

# Individual photo-identification of dwarf sperm whales (*Kogia sima*) off the island of Hawai'i; evidence of site fidelity and a small population size

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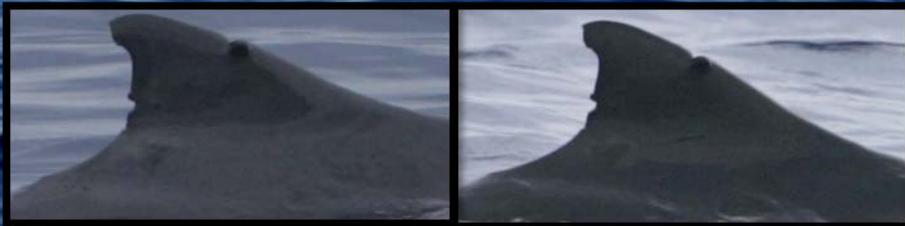
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## Why this is interesting?

- Dwarf sperm whales are one of the least-known open-ocean cetaceans; much of what is known has come from stranded specimens
- Subtle surfacing behavior and a reputation for avoiding boats has deterred in-depth field research: to date there have been no published photo-identification studies anywhere
- Strandings coincident with naval exercises suggest dwarf sperm whales may be susceptible to impacts from mid-frequency sonar

## What we did

- As part of a multi-species study of odontocetes, we surveyed 32,418 km of trackline off the leeward side of the island of Hawai'i from 2003-2009.
- Dwarf sperm whales were also photographed between 2004 and 2009 as part of a long-term research project on pilot and pygmy killer whales.



HIKs044, February 6, 2008

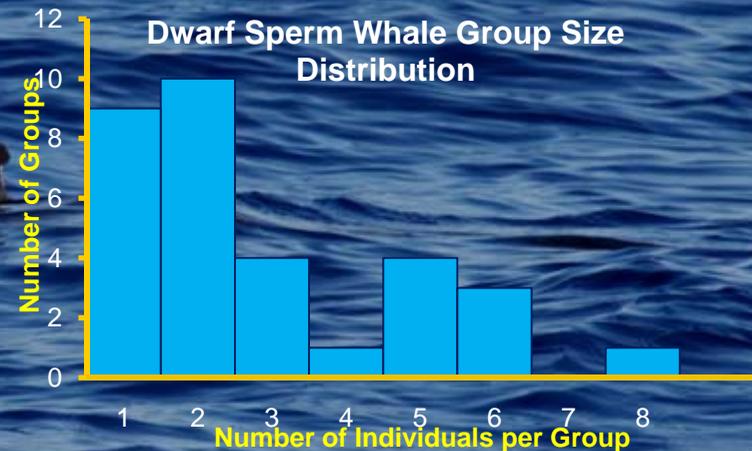
HIKs044, July 22, 2008

## Sightings and group size

- Dwarf sperm whales were encountered 32 times (3.5% of odontocete sightings), the 6<sup>th</sup> most frequently encountered species
- Sighting depths ranged from 329-4,225m (median = 931m), with 31 of 32 sightings in Beaufort 0-2.
- Group size increased with encounter duration (regression,  $r^2 = 0.35$ ,  $p < 0.001$ ), thus some individuals are missed in short-duration encounters.
- Groups seen in every month with effort except February (during which there were only four days of effort), suggesting year-round presence.

## Photo-ID indicates individuals exhibit site fidelity

- We photo-identified 21 distinctive individuals
- Seven were re-sighted with eight within- and three between-year re-sightings.
- One was seen four times in three years over a period of 4.5 years.
- Overall re-sighting rate of 33% suggests a small population size and site fidelity.



## Implications and future research needs

- Photo-identification of dwarf sperm whales can provide much needed information about site fidelity and population size.
- Continued research on dwarf sperm whales in Hawai'i is needed to assess potential conservation risks associated with small group sizes, low encounter rate, and a high level of re-sightings, all of which indicate a small and possibly vulnerable population.

For more information on this research see [www.cascadiaresearch.org/robin/hawaii.htm](http://www.cascadiaresearch.org/robin/hawaii.htm). Funding for field work provided by the National Marine Fisheries Service, Wild Whale Research Foundation and U.S. Navy. We thank Annie Douglas and Annie Gorgone for confirmation of photo-identification matches. Poster presented at the 18<sup>th</sup> Biennial Conference on the Biology of Marine Mammals, Quebec City, Canada