a) Implementation of the Northwest Power and Conservations Council's 2014 Fish and Wildlife Program Priorities and Measures

Discussion Draft 8/4/15

The Council's 2014 Fish and Wildlife Program (Program) identifies several areas of emerging priorities. The priorities originate from the Program's various strategies and measures. Some of these measures have immediate implementation opportunities, others will have near or extended term opportunities.

2014 Fish and Wildlife Program Priorities:

1. Provide for funding long-term maintenance of the assets that have been created by prior Program investments
2. Implement adaptive management (including prioritized research on critical uncertainties) throughout the Program by assessing the effectiveness of ongoing projects, developing Program objectives when appropriate and taking into account the effects of climate change
3. Preserve Program effectiveness by supporting: (1) expanded management of predators; (2) mapping and determining hotspots for toxic contaminants; and (3) aggressively addressing non-native and invasive species
4. Investigate blocked area mitigation options through reintroduction, passage and habitat improvement, and implement if warranted
5. Implement additional sturgeon and lamprey measures (passage and research)
6. Update the subbasin plans most in need of updates
7. Continue efforts to improve floodplain habitats

More on Program Measures and Priorities from the 2014 Fish and Wildlife Program:

The Council recognizes that the 2014 Program priorities are a subset of all of the measures in the Fish and Wildlife Program which has many priorities, most of which are being implemented and many have multi-year funding and implementation commitments. The Program emerging priorities represent important measures that were either not happening or not being implemented to a sufficient extent.

In the 2014 Program the Council provided the following guidance to Bonneville, the other federal agencies, and the region in general as to which of these new measures are emerging priorities for implementation in the next five years:

"During the course of the next five years, the Council anticipates that Bonneville will take the necessary steps to integrate these priorities into the Program and will report annually to the Council on its progress."

The Program further notes that, "Bonneville should fund any new fish and wildlife obligations from identifying savings within the current Program and as necessary, from additional expenditures. …To the extent that targeted savings are insufficient to meet Bonneville's financial obligations in this Program, Bonneville should consider increasing expenditures." Following is a discussion of what the Program says about these emerging priorities, what measures in the Program support each of the priorities, what is currently being done, what is needed and when, and rough cost estimates if available. This information is preliminary and will be refined as necessary.

1. Provide for funding long-term maintenance of the assets that have been created by prior Program investments

A. *Fish and Wildlife Program:*
The Council determined that adequate and dependable operation and maintenance support is needed to ensure ongoing proper functioning of past infrastructure investments by Bonneville and the action agencies intended to benefit fish and wildlife in the Columbia River Basin as well as continuing to meet Bonneville's mitigation requirements. There are several types of Program-funded projects that require a long-term financial maintenance plan to ensure their longevity and integrity, including fish screens, fishways and traps, hatcheries, lands, and habitat actions.

B. *Measures addressing Program priorities:*
The Program contains five measures in the strategy for maintenance of Program investments (See Program measures). These measures include 1) calling for the Council to work with Bonneville and others action agencies to ensure that past investments are kept current or properly decommissioned; 2) calling for the Council to convene a work group comprising action agencies and agencies and tribes with expertise in fish screens, fishways and traps, hatcheries, lands, and habitat actions, to define and develop a long-term maintenance plan and process; and 3) the work group to report quarterly on its progress toward developing a long-term plan for protecting fish and wildlife investments. The long-term plans shall be completed at the end of one year from the initial meeting of the work group. The plan will be presented to the Council for review and recommendation to Bonneville and the action agencies. Bonneville shall fund the long-term maintenance plan as reviewed and recommended by the Council.

C. *What is happening now?*
Work began in December of 2014 when the Council began development of a strategic plan. Strategic plan tasks include assessing needs for each category of operation and maintenance in the Program, and preparing an Asset Management Program. The Council formally convened an Operation and Maintenance Subcommittee in January of 2015.

D. *What needs to happen and when?*
Screens: Bonneville is currently reviewing the inventory (Phase 1 and 2) from the Fish Screen Oversight Committee (FSOC) and cross referencing it with existing contract data. Once this review is complete, the Subcommittee will host a meeting with regional sponsors to collaboratively review the inventory in September (Boise) or October (Portland). As part of this meeting there is a need to identify who benefits from the screens and define clear roles and funding responsibilities.

a. The draft product needs to be taken to the Subcommittee for review and discussion (possibly September or October).
b. The draft product needs to be an easily understandable table by sponsor and year.

FSOC meets on July 23rd and Council and Bonneville staff plans on attending to provide an update of the strategic plan and status of the inventory. This will most likely provide an

opportunity to introduce the need to meet and refine the inventory, so that the Council and Bonneville can proceed to Phase 3 (prioritization) of the asset management strategy.

Hatcheries: The direct Program hatchery list is being refined. (Phase 1 should be complete in the near future). Staff recommends moving to Phase 2 (Condition Assessment) through collaborative hatchery assessments.

a. Need to define and detail out the process to conduct the assessments and budget for the direct Program facilities.
b. Develop procurement strategy (with F&W Committee and Council),
c. Form a team with subject matter experts,
d. Sequence hatchery assessments starting with oldest facilities.

The scope of Phase 2 above needs to be taken to the Subcommittee for review and discussion (possibly October). Initiate assessments in October if funds are available.

General Next Steps: There is a need to link this to the next project review cycle. There is an opportunity to conduct the hatchery assessments as part of the O&M strategic plan to the anticipated review associated with wildlife projects, hatchery and screen projects.
The IEAB have a working draft for Task 211(*Approaches to Improve Planning for Long-Term Costs of Fish and Wildlife Projects*). Their next conference call is July 29th. The Council is anticipating their product by late summer or early fall.

Immediate actions: Initiate hatchery condition assessments

Near-term/extended term actions: To be determined based on recommendation of the Operation and Maintenance Subcommittee.

E. What are estimated costs?
Hatchery condition assessment: $16,988/hatchery. Total at $238,000 (14 hatcheries).

Estimated costs for long term (range): To be determined.

2. Implement adaptive management (including prioritized research on critical uncertainties) throughout the Program by assessing the effectiveness of ongoing projects, developing Program objectives when appropriate and

A. Fish and Wildlife Program:

The Council is committed to an adaptive management approach that uses research and monitoring data to understand, at multiple scales, how Program projects and measures are performing, and to assess the status of focal species and their habitat. This information is evaluated to determine if projects and measures are having the intended measurable benefits to fish, wildlife and their habitat, within the context of their status and trend, which are mitigated, enhanced and protected through the Program and enables the Council to determine whether or not progress is being made toward Program goals and objectives.

The adaptive management strategy consists of many measures addressing monitoring, research, evaluation and reporting. Refining objectives for evaluating Program performance is also an important element of implementing adaptive management.

I. Refine Program goals and objectives

B. Measures addressing Program priorities:

The Program calls for the Council, working with others in the region, including the state and federal fish and wildlife agencies and tribes, other federal agencies and the independent science panels, to oversee a regional process to survey, collect, identify, and refine a realistic set of quantitative objectives for Program focal species and their habitat related to the four broad themes and Program goal statements. The objectives should be specific, measurable, attainable, relevant, time-bound, and based on an explicit scientific rationale, as appropriate. The data needed to assess progress should be based on existing monitoring efforts or other publicly available sources of data. The Program calls for the ISAB to review draft objectives for scientific quality and usefulness in tracking progress and adaptively managing Program efforts.

The first objectives under review are the objectives for natural-origin adult salmon and steelhead (see Program language). The Program calls on the Council to work with state and federal agencies and tribes in the region to collect, organize, review, and report on these quantitative objectives by the end of 2015.

C. What is happening now?

In the spring of 2015, a draft compilation of existing salmon and steelhead objectives was completed focusing on natural-origin, adult, anadromous sockeye, chinook, steelhead, coho and chum. On June 3rd 2015, a regional meeting was held to discuss this task and to request input on the draft compilation and its organization. Input was received both during and after the regional meeting related to database improvements and inclusion of additional goals and objectives. The Council continues to collaborate with NOAA to engage in further development and implementation of the NOAA Columbia Basin and Steelhead Goals process

D. What needs to happen and when?

Immediate actions: At present staff is making updates to content and structure of the compilation of existing objectives. Staff will assesses consistency among objectives and goals within an area, and report findings in a future discussion with the Council's Fish and Wildlife Committee. The Council will continue to collaborate with NOAA on their Columbia Basin and Steelhead Goals process.

Near-term/extended term actions: If necessary, refine Program goals and objectives. Initiate similar process to refine objectives for other anadromous fish, resident fish, ecosystem function, hydrosystem, and public engagement. Continue to collaborate with NOAA on their Columbia Basin and Steelhead Goals process.

E. What are estimated costs?
This priority is being implemented by the Council. No new costs for Bonneville are currently anticipated.

II. Update the Council's Research plan

B. Measures addressing Program priorities:
The Council, with federal and state fish and wildlife agencies and tribes will review and update its research plan every three years beginning in 2014 (see Program measures).

C. What is happening now?
The Council asked the ISAB and ISRP to assist with preparing a list of critical uncertainties and evaluating progress of current research projects. This work is underway. The ISAB and ISRP estimate that their report to the Council will be available in the fall of 2015.

D. What needs to happen and on what timeframe (immediate/near-term/extended term)?
Immediate actions: Upon receipt of the ISAB/ISRP report the Council staff will work with the Council to develop a draft Council research plan that would undergo public review and refinement with the goal of the Council approving a final plan in the spring of 2016. It should be noted that implementation of several Program priorities is linked to the work being done to revise the Council's research plan, as the plan should identify high priority, critical uncertainties for implementation in many topic areas.

Near/Extended term actions: Implement priorities in the approved research plan.

E. What are estimated costs?
This work to revise the research plan will be performed by the Council, in cooperation with others. Costs of implementing the revised Research Plan need to be determined.

[For reference only: staff rough estimate of past spending/yr: research – up to about $15.5M/yr. This is already in the F&W budget, need additional funds if expanded.]

III. Take into account, the effects of climate change

B. Measures addressing Program priorities:
There are more than a dozen measures in the Program's Climate Change Strategy. Many of these are directed towards the federal action agencies, in coordination with others. Implementation of these measures in many cases, is ongoing and does not require direct

Council recommended funding at this time (See Program measures). A measure that staff believes is directly applicable and timely is the measure to assess whether climate change effects are altering or are likely to alter critical river flows, water temperatures or other habitat attributes in a way that could significantly affect fish or wildlife important to the Program. A related measure calls for completing the water temperature modeling in the mainstem from Grand Coulee Dam downstream to McNary Dam.

C. What is happening now?

As the Fish and Wildlife Program is a habitat-based program, that implements land and water acquisitions, habitat restoration and floodplain restoration, it should be noted that all of these actions should have a general ecological benefit that should address some of the impacts of climate change in the basin. At this time modeling associated with climate change is underway and is funded by BPA-Power Supply. Once the hydrologic modeling has provided necessary downscaled hydrologic data (in early 2017) hydrosystem modeling can be done to determine effects on mainstem flows, reservoir refill and the power system. Water temperature modeling can then occur based on those results.

D. What needs to happen and when?

Near/Extended term actions: Temperature analysis and modeling of the Grand Coulee to McNary reach could occur in late 2017.

E. What are estimated costs?

Costs related to this priority for the extended term need to be determined.

[For reference only: staff rough estimate of past spending/yr: climate work – up to $350k, funded by BPA's Power Generation side]

3. Preserve Program effectiveness by supporting: (1) expanded management of predators; (2) mapping and determining hotspots for toxic contaminants; and (3) aggressively addressing non-native and invasive species

I. Predator management

A. Fish and Wildlife Program:

The construction and operation of the Columbia-Snake river hydrosystem, as well as disposal of dredge spoils in the lower Columbia River and estuary, have altered historical habitats and created new, hybrid habitats. These altered habitats support a wide range of predator species including native and non-native predatory fish species, predator birds such as Caspian terns, double-crested cormorants, several gull species, mergansers and pelicans, and marine mammals such as California and Steller sea lions.

B. Measures addressing Program priorities:

There are more than a dozen measures in the Program's Predator Management Strategy (see Program measures). Implementation of several of these measures is ongoing by the ACOE, in coordination with others. Staff suggests that measures that are timely include expanding the northern pikeminnow removal program to other Mainstem dams and supporting a study to evaluate the extent of seal and sea lion predation on salmonids, sturgeon, and lamprey in the lower Columbia River from below Bonneville Dam to the mouth of the river.

C. What is happening now?

Both Bonneville and the Corps, under the Program and NOAA Fisheries' 2014 FCRPS Biological Opinion, are currently funding and implementing predator management measures related to managing or controlling fish, avian and marine mammal predation. In particular, Bonneville is funding and implementing the base northern pikeminnow removal Program. In addition, both the Corps of Engineers and Bonneville are funding research and implementing actions to manage, reduce and control bird predation in the estuary and in inland areas on the Columbia Plateau. The Corps of Engineers is funding annual monitoring of observed pinniped predation on salmon, sturgeon and lamprey below Bonneville Dam. The action agencies are also funding marine mammal hazing and deterrent measures at Bonneville Dam, as well as the states' ongoing trapping and removal efforts under Sec. 120 of the Marine Mammal Protection Act.

D. What needs to happen and when?

Near-term actions: Convene a technical work group to determine the effectiveness of predator management actions, develop a common metric to measure the effects of predation on salmonids, such as salmon adult equivalents to facilitate comparison and evaluation against other limiting factors. The Council could recommend expansion of pikeminnow removal to other mainstem dams.

Extended-term actions: The Council could request a project proposal to address the regional concerns about the lack of fully understanding the magnitude of pinniped predation on salmon below Bonneville Dam. It should be noted that it may be necessary to support initial research to develop all of the methods necessary to properly implement a

comprehensive marine mammal predation study in the lower Columbia River below Bonneville.

E. *What are estimated costs?*

Costs associated with this priority need to be determined.

[For reference only: staff rough estimate of past spending/year: up to $4-5M. Expansion of work under this priority would require additional funds.]

II. Mapping hotspots for contaminants

A. Fish and Wildlife Program:

There is a growing concern about toxic contaminants' effects on fish and aquatic life in the mainstem Columbia and Snake rivers and tributaries. Degraded water quality may be having adverse effects on the health of both the native fish and wildlife populations and the ecosystem these populations depend upon, thus impacting mitigation and recovery efforts in the Columbia River Basin.

B. Measures addressing Program priorities:

The Program contains a number of measures specifically targeting toxic contaminants, within the Water Quality Strategy (see Program measures). The related Program priority calls for mapping and determining hotspots of toxic contaminants. This is directly addressed by a measure that that calls on the Council to monitor, assess and map high priority toxic contaminant hot spots in the Columbia River Basin and evaluate their relationship, if any, to the development and operation of the hydrosystem.

C. What is happening now?

No comprehensive effort to map toxic contaminants in the Columbia Basin is currently underway. The Lower Columbia Estuary Partnership Ecosystem Monitoring Program has collected some information on the presence of certain toxics in the Lower Columbia River, primarily using funds from the Environmental Protection Agency. While not specifically a mapping exercise, the information could be utilized in a mapping effort. The States issue informational bulletins/maps identifying fish and shellfish advisories.

D. What needs to happen and when?

Immediate actions: The Council should work with the regional Columbia River Basin Toxics Reduction Work Group to further scope this measure. Staff suggests that in the near term, this work could focus on using existing contaminant data (such as each state's health authority's Fish Advisory Information bulletins on fish consumption and other existing toxics monitoring data, to develop a map of known hot spots. Based on this information, it might be necessary at a later date to collect new information to fully address this measure but staff suggests initial efforts focus on using existing information. Staff estimates that this work could be completed in 12 months.

Near-term/long term actions? If necessary complete addition monitoring in areas where necessary to fully address the mapping efforts. There is an opportunity to leverage funds from USDA to partner in addressing toxic contaminants. (RFI in June for 2017 funds).

E. *What are estimated costs?*
Costs for this priority need to be determined and could be developed in a scoping process.

[For reference only: staff rough estimate of past spending/year: $0-$300K/year but current spending is minimal - $0 so mapping hotspots with existing information would require additional funds. Collecting new information would require additional funds.]

III. Address non-native and invasive species

A. *Fish and Wildlife Program:*
Non-native and invasive species imperil native species in the Pacific Northwest's ecosystems through predation, competition for food, interbreeding, disease transmission, food web disruption, and physical habitat alteration. The Council acknowledges invasive and non-native species pose direct threats to the Program's fish and wildlife restoration efforts through competition, predation and habitat modification. A significant threat in the Columbia River Basin from aquatic invasive species is introduction into basin waters of zebra or quagga (dreissenid) mussels. Other major aquatic species threats include hydrilla, silver carp, flowering rush and Eurasian milfoil. Once established in other locales, management actions have shown little success in removing or controlling these invasive, non-native species.

B. *Measures addressing Program priorities:*
The Program contains several measures that address preventing establishment, removal and eradication of non-native species, reducing competition with native species, and regional coordination (see Program measures).

C. *What is happening now?*
A number of these measures are currently being implemented by Northwest states, tribes and federal agencies. Each of the four Northwest states have ongoing aquatic invasive species prevention programs and developed management and rapid response plans. The four states are also implementing a network of watercraft inspection stations to help prevent the introduction of aquatic invasive species, particularly dreissenid mussels, into waters of the Columbia River Basin. The federal project operators (e.g., the Corps of Engineers and Bureau of Reclamation) are conducting vulnerability assessments at their hydropower projects, as well as implementing ongoing monitoring programs for invasive species. Bonneville is funding regional coordination efforts through the 100th Meridian Initiative-Columbia Basin Team, as well as some research on dreissenid mussels. The tribes are implementing monitoring programs on tribal lands and providing information on invasive species to tribal members. In June the Council supported an emergency request to survey Northern Pike from Lake Roosevelt, with further funding contingent on favorable science review.

D. *What needs to happen and when?*
Immediate actions: One measure that could be considered for immediate implementation by the Council calls on BPA and other federal action agencies to assist the Northwest states' efforts to prevent the establishment of quagga and zebra mussels.

Near-term/extended-term actions: The Council could solicit for projects to implement the following measure: The agencies and tribes shall prioritize non-native species control

actions to ensure Program funds are spent to address the most significant threats, including predation, competition and hybridization. This could include targeted removal and control of non-native fish species where they are known to adversely impact native species.

E. What are estimated costs?

Costs for this priority need to be developed.

[For reference only: Based on 2014-15 data, the four Northwest states are currently spending roughly $3.4 million annually to prevent the spread and introduction of dreissenid mussels and other aquatic invasive species. It is estimated that, in the long-term to successfully implement an aquatic invasive species perimeter defense effort for the Pacific Northwest will require up to an additional $20 million in funding to achieve key priorities, as well as implement an additional set of actions. However, about $4 million in funding is needed immediately to further support Northwest states' watercraft inspection and decontamination stations, build institutional capacity, produce outreach materials, training, signage, monitoring, research, and containment at the source in FY 2016. It is also estimated that the total costs associated with failing to prevent an invasion of dreissenid mussels in the Pacific Northwest exceed $0.5 billion annually to the Northwest states and western Canadian provinces.

Scoping and cost estimates are needed for the near-term/extended-term action concerning non-native fish species removal and control actions.]

4. Investigate blocked area mitigation options through reintroduction, passage and habitat improvement, and implement if warranted

A. *Fish and Wildlife Program:*
For some time, the Program has included a provision calling for investigations into the passage and reintroduction of anadromous fish above Chief Joseph and Grand Coulee dams if, when, and where feasible. The huge loss of salmon capacity and productivity in the upper Columbia has been one of the key drivers of mitigation activities under the Northwest Power Act, and a number of agencies and tribes recommended for this 2014 Program that the region intensify its efforts to explore the possibilities of reintroducing anadromous fish above Chief Joseph and Grand Coulee dams.

B. *Measures addressing Program priorities:*
The emerging priorities in the Program call for an investigation of, "blocked area mitigation options through reintroduction, passage and habitat improvement and implement if warranted" (see Program measure). Phase 1 of this measure has an end date of December 31, 2016. The tasks in phase 1 include: a literature review of passage studies elsewhere in the Basin; investigating habitat suitability and availability above Grand Coulee and the scientific feasibility and cost of upstream and downstream passage; regional discussions regarding the purpose and scope of reintroduction above Chief Joseph and Grand Coulee dams.

C. *What is happening now?*
The Upper Columbia United Tribes (UCUT) released a draft work and coordination plan in January 2015 for public comment. Over 300 comments were received. An updated work plan was released in June 2015. The UCUT now is forming executive, management, science, and public relations workgroups made up of co-managers around the Basin. These workgroups are tasked to create and refine project proposals based on the UCUT work plan.

In July, the UCUTs proposed an administrative statement of work to implement regionally coordinated project proposals for Phase 1 work.

The Spokane Tribe of Indians (STOI) submitted a habitat assessment project proposal with their comments on the draft Program during the 2014 Program amendment process. This project proposal, after some refinement, could be ready by fall 2015.

There is a passage program underway in the Willamette as a part of the Willamette Biological Opinion to address blocked areas. The Corps of Engineers will release its Configurations and Operation Plan in September, outlining some of the costs in that effort. These costs will largely come from Columbia River Fish Mitigation Fund.

D. *What needs to happen and when?*
Immediate actions: Solicit for proposals addressing Phase 1: a habitat assessment, an evaluation of information from passage studies at other blockages and from previous assessments of passage at Grand Coulee and Chief Joseph dams

Near/extended term actions: Continue with Phase 1. Once Phase 1 is complete, and based on results of Phase 1, proceed to Phase 2.

E. *What are estimated costs?*
Cost estimates need to be determined. The UCUT administrative proposal estimates a budget of $273,339. The habitat assessment project proposal by the STOI submitted in the 2014 Program amendment process estimates an annual budget of $530,000-$650,000 for five years.

[For reference only: staff rough estimate of past spending/yr - reintroduction and passage improvements in other areas has been variable and range from $1.4M-$4M.]

5. Implement additional sturgeon and lamprey measures (passage and research)

A. *Fish and Wildlife Program:*
The Program identifies green and white sturgeon and pacific lamprey as species that are in need additional work in order to increase their abundance and survival and to increase our understanding of how the development and operation of the Federal Columbia River Power System affects their survival and growth.

I. Sturgeon

B. *Measures addressing Program priorities:*
The Fish and Wildlife Program contains a number of measures related to sturgeon. These measures address hydropower dam operations and fish passage, mainstem habitat, predation, monitoring, the use of hatcheries for sturgeon and Upper-Columbia specific population actions (see Program measures).

C. *What is happening now?*
Some measures are being addressed at this time by agencies and tribes and various public utility districts. Current projects are focused on periodic population status assessment monitoring, recruitment indexing in relation to flow and hydropower operations, fishery management to optimize production of impounded populations in the reservoirs, and evaluations of the appropriateness and feasibility of hatchery mitigation in the Federal Columbia River Power System portions of the mid-Columbia and lower Snake River reservoirs.

Several measures are not currently being addressed and could be addressed through Program funding. It should be noted that the Council's revised Research Plan will inform this emerging priority as many of the sturgeon measures are research-based. It is necessary to gain better information about sturgeon in order to rebuild sturgeon populations impacted by the hydrosystem.

D. *What needs to happen and when?*
Near/extended term actions: Solicit for sturgeon proposals that could be implemented in the 1-3 year timeframe.

E. *What are estimated costs?*
Costs estimates for this priority need to be determined.

[For reference only: staff rough estimate of past spending/yr: $2-3M. Expansion may require additional funds.]

II. Lamprey

B. Measures addressing Program priorities:

The Fish and Wildlife Program contains a number of measures related to Lamprey. These measures address the hydropower system, mainstem and tributary habitat, predation, research, monitoring, propagation and other miscellaneous measures. (See Program measures)

C. *What is happening now?*

Assessment work for lamprey has been occurring for about ten years. The Council called for a lamprey synthesis report in the Research, Monitoring and Evaluation Category Review in 2011. This was recommended in order to encourage reporting of results on the data gathered so far about the status and trends of lamprey populations, limiting factors, and critical uncertainties and risks. The Council recommended that this synthesis should also prioritize actions based on these conclusions. This will help determine what actions the Council should recommend continue or be expanded. The Council's revised Research Plan will inform this emerging priority as well.

D. What needs to happen and when?

Near/extended term actions: Once the synthesis report is available, solicit for proposals per the measures in the Program.

E. What are estimated costs?

Costs for implementing this priority need to be determined.

[For reference only: staff rough estimate of past spending/yr: $4.3M-5.3M. Expansion could require additional funds]

6. Update the subbasin plans most in need of updates

A. *Fish and Wildlife Program:*
In 2004-05 and 2010-11, the Council adopted into the Program 59 subbasin management plans developed by subbasin planning entities consisting of state and federal fish and wildlife agencies and tribes (agencies and tribes) and other regional and local organizations. The subbasin plans reflect local policies and priorities while remaining consistent with the Program's basinwide vision, biological objectives, and strategies. The subbasin plans remain a fundamental part of the Program. The ISRP uses subbasin plans to determine if projects support, and are consistent with, the plans and other Program elements.

In the 10 years since subbasin management plans were adopted, continued restoration, recovery, implementation, and planning work has occurred. The Council recognizes that physical conditions and priorities may have changed, such as in areas where dams have been removed or where substantial restoration work has occurred. For the Council, subbasin plans remain the primary planning documents to guide implementation; however, in some areas of the Basin, other plans are more current than subbasin plans. Because subbasin plans are integral to the Program, the Council will identify subbasin plans most in need of an update.

The primary purpose of an update will be to incorporate important aspects of the further planning work that have occurred since the first adoption of the subbasin plans into the Program, including consideration of relevant portions of recovery plans, additional or revised population or environmental objectives, summary tables, and implementation action plans.

B. *Measures addressing Program priorities:*
Update the subbasin plans most in need of updates. (See the Program's Part Five: Subbasin Plans)

C. *What is happening now?*
Nothing is occurring at present.

D. *What needs to happen and when?*
Staff recommends that the Council hold one or more discussions, perhaps as a workshop in conjunction with a regular Council meeting, with interested parties from the region to discuss which subbasin plans need to be updated, how and when.

Near-term actions: Council hold discussions or a workshop with entities in the region to discuss timing and scope of subbasin plan update.

Extended term actions: Update subbasin plans most in need of updates.

E. *What are estimated costs?*
Determine costs estimate after scoping meetings.

[For reference only: staff rough estimate of past spending/yr: $150k per subbasin in 2002, for full plan development]

7. Continue efforts to improve floodplain habitats

A. *Fish and Wildlife Program:*
Habitat mitigation activities are important for off-site mitigation success and are guided by subbasin plans, which have been developed for most of the subbasins and the mainstem reaches in the Columbia River Basin.

B. *Measures addressing Program priorities:*
The Program contains measures that call for reconnecting floodplains through passive and active improvements in channel structure and geomorphology and re-establishing natural river processes in mainstem reaches and tributaries of the Columbia River. Measures call for mainstem efforts to reconnect protected and enhanced lower tributary habitats to protected and enhanced mainstem habitats, especially in the area of productive mainstem populations. Another measure calls for continuing actions to reconnect the river to its floodplains wherever possible in the mainstem, with special emphasis on the estuary and lower Columbia River. (See Program measures)

C. *What is happening now?*
Floodplain reconnection is happening under the Fish and Wildlife Program and biological opinions in various locations throughout the Columbia River basin including the Kootenai River and the Columbia River estuary. This type of work is being seen more and more as beneficial approach to habitat restoration

D. *What needs to happen and when?*
Staff recommends that the Council hold one or more discussions, perhaps as a science – policy forum, to assess and evaluate the status of floodplain reconnection at varying scales in the Columbia River Basin. Staff suggest that interested parties from the region come together to discuss whether this work is being shown to be effective and where there may be additional opportunities.

Near-term action: Council hold science-policy forum to discuss floodplain reconnection with interested entities in the region.

Extended term: Implement floodplain reconnection actions

E. *What are the estimated costs?*
No Bonneville costs anticipated in the immediate or near-term range. Costs associated with expanded implementation in the extended timeframe need to be determined.

[For reference only: staff rough estimate of past spending/yr has been increasing -BPA estimates up $70 million per year now.]