Cordell Bank

Upwelling Generates Food! Cordell Bank lies within the California Current ecosystem, one of the four major marine boundary currents in the world. Coastal upwelling, an ocean process unique to eastern boundary currents, is largely responsible for the great wealth and diversity of marine life in the sanctuary. Here’s how it works:

1. In the spring, persistent winds push water southward along the California coast.
2. Wind, the Earth’s rotation and other forces drive surface water away from the shore. Boundary currents, is largely responsible for the great wealth and diversity of marine life in the sanctuary - a hotspot for local marine life. It's more than just a unique “hotspot” that supports a diverse community of marine life above and below the surface. In addition to sustaining a vibrant ecosystem year-round, the Cordell Bank region is a migratory destination for seabirds, whales, sea turtles and fishes that travel thousands of miles each year to feast on the seasonal bounty of these waters. The extraordinary biodiversity of this special place was recognized in 1989, when Congress designated Cordell Bank National Marine Sanctuary.

Examples of Plankton:
- Krill
- Copepods
- Diatoms
- Larval Crabs

Migration Destination Cordell Bank is a “hotspot” for local marine life. It's more than just a unique "hotspot" that supports a diverse community of marine life above and below the surface. In addition to sustaining a vibrant ecosystem year-round, the Cordell Bank region is a migratory destination for seabirds, whales, sea turtles and fishes that travel thousands of miles each year to feast on the seasonal bounty of these waters.

Fish
The diverse habitats of Cordell Bank support more than 150 species of fish. These range from the bottom-dwelling sandalshoe and hagfish that live on the mud and sand to colorful rockfish that feed off the granite rocks and gather in schools above the high pressure. Shads and rays are also found in and around the bank, and Chinook and Coho salmon and Atlantic menhaden are also important species of food for this diverse marine community.

Marine Mammals
More than 20 species of marine mammals frequent sanctuary waters. Seasonal migrants like blue whales from Costa Rica and humpback whales from Mexico feed in sanctuary waters in summer and fall. The sanctuary is an important feeding ground for these whales, which are drawn to the area by an abundance of krill and small schooling fishes. Humpback whales, including Pacific white-sided dolphins, Dalls porpoises, northern right whale dolphins, northern elephant seals and California sea lions can be seen most of the year in Cordell Bank National Marine Sanctuary.

Open Ocean
When spring and summer upwelling sends subsurface, the surface currents around Cordell Bank relax. With this change, many pelagic species including mackerel, swordfishes and jellies fill the water column. Leatherback sea turtles, ocean sunfish and many species of rockfish visit these currents that drift along in the open seas.

Seabirds
Sanctuary waters ean with life from upwelling that provide food for thousands of local seabirds, along with the nearby Farallon Islands and coastal hotspots like Point Reyes. In addition, migratory seabirds that spend most of their lives at sea come from around the globe to feed seasonally in the productive waters around Cordell Bank. Important species include Black-footed Albatross from the Northwestern Hawaiian Islands, Pink-footed Shearwaters from Chile, Sooty Shearwaters from New Zealand, and Northern Fulmars from the Arctic.

On the Bank
Rising from the soft sediments of the continental shelf, Cordell Bank is covered with a diverse mixture of life. Bitterly colored corals, sponges, anemones and other invertebrates crowd the hard surface of the bank, while crabs, octopus and sea stars are on the move in search of food. Plankton floating in the water column will cover the bank and provide an abundant supply of food for this diverse marine community.

An Abundance of Life
Cordell Bank

Destination
Migration

Sanctuary waters teem with life from upwelling that provide food for thousands of local seabirds, along with the nearby Farallon Islands and coastal hotspots like Point Reyes. In addition, migratory seabirds that spend most of their lives at sea come from around the globe to feed seasonally in the productive waters around Cordell Bank. Important species include Black-footed Albatross from the Northwestern Hawaiian Islands, Pink-footed Shearwaters from Chile, Sooty Shearwaters from New Zealand, and Northern Fulmars from the Arctic.

Seabirds
Sanctuary waters teem with life from upwelling that provide food for thousands of local seabirds, along with the nearby Farallon Islands and coastal hotspots like Point Reyes. In addition, migratory seabirds that spend most of their lives at sea come from around the globe to feed seasonally in the productive waters around Cordell Bank. Important species include Black-footed Albatross from the Northwestern Hawaiian Islands, Pink-footed Shearwaters from Chile, Sooty Shearwaters from New Zealand, and Northern Fulmars from the Arctic.

Marine Mammals
More than 20 species of marine mammals frequent sanctuary waters. Seasonal migrants like blue whales from Costa Rica and humpback whales from Mexico feed in sanctuary waters in summer and fall. The sanctuary is an important feeding ground for these whales, which are drawn to the area by an abundance of krill and small schooling fishes. Humpback whales, including Pacific white-sided dolphins, Dalls porpoises, northern right whale dolphins, northern elephant seals and California sea lions can be seen most of the year in Cordell Bank National Marine Sanctuary.

Open Ocean
When spring and summer upwelling sends subsurface, the surface currents around Cordell Bank relax. With this change, many pelagic species including mackerel, swordfishes and jellies fill the water column. Leatherback sea turtles, ocean sunfish and many species of rockfish visit these currents that drift along in the open seas.

Fish
The diverse habitats of Cordell Bank support more than 150 species of fish. These range from the bottom-dwelling sandalshoe and hagfish that live on the mud and sand to colorful rockfish that feed off the granite rocks and gather in schools above the high pressure. Shads and rays are also found in and around the bank, and Chinook and Coho salmon and Atlantic menhaden are also important species of food for this diverse marine community.

On the Bank
Rising from the soft sediments of the continental shelf, Cordell Bank is covered with a diverse mixture of life. Bitterly colored corals, sponges, anemones and other invertebrates crowd the hard surface of the bank, while crabs, octopus and sea stars are on the move in search of food. Plankton floating in the water column will cover the bank and provide an abundant supply of food for this diverse marine community.
**Cordell Bank National Marine Sanctuary**

**History of Cordell Bank**

**Human History**

Dating back to the earliest human settlement of coastal California, communities have turned to the sea for food, travel and trade. Native Americans, like the Coast Miwok people, would have found resources plentiful close to shore and likely had little reason to venture far out. Cordell Bank, located 22 miles west of the Point Reyes headlands, remained hidden beneath the waves until after the Gold Rush, when a boom in maritime commerce provided new incentive to survey the California coastline. Inhabitants have turned to the sea for centuries, issue-driven research to conduct scientific missions within the sanctuary.

**Island on the Move**

Cordell Bank was discovered by George Davidson of the U.S. Coast Survey when he was returning from a mapping expedition in California’s northern coast. The bank was later mapped by Edward Cordell, an accomplished surveyor who also mapped Stellwagen Bank in Massachusetts, now the site of Stellwagen Bank National Marine Sanctuary. When Cordell Bank was always considered a pristine habitat, little was known about the marine life on the bank until 1977, when the non-profit research group Cordell Expeditions explored it undersea for the first time. Over the next 30 years, the group documented the incredible biological diversity on and around the bank. This effort was instrumental in the creation of Cordell Bank National Marine Sanctuary on May 24, 1989.

**What is a Bank?**

A bank is a raised section of the seafloor on the continental shelf, where diverse creatures live and carry Cordell Bank to its present location. Both banks and seamounts are submerged pinnacles known as "banks" that offer thousands of feet of deep habitat, different species. Both banks and seamounts are underwater ecosystems where diverse creatures live and congregate above and below the seafloor's surface.

**Activities & Regulations**

**Activities**

Cordell Bank’s remote location and unpredictable sea conditions make the sanctuary an ideal refuge for ocean lovers but it is a difficult place for humans to visit. Opportunities for recreation in the sanctuary are limited, with a handful of commercial operators offering seasonal whale watching tours. Recreational scuba diving is not recommended due to depth and strong currents. Some fishing is allowed in the sanctuary; check local regulations before venturing out.

**Sanctuary Regulations**

The following activities are prohibited:

- Anchoring shallower than 50 fathoms (300 feet)
- Exploring and extracting hydrocarbons
- Removing, taking, or injuring benthic (bottom-dwelling) organisms
- Discharging of oil and other materials
- Arboriculture shallower than 50 fathoms (300 feet)
- Entering or discharging hydrocarbons
- Dredging the seafloor

Permits for scientific and educational activities may be issued by the sanctuary for regulated activities. This summary is for reference only and does not include all sanctuary regulations, exemptions or other activities regulated within the sanctuary under local, state, or federal authorities. For more information about sanctuary regulations, please refer to the Federal Register for the full text and definitions. Federal Register Vol. 73, No. 255, Published December 20, 2008/CFR Part 922.

**Protecting the Sanctuary**

**Research**

Scientific research, exploration and monitoring are essential to better understand and protect the marine life and habitats of Cordell Bank National Marine Sanctuary. Through partnerships with universities, research institutions and state and federal agencies, sanctuary staff work with the scientific community to conduct landmark, issue-driven research with the goal of providing sound data to inform resource management.

**Education**

Cordell Bank’s offshore location makes it inaccessible to many, but innovative education and outreach programming brings the wonder of this underwater treasure to the public. Exhibits, teacher trainings, film screenings and field events are some of the ways the sanctuary reaches out to diverse audiences to emphasize the importance of a healthy ocean in our lives.

**Outreach**

Lectures, teacher trainings, film screenings and field events are some of the ways the sanctuary shares the richness and diversity of Cordell Bank’s ecosystem with the public.

**Resource Protection**

Protecting sanctuary resources is a collaborative process involving local, state and federal agencies, as well as nonprofit organizations and academic institutions. The sanctuary works with NOAA, the U.S. Coast Guard and local agencies to enforce sanctuary regulations.

**Enforcement**

The sanctuary works with NOAA, the U.S. Coast Guard and local agencies to enforce sanctuary regulations.