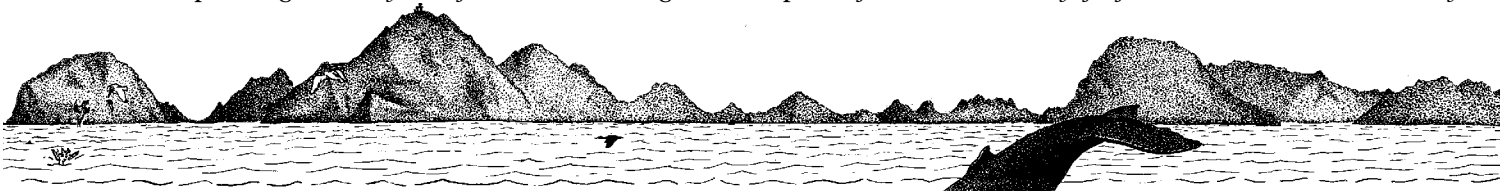


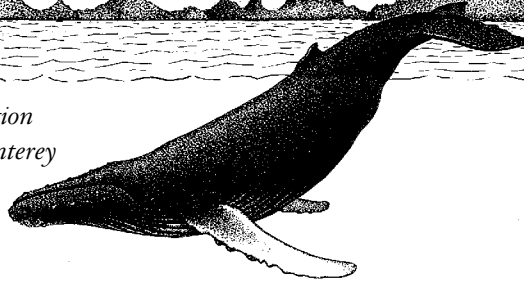
# HYDROSPHERE

Dedicated to protecting Sanctuary wildlife and habitats through the development of a diverse community of informed and active ocean Sanctuary stewards



Newsletter of the Farallones Marine Sanctuary Association  
about the Gulf of the Farallones, Cordell Bank, and Monterey  
Bay National Marine Sanctuaries

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## Wonderous Ocean Wanderers in Our Own Front Yard

By Carol Keiper, Michelle Hester, and David Hyrenbach



Black-footed Albatross in flight

Did you know that a seabird that spends most of its life on the open ocean regularly visits Cordell Bank, Gulf of the Farallones, and Monterey Bay National Marine Sanctuaries? The Black-footed Albatross (*Phoebastria nigripes*), with long tapered wings spanning 6-7 feet, flies effortlessly, glides gracefully, and soars spectacularly (flying without flapping its wings) over vast regions of the North Pacific Ocean in search of prey. From late October to mid June, this albatross, (one of only four species found in the North Pacific), breeds on islands along the Hawaiian Island chain and off Japan. Starting in early spring, breeding adults fly from the Hawaiian Islands to the productive waters off central California to find food for their chicks, a round trip of 7,000 miles! Here are some more amazing facts about these birds: when they are seven years old and ready to breed, albatrosses return to the same island where they hatched; they have one mate throughout their life, and can live at least 45 years! Although they can be seen year round off central California, they are most abundant in late spring and summer.

Did you also know that the world's wonderous ocean wanderers, albatrosses are the bird family most threatened with extinction? A characteristic behavior of albatrosses around the planet is to follow fishing boats to feed on offal

(fish scraps and guts); unfortunately, they also eat bait on hooks set by longline fishing vessels. These encounters result in their injury or death by drowning. According to the International Union for the Conservation of Nature, 19 of the 21 recognized species are globally *threatened*, and the other two are near threatened. The status of the Black-footed Albatross was recently upgraded from *threatened* to *endangered*, in part due to their mortality in longline fisheries. A number of seabird avoidance methods have the



"Zubenelgenubi", the albatross

capacity to nearly eliminate bird captures on longline vessels when employed effectively. Hope for albatross populations lie in the fishery-wide adoption of such methods and a better understanding of their lives at sea. However, we still know very

little about the way these birds make a living in the open ocean, whether they concentrate at predictable ocean habitats, and which fisheries they come into contact with. This is especially true after they leave their breeding colonies, between July and November.

In late summer of 2004, a dedicated group of marine ecologists from Duke University Marine Laboratory (David Hyrenbach), the non-profit Oikonos Ecosystem Knowledge (Carol Keiper,

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Michelle Hester), Keck Science Center at Claremont College (Cheryl Baduini), and Moss Landing Marine Laboratories (Josh Adams) considered these questions. This work was possible due to support from the National Fish and Wildlife Foundation and Cordell Bank National Marine Sanctuary (NMS). To inspire ocean stewardship, middle-school classrooms will follow the birds in real-time and learn about oceanography and ocean conservation through the education programs at Cordell Bank NMS (Jenny Stock) and Signals of Spring (Glen Schuster). Our objectives are to find out:

- ◆ Where do albatross spend their time and how does this reflect oceanographic-atmospheric conditions?
- ◆ What nations operate longline fisheries in critical albatross habitat during July - October?
- ◆ How do these far ranging top predators use habitats within existing National Marine Sanctuaries?
- ◆ Do birds from the western Pacific regularly visit California during the summer months?
- ◆ Do the western Pacific and central Pacific birds have distinct migratory corridors and foraging areas?

This multi-year satellite-telemetry study is currently underway. In late summer 2004, we captured nine Black-footed Albatrosses at sea near Cordell Bank and attached satellite transmitters, weighing 54 grams (lighter than the squid they eat) to feathers on their backs. The Argos receivers on satellites recorded about 12 locations each day enabling us to follow these individuals as they used the magic of the wind and water to power across the Pacific. Preliminary results indicate

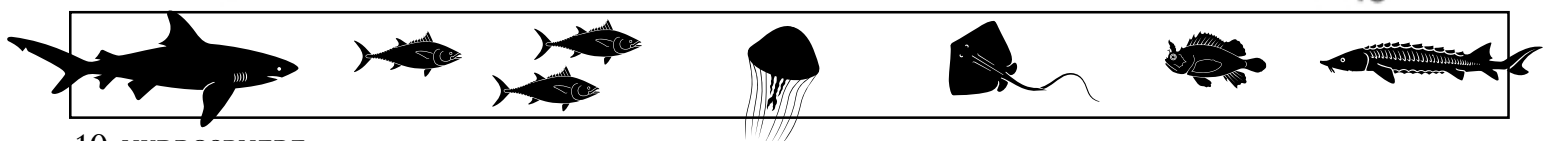
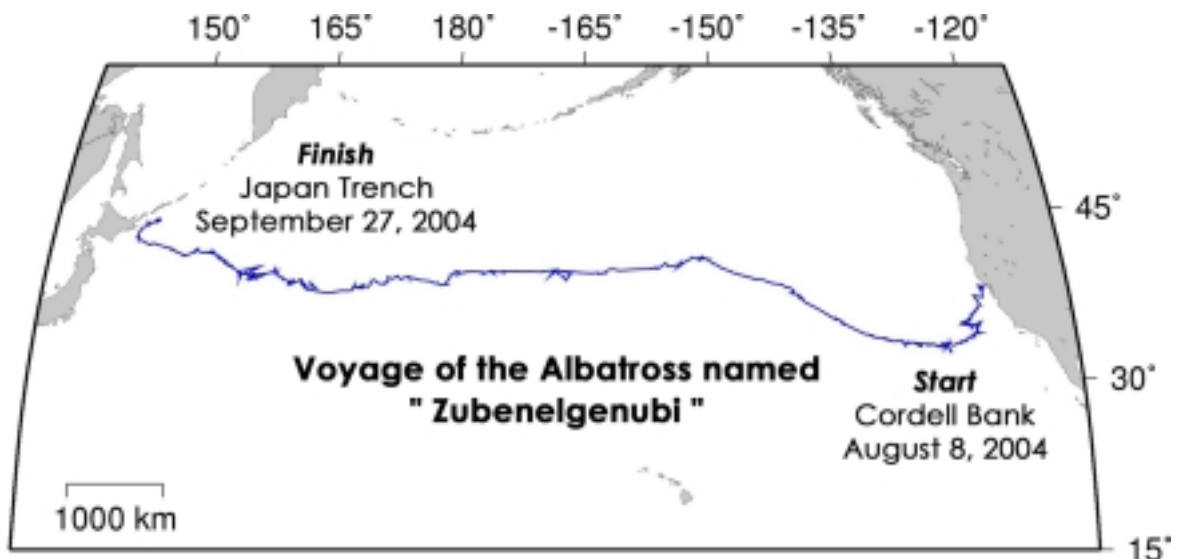
- ◆ All albatrosses ventured outside of U.S. Economic Exclusion Zone (the EEZ is the 200

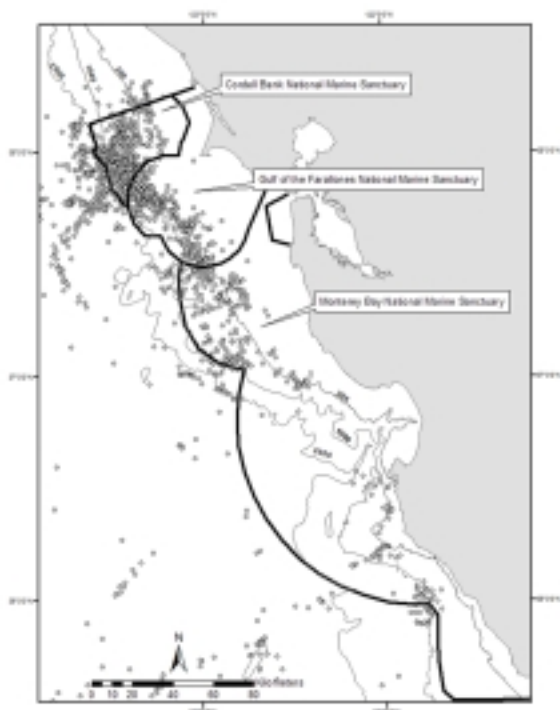
nautical mile ocean region adjacent to the coast where the U.S. can manage and enforce fishing activities), with 61 % of locations in the high seas;  
◆ Three birds ranged into the western north Pacific Ocean, west of the dateline (180° W);  
◆ Approximately 50 % of locations within the U.S. EEZ occurred within three U.S. National Marine Sanctuaries: Cordell Bank, Gulf of Farallones, and Monterey Bay.

Quantifying the spatial overlap of albatrosses and existing protected areas and marine jurisdictions is essential to assess the degree to which marine zoning can help protect the foraging grounds and movement corridors of these wondrous ocean wanderers. In principle, marine zoning can protect albatrosses during both the breeding season (close to their colonies) and the post-breeding dispersal (far away).

These initial results are very exciting and also surprising. Previously, researchers believed that post-breeding Black-footed Albatrosses remained off the West Coast in the summer and fall, and then traveled north from central California to Oregon and Washington, before returning to their colonies in Hawaii for breeding in November. In this study, the tagged birds traveled south instead of north, as previously thought. We are especially interested in the possibility that some of the birds we tracked come from colonies on islands in the western Pacific – a question genetic analysis will help to answer. Stay tuned.

If you should find yourself at sea, keep a sharp lookout on the horizon. It's a real thrill to spot an albatross that appears as a speck on the horizon, and then within minutes, gracefully appears for a brief moment alongside your vessel! To learn more about this research project and ways you can help support conservation efforts for albatrosses, please visit [www.oikonos.org](http://www.oikonos.org).





Locations of albatrosses within NMS boundaries

**References:**

Hyrenbach, K.D., Forney K.A. and Dayton, P.K. (2000) Marine protected areas and ocean basin management. *Aquatic Conservation* 10: 437-458.

Anderson, D.J., Huyvaert, K.P., Wood, D.R., Gillikin, C.L., Frost, B.J. and Mouritsen, H. (2003) At-sea distribution of Waved Albatrosses and the Galápagos Marine Reserve. *Biological Conservation* 110: 367-373.

**Further Reading Online:**

- Albatross conservation: [www.birdlife.net/action/campaigns/save\\_the\\_albatross/](http://www.birdlife.net/action/campaigns/save_the_albatross/)
- Seabirds and longlines: [www.abcbirds.org/policy/seabird\\_report.PDF](http://www.abcbirds.org/policy/seabird_report.PDF)
- Seabird bycatch: [www.wsg.washington.edu/publications/online/execsummary.PDF](http://www.wsg.washington.edu/publications/online/execsummary.PDF)
- Satellite tracking: [www.oikonos.org/projects/albatross.htm](http://www.oikonos.org/projects/albatross.htm)

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The Gulf of the Farallones National Marine Sanctuary encompasses 948 square nautical miles (3,251 km<sup>2</sup>) of water off the California coastline west of San Francisco. Designated in 1981, the Sanctuary consists of an offshore marine region of the Gulf of the Farallones and the waters of Bodega Bay, Tomales Bay, Estero de San Antonio, Estero Americano, and Bolinas Lagoon.

Cordell Bank National Marine Sanctuary protects an area of nearly 400 square nautical miles (1,400 km<sup>2</sup>). Cordell Bank is a submerged island that is 9.5 miles (17.6 km) long by 4.5 miles (8.3 km) wide, resting on a seafloor of 18.1 square nautical miles (33.6 km<sup>2</sup>). Designated in 1989, the Sanctuary consists of Cordell Bank and a surrounding buffer zone.



*The National Marine Sanctuary System, administered by the National Oceanic and Atmospheric Administration, provides special protection and management for marine areas of national significance to benefit the public and the oceans.*

