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Northwest Power and Conservation Council

March 5, 2019

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MEMORANDUM

TO: Council Members
FROM: Patty O'Toole
SUBJECT: Briefing on the Fish and Wildlife Program amendment process

BACKGROUND:

Presenter: Staff

Summary: Staff will brief the Council on the amendment process, the recommendations and comments on the recommendations to amend the Council's 2014 Fish and Wildlife Program.

Relevance: The Council called for recommendations to amend its Program in May of last year. Recommendations were due on December 13th, 2018 and comments on the recommendations were due on February 8, 2019.

Background: The Fish and Wildlife Committee and staff have been busy working through the recommendations and comments on the recommendations, in some detail, for various Program topics. Two Committee work sessions were held in February for this work. At the March Council meeting staff will provide an update for the full Council.

With this memo, staff is providing a report that provides an overview of the recommendations to give the Council members a sense of the scope of the recommendations and issues raised. It should be considered an introduction to the recommendations. More detailed staff summaries, syntheses of the recommendations, can be found by clicking the link in the title of each section. For a complete review, please refer to the original recommendations, which can be found on the Council's [website](#).

At the March meeting, the staff will provide a more detailed look at the recommendations and comments regarding a few program areas including Program

goals and biological objectives, and the adaptive management and implementation sections of the Program.

Materials provided with this memo include:

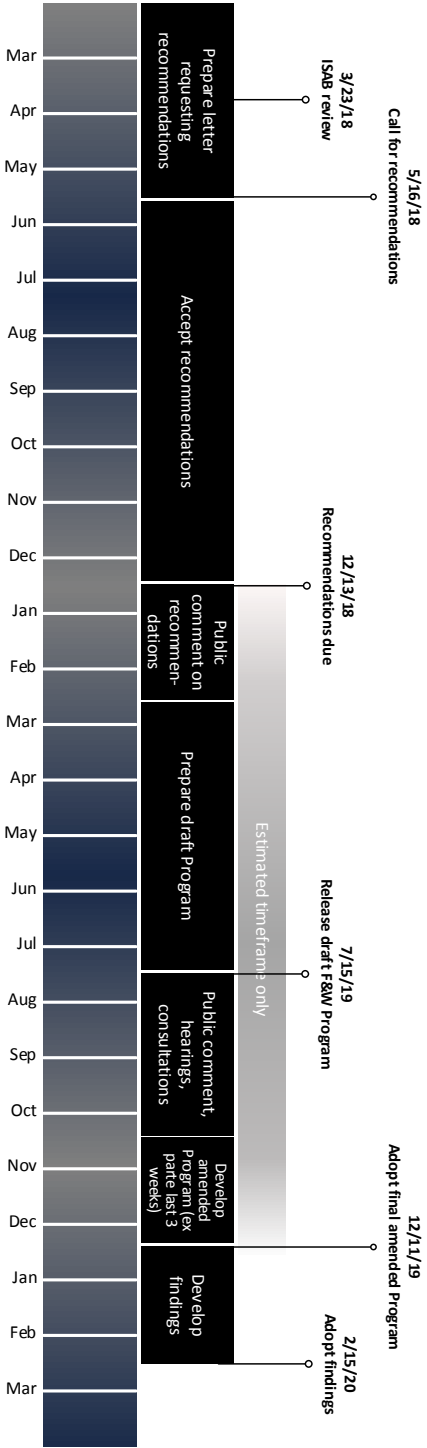
- Program amendment timeline
- Staff report – a high level overview of recommendations
- More detailed draft staff summaries of recommendations regarding:
 - Program goals and objectives
 - Adaptive management including monitoring and research
 - Implementation (program measures, investment strategy, project review, program coordination, scientific and economic review and other implementation topics)

Staff summaries are a way for staff to synthesize recommendations to aid in discussion; they are not a comprehensive restatement of recommendations and don't reflect detailed differences between recommendations. Members are always encouraged to continue to read the [original recommendations](#) for complete review.

More Info: <https://www.nwcouncil.org/fw/program/2018-amendments>

COLUMBIA RIVER BASIN FISH AND WILDLIFE PROGRAM AMENDMENT PROCESS 2018/19

DRAFT TIMELINE



Northwest Power and Conservation Council
Staff Report

**Overview of recommendations
to amend the
2014 Columbia River Basin Fish and Wildlife Program**

The following is a high-level overview of the recommendations to amend the 2014 Fish and Wildlife Program. This report is provided to give the Council members a sense of the scope the information and should be considered as an introduction to the recommendations. More detailed staff summaries can be found by clicking the link in the title of each section. Those summaries, while more detailed are a staff synthesis of the recommendations. For a complete review, please refer to the original recommendations, which can be found on the Council's [website](#).

The information below is organized according to the organization of the 2014 Columbia River Basin [Fish and Wildlife Program](#).

Part One: Overview - no specific recommendations received.

Part Two: [Introduction](#) (*Program framework, legal and social context, program progress, tracking the status of the basin's fish and wildlife resources*)

Although the Council received recommendations to change some elements of the structure of the 2014 Program, most fish and wildlife managers support retaining the 2014 Program and amending specific areas.

Some recommendations focus on the adaptive management strategy for revision. This will be described in more detail in other summaries. Some call for additions to the Program's structure, for example, an action plan.

Many recommendations describe frustration with Program implementation, recommending review of authorities and obligations under the Northwest Power Act and attention to areas where the recommendations suggest inadequate mitigation has occurred.

Part Three: [Basinwide vision, scientific foundation, goals, objectives](#), and strategies

Recommendations were submitted supporting the Program's vision to address hydrosystem impacts across the basin. Some are concerned that Program implementation doesn't reflect this commitment; others recommend narrowing the vision to link more to hydrosystem impacts. One recommendation was submitted to adopt the ISAB's modifications to the Program's scientific principles.

There were numerous recommendations for goals and objectives. Recommendations for identifying and refining goals and objectives ranged from having the Council propose a set of objectives to convening technically qualified individuals. Many suggest improving the organization and scale of goals and objectives, including condensing existing ones to reduce redundancies; organizing them to convey the geographic aspect of Program

implementation; connecting them to Program strategies and indicators, and improving their temporal aspect by splitting them into short and long-term timeframes. Recommendations also note the need to establish a baseline for comparison; prioritize hydrosystem goals and objectives; address non-ESA species; and consider climate change, the availability of data, and the feasibility of achieving the goals and objectives. More specific recommendations support maintaining current goals and objectives; clarifying the existing goals and objectives; and adding topics to the new program's goals and objectives.

Part Three: Strategies - how the Program will achieve the changes

- [Ecosystem function and habitat](#)

The recommended changes to the ecosystem Function Strategy were limited to editorial changes and one additional measure. For the habitat Sub-Strategy, there were a few recommendations for additional measures. These included recommendations for supporting research, monitoring, and evaluation to guide future protection and restoration actions; more habitat work in the tributaries of the lower Columbia River; linking the Corps of Engineers dredging program with opportunities to create habitat; and more strategic, targeted habitat restoration. There were also recommendations for habitat-related research efforts. Numerous entities called for maintaining and expanding the commitment to the Columbia Basin Water Transactions Program.

The Council received only a few recommendations on the strongholds sub-strategy. The concept of building from strength in the habitat strategy received support. Some recommendations supported expanding stronghold areas, and others suggested increasing the number of entities engaged in making stronghold recommendations.

- [Non-native and invasive species](#)

Entities that submitted recommendations relating to the Program's Non-native and Invasive Species Strategy showed support for retaining the current language of the Program, and many also provided additions.

Since the adoption of the 2014 Program, the distribution of Northern Pike has expanded to Lake Roosevelt. In response to that, several entities recommend specific language to include Northern Pike's impacts and work necessary to suppress the current population. Many managers recommend that the Program support the development of a regionwide rapid-response plan for the spread of Northern Pike into anadromous waters. And one manager recommends the full implementation of the Northern Pike Suppression and Monitoring Project (2017-004-00) in Lake Roosevelt. Other entities recommend inclusion of brook trout as a non-native species and shutting down a non-native fishery in Stanley Lake.

A couple recommendations call for continued support of the prevention of quagga and zebra mussels and the work of the 100th Meridian Initiative.

- [Predator management](#)

Many entities and fish and wildlife managers provided recommendations on the Predator Management Strategy of the Program, calling for the language to largely remain with a few additions and emphases.

General predation language: Several managers recommend that a contractor be hired and funded by the action agencies to develop a common predation metric to evaluate the effects of predation, and that once that is accomplished, a technical workgroup of managers should be convened to evaluate the effectiveness of predation measures. Several managers noted a concern about the slow pace of implementation for predation measures and the lack of connection that the measures have with the overall goal of suppression of predators and increase in fish survival. Recommendations call for further science and economics reviews of predation in the Basin.

Predator fish: Several entities recommend the inclusion of Northern Pike-specific language and work in the Program. One manager recommends expanded Northern Pikeminnow suppression while another manager recommends that no expansion of that work occur until all other predation measures are fully funded.

Predator birds: A few entities provided recommendations on predatory bird management, primarily focusing on continued current language. One manager expressed concern about the lack of complete implementation of the avian predation management plans in the Basin.

Predator seals and sea lions: Several entities recommend stronger Program language given the newly-adopted Endangered Salmon and Fisheries Predation Prevention Act.

- [Protected areas and hydroelectric development and licensing](#)

Recommenders supported the continuation of protected areas with some calling for potential expansion of protected designations.

- [Water quality](#)

Most recommendations on water quality focused upon two areas – the need for cold water refuges in the face of climate change and the potential to exceed state water quality temperature standards; and the continued effort understand the implications of toxic contaminants and their effects on all fish and wildlife species with an emphasis on lamprey.

- [Climate change](#)

The recommendations note that the summer of 2015 was a wake-up call for the Columbia Basin, seeing the potential effects of climate change in the summer die-off of a substantial portion of the sockeye run and serious impacts to other populations. Recommenders want to enhance the Climate Change strategy by 1) adding a more holistic vision to the Program that takes into account the potential deleterious effects of climate change; 2) including a provision for increased assessment of climate change effects on fish and wildlife populations and on restoration activities; 3) expanding the rationale section for why climate change strategies are a necessary

Program component; 4) directing the Council to look at potential hydropower, flood risk, and ocean regime alterations as they relate to fish and wildlife protection, mitigation and enhancement, and tribal first foods.

- [Mainstem hydrosystem flow and passage operations](#)

The Council received several recommendations on evaluating mainstem passage to improve conditions for anadromous and resident fish species. Those evaluations ranged from addressing potential blockages from sediment deltas to dam removal. Several recommendations focus on revamping spill operations and suggest a stronger Council role in helping the region develop future innovative spill operations. This includes evaluating potential changes to spill regimes for biological benefit and potential operational changes to minimize power generation impacts. Some operations modifications were recommended for Libby and Hungry Horse dams. The Council also received recommendations supporting Grand Coulee operations, for HCPs for the mid-Columbia projects, and passage at Albeni Falls.

- [Estuary, plume and nearshore ocean](#)

Many of the estuary recommendations cross over into other areas of the Program (climate change, hatcheries, predation, eulachon, etc.). Recommenders believe the estuary plays an important role in salmonid and other fish life cycles and merits continued and increased support, particularly monitoring and research to help close gaps in knowledge that limit evaluating the effectiveness of estuary actions. Recommenders support continued planning in the estuary. Others recommend offsite habitat mitigation in the tributaries to the lower Columbia to mitigate for estuary and hydropower effects on lower-river stocks.

Like the estuary, recommendations for the plume and nearshore ocean span a variety of topics, including climate change, eulachon, hatcheries, and predation. Recommenders consider the plume and nearshore ocean to be important areas for additional research for the salmonid life-cycle. They note that as conditions change in the plume and nearshore ocean, additional monitoring should take place to understand how these changes impact salmonid survival.

- [Wildlife mitigation](#)

Many recommendations suggest completing the wildlife settlement agreements, particularly in areas with operational loss assessments. Managers continue to endorse the 2:1 crediting ratio established by the Council in the 2000 Fish and Wildlife Program but suggest clarifying the language on using the ratio in the event of habitat unit stacking. Wildlife managers in the Hungry Horse and Libby areas suggest adopting the results of operational loss assessments into the Program, while others seek funding for an operational loss assessment. Recommendations support providing long-term operations and maintenance funding for existing and future mitigation properties and monitoring and evaluation activities. There is some dispute over the extent of construction and inundation loss mitigation remaining in certain areas of the Columbia Basin. There is interest in using wildlife as a means to address the loss of anadromous fish in blocked areas of the basin. The Wildlife Advisory Forum is considered valuable, but its decision-making structure and capacity level needs clarification.

- [Fish propagation including hatchery programs](#)

Many of the recommendations continue to support the need for artificial production, aquaculture, and other propagation techniques. The recommendations support purposes including mitigation; conservation; integrated production, segregated production or a combination; short-term recovery; restoration; ESA responsibilities; biological benefits; prevention of extinction; harvest; cultural harvest; harvest management; sport and commercial harvest; kelt reconditioning; increasing orca forage; and recovery of naturally reproducing populations and locally adapted populations.

Many recommendations stressed the need to balance the use of hatcheries to ensure they meet their intended purpose and protect the integrity of non-hatchery fish in the Columbia River Basin. Emphasis was placed on dealing with trade-offs -- what has been learned, understanding site-specific needs and management at the subbasin level, and/or even at the river and population level. Recommendations also acknowledged the Council's leadership and interest in past actions regarding hatcheries and the importance of building on this information in the future. Collaborative efforts to coordinate the hatcheries in the Basin are encouraged.

This collaborative and coordinated approach is also inherent in the *research, monitoring and evaluation* needs raised in the recommendations. This builds on past efforts, supports additional work and supports the use of genetic tools and information about cumulative interactions in the ecosystem.

The recommendations highlight data needs, data compilation and reporting, particularly in context to hatchery-related goals.

Some entities recommend the continuation and improved implementation and funding of specific production programs and facilities, primarily through the Accords. In addition, new and or expanded efforts are recommended (i.e., Willamette, Accords, above Chief Joseph and Grand Coulee dams, and John Day Mitigation), including increased production for orca forage.

Several recommendations mentioned the need for adequate support and funds for hatchery operations and maintenance.

- [Wild fish](#)

Restoration of communities of native fish and wildlife at the local and basin-wide scale is critical to restoring ecosystem functions, and these efforts should extend to transboundary stocks of fish and wildlife and their habitat. Restoration efforts should aim to provide environmental conditions that best fit native fish natural habitat requirements. These efforts should also recognize and support as appropriate off-site mitigation restoration and protection for Chinook, coho, steelhead and chum in the Lower Columbia tributaries. Biological effectiveness should be considered when prioritizing mitigation measures.

Consider how best to address potential impacts of climate change on native species and their habitat given other limiting factors, such as by developing a comprehensive basin-wide strategic plan or by initiating a long-term climate-change strategy. Securing thermal

refuge areas should remain a priority, and this effort should expand to the Lower Columbia region.

Priority monitoring and evaluation should be identified based on the need to understand key species from the list of the Council's 273 fish and wildlife focal species, which includes 21 resident fish species (e.g., bull trout, burbot, redband trout, sturgeon), one freshwater sponge species, and six anadromous fish species (e.g., Pacific lamprey, salmon, and steelhead). Information that should be supported includes identifying and assessing factors limiting focal fish species in priority reaches and at the fish community scale; assessing genetic distribution of redband trout and other species; and tracking the status and trends of focal species and their limiting factors. Using or adopting quantitative goals for hatchery needs, wild salmon, and steelhead, such as wild spawner escapement objectives for natal streams, should be considered, and progress toward these evaluated by rolling up status and trend data at various scales annually. The ISAB could be asked to evaluate whether harvest is regulated to achieve escapement targets.

To this end the Program should recommend funding investments in transboundary restoration efforts by American ratepayers in proportion to anticipated benefits to American fish and wildlife populations; evaluation of limiting factors; projects addressing limiting factors; assessing effectiveness and improvements needed to achieve escapement goals; and adopting and funding full implementation of the Coordinated Assessments Data Exchange to report on the indicators of natural origin salmon and steelhead. Lastly, to convey what has been lost, consider mapping extirpated or historical distribution of focal species.

- [Anadromous fish mitigation in blocked areas](#)

Recommendations were received on numerous topics relating to reintroduction of anadromous fish into blocked areas of the basin: above Chief Joseph and Grand Coulee dams, Willamette dams, Hells Canyon Complex, and Pelton Round Butte Complex, as well as fish passage into other blocked areas in Oregon and Washington.

Thirteen recommenders call for continued support of the phased approach for reintroduction above Grand Coulee and Chief Joseph dams, and the STI recommends a specific action plan to complete the first phase. STI recommends that BPA fund both its anadromous fish mitigation program and the proposed action plan to complete Phase I. Several managers recommend that the funding allocation be examined for equity throughout the Basin and provide specific percentages that should be followed until fish harvest opportunities are equal throughout the Columbia River Basin.

Four tribes and tribal groups recommend specific language for reintroduction of anadromous fish above the Hells Canyon Complex to be included in the Program, and three of those entities recommend that the Council adopt into the Program the Hells Canyon Complex Fish Management Program Plan.

Six entities recommend that the Program retain the language for fish passage and reintroduction at the Willamette dams, and ODFW specifically recommends additional funds from BPA and the Corps be used to expand the passage efforts. In

addition, several entities recommend restoring and/or recognizing fish passage in other areas of the Basin including the Deschutes, Yakima, Grand Ronde, and Umatilla river basins.

- [Resident fish mitigation](#)

Most recommenders support initiating, completing and funding the resident fish habitat loss assessment as described in the 2014 Program, and another called for mitigation of these unquantified impacts. With respect to fish passage, a recommender provided a detailed schedule and approach for the Action Agencies to pass fish above Albeni Falls by 2024, and another recommends including passage above Chief Joseph Dam and Grand Coulee Dam in this section of the Program. Recommendations were also submitted supporting investigating means to supplement natural production of freshwater mussels, and that the Action Agencies evaluate the presence, status, and biological needs of all freshwater mussel species and seek action to mitigate for adverse effects of the hydrosystem. It was also recommended to include measures and alternatives from the bull trout biological opinion, strategies, and actions for three recovery units from the bull trout recovery plan, and recognition of enhancement and restoration efforts guided by FERC license requirements.

Creating a redband trout repatriation project to improve survival of these wild adfluvial fish and increase the number of adults returning to their natal tributaries was recommended. Individuals also recommend funding and investing in restoration using a basin-wide ecosystem approach; prioritizing, mapping focal species; tracking status and trends of focal species; and providing long-term operation and maintenance funding for all resident fish mitigation properties. Some recommenders specifically stated that they supported the existing language in the strategy, which in the 2014 Program pertains to resident fish including freshwater mussels, threatened bull trout, burbot, westslope cutthroat trout, mountain whitefish, endangered Kootenai white sturgeon, and resident life histories of the native anadromous species, such as Columbia River white sturgeon and kokanee. Recommendations for this section were submitted by 10 entities, consisting of six tribes, one state, one federal agency, one PUD, and one NGO.

[Sturgeon](#)

Recommendations on sturgeon measures came from ODFW, WDFW, STI, KTI, MFWP, USGS and USFWS. The recommendations generally support the existing measures in the 2014 Program and the continued inclusion of sturgeon as an emerging priority and *add* additional specificity or measures. The additional measures focus primarily on increased funding for research and stock assessments and increasing coordination among sturgeon managers and researchers. Several commenters reference the ISAB's recommendations for sturgeon actions.

[Lamprey](#)

Most recommendations support the Program and emphasize the cultural and ecological importance of lamprey; the importance of the Lamprey Technical Work Group; and the conservation initiatives. This includes support of the USACE's passage improvement plan as part of the 2008 memorandum of agreement with the tribes and CRITFC. Many recommendations want to ensure that the needs of

lamprey and other non-listed fish are addressed as part of other activities in the basin, such as predation, hydrosystem and systemwide water management, and habitat restoration efforts. A wide array of research and monitoring priorities also need to continue or be expanded. New and continued efforts were also mentioned, i.e., Willamette, and Accord extensions.

- [Eulachon](#)

Recommendations on Eulachon came from ODFW, WDFW, CIT, NOAA and USGS. Most recommendations focused on including Eulachon in the emerging priorities and support for a more robust Eulachon strategy in the Program. That includes incorporating updates on actions and research needs from NOAA's 2018 Eulachon Recovery Plan, critical uncertainties in the Council's 2017 Research Plan and the 2015 Eulachon Science and Policy [Report](#). The recommendation also includes specific implementation actions including spawning stock biomass monitoring and funding basic research on the biology and ecology of Eulachon.

- Public engagement - No specific recommendation received. See Coordination and Project review for related topics.

Part Four: [Adaptive management](#) (*monitoring, effectiveness, research, data Management, reporting, evaluation*)

Numerous entities recommend restructuring the adaptive management section and the individual strategies to identify and evaluate specific objectives for the Program. Other recommendations focus on adaptive management principles at the project level. Many entities support the ongoing collaborative efforts to develop a research, monitoring and evaluation strategy (RM&E) and to have the Council (with others) lead the effort. The recommendations also support continued funding for RM&E, including status and trend monitoring.

Managers support efforts for data collection and regular reporting. Recommendations support funding the Coordinated Data Exchange, as well as a single, centralized public website. The recommendations also stressed the need to fund regional monitoring and data management programs.

Research was noted in several recommendations, including developing a distinction between research and monitoring; developing reporting templates; and developing criteria for research projects. There were recommendations supporting continued life-cycle modeling and offering specific research topics.

Managers also support expanded monitoring efforts in the ocean and within the basin to feed data-driven evaluation processes. Recommendations for hatcheries include the need to address critical uncertainties and improve coordination in hatchery research and monitoring.

Part Five: [Subbasin Plans](#)

Recommendations include using the subbasin geographic designation when organizing project reviews and for organizing data, such as anadromous fish objectives or for status and trend information. Recommendations also included recognizing the information already in adopted subbasin plans to highlight important critical uncertainties or for making data comparable across subbasins. Some recommendations suggest that the plans should be updated to be consistent with recovery plans.

Part Six: How the Program is Implemented

Program measures

The Council received many recommendations for changing or adding specific measures at the basinwide level of the Program, for the mainstem Columbia and Snake Rivers, and for the subbasins. Many recommendations provide lists of projects or specific actions to include as *subbasin measures*, as the Council has done in previous Programs. A few recommendations suggested edits to the text of this section.

Investment strategy

The Council received numerous recommendations from entities across the Basin regarding the 2014 Program's Investment Strategy. These recommendations cover general Program implementation, funding allocation, emerging priorities, and a Program action plan.

Several managers emphasize the deference that the Act gives the fish and wildlife managers and call for the Council to hold Bonneville to that deference within project management. Many managers provided recommendations calling for equitable funding across the Basin, with the Upper Columbia receiving a greater amount of money for restoration projects than current levels in order to balance out the harvest opportunities throughout the Basin. Many entities recommended specific actions be added to the Program's priorities, such as the Columbia Basin Water Transactions Program; one manager recommended that priorities that have received substantial funding for the 2014 Program be removed from the list going forward; and another manager recommended that no change be made to the priorities list until actions for each of those items are complete. Three entities recommended that the Council pursue an action plan to implement restoration actions over the five years following the adoption of the next Program amendment.

Project review

Many entities used the recommendations process to comment on how the Council should conduct project review under Section 4h10D of the Northwest Power Act. The comments range widely from general support of independent scientific review, to suggesting efficiencies, evaluation criteria, frequency of reviews, and the process for conducting reviews, including who should be involved in planning, reviewing, and recommending work. Several comments from managers suggested that project review could be more efficient (for Council and ISRP review) and that long-term projects should be reviewed in a different manner than short-term projects. The

comments from the Public Power Council and other BPA customer groups stated strong support for continuing independent scientific review of all funding proposals.

The comments included specific evaluation criteria for considering *new* work and for existing projects including projects included in the Columbia Basin Fish Accords. The intent is to maximize benefit and ensure consistency with the Program and regional plans while also considering changing environmental conditions.

Program coordination

The 2014 Program calls for coordination with other regional programs, and recommendations emphasized this, noting as examples the Accords, Columbia River System Operations Environmental Impact Statement, and the FCRPS biological opinion. Several managers recommended that the Council adopt into the Program the projects included in the 2018 Accord extension agreements; one tribe recommended that those projects receive Council review for consistency with the Program. Many recommenders are engaged in the CRSO process and suggested that the Council stay involved in the process and that the Program remain flexible as the CRSO finalizes its outcomes. Many managers emphasized the importance of coordination funding and recommended that the Program continue to support and maintain those funds. Several recommendations asked for coordination with specific projects and processes, such as updates to recovery plans and funding for the Lake Roosevelt Forum.

Independent scientific and economic review

There is support for having the Council and its independent boards conduct scientific and economic reviews. Numerous potential review topics were recommended spanning a diversity of topics including predators, climate change, action effectiveness, potential for restoration, contaminants, operation and maintenance of facilities, power system strategies, dam breaching, and costs related to the Program. A couple of these topics were specifically called out to be part of a forum, such as a science/policy forum on flow and passage and/or a broader discussion forum on alternative means for assessing predicted benefits. There was also a specific request by three recommenders to have a co-manager workgroup with involvement by the Council, ISRP, and ISAB to review products from the Columbia Basin Partnership Task Force. One recommender requested that the draft Program be reviewed by the ISAB prior to adoption.

Other implementation recommendations

Several recommendations are related to project review and implementation, but don't fit neatly into a single category. Rather, they overlap with several areas *within* Program implementation (such as cost savings, priorities, ISRP review, etc).

A set of recommendations is directed toward project administration and management by both the Council and Bonneville. Some recommendations suggest that Bonneville has been managing projects and budgets in a way that deviates significantly from the Council's recommendations and that the Council and BPA

should review these for where this has occurred in the Program. Several comments on the recommendations sharply call out this idea as well.

Several Accord parties seek recognition and support of the accords/memorandums of agreement in general, but more specifically call out Accord language that is specific to project implementation. The issues range from asking for recognition of tribal expertise in project implementation, to streamlining review and permitting processes, improving project administration and management to increase project review efficiencies. The Spokane Tribe calls the review of the Accords by the Council to ensure consistency with the Program.

Staff summary of issues and recommendations
2014 Program Part Three: Basinwide Vision, Scientific Foundation, Goals, Objectives, and Strategies

2014 Fish and Wildlife Program Sections

Part Three:

- I. Vision for the Columbia River Basin
- II. Scientific foundation and principles of the program
- III. Goals and Objectives – the changes we want to achieve

Overview

Recommendations were submitted supporting the program's vision to address hydrosystem impacts across the basin. Some are concerned that program implementation doesn't reflect this commitment; others recommend narrowing the vision to link more to hydrosystem impacts.

One recommendation was submitted to adopt the ISAB's modifications to the program's scientific principles.

There were numerous recommendations for goals and objectives. Recommendations for identifying and refining goals and objectives ranged from having the Council propose a set of objectives to convening technically qualified individuals.

Many suggest improving the organization and scale of goals and objectives, including condensing existing ones to reduce redundancies; organizing them to convey the geographic aspect of program implementation; connecting them to program strategies and indicators, and improving their temporal aspect by splitting them into short and long-term timeframes.

Recommendations also note the need to establish a baseline for comparison; prioritize hydrosystem goals and objectives; address non-ESA species; and consider climate change, the availability of data, and the feasibility of achieving the goals and objectives.

More specific recommendations support maintaining current goals and objectives; clarifying the existing goals and objectives; and adding topics to the new program's goals and objectives.

I. Staff summary of issues and recommendations

A. Vision

- Vision is well suited to accomplish equitably addressing impacts of the hydropower across the basin. (CTGR, Kalispel Tribe)
- Narrow the vision statement to focus the actions of the Program to the nexus with the hydroelectric system (Snohomish PUD)

B. Scientific principles

- One recommendation was submitted to adopt the ISAB's modifications to the program's scientific principles (Public Power Council, Northwest RiverPartners, PNGC Power, and Northwest Requirement Utilities)

C. Goals and objectives

Update/Expand the Program's process for Refining/Identifying Goals and Objectives

- Propose in draft program and adopt in final program a set of quantitative objectives, based on recommendations and any other relevant information, (Sierra Club et al.)
 - Implement the ISAB's remedial recommendations for objectives (TU)
- Apply refinement process for other objectives to hatchery mitigation and productions goals and determine if can convert to an "adult equivalent" indicator at the mouth of the Columbia River (IDFG, OSC).
- Convene technically qualified individuals (IDFG, OSC, CTGR, YN, TU) to develop, review, and update goals/objectives; specific entities are suggested (TU, Sierra Club et al.) including CBPTG provisional goals (IDFG, OSC, CTGR)
- Review progress of 2014 Program's refining program goals and quantitative objectives tasks (IDFG, OSC)

Restructure Biological Objectives to Condense, Clarify Levels, Connections to Program Strategies, Geographic Coverage, and Temporal Aspects.

- *Condense* by removing redundancies in appendix D goals (TU; PPC et al.)
- *Develop objectives at multiple scales*, such as basin, subbasin and watershed, lifecycle (ODFW, WDFW, CTGR, NPT, YNF, NOAA Fisheries, USGS, Sierra Club et al., TU, Freshwater Trust). Objectives can be aggregated to derive more over-arching goals (TU, USGS)
- *Connect* goals, objectives, strategy/measure; and indicators (PPC et al., IDFG, ODFW, WDFW, CTGR, NPT, TU, Freshwater Trust)
- *Geographical* objectives to ensure that mitigation work is distributed across the basin equitably with respect to impact (Lower Columbia Estuary Partnership, Kalispel Tribe)
- *Short-term and long-term* goals and objectives should be developed (TU, Freshwater Trust, (PPC et al., Sierra Club et al., Freshwater Trust)
- *Establish time frames* for objectives (a specific year, not "within X years") (TU)
- *Rolling* five-year basis for reporting (ODFW, WDFW, NPT, TU)

Scope/Priority/Data Availability/Feasibility/Assess Progress of Goals and Objectives

- Goals should reflect that Program is broader than ESA BiOps (ODFW, WDFW)
- Prioritize goals with a direct hydro linkage. (PPC et al.)
- Consider impacts of climate change into biological objectives (Sierra Club et al.), and other underlying factors (IDFG, OSC, TU)
- Consider availability of data for regular reporting on objectives (ODFW, WDFW, NPT, Sierra Club et al., TU)
- Evaluate feasibility of attaining 2%-6% target SAR rebuilding rates. (Kintama)

- Assess gaps between status and Program objectives (WDFW, NPT, YNF, NOAA Fisheries); why 5 million salmon and steelhead goal not achieved (The Conservation Angler)

Baseline

- Establish quantitative baselines against which to measure the rate and amount of progress in restoring fish populations (ODFW, WDFW, NPT, YN, NOAA Fisheries, USGS)

Maintain Existing Goals and Objectives

- Maintain basinwide objectives (ODFW, WDFW, LCRG, NPT, Sierra Club et al.)
- Focus on achieving existing goals and objectives; wait for program funding to expand before adding new strategies, goals, objectives (BPT)

Refine Existing Goals and Objectives

- Clarify measure of success (PPC et al.)
- Specific suggestions provided to improve Goal 3 to 18 and Goal 20 to 21 (TU)
- Specify 2-6% Smolt to Adult Return (SAR) goal is a 5-year average (TU)
- Clarify and split into two objectives the “Achieving 5 million salmon and steelhead by 2025” objective (IDFG, OSC, Conservation Angler, TU)
- Pre-dam losses of salmon and steelhead may be less than thought, given the new run estimates from the Density-Dependence report (ISAB 2015-1) (TU)

Add New Goals and Objectives

- *Develop, identify, expand* objectives (YNF), for focal species (TU, CTGR), to promote resilience to climate change (WDFW, ODFW), address key Program goals (TU), and in context of non-native and invasive species (LCRG)
- *Viability* quantitative *salmon/steelhead* goals such as genetic diversity, spatial structure, diversity, and productivity (TU, Sierra Club et al.)
- *Escapement* quantitative goals (IDFG, OSC); Dam-based escapement for upriver stocks (TU)
- *Hells Canyon Complex* Fisheries Resource Management Plan salmon and steelhead goals (BPT, SBT, USRT)
- *Lamprey* objectives such as specific abundance levels for lamprey reaching locations where lamprey can be counted. could include targets for lamprey abundances in the future, such as, 20% increase in 10 years (TU)
- *Hydrosystem* quantitative goals (CTGR) such as low powerhouse encounter rates, minimal fish travel times, and better reach survival outcomes (ODFW, WDFW, NPT)
- *Total Dissolved Gas* standard of 110% for for Albeni Falls Dam (Kalispel Tribe)
- *Mid-C HCPs* performance standards as baseline objectives (Chelan PUD)
- Wildlife operational losses for Libby (35,571 acres) and Hungry Horse (26,321 acres) dams (MFW&P, KTOI)
- *Harvest* quantitative objectives set with stakeholder input. (TU)

- *Ecosystem/Habitat* quantitative objectives. (CTGR, STI, TU) and for habitat actions (Sierra Club et al.).
- *Hatchery fish objectives* by hatchery and species (TU) such as numbers of fish spawned and released, returning hatchery adults, recruits per spawner (IDFG, OSC); and be consistent with *United States v. Oregon* production goals (NOAA Fisheries)
- *Columbia Basin Task Force Partnership* provisional quantitative goals to be used or adopted (IDFG, OSC, ODFW, WDFW, NPT, USRT, NOAA Fisheries, Sierra Club et al., TU).

II. Summary of comments

A. Vision

- Supports recommendation to revise the Program's vision statement to more directly connect the actions of the Program to the nexus with the hydroelectric system (Cowlitz PUD)

B. Scientific Principles

- Supports recommendation to adopt ISAB's recommendation for the Program's guiding principles (Cowlitz PUD)

C. Goals and Objectives

- Submitted comment that clear objectives are imperative to ensure that the Region maintains access to adequate, efficient, economical, and reliable carbon-free power (Cowlitz PUD)
- Submitted comment referring to the Northwest Power Act call for recommendations from the agencies and tribes to "establish objectives" for projects and programs intended to meet requirements of the Act (CRITFC; YN)
- Submitted comment to not include the 2008 FCRPS Biological Opinion juvenile dam passage survival performance standards of 96% for juvenile spring chinook and steelhead and 93% for snake river fall chinook subyearlings (ODFW)
 - [staff note: these are currently part of the 2014 Program's Appendix D Program goals and objectives, and originally included in the 2009 Program Mainstem section.]
- Submitted comment that reach survival estimates for the mainstem Snake and Columbia rivers are important biological context for the effects of the FCRPS (CRITFC)
 - [staff note: reach survival adult performance standards are included in the 2014 Program's Appendix D Program goals and objectives, and originally included in the 2009 Program Mainstem section.]
- Submitted comment that recovery goals apply to all sources of mortality limiting a listed species and not just the hydroelectric dams covered by the Northwest

Power Act, thus the Program should be carefully drafted to avoid conflating the broad goals of the ESA with Northwest Power Act requirements (Bonneville)

- Submitted comment to focus on adopting a set of specific biological objectives to measure progress at specific time-frames (e.g., the next five, ten and twenty years) and not for setting interim limits on mitigation measures (EarthJustice)
- Supports recommendations to consider effects of climate change on objectives (EarthJustice)
- Supports the current abundance (5 million salmon and steelhead) (ODFW; CRITFC; YN; EarthJustice) and SAR goals (2-6%) in the Program (ODFW; WDFW; CRITFC; YN; EarthJustice)
- Supports using as Program benchmarks/performance standards the NOAA Fisheries Columbia Basin Task Force recommendations (ODFW)
- Supports the Council reviewing the Task Force products but emphasize these quantitative goals are still "provisional" and require proof-of-concept in Phase 2 (CRITFC)
- Supports recommendations to have adult salmon and steelhead escapement objectives to quantify progress toward the Program's long-standing goals (CRITFC)
- Supports recommendation to link Program strategies and measures to quantifiable biological objectives and reporting requirements; 2) including more high-level indicators for other species (e.g. sturgeon, eulachon, lamprey, bull trout); and 3) including indicators for hatcheries and habitat, which receive substantial funding from the Program (WDFW).
- Supports recommendation to prioritize goals and ensure there is a clear and obvious linkage to the Federal hydro system (Cowlitz PUD)
- Supports recommendation to document historic accomplishments, prioritize measures and objectives, understand cost-effective mitigation alternatives, and track statutory responsibilities (Cowlitz PUD).
- Supports recommendation for the Council to identify and propose a full suite of appropriate quantitative biological objectives as part of the *draft* 2019 Fish and Wildlife Program, to inform final program (Earth Justice)

III. Excerpts of the recommendations

**Preliminary draft, please refer to full recommendations for complete review*

View the [document linked here](#) for the excerpts of the recommendations referring to the 2014 Program Part Three: Basinwide Vision, Scientific Foundation, Goals, Objectives, and Strategies.

Staff summary of issues and recommendations

2014 Program Part Four: Adaptive Management

2014 Program Sections

Part Four: Adaptive Management

Includes monitoring, effectiveness, research, data management, reporting, evaluation

Appendix L: Reporting

Overview

Numerous entities recommend restructuring the adaptive management section and the individual strategies to identify and evaluate specific objectives for the program. Other recommendations focus on adaptive management principles at the project level. Many entities support the ongoing collaborative efforts to develop a research, monitoring and evaluation strategy (RM&E) and to have the Council (with others) lead the effort. The recommendations also support continued funding for RM&E, including status and trend monitoring.

Managers support efforts for data collection and regular reporting. Recommendations support funding the Coordinated Data Exchange, as well as a single, centralized public website. The recommendations also stressed the need to fund regional monitoring and data management programs.

Research was noted in several recommendations, including developing a distinction between research and monitoring; developing reporting templates; and developing criteria for research projects. There were recommendations supporting continued life-cycle modeling and offering specific research topics.

Managers also support expanded monitoring efforts in the ocean and within the basin to feed data-driven evaluation processes. Recommendations for hatcheries include the need to address critical uncertainties and improve coordination in hatchery research and monitoring.

I. Summary of Issues and Recommendations

A. Adaptive Management

Numerous entities recommend restructuring the adaptive management section of the Program and the individual strategies to identify specific objectives:

- “It is very difficult to find a useful adaptive management logic path in the current document. Nowhere can you find (in one location) a goal with associated quantitative objectives, the strategy/measures to meet the objective(s), the monitoring required for the strategy/measures and the plan for reporting progress toward meeting the goal/objective(s).” (IDFG, ODFW, WDFW, OSC, CTGR, NPT)
- Establish quantitative baselines against which to measure the rate and amount of progress in restoring fish populations. Adopt population-scale objectives and use those objectives as a measure for Program progress over time. (IDFG, ODFW, WDFW, OSC, YNF, CTUIR, NPT, NOAA Fisheries)
- Develop guidance for adaptive management for projects; develop rigorous decision-making processes based on regional strategies, address quantitative project objectives, develop coordinated monitoring and evaluation, and incorporate outcomes (i.e., lessons learned) into decision-making cycles that include project leaders, regional technical teams, and local stakeholders. (CTGR, USGS, TU)
- Emphasize the importance and provide the programmatic guidance needed to implement adaptive management processes at the project level as recommended by the Independent Science Advisory Board 2014 Review (ISAB 2018-3 p. 20). (IWRB)

The LCFRB recommends that the Council provide leadership and resources for coordinated Basin-wide and local monitoring and adaptive management efforts.

IDFG and OSC suggest that the Council recognize that "monitoring, research, data management, evaluation, and reporting are essential tools of adaptive management for assessing successes and failures of measures that implement the Program". The differences between research, action and effectiveness monitoring, and status and trend monitoring need to be better defined and the means for identifying and tracking these different types of evaluations by Bonneville and the Council need to be better defined.

IDFG and OSC also state that it is important for the Council to...insist that hatchery programs have clearly stated goals and objectives. Furthermore, a set of indicators (e.g., quantitative objectives for hatchery fish, numbers of fish spawned and released, returning hatchery adults, recruits per spawner) should be defined

and incorporated into the adaptive framework for hatchery programs.

B. Monitoring and Evaluation

Many entities support collaborative efforts to develop a research, monitoring and evaluation strategy (RM&E) and to have the Council (with others) lead the effort:

- Continue collaborative efforts, such as the 2009 Anadromous Salmonid Monitoring Strategy to improve coordination of research monitoring and evaluation. Outcomes from collaborative efforts should identify, prioritize and fund monitoring strategies. (IDFG, ODFW, WDFW, OSC, YNF, CTGR, CTUIR, NPT, NOAA)
- Provide an explicit monitoring and evaluation framework that identifies what measures and information will be reported on regular basis to inform decision making and evaluate Program performance. (IDFG, ODFW, WDFW, OSC, YNF, CTGR, CTUIR, NPT, NOAA, USGS, BPA, TU)
- Develop well-coordinated M&E plans and strategies with Bonneville Power Administration and NOAA Fisheries. (UCSRB)
- Work with regional technical partners to define measures for specific types of projects that can be analyzed and reported in a consistent manner at appropriate scales. (UCSRB)
- Provide leadership and resources for coordinated Basin-wide and local monitoring and adaptive management efforts (LCFRB)
- We agree with the ISAB that the topic of fish and wildlife “Monitoring, evaluation, reporting, research and data management” is the most important issue for the NWPCC to consider during the amendment process. The FWP could become more effective and efficient by implementing a dedicated research, monitoring, and evaluation component that can provide the basis for learning and support adaptive management. (USGS)
- The RME portion of the Program would also benefit from an economic analysis. There is a need to determine if and where RME funding fails to yield a sufficient return-on-investment in terms of informing resource management decisions that create positive biological impacts, and particularly where funded research data is unavailable or unused. (BPA)

Many recommendations support continued funding for RM&E, or identify specific types of monitoring needs:

- Continue support (programmatic and financial) for RM&E (ODFW, MFW&P, WDFW, OSC, IWRB, LCFRB, UCSRB, YNF, CTGR, NPT, USGS, TU, BPA, AR).
- Fund habitat status and trend monitoring for priority subbasins. (IDFG, ODFW, WDFW, OSC, YNF, CTGR, CTUIR, NPT, NOAA)
- We recommend that consistent, repeatable, monitoring of “fish in and fish

out” be achieved through a commitment of support, coordination, and continuous education. (USGS)

- The need for routine status and trend monitoring, which provide baseline data on abundance, productivity, and survival needs to be more directly written in the Fish and Wildlife Plan, with associated Principles. (IDFG, OSC)
- Support/fund addressing key data gaps for the adaptive management process associated with *Recovery Plan* implementation. (UCSRB)
- Fund Mainstem and subbasin monitoring strategies that have successfully been vetted through the NPCC implementation review process. (CTGR)
- Encourage collaborative efforts to improve coordination of hatchery research, monitoring and evaluation and develop and manage accessible data repositories; support the use of genetic tools such as parentage- based tagging and genetic stock identification (IDFG, OSC)
- Monitoring to support relative reproductive success and integrated broodstock supplementation programs should be routine elements of responsibly managed hatchery programs and not viewed as redundant and unnecessary. (IDFG, OSC)
- Continue monitoring juvenile salmonid use in the estuary, ocean, plume as well as environmental conditions that can affect this use. (LCEP)
- Continue to support annual wildlife monitoring and evaluation activities on lands that are acquired as partial mitigation for the construction and inundation losses for Grand Coulee Dam. The Upper Columbia Ecoregion requires a robust, well-funded monitoring and evaluation and data management programs to ensure that long-term anadromous, resident fish and wildlife projects are achieving the established biological benchmarks over time. (STI)
- Better understand the relationships between physical and biological factors, so that we could improve our predictive capacity and inform deployment of new restoration projects in the most effective way. (USGS)
- Create a program to equip commercial and recreational (charter) boats (at sea) along the west coast with hand held PIT tag readers. (CTA)

C. Data Management

Numerous entities discuss specific data management structures:

- The role of programmatic projects that support the adaptive management portion of the Program including the Fish Passage Center, Comparative Smolt Survival Study, Smolt Monitoring Program, StreamNet, StreamNet Library, Inter-Tribal Monitoring Data Project, Pacific Northwest Aquatic Monitoring Partnership, and others needs to be identified. The Council should adopt and Bonneville fund full implementation of the Coordinated Assessments Data Exchange. Establish the Coordinated Assessments Data Exchange as the database of

- record for the Program. (IDFG, ODFW, WDFW, OSC, YNF, NPT, NOAA)
- Bonneville, in partnership with the Council and the region, should ensure that summarized data associated with broad categories of information (fish abundance, productivity, genetic diversity, geographic distribution, habitat conditions) are identified and accessible from a single, centralized website. Data users should be able to find references, data descriptions, and links to all the data collected in the Program on fish abundance in a publicly- available website. (IDFG, ODFW, WDFW, OSC, YNF, NPT, NOAA)
- Continued support for efforts to coordinate and implement a consistent, sustainable regional direction, including StreamNet, PNAMP, Inter-Tribal Data Management, the CRITFC StreamNet Library, and the Regional Coordination forum, is invaluable and deserves the Council's support. (CRITFC)

Various entities also mentioned supporting data management efforts across the region:

- Bonneville should provide support to ensure that all managers have the capacity to collect data and should support regional processes that standardize the data, facilitate reporting, and make this data publicly accessible. (IDFG, OSC)
- Fund the salmon and steelhead co-managers to establish and maintain a reliable, sustainable, and transparent data exchange for salmon and steelhead data. (IDFG, ODFW, WDFW, OSC, YNF, NPT, NOAA)
- BPA should fund adequate data management projects and data stewards within the agencies and tribes to support regional reporting requirements for evaluation of Program activities that are additional to the agencies and tribes' routine data management activities. (ODFW, WDFW, NPT)
- The Upper Columbia Ecoregion requires a robust, well-funded monitoring and evaluation and data management programs to ensure that long-term anadromous, resident fish and wildlife projects are achieving the established biological benchmarks over time. The strategy relies on 1) adequate funding for long-term monitoring and evaluation elements; 2) proper linkages to data sharing and data management; and 3) investments in appropriate infrastructure. (STI)
- A threshold issue would be to address data management issues, to ensure that research work that receives funding yields accessible data in a universally useful form. (BPA)

D. Reporting

Many entities recommend retaining the reporting measures that are currently in the 2014 Program. These include:

- Continue to develop and implement a concise, useful template for annual reports for research and monitoring projects and provide clear direction on

how to identify projects and types of research, monitoring and evaluation. (IDFG, ODFW, WDFW, OSC, YNF, NPT)

- Require all research, monitoring, and evaluation projects, including hatchery programs, to report annually, providing an electronic summary of their results and interim findings, as well as the benefits to fish and wildlife. (ODFW, WDFW, NPT)
- A high priority is to separate research reports from monitoring reports. The former should address hypotheses and critical uncertainties and the latter should provide important data about implementation, status, and trends. As appropriate, action effectiveness should be reported as part of research and monitoring reports. (IDFG, ODFW, WDFW, OSC, NPT)
- Require the project sponsors to provide information on the condition of the populations and/or watersheds at least every five years in a format that can be used by the Council. (ODFW, WDFW, NPT)
- Ensure that summarized data associated with broad categories of information (fish abundance, productivity, genetic diversity, geographic distribution, habitat conditions) are identified and accessible from a single, centralized website. (IDFG, ODFW, WDFW, OSC, NPT)
- Ensure that all information about anadromous fish is summarized by sub-region, subbasin, subwatershed, specific life-stage and made accessible from a single gateway location. (ODFW, WDFW, NPT)
- Contract for complete data products that inform high-level indicators and not only collaborative processes and preliminary collection of raw data. (ODFW, WDFW, NPT)

One additional measure was added:

- All status and trend data should be made publicly available within one year of either when the data were collected (Fish data) or after the models have been run (habitat data).

Snohomish PUD suggested a framework for evaluating proposed projects that included a brief quarterly report in addition to the annual reporting requirement

E. Research

Some recommendations focused on clarity between research and monitoring, or how research will be used to further the Program and regional efforts:

- Delineate research from ongoing monitoring; Establish a policy framework to prioritize and recommend RM&E projects based on an evaluation of cost, risk, and certainty; Ensure research is: 1) based on the best available science, 2) has appropriate study designs, 3) is subject to review by the independent science panels, 4) addresses issues raised by independent scientific review

and peer review, 5) meets the necessary regulatory approvals consistent with all federal and state laws, 6) has a clearly defined scope and duration, and 7) is compatible with other research in the Columbia Basin, (PPC)

- Place greater emphasis on demonstrating how new information that is gained from applied research will be used by managers and policy-makers to advance biological goals and objectives in the Program. (MFW&P)
- More discussion needs to occur and direction provided on how to manage projects or parts of projects that move from research to implementation or projects that incorporate smaller research elements that come and go in response the need to answer project- specific questions through the adaptive management process. (IDFG)

Some recommendations specified specific research areas or topics:

- Applied research in the areas of artificial production, genetic conservation, non-native species control, and mitigating ongoing operational impacts are likely to be most useful for informing adaptive management. (MFW&P)
- Recognize the need for and take a stronger stand to support continued relative reproductive success and integrated broodstock management program evaluations. Support the use of genetic tools such as parentage-based tagging and genetic stock identification. (IDFG, OSC)
- Support the development of standardized tools, in close coordination with regional efforts, which can be used assess and model habitat capacity across the Columbia River subbasins. (UCSRB)
- Support RSS of natural and hatchery-origin fish the Upper Columbia region. (UCSRB)
- Continue to recognize the importance of and advancement in Life-cycle models and their results in the 2019 FWP. (NOAA, USGS, TU)
- The FWP should incorporate a mechanism for associating VSP, habitat condition, and population status in relation to some neutral decision criteria that transcends local or state preferences. Incorporation of remote-sensing data into the research, monitoring, and evaluation of restoration activities would provide an important technological boost to the capacity to assess the response of key habitat-forming processes at the basin scale that is relevant to fish and the increasing size of restoration project sites. (USGS)
- Assess whether further actions in freshwater can improve Columbia River smolt survival (Kintama)

II. Summary of the comments

WDFW:

- Clarified their recommendation for program performance to be 1) explicitly linking Program strategies and measures to quantifiable biological objectives and

**Preliminary draft, please refer to full recommendations for complete review*

reporting requirements; 2) including more high-level indicators for other species; 3) including indicators for hatcheries and habitat, which receive substantial funding from the Program.

- They look forward to working collaboratively with all parties should the Council adopt this recommendation.

CRITFC (also submitted by CTUIR and CTWSRO):

- Echoed the recommendations of other co-managers that Bonneville help ensure that managers have the capacity to collect data and support regional processes that standardize the data, facilitate reporting and make this data publicly accessible. (also in comment by YNF)
- Reiterated that Bonneville, in partnership with the Council and the region, should help ensure that summarized data associated with broad categories of information are identified and accessible from a single, centralized data repository.
- Support other recommendations that Bonneville continue working with the Council to develop a concise, useful template for annual reports. (also in comment by YNF)

Earthjustice on behalf of various groups:

- The Council should identify and propose a full suite of appropriate quantitative biological objectives to measure Program progress as part of the draft 2019 Program, accept comment on these objectives, and then adopt a comprehensive suite of such objectives as part of the final 2019 Program.
- The 2019 Program should focus on adopting a set of specific biological objectives to measure progress at specific time-frames (e.g. the next five, ten, twenty years).
- The 2019 Program must ensure that programmatic data collection and performance evaluation of projects remain fully funded and implemented. These include adequate PIT tagging, the Smolt monitoring program, the Fish Passage Center, the Comparative Survival Study, the Coordinated Assessment and StreamNet.

Bonneville Power Administration:

- For all RM&E recommendations, there is a common need: the region must advance the use of data exchange standards with coordinated assessments so that entities can compile and analyze collected data. All data must be shared in its entirety and be accessible in data repositories. The region needs resource managers and regulators to agree on what data sets establish the common base of analysis for assessment of Program performance indicators.

**Preliminary draft, please refer to full recommendations for complete review*

- The overarching priority is for RM&E related to Columbia River System operations – management and operation of the mainstem river system.
- Until the extensive ongoing RM&E efforts are fully-coordinated with resource managers and they are using common data standards and reported data, Bonneville is unsure of the benefit of expanded data collection efforts. RM&E funding needs to be focused on obtaining information that translates into on-the-ground management actions.
- Some measures go beyond what can be reasonably viewed as a hydroelectric system manager responsibility.
- Bonneville does not support the recommendations that specific projects be newly identified as permanent contractors in the Program.
- Before adopting a recommendation for new RM&E, Bonneville asks the Council to consider: 1) can the assessment be scaled to isolate hydroelectric impacts from impacts caused by other factors; and 2) if Bonneville does not increase its mitigation budget, how will addition analysis advance Program objectives if the recommended measures are not prioritized.

III. Excerpts of the recommendations

View the [document linked here](#) for the excerpts of the recommendations referring to the 2014 Program Part Four: Adaptive Management

Staff summary of issues and recommendations 2014 Program Part Six: Implementation Program Measures

2014 Fish and Wildlife Program Section

Part Six: How the Program is Implemented

I. Program measures

Overview

The Council received many recommendations for changing or adding specific measures at the basinwide level of the program, for the mainstem Columbia and Snake Rivers, and for the subbasins. Many recommendations provide lists of projects or specific actions to include as *subbasin measures*, as the Council has done in previous programs. A few recommendations suggested edits to the text of this section.

I. Summary of recommendations

The Council received many recommendations for changing or adding specific measures at the basinwide level of the Program and for the mainstem Columbia and Snake Rivers. These are included in the summaries of the various program strategies. The Council also received recommendations for amending the subbasin measures section of Part Six: How the Program is implemented, 1. Program measures. Several entities recommended specific measures, including specific existing or proposed *projects* or *actions*. These were recommended as accord extension projects, biological opinion actions, and lists or tables of specific measures (**CRITFC, LCEP, YNF, CTUIR, CTWSRO, Cowlitz Tribe, BPT, CDAT, NPT, ODFW, CTGR, KTOI, STI, NOAA, USFWS, Ogle**). Some entities recommended that measures submitted in the [2008-2009](#) and [2013-2014](#) amendment processes be carried over and included in the next Program (**ODFW, NPT, STOI, CTGR**).

In addition to recommendations for specific measures, the Council also received recommendations for amendment to the text of Part six, section 1. **CTGR** recommends that the Council open the Program to solicitation for new projects to implement unfunded subbasin measures in the Program. The **STI** argued that Program measures that are at the heart of the Bonneville statements in the accord record, clearly must meet all requirements of 16 U.S.C. 839b(h)(5) and (6) of the Northwest Power Act, and the STI calls for the Council conduct a review of all accords and agreements similar to accords to ensure their consistency with the applicable Program that is effective at the time, and provide a report to the public.

Bonneville furthered an ongoing discussion with the Council in their comments, noting that while agreeing that the Council has exclusive authority to decide what measures to include in the Program, Bonneville then must decide how to act consistent with the Program, which includes examining whether the "measures" constitute appropriate guidance for the Administrator to follow. Bonneville stated that while the Program

includes many provisions- such as broadly stated goals, policies, implementation processes, and prospective initiatives- not all of them are measures that meet the substantive criteria established by the Act.

II. Summary of comments on the recommendations

Bonneville commented to the Council that including projects as measures to be overly prescriptive and that while certain specific projects might be appropriate measures under the program, they believe that projects should be considered implementation tools for measures, not measures. **CRITFC** submitted comments reiterating the recommendation that the Council adopt as measures, the commitments identified in the lower river tribes' accord extension, including all the project identified in Attachment A of the extension. This comment was endorsed by **CTUIR, CTWSRO, and YNF**. The **NPT, Nez Perce County Board of Commissioners, TU, Idaho River United, the City of Lewiston** commented with their strong support for implementation of the Lower Clearwater Exchange Project. As with recommendations, some comments included reference to basinwide measures. Generally, these comments are captured with the recommendations related to specific Program strategies.

III. Excerpts of the recommendations and comments

View the [document linked here](#) for the excerpts of the recommendations referring to the 2014 Program Part Six: I. Measures

**Staff summary of issues and recommendations
2014 Program Part Six: How the Program is Implemented
Investment Strategy**

2014 Fish and Wildlife Program Section

Part Six: How the Program is Implemented

II. Investment Strategy

Overview

The Council received numerous recommendations from entities across the Basin regarding the 2014 Program's Investment Strategy. These recommendations cover general Program implementation, funding allocation, emerging priorities, and a Program action plan.

Several managers emphasize the deference that the Act gives the fish and wildlife managers and call for the Council to hold Bonneville to that deference within project management. Many managers provided recommendations calling for equitable funding across the Basin, with the Upper Columbia receiving a greater amount of money for restoration projects than current levels in order to balance out the harvest opportunities throughout the Basin. Many entities recommended specific actions be added to the Program's priorities, such as the Columbia Basin Water Transactions Program; one manager recommends that priorities that have received substantial funding for the 2014 Program be removed from the list going forward; and another manager recommends that no change be made to the priorities list until actions for each of those items are complete. Three entities recommend that the Council pursue an action plan to implement restoration actions over the five years following the adoption of the next Program amendment.

I. Summary of recommendations

A. General

Several managers emphasize the deference of the fish and wildlife managers in the Northwest Power Act and recommend that Bonneville should provide substantial weight to the managers in managing their projects and that the Council and the Program should specifically direct Bonneville to do the same (**ODFW, WDFW, BPT**). **BPT** recommends that the Council provide oversight to Bonneville with existing review mechanisms to guide decisions regarding Program measures and funding levels. **ODFW** recommends that the Council review actions to modify funding to Program projects to ensure that the projects are consistent with the intent of the Northwest Power Act; and where changes result in deviation from project scope and intent, the scientific review by the ISRP should occur to ensure that projects remain viable and valuable to Program goals.

NPT recommends a specific addition to the principles of the investment strategy stating that all Columbia Basin hatcheries constructed for hydropower mitigation should be

maintained at a level consistent with other project purposes and that federal agency budgets should fund the maintenance of these hatcheries consistent with the requirement for equitable treatment.

SnoPUD recommends that each Program action, or any action made to accomplish a Program goal, should include an explicit demonstration of how that action will further rebuild fish and wildlife populations adversely affected by the Columbia River hydrosystem.

B. Funding Allocation

Several managers recommend that the funding allocation for the Program be redirected from the traditional 70-15-15 split to an upriver-downriver split (**CDA Tribe, Kalispel Tribe, STI**). The **CDA Tribe and STI** recommend that at least 45% of Program funding be directed to the blocked areas above Chief Joseph and Grand Coulee dams (where 40% of the documented losses have occurred and nearly 50% of the federal system's electricity is produced), while **Kalispel Tribe** recommends that 40% of Program funding go to the blocked waters of the upper Columbia. **CDA Tribe and Kalispel Tribe** recommend an alternative to this which is that anadromous fish substitution projects be funded by the anadromous fish allocation and that all resident fish funding be directed to the blocked area in the upper Columbia until resident fish harvest opportunities in the blocked areas equal the combined anadromous and resident fish harvest elsewhere in the Basin.

UCSRB and STI recommend that the Council's cost savings effort continue to ensure that limited resources are leveraged to address emerging issues that influence the success of mitigation efforts. **STI** specifically recommends that the Council adopt a public cost savings process that would include a 30-day public comment period for new work and that all savings be directed towards emerging priorities and not away from Fish and Wildlife Program funding.

Additional specific language is recommended by the **STI and Kalispel Tribe** on Program funding allocation and prioritization. First protect, mitigate, and enhance fish and wildlife affected by the hydropower system but underserved by the Program; then areas with the highest proportion of unmitigated construction and inundation losses; the adequate project O&M funding for ongoing long-term project; then long-term settlement agreements; then loss assessments and mitigation for unquantified (operational) impacts; then data management; then research, monitoring, and evaluation; then regional coordination; then improving program efficiencies; then updating subbasin plans. **STI** also recommends that add: "Protect land, habitat and water from a 'top-down' approach, prioritizing headwater habitats in the Upper Columbia," and, "Enhance ecosystem function and species diversity over the long term in highly perturbed and novel ecosystems." And **Kalispel Tribe** recommends that given that the Upper Columbia receives ~12% of the Program's funding even though the area incurred 40% of the Basin's fish and wildlife losses and produces nearly 50% of the federal system's hydropower, the Council should make structural changes to the Program to ensure that mitigation is equitably implemented across the Basin.

UCSRB recommends that a small percentage of existing funds in each Province be managed locally for monitoring. And **CTGR** recommends that we emphasize four specific principles in the Investment Strategy pertaining to funding allocation, provisions of the Northwest Power Act, and Bonneville's commitment to its fish and wildlife obligations.

C. Emerging Priorities

BPT recommends that the existing priorities in the Program be addressed before new priorities are adopted. **STI** recommends that anything from the 2014 Program's emerging priorities list that has been completed or received substantial implementation funds be removed from the list.

Many managers provide recommendations on specific emerging priorities. **IDFG and OSC** recommend that the Council continue to place high importance on operation and maintenance on the Program's investments; that the Council, Bonneville, and managers discuss advantages and disadvantages with settlement agreements to ensure that long-term maintenance needs for fish screens are met; and that the Council and Bonneville, working with the managers, should revisit the cost analysis conducted to address typical repair and replacement costs for hatchery infrastructure. **CTGR** recommends that the action agencies evaluate the presence and status of fresh water mussels, and in considering their biological needs, seek actions to mitigate any adverse effects caused by the hydrosystem. **STI** recommends that the emerging priorities list include the completion of Phase One for reintroduction of anadromous fish into the blocked waters of the Upper Columbia, and that priorities across the Basin should be developed consistent with geographical objectives that address inequity throughout the Basin. **American Rivers** provided a list of priorities to improve declining salmon runs through climate change impacts: innovative spill operations; engaging in the CRSO NEPA review and EIS process; developing a plan to address temperature issues; investing in monitoring to better understand limiting factors in tributaries, mainstem, and estuary; and accommodate Phase Two work for reintroduction above Chief Joseph and Grand Coulee. **American Rivers** also recommends that the Council consider the recommendations from the Southern Killer Whale Recovery Task Force and to quickly and effectively further the work of the recommendations. The **WWT** recommends that the water transactions program be made a Program priority and several entities (**TU, WWT, Freshwater Trust, and NFWF**) recommend that the program receive full funding. And the **Lower Clearwater Exchange Program** recommend that the Lewiston Orchards Project Water Exchange and Title Transfer Project be the Program's highest priority.

D. Action Plan

Three entities recommend that the Council pursue an action plan for Program implementation over the five years following adoption. **USGS** recommends priority actions be identified by selecting and applying specific criteria for prioritizing and sequencing restoration actions. **UCSRB** recommends that the Council use the Upper Columbia Recovery Plan and Biological Strategy to develop an action plan and to work

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with the UCSRB to draft an action plan and identify RME strategies to support adaptive management of the action plan. **American Rivers** recommends that the Council's action plan be informed by quantitative objectives guided by the ISAB.

II. Excerpts of recommendations

View the [document linked here](#) for the excerpts of the recommendations and comments referring to the 2014 Program's Investment Strategy.

**Staff summary of issues and recommendations
2014 Program Part Six: How the Program is Implemented
Implementation Procedures – Project Review**

2014 Fish and Wildlife Program Section

Part Six: How the Program is Implemented

- III. Implementation procedures
 - a. Project review process
 - Elements of project review

Overview

The Council received many recommendations related to the project review process from tribes, states, and Bonneville customers and utilities. The recommendations range widely from general support of independent scientific review, to suggesting efficiencies, evaluation criteria, frequency of reviews, and the process for conducting reviews, including whom should be involved in planning, reviewing, and recommending work. Several recommendations from managers suggest that project review could be more efficient (for Council and ISRP review) and that long-term projects should be reviewed in a different manner than short-term projects. The recommendations from the Public Power Council and other BPA customer groups stated strong support for continuing independent scientific review of all funding proposals.

The recommendations included specific evaluation criteria for considering *new* work and for existing projects including projects included in the Columbia Basin Fish Accords. The intent is to maximize benefit and ensure consistency with the Program and regional plans while also considering changing environmental conditions.

I. Summary of recommendations and comments

A. Project Review

a. Recommendations

Some managers (including **MFW&P**, **CRITFC**, **YNF**, **CTUIR**) seek administrative efficiencies in implementing program work. They seek the elimination or streamlining of certain redundant processes, with net savings in those administrative efficiencies returned to the program for cost savings. Several recommendations address areas for efficiency including in the Independent Scientific Review Panel (ISRP) review process. **CRITFC** intends to work with Bonneville and the Council to identify areas for efficiency in the ISRP Review process. The **NPT** recommends language that would be consistent with the CRITFC recommendations. **WDFW** also provides specific language for ISRP efficiencies.

Several fish and wildlife managers recommended reviewing long-term or ongoing projects on a longer review cycle and in the context of operation, maintenance and

adaptive management (including **ODFW, WDFW, STI**). These recommendations include changes in the process that would allow more direct contact with the ISRP members via email or conference calls, especially during the response loop. The **CTGR** recommends that Provincial reviews should be implemented at least once every 10 years (at least one provincial review every two Program cycles) to re-prioritize work and maximize benefits.

The **KTOI** asked that Bonneville and the Council recognize the geographic, integrated and long-term nature of their projects and review them accordingly.

The NPT, ODFW, WDFW, and Kalispel Tribe recommended including fish and wildlife managers in several steps in the project review process, including process development, ISRP review, and how the ISRP develops their recommendations and rating system.

The Kalispel Tribe, ODFW, and WDFW recommend that Council consider an “entirely different” review regime that would for ongoing projects, allow the reviewers to act as Program partners within the subbasins. In an example, four (or more) regional review panels would be formed -- the upper Columbia, Snake, mid-Columbia, and lower Columbia – to be composed of local at-large members selected by the subbasin fish and wildlife managers, one or two representatives from NOAA-Fisheries/US Fish and Wildlife Service, a tribal representative, and two ISRP members. Panel members would attend project review exchanges or workshops to understand the sub-basins, manager objectives, and the existing spectrum of projects. Following the annual workshop, a day would be dedicated to identify and address any collective concerns, discuss progress, and share ideas for improving the program. Action items and a formal record would be developed becoming an integrated part of future reviews.

Public et al. collectively and fully support the independent scientific review of each recommended funding proposal.

Recommendations for this area of the program overlap with and are also summarized in other implementation summaries.

b. Comments on the recommendations

CRITFC, YIN, CTUIR, CTWSRO all comment to reiteration the ISRP efficiency and project review process language from the recommendations. Project leaders are reporting that the recent Mainstem/Program Support Review has been onerous, time consuming, and unnecessarily confusing - taking many project leaders more than a month of effort to complete their initial project summaries simply due to the format of the submission form.

B. Evaluation Criteria for Solicitations (including cost effectiveness at a project level)

STI and PPC et al. suggest specific evaluation criteria for any new proposals for funding. The intent is to ensure and add clear value to program when making funding decisions to fund new work.

STI recommends that to ensure maximum benefits for funded projects and the ability to determine which projects can be eliminated, the Tribe suggests criteria for new proposals:

- Links to hydropower impact
- Produces in-place, in-kind mitigation
- Improves ecological functionality, alleviates limiting factor(s)
- Produces broad biological benefits
- Benefits anadromous fish stocks, and particularly ESA listed species/stocks
- Improves the effectiveness of other projects or efforts
- Produces measurable results
- Represents a unique work effort (does not duplicate another project or effort)
- Utilizes cost sharing
- Represents the least cost alternative

WDFW and ODFW recommend that solicitations for new work should take into account the priorities described in the investment strategy, critical uncertainties, tribal restoration plans, state restoration plans, and other guidance documents. **MF&P** recommend that projects that demonstrate high conservation impact for focal species, a high likelihood of success, and offer sustainable benefits should be considered as having the highest biological effectiveness and good mitigation investment in ratepayer dollars.

BPT recommends a more proactive approach toward climate change in many parts of the program, but also as an evaluative criterion to prioritize projects.

II. Excerpts of recommendations and comments

View the [document linked here](#) for the excerpts of the recommendations and comments referring to the 2014 Program's Investment Strategy.

Staff summary of issues and recommendations
2014 Program Part Six: How the Program is Implemented
Program Coordination

2014 Fish and Wildlife Program Section

Part Six: How the Program is Implemented

- IV. Implementation procedures
 - a. Program Coordination

Overview

The 2014 program calls for coordination with other regional programs, and recommendations emphasized this, noting as examples the Accords, Columbia River System Operations Environmental Impact Statement, and the FCRPC biological opinion. Several managers recommend that the Council adopt into the program the projects included in the 2018 accord extension agreements; one tribe recommends that those projects receive Council review for consistency with the program. Many recommenders are engaged in the CRSO process and suggest that the Council stay involved in the process and that the program remain flexible as the CRSO finalizes its outcomes. Many managers emphasized the importance of coordination funding and recommend that the program continue to support and maintain those funds. Several recommendations asked for coordination with specific projects and processes, such as updates to recovery plans and funding for the Lake Roosevelt Forum.

III. Summary of recommendations

A. ESA/BiOps

USFWS recommends that once their bull trout and Kootenai River White Sturgeon recovery plans are updated (slated for 2019), that the Program include their measures and alternatives. **NOAA** recommends that the Program language be updated to reflect recovery plans that have been completed since the adoption of the 2014 Program. The **PPC et al. and American Rivers** recommends that the Council bring in the measures for the new Biological Opinion and the CSRO EIS once they are both completed. However, **Sierra Club et al.** comments that the Program and the Northwest Power Act are independent of and greater than ESA, and suggested that the Program guide, rather than follow, the actions in the BiOp.

The **UCSRB** recommends that the Council adopt an action plan that is informed and supported by the recovery plans.

NOAA Fisheries recommends that the Council continue to coordinate with partners to fund recovery actions, and that the Middle Columbia River steelhead population remain a focus due to its relative viability status compared with other ESUs and DPSs in the Basin.

B. Fish Accords

Several managers recommend that the Program adopt as measures all projects identified in the 2018 Accord Extensions (**CTUIR, CTWSRO, YNF, CRITFC, CTCR, SBT, Bonneville**). **CTCR** specifically recommends that any negotiated Accords or other agreements made in the next period of program implementation be supported by the Program.

The **STI** recommend that the Council conduct a review of all Accords and agreements to ensure their consistency with the current Program, and that the Council issue this public review at least two weeks prior to the comment period that BPA sets for the public review period. **STI** also recommends that within 30-days of the adoption of the amendments, the Council conduct a review of all Accord extensions to ensure their consistency with the Program and to release the final review for public consumption.

C. Columbia River Systems Operations Review

Several entities reference the CRSO EIS and recommend that the Program promote flexibility to adapt to changing needs and outcomes/information that results from this process (**CTUIR, CRITFC, BPA, PPC et al., and American Rivers**). Several others reference the Council's unique technical expertise and recommend that the Council continue to partner with the action agencies and the region to integrate needs of the ecosystem and fish in evolving situations (**CTUIR, CRITFC, and American Rivers**).

D. Coordination in General

Several entities emphasize the importance and necessity of regional coordination funding as a way to work across the region and participate in processes such as the Program amendments and recommend that the Program continue to support and maintain regional coordination funding (**CRITFC, YNF, and CTUIR**).

Several entities recommend specific coordination activities. The **STI** recommends that the Council assist with funding coordination amongst entities around and adjacent to Lake Roosevelt including the Lake Roosevelt Fisheries Evaluation Program, Lake Roosevelt Management Team, the Lake Roosevelt Hatchery Coordination Team, transboundary water quality groups, and that the Council should direct BPA to fund the Lake Roosevelt Forum for the foreseeable future as it is an integral part of the blocked area mitigation. **PPC et al.** recommends that the Council further increase its value as a regional coordinator by engaging the region on regional efforts such as the BiOp, the CRSO EIS, predation reduction efforts, ocean conditions and their impacts on the anadromous fish runs, and the benefit of the FCRPS as a carbon-free energy source. Also, **American Rivers** recommends that the Program coordinate with the Northwest Forest Plan to include its Aquatic Conservation Strategy as it supports many of the Program's goals and objectives in maintaining and restoring aquatic and riparian diversity in the ecosystem.

NOAA Fisheries recommends that the Program emphasize regional partnerships to leverage cost share opportunities to fund recovery actions during financially lean times.

I. Excerpts of recommendations

View the [document linked here](#) for the excerpts of the recommendations and comments referring to Program coordination within the 2014 Program's Part Six: How the Program is Implemented.

**Staff summary of issues and recommendations
2014 Program Part Six: How the Program is Implemented
Independent Scientific and Economic Review**

2014 Fish and Wildlife Program Section

Part Six: How the Program is Implemented

III. Implementation procedures

C. Independent scientific and economic review

Overview

There is support for having the Council and its independent boards conduct scientific and economic reviews. Numerous potential review topics were recommended spanning a diversity of topics including predators, climate change, action effectiveness, potential for restoration, contaminants, operation and maintenance of facilities, power system strategies, dam breaching, and costs related to the Program. A couple of these topics were specifically called out to be part of a forum, such as a science/policy forum on flow and passage and/or a broader discussion forum on alternative means for assessing predicted benefits. There was also a specific request by three recommenders to have a co-manager workgroup with involvement by the Council, ISRP, and ISAB to review products from the Columbia Basin Partnership Task Force. One recommender requested that the draft Program be reviewed by the ISAB prior to adoption.

I. Summary of recommendations

A. General

- We are supportive of science and economic review of the F&W program and its projects (WDFW)

B. Topics for scientific review

- **Review Columbia Basin Partnership Task Force(CBPTF) Products**
 - Adopt a process driven by a manager workgroup with Council ISRP/ISRP involvement to review CBPTF products (IDFG; WDFW; IDOSC)
- **Science/Policy or Other Discussion Forum**
 - *Flow and Passage* - The Council may convene a science/policy forum to investigate whether the flow and passage operations in the FCRPS biological opinions are consistent with the needs of the non-listed fish important to the Council's program (ODFW, WDFW)
 - *Effectiveness Assessments* - Council provide a forum to discuss, review and evaluate alternative means of assessing predicted benefits, the number of years such evaluations would likely need to be implemented, and results from ongoing studies (NMFS)
- **Topic specific data synthesis and investigation to improve information and inform decisions**

- *Draft Program Review Prior Adoption* - request that the Council obtain the ISAB's review of the proposed program amendments prior to their adoption. (Trout Unlimited)
- *Synthesis as Needed* - The Council, with input from ISAB/ISRP and process oversight by data owners, will request synthesis of accumulated data to inform decisions and advance understanding (ODFW, WDFW, NPT)
- *Reduce Competition* - Council, tribes, federal and state agencies should continue to review, evaluate, develop, and implement strategies to reduce competition from non-native fish species with juvenile and adult salmonids. (ODFW, WDFW, USRT)
- *Predators and Non-Native Species* - Explore the sources, extent and stock-specific impacts of predation in the Columbia basin, and support coordinated partnership to evaluate and control non-native species
- *Avian Predation and Predator Risk Assessment* - development of a system-wide predation management effectiveness review, along with a risk assessment. This scientific risk assessment would provide a basis on which the Council could recommend management measures based on the relative risk, the probability of increasing future adult returns, overall feasibility, and cost.
- *Run Forecast* - Council, using data and reports provided by others, will review the accuracy of the pre-season run size estimates (ODFW, WDFW, NPT)
- *Potential Gains in Ecosystem Function* - Council's program to investigate the potential for additional gains in ecosystem function and floodplain connectivity (WDFW)
- *Estuarine Action Effectiveness* - address the uncertainty regarding the effectiveness of estuarine restoration projects, better understand the different types of habitat, and ascertain whether they contribute to increased juvenile survival and hence increased adult returns (USGS Columbia River Research Laboratory), contribution to reproductive success, and rearing of forage fish (USGS – Columbia River Research Laboratory)
- *FERC Hells Canyon Complex* - The Council will review the outcome of the FERC proceeding and, as appropriate, include in the program relevant provisions recognizing the operations to benefit fish below the Hells Canyon Complex as part of the flow measures of the program. (ODFW, WDFW)
- *Contaminants* - Evaluate the effects of contaminants on key forage fish species. Contaminants are commonly concentrated in lipid-rich tissues such as those found in forage fish and their central role in the food web may make species at higher trophic levels vulnerable to bioaccumulation of contaminants
- *Dredging* - Evaluate dredging impacts to forage fish spawning and rearing habitats.

- *Spill* –in conjunction with Fish Passage Center and CSS work, review and describe biological benefits to juvenile salmon survival from voluntary spring spill (Sierra Club et al)
- *Snake River Dams* - in conjunction with Fish Passage Center and CSS work, review biological benefits to salmon survival from breaching or removal of the four lower Snake River dams and detail a course of action for implementation (Sierra Club et al)
- *Wild Salmon and Steelhead Management* – ISAB should evaluate current management to examine if harvest is regulated to achieve escapement targets (The Conservation Angler)
- Evaluate feasibility of attaining 2%-6% target SAR rebuilding rates. (Kintama)
- Assess whether further actions in freshwater can improve Columbia River smolt survival. (Kinama)
- Determine where in the life history density-dependent processes are occurring (Kintama)
- Convene a joint working group of ISRP and ISAB members to evaluate the implications of the convergence of coast-wide SARs to Snake River levels for salmon management (Kintama)
- **Climate Change Action Portfolio and Review Resilience of Current Actions**
 - Council develop and prioritize a portfolio of adaptation actions and strategies to offset current and future impacts with a primary focus on the mainstem and tributaries in the basin, but eventually include the entire system, such as the estuary, plume, and ocean (CRITFC)
 - Establish a review of current restoration and habitat based projects to evaluate their relative climate change resiliency under predicted future climate scenarios to ensure that investments made today are effective into the future (NMFS)
 - Determine how climate change, ocean acidification, and localized hypoxia are likely to affect forage fish in the coming decades (USGS – Columbia River Research Laboratory)

C. Topics for economic review

- **Long-term Operation and Maintenance Funding**
 - Council and Bonneville, working with managers, should revisit the typical repair and replacement cost analysis for hatchery infrastructure as many of the project costs underestimates true costs and don't include installation and labor cost (IDFG; IDOSC)
 - Creative ways to provide needed funding for operation and maintenance should be explored such as capitalized longterm agreements thereby reducing the impact to ongoing expense budgets that support mitigation project (MTFWP)
- **Informing and Prioritizing Mitigation / Project Investments Based on Economic Assessment**
 - *Effectiveness and Prioritization of Mitigation Investments* - should be based on biological effectiveness, and elements of cost-effectiveness

analysis should be incorporated into the setting of broader Program priorities (MFWP); the Council engage in a cost-effectiveness analysis to help identify actions that will maximize biological return on investment in the most time-efficient manner possible (Trout Unlimited)

- *Project funding modification* - The Council should review actions to modify funding to Program projects to ensure that such actions are consistent with the intent of, and legal precedents stemming from, the creation of the Northwest Power Act (ODFW)
- *All predation measures* - should continue to be scrutinized through the lens of standardized biological performance, relative efficacy, and a common measure of cost effectiveness to prioritize expenditures of limited resources for competing predation suppression actions and measures as described above (ODFW)
- *Hydrosystem Impacts* - assess that the impacts of the hydropower system on fish and wildlife in this Province are fully, equitably, and economically addressed by the Council (Kalispel Tribe)
- *Use of Regionally-Vetted Criteria* - Bonneville recommends investigating whether this [approach as used in Columbia Basin Water Transactions Program and Willamette Wildlife Mitigation Program] might be a more cost-effective model that could be introduced into other aspects of the Program, such as expanded habitat efforts or RME (Bonneville)
- *Atlas and similar Decision-Making Framework* - consider whether such frameworks increase the return-on-investment for mitigation funding and if their use should be expanded within the Program. And whether pairing such frameworks with umbrella projects may also provide even greater results, such as benefiting from administrative efficiency as well as a landscape-based habitat strategy (Bonneville)
- *RME* - the RME portion of the Program would also benefit from an economic analysis. determine if and where RME funding fails to yield a sufficient return-on-investment in terms; and aim to identify the most cost-effective RME methods and tools for particular tasks, needs, or queries. (Bonneville)
- *Streamflow Restoration* - Program would assess the cost of meeting these flow targets in recovery plans and biological opinion, develop a timeline and budget for achieving them (The Freshwater Trust)
- **Power System Strategies**
 - The Council will investigate cost-effective power system strategies that improve ecosystem conditions for fish and wildlife, relax operational constraints adverse to fish and wildlife, and ensure the regional power system remains adequate, reliable, and economical (ODFW)
- **Predators and Non Native Species Economic Impacts**
 - The Council should investigate into coordinating or developing economic reviews and analyses focusing on emerging invasive species issues, such as the proliferation of northern pike within the Columbia Basin. (ODFW, WDFW, NPT, USRT)

- The Council should direct the Independent Economic Analysis Board (IEAB) to complete an analysis of and report on the existing and potential economic impacts associated with northern pike presence throughout the Columbia River Basin. This report should also summarize ongoing northern pike suppression and eradication efforts implemented throughout the Columbia River Basin (Confederated Tribes of the Colville Reservation)
- the Council advance the economic and scientific assessment of predator management actions across the full suite of programs and species where that work occurs (NMFS)
- **Climate Change Economic Impacts**
 - The Council should include a basin-wide assessment of the financial impacts of climate change on the fish and wildlife program, including economic impacts on flood risk management, hydropower production and fish and wildlife (BPT, Shoshone-Bannock Tribes)
- **Program related costs**
 - As general funding priorities for inclusion in the new Program: [omitted text] Improving Program efficiencies (NPCC costs, BPA overhead, ISRP costs, project redundancies, etc...)

II. Summary of comments

Comments submitted stating that some issues recommended for review are not ready/ripe for a review, specifically, (1) evaluating feasibility of attaining 2%-6% SAR, (2) assess whether further freshwater actions can improve smolt survival (3) determining where in life history density dependent processes are occurring, (4) evaluate implications of convergence of coast-wide SARs (ODFW; WDFW; CRITFC; YN)

Comment submitted regarding having the Council evaluating the data and analysis supporting the recommendations for passage and reintroduction above Grand Coulee and Chief Joseph dams, specific questions included (Bonneville)

Comment submitted stating that the AEERPS analysis of section 4(h)(5) goes to the Program as a whole and not its individual components, and that some of the recommendations misses the statutory mark by encouraging the Council develop and amend the Program by using the AEERPS analysis as an independent source of new measures that are not based on the recommendations it receives from fish and wildlife resource managers, Bonneville, utility customers, and the public (Bonneville)

Comment submitted stating the program should address water temperature issues in the lower Snake and Columbia Rivers and those actions necessary to fully mitigate the temperature impacts of the hydrosystem (EarthJustice)

Submitted comment for the program to acknowledge climate change impacts and detail the actions necessary to address these impacts (EarthJustice)

Comment supporting recommendations to analyze current and any proposed actions in light of the likely effects of climate change on both those actions and their potential fish and wildlife benefits (EarthJustice)

Comment supporting recommendations related to better understanding the impacts of climate change (WDFW)

Comment supporting recommendations for efforts to stop or minimize spread of non-native and invasive species (WDFW)

Comment supporting recommendations for a comprehensive evaluation of predation strategies to improve ecosystem function and native species recovery (WDFW); while another suggests deferring to the resource managers' expertise to identify and guide the correct predation control actions (Bonneville)

Comment supporting recommendations for a common metric to evaluate impacts from predation occurring at different salmon life stages (CRITFC), while another states concerns about assumptions and cost-effectiveness associated with the development of an adult equivalency metric (Bonneville)

Comment supporting recommendations for the Program's phased approach for the reintroduction of anadromous fish into the upper Columbia River above Grand Coulee Dam (WDFW)

III. Excerpts of the recommendations

View [the document linked here](#) for the excerpts of the recommendations referring to the 2014 Program Part Six: III. C. Independent scientific and economic review

**Staff summary of issues and recommendations
2014 Program Part Six: How the Program is Implemented
Other recommendations**

2014 Fish and Wildlife Program Section

Part Six: How the Program is Implemented

Overarching recommendations addressing general implementation

Overview

Several recommendations are related to project review and implementation, but don't fit neatly into a single category. Rather, they overlap with several areas *within* Program implementation (such as cost savings, priorities, ISRP review, etc).

A set of recommendations is directed toward project administration and management by both the Council and Bonneville. Some recommendations suggest that Bonneville has been managing projects and budgets in a way that deviates significantly from the Council's recommendations and that the Council and BPA should review these for where this has occurred in the program. Several comments on the recommendations sharply call out this idea as well.

Several Accord parties seek recognition and support of the accords/memorandums of agreement in general, but more specifically call out accord language that is specific to project implementation. The issues range from asking for recognition of tribal expertise in project implementation, to streamlining review and permitting processes, improving project administration and management to increase project review efficiencies. The Spokane Tribe calls the review of the accords by the Council to ensure consistency with the Program.

I. Summary of recommendations and comments

A. Bonneville Project Administration/Management and the roles of the Council, Bonneville, and the managers

a. Recommendations

Fish and Wildlife managers have offered several recommendations concerning Bonneville management of projects implementing the program, both from the financial side and actual managerial control. **WDFW, ODFW, CTGR, and BPT** call on the Council to review recent funding decisions by Bonneville that have reduced funding levels and modified projects. These managers want the Council to determine if the changes deviate from the project scope and intent without scientific validation by the Independent Science Review Panel. They believe such review would ensure that projects remain viable and valuable to Program goals.

Recommendations call for: streamlining project review and permitting processes, managing projects (and integrated projects) in a more efficient manner through bundling

and multi- year agreements; the Council to assess if/where Bonneville is not managing consistent with Council recommendations or the Power Act; and exploring these efficiencies as potential cost savings for the Program.

Other managers recommend changes to Bonneville's role in controlling projects and project portfolios of managing entities. The **KTOI** want BPA to consider the integrated nature of the overall Kootenai program, so that funding constituent pieces of the program supports the overall effectiveness of the Kootenai program and allows greater flexibility in managing their program. **BPT, WDFW, and ODFW** propose new language that would have Bonneville defer to the managers in managing their work and ensure that BPA administration is outcome-driven, consistent and adaptive.

Some managers (**MF&P, CRITFC, YNF, CTUIR**) seek administrative efficiencies in implementing program work. They seek the elimination or streamlining of certain redundant processes, with net savings in those administrative efficiencies returned to the program for cost savings.

b. Comments on the recommendations

Both **ODFW and WDFW** noted that BPA has reduced Program funding by \$20 million to offset increased spill costs, but that the cost of spill is variable. BPA proposed a unified budget reduced by spill costs that were not achieved in 2018 and that should be returned to the Program. They believe BPA should assure stable funding, not subject to potentially widely variable spill costs and that the Council should help ensure stable funding.

ODFW believed the Council should conduct an economic analysis as to whether the reduced level of funding can achieve adequate progress towards the Program's goals. **Bonneville** noted that though it strives to keep the Council informed of all funding decisions, the Council lacks the statutory authority to conduct contracting or funding oversight.

Earth Justice comments that the Council take a more active role in developing and implementing the Program. Though not a "super fish and wildlife agency," the Council can drive change and make controversial choices, not just await regional consensus before pushing something forward in the Program or through its implementation. They want the Program to confirm the roles of the Council, the managers and BPA.

CRITFC, YNF, CTWSRO, and CTUIR all supported the need and rationale behind deference to co-managers' expertise in managing their projects. **Bonneville** noted that though it uses the expertise of the managers to implement their projects, its fiscal responsibility to the ratepayers will not allow them to defer in wholesale to managerial expertise in administering projects.

B. The Role of Accords in Program Implementation

a. Recommendations

CRITFC, YNF, CTUIR, CTWSRO, CTCR recommend continued support for the various accords and their extension agreements, including any future accords or agreements beyond the term of the extensions. **KTOI** wanted the Council to amend the Kootenai MOA into the Program to support their work.

CSKT supported the accords, but also cautioned that other funding vehicles occur outside the accords and that the Council should support those agreements or stable funding for the program to ensure effective mitigation.

Others, however, wanted the Council to take a more active role in reviewing the accords. **STI** proposed amendments for Council review of past accords for consistency with the program and for review of future accords within two-weeks prior to the close of the comment period on any new agreements. **ODFW** also support a review of accords and ESA actions consistency with the program and its mitigation responsibilities.

b. Comments on the recommendations

STI reiterated its support for its recommendations.

IV. Excerpts of recommendations

View the [document linked here](#) for the excerpts of the recommendations and comments referring general topics in the 2014 Program's Part Six: how the Program in Implemented.

2014 Investment Strategy

- New to the 2014 Program
- Key pieces:
 - Funding allocation – 70/15/15
 - Emerging priorities
 - Cost savings

Recommendations

- General
 - Deference of the fish and wildlife managers
- Funding allocation
 - Equitable mitigation across the Basin
 - 40-45% redirect to the upper Columbia –OR– balance out harvest opportunities throughout Basin
- Emerging priorities
 - Keep as is
 - Expand the list
- Cost savings
 - Continue cost savings effort and use the funds
 - Redirect all cost savings to the upper Columbia
- Action plan

Part 6 – How the Program is implemented

Other recommendations

- A.** Roles of BPA and Council in Project Admin/Management
- B.** Role of Accords in Implementation

Roles of BPA and Council in Project Admin/Management

- Comments focus on project contract deviations from ISRP and Council recommendations
- Streamlining project review, permitting and contract development processes

Role of Accords

- Recognize the Tribes extensive project and resource management
- Expertise in implementation
- Support administrative efficiencies
- Any savings would remain with the tribe for high priority work
- Acknowledge agreements and support extensions
- Council should review accords for program consistency

Part 6 – How the Program is implemented

III. Implementation procedures

- Current program language references 4(h)(10)(D) and describes some elements of how science review should be conducted
- 1996 amendment intended to increase accountability through independent review of projects
- Past programs have varied in detail on the nuts and bolts
- Review procedures/process have evolved

Program Recommendations

Two broad categories:

A. Project review process: streamlining process, length between reviews cycles, manager involvement, considering a different review structure...

B. Evaluation criteria for new work

Adaptive Management: Goals, Objectives, Indicators, Monitoring and Evaluation

Council meeting
March 13, 2019
Portland, Oregon

Recommendations:

AM: Goals, Objectives, Indicators

- Improve linkage among goals, objectives, strategies, indicators, monitoring and Program reporting.
- Retain/clarify/restructure existing goals and objectives
- Add new/interim goals and objectives to reflect program scope
- Refine/add indicators to evaluate strategies' performance
- Update and expand process to review/refine goals and objectives

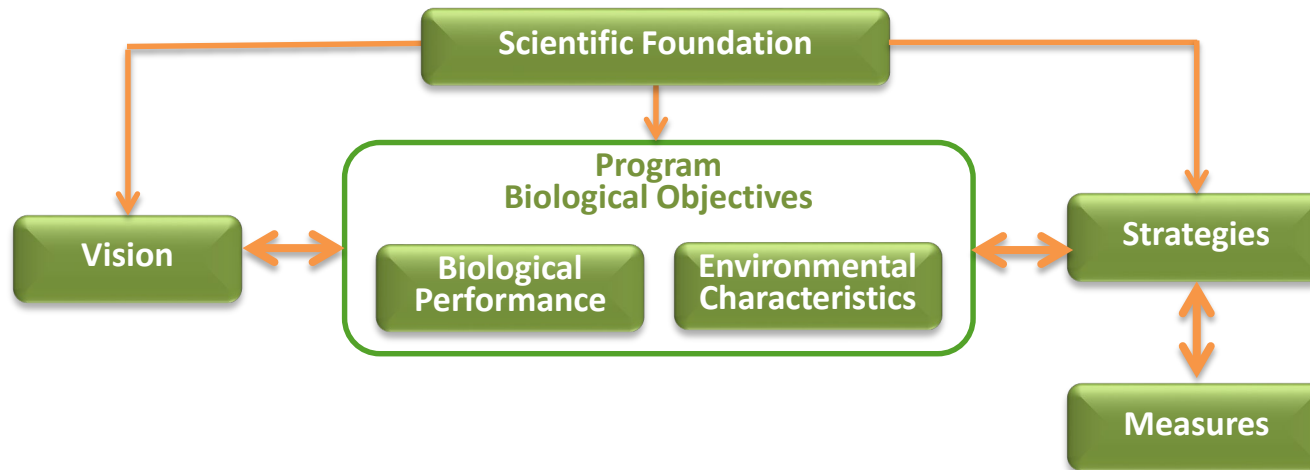
Recommendations:

AM: Monitoring & Evaluation (M&E)

- Continue collaborative efforts to improve coordination of research, monitoring and evaluation; provide an explicit M&E strategy
- Fund and support data exchange and database management
- Delineate research from monitoring/evaluate research projects using clear criteria
- Develop concise templates for annual reports
- Ensure that summarized data are accessible from centralized website

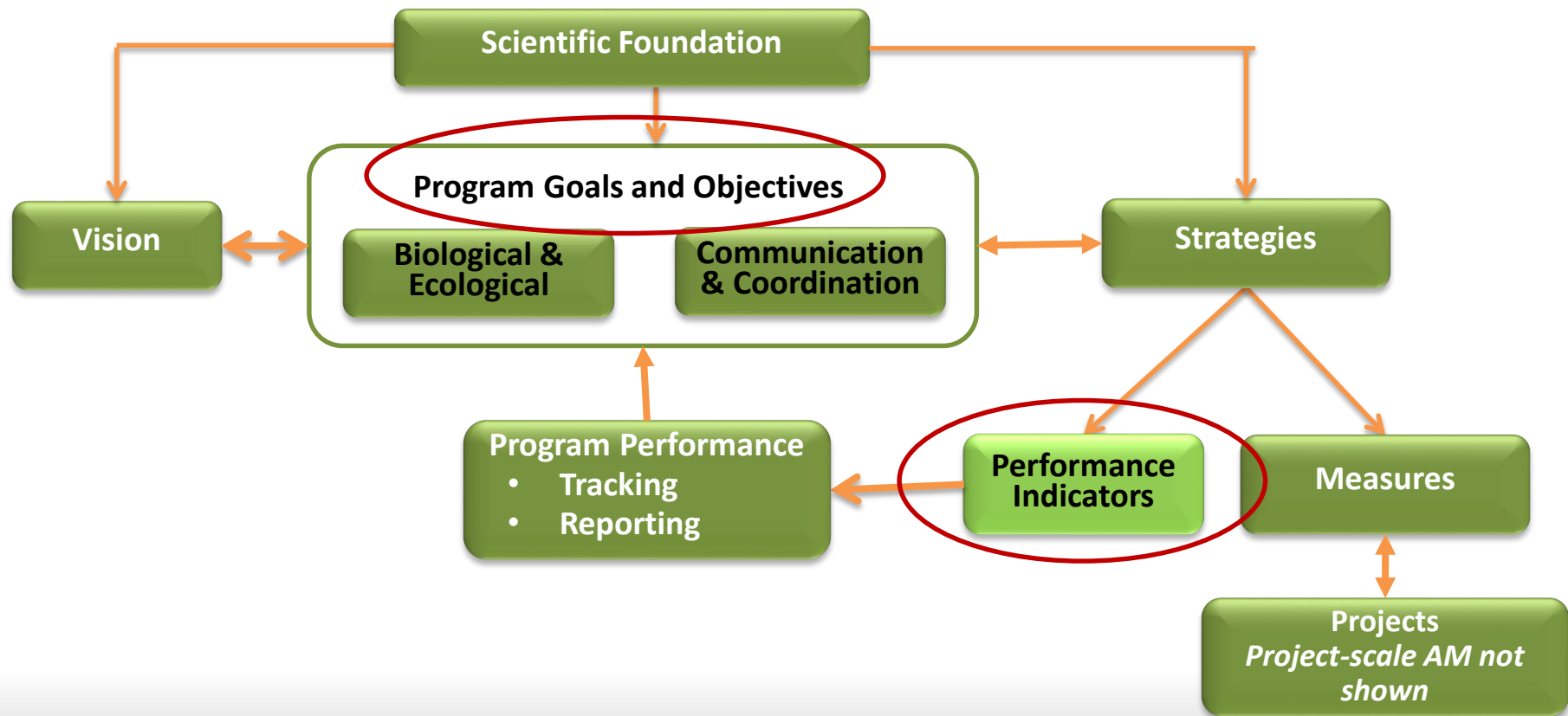
Current Program Framework

Fish and Wildlife Program Framework



Framework for Adaptive Management/Program Performance

Fish and Wildlife Program Framework



Program Goals, Objectives and Indicators

Draft Examples

	<u>Biological</u>	<u>Ecological</u>
Qualitative Program Goals	Mitigate for natural origin adult salmon & Steelhead losses due to hydropower	Mitigate for wildlife losses due to hydropower
Quantitative Program Objectives	Achieve an average of 5 million natural origin adult salmon & steelhead returning to the Basin, including ocean harvested fish, by 2025	Acquire habitat units (HU) to offset identified hydropower construction & inundation losses
Program Strategies	Wild Fish	Wildlife Mitigation
Performance Indicators	Population targets (min, mid, high milestones); Stock escapement targets (low, mid, high milestones)	% of full mitigation ; % or trend of progress towards target mitigation (HU or acres)

A banner image featuring a scenic view of a river flowing through a valley with green hills and trees under a cloudy sky. Overlaid on the top left of the image is the text 'COLUMBIA RIVER BASIN FISH AND WILDLIFE PROGRAM' in large, bold, yellow capital letters. Below this, 'AMENDMENT' is written in bold, dark grey capital letters, and 'PROCESS 2018/19' is written in bold, dark grey capital letters.

COLUMBIA RIVER BASIN FISH AND WILDLIFE PROGRAM AMENDMENT PROCESS 2018/19

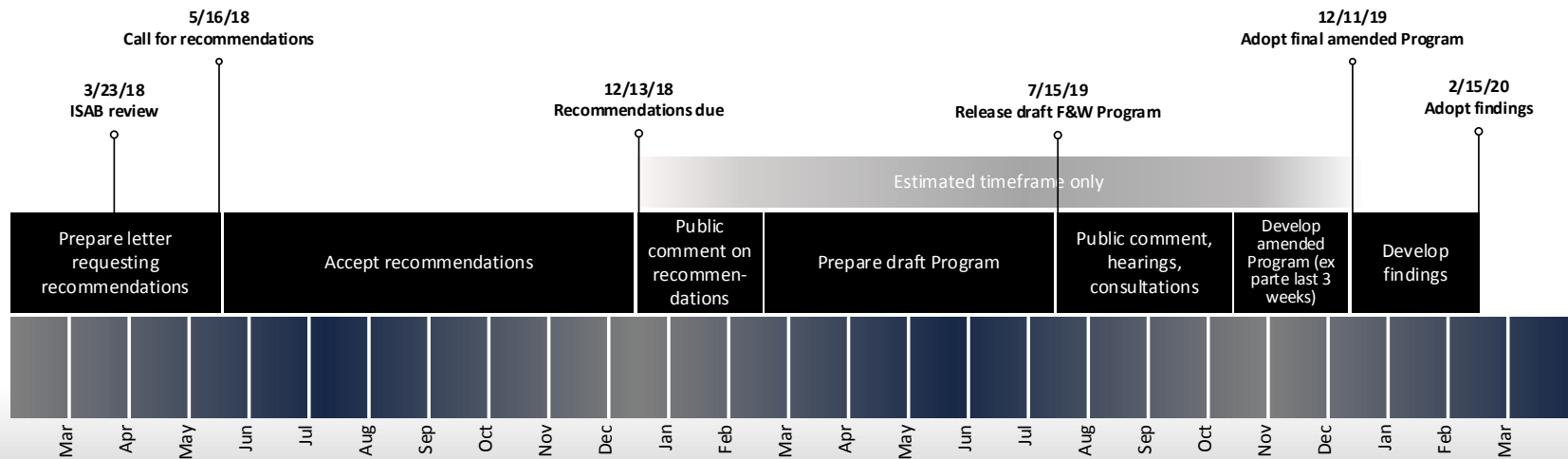
Northwest Power and Conservation Council Meeting

March 13, 2019

- Schedule, tasks
- Program orientation
- Highlights of recommendations

COLUMBIA RIVER BASIN FISH AND WILDLIFE PROGRAM AMENDMENT PROCESS 2018/19

DRAFT TIMELINE



Amendment tasks

What to expect in the coming months (C) = All Council Members (c) = Fish and Wildlife Committee Members	Fish and Wildlife Committee *times and work items are approximate and subject to change if needed	Full Council *times and work items are approximate and subject to change if needed
November	15 minutes at Committee meeting: <ul style="list-style-type: none"> Receive an overview from staff on amendment process schedule, work flow, upcoming tasks, and how our work links with the Program framework 	
December ✓ Recommendations are posted online Dec 13 (C) Prep: read recommendations	30 minutes at Committee meeting: <ul style="list-style-type: none"> Receive an update from staff on amendment process schedule, upcoming tasks, and staff tools 	30 minutes at Council meeting: <ul style="list-style-type: none"> Receive a briefing from staff on amendment approach and upcoming tasks
January (C) Prep: read recommendations	2 hours at Committee meeting: <ul style="list-style-type: none"> Receive an overview of recommendations from staff Begin to identify main issues in recommendations with staff 	45 minutes at Council meeting: <ul style="list-style-type: none"> Receive an overview of recommendations from staff <p>Receive public comment at Council meeting</p>
February ✓ Comments period closes February 8 (C) Prep: read comments (c) Central and state staff collaborate to schedule additional committee meetings for this month	2 hours at Committee meeting + 1 additional work day (Feb 21): <ul style="list-style-type: none"> Review and discuss recommendations in further detail 	75 minutes at Council meeting: <ul style="list-style-type: none"> Review recommendations with staff Receive a briefing from staff on the AEERPS analysis <p>Receive public comment at Council meeting</p>
March (C) Prep: work with other state member on draft amendment language (c) Central and state staff collaborate to schedule additional committee meetings for this month	2 hours at Committee meeting + 3 additional work days (Mar 13 & 26): <ul style="list-style-type: none"> Continue discussion with staff on recommendations and comments and refine main issues Begin to draft amendment language 	30 minutes at Council meeting: <ul style="list-style-type: none"> Receive an update from staff on amendment process schedule <p>Receive public comment at Council meeting</p>

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Amendment tasks

What to expect in the coming months (C) = All Council Members (c) = Fish and Wildlife Committee Members	Fish and Wildlife Committee *times and work items are approximate and subject to change if needed	Full Council *times and work items are approximate and subject to change if needed
April (C) Prep: work with other state member on draft amendment language (c) Central and state staff collaborate to schedule additional committee meetings for this month	2 hours at Committee meeting + 2 additional work days: <ul style="list-style-type: none"> Continue to draft amendment language Seek agreement to move draft language to the full Council 	45 minutes at Council meeting <ul style="list-style-type: none"> Informal decision on how to amend Receive public comment at Council meeting
May (C) Central and state staff collaborate to schedule additional committee and Council meetings for this month	2 hours at Committee meeting + 1 additional work day, if needed: <ul style="list-style-type: none"> Continue to draft amendment language Seek agreement to move draft language to the full Council 	4 hours at Council meeting + 1 additional work day: <ul style="list-style-type: none"> Review draft language with staff Receive an update from staff on outreach plan Receive public comment at Council meeting
June		4 hours at Council meeting + 1 additional work day: <ul style="list-style-type: none"> Review draft language with staff Receive an update from staff on outreach plan Receive public comment at Council meeting
July ✓ Release draft at July Council meeting ✓ Public comment period begins at the release of the draft (C) Central and state staff collaborate to schedule hearings and consultations for next couple months		4 hours at Council meeting: <ul style="list-style-type: none"> Review draft language with staff Prepare to release draft for public comment Receive public comment at Council meeting
August ✓ Public comment period begins at the release of the draft (C) Central and state staff collaborate to schedule hearings and consultations (C) Review public comments and notes from consultations and hearings		Receive public comment at Council meeting Public hearings and private consultations held throughout the region

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Outline of 2014 Program

- Part One: Overview
- Part Two: Introduction
- Part Three: Vision, Scientific Foundation, Goals, Objectives, Strategies
- Part Four: Adaptive Management
- Part Five: Subbasin Plans
- Part Six: How the Program is Implemented
- Part Seven: Appendices

Today

- Part One: Overview
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