

# Salmon

## Review Summary

A substantive portion of the Salmon River Subbasin Plan meets the scientific elements for a subbasin plan as called for in the 2000 Fish and Wildlife Program and the Subbasin Planning Technical Guide. The Assessment, Inventory, and Management Plan are well done. In general, the elements of the Plan are well integrated. The Assessment effectively identifies factors affecting productivity, especially for terrestrial species, and adequately presents key findings. The Inventory provides information that should be useful for subbasin and regional coordination. The Management Plan is well organized, and a logical pathway from limiting factors to objectives and strategies is evident. Importantly, the planners recognize that the Plan could not only satisfy the Council's requirements but it also could be useful as a tool for congressional appropriations. While recognizing the good work of the Technical Teams, we identify several shortcomings in the subbasin plan.

## Assessment

In general, the Assessment is well done and thorough. We recognize that some of the information needed to address the following comments may not be available.

Nevertheless, the following shortcomings exist:

- 1) discussion of how the selected focal species serve as indicators or are representative in their linkages to habitat and environmental conditions. Selection of focal species is driven primarily by ESA considerations.
- 2) explanation of how activities to protect and restore focal species would affect the diversity of non-focal native and non-native fishes,
- 3) identification and characterization of bull trout population genetic structure,
- 4) description of the relationship between terrestrial conditions, especially riparian functions, and fish habitat,
- 5) treatment of westslope cutthroat trout, perhaps including it as a focal species due to its importance in the subbasin,
- 6) discussion of genetic diversity of focal species, incorporating current information from various labs,
- 7) analysis of possible genetic and ecological impacts of artificially produced fishes on native fishes and,
- 8) characterization of terrestrial focal species and plants, although the Plan provides a good Assessment of terrestrial focal habitats.

The subbasin plan uses expert opinion as the only approach for assessing limiting factors. Expert opinion is a qualitative method that relies on the judgment of professionals familiar with the Salmon subbasin. A quantitative method such as EDT would have been preferable, perhaps complemented by expert opinion. The lack of quantitative evaluation of the effects of limiting factors on population parameters leads to the following questions:

- 1) which factors are most limiting to production?
- 2) which factors are least limiting?
- 3) how much gain in production can be achieved from management intervention to lessen effects of limiting factors?

4) will strong out-of- basin influences overwhelm in-basin effects?

### **Inventory**

The Inventory provides a nice narrative describing what activities have been done in the subbasin or are taking place. The Inventory is a thorough listing of projects from which some specific information can be gleaned. The synthesis and interpretation of the Inventory is embedded in section four of the Assessment, where a thorough analysis and discussion is presented for each of the ten Assessment Units, as well as a larger Salmon subbasin GAP analysis. The Inventory should have value as a repository of institutional knowledge and be useful outside the subbasin.

### **Management Plan**

The Management Plan has many good elements. Vision, objectives and strategies are well articulated and logically linked. Appropriate emphasis is placed on the social and cultural aspects of the plan and how implementation might best be achieved in the future within the Salmon River subbasin. The major weakness of the plan is the failure to prioritize adequately. Prioritization is important so that restoration activities and funding can be appropriately directed. The aquatic Technical Team should build upon the priorities in the Recommendations and Conclusions, perhaps following the format for terrestrial prioritization. If available information is sufficient to develop a comprehensive listing of limiting factors within each 4<sup>th</sup> HUC, then it should be sufficient to develop a more through prioritization of activities and/or areas.

The RME program is a general framework and is on the right track (including its indications that M&E results be used in improving management), but it is incomplete in that it lacks clarification of data gaps, prioritization of research topics, and explicit identification of specific performance measures, indicators, and data collection protocols. In the Assessment, planners reported encountering difficulties in assessing limiting factors because of “information gaps, differences in information collection methods and/or interpretation, or to data limitations” (page 3-10). RME improvements are needed to prevent these problems from recurring in future. Protocols for regional cooperation on terrestrial issues appear to be limited.

While out-of-basin effects are having a substantive impact on anadromous species, they seem to be overemphasized, especially when there are obvious major environmental problems within the subbasin. Over-emphasizing out-of-basin effects raises the question of whether in-basin restoration activities will contribute to recovery and whether they should be funded simultaneously with out-of-basin projects.

## **Review Checklist**

### **I. The Subbasin Assessment**

(See generally pages 4-6, 9-10 of the Technical Guide; the checklist is derived from 18-24 of the Technical Guide.) Reviewers should consider the soundness, completeness, analytical approach, and transparency (documentation of methods and decision-making process) of the following components of a subbasin Assessment.

<b>I. A. Subbasin Overview</b>		
<p><i>General Question to be addressed: Does the Assessment provide the geographical, demographical, and environmental context for fish and wildlife resources in this subbasin? The Council specifically asked that the independent scientific review evaluate whether the subbasin Assessment is thorough and substantially complete. The following checklist is to aid reviewers in that determination.</i></p>		
<b>I. A.1. General Description</b>		<p>(Y)es, (P)artial, (N)o</p> <p>Need for additional treatment (0-4)</p>
I.A.1.1	Does the Assessment provide a general orientation to the subbasin (location, size, distinguishing natural and cultural features, land use, land ownership) and an overview of jurisdictional authorities (state, county, federal lands, tribal lands and fishing rights)?	
Reviewers: Generally good. Not much is provided on jurisdictional issues beyond fishing rights.		Yes 0
I.A.1.2	Does the Assessment provide a general description of the subbasin's macro-environment (geology, climate and weather, land cover, vegetation) and of the subbasin's water resources (hydrography and watersheds, hydrologic regimes, water quality, riparian and wetland resources), water uses, and modifications to water resources (hydropower projects and operations, water diversions, channel modifications)?	
Reviewers: Good assessment given the size of the basin.		Yes 0
I.A.1.3	Does the Assessment provide a general description of anthropogenic disturbances to the aquatic and terrestrial environment, organized by the source of disturbance (urbanization, agriculture, forest practices, water development, mining, transportation, and other)?	
Reviewers: Well done.		Yes 0
I.A.1.4	Does the Assessment provide a list of native and non-native fish and wildlife species present in this subbasin including those species that: a. have been designated as threatened or endangered under the Federal Endangered Species Act or state equivalents, b. have been recognized by applicable federal, state, or local resource management agencies, or by the Nature Conservancy or state heritage program, as being especially rare or significant in the local area, c. have special ecological importance within the subbasin, d. are recognized by Native American tribes as having special cultural or spiritual significance, or e. are not native to this subbasin?	
Reviewers: Cultural and spiritual significance of focal species is not well addressed.		
I.A.1.5	Does the Assessment identify plants that have been designated as threatened or endangered under the Federal Endangered Species Act or state equivalents, and/or that are recognized by Native American tribes as having special cultural or spiritual significance, or (optional) that have special ecological importance within the subbasin?	
Reviewers: Cultural and spiritual significance and use of native plants by native Americans is not well developed. Use of whitebark pine is mentioned, however. Otherwise, a good treatment of T&E plant species, etc.		Yes
<b>I.A.2. Subbasin in the Regional Context</b>		<p>(Y)es, (P)artial, (N)o</p> <p>Need for additional treatment (0-4)</p>

I.A.2.1	Does the Assessment describe how this subbasin fits within its regional context (size in relation to the total Columbia Basin, placement within the ecological province and relationship to other subbasins in this province, qualities that distinguish this subbasin from others in the province)?		
Reviewers: The Assessment handles this topic adequately		Yes	0
I.A.2.2	Does the Assessment describe this subbasin's relationship to Endangered Species Act planning units (NOAA Fisheries-designated evolutionarily significant units (ESU) and U.S. Fish and Wildlife Service-designated bull trout planning units.) where this information is available during the planning process?		
Reviewers: Adequate.			
I.A.2.3	Does the Assessment summarize external environmental conditions that might have an effect on fish and/or wildlife in this subbasin (the ocean, the estuary, the mainstem downstream from the subbasin, and, as relevant, upstream areas and adjacent subbasins)?		
Reviewers: There is some discussion of using SAR's measured at mouth of the subbasin or population as an index of downstream effects but generally the treatment of ocean cycles and their impact on anadromous fishes needs to be treated more comprehensively.			
I.A.2.4	Does the Assessment identify macroclimate and human occupation and use trends that may affect hydrological or ecological processes in this subbasin over the long-term (50 years into the future and beyond)?		
Reviewers: Human use trends over the last 10 years are covered in the Management plan but not the Assessment. The plan does not project human use (including population trends) out 50 years or review the longer-term human use of the basin. This is especially critical for assessing both potential impacts on natural resources and the implementation difficulties that longer term management interventions will encounter as the human pressure on resources increase. Data on human demographics likely is available and could have been incorporated into the Assessment.			
<b>Summary comments and evaluation on the Subbasin Overview:</b> Does the Assessment provide the geographical, demographical, and environmental context for fish and wildlife resources in this subbasin?			
Reviewers: The overview adequately presented the ecological setting and current problems in the subbasin. Long-term human use, its potential impact on resources, and the problems likely to be encountered in implementation in the future should be addressed. The treatment of ocean cycles and their impact on anadromous fishes needs to be treated more comprehensively.			

<b>I.B. Species Characterization and Status</b>		
<i>General question: Does the Assessment adequately describe the current status of fish and wildlife focal species?</i>	(Y)es, (P)artial, (N)o	<i>Need for additional treatment (0-4)</i>

<sup>1</sup> The USFWS bull trout planning hierarchy includes, from large areas to small, distinct population segments, recovery units, recovery sub-units, core populations, core areas, and local populations. A subbasin would typically correspond to a recovery unit or sub-unit.)

<p>Note to reviewers: for this section of the review, the checklist should be applied to each focal species. Please identify which species your evaluation applies to in the comment field. Use the ranking fields (Y,P,N; 0-4) to give an overall evaluation across all focal species. Note differences among approaches to species in the comment field. If necessary, once the plans are received, assignments will be made to cover an individual species or a series of focal species.</p>		
<p>I.B.1. Does the Assessment identify a series of focal species that will be used to characterize the status of fish and wildlife species within the subbasin? These should include one or more wildlife, resident fish, and, where present, anadromous fish species. Anadromous fish may also be included in subbasins where they are historically present and where there is a reasonable probability that these fish could be restored to sustainable levels. Criteria suggested for selecting focal species include a) designation as Federal endangered or threatened species, b) local ecological significance,<sup>2</sup> and c) cultural significance.</p>		
<p>Reviewers: Selection of aquatic focal species appears to be primarily ESA driven, rather than by focal species that are representative of specific habitats. In addition to their importance as listed species, the Technical Guide also directs planners to select focal species that serve as indicators or are representative in their linkages to habitat and environmental conditions. The planners do not discuss how the focal species might meet this criterion. Moreover, the Plan does not discuss how activities to restore protect and restore focal species would affect the diversity of non-focal native and non-native fishes.</p> <p>Plan overlooks westslope cutthroat and ignores important protection and restoration activities for that species. This omission is serious because the Salmon drainage comprises a large part of the westslope cutthroat trout's distribution west of the continental divide.</p> <p>For terrestrial Assessment purposes, the planners base the Assessment and management plan upon an ecosystem-based approach with an emphasis upon focal habitats and a select number of focal species within these habitats.</p> <p>The terrestrial portion of the Assessment lists "aquatic habitat" as a focal habitat in one place, but does not discuss relationships between the riparian/herbaceous focal habitat and fish are not developed.</p>		
<p>I.B.2. Does the Assessment identify and characterize focal species populations; i.e. delineate unique population units and, as applicable and where information is available, meta-populations, subpopulations and/or other genetic/behavioral groupings used by scientists or managers?</p>		
<p>Reviewers: The Assessment focuses on TRT-identified populations within the chinook and steelhead ESUs. Sockeye are restricted to the Redfish Lake population, and bull trout are not discussed in terms of subdivisions smaller than the Salmon River drainage. A default strategy would be to organize bull trout populations on the basis of the Assessment Units.</p>		

<sup>2</sup> Species that could be considered under the ecological significance criterion might include those that: a) are particularly rare within the subbasin (regardless of ESA classification), or b) perform a particularly important or unique ecological function.

Characterization of plants and terrestrial focal species is inadequate. Terrestrial focal species issues that are unique to the subbasin should be considered in more detail.		
I.B.3. Does the Assessment describe the current and historic status of each focal species population and summarize available population data (abundance, productivity, spatial structure, etc., with particular emphasis on trend data)?		
Reviewers: Treatment of current status is done well and trend data is dealt with adequately, but not extensively. Discussion of historic status is fairly superficial, although as the planners note, good historic numbers are difficult to obtain. Status of bull trout is not adequately addressed. There is good assessment of terrestrial habitat but not of terrestrial species. Statistics for terrestrial species abundance or harvest are not given.		
I.B.4. Does the Assessment describe the population's life history, including identifying distinct life stages?		
Reviewers: Adequate.		0
I.B.5. Does the Assessment characterize the genetic diversity of the population, especially regarding possible effects of artificial production? Specifically does the Assessment describe the historic and current status of introductions, artificial production, or captive breeding programs in this subbasin or affecting the subbasin through straying or other means, and describe the relationship between the artificial and naturally produced populations?		
Reviewers: Substantial information exists on genetic diversity in various labs and lab reports that is not presented in the Assessment or Management Plan. NOAA and U of I (Hagerman) have done a lot of genetics work on sockeye and chinook populations in the Salmon subbasin. Work on steelhead genetics is being done in an Alaskan lab. This work has been underway for some time, but no results are reported in the Plan. The possible effects of artificial production on wild focal species are discussed only superficially. Detailed genetic information apparently is given in the appendices containing the HGMPs and, if appropriate, should be synthesized in the text of the assessment. There is minimal discussion of genetic diversity of westslope cutthroat and other aquatic or terrestrial species.	Partial	3
I.B.6. Does the Assessment describe historic and current harvest, including both in-subbasin harvest and downstream or ocean harvest affecting the focal species?		
Reviewers: Not as complete as might have been to be informative. Little discussion of ocean harvest.	Partial	2
	<b>Summary comments and evaluation on the Species Characterization and Status Subsection:</b> Does the Assessment adequately describe the current status of fish and wildlife focal species?	
Reviewers: The Assessment provides useful information on focal species characteristics and habitats. We recognize that much of the information needed to address our comments may not be available, although some of it appears to be readily accessible. Nevertheless, the following deficiencies exist: 1) selection of focal species is driven primarily by ESA considerations. There is no discussion of how the selected focal species serve as indicators or are representative in their linkages to habitat and environmental conditions, 2) how activities to protect and restore focal species would affect the diversity of non-focal native and non-native	Partial	

fishes, 3) identification and characterization of bull trout genetic population structure, 4) the relationship between terrestrial conditions, especially riparian functions, and fish habitat, 5) westslope cutthroat trout, perhaps including it as a focal species due to its importance in the subbasin, 6) genetic diversity of focal species, incorporating current information from various labs, 7) possible genetic and ecological impacts of artificially produced fishes on native fishes and, 8) characterization of terrestrial focal species and plants, although the Plan provides a good Assessment of terrestrial focal habitats.		
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<b>I.C. Environmental Conditions</b>		
<i>General question to be addressed: Does the Assessment adequately describe the effect of the environment on fish and wildlife populations?</i>		
<b>I.C.1. Environmental Conditions within the Subbasin</b>	<i>(Y)es, (P)artial, (N)o</i>	<i>Need for additional treatment (0-4)</i>
I.C.1.1	Does the Assessment describe the current condition of the environment in this subbasin, and characterize the condition of the environment under the following reference conditions: a) historic, <sup>3</sup> b) potential, <sup>4</sup> c) future/no new action, <sup>5</sup> and the potential condition of aquatic and terrestrial habitats within the subbasin? Does the Assessment include a determination of the difference between current conditions and the various reference conditions?	
Reviewers: The Assessment adequately describes the current condition. Future/no new action and potential are not adequately covered. The Assessment is weak on potential aquatic habitat conditions, but treated potential of terrestrial habitat better. The general conclusion seems to be that the habitat can be improved, but there is no attempt to show how much it could be improved (i.e., potential for habitat restoration). The Plan compares current and future harvest (under delisting criteria) for anadromous species and provides some estimates of harvest if target SARs are met.		Partial 2
I.C.1.2	Does the Assessment classify 6 <sup>th</sup> field HUCs (or other appropriate assessment units) within the subbasin according to the degree to which each area has been modified and the potential for restoration?	
Reviewers: Planners does not use 6 <sup>th</sup> field HUCs, but chose to define geographic and environmental Assessment Units that are roughly equivalent to 4 <sup>th</sup> field HUCs. The planners provide a good justification for selection of this spatial scale. The scale of 4 <sup>th</sup> field HUC's makes sense as management units but a finer scale may be needed to prioritize and justify actions. The potential for restoration is not well covered.		Partial 2

<sup>3</sup> The historic condition refers to the state of the environment at the time of European settlement, or 1850.

<sup>4</sup> The potential condition is defined as the optimal condition for the subbasin in the year 2050, but it acknowledges cultural modifications that are not reversible such as urbanization.

<sup>5</sup> The future/no new action condition is the state of the environment in 2050 assuming that current trends and current management continues.

<b>I.C.2. Out-of-Subbasin Effects and Assumptions</b>			
I.C.2.1	Does the Assessment identify factors outside of the subbasin that have a significant effect on each focal species, with particular attention to bottlenecks? These might include effects associated with upstream conditions, downstream conditions, and, in the case of migratory wildlife, conditions in adjacent subbasins. Outside effects are particularly relevant for anadromous fish and may include mainstem passage and habitat, estuary conditions, ocean conditions, and harvest.		
Reviewers: The Assessment identifies factors outside of the subbasin that could affect anadromous fish. Consideration of out-of-basin factors is treated only generally, and not by focal species. The Assessment should have provided better evaluation of ocean impacts. The Plan presents evidence that habitats aren't fully seeded but does not adequately discuss the reasons for under-seeding. Within-basin and out-of-basin mortalities are not given, which makes it difficult to determine how much improvement in anadromous stocks could be expected by in-basin activities. Expected gains from in-basin actions at least should have been thoroughly discussed. The Plan could have provided a more thorough treatment of possible out-of-basin effects on terrestrial species. One of the primary concerns in the Plan is barriers to migrating fish. Introgression of genetic material caused by barrier removal is an important subject that needed greater development.		Partial	3
I.C.2.2	For each focal species, does the Assessment establish assumptions for each external effect that can be used to calculate the effects of external conditions on the productivity and sustainability of fish and wildlife within this subbasin?		
Reviewers: The comment for the previous question is relevant to this question. Specific assumptions are unclear. For anadromous species, smolt-to-adult return (SAR) rates were apparently selected as standardized measures of out-of-basin effects, but there is little attempt to partition the various external effects or to contrast the magnitude of external effects on survival with potential improvement to tributary habitat.		Partial	3
<b>I.C.3. Environment / Population Relationships</b>			
For each focal species, does the Assessment identify, for each life stage, environmental factors that are particularly important for the species' survival and determine the characteristics that constitute optimal conditions for species health? Does the Assessment describe and make a finding regarding the environment's ability to provide such optimal conditions, or conditions that support the long-term viability of these populations.			
Reviewers: The Plan adequately identifies environmental factors important for fish survival. There is no assessment of potential for improvement or of current or carrying capacity. It is difficult to determine whether there is adequate identification of important environmental factors for focal terrestrial habitats.		Partial	2
<b>Summary comments and evaluation on the Environmental Conditions Section:</b> Does the Assessment adequately describe the effect of the environment on fish and wildlife populations?			

Reviewers: In general the section is well done, but lacks details in several important areas. In particular, the section should have provided better evaluation of ocean impacts for individual focal species. Although lacking quantitative analysis and in- and out-of-basin mortalities, at least a thoughtful discussion of potential gains from improvements in habitat and population from in-basin actions given out-of-basin conditions should have been included in the Assessment.	Partial	3
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<b>I.D. Ecological Relationships</b> <i>Question to be addressed: Does the Assessment describe the key inter-species relationships and the key functional relationships?</i>	(Y)es, (P)artial, (N)o	<i>Need for additional treatment (0-4)</i>
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<b>I.D.1. Inter-species Relationships</b> Does the Assessment identify important inter-species relationships or interactions, both positive and negative, with specific attention to relationships between anadromous fish and wildlife and specifically identify: 1) wildlife species and habitats that may be influenced, positively or negatively through direct effects of changes in fish abundance or fish community composition; 2) fish species and habitats that may be influenced, positively or negatively, through direct effects of changes in wildlife abundance or wildlife community composition; and 3) key species relationships within this subbasin based on the above?		
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Reviewers: Some known or potential interactions (e.g., the role of fish as food for some wildlife) are discussed. In general, however, the treatment of interspecific interactions and fish community structure is weak in the Salmon plan, as in most subbasin plans. Part of the reason for this deficiency may be due to lack of data and a principle emphasis on focal species as directed by the Technical Guide.		
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<b>I.D.2. Processes and Functions</b> Does the Assessment identify key ecological functions for species within this subbasin and assess the current status of ecological processes and functions in the subbasin?		
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Reviewers: Key Ecological Functions are dealt with very well for wildlife, but not so well for fish. There should have been greater consideration of disturbance regimes and how they shape aquatic habitat and contribute to natural variation.	Partial	1
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<b>I.E. Interpretation and Synthesis / Limiting Factors and Conditions</b>
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<b>I.E.1. Limiting Factors and Conditions</b> Does the Assessment describe: 1) <b>Historic factors or conditions</b> that led to the decline of each focal species and of ecological functions and processes? 2) <b>Current key factors or conditions</b> within and without the subbasin that inhibit populations and ecological processes and functions relative to their potential.		
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Reviewers: In general, the Assessment does a good job of identifying factors affecting productivity, especially for terrestrial species. The analysis of limiting factors is based on expert opinion.	Partial	
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<p>The lack of quantitative evaluation of the effects of limiting factors on population parameters leads to the following questions: 1) which factors are most limiting to production? 2) which factors are least limiting? 3) what gain in production can be achieved from management intervention to lessen effects of limiting factors? 4) will strong out-of- basin influences overwhelm in-basin effects?</p>		
<p><b>I.E.2. Key Findings</b></p>		
<p>Is the knowledge gained through the Assessment synthesized in regard to: 1) the status of species, 2) the status of the subbasin environment, 3) the biological performance of focal species in relationship to the environment, 4) the health of the overall ecosystem, 5) potential conflicts and compatibilities between individual species and ecological processes, 6) a determination of the key factors that impede this subbasin from reaching optimal ecological functioning and biological performance?</p>		
<p>Reviewers: Generally, the Assessment does a good job of identifying key findings. The shortcomings identified in previous sections, however, need to be addressed to strengthen the findings. Evaluation of KEF (Key Ecological Functions) and Key Ecological Correlates is particularly good. Again, while difficult to assess, the relative importance of in-and out-of-basin effects remains unaddressed and therefore it is difficult to know how much improvement in production could be achieved by in-basin actions.</p>	<p>Partial</p>	
<p><b>I.E.3. Subbasin-wide Key Assumptions/Uncertainties (“Working Hypothesis”)</b></p>		
<p>Does the Assessment describe the key assumptions (including uncertainties) that have been made in the “Key Findings” above, and document the data sources and/or analytical tools relied upon?</p>		
<p>Reviewers: Key assumptions/hypotheses are given, however the working hypotheses are general. Results are based primarily on professional judgment. The Assessment does not include supporting data for assumptions regarding the significance of in-basin environmental change. Uncertainties that would lead to collection of critical data are not identified. Key hypotheses should link back to RME and to an adaptive management framework.</p>	<p>Partial</p>	<p>2</p>
	<p><b>Overall impression and evaluation of the Assessment:</b> Does the Assessment adequately synthesize the information regarding the health and functioning of this subbasin ecosystem? Does it adequately: a) bring together the single-species and community Assessments to form a holistic view of the subbasin’s biological and environmental resources, b) provide a foundation for the development of scientific hypotheses concerning ecological behavior and the ways that human intervention might prove beneficial? As needed elaborate on your evaluation of the various Sections enumerated above. If the plan provides additional analysis beyond what is laid out above in the checklist please comment here (e.g., socio-economic descriptions or analysis).</p>	
<p>Reviewers: In general, the Assessment is well done and thorough. Nevertheless, the following deficiencies exist: 1) selection of focal species is driven primarily by ESA considerations. There is no discussion of how the selected focal species serve as indicators or are representative in their linkages to habitat and environmental conditions, 2) how activities to protect and restore focal species</p>		

would affect the diversity of non-focal native and non-native fishes, 3) identification and characterization of bull trout genetic population structure, 4) the relationship between terrestrial conditions, especially riparian functions, and fish habitat, 5) westslope cutthroat trout, perhaps including it as a focal species due to its importance in the subbasin, 6) genetic diversity of focal species, incorporating current information from various labs, 7) possible genetic and ecological impacts of artificially produced fishes on native fishes and, 8) characterization of terrestrial focal species and plants, although the Plan provides a good Assessment of terrestrial focal habitats.		
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<p><b>II. The Inventory</b>  <i>(This checklist section is developed from pages 11-12 of the Technical Guide.)</i>  <i>Reviewers should consider the soundness, completeness, analytical approach, and transparency (documentation of methods and decision-making process) of the following components of a subbasin inventory, specifically whether the inventory includes an Assessment of the adequacy of current legal protections, plans, and projects to protect and restore fish, wildlife, and ecosystem resources. Does the inventory adequately synthesize past activities and their biological achievements? Planners are requested to, as applicable, describe the extent to which these programs and activities extend beyond the subbasin to a larger scale (provincial and basin-wide).</i></p>			
<b>II.A. Existing Protection</b>		<i>(Y)es, (P)artial, (N)o</i>	<i>Need for additional treatment (0-4)</i>
II.A.1	Does the inventory identify areas with protections through stream buffers, municipal or county ordinances, conservation designations, or water resources protection?		
Reviewers: Protected areas on state and federal land are listed. Lands receiving local county or municipal protection apparently are not covered. Components of watersheds that need protection are given in tables.		Yes	1
II.A.2	Does the inventory assess the adequacy of protections for fish, wildlife, and ecosystem resources?		
Reviewers: Yes, but primarily through implication of the protection offered by the federal lands and wilderness designations. Coordination among ongoing activities is perceived to be inadequate. Many activities associated with habitat restoration in these subbasins have been taken, but there is no indication that more of the same is warranted.		Partial	2
<b>II.B. Existing Plans</b>			
II.B.1	Does the inventory identify and review applicable local, state, tribal, and/or federal fish and/or wildlife management plans and water resource management plans that affect fish and wildlife?		
Reviewers: Management plans are listed, with little summary review or discussion. In many cases, the limiting factors addressed are not given in the appendix.		Yes	
II.B.2	Does the inventory assess the extent to which existing plans are consistent with the subbasin Assessment and their adequacy in protecting and restoring fish, wildlife, and ecosystem resources? (It is possible that this analysis is done in another section of the plan, e.g. in the management plan.)		

Reviewers: Not with respect to consistency with the subbasin assessment. Nor is there synthesis with respect to adequacy in protection. Planners note that the direction and focus of existing management plans and ongoing management programs in the subbasin appears to address many of the fish and wildlife issues identified in the Salmon subbasin assessment. However, lack of implementation of existing plans due to funding, legal, and political constraints inhibits the protection and restoration of fish and wildlife resources.		Partial	2
<b>II.C. Management Programs / Restoration and Coordination Projects</b>			
Does the inventory identify management programs implemented through on-the-ground restoration and conservation projects that target fish and wildlife or otherwise provide substantial benefit to fish and wildlife? These include, at a minimum, those implemented within the past five years regardless of funding source.			
II.C.1	Does the inventory identify ongoing or planned public and private management programs or initiatives that have a significant effect on fish, wildlife, water resources, riparian areas, and/or upland areas? <sup>6</sup>		
Reviewers: Adequate.		Yes	1
II.C.2	For each management program (or project where not clearly part of an overarching management program), does the inventory describe the program, project or activity; identify the management or lead entity; identify how the program/project is authorized and who is responsible for implementation; identify the funding source; and identify the relationship to other activities in the subbasin?		
Reviewers: Not with respect to relationship to other activities in the subbasin.		Yes	1
II.C.3	For each management program (or project where not clearly part of an overarching management program), does the inventory identify limiting factors or ecological processes the activity is designed to address?		
Reviewers: The Inventory identifies what are generally believed to be limiting factors. Limiting factors are addressed in Appendix 4.		Partial	
II.C.4	For each management program (or project where not clearly part of an overarching management program), does the inventory summarize accomplishments/failures of activity		
Reviewers: Very briefly in the Table in Appendix 4. Failures are not noted.		Partial	2
II.C.5	Does the inventory relate the Assessment to the existing activities and identify the gaps between actions that have already been taken or are underway and additional actions that are needed to address the limiting factors and meet recovery and other goals, and identify inadequacies in both design and implementation?		
Reviewers: Gaps are not identified. Pie charts only count the number of projects in each category, not the dollars allocated. The Assessment should include some discussion of what had resulted from actions taken in the basin via FWP since 1980. The Inventory should give some indication of whether more of the same types of management interventions are warranted.		Partial	3

<sup>6</sup> Among other programs, the Technical Guide requested for artificial production programs that the inventory include and summarize relevant HGMPs (both BPA-funded and non-BPA funded programs) and Council APRE evaluations?

<p><b>Overall impression and evaluation of the Inventory:</b> As needed elaborate on your evaluation of the various Sections enumerated above. If the plan provides additional information or analysis beyond what is laid out above in the checklist please comment here (e.g., socio-economic descriptions or analysis).</p>		
<p>Reviewers: The Inventory provides a nice narrative describing what activities have been done in the subbasin or are taking place. The Inventory is a thorough listing of projects from which some specific information can be gleaned. Appendix 4's indications of connections to limiting factors and of accomplishments probably are adequate. The synthesis and interpretation of the inventory is embedded in section 4 of the Assessment, where a thorough analysis and discussion is presented for each of the 10 Assessment Units, as well as a larger Salmon subbasin GAP analysis. The Inventory should have value as a repository of institutional knowledge and be useful outside the subbasin.</p>	<p>Partial</p>	<p>2</p>

<p><b>III. The Management Plan</b> <i>(Derived from pages 12-16 of the Technical Guide.)</i> Reviewers should consider the soundness, completeness, analytical approach, and transparency (documentation of methods and decision-making process) of the following components of a subbasin management plan.</p> <p>These checklist tables incorporate Council Question 4, Consistency with the Provincial- and Basin-level Program: Are the vision, objectives, and strategies proposed in the subbasin management plan consistent with those adopted in the program for the province and/or basin levels? This is a three-part question and reviewers must be familiar with the vision, objectives, and strategies described in the 2000 Fish and Wildlife Program (pp. 13-33) and, for mainstem subbasin plans, the Mainstem Amendments (pp.11-28).</p>		
<p><b>III.A. The Vision for the Subbasin</b> Does the Vision Section of the Management Plan 1) describe the desired future condition for the subbasin; 2) describe a vision that will drive development of the biological objectives and thereby the strategies that are incorporated to change conditions within the subbasin; and 3) incorporate the conditions, values and priorities of the subbasin in a manner that is consistent with the Vision describes in the Council's 2000 Fish and Wildlife Program? (Council Question 4 to the ISRP):</p>	<p>(Y)es, (P)artial, (N)o</p>	<p><i>Need for additional treatment (0-4)</i></p>
<p>Reviewers: The vision statement is brief and could have been expanded to include more of the spirit of the Council's eight scientific principles. The Plan's list of guiding principles dealing mainly with human interests is good, however they could have benefited from a more ecological orientation. The societal portion of the vision is good with respect to many cultural issues and tribal concerns; however, it also seems to be dominated by private land use interests out of proportion to the amount of land in the Salmon subbasin that is in private hands.</p>	<p>Yes</p>	
<p><b>III.B. Biological Objectives</b> Does the Biological Objectives Section of the Management Plan describe physical and biological changes within the subbasin needed to achieve the vision?</p>		

Reviewers: Information is lacking to permit definition of the conditions that will achieve the vision.	Yes	1
III.B.1. Are the biological objectives consistent with basin-level visions, objectives, and strategies adopted in the program? (Council Question 4) The 2000 Fish and Wildlife Program, pages 16-18, provided general descriptions for basin-level goals, objectives, and strategies. The Mainstem Amendments provide additional biological objectives as well on pages 11-14. <sup>7</sup>		
Reviewers: Adequate.	Yes	0
III.B.2. Are the biological objectives based on the subbasin Assessment? (This question relates to the Logic Path in the subbasin plan. Question III.C.1 is a similar question for the Strategies Section.)		
Reviewers: This is one of the strengths of the Salmon Subbasin Plan. It is internally consistent, with its objectives tracing back to the limiting factors. The current program derives from past programs and past planning documents, and relies on them for justifications.	Yes	0
III.B.3. Where possible, are the biological objectives empirically measurable and based on an explicit scientific rationale; i.e., quantitative with measurable outcomes?		
Reviewers: Yes, particularly for anadromous fish. The logic path runs from objectives and strategies down to implementation considerations, including performance measures.	Partial	
III.B.4. Are biological objectives identified for both the short and long-term?		
Reviewers: Both short and long term objectives are identified but the objectives are very broad	Yes	2
III.B.5. Are the biological objectives complementary to programs of tribal, state and federal land or water quality management agencies in the subbasin?		
Reviewers: They are rather broad and comprehensive and hence would seem to include objectives similar to the management agencies but may not necessarily be "complementary."	Yes	1
III.B.6. <i>Clean Water Act</i> : Does the management plan describe how the objectives and strategies are reflective of and integrated with the water quality management plan and Total Maximum Daily Load schedule within that particular state? I.e., does this subsection of the management plan assess and describe the consistency-coordination-findings of the Water Quality Plan with the subbasin plan? <sup>8</sup>		
Reviewers: Adequate.	Yes	1

<sup>7</sup> Given the Fish and Wildlife Program's emphasis on building from subbasin level management plans upward into provincial and basin level objectives, reviewers should evaluate whether the plans have a framework that will facilitate the development and linkage of objectives from the subbasin to the province to the basin.

<sup>8</sup> *Clean Water Act*: The Water Quality Management Plans developed for watersheds within each state includes the following information: 1) Management measures tied to attainment of TMDL; 2) Timeline for implementation; 3) Timeline for attainment of Water Quality Standards; 4) Identification of responsible parties; 5) Reasonable assurance of implementation; and 6) Monitoring and evaluation. The status of Total Maximum Daily Loads (TMDLs) is generally the responsibility of the state, which is delegated the responsibility for implementing the CWA. Each state has a schedule for completing TMDLs, which include a Water Quality Management Plan that describes how the allocations in the TMDL will be met. Basic information on TMDL's can generally be found on the web (see Resources).

III.B.7. <i>Endangered Species Act</i> : The USFWS and NOAA Fisheries are developing recovery plans for listed species (bull trout, white sturgeon, salmon). Recognizing that those ESA-based efforts are in various states of completion across the Columbia basin (some efforts are well underway, others just beginning), does the management plan describe how the objectives of the subbasin management plan are reflective of and integrated with the ESA-based goals for listed species within the subbasin? <sup>9</sup>		
Reviewers: Federal and state recovery goals are acknowledged. ESA requirements helped to shape a large part of the subbasin plan for chinook, steelhead, sockeye, and bull trout.	Yes	0
III.B.8. If there are disagreements among co-managers that translate into differing biological objectives, are the differences and the alternative biological objectives fully presented? (The Council's review will examine whether the plan is consistent with legal rights and obligations of fish and wildlife agencies and tribes with jurisdiction over fish and wildlife in the subbasin, and agreed upon by co-managers in the subbasin.)		
Reviewers: The Plan does not discuss many disagreements. To reveal areas of disagreement and achieve endorsement by stakeholders, review of the Plan by stakeholders would have to occur. IDFG's disagreement with the Vision statement is given in the appendix.		

<b>III. C. Strategies<sup>10</sup></b>		
III.C.1. <b>Internal Consistency of the Plan.</b> Does the Strategies Section of the Management Plan explain the linkage of the strategies to the subbasin biological objectives, vision and the subbasin Assessment? (Council Questions 2 and 3) <sup>11</sup>		
Reviewers: The linkage between objectives and strategies is apparent. Much of the material in the Management Plan appendices should be appropriately synthesized in the Assessment.	Yes	1
III.C.2. <b>Consistency with the Fish and Wildlife Program.</b> Are the Strategies proposed in the subbasin management plan consistent with those adopted in the program? (Council Question 4)		
Reviewers: Adequate.	Yes	0
III.C.3. <b>Consideration of Alternative Management Responses.</b> Does the Strategies Section explain how and why the strategies presented are selected over other alternative strategies (e.g. passive restoration strategies v. intervention strategies)? (Council Question 5) <sup>12</sup>		

<sup>9</sup> E.g. NOAA Fisheries has provides interim targets in a letter from NOAA Fisheries to the Council, Bob Lohn to Larry Cassidy: [http://www.nwcouncil.org/library/2002/nmfstargets2002\\_0404.pdf](http://www.nwcouncil.org/library/2002/nmfstargets2002_0404.pdf).

<sup>10</sup> *Definition*: Strategies are sets of actions to accomplish the biological objectives. Strategies are not projects but instead are the guidance for development of projects as part of the implementation plan. Strategies identified within the subbasin plans will be used as a basis for Council recommendations to the Bonneville Power Administration regarding project funding. Proposed measures will be evaluated for consistency with biological objectives and strategies. The strategies may be organized by categories of habitat, artificial production, harvest, hydrosystem passage and operations, and wildlife.

<sup>11</sup> This is one of the most important review questions. The set of seven questions from Council asks the ISRP to evaluate the internal consistency, scientific soundness, and thoroughness of subbasin plans. Internal consistency means there is scientific support for the conclusion that the strategies proposed in a subbasin plan will in fact address the problems identified by the subbasin Assessment; i.e., does the Strategies Section take into account not only the desired outcomes, but also the physical and biological realities of the subbasin environment. The ISRP's Subbasin Plan Logic Path flow chart, attached below, provides a straightforward illustration of the logic path reviewers should look for in subbasin plans. Rick Williams, ISRP chair, developed and has presented this flow chart to subbasin planners around the basin, emphasizing the importance that subbasin plans demonstrate a clear logic path.

<sup>12</sup> The 2000 Fish and Wildlife Program directs that the subbasin management plan's strategy section must include an explanation of how and why the strategies presented are selected over other alternative strategies (e.g. passive

<p>Reviewers: Only partially. More could have been done in regard to alternative strategies. The planning process does not seem conducive to consideration of alternatives.</p>	<p>Partial</p>	<p>2</p>
<p>III.C.4. <b>Prioritization.</b> Does the Strategies Section describe a proposed sequence and prioritization of strategies?</p>		
<p>Reviewers: The Partial-3 rating is for the aquatic component of the Plan; the terrestrial component received a Yes-0 rating.</p> <p>The Plan identifies a large number of problems, develops objectives to address the problems, and proposes strategies to accomplish the objectives. The Technical Teams developed a detailed and comprehensive prioritization scheme. Priority limiting factors are identified at the reach scale for each 4<sup>th</sup> HUC (Table 8). The planners, however, raised concerns about prioritization for aquatic resources. The planners conclude that prioritization is not meaningful because key information is not available and the assessment units are large and biophysically diverse. The planners also concluded that prioritization “would be more or less meaningless until out of basin effects are addressed.” However, in a contradictory statement, the planners state that “implementation activities should not be stalled until this prioritization takes place.” In contrast to these statements, a brief discussion of priority limiting factors and areas (i.e., core areas) is provided in the Recommendations and Conclusions section. The statements in the document by the aquatic Tech Team relating to prioritization raises concerns about the level of commitment to follow the priorities in the Recommendations and Conclusions section.</p> <p>We appreciate the difficulties in prioritizing areas and activities and it is clear that the planners have given this issue a lot of thought. Prioritization is important so that restoration activities and funding can be appropriately directed. The aquatic Tech Team should to build upon the priorities in the Recommendations and Conclusions, perhaps following the format for terrestrial prioritization. If available information is sufficient to develop a comprehensive listing of limiting factors within each 4<sup>th</sup> HUC, then it should be sufficient to develop a more through prioritization of activities and/or areas. Examples of priorities in other subbasins include protection of core areas as high priority, as well as protection or restoration of areas with multiple focal species or areas with greatest potential for restoration.</p> <p>The management plan ends pragmatically with a prioritization of limiting factors for environmental factors for terrestrial systems by Assessment Unit and for the total subbasin. In turn, this leads to a prioritization of implementation actions that seems quite useful. This</p>	<p>Partial</p>	<p>3</p>

restoration strategies v. intervention strategies). The Council does not expect subbasin plans to be structured like an Environmental Impact Statement with a list of alternative actions and descriptions of why each are not recommended. The Council’s primary interest is on why and how a strategy is selected -- the rationale for the selected strategy -- which necessary includes some discussion of alternatives.

also should be done for the aquatic systems, if not for individual populations, then for habitat factors and conditions.		
III.C.5. <b>Additional Assessment Needs.</b> Does the Strategies Section describe, if necessary, additional steps required to compile more complete or detailed Assessment?		
Reviewers: Yes. The planners indicate the need to fill data gaps and biological information is emphasized, before some objectives and strategies are prioritized.	Partial	1
III.C.6. <b>Clean Water Act:</b> Does the management plan describe how the strategies are reflective of and integrated with the water quality management plan and Total Maximum Daily Load schedule within that particular state?		
Reviewers: Adequate.	Yes	0
III.C.7. <b>Endangered Species Act:</b> Recognizing that ESA-based efforts are in various states of completion across the Columbia basin, does the management plan describe how the strategies of the subbasin management plan are reflective of and integrated with the ESA-based goals for listed species within the subbasin?		
Reviewers: Adequate.	Yes	0

### III.D. Research, Monitoring, and Evaluation

This RME Checklist Section provides the review elements necessary for the ISRP/ISAB to answer *Council Question 6. Plan for Assessing Progress toward Subbasin Goals*. The ISRP/ISAB was asked to determine whether a subbasin plan included a procedure for assessing how well subbasin objectives are being met over time. This question focuses on accountability and self-assessment, and reflects on the adequacy of the Management Plan’s research, monitoring and evaluation component. This RME component needs to be closely connected to a limiting factors analysis and the biological and environmental objectives. A prioritized RME agenda reflecting the critical uncertainties and limiting factors should be developed and presented with the detail requested below (Technical Guide pp. 14-16). *NOTE: The focus of the RME component should be on the strategy level rather than individual project level.*

Subbasin planners are encouraged to incorporate, or link their RME framework and strategies with the “regional” RM&E strategies being developed by the Pacific Northwest Aquatic Monitoring Partnership and the Columbia Basin-Wide Research, Monitoring and Evaluation (RM&E) Program, a coordinated effort developed by State, Federal, and Tribal entities in response to the Basin-wide Salmon Recovery Strategy 2000 and the FCRPS 2000 Biological Opinion. Products from these regional RME efforts could be used to meet elements of a subbasin plan’s RME section (Technical Guide pp. 14-16), particularly in the areas of monitoring protocols and methodologies. The subbasin plan should also explain how they incorporated existing monitoring guidance from state programs.

III.D.1	<b>Research:</b> Does the RME section of the plan describe a research agenda with specific conditions and situations identified in the subbasin that will require specific research studies to help resolve management uncertainties? Is the research agenda framed around the relationships between the Assessment data and the stated vision, biological objectives, and strategies in describing uncertainties? Does the RME section prioritize research topics that are of critical importance to the subbasin?	(Y)es, (P)artial, (N)o	<i>Need for additional treatment (0-4)</i>
Reviewers: Data gaps need to be clarified. Research topics are not prioritized.		Partial	2
III.D.2	<b>Monitoring Objectives:</b> Does the RME subsection identify what kind of information needs to be collected in order to determine if the plan’s vision and objectives are being met? I.e., what indicator variables will be monitored?		

<p>Reviewers: Lists of indicator variables are provided and general, not specific, and performance measures are identified. Planners and managers involved understand the ESA and management implications of dealing with declining populations of salmonids and the performance measure they identified are appropriate. However, data collection protocols are not identified. There are no monitoring and evaluation protocols for socioeconomic factors.</p>	<p>Partial</p>	<p>2</p>
<p>III.D.3</p>	<p><b>Monitoring Indicators:</b> Does the RME subsection identify measurable indicators of physical, chemical, biological, or socioeconomic conditions that may act as environmental signposts by which progress towards achieving the stated vision can be evaluated? E.g., does the RME subsection describe performance standards or quantitative benchmarks for reference conditions against which observations can be compared? Does the plan prioritize which indicators are most needed to answer management questions (include a short list)?</p>	
<p>Reviewers: The RME portion should be tied more closely to the objectives. Indicators are implied, but they should be much more explicit and they lack prioritization. There's a question of clarity: is the plan useful for its purposes?</p>	<p>Partial</p>	<p>2</p>
<p>III.D.4</p>	<p><b>Data and Information Archive:</b> Does the RME subsection describe an infrastructure to archive relevant data and meta data generated through monitoring efforts in existence for the subbasin (e.g., locally or at a regional Fish and Wildlife Program funded database such as StreamNet, the Fish Passage Center, or DART)? Specifically, does the RME subsection include discussion of quality assurance/quality control (QA/QC), data management and analysis, and data reporting?</p>	
<p>Reviewers: Yes, reference is given to Idaho databases and Streamnet. QA/QC is not discussed in detail. Details are needed to fill in specifics, e.g., Interagency Species Management System that is mentioned.</p>	<p>Partial</p>	<p>2</p>
<p>III.D.5</p>	<p><b>Coordination and Implementation:</b> Does the RME subsection describe who will collect the information and data collection methods whether collection is done by a subbasin, provincial, state, or a regional entity, or a combination of entities? This should include a description of coordination with regional RME efforts in the basin (Regional Partnership, Action Agencies Research, Monitoring, and Evaluation Plan, etc) with standardization of data methods. It should also include estimates of how much the proposed M and E will cost.</p>	
<p>Reviewers: The RME plan is a general framework. Cooperation with regional RME and PNAMP is discussed in aquatics section of RME. Discussion of regional cooperation in the terrestrial section is limited to one strategy. Costs are not considered and should be a major issue in finalization and implementation of the RME plan.</p>	<p>Partial</p>	<p>3</p>
<p>III.D.6</p>	<p><b>Summary Question. RME Logic Path (Evaluation and Adaptive Management):</b> Does the subbasin plan provide a scientifically supportable procedure for refining the biological objectives as new information becomes available about how fish, wildlife, and the environment interact, and in relationship to how the plans are implemented over time? (Council Question 7) Specifically, does the RME subsection describe a scientifically sound logic path for how to test if the subbasin plan's strategies are helping to reach the stated vision and objectives? I.e., Is the RME agenda adequately framed around the relationships between the Assessment data and the stated vision, biological objectives, and strategies in describing uncertainties?</p>	
<p>Reviewers: A good effort to develop an RME plan. However, the RME plan is largely incomplete and given only as a framework in which to develop specific details. We wonder if planners had gone as far as they could with RME given the current state of the</p>	<p>Partial</p>	<p>3</p>

<p>objectives and strategies. Adaptive management is an integral part of program but may be focused too tightly on the research projects, rather than to issues of program effectiveness.</p>		
	<p><b>Overall impression and evaluation of the Management Plan:</b>  As needed elaborate on your evaluation of the various Sections enumerated above. If the plan provides additional analysis beyond what is laid out above in the checklist please comment here (e.g., socio-economic descriptions or analysis).</p>	
<p>Reviewers: The Partial-3 rating is for the aquatic component of the plan; the terrestrial component receives a Partial-1 rating.</p> <p>Overall, this is a good Management Plan. Vision, objectives and strategies are well articulated and logically linked. The major weakness of the plan is the failure to prioritize adequately. The RME program is a general framework and is on the right track, but it is incomplete in that it lacks clarification of data gaps, prioritization of research topics, and explicit identification of specific performance measures, indicators, and data collection protocols. Protocols for regional cooperation of RME on terrestrial issues appear to be limited.</p> <p>While out-of-basin effects are having a substantive impact, they seemed to be overemphasized, especially when there are obvious major environmental problems within the subbasin. Over-emphasizing out-of-basin effects makes it difficult to determine how much improvement in anadromous stocks could be expected by in-basin activities and whether in-basin activities should be funded simultaneously with out-of-basin projects. The plan needs to consider the best strategy to contribute to recovery of depressed anadromous species.</p> <p>Appropriate emphasis is placed on the social and cultural aspects of the plan and how implementation might best be achieved in the future within the Salmon River subbasin.</p>		

**General Council Question. Consistency with the Fish and Wildlife Program and its Scientific Foundation**

The Council asks the ISRP to evaluate a subbasin plan for its consistency with the Scientific Foundation adopted as part of the Program and with the requirements for “biological objectives” as describes in the program. The core of the Council’s Scientific Foundation is a set of eight Scientific Principles:

1. The abundance, productivity, and diversity of organisms are integrally linked to the characteristics of their ecosystem.
2. Ecosystems are dynamic, resilient and develop over time.
3. Biological systems operate on various spatial and time scales that can be organized hierarchically.
4. Habitats develop, and are maintained, by physical and biological processes.
5. Species play key roles in developing and maintaining ecological conditions.
6. Biological diversity allows ecosystems to persist in the face of environmental variation.
7. Ecological management is adaptive and experimental.
8. Ecosystem function, habitat structure and biological performance are affected by human actions.

*See 2000 Fish and Wildlife Program, pages 14-15 for full detail.*

Questions on consistency with the objectives and strategies section of the Fish and Wildlife Program are incorporated in the table above. Consistency with the Program’s scientific foundation is interwoven throughout the checklist, and this comment table provides reviewers a place to specifically summarize and identity how well the eight principles are addressed.

**Summary comments and evaluation of the subbasin plan’s consistency with the eight principles of the Fish and Wildlife Program’s Scientific Foundation:**

<p>Reviewers: There is general consistency with the principles. The Management Plan should have been augmented to draw explicit connection with each of the principles. There is inadequate consideration of the dynamic nature of ecosystems and the role of disturbance in shaping aquatic habitats. It is unclear how the Plan will address natural variation both in- and out-of-basin. The Planners do not specifically discuss how biodiversity will be protected and restored.</p>	<p>Partial</p>	
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