

Glossary

Glossary

Note: Entries in this glossary are terms used in the *Framework for Integrated Management of Watershed Health*, defined as they are used in the context of the *Framework* and the City of Portland's watershed management activities.

4(d) rules or 4(d) limits: Special rules issued by NOAA Fisheries or U.S. Fish and Wildlife Service that establish "take" prohibitions and allow "take" of species listed under the Endangered Species Act when that "take" is connected with certain categories of activities that contribute to conservation of a listed species. A public or private entity may request that a program be recognized as an activity for which NMFS or the USFWS will "limit," or not apply, the "take" prohibitions.

Action: A specific project, activity or task that the City of Portland (or others) will conduct to improve watershed health.

Adaptive management: A dynamic planning and implementation process that involves applying scientific principles, methods and tools to improve management activities incrementally, as decision makers learn from experience and better information and analytical tools become available. Involves frequent modification of planning and management strategies – and sometimes goals, objectives and benchmarks – in recognition of the fact that the future cannot be predicted perfectly. Requires frequent monitoring and analysis of the results of past actions and application of those results to current decisions.

Adfluvial: Of, or relating to, fish that live in lakes and migrate to streams or rivers to spawn.

Alevin: In fisheries terminology, a larval salmonid that has hatched but has not fully absorbed its yolk sac, and generally has not yet emerged from the spawning gravel.

Allochthonous: Derived from outside a system, such as organic matter in a stream resulting from leaves from terrestrial plants.

Alluvial: Deposited by running water.

Ameliorate: To make better or more tolerable; to mitigate adverse effects.

Anadromous fish: Fish that hatch in freshwater, migrate to ocean water to grow and mature and return to freshwater to spawn; includes salmon, steelhead, and sea-run cutthroat trout.

Analytical tool: A tool for evaluating management alternatives; includes some computer models.

Annual hydrograph: A graph showing the trend in river or stream flow over a calendar year (January-December) or water year (October-September).

Aquatic habitat: The water-based locality or geographic area in which a plant or animal species naturally lives or grows.

Armoring: A barrier layer, frequently composed of boulders exposed as a result of clear water flushing downstream from a reservoir.

Artificial production: Spawning, incubating, hatching or rearing fish in a hatchery or other facility constructed for fish production.

Assets: Watershed conditions or features that are currently in a healthy, properly functioning state and that are considered key to sustaining important watershed functions.

At risk: Being susceptible to degradation or showing a trend toward degradation.

Autochthonous: Formed or originating in the place where found.

Bathymetric: Of, or relating to, the measurement of water depth at various places in a body of water.

Benchmarks: Specific outcomes in indicators that are to be achieved at particular times as the City of Portland progresses toward achieving established target values for those indicators.

Benthic macroinvertebrates: Organisms without backbones found on the floor of a stream or river. Benthic macroinvertebrates are a food source for fish.

Biological diversity (biodiversity): Variety of plant and animal life coexisting in a specific habitat.

Biota: The flora and fauna of a region.

Channelization: The act of cutting off side channels of a stream or river and artificially confining the channel.

Characterization: A thorough documentation of existing (baseline) and historical conditions within a watershed, along with anticipated trends in those conditions. Involves describing problems, watershed assets and the causes and sources of those problems and assets.

Clean Water Act: A law passed by the U.S. Congress in 1972 that makes illegal the discharge of pollution into surface or ground waters without a permit, and that encourages the use of the best achievable pollution control technology to reduce the impact of discharged effluent.

Combined sewer overflow (CSO): In areas with combined sewers (that is, sewers that convey both sewage and stormwater in a single pipe), the phenomenon of runoff filling sewer pipes to more than capacity, causing overflow of sewage and stormwater into a waterbody.

Comprehensive Environmental Response, Compensation and Liability Act (CERCLA), or "Superfund": A law passed by the U.S. Congress that (1) created requirements concerning inactive hazardous waste sites, (2) provides for liability of persons responsible for releases of hazardous waste, and (3) established a trust fund to provide for cleanup when no responsible party can be identified.

Conduit: A restricted, human-made passageway such as a stream; a conduit is more limiting than a corridor.

Confluence: The junction or union of two or more streams; a body of water produced by the union of several streams.

Corridor: A linear natural area that provides connectivity between two or more nonlinear areas, primarily for wildlife needs.

Deme: A local population of closely related interbreeding organisms.

Diel: Involving a 24-hour period.

Ecological services: The functions that a natural resource provides to benefit the environment and human uses.

Ecosystem: The living and nonliving components of the environment that interact or function together; includes plant and animal organisms, the physical environment and the energy systems in which they exist.

Ecotone: A transition area between two adjacent ecological communities.

Ectotherm: A cold-blooded animal.

Eddies: Currents of water running counter to a main current.

Emigration: Permanent movement of individuals of a population away from the area occupied by that population to a new area.

Endangered Species Act: A law passed by the U.S. Congress in 1973 that established programs for the conservation of threatened and endangered plants and animals and the habitats in which they are found. The U.S. Fish and Wildlife Service maintains the list of threatened and endangered species.

Epifauna: Animals that live upon or are associated with substratum features.

Escapement: The number of salmon, steelhead and cutthroat that return to a specified point of measurement after all natural mortality and harvest have occurred.

Spawning escapement consists of those fish that survive to spawn.

Estuary: The part of the wide, lower course of a river where its current meets and is influenced by the ocean tides.

Extirpate: To destroy completely.

Fecund: Fruitful in offspring or vegetation.

Flow augmentation: Increased flow resulting from the release of water from storage dams or other sources.

Flow: The volume of water, often measured in cubic feet per second (cfs), flowing in a stream.

Genotype: All or part of the genetic constitution of an individual or group.

Geomorphologic: Relating to the form or surface features of the earth.

Goal: A statement of a desired end state for the watershed; the City of Portland's obligations and aspirations for achieving healthy watersheds.

Habitat Conservation Plan: A species protection plan, allowed by Section 10 of the federal Endangered Species Act, that permits the lawful "taking" of species listed as endangered as long as actions described in the plan meet the long-term goals for restoring the populations to a self-sustaining level. Applicants may devise a plan that mitigates the impact of their proposed activities, providing protections for listed species. Habitat conservation plans may occur at the local, regional or multispecies level, allowing for more comprehensive planning efforts.

Habitat creation: The process of creating habitat at a site where it did not exist historically; bringing into being specific environmental conditions that organisms depend on, directly or indirectly, to carry out their lives.

Habitat: The locality or geographic area in which a plant or animal species naturally lives or grows.

Harvest management: The process of setting regulations for commercial, recreational and tribal fish harvests to achieve a specified goal within a fishery.

Hatchery subsidy: The release of artificially produced salmonids from a contained, managed facility to the habitat of indigenous, naturally spawning salmonids.

Hydrograph: A graph showing the changing flow or depth of a body of water with respect to time.

Hydrophobic: Resistant to or not readily dissolved in water; lacking an affinity for water.

Hyporheic: Of, or relating to, groundwater that has a hydrologic connection to a stream.

Impervious surface: An impermeable ground coverage or surface, such as a paved road, roof, sidewalk or structure, that alters the natural flow and quality of water.

Independent Science Team: Leaders in the field of watershed and fisheries science, from throughout the Pacific Northwest, that have been assembled by the City of Portland to strengthen the *Framework for Integrated Management of Watershed Health* and other watershed-related work products by providing an independent peer review.

Indicator: A measurable attribute of the environment that represents some aspect of ecological function in the ecosystem, particularly if the ecological function is difficult to measure directly. A comprehensive set of environmental indicators can be used for monitoring the health and functioning of an ecosystem.

Indigenous: Native to the region.

Interannual: Of, or relating to, variation between years (for example, wet years and drought years).

Lacustrine: Of, or relating to, plant or animal matter formed in, living in or growing in lakes.

Lotic: Of, relating to, or living in actively moving water.

Metapopulation: A larger population composed of several local populations that are spatially separated but linked by migrants, allowing for recolonization of unoccupied habitat patches after local extinction events.

Metrics: The characteristics of an indicator that are measured to evaluate its condition.

Metro: The directly elected regional government that serves Clackamas, Multnomah and Washington counties and the 24 cities in the Portland, Oregon metropolitan area. Metro is responsible for the region's open space protections, parks management, land-use planning, garbage disposal management and recycling programs. Metro also manages such facilities as the Oregon Zoo and the Oregon Convention Center.

Mitigation: The creation, restoration or enhancement of a wetland area or other natural resource to maintain the functional characteristics and processes of the area, such as its natural biological productivity, habitats and species diversity; unique water features; and water quality.

Morphology: The study of the form and structure of animals and plants.

Natal fidelity: The quality or state of preferring to return to where one was born; refers to salmon returning to streams where they emerged and reared as fry.

Natal stream: The stream in which a salmon or trout originally incubated and reared, and to which it returns as an adult.

National Contingency Plan: The federal government's blueprint for responding to both oil spills and releases of hazardous substances. This policy was revised in CERCLA to promote overall coordination among the various levels of responders and contingency plans.

Natural area: A landscape unit composed of native plant and animal communities and their habitats, largely devoid of human-made structures and maintained and managed in such a way as to promote or enhance biological communities.

Natural Resources Damage Assessment: A process that allows the calculation of the monetary cost of restoring injuries to natural resources that result from releases of hazardous substances or oil. The U.S. Environmental Protection Agency is required to notify and coordinate with Natural Resource Trustees as specified in CERCLA.

Nested hierarchies: A ranked order, series or sequence formed such that each member, element or set is contained in or contains the next.

NOAA Fisheries: A division of the U.S. Department of Commerce having shared jurisdiction with the U.S. Fish and Wildlife Service, under the Endangered Species Act, to list most marine species, including anadromous fish, and to determine what constitutes the taking of listed species. Formerly known as National Marine Fisheries Service, or NMFS.

Normative ecosystem: An ecosystem in which specific functional norms or guidelines that are essential to maintain diverse and productive populations are provided.

Normative flow: A flow regime that provides characteristics of flow magnitude, frequency, duration and timing essential to support diverse and productive salmonid and other flow-dependent resources.

Not properly functioning: Being degraded to the point that the continued existence of a species is threatened; used describe one or more watershed conditions.

Objectives: Specific outcomes in watershed functions and conditions that must be achieved for watershed health goals to be attained; a measurable component of a goal. An objective is quantified where practicable.

Off-channel habitat: The physical environment necessary and natural to fish and other species that is located adjacent to or connected to the primary instream flow.

Oregon Department of Environmental Quality (DEQ): One of the state regulatory agencies responsible for the protection of Oregon's environment. DEQ's responsibilities

include protecting and enhancing Oregon's water and air quality, for cleaning up spills and releases of hazardous materials and for managing the proper disposal of hazardous and solid wastes. The federal Environmental Protection Agency (EPA) delegates authority to DEQ to operate federal environmental programs within Oregon such as the federal Clean Air, Clean Water, and Resource Conservation and Recovery acts.

Oregon Department of Fish and Wildlife: Oregon's natural resource agency that manages the state's fish and wildlife resources.

Passage: The movement of migratory fishes through, around or over dams, reservoirs and other obstructions in a stream or river.

Phenotypic: Of, or relating to, the visible or behavioral properties of an organism that are produced as a result of the interaction of the genotype and the environment.

Predation: The act of preying.

Problems: Watershed conditions or features that are not properly functioning or that are contributing to impairment of watershed and river health.

Properly functioning condition: The sustained presence of natural habitat-forming processes that are necessary for the long-term survival of the species through the full range of environmental variation.

Reach: A section of stream between two specified points.

Reclamation: The process of putting a natural resource to a new or altered use to serve a utilitarian or human purpose. Often used to refer to processes that alter native ecosystems and convert them to agricultural or urban uses.

Reference conditions. Watershed conditions that reflect one of various reference states, such as actual historical conditions or the habitat's ecological potential, meaning the conditions that would exist if environmental habitat attributes were unimpaired and functioning properly.

Refugia: Locations and habitats that support populations of organisms limited to small fragments of their previous geographic range. Also refers to areas used by fish and wildlife for hiding and resting.

Rehabilitation: The process of restoring a natural resource or site to good condition or working order. Used primarily to indicate visual improvements to a natural resource.

Resident fish: Fish that do not migrate to the ocean but instead remain in freshwater for the entirety of their lives.

Riparian: Of, or relating to, the banks of a waterbody.

River Renaissance Management Team: A group of top managers from all bureaus within the City of Portland. The team brings an interdisciplinary focus and integration to bureau actions that address river-related activities and implement the five River Renaissance vision themes.

Scientific foundation: The body of evidence and peer reviewed study that describe ecosystem conditions needed to restore and maintain watershed functions and conditions and help guide decisions and actions that will result in desired ecosystem conditions across City watersheds; links all components of the *Framework for Integrated Management of Watershed Health*.

Scientific rationale: The body of science and research upon which all objectives, characterizations, analyses and planning are based; guides development of the objectives and actions.

Section 7: The section of the federal Endangered Species Act that regulates any action authorized, funded or carried out, in whole or in part, by federal agencies; requires the conservation of threatened and endangered species and the assurance that actions do not jeopardize listed species or adversely modify critical habitat.

Slough: An inlet on a river or a creek in a marsh or tide flat.

Spatio-temporal: Considering features of time and space in measurement.

Spill: (1) To release water through a spillway rather than through turbine units at a hydroelectric project; water released in such a way; (2) discharge (sometimes under an authorized permit, sometimes accidental) of a substance to a waterbody.

Stochastic: Pertaining to random or uncertain variables.

Strategies: Plans of action that will accomplish the goals and objectives and thereby fulfill a stated vision.

Subpopulations: Races and/or subspecies that, collectively, make up a population; genetically, a subcomponent of a population of a fish or wildlife species.

Substratum: The material underlying something, such as the soil beneath plants and animals.

Tailwater: Water below a dam or waterpower development.

Target value: A specific value established for an environmental indicator that represents the condition that the City of Portland will strive to achieve in order to meet its watershed health goals and objectives. A target value is based on what is necessary to achieve healthy watersheds, while taking into account aspects of the urban environment that, for practical purposes, are unchangeable.

Terrestrial: Living on or in or growing from land.

Thalweg: The bottom (at its deepest point) of any streambed or channel, natural or human-made.

Total maximum daily loads (TMDLs): A calculation of the maximum amount of a pollutant that a waterbody can receive and still meet water quality standards, and an allocation of that amount to the pollutant's sources; the sum of the allowable loads of a single pollutant from all contributing point and nonpoint sources to ensure that the

waterbody can be used for the purposes the state has designated.

Tributary: A stream feeding a larger stream or a lake.

Trophic levels: Relative positions within the food chain.

Trophic: Of, or relating to, nutrition.

U.S. Fish and Wildlife Service. The branch of the U.S. Department of Interior that is authorized to list plant and animal species—and the habitat on which they depend—for protection under the federal Endangered Species Act; has primary responsibility for terrestrial and freshwater species, including coastal cutthroat trout.

Water quality management plan: Plans for implementing state water quality standards for impaired (303 (d) listed) streams, as required by the Clean Water Act (CWA). The standards are driven by DEQ's total maximum daily loads (TMDLs) that are scheduled to become federally approved by 2007. Water quality management plans will implement these standards for Portland's impaired waterbodies and will be developed by the City of Portland, working closely with landowners, watershed councils and other stakeholders. These plans will become part of DEQ's overall statewide water quality management plan.

Watershed assets: Watershed conditions or features that are currently in a healthy, properly functioning state and that are considered key to sustaining important watershed functions.

Watershed: A topographically discrete unit or stream basin that includes the headwaters, main channel, slopes leading to the channel, tributaries and mouth area.

Wetland: Land areas where excess water is the dominant factor determining the nature of soil development and the types of plant and animal species living at the soil surface. Wetland soils retain sufficient moisture to support aquatic or semi-aquatic plant life.