Abstract

The Davidson Seamount, located 129 km southwest of Monterey, California, was incorporated into the Monterey Bay National Marine Sanctuary in November 2008 and is the first seamount within the National Marine Sanctuary system. The Sanctuary conducted a ship-based survey of the waters above and around the Davidson Seamount during July 2010. The three-day survey onboard the R/V McArthur II was the first dedicated at-sea survey of the Seamount to record marine mammal and seabird observations. Overall, 8 transect lines were surveyed for a total of 605 km of “on-effort” observations. Seventeen species of seabirds and 6 marine mammal species were observed. Cook’s Petrel (Pterodroma cookii) was the most abundant seabird observed (8.4 birds km⁻¹), followed by Leach’s Storm-petrel (Oceanodroma leucorhoa; 5.6 birds km⁻¹). The seabird assemblage to the NW was distinctly different than that to the SE with the NW region characterized by more pelagic species such as Cook’s Petrels and Leach’s Storm-petrel, while the SE region was characterized by more coastal species such as shearwaters, phalaropes, gulls, and alcids. Of a total of 200 marine mammal sightings, fin whales (Balaenoptera physalus) were the most commonly encountered marine mammal (51% of sightings), comprising 94% of all whale sightings. This survey in combination with aerial surveys along the same transect lines will serve as a baseline for future studies of the Davidson Seamount.

Marine Mammals

- Fin Whales were the most commonly encountered marine mammal
- 51% of all marine mammal sightings
- 94% of all whales
- Majority of sightings above and to the west of the Seamount
- No Sperm Whales encountered
- Northern Fur Seals were the most common pinniped
- 68% of all pinniped sightings
- Greatest abundance of Krill (Euphausia pacifica) occurred at the stations above and to the west of the Seamount

Seabirds

- 17 species of Seabirds observed “on effort”
  - 316 sightings
  - 1033 total birds
- Cook’s Petrel & Leach’s Storm Petrel were the most abundant
  - 77% of sightings
  - 82% of all birds observed
  - Most common above and to the west of the Seamount
- Including off effort sightings, we recorded the greatest number of Cook’s Petrels ever observed in California waters (5,125)

Other Sightings

- Mola mola – 13
- Blue Shark
- Ash-throated Flycatcher
- Plastic Bottle Water “Cactus Water” (Possibly from Singapore)

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Methods


Marine Mammal Surveys: Line transect survey methods were used to collect cetacean and pinniped abundance data. A daily watch for marine mammals was maintained on the flying bridge during daylight hours (approximately 0700 – 1900) by six (6) mammal observers. Each observer worked in 2-hour rotations, manspacing each of the following three stations on the flying bridge for 40 minutes: a port side 7 x 50 binocular station, a center-line “naked eye” position, and a starboard 7 x 50 binocular station. In addition, each observer occupied the data recorder position. An “independent observer” kept a separate watch of animals sighted during the cetacean survey operations, to be compared later with the observer team’s data. Big-eye (25 x 150) binoculars, mounted on both the port and starboard sides of the flying bridge were used to aid with marine mammal identification and group size estimation.

Seabird Surveys: Two seabird observers conducted visual surveys of seabirds using handheld and 25x150 binoculars. Seabirds were recorded during daylight hours on the sides of the ship with the best viewing conditions. Seabirds were identified to species when possible, and recorded from the bow to 90 degrees and out to 300 m.

Zooplankton Net Tows: Overall, we conducted 10 zooplankton net tows. Each net an oblique bongo net tow was deployed to a depth of 200 meters and for a duration of 45 minutes at 3 locations: to the east of the seamount, along the axis of the seamount, and to the west of the seamount. The bongo has a 505 micron mesh on the starboard side and a 333-micron mesh on the port side. All krill were identified to species if possible, counted, and measured in mm.