

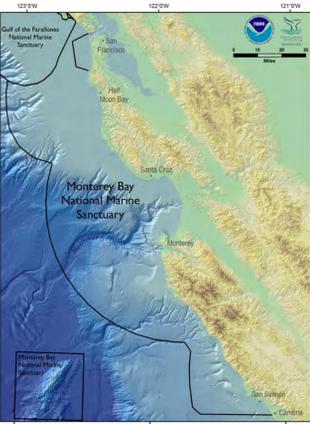
Marine Mammals and Seabirds at the Davidson Seamount, July 2010

Kelly Newton¹, Peter Pyle², Erica Burton³, Chad King³, and Andrew DeVogelaere³

1 University of California, Santa Cruz 100 Shaffer Rd. Santa Cruz, CA 95060
2 The Institute for Bird Populations, P.O. Box 1346, Point Reyes Station, CA 94956
3 Monterey Bay National Marine Sanctuary, 299 Foam Street, Monterey, CA 93940

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⁻²), followed by Leach's Storm-petrel (*Oceanodroma leucorhoa*; 5.6 birds km⁻²). 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 whales sighted. This survey in combination with aerial surveys along the same transect lines will serve as a baseline for future studies of the Davidson Seamount.



Fin Whale



Fin Whales



Dall's Porpoise



Northern Right Whale Dolphins



Pacific White-sided Dolphins



Northern Fur Seal

Methods

From July 25 – 28, 2010 the R/V McArthur II conducted marine mammal & seabird observations and zooplankton net tows at the Davidson Seamount.

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, manning each of the following three stations on the flying bridge for 40 minutes: a port side 7x 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 side 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 night 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.

All photos courtesy of Abe Borker or Peter Pyle



R/V McArthur II

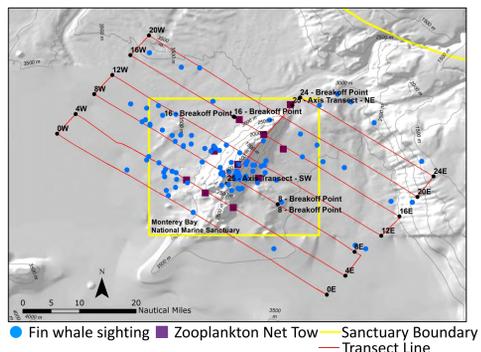
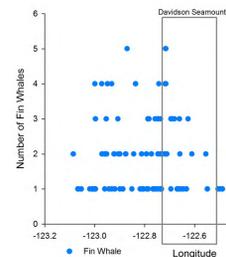
Acknowledgements

We thank the marine mammal and seabird observers: Abraham Borker, Lori Beraha, Carol Keiper, Daniel Lagner, Melinda Nakagawa, Kelly Newman, Lisa Webb, and Elisa Weiss. In addition, Julia Stewart, Bill Matsubu, and Jesse Adams participated in the cruise as zooplankton specialists or squid biologists. Baldo Marinovic provided krill summary data. We would also like to thank the Gulf of the Farallones National Marine Sanctuary for the use of their observer chairs, and Jim Harvey at Moss Landing Marine Laboratories for letting us borrow his "Big-Eye" binoculars. A special thanks to the captain and crew of the R/V McArthur II.

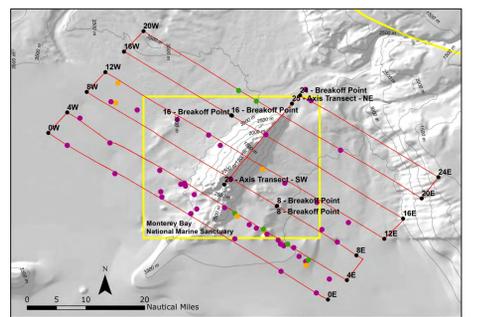
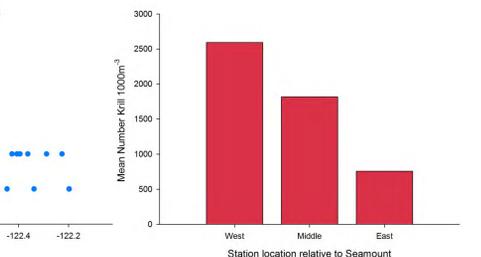
Marine Mammals

- 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

Species	# Sightings	# of Animals
Fin Whale	102	197
Northern Fur Seal	42	48
Dall's Porpoise	21	78
Unidentified Rorqual	7	9
California Sea Lion	6	6
Elephant Seal	6	6
Pacific White-sided Dolphin & Northern Right Whale Dolphin	2	305



● Fin whale sighting ■ Zooplankton Net Tow — Sanctuary Boundary — Transect Line

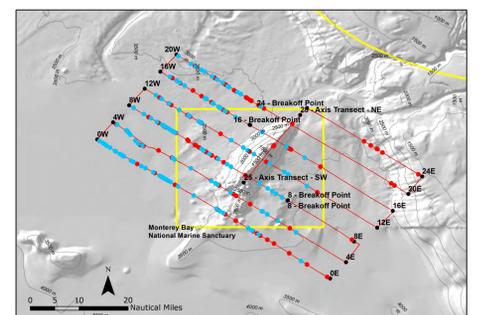


● Northern Fur Seal ● California Sea Lion ● Elephant Seal

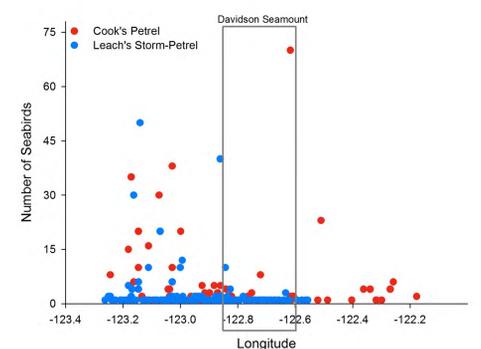
Seabirds

- 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)

Species	# Sightings	# of Individuals	# per km ²
Cook's Petrel	121	507	0.839
Leach's Storm Petrel	124	338	0.559
Red-necked Phalarope	12	86	0.142
Red Phalarope	17	31	0.051
Least Sandpiper	2	14	0.023
Arctic Tern	14	14	0.023
Xantus' Murrelet	7	9	0.015
Long-tailed Jaeger	3	3	0.005
Pink-footed Shearwater	3	3	0.005
Sooty Shearwater	4	4	0.007
Black-footed Albatross	1	1	0.002
Cassin's Auklet	1	1	0.002
Northern Fulmar	1	1	0.002
California Gull	1	1	0.002
Western Gull	1	1	0.002



● Cook's Petrel ● Leach's Storm Petrel



Cook's Petrels



Cook's Petrel



Leach's Storm Petrel

Other Sightings

- Mako Shark
- Salmon Shark
- Tuna Schools – 6
- Egg Yolk Jellies
- Kit Kat Candy wrapper
- Plastic Bag – 3
- Large Plastic Drum
- Buoys – 4
- Floating Kelp – approx. 25



Mola mola – 13



Blue Shark



Ash-throated Flycatcher



Plastic Water Bottle



Paper Coffee Cup

(Possibly from Singapore)