United States Department of the Interior

FISH AND WILDLIFE SERVICE
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March 11, 2016

TO: Northwest Power Conservation Council

FROM: Columbia River Fisheries Program Office, U.S. Fish & Wildlife Service
RE: Critical uncertainties Report Comment

Thank you for the opportunity to comment on the Critical Uncertainties document. Comments from the Columbia River Fisheries Program Office (USFWS) can be found below. Please email Christina Wang (Christina_Wang@fws.gov) with any questions.

General Comments:

Overall, this document represents a fairly thorough job of compiling uncertainties. The consolidation of comments where possible and the organization into themes and sub-themes is helpful and makes the document more readable. While a large number of critical uncertainties were adequately addressed in the report, the following comments and suggestions would strengthen the document further.

Specific Comments by Theme:

Theme: Climate Change

Use assessments of future climate change to prioritize restoration actions. For example, in an area projected to have vulnerability to future climate change, prioritize actions now that could ameliorate the impacts (e.g., barrier removal, re-vegetation, etc.)

Theme: Fish propagation

What is the potential for transmission of diseases and parasites from artificially propagated lamprey and to wild lamprey?

It should be clearly stated in the report that hatcheries attempt to serve many purposes in the basin, ranging from mitigation for lost or damaged habitat, conservation of ESA listed or at risk populations, research, and harvest.

Have Biological Assessments, Hatchery and Genetic Management Plans, and Biological Opinions been completed for all hatchery programs in order to have sufficient ESA coverage, addressing both NMFS and USFWS trust species?

Have quantifiable goals been established for each hatchery program?
Examples include a) x number of fish harvested in x fisheries over x period of time; b) x number of fish returning annually to sustain brood stock; c) x number of fish spawning naturally for conservation; d) x number of fish available for research; and e) Total Adult Production (all of the above).

If quantifiable goals for a given hatchery have been established, are they being met?

Critical uncertainties were in the report surrounding propagation of Pacific lamprey and sturgeon. Other ESA listed or at risk populations such as bull trout should be added to the list. Can/should conservation hatcheries being used to aid recovery/restoration of species such as bull trout and lamprey?

Theme: Habitat mainstem

Add lamprey to subthemes talking about how operations (flow, sediment, temperature, etc.) affect spawning and rearing of lamprey in mainstem habitats.

Theme: Tributary habitat

How can lamprey be considered in restoration work? Both minimizing effects to lamprey during in stream work and including lamprey restoration needs in salmonid focused restoration.

Theme: Hydrosystem flow and passage operations

The new (fifth) uncertainty on the feasibility of reintroducing anadromous salmonids above dams is a great addition to this document, but the tone may focus too much on the challenges facing such plans and not enough on the potential benefits. The wording makes it seem like juveniles produced in reintroduction reaches would face disproportionately greater obstacles than those faced by fish in currently accessible reaches, such as more unfavorable ocean survival. Many salmon, steelhead, and lamprey populations already successfully pass through multiple dams and reservoirs during their migrations; these obstacles should not necessarily preclude successful reintroduction. Reintroduction certainly requires careful evaluation of upstream habitat and consideration of the best options for passage at each barrier, but it remains one of the most important, long-term options for recovering species, especially in the face of climate change.

The argument about "novel biotic communities" occupying all available niche space and therefore preventing the successful reintroduction of salmonids is highly speculative. If this hypothesis were robust, exotic species would rarely have any success at colonizing new habitats. The biotic communities below impassible dams are also novel in most cases, with many exotic species present. Reintroduction certainly has its challenges, and there are many uncertainties associated with it, but there are other, more pressing questions facing reintroduction of fish above barriers that should have been presented in this section. Some examples of these include: 1. What is the potential for and likelihood that reintroduced salmon will form adfluvial populations above barriers without volitional passage, and how will this impact population growth and persistence of the anadromous population? 2. What is the likelihood that juvenile steelhead produced by re-introduced fish will adapt a resident life-history form above barriers without volitional passage,

and how will this impact steelhead population growth and persistence? 3. Should hatchery strains that might not fully represent the native genome be used to help jump-start reintroduced populations, and what are the long-term consequences of doing so?

Pacific lamprey do not always behave like salmon, which tend to home directly to natal streams. How many adult lamprey that show up at the downstream end of a dam and are passed upstream, ultimately would desire to return downstream and spawn somewhere below said dam is uncertain. This uncertainty should be considered.

Theme: Mainstem Habitat

Example sub-uncertainty 1.1. This example is a bit vague and covers both fish and wildlife. Some more specifics on what species, life-stages, and impacts are being considered here would be helpful.

Pacific lamprey should probably be mentioned by name. There is now ample evidence that many larval lamprey spend, likely, many moths and years rearing in the mainstem. The fate of these larvae is uncertain. The impact of the dam on these larvae (some of which will attempt to pass downstream) is uncertain. The impact of dam operations (changes in pool level, dewatered areas, etc.) on these larvae is uncertain.

Theme: Estuary, plume, and ocean

Pacific lamprey should probably be mentioned by name. There is now ample evidence that many larval lamprey spend, likely, many moths and years rearing in the mainstem. There is developing evidence that these larvae can tolerate some level of salinity. Thus, a large area of the lower columbia/estuary may be rearing habitat for larval lamprey. How important this habitat is to lamprey is uncertain.

Climate change

Most of what is listed appears to be about responding to climate change. While trying to prepare a response is valuable, it seems most uncertain how we address the problem.