Fish Passage Restoration: a Proposed FIP Priority for the OWEB Board

1. Proposed Priority Action
   a) *What is the native fish or wildlife habitat to be conserved or other natural resource issues to be addressed?* The proposed priority would be applied to habitat essential for the recovery of 18 fish species listed under the Federal Endangered Species Act, which includes 10 species of salmon/steelhead: Lower Columbia River (LCR) Chinook salmon (Oncorhynchus tshawytscha); Upper Willamette River (UWR) spring-run Chinook salmon; Snake River (SR) spring/summer-run Chinook salmon; SR fall-run Chinook salmon; Lower Columbia River coho salmon (*O. kisutch*); Oregon Coast (OC) coho salmon; Southern Oregon/Northern California Coasts (SONCC) coho salmon; Lower Columbia River steelhead (O. mykiss); Upper Willamette River steelhead; Middle Columbia River (MCR) steelhead; Snake River Basin (SRB) steelhead. Further, the species list includes eight resident species: Bull Trout, Lahontan Cutthroat, Lost River Sucker, Modoc Sucker, Shortnose Sucker, Warner Sucker, Fosket Speckled Dace, and Oregon Chub.

   b) *What are the specific expected ecological outcome (s) to be achieved after this project is addressed?* Beneficial effects include reconnection of isolated habitat and restoration of natural stream channel processes through removal of channel constricting structures. Removing fish-passage blockages will restore spatial and temporal connectivity of streams within and between watersheds where fish movement is currently obstructed. This, in turn, will permit fish access to areas critical for fulfilling their life history requirements, especially foraging, spawning, and rearing. At a larger scale this will improve population spatial structure.

      Roni et. al. (2008)* conducted a comprehensive review of "…the physical and biological effectiveness of stream habitat rehabilitation techniques" and concluded that projects that reconnect isolated habitats have proven to be effective in increasing local fish abundance. Further, the review recommends a sequencing of habitat restoration projects, beginning with restoration of water quality/quantity, followed by habitat connectivity, and ending with in -channel projects. The logic is that water quality and quantity are a prerequisite to fish survival, so if these conditions do not exist any restoration that does not address this issue will be ineffective. Once water quality and quantity are sufficient, passage barriers would be removed to allow fish to access suitable habitats throughout a watershed. Finally, localized instream habitat projects, such as LWD placement, would ensue to improve habitat conditions in a fully connected watershed.

      *Phil Roni, Karrie Hanson & Tim Beechie (2008): Global Review of the Physical and Biological Effectiveness of Stream Habitat Rehabilitation Techniques, North American Journal of Fisheries Management, 28:3, 856-890

c) *What is the defined geographic location within which this proposed priority can be successfully addressed?* The proposed location is the entire state of Oregon, where ever a functional community-based partnership and watershed in need of fish passage restoration overlap. In these areas, projects will take place where fish passage has been partially or completely eliminated through road construction, stream degradation, creation of small dams and step structures, and irrigation diversions. Project designs would meet, at a minimum, ODFW *OAR 635-412-0035 Fish Passage Criteria.* *http://www.dfw.state.or.us/OARs/412.pdf*

2. Significance to the State

a) *Why is this proposed priority of ecological significance to the state, even though it may not be present everywhere in the state?* The recently developed NMFS recovery plans have either been authored by or co-authored by the Oregon Department of Fish and Wildlife, which demonstrates the high-level of ownership the state has placed in recovery efforts. A primary recovery objective within existing recovery plans for ESA-listed fish, primarily salmonids, is reconnection of isolated habitats, thereby demonstrating a solid need for including Fish Passage Restoration as a statewide Focused Investment Priority. Refer to the following examples:

- MC Steelhead Recovery Plan – The plan lists fish passage connectivity as a primary strategy for steelhead recovery (page 1-28). http://www.westcoast.fisheries.noaa.gov/publications/recovery_planning/salmon_steelhead/domains/interior_columbia/middle_columbia/mid-c-oregon.pdf
- Upper Willamette River Conservation and Recovery Plan for Chinook Salmon and Steelhead – This plan lists "Habitat access" as a primary limiting factor for the upper Willamette basin (page 5-2). http://www.westcoast.fisheries.noaa.gov/publications/recovery_planning/salmon_steelhead/domains/willamette_lowercol/willamette/will-final-plan.pdf
- Oregon Coast Recovery Plan – not completed or available on NOAA website.
- Final Recovery Plan for the Southern Oregon/Northern California Coast ESU of Coho Salmon – The plan states that "Fish passage barriers in some way restrict the amount of available stream habitat on virtually all SONCC coho salmon rivers and are listed as a high or very high threat in 13 out of 41 populations" (3-29). http://www.westcoast.fisheries.noaa.gov/publications/recovery_planning/salmon_steelhead/domains/southern_oregon_northern_california/SONCC%20Final%20Sept%202014/sonccfinal_ch1to6_mainchapters_4.pdf
- Revised Draft Recovery Plan for the Coterminous United States Population of Bull Trout – The plan recommends that "removing or minimizing the effects of connectivity barriers is important for restoring expression of migratory life history and movement among local populations within core areas. Core areas should be assessed for significant passage barriers that impair their connectivity" (page 29).

http://www.fws.gov/pacific/bulltrout/pdf/Revised%20Draft%20Bull%20Trout%20Recovery%20Plan.pdf

b) *Are there any social and/or economic considerations that the Board should understand regarding this proposed priority?* For a single fish passage project, costs can range from $50,000 to $400,000 for culvert replacement and even greater for irrigation diversions and small dam removal. For a single watershed, such as a 5th HUC, fish passage costs could reach up to $1-2 million depending on the number and size of passage barriers. A cost/benefit analysis will be important for each project or suite of projects in that costs must be weighed against the amount of habitat made accessible.

c) *In addition to its significance to the state, identify how the proposed priority fits within regional & local ecological priorities.* The recovery plans listed in part "2. a)" above focus on regions of the state. As such, each plan has cited fish passage restoration as an ecological priority for a particular region. Within each of the plans, more localized guidance is provided. For instance, the MC Steelhead Recovery Plan (Appendix 1-2, Implementation Schedule Oregon) includes specific fish passage actions for each of the 4th HUCs within the plan area. Thus, plans document that fish passage is an ecological priority at the regional and local levels.

http://www.westcoast.fisheries.noaa.gov/protected_species/salmon_steelhead/recovery_planning_and_implementation/middle_columbia/middle_columbia_river_steelhead_recovery_plan.html