

**APPENDIX C**  
**GLOSSARY TERMS**

**Abundant**—an indication of the plentifulness of a species at a particular place and time; an abundant species is more plentiful than an occasional or rare species

**Adult**—developmental stage characterized by sexual or physical (full size and strength) maturity

**Aggregation**—is a group of animals that forms when individuals (usually similar, but can also be dissimilar) are attracted to an environmental resource to which each responds independently; the term does not imply any social organization

**Akaike's information criterion**—A measure of the goodness of fit of an estimated statistical model

**Anthropogenic**—descriptive of a phenomenon or condition created, directly or indirectly, as a result of effects, processes, objects, or materials that are derived from human activities

**Anticyclonic**—descriptive of the clockwise circulation in the Northern Hemisphere and counterclockwise circulation in the Southern Hemisphere; in oceanography, synonymous with warm-core ring

**Array**—an arrangement of interrelated objects or items of equipment, such as hydrophones, for accomplishing a particular task

**Audio burn unit**—a device used to release pop-ups from their moorings by projecting a specific sound into the water within range of the pop-up

**Audiogram**—a hearing sensitivity curve drawn as a function of frequency and sound pressure level; describes the hearing ability of an animal

**Baleen whale**—any whale of the suborder Mysticeti; characterized by presence of baleen in the upper jaw

**Baleen**—the interleaved, hard, fibrous plates made of keratin that hang side by side in rows from the roof of the mouth of mysticete whales; baleen takes the place of teeth and serves to filter the whale's food from the water

**Barnacles**—collectively, various marine crustaceans of the subclass Cirripedia; adult barnacles form a hard outer shell and attach to hard substrates such as rocks and ships, as well as to certain whales

**Basking**—descriptive of behavior in which an individual (e.g. pinnipeds and sea turtles) exposes itself to the sun, generally for the purpose of increasing its core temperature; may be done at the water's surface or on land

**Benthic**—in, on, or near the ocean floor; the term is used irrespective of whether the sea is shallow or deep

**Bight**—an inward bend or bow in the coastline

**Biomass**—the amount of living matter per unit of water surface or water volume

**Blowhole**—the nostril(s) on top of the head of a cetacean

**Blubber**—a specialized layer of fat found between the skin and underlying muscle of many marine mammals; it is used primarily for insulation and energy storage

**Boreal**—comprising or found throughout far northern regions

**Bottlenose dolphin**—refers to the former common name for *Tursiops truncatus*, now called the common bottlenose dolphin

**Bubble netting**—refers to a coordinated feeding technique of humpback whales, in which they use bubbles to corral and trap small fish or invertebrates

**Bull**—a male seal or whale, especially an adult male

**Bycatch**—marine species incidentally caught in a fishery targeting another species, but that are not sold and usually not kept for personal use. Bycatch includes economic and regulatory discards; bycatch species can be either alive or dead

**Calf**—a young animal that is dependent on its mother

**Callosity**—a patch of thickened, keratinized tissue on the head of a right whale, inhabited by large numbers of whale lice; plural: callosities

**Call**—refers to a vocal sound of a bird or other animal

**Calving**—the process of giving birth by cetaceans and sirenians

**Calving interval**—the period of time from one birth to the next, generally applicable to cetaceans

**Carapace**—the outer covering on the back of a sea turtle; the carapace is bony in all sea turtle species except the leatherback, which has a leathery covering

**Cephalopod**—any marine mollusk of the class Cephalopoda, with the mouth and head surrounded by tentacles (squid, octopus, cuttlefish)

**Cetacean**—an animal of the order Cetacea; these include whales, dolphins, and porpoises

**Cheloniidae**—family of hard-shelled sea turtles that include the green, hawksbill, Kemp's ridley, olive ridley, and loggerhead turtles

**Chevron**—a V-shaped stripe; used to describe the diagnostic white pattern on fin whales

**Click**—a broad-frequency sound used by toothed whales for echolocation and which may serve a communicative function; usually with peak energy between 10 kHz and 200 kHz

**Coastal water**—water that is along, near, or relating to a coast

**Coast**—refers to the boundary where land and water meet

**Coefficient of variation**—coefficient of variation represents the ratio of the standard deviation to the mean; when expressed numerically, the ratio is usually converted to a percentage by multiplying by 100

**Cold-stunning**—state that sea turtles enter when they are suddenly exposed to very cold water (<10°C); turtles that are cold-stunned become lethargic and begin to float on the surface of the water. In this state, they are more susceptible to predators, accidental boat strikes, and even death if water temperatures continue to drop

**Conspecific**—a peer, member of the same group, or belonging to the same species

**Continental shelf**—the province of the continental margin with a gently seaward-sloping seabed (1:1000 gradient change) extending from the low-tide line of the shoreline to 100 to 200 m water depth where there is a rapid gradient change

**Continental slope**—the province of the continental margin with a relatively steeply sloping seabed (1:6 to 1:40 gradient change) that begins at the continental shelf break (about 100 to 200 m) and extends down to the continental rise; along many coasts of the world, the slope is furrowed by deep submarine canyons

**Conventional distance sampling**—a design-based approach of distance sampling in which the detection probability  $[g(0)]$  is modeled as a function of distance from the transect line and all objects at zero distance are assumed to be detected; abundance/density estimates that are generated through this approach are based on the survey design which is assumed to provide a representative sample of the entire Study Area

**Copepod**—small planktonic crustacean present in a wide variety of marine habitats and in great abundance, forming an important basis of ecosystems; copepods are a major food of many marine animals and are the main link between phytoplankton and higher trophic levels

**Cosmopolitan**—widely distributed over the globe

**Covered region**—the region, with size  $a$ , searched along the line transect and out to  $W$  so that  $a=2WL$

**Critical habitat**—U.S. federal designation; refers to the minimum portion of the habitat that is essential for the survival and recovery of protected (threatened and endangered) species, including but not limited to, areas for feeding or reproduction; designated on a case-by-case basis under the provisions of the U.S. Endangered Species Act

**Crustacean**—any chiefly aquatic arthropod of the class Crustacea, typically having the body covered with a hard shell or crust, including the lobsters, shrimps, crabs, and barnacles

**Curved carapace length**—a measurement used by sea turtle researchers; CCL is defined as the length of a sea turtle's carapace as measured by a flexible tape measure

**Delphinid**—a toothed whale belonging to the family delphinidae, commonly known as dolphins

**Delphinus**—the genus of oceanic dolphins consisting of short-beaked and long-beaked common dolphins, which are similar in appearance

**Demography**—refers to birth and death rates that determine a population's dynamics; abundance, age, and sex structure of the population and reproductive status and life cycle of individuals

**Density surface modeling**—a model-based approach in which animal abundance/density can be modeled as a function of spatially-indexed environmental covariates

**Density**—the physical property measured by mass per unit volume; often used in biology, it is a unit of measurement defined as the number of organisms per unit of distance or volume and may be used as measure of abundance

**Developmental habitat**—an environment crucial to the growth of late-stage juvenile animals; for some sea turtles, this environment can be a shallow, sheltered habitat where forage items such as seagrasses, sponges, mollusks, and crustaceans are abundant

**Deviance explained**—the proportion of the null deviance explained by the model

**Distance sampling**—a widely used technique for estimating the size or density of biological populations

**Effective search region**—the region searched along the line transect and out to the effective strip half-width,  $esw$ , so that the effective search region is given by  $2eswL$

**Effective strip half-width**—the half-width of the strip extending either side of a transect centerline such that as many objects are detected outside the strip as remain undetected within it

**Endangered Species**—legal designation; refers to any animal or plant species in danger of extinction throughout all or a significant portion of its range; the authority to list a species is shared by the USFWS (plants and animals on land) and NMFS (most marine species) under provisions of the ESA

**Euphausiid**—pelagic, shrimp-like crustacean; krill

**f(0)**—the value of the probability density function of perpendicular distances, evaluated at zero distance (line transect sampling)

**Falcate**—sickle-shaped, curved; when used to describe the shape of a dorsal fin, it may be diagnostic for some species of cetaceans

**False crawl**—an abandoned sea turtle nesting attempt or simply a U-shaped crawl from the ocean up the beach, and then back to the water

**Flipper**—refers to the flattened forelimb of a marine mammal

**Flukes**—refers to the horizontally spread tail of a cetacean

**Forage**—to search for food (prey items) or provisions; can also refer to the act of grazing or consumption

**Frequency**—cycles per second; the number of cycles completed per unit of time of a wave/oscillation. Sound is measured in cycles per second or frequency, called Hertz

**Fusiform**—spindle-shaped or torpedo-shaped; tapered at one or both ends

**g(0)**—the probability that an object that is on a line or point is detected

**Gape**—used to describe the junction of upper and lower lips on the face of a cetacean

**Gastropod**—any member of a class of symmetrical, univalve mollusks that has a true head, an unsegmented body, and a broad, flat foot

**Genus**—penultimate level of taxonomic or scientific classification; plural: genera

**Generalized cross validation**—a weighted cross-validation technique in which an iteration process leaves out one datum in turn and considers that ability of the models fitted to the remaining data to predict the left out datum

**Gregarious**—sociable; tending to move in or form a group with others of the same kind

**Habitat**—the living place of an organism or community of organisms that is characterized by its physical or living properties

**Hatchling**—a newly hatched bird, amphibian, fish, or reptile; in reference to sea turtles, recently hatched individuals still dependent upon the internalized yolk sac for nutrients

**Haul-out site**—refers to an area of land adjacent to the water where marine animals, such as pinnipeds, periodically and purposefully come ashore

**Haul out**—refers to the behavior in which pinnipeds and sea turtles crawl or pull themselves out of the water onto land for the purpose of respite, basking, breeding, nesting and/or molting

**Hydrophone**—a transducer used for detecting underwater sound pressures; an underwater microphone

**Inshore**—refers to an area close to the shore or coast

**Inter-nesting interval**—the amount of time between successive sea turtle nesting events during the nesting season

**Irruptive**—refers to entering an area where not characteristically recorded

**Isobath**—refers to the bathymetric contour of equal depth; usually shown as a line linking points of the same depth

**Juvenile**—an individual animal similar in form to an adult but not yet sexually mature; a smaller replica of the adult

**Krill**—see euphausiid

**Life history**—term used to describe collectively the changes through which an organism passes in its development from the primary stage to natural death

**Line transect sampling**—a method of distance sampling in which the observer travels along a line and records the distance from the line to each object detected

**Lost year**—the early juvenile stage (first years of life) of most sea turtle species that is spent far offshore; few turtles are observed during this time

**Marine**—of or pertaining to the sea or ocean

**Masking**—an acoustic term that pertains to noise that cancels out a sound of interest; e.g., vessel engine noise can mask the calls of some whales because they are produced in the same frequency range

**Melon**—fatty cushion forming a bulbous “forehead” in toothed whales; may act to focus sound for echolocation

**Migrate**—to pass periodically and deliberately from one region or climate to another; certain species or individuals of birds, fishes, marine mammals, and other animals are known to migrate

**Migration**—a periodic movement between one habitat and one or more other habitats involving either the entire or significant component of an animal population; this adaptation allows an animal to monopolize areas where favorable environmental conditions exist for feeding, breeding, and/or other phases of the animals' life history

**Migratory**—descriptive of organisms or groups of organisms that undertake a migration as an essential part of their life history

**Mollusk**—any member of the Phylum Mollusca; a group of marine and terrestrial invertebrates consisting of snails, slugs, squids, octopus, clams, and others

**Mooring**—the means by which a device, ship, boat, or aircraft is secured in a particular place, fixed firmly

**Mysticeti**—suborder of Cetacea consisting of the baleen whales

**Natal beach**—original beach of birth for a sea turtle, to which females may return for nesting

**Nearshore**—is an indefinite zone that extends seaward from the shoreline; generally refers to waters from the coast to the continental shelf break

**Neonate**—newly born individual

**Neritic zone**—the shallow portion of pelagic ocean waters; ocean waters that lie over the continental shelf, usually no deeper than 200 m

**Nursery habitat**—an environment crucial for the development of early-stage animals; e.g., for some sea turtles, this environment is often an open-ocean area characterized by the presence of *Sargassum* rafts and/or ocean current convergence fronts

**Occurrence record**—research term; refers to a marine mammal or sea turtle sighting (aerial or shipboard survey), stranding, incidental fisheries bycatch, nesting, or tagging data record for which location information is available. An occurrence record, especially sighting occurrence records, may represent the occurrence of one or multiple animals of a particular species

**Oceanic zone**—refers to the deepwater portion of pelagic ocean waters; ocean waters beyond the continental shelf or that are deeper than the depth of water overlying the continental shelf break (typically 100 to 200 m deep)

**Odontoceti**—suborder of Cetacea comprising the toothed whales

**Offshore**—open ocean waters over the continental slope and beyond that are deeper than 200 m; water seaward of the continental shelf break

**Omnivore**—an animal that feeds on both plant and animal tissue

**Opportunistic**—descriptive of organisms that take advantage of all feeding opportunities; having a wide-ranging diet

**Overwinter**—staying the winter in one area

**Passive acoustic monitoring**—an acoustic tool where a hydrophone or microphone is used to capture sounds from various sources in a given environment

**Pectoral fin**—flattened fore-limb of a cetacean supported by bone; flipper

**Pelagic**—the water or ocean environment, excluding the ocean bottom; the major environmental division or zone in the ocean that includes the entire water column and can be subdivided into the neritic (waters over the continental shelf) and oceanic (deeper waters seaward of the continental shelf) zones

**Permanent threshold shift**—an increase in the threshold of hearing that results in permanent damage to an individual's hearing capability. This may occur as a result of long-term or extremely loud exposure to noise

**Phocid**—pinniped belonging to the family Phocidae; true ("earless") seals

**Photo-identification**—use of photographs to identify animals individually; for example, photos of dorsal fin shape and markings for dolphins and the underside of flukes for humpback whales that identify marks individual to an animal

**Pinniped**—member of the suborder Pinnipedia; includes seals, sea lions, fur seals, and walruses

**Plastron**—bony shield composing the ventral side of a turtle's shell

**Population**—a group of individuals of the same species occupying the same area

**Pop-up**—jargon for an autonomous underwater acoustic recording device, or hydrophone, designed and engineered by Biological Research Program, Cornell Laboratory of Ornithology

**Post-hatchling**—sea turtle that is larger and older than those of the hatchling stage, yet not large enough or old enough to be considered a juvenile

**Prey**—animal hunted or caught by another animal for food

**Protected species**—a species that is afforded legal protection as a result of being listed, or being considered for listing, under state or federal resource law such as the Endangered Species Act or the Marine Mammal Protection Act; a protected species often has a depleted or imperiled population and is in some form of extinction danger

**Pupping**—the process of giving birth in some species (e.g. pinnipeds, sharks)

**Pup**—refers to a young animal in certain species (e.g. pinnipeds, sharks)

**Range**—refers to the maximum extent of geographic area occupied or used by a species

**Rookery**—an animal's breeding ground; it is the specific beach on which they nest (turtle or birds) or pup (pinniped)

**Rorqual**—refers generally to any of six species of baleen whales (the minke, blue, humpback, fin, Bryde's, or sei whale) belonging to the family Balaenopteridae; characterized by a variable number of pleats that run longitudinally from the chin to near the umbilicus; the pleats expand during feeding to increase the capacity of the mouth

**Rostrum**—refers to the snout or beak of a cetacean; in fish, a forward projection of the snout

**Saddle**—refers to a light-colored patch behind the dorsal fin of some cetaceans

**Sargassum**—a genus of brown algae commonly found in temperate and tropical waters both as pelagic and benthic forms

**Satellite telemetry**—transmission of data over long distance communication links (i.e. satellites) from a transmitter attached to an animal, such as a sea turtle, in order to monitor its movements and/or behavior

**Species**—a population or series of populations of organisms that can interbreed freely with each other but not with members of other species

**Straight carapace length**—the body length of sea turtles; it is a straight-line measurement from the rear of the eye socket parallel to the center line of the carapace to the posterior edge of the carapace

**Stranding**—the act of marine mammals or sea turtles accidentally coming ashore, either alive or dead

**Subadult**—maturing individuals that are not yet sexually mature

**Temperate**—the region of the Earth at the mid-latitudes that is characterized by a mild, seasonally changing climate

**Temporary threshold shift**—an increase in the threshold of hearing that results in temporary damage to an individual's hearing capability. Return to normal hearing ability is attained after a period of time

**Thermoregulation**—ability to maintain a specific body temperature regardless of the environmental temperature

**Threatened species**—legal designation; any plant or animal species likely to become endangered within the foreseeable future throughout all or a part of its range; the authority to designate a species as threatened is shared by the USFWS (terrestrial species, sea turtles on land, manatees) and National Marine Fisheries Service (most marine species) under provisions of the ESA

**Toothed whale**—a whale of the suborder Odontoceti, having teeth in one or both jaws

**Trawler**—any of various types of vessels used in fishing with a trawl net, a net dragged along the sea bottom

***Tursiops***—genus of bottlenose dolphins comprised of the common bottlenose dolphin (*Tursiops truncatus*) and the Indo-Pacific bottlenose dolphin (*Tursiops aduncus*)

**Upwelling**—refers to the movement of dense, cold, nutrient-rich water up from ocean depths to the surface

**Vagrant**—refers to a wanderer, in the same sense of an animal moving outside the usual limits of distribution for its species or population

**Whale lice**—an amphipod crustacean of the family Cyanidae; adapted for living in crevices and other secure places on the skin of cetaceans (for example, right whales), on which whale lice largely feed

**Whistle**—refers to a narrow band frequency sound produced by some toothed whales and used for communication; whistles typically have energy below 20 kHz