

Heal the Bay's Santa Monica Pier Aquarium Animal Descriptions & Fun Facts

March 2010

Outline of Animal Descriptions:

- Marine Invertebrate Phyla
 - Porifera
 - Cnidaria
 - Mollusca
 - Arthropoda
 - Echinodermata
- Marine Vertebrate Phylum
 - Chordata
 - Class Chondrichthyes – Cartilaginous Fish
 - Class Osteichthyes – Bony Fish
 - Class Mammalia – Mammals

Phylum Porifera

SPONGES (general) (*Various species*)

Habitat: various—from the tropical reefs to the arctic sea from the deep sea to the intertidal zone

Size: Wide variety of shapes, colors and sizes--encrusting and tube like, microscopic larvae to several meters as adult form

Position in food web: Suspension feeders drawing water through their pores filtering out phytoplankton, dissolved organic materials, and detritus. Prey for limpets, nudibranchs, sea stars and some fishes.

Interesting facts:

- Porifera comes from Latin meaning “pore-bearing”
- Adult sponges are **sessile**, meaning they do not move
- Bodies have no true organs
- Bath sponges available for purchase are sometimes made from species found in the Mediterranean Sea and Indian Ocean. Sponges found in the Santa Monica Bay are too rigid and not useful for absorption. Scientists have yet to create a synthetic sponge as absorbent as a natural one.

Sponges sometimes found at the Aquarium:



orange puffball sponge (*Tethya aurantia*)



white finger sponge (*Taxadocia* sp.)

Phylum Cnidaria

GORGONIANS (local) (*Various species*)

Habitat: Attached to rocks in rocky reefs below low-tide line. Found from Southern California to Baja California.

Size: Height from 25 cm (10 in) to 90 cm (3 ft)

Position in food web: Carnivorous: Filter feed on micro-zooplankton. Prey for several species of snails.

Interesting facts:

- Gorgonians are a type of soft coral found worldwide
- About 500 different species are found in shallow waters worldwide, mostly in tropical waters
- Some gorgonians have a symbiotic relationship with the algae **zooxanthellae**, which allows them nutrition via photosynthesis. However, most sea fans use polyps to filter feed for nutrition.

Relatives: Sea anemones, sea jellies, and corals



MOON JELLY (*Aurelia aurita*)

Habitat: Open ocean, worldwide.

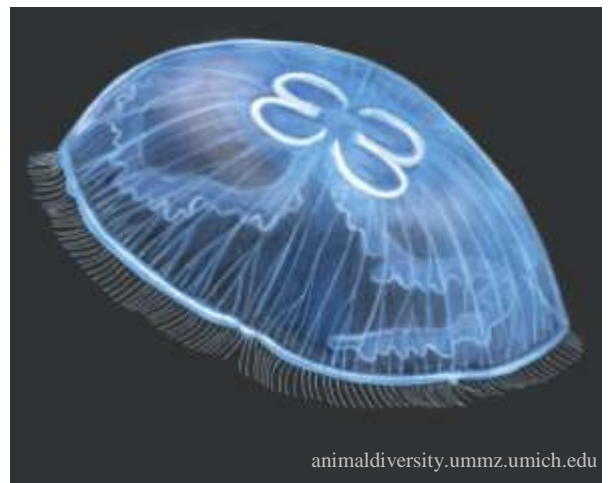
Size: Medusa stage: 40cm (15 in);
Polyp stage: 1.5cm (0.5 in)

Position in food web: Carnivorous: Feeds on zooplankton. Prey for birds and a variety of fish species including rockfish and the California sunfish (*Mola mola*).

Interesting facts:

- Like other cnidarians, moon jelly tentacles are covered with stinging structures called **nematocysts**, which are used for defense as well as for collecting food.
- The moon jelly is considered mildly toxic and can sometimes cause a rash when humans come in contact with them, however they are not dangerous.
- The gut of the moon jelly, seen as the four semi-circles in the center of the jelly, appears orange and more pronounced after feeding on brine shrimp.
- Must constantly produce nematocysts after using them for defense or feeding.

Relatives: Sea anemones, corals, and other jellies such as the Portuguese man-of-war



Heal the Bay's Santa Monica Pier Aquarium Animal Descriptions & Fun Facts

SAND-ROSE ANEMONE (*Urticina columbiana*)

Habitat: Sandy bottom areas from British Columbia to Baja California.

Size: 35 cm (14 in) in diameter

Position in food web: Carnivorous suspension feeder: Feeds on organic particles, plankton, small fish and invertebrates. Prey for predatory sea stars.

Interesting facts:

- Sand-rose anemones, like many other anemones and corals, are host to symbiotic algae called **zooxanthellae**. The anemone acts as a habitat for the algae and the anemone gains nutrition via photosynthesis.
- Like other cnidarians, the sand-rose anemone's tentacles are covered with stinging cells called **nematocysts**. The sting of the sand-rose anemone is fairly weak to humans and feels sticky rather than painful.

Relatives: sea jellies, corals, and gorgonians



TUBE-DWELLING ANEMONE

(*Pachycerianthus fimbriatus*)

Habitat: Sandy bottom areas from Alaska to Baja California

Size: 30 cm (12 in)

Position in food web: Carnivorous suspension feeder: Feeds on organic particles, plankton, small fish, and invertebrates. Prey for nudibranchs.

Interesting facts:

- The tube of the tube-dwelling anemone can reach several feet down into the substrate and serves as an escape for the anemone when predators try to eat it.
- The tentacles of the tube-dwelling anemone are easily regenerated so attacks from predatory nudibranchs are rarely fatal.
- The tentacles of the tube-dwelling anemone, like several other species of anemones, absorb ultraviolet light and shine it back as visible light giving them a fluorescent orange color.

Relatives: Sea jellies, corals, and sea fans



Phylum Mollusca

CALIFORNIA MUSSEL (*Mytilus californianus*)

Habitat: Rocky intertidal zone from Alaska to Baja California.

Size: 25 cm (10 in) long, 10 cm (4 in) high

Position in food web: Filter feeder: Feeds on phytoplankton and suspended organic material. Prey for lobsters, sea stars, shore birds, snails, and several species of fish. Also collected by humans.

Interesting facts:

- Mussels can withstand the heavy wave action of the intertidal zone due to their rounded shell and by cementing themselves to rocks with **byssal threads**. Byssal threads are secreted as a liquid but quickly harden into a fibrous solid upon contact with salt water.
- Byssal threads are as strong as steel and scientists cannot figure out how to replicate them.
- Toxins such as domoic acid can **bioaccumulate**, or multiply, in mussels that feed on phytoplankton during red tides. These neurotoxins affect mammals that eat the infected mussels causing memory loss and brain damage in humans and causing tremors, seizures, and disorientation in marine mammals.

Relatives: scallops, squid, and sea hares



CALIFORNIA SEA HARE (*Aplysia californica*)

Habitat: Found to 18m deep in calm waters of sandy bottoms, rocky reefs, and kelp forests. Range from Northern California to Baja California.

Size: 40 cm (15 in) long

Position in food web: Herbivorous: Feeds on various red, green and brown algae and eelgrass. Prey for fish and aggregating anemones.

Interesting facts:

- The sea hare can release a noxious purple ink to deter predators.
- It is a **simultaneous hermaphrodite**, meaning that each individual has both male and female sex organs at the same time, but an individual cannot fertilize its own eggs.
- Yellowish eggs resemble spaghetti and are laid as entangled, gelatinous masses on seaweed or rocks
- The CA black sea hare (*A. vaccaria*) can grow to almost 3 meters in length

Relatives: clams, snails, and octopuses



Heal the Bay's Santa Monica Pier Aquarium Animal Descriptions & Fun Facts

CHITON (*Various species*)

Habitat: Rocky intertidal zone from the Aleutian Islands to San Diego.

Size: 1 cm (1/2 inch) to 33 cm (13 in)

Position in food web: Omnivorous: Feeds on algae, diatoms and sometimes sponges and bryozoans. Prey for octopus and sea stars.

Interesting facts:

- Chitons often live on the underside of rocks and in depressions for protection against predators
- They are light sensitive and respond to changes in light by firmly clamping their foot down to the substrate
- Due to the overlapping nature of their eight shells, when pried from a rock, chitons often roll into a ball like a pill bug

Relatives: clams, octopuses, and nudibranchs



CHESTNUT COWRIE (*Cypraea spadicea*)

Habitat: Rocky intertidal zone from central California to Baja California.

Size: 4 cm (3 in) long

Position in food web: Omnivorous: Feeds on algae, anemones, sponges, and snail eggs. Prey for sea stars and other snails.

Interesting facts:

- Chestnut cowries have a shiny, brown shell with a slit opening on the **ventral** (bottom) side, lined with teeth, no operculum
- Has a spotted mantle that will emerge and cover the shell to prevent predators from being able to get a grip on the cowrie. Will retract mantle when feeling threatened.
- The mantle of this snail also polishes the shell and keeps it smooth
- This is the only true cowrie found in California waters, mostly found in tropical waters

Relatives: clams, octopuses, and nudibranchs



LIMPETS (*Various species*)

Habitat: Rocky intertidal zone, worldwide

Size: 2 cm (1 in) to 20 cm (8 in)

Position in food web: Herbivorous: Most feed on algae. Prey for fish, sea stars, and birds.

Interesting facts:

- Limpets have a single cap-shaped shell with mantle covering
- Some species of limpet will return to the same “home scar” on a rock. Scientists believe they can follow mucus trails to get back to their exact location
- When limpets are clamped down on rocks it is next to impossible to pry them off

Relatives: clams, octopuses, and nudibranchs



GIANT KEYHOLE LIMPET (*Megathura crenulata*)

Habitat: Rocky intertidal zone and rocky reefs of central California to Baja California.

Size: 13 cm (5 in) shell length

Position in food web: Omnivorous: feeds on algae and tunicates. Prey for fish, sea stars, and sea otters.

Interesting facts:

- Giant keyhole limpets have a hole on their **dorsal** (top) side to facilitate excretion of waste products and to pass water over their gills. True limpets do not have this hole.
- Some of the coastal tribes used the shells for money and for hair decorations
- Like the chestnut cowrie, giant keyhole limpets have a mantle, which covers its shell to prevent predators from being able to grip on to the limpet.

Relatives: clams, octopuses, and nudibranchs



Heal the Bay's Santa Monica Pier Aquarium Animal Descriptions & Fun Facts

NORRIS' TOP SNAIL (*Norrisia norrisi*)

Habitat: Rocky intertidal zone to 30 m from Point Conception to Baja California.

Size: 5 cm (2 in)

Position in food web: Herbivorous: Feeds on kelp and other brown algae. Prey for sea stars, octopuses, and shorebirds.

Interesting facts:

- Norris' top snails migrate up and down the kelp **stipe** (stem) as the intensity of sunlight changes throughout the day. This is called **diurnal vertical migration**.
- After Western gulls pick snails off the kelp forest canopy, they fly high above the rocky shores dropping the snails on the rocks to smash the shell open in order to eat them.

Relatives: sea hares, octopuses, and clams



Bre Embiser

NUDIBRANCHS (*Various species*)

Habitat: Various habitats worldwide

Size: From 2 cm (.75 in) to 60 cm (2 ft)

Position in food web: Carnivorous: Feed on sponges, hydroids, bryozoans, and other sea slugs. Prey for some fish and anemones.

Interesting facts:

- All nudibranchs are hermaphroditic, but cannot self fertilize.
- Nudibranch literally means “naked gills.” Dorids breathe using the plumb – like structure located near the rear of the body and other nudibranchs use their **cerata** (frilly appendages found along the dorsal side) for respiration.
- Some nudibranchs that eat hydroids are able to store the hydroid's **nematocysts** (stinging cells) in their cerata as a form of protection.
- Nudibranchs generally lay their eggs in a gelatinous ring or spiral

Relatives: sea hares, octopuses, and clams



Scott Gietler

PURPLE OLIVE SNAIL (*Olivella biplicata*)

Habitat: Sandy bottom to 50 m deep. Range from British Columbia to Baja California.

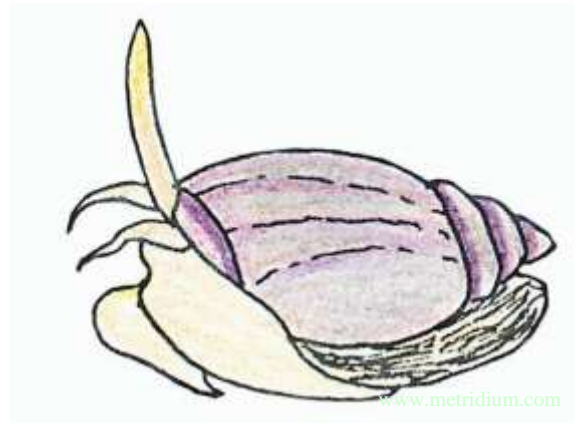
Size: 3 cm (1.5 in)

Position in food web: Scavenger: Feeds on small particulate organic matter in sandy substrate. Prey for moon snails, sand stars, and octopuses.

Interesting facts:

- Olive snails can live up to 15 years
- Olive snails can bury themselves under the sand and extend a siphon up into the water like a snorkel
- These snails possess a plow like front end that helps them burrow in the sand during the day, leaving a trail behind

Relatives: sea hares, octopuses, and clams



ROCK SCALLOP (*Crassidoma giganteum*)

Habitat: Rocky intertidal zone and rocky reefs from British Columbia to Baja California

Size: 25 cm (10 in)

Position in food web: Filter feeder: Feeds on organic particles and plankton. Prey for predatory sea stars and humans.

Interesting facts:

- Rock scallops, like many filter feeding mollusks, have a sophisticated sorting apparatus, which allows them to separate small inorganic particles from food particles and eject the inedible items from their bodies.
- As a juvenile, this scallop is free swimming until it grows to about one inch where it settles on a rock, secreting a material that cements it to the substrate for the rest of its life.
- Rock scallops have numerous blue, light-sensing eye spots that can detect motion

Relatives: clams, octopuses, and nudibranchs



Heal the Bay's Santa Monica Pier Aquarium Animal Descriptions & Fun Facts

WAVY TOP SNAIL (*Megastrea undosa*)

Habitat: Rocky intertidal zone to 30m from Point Conception to Baja California.

Size: 11 cm (4.3 in)

Position in food web: Herbivorous: Feeds on kelp and other brown algae.

Interesting facts:

- Wavy top snail cans often be seen with calcareous red algae growing on their shells.
- For protection, wavy top snails are able to close off their shell opening with a thick operculum (trap door).

Relatives: sea hares, octopuses, and clams



TWO-SPOT OCTOPUS (*Octopus bimaculatus* or *bimaculoides*)

Habitat: Rocky intertidal zone, rocky reefs and among kelp from Point Conception to Mexico.

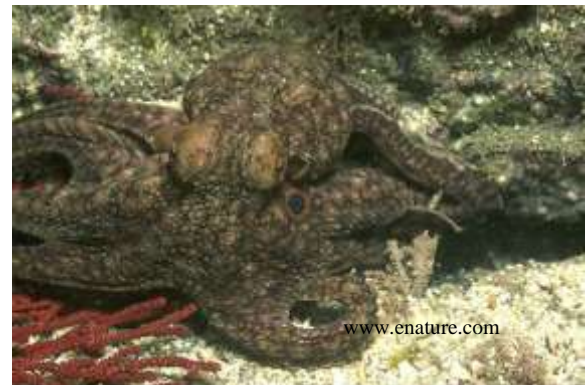
Size: Mantle length 20 cm (8 in), body length 76 cm (30 in)

Position in food web: Carnivorous: Feeds on crustaceans, mollusks, and fish. Prey for larger fish and sea lions.

Interesting facts:

- The body of the two-spotted octopus is covered with **chromatophores**, tiny cells which allow the octopus to rapidly change color
- Like all species of octopus, the two-spot octopus has a short life span generally living less than two years, and dying soon after reproducing

Relatives: clams, sea hares, squid, and nudibranchs



Phylum Arthropoda

BRINE SHRIMP (*Artemia* sp.)

Habitat: Inland saltwater lakes and certain ocean bays worldwide (not local)

Size: 7 mm (0.25 in)

Position in food web: Filter feeder: Feeds on organic particles and plankton. Prey for filter feeding invertebrates, fish larvae, several species of birds, and fish.

Interesting facts:

- Brine shrimp are a food source commonly hatched and raised at aquaria worldwide due to the ease with which dried brine shrimp cysts (eggs) can be stored and hatched at a later date with very little equipment
- Brine shrimp are sold at toy and novelty stores as “sea monkeys” and can be raised and enjoyed at home
- The Aquarium hatches brine shrimp daily to feed to filter feeding animals in exhibits

Relatives: lobster, spiders, and shrimp



CALIFORNIA SPINY LOBSTER (*Panulirus interruptus*)

Habitat: Rocky reefs and kelp forests to 60 m from central California to Baja California.

Size: 41 cm (16 in); largest on record 1m (3.3 ft)

Position in food web: Scavenger: Feeds on various algae, small fish, dead animals, sea urchins, and other crustaceans. Prey for large fish, sea lions, and humans.

Interesting facts:

- Unlike the American lobster, which is a popular food in restaurants, the California spiny lobster does not have claws (**chelae**).
- The California spiny lobster has a carapace covered with rows of sharp spines, with the largest pair of spines above eyestalks
- As the lobster grows and its exoskeleton becomes tighter, it must shed this skeleton and grow a larger one in a process known as **molt**ing. The lobster may molt 20 times before it reaches its adult size.

Relatives: shrimp, crabs, and insects



Heal the Bay's Santa Monica Pier Aquarium Animal Descriptions & Fun Facts

HERMIT CRAB (*Pagurus* spp.)

Habitat: Rocky intertidal zone and rocky reefs from Southern Alaska to Southern California.

Size: Carapace size 1-4 cm (0.5-2 in)

Position in food web: Scavenger: Feeds on dead plant and animal material. Prey for various species of fish such as sheephead, kelpfish, and perch.

Interesting facts:

- Hermit crabs inhabit abandoned snail shells to protect their soft bodies. As they grow larger, they must move into progressively larger shells. Hermit crabs are the only Arthropods to adopt another animal's shell.
- Despite living in abandoned snail shells, hermit crabs do molt as they grow.
- Some species of hermit crabs, studied in laboratories, show that they have a preference and can discriminate between certain types of shells.
- During mating, the male hermit crab will carry the female around for several days.

Relatives: insects, lobsters, and shrimp



SAND OR MOLE CRAB (*Emerita analoga*)

Habitat: Sandy bottom surf zone from Alaska to Baja California.

Size: Female carapace about 3.5 cm (1.5 in), male carapace about 2.5 cm (1 in)

Position in food web: Filter feeder: Feeds on organic particles and plankton. Prey for shore birds and many species of fish such as croaker, corbina, and surfperch.

Interesting facts:

- Sand crabs feed by burrowing themselves in the sand facing towards the ocean, with only their eyes and first antennae visible. As the outgoing backwash of a wave flows over them, they extend their long, feathery second antennae and strain tiny food particles from the water.
- Just as wave action and currents move sand from the north to the south by long shore drift, populations of sand crabs will also travel down the California coast.

Relatives: insects, lobsters, and shrimp



SHEEP CRAB (*Loxorhynchus grandis*)

Habitat: Rocky reefs and kelp forests to depth of 124 m from Central California to Baja California.

Size: Carapace to 16 cm (6 in) wide in males and 11.5 cm (4.5 in) wide in females

Position in food web:

Scavengers/carnivorous: Feeds on sea stars, clams, octopuses, and crustaceans. Prey for large fish, sharks, and humans.

Interesting facts:

- Male sheep crabs have larger pinchers (**chelae**) than females.
- The sheep crab is the largest of all spider crabs found in Southern California.
- Juvenile sheep crabs camouflage with their environment by placing hydroids, algae and barnacles on their back. As adults, sheep crabs lose the instinct to blend in with surroundings and can often be seen walking around on the sandy bottom.

Relatives: insects, lobsters, and shrimp



STRIPED SHORE CRAB (*Pachygrapsus crassipes*)

Habitat: Rocky intertidal zone from Oregon to Baja California.

Size: Carapace 5 cm (2 in) wide in males and 4 cm (1.5 in) wide in females

Position in food web: Scavenger: Feeds on various algae, diatoms, and dead organic matter. Prey for fish, octopuses, raccoons, and shore birds.

Interesting facts:

- The striped shore crab has dexterous claws and is quick enough to catch a fly mid-flight.
- Able to live half of their time out of the water, but most go into the water to keep gills moist and to feed
- Females can hold about 50,000 eggs at a time and it takes about 3 years for crabs to reach adult size

Relatives: insects, lobsters, and shrimp



Heal the Bay's Santa Monica Pier Aquarium Animal Descriptions & Fun Facts

Phylum Echinodermata

ARMORED SAND STAR (*Astropecten armatus*)

Habitat: Sandy bottoms to 60m from Southern California to Ecuador.

Size: 15 cm (6 in)

Position in food web: Carnivorous: Feeds on mainly on snails but also eats dead fish, sand dollars and sea pansies. Prey for large fish, large sea stars, and sea otters.

Interesting facts:

- Unlike most sea stars, the tube feet of the armored sand star lack suckers.
- The sand star differs from many other sea stars when feeding, as this star does not evert its stomach, but rather swallows prey whole.

Relatives: sea cucumbers, sand dollars, and sea urchins



BAT STAR (*Asterina miniata*)

Habitat: Low intertidal zone and rocky reefs to 300 m from Alaska to Baja California.

Size: 10 cm (4 in)

Position in food web:

Omnivorous/Scavenger: Feeds on plants and animals, especially algae, tunicates and surfgrass. Prey for shore birds, predatory sea stars, certain species of fish, and land-based animals such as raccoons and weasels.

Interesting Facts:

- The bat star extends its stomach out as it walks “sweeping” food particles into its mouth
- Sea stars have the ability to **regenerate**, or grow back, arms if lost
- Does not possess any **pedicellariae**, one of the small pincer-like structures used for cleaning and to capture tiny prey.

Relatives: sea urchins, sand dollars, and sea cucumbers



BRITTLE STAR (*various species*)

Habitat: Various habitats to 140 m from British Columbia to Southern California.

Size: Disk diameter from 1 cm (.5 in) to 4.5 cm (2 in) with some species having arms 2-9 times as long as disk diameter

Position in food web: Carnivorous: Feeds on organic particles, detritus and small animals. Prey for sea stars, fishes and crabs.

Interesting facts:

- The brittle star can move quite rapidly with serpentine like movements of the arms
- Not much is known about the CA species of brittle stars with regards to feeding, life span, predators, parasites, etc. Much of information we know is from related species
- This species gets its name due to the flexible, thin arms that are easily broken off but then can be regenerated

Relatives: sand dollars, sea urchins, sea cucumbers, and sea stars



KNOBBY SEA STAR (*Pisaster giganteus*)

Habitat: Very low intertidal and rocky reefs to 88 m from British Columbia to Baja California.

Size: 30 cm (12 in) arm radius

Position in food web: Carnivorous: Feeds on mussels, clams, snails, chitons and barnacles. Prey for lobsters, gulls, larger sea stars including the sunflower star.

Interesting facts:

- Knobby sea stars are active predators often times seen feeding on the same piece of food with the Kelleys' Whelk
- The **aboral** side (top) of the knobby sea star, like many other species of sea stars, is covered in tiny pincher-like structures called **pedicellariae**, which can move food particles from the aboral side to **oral** (bottom) side to their mouth.

Relatives: sea stars, sand dollars, and sea cucumbers



Heal the Bay's Santa Monica Pier Aquarium Animal Descriptions & Fun Facts

LEATHER STAR (*Dermasterias imbricata*)

Habitat: Rocky reefs to 90m from Alaska to San Diego.

Size: 12 cm (4.7 in)

Position in food web: Carnivorous: Feeds mostly on anemones, but also eats sea urchins and sea cucumbers.

Interesting facts:

- Unlike many other types of sea stars, the leather star typically swallows its prey whole and digests it internally
- Leather stars often have a sulfur or garlic odor
- When leather stars come in contact with anemones, some anemones detach and swim away to avoid predation.

Relatives: sand dollars, sea urchins, and sea cucumbers



OCHRE STAR (*Pisaster ochraceus*)

Habitat: Intertidal and rocky reefs to depths of 88 m from Alaska to Baja California.

Size: 14 cm (5.5 in) arm radius

Position in food web:

Carnivorous: Feeds on mussels, barnacles, snails, chitons and limpets. Adults have few predators but some times eaten by otters and gulls.

Interesting facts:

- Many prey items of ochre star's have evolved to have responses that help them escape or avoid predation. They either move away when they detect an ochre star scent in the water or when they are touched by the sea star.
- This species of sea star is more tolerant to air exposure than other species of *Pisaster*, often being exposed for 8 hours during tidal changes

Relatives: sand dollars, sea urchins, and sea cucumbers



SHORT-SPINED STAR (*Pisaster brevispinus*)

Habitat: Subtidal zone and rocky reefs to depths of 100 m from Alaska to San Diego

Size: 32cm (13 in) arm radius

Position in food web: Scavenger/Carnivorous: Feeds on snails, clams, sand dollars, dead fish and squid. Prey for shore birds, sea otters, and larger predatory sea stars.

Interesting facts:

- The short-spined sea star is able to sense a buried clam under the sediment while walking over it. They are able to extend their tube feet into the sand (sometimes 20 cm down) to grab the clam, can dig down to the clam (which can take 2-3 days) or can extend stomach out to depths of 8 cm to digest the prey in place
- Unlike its sea star relatives, the short-spined sea star dries out (**desiccates**) quickly when removed from the water

Relatives: sand dollars, sea urchins, and sea cucumbers



PURPLE SEA URCHIN (*Strongylocentrotus purpuratus*)

Habitat: Low intertidal zone, rocky reefs and kelp forests to 160 m from British Columbia to Baja California.

Size: test 5 cm (2 in) in diameter

Position in food web: Herbivorous: Feeds on brown and red algae. Prey for sea stars, fish (sheephead), sea otters, and spiny lobsters.

Interesting facts:

- Purple sea urchins feed on the holdfasts of kelp causing the main frond of the kelp to become detached, float away, and die. To control this occurrence, predators keep the urchin populations in check. When predator population decline, entire areas of kelp forest may quickly be destroyed leaving behind an “urchin barren”
- Sea urchins have five white teeth on the bottom known as the “Aristotle’s lantern” for its lantern-like shape. In the lab they can grow out a new set of teeth in about 75 days
- The sea urchin use their spines and their teeth to create depressions and burrows in rocks where they live

Relatives: sea stars, sand dollars, and sea cucumbers



Heal the Bay's Santa Monica Pier Aquarium Animal Descriptions & Fun Facts

SAND DOLLAR (*Dendraster excentricus*)

Habitat: Shallow sandy bottoms to 40 m from Alaska to Baja California

Size: 7.5 cm (3 in)

Position in food web: Omnivorous: Feeds on small crustaceans, organic debris, and algae fragments. Prey for shore birds, sea stars, sheephead, and flatfish.

Interesting facts:

- Juveniles tend to ingest sand while feeding, which they store in their gut. Some scientists believe this acts as a “weight belt” aiding the animal by keeping it stable in a shifting environment
- Sand dollars are compressed sea urchins with smaller bristle-like spines.
- Life span is approximately 6-10, but sometimes can live for 13 years. Growth rings on the test can be counted to age these animals.

Relatives: sea stars, sea urchins, and sea cucumbers



WARTY SEA CUCUMBER (*Parastichopus parvimensis*)

Habitat: Rocky reefs and sandy bottoms to 30 m from Monterey California to Baja California.

Size: 25 cm (10 in)

Position in food web: Scavenger: Feeds on small organisms and organic detritus in sediment. Prey for sea stars, sea otters, and humans.

Interesting facts:

- Sea cucumbers use camouflage as their first line of defense against predators. Like many other species of sea cucumbers, the warty sea cucumber will eject its internal organs (**eviscerate**) when threatened by predators in hopes that the organs will be eaten in place of the individual. The organs can be regenerated later.
- Although the warty sea cucumber looks intimidating at first, the **papillae**, or pseudo spines, on the **dorsal** (top) side are soft and gel-like.
- This species of cucumber moves more rapidly than others, about 1 m in 15 minutes

Relatives: sea stars, sand dollars, and sea urchins



Phylum Chordata

Class Chondrichthyes

HORN SHARK (*Heterodontus francisci*)

Habitat: Rocky reefs and kelp forests from Central California to Baja California.

Size: 1m (3.3 ft)

Position in food web: Carnivorous:
Feeds on small fish, crabs, squid, mollusks, sea urchins and anemones. Prey for elephant seals and the occasional bald eagle.

Interesting facts:

- Horn sharks are nocturnal and can often be found sleeping during the day in rock crevices, caves or algae, often returning to the same shelter every day.
- Horn sharks are named for the large horns in front of each dorsal fin. These horns are used for protection against predators.
- The scientific name *Heterodontus* is Greek meaning “mixed tooth.” They have sharp pointy teeth in the front and crushing molar-like teeth in the back.

Relatives: skates and rays



LEOPARD SHARK (*Triakis semifasciata*)

Habitat: Various habitats from Oregon to Baja California.

Size: 2.1m (7 ft)

Position in food web: Carnivorous:
Feeds on fish, shrimp, clam siphons and crabs. Prey for larger sharks and humans.

Interesting facts:

- Leopard sharks can give birth to 4-33 live young with embryos staying in the female for 10-12 months
- Although leopard sharks can be large in size, they are not a threat to humans and usually swim away in our presence
- A schooling shark, known to aggregate with dogfish and smoothhounds

Relatives: skates and rays



Heal the Bay's Santa Monica Pier Aquarium Animal Descriptions & Fun Facts

ROUND STINGRAY (*Urobatis halleri*)

Habitat: Sandy bottoms to depths of 23 m from Northern California to Panama <http://ladiving.smugmug.com/FieldGuide/Sharks->

[Rays/5562724_AdjPc/1/347918636_rJJwD/Large](http://ladiving.smugmug.com/FieldGuide/Sharks-Rays/5562724_AdjPc/1/347918636_rJJwD/Large).

Size: 56 cm (22 in)

Position in food web: Carnivorous: Young rays feed on worms, shrimps, crabs, and amphipods while adults prefer clams. Prey for larger fish, sharks and elephant seals.

Interesting facts:

- Like all other true stingrays the round stingray is equipped with a poison-tipped **barb** (spine) near the end of its tail. If attacked or stepped on, the round stingray will stab the spine into the aggressor as an act of self-defense.
- The poison of the round stingray is not dangerous to humans, however it is extremely painful. If stung by a stingray, the best course of action is to soak the affected area in very hot water to denature the poison.
- Females can give birth to 8 young (with 3 being the average) and they measure approximately 4 inches at birth

Relatives: sharks, guitarfish, and chimeras



SWELL SHARK (*Cephaloscyllium ventriosum*)

Habitat: Various habitats from Central California to Mexico

Size: 1 m (3.3 ft)

Position in food web: Carnivorous: Feeds on crustaceans, mollusks and several species of fish. Prey for elephant seals and larger sharks.

Interesting facts:

- Swell sharks lay eggs made of keratin and the young shark develops inside the egg (**oviparous**). Females lay two eggs per clutch and they hatch in about 8 – 10 months
- Sharks are about 6 inches when they hatch
- When threatened, swell sharks can inflate their bodies to twice their normal size by swallowing water

Relatives: rays, chimeras, and guitarfish



THORNBACK RAY (*Platyrhinoidis triseriata*)

Habitat: Sandy bottoms to 150 m from Northern California to Baja California.

Size: 1m (3.3 ft)

Position in food web: Carnivorous: Feeds on crabs, shrimp, worms, and clams. Prey for larger fish and elephant seals.

Interesting facts:

- The thornback ray lacks the spine common to stingrays and instead has three rows of serrated spines running the length of the dorsal surface.
- Some anglers call this fish the “banjo shark” because it looks like the instrument

Relatives: Sharks, skates, and rays



Class Osteichthyes

BAY PIPEFISH (*Syngnathus leptorhynchus*)

Habitat: Bays and estuaries from Alaska to Baja California

Size: 30 cm (12 in)

Position in food web: Carnivorous: Feeds on small crustaceans. Prey for sea birds and larger fish.

Interesting facts:

- Pipefish don't have scales but instead they have bone like rings that surround their body
- The body shape and coloration of a pipefish help it to camouflage in the swaying eelgrass
- The male pipefish carry and brood the eggs on the underside of the body. A female can deposit approximately 200 eggs and they hatch after about two weeks.

Relatives: seahorses and other pipefish



Heal the Bay's Santa Monica Pier Aquarium Animal Descriptions & Fun Facts

BLACK SURFPERCH (*Embiotoca jacksoni*)

Habitat: Various habitats to depths of 24 m from Central California to Baja California

Size: 38 cm (15 in)

Position in food web: Carnivorous: Feeds on small amphipods, crabs, mysid shrimp, brittle stars, and worms. Prey for cormorants, harbor seals, and other fish.

Interesting facts:

- The black surfperch gives live birth and can have up to 30 young at one time
- Black surfperch feed using a technique called “winnowing”. The surfperch will suck in a mouthful of kelp or sediment, then using special muscles in its throat, it can separate and swallow food items, and spit out undesired particles.
- They live to be about 9 years old

Relatives: shiner surfperch, striped surfperch, and other bony fish



BLACKSMITH (*Chromis punctipinnis*)

Habitat: Rocky reefs and kelp forests to depths of 50 m from Monterey California to Baja California

Size: 30 cm (12 in)

Position in food web: Carnivorous: Feeds on zooplankton such as copepods and eggs. Prey for fish, seals, sea lions, sharks, and sea birds.

Interesting facts:

- Males guard nest sites, cleaning and guarding eggs until they hatch
- Juvenile blacksmith are bicolored with a bluish-gray front and an copper-orange colored rear
- At night blacksmith can be found resting in cave crevices

Relatives: Garibaldi, damselfish, and other bony fish



CABEZON (*Scorpaenichthys marmoratus*)

Habitat: Rocky reefs and kelp forests to depths of 30 m from Alaska to Baja California.

Size: 30 in (2.5 ft)

Position in food web:

Carnivorous: Feeds on crustaceans, octopuses, abalone, and fish. Prey for larger fish, sea otters, birds, and humans.

Interesting facts:

- Cabezon eggs are poisonous to mammals, birds and humans. This can possibly explain why they can lay eggs in exposed tidepool locations with little predation.
- Cabezons have NO scales, but instead are covered with smooth, mottle-colored skin
- The cabezon is important sport fish and despite their blue flesh, there does remain a market for this species. The blue coloration disappears when cooked and might be caused by the copper-based compounds in shellfish they feed upon.

Relatives: staghorn sculpin, red Irish lord, and wooly sculpin



CALIFORNIA MORAY EEL (*Gymnothorax mordax*)

Habitat: Rocky reefs to 40m from Point Conception to Baja California

Size: 1.8m (6 ft)

Position in food web: Carnivorous: Feeds on fish, crustaceans, and octopus. Prey for sharks and humans.

Interesting facts:

- California moray eels have three rows of thin sharp hook-shaped teeth that are used to grab onto prey and prevent it from escaping
- These eels are near sighted and rely heavily on their acute sense of smell to detect prey
- It is thought that CA moray eels can live to be about 30 years old
- Scientists believe that morays that live in Southern California do not reproduce here due to the cold water temperature, but rather they hatch off Baja California and as larvae drift north

Relatives: bony fish and other moray eels



Heal the Bay's Santa Monica Pier Aquarium Animal Descriptions & Fun Facts

CALIFORNIA SHEEPHEAD (*Semicossyphus pulcher*)

Habitat: Rocky reefs and kelp forests from Monterey Bay to the Gulf of California

Size: 1m (3.3 ft)

Position in food web: Carnivorous: Feeds on clams, barnacles, crabs, sea urchins, worms and octopus. Prey for larger sharks, giant sea bass, mammals and humans.

Interesting facts:

- All sheephead are born female. They live in congregations of females with one dominant male. When the male dies, the largest female will undergo metamorphosis into a male. This occurrence is known as “**protogynous hermaphroditism.**”
- Female sheephead reach sexual maturity at about four years of age and undergo a sex change around eight years of age. Some slow growing females may not make the change into a male. Development into a male occurs between spawning seasons (spring and summer) and usually takes less than a year.
- Female sheephead are pink with a white ventral side. Male sheephead are much larger with a black head and tail, a pink middle, a white chin and a pronounced hump on the head. Juveniles are salmon colored with at least one white stripe along the side
- Sheephead are active during the day, but sleep in caves at night and can sometimes be found surrounding themselves with a mucous bubble

Relatives: wrasses and senioritas



C-O TURBOT (*Pleuronichthys coenosus*)

Habitat: Sandy bottoms to 340 m from Alaska to Baja California.

Size: 34 cm (14 in)

Position in food web: Carnivorous: Feeds on worms, small crustaceans, and small fish. Prey for larger fish, sharks, rays, and dolphins.

Interesting facts:

- The C-O turbot is named for the dark spot and crescent marking on its tail that looks like a C with an O inside it
- The C-O turbot is not born flat. It hatches with the same body plan as a typical fish. Once the turbot settles on the substrate one eye migrates so that both eyes are on the same side of its head making it easier to blend in with the sandy bottom environment.

Relatives: English sole, diamond turbot, and halibut



GARIBALDI (*Hypsypops rubicundus*)

Habitat: Rocky reefs and kelp forests to 28 m from Central California to Baja California

Size: 35 cm (14 in) adults and 15 cm (6 in) juveniles

Position in food web: Carnivorous: Feeds on sponges, bryozoans, crabs, and small anemones. Prey for larger fish, sharks, moray eels, birds, and sea lions.

Interesting facts:

- Garibaldi are extremely territorial, protecting areas of the reef against each other and other intruder
- Males tend to nests, removing everything except for red algae. Females will swim around observing males and nest and when she selects one, she enters the male's territory and lays her eggs. Males then take over guarded the nests
- Juvenile garibaldi are covered with bright blue markings

Relatives: blacksmith and damselfish



GIANT KELPFISH (*Heterostichus rostratus*)

Habitat: Kelp forests from British Columbia to Baja California

Size: 38 cm (15 in)

Position in food web: Carnivorous: Feeds on small fish, crustaceans, and amphipods. Prey for larger fish and cormorants.

Interesting facts:

- These fish are shaped like the blades of kelp, and can be found trying to blend in with their surroundings, swaying with the kelp and angling their body in the same direction
- The coloration of the giant kelp fish varies from golden yellow to reddish purple and varies with the color of the kelp in which they are hiding. Juveniles can change color fairly easily, but adults have a harder time, with males having the hardest time of all.

Relatives: island kelpfish and sarcastic fringehead



Heal the Bay's Santa Monica Pier Aquarium Animal Descriptions & Fun Facts

KELP BASS (*Paralabrax clathratus*)

Habitat: Rocky reefs and kelp forests to 60 m from Washington to Baja California.

Size: 72 cm (28.5 in)

Position in food web:

Carnivorous: Feeds on fish, squid, crustaceans, and octopus. Prey for larger fish, sharks, sea lions, and humans.

Interesting facts:

- Kelp bass are also known as calico bass due to their calico coloration.
- Kelp bass are one of the most important recreational species in the party vessel fishery of Southern California
- Kelp bass can live up to at least 33 years
- The largest recorded movement of a kelp bass was from Southern California to Baja California—approximately 282 miles!

Relatives: groupers, spotted basses and barred sand basses



CALIFORNIA HALIBUT (*Paralichthys californicus*)

Habitat: Sandy bottoms to 60 m from Washington to Baja California.

Size: 1.5 m (5 ft) and 72 lbs

Position in food web: Carnivorous: Feeds on crustaceans, squid, fish, and octopus. Prey for larger fish, the Pacific angel shark, California sea lions, and humans.

Interesting facts:

- Like all flatfish, the Pacific halibut is not born flat; it hatches with the same body plan as a typical fish. Once the halibut settles on the substrate, one eye migrates so that both eyes are on the same side of its head allowing it blend in with the sandy bottom environment.
- Halibut are both active in the day time as well as night
- Commercial and recreational catches have declined since the 1920's, most likely that is due to overfishing and nursery ground destruction

Relatives: soles, turbot, and sand dabs



ROCKFISH (general) (*Sebastes* spp.)

Habitat: Rocky reefs and kelp forests subtidal to 457 m from Oregon to Chile

Size: various sizes from 15 cm to 91 cm (6 in to 3 ft)

Position in food web: Carnivorous: Feed on fish, squid and crustaceans. Prey for larger fish, sea lions, and humans.

Interesting facts:

- Rockfish are a diverse and large family of fish, which includes the scorpionfish and lionfish. They generally have a large mouth and numerous spines around their head, eyes, and gill coverings.
- The oldest fish ever caught was a rockfish, and was determined to be approximately 270 years old.

Relatives: scorpionfish, lionfish, and other bony fish



SARGO (*Anisotremus davidsoni*)

Habitat: Rocky reefs and kelp forests to 60 m from Central California to Baja California

Size: 45 cm (17.5 in)

Position in food web: Carnivorous: Feeds on invertebrates such as isopods, amphipods, and shrimps. Prey for fish, sea lions, sharks, and dolphins.

Interesting facts:

- Juvenile sargos have horizontal stripes until about 6 months when they disappear and the black bar emerges
- Sargos can tolerate water that is saltier than sea water
- The sargo is able to make a grunting sound by vibrating a special group of muscles around its swim bladder

Relatives: California corbina, salema and white croaker



Heal the Bay's Santa Monica Pier Aquarium Animal Descriptions & Fun Facts

SENORITA (*Oxyjulis californica*)

Habitat: Rocky reefs and kelp forests to 73 m from Northern California to Baja California

Size: 30 cm (11.7 in)

Position in food web: Carnivorous: Juveniles feed on plankton and adults feed by picking hydroids, bryozoans and amphipods off algae. Prey for larger fish, sea lions, and sea birds.

Interesting facts:

- Senoritas are known as cleaner fish, as they sometimes can be seen picking dead tissue and external parasites off other fish. Some fish that are cleaned by the seniorita are the blacksmith, garibaldi, giant sea bass, ocean sunfish, bat ray, etc.
- Unlike most wrasses, senioritas are not all born female and can not change sexes
- Senioritas are **diurnal** (active during the day and sleep at night) and can be found buried headfirst into the substrate when sleeping

Relatives: sheephead and rock wrasse



SHINER SURFPERCH (*Cymatogaster aggregata*)

Habitat: Various habitats from Alaska to Baja California

Size: 17 cm (7 in)

Position in food web: Omnivorous: Feeds on amphipods, copepods, fish eggs and worms. Prey for larger fish, sea lions, sea birds, and harbor seals.

Interesting facts:

- Shiner surfperch are **viviparous** (give live birth) and can have up to as many as 36 young
- These fish can often be found schooling together during the day, but then at night, they may disperse
- This perch can usually be identified by the three yellow vertical bars on the mid-body

Relatives: Numerous species of perch



Class Mammalia

CALIFORNIA SEA LION (*Zalophus californianus*)

Habitat: Coastal Pacific water from British Columbia to Baja California

Size: Males: 2.4 m (8 ft) and 390 kg (858 lb); Females: 2 m (6.5 ft) and 110 kg (242 lb)

Position in food web: Carnivorous: Feeds on fish, octopus, shellfish, and squid. Prey for orcas and white sharks.

Interesting facts:

- During breeding season, males will arrive to shore before females and set up territories that they will defend. Females will aggregate into harems numbering anywhere from 3-40 females depending on the strength of the male.
- At around five years of age, the male develops a bony bump on their skull known as a sagittal crest
- Pups are born in June and July and usually weigh approximately 6-9 kg (13 to 20 lb). They nurse for about 5-6 months and some even nurse for about a year.

Relatives: seals and other marine mammals



BOTTLENOSE DOLPHIN (*Tursiops truncatus*)

Habitat: Most tropical and temperate waters worldwide.

Size: 3.5 m (12 ft)

Position in food web: Carnivorous: Feeds on fishes, shrimp, crab and squid. Prey for large sharks and orcas (killer whales).

Interesting facts:

- Dolphins are very adept at locating prey using echolocation, using a sound beam to project off an item as they listen to the echo
- Like all toothed whales, the bottlenose dolphin has teeth for grasping and holding prey. The bottlenose dolphin does not chew its food but swallows it whole.
- A very social species that can usually be seen traveling in small groups, but occasionally can be found traveling in hundreds
- The lifespan of a dolphin is 40-50 years.

Relatives: porpoises, whales, and other dolphins



Heal the Bay's Santa Monica Pier Aquarium Animal Descriptions & Fun Facts

GRAY WHALE (*Eschrichtius robustus*)

Habitat: Coastal Pacific waters between Alaska and Baja California

Size: 14m (46 ft) and over 40 tons

Position in food web: Carnivorous: Feeds on plankton, krill, and benthic crustaceans. Prey for orcas.

Interesting facts:

- When gray whales feed they dive to the sea floor, turn to the right side (usually), and swim forward forcing its head through the top layer of sediment. They scoop up invertebrates (primarily amphipods), mud and gravel and as they surface they strain the sediment out through their baleen and swallow the food.
- Gray whales make the longest migration of any mammal—traveling 16,000-22,530 km (10,000-14,000 miles) roundtrip, migrating in fall and spring
- Early whalers nicknamed this whale the “devil fish” because the females strongly defend their calves

Relatives: other baleen whales and toothed whales

