



## Department of Energy

Bonneville Power Administration  
P.O. Box 3621  
Portland, Oregon 97208-3621

ENVIRONMENT, FISH AND WILDLIFE

November 20, 2013

In reply refer to: KEW-4

Mr. Bill Bradbury, Chair  
Northwest Power and Conservation Council  
851 SW Sixth Avenue, Suite 1100  
Portland, Oregon 97204

Dear Chair Bradbury:

*Bill*

Thank you for the opportunity to comment on the recommendations made to the Northwest Power and Conservation Council (Council) for amending its Columbia River Basin Fish and Wildlife Program (Program). This letter offers the Bonneville Power Administration's (BPA) comments on the recommendations made by other entities.

The Council's Fish and Wildlife Program has matured substantially over the past three decades, from the first Program in 1982 through eight significant amendment processes. Over the years, Council members, independent scientists, and fish and wildlife managers have shaped and enhanced the Program's framework and contents. The 2014 Program amendments will undoubtedly build on this substantial history of regional accomplishment.

BPA supports the current Program as a framework for the broader regional values of fish and wildlife rebuilding across the Columbia River Basin, within which Federal Columbia River Power System (FCRPS) mitigation is nested. We believe it is based on a solid scientific foundation, is comprehensive in nature, and supports hatchery, habitat, harvest, and hydroelectric system (all-H) strategies and actions that have demonstrated accomplishments with ratepayer investments. We also believe that it continues to serve as a sound framework for implementation and adaptive management as results of ongoing monitoring and evaluation accrue. Importantly, a Program vision that is broader than the basin's hydroelectric system provides context for everyone whose actions adversely affect fish and wildlife. BPA's support for the Program comes with the recognition that our responsibilities are focused more narrowly on the impacts of the 31 dams that comprise the FCRPS.

Given the volume of recommendations the Council received, BPA is pleased that the vast majority endorse the existing Program framework and the long-term agreements that support its implementation. BPA encourages the Council to continue including the following key elements

in the Program because they reflect substantial regional collaboration, represent long-term commitments by the FCRPS Action Agencies, complement resource manager plans and embody the best available science.

### **Federal Hydro Operations and Dam Modifications are Improving Fish Survival**

The Program should continue to support the existing hydrosystem operations, spill, and dam passage strategies, performance standards for juvenile and adult dam passage, and inriver survival targets in the NOAA Fisheries FCRPS Biological Opinion and reasonable and prudent alternative. They embody the best available science and rely on rigorous methods of testing and diagnostic evaluation. No new analysis or changed conditions warrant changing course at this time. As the result of spill called for in the Biological Opinion spill and dam modifications such as surface passage, juvenile fish survival has been improved, delay of juvenile fish at dams has been reduced, and juvenile fish travel times are faster than they were at the time of the last Program amendment. This illustrates the benefit of ratepayer investments at dams, and the careful management of flow and “smart spill” to achieve fish passage survival improvements.

We have significant questions regarding recent proposals for increased levels of spill and new spill performance metrics which are not based on the best available science. Now is not the time to make a change. Instead, continuing the current adaptively managed experiment in the operation and configuration of FCRPS projects under the Biological Opinion will continue to improve fish survival and ultimately help discern whether further alterations in spill patterns and passage routes would be beneficial.

### **Habitat Benefits are Accruing from Tributary and Estuary Enhancements**

Habitat restoration actions implemented as offsite mitigation have significantly improved conditions in spawning, rearing, and migratory corridors. For example, since 2008, more than 2,200 acres of habitat have been opened to anadromous fish through barrier and dam removals; 300,000 acre-feet of instream water have been protected; 7,800 acres of riparian habitat have been improved; 54,000 acres of riparian habitat have been protected; and 5,800 acres of estuary habitat have been protected and restored. The magnitude and complexity of these actions, supported by the Columbia Basin Fish Accords and other partnerships, are what makes the Program the largest ecosystem-based mitigation effort in the nation.

The tributary and estuary reports released recently by the FCRPS Action Agencies—along with the draft 2013 Comprehensive Evaluation and numerous other reports and papers—document the accrual of meaningful benefits for anadromous fish and improvement to environmental conditions from these habitat enhancement efforts. Similar benefits are expected from the Action Agencies’ wildlife and resident fish habitat enhancement efforts, such as under the Willamette Wildlife Agreement.

### **Continue to Support Hatcheries and Their Reforms**

Hatchery programs funded by BPA and others in the Basin provide benefits to ESA-listed fish and for regional harvests. Since the last Program amendments, the FCRPS Action Agencies have proposed Hatchery Genetic Management Plans (HGMPs) to NOAA Fisheries for all of the FCRPS facilities, more than 40 programs, incorporating appropriate reform actions. Through ESA consultation on individual hatchery programs, reforms are taking place across the region. New or renewed hatchery permits and biological opinions now reflect HGMP recommendations and recovery plans as appropriate.

### **Reaffirm and Support the Principles of RM&E Categorical Review**

BPA continues to support and implement the principles from the Council's Categorical Review of research, monitoring, and evaluation. Instead of expanding RM&E, as many propose, BPA believes the region would derive greater benefit from better synthesis and communication of useful results for management decisions, programmatic approaches, and standardized data collection and collaboration. As you know, we have a number of these initiatives already underway, including a new streamlined approach to evaluating habitat project action effectiveness.

Thank you for this opportunity to comment. We commend the Council for its past work and look forward to productive conversations on the 2014 Program. Please see the enclosure for more detailed comments and perspectives.

Sincerely,



F. Lorraine Bodi  
Vice President, Environment, Fish and Wildlife

Enclosure

# Enclosure to BPA November 20, 2013 Letter To Northwest Power and Conservation Council Specific Comments

## 1. Introduction: Legal and Policy Considerations

BPA's review of the submitted recommendations was guided by the Northwest Power Act's criteria. Under the Act, the Program's overarching goal is to protect, mitigate, and enhance fish and wildlife affected by hydro power projects, while assuring an adequate, economical, and reliable power supply. Recommendations for Program measures must be supported by the "best available science"<sup>1</sup> and include detailed information and supporting data.<sup>2</sup> They must also "complement the existing and future activities" of the region's fish and wildlife resource managers.<sup>3</sup> Specifically with respect to anadromous fish and hydroelectric operations, recommended measures must provide for improved survival at the dams<sup>4</sup> and flows of sufficient quality and quantity between the dams to improve production, migration, and survival.<sup>5</sup>

Regarding costs of implementation, there are a number of additional legal criteria. The alternative with the minimum economic costs must prevail when two or more proposed alternatives would meet the same sound biological objective.<sup>6</sup> BPA ratepayers can assume the cost of mitigation measures for the FCRPS only, and BPA funding for mitigation cannot be "in lieu" of what others are authorized or required to do.<sup>7</sup> Consequently, measures that coordinate actions under the Program "to deal with impacts caused by factors other than the development and operation of electric power facilities and programs" must "be implemented in accordance with agreements among the appropriate parties providing for the administration and funding" of those measures.<sup>8</sup>

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<sup>1</sup> *Id.* at § 839b(h)(6)(B).

<sup>2</sup> *Id.* at § 839b(h)(3).

<sup>3</sup> *Id.* at § 839b(h)(6)(A).

<sup>4</sup> *Id.* at § 839b(h)(6)(E)(i).

<sup>5</sup> *Id.* at § 839b(h)(6)(E)(ii).

<sup>6</sup> *Id.* at § 839b(h)(6)(C).

<sup>7</sup> *Id.* at § 839b(h)(8)(B).

<sup>8</sup> *Id.* at § 839b(h)(8)(C).

## **2. Relying on the Best Available Science Should Remain the Centerpiece of the Program**

BPA remains supportive of the Program's overall scientific foundation and structure. The eight scientific principles that have been part of the Fish and Wildlife Program since 2000 are well-founded and based on past science review.<sup>9</sup> Recently, the ISAB devoted considerable attention to advising the Council on how these scientific principles could be updated, but many of their observations seem implicitly covered by the existing principles. However, BPA is also supportive of updating and clarifying the principles.

By their very nature, the actions carried out by BPA through the Program enhance the abundance, productivity, diversity, and spatial distribution of organisms in the Columbia Basin. The Program reasonably promotes adaptability, with its all-H approach and diversity of actions benefitting various life stages and life history types. The Program's off-site tributary habitat actions address limiting factors associated with human population growth, survival, and distribution and improve the ecosystem conditions. Mainstem and estuary improvements funded by BPA and the Corps of Engineers have greatly improved the migration and rearing conditions for anadromous salmon and steelhead as they migrate through the hydrosystem and into the estuary.

Overall, the Program takes a broad basin wide view that touches multiple sources of adverse effects on fish and wildlife—both human and natural impacts. The Program's vision, goals, and objectives suit that broader perspective. As described in the examples below, though, it is important to acknowledge that the legal mandates of the Northwest Power Act apply more narrowly to mitigation for Columbia Basin hydroelectric projects generally and mitigation for the FCRPS in particular.

### **Returning Five Million Fish Annually to the Basin**

BPA supports the Program's basin-wide goal for returning five million salmon annually, a recasting of the original "double the runs" goal from the 1980s. This goal has become a Program fixture with broad support. Presented in context, it should be considered a regional goal applicable to all hydroelectric dams and other human impacts in the basin and include both naturally spawning and hatchery fish.

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<sup>9</sup> ISAB, Review of "Development of a Regional Framework for Fish and Wildlife Restoration in the Columbia River Basin" (1998-6); ISAB, Review of the Biological Objectives in the 2000 Fish and Wildlife Program (2001-6); ISAB, Review of 2009 Fish and Wildlife Program (2013-1).

## Smolt to Adult Return (SAR) Ratios

Similarly, the interim-objective for smolt-to-adult survival rates in the 2-6% range<sup>10</sup> is broader than the Northwest Power Act mandate to mitigate for hydroelectric projects in the Basin, because SARs encompass all human and natural impacts. The hydrosystem alone cannot be accountable for SARs given the many non-hydro influences and environmental conditions (e.g. ocean conditions) and other lifecycle impacts (e.g., agricultural practices, human development, and harvest). Notably, recent NOAA research indicates that 50% of the variability in adult returns can be attributed to various ocean conditions.<sup>11</sup>

In addition, the use of the 2-6% SARs as a meaningful benchmark warrants reconsideration in light of the best available science. BPA recognizes that SARs is already included in the existing Program and several entities recommend the Council retain it. NOAA Fisheries has consistently raised concerns about the utility of SARs. In 2008 NOAA questioned SARs given the influences of “numerous conditions, including ocean survival.”<sup>12</sup> And in its 2013 recommendations NOAA noted that “Stocks with subyearling life histories likely never had rates in this range nor do they need to be in order to build populations.” In 2013 the ISAB added to the concern, advising that a “detailed reevaluation of SAR objectives (2-5%) is warranted. These objectives should be reevaluated for each species and Evolutionarily Significant Unit (ESU) of salmon and steelhead based on realistic values needed to support robust viable populations.”<sup>13</sup>

## Recovery Plans and Goals

Many recommendations ask for recovery plans to be amended into the Program. Recovery plans broadly address the adverse effects on listed species from many sources, not just hydroelectric dams. To the extent recovery plans provide guidance for mitigating hydroelectric dams in the region, Federal regulators and action agencies currently incorporate appropriate elements from the plans into ESA compliance documents. Within this context, the plans are appropriate for the Council to consider in developing the Program so long as they’re recognized to apply to the region as a whole, not just the hydroelectric dams covered by the Northwest Power Act.

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<sup>10</sup> See, e.g., CBFWA 2008 Program Amendment Recommendation § 2.1.2; Idaho 2008 Program Amendment Recommendation page 10.

<sup>11</sup> Northwest Fisheries Science Center, Forecast of Adult Returns for coho and Chinook Salmon (2013) <http://www.nwfsc.noaa.gov/research/divisions/fe/estuarine/oeip/g-forecast.cfm>

<sup>12</sup> NOAA Fisheries Program Amendment Recommendation page 3 (Apr. 4, 2008).

<sup>13</sup> <http://www.nwcouncil.org/fw/isab/isab2013-4/>

### 3. Providing Improved Spill and Dam Modifications to Increase Survival at Hydroelectric Dams and Flows to Increase Survival between Dams

#### Improved Fish Survival Is Being Achieved at and Between the Dams

The 2008/10 FCRPS Biological Opinion established aggressive, measureable fish survival performance standards and inriver survival targets for the federal dams, consistent with the Power Act. With the support of three Northwest states and seven tribes under the Columbia Basin Fish Accords, we are now halfway through the 10-year term of the current Biological Opinion for the FCRPS, which includes extensive improvements and smart spill tailored to improve juvenile fish survival at individual dams. Passage improvements to achieve dam passage performance standards and inriver survival targets, identified in coordination with the region, have been completed at seven of eight Snake and lower Columbia River dams. With these improvements in place and plans for additional improvements at the eighth dam, Lower Granite, the Act's specific fish passage requirements for the FCRPS are underway and being fully addressed.

Since 2010, rigorous performance standard testing has been conducted at Bonneville, The Dalles, John Day, McNary, Lower Monumental, and Little Goose dams. Results from these studies indicate that the Action Agencies are on track to meet the juvenile dam passage survival performance standards specified in the 2008/2010 Biological Opinion.<sup>14</sup> Sophisticated testing shows the projects are on track to meet performance standards of 96 percent survival for spring migrating fish and 93 percent for summer migrating fish.<sup>15</sup> Based on surface passage (which uses targeted spill efficiently, rather than untested higher levels of spill), juvenile fish survival is higher, the fish are moving faster, and their travel times are better than with conventional spill.

The new configuration and operation of dams have improved juvenile fish survival and travel times through the FCRPS to levels roughly comparable to those realized decades ago, when fewer dams were in place.<sup>16</sup> Annual estimates indicate an upward trend in

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<sup>14</sup> FCRPS Action Agencies, Endangered Species Act FCRPS 2013 Draft Comprehensive Evaluation, Section 1 at page 45, Table 2 (2013).

[http://www.salmonrecovery.gov/Images/Comprehensive%20Evaluation/DRAFT\\_FCRPS\\_CE\\_Section\\_1\\_for\\_PUBLIC\\_7-10-13\(v2\).pdf](http://www.salmonrecovery.gov/Images/Comprehensive%20Evaluation/DRAFT_FCRPS_CE_Section_1_for_PUBLIC_7-10-13(v2).pdf)

<sup>15</sup> See generally, *id.* at pages 5-15.

<sup>16</sup> FCRPS Action Agencies, *The Federal Columbia River Power System Improvements and Operations Under the Endangered Species Act—A Progress Report* (Sept. 2013)

<https://www.salmonrecovery.gov/Files/Hydro/FinalHydroSynthesisWithReview9-20-13.pdf>

survival of juvenile steelhead and yearling Chinook salmon migrating through the Snake and Columbia rivers over the last two decades as a result of collective management actions implemented at individual dams and system-wide.

The increases in juvenile survival are the result of a science-based system overhaul that began in the 1990s and has continued and expanded in recent years. While more work and testing is needed, the point is that scientifically sound standards and objectives are in place already and a significant multi-year effort of peer reviewed and recommended dam improvements, testing, analysis, and adaptive management is taking place, funded through congressional appropriations and BPA power marketing revenues.

This effort was built on the Program's foundation, and the specific actions were included in the 2008 Program. The commitments of three states and seven tribes ride on the expectation that the Program in place will continue to guide FCRPS configuration and operations decisions through at least September 2018. It would be premature to consider changes to this existing Program midway through its successful implementation.

### **A Balanced Approach to Water Management**

FCRPS managers, in coordination with regional fish and wildlife managers, have developed annual Water Management Plans to balance priorities including providing salmon flows, cooling water temperatures, protecting listed and unlisted resident fish, managing flood risk, and serving other authorized purposes consistent with ESA and Clean Water Act responsibilities. Adjustments are made in real time during fish migration seasons in response to changing environmental conditions with the help of the interagency Technical Management Team, a coordination group consisting of regional biologists and hydrologists representing tribal, state, and Federal agencies.<sup>17</sup> As called for in the Program, the FCRPS is now managed in a more normative manner by using storage reservoirs in the United States and Canada to more closely approximate the shape of the natural hydrograph and enhance flows and water quality to improve conditions for salmon and steelhead.

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<sup>17</sup> See, 2013 Draft Comprehensive Evaluation at page 33, Figure 13, which provides a high level summary of the operation constraints that have been put in place and actions that are taken during the year to provide improved conditions for fish. Operations for purposes such as power generation occur within the constraints established for flood control and fish operations shown in this figure.



Managing water in the multipurpose Columbia River hydro system is challenging given the relatively small portion of the annual runoff volume that can actually be stored in reservoirs. To enhance fish flows, for each operating year 2008-2012, BPA and the Corps negotiated agreements with Canada that allowed storage of an additional 1 Million Acre-Feet (MAF) of water accounted for in Treaty space in Mica Reservoir. Each year this water was stored during the winter months and released in the spring and summer to support flow augmentation in the U.S. For operating years 2008-2011, BPA was also able to negotiate short-term agreements on use of non-Treaty storage space in Canada to provide spring and summer flow shaping to support fish operations. In 2012, BPA entered into a new long-term Columbia River non-Treaty storage agreement (NTSA) with BC Hydro which allows for coordinated use of non-Treaty storage in Canada to shape flows within the year for fisheries benefits, and provides up to an additional half MAF of water to benefit fish in dry water years.

The lower river treaty tribes also brought a new water management issue from Columbia River Treaty discussions to the recommendations, a request to add flood risk management to the Program's basin wide strategies.<sup>18</sup> Flood risk management is a non-power project purpose that is managed solely by the Corps and Reclamation, so it does not fit well within a Program authorized to mitigate the effects of hydroelectric projects on fish and wildlife.

### **A New Experimental Spill Test is Not Warranted**

Recommendations were proposed to significantly alter dam operations and increase spill, in some cases to twice current levels<sup>19</sup> and above the Clean Water Act water quality standards. The proposed changes in hydro operations would disrupt the improvements currently underway, undermine the careful testing and adjustment of spill to meet the performance standards, and could in some instances cause harm by reducing fish survival. The Council declined to adopt similar recommendations during the 2003 and 2009 amendment processes on the grounds that earlier biological opinions "represented the culmination of a complicated multi-year process" by Federal agencies and the region would not be well served by a Council decision to shift course.<sup>20</sup> A similar response by the Council is appropriate again in this amendment process, especially given survival improvements demonstrated under the Biological Opinion thus far.

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<sup>18</sup> CRITFC at page 30.

<sup>19</sup> See, ODFW at pages 51-55 and Nez Perce at page 3.

<sup>20</sup> Council, Findings on Recommendations and Response to Comments, Appendix F, at page 8 (2009).

The substantially new proposed spill levels are hypothesized to increase smolt-to-adult return rates for salmon. However, the underlying assumptions over simplify the relationship between spill volume and spill effectiveness, understate the documented effect of ocean conditions, extrapolate outside the range of available data and past experience, and ignore dam specific biological and structural constraints identified over the last five years. For example, analyses assume that the percentage of fish that pass over spillways is controlled by the volume of water spilled, when documented study results show much higher percentages when surface passage spill is involved. And similar correlations are observed with transported fish, which are not spilled. As a result, we believe implementation of the proposed spill test would actually impair fish survival and diminish the benefit of years of work and millions of dollars worth of investments in structural improvements and survival testing at dams.

For example, altering spill patterns arrived at through extensive and careful testing could produce unexpected currents or eddies that delay juvenile fish or expose them to predators, undermine the effectiveness of surface passage systems that have boosted survival, and interfere with adult fish by delaying the upstream migration or increasing adult fall back through the spillway. Further, the higher spill levels recommended would elevate total dissolved gas levels (TDG) above applicable water quality standards, posing harm to aquatic organisms.

In addition, although BPA is still in the process of analyzing the implications for power generation transmission system operations, the proposal for substantially different FCRPS operations would be expected to significantly reduce power generation and increase power rates while reducing the flexibility necessary to integrate renewable energy and achieve other regional objectives.

According to the Northwest Power Act, Program amendments should “complement the existing and future activities of the Federal and the region’s state fish and wildlife agencies and the appropriate Indian tribes.”<sup>21</sup> The Biological Opinion for the FCRPS, the Columbia Basin Fish Accords, and the Implementation Plan (now in draft form) that describes actions planned under the Biological Opinion outline the existing and future activities related to the FCRPS. Beginning an extensive experiment involving much different dam operations halfway through the Biological Opinion’s term--when current operations have been finely adjusted based on sophisticated research and monitoring results, and are yielding benefits--would not complement, and could instead disrupt, the existing and future activities identified.

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<sup>21</sup>16 U.S.C. § 893b(h)(6)(A).

## **4. Further Complementing the Existing and Future Activities of the Region's Fish and Wildlife Managers**

### **Incorporation of Biological Opinions, the Columbia Basin Fish Accords, and Other Agreements**

Recommendations to the Council overwhelmingly encourage support for the existing and planned future activities of the region's fish and wildlife managers within the Program's scientific and policy framework. BPA, the Corps, and the Bureau operate under several biological opinions now reflected in the Program. In addition, we have entered into long-term legally binding plans, agreements, and contracts with sovereign partners that support the measures and strategies of the Program and the biological opinions, and which account for a substantial proportion of available budgets. These agreements provide certainty that allows better planning to implement larger, more effective projects over multiple years.

The Council has already supported or accepted all of those agreements and contracts over time. And through the categorical review process during the past several years, the Council has recommended and supported BPA funding for over 800 contracts annually, including those in the Accords.

BPA encourages the Council to continue to support recommendations that reaffirm support for the actions and commitments in the settlements, agreements, and Accords through which BPA implements the Program. These efforts each have long term commitments—from 10 to 60 years. They reflect implicit and explicit understandings that they fulfill the Act's legal mandates now and in the future.

Over the many years the Council has comprehensively established positions on many of the most challenging legal, scientific, and policy issues. Today a fully developed Program and budget, based on the Council's historic foundational guidance, addresses the legal mandates in the Act. To protect the billions of dollars in mitigation investment, and ensure those efforts continue to deliver the benefits the region's fish and wildlife need and deserve, the Program's continued support for these long-term plans and agreements is vital.

### **Existing Estuary Mitigation Efforts**

Many recommendations called for additions to Program language covering the estuary. They cover the gamut, seeking to revise the Program to support additional

coordination, research, and on the ground mitigation. For the most part the recommended additions embellish concepts already well established in the Program.

In the last decade, BPA and the Corps have studied, protected, and improved estuary habitat. With regard to ocean and plume research, BPA and the Corps already support and participate in the Ocean Management Forum. Here again, BPA anticipates being supportive, but not a leader, in these areas where hydroelectric effects are not predominant and others have clearer authority and responsibility to act.

Some estuary recommendations continue to ignore the preponderance of scientific evidence that habitat improvements do indeed translate into healthier fish runs. Most recently, an assessment of the evidence surrounding estuarine habitat improvement concluded that “all lines of evidence from the [Lower Columbia River Estuary] indicate positive habitat-based and salmonid-based responses” to habitat actions prioritized by the Action Agencies.<sup>22</sup> The same assessment “concluded that the habitat restorations activities ... are likely having a cumulative beneficial effect on juvenile salmonids ....”<sup>23</sup> The Council should rely on the best available science and support ongoing estuary habitat improvement efforts.

### **Tributary Habitat Benefits**

The tributary habitat program represents the best in methodical approaches to integrating local knowledge bases—as encouraged by the ISAB—with expert panels that apply the best available science to identify, prioritize, implement, monitor, and evaluate habitat improvement projects. This approach to applied research, monitoring, and evaluation for habitat action effectiveness has yielded quantifiable results that show clear benefits for fish, in particular listed anadromous fish.

Habitat improvements can increase fish productivity in a range from a few percent to several times over, depending on the circumstances and scale. A recent analysis of 211

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<sup>22</sup>Corps and BPA, Benefits of Habitat Improvements in the Lower Columbia River and Estuary: Results of Research, Monitoring and Evaluation at page 9 (Sept. 2013) (*citing* Diefenderfer et al. 2012). *See also*, NMFS and PNNL, Columbia River Estuary Ecosystem Restoration Program 2010 Synthesis Memorandum <http://www.nwcouncil.org/media/13615/CEERPSynthesis.pdf>; Diefenderfer et. al, An Evidence-Based Assessment of the Cumulative Effects of Tidal Freshwater and Estuarine Ecosystem Restoration 2012 Anadromous Fish Evaluation Program Annual Review [http://www.nwd-wc.usace.army.mil/tmt/documents/AFEP/Presentations/EST-7\\_Diefenderfer\\_Restoration-Cumulative-Effects](http://www.nwd-wc.usace.army.mil/tmt/documents/AFEP/Presentations/EST-7_Diefenderfer_Restoration-Cumulative-Effects)

<sup>23</sup> *Id.*

stream rehabilitation projects found a 167 percent average increase in salmonid density following in-stream improvements.<sup>24</sup> One review of habitat improvements in the Snake River Basin documented an approximately 20 percent increase in parr-to-smolt survival in areas with large numbers of habitat actions.<sup>25</sup> Habitat improvements thus could account for a potential doubling of overall juvenile survival in freshwater—nearly twice the survival improvement anticipated in the 2000 Biological Opinion from improvements at hydroelectric dams. In addition, benefits of habitat improvements appear to carry through to adult fish, with more than 50 percent higher survival among adult fish that originated in areas with numerous habitat improvements compared to fish from areas with few improvements.<sup>26</sup>

Overall, reviews of Program habitat mitigation efforts show that the region is correctly targeting and addressing degraded conditions and limiting factors for key populations and life history stages, and fish are responding through increased survival, density, growth, and abundance. The clearest benefits come from barrier removals and other passage improvements, reconnecting side channels, flow augmentation, and installing livestock grazing controls. Fish respond quickly to reopened habitat, spawning in greater numbers in restored reaches and in increased abundance following treatment. Moreover, these tributary habitat actions serve as important FCRPS Action Agency contributions to efforts at providing timely action to help mitigate the effects of climate change on fish and wildlife. These projects improve ecosystem function and connectivity which in turn ensures the survival and growth of fish and wildlife populations in the freshwater environment. BPA urges the Council's support for the Accords and other agreements and related partnerships that ensure these tributary habitat benefits continue to accrue and persist into the future.

### **Responsible Artificial Production**

The current Program includes comprehensive strategies that use artificial production to help conserve weak stocks, reintroduce extirpated stocks, and provide substitution resources and harvest opportunities while minimizing adverse effects to wild stocks. Under the FCRPS Biological Opinion, BPA has funded the development of over 40 Hatchery Genetic Management Plans coordinated among fisheries managers and

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<sup>24</sup> BPA, Bureau of Reclamation, Benefits of Tributary Habitat Improvement in the Columbia River basin; Results of Research, Monitoring and Evaluation, 2007-2012 at page 9 (2013)  
<http://www.salmonrecovery.gov/Files/RME/Tributary%20Benefits%20paper%20--%20FINAL%20Aug%20202%20-%20FOR%20PRINT.pdf>.

<sup>25</sup> *Id.*

<sup>26</sup> *Id.* at page 10.

incorporating appropriate hatchery reforms. The Program should acknowledge the site-specific strategies developed through the HGMPs to address the specific biological, physical, and management factors that influence an artificial production facility's performance. Properly designed and managed artificial production, like that for Snake River sockeye, provides important benefits and aids the recovery of ESA listed species. BPA, along with the Corps and Bureau, provide approximately three-fourths of annual hatchery operations, maintenance, research, monitoring, and evaluation funding in the Basin. This effort supports dual federal legal obligations to protect wild fish and provide hatchery production in a balanced manner.

### **Managing Predation**

The Federal hydroelectric system managers are implementing a number of actions to reduce avian, marine mammal, and fish predation on salmonids. BPA implements the longstanding and successful program to manage predation by northern pikeminnow, which removes approximately 15% of pikeminnow over 9" consistently each year from the mainstem, improving juvenile anadromous fish survival as a result.

Some recommendations seek to expand the pikeminnow program's dam angling component to include Bonneville and McNary dams.<sup>27</sup> BPA currently funds dam angling, which includes pikeminnow removal at John Day and The Dalles dams where boat restriction zones prevent the public from fishing. The project is already achieving Program objectives for pikeminnow exploitation and benefits to juvenile salmon survival, so expanding dam angling is unnecessary at this time.

The Corps has also led efforts to significantly reduce avian predation by gulls with line arrays at John Day and The Dalles dams. Caspian tern nesting habitat in the estuary has been reduced and nesting pairs are down from 10,600 pairs to 6,400 pairs and predation has dropped from a high of 6.6 million smolts in 2008 to about 4.9 million in 2012. To address double-crested cormorant predation, the Corps is developing a management plan with the U.S. Fish and Wildlife Service to address cormorants more effectively with actions beginning in 2015.

Pinniped predation decreased substantially in 2011 and 2012 in response to diverse efforts led by NOAA, the states, the tribes, and the Corps. Current results are promising.

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<sup>27</sup> ODFW at page 47.

## **The Willamette Wildlife Agreement and Biological Opinion**

The mitigation for the Willamette is perhaps more comprehensively planned and provided for than any other subbasin in the region. In addition to the Willamette subbasin plan, the Oregon Conservation Strategy, and Corps floodplain studies, the Willamette has the following:

- NOAA Fisheries' Biological Opinion that covers all the federal hydroelectric projects in the basin and its recovery plan for Upper Willamette River Spring Chinook and the Upper Willamette River Winter Steelhead.
- The U.S. Fish and Wildlife Service's Biological Opinion for bull trout and Oregon chub.
- Oregon Department of Fish and Wildlife's comprehensive 15-year \$140 million Willamette Wildlife Mitigation Agreement with BPA—based on the loss assessment in the Council's Program—that provides dual benefits, mitigating both fish and wildlife, from the effects of construction, inundation, and operations, along with provisions for appropriate operations and maintenance stewardship funding.

Little if any additional planning for Northwest Power Act compliance remains to address the Willamette. To the extent ODFW requested additional funding for habitat acquisition and project operation and maintenance in the Willamette, these recommendations appear inconsistent with the state's agreement with BPA.

## **Continuing Efforts under Existing Lamprey Agreements**

Some recommendations ask the Council to expand ongoing efforts to mitigate lamprey.<sup>28</sup> Existing agreements comprehensively spell out the lamprey mitigation work planned through 2018 and agreed to by the FCRPS Action Agencies, the Yakama, Warm Springs, and Umatilla tribes, and CRITFC.<sup>29</sup> BPA subsequently signed the U.S. Fish and Wildlife Service Conservation Agreement for Pacific Lamprey (2012), which already includes the Corps' Pacific Lamprey Passage Improvements Final Plan 2008-2018 (2009) and Reclamation's Lamprey Assessment (2011).

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<sup>28</sup> See, e.g., U.S. Geological Survey at page 6; CRITFC at page 15.

<sup>29</sup> 2008 Columbia Basin Fish Accords Memorandum of agreement between the Three Treaty Tribes and FCRPS Action Agencies at § II.H, pages 6-9 (2008).

Recommendations seeking additional actions—such as including the evaluation of ocean harvest on Pacific lamprey food resources<sup>30</sup>—may be reasonable for fisheries managers to undertake to fulfill their statutory responsibilities, but they lack a clear nexus to the FCRPS. Similarly, the proposal to adopt an 80% interim passage standard for adult Pacific lamprey at mainstem dams warrants discussion under existing agreements but is not ripe to adopt as an interim standard.

## **5. Recommendations Concerning Resident Fish, Wildlife, and Reintroduction of Anadromous Fish in Blocked Areas are Legacy Issues from Past Amendment Processes**

Many recommendations cover long-standing issues regarding the balance between anadromous fish, resident fish, and wildlife that the Council has addressed comprehensively in the Program over the past 30 years. Taking a broad view, it is important to recall the Program's overhaul in 2000, which firmed up the scientific foundation and embraced an ecosystem based approach to mitigation planning. The 2000 Program retained the legacy distinctions between anadromous fish, resident fish, and wildlife, a decision resource managers originally championed as a way to avoid conflicts over priorities within their own organizations. Today, the Council still receives recommendations relying on these three categories and the Program's 70-15-15 guideline for allocating BPA funding among them. Recent analysis show BPA's annual spending continues to closely track this guideline.

### **Issues Related to Wildlife**

Many of the wildlife recommendations are also the same or substantively similar to those received in 2000 and 2008, and they attempt to revisit issues largely put to rest through the Wildlife Crediting Forum and its final report to the Council. Therefore, to address these issues BPA incorporates by reference the documentation it submitted to the Council during the forum process. There are also several specific issues to highlight briefly.

Many recommendations call for assessing the effects of FCRPS operations on fish and wildlife habitat. BPA has already settled operational loss issues associated with both fish and wildlife in the Willamette. BPA is also currently working with tribes in three loss assessment experiments. Once those are complete and their implications and

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<sup>30</sup> See, e.g., ODFW at page 25.



utility are fully understood, we will work with the region on next steps. Until then, additional new loss assessments at this time would shift resources away from on-the-ground mitigation.

BPA urges the Council to hold its support for any new assessment methodologies or loss assessments that are not already planned or underway. Instead, the Program should concentrate more on directly mitigating the ecosystems affected by FCRPS construction and operation, guided by the menu of potential actions already included in subbasin plans. Additionally the Program should acknowledge that such losses only occur above full pool. The construction of the FCRPS dams and inundation from their reservoirs has been or is in the process of being provided for losses up to (and often times even above) full pool. Operational losses should therefore cover something other than effects below full pool.

Moreover, any additional mitigation planned to address operational losses, or secondary losses, must be on an ecosystem basis so that where fish projects provide wildlife benefits, those existing benefits are considered before additional mitigation is advised. Similarly, the focus should be on all federally funded mitigation, not just BPA funded actions.

### **Reintroduction of Anadromous Fish into Blocked Areas**

Many co-managers encouraged elaboration in the Program supporting efforts to reintroduce anadromous fish into areas blocked by hydroelectric dams.<sup>31</sup> This is a goal that would apply to both federal and non-federal hydroelectric projects. As a practical matter, technological challenges exist for getting both adult and juvenile fish past high dams. Reintroduction efforts at Federal dams could require the agency owning the dam to secure authorization and appropriations from Congress in order to proceed with studies.

## **6. Considering the Economic Costs in Meeting Biological Objectives**

### **RM&E Reform**

BPA continues to support and implement the principles from the Council's Categorical Review of RM&E. Instead of expanding RM&E, BPA believes the region would derive greater benefit from a focus on better synthesis and communication of useful results for

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<sup>31</sup> See, e.g., Upper Snake River Tribes at page 3; CRITFC at page 29.

management decisions and standardizing data collection and collaboration. We have a number of initiatives underway, including a new Programmatic approach to habitat project action effectiveness that we will continue to coordinate with the Council and resource managers.

### **Coordinated Assessments**

In 2010, fisheries agencies and tribes started the Coordinated Assessments project to standardize indicators for reporting across spatial scales and a data exchange standard to facilitate the associated data sharing. This was followed up with a pilot project that successfully demonstrated the proof of concept for this project. The Coordinated Assessments project has now moved to the implementation phase, which includes modifying and developing new agency databases for storing raw and summarized data, analysis tools, and reporting databases. BPA continues to support the Coordinated Assessments process as a critical component of BPA's information management strategy supporting successful and efficient information access and sharing for Program RM&E.

## **7. Program Scope: Mitigating Only Impacts to Fish and Wildlife Caused by the Hydroelectric System**

### **Role of the Council**

On the first page of the first Program, the Council described its scope succinctly.

The program is limited by the Act to measures to protect, mitigate, and enhance fish and wildlife affected by the development, operation, and management of hydroelectric facilities on the Columbia River and its tributaries. The program does not address . . . harm to fish and wildlife attributable to causes other than hydroelectric development.<sup>32</sup>

In contrast, a number of the recommendations for Program amendment do not address harm to fish and wildlife attributable to hydroelectric development. While we all share concerns about potential direct and indirect effects of these risk factors—climate change

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<sup>32</sup> Council, 1982 Program, page 1-1. The Council used the same language verbatim in the 1984 (Program at page 1). The language changed slightly in 1987 to say, "By law, this program is limited to measures that deal with the impacts created by the development, operation and management of the hydroelectric facilities on the Columbia River and its tributaries." 1987 Program at page 19.

and acts of God, introduction of non-native species including aquatic nuisance species, ocean conditions, toxic chemicals, etc.—these extend beyond the hydroelectric impacts covered by the Northwest Power Act.

We recommend that the Council facilitate regional discussions about these broader issues in relation to our shared objective of successful fish and wildlife rebuilding, with emphasis on awareness and need for cost-sharing partnerships among those with responsibility. The region can engage appropriate parties as directed by the Act in section 4(h)(8)(C) to address these broader mitigation measures. The Council is well situated to facilitate these broader regional discussions and agreements—and see that they are successfully implemented.

### **Basin wide RM&E Proposals beyond FCRPS Mitigation**

Many entities recommend RM&E measures that are broad in scope and address areas of wide-ranging scientific uncertainty: exploring the adequacy of the Columbia River Basin food web; studying and addressing the effects of toxic contaminants in the environment; addressing the surge in invasive species, especially aquatic nuisance species; and countering the effects of global climate change. Each of these issues requires a coordinated regional approach. But the FCRPS—like fish and wildlife—is affected by these issues; it does not cause them. BPA believes an appropriate role for itself in these matters is to be a productive, collaborative partner, where other parties assume the lead responsibility to study and offset the effects of a compromised food web, toxic contaminants, invasive species, ocean conditions, and climate change.

### **Eulachon**

The recommendations concerning eulachon are difficult to support in part because the history of eulachon returns since 1938 shows eulachon have flourished for many years with the dams in place. NOAA Fisheries reports also show that from 1910 through 2009, fishermen caught less than 100,000 pounds of eulachon annually in just 11 of 100 years—and the first of those 11 years was 1994, decades after the last FCRPS dams were built.<sup>33</sup> Historical evidence also indicates that “there have been periods of relatively low eulachon abundance in the past in the Columbia River.”<sup>34</sup> Considering these facts, the Eulachon Biological Review Team has noted that, “[t]he decline in the early 1990s

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<sup>33</sup> NOAA Fisheries, Status Review of Eulachon Table 7, page 107 (Mar. 2010) (NOAA Technical Memorandum NMFS-NWFSC-105).

<sup>34</sup> *Id.* at page 117.

appeared to coincide with a decline of eulachon in British Columbia, suggesting that a common cause, such as changing ocean conditions, was responsible for declines in both areas.”<sup>35</sup>

In its assessment of factors affecting eulachon populations, NOAA found that “[a]t the time of listing, the primary factors responsible for the decline of eulachon are the destruction, modification, or curtailment of habitat and inadequacy of existing regulatory mechanisms (75 FR 13012), specifically the lack of regulations concerning bycatch of eulachon in commercial fisheries.”<sup>36</sup> And when designating critical habitat, NOAA noted that historically Cascade Falls formed a natural barrier to the upstream migration just four miles above the current Bonneville Dam.<sup>37</sup> Neither the migration corridor nor essential spawning and incubation features occur upstream of Bonneville Dam, so that area is not considered critical habitat.

For these reasons, the need for new Program measures to address eulachon measures appears questionable.

### **Toxics Contamination**

BPA believes that the Council struck the right note with its encouragement in the 2008 Program of “federal action agencies to collaborate on investigation of contaminant source identification and long-term monitoring of priority toxic contaminants with federal, regional, and state agencies to better understand how contaminants are taken up by different fish and wildlife species.”<sup>38</sup> BPA appreciates the importance of the toxics studies recommended by many entities, but all of the proposals seek to address fundamental scientific questions that arise outside the existence or operation of the FCRPS. For example, studies on the environmental fate and persistence of contaminants, contaminant mixture interactions, or effective pollution control measures and mitigation strategies<sup>39</sup> are wholly unrelated to the FCRPS.

Some commenters opine that dam and reservoir presence contribute to the accumulation and distribution of toxic substances in the environment.<sup>40</sup> Still, FCRPS

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<sup>35</sup> *Id.*

<sup>36</sup> NOAA Fisheries, Recovery Outline, Eulachon Southern DPS at page 11 (June 21, 2013).

<sup>37</sup> NOAA Fisheries, Designation of Critical Habitat for the Southern Distinct Population Segment of Eulachon; Final Rule at 76 Fed. Reg. 65328 (Oct. 20, 2011).

<sup>38</sup> 2008 Program at page 16.

<sup>39</sup> NOAA Science Center at pages 2-5.

<sup>40</sup> EPA at page 3; ODFW Attachment 2, Co-managers draft at page 41.

dams have not created the Northwest's legacy of toxic contamination. Any additional provisions added to the Program to address this contamination should focus on identifying the responsible parties who are the presumptive original sources for mainstem toxics contamination.

### **Invasive and Aquatic Invasive Species**

The 2009 Program provides a solid platform for guiding hydrosystem and resource managers in addressing exotic and aquatic nuisance species. To the extent recommendations support the provisions in the existing Program, BPA also supports them. We note, however, that aquatic nuisance species like quagga and zebra mussels can affect all water borne or infrastructure and present a problem requiring a coordinated regional approach. BPA intends to participate appropriately in this regional conversation and coordinate our response strategies with state, federal, and tribal partners. To the extent mussels and other invasive species affect hydroelectric operations at Corps or Reclamation dams, those agencies have the authority to respond appropriately. BPA will fund the power share of those responses either directly through its power operations and maintenance budget or through power share reimbursement depending upon circumstances, but in any case such costs are not related to fish and wildlife and are not appropriate for inclusion in the Program.

### **Climate Change and Program Planning**

While BPA is not a significant contributor to climate change and hydropower does not produce greenhouse gases, BPA's Program funding helps limit the impacts of climate change in the region. The ISAB and others have pointed in the past few years to BPA habitat protection and restoration actions, such as creation of riparian buffers, managing water withdrawals to increase tributary flows, and restoring and connecting wetlands and floodplains to store water, as beneficial ways to limit effects of increasing temperatures in the face of climate change.<sup>41</sup> BPA thus continues to support the provisions in the 2009 Program regarding global climate change in which the Council appropriately acknowledged "that global climate change is not directly caused by the Federal Columbia River Power System."<sup>42</sup>

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<sup>41</sup> Independent Science Advisory Board, *Climate Change Impacts on Columbia River Basin Fish and Wildlife* at pages vii, 85-89, 95-96, (May 11, 2007) <http://www.nwcouncil.org/fw/isab/isab2007-2/>.

<sup>42</sup> 2009 Program at pages 7-8, 51-52.

## 8. Power Related Issues beyond the Scope of the Program

Some recommendations seek to incorporate issues into the Program that do not belong because they do not address mitigation of fish and wildlife affected by the Columbia River hydroelectric system. These issues include transmission system mitigation, protected areas for various renewable resources, and the Columbia River Treaty.

### Transmission Mitigation

Some recommendations seek funding for programs and processes to evaluate the impacts on fish and wildlife resources of all renewable energy sources (past, proposed and potential) and associated transmission infrastructure.<sup>43</sup>

In its 1989 Wildlife Mitigation Rule, the Council dropped transmission facilities from the Program. The Council's comments on the transmission facility issue said that "the program currently calls for Bonneville to negotiate agreements with the states regarding transmission corridors and their impacts on wildlife. Such agreements have been negotiated, and the draft rule proposed to delete this provision from the program."<sup>44</sup>

Today BPA continues to evaluate the impact of transmission infrastructure, as it has done for decades, as required by the Endangered Species Act, National Environmental Policy Act, Clean Water Act, and other statutes. Moreover, transmission facility mitigation falls outside the scope of the Program. Simply stated, transmission facilities are not a "hydroelectric project on the Columbia River" or its tributaries.

### Integrating Renewable Resources

There are similar issues with regard to recommendations seeking analysis through the Program of renewable energy integration.<sup>45</sup> The Program's Protected Areas policy makes it unlikely that a new renewable energy source would be a "hydroelectric facility on the Columbia River or its tributaries."<sup>46</sup> Thus, mitigation appropriate for integrating the new renewable resource into the regional electric grid is beyond the scope of the Fish and Wildlife Program. Moreover, when BPA assists a developer in integrating a

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<sup>43</sup> See, e.g., U.S. Fish and Wildlife Service at page 24; ODFW at page 60.

<sup>44</sup> Council, Wildlife Mitigation Rule and Response to Comments, Columbia River Fish and Wildlife Program 1989 Amendments at 11 (Nov. 21, 1989).

<sup>45</sup> See, e.g., U.S. Fish and Wildlife Service at page 23.

<sup>46</sup> 16 U.S.C. § 839b(h)(2)(A).

new resource onto the system, whether the resource is renewable or otherwise, BPA already complies with a variety of laws meant to ensure environmental protection.<sup>47</sup>

Finally, and perhaps most importantly, the siting of renewable energy resources is largely a matter regulated by states and land management agencies. In addition, the Federal Energy Regulatory Commission has considerable say over such new resource integration. To the extent the Council contemplates a Program amendment that addresses renewable resources and resource integration, it should be aware of state, land manager and FERC authorities and initiatives.

### **The Columbia River Treaty**

Through the Columbia River Treaty review process led by the U.S. Entity, numerous proposals for how to change Columbia River management are being studied. The U.S. Entity will be submitting a recommendation concerning possible post-2024 Treaty changes to the U.S. Department of State in December 2013, and is seeking to achieve as much regional support for the recommendation as possible. After the recommendation is submitted, the region will probably not know the United States' position on the future of the Treaty until September 2014 or later – about the time the Council needs to complete this Program review. Changes that the United States may propose would then have to be negotiated between the United States and Canada. Any agreed upon changes to the Treaty would likely take effect after September 2024. Consequently, any guidance that the 2014 Program might provide on changes to the Treaty would not be actionable before 2019 when the Council next reviews the Program as required under the Act.

## **9. Program Implementation Issues**

Numerous recommendations touch on protocols and policy issues related to the implementation of the Program once it is adopted. These issues are not themselves mitigation measures, but deserve response given their sensitive nature and importance.

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<sup>47</sup> And when BPA itself is contracting for the acquisition of resources, it must include terms and conditions that will insure “the protection, mitigation, and enhancement of fish and wildlife, including related spawning grounds affected by the development of such resources...” 16 U.S.C. § 839d(i)(2).

## The In Lieu Funding Prohibition

Some recommendations ask the Council to issue a definitive assessment of the Act's prohibition against the BPA Administrator funding measures authorized or required of other entities. The proponents are concerned because they believe "BPA has made decisions not to initiate new efforts deemed as in lieu while ramping back on funding levels for other ongoing efforts."<sup>48</sup> BPA last provided its interpretation of the in lieu prohibition in section 4(h)(10)(A) of the Act in 2007.<sup>49</sup>

In lieu issues bedevil project proponents, the Council, and BPA precisely because they often involve areas of overlapping mitigation or management responsibilities and authorities and related budgeting and expenditures. Council staff and BPA appear to agree that these questions of the legal appropriateness of the BPA expenditures are, in the end, questions for BPA to decide.<sup>50</sup>

BPA would, however, like to reiterate a longstanding caveat: *in lieu* review by itself is not necessarily determinative of BPA's project funding decisions.<sup>51</sup> Other things affecting such decisions include programmatic priorities, crediting availability, cost-effectiveness, Endangered Species Act requirements, trust responsibility, and other Federal appropriations and contracting laws when making its final project and budget decisions.

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<sup>48</sup> ODFW Attachment 2, Co-managers draft at page 48; Burns Paiute Tribe at page 6.

<sup>49</sup> BPA, Letter to Council re: 2007-2009 Funding Decisions (Feb. 9, 2007)

<http://www.nwcouncil.org/media/5297315/FY07-09-Decision-Letter.pdf>

<sup>50</sup> Grover, T., Fish and Wildlife Division Director, [Council] Staff summary of Fish Tagging Forum recommendations and supplemental information (July 30, 2013) at page 5 ("questions of the legal appropriateness of the Bonneville expenditures are, in the end, questions for Bonneville to decide").

<sup>51</sup> This seems particularly applicable to projects like 1997- 01-900 where the sponsor and friends bemoan a funding reduction that began in 2007. This project was ramped-down because it has but a tenuous connection to any FCRPS funding responsibility. The project collects critical information for the effective management of native salmonids in the Malheur River Subbasin, an area not in any way affected by either the construction or operation of any FCRPS dam. (By 1900 the Oregon Fish Commissioner was reporting that salmon hadn't returned to the Malheur in 10 years because irrigation dams and dewatering. F.C. Reed, Report of the Fish Commissioner, in *Annual Reports of the Department of Fisheries of the State of Oregon*, p. 31 (1901).) Thus, while the stock analysis may aid fisheries management, it serves no FCRPS mitigation purposes.



## **Mitigation Measures and Money**

Some recommendations propose to direct BPA funding as a “measure.” These funding and budgeting matters do not fit the criteria for appropriate measures in the Program. BPA encourages the Council to focus the Program and its implementation provisions on actions necessary to mitigate fish and wildlife while leaving budgeting and appropriations issues to the responsible agencies.