

Glossary of Terms

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Contact: Ken Warheit
kenneth.warheit@dfw.wa.gov

Fish Health

Biosecurity: Precautions taken to minimize the risk of introducing, establishing, and spreading an infectious disease in a hatchery population. This includes, but is not limited to, disinfection of equipment, use of foot baths, limiting personnel movement, fish health monitoring, general cleaning practices, and restriction of transport of fish, embryos, and gametes.

Disease: A disorder of structure or function that produces specific signs or symptoms or that affects a specific location on the fish and is not simply a direct result of physical injury

Therapeutants: Chemical substances used to keep hatchery fish in or return hatchery fish to a healthy condition (i.e., absence of disease). Therapeutants range from applications of salt to antibiotics, for example.

Hazard and Risk

Hazard: Anything that causes harm to a specific entity. A hazard must specify the threat (stressor) and the entity being harmed.

Risk: The chance (probability) of a hazard with a specific consequence (magnitude of effect on the entity being harmed).

Broodstock Management

Broodstock: Adult fish removed from a river for the purpose of spawning (breeding) in a hatchery program.

Broodstock Management: All the activities associated with obtaining broodstock, spawning, and selecting which fish are mated during hatchery breeding. A common objective of broodstock management is to reduce the influence of the hatchery environment on the fitness of natural-origin populations by implementing either an integrated or segregated hatchery program.

Integrated hatchery program: A hatchery program that manages the hatchery and natural populations as a single population by intentionally using natural-origin fish as broodstock and accounting for hatchery-origin fish that spawn naturally.

Segregated hatchery program: A hatchery program that aims to manage the hatchery and natural populations as two separate populations by hatchery spawning only hatchery-origin fish and limiting hatchery-origin fish natural spawning. Reducing or eliminating natural spawning interaction between hatchery- and natural-origin fish may be possible by separating their spawning spatially and/or temporally.

Proportion of Hatchery Origin-Spawners (pHOS): The percent (%) of naturally spawning fish that are of hatchery-origin.

Proportion of Natural Origin Broodstock (pNOB): The percent (%) of hatchery broodstock that are of natural-origin.

Proportionate Natural Influence (PNI): In integrated hatchery programs a measure of the likelihood of loss of fitness in the natural environment, calculated as $pNOB/(pNOB+pHOS)$

Recovery of salmon populations

Recovery (Generic): Refers to improvements in natural population status that would lead to eventual removal from listing under the U.S. Endangered Species Act. "Salmon recovery" also refers to a broad suite of habitat, hydropower, hatchery, and harvest actions intended to improve salmon population status towards the goal of de-listing.

Recovery (Draft Co-Manager Hatchery Policy): Refers to the rebuilding of populations to levels that support healthy ecosystem functions and services, including robust harvest, where applicable.

Reproductive Success and Fitness

Fitness: The reproductive success of an individual fish. For a population, fitness is the average reproductive success of the fish in the population.

Reproductive success (RS): Number of offspring produced by an individual or mating pair of individuals that survive to adulthood.

Relative reproductive success (RRS): For this workshop, relative reproductive success is the average RS among hatchery-origin individuals spawning naturally compared to the average RS among natural-origin individuals spawning naturally. RRS measures the comparative fitness between the hatchery-origin fish spawning naturally and the natural-origin fish spawning naturally.

Terms for fish depending on their age, origin, or spawning location

F1: Filial 1 or F1 is the first generation of offspring from a specific pair of spawning fish. Collectively, the F1 generation is offspring of individuals spawning in a particular year.

Hatchery-origin (HOR): Fish whose parents were spawned in a hatchery. Typically identified by a mark, often an adipose fin clip. HOR fish may spawn in the river or be spawned in a hatchery program. In segregated hatchery programs HOR fish have two hatchery-origin parents. In integrated programs HOR fish may have zero, one, or two hatchery-origin parents

Natural-origin (NOR): Fish whose parents spawned in the river or natural environment. NOR fish may spawn in the river or be spawned in a hatchery program. NOR fish may have zero, one, or two natural-origin parents.

Naturally spawning: Fish that reproduce in the river or natural environment, regardless of their origin (e.g., NOS and HOS).

Hatchery-origin spawner (HOS): A hatchery-origin fish that spawns naturally.

Natural-origin spawner (NOS): A natural-origin fish that spawns naturally.

Miscellaneous

Hatchery Scientific Review Group (HSRG): “The US Congress established the Hatchery Reform Project in 2000 as part of a comprehensive effort to conserve indigenous salmonid populations, assist with the recovery of naturally spawning populations, provide sustainable fisheries, and improve the quality and cost-effectiveness of hatchery programs. The Hatchery Scientific Review Group (HSRG) was charged with reviewing all state, tribal, and federal hatchery programs in Puget Sound and Coastal Washington.” (HSRG 2014¹). The Hatchery Reform Project sunset in 2021.

Hatchery Genetic Management Plan (HGMP): A plan describing all operational aspects of a hatchery program that provides permit coverage under the U.S. Endangered Species Act. HGMPs are approved by NOAA Fisheries.

¹ HSRG (2014). On the Science of Hatcheries: An updated perspective on the role of hatcheries in salmon and steelhead management in the Pacific Northwest. Available from www.hatcheryreform.us.