

# SULLIVAN CREEK COLLABORATION MEETINGS

## GLOSSARY

**Archaeological Resources Protection Act of 1979 (ARPA)** P.L. The law under which the Forest Service issues antiquities permits.

**Acre-foot.** A unit for measuring the volume of water, is equal to the quantity of water required to cover 1 acre to a depth of 1 foot and is equal to 43,560 cubic feet or 325,851 gallons.

**Alluvium:** A general term for all detrital deposits resulting from the operations of modern rivers, thus including the sediments laid down in river beds, flood plains, lakes, fans at the foot of mountain slopes and estuaries.

**Alternative Licensing Process (ALP).** An alternative to the traditional process that must be approved by FERC, involves collaboration, is more intense earlier in the process, results in applicant prepared Draft NEPA documents.

**Anadromous.** Species born in freshwater, rear there as immature, move to the ocean to grow and mature, and return to freshwater to spawn.

**Annual License.** License issued each year by the FERC commencing with the expiration of the old license until issuance of a new license.

**Anchor ice.** Ice in the bed of a stream or upon a submerged body or structure.

**Area of Potential Effects (APE).** The geographic area or areas within which an undertaking may cause changes in the character or use of historic properties, if any such properties exist.

**Benthic.** Of or pertaining to the bottom of a stream, lake, sea or ocean.

**Biologic Evaluation (BE).** USDA Forest Service does a biologic evaluation on Threatened, Endangered and Sensitive species. USFWS/NOAA-fisheries do not recognize Forest Service sensitive species.

**Biologic Opinion (BO).** Document which states the opinion of an environmental agency (i.e., National Marine Fisheries Service or U.S. Fish and Wildlife Service) as to whether a Federal action is likely to jeopardize the continued existence of a threatened or endangered species or result in the destruction or adverse modification of critical habitat. Often, a biological assessment is prepared by the consulting agency as source material for the environmental agency.

**Bypassed reach.** The section of a river from which water is removed to generate hydropower. Water is often diverted from the river at the dam, transported through channels or penstocks downstream and released back into the river at the powerhouse.

**Capability.** The potential of an area of land to produce resources, supply goods and services and allow resource uses. Capability depends upon current vegetation conditions and site conditions such as climate, slope, landform, soils and geology.

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**Carrying Capacity (People).** A prescribed number and type of people (demand) that an area will accommodate (supply), given the desired biophysical/cultural resources, visitor experiences, and management program. **Carrying Capacity (General)** The maximum number of organisms that can be supported in a given area of habitat at a given time.

**Channel.** An open conduit either naturally or artificially created which periodically or continuously contains moving water, or which formats a connecting link between two bodies of water.

**Channel Maintenance Instream Flows.** A range of in-channel flow necessary to maintain a properly functioning stream channel.

**Clean Water Act (CWA).** Federal Water pollution Act “to restore and maintain the chemical, physical and bio-integrity of the nation’s waters.”

**Cofferdam.** A temporary dam built to keep the riverbed dry to allow construction of a permanent dam or infrastructure.

**Conduit.** Any tunnel, canal, pipeline, aqueduct, flume, ditch or similar manmade water conveyance that is operated for the distribution of water for agricultural, municipal, or industrial consumption and not primarily for the generation of electricity.

**Connectivity.** A measure of the extent to which intervening habitat truly connects species.

**Consensus.** Many definitions exist. All have at least “agreement to move forward” in common.

**Critical Habitat.** Under ESA, critical habitat is defined as “the specific areas within the geographic area occupied by a Federally listed species...on which are found those physical and biological features essential to the conservation of the species, and that may require special management considerations or protection; and specific areas outside the geographic area occupied by a species at the time it is listed, upon determination that such areas are essential for the conservation of the species.”

**Cubic feet per second (cfs).** A unit expressing rates of discharge. One cubic foot per second is equal to the discharge of a stream of rectangular cross section 1 foot wide and 1 foot deep, flowing water an average velocity of 1 foot per second. One cfs is equal to 449 gallons per minute.

**Cumulative Effect.** The effect on the environment that results from the incremental impact of a proposed action when added to other past, present and reasonably foreseeable future actions.

**Dam.** Any artificial barrier, together with appurtenant works, that affects the water flow and water level of a natural body of water. A barrier to control the flow or raise the level of water. Any structure impounding or diverting water.

**Delta:** An alluvial deposit, often in the shape of the Greek letter “delta”, formed where a stream drops its debris load on entering a body of “quieter” water.

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**Desired Future Condition.** The combination of desirable attributes to be attained in the future by management.

**Determination of Eligibility (DOE).** The Secretary (Interior) shall consult.... In making determinations of eligibility of properties for inclusion on the National Register of Historic Places.

**Discharge.** In its simplest concept discharge means outflow; therefore, the use of this term is not restricted as to course or location, and it can be applied to describe the flow of water from a pipe or from a drainage basin. The discharge from of drainage basins is distinguished as follows:

- a. Yield. Total water runoff; includes runoff plus underflow
- b. Runoff. That part of water yield that appears in streams
- c. Streamflow. The actual flow in streams, whether or not subject to regulation or underflow.

**Diversion.** The point on a stream where water is diverted into the system or The taking of water from a stream or other body of water into a canal, pipe, or other conduit.

**Diversion Structure.** Any structure used to divert water from a stream into a pipeline or other water conveyance system.

**Drawdown (zone).** The distance that the water surface of a reservoir is lowered from a given elevation as a result of the withdrawal of water. Also refers to the lowering of a reservoir's surface elevation and water volume by releasing (spilling or generating) the reservoir's water at a rate greater than the rate at which water flows into the reservoir.

**Ecosystem.** An interacting system of organisms considered together with their environments.

**Ecosystem Function.** The process through which the constituent living and nonliving elements of ecosystems change and interact, including biogeochemical processes and succession.

**Endangered Species.** Any species of plant or animal designated through the **Endangered Species Act of 1973 (ESA)** as being in danger of extinction throughout all or a significant portion of its geographical range.

**Erosion:** The group of processes whereby earthy or rock material is loosened or dissolved and removed from any part of the earth's surface. It includes the processes of weathering, solution, corrosion, and transportation.

**Extinct.** A species is extinct when it no longer exists.

**Extriation.** The elimination of a species from a particular area.

**Federal Energy Regulatory Commission (FERC or The Commission).** A quasi-judicial independent regulatory commission within the US Department of Energy. Regulates

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power projects on navigable waters and the transmission and sale of electricity. There are 5 commissioners appointed by the President but only 3 can be from any one political party. . **Federal Power Commission (FPC)**. FERC was created through the Department of Energy Organization Act (1977) and inherited most of its predecessor's, (FPC) responsibilities.

**Federal lands.** Any lands to which the United States holds fee title.

**Federal Lands Policy and Management Act of 1976 (FLPMA).** Directs coordination of NFS land use plans ... "the national interest will be best realized if the public lands and their resources are periodically and systematically inventoried and their present and future use is projected through a land use planning process coordinated with other Federal and State planning efforts," etc

**Federal Power Act of 1920. (FPA).** The original Federal Power Act provides for cooperation between the Federal Energy Regulatory Commission (Commission) and other Federal agencies, including resource agencies, in licensing and relicensing power projects. For FPC see FERC.

**Fishway.** Any structure, facility, or device used for the passage of fish through, over, or around the projects works of a hydropower project, such as fish ladders, fish locks, fish lifts and elevators and similar physical contrivances, where passage of a population is necessary for the life cycle of a fish species; and those screens, barriers, and similar devices that operate to guide fish to a fishway; and flows within the fishway necessary for its operation. **Fish Ladder.** A series of ascending pools of running water constructed to aid fish to swim around or over a dam.

**Flood.** An overflow or inundation that comes from a river or other body of water, especially over land not usually submerged, and causes or threatens damage.

**Flood plain.** A strip of relatively smooth land bordering a stream, built of sediment carried by the stream and dropped in the slack water beyond the influence of the swiftest current. Land outside of a stream channel.

**Flow.** Volume of water per unit of time. Can be expressed in gallons or cubic feet per minute (gal/min, CFM) or in cubic feet per second (CFS).

**Flow Duration Curve.** A curve showing the percentage of time (in certain time period) that a river's flow was equal to or greater than a given discharge value (flow volume on y-axis; time (days per year) on x-axis). OR A cumulative frequency curve that shows the percentage of time that specified discharges are equaled or exceeded.

**Forebay.** The water immediately behind or upstream of a dam.

**Free-flowing.** Undammed and unchannelized, as defined by the WSRA.

**Gaging station.** A particular site on stream, canal, lake or reservoir where systematic observations of gage height or discharge are obtained.

**Head.** The difference in elevation between two water surfaces; the amount of fall of the stream that is used to develop power.

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a. Critical Head. The head at which the full-gate output of the turbine equals the nameplate generator capacity.

b. Design Head. The head at which the turbine operates to give the best overall efficiency under various operating conditions.

c. Gross Head. The difference in water surface elevation between the forebay (impoundment) and the turbine.

d. Net Head. The gross head less all-hydraulic losses sustained in bringing water to the turbine, except those chargeable to the turbine.

**Headrace.** A low-pressure pipeline (can also be a flume).

**Historical Variation.** The range of the spatial, structural, compositional, and temporal characteristics of ecosystem elements during a period specified to represent “natural” conditions. (Historical) **Range of Variability.** The spectrum of conditions possible in ecosystem composition, structure, and function considering both temporal and spatial factors.

**Historic property.** Any prehistoric or historic district, site, building, structure, or object included in, or eligible for inclusion in, the National Register. This term includes...artifacts, records, and remains that are related to and located within such properties. The term eligible for inclusion in the “National Register” includes both properties formally determined as such by the Secretary of Interior and all other properties that meet National Register listing criteria.

**Hydroelectric.** The production of electric power through use of gravitation force of falling water.

**Hydrograph.** A graph showing stage, flow, velocity or other property of water with respect to time.

**Impoundment.** Any artificial structure used to collect water in a pond, reservoir, penstock, and so forth, as for irrigation or power generation to stop the natural flow of water.

**Initial Consultation Document (ICD).** The first stage of consultation is initiated with the licensee submitting a copy of the ICD to the relevant resource agencies. The ICD contains information on the existing project, any proposed modifications, the affected environment, preliminary resource protection plans and proposed studies. The package also includes a solicitation for comment. Also, **Initial Consultation Package (ICP).**

**Instream Flow.** Quantity of flow remaining in stream during a specified time.

**Instream Flow Incremental Methodology (IFIM).** IFIM assumes that flow-dependent physical habitat and water temperature determine carrying capacity of streams for fish.

**Intake.** The beginning of the power generation system; the point where water enters the pipe.

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**Integrated Weed Management Plan (IWMP).** IWMP is based on analyzing/using a variety of management methods (chemical, biological, mechanical).

**Kilowatt hour (kWh).** A kilowatt of power used for one hour; 1 kWh = 3,414 Btu.

**Littoral Zone.** The area on, or near the shore of a body of water.

**Mainstem.** The principal river in a basin, as opposed to the tributary streams and smaller rivers that feed into it.

**Management Indicator Species (MIS).** National Forests are to identify (and track) these species because their population changes are believed to indicate the effects of management activities.

**Megawatt (MW).** A unit of electrical power equal to one million watts or one thousand kilowatts.

**Mitigation.** Measures taken to offset, or compensate for, damage to natural systems caused by a particular project or human activity. OR Mitigation includes: (a) avoiding the impact altogether by not taking a certain action or parts of an action; (b) minimizing impacts by limiting the degree or magnitude of the action and its implementation; (c) rectifying the impact by repairing, rehabilitation, or restoring the affected environment; (d) reducing or eliminating the impact over time by preservation and maintenance operations during the life of the action; and (e) compensation for the impact by replacing or providing substitute resources or environments (40CFR1508.20)

**Monitoring.** A process of collecting information to evaluate whether objectives of a management plan are being realized.

**MSL.** Mean sea level.

**National Environmental Policy Act (NEPA).** An Act passed in 1969 to declare a National policy that encourages productive and enjoyable harmony between humankind and the environment, promotes efforts which will prevent or eliminate damage to the environmental and biosphere and stimulate the health and welfare of humanity, enriches the understanding of the ecological systems and natural resources important to the Nation, and establishes a Council on Environmental Quality (The Principal Laws Relating to Forest Service Activities, HB 453, p. 359)

**National Forest Management Act of 1976 (NFMA)** PL 94-588. The Forest and Rangeland Renewable Resources Planning Act of 1974 (RPA) as amended by the NFMA, specifies that all units of the National Forest System (NFS) need to have a land and resource management plan (LRMP). The purpose of the LRMP is to guide all natural resource management activities for a 10-15 year period.

**National Historic Presevation Act of 1966 (NHPA).** NHPA states that “the historical and cultural foundations of the Nation should be preserved as a living part of our community life and development in order to give a sense of orientation to the American People.”

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**National Register.** The National Register of Historic Places maintained by the Secretary of Interior includes districts, sites, buildings, structures, architecture, archeology, and culture.

**Non Governmental Organization (NGO).** NGOs are often involved in working groups and may *intervene* in the relicensing process to establish standing.

**Notice of Intent (NOI).** AN existing licensee must provide notification to the FERC whether or not it intends to file an application for a new license at least 5 years before the expiration of the existing license.

**Northwest Power Planning Council (NPPC).** NPPC has goal of striking a balance between energy and the environment in the Columbia River Basin.

**Original License.** Federal Energy Regulatory Commission issues a license for a newly constructed project.

**Pacific Northwest Coordination Agreement.** A binding agreement among BPA, the Corps, Reclamation and the major generating utilities of the Pacific Northwest that stemmed from the Columbia River Treaty. The Agreement specifies a multitude of operating rules, criteria, and procedures for coordinating operation of the system for power production. It directs operations of major generating facilities as though they belonged to a single owner.

**Penstock.** The high pressure pipeline that serves the powerhouse. The penstock can originate at the diversion or at the transition point from one or more low pressure conduits. OR A conduit used to convey water under pressure to the turbines of a hydroelectric plant.

**Population Viability.** The probability that a population will persist for a specified period of time across its range despite normal fluctuations in population and environmental factors.

**Pre-Project Conditions.** A description of the environment before the project was built.

**Project Area/Project Vicinity.** Terms referring to the land/water including and beyond the project boundary.

**Project Boundary.** “Line”delineating boundary of project. FERC determines the boundary and can change the boundary.

**Project Induced.** An effect on a resource that is brought about primarily because of the development of the hydropower project. An effect which but for the project would not be present.

**Protection, Mitigation and Enhancement Measures (PM&E).** Term used by Federal Energy Regulatory Commission to collectively define measures considered to address resource issues in licensing and relicensing. The term “PM&E” is adopted in consideration of the overlapping and sometimes subjective contexts often interpreted with the use of these three terms.

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**(U.S.) Public Land Survey System (PLSS).** The U.S. Continental Congress established this new land survey system to replace the systems of meets and bounds. The PLSS uses a rectangular grid system of baselines and principal meridians: township, range, section, etc.

**Ramping Rate.** The established rate at which the water flow is to gradually decrease in the tailrace and increase in the turbine bypass during shutdown (or vice-versa in the case of a start up). The purpose of establishing a flow rate change is to prevent the stranding of fish downstream from the power plant that may occur as a result of rapidly falling waters as well as to protect the public from sudden increases in streamflow.

**Reach.** 1) The length of channel uniform with respect to discharge, depth, area, and slope; 2) The length of a channel for which a single gage affords a satisfactory measure of the stage and discharge; Or more generally, 3) any length of a river.

**Ready for Environmental Analysis (REA).** EPA publishes in the Federal Register a "Notice of Applications Ready for Environmental Analysis and Soliciting Comments, Recommendations, Terms and Conditions, and Prescriptions"

**Record of Decision (ROD).** A NEPA compliance document that states the decision made, describes the environmental factors considered, the preferred plan, and the alternatives considered in the environmental impact statement.

**Recovery Plan.** A management plan developed under the authority of the ESA which set forth management standards and population or other biological objectives for listed species. Implementation of such plans has a high likelihood that the species population and;/or distribution will improve to the point listing is not longer appropriate.

**Refugia.** Havens of safety where populations have high probability of surviving periods of adversity.

**Regulated Streamflow.** The controlled rate of flow at a given point during a specified period resulting from reservoir operation.

**Reservoir.** A pond, lake, or basin, either natural or artificial, for the storage, regulation, and control of water.

**Resident fish.** Fish species that reside in freshwater throughout their lives (also called riverine fish)

**Riffle.** Shallow, turbulent portions of a stream.

**Riparian.** Pertaining to the banks of a stream. **Riparian area.** Geographically delineated areas with distinctive resource values and characteristics that are comprised of aquatic ecosystems, and ecosystems influenced by adjacent bodies of water. The area where aquatic and terrestrial organisms mingle.

**Run-of-the-River-Dam.** Hydroelectric generating plant that operates based on available streamflow and short-term storage (hourly, daily, or weekly). The amount of water entering the reservoir is equal to the amount leaving the reservoir. A true run-of-the-river

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dam is where the instantaneous inflow equals instantaneous outflow, although dams with minor storage may also be called run-of-the-river.

**Section 7.** Section of the Endangered Species Act (ESA) that specifies the roles of interagency coordination in accomplishing the objective of species recovery.

**Section 106.** Section of the National Historic Preservation Act (NHPA) with 1992 Amendments requires that a Federal agency will “take into account the effect of the undertaking on any district, site, building, structure, or object that is included in or eligible for inclusion in the National Register.” FERC often delegates day to day authority (not responsibility) to the licensee for Section 106 consultation.

**Section 401.** Section of the Clean Water Act which requires that an applicant for a federal license or permit provide a certification that any discharges from the facility will comply with the Act, including water quality standard requirements. Administered by the states.

**Sediment.** Particles of material that originate that are transported by, suspended in, or deposited by water, wind or ice. **Sediment Load.** The amount of sediment carried by a river.

**Sensitive Species.** Those plant and animal species for which population viability is a concern as evidenced by a significant current or predicted downward trend in population numbers or density; or a significant current or predicted downward trend in habitat capability that would reduce a species existing distribution.

**Special Use Authorization.** A Forest Service permit to have facilities located on National Forest System lands.

**Storage Project.** Project stores water in a reservoir for release as scheduled for power, instream flow, irrigation or other needs. Reservoirs generally retain water from springtime snowmelts

**State Historic Preservation Office (SHPO).** SHPOs manage and administer programs for the protection of the state's significant historic and prehistoric resources. Also, Tribal Historic Preservation Office (THPO). In cooperation with the Advisory Council on Historic Preservation (ACHP), a federal agency, the SHPO has a role in reviewing the impacts of federal undertakings on resources that are either listed or eligible for listing in the National Register. State Historic Preservation Offices develop and maintain inventories of historic and prehistoric properties.

**Streamflow.** The rate at which water passes a given point in a stream, usually expressed in cubic feet per second.

**Threatened species.** An animal or plant species whose numbers are so low that they could become endangered in the near future, and that is awarded protection under the federal Endangered Species Act.

**Total dissolved gas (TDG)** TDG occurs naturally in all water bodies. Supersaturation of the water column with dissolved gases may result from either natural or manmade conditions. Federal and private dams are a major source of dissolved gas in the

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Columbia. High concentrations of TDG influence the health and survival of juvenile and adult migratory fish and other aquatic life --- gas bubble disease.

**Total maximum daily load (TMDL).** Section 303(d) of the Clean Water Act requires that States develop Total Maximum Daily Loads (TMDLs) for surface waters to determine how much pollution the waters can receive and still remain healthy. The TMDL is the sum of all Waste Load Allocations (point source) and Load Allocations (non-point source) with the inclusion of a margin of safety and natural background conditions.

**Traditional Cultural Property (TCP).** A traditional cultural property can be defined generally as one that is eligible for inclusion in the National Register because of its association with cultural practices or beliefs of a living community that (a) are rooted in that community's history, and (b) are important in maintaining the continuing cultural identity of the community.

**Traditional Licensing Process (TLP).** This process was first codified in FERC regulations in 1985. Process stages defined 18CFR4.38 or 18CFR16.8. FERC conducts its NEPA analysis after the application is filed.

**Trend.** A statistical term referring to the direction or rate of increase or decrease in magnitude of the individual members of a time series of data when random fluctuations of individual members are disregarded.

**Trust Responsibility.** There is no fixed or clear universal definition for the term trust responsibility for the Forest Service. It has been defined by the courts on a case by case basis.

**Turbidity.** A thickness or opaqueness of water caused by the suspension of matter.

**Undertaking.** Any project, activity, or program that can result in changes in the character or use of historic properties, if any such historic properties are located in the area of potential effects.

**Utility** - With regard to hydropower: an enterprise engaging in distribution of power; electric utility is the most general term that includes all power distributing/producing utilities.

- a. **Investor-Owned Utility (IOU).** A privately owned utility serving the public; traditionally referred to as a public utility and regulated by Federal Energy Regulatory Commission and State Commissions.
- b. **Municipal Utility.** A city or town that owns the electric (or other) utility, generally serving a single city or town. These utilities are regulated by their own elected boards.
- c. **Public Utility District.** A consumer owned utility in Washington State with an elected board. Its service area is within a county.

**Watershed.** A large area mostly bounded by ridges which drains to a point. Watershed Analysis.