<tr>
<td>Gray whale</td>
<td>40</td>
</tr>
<tr>
<td>Bottlenose dolphin</td>
<td>31</td>
</tr>
</tbody>
</table>
Fin Whale

Overall

SLOW

M. Smuilea/NMFS permit 14451

FAST
Gray whale

Overall

SLOW

FAST

B. Würsig/NMFS permit 14451
California sea lion

Overall

Main haul out
San Clemente Isld

2 CA Sea lions
mill w bait ball (SLOW)

M. Smultea/NMFS permit 14451

SLOW

FAST
Risso’s dolphin

Overall

SLOW

FAST

B. Würsig/NMFS permit 14451
Bottlenose dolphin

Overall

SLOW

FAST

NETSC/NOAA image
Conclusions

**Fin whale & CA sea lion** –
- SLOW steep slope
- FAST flat basin

**Gray whale** -- FAST island edges & coastline

**Risso’s** – SLOW nearshore slope, FAST offshore slope

**Bottlenose** – SLOW Santa Catalina Isld, FAST flat basin
Habitat use related to *behavior*

Selection related to function
* (how it’s used)
Questions?

Thank you