

**Observations of seabirds, marine mammals, sea turtle, and surface-active fishes
in the vicinity of the Davidson Seamount**



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COVER

Top left: Fin whale (*Balaenoptera physalus*)

Top right: Arctic Tern (*Sterna paradisaea*)

Lower left: Ocean sunfish (*Mola mola*)

Lower right: Northern right whale dolphin (*Lissodelphis borealis*)

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Introduction

The Davidson Seamount is an inactive undersea volcanic mountain, located approximately 80 miles southwest of the Monterey Peninsula (Fig. 1). Trending northeast-southwest, the Davidson is 26 miles long, 8 miles wide and has a complex morphology; it is composed of about 6 linear ridges, with a large cone structure at the southwest end (Davis et al. 2002, MBNMS 2009, SIMoN 2011). The seamount rises 7,480 feet off the seafloor, though its peak is still 4,101 feet below the sea surface.

This massive seamount, located in an otherwise relatively flat seafloor, may affect circulation patterns of the California Current and California Undercurrent by creating a transient Taylor Column or influencing meandering patterns near the seamount (Rizk 2006). Marine life, including rare deep-sea sponges, corals, and fishes flourish in this environment (DeVogelaere et al. 2005, Burton and Lundsten 2008). Above the seamount, marine mammals, seabirds, and surface-active fishes also thrive.

This is a remote area that can take many hours to reach by boat in often rough seas; thus, relatively few scientific studies have been conducted to document the fauna that utilize the Davidson Seamount habitat. However, fishermen take advantage of the riches the seamount provides, and dedicated birders and marine mammal enthusiasts visit this region to see animals that are rare in Monterey Bay. The following is a summary of the marine mammal, seabird, sea turtle, and surface-active fish observations made by some of the scientists, fishermen, and guides who have been to the Davidson Seamount area. Despite the variety of data collection methods, these observations are valuable for developing a natural history of this remote, yet ecologically-significant marine environment.

Observations

Scott Benson –NOAA Fisheries Service

In May 2002, scientists from the Monterey Bay National Marine Sanctuary (MBNMS/NOAA) led a cruise to explore the Davidson Seamount, with collaborators from the Monterey Bay Aquarium Research Institute (MBARI), Moss Landing Marine Laboratories (MLML), and the Monterey Bay Aquarium. While other researchers were using a remotely operated vehicle to observe organisms living on the seamount, Scott Benson, a marine ecologist with NOAA's National Marine Fisheries Service (NOAA Fisheries Service), conducted visual surveys of the sea surface for seabirds, marine mammals, and surface-active fishes (Benson 2002). Using powerful binoculars, which provided a sighting distance of approximately nine kilometers, Scott and his assistants recorded animals seen at the sea surface around the Davidson for 10-15 minutes, every 30 minutes, for 6 days. Observations were recorded during daylight hours only.

Eight species of marine mammals, 15 seabird taxa, and two surface-active fishes were sighted during this investigation (Table 1). Dall's porpoise (*Phocoenoides dalli*) and Black-footed Albatross (*Phoebastria nigripes*) were the most commonly sighted organisms encountered over the Davidson Seamount. The most abundant organisms were the Black-footed Albatross, Pacific white-sided dolphin (*Lagenorhynchus obliquidens*), Northern right whale dolphin (*Lissodelphis borealis*), and Dall's porpoise.

Karin Forney –NOAA Fisheries Service

In July 2000, Karin Forney of NOAA's National Marine Fisheries Service (NOAA Fisheries Service), and collaborators flew aerial surveys over much of the MBNMS to observe marine mammals (Forney 2002). As part of this mission, Forney's group flew nine 15-20 nautical mile-long transect lines over the Davidson Seamount, making systematic observations of seabirds, marine mammals, sea turtle, sharks, and ocean sunfish. The surveys were flown at approximately 700 feet altitude at 100 knots airspeed, with two observers (Karin Forney and Scott Benson, NOAA Fisheries Service) and one data recorder (Stori Oates, MLML).

During the 135-180 nautical miles of aerial transect surveys over the Davidson Seamount, Forney's group recorded one sighting of each: Risso's dolphin (*Grampus griseus*), Black-footed Albatross (*Phoebastria nigripes*), and ocean sunfish (*Mola mola*) (Table 2). The number of individuals seen during each of these sightings was not reported. Forney's group also documented these species within the MBNMS.

John Rowley - Virgs Landing, Morro Bay

John Rowley has been fishing for albacore tuna out of Morro Bay, California for over 35 years. Four to five times a year, Mr. Rowley heads out to the Davidson Seamount area on overnight sport fishing trips aboard the 90-foot *Admiral* (<http://www.virgs.com>). When asked what organisms he observes near the Davidson Seamount, that he does not see in other places, Mr. Rowley noted that he regularly sees sperm whales (*Physeter macrocephalus*) above the seamount. He has been all over the Pacific, through fishing and the military, and the only place he has seen sperm whales has been right over the Davidson Seamount. This is significant because sperm whales are a federally-listed endangered species (<http://www.sanctuariesimon.org/monterey/sections/specialSpecies/>).

Don Roberson - Monterey Area Independent Bird Naturalist

Don Roberson has been studying Monterey Bay birds and wildlife for decades. He is the author of *Monterey Birds*, a guide book sponsored by the Monterey Peninsula Audubon Society. In addition, Mr. Roberson maintains an extensive website with high-quality photographs and natural history information (<http://montereybay.com/creagrus/>). He has expertise in offshore seabirds which utilize the Davidson Seamount area.

Mr. Roberson has visited the Davidson Seamount area during at least seven cruises to search for seabirds that are not normally seen within the Monterey Bay. His detailed journal entries from these seven cruises document numerous species: 45 seabirds, 13 marine mammals, one shark, and one sea turtle (Table 3).

Richard Ternullo - Monterey Bay Whale Watch

Richard Ternullo is a naturalist working with Monterey Bay Whale Watch in Monterey, California (<http://www.montereybaywhalewatch.com/>). He has taken approximately four special fall trips to the Davidson Seamount area, focusing on seabirds. While he was unable to provide detailed trip logs at the time of this report, he did provide a list of

species “off the top of his head” that he has seen near the Davidson. He noted these species because they are not normally seen within the Monterey Bay (Table 4).

Summary

The combined observations reported in this brief assessment demonstrate that many species inhabit the waters above the Davidson Seamount. Researchers, fishermen, and naturalists have recorded approximately 50 seabird species, 20 marine mammal species, five surface-active fishes, and one sea turtle species. This list includes several federally-listed endangered species, including the leatherback sea turtle, blue whale, humpback whale, sei whale, and sperm whale. Due to the lack of comprehensive scientific studies, which would increase the spatial and temporal resolution of the sighting data, the values reported herein are assumed to be an underestimate of the actual number of species who visit and rely on the unique oceanographic conditions of the Davidson Seamount area. Further study and documentation would serve to fortify these initial observations and help assess the Davidson Seamount as vital habitat for a wide array of seabirds, marine mammals, sea turtle, and surface-active fishes.

Literature Cited

- Benson, S. 2002. Davidson Seamount expedition: Summary of surface observations. Unpublished report, 2 p.
- Burton, E.J. and L. Lundsten. 2008. Davidson Seamount Taxonomic Guide. Marine Sanctuaries Conservation Series ONMS-08-08. U.S. Department of Commerce, National Oceanic and Atmospheric Administration, Office of National Marine Sanctuaries, Silver Spring, MD. 145 pp.
- Davis, A.S., D.A. Clague, W.A. Bohrson, G.B. Dalrymple, H.G. Greene. 2002. Seamounts at the continental margin of California: A different kind of oceanic intraplate volcanism. *GSA Bulletin* 14(3):316-333.
- DeVogelaere, A.P., E.J. Burton, T. Trejo, C.E. King, D.A. Clague, M.N. Tamburri, G.M. Cailliet, R.E. Kochevar, W.J. Douros. 2005. Deep sea corals and resource protection at the Davidson Seamount, California, U.S.A. In: A. Freiwald and J.M. Roberts (eds), *Cold-water Corals and Ecosystems*. Springer-Verlag Berlin Heidelberg, pp 1189-1198.
- Forney, K.A. 2002. Data report for aerial surveys conducted within the Monterey Bay National Marine Sanctuary, July 2000. Unpublished report, 57 p.
- MBNMS. 2009. Monterey Bay National Marine Sanctuary Davidson Seamount Management Zone Management Plan, Living Document, July 2009, version 5.0 [<http://montereybay.noaa.gov/research/techreports/trmbnms2009c.html>].
- Rizk, S. 2006. Seamount influences of surface ocean circulation. Unpublished MBARI summer internship project report. 16p.
- SIMoN. 2011. Monterey Bay Sanctuary: Seamounts And Banks. World Wide Web electronic publication. [<http://www.sanctuariesimon.org/monterey/sections/seamounts/overview.php?sec=s> m]. Accessed [08/17/11].

Table 1. Seabirds, marine mammals, and surface-active fishes observed above the Davidson Seamount, May 18-23, 2002 (Benson 2002, unpublished report).

Common Name	Scientific Name	Total # of Sightings	Total # of Animals Observed
Seabirds:			
Black-footed Albatross	<i>Phoebastria nigripes</i>	135	220
Laysan Albatross	<i>Phoebastria immutabilis</i>	1	1
Northern Fulmar	<i>Fulmarus glacialis</i>	4	5
Stejneger's Petrel	<i>Pterodroma longirostris</i>	2	2
Sooty Shearwater	<i>Puffinus griseus</i>	10	18
Pink-footed Shearwater	<i>Puffinus creatopus</i>	1	1
Unidentified shearwater	<i>Puffinus sp.</i>	3	3
Leach's Storm Petrel	<i>Oceanodroma leucorhoa</i>	1	1
Unidentified storm petrel	<i>Oceanodroma sp.</i>	6	9
Pomarine Jaeger	<i>Stercorarius pomarinus</i>	1	1
Parasitic Jaeger	<i>Stercorarius parasiticus</i>	1	1
Unidentified jaeger	<i>Stercorarius sp.</i>	3	3
Western Gull	<i>Larus occidentalis</i>	1	1
Unidentified gull	Family Laridae	1	1
Unidentified tern	<i>Sterna sp.</i>	3	3
Marine Mammals:			
Killer whale	<i>Orcinus orca</i>	1	8
Sperm whale	<i>Physeter macrocephalus</i>	1	4
Humpback whale	<i>Megaptera novaeangliae</i>	1	1
Pacific white-sided dolphin	<i>Lagenorhynchus obliquidens</i>	1	450
Northern right whale dolphin	<i>Lissodelphis borealis</i>	2	49
Dall's porpoise	<i>Phocoenoides dalli</i>	19	51
California sea lion	<i>Zalophus californianus</i>	1	5
Unidentified fur seal		1	1
Unidentified otariid		3	3
Surface-active fishes:			
Ocean sunfish	<i>Mola mola</i>	2	2
Unidentified shark		2	2

Table 2. Organisms observed above the Davidson Seamount during July 2000 aerial surveys (Forney 2002, unpublished report).

Common Name	Scientific Name	Total # of Sightings	Total # of Animals Observed
Seabird:			
Black-footed Albatross	<i>Phoebastria nigripes</i>	1	n/a
Marine Mammal:			
Risso's dolphin	<i>Grampus griseus</i>	1	n/a
Surface-active Fish:			
Ocean sunfish	<i>Mola mola</i>	1	n/a

Table 3. Total number of individual animals seen on Roberson's seven cruises to the Davidson Seamount (11/17/1979, 12/1/1979, 3/8/1980, 9/24/1988, 10/8/1990, 10/30/1995, and 10/23/2000). Data on sightings made on transit to and from the Davidson, when indicated, are not included in this table.

Common Name	Scientific Name	Total # of Sightings	Total # of Animals Observed
Seabirds:			
Pacific Loon	<i>Gavia pacifica</i>	n/a	7
Black-footed Albatross	<i>Diomedea nigripes</i>	n/a	57
Laysan Albatross	<i>Diomedea immutabilis</i>	n/a	4
Northern Fulmar	<i>Fulmarus glacialis</i>	n/a	233
Buller's Shearwater	<i>Puffinus bulleri</i>	n/a	85
Pink-footed Shearwater	<i>Puffinus creatopus</i>	n/a	15
Sooty Shearwater	<i>Puffinus griseus</i>	n/a	100
Short-tailed Shearwater	<i>Puffinus tenuirostris</i>	n/a	7
Sooty/Short-tailed Shearwater	<i>P. griseus / P. tenuirostris</i>	n/a	16
New Zealand Shearwater	<i>Puffinus sp.</i>	n/a	3
Cook's Petrel	<i>Pterodroma cookii</i>	n/a	7
Stejneger's Petrel	<i>Pterodroma longirostris</i>	n/a	1
Leach's Storm Petrel	<i>Oceanodroma leucorhoa</i>	n/a	110
Ashy Storm-Petrel	<i>Oceanodroma homochroa</i>	n/a	53
Fork-tailed Storm-Petrel	<i>Oceanodroma furcata</i>	n/a	1
Black Storm-Petrel	<i>Oceanodroma melania</i>	n/a	2
Brant	<i>Branta bernicla</i>	n/a	100
Red Phalarope	<i>Phalaropus fulicaria</i>	n/a	286
Pomarine Jaeger	<i>Stercorarius pomarinus</i>	n/a	111
Parasitic Jaeger	<i>Stercorarius parasiticus</i>	n/a	4
Long-tailed Jaeger	<i>Stercorarius longicaudus</i>	n/a	2
Unidentified jaeger	<i>Stercorarius sp.</i>	n/a	6
South Polar Skua	<i>Stercorarius maccormicki</i>	n/a	5
Sabine's Gull	<i>Xema sabini</i>	n/a	3
Western Gull	<i>Larus occidentalis</i>	n/a	17
Glaucous-winged Gull	<i>Larus glaucescens</i>	n/a	5
Herring Gull	<i>Larus argentatus</i>	n/a	104
California Gull	<i>Larus californicus</i>	n/a	70
Bonaparte's Gull	<i>Larus philadelphia</i>	n/a	61
Thayer's Gull	<i>Larus thayeri</i>	n/a	1
Arctic Tern	<i>Sterna paradisaea</i>	n/a	15
Elegant Tern	<i>Sterna elegans</i>	n/a	1
Common Tern	<i>Sterna hirundo</i>	n/a	1
Common Murre	<i>Uria aalge</i>	n/a	1
Black-legged Kittiwake	<i>Rissa tridactyla</i>	n/a	4
Rhinoceros Auklet	<i>Cerorhinca monocerata</i>	n/a	199
Cassin's Auklet	<i>Ptychoramphus aleuticus</i>	n/a	309
Xantus' Murrelet	<i>Synthliboramphus hypoleucus</i>	n/a	7
Xantus's/Craveri's Murrelet	<i>Synthliboramphus hypoleucus/craveri</i>	n/a	4
Ancient Murrelet	<i>Synthliboramphus antiquus</i>	n/a	1
Craveri's Murrelet	<i>Synthliboramphus craveri</i>	n/a	4
Horned Puffin	<i>Fratercula corniculata</i>	n/a	1
Sanderling	<i>Calidris alba</i>	n/a	2
Palm Warbler	<i>Dendroica palmarum</i>	n/a	1
Chestnut-collared Longspur	<i>Calcarius ornatus</i>	n/a	1

Table 3 (continued).

Marine Mammals:			
Killer whale	<i>Orcinus orca</i>	n/a	2
Blue whale	<i>Balaenoptera musculus</i>	n/a	13
Fin whale	<i>Balaenoptera physalus</i>	n/a	6
Humpback whale	<i>Megaptera novaeangliae</i>	n/a	2
Sei whale	<i>Balaenoptera borealis</i>	n/a	1
Sperm whale	<i>Physeter catodon</i>	n/a	1
Goose-beaked whale	<i>Ziphius cavirostris</i>	n/a	1
Dall's porpoise	<i>Phocoenoides dalli</i>	n/a	11
Northern right whale dolphin	<i>Lissodelphis borealis</i>	n/a	35
Short-beaked common dolphin	<i>Delphinus delphis</i>	n/a	250
Common dolphin	<i>Delphinus delphis</i>	n/a	8
Northern fur seal	<i>Callorhinus ursinus</i>	n/a	9
Northern elephant seal	<i>Mirounga angustirostris</i>	n/a	3
Surface-active Fish:			
Blue shark	<i>Prionace glauca</i>	n/a	1
Sea Turtle:			
Leatherback sea turtle	<i>Dermochelys coriacea</i>	n/a	4

Table 4. Qualitative marine life observations made by Richard Ternullo aboard whale-watching trips to the Davidson Seamount area.

Common Name	Scientific Name	Total # of Sightings	Total # of Animals Observed
Seabirds:			
Red-billed Tropicbird	<i>Phaethon aethereus</i>	n/a	n/a
Jaegers	<i>Stercorarius sp.</i>	n/a	n/a
Skuas	<i>Stercorarius sp.</i>	n/a	n/a
Murrelets		n/a	n/a
Shearwaters	<i>Puffinus sp.</i>	n/a	n/a
Marine Mammals:			
Short-finned pilot whale	<i>Globicephala macrorhynchus</i>	n/a	n/a
Humpback whale	<i>Megaptera novaeangliae</i>	n/a	n/a
Sperm whale	<i>Physeter catodon</i>	n/a	n/a
Blue whale	<i>Balaenoptera musculus</i>	n/a	n/a
Fin whale	<i>Balaenoptera physalus</i>	n/a	n/a
Bottlenose dolphin	<i>Tursiops truncatus</i>	n/a	n/a
Northern right whale dolphin	<i>Lissodelphis borealis</i>	n/a	n/a
Surface-active Fish:			
Blue fin tuna	<i>Thunnus thynnus</i>	n/a	n/a
Sea Turtle:			
Leatherback sea turtle	<i>Dermochelys coriacea</i>	n/a	n/a

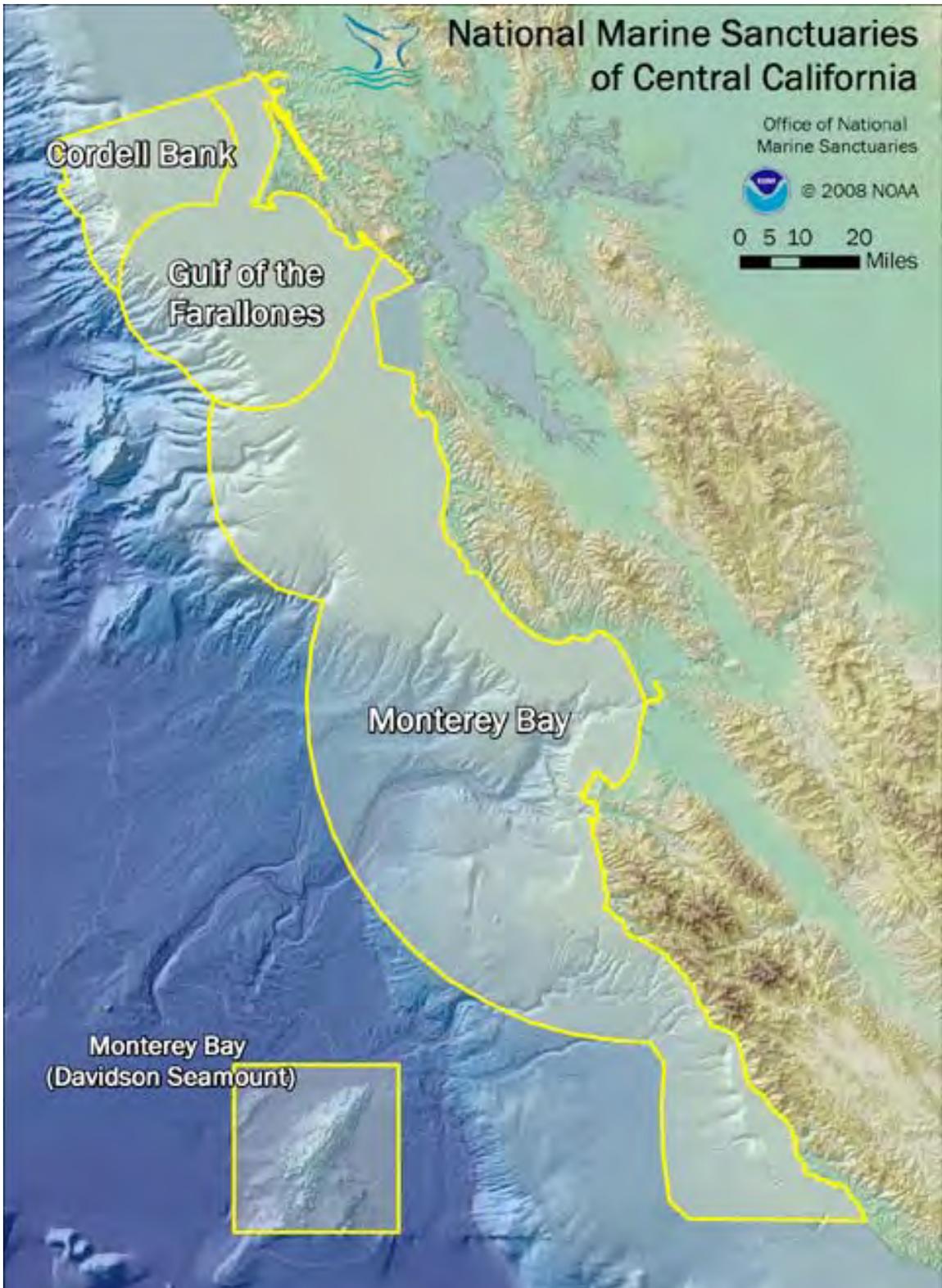


Figure 1. Monterey Bay National Marine Sanctuary and the Davidson Seamount Management Zone. Credit: Chad King/MBNMS.

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