Northwest **Power** and **Conservation** Council

January 4, 2017

DECISION MEMORANDUM

TO: Fish and Wildlife Committee members

FROM: Mark Fritsch, project implementation manager
Nancy Leonard, fish, wildlife and ecosystem M&E manager

SUBJECT: Council decision on Bonneville's response to the Council's 2013 Conditions and recommendations regarding *ISEMP, CHaMP, and Action Effectiveness Monitoring*

PROPOSED ACTION: Council staff recommends that the Fish and Wildlife Committee approve these projects to proceed for ISRP review based on the following staff recommendations to fully address the Council's 2013 conditions recommendations (see section Analysis for Recommendation 1).

Staff further recommends that the Fish and Wildlife Committee requests further clarification on adequacy of Bonneville's current approach for detecting habitat action effectiveness and about the scientific findings and budgetary outcomes related to Bonneville shifting to a programmatic approach (see section Analysis for Recommendation 2).

SIGNIFICANCE: Implementation of the Council's 2013 Conditions and recommendations ensuring a cost-effective approach to tributary

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habitat research, monitoring and evaluation work for informing effectiveness of program measures, project action effectiveness and status of focal species.

BUDGETARY/ECONOMIC IMPACTS

- Project #2016-001-00, *BPA Project Action Effectiveness Monitoring (AEM) Programmatic*,
    - Project start and end date: 2016-2022
        - FY16 Contract Amount: $1,074,955
        - FY17 SOY Budget: $1,115,485

- Project #2003-017-00, *Integrated Status and Effectiveness Monitoring Program (ISEMP)*,
    - Project start and end date: 2003-2017
        - FY16 Contract Amount: $4,982,152
        - FY17 SOY Budget: $5,000,000

- Project #2011-006-00, *Columbia Habitat and Monitoring Program - (CHaMP)*
    - Project start and end date: 2011-2017
        - FY16 Contract Amount: $3,029,182
        - FY17 SOY Budget: $2,593,06

BACKGROUND

The Council's Fish and Wildlife Program is "a habitat-based Program," aiming "to rebuild healthy, naturally producing fish and wildlife populations by protecting, mitigating, and restoring habitats and the biological systems within them." The Fish and Wildlife Program (Program) thus depends heavily on actions in the mainstem, tributaries and estuary intended to protect or improve habitat characteristics as the way in which the Program will ultimately protect, mitigate and enhance fish and wildlife populations adversely affected by the hydrosystem. The Federal Columbia River Power System (FCRPS) Biological Opinion (BiOp) also builds on the same conceptual foundation.

It is critical for the Program that appropriate monitoring and reporting is conducted to assess whether the habitat actions are resulting in the intended environmental and biological improvements. For this reason, one of the key programmatic issues identified by the Council during its 2010-11 review of the *RME and AP Category* of projects, was whether the collective suite of ongoing and proposed habitat monitoring and evaluation projects[1] are adequate to monitor and evaluate the effectiveness of our habitat actions to improve the targeted habitat characteristics and fish life-stage/lifecycle.

On June 12, 2013 the Council recommended to Bonneville a decision aimed to further advance the intent of the Council's 2011 decision as described under *Programmatic 2 Habitat effectiveness monitoring and evaluation* of the 2011 decision. The Council continues to request clarification on whether the collective suite of research, monitoring

[1]Project #2016-001-00, *BPA Project Action Effectiveness Monitoring (AEM) Programmatic*, Project #2003-017-00, *Integrated Status and Effectiveness Monitoring Program (ISEMP)*, and Project #2011-006-00, *Columbia Habitat and Monitoring Program - (CHaMP)*.

and evaluation projects is adequate to monitor and evaluate the effectiveness of the FW Program's habitat actions in ultimately improving the population characteristics of our key fish species, and to be able to use what we learn to adapt the implementation and management of the program.

Over the course of the last 5 years Bonneville staff have provided products and updates that have addressed components of the Council's 2011 decision letter and the 2013 conditions and recommendation letter (please see November 2016 staff memo). The latest update and letter[2] provided to the full Council during the December 2016 meeting and the ensuing Council member discussion with Bonneville serves as the basis for the following Council staff recommendations.

ANALYSIS

In an effort to organize the staff analysis and recommendations, staff provides the relevant information for recommendation 1 (staff analysis and recommendation) first and then the information for recommendation 2 (staff analysis and recommendations).

Recommendation 1

Following is a summary of the project purpose and staff analysis related to recommendation 1 for the three projects (AEM, CHaMP, and ISEMP).

Project #2016-001-00, *BPA Project Action Effectiveness Monitoring (AEM) Programmatic*

This project provides technical support and assistance for BPA's Programmatic Approach for Action Effectiveness Monitoring (AEM). The contractor will collect, analyze, and interpret data, work collaboratively with other BPA Fish and Wildlife Program sponsors, and produce annual reports to disseminate the results for BPA funded projects that participate in the AEM Program. This professional analysis and collaboration will guide and provide continuous adaptive management for habitat restoration actions that address habitat impairments with the objective of improving the performance of ESA listed anadromous fish species populations throughout the Columbia River Basin (ESU/DPSs).

In 2013 the Council recommended and conditioned that Bonneville further develop this program-wide approach to monitoring and evaluating project-level effectiveness. The Council recommended that this approach be implemented through a pilot effort and then the results subject to further review before implementation beyond 2015. The AEM project is intended to address this recommendation. The Council expected that this programmatic approach would reduce the need for effectiveness monitoring by individual projects and would provide the necessary information to habitat practitioners to inform implementation of habitat actions. The Council further expected that this approach would contribute information to the Council's question about the

[2] December 12, 2016 letter from Jeffrey Stier, Acting Executive Manager of Fish and Wildlife Program, to Tony Grover, Fish and Wildlife Director.

effectiveness of the FW Program's habitat actions. Thus the upcoming review of the AEM project by the ISRP and the Council should provide information that contributes to understanding how the project will met the Council's expectations.

Project #2011-006-00, *Columbia Habitat and Monitoring Program - (CHAMP)*

The Columbia Habitat and Monitoring Program (CHaMP) is a Pilot project operating in 8 watersheds. CHaMP is a Columbia River basin-wide habitat status and trends monitoring program built around a single habitat monitoring protocol with a program-wide approach to data collection and management. CHaMP was developed by the Integrated Status and Effectiveness Monitoring Program (ISEMP) to capture habitat features that drive fish population biology and aims to provide systematic habitat status and trends information that will be used to assess basin-wide habitat condition and be correlated with biological response indicators to evaluate habitat management strategies.

The Council recommended implementation of the CHaMP project in a pilot stage. The Council expected that CHaMP would streamline its methods and protocols, building from existing habitat monitoring approaches (not reinvent the wheel unnecessarily). The Council also expected that ChaMP would determine how to integrate data collected by other habitat monitoring efforts so as to avoid having duplicate habitat monitoring efforts in the same area. Lastly, the Council expected that CHaMP would provide useful information to habitat and fish managers to guide their work as well as contributing to the Council's overarching question about the effectiveness of habitat actions by supporting a correlation-analysis of habitat and fish data (with the analysis of fish-habitat data being done by a 3rd party under contract with Bonneville). The upcoming review by the ISRP and the Council should provide information that contributes to understanding how the project will meet these needs.

Project #2003-017-00, *Integrated Status and Effectiveness Monitoring Program (ISEMP)*

This project focuses on monitoring and evaluation programs that addresses: (i) subbasin-scale pilot status and trend monitoring efforts for anadromous salmonids and their habitat in the Wenatchee, John Day and Salmon River basins, and (ii) effectiveness monitoring for suites of habitat restoration projects in selected watersheds within the three target subbasins. This work builds on current status and trend monitoring programs within each of these basins; however, the work focuses on the explicit development and testing of the sampling protocols and methodologies required for generating habitat and population monitoring data of known resolution, accuracy and precision. In addition, the project also addresses watershed-scale questions of habitat restoration action effectiveness. Lastly, this project developed a framework of tools that assist in data management at the scale of the data generators while also standardizing the form and communication of data sets to a regional data management system. The data management tools and products developed are

to be integrated with ongoing regional efforts to standardize protocols and meta-data and develop distributed data management systems.

The Council's expectation for this project included two main aspects: (1) that the project would develop tools for improving monitoring and data management/analysis that would be useful to fish managers in the Columbia River Basin; and (2) that the information and tools collected would provide information about effectiveness of habitat actions for fish at multiple scales, fish life-stage and population life-cycle scales. The Council expected that improving our understanding of effective/non-effective habitat actions for fish would serve to guide habitat managers and fish managers in their mitigation efforts. The Council also understood that this project would support NOAA's BiOp needs, such as contributing to NOAA's life-cycle model. The Council's and ISRP's review of this project should provide information about how well this project is meeting the expected needs for the Program.

Recommendation 1: Based on the above staff analysis, staff recommends that the Fish and Wildlife Committee submits for review the three projects with specific questions to inform the Fish and Wildlife Committee about the relevance of these projects to the Fish and Wildlife (FW) Program, their performance status, and the likelihood of these projects achieving their intended purpose within a reasonable timeframe and in a cost-effective manner.

1a. Staff draft questions for the ISRP review of Project #2016-001-00, *BPA Project Action Effectiveness Monitoring (AEM) Programmatic*

Is the BPA AEM programmatic project (AEM Project) a scientifically sound approach for evaluating and improving project-level action effectiveness?

1. Are the results from this AEM project being effectively communicated to FW Program habitat project sponsors?
2. Are the findings of the AEM project to-date relevant to improving habitat actions implemented through the FW Program?
3. What are the weaknesses of the AEM project in serving as the region-wide approach for informing action effectiveness of FW Program funded actions?
4. What gains have been achieved (or will soon be achieved) from shifting from a project-by-project approach to effectiveness monitoring to this programmatic approach?
5. What are the specific habitat projects that have reduced their effectiveness monitoring work and are relying on the products of this AEM project? What approach is in place to ensure proper communication between these specific habitat project sponsors and the learnings from the AEM Project?

1b. Staff draft questions for the ISRP review of Project #2011-006-00, *Columbia Habitat and Monitoring Program - (CHaMP)*

Is the CHaMP project a scientifically sound approach for assessing basin-wide habitat condition and for correlating habitat with biological response indicators to evaluate habitat management strategies?

1. Has the CHaMP project stabilized their data collection protocols?
2. Has CHaMP streamlined their data variables to be the most informative for guiding habitat restoration/mitigation efforts and for contributing (correlating) to the understanding of how different habitat conditions can result in changes in fish status and trend?
3. Has the CHaMP project stabilized their data analysis/evaluation protocols?
4. Is CHaMP successfully communicating its findings and sharing its results with practitioners?
5. Has ChaMP successfully integrated data from other existing habitat monitoring programs such as AREMP and PIBO? Are they continuing to leverage data from relevant monitoring efforts?
6. Has the CHaMP data been useful in supporting correlation-analysis of fish and habitat status and trend? And have these analysis been informative for communicating the effectiveness of habitat actions for benefiting fish?
7. How can interactions (e.g., information sharing, coordination) between the CHaMP project and fish/habitat managers that could benefit from the work of this project be improved?

1c. Staff draft questions for the ISRP review of Project #2003-017-00, *Integrated Status and Effectiveness Monitoring Program (ISEMP)*

Has the project demonstrated success (1) at improving subbasin-scale status and trend monitoring for anadromous salmonids and their habitat, (2) at detecting effectiveness for suites of habitat restoration projects, (3) in developing a useful framework of tools that assist in data management at the scale of the data generators for managers, and (4) in standardizing the form and communication of data sets to a regional data management system.

1. Has the information learned about the effectiveness of habitat actions informed habitat/fish managers and thus benefited their mitigation work?
2. Are the individual Intensively Monitored Watersheds (IMWs) successful in implementing the needed level of restoration/mitigation actions to correlate with a detectable change in fish abundance (both adults and juveniles)?
3. Have the monitoring and analytical tools developed by the project been informed/guided by managers' needs? Will these tools be applicable across the Columbia River Basin or to a limited subset of managers or subbasins? Are these tools an added-value, or are some tools redundant with tools currently used by the managers?
4. How can the existing amount of interactions (e.g., information sharing, coordination), between the project and fish/habitat managers be improved?
5. What is the current implementation phase of the three IMWs (e.g. baseline monitoring, action implementation, detecting effectiveness at the lifestage, at the life cycle)? What is the projected timeline for all subsequent phases? Are the IMWs on track to achieve their intended outcomes in a timely manner, e.g., the next 1 to 5 years?

6. Will the results from the IMWs be informative to fish/habitat managers? Will the results guide or improve restoration actions at the scale that managers implement restoration actions? What, if any, findings from the IMWs can be applied to other areas of the Columbia River Basin?

Recommendation 2

Following is a summary of the information related to staff analysis for recommendation 2 about the additional information needed from Bonneville related to the adequacy of Bonneville's approach to Tributary RME and budgetary outcomes of shifting to a programmatic approach.

The Council continues to seek a Program-wide understanding of the effectiveness of habitat actions implemented through the Program, as well as clarity about how this information is conveyed and applied by managers. The Council requested in 2013 that Bonneville provide a written document that would explain how the various components of tributary habitat research, monitoring and evaluation activities implemented through the Program connect in a complementary manner to each other to inform the needs of the Program and managers working on mitigation projects. To ensure that there is no duplication of RME in the basin, the Council also requested that Bonneville provide an explanation as to how the tributary RME activities complemented existing efforts including ISEMP, AEM, CHaMP, CEERP-estuary, Bonneville's data management framework, Coordinated Assessment data sharing effort, and other large scale aquatic monitoring programs funded by other agencies such as USFS-PIBO and the Pacific Northwest Interagency Monitoring Program-AREMP.

The Council during its December Council meeting stated a need to clarify how various projects contribute to research questions, effectiveness monitoring, and status and trend monitoring. The Council also stated the need to understand how this information is valuable to managers implementing mitigation actions and tracking the status of focal species (informing decisions); as well as how this information would inform the program to improve program strategies and measures.

Further, the Council expects to learn from Bonneville how application of the 2013 conditions and recommendations have resulted in significant reduction in FY 2014 costs for ISEMP, IMWs, and CHaMP. The Council also expected, based on its 2013 conditions and recommendation that the transition from project-by-project action effectiveness to a programmatic approach via the AEM project would result in efficiencies and potential cost savings. To this end the Council, as mentioned during its December meeting, would like to receive a summary of these budgetary changes. Thus, Bonneville should provide the necessary information for Council review that will address these outstanding questions.

Recommendation 2: Based on the above staff analysis, staff recommends that the Fish and Wildlife Committee requests from Bonneville the following clarification about the adequacies of current Bonneville approach for detecting habitat action effectiveness, the scientific findings to-date related to the effectiveness of

tributary habitat actions implemented through the Program, and budgetary outcomes related to the shifting to a programmatic approach for tributary habitat effectiveness.

2a. Tributary RME Synthesis (including PIBO/CHaMP study)

Bonneville will submit for Council review, and potentially ISRP or ISAB review per the Council's discretion, in the spring of 2017:

1. Bonneville's tributary habitat research monitoring and evaluation (TRME) comprehensive report entitled "Effectiveness of Tributary Habitat Enhancement Projects" This report is intended to provide a comprehensive synthesis of the relative effectiveness of categories of habitat restoration actions at a variety of geographic scales that uses data collected by BPA projects as well as information from the scientific literature.
2. Bonneville's pilot effort at examining the integration of habitat data between CHaMP and PiBO projects during 2014-2015. This effort determined the crosswalk and data integration feasibility of common CHaMP and PiBO metrics: Large wood frequency, temperature, and slow water percent. Bonneville should also submit an accompanying letter explaining why or why not they are leveraging data from other monitoring programs (not funded by Bonneville) to contribute to the cost-effectiveness implementation of Program measures.
3. Summarize in a tabular format the ISEMP IMW hypothesis, current findings, end-dates, and list of scientific publications including the abstracts.

2b. Tributary RME Budget Implications

Bonneville will provide by May 2017 to the Council a report indicating cost-savings and efficiencies gained related to implementation of the Council's 2013 conditions and recommendations, including from transitioning to the BPA Action Effectiveness Monitoring Programmatic project.

2c. Bonneville's integrated implementation approach of Tributary RME

Bonneville will present to the Fish and Wildlife Committee regular updates on the status/refinement of the *Effectiveness Guidance in Columbia Basin Tributary Habitat Improvement: A framework for Research Monitoring and Evaluation* document annually between 2017 and 2021. Staff recommends, that when the document has experienced significant changes, as determined by Council based on the regular updates that Bonneville submits to Council the document for review. This may require more than 1 review depending on how often the document changes significantly during 2017-2021.