November 8, 2016

MEMORANDUM

TO: **Council members**

FROM: **Laura Robinson, Program Implementation and Liaison Specialist**

SUBJECT: **Presentation on Staff Paper: Review of Fish Passage Technologies at High-head Dams**

BACKGROUND:

Presenter: Laura Robinson

Summary: Council staff will be presenting the revised staff information paper on passage at dams and other blockages. No Council decision or policy recommendations are part of the paper or this agenda item

The Council's 2014 Fish and Wildlife Program established a strategy for Anadromous Fish Mitigation in Blocked Areas, part of which lays out a science-based phased approach to examine the feasibility of reintroduction of anadromous fish into the blocked US waters of the Upper Columbia. One portion of Phase I, which has a due date in the Program of the end of 2016, calls for the need to: "Evaluate information from passage studies at other blockages and from previous assessments of passage at Grand Coulee and Chief Joseph dams." Council staff will present to the Council a high-level summary of the staff information paper on this paper, as well as the insights about passage that staff has based on the review. It is important to note that no policy recommendation or directive is in this staff paper or will come from this staff paper at this time. Council staff focused this review on finding and laying out information for each of the passage systems within the staff paper.

Council staff reviewed fish passage systems and emerging technologies at over 20 dams in the Pacific Northwest, California, and Pennsylvania

and compiled the information into a staff paper. The draft staff paper was released for a 30-day period of public comment in July and August of 2016. For comment, staff made the draft paper available to the Fish and Wildlife Committee, managers of the projects that were reviewed in the staff paper, people and entities on the Council's fish and wildlife coordination list (including representatives from relevant state and federal agencies and Indian tribes, Bonneville customers and other utilities and industry groups), and other interested entities. Council staff received 26 sets of comments from Council members, federal and state agencies, tribes, utilities, and customer and interest groups. The comments were incorporated into the paper and staff has continued to update the Fish and Wildlife Committee on the status of this staff paper since. Staff now feels that this staff paper is ready to be posted on the Council's website for use by the region as a staff resource document. Given that a comment period was provided for the draft staff paper, Council staff does not see a need for a further comment period. However, should anyone choose to comment on the staff paper, the Council will post those comments on the website along with the technical comments received in August 2016.

The Executive Summary of the staff paper can be found as Attachment 1 of this memo. The full staff paper can be found here: nwcouncil.box.com/s/0mp48ich50yxelq61xpch1mu769uqfqd.

Note: Minor changes will likely need to be made to the document after the November Council Meeting. These will be mostly formatting changes. The substance of the paper will not be altered.

Relevance: 2014 Fish and Wildlife Program priority measure: *Investigate blocked area mitigation*

Workplan: Council Workplan Objective 2.A *Assist Phase I feasibility study for reintroduction above CJ/GC*

Executive Summary

This paper responds to a strategy in the Council's 2014 Columbia River Basin Fish and Wildlife Program addressing mitigation of the impacts of hydropower dams on anadromous fish in areas where dams block fish passage to historic habitat. The first phase of the three-phase approach calls for studies and evaluations to inform what is known generally about fish passage and specifically about the quality of the habitat in the blocked waters of the Upper Columbia above Chief Joseph and Grand Coulee dams. Neither dam was built with fish-passage facilities.

The habitat evaluation is being conducted for the Council by the Spokane Tribe of Indians. In this paper, which can be viewed as a corollary to that evaluation, Council staff evaluates information from passage studies at Chief Joseph and Grand Coulee, and at other dams where fish passage has been studied or completed. Included in the evaluation are dams in Washington and Oregon, on the border of Oregon and Idaho, and in California and Pennsylvania. In order to better understand each location, staff compiled standardized information into case studies, summarizing information gleaned from design documents, annual reports, and from personal communications with project staff.

The paper explores six themes that could apply in planning and providing fish passage at high-head dams such as Chief Joseph and Grand Coulee:

1. Allow adequate time for evaluations and feasibility studies
2. Do not evaluate or compare existing fish-passage projects on the basis of cost, as variations in site characteristics and the age of passage systems make cost comparisons inaccurate
3. Understand and account for differences in site characteristics
4. Stay up to date with passage technologies, as fish passage technology is evolving and improving
5. Collaborate with project owners, regulators, fish and wildlife agencies, tribes, scientists and interested parties as it can be critical to successful, large-scale anadromous fish passage projects
6. Consider developing a science-based decision framework for new projects to help organize and assess all the biological, environmental, hydraulic, technical, and economic data for a range of passage alternatives under consideration at each site

The paper addresses high-head dam passage for both adult and juvenile fish and recommends that fishery managers working on and studying passage should consider the following:

- What is the end goal or objective for fish? For example, the goal could be to achieve a natural, self-sustaining population, or it could be to gain cultural, biological and economic benefits as the result of passage.
- Where should the juvenile fish collector be located? Possible options are in the forebay near the dam, in the reservoir, at the head of the reservoir, or in tributaries upstream of the reservoir

- What types of fish passage systems should be evaluated at each project?