

GLOSSARY

abyssal: deep sea region below 13,000 feet (4,000 m)

adaptation: a characteristic (body part, behavior, etc.) that helps a plant or animal survive in its environment

algae (singular alga): simple non-seed bearing plants (including one-celled diatoms and multicellular seaweeds)

amphipods: small crustaceans like whale lice, skeleton shrimp and beach fleas

ampullae of Lorenzini: tiny, dotlike sense organs on the snouts and heads of most sharks, skates and rays that can detect electric fields

anadromous: describes an animal that lives in the sea, then swims to fresh water to reproduce

anal fin: a fin on a fish's underside, toward its tail

angling device: a dorsal fin ray or chin barbel on some deep sea fishes that acts like a rod and bait to attract prey or mates

anterior: toward the head or leading end (opposite of posterior)

atmospheric pressure: the pressure of 14.7 pounds per square inch (1 atmosphere) exerted by the atmosphere at sea level

baleen: tough, flexible bristles in the mouths of the baleen whales used to filter prey (small fishes, krill) out of water or mud

barbel: a long, slender touch organ extending from the chin of some fishes, sometimes used as a lure to attract prey

bathyal: the deep sea region between 600 and 6,000 feet (183 to 1,830 m)

benthic: bottom-dwelling; occurring on the bottom of the ocean, lakes, rivers, etc.

bioluminescence: the production of light by a living organism (like the Pacific viperfish's lurelike fin that lights up to attract prey)

blade: the leaflike part of a seaweed

blow: a whale's "spout," or exhaled breath, at the surface of the water

blowhole: a breathing nostril on top of a whale's head

blubber: thick insulating layer of fat beneath the skin of most marine mammals

breach: a whale's leap from the water

buoyancy: an object's ability to float in liquid or air

camouflage: a behavior, shape, color and/or pattern that helps a plant or animal blend in with its surroundings

canopy: the top layer of the kelp forest where fronds float on the sea surface and shade the forest floor

carnivore: an animal that eats the flesh of other animals

cartilage: the tough, flexible tissue (like that at the tip of your nose) that forms the skeletons of some animals like sharks, skates and rays

caudal fin: a fish's tail fin

cetacean: any member of the group (order Cetacea) of marine mammals which includes whales, dolphins and porpoises

chemoreception: the ability to sense chemicals in the environment

claspers: sex organs of male sharks, skates and rays, used to pass sperm to the female

community: all of the plants and animals living in a specific area (habitat); often described by the most abundant or obvious organisms (kelp forest community, mussel bed community, etc.)

competition: interactions between plants or animals in which one adversely affects another for some limited resource (space, food, mates, etc.)

conservation: the practice of protecting nature from loss or damage

consumer: an animal that feeds on other plants and animals

continental shelf: the submerged shelf of land that slopes gradually from the exposed edge of a continent to where the steep drop-off to the deep sea bottom begins

counter-current heat exchange: an adaptation that helps maintain a whale's core body temperature; cooler blood flowing back to the whale's heart recaptures heat from warm blood flowing away from the heart

countershading: a type of protective coloration (camouflage) in which an animal is light on the underside and dark on top

crustacean: any member of a taxonomic group of animals which includes crabs, beach hoppers, pill bugs and shrimps

decomposer: an organism, like a bacterium, that causes the decay of dead plant and animal matter

deep scattering layer: a concentrated layer of midwater organisms that can reflect and scatter sound waves produced by sonar devices

deep sea: the deep, lower regions of the ocean where sunlight doesn't penetrate

deposit-feeder: an animal that feeds by consuming detritus on or in the seafloor

dermal denticle: toothlike scales on the body of a shark

detritus: particles from decaying plants and animals

diatoms: microscopic, one-celled algae with silica cell walls

dissolved oxygen: oxygen gas that's mixed in with a fluid like water

diurnal: daily

dorsal: on or toward the back or topside (opposite of ventral)

dorsal fin: a fin on a fish's back

dredge: a net attached to a frame that's dragged along the ocean bottom to collect animals

drift seaweed: a piece of seaweed that has broken free of its attachment and drifts with ocean currents

echo-sounder: a machine that determines water depth by measuring the time it takes for sound waves to reach the bottom and echo back to the surface

echolocation: the use of echoes to navigate or locate prey; sonar used by toothed whales

elasmobranch: a fish (like a shark, skate or ray) with skeleton of cartilage, toothlike scales and no air bladder

electric organ: cells in the pectoral fins (wings) of some rays and the tails of some skates that release pulses of electricity

electroreception: the ability to sense an electric field, used by sharks skates and rays to find nearby prey

epipelagic: the upper sunlit ocean layers, to 350 feet (107 m) deep off central California; also called the photic zone

evolution: the process of gradual change over long periods of time (like birds evolving from reptiles, or the formation of stars, planets, oceans and continents)

extinct: no longer exists

filter-feeder: an animal that eats by filtering or straining small particles of food by passing the water through a filtering device (like barnacle legs, clam gills, etc.)

fish: a vertebrate with scales and fins that lives in water and breathes with gills

flukes: a whale's flat, horizontal tail fins

food chain: a sequence of plants and animals that shows who eats whom; the direction food energy is transferred from one creature to the next, like from the kelp plant to a sea urchin to a sea otter

food pyramid: a food chain in the shape of a pyramid that shows the one-way flow of food energy from the producer(s) up to the consumer(s). There are more producers pound-for-pound at the pyramid's base supporting fewer consumers at the top. The pyramid model shows how energy is lost at each step (see illustration on the back of this sheet.)

food web: a complex network of interconnected food chains

frond: a kelp stipe and the attached blades

gas bladder: a gas-filled sac found in many fishes that helps provide buoyancy; also called a swim bladder

gill: a respiratory organ where blood vessels absorb oxygen from the water and release carbon dioxide into the water

gill cover: a bony flap that covers and protects the gills; also called an operculum

gill raker: a bony, toothlike structure that keeps food and other solid material from entering the gills.

gravity: the force of attraction one body has for another (a property of all matter)

habitat: the place where a plant or animal lives (its home)

hadal: deep sea region below 20,000 feet (6,100 m); the deep trenches

herbivore: an animal that eats plants or plant matter

hermaphrodite: an animal or plant with both male and female sexual organs

holdfast: the part of a seaweed that attaches it to the seafloor

hydrodynamics: the study of fluids in motion and the movements of objects through fluid

ichthyologist: a person who studies fishes

intertidal: the area of shore between the highest and lowest tide levels

invertebrate: an animal without a backbone

kelp: any of the large brown seaweeds, like *Macrocystis* (giant kelp)

krill: shrimplike crustaceans (mostly of the genus *Euphausia*) to 2 inches (5 cm) long; large populations live in certain seas and are the main food of some fishes and baleen whales

larva (plural-larvae): the young and immature form of an animal, unlike the adult, that must change to become an adult

lateral line: a sense organ on some fishes that detects the slightest water movements; a series of tiny pits with hairs that form a visible line along both sides of a fish

light absorption: the dimming of light as it passes through water

Macrocystis: the scientific name of giant kelp

mammal: a warm-blooded animal with hair that breathes air, has internal fertilization and nurses its live-borne young

marine: of the sea

marine snow: organic particles that fall into the deep sea from the sunlit surface layers

melon: a dolphin's or toothed whale's protruding, fat filled forehead that is used like a lens to focus sounds

mesopelagic: the twilight midwater zone (660 to 3,300 feet [200 to 1,000 m] deep) between the upper sunlit zone and the dark ocean depths

midwater: the region between the ocean surface and the bottom

migration: an animal's travels from one region to another that occur on a natural cycle, like the steelhead's journey from a river to the ocean and back

minus tide: a low tide below the average lower low ("zero") tide level

mysticete: a baleen whale having baleen mouth parts and two blowholes (like gray whales and blue whales)

neap tide: tides during the quarter- and three-quarter moon when the sun and moon are at right angles (and there is the least difference between high and low tides)

nekton: animals that are active swimmers, like a slender snipe eel, salmon and shark, that are strong enough to move against ocean currents

nictitating membrane: a membrane or eyelid that extends over a shark's eye to protect it from mechanical injury

oceanography: the study of all aspects of the physics, chemistry, geology and biology of the sea

odontocete: a toothed whale having a single blowhole (like sperm whales, orcas, dolphins and porpoises)

omnivore: an animal that eats other animals and plants

operculum: a bony flap that covers and protects the gills; also called the gill cover

opportunist: an animal that eats almost any plant or animal that comes its way

organism: a living thing, like a plant or animal

parasite: a plant or animal that lives in or on another plant or animal and obtains nourishment from it

pectoral fin: one of a pair of fins along a fish's sides just behind its gills

pelagic: occurring in the open ocean

pelvic fin: one of a pair of fins on a fish's underside, usually just below and behind the pectoral fins

photic zone: the upper sunlit ocean layers to 350 feet (107 m) deep off central California; also called the epipelagic zone

photophore: a body organ that makes light

photosynthesis: the process by which green plants use energy from sunlight to produce sugar and oxygen from carbon dioxide and water

phytoplankton: plant plankton

pinniped: a member of the group (suborder Pinnipedia) of marine mammals having finlike feet or flippers (like seals and sea lions)

planktivore: an animal that eats plankton

plankton: plants and animals (mostly tiny) that swim weakly, or not at all, and drift with ocean currents

pod: a group of whales swimming closely together

pollution: degradation of the natural environment

posterior: toward the rear or trailing end (opposite of anterior)

predator: an animal that kills and eats other animals

prey: an animal that is killed and eaten by a predator

producers: life forms (plants, diatoms, some bacteria) that produce their own food through photosynthesis

radula: a filelike tongue or band of horny teeth used by snails and most other molluscs to scrape algae, bore into shells, etc.

ray: a fish (related to sharks) that bears live young and has a cartilaginous skeleton, broad flat body and blunt snout

Remotely Operated Vehicle (R.O.V.): an unmanned submersible vehicle used to film and collect deep sea animals

salinity: the salt content of a liquid (sea water salinity is about 3.5%)

saltmarsh: community of plants rooted in soils that are alternately flooded and drained by tides

scales: thin, overlapping flat plates that form a protective outer covering on fishes, reptiles and the legs of birds

scavenger: an animal that eats dead plants or animals or their parts

schooling: several to hundreds of fishes swimming together in a very coordinated manner

scrimshaw: decorative carving of walrus tusks and whale teeth and bones

sessile: stationary; attached to the seafloor or an object like a pier piling

sexual dimorphism: a distinct difference in appearance between males and females of the same species (like the smaller size of most male baleen whales)

skate: an egg-laying fish (related to sharks) with a cartilaginous skeleton, broad flat body and pointed snout

slough: a marshland or tidal waterway

sounding: a whale's long, deep dive, usually taken after a series of shallow surface dives

species: plants or animals that are similar to each other and breed only with one another

spiracle: a small gill opening, just behind the eye, in some sharks and all skates and rays

spout: a whale's blow, or exhaled breath, at the surface of the water

spring tides: tides during the new and full moon when the sun, moon and Earth are all in line (and there is the most difference between high and low tides)

spyhopping: the whale's act of raising its head vertically above the water, possibly to look around or navigate by coastline

stipe: the stemlike part of a kelp plant connecting the holdfast to the blades

submarine canyon: a long, narrow, steep-walled undersea valley

submersible: a submarine vehicle used in oceanographic studies

substrate: a surface; the material on/in which an organism lives, like rock, sand, mud, pilings, shells, etc.

subtidal: below the intertidal, or below the level of the lowest tide

surfline: the area near shore where the waves break

suspension-feeder: an animal that filters out detritus or other particles suspended in the water

swimbladder: a gas- or oil-filled sac found in many fishes that helps provide buoyancy

terrestrial: of the land

thermocline: a zone where the temperature drops rapidly as you descend into deeper water

tidal creek: narrow channels that meander through the saltmarsh and are subject to changing tides

tide pool: a pool of water left along the shore as the tide level falls

tide: the daily rise and fall of sea level along a shore

trawl: a funnel-shaped net towed through the ocean to collect fishes and invertebrates

trophic level: a link along the food chain, like producer or primary consumer or secondary consumer

twilight zone: the midwater zone of dim light between the sunlit, photic zone and the completely dark, deeper zones

upwelling: the movement of cold, nutrient-rich waters from the ocean depths up toward the surface layers

ventral: on or toward the belly or underside (opposite of dorsal)

vertebrate: an animal with a backbone

vertical migration: an animal's daily or seasonal movement up toward the ocean surface and back down to deeper water

vestigial: a nonfunctioning remnant of a body part that once existed as a fully functioning part of an animal (like a whale's vestigial hipbones)

whale lice: amphipod parasites on the skin of some baleen whales

wrack: seaweed that has washed up on shore

zonation: the distribution of the plants and animals in a community into recognizable zones.

zooplankton: animal plankton