Humpback whale distribution patterns off California relative to fixed gear

Karin Forney, PhD
Research Biologist, Marine Mammal and Turtle Division
Southwest Fisheries Science Center, NOAA Fisheries, Santa Cruz, CA
Karin.Forney@noaa.gov
CA/OR Humpback whale trends
*(Calambokidis et al. 2017)*

- Populations have been recovering from past whaling
- Increased from about 600 animals in 1990 to about 2500 in recent years
- This includes whales Central American and Mexican breeding areas
North Pacific Humpback whale populations

(Barlow et al. 2011, Marine Mammal Science)

Whales that feed off California and Oregon (March-November) migrate to one of two breeding areas during winter: Central America (Endangered) or Mexico (Threatened)
Seasonal Presence of Humpback Whales in Monterey Bay

(Monterey Bay Whale Watch, whales per ½ day trip, Courtesy of Nancy Black)

Monterey Bay Whale Watch: Humpback whales per 1/2-day trip
(Nov 15, 2013 - July 22, 2019)

Decrease in whales during winter (most migrate south to breeding areas)
# Seasonal timing of CA Dungeness crab fishing and feeding humpback whales, blue whales, and leatherback turtles

<table>
<thead>
<tr>
<th></th>
<th>NOV</th>
<th>DEC</th>
<th>JAN</th>
<th>FEB</th>
<th>MAR</th>
<th>APR</th>
<th>MAY</th>
<th>JUN</th>
<th>JUL</th>
<th>AUG</th>
<th>SEP</th>
<th>OCT</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>DCRAB Fishing Season</strong></td>
<td><img src="image" alt="ffa" /></td>
<td><img src="image" alt="f" /></td>
<td><img src="image" alt="f" /></td>
<td><img src="image" alt="f" /></td>
<td><img src="image" alt="f" /></td>
<td><img src="image" alt="f" /></td>
<td><img src="image" alt="f" /></td>
<td><img src="image" alt="f" /></td>
<td><img src="image" alt="f" /></td>
<td><img src="image" alt="f" /></td>
<td><img src="image" alt="f" /></td>
<td><img src="image" alt="f" /></td>
</tr>
<tr>
<td><strong>Humpback Whale Presence</strong></td>
<td><img src="image" alt="f" /></td>
<td><img src="image" alt="f" /></td>
<td><img src="image" alt="f" /></td>
<td><img src="image" alt="f" /></td>
<td><img src="image" alt="f" /></td>
<td><img src="image" alt="f" /></td>
<td><img src="image" alt="f" /></td>
<td><img src="image" alt="f" /></td>
<td><img src="image" alt="f" /></td>
<td><img src="image" alt="f" /></td>
<td><img src="image" alt="f" /></td>
<td><img src="image" alt="f" /></td>
</tr>
<tr>
<td><strong>Blue Whale Presence</strong></td>
<td><img src="image" alt="f" /></td>
<td><img src="image" alt="f" /></td>
<td><img src="image" alt="f" /></td>
<td><img src="image" alt="f" /></td>
<td><img src="image" alt="f" /></td>
<td><img src="image" alt="f" /></td>
<td><img src="image" alt="f" /></td>
<td><img src="image" alt="f" /></td>
<td><img src="image" alt="f" /></td>
<td><img src="image" alt="f" /></td>
<td><img src="image" alt="f" /></td>
<td><img src="image" alt="f" /></td>
</tr>
<tr>
<td><strong>Leatherback Turtle Presence</strong></td>
<td><img src="image" alt="f" /></td>
<td><img src="image" alt="f" /></td>
<td><img src="image" alt="f" /></td>
<td><img src="image" alt="f" /></td>
<td><img src="image" alt="f" /></td>
<td><img src="image" alt="f" /></td>
<td><img src="image" alt="f" /></td>
<td><img src="image" alt="f" /></td>
<td><img src="image" alt="f" /></td>
<td><img src="image" alt="f" /></td>
<td><img src="image" alt="f" /></td>
<td><img src="image" alt="f" /></td>
</tr>
</tbody>
</table>
Humpback whale distributions, Summer/Fall 1991-2014
(Barlow and Forney 2007, Becker et al. 2012, 2016, 2018)

Primarily shelf/slope associated
Whales may feed on schooling fish (mostly nearshore) or krill (in slope-edge waters).
Areas of concentration vary, but there are persistent ‘hotspots’ off CA, especially off central CA (Monterey Bay to Pt Arena) and in the Santa Barbara Channel.
Central California Humpback Whale Distribution
From 2002-2013 leatherback turtle aerial surveys
(Scott Benson, NOAA/SWFSC)
Whales and Fish - August 15-16, 2019

(Source: Scott Benson and Karin Forney, NOAA/SWFC)

Aerial Surveys 15-16 Aug 2019

Fish Balls
- Small (<4m)
- Medium (4-10m)
- Large (>10m)

- Humpback whale (90 sightings, 115 animals)