

Kootenai Tribe of Idaho

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September 17, 2013

Bill Bradbury, Chairman
Northwest Power and Conservation Council
851 SW Sixth Avenue, Suite 1100
Portland, OR 97204

Dear Chairman Bradbury,

The Kootenai Tribe of Idaho thanks the Northwest Power and Conservation Council (Council) for the opportunity to recommend amendments for adoption to the Columbia River Basin Fish and Wildlife Program.

The Kootenai Tribe supports two sets of amendment for inclusion in the Fish and Wildlife Program: 1) the enclosed Kootenai Tribe of Idaho Amendments, and 2) the Upper Columbia United Tribes (UCUT) Amendments, which have been submitted by UCUT.

We appreciate both the Council's and Bonneville Power Administration's ongoing commitments to meet their respective mandates to protect, mitigate, and enhance fish and wildlife affected by the development and operation of hydroelectric facilities. We respectfully request that the Council adopt the Amendments we have provided.

Sincerely,
/s/ Susan Ireland

Director, Kootenai Fish and Wildlife Department

Enclosures

cc: Jennifer Porter, Chairperson
Scott Soultz, Wildlife Department Manager
Billy Barquin, Tribal Attorney

Kootenai Tribe of Idaho Recommendations to Amend The Columbia River Basin Fish and Wildlife Program

September 16, 2013

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Kootenai Tribe of Idaho

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1 Introduction

1.1 Northwest Power and Conservation Council Fish and Wildlife Program Amendment Process

Under the Pacific Northwest Electric Power Planning and Conservation Act of 1980 (Northwest Power Act), Congress charged the Northwest Power and Conservation Council (Council) with developing and periodically amending a fish and wildlife program for the Columbia River Basin to protect, mitigate, and enhance fish and wildlife affected by the development and operation of hydroelectric facilities, while providing the Pacific Northwest an adequate, efficient, economical, and reliable power supply.

The Council adopted the current version of the Columbia River Basin Fish and Wildlife Program (Program) in 2009. Also included in the current program are subbasin plans for nearly 60 tributaries and mainstem reaches, which were adopted in 2004-05 and 2010-11.

The Northwest Power Act requires the Council to call for recommendations to amend the Fish and Wildlife Program at least every five years, prior to the five-year review of the Council's Power Plan. The Act requires the Northwest Power and Conservation Council to adopt the recommendations of federal and state fish and wildlife agencies and appropriate Tribes as part of the Fish and Wildlife Program, unless the Council explains in writing that the recommendations are inconsistent with the Act or less effective than the adopted recommendations.

This document was prepared by the Kootenai Tribe of Idaho (Kootenai Tribe or Tribe) in response to this invitation to strengthen the Council's Program through the amendment submission process. Further information regarding the Council's amendment process is found in Council Document Number 2013-03

1.2 Context for Kootenai Tribe Amendment

The Kootenai River subbasin straddles the U.S. and Canadian border. The subbasin includes portions of British Columbia, Montana, and Idaho with a total watershed of over 19,000 square miles. The Kootenai River is the second largest tributary of the Columbia River in terms of runoff volume and the third largest watershed in the Columbia River system. The Kootenai subbasin is the homeland of the Kootenai or Ktunaxa Nation, which consists of seven contemporary bands in the United States and Canada, including the Kootenai Tribe.

Kootenai Tribal elders continue to pass down the history of the beginning of time, which tells that the Kootenai people were created and placed on earth by Quilxka Nupika, the supreme being to keep the Creator-Spirit's Covenant – to guard and keep the land forever. The Kootenais have never lost sight of their original purpose as guardians of the land.

The Kootenai Tribe possesses Treaty-reserved hunting, fishing and gathering rights under the Hellgate Treaty of 1855. Impacts from the Columbia River Basin hydropower system and other factors have resulted in significant difficulties for Kootenai Tribe citizens to exercise those federal reserved rights.

The Kootenai Tribe recognizes that actions to restore fish and wildlife populations and their habitats need to occur within the context of a sustainable local community and economy, and be based on the best available science. Towards this end the Kootenai Tribe is committed to developing innovative, collaborative, science-based approaches to guardianship of the land.

In developing and implementing approaches to the restoration and conservation of aquatic and

terrestrial species as well as habitat and ecosystem restoration and management, the Kootenai Tribe continues to emphasize a collaborative approach that integrates the needs, values and people of our region. The Tribe believes that cooperation among all groups with a stake in the region's ecological health is the only way to ensure a sound and prosperous future in the Kootenai River subbasin.

1.3 Purpose of the Kootenai Tribe Amendment

As mandated by the Power Act, this amendment focuses on protecting, mitigating, and enhancing fish and wildlife populations, communities, and required habitats and biological and ecological functions that remain affected by construction and operation of Libby Dam and the Columbia River Basin Hydropower system.

Implementation of the integrated Kootenai Tribe fish and wildlife program described in this amendment recommendation is critical to achieving the Tribe's vision of a Kootenai River and its floodplain as a healthy ecosystem with clean, connected terrestrial and aquatic habitats, which fully support traditional Tribal uses and other important societal uses. Moreover, in addition to addressing Power Act requirements to protect, mitigate, and enhance fish and wildlife, including related spawning grounds and habitat, affected by the development and operation of Federal hydroelectric projects of the Columbia River and its tributaries; full implementation of the integrated Kootenai Tribe fish and wildlife program is also necessary to help meet Federal Endangered Species Act (ESA) and Tribal Trust and Treaty responsibilities.

1.4 Columbia River Basin Fish and Wildlife Program Components Address by Amendment Recommendations

The recommendations proposed in this amendment are consistent with the Council's Program framework, vision, basin-level objectives, and eight scientific principles.

The vision presented in the Council's Program is of, "A Columbia River ecosystem that sustains an abundant, productive, and diverse community of fish and wildlife, mitigating across the basin for the adverse effects to fish and wildlife caused by the development and operation of the hydrosystem and providing the benefits from fish and wildlife valued by the people of the region".

The Council's biological objectives describe physical and biological changes needed to achieve the Council's Program vision. Biological objectives have two components: 1) biological performance, describing responses of populations to habitat conditions, described in terms of capacity, abundance, productivity and life history diversity, and 2) environmental characteristics, which describe the environmental conditions or changes sought to achieve the desired population characteristics.

The Kootenai River Subbasin Plan provides a comprehensive and detailed array of biological and ecological (habitat) objectives for fish and wildlife populations and habitats, and describes how the various projects address limiting factors under these objectives to improve the Kootenai river ecosystem.

The Kootenai Tribe's integrated fish and wildlife program is designed to holistically address, within the constraints of contemporary economic and social structures, limiting factors in the Kootenai River subbasin in order to restore conditions favorable to recovery and conservation of fish, wildlife and habitats affected by the construction and operation of the hydrosystem. In addition, implementation of the Tribe's integrated fish and wildlife program is necessary to support recovery of species listed under the ESA and to reestablishment of Tribal trust and reserved right harvest and non-Tribal harvest

opportunities.

The recommendations provided in this amendment, through implementation of the Tribe's integrated fish and wildlife program, also further develop Subbasin Plan actions by adaptively developing, refining, implementing, and evaluating biological and habitat objectives consistent with the Council's basin level objectives, vision, and scientific principles.

2 Amendment Recommendations

The following amendment recommendations section presents: 1) an overview of the Kootenai Tribe's integrated fish and wildlife program, 2) measures specific to the Tribe's integrated fish and wildlife program, 3) measures related to the operation of Libby Dam, and 4) additional programmatic recommendations regarding the Council's Program.

2.1 Kootenai Tribe Integrated Fish and Wildlife Program

2.1.1 Need for Kootenai Tribe Integrated Fish and Wildlife Program

The Kootenai River subbasin, with its large riparian forest and wetland complexes, was once one of the most productive watersheds in the Pacific Northwest. The pre-European Kootenai River corridor was characterized by the primary river channel, connected backwater habitats, floodplain channels that were activated during flood runoff, and tributary streams that meandered across the floodplain to join the Kootenai River (KTOI 2009).

Prior to construction of Libby Dam the Kootenai River featured a four to six kilometer wide floodplain that extended through a 128 kilometer-long stretch of the river downstream from Bonners Ferry to Kootenay Lake (Richards 1997). Diking and agricultural conversion in the Kootenai River corridor in the 1920s to 1950s eliminated approximately 50,000 acres of natural floodplain in Idaho alone (Richards 1997). Logging, mining, and infrastructure development have also altered the Kootenai River subbasin ecosystem during the last century.

The most profound changes to the ecosystem are the result of the construction and ongoing operation of Libby Dam. When Libby Dam became operational in 1972, the historical annual peak flows were reduced by 50 percent, and the natural hydrograph, which historically featured a spring freshet that provided energy and nutrients to drive ecosystem processes, was altered. In spite of recent efforts to restore more "normative flows", Libby Dam operations (including winter peaking) continue to create unnatural flow fluctuations. Dam operations have also significantly changed the annual temperature regime in the Kootenai River. The new flow regime also compounded the impacts of historical diking, further limiting the hydrologic connection between the Kootenai River and its floodplain.

The results of these cumulative disruptions to the ecosystem include degradation and losses of habitat quality, quantity, connectivity and diversity. Alterations of the ecosystem include elimination and degradations of aquatic habitats, wetland and riparian habitats, and upland habitats. Corresponding to these habitat alterations were disruptions to the food web, and declines of numerous native fish and wildlife species. These precipitous declines in native fish and wildlife species populations have also resulted in the Kootenai Tribe not being able to fully exercise their Treaty rights. Table 1 provides a snapshot of the imperiled status of fish, wildlife and plants in the Kootenai River subbasin.

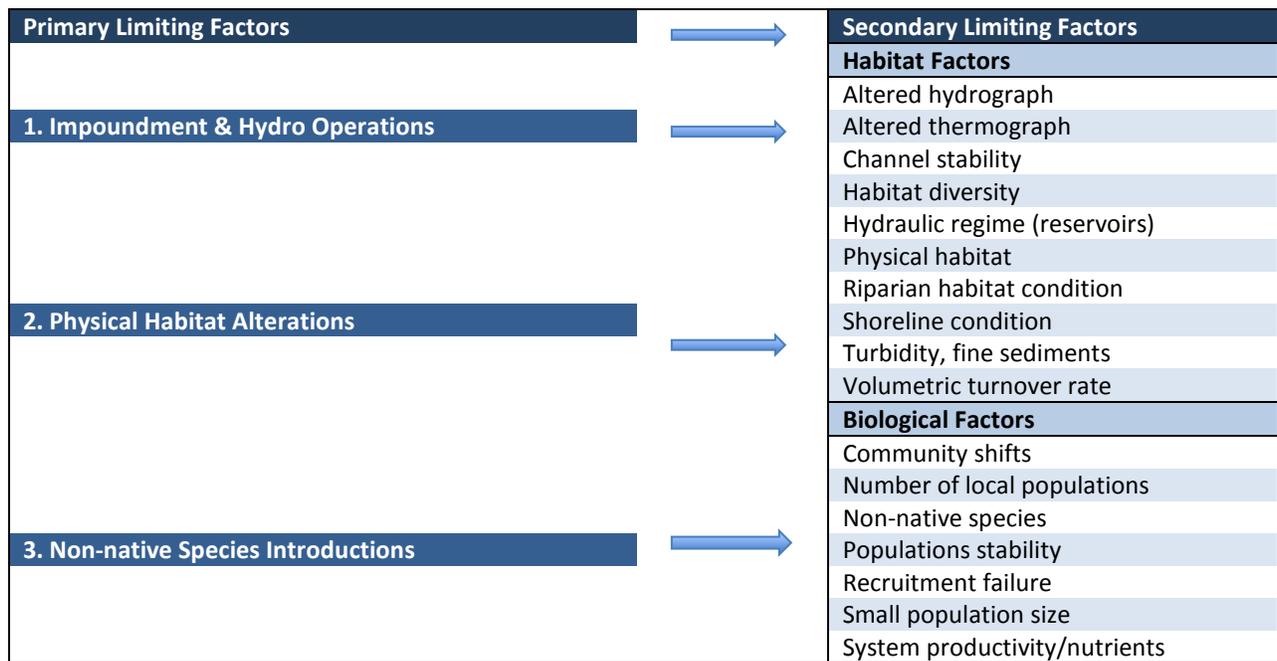
Table 1. ESA status of Kootenai River subbasin fish, animals, and plants (KTOI and MFWP 2004).

Species Category	Common Name	Species Name	Status	Year Listed
Fish	Kootenai River white sturgeon	<i>Acipenser transmontanus</i>	Endangered	1994
	Burbot	<i>Lota lota</i>	Petitioned	2000
	Bull trout	<i>Salvelinus confluentus</i>	Threatened	1998
	Westslope cutthroat trout	<i>Oncorhynchus clarkii lewisi</i>	Petitioned	1998
Animals	Woodland Caribou	<i>Rangifer tarandus</i>	Endangered	1983
	Grizzly Bear	<i>Ursus arctos horribilis</i>	Threatened	1967
	Canada Lynx	<i>Lynx canadensis</i>	Threatened	2000
	Wolverine	<i>Gulo gulo luscus</i>	Petitioned	2012
Plants	Spalding's Catchfly/Campion	<i>Silene spaldingii</i>	Threatened	2001
	Whitebark Pine	<i>Pinus albivaulis</i>	Candidate	2008

The Kootenai River Subbasin Plan identifies a broad range of factors that limit the recovery and success of native fish and wildlife populations, and that constrain the biological diversity necessary to maintain a resilient ecosystem in the face of ongoing and future perturbations. Although the Kootenai Tribe experiences fish, wildlife and their habitats as part of an ever evolving and interdependent ecosystem, the Council's Program and associated project funding maintains an artificial distinction between fish and wildlife. This distinction is reflected in the presentation of aquatic and terrestrial limiting factors in the Kootenai River Subbasin Plan and in the Council's project review and funding cycle. It is a distinction that is particularly problematic in the context of riparian and wetland habitats and is something that the Tribe hopes can be addressed through recognition of the Tribe's integrated fish and wildlife program.

Figure 1 (next page) identifies the primary and secondary limiting factors from the Kootenai River Subbasin Plan.

Figure 1. Primary and secondary limiting factors from Kootenai River Subbasin Plan (KTOI and MFWP 2004).



The Tribe is continuing, through project implementation, monitoring, evaluation, research and adaptive learning, to refine our understanding of the factors limiting fish, wildlife, and biological diversity in the Kootenai River subbasin. The following section describes the Tribe’s current suite of strategies to address limiting factors in the Kootenai River subbasin, and specific measures to implement those strategies.

2.1.2 Overview of Kootenai Tribe Integrated Fish and Wildlife Program

The Kootenai Tribe’s integrated fish and wildlife program includes six complimentary projects designed to address the broad range of factors that limit the recovery and success of native fish and wildlife populations, and that constrain the biological diversity necessary to maintain a resilient ecosystem in the face of ongoing and future perturbations.

Those six projects include:

1988-064-00	Kootenai River Native Fish Conservation Aquaculture Program ¹
1994-049-00	Kootenai River Ecosystem Restoration
2002-002-00	Kootenai River Habitat Restoration Program ²
2002-008-00	Reconnect Kootenai River with Historic Floodplain Project ³
2002-011-00	Kootenai River Floodplain Ecosystem Operational Loss Assessment, Protection, Mitigation and Rehabilitation Project
1992-061-05	Albeni Falls Wildlife Mitigation

2.1.2.1 Guiding Principles

The Tribe’s integrated fish and wildlife program is structured around six core guiding principles:

1. The fish and wildlife program framework and individual projects and decisions regarding those projects are science-based.
2. The Tribe embraces a holistic approach to ecosystem restoration that recognizes the highly complex (and sometimes not fully understood) interdependencies inherent in ecosystems.
3. Actions undertaken through the program must be consistent with and support Tribal and cultural values.
4. Actions undertaken through the program should be inclusive of local social and economic values.
5. The program will be implemented in a collaborative manner in cooperation with other managers and stakeholders and will seek to incorporate input from a variety of disciplines.
6. The Tribe recognizes that when dealing with ecosystem-based restoration, uncertainty is inevitable, and towards that end places a strong emphasis on intentional learning through structured adaptive management processes.

2.1.2.2 Endangered Species Act, Biological Opinions, Conservation Plans and Programs and Legal Obligations

The Tribe’s integrated fish and wildlife program is also specifically designed to address Tribal restoration objectives including restoration of lost Treaty and subsistence resources.

¹ Previously titled, “Kootenai River White Sturgeon Studies and Conservation Aquaculture”.

² Previously titled, “Restore Natural Recruitment of Kootenai River White Sturgeon”.

³ Previously titled, “Feasibility of Reconnecting Kootenai River with Historic Floodplain”.

Implementation of the six projects that make up the Tribe's integrated fish and wildlife program is necessary to meeting Power Act requirements to protect, mitigate, and enhance fish and wildlife, including related spawning grounds and habitat, affected by the development and operation of Federal hydroelectric projects of the Columbia River and its tributaries. The Tribe's program is consistent with the goals and objectives of the Northwest Power and Conservation Council's Fish and Wildlife Program and the goals and objectives in the Kootenai River Subbasin Plan.

Implementation of the Tribe's integrated program is necessary to the Federal government's efforts to meet its Treaty and Trust obligations.

The projects within the integrated program also address the U.S. Fish and Wildlife Service Kootenai River White Sturgeon Recovery Plan objectives (USFWS 1999); specific Reasonable and Prudent Actions (RPAs) identified in the Biological Opinion regarding the effects of Libby Dam Operations on the Kootenai River White Sturgeon, Bull Trout and Kootenai Sturgeon Critical Habitat (Libby Dam BiOp) (USFWS 2006, clarified in 2008); the Federal Columbia River Power System Biological Opinion, and the Kootenai Valley Resource Initiative (KVRI) accords including the Burbot Conservation Strategy MOU (KVRI 2005).

2.1.2.3 Cooperation and Coordination

Restoration actions implemented through this integrated program include activities in Idaho, Montana and British Columbia. Implementation of the Tribe's integrated fish and wildlife program occurs within a context of active and collaboration and cooperation with other entities in the Kootenai River subbasin including: Idaho Department of Fish and Game (IDFG), Montana Fish Wildlife and Parks (MFWP), British Columbia Ministry of Forests Lands and Natural Resource Operations (BCMFLNRO), Fresh Water Fisheries Society of British Columbia, U.S. Army Corps of Engineers (USACE), Bonneville Power Administration, U.S. Geological Survey, and U.S. Fish and Wildlife Service (USFWS), other state regulatory agencies, local government entities, and community collaborative efforts such as KVRI, and members of the local community.

2.1.3 Specific Needs, Strategies and Limiting Factors Addressed by Kootenai Tribe Integrated Fish and Wildlife Program Components

The following section summarizes the specific needs, ecosystem-based restoration strategies and limiting factors that are addressed by the individual components of the Kootenai Tribe's integrated fish and wildlife program.

2.1.3.1 Kootenai River Native Fish Conservation Aquaculture Program (1988-064-00)

Need:

Kootenai River white sturgeon and burbot were keystone species in the Kootenai River and are of immeasurable cultural value to the Kootenai Tribe and were important Treaty fisheries. These native fish once sustained a culturally and religiously important Tribal fishery as well as a valued recreational fishery. A precipitous decline in both populations resulted in the elimination of the Tribe's ability to fish for these culturally important species. The U.S. Fish and Wildlife Service listed Kootenai sturgeon as endangered under the ESA in 1994.

Kootenai River burbot are functionally extinct, meaning that the population is too small to recover on its own, even if suitable habitat conditions existed or could be immediately restored. The Kootenai Valley Resource Initiative Burbot Conservation Strategy was completed in 2005 in lieu of an ESA listing, and a multilateral conservation agreement Memorandum of Understanding was signed by 15 agencies and

other entities, to ensure burbot population decline would be addressed⁴.

Expansion of the Tribal Hatchery program was identified in the Libby Dam BiOp RPA Component 4 (USFWS 2006, clarified in 2008). The construction of a new facility is also critical to advancing the burbot conservation efforts and to meeting the biological objectives identified in the KVRI Burbot Conservation Strategy (KVRI 2005).

Strategy and limiting factors addressed:

Construction of upgrades to the Tribe's Tribal Sturgeon Hatchery, construction of the new Twin Rivers Hatchery, and implementation of the Tribe Native Fish Conservation Aquaculture Program is designed to achieve the following goals:

- Kootenai River white sturgeon
 - Prevent extinction of Kootenai sturgeon by preserving the locally adapted genotypes, phenotypes, and associated life history traits of the population.
 - Restore a healthy age class structure to enhance demographic and genetic viability and persistence of the population.
 - Reestablish a sturgeon population capable of future Tribal Treaty subsistence and cultural harvest.
- Burbot
 - Reestablish a native burbot population in the lower Kootenai River capable of future Tribal Treaty subsistence and cultural harvest and sport harvest once the population reaches sustainable levels.

Eventually restoration of these two keystone species will help to address Tribal Treaty subsistence and cultural harvest. In addition, sturgeon and burbot are critical components of the Kootenai River food web and ecosystem.

2.1.3.2 Ecosystem Restoration Project (1994-049-00)

Need:

Limited system productivity in the regulated mainstem of the Kootenai River has been identified as a significant factor limiting a functioning healthy food web. The lack of productivity at the lower trophic levels of the food web has contributed to reduced and endangered native fish populations in the Kootenai River subbasin. The Ecosystem Restoration Project addresses nutrient losses associated with elimination of large annual flushing flows and loss of floodplain and side channel connectivity.

The project is specifically designed to aid the recovery of important native fish stocks including white sturgeon, burbot, bull trout, kokanee and other salmonids important to the Kootenai Tribe and regional sport-fisheries. The project is also a critical component of landscape scale ecosystem restoration in the Kootenai River subbasin.

Strategy and limiting factors addressed:

⁴ The KVRI Burbot Memorandum of Understanding (MOU) was signed by the: Kootenai Valley Resource Initiative, Bonneville Power Administration; BC Hydro; the British Columbia Ministry of Water, Land, and Air Protection; City of Bonners Ferry; Boundary County, ID; Department of Fisheries and Oceans of Canada; Idaho Department of Fish and Game; Idaho Office of Species Conservation; Kootenai Tribe of Idaho; Montana Fish, Wildlife and Parks; National Oceanic and Atmospheric Administration; U.S. Army Corps of Engineers; U. S. Fish and Wildlife Service; and U.S. Geological Survey.

This project, which is implemented in collaboration with IDFG and BC MFLNRO, includes nutrient additions in Kootenay Lake and Kootenai River to mitigate for nutrient losses. Project activities also include targeted biomonitoring in the Kootenai River and tributaries.

The project addresses the loss of nutrients caused by altered flows, altered hydrograph, and disconnection of the floodplain and side channels. Nutrient additions support reestablishment of a functioning food web and contribute to recovery and viability of multiple native aquatic species. The goal of the project is to recover a productive, healthy and biologically diverse Kootenai River ecosystem, with emphasis on native fish species rehabilitation.

2.1.3.3 Kootenai River Habitat Restoration Program (2002-002-00)

Need:

The problem addressed by this project is the decline, and in some cases potential extinction of historically abundant populations of Kootenai River white sturgeon and other native fish in the Kootenai subbasin, which has been precipitated by over a century of anthropogenic impacts to the Kootenai River ecosystem. Those impacts include diking, agriculture, logging, mining and flood control. Libby Dam became operational in 1972 effectively reducing annual peak flows by half and disrupting the hydrograph, which historically featured a single spring freshet that provided energy to drive ecosystem processes. These modifications resulted in unnatural flow fluctuations and changes to the temperature regime in the Kootenai River and its floodplain, and exacerbated the effects of previous anthropogenic impacts. These changes further diminished the availability of habitat suitable to support the complete life cycles of many aquatic species. As a result the Kootenai Tribe's access to traditional resources that they previously relied on for long-term subsistence and cultural uses, and for which they have Treaty reserved rights, has also been severely reduced and the modified ecosystem is no longer able to support the biological diversity it sustained historically.

The Kootenai River Habitat Restoration Program is also specifically included as part of a settlement agreement associated with the Libby Dam BiOp, which stipulated that implementation of the Kootenai River Habitat Restoration Program Master Plan must be initiated by 2012 and supported in good faith by BPA, USACE and USFWS.

Strategy and limiting factors addressed:

The Kootenai River Habitat Restoration Program is designed to address limiting factors including river morphology (depth, side channel and floodplain connectivity, etc.), aquatic habitat (e.g., habitat complexity and diversity), riparian habitat (food web, plants and wildlife), and to function within existing constraints (e.g., Libby Dam operations and existing infrastructure, etc.) To accomplish this, the Program will be implemented through construction of approximately 8 to 15 individual habitat restoration projects. Each project is designed to address a number of different limiting factors through a combination of treatments. Another critical component of the Program includes targeted operations and maintenance and monitoring and evaluation after construction to be sure that the projects are functioning as designed and meeting the program goals. It will be necessary to continue the Kootenai River Habitat Restoration Program after all the projects are completed.

The overall approach is ecosystem-based and is designed to restore and maintain Kootenai River habitat conditions that support all life stages of endangered Kootenai sturgeon, native burbot and other native fish. The restoration program targets a 55-mile reach of the Kootenai River in Idaho including the braided reaches, straight reach and meander reaches.

The Kootenai River Habitat Restoration Program goals are:

- Restore physical habitat by reducing the negative effects to river and floodplain ecological processes caused by river response to the altered landscape.
- Restore native vegetation by establishing stream bank and floodplain conditions that sustain plant community development processes.
- Restore aquatic habitat conditions that support all life stages of native fish (including ESA listed Kootenai River white sturgeon) and promote sustainable populations.
- Create opportunities for river and floodplain stewardship in the community.

2.1.3.4 Kootenai River Floodplain Ecosystem Operational Loss Assessment, Protection, Mitigation and Rehabilitation Project (2002-011-00)

Need:

The regulation of rivers represents a cataclysmic event for large river-floodplain ecosystems. By altering water, sediment, and nutrient flow dynamics, dams interrupt and change a river's important habitat conditions and ecological processes in aquatic, riparian, floodplain and surrounding terrestrial environments. These environments, their life-supporting ecological functions, and the persistence of their floral and faunal communities are inexorably linked. Therefore, alteration of any component of such highly integrated natural systems tends to produce cascading trophic effects through the ecosystem.

This project addresses the need to identify and understand the magnitude of changes at the abiotic and biotic levels of the ecosystem and provides tools to assess the changes in the ecosystem, prioritize mitigation actions, and better understand the cumulative contribution of individual actions to the restoration of the ecosystem.

Strategy and limiting factors addressed:

The project provides a framework that is being used in the Kootenai River subbasin and can be implemented in other basins throughout the Columbia River Basin to assess and monitor, in a consistent and reproducible manner, abiotic and biotic changes in the ecosystem. This framework (i.e., set of tools) provides a methodology to assess the overall condition of the floodplain and help prioritize, target and manage conservation and mitigation actions.

These tools developed through this project are designed to 1) addresses the magnitude of changes at the abiotic and biotic levels of the ecosystem, and 2) provide a standardized and repeatable methodology to prioritize, measure, monitored, and cumulatively assess mitigation actions to understand their contribution to the restoration of the ecosystem.

Currently, the project has finished an Operational Loss Assessment (Phase 1) and is working with regional managers (i.e., CSKT, MFWP, IDFG) in the development of a mitigation and management plan to guide the Kootenai River subbasin into the future. Additionally, the mitigation and management plan and assessment tools developed under this project will provide a mechanism to prioritize and plan cost effective mitigation and restoration actions and support a targeted/streamlined monitoring plan.

2.1.3.5 Reconnect Kootenai River with Historical Floodplain (2002-008-00)

Need:

The reconnect project addresses the need to restore floodplain habitats and functions, depressional

wetlands, stream channels, and riparian areas that were lost through diking and ditching, and draining wetlands, and that have been exasperated by the construction and operation of Libby Dam with its altered hydrologic regime. The reconnect project focuses in particular on the transitional habitats that are used by avian and terrestrial populations as well as aquatic species.

The Reconnect project was initially classified as a wildlife project and then was reclassified by the Council as a fish project; this resulted in changes to the way the project was reviewed and evaluated. This project addresses transitional habitat zones that host aquatic, avian and terrestrial species, and illustrates the need for an integrated program that diminishes these artificial distinctions.

Strategy and limiting factors addressed:

The primary goal of the Reconnect Kootenai River with Historical Floodplain project is to restore floodplain habitats and functions, depressional wetlands, stream channels, and riparian areas to support critical life stages for species and populations dependent on floodplain productivity. Sustainable, long-term benefits to the Kootenai subbasin include reconnecting tributaries to the mainstem Kootenai River, restoring lentic/wetland environments, and improving the natural cycling of carbon and related nutrients.

The Reconnect project plays an important role in providing data to support the assessment and restoration of ecosystem diversity and ecological functions within the subbasin. Understanding how floodplain ecosystems are linked to the operations of the Federal Columbia River Power System, and more specifically to Libby Dam, is critically important to restoration activities and necessary in evaluating hydropower impacts to ecological functions and the lower Kootenai River ecosystem.

The Reconnect project also facilitates feasibility and habitat restoration actions in collaboration with the Kootenai River Floodplain Ecosystem Operational Loss Assessment, Protection, Mitigation and Rehabilitation Project and Albeni Falls Wildlife Mitigation Projects.

2.1.3.6 Albeni Falls Wildlife Mitigation Project (1992-061-05)

Need:

Since the development of the construction and inundation loss assessment for the Albeni Falls hydroelectric project (IDFG 1987), less than half of the 28,658 Habitat Units (HU's) have been mitigated. More importantly, the Kootenai Tribe of Idaho has only had an opportunity to mitigate 0.09% of these impacts, which were within the Kootenai Tribe's historical usual and accustomed lands (i.e., Pend Oreille and Kootenai subbasins).

Specific impacts include losses of habitat that were important to many ungulate and bear species, where these species have special significance to the Kootenai Tribal community. Bald eagles, muskrat, Canada goose and other species, that make use of a variety of agricultural, wetland, and forested habitat types, were also impacted by Albeni Falls hydroelectric project construction and inundation. The USFWS estimates that as many as 43 percent of threatened and endangered species rely directly or indirectly on wetlands for their survival (NPCC 2002a). Currently, the primary threat to wetland and riparian systems in the Kootenai and Pend Oreille subbasins are the continuing increase in development and habitat fragmentation. Development of wildlife habitats for residential and commercial purposes is ongoing and increasing across the entire Province as the area's population grows.

Strategy and limiting factors addressed:

The purpose of Albeni Falls Wildlife Mitigation Project is to protect, enhance, and maintain wetland and riparian wildlife habitats to address ongoing construction and inundation impacts associated with the Albeni Falls hydroelectric project within the Kootenai Tribe's historical usual and accustomed lands. Protecting, enhancing and maintaining these habitats provides direct benefits to a variety of terrestrial species that are critically important to the Kootenai Tribe.

2.1.4 Kootenai Tribe Integrated Fish and Wildlife Program Measures

Section 2.1.4 presents specific measures that will allow the Tribe to address the needs identified above in Sections 2.1.3 through implementation of the identified strategies for the integrated program and individual component projects.

This section is organized to include: 1) overarching measures that apply to the Tribe's integrated program as a whole, and where appropriate 2) project specific measures that apply directly to a single project within the Tribe's integrated program. This summary also presents the rationale for each measure (i.e., why the measure is necessary and appropriate to address the need and to implement the identified strategy).

2.1.4.1 Integrated Fish and Wildlife Program

Measure 1:

The Council shall coordinate project reviews, ISRP reviews, project guidance and funding recommendations in a way that recognizes the integrated nature of the Kootenai Tribe's fish and wildlife program, encourages long-term agreements, and supports maximum flexibility and accountability within the Tribe's program.

BPA shall consider the integrated nature of the Kootenai Tribe's fish and wildlife program and shall provide funding for the constituent projects in such a way as to support more effective integration of the overall Kootenai Tribe program and allow for necessary flexibility in allocation of funds between individual projects.

Rationale for Measure 1:

The Tribe's integrated fish and wildlife program reflects the Tribe's emphasis on landscape scale restoration actions designed to enhance the resilience and adaptability of ecosystems. The integrated program fosters ecosystem-based management over single-species or single-life stage approaches, and recognizes that fish and wildlife and their habitats exist within a larger interdependent landscape.

The integrated fish and wildlife program improves the overall coordination within the Tribe's fish and wildlife program and increases efficiencies in terms of data collection, analysis and information sharing.

Treating the Tribe's fish and wildlife program as a single integrated program rather than a suite of disparate projects with entirely separate fish and wildlife objectives, would facilitate more effective and streamlined ISRP reviews and simplify program funding decisions. The enhanced flexibility afforded the Tribe through this approach would allow greater adaptability within the program and would also support more efficient use of funds.

Measure 2:

BPA shall provide sufficient operations and maintenance and funding to support full implementation of the Tribe's integrated fish and wildlife program. Specifically, BPA shall provide sufficient operations and maintenance funding to support efficient day-to-day implementation of the Tribe's integrated fish and wildlife program and to implement the individual project strategies articulated through six projects that make up the Tribe's integrated program (i.e., project numbers 1988-064-00, 1994-049-00, 2002-002-00, 2002-008-00, 2002-011-00, and 1992-061-05). BPA shall provide sufficient operations and maintenance funding to fully support the good faith efforts of the Kootenai Tribe to achieve the collective goals and objectives of the Tribe's integrated fish and wildlife program.

Rationale for Measure 2:

Sufficient operations and maintenance funding to efficiently implement the Tribe's integrated fish and wildlife program is essential to meeting the goals and objectives of the individual projects, the Tribal goals and the applicable ESA, conservation planning, and/or other legal obligations as identified in section 1.2.2. Sufficient operations and maintenance funding is also necessary to ensure that capital investments (e.g., upgrades and construction of the new Twin River Hatchery) are not stranded, and that the value of other long-term investments such as land purchases made under the Albeni Falls Wildlife Mitigation Project (1992-061-05) and the habitat restoration actions implemented under the integrated program are maximized.

Measure 3:

BPA shall provide sufficient monitoring and evaluation funding to support full implementation of the Tribe's integrated fish and wildlife program. Specifically, BPA shall provide sufficient monitoring and evaluation funding to support science-based analysis of the effectiveness of the Tribe's integrated fish and wildlife program (i.e., project numbers 1988-064-00, 1994-049-00, 2002-002-00, 2002-008-00, 2002-011-00, and 1992-061-05), support monitoring and evaluation of protected mitigation sites, and to support science-based adaptive management of the integrated fish and wildlife program and its constituent projects.

This shall include sufficient funding to support Kootenai Tribe contracted restoration, monitoring and evaluation activities, and should embrace habitat and species responses to mitigation actions. In addition, recognizing the efficiencies that are gained through collaborative data and information sharing, and in the spirit of avoiding duplicative efforts and associated costs, BPA shall include sufficient funding to support IDFG and MFWP restoration, monitoring and evaluation at levels that are necessary to support the goals, objectives and adaptive management information needs of the Tribe's integrated fish and wildlife program (e.g., IDFG provides monitoring and evaluation information critical to implementation of projects 1988-064-00, 1994-049-00, and 2002-002-00; and MFWP cooperation is integral in application of project 2002-001-00).

Rationale for Measure 3:

Sufficient monitoring and evaluation funding is critical to determining the effectiveness the individual projects within the Tribe's integrated fish and wildlife program in meeting stated goals and objectives, and to supporting science-based adaptive management. Sufficient monitoring and evaluation funding is also essential to determining the effectiveness of actions designed to meet specific ESA objectives, conservation planning objectives, and/or other legal obligations as identified in section 1.2.2.

Targeted monitoring and evaluation is necessary to understanding the impacts of climate change within the ecosystem, as well as developing a better understanding of limiting factors, and how to effectively address them. Moreover, monitoring and evaluation is critical to determining the effectiveness the restoration actions, and understanding species responses to those actions. Specifically, targeted monitoring and evaluation is necessary to determine the effectiveness of efforts to increase and manage native habitats to support increased quantities of fish and wildlife species and wild foods, and to guide adaptive management of future restoration and management activities.

Sufficient funding of monitoring and evaluation efforts that generate information and data necessary to multiple projects is also critical. For example, monitoring and evaluation conducted by the Kootenai Tribe and IDFG is absolutely critical to informing project production goals, genetics objectives, and release strategies for the Kootenai sturgeon and burbot conservation aquaculture programs. The same is true of the need for funding to support biological monitoring of the effectiveness of the habitat restoration projects being implemented through the Tribe's Kootenai River Habitat Restoration Program (2002-002-00), Reconnect Project (2002-008-00), and Kootenai River Floodplain Ecosystem Operational Loss Assessment, Protection, Mitigation and Rehabilitation Project (2002-011-00).

Measure 4:

BPA shall provide adequate funding to support critical ongoing and new research necessary to the effective implementation of the Tribe's integrated fish and wildlife program and its constituent projects (i.e., project numbers 1988-064-00, 1994-049-00, 2002-002-00, 2002-008-00, 2002-011-00, and 1992-061-05). The Council and BPA shall in good faith implement the recommendations of the Tribe regarding critical research priorities. Understanding that limited funding must be directed strategically, the Tribe in turn, will work collaboratively with regional managers in the Kootenai River subbasin (i.e., IDFG, MFWP, BCMFLNRO, USFWS) to identify and prioritize research.

Rationale for Measure 4:

Sufficient research funding is necessary to support specific targeted research needs under the Tribe's integrated fish and wildlife program and its constituent projects (i.e., project numbers 1988-064-00, 1994-049-00, 2002-002-00, 2002-008-00, 2002-011-00, and 1992-061-05). In particular, targeted research is needed to enhance our understanding of critical uncertainties including: 1) sturgeon genetics, 2) burbot genetics, 3) burbot culture, and 4) recruitment failure, and 5) ecosystem process uncertainties (i.e., floodplain food web and nutrient cycling).

The value of well-designed and well-implemented targeted research is multiplied many times as that information is shared throughout the Columbia River Basin and enhances species recovery and ecosystem restoration efforts. Examples include the Tribe's cutting edge research into burbot culture techniques, and years of research involving white sturgeon culture and genetics. Additionally, the Tribe has developed a framework in which to assess and understand the impacts of dam operations on the ecosystem.

2.1.4.2 Measures Specific to Project 2002-011-00 (Kootenai River Floodplain Ecosystem Operational Loss Assessment, Protection, Mitigation and Rehabilitation Project) and Project 1992-061-05 (Albeni Falls Wildlife Mitigation Project)

Measure 1:

The Council and BPA shall complete mitigation and restoration actions where operational and secondary loss assessments have been estimated and/or addressed (i.e., Kootenai Subbasin project 2002-011-00). The Council and BPA shall complete permanent or long-term funding agreements to mitigate for wildlife construction and inundation losses. Funding should be tied to approved loss statements or agreements.

The Council should maintain conservation easements and fee title acquisitions as opportunities to protect and restore habitat for fish and wildlife. The process should be streamlined to expedite habitat protection goals before land prices rise further and before opportunities for habitat protection and enhancement decline in proportion to expanded human development. Once habitat is secured, the focus should shift to habitat restoration in order to fully mitigate for identified losses.

Rationale for Measure 1:

Development and operation of the hydrosystem resulted in wildlife and habitat losses through construction of dams and inundation of habitat, direct operational losses, and secondary losses. The Program includes measures and implements projects to acquire and protect wildlife habitats as mitigation for construction and inundation losses. The Program maintains a commitment to mitigate for operational and secondary losses that until currently have not been estimated or addressed.

It is essential for the Kootenai Tribe of Idaho to fully mitigate losses to the wetland and riparian wildlife habitats that were traditionally important to tribal members and facilitate the use terrestrial wildlife and plants to help offset the loss of resident fish production. Moreover, implementation of Project 2002-011-00 relies on MFWP to assess and restore areas within the Kootenai River Subbasin.

Time is of the essence; as the U.S. economy recovers and as the human population continues to grow, the costs associated with land purchase and restoration activities will increase and at the same time opportunities for landscape habitat protection will become increasingly scarce. The most effective and efficient means to mitigate construction and inundation losses may lie in a long-term, and predictable, yet somewhat flexible agreements, or long-term funding agreements using capital funds that utilize a number of partners and increased program flexibility. To minimize long-term ratepayer costs, the Council should strive to implement habitat measures as rapidly as possible given revenue constraints.

Measure 2:

The Council and BPA shall support and fund adequate on-going and long-term operations and maintenance for all mitigation actions as part of a commitment to fully address construction and inundation and operational losses to the extent required under the Northwest Power Act. Actions completed under this operations and maintenance funding could include, but are not limited to: 1) increasing native and managed habitats to support additional numbers of wildlife species and food plants; 2) protecting additional lands to provide treaty resources for the Tribe in the Pend Oreille and Kootenai subbasins; and 3) adding value to current existing managed habitats by providing enhancement and restoration resources to the Kootenai Tribe of Idaho and their surrounding areas of interest.

Rationale for Measure 2:

Long-term operations and maintenance of the protected mitigation sites is essential to ensuring that the Tribe is able to maintain wildlife habitat values, sustain protection of habitat quality and manage lands to address target species life history requirements. In an era with increasingly fragmented and degraded landscapes, operations and maintenance funding to maintain and optimize the mitigation sites is especially critical.

2.2 Libby Dam Operations

Measure 1:

BPA and the action agencies shall adjust operations at Libby Dam per recommendations provided in Appendix A to achieve mutual benefits to Canada and US.⁵

Rationale for Measure 1:

Systemwide analyses of Columbia River dam operations conducted for the Columbia River Treaty review revealed opportunities to improve operations at Hungry Horse and Libby dams that could provide mutual benefits to Canada and the US. The changes recommended in Appendix A could be achieved within the flexibility afforded in VARQ, including any modification to VARQ, and the Biological Opinions by the U.S. Fish and Wildlife Service (USFWS) and NOAA-Fisheries.

Measure 2:

BPA and the action agencies shall in good faith consider the potential impacts of winter operations at Libby Dam (e.g., winter peaking) on the recovery of native fish species, the food web, and habitat restoration efforts, and mitigate for those impacts if necessary.

Rationale for Measure 2:

The Tribe recognizes the challenge of balancing the provision of an adequate, efficient, economical and reliable power supply, with protection, mitigation and enhancement of fish and wildlife affected by the development and operation of hydroelectric facilities. However, some winter power operations, including power peaking, are known to have detrimental effects to native plants such as cottonwoods, may negatively impact the food web and some native fish species, and also contribute to accelerated bank erosion and land loss.

BPA has funded a number of restoration projects in the Kootenai River subbasin designed to restore native plants, fish, and habitat conditions that support restoration of native fish and wildlife in the Kootenai River Subbasin. In addition, a number of these projects also address components of the Libby Dam BiOp, e.g., projects 1988-064-00 (RPA 4), 2002-002-00 (RPA 2), 1994-049-00 (RPA 5). Winter operations, including power peaking, may undermine some of the goals and objectives of BPA funded projects.

⁵ The Kootenai Tribe adapted this measure and the portions of Attachment A specific to Libby Dam, from Montana's recommendations.

2.3 Fish and Wildlife Program Implementation Provisions

2.3.1 Clarify BPA In-lieu Restrictions

Recommendation:

The Council should clarify BPA's "In-lieu" funding restrictions and establish a policy in the amended Program to ensure that critical mitigation efforts receive BPA funding for successful and timely implementation. In-lieu decisions implemented by BPA should be reviewed by Council through an open public process.

Rationale:

Section 4(h)(10)(A) of the Northwest Power Act requires BPA to protect, mitigate and enhance fish and wildlife to the extent affected by the development and operation of the hydropower projects of the Federal Columbia River Power System (FCRPS) in a manner consistent with Council's fish and wildlife program and the purposes of the Act. The "in Lieu" provision of section 4(h)(10)(A) states that "Expenditures of the Administrator pursuant to this paragraph shall be in addition to, not in lieu of, other expenditures authorized or required from other entities under other agreements or provisions of Law." BPA has interpreted this "In Lieu" provision in their In Lieu Policy (June 2007), and assigned ratings to both new and ongoing projects. Since establishing this policy, BPA has decided not to fund new efforts deemed as in lieu, and reduced funding for other ongoing efforts.

2.3.2 Review Implementation of Program Measures

Recommendation 1:

The Council should work with fish and wildlife managers and partners to provide a periodic review of implementation of Fish and Wildlife Program measures and provide an annual report of the measures that were implemented and those that were not. In addition, because of the importance of Subbasin plans, progress towards implementation of these plans should be reported on periodically. This could be as simple as documenting which measures are currently funded and those that have not been funded.

Rationale for Recommendation 1:

As described in the Power Act, it is the Council's role to provide direction regarding funding levels to BPA. The Council has the capacity to use existing tracking tools to report on which elements of the Program are funded (and at what level) and which are currently unfunded. As new measures are added to the Program, funding mechanisms will need to be identified.

The Council's Program, though tied to ESA listed species, is broader than recovery of those species. The level of effort and funding needs to be balanced within the Program and across the basin to ensure that all aspects of the Program move forward within the foreseeable future. The Council can uniquely address the needs of the ecosystem from the subbasin or basinwide perspective.

BPA has large discretion regarding funding levels, however the assumption is that measures listed in the Program are funded at some level. Tracking of these measures needs to be transparent. The cost of administering the Program needs to be kept low. As part of an annual review, annual Program administration costs should also be reviewed.

2.3.3 Re-Establish a Regional Coordination Forum

Recommendation 1:

The Council and BPA should work with States and Tribes to create an annual forum to coordinate and discuss annual work priorities. The forum would result in the creation of an annual work plan to support collective engagement in discussions on topics of high priority to the Council and representatives throughout the region.

Rationale for Recommendation 1:

The role of the Council has evolved over time to meet the needs of the Basin and to address endangered species listings in concert with BPA. The disbanding of CBFWA leaves a gap in regional coordination as no one state or tribe can play a regional coordinating role, with the consequence that States and Tribes work more directly with Council Members. The Council and Council staff can play a valuable coordinating role (e.g., Wildlife Advisory Committee) in engaging regional partners to help inform and support Council decisions.

Recommendation 2:

The Council should continue the inclusion of Fish and Wildlife Program Coordination funding in the updated program amendment process. Program Coordination funding is important to the region's fish and wildlife managers, particularly for the Columbia River Basin's Tribes. The lack of any Columbia River Basin fish and wildlife entity to provide this basis for coordination makes it more critical to provide funding directly to those individual state and tribal managers who can provide their time and expertise. This coordination funding is also important for many of the Tribes because it helps build capacity and levels the playing field, particularly for smaller Tribes across the basin. It allows for important avenues for participation and travel to meetings, efforts that would not occur without this level of funding support.

Rationale for Recommendation 2:

The current 2009 Council Fish and Wildlife Program describes the need for coordination funding provided by BPA for the purpose of various activities that support Program implementation. Activities range from activities such as data management and reporting, monitoring and evaluation, facilitating and participating in focus workgroups on Program issues, review of technical documents and processes, and information dissemination.

The Council in 2012 reviewed coordination projects and provided a decision on BPA coordination funding. In that decision document the Council included a table of detailed coordination activities appropriate for BPA funding. Those coordination tasks were designated by the Council as meeting priority needs for program coordination for the next two years, FY2013-2014. With this decision the Council indicated that these activities were well suited for program-level regional coordination funding and recognized that they would need the assistance from partners throughout the region. In addition the Council stated that all of the work was intended to be of benefit at a basinwide or regional scale and should inform the Council for policy, program performance evaluation, and implementation decisions. The Council also recommended that this work should be accomplished by the appropriate fish and wildlife agencies and Tribes recognized in the program and other entities such as Tribal Consortia that have the experience and capacity to coordinate this work at a basinwide scale.

2.3.4 Streamline ISRP Scientific Review

Recommendation 1:

The Council and action agencies, in coordination with the co-managers, shall jointly develop a streamlined ISRP review process for mature projects and long-term projects (including the Fish Accords). As part of this effort, the Program should incorporate and build upon existing frameworks developed by long-term and umbrella projects, such as those that incorporate review processes for selection, prioritization and technical and science review of projects in coordination with appropriate local stakeholders, technical experts, Tribes and agencies.

Rationale for Recommendation 1:

The existing ISRP review process has not been substantively updated in many years while other complimentary review efforts associated with long-term and umbrella projects have evolved significantly. As a result, aspects of the process can be duplicative and somewhat inefficient and would benefit from incorporation of existing, locally informed, science-based review processes. Streamlining the process, and incorporating regional existing review frameworks, could allow the ISRP and Council to benefit from greater incorporation of local expertise and knowledge, while also supporting the ISRP in their efforts to provide consistent and constructive reviews of individual projects, that collectively help to improve the overall quality and effectiveness of the Fish and Wildlife Program. An updated review process would also allow the various parties to fully take advantage of, and learn from, some of the unique and effective forums that have been developed throughout the Columbia River Basin.

2.4 Other Input on the Program

2.4.1 Focus of the Fish and Wildlife Program over the next decade

The Tribe recommends the following topics for increased attention in the Program over the next decade:

- Emphasis on habitat protection (acquisitions and easements) along with ecosystem restoration.
- Reconnecting blocked habitat, floodplain, side channel, or other inaccessible habitat where advisable.
- Creating buffers around and migration pathways between isolated areas with high species diversity.
- Mitigate negative impacts to native species and habitat caused by introduced non-native species, including hybridization, competition and predation.
- Habitat protection efforts should be implemented to help maintain habitat corridors that will allow species to adapt to changing climatic conditions.

2.4.2 How the Council should exercise its responsibilities to maximize policy and program benefits and minimize process costs

The Tribe recommends the following ways the Council should exercise its responsibilities to maximize policy and program benefits and minimize process costs:

- Encourage the development of rate cases that allow the expansion of the program to include mitigation of impacts caused by dam operations, and that capture current opportunities to protect key habitats that are being lost through time to development and other incompatible land uses.

- Consistently strive to reduce process and increase meaningful on-the-ground actions.
- Promote and encourage partnerships whenever possible to reduce both short-term and long-term costs while also achieving landscape-scale conservation benefits.
- Increase Council’s involvement in the Program budget tracking of projects and measures, and reemphasize the Council’s role in providing direction regarding funding levels to BPA.

2.4.3 Monitoring, Evaluation, Reporting, Research and Data Management

The Tribe recommends the following improvements to monitoring, evaluation, reporting, research and data management:

- The Council’s efforts to standardize research, monitoring, evaluation, and data sharing should recognize that needs differ throughout the Columbia Basin. Forums often already exist to coordinate among management agencies. The Tribe suggests that the Council should not apply “one size fits all” strategies and instead focus on specific problem areas where coordination is currently lacking or has room for improvement.
- We recommend that monitoringmethods.org be discontinued. This process has not proven useful or cost-effective.

2.4.4 Ways the Council and the regional program can be more effective, efficient and streamlined, and generate more value for the resource investment

The Tribe recommends the following ways the Council and the regional program can be more effective, efficient and streamlined, and generate more value for the resource investment:

- Support development, formal recognition, coordinated review, and commensurate funding, of integrated fish and wildlife programs (such as the Kootenai Tribe’s integrated fish and wildlife program) that acknowledges that fish, wildlife and their habitats are part of an ever evolving and interdependent ecosystem (as opposed to separate fish or wildlife projects).
- Pursue longer-term agreements and contract terms to reduce process and allow project proponents to focus their efforts more towards on-the-ground mitigation actions. Encourage Bonneville Power Administration to fund their Fish and Wildlife Program to a level that allows for an increase of mitigation accomplishments.

2.4.5 Climate Change

The Tribe recommends the following regarding climate change:

- BPA should fund perpetual land protection through conservation easements, land purchases, or other long-term measures to combat climate change impacts on resident fish and wildlife populations. Targeting key habitats across the basin and linking them across the landscape is one of the most effective ways to help preserve species given the variability and uncertainty associated with future climatic conditions.
- Ensure that current restoration or habitat projects are resilient to predicted future climate scenarios to ensure that investments made today are effective into the future.

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Appendix A

Recommended modifications to Libby Dam operations

The following recommendations were designed to be mutually beneficial to Canada and US, and represent an opportunity for negotiations with Canadian stakeholders.

Reports on Libby Dam operation from BC Hydro and the Province of British Columbia, indicate that the white sturgeon tiered flows, VARQ (or variable flow) flood control, and summertime reservoir drawdown for anadromous fish flow augmentation, are being collectively lumped under the term "VARQ". Canadian complaints include 1) low Libby Reservoir elevations during summer and fall, the peak recreational season; 2) too high Kootenay Lake elevations during and after spring runoff, and 3) BC Hydro claims an impact to power revenue because of the sturgeon flows, VARQ, and summer operations resulting in lower releases during peak winter power demands.

BC Hydro modeled operating alternatives that attempt to refill Kootenay Reservoir earlier. BC Hydro Alternatives 3a tries to refill Libby by June 1 and 3b by June 30. Refill by these dates can only happen safely in average or lower water years, because reservoir inflows exceed turbine capacity after those dates in many years. If Libby Reservoir refills prematurely, the dam must spill, resulting in dissolved gas concentrations in excess of Montana state standards (110%), and potentially causing flooding downstream. We recommend retaining the "sliding refill date" to adjust refill earlier in dry years and later in wet years. This is common practice by dam operators under the current operating strategy; however, the sliding refill date based on inflow forecasts should be formalized.

The variable end of December draft point at Libby Dam should be further relaxed in less than average water years. As currently implemented, when Libby is drafted before Jan. 1, and the inflows are less than predicted, the reservoir remains below the draft targets, just to maintain the established minimum flows downstream. Conversely, if inflows exceed predictions, operators have over three months to compensate (release more water) before spring runoff commences. The tribal CRT alternative E3 adjusted the variable end of December draft point at Libby. The current operation adjusts linearly from elevation 2426 in dry years to 2411 in wet years. E3 was designed to reduce drawdown to 2430 in dry years (and adjust to the original 2411 in wet years). Analysis showed that reservoir elevations could be safely increased by up to 4 ft (elevation 2430) in dry wateryears (driest 20th percentile).

System modeling revealed that the current VARQ operation can be improved in slightly above average and below average wateryears by further reducing reservoir draft and by using improved coordination among headwater projects. Similar "sliding-scale" rule curves should be applied to other reservoirs throughout the Columbia Basin so that dry subbasins are drafted less to preserve local ecosystem functions, and wet subbasins are drafted deeper for local and system flood control.

Sturgeon tiered flows and the VARQ discharge protocol should be modeled as one volume, as VARQ was originally designed. When the mandatory VARQ discharge protocol is not merged with the volume released for sturgeon tiered flows, Libby Reservoir refill is reduced to about 12 % of all years. This is a problem for BC stakeholders in the Kootenay headwaters. This is a policy problem, not a modeling problem; the underlying cause is that the Corps has to consult with USFWS for the sturgeon operation, but not for the VARQ flood control operation, so the two operations have been modeled separately (as a consequence the two release volumes are counted separately and additively).

The sturgeon tiered flows changed before the USFWS BiOp was finalized. The USFWS increased the

volume in the highest tier, and they lowered the trigger points (inflow forecast thresholds) between the tiers. This causes two problems. First, the volume in the highest tier was originally designed to be less than the next tier down, because unregulated sideflows are high in wet years, and less storage needs to be released to meet discharge targets at Bonners Ferry. As currently implemented, the larger volume in the highest tier increases the chance that an unpredicted precipitation event will result in spill (and potential for flooding at Bonners Ferry). Secondly, lowering the thresholds separating the tiers, results in higher discharge volumes at lower water supplies, which further impacts reservoir refill. Since there is little interest in reopening the USFWS BiOp to adjust the tiered volumes, we recommend adjustments that are within the flexibility of the sturgeon BiOp. Specifically, half of the sturgeon tiered flow volume should be released before the end of May (during high water years, tiers 4 and 5). This strategy would reduce the potential for premature reservoir refill, spill and possible flooding downstream (a problem for BC stakeholders on the shoreline of Kootenay Lake).

At Libby and Hungry Horse, the trigger for summertime flow augmentation for anadromous fish recovery (10 or 20 ft from full pool depending on water supply) should be based on site-specific reservoir inflows (as originally designed), not flows at The Dalles.

Continue to implement stable or gradually declining Kootenai River flow after spring runoff. This operation is beneficial to fish and their habitat, and facilitates limited regeneration of riparian vegetation. We ask the Council to Work with Montana, KTOI and Canada to improve riparian regeneration by gradually reducing flows after spring runoff. Successful regeneration of riparian vegetation can be significant in years following high spring runoff. However, much of that new growth is subsequently destroyed by high winter flows. Maintaining lowered winter flows in years following high spring runoff would aid in the establishment of riparian vegetation with positive benefits to both aquatic and terrestrial communities.