

Key to Species for Cordell Bank National Marine Sanctuary poster

black-footed albatross- *Phoebastria nigripes*
 humpback whale- *Megaptera novaeangliae*
 northern fulmar- *Fulmarus glacialis*
 yellowtail rockfish- *Sebastes flavius*
 ocean sunfish- *Mola mola*
 purple-striped jelly- *Pelagia colorata*

7. blue rockfish- *Sebastes mystinus*
 8. lingcod- *Ophiodon elongatus*
 9. rosy rockfish- *Sebastes rosaceus*
 10. spiny sea star on top of sponge- *Porantipopsis inflata*

cordellbank.noaa.gov

11. purple hydrocoral- *Stylaster californicus*
 12. decorator crab- *Loxorhynchus crispatus*
 13. fish-eating anemone- *Urticina piscivora*
 14. red sea urchin- *Strongylocentrotus franciscanus*
 15. sea cucumber- *Parastichopus californicus*
 16. strawberry anemone- *Corynactis californica*

Species Descriptions

1. Black-footed albatross – *Phoebastria nigripes* – Curious and sociable, the black-footed albatross can often be found floating in groups on the surface of the water by day, or foraging alone for food by night. Vast open water is a preferred hangout, while sandy beaches in the Northwestern Hawaiian Islands are perfect for nesting, a responsibility shared by mates chosen at an early age and kept until death. As the albatross's diet consists mainly of fish, fish eggs, squids, and some crustaceans, Cordell Bank, with its healthy stock of fish and its remote location, is an ideal feeding environment for these birds.

Other Fun Facts:

- Wingspan can reach up to 7 feet.
- Because it will eat almost any edible refuse, the black-footed albatross is sometimes called the “feathered pig.”
- The birds will avoid ships in waters where albatrosses have been treated harshly in the past.
- The albatross is attracted to floating objects (probably thinking they are food), including exposed dorsal fins of sharks, known predators of albatrosses.

Source: Tarwater, M. “*Phoebastria nigripes*.” 2002. *Animal Diversity Web*. Accessed June 20, 2004 at <http://animaldiversity.ummz.umich.edu/site/accounts/information/Phoebastria_nigripes.html>.

2. Humpback Whale – *Megaptera novaeangliae* – These huge marine mammals, the fifth largest of all the great whales, can be seen off the coast of Northern California much of the year. Most of the North Pacific stock of humpbacks spends the summer in temperate waters (from the Aleutian Islands of Alaska to the Farallon Islands, just south of Cordell Bank) from May to November. During the colder winter months, most of these humpbacks can be found in the warm waters near Hawaii where they breed, birth, and nurse their young. Because of their tendency to gather together close to shore, humpbacks are often easy to watch from land.

Other Fun Facts:

- The humpback's scientific name, *Megaptera novaeangliae*, means “Great wings of New England,” referring to its huge, 15-foot pectoral fins.
- Newborn calves weigh an average of 1.5 tons and range from 10 to 16 feet in length.
- A mature humpback can weigh up to one ton per foot, or about 85,000 to 90,000 pounds.
- Each fleshy bump (called a tubercle) along the upper and lower jaws of a humpback's head has a single hair and is believed to enhance sensory ability.

Source: Pacific Whale Foundation. “*Guide to Humpback Whales*.” 2002. *Pacific Whale Foundation*. Accessed June 21, 2004 at <<http://www.pacificwhale.org/learn/watchingw.htm>>.



3. Northern Fulmar – *Fulmaris glacialis* – Although the northern fulmar, similar in appearance to a common sea gull, is considered a high-arctic bird, nesting on icy cliffs farther north than many other arctic birds, it is also commonly found in open waters off the coast of Washington, Oregon, and Northern California. Some fulmars also migrate in the winter as far south as Southern California while others stay as far north as there is open (not frozen) water. Their diet consists of crustaceans, fish, small squid, and jellyfish, all plentiful over Cordell Bank.

Other Fun Facts:

- When disturbed, the Northern Fulmar defends itself by vomiting foul-smelling oil toward its harasser. (In fact, the name “Fulmar” comes from an Icelandic word meaning “foul gull” for this very reason.)
- When nesting on a rocky cliff, Fulmars don’t build nests. But when nesting on a bank or slope, the birds scrape out a shallow depression and sometimes place rocks around the edges to make a ring of small stones.
- Northern Fulmars have special glands in a tube-like structure on the top of their bills that remove salt from the seawater they drink, making the saltwater an available drinking source.

Sources: Parr, C. “*Fulmarus glacialis*.” 2002. *Animal Diversity Web*. Accessed June 20, 2004 at <http://animaldiversity.ummz.umich.edu/site/accounts/information/Fulmarus_glacialis.html>. Seattle Audubon. “*Fulmarus glacialis*.” *Bird Web*. 2002. Accessed June 23, 2004 at <<http://www.birdweb.org/birdweb/species.asp?ID=16>>.

4. Yellowtail Rockfish – *Sebastes flavidus* – Yellowtail Rockfish, one of 44 rockfish species found on Cordell Bank, are plentiful and their schools make an excellent food source for marine mammals and sea birds. Yellowtails like to gather in large groups in mid-water above deep reefs, where they feed on crustaceans, squid, and small fishes (sometimes other rockfish). This species is one of the three most important rockfishes caught for sport in northern and central California.

Other Fun Facts:

- Yellowtail rockfish can live to be 64 years old!
- This species of rockfish is closely related to the poisonous scorpion fish. The yellowtail’s dorsal and anal fins contain spines with a mild venom that stings when it pierces the skin.

Sources: National Wildlife Federation. “Yellowtail Rockfish.” *Nature and Wildlife Field Guides*. 2004. Accessed June 20, 2004 at : <<http://www.enature.com/fieldguide/showSpeciesSH.asp?curGroupID=3&shapeID=1000&curPageNum=9&recnum=FI0156>>.

5. Ocean Sunfish – *Mola mola* – The ocean sunfish is certainly one of the odder-looking sea creatures to be found around Cordell Bank. With its Frisbee-shaped body and nearly absent tail, this fish appears to be all head. It swims slowly through the water using its elongated dorsal and anal fins, often using currents to carry it without needing to expend energy. The ocean sunfish's laziness, however, doesn't prevent it from catching food; it preys largely upon slow-moving creatures such as jellies, mollusks, algae, and squid, as well as sponges and small fish. To eat, the Ocean Sunfish slurps food in through its beak, shreds the food, spits it out, and then repeats this process until the food is small enough to swallow.

Other Fun Facts:

- Ocean sunfish can lay up to three billion eggs at a time.
- It is closely related to the puffer fish and can reach lengths of up to 11 feet.
- When the parasites on its body become too bothersome, the ocean sunfish will float on its side at the surface of the water and signal with its fins. A nearby seagull, upon seeing this, will land on the sunfish and eat off all the parasites it can get to. When one side is cleaned, the seagull will lift off, allowing the sunfish to flip over and have its other side cleaned.
- Other names used for this species are "Headfish" and "Moonfish," probably both because of the shape of the sunfish's body.

Source: Morris, M. "Ocean Sunfish." *Animals!* 2003. Accessed June 20, 2004 at <<http://www.angelfire.com/mo2/animals1/tetra/oceansunfish.html>>.

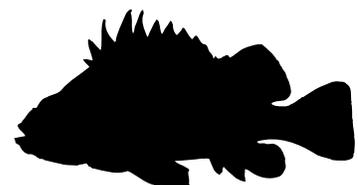
6. Purple-striped Jellyfish – *Pelagia colorata* (Now classified as *Chrysaora colorata*) – These striking jellyfish are occasionally found washed ashore on California beaches. Their bells can get quite large, up to nearly 3 feet in diameter, and have four long, frilly oral arms as long as 12 to 15 feet. As the purple-striped jellyfish ages, it loses its oral arms but tends to become more dramatically patterned on its bell. The purple-striped jellyfish feeds on a large variety of zooplankton, from copepods to salps, which are plentiful at Cordell Bank.

Other Fun Facts:

- Juvenile Slender Crabs (*Cancer gracilis*) are often found hitching a ride on these jellyfish, making them selves a purple-striped home until they are ready to settle down to life on the ground.
- The nematocysts (stinging cells) found in the purple-striped jellyfish's tentacles are very venomous and will give a painful sting upon contact with skin.

Sources: Sheldon, Ian. *Seashore of Northern and Central California*. Vancouver: Lone Pine Publishing, 1999. Wrobel, Dave. "Chrysaora (*Pelagia*) colorata: Purple-striped jelly." *The Jellies Zone*. 2003. Accessed June 20, 2004 at <<http://jellieszone.com/pelagia.htm>>.

7. Blue Rockfish – *Sebastes mystinus* – Often the most abundant fish in the catches of large fishing boats, the blue rockfish shares its Cordell Bank stomping grounds with 44 other species of rockfish. It is often found in large groups at mid-water above deep reefs (like Cordell Bank), where it feed on small crustaceans, jellyfishes, pelagic tunicates, algae, jellyfish, and small fishes. The sometimes deep-dwelling fish has been found as deep as 1800 feet.



Other Fun Facts about blue rockfish:

- The blue rockfish is a relative of the poisonous scorpion fish, and has mildly venomous spines in its anal and dorsal fins.

Sources: National Wildlife Federation. "Blue Rockfish." *Nature and Wildlife Field Guides*. 2004. Accessed June 20, 2004 at <<http://www.enature.com/fieldguide/showSpeciesGS.asp?sort=1&curGroupID=99&display=1&area=99&searchText=blue+rockfish&curPageNum=1&recnum=FI0160>>.

8. Lingcod – *Ophiodon elongatus* – A voracious predator, the lingcod feeds on large fish, mollusks, and crustaceans. It can grow to a length of 5 feet and can weigh up to 105 pounds, making it a highly prized sport fish. The lingcod's preferred habitat is above reefs and soft bottoms – they've been found as deep as 1400 feet – so Cordell Bank, with its depth, rocky reef, and abundance of prey, is an excellent place for the large fish to stretch out its fins.

Other Fun Facts:

- The lingcod's large mouth may be a bit intimidating, especially to prey, with its lower jaw protruding beyond the upper, and large, very sharp canine teeth.
- Lingcod populations are easily impacted by changes in their environment because they grow slowly and do not migrate.

Sources: National Wildlife Federation. "Lingcod." *Nature and Wildlife Field Guides*. 2004. Accessed June 29, 2004 at <<http://www.enature.com/fieldguide/showSpeciesGS.asp?sort=1&curGroupID=99&display=1&area=99&searchText=lingcod&curPageNum=1&recnum=FI0089>>.

Pacific States Marine Fisheries Commission. "Saltwater Fish of the Pacific Northwest." *Saltwater Fish*. 2003. Accessed June 29, 2004 at <http://www.blueandgoldfleet.com/html/saltwater_fish.html>.

9. Rosy Rockfish – *Sebastes rosaceus* – Imagine a bright red fish with purple or white spots, about 11 inches long. Doesn't sound like very good camouflage, does it? Rosy rockfish, with their brightly colored bodies, are actually pretty well hidden in their habitat just above the deep Cordell Bank reefs. Because red light is the first kind of light to be absorbed and scattered in water, at depths as deep as 120 feet (the shallowest point on Cordell Bank), very little red light is around to be reflected off of the fish's body. Under these conditions, the scarlet fish with spots appears to be a dull grey or black, blending in quite well with its surroundings. For this reason, and because the area is abundant with a rosy rockfish's favorite foods (small fish and crustaceans), Cordell Bank is an ideal place for the fish to live, eat, breed, and hide.

Other Fun Facts:

- The rosy rockfish likes to hide under shady ledges during the day, making it even closer to invisible as it blends in with the grey shadows.
- A small octopus can make a tasty snack for a hungry rosy rockfish.
- The rosy rockfish has a much shorter lifespan than many of its rockfish cousins; its lifespan is only about 14 years, while a yellowtail rockfish can live to be 64 years old, and a yelloweye rockfish can live to be 118 years old!

Sources: Aquarium of the Bay. "Rosy Rockfish." *Animal Facts*. 2004. Accessed June 20, 2004 at <<http://www.aquariumofthebay.com/rosyrockfish.html>>.

Monterey Bay Aquarium. "Rosy Rockfish." *Living Species List*. 2004. Accessed June 20, 2004 at <http://www.mbatq.org/efc/lining%5Fspecies/default.asp?hOri=3&inhab=151>.

10. Spiny Sea Star (on top of sponge) – *Poraniopsis inflata* – Spiny Sea stars come in a variety of colors and usually have 5 arms, even though some different species can have up to 16 arms. The arms have tube feet on the bottom that help them move; yet they only move a few inches every minute. The feet also have a sensor on the ends to tell when they are getting close to prey or another sea star. They like to feast on bivalves, sea anemone, cup coral, or even dead fish. They can be seen in intertidal zones, and some species can live at deep ocean depths.

Other fun facts:

- There are almost 2000 different types of sea stars
- Most sea stars can regenerate or grow back missing body parts
- They digest their prey by flipping the stomach out of their mouth, and then when the meal is digested, the stomach gets pulled back inside the body.

Sources: http://www.findarticles.com/p/articles/mi_m0EPG/is_12_33/ai_57294129/pg_2

<http://www.oceanlink.island.net/oinfo/biodiversity/seastars.html>

http://www.sms.si.edu/IRLFieldGuide/Echina_sentas.htm

11. Purple Hydrocoral – *Stylaster californicus* – California hydrocoral is very slow growing organism. They can be found as pink or purple coral and range from Baja to Northern California. They eat plankton that floats by in the water. When most corals die, they usually lose their pigment and turn to a bleached white. Yet, California hydrocoral keeps the color pigment even after the organism is dead. This makes them popular to have in home aquariums. Now, it is illegal in California to harvest the coral for shell collecting.

Other Fun Facts:

- It can take up to 25 years for the coral to grow an inch tall
- Small species of barnacles are found living in the coral from Monterey Bay to Channel Islands

Source: http://www.dfg.ca.gov/mrd/channel_islands/sse_monitoring/spinfo.html

12. Decorator Crab – *Loxorhynchus crispatus* – The decorator crab is very good at camouflaging itself. As it moves along the reef, it picks up bits and pieces of small animals and seaweed or sand and sticks them to its back, where there are rows of hooked setae that work like Velcro to hold the decorations to its shell. A decorator crab can grow to 5 inches wide, and loves to feed on small plants and animals that live at Cordell Bank, such as algae, sponges, small crustaceans, and bryozoans.

Other Fun facts:

- Crabs grow, but their shells don't. This is why a crab needs to "molt" every so often, which means climbing out of its old shell and forming a new, larger one. When the older, smaller shell splits, the new, growing shell underneath is soft, so the crab must climb out and then hide from predators (like) while it is so vulnerable. Before the new shell hardens, the crab absorbs water and expands to a larger size.
- When the Decorator Crab molts, it recycles its decorations; once the new shell has hardened, the crab picks the seaweed and animals off of its old shell and sticks them back onto its back.
- Crabs that have grown to a large size and can defend themselves don't usually decorate their shells like younger Decorators. However, the older crabs don't need to; plants and small animals attach themselves to the larger shell and grow without the crab's help.

Sources: Monterey Bay Aquarium. "Decorator Crab." *Living Species List*. 2004. Accessed June 19, 2004 at <<http://www.mbayaq.org/efc/living5%Fspecies/default.asp?hOri=0&hab=3&inhab=501>>.



13. Fish-eating Anemone – *Urticina piscivora* – One of the largest North Pacific sea anemones, the fish-eating anemone can grow to 8 inches tall, 10 inches wide. The size of individuals varies as food resources become more readily available or scarce – as there are more animals to catch, the anemone can swell to its full size, but when there is little food, it can shrink to a fraction of its normal bulk, so that it can conserve energy. As its name implies, this animal brings down shrimp and small fish, which are big game, compared with the small bits of food that its more delicate relatives wait to ensnare in their tentacles. These anemones can be found all along the length of California and up to Alaska.

Other Fun Facts:

- Though the fish-eating anemone eats small fish, it is sometimes home to a brave little fish called the painted greenling, which lies among the tentacles the same way a clownfish does in tropical anemones.
- The fish-eating anemone has a variety of reproductive choices. It can reproduce asexually (without a mate) in one of two ways: by splitting down the middle and producing an identical clone (fission), or by leaving behind bits of itself as it moves along a rocky reef, from which clones grow (pedal laceration).

Sources: Lozaon, Nora. “*Urticina piscivora*.” *The Race Rocks Taxonomy*. 2002. Accessed June 27, 2004 at <<http://www.racerocks.com/racerock/eco/taxalab/ensy02/noral.htm>>.

Monterey Bay Aquarium. “Fish-Eating Anemone.” Living Species List. 2004. Accessed June 20, 2004 at <http://www.mbayaq.org/efc/living_species/default.asp?hOri=1&inhab=148>.

14. Red Sea Urchin – *Strongylocentrotus franciscanus* – The spines of this echinoderm can grow up to three inches long, and serve not only as a defense against predators (such as sea stars, otters, and some fish), but also as a means of locomotion and food collection. The spines snare algae, which are gradually pulled apart and eaten. The mouth of an urchin is located at the bottom of its body, where there are teeth that help the urchin scrape algae off of rocks. In addition to their spines, red sea urchins use appendages called tube feet, arranged in rows on their spherical bodies, to move around on hard surfaces like the Cordell Bank reef.

Other Fun Facts:

- It was recently discovered that the red sea urchin could live for more than 200 years without showing many signs of age. The urchins were previously thought to live only 15 years.

Sources: Sheldon, Ian. *Seashore of Northern and Central California*. Vancouver: Lone Pine Publishing, 1999. Whitehouse, D. “Red sea urchin ‘almost immortal’.” *BBC News World Edition*. 2003. Accessed June 25, 2004 at <<http://news.bbc.co.uk/2/hi/science/nature/3232002.stm>>.

15. California Sea Cucumber – *Parastichopus californicus* – This funny-looking animal is often found on seafloors and hard surfaces, where it grows to 16 inches and is usually a red, yellow, or brown color. Like sea stars and sea urchins, sea cucumbers have many small tube feet along the bottom of their bodies that allow them to walk away from predators (like some sea stars) or toward a new place where food might be found. To eat, the California sea cucumber sifts through sand and litter with pale tentacles surrounding its mouth for bits of nutritious morsels.

Other Fun Facts:

- Sea cucumbers normally eject their internal organs through their mouths in late fall and re-grow a new set for spring.
- When threatened, the California sea cucumber will eject its internal organs in front of a predator, presumably so that the predator will dine on them instead of the whole cucumber body. As usual, the sea cucumber will then regenerate a new set of organs.

Sources: Sheldon, Ian. Seashore of Northern and Central California. Vancouver: Lone Pine Publishing, 1999. National Wildlife Federation. "California Sea Cucumber." Nature and Wildlife Field Guides. 2004. Accessed June 22, 2004 at <<http://www.enature.com/fieldguide/showSpeciesSH.asp?curGroupID=8&shapeID=1071¤tPageNum=11&recnum=SC0066>>.

16. Strawberry Anemone – *Corynactis californica* – The strawberry anemone is one of the brightest animals found on Cordell Bank. Having a brilliant red body with enlarged white-tipped tentacles, this anemone stands out particularly well against the Bank's blue-green backdrop. But how can this be? At the shallowest point on Cordell bank (about 120 feet below the surface of the water), almost no red light is available, so the red anemones should appear almost black, not bright red as they do. The answer lies in a process called fluorescence: some animals can absorb light of one wavelength (color) and emit light of a different wavelength. Because the strawberry anemone is strongly fluorescent, it absorbs the available blue light and emits red light so that large patches of red can be seen carpeting Cordell Bank where almost all other colors are blue and green.

Other Fun Facts:

- The swollen tentacles of the strawberry anemone, sometimes called the club-tipped anemone, contain the largest stinging cells of any anemone, but they are not harmful to humans.
- This anemone reproduces easily, by a process called fission, which means it splits right down the middle to form two identical individuals.

Sources: Sheldon, Ian. Seashore of Northern and Central California. Vancouver: Lone Pine Publishing, 1999. Schmieder, Robert. Ecology of an Underwater Island. Walnut Creek, CA: Cordell Expeditions. 1991.



