

Flathead and Kootenai

Review Summary

The Flathead and Kootenai Subbasin Plans substantially meet the scientific elements for a subbasin plan called for in the Council's 2000 Fish and Wildlife Program and the Subbasin Technical Planning Guide. Because the two plans are closely coordinated, reviewers provide combined review comments for the two subbasin plans as if for a single plan. Where the plans differ in content or quality, these differences are noted in the review comments.

The subbasin plan is clearly, strongly, and explicitly linked to the Council's Fish and Wildlife Program and its Scientific Principles. The plan does an exceptionally strong job of giving attention to whole ecosystem function. It is strong on explicit incorporation of contemporary scientific understanding, as well as local knowledge, using extensive relevant literature. This is a commendable piece of work that could be used as a model of process, applied science, and presentation by other subbasins at earlier stages in developing their plans.

Plan authors demonstrate good coordination between the U.S. and Canada in these two subbasins, which cross national boundaries. Such coordination is a major challenge and the plan demonstrates significant work from parties on both sides of the border. The level of cross-boundary collaboration exceeds that of some subbasins that cross state borders.

This plan is ready for implementation. Most of the review comments are provided to improve the plan as it is implemented. The Flathead and Kootenai plans would have been excellent plans to use as models for the entire planning process, and they will be useful models for other subbasin plans if those less developed plans are revised. The Flathead and Kootenai subbasin planners might also have helpful observations on their consensus building process that could have regional application.

Assessment

The Assessment does a good job providing the geographical, demographical, and environmental context for fish and wildlife resources in this subbasin. The overview presents information at several levels, ranging from sidebar "snapshots" to text descriptions (via links) to more detailed information in appendices and other sources. It is a very informative and user-friendly overview. The Assessment's description of the current status of fish and wildlife focal species is quite thorough. Focal species are extensively described and scientific literature is well referenced. The Assessment adequately describes the effect of the environment on fish and wildlife populations and does a good job synthesizing information regarding the health and functioning of the subbasin ecosystem.

The Assessment is extremely well done on many levels. It contains a thorough and well-explained rationale, procedure, and analysis of outcomes. The significant collaboration across state lines, with Canada, and among various interests is commendable, as is the user-friendly clear presentation of the document. The Assessment represents a complete review and description of the conditions in the subbasin. It evaluates limiting factors and future potential in a

considered way that reflects understanding of the scientific literature and a thoughtful approach to its application.

The Assessment reads like a natural history of the Flathead and Kootenai Subbasins. As such, it would be a useful reference for many types of users beyond those directly involved in subbasin planning or research. It contains extensive citation of the scientific literature and useful links to additional data and information sources. The quality of the writing is high, making it a good resource for non-technical users. The authors should be complimented on providing a thoughtful narrative that didn't get caught in any traps.

The Assessment, in its final sections on opportunities and potential reference sites for monitoring, leads naturally into the Inventory and Management Plan.

Inventory

The Inventory is excellent. It goes well beyond the minimum requirements and is one of the best of the entire set of subbasin plans. The analysis and interpretation are clearly presented and are useful in the evaluation of past and present actions and in linking these to the Assessment and subsequent priorities in the Plan. The authors did a particularly nice job of combining the Inventory and Assessment to guide subsequent actions.

Management Plan

The Management Plan is very nicely done overall. The Plan and its priorities are clearly explained, well drawn from the background, Assessment, and Inventory, and clearly prioritized, using scientifically supported principles. The Plan provides less economic information than some others, but does achieve very good integration (e.g. through effects of human disturbance on ecological functioning) of the economic information presented. More explicit consideration of terrestrial animal species and assemblages might become a valuable larger consideration as the Plan is implemented and iteratively developed.

The Management Plan has some areas that still need to be developed. It has not yet completed a procedure for refining biological objectives as new information becomes available. The RME plan has yet to be completed. However, the RME plan notes attention to necessary elements, identifies a draft list of key subbasin items to include in research and monitoring, and states a clear intention to collaborate and cooperate in developing meaningful RME for the subbasin and region. This commitment to collaboration is well supported by the apparently broad and highly successful collaboration that went into development of the Kootenai and Flathead Plans.

The document as a whole is elegant in presentation, very clear, informative and useful -- an excellent foundation and guide for future work and a model of user-friendly format. It also is commendable in including prioritization at several levels, with criteria clearly stated for each. Overall, the subbasin planners did an excellent job. The Plan provides a good structure for moving ahead that is suitable for this kind of broad planning document. It offers a plan and criteria for further prioritizing the topics for funding. Although the RME section remains to be provided, the text provides confidence that this will happen.

Review Checklist

<p>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.</p>			
<p>I. A. Subbasin Overview <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 was thorough and substantially complete. The following checklist is to aid reviewers in that determination.</i></p>			
<p>I. A.1. General Description</p>		<p>(Y)es, (P)artial, (N)o</p>	<p>Need for additional treatment (0-4)</p>
I.A.1.1	<p>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)?</p>		
<p>Reviewers: The Assessment provides a good general orientation to the subbasin. Land ownership is very well described by different subregions of the subbasin. The Assessment includes the small portion that is in Canada. A small percentage of the subbasin is privately owned.</p>		<p>Yes</p>	<p>0</p>
I.A.1.2	<p>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)?</p>		
<p>Reviewers: The Assessment provides a good general description of the subbasin’s macro-environment and resources. Climate is well described, including temperatures and precipitation, and detail on historical change. A detailed geology discussion is presented for both Canada and U.S. The extensive description of soil types includes a good table showing percent of 6th field watersheds in highly erodable soils. The detailed hydrology section with many links to data sources includes discussions of flow, groundwater, and quality. The annual discharge map provides a useful summary of where water is generated in the subbasin and could serve as an example for other subbasins. Extensive vegetation descriptions for both Canada and the U.S. habitat groups are excellent.</p>		<p>Yes</p>	<p>0</p>
I.A.1.3	<p>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)?</p>		
<p>Reviewers: The Assessment describes anthropogenic disturbances to the aquatic and terrestrial environments very well. Tables are given that provide sources and causes of impairment to stream miles, are a very effective way to summarize the nature of degradation in the subbasin. These are described in detail, in terms of their alternations to critical</p>		<p>Yes</p>	<p>0</p>

functional processes of each of biomes (and subareas within biomes). There are excellent summaries of each effect that highlight the key points of both the current scientific literature and the historical record.			
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?		
<p>Reviewers: The Assessment provides lists of native and non-native fish and wildlife species present in the subbasin.</p> <p>Flathead: There are links to lists of native fish and wildlife in Section 1.3. The complete list of native species is provided in Appendix 13. Federal (U.S. and Canada) listed species are described in the text, in section 1.3. At-risk species on state and tribal lists are in Appendix 14.</p> <p>Introduced and exotic species are covered in a different section (3.1), which is confusing. Table 3.4 on page 139 lists introduced fish species, but also notes that some of the introductions did not establish reproducing populations. A more helpful presentation would be lists or maps of where introduced species are located now, along with an assessment of the impacts of those introductions.</p> <p>For the Kooetnai, Federal (U.S. and Canada) listed species are also described in the text, with a complete list of native fish and wildlife species listed in Appendix 19. At-risk species on state and tribal lists appear in Appendix 14.</p>	Yes	2	
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?		
<p>Reviewers: The Assessment identifies plants that have been listed under ESA, that are recognized by Native American tribes as having special cultural or spiritual significance, and that have special ecological importance within the subbasin. This is one of the few subbasin plans that provides additional detail on plant species. Listed plant species are identified, and an additional list of plants of importance to the tribes is given.</p>	Yes	0	
I.A.2. Subbasin in the Regional Context		<i>(Y)es, (P)artial, (N)o</i>	<i>Need for additional treatment (0-4)</i>
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)?		

	<p>Reviewers: The Assessment adequately describes how this subbasin fits within the regional context. The description isn't long but it identifies a number of key factors by state that pertain to subbasin planning, fish and wildlife, and the relation to other subbasins. Then at the end of the section on human effects on functional processes of biomes, key points of the ecological conditions of the larger region are summarized.</p> <p>However, the Flathead and Kootenai might have better distinguished themselves from one another. The section is done especially well in terms of the unique aspects of aquatic ecosystems and species. The treatment of terrestrial ecosystems should receive a similarly thorough assessment of their unique attributes.</p>	Yes	1
I.A.2.2	<p>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.¹) where this information was available during the planning process?</p>		
	<p>Reviewers: The Assessment adequately describes the subbasin's relationship to Endangered Species Act planning units and U.S. Fish and Wildlife Service-designated bull trout planning units. The plan provides an excellent summary of bull trout recovery units that could serve as a model for other subbasin plans</p> <p>The Flathead describes the relation to ESA (with links to recovery plans) for bull trout, grizzly, bald eagle, wolf and lynx.</p> <p>The Kootenai describes the relation to ESA (with links to recovery plans) for wolf, caribou, eagle, lynx, grizzly, bull trout and white sturgeon.</p>	Yes	0
I.A.2.3	<p>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)?</p>		
	<p>Reviewers: The Assessment adequately summarizes external environmental conditions that might have an effect on fish and wildlife in this subbasin and elsewhere, especially as they relate to basin-wide hydro operations. It considers the effects of mainstem hydro operations and flow fluctuations on fish and wildlife. It also discusses the climate effects of warming, although more consideration of climate change would improve the Assessment. The forward-looking implications of hydro-operations and climate effects are discussed.</p> <p>The Kootenai purposely leaves open the Canada connection for later transboundary planning. However, it might have been included a bit more clearly.</p>	Yes	0

¹ 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.)

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)?	Yes	0
<p>Reviewers: The Assessment adequately identifies macroclimate and human occupation and use trends that may affect hydrological or ecological processes in this subbasin over the long-term. Human alterations to functional processes of the biomes and for fish and wildlife communities as a whole are discussed in good detail, then summarized in terms of reference conditions laid out in the Subbasin Planning Technical Guide: pre-settlement, present, future potential and future no action. Future conditions are very thoughtfully discussed in terms of the kinds of changes likely to be expected. The discussion could be usefully extended into the very long range.</p> <p>There is a good discussion of macroclimate trends and their likely effect on temperature, precipitation, forest cover, glaciation, water, etc. The analysis of macroclimate change is drawn from data and analysis of work done at Glacier National Park. This is a good example of a planner drawing from scientific work done for another purpose and incorporating that information in the subbasin plan.</p>			
	<p>Summary comments and evaluation on the Subbasin Overview: Does the assessment provide the geographical, demographical, and environmental context for fish and wildlife resources in this subbasin?</p>	Yes	1
<p>Reviewers: The Assessment does a good job providing the geographical, demographical, and environmental context for fish and wildlife resources in this subbasin. The overview presents information at several levels, ranging from sidebar "snapshots" to text descriptions to (through links) more detailed information in appendices and other sources. It is a very informative and user-friendly overview. Well done. A few gaps are identified.</p>			

<p>I.B. Species Characterization and Status</p> <p><i>General question: Does the assessment adequately describe the current status of fish and wildlife focal species?</i></p> <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>		(Y)es, (P)artial, (N)o	Need for additional treatment (0-4)
<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 were historically present and where there is a reasonable probability that these fish could be restored to sustainable levels. Criteria</p>			

suggested for selecting focal species include a) designation as Federal endangered or threatened species, b) local ecological significance, ² and c) cultural significance.		
<p>Reviewers: The identification of a series of focal species that will be used to characterize the status of fish and wildlife species within the subbasin is well done. Each section discussing focal species begins with detailed rationale for its selection. Terrestrial focal species are identified according to habitat type, but individual species are also included.</p> <p>In the Flathead Subbasin, aquatic focal species are bull trout and westslope cutthroat trout. Seventy-seven terrestrial target species (mammals, birds, amphibians) are identified in a multispecies approach.</p> <p>In the Kootenai Subbasin, aquatic focal species are bull trout, westslope cutthroat trout, interior redband rainbow and kokanee. Seventy-eight terrestrial target species (mammals, birds, amphibians) are identified in a multispecies approach.</p>	Yes	0
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>Reviewers: The Assessment adequately identifies and characterizes focal species populations. Good detail is given especially in the treatment of bull trout and westslope cutthroat trout. There is a question for Council on consistency across plans. The biomes do not seem to have the same delineation, such as shrub steppe, etc, as other plans, and consistency across subbasins would seem to be appropriate. However, the approach taken in this Assessment is appropriate for the transboundary scales that are of concern for these subbasins.</p>	Yes	0
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)?		
<p>Reviewers: The current and historical status of each focal aquatic species population is described in detail with maps, tables and text discussion by sub-area. For the terrestrial focal species, in the long run the biomes will need to link back to species. At present, the biome approach is justified, and the species issue is addressed in the RME section, where the plan is to use species to monitor biomes.</p>	Yes	0
I.B.4. Does the assessment describe the population's life history, including identifying distinct life stages?		
<p>Reviewers: The Assessment adequately describes the aquatic focal populations' life histories, including identifying distinct life stages. The descriptions are very well done, with good citation of the scientific literature and further detail are provided in appendices. Wildlife focal species are not treated in the manner laid out in the Subbasin Planning Technical Guide, but the approach they take is scientifically sound, and</p>	Yes	0

² 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.

perhaps better than an approach that focuses on a few wildlife focal species.		
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: The Assessment adequately characterizes the genetic diversity of the populations, providing good descriptions of available genetic information.	Yes	0
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: The Assessment adequately describes historical and current harvest of aquatic species. The approach taken to the harvest discussion is thoughtful. Planners considered how harvest historically affected the ecological status of these species. In the Flathead, harvest is briefly discussed for bull trout and westslope cutthroat trout. For bull trout, there is also a discussion of fishery management practices for nonnative species and their effect as a limiting factor. In the Kootenai, harvest is discussed for bull trout, westslope cutthroat trout, redband, kokanee, burbot and white sturgeon. With the exception of beaver, harvest of terrestrial species is less well described, with the Assessment suggesting that harvest is not a key limiting factor for terrestrial animals. However, many of the terrestrial target species are harvested in the present or have been harvested in the past, including black and grizzly bear, moose, mule deer, mink, etc., and this harvest should be described in the Assessment.	Partial	1
Summary comments and evaluation on the Species Characterization and Status Subsection: Does the assessment adequately describe the current status of fish and wildlife focal species?		
Reviewers: Overall, the Assessment's description of the current status of fish and wildlife focal species is very well done. Focal species are extensively described and scientific literature is well referenced. More detail could be provided on the harvest of terrestrial focal species.	Yes	1

I.C. Environmental Conditions

General question to be addressed: Does the assessment adequately describe the effect of the environment on fish and wildlife populations?

I.C.1. Environmental Conditions within the Subbasin		<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, ³ b) potential, ⁴ c) future/no new action, ⁵ 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 describes the current condition of the environment in this subbasin thoroughly and well. Human alterations to functional processes of the six biomes and fish and wildlife communities as a whole are discussed in good detail, then summarized in terms of four reference conditions: pre-settlement, present, future potential and future no action. Future conditions, often left out of subbasin assessments, are very thoughtfully discussed, making this one of the better treatments among subbasin assessments. A well-presented description of environmental conditions in the subbasin is given.		Yes	0
I.C.1.2	Does the assessment classify 6 th field HUCs (or appropriate assessment units) within the subbasin according to the degree to which each area has been modified and the potential for restoration?		
Reviewers: The Assessment classifies aquatic areas by 6 th field HUC, and terrestrial biomes by 4 th field HUC. A separate section describes the process. The geographic analyses are thorough and helpful and are well-reported and interpreted in the documents		Yes	0
I.C.2. Out-of-Subbasin Effects and Assumptions			
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 out-of-subbasin factors that have a significant effect on each focal species in detail in each focal species discussion. Hydrosystem effects on bull trout and westslope cutthroat are presented. There is no assessment of effects on terrestrial target species or biomes. This issue is partially dealt with by being coordinated with the Kootenai and Canadian portions of the basin. A lot of Canadian interactions were purposely left out, but the authors did well under this constraint.		Partial	1

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

⁴ 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.

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

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?	Yes	1
<p>Reviewers: The Assessment establishes assumptions for each external effect that can be used to calculate the effects of external conditions to some extent and probably to the extent possible. For wildlife, the biome is the analyzed unit.</p> <p>They have a specific section on this with more detail than most plans; however, a quantitative assessment of the impact on the productivity and sustainability to the focal species would improve the plan.</p>			
I.C.3. Environment / Population Relationships			
<p>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.</p>			
<p>Reviewers: The Assessment adequately identifies, 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. This is done for each focal aquatic species in terms of environmental factors effect on populations by life stages or key environmental correlates. The environment's ability to provide key environmental correlates is evaluated.</p> <p>There is not a similar treatment of terrestrial biomes, where environmental factors are discussed in a qualitative way. However, although terrestrial species are not analyzed in this way, a lot of relevant biological information is provided. The subbasin makes a good argument for considering biomes as an integrator to support diverse wildlife, though they will need to loop back as the Plan is implemented to verify and validate their assumptions and to generate better local and regional information on specifics of species-environment and species-species interactions. The group may also want to balance the population emphasis of their aquatic treatment and the habitat emphasis of their terrestrial treatment.</p> <p>Capitalizing on the detailed spatial scale maps, part of the future work could be to quantitatively explore restoration scenarios considering various human and settlement trajectories. Human demographics are treated generally and intelligently, but are not covered in the same detail as other elements of the plan, with links to data. The general discussion of future conditions for terrestrial biomes is not carried into the later sections of the Assessment where TBA is used.</p> <p>For the Kootenai Assessment, there is disagreement among reviewers and authors with regard to the evaluation of white sturgeon/environmental relationships. Although the presentation spoke to the white sturgeon relationships to lost riparian areas for early life stages, the current text</p>		Yes	1

<p>does not refer to it. The text goes to great lengths to discuss (with many citations) other causes of poor recruitment but does not mention what may be the obvious one; riparian rearing conditions (Coutant 2004). The discussion cannot be considered complete without reference to that mechanism, even if the authors disagree with it. The section on sturgeon should be updated to incorporate current literature.</p>		
<p>Summary comments and evaluation on the Environmental Conditions Section: Does the assessment adequately describe the effect of the environment on fish and wildlife populations?</p>		
<p>Reviewers: The Assessment adequately describes the effect of the environment on fish and wildlife populations. The Assessment is very nicely and thoroughly done and is amply supported by use of data and literature and by linkages within the document to information and analyses. This is an especially nice format for this public document</p> <p>The aquatic section is thoughtfully done. The wildlife approach is different than that laid out in the Subbasin Planning Technical Guide, but the approach is compelling and adequate for the purposes of the subbasin planning process. The higher diversity of terrestrial species makes the focal species approach less sound and tenable than the approach that is taken with aquatic species.</p>	<p>Yes</p>	<p>1</p>

<p>I.D. Ecological Relationships</p> <p><i>Question to be addressed: Does the assessment describe the key inter-species relationships and the key functional relationships?</i></p>	<p>(Y)es, (P)artial, (N)o</p>	<p><i>Need for additional treatment (0-4)</i></p>
<p>I.D.1. Inter-species Relationships</p> <p>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?</p>		
<p>Reviewers: The Assessment adequately identifies important inter-species relationships. The consideration of interrelationships is more thorough than many other subbasin assessments, but it could do more, especially for terrestrial environments (including plants and animals) and terrestrial populations, as the terrestrial aspects focus strongly on managing habitat (plant communities). However, good detail is provided in tables of wildlife species interaction with salmonids.</p>	<p>Yes</p>	<p>1</p>
<p>I.D.2. Processes and Functions</p> <p>Does the assessment identify for species within this subbasin and assess the current status of ecological processes and functions in the subbasin?</p>		
<p>Reviewers: Key ecological functions and processes are well presented and very thoroughly done. Key ecological functions (KEFs) are identified and ranked in terms of impact to these KEFs by target biomes and habitat</p>	<p>Yes</p>	<p>1</p>

<p>types. IBIS is used to identify functional specialists (with few ecological functions) and key ecological correlates. The ICWBMP integrity index is a nice idea and addition</p> <p>The subbasin is divided into biomes for the Assessment, with critical functional processes described in detail for each. Extensive detail is presented on riverine and nutrient processes. Good further detail is provided in tables in text and through links to deeper sources.</p>		
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I.E. Interpretation and Synthesis / Limiting Factors and Conditions		
I.E.1. Limiting Factors and Conditions		
<p>Does the assessment describe:</p> <p>1) Historic factors or conditions that led to the decline of each focal species and of ecological functions and processes?</p> <p>2) Current key factors or conditions within and without the subbasin that inhibit populations and ecological processes and functions relative to their potential.</p>		
<p>Reviewers: The Assessment clearly identifies limiting factors and discusses how limiting factors, and their relative importance and relationships, were inferred. This is done in detail for each of the focal aquatic species and assessed in terms of impacts on terrestrial target species. Both are brought together very well in a section describing key factors impeding optimal ecological functioning for both aquatic and terrestrial systems.</p> <p>For the Kootenai, the omission of consideration of riparian rearing conditions for white sturgeon noted in Section 1.C.3 remain an exception to the overall thorough treatment.</p>	Yes	0
I.E.2. Key Findings		
<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: The knowledge gained through the Assessment is clearly identified for focal species (aquatic) or biome (terrestrial) and is synthesized across species, communities and biomes (% optimum) to summarize the status of the subbasin, status of species and the limiting factors. This is extensively done. Potential conflicts and inadvertent incompatibilities between species and ecological processes will need to be kept in mind as the plan is implemented.</p>	Yes	1
I.E.3. Subbasin-wide Key Assumptions/Uncertainties (“Working Hypothesis”)		
<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: The Assessment describes the key assumptions (including uncertainties) that have been made in the “Key Findings” section. Hypotheses are well done. Several sources are used to identify working hypotheses for aquatic and terrestrial species. They reflect information identified in the Assessment. Methodology is well documented in appendices. Key uncertainties are less well described. Uncertainties and assumptions embedded in the QHA and TBA analysis are not addressed in any significant way.</p>	<p>Yes</p>	<p>1</p>
<p>Overall impression and evaluation of the Assessment: 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: The Assessment synthesizes the information regarding the health and functioning of this subbasin ecosystem very well. The Assessment is extremely well done on many levels. It contains a very thorough and well-explained rationale, procedure, and analysis of outcomes. The significant collaboration across state lines, with Canada, and among various interests is commendable, as is the user-friendly clear presentation of the document. The Assessment represents a complete review and description of the conditions in the subbasin. It evaluates limiting factors and future potential in a considered way that reflects understanding of the scientific literature and a thoughtful approach to its application.</p> <p>The Assessment is very thorough and contains many nice thoughtful touches: the use of ICEBMP and TBA data, the discussion of focal versus target species approaches, attention to both mainstem and tributaries, with differences in limiting factors highlighted, extensive review and analysis of fire patterns and forest structure. The extensive attention to presentation and use of data, historical and current, local and general, is very helpful (e.g., the fire histories and influences).</p> <p>The Assessment reads like a natural history of the Flathead and Kootenai Subbasins. As such, it would be a useful reference for many types of users beyond those directly involved in subbasin planning or research. It contains extensive citation of the scientific literature and useful links to additional data and information sources. The quality of the writing is high, making it a good resource for non-technical users. The authors should be complimented on providing a thoughtful narrative that didn't get caught in any traps.</p> <p>The Assessment in its final sections on opportunities, potential reference sites for monitoring, leads naturally into the Inventory and Management</p>	<p>Yes</p>	<p>0</p>

Plan.		
As noted above, professional differences exist over white sturgeon recruitment relationships to the environment.		

II. The Inventory		
<i>(This checklist section was 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 were 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>		
II.A. Existing Protection		<i>Need for additional treatment (0-4)</i>
	<i>(Yes, (P)artial, (N)o</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: The Inventory adequately identifies areas with protections. Good detail is provided in the text, with more detail in an appendix. The Inventory treats protections for aquatic species and habitats very well. However, most of the information is limited to streams covered by some land management designation. The protection provided by INFISH and other regulatory rules is outlined, but there is no parallel treatment of terrestrial habitats in the Inventory. These are addressed elsewhere in the assessments of biomes.		Yes 1
II.A.2	Does the inventory assess the adequacy of protections for fish, wildlife, and ecosystem resources?	
Reviewers: The Inventory assesses the adequacy of protections for fish, wildlife, and ecosystem resources with a nice synthesis of information. Some information is provided in the text of the Inventory, while other information is provided in various parts of the Assessment.		Yes 0
II.B. Existing Plans		
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: The Inventory identifies and reviews applicable local, state, tribal, and/or federal fish and/or wildlife management plans and water resource management plans that affect fish and wildlife in good detail for both Canada and the U.S.		Yes 0
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: The Inventory assesses the extent to which existing plans are consistent with the subbasin Assessment and their adequacy in protecting and restoring fish, wildlife, and ecosystem resources in a nice analysis		Yes 0

and interpretation. It is an especially good effort to complete, interpret, and report consistency and adequacy. Information appears throughout the Assessment.			
II.C. Management Programs / Restoration and Coordination Projects			
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? ⁶		
Reviewers: The Inventory identifies management programs and initiatives that have a significant effect on resources. An extensive list of both BPA and non-BPA funded projects is provided.		Yes	0
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 was authorized and who is responsible for implementation; identify the funding source; and identify the relationship to other activities in the subbasin?		
Reviewers: The Inventory describes projects thoroughly in terms of lead entity, implementation, funding source and relationship to other activities in the subbasin.		Yes	0
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 limiting factors or ecological processes the activity is designed to address in the project descriptions. These are summarized in detail according to which of the limiting factors identified in the assessment projects are designed to address (in Tables 9.4 and 9.5 for the Flathead; Tables 9.5-9.8 for the Kootenai.) Adding a little more on limiting factors to the project descriptions would be useful.		Yes	1
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: The Inventory summarizes both accomplishments and failures of project activities either through a short summary in the text or through a link to program evaluation and review. It also develops an effectiveness rating system and uses it to evaluate projects effectiveness in addressing a limiting factor. These are summarized in Tables 9.4 (aquatics) and 9.5 (terrestrials) for the Flathead, and Tables 9.5-9.7 (aquatics, with separate tables for burbot and white sturgeon) and 9.8 (terrestrials) for the Kootenai. The Inventory is especially refreshing in directly acknowledging where past actions have not been very successful (e.g., attempts to eradicate/limit/control exotics).		Yes	0

⁶ 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?

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?		Yes	0
Reviewers: The Inventory adequately relates the Assessment to the existing activities and identifies gaps. A separate section relates projects to limiting factors identified in the assessment Gaps are summarized in the tables cited in II.C.4. The analysis is nicely done.				
<p>Overall impression and evaluation of the Inventory: 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>			Yes	0
Reviewers: The overall impression of the Inventory is that it is excellent – it goes well beyond the minimum requirements and it is one of the best of the entire set of subbasin plans. The analysis and interpretation are clearly presented and are useful in the evaluation of past and present actions and in linking these to the Assessment and subsequent priorities in the Management Plan. The authors did a particularly nice job of combining the Inventory and Assessment to guide subsequent actions.				

III. The Management Plan

(Derived from pages 12-16 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 management plan.

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).

III.A. The Vision for the Subbasin

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 described in the Council's 2000 Fish and Wildlife Program? (Council Question 4 to the ISRP):

	(Y)es, (P)artial, (N)o	Need for additional treatment (0-4)
Reviewers: The vision adequately describes the desired future condition for the subbasin that will drive development of the biological objectives and strategies. The vision statement is accompanied by several guiding principles that directly relate to the Fish and Wildlife Program and also to the conditions in the subbasin and that will help make the vision more operational. The vision explicitly describes the intent to maintain ecosystems with healthy and harvestable fish and wildlife populations, normative ecological conditions, and sustainable human communities. This is a broad and ambitious vision, commendable in explicitly targeting sustainable human	Yes	0

pops and normative ecological conditions. It also explicitly states that the scientific principles will guide the implementation of the plan.		
III.B. Biological Objectives		
Does the Biological Objectives Section of the Management Plan describe physical and biological changes within the subbasin needed to achieve the vision?		
Reviewers: The biological objectives section of the Management Plan adequately describes the physical and biological changes needed to achieve the vision. Many of these are described in the Assessment, in terms of future potential for anthropogenic disturbances and their effects on ecological functions. Good detail is provided to support the choice of principles and the changes needed for the subbasin to achieve the vision. The subbasin will need to do some more direct study and evaluation of wildlife and terrestrial animal populations and diversity as they implement the Plan, in order to fully understand the terrestrial habitat-wildlife linkages that are assumed and so to effectively foster wildlife through their management of habitat.	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, provides general descriptions for basin-level goals, objectives, and strategies. The Mainstem Amendments provide additional biological objectives as well on pages 11-14. ⁷		
Reviewers: The biological objectives are consistent with basin-level visions, objectives, and strategies adopted in the program. They are organized well with explicit reference to the Council's Fish and Wildlife Program basin-level objectives for resident fish and wildlife.	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: The biological objectives are based on the subbasin Assessment. There are nice clear linkages between objectives and the Assessment, supported by compelling analyses and illustrated in the format of the document. A scientific framework is developed within which limiting factors are to be addressed through objectives and strategies. The plan contains good graphs of needed mitigation and "decision pathways" for onsite and offsite mitigation.	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?		

⁷ 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.

Reviewers: The biological objectives are empirically measurable and based on an explicit scientific rationale. Objectives are identified for type of area (reservoir, mainstem, etc), biome, subsistence/harvest, focal species, and administration. Objectives are directly linked to limiting factors and are identified to unit scale, life stages and time frame with strategies listed for each. The planners have been commendably careful to specify clear measurable targets, including reference conditions as needed.	Yes	0
III.B.4. Are biological objectives identified for both the short and long-term?		
Reviewers: Although not specifically called short and long-term, the identification of both short and long-term biological objectives is implied in their prioritization process and criteria. A target date (timeframe) is identified for each objective. Timelines do not vary much; most were for the 2005-2020+ timeframe. Objectives might have segregated better into short term and long term. It may be useful to condense the immediate actions into a short term section and others into a long-term section.	Yes	1
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: The biological objectives appear to be complementary to programs of tribal, state and federal land or water quality management agencies in the subbasin. Complementarity is not directly addressed, but is implicit in the composition of the SBP team, in the document's suggestion of healthy partnerships in the subbasin, and in the Inventory and Prioritization.	Yes	0
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? ⁸		
Reviewers: The Clean Water Act is addressed in a separate section. The plan appears well-coordinated with the CWA.	Yes	0
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? ⁹		
Reviewers: The Endangered Species Act is addressed in a separate section and also in the Assessment. Bull trout objectives also directly address the ESA. Overall, the plan appears well-coordinated with the ESA.	Yes	0

⁸ *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).

⁹ E.g. NOAA Fisheries has provided 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.

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: Differences among co-managers leading to alternative biological objectives are not apparent, although the presentation suggested that some had existed. Objectives are presented as consensus objectives.	na	na

III. C. Strategies¹⁰		
III.C.1. Internal Consistency of the Plan. 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) ¹¹		
Reviewers: The Strategies Section of the Management Plan explains the linkage of the strategies to the subbasin biological objectives, vision and the subbasin Assessment. These linkages are direct, are clearly highlighted and are well-documented by the content of the documents and well laid out in tables.	Yes	0
III.C.2. Consistency with the Fish and Wildlife Program. Are (Council Question 4)		
Reviewers: The strategies are consistent with those adopted in the program. The entire Management Plan is directly related to the Council's Fish and Wildlife Program.	Yes	0
III.C.3. Consideration of Alternative Management Responses. Does the Strategies Section explain how and why the strategies presented were selected over other alternative strategies (e.g. passive restoration strategies v. intervention strategies)? (Council Question 5) ¹²		
Reviewers: The Strategies Section explains how and why the strategies presented were selected. Although the strategies are not prioritized or discussed as alternative actions, the strategies were prioritized into broad	Yes	0

¹⁰ *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.

¹¹ 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.

¹² 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 were selected over other alternative strategies (e.g. passive 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 were not recommended. The Council's primary interest is on why and how a strategy was selected -- the rationale for the selected strategy -- which necessary includes some discussion of alternatives.

categories in the tables of objectives. The subbasin planners have gone beyond this question and have developed explicit criteria for ranking strategies, which demonstrates that they are selecting among alternative strategies in a scientifically sound manner. The decision tree graphs are also useful in this regard, making it clear how they are selecting and prioritizing strategies. The Kootenai differs from the Flathead in including strategies for sturgeon and burbot.		
III.C.4. Prioritization. Does the Strategies Section describe a proposed sequence and prioritization of strategies?		
Reviewers: The Strategies Section describes a proposed sequence and prioritization of strategies by broad categories. Strategies are scored using a number of criteria presented in the text and then ranked by priority. Criteria for prioritizing strategies are clearly stated and elaborated, and these are consistent with Fish and Wildlife Program principles and content. This section is thoughtful and useful.	Yes	0
III.C.5. Additional Assessment Needs. Does?		
Reviewers: The Strategies Section does include some discussion of obtaining more information as needed. Information needs are also included in the RME section.	Yes	0
III.C.6. Clean Water Act: 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: The Management Plan's description of the relation of strategies to the Clean Water Act is included in a separate section of the RME.	Yes	0
III.C.7. Endangered Species Act: 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: The Management Plan's description of the relation of strategies to the Endangered Species Act is included in a separate section of the RME.	Yes	0
III.D. Research, Monitoring, and Evaluation		
<p>This RME Checklist Section provides the review elements necessary for the ISRP/ISAB to answer <i>Council Question 6. Plan for Assessing Progress toward Subbasin Goals</i>. The ISRP/ISAB is asked to determine whether a subbasin plan includes 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). <i>NOTE: The focus of the RME component should be on the strategy level rather than individual project level.</i></p> <p>Subbasin planners were 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.</p>		

III.D.1	<p>Research: 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?</p>	<p>(Y)es, (P)artial, (N)o</p>	<p><i>Need for additional treatment (0-4)</i></p>
<p>Reviewers: The RME section of the plan presents an outline but does not fully describe a research agenda to help resolve management uncertainties. The subbasin planners are on the right track but it is clearly a germinal plan. They are clearly aware of the issues that they will need to address in generating an RM and E plan, and they create confidence that this will actually happen.</p> <p>The Plan does make clear statements of philosophical and practical considerations. Many specific information or evaluation needs are built into strategies for addressing objectives. RME will take place on a project basis according to whatever strategies are chosen to address the objectives. Subbasin planners are conducting an RME planning effort through the Adaptive Environmental Assessment and Adaptive Management Workshop planned for July 2004. The results of this workshop will be used to help develop a comprehensive RME plan.</p>		<p>Partial</p>	<p>1</p>
III.D.2	<p>Monitoring Objectives: 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>	<p>Partial</p>	<p>1</p>
<p>Reviewers: The RME subsection partially identifies the kind of information that needs to be collected. An outline is presented but the details are as yet insufficient to identify a clear research agenda.</p> <p>Subbasin planners are in the process of developing a comprehensive M&E program. The current subbasin plan provides a good discussion of ongoing monitoring. Projects are grouped by type (e.g. stream restoration, water quality) and monitoring characteristics for each type are described. Even though the description is general, it is thorough.</p> <p>Needed information is also identified in the objectives section and, by implication, in descriptions of on-going programs from which future RME can be developed. As the plan is implemented attention will need to be paid to more integrated whole-subbasin approaches.</p>		<p>Partial</p>	<p>1</p>
III.D.3	<p>Monitoring Indicators: 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>Partial</p>	<p>2</p>
<p>Reviewers: The RME subsection identifies indicators by which progress towards achieving the stated vision can be evaluated. Indicators are described in general for monitoring projects of each type. A lot of good</p>		<p>Partial</p>	<p>2</p>

<p>ideas are suggested by implication in objectives tables and in description of current RME. Socioeconomic assessment should be built into future RME, especially as people and social, cultural, economic health are built into the Vision. M&E in these subbasins will be very different than for those that have anadromous fish.</p>		
<p>III.D.4</p>	<p>Data and Information Archive: 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: The RME subsection doesn't completely describe an infrastructure to archive relevant data and meta data. Although a complete listing of existing data archives, including both U.S. and Canada archiving locations, is provided, none is identified as a central location to access and link to subbasin fish and wildlife resources. However, this is stated as a future need. The Plan is commendable in stating commitment to free data availability, and in showing this commitment in local publication and presentation activities, the active data collaboration that produced the Plan, and the included products of the Assessment.</p>	<p>Partial</p>	<p>1</p>
<p>III.D.5</p>	<p>Coordination and Implementation: Does 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 subsection doesn't describe who will collect data or the methods by which it will be collected. It describes existing efforts well, but future plans will be further developed during the July workshop. The information is recognized as a future need to be provided.</p>	<p>Partial</p>	<p>2</p>
<p>III.D.6</p>	<p>Summary Question. RME Logic Path (Evaluation and Adaptive Management): 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: The subbasin plan hasn't yet completed a scientifically supportable procedure for refining the biological objectives as new information becomes available. Even though the complete RME plan is still in development, an explicit section on a logic path is provided, the elements of a logic path are clear throughout the documents (Assessment, Inventory, and Management Plan). The scientific framework in the Plan summarizes the plan's logic.</p> <p>The RME plan notes attention to necessary elements, states a draft list of key subbasin items to include in R and M, and states clear intention</p>	<p>Partial</p>	<p>1</p>

<p>to collaborate and cooperate in developing meaningful RME for the subbasin and region. This commitment to collaboration is well-supported by the apparently broad and highly successful collaboration that went into development of the Kootenai and Flathead Plans. The subbasin will need to consider selecting some terrestrial species (and assemblages or other diversity component) to be used as part of the M&E process.</p> <p>Planners have done as much as they can do at this stage, but this is a key component of the subbasin plan remaining to be developed.</p>		
<p>Overall impression and evaluation of the Management Plan: 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 overall evaluation of the Management Plan is that it is very nicely done. The Plan and its priorities are clearly explained, well-drawn from the background, Assessment, and Inventory, and are clearly prioritized, using scientifically-supported principles.</p> <p>The Plan provides less economic information than some others, but does achieve very good integration (e.g. through effects of human disturbance on ecological functioning) of the economic information presented.</p> <p>The Plan may be biased toward aquatic ecosystems and fishes. More explicit consideration of terrestrial animal species and assemblages might become a valuable larger consideration as the Plan is implemented and iteratively developed.</p> <p>The document as a whole is elegant in presentation, very clear, informative and useful -- an excellent foundation and guide for future work and a model of user-friendly format. It also is commendable in including prioritization at several levels, with criteria clearly stated for each.</p> <p>The Plan provides a good structure for moving ahead, suitable for this kind of broad panning document. It offers a plan and criteria for further prioritizing the topics for funding. The RME section remains to be provided, but the text provides confidence that this will happen.</p>	<p>Yes</p>	<p>0</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 described 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 identify how well the eight principles were 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: The Subbasin Plan is clearly, strongly and explicitly linked to the Council's Fish and Wildlife Program and its Scientific Principles. The Plan does an exceptionally strong job of giving attention to whole ecosystem function. It is strong on explicit incorporation of contemporary scientific understanding, as well as local knowledge, using extensive relevant literature. This is a commendable piece of work that could be used as a model of process, applied science, and presentation by other subbasins at earlier stages in developing their Plans.</p> <p>The Plan could have given a bit more attention to the roles of terrestrial species, and may need to reconsider such Plan elements as attempts to actively tool habitat annually, but overall it represents a commendable job of incorporating attention to dynamics, diversity, and whole ecosystems.</p>	<p>Yes</p>	<p>0</p>
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