

12 GLOSSARY

The definitions in this list have no legal significance, and are provided only for clarification of terms used throughout this document.

Term	Definition
Acclimation temperature	The temperature at which fish have been held for a period of days prior to being subjected to experimental temperature changes.
Accretion	Slow settling of sediments from suspension in back waters and slower moving waters.
Act	The Endangered Species Act of 1973, as amended, 16 U.S.C. 1531 <i>et seq</i>
Action	All activities or programs of any kind authorized, funded, or carried out, in whole or in part, by Federal agencies in the United States or upon the high seas. Examples include, but are not limited to: (a) actions intended to conserve listed species or their habitat; (b) the promulgation of regulations;(c) the granting of licenses, contracts, leases, easements, rights-of-way, permits, or grants-in-aid; or (d) actions directly or indirectly causing modifications to the land, water, or air. [50 CFR §402.02]
Action area	All areas to be affected directly or indirectly by the Federal action and not merely the immediate area involved in the action. [50 CFR §402.02]
Adaptation	Structural, physiological, or behavioral characteristics which help an organism fit its habitat and living requirements.
Adfluvial	Refers to a lake. Potential feeding habitat for migrating Coastal cutthroat trout.
Advance maintenance dredging	Advance maintenance dredging provides year-round channel availability through an annual program of dredging.
Adult Salmon	A salmon that is at least two years old and usually three years or older, that is near or has reached sexual maturity.
Affect/Effect	To affect is to bring about a change ("the proposed action is likely to adversely affect piping plovers nesting on the shoreline"). the effect is the result ("the proposed action is likely to have the following effects on the listed salmonids"). " Affect " appears throughout Section 7 consultation documents and guidelines in phrases such as, "may affect" and "likely to adversely affect." " Effect " appears throughout Section 7 consultation documents and guidelines in the phrases "adverse effects," "beneficial effects," "effects of the action," and "no effect."
Alevin	The first post-hatch life stage of salmon. Alevins will have some portion of their yolk sac showing on their abdomen. A life stage commonly found only within spawning gravel or hatcheries.
Algae	Simple plant forms having no true roots, stems or leaves. Algae range in size from microscopic single-celled plants to large seaweeds.
Algal bloom/Harmful	Most species of algae or phytoplankton are not harmful and serve as the energy

Algal Bloom (HAB)	<p>producers at the base of the food web, without which higher life on this planet would not exist. Occasionally, the algae grow very fast or "bloom" and accumulate into dense, visible patches near the surface of the water. A small number of species produce potent neurotoxins that can be transferred through the food web where they affect and even kill the higher forms of life such as zooplankton, shellfish, fish, birds, marine mammals, and even humans that feed either directly or indirectly on them.</p> <p>Scientists now prefer the term, HAB, to refer to bloom phenomenon that contain toxins or that cause negative impacts.</p>
Alluvial	Deposited by running water
Amphipod	Invertebrate animal of the crustacean class. Amphipods are characterized by laterally flattened bodies and include sand fleas and related forms.
Anadromous	Fish that hatch in fresh water, migrate to seawater as juveniles, and return to spawn in fresh water as adults.
Anaerobic	A condition in which molecular oxygen is absent (or effectively so) from the environment.
Anthropogenic	Man made or man caused.
Anticipated / allowable / authorized	In Incidental Take statements, the Services determine the amount or extent of incidental take "anticipated" (expected) due to the proposed action or an action modified by reasonable and prudent alternatives. When writing incidental take statements, use only the phrase "anticipated" rather than "allowable" or "authorized," as the Services do not allow or authorize (formally permit) incidental take under section 7
Applicant	Any person (an individual, corporation, partnership, trust, association, or any other private entity; or any officer, employee, agent, department, or instrumentality of the Federal Government, of any State, municipality, or political subdivision of a State, or of any foreign government; any State, municipality, or political subdivision of a State; or any other entity subject to the jurisdiction of the United States) [ESA §3(12)] who requires formal approval or authorization from a Federal agency as a prerequisite to conducting the action. [50 CFR §402.02]
Aquatic ecosystem	Any body of water, such as a stream, lake or estuary, and all organisms and nonliving components within it, functioning as a natural system.
Aquatic habitat	The water-based geographic area and all the ecosystem components within it, in which a particular plant or animal species or species group naturally live, or in which all their life requisites are satisfied.
Ash-free dry weight (AFDW)	The dehydrated tissue weight after hard tissues, such as shells, have been removed.
at-risk fish stocks	Stocks of anadromous salmon and trout that have been identified by professional societies, fish management agencies, and in the scientific literature as being in need of special management consideration because of low or declining populations.

Basalt	The commonest type of solidified lava. A hard, dense, dark volcanic rock.
Bathymetry	Topographical (surface) configuration of the riverbed.
Beach nourishment disposal sites	Shoreline fills that replace eroded material. See also shoreline disposal.
Bed material	Sediments composing the riverbed
Bedform	Sediment bottom feature often resembling a sand ripple or a small sand dune.
Bedload	The movement of sand grains rolling and bouncing along the surface of the riverbed. In sandy riverbeds, bedload transport shapes the bed into a series of sandwaves.
Benthic	An environment or habitat related to the bottom of a stream or body of water.
“Best available scientific and commercial data”	To assure the quality of the biological, ecological, and other information used in the implementation of the Act, it is the policy of the Services to: (1) evaluate all scientific and other information used to ensure that it is reliable, credible, and represents the best scientific and commercial data available; (2) gather and impartially evaluate biological, ecological, and other information disputing official positions, decisions, and actions proposed or taken by the Services; (3) document their evaluation of comprehensive, technical information regarding the status and habitat requirements for a species throughout its range, whether it supports or does not support a position being proposed as an official agency position; (4) use primary and original sources of information as the basis for recommendations; (5) retain these sources referenced in the official document as part of the administrative record supporting an action; (6) collect, evaluate, and complete all reviews of biological, ecological, and other relevant information within the schedules established by the Act, appropriate regulations, and applicable policies; and (7) require management-level review of documents developed and drafted by Service biologists to verify and assure the quality of the science used to establish official positions, decisions, and actions taken by the Services during their implementation of the Act. [59 FR 34271 (July 1, 1994)]
“Best Management Practices” (BMPs)	Methods, measures, or practices designed to prevent or reduce water pollution. Not limited to structural and nonstructural controls, and procedures for operations and maintenance. Usually, BMPs are applied as a system of practices rather than a single practice.
Biodiversity	The variety of life and its processes, including the variety of living organisms, the genetic differences among them, and the communities and ecosystems in which they occur.
Biological Assessment	Information prepared by, or under the direction of, a Federal agency to determine whether a proposed action is likely to: (1) adversely affect listed species or designated critical habitat; (2) jeopardize the continued existence of species that are proposed for listing; or (3) adversely modify proposed critical habitat. Biological assessments must be prepared for "major construction activities." See 50 CFR §402.02. the outcome of this biological assessment determines whether formal consultation or a conference is necessary. [50 CFR §402.02, 50 CFR §402.12]

Biological Opinion	Document which includes: (1) the opinion of the Fish and Wildlife Service or the National Marine Fisheries Service as to whether or not a Federal action is likely to jeopardize the continued existence of listed species, or result in the destruction or adverse modification of designated critical habitat; (2) a summary of the information on which the opinion is based; and (3) a detailed discussion of the effects of the action on listed species or designated critical habitat. [50 CFR §402.02, 50 CFR §402.14(h)]
Biomass	The amount of a living group of organisms in a given habitat, expressed either as the weight of organisms per unit area, or as the volume of organisms per unit volume of habitat.
Brackish	Pertaining to water with a salt content ranging between that of sea water and fresh water. Especially used to describe the tidally-influenced mixture of seawater and freshwater.
Broodstock	Adult salmon that provide the embryos that form the next generation.
Candidate Conservation Agreement with Assurances	Voluntary agreements that provide non-Federal property owners who agree to manage their lands or waters to remove threats to candidate or proposed species assurances that their conservation efforts will not result in future regulatory obligations in excess of those they agree to at the time they enter into the agreement.
Candidate species	Plant and animal taxa considered for possible addition to the List of Endangered and Threatened Species. These are taxa for which the Fish and Wildlife Service has on file sufficient information on biological vulnerability and threat(s) to support issuance of a proposal to list, but issuance of a proposed rule is currently precluded by higher priority listing actions. [61 FR 7596-7613 (February 28, 1996)]
Cape-size vessel	A type of deep-draft bulk ship carrying 100,000 to 175,000 tons.
Carnivore	A flesh eating animal.
Cataclysmic	The characteristic of a violent geological upheaval that causes great destruction or brings about a fundamental change in the landscape. A cataclysmic event may result in a violent and sudden change in the earth's crust. A devastating flood
Cephalopods	Any of various marine mollusks of the class Cephalopoda, such as the octopus, squid, cuttlefish, or nautilus, having a large head, large eyes, prehensile tentacles, and, in most species, an ink sac containing a dark fluid used for protection or defense.
Channel improvements	Channel widening or channel realignment measures to attain navigation safety and efficiency.
Channel Reaches	See River reach/Stream reach.
Chironomids	Midges, a Family of Dipterans (flies) with aquatic larvae and provides a common food source for young chinook and other fishes.
Chum salmon	A Species of salmonids (<i>Oncorhynchus keta</i>) that has the widest distribution of any of the Pacific salmon. Chum salmon are the most abundant commercially harvested salmon species in arctic, northwestern, and Interior Alaska, but are of relatively less

	importance in other areas of the state.
Cladoceran	Invertebrate animal of the crustacean class. Cladocerans are often called water fleas.
Clamshell dredging	Clamshell dredges use a bucket operated from a crane or derrick that is mounted on a barge or operated from shore. Sediment removed by the bucket is usually placed on a barge for disposal to either an upland or in-water site.
Climatological	Related to or resulting from long term weather conditions
Cobble	Stones of about 5-15 cm (2-6 inches) diameter.
Columbia River Datum (CRD)	The Columbia River navigation channel elevations are referenced to the Columbia River Datum established in the 1930s. the CRD is a local datum based on observed water surface elevations during low discharge-low tide conditions.
Conceptual Model	A graphic diagram designed to visually represent the holistic, complex relationships with a functioning system.
Conference	A process of early interagency cooperation involving informal or formal discussions between a Federal agency and the Services pursuant to section 7(a)(4) of the Act regarding the likely impact of an action on proposed species or proposed critical habitat. Conferences are: (1) required for proposed Federal actions likely to jeopardize proposed species, or destroy or adversely modify proposed critical habitat; (2) designed to help Federal agencies identify and resolve potential conflicts between an action and species conservation early in a project's planning; and (3) designed to develop recommendations to minimize or avoid adverse effects to proposed species or proposed critical habitat. [50 CFR §402.02, 50 CFR §402.10]
Confluence	The point or area at which separate streams or currents meet and run together.
Conservation	The terms "conserve," "conserving" and "conservation" mean to use and the use of all methods and procedures which are necessary to bring any endangered species or threatened species to the point at which the measures provided pursuant to [the] Act are no longer necessary. Such methods and procedures include, but are not limited to, all activities associated with scientific resources management such as research, census, law enforcement, habitat acquisition and maintenance, propagation, live trapping, and transplantation, and, in the extraordinary case where population pressures within a given ecosystem cannot be otherwise relieved, may include regulated taking. [ESA §3(3)]
Conservation measures	Are actions to benefit or promote the recovery of listed species that are included by the Federal agency as an integral part of the proposed action. These actions will be taken by the Federal agency or applicant, and serve to minimize or compensate for, project effects on the species under review. These may include actions taken prior to the initiation of consultation, or actions which the Federal agency or applicant have committed to complete in a biological assessment or similar document.
Conservation plan	Under section 10(a)(2)(A) of the ESA, a planning document that is a mandatory component of an incidental take permit application, also known as a Habitat Conservation Plan or HCP.

Conservation recommendations

The Services' non-binding suggestions resulting from formal or informal consultation that: (1) identify discretionary measures a Federal agency can take to minimize or avoid the adverse effects of a proposed action on listed or proposed species, or designated or proposed critical habitat; (2) identify studies, monitoring, or research to develop new information on listed or proposed species, or designated or proposed critical habitat; and (3) include suggestions on how an action agency can assist species conservation as part of their action and in furtherance of their authorities under section 7(a)(1) of the Act. [50 CFR §402.02]

Constituent elements

Physical and biological features of designated or proposed critical habitat essential to the conservation of the species, including, but not limited to: (1) space for individual and population growth, and for normal behavior; (2) food, water, air, light, minerals, or other nutritional or physiological requirements; (3) cover or shelter; (4) sites for breeding, reproduction, rearing of offspring, germination, or seed dispersal; and (5) habitats that are protected from disturbance or are representative of the historic geographic and ecological distributions of a species. [ESA §3(5)(A)(i), 50 CFR §424.12(b)]

Convention on International Trade in Endangered Species (CITES)

A 1973 agreement restricting international commerce between participating nations for plant and animal species believed to be harmed by trade.

Copepod

Invertebrate animal of the crustacean class. Copepods are abundant members of the zooplankton.

Critical habitat

Under the Endangered Species Act, critical habit is defined as (1) the specific areas within the geographical area occupied by a federally listed species on which are found physical and biological features essential to the conservation of the species, and that may require special management considerations or protection; and (2) specific areas outside the geographical area occupied by a listed species, when it is determined that such areas are essential for the conservation of the species.

Crustacean

A class of the arthropod phylum that includes, among others, crabs, water fleas, barnacles, and shrimp.

Cubic feet per second (cfs)

A unit of measurement pertaining to flow or discharge of water. One cfs is equal to 449 gallons per minute.

Cumulative effects

Under the ESA, those effects of future State or private activities, not involving Federal activities, that are reasonably certain to occur within the action area of the Federal action subject to consultation. [50 CFR §402.02] This definition applies only to Section 7 consultation analyses and should not be confused with the broader use of this term in the National Environmental Policy Act or other environmental laws.

Cumulative effects (NEPA)

Under NEPA, the incremental environmental impact or effect of the action together with impacts of past, present, and reasonably foreseeable future actions, regardless of what agency or person undertakes such other actions. (40 CFR 1508.7)

Cut bank

A steep stream bank, commonly undercut by the stream current, provides holding or

	refuge habitat for fish.
Cutline shoals	Cutline shoals form along the edges of the navigation channel where steep-sided slopes from the dredging cause bedload to be deflected into the channel, forming new shoals. Over time, this action will cause the side-slope adjacent to a dredge cut to degrade until an equilibrium slope is re-established. In many places the side-slope degradation extends for hundreds of feet out from the navigation channel.
Deep-draft vessels	Vessels with over 15 foot draft, i.e., vessels immersed in water to a depth of at least 15 feet.
Delist	To remove from the Federal list of endangered and threatened species (50 CFR 17.11 and 17.12) because such species no longer meets any of the five listing factors provided under section 4(a)(1) of the ESA and under which the species was originally listed (i.e., because the species has become extinct or is recovered).
Demersal	Pertaining to an organism, such as a fish, living close to or on the bottom of a body of water.
Density	(a) the number of organisms per unit of area (for example, animals per square meter); (b) the weight of a substance, such as water per unit of volume.
Deposit feeder	An animal living at the bottom of a body of water that obtains food by ingesting organic material from the sediment surface, or by ingesting sediments, including organic material, as it burrows through the sediment.
“Destruction or adverse modification of critical habitat”	A direct or indirect alteration that appreciably diminishes the value of critical habitat for both the survival and recovery of a listed species. Such alterations include, but are not limited to, alterations adversely modifying any of those physical or biological features that were the basis for determining the habitat to be critical. [50 CFR §402.02]
Detrivore	An animal that eats dead and decaying plants and animals.
Detritus	Dead and decaying plant and animal remains and associated microbes.
Dewatering	The result of removing water volume by reduced stream flow or lowering lake levels that exposes aquatic habitat to atmospheric conditions.
Deep-draft ports	Ports capable of handling over 15-foot draft vessels. There are five deep draft ports on the lower Columbia River: Astoria, Longview, Kalama, Vancouver and Portland.
Diatoms	Single-celled algae that have transparent cell walls composed of the hard mineral, silica.
Dike	A wall or berm built around a low-lying area to prevent tidal inundation and flooding. In the Columbia River Estuary, extensive dike systems have been erected as flood control structures, converting estuarine floodplain areas to land for agricultural and other human uses.
Diking districts	Local groups that have formed to raise money to construct, operate and maintain dikes

	to prevent flooding by the river. Agricultural and urban developed lands along the Columbia River are generally encompassed with diking districts.
Director	The Assistant Administrator for Fisheries for the National Oceanic and Atmospheric Administration; or the Fish and Wildlife Service Regional Director; or their respective authorized representative. [50 CFR §402.02]
Distinct Population Segment	"Population," or "distinct population segment," are terms with specific meaning when used for listing, delisting, and reclassification purposes to describe a discrete vertebrate stock that may be added or deleted from the list of endangered and threatened species. the use of the term "distinct population segment" will be consistent with the Services' population policy. [61 FR 4722-4725 (February 7, 1996)]
Diurnal	Activity that occurs during the day, but not at night.
Downlist	To reclassify an endangered species to a threatened species based on alleviation of any of the five listing factors provided under section 4(a)(1) of the ESA.
Drawdown	The distance that the water surface of a reservoir is lowered from a given elevation as water is released from the reservoir. Also refers to the act of lowering reservoir levels.
Dredge	Any of various machines equipped with scooping or suction devices and used to deepen harbors and waterways and in underwater mining. Also, the act of removing sediment and other material from waterways and harbors to deepen them.
Dredged Material Management Plan (DMMP)	The dredging and disposal plan that results from analyses conducted in the Dredged Material Management Study.
Dredged Material Management Study (DMMS)	An analysis of dredging and disposal alternatives that address cost, engineering, and environmental factors to operate and maintain the Columbia River 40-foot navigation channel.
Dredging forecast	A forecast of the volume needed to be dredged to maintain the navigation channel.
Early consultation	A preliminary consultation requested by a Federal agency on behalf of a prospective permit or license applicant prior to the filing of an application for a Federal permit or license. [50 CFR §402.11]
Ebb tide	Period between high tide and the succeeding low tide. the outgoing tide.
Ecology	The study of the relationships of living things to one another and to their environment.
Ecosystem	Dynamic and interrelating complex of plant and animal communities and their associated nonliving (e.g. physical and chemical) environment. Interacting organisms considered together with their environment (e.g. marsh, watershed, and lake ecosystems).
Effects of the action	The direct and indirect effects of an action on the species or critical that action. These effects are considered along with the environmental baseline and the predicted

	<p>cumulative effects to determine the overall effects to the species for purposes of preparing a biological opinion on the proposed action. [50 CFR §402.02] the environmental baseline covers past and present impacts of all Federal actions within the action area. This includes the effects of existing Federal projects that have not yet come in for their section 7 consultation.</p>
Embayment	Forming a bay.
El Nino / La Nina	<p>El Nino: A warming of the ocean surface off the western coast of South America that occurs every 4 to 12 years when upwelling of cold, nutrient-rich water does not occur. It causes die-offs of plankton and fish and affects Pacific jet stream winds, altering storm tracks and creating unusual weather patterns in various parts of the world.</p> <p>La Nina: A cooling of the ocean surface off the western coast of South America, occurring every 4 to 12 years and affecting Pacific and other weather patterns.</p>
Endangered species	Any species which is in danger of extinction throughout all or a significant portion of its range, and published in the Federal Register. [ESA §3(6)]
Endemic species	A species native and limited to a certain region; having comparatively restricted distribution.
Entrainment	The mechanical process by which fish are trapped. During dredging activities, fish may be entrained by the suction of hopper or pipeline dredges.
Environmental baseline	The past and present impacts of all Federal, State, or private actions and other human activities in an action area, the anticipated impacts of all proposed Federal projects in an action area that have already undergone formal or early section 7 consultation, and the impact of State or private actions that are contemporaneous with the consultation in process. [50 CFR §402.02]
Environmental Impact	The positive or negative effect of any action upon a given area or resource.
Environmental Impact Statement (EIS)	A formal document to be filed with the Environmental Protection Agency that considers significant environmental impacts expected from implementation of a major federal action.
Environmental Protection Agency (EPA)	An independent agency of the U.S. government, created in 1970, that sets and enforces rules and standards that protect the environment and control pollution.
Eocene	Belonging to the geologic time, rock series, or sedimentary deposits of the second epoch of the Tertiary Period, characterized by warm climates and the rise of most modern mammalian families (from 40 million to 58 million years ago).
Epibenthic	Pertaining to the habitat that includes the sediment surface and the overlying one meter of water, or to the organisms that live in this habitat.
Epiphytes	Plants, such as some tropical orchids, bromeliads, or staghorn ferns, that grow on another plant upon which it depends for mechanical support but not for nutrients. Also

	called aerophytes, or air plants.
Equilibrium	A steady-state condition in which all acting influences are equally balanced, resulting in a stable or unchanging system state.
Erosion	The wearing away of the earth's surface by any natural process. the chief agent of erosion is running water; minor agents are glaciers, the wind and waves breaking against the coast.
Escapement	The number of adult fish that survive ocean conditions and fisheries to enter streams where they reproduce.
Estuarine	Relating to, or found in an estuary. Formed or deposited in an estuary.
Estuarine disposal	Deposition of materials within an estuary; here, the disposal activities occurring in the Columbia River estuary.
Estuary	The transition zone at the mouth of the lower reach of a river where freshwater and seawater mix, and is characterized by a layer of reduced salinity near the surface and a higher salinity layer below. It is the part of the course of a river where its current is met and influenced by the tides.
Estuary turbidity maximum (ETM)	An area in the water with very high concentrations of suspended matter. In many estuaries, a turbidity maximum occurs near the leading bottom tidal flow.
Eulerian-Lagrangian-CIRCulation	"Eulerian" and "Lagrangian" are two different ways of representing physical transport (of, for example, salinity) in a hydrodynamic model, and "circulation" refers to the type of hydrodynamic model itself.
Euryhaline organisms	Organisms that tolerate and are able to live in waters with wide ranges of salinity.
Eutrophic	A stage of aquatic ecosystems characterized by an accumulation of nutrients that support a dense growth of algae and other organisms, the decay of which depletes shallow waters of oxygen, especially in summer.
Evolutionary Significant Units (ESUs)	A distinct population segment of a species that interbreeds when mature, generally genetically distinct from other groups, and representing a significant portion of the evolutionary lineage of the species.
Exotic Species	Species that have been successfully introduced into an ecosystem where they did not naturally occur.
Exploitation Rate	The rate at which a fish stock is harvested by commercial and sports fisheries.
Extinct species	A species that no longer exists.
Extirpated species	A species no longer surviving in a particular region that was once part of the species natural range.
Fall Run Chinook	Chinook of a stock that commonly return to their natal stream in the autumn. They typically have "ocean-type" young that rear in freshwater for no more than a few months before migrating to seawater.

Feasibility study	A review of factors that is conducted to help decide if a project or plan is capable of being accomplished or brought about.
Fecundity	The measurement of the production of offspring, for a fish, the number of female young produced per adult female in the population of interest.
Federal action agency	Any department or agency of the United States proposing to authorize, fund, or carry out an action under existing authorities.
Federal agency	Any department, agency, or instrumentality of the United States. [ESA §3(7)]
Federal channel	For this Biological Assessment, the congressionally authorized navigation area that is 40feet by 600feet wide on the Columbia and Lower Willamette Rivers below Vancouver, Washington and Portland, Oregon.
Feeding habitat opportunity	In this Biological Assessment, availability to fish of the habitats that provide the feeding opportunities they need.
Fetch	An area where ocean waves are being generated by the wind.
Filter feeder	An animal that obtains food by filtering small particles of organic matter from water.
Fingerling	An early freshwater life stage of salmon that are several months old and are about finger size, usually about 40-50 mm (1.5 to 2 inches) in length. Follows fry life stage.
Fish or wildlife	Any member of the animal kingdom, including without limitation any mammal, fish, bird (including any migratory, non-migratory, or endangered bird for which protection is also afforded by treaty or other international agreement), amphibian, reptile, mollusk, crustacean, arthropod or other invertebrate, and includes any part, product, egg, or offspring thereof, or the dead body or parts thereof. [ESA §3(8)]
Floodplain	The area adjacent to a river channel that is inundated during high river flows.
Flow	The volume of water, often measured in cubic feet per second (cfs), flowing in a stream past a given point per unit of time.
Flowlane disposal	For this Biological Assessment, the deposition of dredged material in deep areas of the riverbed in and adjacent to the navigation channel. See also In-water disposal.
Fluvial	Refers to a river - potential habitat in the migratory feeding history of Coastal cutthroat trout.
Food chain	Organisms that are functionally linked by their feeding habits, each feeding upon organisms that are lower in the chain and in turn being fed on by organisms higher in the chain.
Food web	The interconnection of all of the food chains in a community.
Fork length	The length of a fish measured from the head to the fork between the tail fins, rather than to the end of the tail fins.

Formal consultation	A process between the Services and a Federal agency or applicant that: (1) determines whether a proposed Federal action is likely to jeopardize the continued existence of listed species or destroy or adversely modify designated critical habitat; (2) begins with a Federal agency's written request and submittal of a complete initiation package; and (3) concludes with the issuance of a biological opinion and incidental take statement by either of the Services. If a proposed Federal action may affect a listed species or designated critical habitat, formal consultation is required (except when the Services concur, in writing, that a proposed action "is not likely to adversely affect" listed species or designated critical habitat). [50 CFR §402.02, 50 CFR §402.14]
Freshet	A major increase in stream flow due to storms or snowmelt, commonly occurring in the autumn and spring.
Fry	An early life stage of salmon that have emerged from gravel, but still within its first few months of life. Fry are generally about 30-50 mm in length. Follows alevin life stage.
Genus	A category of biological classification grouping one or more species which have fundamental characteristics in common. the first word in the scientific name of a species is the genus name.
Gillnet	A type of fishing gear that captures fish by entangling their gill covers in the meshes of the net.
Gravel Substrate	Gravel in a stream bottom or shoreline area provides a basic habitat type used by chinook for spawning and rearing.
Habitat	The location where a particular taxon of plant or animal lives and its surroundings (both living and nonliving) and includes the presence of a group of particular environmental conditions surrounding an organism including air, water, soil, mineral elements, moisture, temperature, and topography.
Habitat	The physical, biological and climate conditions that provide the environment necessary for the survival of a species, commonly a wide range of conditions for salmon.
Habitat capacity	Amount of food availability within a habitat.
Habitat complexity	The existence of a variety of habitats.
Habitat connectivity and conveyance	The ability to access a habitat.
Habitat conservation Plan	Under section 10(a)(2)(A) of the Act, a planning document that is a mandatory component of an incidental take permit application, also known as a Conservation Plan.
Habitat forming process	Those physical agents that form landscape features (hydrology, erosion, sediment, temperature, salinity, wind, waves, currents, nutrients, etc.).

Habitat opportunity	The ability of salmonids to access habitats.
Harm/Harass	See “Take”.
Hatchery Stock	Salmon that have been artificially bred and reared under hatchery conditions, generally for more than one generation. Frequently show some genetic differentiation from wild stocks, unless mixing of the two occurs on a substantial basis.
Haulout	A site where seals and sea lions congregate out of the water.
Historic range	Those geographic areas the species was known or believed to occupy in the past.
Hopper dredging	Removing river sediments using a ship equipped with pumps, dragheads (extendable, submersible arms) and hoppers (multi-thousand cubic yard containers). Hopper dredges are generally restricted to in-water disposal.
Hydraulic Control Structures	Devices constructed to manage the flow of fluids (as in water), such as dams, locks, canals
Hydrodynamics	The action and effect of fluids in motion.
Hydrographic	The scientific description and analysis of the physical conditions, boundaries, flow, and related characteristics of the earth's surface waters. the mapping of bodies of water.
Impervious Surface	Surface of the earth that has been converted from natural soil to some artificial form (such as building roofs, pavement, sidewalks, etc.) that is impervious to rainfall.
Impoundment	A body of water made by accumulating and confining or storing in a reservoir.
Inbreeding	Mating or crossing of individuals more closely related than average pairs in population.
Incidental take	“Take” of threatened or endangered fish or wildlife species that results from, but is not the purpose of, carrying out an otherwise lawful activity conducted by a Federal agency or applicant. [50 CFR §402.02]
Incidental take permit	A permit that exempts a permit holder from the take prohibition of section 9 of the ESA issued by the FWS or NMFS pursuant to section 10(a)(1)(B) of the ESA.
Indirect effects	Those effects that are caused by or will result from the proposed action and are later in time, but are still reasonably certain to occur. [50 CFR §402.02]
Infauna	Aquatic animals that live in the substrate of a body of water, especially in a soft sea bottom.
Informal consultation	An optional process that includes all discussions and correspondence between the Services and a Federal agency or designated non-Federal representative, prior to formal consultation, to determine whether a proposed Federal action may affect listed species or critical habitat. This process allows the Federal agency to utilize the Services' expertise to evaluate the agency's assessment of potential effects or to

	suggest possible modifications to the proposed action which could avoid potentially adverse effects. If a proposed Federal action may affect a listed species or designated critical habitat, formal consultation is required (except when the Services concur, in writing, that a proposed action "is not likely to adversely affect" listed species or designated critical habitat). [50 CFR §402.02, 50 CFR §402.13]
Inorganic	Pertaining to matter of nonliving origin.
Interdependent actions	Actions having no independent utility apart from the proposed action. [50 CFR §402.02]
Interrelated actions	Actions that are part of a larger action and depend on the larger action for their justification. [50 CFR §402.02]
Intertidal	Characterizing the shoreline zone exposed at low tides and inundated at high tides; also, characterizing the area ecosystem and organisms between Extreme Low Tide and Extreme High Tide.
Inundated	Covered with water, especially floodwaters.
Invertebrate	An animal that does not have a backbone.
In-water disposal	For this Biological Assessment, the placement of dredged material along the riverbed in or adjacent to the navigation channel, or in designated sites below low water. Also commonly referred to as flowline disposal, this practice has been used through out the lower river system for many years. In-water disposal sites vary from year-to-year, depending on the dredging location and river depths available in the vicinity of the dredging action.
“Is likely to adversely affect”	The appropriate finding in a biological assessment (or conclusion during informal consultation) if any adverse effect to listed species may occur as a direct or indirect result of the proposed action or its interrelated or interdependent actions, and the effect is not: discountable, insignificant, or beneficial (see definition of "is not likely to adversely affect"). In the event the overall effect of the proposed action is beneficial to the listed species, but is also likely to cause some adverse effects, then the proposed action "is likely to adversely affect" the listed species. If incidental take is anticipated to occur as a result of the proposed action, an "is likely to adversely affect" determination should be made. An "is likely to adversely affect" determination requires the initiation of formal section 7 consultation.
“Is likely to jeopardize proposed species/adversely modify proposed critical habitat”	The appropriate conclusion when the action agency or the Services identify situations where the proposed action is likely to jeopardize the proposed species or adversely modify the proposed critical habitat. If this conclusion is reached, conference is required.
“Is not likely to adversely affect”	The appropriate conclusion when effects on listed species are expected to be discountable, insignificant, or completely beneficial. Beneficial effects are contemporaneous positive effects without any adverse effects to the species. Insignificant effects relate to the size of the impact and should never reach the scale where take occurs. Discountable effects are those extremely unlikely to occur. Based

	on best judgment, a person would not: (1) be able to meaningfully measure, detect, or evaluate insignificant effects; or (2) expect discountable effects to occur.
Iteroparous	Characterizing fish that survive their first spawning to undergo one or more subsequent spawnings (e.g., steelhead and cutthroat trout), contrast “semelparous”.
“Jeopardize the continued existence of”	To engage in an action that reasonably would be expected, directly or indirectly, to reduce appreciably the likelihood of both the survival and recovery of a listed species in the wild by reducing the reproduction, numbers, or distribution of that species. [50 CFR §402.02]
Juvenile salmon	Young salmon that have not reached sexual maturity, and generally referring to young salmon that have not yet migrated to the sea or have just entered the sea.
Larva (plural larvae)	An immature form of an animal which is unlike the adult body form and that requires fundamental morphological changes before reaching maturity.
Lentic	Characterizing water bodies that are lake types and not actively moving or flowing.
“Likely to Adversely Affect (LAA)”	Effects will result in a short-or long-term incidental ‘take’ of the listed species or designated critical habitat. See also Take.
Limnetic	Characterizing an open water area of a lake or similar body of water.
Listed species	Any species, including subspecies and distinct vertebrate populations, of fish, wildlife or plant which has been determined to be endangered or threatened under section 4 of the Act. [50 CFR §402.02]
Listing	The formal process through which the Service protects species which are then added to the Federal List of Endangered and Threatened Wildlife and Plants.
Listing priority	A number ranking system from 1 to 12 indicating the relative urgency for listing plants or animals as threatened or endangered. the criteria used to assign this number reflect the magnitude and immediacy of threat to the species, as well as the relative distinctiveness or isolation of the genetic material they possess. This latter criterion is applied by giving a higher priority number to species which are the only remaining species in their genus, and a lower priority number to subspecies and varieties. These listing priorities are described in detail in the Federal Register on September 21, 1983, as pages 43098-43105.
Littoral zone	The nearshore zone of a water body that is sufficiently shallow to permit photosynthetic activity by macrophytes.
Lotic	Characterizing water bodies that are stream-like and flowing.
m	Meter
m²	Square meter
m³	Cubic meter

Macrodetritus	The decaying remains of multi-celled plants, such as tidal marsh and swamp plants.
Macrofauna	The group of benthic animals with lengths equal to or larger than 0.5 millimeter.
Macroinvertebrate	As used by CREDDP investigators, an epibenthic organism more than one millimeter long.
Macrophytes	Multicellular aquatic plants that attach to the bottom by roots or holdfasts, as opposed to planktonic plants.
Mainstem sediments	Materials composing a main riverbed and in contact with sediments entering from tributaries. For the Columbia River, mainstem sediments are composed of sand with typically less than two to five percent in the silt and clay size classifications.
Major construction activity	A construction project (or other undertaking having similar physical effects) which is a major Federal action significantly affecting the quality of the human environment as referred to in the National Environmental Policy Act (NEPA, 42 U.S.C. 4332(2)(C)). [50 CFR §402.02]
Marsh	A wetland area with low-lying, saturated soils and , characterized by grassy and herbaceous vegetation and often occurring in a transition zone between water and upland.
“May Affect, Not Likely to Adversely Affect” (NLAA)	Effects to the listed species or designated critical habitat are insignificant and/or discountable. A determination of NLAA would be made for those activities that have only a beneficial effect with no short-or long-term adverse impacts.
Mean Higher High Water (MHHW)	A tidal datum defined as the average height of the higher of two daily high tides at a given place measured over an 18.6-year period.
Meiofauna	The group of benthic animals between 0.063 and 0.5 millimeters long.
mg	Milligram
Microdetritus	Decaying remains of single-celled plants and organisms, such as phytoplankton and benthic diatoms. “Imported microdetritus” are the remains of phytoplankton produced upstream that are carried downstream.”Resident microdetritus” are primarily the remains of phytoplankton produced in the estuary. (See phytoplankton)
Minor change rule	When preparing Incidental Take statements, the Services must specify reasonable and prudent measures and their implementing terms and conditions to minimize the impacts of incidental take that do not alter the basic design, location, scope, duration, or timing of the action, and that involve only minor changes. [50 CFR §402.14(i)(2)]
Mitigating measures	Modifications of actions that (1) avoid impacts by not taking a certain action or parts of an action; (2) minimize impacts by limiting the degree or magnitude of the action and its implementation; (3) rectify impacts by repairing, rehabilitating, or restoring the affected environment; (4) reduce or eliminate impacts over time by preservation and maintenance operations during the life of the action; or (5) compensate for impacts by replacing or providing substitute resources or environments.

Mobile macroinvertebrates	Large epibenthic organisms that reside on the river bottom and feed on bottom sediments.
Model	A conceptualized representation of reality developed to describe, analyze, or understand the behavior of some aspect of it; a mathematical representation of the relationships under study. the term model is applicable to a broad class of representations, ranging from a relatively simple qualitative description of a system or organization to a highly abstract set of mathematical equations.
Monitoring	For this Biological Assessment, the process of collecting and analyzing specific information to evaluate whether objectives and anticipated results of a plan are being realized or if implementation of a plan is proceeding as projected.
Mysid	A family of invertebrate animals of the crustacean class. Mysids are shrimp-like in appearance.
Natal area	The location where an animal was born, spawned or hatched.
Natal stream	The stream in which the salmon were originally spawned, incubated and reared.
National Environmental Policy Act (NEPA)	Federal legislation establishing national policy that environmental impacts will be evaluated as an integral part of any major Federal action. Requires the preparation of an EIS for all major Federal actions significantly affecting the quality of the human environment (42 U.S.C. 4321-4327).
Native stock	Salmon that are genetically derived from the wild fish that are native and have evolved in a particular watershed.
Naturally Spawning Stock	Salmon of both wild and hatchery origin that spawn unimpeded within a stream, and frequently produce some hybrid fish from the two genetic sources. Contrast wild stock.
Neap tide	Periods of minimum difference between sequential high and low tides.
Nephelometric turbidity units (NTUs)	Measurement of turbidity using a nephelometer – an apparatus that measures the size and concentration of particles in a liquid by analysis of light scattered by the liquid.
Neritic	Residing in shallow water.
No Effect (NE)	The conclusion reached in the determination of effect meaning literally no effect whatsoever to the listed species or designated critical habitat.
Nutrients	Inorganic nutrients and phosphates that enter the digestive system, both from outside sources and as a byproduct of the breakdown of the macrodetritus.
Ocean type	A life history designation for salmon that spend only a brief period (weeks to several months) rearing in freshwater and the estuary before they migrate to sea, as contrasted to “stream-type” salmon that spend at least one winter in freshwater before migrating directly to the ocean.

Oligohaline zone	The low-salinity estuarine zone of mixing fresh and salt water where juvenile salmonids go through the physiological transition necessary to adapt to a saltwater environment.
Omnivorous	Pertaining to organisms that consume both animal and plant matter.
Opportunity cost	Benefit that could result from a course of action but that is foregone when that course of action is not pursued.
Organic	Pertaining to living matter or materials of living origin.
Osmoregulation	The physiological process of maintaining an internal osmotic condition different from the surrounding water, more saline internally when in freshwater, less saline when in seawater.
Panamax	A type of deep-draft bulk carrier ship of 50,000 to 80,000 tons.
Parts per thousand (ppt)	A unit of measurement used in describing salinity. Water with a salinity of one part per thousand contains one unit of salt for every thousand units of water by weight.
Peak flow	The highest amount of stream or river flow occurring in a year, or from a single storm event.
Pelagic	Relating to, or living in, open oceans or seas rather than marine waters adjacent to land or inland waters.
Perturbation	A deviation in a normally predictable or regular cycle.
Petition (listing)	A formal request, with the support of adequate biological data, suggesting that a species, with the support of adequate biological data, be listed, reclassified, or delisted, or that critical habitat be revised for a listed species.
Photosynthesis	the process by which plants utilize radiant energy from the sun to synthesize carbohydrates from carbon dioxide and water.
Phylum	One of the principal divisions of the animal kingdom. the hierarchy of divisions used by scientists to classify the animal kingdom is phylum, class, order, family, genus, and species.
Phytoplankton	Single-celled plants suspended in the water column. Phytoplankton serve a vital role as the base of the food web on which zooplankton, benthic fauna and epibenthic organisms feed. Phytoplankton are termed “imported” if they have been produced behind the mainstream dams, or “resident” if they are produced within the lower river.
Pile dike	A structure consisting of two parallel rows of piling that are tied together and extend into the river.
Pile dike fields	Several pile dikes spaced about 1,200 to 1,500 feet apart. Within the dike field, current velocities are slowed and flow is deflected away from the river bank. the dike fields slow the current near the shore, reducing the erosion potential. Most shoreline disposal sites are provided some degree of protection from river erosion by pile dike

	fields.
Pinniped	Belonging to the Pinnipedia, a suborder of carnivorous aquatic mammals that includes the seals, walruses, and similar animals having finlike flippers as organs of locomotion.
Pipeline dredging	A method of dredging where vessels are equipped with extendable and submersible cutterheads and pumps. Material removed from a shoal by the cutterhead is pumped through a pipeline to a disposal location. Pipeline dredges are typically used for the large cutline shoals and areas with multiple sand wave shoals.
Piscivorous	Fish eating.
Plankton	The collection of small or microscopic organisms, including algae and protozoans, that float or drift in great numbers in fresh or salt water, especially at or near the surface, and serve as food for fish and other larger organisms.
Plant	Any member of the plant kingdom, including seeds, roots, and other parts thereof. [ESA §3(14)]
Polychaete	Segmented marine or estuarine worm of the annelid phylum.
Pool/riffle ratio	The ratio of surface area or length of pools to the surface area or length of riffles in a given stream reach; frequently expressed as the relative percentage of each category. Used to describe fish habitat rearing quality.
Population	"Population," or "distinct population segment," are terms with specific meaning when used for listing, delisting, and reclassification purposes to describe a discrete vertebrate stock that may be added or deleted from the list of endangered and threatened species. the term "population" will be confined to those distinct population segments officially listed, or eligible for listing, consistent with section 4(a) of the Act and the Services' population policy. [61 FR 4722-4725 (February 7, 1996)]
Post-dam periods	The time intervals after construction of the Bonneville Dam.
Predation	For this Biological Assessment, the consumption of a fish by another larger fish or other animals, also consumption of smaller organisms by fish.
Predator	Any animal that preys externally on others by hunting, killing and generally feeding on a succession of hosts (the prey).
Preliminary biological opinion	The opinion issued as a result of early consultation. [50 CFR §402.02]
Pressure gradient force	A current-creating force caused by the pressure one body of water exerts on another. The pressure is a result of differences in the density or elevation of the two bodies of water.
Primary productivity	Plant growth which, in turn, supports growth of microscopic food sources and acts as shelter.

Progradation	Seaward growth of a beach, marsh, delta, etc. by progressive deposition of sediment.
Programmatic consultation	Consultation addressing an agency's multiple actions on a program, regional or other basis.
Project baseline	Present state of the ecosystem relative to the project.
Propose	The formal process of publishing a proposed Federal regulation in the Federal Register and establishing a comment period for public input into the decision-making process. Plants and animals must be proposed for listing as threatened or endangered species, and the resulting public comments must be analyzed, before the Service can make a final decision.
Proposed critical habitat	Habitat proposed in the Federal Register to be designated as critical habitat, or habitat proposed to be added to an existing critical habitat designation, under section 4 of the Act for any listed or proposed species. [50 CFR §402.02]
Proposed species	Any species of fish, wildlife or plant that is proposed in the Federal Register to be listed under section 4 of the Act. [50 CFR §402.02]
Range	The geographic area a species is known or believed to occupy.
Range (of a species)	The area or region over which an organism occurs.
Raptor	A bird of prey, for example, eagles, hawks, owls.
Reach	See River reach/Stream reach
Refugia	Low-tide refuges (out of the high-velocity flows of the river) which provide sheltering and feeding opportunities for fish.
Rear	The process of sheltering, subsisting, living and growing, as applied to salmonids.
Rearing habitat	Areas in rivers or streams where juvenile salmon and trout find food and shelter to live and grow.
Reasonable and prudent alternatives	Recommended alternative actions identified during formal consultation that can be implemented in a manner consistent with the intended purpose of the action, that can be implemented consistent with the scope of the Federal agency's legal authority and jurisdiction, that are economically and technologically feasible, and that the Director believes would avoid the likelihood of jeopardizing the continued existence of listed species or the destruction or adverse modification of designated critical habitat. [50 CFR §402.02]
Reasonable and prudent measures	Actions the Fish and Wildlife Service or the National Marine Fisheries Service believe are necessary and appropriate to minimize the impacts (amount or extent) of incidental take. the are communicated to a federal agency in a biological opinion.
Reauthorization	A term referring to periodic action taken by Congress to reauthorize the Endangered Species Act. by reauthorizing an act, Congress extends it and may also amend it.

Reclassify	The process of changing a species' official threatened or endangered classification.
Record of decision (ROD)	A document separate from but associated with an environmental impact statement that states the management decision, identifies all alternatives including both the environmentally preferred alternatives and states whether all practicable means to avoid environmental harm from the preferred alternative have been adopted, and if not, why not.
Recovery	Improvement in the status of listed species to the point at which listing is no longer appropriate under the criteria set out in section 4(a)(1) of the Act. [50 CFR §402.02] ALSO, the process by which the decline of an endangered or threatened species is arrested or reversed, or threats to its survival neutralized so that its long-term survival in nature can be ensured.
Recovery outline	The first Service recovery document provided for a listed species. While very brief, the document serves to direct recovery efforts pending the completion of the species' recovery plan.
Recovery permit	Permits issued under Section 10(a)(1)(A) of the ESA for scientific research and other activities benefiting the recovery of Federally listed species.
Recovery plan	A document drafted by the Service or other knowledgeable individual or group, that serves as a guide for activities to be undertaken by Federal, State, or private entities in helping to recover and conserve endangered or threatened species.
Recovery priority	A number, ranging from a high of 1C to a low of 18, whereby priorities to listed species and recovery tasks are assigned. the criteria on which the recovery priority number is based are degree of threat, recovery potential, taxonomic distinctiveness, and presence of an actual or imminent conflict between the species and development activities.
Recovery unit	Management subsets of the listed species that are created to establish recovery goals or carrying out management actions. To lessen confusion in the context of section 7 and other Endangered Species Act activities, a subset of an animal or plant species that needs to be identified for recovery management purposes will be called a "recovery unit" instead of a "population."
Redd	The nest formed by a spawning female salmon as she digs in a small area of the stream bottom with her tail to form several depressions (egg pockets) in which eggs are deposited.
Regulated flow	River discharges controlled by reservoir operations.
Regulatory	Restricting according to rules or principles.
Rheotaxis	The behavioral response of a tendency to swim against a water current (positive) or with a current (negative).
Riparian area	The area immediately adjacent to streams, ponds, lakes and wetlands that directly contributes to the water quality and habitat components of the water body. This may include areas that have high water tables and soils and vegetation that exhibit

	characteristics of wetness, as well as upland areas immediately adjacent to the water body that directly contribute shade, nutrients, cover or debris, or that directly enhance water quality within the water body.
Riparian habitat conservation area	Portions of a watershed that contribute to the creation and maintenance of fish habitat.
Riparian zone	That portion of the land adjacent to a stream or body of water, usually within several hundred feet of the surface water. Normally used to refer to the zone within which plants grow rooted in water table of these streams, lakes, ponds, reservoirs, springs, marshes, seeps, bogs and wet meadows.
River discharge	The volume of water flowing through a river per unit of time.
Riverflow season	Seasons defined by CREDDP representing three characteristic river discharge periods of the Columbia River during the year. the high riverflow season is from April through June; the low riverflow season is from July through October; and the fluctuating riverflow season is from November through March.
River Mile (RM)	Mileage measurements along the main navigation channel of the Columbia River. River Mile Zero is at the river mouth.
Riverine	Relating to or resembling a river. Located on or inhabiting the banks of a river.
River reach/Stream reach	A stretch of a river or stream between two points. the U.S. Environmental Protection Agency has classified streams in the U.S. into river reaches and assigned each reach a unique number.
Safe Harbor Agreements	Voluntary agreements under which a non-Federal landowner agrees to carry out specified improvements to benefit a listed species, and the Federal government authorizes the landowner to remove the improvements at a future time and to take listed species incidental to doing so.
Saline	Pertaining to waters containing dissolved salts.
Salinity	The relative proportion of salt in a solution, such as water.
Salinity gradient	The variable rate of increase or decrease of the ratio of salinity to freshwater.
Salinity intrusion	Movement of saltwater into freshwater.
Salmonid	Fish belonging to the family salmonidae, including salmon, trout, char and allied freshwater and anadromous fish.
Sandbar	A subtidal ridge of accumulated sand.
Sandspit	A sandy point of land which projects from the shore into a body of water.
Sand wave	Waves made of sand. They cover the riverbed in the Columbia, and are typically four to eight feet high and 300 to 400 feet long. the river discharge and bedload transport affect sand wave movement. When the river discharge is less than 300,000 cfs, sand

	waves move only a few feet per day. However, when the discharge exceeds 400,000 cfs, sand wave movement can reach 20 feet per day or higher.
Scarp	A steep rock face or steep slope.
Scouring	Erosion of the riverbed.
Section 10	The section of the Endangered Species Act of 1973, as amended, that provides exceptions to section 9 prohibitions. the exceptions most relevant to section 7 consultations are takings allowed by two kinds of permits issued by the Services: (1) scientific take permits and (2) incidental take permits. the Services can issue permits to take listed species for scientific purposes, or to enhance the propagation or survival of listed species. the Services can also issue permits to take listed species incidental to otherwise legal activity. [ESA §10]
Section 10(a)(1)(A)	That portion of section 10 of the ESA that allows for permits for the taking of threatened or endangered species for scientific purposes or for purposes of enhancement of propagation or survival.
Section 10(a)(1)(B)	That portion of section 10 of the ESA that allows for permits for incidental taking of threatened or endangered species.
Section 4	The section of the ESA outlining procedures and criteria for: (1) identifying and listing threatened and endangered species; (2) identifying, designating, and revising critical habitat; (3) developing and revising recovery plans; and (4) monitoring species removed from the list of threatened or endangered species. [ESA §4]
Section 4(d) rule	A special regulation developed by the Service under authority of Section 4(d) modifying the normal protective regulations for a particular threatened species when it is determined that such a rule is necessary and advisable to provide for the conservation of that species.
Section 6	The section of the ESA that authorizes the Service to provide financial assistance to States through cooperative agreements supporting the conservation of endangered and threatened species.
Section 7	The section of the ESA outlining procedures for interagency cooperation to conserve Federally listed species and designated critical habitats. Section 7(a)(1) requires Federal agencies to use their authorities to further the conservation of listed species. Section 7(a)(2) requires Federal agencies to consult with the Services to ensure that they are not undertaking, funding, permitting, or authorizing actions likely to jeopardize the continued existence of listed species or destroy or adversely modify designated critical habitat. Other paragraphs of this section establish the requirement to conduct conferences on proposed species; allow applicants to initiate early consultation; require FWS and NMFS to prepare biological opinions and issue incidental take statements. Section 7 also establishes procedures for seeking exemptions from the requirements of section 7(a)(2) from the Endangered Species Committee. [ESA §7]
Section 7 consultation	The various section 7 processes, including both consultation and conference if proposed species are involved. [50 CFR §402]

Section 9	The section of the Endangered Species Act of 1973, as amended, that prohibits the taking of endangered species of fish and wildlife. Additional prohibitions include: (1) import or export of endangered species or products made from endangered species; (2) interstate or foreign commerce in listed species or their products; and (3) possession of unlawfully taken endangered species. [ESA §9]
Sediment deposition or erosion	The adding (deposition) or removal (erosion) of sediments to an area by some transporting agent, such as wind or water.
Sediment yield	The quantity of soil, rock particles, organic matter, or other dissolved or suspended debris transported through a cross section of a stream in a given period. Measured in dry weight or by volume. Consists of dissolved load, suspended load and bedload.
Sediments	The organic and inorganic particulate materials, including gravel, sand, silt and clay, that cover the bottom of water bodies, including river and tributaries bottoms, estuary bottoms, and intertidal areas.
Semelparous	Species, such as Pacific salmon, that commonly die following their first spawning. Contrast “iteroparous.”
Service(s)	The Fish and Wildlife Service or the National Marine Fisheries Service (or both).
Shoal	A place where a sea, river or other body of water is shallow. Also used in reference to a sandbank or sandbar in the bed of a body of water. An accumulation of sediment within the navigation channel.
Shoaling	The deposition of sediment in an area.
Shoreline disposal	Material that is dredged and pumped into shallow water and beach areas along the river. Shoreline disposal is done primarily with pipeline dredges.
Side-slope adjustment	The bedload movement is generally directed down stream, but there can be a small displacement towards deeper water caused by the side-slopes of the riverbed. This displacement is larger on steeper side-slopes.
Slack water/Slack tide	Period between low tide and high tide when the tide is neither coming in or going out.
Slough	A narrow channel cutting through an intertidal area and receiving tidal flow.
Smolt	A life stage of salmon that is undergoing or has completed the physiological transition that allows it to live in seawater. Commonly involves changes in body form to a slightly more streamlined shape and silvery body coloration.
Smoltification	Physiological transformation process young anadromous fish undergo that allows them to mover from freshwater to seawater.
Sonic tag	A battery powered transmitter that is placed in a fish that can be detected from some distance with a submerged hydrophone receiving the signal in the ultrasonic range (generally about 50-75 kHz). They allow the location of the fish to be determined.

Spawning	The releasing and fertilizing of eggs by fish.
Species	Includes any subspecies of fish or wildlife or plants, and any distinct population segment of any species of vertebrate fish or wildlife which interbreeds when mature. [ESA §3(16)]
Species of Concern	An informal term that refers to those species that may be in need of concentrated conservation actions. Such conservation actions vary depending on the health of the populations and degree and types of threats. at one extreme, there may only need to be periodic monitoring of populations and threats to the species and its habitat. at the other extreme, a species may need to be listed as a Federal threatened or endangered species. Species of concern receive no legal protection and the use of the term does not necessarily mean that the species will eventually be proposed for listing as a threatened or endangered species.
Spring run chinook	Chinook that return to their natal stream in the spring. Offspring of spring chinook often display a “stream-type” life history; they rear for about a year in freshwater before migrating to the ocean.
Spring tides	Periods of maximum difference between sequential high and low tides.
Stakeholder	One who has a share or an interest, as in an enterprise.
Standing crop	The weight of a group of organisms per unit of area at a given time.
Statutory	Enacted, regulated, or authorized by statute.
Stock	Members of a species that inhabit a specific geographic area and tend to remain reproductive separate from other members of the same species.
Stranding	To drive or run ashore or aground; to leave in a difficult or helpless situation.
Stream incision	Cutting down of a stream through erosion of the stream bottom by strong currents.
Stratified, stratification	The layering of a substance. For example, water in many estuaries may have a saline bottom water layer and a fresh surface water layer.
Subduction zone	Designation of a specific area where a geologic process is occurring in which one edge of one crustal plate is forced below the edge of another.
Sub-lethal impacts	On the verge of having an extremely harmful or devastating effect.
Survival	For determination of jeopardy/adverse modification: the species' persistence as listed or as a recovery unit, beyond the conditions leading to its endangerment, with sufficient resilience to allow for the potential recovery from endangerment. Said another way, survival is the condition in which a species continues to exist into the future while retaining the potential for recovery. This condition is characterized by a species with a sufficient population, represented by all necessary age classes, genetic heterogeneity, and number of sexually mature individuals producing viable offspring, which exists in an environment providing all requirements for completion of the

	species' entire life cycle, including reproduction, sustenance, and shelter.
Suspended sediments	Soil particles that remain suspended in water due to the upward forces of turbulence and currents, and/or colloidal suspension.
Suspended solids	Organic and inorganic particles suspended in the water column.
Suspension feeders	Organisms that feed from the water column itself.
Suspension/Deposit feeders	Bottom-living organisms that feed on or at the interface between the sediment and the water column.
Swamp	Low land that is seasonally flooded; has more woody plants than a marsh and better drainage than a bog.
Take	To harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect or attempt to engage in any such conduct. [ESA §3(19)] Harm is further defined by FWS to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing behavioral patterns such as breeding, feeding, or sheltering. Harass is defined by FWS as actions that create the likelihood of injury to listed species to such an extent as to significantly disrupt normal behavior patterns which include, but are not limited to, breeding, feeding or sheltering. [50 CFR §17.3]
Taxon/Taxa	A category in a scientific classification system such as class, family or phylum.
Terminal fishery	A fishery that takes place at the location where fish enter their natal stream or near the hatchery from which they originated.
Terrestrial	Pertaining to land, as distinct from water (aquatic).
Thalweg	The line following the deepest part or middle of the bed or channel of a river.
Thermocline	A layer of sharp temperature change in a stratified body of water.
Threatened species	Any species which is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range. [ESA §3(20)]
Tidal	Pertaining to tides or an area periodically flooded and exposed by the tides.
Tidal channel	A channel through which water drains and fills intertidal areas
Tidal datum	Reference elevations derived from averaging tidal measurements (for example, the average of all lower low tide measurements for a given period at a given locality is mean lower low water or MLLW).
Tidal flat	A tidal sandflat or mudflat.
Tidal marsh	An intertidal area covered with non-woody flowering plants.
Tidal mudflat	An unvegetated intertidal area composed of fine sediments, such as silt.

Tidal range	the difference between high tide and low tide.
Tidal sandflat	An unvegetated intertidal area composed of coarse sediments, such as sand.
Tidal swamp	An intertidal area covered with predominantly woody vegetation.
Tides	The periodic rise and fall of sea level produced by the gravitational forces of the moon and sun acting upon the rotating earth.
Turbidity	Reduced water clarity resulting from the presence of suspended matter; also, the amount of particulate matter suspended in water.
Unfettered river flow	River flow is not restricted.
Unregulated flow	Natural river discharge that has not been altered by reservoir operations.
Upland	High land; ground elevated above the meadows and intervals which lie on the banks of rivers, near the sea, or between hills; land which is generally dry; -- opposed to lowland, meadow, marsh, swamp, interval, and the like. Generally any area that does not qualify as a wetland because the associated hydrologic regime is not sufficiently wet to elicit development of vegetation, soils and/or hydrologic characteristics.
Upland disposal	Depositing dredged material on a site that is elevated, dry land. Upland disposal sites are designed as holding ponds, with earthen dikes to contain the dredged material and hold the sand while allowing sand and suspended material to settle. Weirs are used to regulate the return of water from the piped slurry to the river.
Velocity field	The rate or speed of flow of the river.
Vertical temperature gradient	A vertical boundary layer of substantial temperature change within a lake, estuary or test aquarium that provides fish with a choice of temperatures.
Waterborne	Transported via waterways.
Water column	(a) the water or its vertical extent; (b) the CREDDP habitat type extending from the water surface down to one meter above the sediment surface.
Water quality	the chemical, physical and biological characteristics of water.
Watershed	A geographic area contributing drainage to a specific stream, a catchment.
Water transport	the volume of water that flows past a point over a given time period.
Weir	A small dam in a river or stream.
Wetlands	Areas that are inundated by surface water or ground water with a frequency sufficient to support, and under normal circumstances do or would support, a prevalence of vegetative or aquatic life that require saturated or seasonally saturated soil conditions for growth and reproduction.
Wild Stock	Members of a species from a watershed that have continuously spawned naturally,

	and have not interbred with a hatchery population.
Wildlife	See “fish or wildlife”.
Woody debris	the fragmented remains of material consisting of, or containing wood or woody fiber, such as the woody parts of plants, logs, branches, etc. which, when deposited in streams and rivers provide shelter to aquatic creatures.
Zooplankter	An individual member of the zooplankton.
Zooplankton	The group of small (usually microscopic) passively suspended or weakly swimming animals in the water column.