GLOSSARY

aerobic: Living, active, or occurring in the presence of oxygen. For instance, soil microorganisms which degrade sewage effluent from septic systems need oxygen in order to function.

acre-foot: A measurement of water. The volume of water required to cover 1 acre of land to the depth of 1 foot.

adjudication: A determination by the State Superior Court of the relative rights of the various claimants to use water from a water source.

aggradation: The active build up of riverborne sediments in stream reaches of lower elevation river gradient, creating broad, shallow, braided river channels.

alluvial: Originated through the transport by and deposition from running water. An example is a deposit of sand or mud.

alluvium: Sediment such as clay, silt, sand, gravel of other sediments deposited by running water.

allocation: Designation by Dept. of Ecology of specific amounts of water resource for specific beneficial uses. (WAC 173-500-050)

ambient monitoring: Monitoring that is done to determine existing environmental conditions, contaminant levels, rates, or species in the environment, against which future conditions can be compared.

anadromous fish: Species, such as salmon and steelhead, which hatch in fresh water, spend a large part of their lives in the ocean, and return to fresh water rivers and streams to reproduce.

appropriation: The process of legally acquiring the rights to specific amounts of water for application to beneficial uses. (WAC 173-500-050)

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.

aquifer: The underground layer of rock or soil in which groundwater resides capable of yielding a significant amount of water to wells or springs. Aquifers are replenished or recharged by surface water percolating through soil.

Aquifer Protection Areas: A special district allowing monthly fees on water withdrawals or on-site sewage disposal to finance the protection, preservation, and rehabilitation of ground water. Aquifer Protection Areas are created when County legislative authorities resolve to submit a ballot proposition to registered voters within the proposed protection area and voters approve the measure by a simple majority.

aquitard: A layer of rock or unconsolidated sediments that will not yield water in a usable quantity, and retards vertical flow.

artesian wells: Wells that tap confined aquifers and whose static water level is higher than the level of the aquifer.

attenuation: The process of reducing the amount and concentration of contaminants in water. Includes physical, chemical, and biological processes as well as dilution.

bar scalping: Removal of gravel from river gravel bars to prevent bed aggradation for flood control and/or as a source of commercial gravel.

basalt: A fine-grained, dark-colored rock, formed by solidification from a molten or partially molten state.

base flow: 1) Regulatory base flow: A level of streamflow established in accordance with provisions of Ch. 90.54 RCW required in perennial streams to preserve wildlife, fish, scenic, aesthetic, and other environmental, or navigational values. (WAC 173-500-050) 2) Hydrologic base flow: That portion of stream flow sustained by ground water seeping into stream rather than directly from storm runoff. (see also *hydraulic continuity*)

basin: The area of land that drains water, sediment and dissolved materials to a common point along a stream channel.

bedload: A description of a process whereby stream flows, channel shape, and sediments are in constant interaction working to come to an equilibrium. Where additional levels of sediment are put into a stream (i.e. through landslides, road construction) bedload can mean the amount of material being transported through

the system. Sediments moving through the system causing changes in channel shape until sediments are flushed out of the system or deposited in stable areas are called bedload.

beneficial uses: Uses of water for domestic, stock watering, industrial, commercial, agricultural, irrigation, hydroelectric power production, mining, fish and wildlife maintenance and enhancement, recreational, and thermal power production purposes, and preservation of environmental and aesthetic values, and all other uses compatible with the enjoyment of the public waters of the state. (WAC 173-500-050)

Benthic Index of Biological Integrity (BIBI): is a benthic macroinvertebrate multimetric index designed and calibrated for use in Puget Sound Lowlands

biotic integrity: Capability of supporting and maintaining a balanced, integrated, adaptive community of organisms having a species composition, diversity, and functional organization comparable to that of natural habitat of the region; a system's ability to generate and maintain adaptive biotic elements through natural evolutionary processes.

best management practices (BMP): 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.

biodegradation: The conversion of organic compounds into simpler compounds through biochemical activity. Toxic compounds can sometimes be converted into non-toxic compounds through biodegradation. Unfortunately, in some cases, complex compounds are first converted into intermediate substances that can be more toxic than the original substance.

biological diversity (biodiversity): Variety and variability among living organisms and the ecological complexes in which they occur; encompasses different ecosystems, species, and genes.

biological treatment: A wastewater treatment process that uses heavy growth of microorganisms for the purpose of oxidizing, absorbing, and absorbing wastewater impurities, both organic and inorganic. Secondary treatment plants usually provide biological treatment.

candidate species: Those plants and animals that are being considered by the USFWS for listing as threatened or endangered under the Endangered Species Act.

casing: A metal or plastic pipe installed in a well to maintain the well opening, especially in loose or unconsolidated formations.

channelization: Straightening the meanders of a river; often accompanied by placing riprap or concrete along banks to stabilize the system.

channelized stream: A stream that has been straightened, runs through pipes or revetments, or is otherwise artificially altered from its natural, meandering course.

channel stability: Tendency of a stream channel to remain within its existing location and alignment.

check dams: Series of small dams placed in gullies or small streams in an effort to control erosion. Commonly built during the 1900s.

Chelan Agreement: An unsigned agreement in 1990 between State government, the Tribes, and other water resource interests outlining a consensus-based approach to water resource issues. The agreement called for the creation of a state-level Water Resources Forum and 2 pilot planning projects to test the approach and was funded by the Washington State Legislature.

cistern: A large, permanent structure designed to catch, filter, and divert rain water into a storage area. Catchments include house, barn, and shed roofs, parking lots, paved surfaces or specially constructed impervious surfaces. Stored water is generally used for irrigation.

cleanup activities: Actions taken by a public agency or a private party to correct an environmental problem. Activities can include either the prevention of pollution by the treatment or control of contaminants (for example, treatment of wastewater before discharge) or the removal from the environment of contaminants introduced by past practices (fox example, digging up and incinerating soil contaminated with dioxin).

coliform bacteria: A type of bacteria which includes many species. Fecal coliform bacteria are those coliform bacteria which are found in the intestinal tracts of mammals. The presence

of high numbers of fecal coliform bacteria in a water body can indicate the release of untreated wastewater, and/or the presence of animals, and may indicate the presence of pathogens.

community water systems: Water distribution structures. *Group A* water systems have 15 or more service connections or serve an average of 25 or more people per day for 60 or more days a year. *Group B* water systems have less than 15 connections and serve an average of less than 25 people each year. (WAC 246-290)cone of depression: The depression in the water table or potentiometric surface around a pumping Well caused by water withdrawal.

confined aquifer: An aquifer overlain by a confining bed in which the water level in a well drilled into the aquifer stands above the base of the confining bed.

confluence: Joining.

consumptive use: Use of water where there is diversion or diminishment of the water source. (WAC 173-500-050) (see also Chapter 2: Water Use) contaminant: A substance that is not naturally present in the environment or is present in unnatural concentrations or amounts and which can, in sufficient concentration, adversely alter an environment.

critical areas: A category of land for protection under the Growth Management Act of 1990 including aquifer recharge, critical fish and wildlife habitat, seismic hazard, wetland, and flood hazard areas.

Critical Stocks: Stocks of fish experiencing production levels that are so low that permanent damage to the stock is likely or has already occurred.

Coordinated Water System Plan (CWSP): A plan for public water systems within a critical water supply service area which identifies the present and future water system concerns and sets forth a means for meeting those concerns in the most efficient manner possible. (Ch. 248-56-200)

cordillera: A group of mountain ranges including valleys, plains, rivers, lakes, etc., having one general direction.

cumulative effects: Those effects on the environment that result from the incremental effect of the action when added to the past, present, and reasonably foreseeable future actions regardless of what agency or person undertakes such other actions. Cumulative effects can result from individually minor but collectively significant actions taking place over a period of time.

debris torrent: Rapid movements of material, including sediment and woody debris, within a stream channel. Debris torrents frequently begin as debris slides on adjacent hillslopes.

degradation: The lowering of the streambed or widening of the stream channel by erosion. The breakdown and removal of soil, rock and organic debris.

depressed stocks: A stock of fish whose production levels are below expected levels based on available habitat and natural variation in survival rates, but above the level where permanent damage is likely. (SASSI)

deposition: The accumulation of riverborne sediments when energy of the stream decreases below the level required for sediment transport.

detention: The process of collecting and holding back stormwater for later release to receiving waters.

discharge: The release of wastewater or contaminants to the environment. Direct discharge of wastewater flows directly into surface waters, while an indirect discharge of wastewater enters a sewer system.

Dissolved Oxygen (DO): Oxygen which is present (dissolved) in water and therefore available for fish and other aquatic animals to use. If the amount of DO in the water is too low, marine animals suffer from suffocation. Wastewater often contains oxygen-demanding substances that can consume dissolved oxygen if discharged into the environment.

doctrine of prior appropriation: The right to use water acquired earlier in time is superior to a similar right acquired later in time. "First in time, first in right."

domestic wastewater: The wastewater that flows from sinks, toilets, showers, and other facilities that are routinely used by people.

drainage basin: The land area that gathers water and contributes it to a body of surface water. Also called the watershed of the receiving water body.

drainage divide: A boundary line along a hilly or mountainous area that separates two adjacent drainage basins.

drawdown: A lowering of the water table of an unconfined aquifer or the potentiometric surface of a confined aquifer caused by pumping groundwater from wells.

dredging: Any physical digging into the bottom of a water body. Dredging can be done with mechanical or hydraulic machines and either changes the shape and form of the bottom or removes sediment that has been deposited over the bottom.

Dungeness Water Users Association: Purveyors of agricultural water comprised of 9 representatives from irrigation districts and companies. The association functions by consensus agreement.

ecological restoration: Involves replacing lost or damaged biological elements (populations, species) and reestablishing ecological processes (dispersal, succession) at historical rates.

ecosystem: A community of living organisms interacting with one another and with their physical environment. A system such as Puget Sound can also be thought of as the sum of many interconnected ecosystems such as the rivers, wetlands, and bays. Ecosystem is thus a concept applied to communities of different scale, signifying the interrelationships that must be considered.

ecosystem management: Management that integrates ecological relationships with sociopolitical values toward the general goal of protecting or returning ecosystem integrity over the long term.

effective impervious surface: Those impervious surfaces that are connected via sheet flow of discrete conveyance to a drainage system.

effluent: The liquid waste of sewage and industrial processing.

embayment: An indentation in a shoreline forming an open bay.

endangered species: Any species of plant or animal defined through the Endangered Species Act as being in danger of extinction throughout all or a significant portion of its range, and published in the Federal Register.

Endangered Species: Means any species which is in endanger of extinction throughout all or a significant portion of its range other than a species of the Class Insecta as determined by the Secretary to constitute a pest whose protection under would provide an overwhelming and overriding risk to man.

Endangered Species Act (ESA): A 1973 Act of Congress that mandated that endangered and threatened species of fish, wildlife, and plants be protected and restored.

Environmental Impact Statement (EIS): A document that discusses the likely significant impacts of a development, project, or a planning proposal, ways to lessen the impacts, and alternatives to the project or proposal. EISs are required by the National and Washington State Environmental Policy Acts.

Eocene: 1) Second geologic epoch of the Tertiary Period, 37-54 million years ago. 2) The series of strata deposited during that epoch.

erosion: Wearing away of rock or soil by the gradual detachment of soil or rock fragments by flowing water, wind, freeze/thaw cycles, landslides, bedrock decomposition, and other weathering.

escapement: The number of adult fish that survive or "escape" fishing gear to migrate upstream to spawning grounds.

esker: 1) Eskers or kames are rudely stratified accumulations of gravel, sand, and waterworn stones which occur in long ridges, mounds, and hummocks. 2) Serpentine ridges of gravel and sand, believed to mark channels in the decaying ice sheet through which streams washed much of the finer drift, leaving the coarser gravel between the ice walls.

estuarine: A partly enclosed coastal body of water that has free connection to open sea, and within which seawater is measurably diluted by fresh river water.

estuary: A coastal water body where ocean water is diluted by out-flowing fresh water.

eutrophic: Water body rich in dissolved nutrients, photosynthetically productive, and often deficient in oxygen during warm periods. Compare *oligotrophic.*

evapotranspiration: That portion of the precipitation returned to the air through direct evaporation and by transpiration of plants.

Evolutionary Significant Unit (ESU): A definition of a species used by National Marine Fisheries Service (NMFS) in administering the Endangered Species Act (ESA). An ESU is a population (or group of populations) that is reproductively isolated from other conspecific population units, and (2) represents an important component of the evolutionary legacy of the species.

exempt wells: Domestic water wells not requiring a water right from Dept. of Ecology. Under current law use from one well must be less than 5000 gpd and used for domestic purposes and/or the irrigation of no more than one-half acre of lawn or non-commercial garden.

extinct stock: A stock of fish that is no longer present in its original range, or as a distinct stock elsewhere. Individuals of the same species, but different stock, may be observed in very low numbers in the extinct stock range, consistent with straying from other stocks. (SASSI)

extirpation: The elimination of a species from a particular local area.

fish-bearing streams: Any stream containing any species of fish for any period of time.

fisheries enhancement: Fisheries enhancement is an action taken to create conditions in the biological environment that optimizes survivorship of the fish population in question.

flood: An abrupt increase in water discharge; typically flows that overtop streambanks.

flood plain: Land bordering a stream or river and subject to flooding.

floodway: The channel of a stream, plus any adjacent flood plain areas, that must be kept free of encroachment, such as artificial fill, in order that the 100-year flood be carried without substantial increases in flood heights.

flow line: The theoretical path followed by groundwater.

flow rate: The volume of flow per time (e.g., gallons per minute/gpm, or cubic feet per second/cfs).

fluvial: Of or belonging to rivers.

forest practice- Any activity conducted on or directly pertaining to forest land and relating to growing, harvesting, or processing timber. These activities include but are not limited to road and train construction; final and intermediate harvesting; precommercial thinning: reforestation; fertilization, prevention and suppression of disease and insects; salvage of trees: and brush control.

geologic map: A map showing the aerial distribution of geologic units and the attitude or structure of those units.

geomorphic: Pertaining to the form or shape of those processes that affect the surface of the earth.

GIS: Geographic Information System.

graben: n elongate crustal block that is relatively depressed (downdropped) between two fault systems.

glacier: A mass of ice with definite lateral limits, with motion in a definite direction, and originating from the compaction of snow.

glaciation: Alteration of the earth's solid surface through erosion and deposition by glacier ice.

gravel trap: Holes of almost any size dug along side the river during a low flow period in areas of excessive bedload movement. In times of high water the holes fill with sediment moving down stream, thereby lessening bed aggradation.

grey water: Waste water from clothes washers, dish water, and bathing.

ground water: All waters that exist beneath the land surface or beneath the bed of any stream, lake, or reservoir, or other body of surface water, whatever may be the geologic formation or structure in which such water stands or flows, percolates, or otherwise moves. (Ch. 173-100 WAC) Ground water is created by rain which soaks into the ground and flows down until it is collected and stored at a point where the ground is not permeable, forming natural underground water supplies. Ground water then usually flows laterally toward a river, lake, or the ocean, where it discharges.

groundwater divide: A line separating two regions of diverging flow.

groundwater flow: The movement of water through openings in sediment and rock.

ground water management area: A specific geographic area or subarea designated pursuant to this chapter for which a ground water management program is required. (Ch. 173-100 WAC)

groundwater management program: A comprehensive program designed to protect ground water quality, to assure ground water quantity, and to provide for efficient management of water resources while recognizing existing ground water rights and meeting future needs consistent with local and state objectives, policies, and authorities within a designated ground water management area or subarea and developed pursuant to Ch. 173-100 WAC.

groundwater management zone: Any depth or stratigraphic zone separately designated by the Department of Ecology in cooperation with local government for ground water management purposes within a ground water management area. Ground water management zones may consist of a specific geologic formation or formations or other reasonable bounds determined by Ecology consistent with Ch. 173-100 WAC.

habitat: The specific area or environment in which a particular type of plant or animal lives. An organism's habitat must provide all of the basic requirements for life and should be free of harmful contaminants. (see Appendix D: Habitat)

habitat assessment: Habitat assessment is a problem analysis process to develop and document a scientifically based understanding of the processes and interactions occurring within a watershed which affect fish habitat.

habitat protection: Habitat protection means an action taken or a decision made that protects the physical and/or biological environment in a watershed.

habitat restoration: Habitat restoration means an action taken to correct specific problems identified through watershed analysis or other full watershed inventory processes.

habitat enhancement: Habitat enhancement is an action taken to create conditions in the physical environment that optimize survivorship of the population in question.

hardness: A measure of the amount of calcium, magnesium, and iron dissolved in the water.

hazardous waste: Any solid, liquid, or gaseous substance which, because of its source or measurable characteristics, is classified under state or federal law as hazardous and subject to special handling shipping storage, and disposal requirements. Washington state law identifies two categories, dangerous and extremely hazardous. The latter category is more hazardous and requires greater precautions.

head, total: The sum of the elevation head, the pressure head, and the velocity head at a given point in an aquifer.

healthy stock: A stock of fish experiencing production levels consistent with its available habitat and within the natural variations in survival for the stock. (SASSI)

herbicide: A pesticide used to destroy or inhibit growth of vegetation.

heterogeneous aquifer: An aquifer having different characteristics in different locations. A synonym is nonuniform.

homogeneous aquifer: An aquifer having identical characteristics everywhere. A synonym is uniform.

Hood Canal Salmon Management Plan (HCSMP): A 1980 agreement between WDFW and PNPTC, which sets production levels, release programs, and harvest levels on fish produced in Hood Canal.

hybridization: The interbreeding of fish from two or more different stocks.

hydraulic conductivity: A measure of the rate at which water will move through aquifers and aquitards.

hydraulic continuity: The natural interconnections between groundwater and surface waters.

hydraulic gradient: Change in head between two points divided by the distance between the points (i.e., slope).

Hydraulic Project Approval (HPA): Under the Hydraulic Code Rules, approval is required from WDFW for certain activities in state waters that support fish life. A project approval is required

for such activities affecting state waters such as certain forest practices; culvert construction, bridge, pier, and piling construction; bulkheads; boat launches; dredging; and gravel traps.

hydrogeology: The study of the interrelationships of geologic materials and processes with water, especially ground water.

hydrologic base flow: See *base flow*.

hydrologic cycle: The continual cycling of water between the land, the sea, and the atmosphere through evaporation, condensation, precipitation, absorption into the soil, and stream runoff.

hydrograph: Chart of water levels over time.

hydrostratigraphic unit: A formation, part of a formation, or a group of formations in which there are similar hydrologic characteristics allowing for grouping into aquifers or confining layers.

hypsithermal period: Postglacial warm interval extending from about 7000 to 600 BC responsible for the last 6-foot rise of world-wide sea level.

impervious surface: A surface which cannot be easily penetrated. For instance, rain does not readily penetrate paved surfaces.

impoundment: Generally, an artificial collection or storage of water, as a reservoir, pit, dugout, or sump.

infiltration: The downward entry of water into the soil.

infiltration gallery: A horizontal well or subsurface drain that intercepts underflow in permeable materials or infiltration of surface water. Infiltration galleries are used when surface water is not suitable for direct pumping because of silt load, shoreline slope, presence of inert contaminants, or rapid and unpredictable changes in water level, for example.

infrastructure: Streets, utilities, parks, and other elements that support residential development and other human activities.

in-line reservoir: Water storage requiring a blockage or dam in the main channel of a river, stream, or ditch.

Instream Flow Incremental Methodology (IFIM): Flow modeling methodology used to determine incremental gains in fish habitat, for individual species, at different flow levels.

Integrated Pest Management (IPM): is a sustainable approach to managing pests by combining biological, cultural, physical and chemical tools in a way that minimizes economic, health and environmental risks. IPM: a systematic approach to pest management which combines a wide variety of crop production practices with careful monitoring of pests and their natural enemies.

interbed: A typically thin bed of rock material alternating with contrasting thicker beds of rock.

intermittent stream. Stream that has interrupted flow or does not flow continuously.

ions: An atom or group of atoms carrying a positive or negative charge as a result of having gained or lost one or more electrons.

isotropy: The condition in which hydraulic properties of the aquifer are equal in all directions.

irrigation: The application of water to soil for crop production or for turf, shrubbery, or wildlife food and habitat. Provides water requirements of plants not satisfied by rainfall.

irrigation district: A cooperative, self-governing public corporation set up as a subdivision of the state, with definite geographic boundaries, organized to obtain and distribute water for irrigation of lands within the district; created under authority of the state legislature with the consent of a designated fraction of the landowners or citizens and having taxing power.

irrigation return flow: The part of applied water that is not consumed by evapotranspiration and that migrates to an aquifer or surface water body.

isohyetal: Marking the amounts of rainfall.

Index of Biological Integrity (IBI): is a synthesis of diverse biological information which numerically depicts associations between human influence and biological attributes. It is composed of several biological attributes or 'metrics' that are sensitive to changes in biological integrity caused by human activities. The multi-metric (a compilation of metrics) approach compares what is found at a monitoring site to what is expected using a

regional baseline condition that reflects little or no human impact.

instream flow: A base flow adopted into Washington State regulations used to condition water rights. A water right for instream resources such as fish, wildlife, recreation, esthetics, navigation, stock watering, and water quality with a priority date set when the instream flow rule was adopted.

Instream Flow Incremental Methodology (IFIM): A method of quantitatively relating stream flow to fish or wildlife habitat area. The IFIM combines curves describing the suitability of certain velocities and water depths for selected species and life stages, with measurements of current, depth, and wetted channel width in the area of study, to produce a table relating usable habitat area to stream flow.

intermittent stream: Any non-permanent flowing drainage feature having a definable channel and evidence of annual scour or deposition. This includes what are sometimes referred to as ephemeral streams if they meet both criteria.

junior right: A water right that is more recent in relation to other water rights, and in times of limited water is legally able to be satisfied only after other senior rights have been fulfilled.

key watershed: As defined by USFS and BLM fish biologists, a watershed containing: 1) habitat for potentially threatened stocks of anadromous salmonids or other fish, or 2) greater than 6 square miles with high-quality water and fish habitat.

kilogram: Metric unit of weight equal to 1000 grams or 2.2 pounds.

kilometer: Metric unit of measure equal to 1000 meters or 0.62 miles (a square kilometer equals 0.4 square miles or 2.47 acres).

land use: The way land is developed and used in terms of the types of activities allowed (agriculture, residences, industries, etc.) and the size of buildings and structures permitted. Certain types of pollution problems are often associated with particular land use practices, such as sedimentation from construction activities.

large woody debris (LWD): Large woody material that has fallen to the ground or into a stream. An important part of the structural diversity of streams. Usually refers to pieces at least 20 inches (51 cm) in diameter.

Limiting Factor: Single factor that limits a system or population from reaching its highest potential.

leachate: A soluble material, such as organic and mineral salts, which is washed out of a layer of soil or debris.

liter: A metric unit of volume equal to 1000 cubic centimeters or 1.06 quarts.

lithology: 1) The study and description of rocks. 2) The physical character of a rock as determined by observations made with the naked eye or with the aid of a low-power magnifier.

low flow: Stream flow level limitations appearing as provisions on permits and certificates issued by the Department of Ecology or its predecessors. (WAC 173-500-050)

macroinvertebrates: Invertebrates large enough to be seen with the naked eye (e.g., most aquatic insects, snails, and amphipods).

mass failure: Movement of aggregates of soil, rock and vegetation down slope in response to gravity.

maximum habitat flow: See *optimum instream flow*.

medium, media: In pollution control programs, media are the components of the environment that may be contaminated with a substance. A program that handles lead contamination in all media is a cross-media program. Thus, lead can be discharged to the air, to the water, or on the land.

metals: Elements, such as mercury, lead, nickel, zinc, and cadmium, that are of environmental concern because they do not degrade overtime. Although many are necessary nutrients, they are sometimes magnified in the food chain, and they can be toxic to life in high enough concentrations.

meter: A metric unit of length equal to 3.28 feet or 1.09 yards (a square meter equals 10.7 square feet; a cubic meter equals 35.3 cubic feet or 1.3 cubic yards).

microgram: A metric unit of weight equal to 1,000,000th of a gram.

microorganisms: Minute organisms, such as bacteria, which are barely visible to the unaided eye.

milligram: A metric unit of weight equal to 1000th of a gram.

mixed stock: A fish stock whose individuals originated from commingled native and non-native parents, and/or by mating between native and nonnative fish (hybridization); or a previously native stock that has undergone substantial genetic alteration.

monitor: To systematically and repeatedly measure something in order to track changes. For example, nitrates in an aquifer might be *monitored* over a period of several years to identify any trends in concentration.

municipal discharge: Effluent from a sewage treatment plant that is usually publicly owned.

native: Occurring naturally in a habitat or region; not introduced by humans.

native stock: An indigenous stock of fish that has not been substantially impacted by genetic interactions with non-native stocks or by other factors, and is still present in all or part of its original range. In limited cases, a native stock may also exist outside of its original habitat (i.e. captive broodstock programs).

nitrate: A stable form of nitrogen, which is a chemical element that is a major component of proteins, and is essential to all forms of life. Ingestion of water with high concentrations of nitrate causes methemoglobanemia in infants, and may be carcinogenic to adults.

nonconsumptive use: A type of water use where either there is no diversion from a source body, or where there is no diminishment of the water source. (WAC 173-500-050) (see Chapter 2: Water Use)

nonpoint source pollution: Pollution that enters water from dispersed and uncontrolled sources, such as surface runoff, rather than through pipes. Nonpoint sources, such as forest practices, agricultural practices, on-site sewage disposal, and recreational boats, may contribute pathogens, suspended solids, and toxicants.

NPDES: National Pollutant Discharge Elimination System. A part of the General Clean Water Act which requires point source dischargers to obtain permits. These permits are referred to as NPDES permits and are administered by the Washington State Department of Ecology.

nutrients: Essential chemicals needed by plants or animals for growth, primarily nitrogen and phosphorus. Excessive amounts of nutrients in water can lead to degradation of water quality and the growth of excessive numbers of algae. Some nutrients can be toxic at high concentrations.

off-channel habitat: Channels or ponds in a floodplain, at least seasonally connected to the primary channel, that are in addition to and frequently parallel the primary flowing channel. These generally occur in unconstrained reaches.

on-site sewage disposal system: A sewage treatment system where waste is treated on the owner's property, generally by means of bacterial breakdown in an underground septic tank and disposal of wastewater through a drainfield.

one-half acre rule: No water right permit is required (i.e., exempt) for the withdrawal of up to 5000 gallons per day from a well when the water is being used for one of several uses including the irrigation of no more than 1/2 acre of lawn or noncommercial garden.

outcrop: The exposure of bedrock or strata projecting through the overlying cover of weathering rocks and soil.

outwash: Rock material transported by a glacier and deposited by melt-water streams beyond active glacier ice.

optimum instream flow: The amount of stream flow determined by IFIM to be needed to provide maximum usable fish habitat. What is optimum instream flow in any given month also depends upon the species in question. Also called maximum habitat flow. If Toe Width Method is used instead of IFIM, optimum instream flow represents spawning habitat only.

organic: Pertaining to or derived from a living organism; a chemical containing a carbon complex.

overwintering ponds: Off-channel ponds linked to the river or slow-moving side channels, either naturally occurring or artificially created. Overwintering ponds offer protection from floods or any juvenile salmonids that winter over before

migrating out to sea, spawning, and for primary rearing areas.

PAH: Polycyclic (polynuclear) aromatic hydrocarbon. A class of complex organic compounds, some of which are persistent and cancer-causing. These compounds are formed from the combustion of organic material and are ubiquitous to the environment. PAHs are found in fossil fuels such as coal and oil and are formed by incomplete combustion of organic fuels like gasoline, wood, and oil. They are commonly formed by forest fires, wood stoves, and internal combustion engines. They often reach the aquatic environment through atmosphere fallout and highway runoff.

palustrine: A geologic term pertaining to material deposited in a wetland environment.

parameter: A characteristic substance or factor that is measured in order to describe a system. Numerous parameters, such as pH and electrical conductivity, are measured in order to gain an understanding of water quality in streams and aquifers.

pathogen: A disease-causing agent, especially microorganisms such as viruses, bacteria, or fungi which can be present in municipal, industrial, or nonpoint source discharges into the Sound.

PCB: Polychlorinated biphenyls including about 70 different, but closely related, man-made compounds made up of carbon, hydrogen, and chlorine. They persist in the environment and can biomagnify in food chains because they are not water soluble. PCBs are suspected of causing cancer.

peak flow: The highest amount of stream or river flow occurring in a year or from a single storm event.

perched groundwater: The water in an isolated, saturated area located in the unsaturated zone. It is the result of the presence of a layer of material of low hydraulic conductivity, called a perching bed. A perched aquifer will have a perched water table.

percolation test: A test which measures the rate of movement of water into the soil and helps determine the ability of the soil to absorb waste.

perennial stream: A stream that typically has running water on a year-round basis.

perfected water right: A water right to which the owner has applied for and obtained a permit, has complied with the conditions of the permit, and has obtained a water right certificate.

persistent: Compounds which are not readily degraded by natural, physical, chemical, or biological processes.

pesticide: A general term used to describe any substance-usually chemical-used to destroy or control organisms. Pesticides include herbicides, insecticides, fungicides, insecticides, and others.

pile wall: Metal sheets driven into the ground to provide structural stability.

plume: A contaminated portion of an aquifer extending from the original contaminant source.

point source: A source of pollutants from a specific pipe. Generally, any pipe which is regulated by NPDES is considered to be a point source.

pollutant: A contaminant that adversely alters the physical, chemical, or biological properties of the environment. The term includes pathogens, toxic metal, carcinogens, oxygen-demanding materials, and all other harmful substances. Particularly with reference to nonpoint sources, the term is sometimes used to apply to contaminants arising in low concentrations from many activities which collectively degrade water quality.

potable: Ability to be used as drinking water.

potentiometric surface: An imaginary surface representing the total head of a confined aquifer. The total head consists of the elevation head and pressure head.

PPB: Parts per billion; one part per billion by weight or one milligram per metric ton.

PPM: Parts per million; one part per million, or one gram per metric ton, one milligram per liter.

pretreatment: The treatment of wastes to remove contaminants prior to discharge into municipal sewage systems.

primary treatment: A wastewater treatment method that uses settling, skimming, and chlorination to remove solids, floating materials, and pathogens from wastewater. Primary treatment removes about 35 percent of BOD and less that half of the metals and toxic organic substances.

priority pollutants: Substances listed by the EPA under the Clean Water Act as toxic and having priority for regulatory controls. The list includes toxic metals, inorganic contaminants such as cyanide and arsenic, and a broad range of both natural and artificial organic compounds. The list of priority pollutants probably includes substances which are not of concern in Puget Sound and does not include all known harmful compounds.

production type: The method of spawning and rearing that produced the fish that constitute a stock.

production zone: The depth interval in a water supply well from which water is being obtained.

Public Benefit Rating System: A point system to determine the current use value of lands classified as open space lands in the Jefferson County Open Space Tax Program. The system considers prioritization of resources, access, transfer of development rights, and fulfillment of County policy goals.

Public Trust Doctrine: A judicial doctrine under which the state holds its navigable waters and underlying beds in trust for the public and is required or authorized to protect the public interest in such waters. All water rights issued by the state are subject to the overriding interest of the public and the exercise of the public trust by state administrative agencies.

pumping test: A test made by pumping a well for a period of time and observing the change in hydraulic head in the aquifer. A pumping test may be used to determine the capacity of the well and the hydraulic characteristics of the aquifer. Also called aquifer test.

reach: The length of stream channel from a riffle into a pool, usually 1 to 1 1/2 times the width of the channel. (See figure I.7)

rearing habitat: Areas required for the successful survival to adulthood by young animals.

recharge: Surface water which enters into a ground-water system. This can be natural recharge, such as from precipitation or artificial recharge, such as from irrigation or dry wells.

recovery: The return of an ecosystem to a defined condition after a disturbance.

recurved spit: A spit with the end strongly curved inward.

redd: The spawning area or nest of salmonids. The nest is dug into stream gravel to allow water to provide oxygen to the developing embryos and flush out biological wastes.

Referendum 38: (Ch. 43.99E RCW and Ch. 173-170 WAC) Approved by voters in 1980, this measure provides financial assistance to public bodies operating agricultural water supply facilities to assist in improving their efficiency of water use beyond current levels. Before implementation of a conservation project the public body must develop a Comprehensive Water Conservation Plan, which evaluates the current system for alternative managerial or structural water conservation improvements. Planning and implementation grants and loans are administered through the Dept. of Ecology.

regulatory base flow: See *base flow*.

relinquishment: Water rights reverting to the State for reappropriation because of failure to beneficially use all or part of the right for a five-year period. (see RCW 90.14.160)

resident fish: Fish species that complete their entire life cycle in freshwater.

resting / holding pools: Slow-water off-channel pools which adult salmonids use to rest while migrating upstream to spawn. Resting pools occur naturally or are artificially created as a temporary measure during habitat restoration.

return flows: That part of diverted water which returns to the source through seepage, spills, deep percolation, or discharge.

riffle: A segment of the river channel which has moderate to steep gradient, shallow depth, and has higher flows.

riparian: Pertaining to the banks and other adjacent, terrestrial (as opposed to aquatic) environs of freshwater bodies, watercourses, and surface-emergent aquifers, whose imported waters provide soil moisture significantly in excess of that otherwise available through local precipitation – soil moisture to potentially support a mesic vegetation distinguishable from that of the adjacent more xeric upland.

riparian area (1): The area between a stream or other body of water and adjacent upland identified by soil characteristics and distinctive

vegetation. It includes wetlands and those portions of floodplains which support riparian vegetation.

riparian area (2): The terrestrial areas immediately adjacent to a stream or river where the vegetation complex and microclimate conditions are products of the presence and influence of water. Riparian areas can vary in width from as little as 20 feet to more than 300 feet from the water.

riparian doctrine: The system of law dominant in Great Britain and the eastern United States, in which owners of lands along the banks of a stream or water body have the right to reasonable use of the waters and correlative right protecting against unreasonable use by others that substantially diminishes the quantity or quality of water. The right is appurtenant to the land and does not depend on prior use.

riprap: Large rocks, broken concrete, or other structure used to stabilize streambanks and other slopes.

river mile (RM): a measurement of river corridor length beginning at the mouth of the river.

run (a): An area of swiftly flowing water, without surface agitation or waves, which approximates uniform flow and in which the slope of the water surface is roughly parallel to the overall gradient of the stream reach.

run (b): Fish stocks grouped together on the basis of similar migration times.

runoff: The portion of precipitation or irrigation water that moves across land as surface flow and enters streams, ditches, drains, or other surface receiving waters. Runoff occurs when the precipitation rate exceeds the infiltration rate.

salinity: Concentration of dissolved salts in water or soil water.

salmonid: A fish belonging to the family Salmonidae, including salmon, trout, char, and allied freshwater and anadromous fishes.

seamount: A submarine mountain rising more than 500 fathoms (915 meters) above the ocean floor. Generally, a volcanic cone.

seawater / saltwater intrusion: The migration of salt water into fresh water aquifers as a result of pumping water from aquifers that are in hydraulic continuity with the sea.

sediment: Materials in streams or other bodies of water including boulders, cobbles, gravel, sand, silt, and clay. Sediment may suspended in water, transported by water, or settling to the bottom of the water.

senior right: A water right that is older in relation to other water rights, and is legally able to be satisfied before others in times of limited water.

secondary treatment: A wastewater treatment method that usually involves the addition of biological treatment to the settling, skimming, and disinfection provided by primary treatment. Secondary treatment may remove up to 90 percent of BOD and significantly more metals and toxic organics than primary treatment.

siltation: The process by which a river, lake, or other water body becomes clogged with sediment. Silt can clog gravel beds and prevent successful salmonid spawning.

sinuosity: Degree to which a stream channel curves or meanders laterally across the land surface.

sludge: Precipitated or settled solid matter produced by sewage treatment processes.

soil permeability: The ease with which gasses, liquids, or plant roots penetrate or pass through a layer of soil.

sorption: The process whereby dissolved substances physically or chemically bind to the surface of particles.

smolt: A seaward migrating juvenile salmonid, silvery in color, that has become thinner in body form and is physiologically prepared for the transition from fresh to saltwater.

spawning population: Synonymous with the term "stock."

species: Includes any subspecies of fish, wildlife or plants, and any distinct population segments which interbreeds when mature. Sec. 3 (15) Endangered Species Act (as amended by the 100th Congress).

specific capacity: An expression of the productivity of a well, obtained by dividing the rate of discharge of water from the well by the drawdown of the water level in the well.

specific conductance: The ability of water to transmit an electrical current. It is related to the concentration and charge of ions present in the water.

stock: The fish spawning in a particular lake or stream(s) at a particular season, which fish to a substantial degree do not interbreed with any group spawning in a different place, or in the same place at a different season.

stock origin: The genetic history of a stock.

stock status: The current condition of a stock, which may be based on escapement, run-size, survival, or fitness level.

storm water: Water that is generated by rainfall and is often routed into drain systems or irrigation ditches to prevent flooding.

streambed: That part of the channel usually not occupied by perennial terrestrial plants, but including gravel bars, and lying between the base or toe of the banks.

subduct: In plate tectonics, the depressing and passing of one plate margin of the earth under another plate.

subduction: The process of descent of one tectonic unit under another.

subduction zone: An elongated region along which a crustal block descends relative to another crustal block. Deep oceanic trenches occur along subduction zones.

tectonic: Pertaining to, or designating the rock structure and external forms resulting from the deformation of the earth's crust. As applied to earthquakes, it is used to describe shocks not due to volcanic action or to collapse of caverns or landslides.

thalweg: The deepest part or middle of the river or stream channel. The thalweg remains constant through both low and high flows, until it is changed by gravel movement in high flows.

threatened species: Those plant or animal species likely to become endangered species throughout all or a significant portion of their range within the foreseeable future. A plant or animal identified and defined in accordance with the 1973 Endangered Species Act and published in the Federal Register.

Timber/Fish/Wildlife Agreement: A 1987 cooperative agreement between Tribal, Forestry, and State interests. The agreement establishes a natural resource management process for forest practices on state and private lands in Washington State.

toe width: A method used to estimate instream flows necessary to provide habitat for salmon and steelhead. It was developed in the 1970s in western Washington by the U.S. Geological Survey (USGS), in cooperation with the Washington Department of Fisheries (WDF) and the Washington Department of Game (WDG). The method is based on statistical regressions of habitat, as measured in pilot studies based on actual fish habitat selection, on stream channel widths measured between the toes of the banks. Toes of the bank in riffle areas are indicated by change in cross-section slope, change in substrate, and sometimes by vegetation change. The toe width (usually an average of multiple measurements) is plugged into formulas for juveniles and spawners of different species of salmon and steelhead.]

transfer: A movement of water or water rights that involves a change in point of diversion, a change in type of use, or a change in location of use.

Trust Water Right program (TWR): A Dept. of Ecology program created by the Washington State legislature in 1991 to facilitate the voluntary transfer of water and water rights, including conserved water, to provide water for presently unmet and emerging needs. Possible methods for transfer include dry year lease options, temporary or permanent changes in the place or type of use of a water right (i.e. from off-stream uses to instream flows), water banking managed by the state, the transfer of water conserved by a water conservation project or by gift.

topographic: refers to physical relief features or surface configuration of land.

turbidity: A measurement of the amount of material suspended in the water. Increasing the turbidity of the water decreases the amount of light that penetrates the water column. High levels of turbidity are harmful to aquatic life and fail federal water quality standards.

usual and accustomed area: A provision of the treaties between Indian Tribes and Isaac Stevens, Washington Territorial Governor, which allowed the Tribes the continuing right to take "fish at usual and accustomed" areas "in

common with all citizens of the United States." These areas were further delineated based on historical information for each Tribe in 1974 after State Supreme Court Judge Boldt reaffirmed and clarified the treaty rights.

unknown stock: This description is applied to stocks where there is insufficient information to identify stock origin or stock status with confidence. (SASSI)

water table: The upper surface of ground water, or the level below which the soil is saturated with water.

Water Resources Forum (WRF): Designed by the 1990 Chelan Agreement and funded by the Washington State Legislature, the Water Resources Forum is a planning group representing the Statewide interests of agriculture, business, the environment, fisheries, local government, recreational users, state government, and the tribes. The Forum's task was to address the issues groundwater recharge, instream flow, and hydraulic continuity and write policy applicable State-wide.

wetlands: Habitats where the influence of surface or ground water has resulted in development of plant or animal communities adapted to aquatic or intermittent wet conditions. Wetlands generally require the following three conditions: hydric plants, hydric soils, and hydrology. Wetlands generally include, but are not limited to, swamps, marshes, bogs, and similar areas.

Water Resource Inventory Areas (WRIA): In the early 1970's Washington State was divided by Dept. of Fisheries into 62 watershed areas which have since been used by state agencies to organize water-related information and define planning projects. Eastern Jefferson County (WRIA 17), and Eastern Clallam County (WRIA 18) comprise the DQ Project area.

water right: The legal right to use a specific quantity of water on a specific time schedule, at a specific place and for a specific purpose. In 1917 legislation was passed providing that all surface water (and in 1945 all ground water) within the State belonged to the State, and any right to use the water could be obtained by filing an application and being granted a permit for the development of the water system.

water right application: An application by a prospective water user to the Department of Ecology for a water right permit. It is required to divert any amount of surface water or withdraw ground water in amounts greater than 5000 gallons per day or to irrigate more than a half acre of land. The application requires publication of legal notice to announce application, a 30-day public protest period, and a field examination by Ecology recommending approval or denial of the permit.

water right certificate: The final stage in establishment of a water right under state law after filing an application, receiving a development permit, and putting the water to a beneficial use. The certificate states the quantitative and locational parameters of the water right. Certificates are also issued at the conclusion of adjudication. Once a certificate is issued or perfected, no further expansion is allowed under that water right.

water right claim: A water right claim is not a water right. It is a registration with the State by the property owner regarding water use not authorized by a permit or certificate. A claim may represent a valid water right if it describes a water use existing prior to water codes: 1917 for surface water and 1945 for ground water. Claims registered are evaluated for sufficient evidence to satisfy the Dept. of Ecology that a valid water right would be confirmed if the claim were adjudicated.

water right permit: An approval of an application by the Dept. of Ecology, allowing construction of a water system and use of water.

watershed: The geographic region within which water drains into a particular river, stream, or body of water. A watershed includes hills, lowlands, and the body of water into which the land drains. Watershed boundaries are defined by the ridges of separating watersheds.

wetland: Lands transitional between terrestrial and aquatic systems where the water table is usually at or near the surface and the lands covered either seasonally or permanently by shallow water.

Wild and Scenic River System: Those rivers or section of rivers designated as such by Congressional action under the Wild and Scenic River Act, or those sections of rivers designated as wild, scenic, or recreational by an act of the legislature of the state or states through which they flow. The Act establishes procedures for studying and protecting outstanding rivers.

wild stock / fish: A stock that is sustained by natural spawning and rearing in the natural habitat, regardless of parentage (includes natives).

wildlife: Species of the animal kingdom whose members exist in the wild state. This includes mammals, birds, reptiles, amphibians, fish and invertebrates. (see RCW 77.12.020 / RCW 77.16.120 for classifications on predatory and game birds and protected wildlife.)

wildlife / wildlife resources: Birds, fishes, mammals, and all other classes of wild animals and all types of aquatic and land vegetarian upon which wildlife depend. (Fish and Wildlife Coordination Act)

wildlife habitat: Waters of the State used by fish, other aquatic life, and wildlife of any life history, stage, or activity. (see WAC 173-205-025)

This page intentionally left blank.