April 5, 2016

MEMORANDUM

TO: **Fish and Wildlife Committee members**

FROM: **Patty O'Toole, Program Implementation Manager**

SUBJECT: **Summary of comments received on the ISAB/ISRP Critical Uncertainties Report and next steps**

One of the first tasks called for in the Council's 2014 Fish and Wildlife Program for revising the Council's research plan is for the Independent Scientific Advisory Board (ISAB) and Independent Scientific Review Panel (ISRP) to assist with updating the critical uncertainties, taking into account evolving topics and reporting the results of past research. The Critical Uncertainties (CU) report was released in late January of this year. We invited public comments both on the report and for updating the Council's Research Plan.

Participation

We received written comment from 16 entities including five federal agencies, four tribal organizations, two state agencies, two project implementation organizations, one environmental organization, one customer group and one individual. A few were short and programmatic, and many were extensive and provided very detailed and specific comments.

In addition, on March 7 Council Member Karier and staff hosted a public meeting to discuss these topics in-person. The meeting was well attended and included eight tribal organizations, five federal agencies, three state agencies, two project implementation organizations and others. We captured general notes from the meeting which are included in this summary.

Summary

Staff has prepared a compilation of the comments, organized into two major parts: I) programmatic comments, and II) specific comments on uncertainties, organized by topic. Below is a summary. Please refer to the staff compilation and the public comments for more detail.

I. Programmatic comments

The comments included many *general comments* such as compliments for the ISAB's and ISRP's efforts in producing the CU report. There was wide acknowledgement and praise for their significant effort, thoroughness and the report's good organizational structure, as well as some caution about interpreting the report as indicative of little progress made since 2006.

Many comments received focused on the *approach for revising the research plan and identifying priorities*. Some of these comments called for an intensive process including holding science-policy exchanges to further refine uncertainties and prioritize uncertainties to further inform the research plan. One comment included developing a strategic framework to outline research questions and their relationship to program objectives, and to establish feedback loops to further link the research questions to management decisions. Another comment suggested using a salmon life cycle model to construct an integrated research program. Yet another comment suggested that the ISAB and ISRP should develop the research plan to be funded as the science panels recommend. One concept suggested that project sponsors and the ISRP must work together in an interactive review to steer projects towards the targets in the research plan in order to move the program in the right direction. Collaboration during the development of the research plan was important to many entities.

A set of comments related to the *integration of the research plan with the Program, at varying scales (temporal and geographic), projects and among uncertainties*. These comments note that the current program is a sum of individual projects which makes it hard to synthesize and report across Program strategies or research themes. One commenter noted that the people doing the research and those trying to answer the questions are not the same people, which may lead to incorrect interpretation of results. We also heard that it may take longer than three years (the timeframe described in the Program) to get answers on many of the uncertainties and that multiple projects will be needed to address some questions.

Many commented on *priorities* for research within the Program. As you might expect, the priorities varied by entity. Several suggested that research related to understanding the effectiveness of mitigation (such as hydro, habitat and hatchery actions) is a high priority. Environmental stressors such as toxic contaminants, non-native and invasive species, and climate change were priorities for others. Other areas of high importance include the feasibility of anadromous fish reintroduction into blocked areas, Pacific

lamprey and eulachon. Some comments also suggested that the Program's research priorities need to be narrowly focused on scientific knowledge that has a nexus to the statutory mandates of the Northwest Power Act.

A few comments were received that directly address the CU report's evaluation of how current projects are doing in terms of implementing the Council's 2006 research plan. A few project sponsors commented that their projects are on-the-ground work, not research projects, and thus are incorrectly reflected in the report.

II. Detailed comments on uncertainties

We received many detailed comments on specifics of the CU report, particularly from NMFS, USGS, USFWS, CRITFC, ODFW, and WDFW. The staff loosely characterized these comments into four categories:

1. Provided clarifying information to support, correct or strengthen the ISAB/ISRP report
2. Provided additional critical uncertainty
3. Suggested modification to an uncertainty
4. Supported keeping an uncertainty

Detailed comments in the above categories can be found in the staff draft compilation of comments. Below we provide a few highlights, grouped by topic, of the detailed comments received.

<u>Habitat/Tributary</u>
Comments regarding tributary habitat highlighted the need for learning the effectiveness of habitat restoration on carrying capacity, survival, and productivity. Comments also highlighted the need to understand cold water refuges in relation to flow, ground water and other indicators. Other topics included increasing our information for lamprey, the Willamette subbasin and food webs.

<u>Habitat/Mainstem</u>
Comments included the need to understand more about the food web in the mainstem, in particular the relationship between hydropower operations, prey production and carrying capacity. Again, learning more about cold water refuges was a stated need in order to better protect, restore and engineer off-channel refuge areas. Comments called for a better understanding of hydrosystem operational effects on Pacific lamprey and sturgeon spawning habitat.

<u>Non-native and invasive species</u>
Comments directed at non-native and invasive species called for understanding the trade-offs between preventing and monitoring for species establishment and response planning and control. Comments included a need to identify distribution and spread of

non-native species and called out the lack of inclusion of some specific non-native and invasive species.

Predator management

Few comments were received regarding predators, but they included the need for a better understanding of delayed affects from predation injuries, how predation risk may vary with habitat type and whether hatchery and natural-origin fish are equally vulnerable to predation.

Water quality

Comments on water quality included the need for a better understanding of how contaminants trend in the basin over time, how they affect survival, the sublethal effects on species and whether restoring habitat to expand capacity can increase resilience to buffer against the effects of toxic contaminants. Questions about water temperature and its effect on fish survival, salmon use of cold water refuges, what actions could be done in the mainstem to cool summer temperatures, and what the benefits of those actions might be, were included in the comments.

Climate change

Comments regarding climate change included concern that climate change is a significant threat (some say it is the most significant threat to focal species survival), and that we need to learn more about the potential loss of diversity due to climate change and how to best address this potential. Comments noted that advanced life cycle models that can incorporate temperature change and specific decision support tools are needed.

Mainstem Hydrosystem flow and passage

A repeated theme was the relationship of the hydrosystem and climate change in relation to other topics such as non-natives, predators, and a changing food web. The comments suggested adding uncertainties to address these issues. In addition, comments identified the need to add uncertainties regarding spill management, hydrosystem effects on white sturgeon, and adult passage for steelhead, among others.

Estuary/plume and nearshore ocean

Comments included the need to understand the relationship of conditions in the ocean to returning adult salmon in order to model the status of salmon under different mitigation and climate scenarios. Uncertainties to add included learning how the estuary is used by lamprey and the role forage fish play in terms of alternate prey for birds and sea lions, and understanding how Columbia River flow impacts forage fish abundance in the estuary. Ocean acidification and hypoxia effects on forage fish was also an uncertainty of interest. Comments expressed a need for understanding Pacific lamprey and eulachon use of the estuary and nearshore areas.

Fish propagation

A significant amount of comments were received regarding fish propagation. Comments noted that the CU Report focuses on purported risks of reduced fitness to natural populations from supplementation programs but ignores the benefits of rebuilding and maintaining abundance which has been reduced due to effects of the hydrosystem and habitat alteration. Commenters noted that the report implied that hatchery impacts are always negative and disregards beneficial effects. Conversely, others commented that an uncertainty should be added that addresses how genetic effects translate to population productivity. Reviewers commented that uncertainties about using conservation hatcheries for Pacific lamprey and bull trout should be added.

Population structure and diversity (related to wild fish)

Comments included the importance of diversity and how metapopulations will respond to environmental change and management actions in the river.

Anadromous fish mitigation in blocked areas

Comments suggested that the ISAB/ISRP report tone focused too much on the challenges associated with reintroduction of anadromous fish but not enough on the potential benefits and other comments took issue with ISAB/ISRP using the term “self-sustaining” in regards to reintroduction, which is a different characterization from Program language. Comments included the need for better understanding lamprey life history as reintroduction of lamprey is considered.

Adaptive management

Many comments were received regarding research that addresses monitoring and evaluation uncertainties. Identified needs include life cycle modeling tools and action effectiveness research, particularly in the mainstem Columbia and Snake rivers. One comment noted that we need to ask the basic question: can we measure the status and trends of a population of concern with appropriate statistical validity or certainty?

Harvest

The current Program does not contain a harvest strategy but the ISAB/ISRP included a research theme for harvest in the report. Comments included the need to evaluate the projected performance of harvest strategies, and to evaluate new harvest strategies that might contribute to recovery.

Human development

The Program does not contain a strategy directly related to human development but a few comments addressed the human development theme in the ISAB/ISRP report. One comment expressed concern that climate change will increase the magnitude of threats to tribal first foods with respect to population growth, river flow, water quality, ocean conditions and other factors.

Next steps:

Staff will develop an outline for the research plan and a draft timeline to review with the Committee, perhaps as early as May. General steps for the process include:

- ISAB/RP complete Critical Uncertainties Report ☑
- Seek public comment on report ☑
- Meet with agencies and tribes, other partners to seek input ☑
- Use the report, comments & input to draft revised research plan
- Review the draft with Council
- Release draft plan for review, collect comments
- Revise draft plan
- Council review and approve revised research plan
- Begin research project review