

Executive Summary

The Revised Code of Washington (RCW) directs the Washington Department of Fish and Wildlife (WDFW) to “preserve, protect, perpetuate, and manage” the fish and wildlife species of the state as its paramount responsibility (RCW 77.04.012). Under RCW 77.55, any construction or work that uses, diverts, obstructs, or changes the natural bed or flow of state waters requires a Hydraulic Project Approval (HPA) issued by WDFW. The purpose of the HPA program is to ensure that hydraulic projects are completed in a manner that prevents damage to public fish and shellfish resources and their habitats. To ensure that the HPA program complies with the Endangered Species Act (ESA), WDFW is developing a programmatic multispecies Habitat Conservation Plan (HCP) to obtain Incidental Take Permits from the U.S. Fish and Wildlife Service (USFWS) and the National Oceanic and Atmospheric Administration (NOAA) Fisheries Service (also known as NOAA Fisheries), in accordance with Section 10 of the ESA. For WDFW, the objective is to avoid and/or minimize the incidental take of those aquatic species potentially considered for coverage under the HCP (referred to in this white paper as “HCP species”) resulting from activities conducted under an HPA.

The HCP will address the impacts, potential for take, and mitigation measures for effects on HCP species from hydraulic projects that require HPAs. WDFW’s intent is to build the scientific foundation for the effort to prepare an HCP for hydraulic projects that receive HPAs. To accomplish this, WDFW is compiling the best available scientific information related to the impacts, potential for incidental “take” of species that may be covered in the HCP (as defined in the ESA), adequacy of existing rules (Washington Administrative Code [WAC] 220-110), and possible management directives and mitigation measures to avoid and/or minimize potential take to the maximum extent practicable. As the HPA authority covers all waters of the state, this white paper considers hydraulic project impacts in both freshwater and marine environments.

The objectives of this white paper are:

- To compile and synthesize the best available scientific information related to the potential human impacts on HCP species, their habitats, and associated ecological processes resulting from the construction, maintenance, repair, replacement, modification, and removal of HPA-permitted projects.
- To use this scientific information to estimate the circumstances, mechanisms, and risks of incidental take potentially or likely to result from the construction and repair of HPA-permitted projects.
- To assess the extent to which current HPA rules address the potential impacts on covered species, their habitats, and ecological processes.
- To identify appropriate and practicable measures, including policy directives, conservation measures, and best management practices (BMPs), to avoid, minimize, or mitigate the risk of incidental take of HCP species.

This white paper is a consolidation of a suite of white papers prepared to establish the scientific basis for the HCP and assist WDFW decision-making on what specific HPA activities should be covered by the HCP. The original white papers covered the following activities:

- Water crossings (bridges, culverts, conduits)
- Fish passage (fish ladders, culverts, weirs, roughened channels, trap and haul)
- Flow control structures (dams, weirs, dikes, levees, tide gates, intakes, outfalls)
- Bank protection/stabilization (bulkheads, retaining walls, revetments, toe protection, beach nourishment, subsurface drainage, biotechnical bank protection, bank reshaping or regrading, soil reinforcement, coir and straw logs, integrated approaches)
- Shoreline modifications (groins, jetties, breakwaters)
- Channel modifications (dredging, gravel mining and bar scalping, sediment capping, channel creation and alignment.)
- Habitat modification (beaver dam removal, large woody debris manipulations, spawning substrate augmentation, riparian planting, wetland creation/restoration, enhancement, beach nourishment/contouring, reef creation, eelgrass planting/restoration/enhancement, in-channel and off-channel habitat modifications)
- Overwater structures (docks, floats, piers, ramps, wharfs, pilings and non-structural pilings)
- Marinas and Terminals
- Fish screens (in-channel, off channel).

The literature review conducted for the original white papers identified seven mechanisms of impact that could potentially affect the HCP species. These mechanisms of impact have direct and indirect effects that can be temporary, short-term effects or permanent, long-term effects. The mechanisms of impact are:

- Construction and maintenance activities
- Facility operation and vessel activity
- Hydraulic and geomorphic modifications
- Water quality modifications
- Riparian vegetation modifications
- Aquatic vegetation modifications
- Ecosystem fragmentation.

Key elements of the white paper are to:

- Specify objectives. (Section 2).
- Identify methods used to find the pertinent literature. (Section 3).
- Describe the potentially covered activities in detail (Section 4).
- Identify the distribution of the 52 HCP species (i.e., whether they use fresh water, marine water, or both) and their habitat requirements (Section 5).
- Present a conceptual framework for assessing impacts (Section 6).

- Discuss the potential direct and indirect impacts on the HCP species and their habitats due to exposure to the mechanisms of impact (Section 7).
- Identify cumulative impacts (Section 8).
- Based on the distribution information, identify the risk of “take” associated with each of these impacts mechanisms (Section 9).
- Identify data gaps (Section 10).
- Identify habitat protection, conservation, and mitigation strategies that could avoid or minimize the identified potential impacts (Section 11).