

Glossary and Common Abbreviations

Adfluvial

A life history strategy in which bull trout migrate from tributary streams to a lake or reservoir to mature. Adfluvial bull trout return to a tributary to spawn.

Age class

A group of individuals of a species that have the same age, *e.g.*, 1 year old, 2 year old, etc.

Alleles

Alternative forms of a gene that can occupy the same locus on a particular chromosome.

Anadromous

A fish that is born in freshwater, migrates to the ocean to grow and live to adulthood, and then returns to freshwater to spawn (reproduce).

Artificial propagation

The use of artificial procedures to spawn adult fish and raise the resulting progeny in fresh water for release into the natural environment, either directly from the hatchery or by transfer into another area.

Basin

The area of land drained by a river and its tributaries. The term basin is used as it applies to the designated basins of the Columbia River as defined by the Northwest Power and Conservation Planning Council.

BLM

Bureau of Land Management.

Bypass

A structure in a dam that provides a route for fish to move through or around a dam without going through the turbines.

Char

A fish belonging to the genus *Salvelinus* and related to both the trout and salmon. The bull trout, Dolly Varden trout, brook trout, and the lake trout are all members of the char family. Char occur throughout boreal ecosystems in the northern hemisphere, including North America, Europe, and Asia.

CRBTWG

Clackamas River Bull Trout Working Group.

Core area

The combination of core habitat (*i.e.*, habitat that could supply all elements for the long-term security of bull trout) and a core population (a group of one or more local bull trout populations that exist within core habitat) constitutes the basic unit on which to gauge recovery within a recovery unit. Core areas require both habitat and bull trout to function, and the number (replication) and characteristics of local populations inhabiting a core area provide a relative indication of the core area's likelihood to persist. A core area represents the closest approximation of a biologically functioning unit for bull trout.

Core habitat

Habitat that encompasses spawning and rearing habitat (resident populations), with the addition of foraging, migrating, and overwintering habitat if the population includes migratory fish. Core habitat is defined as habitat that contains, or if restored would contain, all of the essential physical elements to provide for the security of and allow for the full expression of life history diversity of one or more local populations of bull trout. Core habitat may include currently unoccupied habitat if that habitat contains essential elements for bull trout to persist or is deemed critical to recovery.

Core population

A group of one or more bull trout local populations that exist within core habitat.

CTWS

Confederated Tribes of the Warm Springs.

Distinct population segment (DPS)

A listable entity under the Endangered Species Act that meets tests of discreteness and significance according to U.S. Fish and Wildlife Service policy. The U.S. Fish and Wildlife Service has formally determined there are five bull trout distinct population segments across the species range within the coterminous United States--Klamath River, Columbia River, Jarbidge River, Coastal, and St. Mary-Belly River. Each meets the tests of discreteness and significance under joint policy of the U.S. Fish and Wildlife Service and National Marine Fisheries Service (61 FR 4722), and these are the units against which recovery progress and delisting decisions will be measured.

Discharge (stream)

With reference to stream flow, the quantity of water that passes a given point in a measured unit of time, such as cubic meters per (cms) second or, often, cubic feet per second (cfs).

Effective population size (Ne)

The number of reproducing individuals in an ideal population that would lose genetic variation due to genetic drift or inbreeding at the same rate as the number of reproducing adults in the real population under consideration. Typically, Ne is less than either a population's total number of sexually mature adults present or the total number of adults that reproduced. Effective population number can be defined either in terms of the amount of increase in homozygosity (inbreeding effective number) or the amount of allele frequency drift (variance effective number).

Entrainment

Process by which aquatic organisms are pulled through a diversion, turbine, spillway, or other device.

ESA

Endangered Species Act (federal).

Extirpated

Elimination of a species from a particular local area.

Fine sediment (fines)

Sediment with particle sizes of 2.0 mm (.08 inch) or less, including sand, silt, and clay.

Fish ladder

A device to help fish swim around a dam.

Floodplain

The land adjacent to a stream channel, typified by flat ground and periodic floodwater submersion.

Flow regime

The quantity, frequency and seasonal nature of a stream's flow.

Fluvial bull trout

A life history in which bull trout migrate from tributary streams to larger rivers to mature. Fluvial bull trout migrate to tributaries to spawn.

Foraging, migrating, and overwintering habitat (bull trout)

Relatively large streams and mainstem rivers, including lakes or reservoirs, estuaries, and nearshore environments, where subadult and adult migratory bull trout forage, migrate, mature, or overwinter. This habitat is typically downstream from spawning and rearing habitat and contains all the physical elements to meet critical overwintering, spawning migration, and subadult and adult rearing needs. Although use of foraging, migrating, and overwintering habitat by bull trout may be seasonal or very brief (as in some migratory corridors), it is a critical habitat component.

Functionally extirpated

Describes a species that has been extirpated from an area; though a few individuals may occasionally be found, they are not thought to constitute a viable population.

Genotype

The set of alleles (variants of a gene) possessed by an individual at a particular locus or set of loci.

Habitat connectivity (stream)

Suitable stream conditions that allow fish and other aquatic organisms to move freely upstream and downstream. Habitat linkages that connect to other habitat areas.

Headwaters

The source of a stream. Headwater streams are the small swales, springs, creeks, and streams that are the origin of most rivers. These small streams join together to form larger streams and rivers or run directly into larger streams and lakes.

Hybridization

A crossing of individuals of different genetic composition, typically different species, that results in hybrid offspring.

Hydrologic unit code (HUC)

Watersheds that are classified into four types of units: regions, subregions, accounting units, and cataloging. The units from the smallest (cataloging units) to the largest (regions). Each unit is identified by a unique hydrologic unit code consisting of two to eight digits based on the four levels of classification in the hydrologic unit system.

Hyporheic zone

The area of saturated sediment and gravel beneath and beside streams and rivers that contribute to subsurface flows. Water movement is mainly in a downstream direction.

IMST

Independent Multidisciplinary Science Team.

Intermittent stream

A stream that flows only at certain times of the year as when it receives water from springs (or by surface water) or when water losses from evaporation or seepage exceed the available streamflow.

Interspecific competition

Competition for limiting, shared resources between two or more different species.

Introgression (genetic)

The spread of genes from one species into the gene pool of another by hybridization or by backcrossing (interbreeding between hybrid and parental species or between hybridized individuals).

Local population

A group of bull trout that spawn within a particular stream or portion of a stream system. Multiple local populations may exist within a core area. A local population is considered to be the smallest group of fish that is known to represent an interacting reproductive unit. For most waters where specific information is lacking, a local population may be represented by a single headwater tributary or complex of headwater tributaries. Gene flow may occur between local populations (*e.g.*, those within a core population), but is assumed to be infrequent compared with that among individuals within a local population.

Metapopulation

A group of semi-isolated local populations of bull trout that are interconnected and that probably share genetic material. May also include unoccupied habitats depending on the equilibrium between extinction and recolonization among habitats.

Migratory corridor

Stream reaches used by bull trout to move between habitats. A section of river or stream used by fish to access upstream spawning areas or downstream lake environments.

Migratory

A life history in which bull trout migrate from spawning and rearing habitat to lakes, reservoirs, or larger rivers to grow and mature, or to seek refuge.

NMFS

National Marine Fisheries Service.

Nonnative species

A species not indigenous to an area, such as brook trout in the western United States.

ODFW

Oregon Department of Fish and Wildlife.

Peak flow (stream)

The greatest stream discharge recorded over a specified period of time, usually a year, but often a season. Sometimes also defined by the frequency of occurrence or modeled return interval of specific flows (*e.g.*, a 100-year peak flow event).

PGE

Portland General Electric.

Phenotype

Expressed physical, physiological, and behavioral characteristics of an organism that may be due to genetics, the environment, or an interaction of both.

Piscivorous

Describes fish that prey on fish for food.

Population

A group of individuals that belong to the same species and freely interbreed.

Recovery subunit (bull trout)

Portions of larger recovery units treated separately to improve management efficiency. For example, the Clark Fork Recovery Unit is divided into Upper Clark Fork, Lower Clark Fork, Priest, and Flathead recovery subunits.

Recovery unit (bull trout)

The major unit for managing recovery efforts. Each recovery unit is described in a separate chapter in the recovery plan. A distinct population segment may include one or several recovery units. Most recovery units consist of one or more major river basins. Several factors were considered in identifying recovery units, for example, biological and genetic factors, political boundaries, and ongoing conservation efforts. In some instances, recovery unit boundaries were modified to maximize efficiency of established watershed groups, encompass areas of common threats, or accommodate other logistic concerns. Recovery units may include portions of mainstem rivers (*e.g.*, Columbia and Snake rivers) when biological evidence warrants inclusion. Biologically, recovery units are considered groupings of bull trout for which gene flow was historically or is currently possible.

Redd

A nest constructed by female fish of salmonid species in streambed gravels where eggs are deposited and fertilization occurs. Redds can sometimes be distinguished in the streambed gravel by a cleared depression, and an associated mound of gravel directly downstream.

Resident

A life history in which bull trout do not migrate, but reside in tributary streams their entire lives.

Riparian area

An area with distinctive soils and vegetation between a stream or other body of water and the adjacent upland. It includes wetlands and those portions of floodplains and valley bottoms that support riparian vegetation.

RM

River Mile.

Salmonid

Fish of the family Salmonidae, including trout, salmon, chars, grayling, and whitefish. In general usage, the term most often refers to salmon, trout, and chars (subfamily Salmoninae).

Scour

Concentrated erosive action by stream water, as on the outside curve of a bend; also, a place in a streambed swept clear by a swift current. Scour specifically refers to the transport of riverbed material by stream flow.

Smolt

A juvenile salmon or steelhead migrating to the ocean and undergoing physiological changes to adapt its body from a freshwater environment to a saltwater environment.

Spawning and rearing habitat (bull trout)

Stream reaches and the associated watershed areas that provide all habitat components necessary for spawning and juvenile rearing for a local bull trout population. Spawning and rearing habitat generally supports multiple year classes of juveniles of resident or migratory fish and may also support sub-adults and adults from local populations of resident bull trout. Most generally defined by occurrence of suitably cold water temperatures and suitable stream sizes.

Spawning escapement

The number of adult fish from a specific population that survive spawning migrations and enter spawning grounds.

Stochastic

Describes a natural event or process that is random or unpredictable. Examples include environmental conditions such as rainfall, runoff, and storms, or life-cycle events, such as survival or fecundity rates.

Stock

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

Subbasin

A smaller drainage area within a basin. The term subbasin is used as it applies to the designated subbasins of the Columbia River as defined by the Northwest Power and Conservation Planning Council.

Subpopulation

Breeding groups within a larger population between which migration is significantly restricted.

Subwatershed

A smaller watershed area within a watershed. The topographic perimeter of the smaller watershed area containing a tributary stream within a defined watershed.

Transplant

To move naturally reproducing fish from one stream system to another without the use of artificial propagation.

USACE

United States Army Corps of Engineers.

USFS

United States Forest Service.

USFWS

United States Fish and Wildlife Service.

Water yield

The quantity of water available from a stream at a given point over a specified duration of time.

Watershed

The area of land from which rainfall (and/or snow melt) drains into a stream or other water body. Watersheds are also sometimes referred to as catchments, drainage basins, or drainage areas. Ridges of higher ground generally form the boundaries between watersheds. At these boundaries, rain falling on one side flows toward the low point of one watershed, while rain falling on the other side of the boundary flows toward the low point of a different watershed.

WDAFS

Western Division of the American Fisheries Society.

WDFW

Washington Department of Fish and Wildlife.

Woody material

Woody material such as trees and shrubs; includes all parts of a tree such as root system, bowl, and limbs. Large wood refers to the woody material whose average diameter is greater than 24 inches, and whose length is greater than 50 feet.