Submitted electronically. Hard-copy signed original to follow by mail.
Signed original may include final edits, and should be considered the official final comments of the Spokane Tribe.

SPOKANE TRIBE OF INDIANS
P.O. Box 100, Wellpinit, WA 99040
Phone: 509-258-4581/FAX: 509-258-9243

Mr. Charles Alton
Project Manager - KEC-4
Bonneville Power Administration
P.O. Box 3621
Portland, OR 97208

RE: Fish & Wildlife Implementation Plan
Draft Environmental Impact Statement

Dear Mr. Alton:

We appreciate the opportunity to comment on the BPA Draft EIS. Our detailed comments are submitted in electronic format, in revision tracks to the original text for Chapter 5, and in separate comments on the remainder of the documents.

The concept underlying the DEIS is admirable, and we recognize the challenge of conducting an environmental analysis in the context of many complexities associated with the FCRPS. At the same time, we are wary of the potential uses of this NEPA process. In particular, we are concerned about:

(1) The breadth and length of NEPA coverage anticipated by this document -
The DEIS anticipates that a FEIS built upon this draft can be used to cover an almost limitless array of possible future policy directions and implementing actions. We need to see reasonable parameters placed around the scope of NEPA coverage. #1

(2) The inadequate and premature analysis of impacts on Tribal cultural resources -
Several sections in the DEIS are encouraging, reflecting that BPA has learned from countless conversations between BPA staff and Tribal representatives. Yet, the sections on cultural resources fall far short of the analysis and consultation needed to address the Tribe's concerns. The DEIS reflects a complete lack of any feedback loop from the information garnered during the time from SOR (1995-97) to the present. #2

We strongly recommend that BPA pause the DEIS process and make a deliberate effort to address federal NEPA review during meetings scheduled for October 2001 (to discuss BPA Cultural Resource Program Goals and Objectives). Our THPO has never been consulted on the Biological Opinions. Thus, it is difficult for the THPO to acknowledge the validity of any implementation plan documents or processes. #3

We also strongly recommend that BPA delay any FEIS and ROD until regional policymakers have had an opportunity to resurrect a regional governance structure. A regional fish and wildlife policy direction is most appropriately made through concurrence of the region's Federal, State and Tribal sovereign governments. Although the Columbia Basin Forum concept went dormant during a period of extreme busy-ness, many of the Basin's policymakers see the need to reconvene that group to focus on ESA implementation and broader policy issues surrounding the FCRPS. #4

We trust that the Tribe's concerns and comments will be elevated to the BPA Administrator for consideration under the government-to-government relationship between BPA and the Spokane Tribe.

Thank you for your outreach, and for your careful consideration of our comments.

Sincerely,

Alfred M. Peone
Chairman, Spokane Tribal Business Council

cc: Mr. Steve Wright, BPA Administrator
Ms. Alex Smith, BPA VP for F&W
Mr. John Smith, BPA Tribal Liaison
Mr. Rudy Peone, Spokane Tribal NRD Director
Mr. Bryan Flett, Spokane Tribal Culture Program Director
Mr. Louie Wynne, Spokane THPO
Ms. Mary Verner, Spokane Tribal Consultant
Mr. Howard Funke, Spokane Tribal Consulting Attorney

COMMENTS SUBMITTED BY THE
SPOKANE TRIBE OF INDIANS
TO BONNEVILLE POWER ADMINISTRATION

RE: FISH AND WILDLIFE IMPLEMENTATION PLAN DEIS
SUMMARY

PAGE:

Frontispiece: It is fitting that this document begins with the Albert Einstein quote. Indeed, Columbia Basin decisionmakers must rise to a new level of thinking.

In particular, NEPA coverage should no longer be merely a checklist legal requirement for federal agencies to avoid adverse rulings in litigation. Rather, NEPA analysis should be conducted in a meaningful and thorough way, truly reviewing environmental impacts of alternatives, using credible and best available data. Continuing the superficial consideration of bare minimum regulatory requirements breeds contempt toward and mistrust of the federal action agencies.

Draft/S-ii & iii: We appreciate that BPA recognizes its trust responsibility and describes its Tribal Policy in this document. This text helps promote greater understanding of the government-to-government relationship that is required between BPA and the Tribes.

Draft/S-iii & iv: We agree that a comprehensive and consistent fish and wildlife policy would foster coordination and efficiency. And we respect BPA's effort to initiate NEPA review in anticipation of a deliberate or default regional policy direction. Nonetheless, this EIS is in some ways tardy and in other ways premature.

The EIS is tardy because BPA has already proceeded under fundamentally altered hydrosystem and business operational strategies without updated NEPA coverage. Tardy also because BPA has already entered its Record of Decision on the 2000 Biological Opinions, committing BPA to operational scenarios and fish and wildlife funding actions that, ostensibly, fall within the scope of the draft F&W Implementation Plan EIS. The ESA Implementation Plan is out for public comment at the same time as this DEIS. #5

On the other hand, the DEIS is premature because the region's sovereign governments should first select a governance approach, then determine a fish and wildlife policy direction. #6

Draft/S-vi: It would be helpful to see the alternatives illustrated in terms of the stated "yardsticks." At present, the alternatives are illustrated as they relate to "Key Regional Issues." How does the reader tie back to determine how well each Policy Direction meets BPA's need to, for example, meet its obligations under CWA and NHPA? Is this summarized in one place? #7

Draft/S-vii: The "Background" section is remarkably honest.

Draft/S-xi: The text refers to BPA's "expectation" that strategies discussed in the "All-H Paper" will be implemented. Is this not now more than an "expectation"? Did not #8

BPA commit in its ROD on the BiOps to meet its All-H Commitments as part of the RPA for listed species? #8

Draft/S-xii: The document should note that some stakeholders, including the Spokane Tribe, believe that the Human Effects Analysis of the Council's Multi-Species Framework Report was flawed and did not adequately assess impacts to Tribes in the Upper Columbia blocked area. #9

Where the Council's 2000 Report on BPA F&W Expenditures concludes with percentages of funds spent on anadromous fish and wildlife, the last sentence should read "... mitigation for only [strike 'over'] 38% of the wildlife habitat inundated by the dams and reservoirs." #10

While the title of this document is "Fish and Wildlife" Implementation Plan, the substantial discussion afforded to economic effects warrants further explanation of the context of fish and wildlife funding. BPA's costs for fish and wildlife have totaled $3.48 billion since 1978 (an average of $151 Million/year over 23 years). What has been the total cost to BPA of irrigation and industry subsidies over the same time period? Does the $3.48 billion for F&W include "foregone revenue" from operating the hydrosystem for salmon? If so, at least a footnote should explain that there are many approaches to calculating the market value of foregone revenue, and some parties dispute the validity of BPA's calculations. Also, the revenue foregone to provide water for irrigation and navigation should be disclosed. #11

Draft/S-xiv: The Table of Key Regional Issues should be expanded. The section labeled "Tribes" should include at least the following: Tribal Co-Management; Tribal Cultural Properties; Tribal Water Rights; and, Tribal Land Losses to Operations. These edits should be made whenever the same Table is reprinted elsewhere in the document. #12

Draft/S-xiv&xv: The "Scope and Decisionmaking" section encompasses the crux of our concern about this DEIS. "This DEIS is designed to be broad enough to encompass any potential Policy Directions under consideration." What boundless latitude! "It also allows the decisionmaker to 'tier' site-specific decisions from this EIS." How infinite the possibilities!

A very well-defined boundary is needed around this EIS. Over what range of decisions, over what period of time, over what array of circumstances will this EIS provide NEPA coverage? Although NEPA grants broad discretion to the agency, it does not provide for writing a "blank check" to "pay" for any possible future F&W funding strategy. The goal of informing a regional policy direction is laudable. The corollary of eliminating the need for future environmental analysis once that goal is selected is not so comfortable. #13

Draft/S-xvi: "[A]ctions consistent with the Policy Direction" simply does not provide enough specificity to determine a reasonable range of actions that would be afforded NEPA coverage under this document. #14

Draft/S-xxi: Terminology in the "Commerce Focus" alternative should be defined. What is "economically efficient" restoration/harvesting/hatcheries? #15

General Comment: While the Summary states, on the one hand, that the BPA Administrator will not make the decision on the regional policy direction, on the other hand, the BPA Administrator will have to enter a ROD on this Implementation Plan EIS, and the ROD must be based on selecting an alternative regional policy direction. This is an enormous burden and responsibility to place on one person. The policy direction should be chosen first, through the collective effort of the region's Federal, Tribal and State sovereigns, on behalf of their respective constituencies. Then, an environmental analysis can be conducted with greater specificity and usefulness. #16

COMMENTS SUBMITTED BY THE
SPOKANE TRIBE OF INDIANS
TO BONNEVILLE POWER ADMINISTRATION

RE: FISH AND WILDLIFE IMPLEMENTATION PLAN DEIS
VOLUME 1: ENVIRONMENTAL ANALYSES

PAGE:

Draft/i: "Proceed[ing] now toward implementation of certain actions under the Biological Opinions" might not mean that BPA has made its final determination on an over-arching Policy Direction for fulfilling all its fish and wildlife obligations for the next 10 years. However, proceeding to implement the Biological Opinions does determine how the hydrosystem will be operated and mitigation will be conducted to avoid jeopardy for ESA-listed species. BiOp decisions are fundamental and integral to the over-arching 10-year policy direction. Where does BPA discern flexibility on major fish and wildlife issues beyond the commitments in its ROD on the BiOps? #17

Draft/ES-ix: While BPA acknowledges the Current Policy Conflicts, BPA nonetheless maintains the position that previous NEPA processes (such as SOR and Business Plan) remain viable, and BPA proceeds toward implementation of BiOps for which RODs have been entered. Is there sincere intent to address/resolve the policy conflicts before issuing a FEIS? #18

Draft/ES-x: We commend BPA for continuing to acknowledge the usefulness and viability of the Columbia River Basin Forum, and we encourage BPA to promote the use of the Basin Forum concept (Three Sovereigns, not NMFS Regional Forum) as the appropriate governance structure for the basin. #19

Draft/13: While use of previously-prepared EISs as resources in the preparation of this FWIP DEIS provides BPA certain efficiencies, the viability of previous NEPA reviews is questionable under substantially changed circumstances.

The Wildlife Mitigation Program EIS (1997) and Transmission System Vegetation Management Program EIS (2000) are examples of programmatic NEPA reviews which retain their usefulness. These are systematic analyses applicable to project-specific actions which are repetitive in nature and subject to analysis for similar sets of facts. On the other hand, the Business Plan EIS (1995) and SOR EIS (1995) no longer fit the current circumstances. These were NEPA reviews fitted to specific scenarios which have altered significantly over time.

Although the Business Plan and SOR EISs contain useful information, they no longer provide adequate environmental review for today's market conditions and system operations strategies. Indeed, the SOR environmental analysis was flawed when the EIS was issued, particularly as to cultural resources. Further, the body of knowledge pertinent to these EISs has increased and change over the past 6 years, and current information should be inserted into new comprehensive environmental analysis. #20

Draft/16: The "ROD on Policy Direction" and "Tiered RODs" raise several concerns for the Spokane Tribe.

On Policy Direction: If the BPA Administrator merely records a policy direction selected in a process that provides meaningful Tribal involvement, the Administrator will have fulfilled an administrative duty to proceed with NEPA documentation. On the other hand, if the BPA Administrator surmises the region's preferred or "likely" policy direction, the Administrator will have assumed responsibility for a decision that rightfully falls on the shoulders of all the region's sovereign governments. #21

Tiered RODs hold great potential to thwart the intent of NEPA analysis. We could be comfortable with the BPA ROD incorporating, for example, the NW Power Planning Council's Fish and Wildlife Program. That Program has been subjected to thorough scientific, management and public review and incorporates multidisciplinary input at an appropriate scope and scale to serve as environmental review for specific actions. In contrast, vague concepts such as "Commerce Focus" - described only in the broadest strokes as including "no dam removal" and "increased development" - do not afford analysis adequate for NEPA coverage nor for wise, informed decision-making. We consider it imperative that BPA narrow the range of potential activities that would be considered "tierable" from this EIS. #22

Draft/30: The brief, but accurate, history of non-Indian taking of Tribal land and resources is appreciated.

Draft/61: Several pages of text describing BPA's fish and wildlife costs cover most of the key issues, but do not describe factors offsetting the impacts of foregone hydro revenues.

The remark on p. 61 about BPA's concern for its customers' *perceptions* of costs raises a question tangential to the EIS: If BPA expects fish, wildlife and Tribal stakeholders to become educated about the complex factors limiting BPA's ability to meet its fish and wildlife and trust obligations, can it not also ask its customers to become educated about the complex factors comprising BPA's costs for fish and wildlife? #23

Draft/67: No mention is made of Tribal water rights, which are senior and prior, in most instances, to non-Tribal water rights. #24

Draft/88: In the third paragraph, strike the statement: "Some 'upriver' tribes today have less of an interest in salmon than they once did ... ." Although salmon have been taken away from the Tribal people in the blocked areas, this does not mean that Tribal interest in salmon has diminished. Indeed, it is the stated goal of the Spokane Tribe and UCUT to restore salmon above Grand Coulee Dam because salmon are vital to the cultural survival of these "blocked area" Tribes. #25

Draft/100: "BPA wants to be ready to implement future fish and wildlife mitigation and recovery efforts without delay when a Policy Direction is chosen or changed." Herein lies the problem: Environmental consequences of Maximum Economic Gain are vastly different from impacts of Natural Focus. This DEIS is inadequate for umbrella environmental coverage, particularly over time and over changing policy direction. #26

Adaptive management and programmatic, long-term NEPA coverage are uneasy partners. The scope and breadth of BPA's NEPA coverage needs to be refined. #26

Draft/101: We agree that the key question is: "[H]ow best to arrive at that [Policy Direction] choice?" The Policy Direction must be chosen through deliberate policy-level collaboration among the region's Federal, State and Tribal governments. #27

Draft/103: The responsibility placed upon the BPA Administrator regarding Policy Direction is overly burdensome and should be shared by the region's other decision-makers.

The last sentence in Sec. 3.1.1. reveals the source of some of our concern: "Such an approach [flexible, open-ended EIS] also anticipates changes over time and extends the usefulness of the EIS." We are concerned that the "usefulness of the EIS" will extend to cover a multitude of actions that may fall very vaguely within ambiguous "policy directions." Without further definition of restraining parameters, this NEPA approach could eliminate the need for future environmental analysis for almost any BPA-funded activity that bears any relationship whatsoever to fish and wildlife. #28

Draft/104: The language in the paragraph immediately preceding Table 3.2-1 is useful exposition of the spiritual significance of fish and wildlife to Tribes, and of Tribal concerns about culture, history, health and sovereignty. #29

Table 3.2-1 should be corrected to add Key Regional Issues for Tribes, as commented earlier (see comments on Summary, Draft/S-xiv).

Draft/106: "Ultimately, BPA will decide which alternative will guide the implementation and funding of its fish and wildlife mitigation and recovery efforts." This statement seems to contradict commitments elsewhere in the document allow the broader region to determine the fish and wildlife policy direction. #30

Draft/107: Before the BPA Administrator uses the comparative-analysis-table methodology to select a preferred alternative and evaluate future proposals, the facts, concepts and assumptions underlying the methodology must be corrected and verified. #31

Draft/108: "[T]here are still many biological and political unknowns." "Scales and intensity may vary, future environmental and economic conditions are unpredictable, and quantitative models have unknown errors and assumptions." These are reasons NEPA coverage is dubious at this grand scale. Somehow, the scope and breadth of NEPA coverage must be defined, refined, and confined. #32

Draft/113: "Sustainable Use Focus" illustrates the possibilities: "Removes dams if harvest goals are not achieved by other actions." (Emphasis added.) The environmental results of increasing hatcheries differ from the environmental results of restoring habitat, and differ vastly from the environmental results of removing dams.

At present, federal agencies are rushing through the 5-year and 1-year planning processes for BiOp Implementation. There will be no time for regional review of the environmental impacts of these BiOp Implementation Plans. Action Agency RODs are #33

relied upon as NEPA coverage for the Implementation Plans, although no new environmental analysis was conducted beyond jeopardy analysis for ESA-listed species. How are Tribes to be comforted that the full range of environmental concerns will be meaningfully and accurately investigated and addressed? #33

Draft/117, fn.9: "An alternative that is outside the legal jurisdiction of the lead agency must still be analyzed in the EIS if it is reasonable." Why, then, does this DEIS not analyze the potential for restoration of anadromous salmon above Grand Coulee Dam? The upper Columbia blocked area Tribes repeatedly have brought this request forward to the federal agencies, yet our proposal is not mentioned anywhere in this DEIS. #34

Draft/127: "Destruction of cultural resources is primarily related to dam breaching in the Natural Focus and Weak Stock Policy Directions." This statement is inaccurate. Destruction of cultural resources occurs on a daily basis due to operation of the hydrosystem for multiple purposes. Regardless which policy direction is chose, cultural resources will continue to be destroyed. #35

"[I]n the future, conditions may change and the region may wish to make additional changes in Policy Direction or choose a new Policy. This DEIS contemplates such modifications." Again, discretion to refer to this NEPA document to cover all future scenarios defeats NEPA's purpose of environmental analysis. Specifically regarding future changes in Policy Direction, current analysis would need to take into account the changed environmental conditions. Environmental baseline in 2005 or 2010 or beyond will not be the same as environmental baseline in 2001. Pursuing one policy direction leads inexorably to the need to review environmental impacts of a changed policy direction in the future. Implementing one strategy alters the conditions that must be assessed in selecting a different strategy in the future. #36

Decision-makers cannot disregard the synergistic and cumulative effects of implementing policy directions. These effects lead to the need for updated environmental analysis, on broad and site-specific scales, over time. #37

Draft/128: Section 3.4.1 attempts to give decisionmakers the "necessary structure to understand the environmental consequences" of choosing alternative policy strategies. The tools provided in this DEIS are very useful. They summarize the issues and types of impacts to be considered in decision-making. Combined with other tools, such as Framework EDT analysis, decision-makers can get a general idea of trends to be expected when implementing certain broad regional directives. However, such information does not necessarily eliminate the need for more detailed environmental analysis. #38

Chapter 3: Sample Implementation Actions: It is our understanding that this Chapter merely presents, for illustration purposes, some possible implementation actions under each described policy direction scenario. Therefore, we have not provided detailed comments for each set of sample actions. In the event a definite policy direction is selected, we need the opportunity to comment on both the appropriate actions to implement that direction, and the environmental consequences of such actions. #39

Table of Current Implementation Actions:

1-6 Watersheds: Does not mention current subbasin planning effort through NW Power Planning Council's Fish and Wildlife Program. #40

1-9 Reservoirs: Does not mention flood control. #41

4-3 Spill: Need to mention/address Tribal Water Quality Standards. #42

11. Recreation: Mention recreational use of storage reservoirs. #43

12-1. Tribal Harvest: Need enough anadromous fish to resume harvest for Tribes in the blocked areas. Spokane Tribe/UCUT have been excluded from the discussions about harvest. #44

?? - Where is the discussion of Cultural Properties (archaeological resources, Traditional Cultural Properties, and so forth)? #45

Draft/131, 132: "BPA and other federal agencies may, through adaptive management, adjust FCRPS operations over time, as changing circumstances warrant." We acknowledge federal authority to operate the FCRPS to meet multiple mandates. At the same time, we do not believe the agencies are relieved of their obligations to conduct meaningful analyses under NEPA and NHPA. For example, the NHPA and its implementing regulations specifically state how emergencies must be handled. Operation of the FCRPS under "emergency criteria" (as has been the case during 2001) does not excuse the agencies from NHPA compliance. Nor, we believe, do SOR and the Reservoir Cooperating Groups excuse the agencies from separate NHPA obligations to address emergencies. #46

The concepts of emergency operations being of relatively short duration, and of BPA needing to merely change its policy and issue a supplemental EIS and ROD, illustrate why the Tribes often feel that BPA only pays "lip service" to its NEPA obligations. As emergency operations during 2001 have illustrated, "emergency" operation of the FCRPS has enormous environmental and cultural resource impacts. These unintended, but very real, consequences of emergency operations should be assessed, planned for, and mitigated. To the Tribes, these are not mere procedural niceties; they are steps necessary for federal agencies to fulfill their trust obligations to the Tribes.

Chapter 5: See separate comments on electronic version of Chapter 5.

Chapter 6 - Governance

This chapter truthfully portrays the difficulty of establishing a regionally acceptable governance structure. The Spokane Tribe agrees with BPA's conclusion: "The form that governances takes is less important to the outcome than the degree to which the governing parties are able to act in concert." Still, the form is important to Tribes because any regional governance structure must provide for meaningful participation by Tribal governments in regional decision-making. #47

We disagree that "the choice of governance structure comes after the necessary decisions about the plan, ..." Although the federal action agencies have already entered RODs to implement the BiOps, it is not too late to convene a regional governing body comprising Federal, State and Tribal policy-makers, for the purpose of selecting a regional Policy Direction and assessing the environmental consequences. Indeed, the "Three Sovereigns" process was headed in that direction when the Framework project was initiated. Unfortunately, time, hesitation, and pressing demands on key staff led to attrition of the effort to launch a full-scale regional governance approach. This dispersion need not be permanent. There is no time like the present to make concerted efforts to re-convene the Basin Forum and get busy with the work at hand. #48

Draft/283, Section 7.4 - Heritage Conservation: After countless discussions and comments, have the federal agencies not yet recognized Tribal Historic Preservation Officers? This section mentions only *State* Historic Preservation Officers. #49

This section also relies upon the 1991 Programmatic Agreement to address NHPA, AIRFA, and NAGRPA coverage for the federal action agencies, even though the Spokane Tribe questions both federal agency compliance with the terms of the 1991 P.A., and the adequacy of previous processes. The BiOps, VARQ, and proposed additional changes to the FCRPS trigger new cultural resource compliance obligations. Not only should this section of text be edited for accuracy, but also the action agencies need to consult with the Spokane Tribal Council and THPO regarding cultural resource protection obligations in FCRPS planning. #50

COMMENTS SUBMITTED BY THE
SPOKANE TRIBE OF INDIANS
TO BONNEVILLE POWER ADMINISTRATION
RE:FISH AND WILDLIFE IMPLEMENTATION PLAN EIS

CHAPTER 5 — ENVIRONMENTAL CONSEQUENCES

- **Briefly reviews the methodology that underlies the analysis of environmental consequences for this DEIS.**
- **Provides examples of generic effects and mitigation measures by common regional human activities.**
- **Illustrates the environmental consequences of proposed and reasonably foreseeable regional actions through providing an understanding of the relationship of human actions and their effects on natural and socioeconomic resources.**

Information in this chapter provides the technical and detailed basis for the analysis in this DEIS. For a summary of that analysis, please see Chapter 3 (Comparison of Alternatives).

IN THE HARD-COPY DOCUMENT, Sec. 5.1.2 describes "Optimum Conditions for Each River Use," derived from SOR analysis. Because the "optimum conditions" are used as baseline assumptions for deriving the ensuing "Generic Environmental Consequences," it is important to acknowledge the flaws in the baseline. For example:

* "Cultural Resources" - "stable reservoirs year-round" is much too simplistic a description of optimum conditions. This artificial "optimum" does not incorporate the full range of resources comprising "cultural resources" for Tribes. Further, stable elevations alone do not address adverse impacts of low water retention times, nor is stable elevation meaningful unless the impacts at specific reservoir elevations are addressed. For example, a stable elevation can be damaging when the elevation strikes where Tribal burials are exposed, where wave action is most damaging, and/or where bank geology is most susceptible to saturation and mass sliding.

* "Resident Fish" - "stable reservoirs year-round, with natural river flows" is a self-contradictory "optimum." Stable reservoirs and natural river flows are mutually exclusive. This "optimum" also does not consider the complexities of reservoir pool characteristics as they relate to optimum conditions for resident fish: specific reservoir elevations may be either beneficial or damaging; some seasonal alteration of wetted perimeter is needed for fish life cycles; water retention times affect availability of nutrients despite pool elevation stability; and so forth.

#5

* "Water Quality" - "natural river flows with minimum spill" might address some temperature and dissolved gas problems, yet also might exacerbate problems with suspended contaminants in the water column.
* "Wildlife" - "drawdown reservoirs year-round to expose maximum acreage for long-term habitat recovery" sounds optimum, but does not necessarily optimize conditions in areas denuded of native vegetation and depopulated of native wildlife populations.

#51

5.2 GENERIC ENVIRONMENTAL CONSEQUENCES

This section addresses the general nature of environmental effects in five fundamental areas: land, water, fish and wildlife, air, and socioeconomics. Each subsection provides the following:

- a summary of the types of human activities (whether carried out to further fish and wildlife or human needs) that **cause** this effect;
- a brief description of the **consequences** that are linked with the particular effect;
- a discussion of the **degree** (context and intensity) of those effects;
- a list of potential **mitigation measures** (actions that will lessen, eliminate, or compensate for the consequences); and
- a **discussion** that provides more background information on the intended and associated effects of each activity.

"Effects" and "mitigation" are used as they appear in the CEQ Regulations definitions, 1508.8 and 1508.20 respectively.

"Effects" include the following:

(a) Direct effects, which are caused by the action and occur at the same time and place.

(b) Indirect effects, which are caused by the action and are later in time or farther removed in distance, but are still reasonably foreseeable. Indirect effects may include growth-inducing effects and other effects related to induced changes in the pattern of land use, population density or growth rate, and related effects on air and water and other natural systems, including ecosystems.

Effects and impacts as used in these regulations are synonymous. Effects include the ecological (such as the effects on natural resources and on the components, structures, and functioning of affected ecosystems), aesthetic, historic, cultural, economic, social, or health, whether direct, indirect, or cumulative. Effects may also include those resulting from actions that may have both beneficial and detrimental effects, even if on balance the agency believes that the effect will be beneficial.

"Mitigation" includes:

(a) Avoiding the impact altogether by not taking a certain action or parts of an action.

(b) Minimizing impacts by limiting the degree or magnitude of the action and its implementation.

(c) Rectifying the impact by repairing, rehabilitating, or restoring the affected environment.

(d) Reducing or eliminating the impact over time by preservation and maintenance operations during the life of the action.

(e) Compensating for the impact by replacing or providing substitute resources or environments.

5.2.1 Analytical Coverage

Coverage refers to the scope of an analysis in terms of where, what, when and who. This DEIS is focused on effects within the Pacific Northwest region. For purposes here, this region is defined as any part of the United States within the Columbia River Basin or within BPA's service area; although there may also be effects in the Pacific ocean off the coasts of Oregon, Washington, British Columbia, and Alaska. Most fish and wildlife effects are expected to occur within the region. Most important social and economic concerns are within the region, although some effects might spread outside the region through imports and exports.

This DEIS is intended to have a very broad [EXCEEDLINGLY BROAD] coverage: the range of foreseeable Policy Directions and actions for fish and wildlife in the region. Context and intensity, discussed below, also pertain to what is covered. The time horizon for the analysis includes short-term and long-term considerations. The short term includes effects up to 10 years from now. Long-term effects extend beyond 10 years and include the time horizon needed for ecosystems to recover to near-pristine conditions. #52

Analytical perspective, discussed in 5.2.1.2 below, defines who is covered by the analysis.

5.2.1.1 Context and Intensity

The alternative Policy Directions in this DEIS are meant to describe general changes in policies relative to the Status Quo. Most actions taken under a given Policy Direction could be implemented within a wide range of *intensity* or *amount*.

- **Examples:** Any number of hatcheries could be built, any number of commercial fishing vessels could be retired, and habitat practices could be applied to any number of acres or stream miles.

This document does not try to define such specific quantities for each Policy Direction. [YET, specific quantities are essential to meaningful environmental analysis. Removal of #53

one dam does not equal removal of "some" dams in environmental effect. For example, removal of Hells Canyon would have vastly different environmental effects than removal of John Day. The scope of NEPA coverage must be refined before blanket authorization is granted to cover vast potential future actions under this "umbrella" EIS.] Rather, the DEIS tries to provide an understanding of how larger or smaller amounts of selected activities will have a strong influence on the degree of environmental effect. However, these qualitative assessments are based upon the technical data on each subject found in the SOR FEIS (USDOE/BPA, Corps, and BOR 1995), the Lower Snake River Juvenile Salmon Migration Feasibility Report DEIS (Corps, 1999a), the Business Plan FEIS (USDOE/BPA, 1995), ICBEMP SDEIS (USDA/USFS and USDOI/BLM, 2000), the Framework Report (Council, 2000a), and the Federal Caucus' Conceptual Plan paper (1999b) and Basin-wide Strategy (2000b) papers. For a more quantitative presentation, please refer to these documents, including the respective appendices. The specific references are noted throughout the qualitative analysis. The exact magnitude of effects will be determined as the specific implementing actions for the chosen Policy Direction are applied. These specific effects will be consistent with the qualitative analysis identified in this document and will be further detailed in the future tiering of decisions (Tiered RODs) carrying out the Policy Direction in play. #53

This chapter discusses effects in terms of *context* and *intensity*:

- **Context:** Actions will be implemented in a frame of reference that includes society as a whole, the affected region, the affected interests, and the locality. This means that the *significance* of a given action may vary with the *setting* of the action. Both short-term and long-term effects are relevant.
- **Intensity:** The intensity of an effect refers to its *degree of severity*. We consider whether it affects public health or safety, whether it helps or harms a unique resource, whether the effects are likely to be highly controversial, the degree of risk, and the extent to which it supports or adversely affects protected species or resources. [1]

Context and intensity in section 5.2.2 (consequences for fish and wildlife) are discussed in relation to natural resources affecting the most important parts of fish and wildlife life cycles. Context and intensity in section 5.2.3 (consequences for humans) are discussed in relation to groups of people and regional communities (e.g., tribes, people who fund fish and wildlife restoration, various industries) that may be affected by actions. The distribution of effects of fish and wildlife actions among industry subgroups—owners, workers, and consumers—depends on the structure of the industry, market conditions, and institutional considerations, among other factors.

"Socioeconomic" consequences can cover many areas: social, economic, aesthetic, cultural, and health-related effects. Those effects are strongly shaped by how actions are implemented, how human behavior is affected, and by how people respond to the actions

[1] For more information on these terms, see Regulations for Implementing the Procedural Provisions of the National Environmental Policy Act, 40 CFR § 1508.27.

Scientists, elected officials or other individuals or groups may react by seeking to adjust the policy or the actions in order to improve the intended effects or to mitigate the associated effects, thus beginning a new round of action-effect-reaction. Figure 5.1 illustrates this iterative process.

5.2.1.2 Analytical Perspective

Chapter 2 described existing environmental conditions: the natural environment as it relates today to fish and wildlife, the socioeconomic environment as it relates to humans, and the existing policy environment, including new policy initiatives. These environmental conditions were determined over time through a series of interactions between humans and the natural environment. The interactions and their results may be viewed from the perspective of humans and from that of the fish and wildlife resource.

This section reviews the environmental consequences data from both perspectives:

- **Generic effects for land and water are reviewed from the fish and wildlife perspective.** The fish and wildlife perspective is concerned with improvement of fish and wildlife resources. Land and water categories include the overwhelming share of direct effects on fish and wildlife. Most of the adverse effects described below result from human activities or actions that reduce fish and wildlife protections.

- **Generic effects for air and socioeconomic resources are reviewed from the human perspective.** The human perspective is concerned with human improvements, including economic and social values associated with fish and wildlife. Most of the adverse effects from the human perspective result from either (1) losses of valuable fish and wildlife, or (2) costs of actions taken to rebuild, recover or protect fish and wildlife populations.

5.2.2 The Major Environmental Consequences for Fish and Wildlife From Common Contributing Human Activities

Refresher: *Effects on land and water resources encompass the overwhelming share of habitat effects, either intended or associated, on fish and wildlife. Generic effects for land and water are reviewed from the fish and wildlife perspective.*

Below, effects are expressed in terms of the associated adverse effects of human use and development on fish and wildlife. These adverse effects would generally be associated with actions that reduce fish and wildlife protections or allow more human use and development. Potential mitigation strategies for these adverse effects are provided.

[These paragraphs are refreshingly honest.]

For actions that would intentionally reduce human use and development, a beneficial effect would generally occur from the fish and wildlife perspective.

These beneficial effects have human values associated with increased numbers and size of fish and wildlife, and perceptions of an improved environment. Generally, the discussions below could be expressed oppositely to derive these beneficial environmental effects. Economic values may involve commercial fishing, recreational fishing and hunting, and aesthetic, option and existence values. These economic values are discussed in more detail in Section 5.2.3.2.

In the hard-copy document, Table 5.2-1 refers to State water doctrines and laws. It should read "State *and Tribal* water doctrines and laws. #54

In the hard-copy document, Table 5.2-2 refers to Effect of reservoirs built and normal operating range as "Amount of riverine habitat lost." Effect also should include *ecosystems transformed to quasi-lacustrine.*

Also in Table 5.2-2, Effect of Operations for hydropower [etc.] should include *altered reservoir conditions.* #55

The hard-copy document Section 5.2.2.3 "Fish and Wildlife" initially describes issues spanning fish and wildlife, broadly. But in the "Possible Mitigation Measures," the text reverts to describing mitigation only for ESA listed anadromous fish. #56

The life-cycle diagrams in Figures 5-2 through 5-7 are useful summaries of major environmental effects. The relevance of the figures, and the connectivity of life cycle among and between ecosystem components, need to be brought back into the text of the analysis of environmental consequences. #57

The hard-copy Section 5.2.3.1 provides an encouraging acknowledgement of air quality concerns due to dust blowing from exposed reservoir sediments. #58

The hard-copy text at p.Draft/192 describes potential consequences on "Funding." At p.Draft/193 (as in several other places in the document) reference is made to mitigating the adverse effects of funding by "maximizing the effectiveness of fish and wildlife expenditures." This terminology needs to be explained. "Maximizing effectiveness" sounds very subjective and could be interpreted differently by different parties. #59

5.2.3.2 Social and Economic Environmental Consequences

Tribal Effects[2]

This section is concerned with the potential adverse effects of fish and wildlife declines on tribal members and communities. The discussion is focused on the effects of human actions on Native Americans. The values of tribal members in the larger non-Indian society are covered in the other sections.

Human Activities

The types of human activities that will affect Native Americans are as follows:

- changes in timing and extent of reservoir operations, e.g., increased reservoir drawdowns;
- multiple decisionmaking processes and associated decisions reducing tribal opportunities to have and use resources (e.g., harvest opportunities decreased as use of hatcheries moved away from production purposes);
- actions reducing funds available for fish and wildlife mitigation and recovery; and
- non-Native forestry; agriculture, including irrigation, cropping and grazing; recreation; mining; urban and rural development for residential, commercial, and industrial uses.

Possible Adverse Effects

- increased exposure of cultural resources, decreased resident or anadromous fishing opportunities; decreased tourism; exposure to toxic sediments; reduced scenic values of reservoirs; land lost to new generation and transmission facilities;
- decline of practices essential to preservation of tribal culture and religion;
- reduced tribal employment; reduced tribal health; reduced protection and mitigation for fish and wildlife and their habitats; and
- greater competition for fewer resources; increased air, land and water pollution; habitat declining in quality and quantity.

Both the DREW and Framework processes were flawed, from the Spokane Tribe's perspective. Concerns of Tribes in the upper Columbia blocked area were not adequately included nor addressed. To use these previous analyses as underpinnings for current analysis is to build a new foundation upon sand. #60

[2] Considerable analysis has been conducted in the Lower Snake River Feasibility Study (Corps, 2000a, b) and its Drawdown Regional Economics Workgroup (DREW)] and a report on tribal conditions titled "Tribal Circumstances and Perspective Analysis of Impacts of the Lower Snake River Project on the Nez Perce, Yakama, Umatilla, Warm Springs, and Shoshone Bannock Tribes" (CRITFC, 1999). Additional analysis is available in the Framework Report (Council, 2000a).

Context and Intensity

Many factors influence the degree of effect of human activities on Native American values. The degree of effect on Native Americans is a function of the extent that decisionmakers choose to take the actions identified above, and the types, intensity, and amounts of such actions. Native American interests may be cultural, religious, economic, or recreational. Tribal members also express values related to water quality, use of traditional resources and locations, preservation of cultural resources, health education, and socioeconomic concerns such as employment and income.

Many factors affect the socioeconomic and other human effects involving tribal groups, as Table 5.2-14 illustrates.

Table 5.2-14
Factors that Shape Effects on Native Americans

Factors Leading to Effect	Effect
Total amount of natural resources, especially anadromous fish, available for Native American use; definition of ESU under ESA	Amount and location of fish available for tribal harvest; cultural, economic, social and spiritual value of resources available to Native Americans
Choices between competing resources such as resident fish and anadromous fish, wild fish and hatchery fish, or land for wildlife habitat or economic development	Native Americans affected depending upon rights under treaties, statutes, or executive orders
Failure to allow tribal management of natural resources and use of traditional tribal techniques and knowledge	Reliance on Western scientific method leading to tendencies of underestimating risk of extinction of stocks listed under the ESA This is surprisingly and refreshingly candid commentary.
Increasing number and complexity of decisionmaking processes ENCOURAGING to see this aspect acknowledged. Now it needs to be ADDRESSED.	Disenfranchisement of tribes as resource co-managers and sovereign entities; depletion of tribal economic and staff resources as they try to maintain presence in the numerous processes
Funding available for mitigation and recovery	Employment and incomes; level of mitigation and recovery achieved
Changes by Congress, the President, states, tribes, and agencies in laws and policies, or their implementation	Further limit, clarify, or resolve tribal trust and treaty obligations of the United States; reduction of environmental protection under Federal law
Lack of connectivity for cultural resources; emphases on either F&W or archaeology. - C.R. management issues remain unaddressed.	

#61

Possible Mitigation Measures

The tribes themselves recommended many of the following mitigation measures in government-to-government consultations and policy level discussions during the comment processes on the Lower Snake River Feasibility Study EIS and the 2000 FCRPS Biological Opinions. BPA derived other possible mitigation measures based on its experiences in working with tribes and the advice of BPA's tribal liaisons.

- **Changing Reservoir Operations**
  - Update NEPA coverage; especially examine resident fish, toxic waste, and cultural resource impacts of upriver and blocked areas on tribes. Yes! NEPA coverage is not adequately updated by this broad F&W Implementation DEIS. Also need updated NHPA coverage. Cultural resources have not been addressed adequately in any previous NEPA reviews, nor in this DEIS. #62
  - Implement storage reservoir rule curves in Montana for sturgeon and bull trout.
  - Cooperate with EPA in toxic sediment studies and mitigation.
- **Multiple decisionmaking processes** YES! This is positive and useful. These "mitigation measures" are needed regardless which policy direction alternative is adopted. #63
  - Create enhanced process structure for Federal action agencies consulting with the tribes.
  - Provide appropriate level of funding for tribal participation in numerous federal processes and multi-agency decision making forums.
  - Increase number of Native Americans in agency decisionmaking positions.
- **Reducing funds available for fish and wildlife**
  - Design, locate and operate hatcheries in a manner that respects tribal cultural values and fishing practices.
  - Transfer operation of some hatcheries to tribes.
  - Raise power rates; sell BPA to entity more responsive to Native American rights and needs. ?? Namely ... ? How would any other entity successfully raise rates without encountering the same market forces encountered by BPA? And what other purchasing entity might be more responsive to Native American rights and needs? #64
  - Re-evaluate priorities in regional funding decisions regarding resident fish and wildlife and the effectiveness of mitigation. ?? This is vague. Can BPA provide examples of possible outcomes of "re-evaluating priorities"? #65
  - Increase number of mitigation contracts with tribes or businesses owned by tribes; pay tribal employment ordinance taxes on all projects on or near reservations. YES - This should be done regardless of policy direction alternative chosen and regardless of NEPA analysis. #66
- **Greater competition for fewer resources**
  - Decrease over-grazing, non-sustainable forestry, water spreading, and urbanization of rural areas; confine industrial, commercial, and residential development to urban areas.

- Clarify (? - what does this term mean in this context?) tribal trust and treaty rights; fund and enforce them. #67
- Apply conservation necessity principles to assure that treaty fishing takes priority over non-treaty fishing and other sources of salmonid mortality.
- Enforce Clean Water Act total daily maximum load requirements on all tributaries in all states in Pacific Northwest.

Discussion[3]

This section is encouraging in its acknowledgement of historical and current reality for Native Americans. It does not gloss over the inequities and disparate impacts.

Native Americans have unique concerns that transcend their roles in the non-tribal economy. Given the broad cultural and spiritual relationship between Columbia Basin natural resources and tribal peoples, it is likely inappropriate—and also not fully possible—to establish linkages between Policy Directions and the circumstances of tribal peoples based on some single measure. Direct information provided by Native Americans provided an important basis for identifying which Policy Direction would improve tribal living circumstances, and which would not.

Historically, Native Americans have been substantially affected by the cumulative destruction of the salmon-producing capabilities of the FCRPS and by declines of many game and plant species upon which tribes depended. Much of this destruction has often been accompanied by assurances of mitigation that, with time, did not occur as promised by the government or as anticipated by the tribes. As a result, the tribes are skeptical of promises regarding mitigation. Policy Directions that do not further tribal goals for fish and wildlife will likely engender litigation and even greater tribal skepticism of the Federal government.

Assessment of tribal effects depends heavily upon whether populations of key fish and wildlife species, and more broadly, Columbia Basin ecological diversity, increases or decreases. Tribes fear that the Federal commitment to upholding trust responsibilities and treaty rights will continue to diminish under the Status Quo or other Policy Directions that do not place a higher priority on mitigation and recovery of all fish and wildlife. Policy Directions that do not curb or concentrate growth and development will support encroachment on resources valued by tribes and diminish the area over which tribes may exercise their rights to manage and use resources. In the long run, tribal influence may be eroded and, both off and on their reservations. Tension and conflict will increase between Native Americans and other citizens as tribes increasingly compete with others for limited resources.

[3] This text is paraphrased from the Human Effects Analysis of the Multi-Species Framework Alternatives (Council, 2000a).

Tribes may overextend their political and economic resources attempting to participate in the many processes in which tribal interests may be adversely affected—hydropower relicensing proceedings, the Council's program, harvest regulation, forest and range planning, siting of new generation and transmission facilities, harvest and hatchery agreements, water rights adjudications, NEPA processes, ESA consultations, and CWA enforcement actions, to name a few. With the shrinking of tribally influenced areas and over-extension of tribal government, Native American culture may also be further fragmented and lost, especially traditional knowledge and practices pertaining to natural resource management.

Conflict could increase between treaty tribes and Executive Order tribes under alternatives that emphasize anadromous fish mitigation and recovery. Upriver or blocked-area Executive Order tribes often face or perceive increased environmental, social, and economic impacts from efforts to address ESA-listed anadromous fish because there is less funding available for resident fish and wildlife. In addition, there are greater upriver impacts from deeply drafted reservoirs. Upriver tribes feel excluded from mitigation and recovery processes that omit proposals to reintroduce anadromous fish to areas permanently blocked by dams or laws and policies that prohibit them from participating in fisheries. These tribes also may view an emphasis on anadromous fish as slighting their cultures, some of which have historically depended more on resident fish and wildlife than anadromous fish.

Hatchery, harvest, and implementation of the ESA all directly affect all the Region's tribes. Closing hatcheries for all but conservation purposes—that is, using hatcheries only for preserving genomes, not for supplementation or production for harvest—could severely reduce the fish available for harvest and undermine mitigation promises. Or, increased use of hatcheries for production or supplementation could, in the long run, have deleterious effects on the genetic integrity of wild stocks and potentially lead to reduced survival and declining fish population growth rates. Continued focus on lower Columbia River hatcheries, to the exclusion of upper river hatcheries could favor downstream non-tribal harvest over upper basin tribal harvest. Finally, continuing to define ESUs restrictively (such that individual stocks are protected instead of whole species) will prolong mitigation and recovery efforts by forcing all activities in all four Hs to be closely regulated—including tribal harvest.

The hard copy section on "Adverse Economic Effects from Declining Fish and Wildlife Populations," pp. Draft/200-202, warrants comment. This is useful exposition of economic concepts such as existence values and bequest values. #68

* On p. Draft/202, a paragraph begins with the sentence: "Even with the uncertainty of measurement, most studies agree that ... economic value of lost uses is less than the non-use values." ??What does this mean? Can it be restated to provide a clearer conclusion? #69

* Same page, in the paragraph concluding the discussion of economic terms, the text reads: "Regional citizens include Tribal members. ... Primary values are cultural, religious and subsistence. Fish and wildlife losses might reduce levels of self-sufficiency, perceptions of control, and tribal health. Tribal members also have #70

economic interests in common with the larger non-Indian society ... ." This paragraph is *very weak* on the *DEEP* significance to Tribes of lost fish and wildlife and cultural resources. #70

Cultural Resources and Aesthetics

This section, unfortunately, reverts to the "stones and bones" perspective on cultural resources. To the Tribes, Cultural Resources include a clean environment, thriving fish and wildlife populations, and traditional lifeways and religious practices associated with the natural environment. Although Tribal perspectives are given brief coverage elsewhere in the document, this section on cultural resources should emphasize the points that Tribes have made repeatedly during discussions with BPA and other federal agencies. To limit the definition of cultural resources, and do lump the topic into a brief section also covering "aesthetics," is to miss the point of the many heartfelt descriptions by Tribal elders and Tribal cultural representatives. #71

Cultural resources are specific places that may be or are important in the history of the nation and its peoples. The term encompasses archaeological resources such as prehistoric settlements and artifacts, historical resources such as settlers' homes and other buildings, and existing cultural resources such as buildings, structures, and locations that help define and maintain existing cultures.

Applicability or eligibility is largely derived from and limited by Federal law, regulation, and Executive Orders, and Departmental or agency standards or policies. A cultural resource becomes important as it bears witness to the values, uses, meanings, and relevance people hold for their natural, cultural, and spiritual world. An historic property or historic resource—any prehistoric or historic district, site, building, structure, or object included in, or eligible for inclusion on the National Register, including artifacts, records, and material—remains related to such a property or resource.[4]

Aesthetic effects involve the qualities of sensory experiences. These qualities are inherently a matter of personal value judgments, and different people have different preferences. For many aesthetic values, there is no commonly accepted basis for what is beneficial or adverse. Some people prefer natural attributes, while others prefer developed ones.

Human Activities

- Reservoir drawdown would expose reservoir sediments and lead to impaired aesthetic values. Increased emissions from thermal generation could impair visibility.
- Certain river operations will involve the modification of structures such as spillways, dam embankments, and fish passage facilities, potentially causing direct effects on historic or cultural properties.

[4] Definitions adapted from Governors, 2000.

- Habitat restoration actions could convert farmland to native vegetation, and preservation could keep some land from being converted to urban uses.

Possible Adverse Effects

Resume here the candor displayed in earlier sections. "Exposure and loss of cultural resources" is euphemistic. Speak clearly of exposing burials, destroying traditional gathering areas, causing desecration of sacred sites, decimating salmon populations that are the heart and soul of Tribal culture. If this EIS is truly to assess impacts, it must describe those impacts truthfully. #72

Possible adverse effects on cultural resources and aesthetics include the following:

- exposure and loss of cultural resources;
- exposure of unsightly reservoir sediments;
- reduced visibility; and
- changes in scenic qualities that some persons would dislike.

Possible Mitigation Measures

Adverse effects can be mitigated by planning and acting to protect historic and cultural resources. NOT TRUE! Many historic and cultural resources have been "planned" and "acted" into oblivion. This same tactic was adopted in the SOR EIS and its offspring, the "Reservoir Cooperating Groups." To truly mitigate for adverse impacts on cultural resources, the full range of four "H's" must be adapted to minimize impacts and maximize protection. It is not an easy task, but a necessary one. #73

Discussion

Changing water levels and flows can cause wave action, inundation, and exposure of reservoir drawdown zones, all of which can affect cultural resources. System operations can also cause indirect consequences for historic properties as a result of changes in the human use and aesthetics of shore and drawdown zones.

The following paragraph is far too sanitized to portray reality: #74
Effects within the reservoir pool occur most often to non-structural archeological deposits, since initial reservoir construction and filling usually removed or damaged above-ground or structural cultural resources such as historic architecture. Direct effects on archeological deposits resulting from reservoir shoreline fluctuations occur differently in each of three reservoir zones: (1) exposed beach; (2) wave-impact; and (3) inundation zones. Indirect effects on historic and cultural properties due to system operation strategies involve changes in the human use of the shore. The devegetation and deflation of archeological sites in the exposed beach zone make them more visible to the public, increasing the likelihood of theft, vandalism or disturbance.

Decisions to develop or permit camping, summer homes, hiking trails, or off-road vehicle uses may all lead to increased effects on historic and archeological sites from human caused erosion, vandalism, and artifact theft.

System operation strategies that change land uses might also change the integrity of "feeling" or association of a historic property. Reservoir drawdown might destroy the visual integrity of a historic sight or traditional cultural property by introducing an element that is inconsistent with its historic or cultural character.

Reservoir operations, primarily drafting, can have pronounced aesthetic effects on adjacent lands. These consequences result from a number of factors, including increased shoreline visibility and contrast, erosion, changes in recreational facilities, reduction in the size of embayments and seep lakes, changes in water characteristics, and production of dust and odors. A decrease in aesthetic quality at a project can affect recreational use and have social and economic consequences for visitors and residents.

The hard-copy Figure 5-8, Habitat-Oriented Actions, describes as an Associated Side Effect on Humans the possible adverse effects of impact to Tribes' culture, health and spirituality, then cites "Compensation" as a "Mitigation Measure." This is insulting in its bare interpretation. It should be removed or rewritten. #75

Hard-copy Figure 5-9, Harvest-Oriented Actions, describes possible adverse effects on Tribes and cites as Mitigation Measures: "-Provide for treating fishing" and "Transfer some hatchery operations to tribes." These proposed mitigation measures do not ensure necessary subsistence, ceremonial, and recreational harvest for non-treaty Tribes. The same Figure 5-9 describes mitigating for possible "Impacts to cultural traditions associated with hunting and fishing" by "Federal and state subsidies." Where in the text is this mitigation concept more fully described? #76

Hard-copy Figure 5-10, Hatchery-Oriented Actions, demonstrates a conceptual disconnect. "Possible adverse effects: - Disenfranchisement of tribes as resource managers; - Economic impacts; - Amount and type of fish available for tribal harvest; [and,] -Tribal trust and treaty rights." These possible effects simply are not addressed by the described "Mitigation measures: - Provide for treaty fishing; [and,] - Transfer some hatchery operations to tribes." #77

Hard-copy Figure 5-11, Hydro-Oriented Actions, demonstrates both a grasp of the Tribal perspective, and a misunderstanding. "Mitigation measures" for "Associated Side Effects" on "Tribes" *should* include "Modify hydro operations." "Mitigation measures for "Cultural and Historical Resources" must include much more than "Documentation and protection." #78

Section 5.2.4 "Context and Intensity of Policy Directions" provides interesting analysis. To this reader, it is unclear how the analysis of effects incorporates possible mitigation measures. Can this be described in the text, in proximity to the analysis? #79

5.3 ENVIRONMENTAL CONSEQUENCES OF POLICY DIRECTIONS

With the information from Section 5.2 in mind—the potential environmental consequences of human activities as they relate to both fish and wildlife and to socioeconomic factors—we can now turn to the environmental consequences of implementing actions as they fall under each of the five Policy Directions. These environmental consequences result from the interactions of humans, fish, and wildlife, and the implementing actions.

The Status Quo Policy Direction (the "No Action" alternative) provides the baseline against which the other Policy Directions are compared. Status Quo represents the future if current policies are not changed. This future includes, among other important attributes, increasing human population, additional urbanization, continued ocean and tribal harvest, the existing hydrosystem with currently planned improvements, and existing fish and wildlife recovery and mitigation program efforts.

Fundamental areas of environmental consequences are *air, land, water, fish and wildlife, and social and economic effects*. This section addresses the general nature of the effects in each of these fundamental areas. Each section below will provide the following:

- an illustration of the anticipated environmental effect compared to environmental conditions in the Status Quo Policy Direction; and
- a brief description of why the effect occurs in relationship to conditions under the Status Quo Policy Direction.

First, environmental conditions under each Policy Direction are compared to environmental conditions in the Status Quo Policy Direction in a graphic format. The effects illustrated in the graphics are based on long-term effects (10 years or more). Major short-term effects are noted below the tables. Short-term effects will be examined in greater detail in future project-specific tiered RODs. NEED MORE DETAILS! #80

Shading is used to quickly show the reader whether the Policy Direction results in *more adverse, the same, or more favorable conditions* relative to the Status Quo policy. The ratings were assigned through a modified Delphi process using a panel of experts. [5] Although the credentials and capabilities of these panel members are acknowledged, another panel should be convened, to include multiple disciplines from Tribes. Better yet, this analysis should be directed by Federal, State and Tribal policymakers through the Columbia Basin Forum. "Adverse" "same" or "favorable" are defined with respect to a particular perspective, either that of fish and wildlife, or human. The human perspective is meant to capture the human concerns—health, economic and social—that are beyond and separate from the human interest in fish and wildlife. #81

[5] Charles Alton, Roger Mann, Steve Mader, John Pizzimenti, Jean Edwards, Ben Underwood, Kathy Pierce. See List of Preparers for backgrounds.

Environmental conditions under the Status Quo Policy Direction are briefly described, and other Policy Directions are compared to the Status Quo. The objective of this analysis is to describe the expected environmental conditions under the possible range of implementing actions for the fish and wildlife recovery effort under each Policy Direction. The comparisons of the five Policy Directions to Status Quo are meant to show how the environmental consequences of each Policy Direction may differ from conditions in the Status Quo Policy Direction. This analysis *does not* try to make a value judgment on whether Status Quo or the current state of the environmental variables is good or bad.

The analysis in this DEIS is, by design, more qualitative than quantitative; this is a policy-level evaluation, not a site-specific one. Therefore, the analysis is based upon predictable *relationships* between changes to the environmental elements (land, air, water) and the consequence to fish, wildlife, and humans. Need more information on individual components to make analysis of relationships meaningful. The overall intent is to align the level of decisionmaking with the appropriate level of analytical detail so that the public and decisionmakers can better understand the range of potential effects at each stage of decisionmaking. This intent is achievable without minute level of detail, but cannot be accomplished credibly without more detail than has been incorporated to date. There is a minimum threshold of detail needed to make the environmental analysis meaningful. The Draft EIS is, at this point, too sketchy to provide true analysis of impacts. Any necessary site-specific analysis will be carried out when the actual implementation actions for the chosen Policy Direction are known. For many actions, this step would be too little too late. More information is needed now, BEFORE selecting a policy direction. This clarifying information and the decision for the site-specific projects will then be tiered to the overall Policy Direction decision, as appropriate. #82 #83 #84

The Policy Directions include the full range of reasonably foreseeable future directions for fish and wildlife policy in the region. This range includes Policy Directions that may be perceived as more favorable for fish and wildlife as well as those that may be perceived as more favorable to economic and social well-being. Therefore, for any Policy Direction, the same environmental consequences may be both beneficial and adverse, depending entirely upon whether the perspective is one of fish and wildlife or economics and social well-being. The reader is provided with a description of these trade-offs associated with each Policy Direction.

5.3.1 Source for Analysis

Over the last several years, an enormous database of environmental analysis (some more useful and credible than other) has been created. In our analysis, we sought to maximize the use of this existing database. Some of the most important sources are the Columbia River SOR EIS[*SOR was flawed as to cultural resources analysis, and not thorough as to fish, wildlife, water and the environment. SOR should not be relied upon. Conditions and management strategies have changed significantly since SOR RODs were entered.*], the Lower Snake River Juvenile Migration Feasibility Study, and reports from the Multi-Species Framework Process and Federal Caucus. Other important sources include each #85

of the relevant BiOps prepared by NMFS and USFWS in the region, BPA's Business Plan EIS, and the Forest Service/BLM's ICBEMP. Many environmental documents are incorporated by reference and are listed in Section 1.3.3 and in the bibliography. Tribal participation in these NEPA processes was minimal. The Spokane Tribe's/UCUT's interests were not protected in these processes and the NEPA documents do not adequately represent the range of environmental and cultural resource impacts. #86

This DEIS is a compilation of recent processes, each aimed at different facet of fish and wildlife conservation and recovery efforts, with the goal of placing relevant information before the public and decisionmakers in a structured manner to facilitate analyzing it together. For example, the Columbia River SOR FEIS considered alternatives to Columbia River system hydro operations and the effect of those changes on users of the system and the environment.[6] The SOR described the effects of each alternative system operations by resource or subject area (e.g., air quality, water quality etc.). A more quantitative analysis of each alternative and its anticipated effects can be found in SOR Appendices A through O, separated by subject area. This analysis was instrumental in identifying the hydrosystem activities and potential effects for each subject area in this policy-level analysis. This DEIS is not designed to replace the SOR, but merely to incorporate its data in the consideration of a new Policy Direction that also includes an assessment of additional hydro-related actions outside the scope of the SOR, including habitat, harvest and hatchery actions. THIS IS CONFUSING. Do the federal agencies want to dispense with SOR as NEPA coverage? Or retain it? Or retain what's useful to agency decision-making, but discard the remainder? With adoption of new Biological Opinions, the hydrosystem operating regime is changed. SOR environmental analysis was inadequate even for the times and operations SOR encompassed. We question the tiering of any current and future fish and wildlife decision-making based on SOR NEPA coverage. #87

The qualitative effects analysis below was provided by an informal panel of experts who are familiar with the existing database of environmental analysis. The experts reviewed the sample implementation actions, developed qualitative ratings, and met formally and informally with other experts to develop the ratings and the qualitative descriptions of how each rating was developed.

The use of multiple sources has been critical to the qualitative analysis used in this DEIS. It is recognized that comparison across the many studies and processes that have occurred in the last 10 years is somewhat ambiguous and subjective. Complexity arises because studies differ in the kinds of models and assumptions they use, e.g., different baseline conditions such as base years, biological and economic assumptions, and different hydrologic periods. We believe that the qualitative rankings will serve as a realistic if imprecise reflection of the results from these other sources. This belief may be flawed. #88

Some environmental effects are described and labeled as "better" and "worse." These terms are equivalent to the NEPA terms "beneficial" and "adverse." They describe

[6] USDOE/BPA, corps, and Bureau, 1995

environmental consequences in the conventional terms as defined by NEPA. The use of these terms is not intended to place a value judgment on the outcome.

5.3.3 Social and Economic Environment

This discussion is focused on commercial activities and social consequences most directly associated with fish and wildlife concerns. The shading used to indicate adverse and beneficial effects is based completely on a human perspective, exclusive of human values related to fish and wildlife populations or habitat recovery. Broad categories of effects that are evaluated in this DEIS include commerce, tribes, funding, cultural/ historical resources, and aesthetics. Where possible, the environmental effects were evaluated and described for subcategories of effects where the analysis allowed. These effects are evaluated, respectively, from the perspective of economics, tribal concerns, people who pay for fish and wildlife restoration, cultural and historical resource protection, and human aesthetic values.

In hard-copy Table 5.3-5B, the claim in the first row labeled "Existing Conditions," should be clarified or expanded in a footnote. The complex formula used to derive annual losses from F&W actions should be summarized to raise readers' awareness. #89

The brief text on pp. Draft/249-250 should be expanded to highlight that an assumption of no negative effects from environmental degradation (under Commerce Policy Direction) would be a ludicrous assumption. #90

5.3.3.2 Tribes

The table below shows how tribal concerns would be affected by the Policy Directions. All tribal effects are above and beyond, and independent of, economic and social values tribal members experience in their roles in the larger society. Concern for effects include those on the ability to harvest fish, as well as on human-centered tribal concerns such as health, spirituality, and tradition. Tribal health is associated with consumption of traditional foods such as salmon, and additional income from fishing that enables better life style and health care. Spirituality is associated with the quality and opportunities for ceremonial harvest that have religious significance, and the ability to sustain religious and cultural traditions. Traditions include ability to use traditional resources and places at traditional times in traditional ways.

Potential changes are shown, by shading, to indicate whether a given Policy Direction would tend to have effects in the identified subcategory that are the same as, greater than, or less than, existing conditions from the perspective of tribal members.

Table 5.3-6A: Tribal Effects across the Policy Directions

Effects Subcategory	Status Quo	Natural Focus	Weak Stocks	Sustained Use	Strong Stocks	Com. Focus

Effects Subcategory	Status Quo	Natural Focus	Weak Stocks	Sustained Use	Strong Stocks	Com. Focus
Fish Harvest						
Health						
Spirituality						
Tradition						

Much Better	Better	Same	Worse	Much Worse

The following section is better than previous sections in getting to the heart of Tribal issues:

#91

Summary of Effects: Tribal fish harvest is associated with the non-commercial realization of treaty harvest rights and historical harvest practices. Tribal health, spirituality, and tradition are all positively associated with subsistence harvest, restoration of habitat, diversity of native fish and wildlife species and recovery of lands made available for tribal use.

Natural Focus and Weak Stock provide the more diversified fish harvest and land restoration. Sustained Use Focus could provide increased harvest and utilization, but some upriver stocks, especially Snake River and other severely depressed stocks, would not recover as much. Strong Stock and Commerce Focus are designed to provide more fish through greater use of hatcheries, but some observers believe tribes would be made worse off because of changes that would be required in traditional practices (such as fishing locations defined by treaties). The Effect Area table below expands on this reasoning.

Table 5.3-6B: Tribal Effects across the Policy Directions (Detail)

	EFFECT AREA: TRIBES (1): Fish Harvest less = worse
Existing Conditions	Tribal harvest substantially reduced from historic levels. Most upriver opportunities lost.
POLICY DIRECTION	
Status Quo	Harvest and utilization opportunities expected to continue at about the same as existing conditions.
	Effect in Comparison to the Status Quo Condition:
Natural Focus	Until stocks recover, ceremonial and subsistence fishing levels only. Then, more diversified harvest would occur, but be limited to surpluses above naturally sustaining populations. Long-run effects would be beneficial as fish runs recover and return to numerous rivers.
Weak Stock Focus	Similar to Natural Focus. Tribes would adopt more selective harvest methods to avoid weak stocks. Fishing would occur as long as weak stocks were not negatively affected. Long-run effects might be beneficial (more harvest opportunities in more locations).
Sustained Use Focus	Tribal harvest would be allowed as long as weak stocks were not negatively affected. However, benefits for some tribes might be less than Natural Focus or Weak Stock because upriver stocks would not be recovered as much. Upriver stocks about the same as Status Quo, overall effects about the same as Status Quo.
Strong Stock Focus	Tribal fishing would occur as long as healthy stocks were not negatively affected. Hatchery-supplemented stocks would be used to meet mainstem and tributary tribal harvest objectives. Overall, about the same as Status Quo.
Commerce Focus	Some tribal fishing opportunities would be created with artificial production and fish farming, but some upriver opportunities are reduced. Overall, worse than under Status Quo.

	EFFECT AREA: TRIBES (2): Health, Spirituality and Tradition
Existing Conditions	Health, spirituality, and tradition impaired by loss of subsistence and ceremonial harvest, loss of wildlife, and loss of traditional lands.
POLICY DIRECTION	
Status Quo	Similar to existing conditions except spirituality and tradition further impaired by increasing non-Indian population and competition for resources.
	Effect in Comparison to the Status Quo Condition:
Natural Focus	Relative to Status Quo, tribes would benefit by increasing subsistence and ceremonial harvest and access to hunting and riverside lands once used for cultural, material, and spiritual purposes. [7]
Weak Stock Focus	Similar to Natural Focus, although certainty of fish restoration would be less than for Natural Focus. Tribes would benefit by regaining access to restored lands and resources once used for cultural, material, and spiritual purposes. Reservation employment opportunities, income and health associated with active restoration might increase.
Sustained Use Focus	Some tribes would benefit from increased utilization opportunities, especially downriver. ~~Upriver stocks may not be improved as much, but upriver fish and~~

[7] Draft Summary, Corps, 1999a, p. 27.

	EFFECT AREA: TRIBES (2): Health, Spirituality and Tradition
	downriver. Upriver stocks may not be improved as much, but upriver fish and wildlife opportunities should increase overall. Reservation employment opportunities associated with active restoration might increase. Overall, more opportunities than under Status Quo.
Strong Stock Focus	Further loss of weak stocks would be damaging to tribal culture and well-being. However, healthy stocks would increase, and associated tribal health and well-being may also increase. Some tribes would benefit from increased fishing opportunities, especially downriver. Reservation employment opportunities associated with active restoration might increase. Overall, however, the same or slightly fewer opportunities than under Status Quo.
Commerce Focus	Tribal health and spirituality would be adversely affected by loss of traditional fishing practices and locations (defined by treaties), change in fishing techniques and increased competition from non-Indian use of resources and population growth. Worse to much worse than under Status Quo.

The hard-copy document inserts Section 5.3.3.3 "Costs and Funding" here. Probably better to have Cultural/Historical Resources follow directly after TRIBES: Health, Spirituality and Tradition. #92

5.3.3.4 Cultural/Historical Resources

The table below shows how cultural and historical resources might be affected by the Policy Directions. Cultural concerns include archaeological resources that may be exposed or hidden beneath the surface of water or land. Historical resources include historical and prehistoric and other structures built within written history. Changes are shown, by shading, to indicate whether a given Policy Direction would tend to have effects that are the same as, greater than, or less than under Status Quo. Changes that cause increased losses of cultural resources are worse. Changes that save cultural resources are better.

Table 5.3-8A: Cultural/Historical Effects across the Policy Directions

	Status Quo	Natural Focus	Weak Stocks	Sustained Use	Strong Stocks	Com. Focus
Cultural/ Historical Resources						

Much Better	Better	Same	Worse	Much Worse

Summary of Effects: The most important sources of effects are exposure of inundated archeological sites and destruction of historical structures. The Effect Area table below expands on this reasoning.

Table 5.3-8B: Cultural/Historical Effects across the Policy Directions (Detail)

	EFFECT AREA: SOCIAL (1): Cultural/Historical Resources loss of resources – worse
Existing Conditions	Some cultural resources have been inundated by reservoirs and buried by sediment. Many historical structures exist throughout the region.
POLICY DIRECTION	
Status Quo	Same as existing conditions. Some loss of historical and cultural resources over time.
	Effect in Comparison to the Status Quo Condition:
Natural Focus	Sites that have been covered and protected by water for years would be exposed. There would be some benefit from documenting the resources, but there would be greater adverse impact on the exposed sites from vandalism. Some historical structures abandoned or removed. The effects would worse than under Status Quo.
Weak Stock Focus	The effects would be nearly the same as for Natural Focus, except fewer reservoirs would be drawn down. The overall impact would be more adverse than under Status Quo.
Sustained Use Focus	Similar to Status Quo. Some historical structures might be removed.
Strong Stock Focus	Less exposure than under Status Quo, as reservoirs would remain more constant.

5.4 ENVIRONMENTAL CONSEQUENCES OF RESERVE OPTIONS

Again, the "moving target" of this environmental analysis raises concerns about the scope and breadth of NEPA coverage. The validity of such a broad-sweep NEPA "analysis" is questionable. #92

Just as certain potential actions within the scope of this DEIS would have been considered unreasonable 5-10 years ago, actions currently dismissed as unreasonable may become viable 5-10 years from now. Such actions, representing the more extreme approaches to the fish and wildlife recovery, are characterized in this DEIS as Reserve Options (please see Chapter 4). Undoubtedly, fish and wildlife policy will adjust to accommodate the advancement of science or a material change in circumstances. The Reserve Options may provide future decisionmakers with the ability to extend or intensify a Policy Direction to fit future circumstances. For example, these sharply divergent actions could be implemented in response to a drastically lower regional priority for fish and wildlife recovery; the successful recovery of a listed species of fish and wildlife; or the continued collapse and further listings of fish and wildlife due to unsatisfactory recovery efforts.

Extreme measures at a given point in time are usually imprudent measures, and fish and wildlife policy is no exception to this rule. However, the relationship methodology provides the analytical flexibility to assess, at least preliminarily, the range of actions and degree of the impacts associated with extreme circumstances. As demonstrated in Table

5.4-1, these extreme actions produce some unwanted and unexpected results under existing circumstances.

For example, the Reserve Options RO-1 through RO-6 push the concept or theme of the Natural Focus Policy Direction to extremes. These Options would include the following actions:

- Restore pre-dam habitat (RO-1) and/or preserve all existing habitat (RO-2).
- Ban all harvest (RO-3).
- No hatcheries (RO-4).
- Operate the existing hydrosystem entirely for fish and wildlife (RO-5) or breach/remove all of the mainstem dams (RO-6).

Reserve Options RO-7 through RO-12 push the theme of a more extreme Commerce Focus Policy Direction. These Options would include the following actions:

- Restore habitat only if most cost-effective (RO-7), or maximize commercial use of habitat resources (RO-8).
- Allow unrestricted harvest (RO-9).
- Maximize artificial production (RO-10).
- Operate existing hydrosystem entirely for commercial purposes (RO-11), or build new dams if cost-effective (RO-12).

The following is an illustration of the possible long-term environmental consequences of these extreme measures compared to Status Quo. Keep in mind that in the short-term, certain impacts could be extraordinary; however, the long-term impacts would be the objective of a future decisionmaker and, therefore, are the basis for the assessments in Table 5.4-1.

Table 5.4-1: Comparison of the Main Sets of Reserve Options Against Baseline Conditions* and Summary of Effects

Effect Category	*Status Quo**	*Reserve Options 1-6 Extending Natural Focus*	*Reserve Options 7-12 Extending Commerce Focus*
NATURAL ENVIRONMENT			
Land Habitat			
Upland			
Riparian/Wetland			
Water Habitat:			
Nitrogen Supersaturation			
In-Stream Water Quality			
Non-Thermal Pollution			
Sedimentation			
Temperature/Dissolved Gas			
Amount of River Habitat			
Reservoir Habitat			
Fish & Wildlife			
Anadromous Fish			
Resident Fish			
Wildlife			
Air Quality			
SOCIAL and ECONOMIC			
Commerce			
Commercial Interests			
Recreation (including fishing & hunting)			
Economic Development			
Tribes			
Fishing Harvest			
Health, Spirituality, & Tradition			
Costs and Funding			
Cultural/Historical Resources			
Aesthetics			

* Status Quo = Baseline conditions. For more information on existing conditions, please see Section 2.4.

Much Better	Better	Same	Worse	Much Worse

EFFECT AREA: LAND More habitat better	
Reserve Options	**Effect in Comparison to the Status Quo Condition:**
Reserve Options (1-6) Extending Natural Focus	In the short term, riparian habitat would be eliminated as river boundaries change due to breaching. New riparian habitat would gradually and naturally re-establish along new river banks. Emphasis on passive restoration and preservation following a natural progression of fish and wildlife recovery without a specific target species. Terrestrial/riparian restoration by ceasing human land-use activities such as farming, grazing, mining, and development in or encroaching upon pristine wilderness areas. Periodic natural disturbance events would reset restoration trajectories. Overall natural habitat improvement is much greater than under Status Quo
Reserve Options (7-12) Extending Commerce Focus	Land not preserved for habitat unless benefits exceed costs. Some existing terrestrial habitat would be developed for commercial interests. Federal, regional and state programs for habitat restoration would be limited and focused on the land most valuable for species and less valuable for commercial interests. Emphasis on private, cost-effective, and efficient habitat preservation and creation. Use market incentives, such as tradable mitigation credits. Increase in artificial habitat or preservation as a trade against new development. Provide incentives (start-up grants, tax breaks, etc.) and technical assistance to encourage local landowners, businesses, corporations, and trustee agencies to improve and protect wetland, riparian and terrestrial areas. The amount of fish and wildlife habitat would likely be less than under Status Quo.

EFFECT AREA: WATER (1) Nitrogen Super Nitrogen supersaturation More worse	
Reserve Options	**Effect in Comparison to the Status Quo Condition:**
Reserve Options (1-6) Extending Natural Focus	Several dams would be breached. The closer the return to a natural river, the less nitrogen supersaturation would remain a problem. A completely natural river (no dams anywhere) would return nitrogen supersaturation levels to those that would have occurred as a result of flow dynamics experienced for the given natural structures (e.g., water falls, rapids, etc.). Those dams that remained might elevate TDG locally per Status Quo situation.
Reserve Options (7-12) Extending Commerce Focus	Except in instances of flood control releases or large flows, spill would be minimized with a commercial focus. Therefore, saturated gas problems would be the same or less than under Status Quo.

EFFECT AREA: WATER (2) In Stream Water Quantity More better	
Reserve Options	**Effect in Comparison to the Status Quo Condition:**
Reserve Options (1-6) Extending Natural Focus	Substantially reduce existing surface water withdrawal through land retirement. Improve instream flows, reduce water temperature, and improve water quality relative to Status Quo. Surface water screening and irrigation management would be used on many remaining diversions. Increase water conservation. Municipal withdrawals would continue, but with intense efforts to meet increased conservation standards. Remaining storage would be managed to mimic natural flow conditions. In the short term, sedimentation could significantly impair downstream river quality.

	EFFECT AREA: WATER (2): In-Stream Water Quantity More better
Reserve Options (7-12) Extending Commerce Focus	Irrigation, industrial, and municipal water withdrawals would increase more than under Status Quo to accommodate growing population, commercial, and residential needs. Cost-effective and efficient screening might be used to avoid direct mortality of listed stocks. Non-thermal pollution levels are likely to increase (see below). Use of storage and flows for fish would decrease in comparison to Status Quo.

	EFFECT AREA: WATER (3): Non-thermal pollution More worse
Reserve Options	**Effect in Comparison to the Status Quo Condition:**
Reserve Options (1-6) Extending Natural Focus	Improve water quality by eliminating sources of pollution overall. Eliminate discharges of other contaminants to meet more stringent water quality criteria. Strong new controls on wastewater and other point and non-point sources. Increased water quality standards along with stronger enforcement. Drafting reservoirs or breaching dams could stir up contaminants, which would be adverse for humans, fish, and wildlife in the short term. In the long term, however, on-thermal pollution would be less than under Status Quo.
Reserve Options (7-12) Extending Commerce Focus	Existing water quality standards may be eased. Emphasize voluntary compliance rather than regulation. Some use of positive incentives, some additional pollution allowed, trading of pollution credits allowed to accommodate industrial growth. Pollution controls must be efficient. Non-thermal pollution may become somewhat worse than under Status Quo.

	EFFECT AREA: WATER (4) Sedimentation More worse
Reserve Options	**Effect in Comparison to the Status Quo Condition:**
Reserve Options (1-6) Extending Natural Focus	Sediment increase downstream from breached facilities for 5-10 years as accumulated reservoir sediments are flushed downstream. Agricultural land retirement and reduction in other human uses reduces sediment loads over the long term relative to Status Quo.
Reserve Options (7-12) Extending Commerce Focus	Sedimentation will increase as urbanization, agricultural and commercial development increase, but minimally would comply with water quality standards. Prime watersheds probably would improve. Sediment controls must be efficient (benefits exceed costs). The overall sedimentation may get worse than under Status Quo due to development.

	EFFECT AREA: WATER (5): Temperature Dissolved Oxygen higher worse
Reserve Options	**Effect in Comparison to the Status Quo Condition:**
Reserve Options (1-6) Extending Natural Focus	A return to a natural river, natural tributaries, land retirement and strong thermal pollution controls could gradually help recreate presettlement water temperature ranges, including normal fluctuations for the rivers affected. Upstream reservoirs (upper Columbia, upper Snake, Clearwater) would have to be managed for flow in dry years to avoid downstream problems. Less opportunity for solar heating. Fewer opportunities to control temperature through controlled releases. Overall, both temperature and dissolved oxygen would be somewhat better than under

EFFECT AREA: WATER (5): Temperature Dissolved Oxygen higher = worse	
	Status Quo, but conditions would be worse or not improved in very dry conditions.
Reserve Options (7-12) Extending Commerce Focus	Manage thermal pollution to insure health and safety of human needs and consumption. Any temperature or gas control must be cost-effective, and much would be regulatory driven. Temperature in prime watersheds might improve. Overall, temperatures and dissolved oxygen may be slightly worse than under Status Quo. If more dams are built, more reservoirs would be created, which would likely increase water temperature.

EFFECT AREA: WATER (6): Amount of Stream River Habitat more = better	
Reserve Options	**Effect in Comparison to the Status Quo Condition:**
Reserve Options (1-6) Extending Natural Focus	Much more stream and river habitat created by breaching or drawdown of up to six reservoirs and removal of some dams on tributaries.
Reserve Options (7-12) Extending Commerce Focus	About the same as or less than under Status Quo because only cost-effective actions would be taken. Also, if more dams were built, some river habitat would be converted to reservoir habitat.

EFFECT AREA: WATER (7): Amount of reservoir habitat more = better	
Reserve Options	**Effect in Comparison to the Status Quo Condition:**
Reserve Options (1-6) Extending Natural Focus	Reservoir habitat would be eliminated as storage dams are breached. If all dams were removed, reservoir habitat would be limited to that created by natural reservoirs. Amount of reservoir habitat would be much less than under Status Quo.
Reserve Options (7-12) Extending Commerce Focus	The existing reservoir system would be preserved for commercial purposes. If more dams are built (if cost-effective), more reservoir habitat would be created. The amount of habitat would be the same or more than the Status Quo.

EFFECT AREA: FISH AND WILDLIFE (1): Anadromous Fish More = better	
Reserve Options	**Effect in Comparison to the Status Quo Condition:**
Reserve Options (1-6) Extending Natural Focus	Restoration to natural land and water conditions, and elimination of all harvest. Would likely recover natural spawning anadromous fish and lamprey in the long run, with several caveats. Natural conditions may not be attainable in decades or ever, and harvest may not be completely controllable (other nations may continue to allow harvest). Because hatcheries would be completely eliminated, the abundance of anadromous fish (natural and hatchery populations combined) would dramatically decrease in the short run, and some populations might become so small that they cannot recover. Even with maximum actions, it is unlikely that fish populations would approach pre-European immigration levels. However,

EFFECT AREA: FISH AND WILDLIFE (1): Anadromous Fish More = better	
	over the long term, abundance of natural spawning fish should be better than under Status Quo.
Reserve Options (7-12) Extending Commerce Focus	De-emphasize importance of native stocks. Some weak stocks may become extinct. Focus on producing a commercially viable salmon harvest and related industries using least-cost production, primarily hatcheries and fish farming. Mainstem species focus (fall chinook). Total run size might increase even if natural spawning runs decrease. Overall numbers less than under Status Quo.

EFFECT AREA: FISH AND WILDLIFE (2): Resident Fish More = better	
Reserve Options	**Effect in Comparison to the Status Quo Condition:**
Reserve Options (1-6) Extending Natural Focus	Restoration to natural land and water conditions, phase-out of hatcheries, and elimination of most harvest. As more dams are breached, less habitat will be available for resident fish and some populations would be completely lost. There is an inherent tradeoff between preserving anadromous fish and preserving resident fish. Even if the existing hydrosystem is operated entirely for fish and wildlife, resident fish would likely be sacrificed in favor of anadromous fish. Those naturally spawning resident fish that are able to survive in a free-flowing river may increase in the long run as habitat improvements are made. But the total resident fish population (naturally spawning plus hatchery fish) would be dramatically reduced in the short run as hatcheries are eliminated. In the long term, as the river returns toward pre-European settlement conditions, resident fish populations would be much less than under Status Quo.
Reserve Options (7-12) Extending Commerce Focus	De-emphasize importance of native stocks. Some weak stocks may become extinct. Focus on maintaining resident fish harvest for recreation using least-cost production, primarily hatcheries supported by recreation fees. Overall numbers similar to Status Quo.

EFFECT AREA: FISH AND WILDLIFE (3): Wildlife More = better	
Reserve Options	**Effect in Comparison to the Status Quo Condition:**
Reserve Options (1-6) Extending Natural Focus	The goal of extending the Natural Focus Policy Direction is not to increase particular species, but rather to let the river and the land return to natural balance. Some species may benefit from these conditions, while others may not. Passive restoration to natural land conditions and elimination of harvest would likely increase native wildlife populations. However, non-native species may also benefit from an increase in available habitat, and may out-compete native species. Species dependent upon reservoir habitat would decrease as this habitat is eliminated (as storage dams are breached). Over the long term, abundance of wildlife should be much better than under Status Quo.
Reserve Options (7-12) Extending Commerce Focus	De-emphasize importance of native populations. Some weak populations may become extinct. Focus on managing wildlife for fee-based recreation (i.e. hunting, zoos, nature parks) or other purposes (food or clothing production), assuming fees or sales are sufficient to cover the costs of management. Wildlife habitat would become more scarce. Overall numbers less than under Status Quo.

EFFECT AREA: AIR QUALITY More pollution = worse	
Reserve Options	**Effect in Comparison to the Status Quo Condition:**
Reserve Options (1-6) Extending Natural Focus	Requires a large increase in replacement of hydropower from breaching or drawdown of up to six dams, mainly from new combustion turbines and prolonging use of existing coal facilities over Status Quo. Air pollutants would increase substantially under this Policy Direction. Increased coal generation would dramatically increase PM10, CO, CO2, SOX and NOX emissions. Additional combustion turbine plants would produce NOX and CO2 (but much less than coal because of their greater efficiency) and some PM10. In addition, emissions would increase considerably from the new truck and train traffic needed to replace current barging. Dam deconstruction would result in more airborne particulate matter, and as reservoirs empty, dust would rise from newly exposed land. As new vegetation then covers the land, dust would decrease, so those effects would be temporary.
Reserve Options (7-12) Extending Commerce Focus	Maximizes use of existing hydro system, indefinitely delays the need for replacement resources beyond Status Quo. Regional commercial competitiveness, however, could attract new industry, increasing PM_{10} and CO_2 air emissions slightly. More dams could be built if cost-effective. Overall, air emissions are likely less than under Status Quo.

EFFECT AREA: COMMERCE Commercial Interests less = worse	
Reserve Options	**Effect in Comparison to the Status Quo Condition:**
Reserve Options (1-6) Extending Natural Focus	Hydropower taken off-line, replaced with non-hydro power generation. Commercial activity would dramatically decrease from current levels, as electricity costs go up and. Very large adverse effects compared to Status Quo.
Reserve Options (7-12) Extending Commerce Focus	Law of supply and demand would dictate power mix; however, hydropower generation would likely be increased compared to Status Quo. New dams could be built, if cost-effective. Industry-friendly approach to air- and water-quality standards would likely result in lower costs of compliance. Commercial interests would likely prosper and expand more than under Status Quo.

EFFECT AREA: COMMERCE Recreation (including fishing & hunting) less = worse	
Reserve Options	**Effect in Comparison to the Status Quo Condition:**
Reserve Options (1-6) Extending Natural Focus	Harvest of both fish and wildlife would be banned. Reservoir recreation (boating, waterskiing) would be greatly diminished as storage dams are breached, and most other recreation would be restricted so that riparian, wetland, and upland areas can return to pre-dam conditions. In the long term, tourism and recreation may increase as natural rivers are restored, but access to these sites would be restricted. Recreation opportunities would be much less than Status Quo.
Reserve Options (7-12) Extending Commerce Focus	Because unrestricted harvest would be allowed, fishing and hunting opportunities would dramatically increase in the short term. An absence of regulation may result in some populations being harvested to extinction. Recreation resources (hiking trails, lakes) would be managed on a fee-for-service basis through user fees and licenses, with prices reflecting the costs of maintaining those resources.

	For fishing and hunting, the costs for sustaining those populations targeted for harvest (through production hatcheries, habitat enhancement, etc.) would be borne by user groups. Over the long term, recreation would likely be more expensive, and less accessible to users, than under Status Quo.

	EFFECT AREA: COMMERCE: Economic Development less – worse
Reserve Options	**Effect in Comparison to the Status Quo Condition:**
Reserve Options (1-6) Extending Natural Focus	Economic development would be restricted, and in some cases relocated, as existing habitat is protected and pre-dam habitat is restored. Very large adverse effects compared to Status Quo.
Reserve Options (7-12) Extending Commerce Focus	Economic development would be largely unrestricted, compared to Status Quo, and electricity costs would be less. Therefore, more development would be expected.

	EFFECT AREA: TRIBES (1): Fish Harvest less – worse
Reserve Options	**Effect in Comparison to the Status Quo Condition:**
Reserve Options (1-6) Extending Natural Focus	No harvest. Very large adverse effects compared to Status Quo.
Reserve Options (7-12) Extending Commerce Focus	Lifting of restrictions on harvest would increase tribal harvest opportunities in the short term. In the long term, populations targeted for harvest might be diminished. Costs associated with maintaining harvest opportunities would be borne by tribes as well as other user groups. Like other fish and wildlife resource managers, tribes could generate income by offering harvest opportunities to the public on a fee-for-service basis. Overall, worse than under Status Quo.

	EFFECT AREA: TRIBES (2): Health, Spirituality and Tradition
Reserve Options	**Effect in Comparison to the Status Quo Condition:**
Reserve Options (1-6) Extending Natural Focus	Relative to Status Quo, tribes would benefit by increasing subsistence and ceremonial harvest and access to hunting and riverside lands once used for cultural, material, and spiritual purposes. [8]
Reserve Options (7-12) Extending Commerce Focus	Tribal health and spirituality would be adversely affected by loss of traditional fishing practices and locations (defined by treaties), change in fishing techniques and increased competition from non-Indian use of resources and population growth. Worse to much worse than under Status Quo.

[8] Draft Summary, Corps, 1999a, p. 27.

	EFFECT AREA: SOCIAL (1): Costs and Funding paying more = worse
Reserve Options	**Effect in Comparison to the Status Quo Condition:**
Reserve Options (1-6) Extending Natural Focus	Removing additional dams and increased habitat acquisition will further deplete the hydro-system and dramatically increase energy costs.
Reserve Options (7-12) Extending Commerce Focus	Maximizing hydro-operations would drop energy costs for the region even further. However, the cost to compensate for the heavy toll of such practices on fish and wildlife would allay much of the cost savings. Overall costs would decrease, but the environmental impact would be substantial.

	EFFECT AREA: SOCIAL (1): Cultural Historical Resources loss of resources = worse
Reserve Options	**Effect in Comparison to the Status Quo Condition:**
Reserve Options (1-6) Extending Natural Focus	Sites that have been covered and protected by water for years would be exposed. Access to these sites would be restricted, which would result in less vandalism, but also less use and enjoyment of the sites. Overall, the effects would be about the same as Status Quo.
Reserve Options (7-12) Extending Commerce Focus	There would likely be less exposure of inundated cultural sites than under Status Quo, as flow and spill regimes would be abandoned. However, restrictions on economic development would be eased, so it is likely that development would proceed in culturally sensitive areas. Also, funding for cultural resource protection would be cut back or eliminated. The effects on cultural resources would be worse than under Status Quo.

	EFFECT AREA: SOCIAL (2): Aesthetics (More natural features = better)
Reserve Options	**Effect in Comparison to the Status Quo Condition:**
Reserve Options (1-6) Extending Natural Focus	Riverbeds exposed until re-vegetated. Eventually re-establishing a free-flowing river. Limited access by humans, less economic activity such as logging. More land in wild vegetation, more recovery to natural state. Less developed features. Much better than under Status Quo in the long term; worse than under Status Quo in the short term.
Reserve Options (7-12) Extending Commerce Focus	Increased urbanization and industrialization would typically result in negative visual effects. Adverse effects compared to Status Quo.

COMMENTS SUBMITTED BY THE
SPOKANE TRIBE OF INDIANS
TO BONNEVILLE POWER ADMINISTRATION

RE: FISH AND WILDLIFE IMPLEMENTATION DEIS
APPENDIX I

Due to the inadequate time frame in which to consider and respond to this Appendix, no comments can be submitted at this time. There has been no opportunity to fully brief the Tribal Council, with appropriate levels of input from technical staff. Also, overly simplistic assumptions underlying the development of alternatives can lead to seriously flawed analysis. #94