

Coeur D'Alene

Review Summary

The Coeur D'Alene Subbasin Plan meets most of the scientific elements of a subbasin plan called for in the Council's 2000 Fish and Wildlife Program and Subbasin Technical Guide. However, some parts need to be further developed, particularly: (1) the Assessment's interpretation of QHA outputs require greater analytical discussion; (2) the good start on prioritizing objectives and strategies for restoration and protection should be carried further to refine the impractically large group of objectives now ranked as high priority; and (3) the research, monitoring and evaluation (RME) plan needs expansion to include adaptive management pathways.

A particular strength of the Coeur d'Alene Subbasin Plan is its integration with the Intermountain Province Plan. This gives the subbasin plan close linkage to provincial and regional levels, as well as to overall Fish and Wildlife Plan principles for the basin. Goals and objectives of the Fish and Wildlife Plan are the framework within which the province and subbasin goals and objectives are developed. The subbasin Management Plan objectives are explicitly tiered to those of the higher levels of aggregation.

Another strong characteristic of the subbasin plan is synthesis in the Assessment. This, in combination with the province-level plan, shows a high degree of synthesis across most important aspects, and across space and time. The Assessment's material on the aquatic focal species—bull trout, westslope cutthroat trout, and kokanee salmon—displays exemplary knowledge about the populations of these fishes in the subbasin.

Assessment

The provincial document, with which the subbasin plan is coordinated, provides good integration with the regional context. Little additional work is needed. Its aquatic approach is focal-species-based, whereas the terrestrial approach involves focal habitats, not species.

The aquatic assessment proceeds from the selection of the three focal fishes mentioned above. They are chosen for their ecological, cultural and recreational importance. Extensive descriptions of history, population status, limiting factors and restoration potential are provided for the aquatic focal species. Conclusions about limiting factors and restoration potential are based largely on results from use of a "Qualitative Habitat Assessment" (QHA) model. The Assessment needs refinement of QHA output and much more interpretive discussion of the results; this will enable refinement and better prioritization of objectives in the Management Plan. Much more than physical habitat affects fishes; the Assessment could be improved by greater attention to interspecific relationships and to fishing harvest effects.

In the terrestrial assessment, the focal habitats chosen for this subbasin are wetlands, riparian and riparian wetlands, and upland forests. The terrestrial assessment is well done. It made use of recent mapping technology to locate the designated habitat types. The terrestrial assessment could be made more useful by greater discussion on use of the habitats by significant species.

The Assessment lists in its aquatic section twelve native and sixteen exotic fishes that inhabit the subbasin. For four of the native species and five of the exotics, the Assessment briefly summarizes history and present status. A partial listing of terrestrial species is also provided. Federal and state listed species, and priority species, are identified and briefly described. More detailed descriptions of history, status, and limiting factors are given for the three focal aquatic species: bull trout, west slope cutthroat, and kokanee salmon. Terrestrial animals may have been incompletely listed.

The Assessment could be improved by considering issues in the longer-term, namely demographic changes, population growth, economic growth, and the shift away from resource-extraction based economies. These matters will be important because this area has one of the Columbia River Basin's fastest growing populations and economy.

The Assessment adequately describes the current status of focal fishes and focal wildlife habitats, particularly when considered in combination with the IMP's province-level overview. In some cases, data limitations prevent detailed description, with attendant changes in habitats for fish and wildlife.

The subbasin plan, taken in combination with the provincial overview, does a good job of putting the subbasin in the context of the whole Columbia River Basin. This is a strength of having province-level integration. This subbasin Assessment (or overview) briefly addresses some regional context but does not indicate how, except for hydrosystem influences, it ties in with the Columbia River Basin physically, ecologically, or with regard to human affairs. Although the provincial plan provides regional and Columbia River Basin-wide context of the province, it does not do this for subbasins. More subbasin-specific information would have been useful.

Out-of-subbasin factors are described, particularly in the provincial overview chapters. Estuary and mainstem issues are of minor importance to the IMP because anadromous fish are extirpated. On the other hand, operations of the FCRPS for power, flood control, irrigation and spill have profound effects on aquatic, and to a lesser extent, on terrestrial resources in the IMP.

The subbasin Assessment could be improved by better describing significant plants and by examining future human populations and land use trends.

Inventory

The Inventory (taken together with the province plan), although comprehensive in listing and individually describing programs and projects, is far from complete in synthesis. The Inventory would be greatly strengthened by a more complete description of USFS and BLM programs. Those agencies control much of the land in the subbasin, but the Inventory does not cover their programs, and the provincial plan does not either. Given the importance of Federal ownership and management, the plans would be significantly improved by a thorough description of these agencies' pertinent activities.

Management Plan

This Management Plan has an excellent outline summary of conclusions from the Assessment and Inventory and is strong on specification of objectives and strategies that address the limiting factors identified in the Assessment, and that are consistent with province- and basin-level objectives. The plan would be made more effective by expanding its ecological outlook. The province plan sets the stage for management planning very well. The subbasin plan needs more work in building on that.

To deal with the time constraint on subbasin planning, the Intermountain Province's planning groups developed their Assessments, Inventories, and Management Plans more or less concurrently. This had drawbacks that the planners recognized, but good communication (including personnel overlap in assessment and management-planning) enabled many subbasin Assessment results to inform planning. In the end, the procedure seems to have worked reasonably well, as the Coeur d'Alene Subbasin's Management Plan is better developed than those of most other subbasins in the Columbia River Basin.

A helpful feature of the Management Plan is that it begins with a summary of the limiting factors that are identified in the Assessment. The objectives address these limiting factors and are well organized and expressed.

The Management Plan could benefit from a more complete discussion. Much of it is set forth in lengthy tables. The brief items from tabular compartments could be expanded upon in much more informative text.

The plan has a systematic approach for setting priorities; this constitutes a good procedure and bodes well for refining the prioritization. Refinement is needed because the plan rates too many strategies as high-priority, and this does not permit choosing among strategies in order to accommodate a very limited budget. The prioritization done thus far is a major accomplishment.

Research needs are identified in the province plan but not in the subbasin plan. The RME plan would be made more useful by expanding on its tabular material with more text on explanation and rationale. The research could be tied closer to the objectives. This research section flowed more from the Management Plan than from the Assessment and Inventory; it should link back to them more clearly.

The monitoring and evaluation plan is a good beginning, but more work is needed on it, namely, coordination for standard protocols; plans for cooperative monitoring of projects; definition of monitoring indicators; and development of infrastructure for RME quality assurance, data management/analysis, data reporting, and data archiving.

Importantly, adaptive management is not addressed in the RME plan. The logic path presentations in the province plan do incorporate this, but the subbasin RME plan does not appear to refer back to that. Failure to explain how the information from monitoring and evaluation will be used for evaluation, and how the monitoring and evaluation work outlined in this section will be used in adaptive management stands to hamper the effectiveness of restoration and protection in the subbasin.

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 planners provide a good general orientation in the subbasin plan as well as in the provincial plan. There is an expectation among reviewers that more cultural information would have been provided about the Coeur d’Alene tribe. What is culturally important to the tribes? What is culturally appropriate to discuss? Given that many tribes prefer to keep their sacred sites and practices secret to avoid attracting tourists, this could be noted in general terms. More information could be provided on cultural significance to add context to the subbasins and to be a “place holder” for these tribal interests as the subbasin planning process continues. Perhaps this tribal information is in the UCUT material.</p> <p>A minor point of clarification for Figure 5.5: please distinguish between land ownership (Federal) and land management responsibility (list of agencies).</p> <p>In this category and essentially all other categories, the IMP has done an exceptional job of “tiering” from watershed, to subbasin, to province.</p> <p>Overall, the general orientation to the Coeur D’Alene subbasin is adequate.</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 planners provide a general orientation to the geology, weather patterns, and vegetation, etc. of the subbasin in both the subbasin plan and the provincial plan.</p> <p>Table 6-18 shows Fourth of July Creek as tributary to Coeur d'Alene Lake. It is, however, tributary to the Coeur d'Alene River miles above the Lake. Perhaps Fourth of July Creek is confused with Cedar Creek, which has its headwaters at 4th of July Pass near 4th of July Creek, and which does flow directly into the lake (or into Wolf Lodge Creek shortly before that stream enters the lake).</p> <p>Overall, the Assessment's description of the subbasin's macro-environment is adequate.</p>	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)?		
	<p>Reviewers: The planners provide a good general description of the subbasin's historical and current anthropogenic disturbances from mining, road construction, forest practices, railroads and agriculture in both this Assessment and in the provincial plan. Land ownership patterns that are associated with terrestrial habitat disturbances are described.</p> <p>Overall, the Assessment's description of anthropogenic disturbances is adequate.</p>	Yes	0
I.A.1.4	<p>Does the assessment provide a list of native and non-native fish and wildlife species present in this subbasin including those species that:</p> <ul style="list-style-type: none"> 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 lists twelve native and sixteen exotic fishes and, for some of them, presents a short history of their condition and what is known about their present status. A partial listing of terrestrial species is also shown. Federal and state listed species, and priority species, are identified and briefly described. More detailed descriptions of the history, status, and limiting factors are given for the three focal aquatic species: bull trout (ESA-listed), west slope cutthroat, and kokanee salmon.</p> <p>The Assessment does not list amphibians and reptiles, but they are included in the IMP province-level plan, which generally has a good list of exotic species.</p>	Yes	1
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 has little information on native plants, but the Coeur d’Alene Tribe uses native plants.</p> <p>The Assessment contains a partial response to this guideline. Federally listed plants are included in the Assessment, but neither the equivalent state lists nor the lists of plants that have significance to American Indian tribes are included. This can be addressed in future iterations of the plan if deemed critical.</p>		Partial	2
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: Linkages between this subbasin and other subbasins, the province, and the region are addressed well in the provincial plan.</p> <p>This subbasin Assessment (or overview) briefly addresses some regional context but does not describe how the subbasin fits within the Columbia River Basin context. The IMP plan provides the regional and Columbia River Basin-wide context of the province, particularly regarding hydrosystem effects, such as flow management and blockage of anadromous fish.</p>		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. ¹) where this information was available during the planning process?		
<p>Reviewers: The plan describes the subbasin’s relationship to bull trout planning units. The information from which bull trout recovery plans are derived, however, is deemed controversial by some stakeholders who participate in the Subbasin Work Teams. For this reason, there is extensive discussion among some of the work teams about whether elements of the recovery plans should be included among strategies developed by the Subbasin Work Teams. Nevertheless, the bull trout recovery plans are taken into account by the Subbasin Work Teams and are reflected in the Management Plan’s objectives and strategies.</p> <p>All told, the Assessment adequately describes the subbasin’s relationship to ESA planning units.</p>		Yes	0
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)?		

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.)

Reviewers: The subbasin Assessment in combination with the provincial plan adequately describes external environmental conditions.		Yes	0
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: Consideration of the 50-year macroclimate and human occupation time horizon is not in the Assessment. The identified planning horizon is ten to fifteen years. Factors exist in this region that could derail the plan's objectives and strategies beyond the ten-to-fifteen year planning horizon. The Assessment would be more useful if it looked into the long-term future, particularly regarding demographic changes, population growth, economic growth, and the shift away from resource-extraction based economies. This subbasin is one of the Columbia River Basin's fastest growing areas in terms of human population and economy. The planners address these issues historically but do not take that analysis into the future. There is little description of the major planning challenges of the aquifer. The Assessment does consider such things as increased fishing and hunting pressure in terms of a ten-year time horizon. Adding an examination of other significant issues would augment the plan's efficacy. The Assessment could include a better projection of future climate change effects. The human influences are described in the provincial overview.		Partial	1
Summary comments and evaluation on the Subbasin Overview: Does the assessment provide the geographical, demographic, and environmental context for fish and wildlife resources in this subbasin?			
Reviewers: The provincial document makes a general integration with the regional and basin-wide context, but this is not done for the Coeur d'Alene Subbasin. The Assessment could do a better job of describing significant plants and of examining future human populations and land use trends. All told, little additional work is needed. This overview is excellent when taken with the province-level information.		Yes	1

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

series of focal species.		
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 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 Assessment lists three focal fishes: bull trout, westslope cutthroat trout, and kokanee salmon. They are selected for their ecological, cultural and recreational importance. Extensive descriptions of the history, population status, limiting factors and restoration potential (based on QHA) are provided for the focal species. For the terrestrial section, three focal habitats are chosen: wetlands, riparian and riparian wetlands, and upland forests.</p> <p>The terrestrial approach is well done. It focuses on habitat as a start. The planners do not focus on Paul Ashley's work as much as other Washington State subbasins have. Some of the Management Plan strategies are to collect data on focal species where little data is available.</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 delineates geographic distributions of population units for the aquatic focal species. The people contributing to this section display exemplary knowledge of the fish populations present in the subbasin.</p> <p>The Assessment identifies and characterizes focal species populations to the extent that existing data allow. The IMP's subbasin planners acknowledge, however, that there are significant data gaps in the IMP, and subbasin planning is not intended as a mechanism to collect new data. The Management Plan's biological objectives and strategies section identifies those needs and methods to meet them.</p> <p>The Assessment does not present the same level of analysis on terrestrial species as on fish. The terrestrial focus is on habitat instead. This is an interesting consequence of differences in the approaches (largely modeling procedures) used by terrestrial and aquatic planners.</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 Assessment adequately describes current and historic status of focal species populations to the degree that existing data allow. The completeness of data varies by species. For example, no estimate of current bull trout abundance exists due to the lack of data.</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.

<p>Detailed trend data on bull trout may not be available. Some indication of positive trend for westslope cutthroat trout in the St. Joe River is seen the population's response to angling regulation changes. The kokanee salmon's history, status, and general trend appear to be fairly well known.</p> <p>The Assessment's terrestrial section considers focal habitats, not focal species. Current status of threatened, endangered, and priority terrestrial species is briefly described but generally not explicitly linked to focal habitats.</p>		
<p>I.B.4. Does the assessment describe the population's life history, including identifying distinct life stages?</p>		
<p>Reviewers: The Assessment presents current knowledge on life history for the three focal fishes. It indicates uncertainty about their population dynamics. Insufficient information exists on causes of variability in population size for all three species.</p> <p>Almost no life-stage information on terrestrial species is presented.</p>	<p>Yes</p>	<p>1</p>
<p>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?</p>		
<p>Reviewers: The Assessment adequately describes the present state of knowledge on genetic status of focal fish populations, particularly on westslope cutthroat trout. Further genetic information needs to be collected, especially for bull trout and kokanee salmon. Efforts on this are apparently underway and should inform future assessments. No such information is shown for terrestrial species.</p>	<p>Yes</p>	<p>0</p>
<p>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?</p>		
<p>Reviewers: The Assessment adequately describes harvest and management, both historical and current, for bull trout, and briefly describes harvest and management for the other two aquatic focal species. It also includes good information on the effects of angling. It would seem that harvest information may exist for kokanee salmon, but this is not found in the Assessment.</p> <p>An appendix to the province level plan includes information on the harvest of terrestrial species, but this is not included in the subbasin Assessment. Integrating this information into the body of the Assessment would increase its utility.</p>	<p>Partial</p>	<p>1</p>
<p>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?</p>		
<p>Reviewers: The Assessment adequately describes the current status of focal aquatic species and of focal wildlife habitats, especially when material in the IMP's province-level overview is considered. Data limitations often prevent detailed description. The writers obviously know the resource well.</p>	<p>Yes</p>	<p>1</p>

I.C. Environmental Conditions		
<i>General question to be addressed: Does the assessment adequately describe the effect of the environment on fish and wildlife populations?</i>		
I.C.1. Environmental Conditions within the Subbasin	(Y)es, (P)artial, (N)o	<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?	
<p>Reviewers: The Assessment describes historic and present water quality in the subbasin’s four drainages. For each drainage, detailed sub-area descriptions are provided of the history of use, present water quality, type of impairment, and habitat use by species. A ranking of streams against reference conditions is provided in the descriptions of each of the three focal fishes. These sections also briefly assess the restoration potential of various streams and stream segments. The condition of the environment under a no-new-actions scenario does not appear to be included.</p> <p>Pollution from mining is a serious problem in some important stream systems of this subbasin; this is described well in text.</p> <p>The Assessment would benefit from attention to the elaborate but confusing (and currently useless) “tornado diagrams” that result from QHA. A start toward simplifying them and finding meaning in them could include breaking the long bar-graph arrays into groups that represent the “drainages” that are elsewhere described as subunits of the subbasin. The diagrams should also be more descriptively captioned, and then explained and interpreted in text. The results should then be put to appropriate use in the Assessment and Management Plan. The information they yield might help in refining objectives and strategies—and surely should inform prioritization. To label these bar graphs as “tornado diagrams” is distracting and carries no information about their purpose. Indeed, the term suggests chaos (which seems fitting at present). IMP planners said in their presentation that they are unclear about what the diagrams show and how to use them—and that, indeed, they did not utilize the diagrams much in the Assessment. (However, that intentional non-use of the diagrams is not made clear in the Assessment text.) That the planners are confused about this is apparently because the diagram output of QHA developed so late in the IMP planning process that they did not have time to learn how to interpret and use it. In various subbasins of other provinces, such diagrams</p>		<p>Partial</p> <p>2</p>

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.

<p>are put to reasonably good use. Therefore, within the IMP, planners should be able to revise subbasin Assessments to properly utilize this QHA output.</p> <p>Exploring future and no-new-action scenarios, or referencing other documents that discuss them, would increase the utility of the plan. This need not be done via a quantitative modeling; qualitative examination would suffice. Much of this information probably exists in other documents.</p>			
I.C.1.2	Does the assessment classify 6 th field HUCs (or other appropriate assessment unit) within the subbasin according to the degree to which each area has been modified and the potential for restoration?		
<p>Reviewers: The Assessment classifies reaches according to sub-watersheds rather than 6th field HUCs. QHA is used to analyze stream reaches; IBIS is used for current wildlife habitat. The planners use appropriate planning units.</p>		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.		
<p>Reviewers: The Assessment adequately describes direct and indirect out – of-subbasin effects, as well as categories (such as water flow) in which, because this is a headwater subbasin, there are no out-of-subbasin effects. It describes lost harvest opportunities and water management as the primary out-of-subbasin effects.</p> <p>The Assessment does an excellent job of portraying the Coeur d’Alene situation in the context of hydrosystem development and its impacts on the Coeur d’Alene subbasin. It is interesting that the Assessment includes the out-of-basin effect of the Pend Oreille subbasin’s Albeni Falls dam because it is in the Coeur d’Alene tribe's ceded area.</p> <p>The Assessment discusses how out-of-subbasin hydrosystem development and operation directly and secondarily affects wildlife habitat. Upstream problems are discussed. Including discussion of other significant out-of-subbasin effects on wildlife would further enhance the plan. The terrestrial discussion of out-of-basin effects applies to habitat, not directly to wildlife species.</p>		Partial	1
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?		
<p>Reviewers: The Assessment does not 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. Examining these assumptions would augment the plan.</p>		No	1

<p>I.C.3. Environment / Population Relationships</p> <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: For various life stages of the focal fishes, the Assessment identifies environmental factors that are particularly important for survival and discusses to some degree characteristics that constitute optimal conditions for species health. It is not clear if the Assessment adequately discusses juvenile stages of bull trout. Otherwise, life-stage needs of focal fishes are fairly well covered. Specific streams or parts of streams where restoration is advisable are described.</p> <p>As the Assessment specifies no terrestrial focal species, the question is inapplicable in that regard.</p>	<p>Partial</p>	<p>1</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 describes effects of the environment on fish and wildlife populations (and habitat) adequately in view of data limitations, although the discussion would benefit from more information on conditions that would be optimal for increasing populations and sustaining them at reasonable abundance.</p>	<p>Partial</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: General information on aquatic inter-species relationships is embedded in the sections on aquatic focal species. Predation of terrestrial species on fish is inadequately discussed. Effects of hydrosystem-blocked marine nutrients are discussed in relation to fish and wildlife, but not the remaining ecological contributions of fish to wildlife. Relationships between <i>resident</i> fish and wildlife are not considered, e.g., resident fish as food for wildlife or other ecological roles.</p>	<p>Partial</p>	<p>1</p>	
<p>I.D.2. Processes and Functions</p> <p>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?</p>			

Reviewers: Mention, usually in general terms, of certain processes is scattered in various parts of the aquatic assessment, but concerted discussion of important ecological processes and functions (known or reasonably expected) within the subbasin is lacking. The Assessment could have synthesized QHA outputs into useful discussions of ecological process and functions that apply in the subbasin.	Partial	3
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I.E. Interpretation and Synthesis / Limiting Factors and Conditions

I.E.1. Limiting Factors and Conditions

Does the assessment describe:

1) Historic factors or conditions that led to the decline of each focal species and of ecological functions and processes?

2) Current key factors or conditions within and without the subbasin that inhibit populations and ecological processes and functions relative to their potential.

Reviewers: The Assessment describes well a history of limiting factors associated with the alteration of water quality, migration barriers, introduced species, hydropower, wildfires, roads, forest management, agriculture, and urbanization. Areas of uncertainty are noted. The discussion of limiting factors, however, focuses too narrowly on hydropower system effects. QHA is used to compare present to historical conditions for eleven attributes for each aquatic focal species. The Assessment would be improved by progressing from the QHA results into a holistic approach to analyze key factors that influence the subbasin’s fish and wildlife habitat. (Part of the IMP comments may indicate general agreement in this view.)	Yes	2
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I.E.2. Key Findings

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?

Reviewers: The degree of synthesis is a strength of this subbasin Assessment. It and the province-level document show a high degree of synthesis across most of the above-listed factors, and across space and time. It would benefit the Assessment to include more ecological insight (specific to the subbasin or from standard literature), particularly on biological performance of focal species in relation to the environment, and on relationships between species.	Partial	1
A minor error: To support the point that beaver dams could benefit salmonid habitat in the subbasin—and they might in various ways explained in the Assessment—the writers should cite evidence from the Pacific Northwest’s rather steep streams. However, they erroneously report (no source referenced) that removing beaver dams in Midwestern		

streams reduces trout abundance. Actually, beaver dam removal may be one of the most effective ways to improve trout populations in that region of low-gradient streams (Wis DNR reports of 1992, 2002, 2004).		
I.E.3. Subbasin-wide Key Assumptions/Uncertainties (“Working Hypothesis”) 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?		
Reviewers: The guiding principles and working hypotheses are developed at the provincial level, in an explicit attempt to integrate and provide consistency across subbasins. Working hypotheses concentrate on hydropower system effects. QHA led to some hypotheses concerning specific stream reaches. The Assessment would benefit from additional attention to working hypotheses and limiting factor analysis relating other issues to fish and wildlife populations. For example, heavy metals in sediment may limit certain wildlife species such as swans, geese, etc.	Yes	1
	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).	
Reviewers: The Assessment provides an effective overall picture of the subbasin, and its major conditions and constraints. Greater detail would be helpful on tribal issues (these may be in the UCUT information) and on economic conditions. The latter may influence the form and degree of restorative actions. The historical descriptions of major resource-based industries are adequate. An especially cogent series of statements in the Assessment (p 6-57): "...QHA output accurately identified heavily degraded areas in the Subbasin. However... these areas may require laborious and costly... projects to restore habitat conditions adequate to support bull trout... [T]he same effort provided to restore a larger area having somewhat intact habitat might reap greater biological benefits.... [P]rojects for restoration and recovery of focal species... should work from the headwaters downstream. The focus should also be placed on areas having an abundance of fish and somewhat intact habitat resulting in greater biological benefits...."	Yes	1

II. The Inventory
*(This checklist section was developed from pages 11-12 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 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*

<i>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		(Y)es, (P)artial, (N)o	Need for additional treatment (0-4)
II.A.1	Does the inventory identify areas with protections through stream buffers, municipal or county ordinances, conservation designations, or water resources protection?		
Reviewers: As the IMP comment indicates, the Inventory is still far from complete in identifying protected areas.		Partial	2
II.A.2	Does the inventory assess the adequacy of protections for fish, wildlife, and ecosystem resources?		
Reviewers: The Inventory notes that many of the right protective actions are being taken, but not enough of them. There is no comprehensive assessment of their adequacy. The Inventory may not even refer to parts of the subbasin plan that deal with the ESA.		Partial	2
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 applicable existing plans are shown in the provincial document's "Inventory of Existing Programs." They are thoroughly covered.		Yes	1
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: Existing management plans are described in the provincial plan, not in the subbasin Inventory. Consistency of the subbasin Assessment with existing plans is not discussed in the Inventory.		Partial	2
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's listing of projects, taken together with the material in the text and an appendix of the provincial plan cover existing management programs quite well in most respects. However, USFS and BLM programs are inadequately described. Given the importance of Federal ownership and management, the plans would be significantly improved for this subbasin's purposes by thorough description of these agencies' pertinent activities.		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.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: Overall, this is a fairly complete description that can be augmented in future planning iterations.		Partial	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: Limiting factors that management programs are supposed to address are fairly well described for aquatic species. For terrestrial species, the description is much less developed. The Inventory's aquatic section's two pie charts (which also pertain at least partly to wildlife) undoubtedly are intended to represent the proportions (%) of effort being exerted in the subbasin on (a) various limiting factors and (b) various "strategies"—and readers certainly will interpret them that way. The percentages are based on numbers of projects. This will mislead readers because many projects are very unequal in amount of effort that goes into each. Either the pie charts should be deleted from the plan or they should be revised to represent the amounts of money spent on each limiting factor and strategy. Money spent would more nearly (though still roughly) represent effort or emphasis in existing programs than does the mere number of projects. The revised pie charts should then be used in a narrative discussion. They need text synthesis and caveats.		Partial	2
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: Program accomplishments and failures are not listed or discussed Regarding some parts of the Inventory that might touch on this, however: In the last paragraph of sec 7.3.1, the ideas expressed about supplementation should be accompanied (possibly modified) by reference to scientific literature, including the latest, on the subject. The narrative is not up to date regarding science on the subject. In Table 7.1, on the research line, Objective 2A2 Strategy h, is "conservation" aquaculture facilities really the appropriate term?		No	1
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: The evaluation of existing activities' data gaps is done in a fairly systematic way for aquatic species, but not for terrestrial species. The terrestrial component is presented by describing the mitigation requirements remaining from the various hydroelectric projects; much more than that is surely involved.		Partial	2

	<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>		
<p>Reviewers: The Inventory is far from complete. In general, it needs synthesis. The listings of existing programs and projects in this Inventory and the provincial document, combined, seem very thorough in most respects. The USFS and BLM programs should be better described. The subbasin listing is limited to the BPA funded projects and Soil and Water Conservation District projects. The Inventory needs more work if it is to serve properly in developing projects. The overall impression of the Inventory is that it (in combination with the province plan) adequately lists ongoing or past programs and projects, except for those of the USFS and BLM, but including evaluatory information on past and existing projects, and drawing conclusions about gaps to be addressed could improve it.</p>	<table border="1"> <tr> <td data-bbox="1144 327 1305 787">Partial</td> <td data-bbox="1305 327 1445 787">2</td> </tr> </table>	Partial	2
Partial	2		

<p>III. The Management Plan <i>(Derived from pages 12-16 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 management plan.</i></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>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):</p>	<p>(Y)es, (P)artial, (N)o</p>	<p><i>Need for additional treatment (0-4)</i></p>
<p>Reviewers: The general vision statement exists at the province level. The province document makes frequent and explicit reference to the Fish and Wildlife Plan vision and objectives. This subbasin’s vision is a slightly more specific vision nestled within the IMP statement.</p>	<p>Yes</p>	<p>0</p>
<p>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?</p>		

Reviewers: The biological objectives describe physical and biological changes within the subbasin needed to achieve the vision, although some objectives are written in rather general terms, and the overall set of objectives appears to be more influenced by concerns about effects of the hydropower system than need be. The strategies are specific and measurable. The highly outlined and tabular format may require readers to refer back to the Assessment and the Inventory in order to see connections that might be drawn in the narrative.	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: A strength of the IMP approach is the close linkage between the subbasin, province, and regional levels, as well as with overall Fish and Wildlife Plan principles for the basin. Goals and objectives of the Fish and Wildlife Plan are the framework within which the province and subbasin goals and objectives are developed. The subbasin Management Plan objectives are explicitly tiered to those of the higher levels of aggregation.	Yes	1
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 in the subbasin Assessment. The Management Plan begins with a summary of limiting factors identified in the Assessment. The objectives address these limiting factors and are well organized and expressed.	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: The objectives are variable with respect to their empirical measurability. Some are expressed in general terms, e.g., "protect" and "mitigate" that may not lend them to measurement. For other strategies specificity and measurability are indicated in strategy statements, this will allow linkage to monitoring and evaluation. It is appropriate for some objectives to be general and others more specific.	Partial	2
III.B.4. Are biological objectives identified for both the short and long-term?		
Reviewers: There is no explicit discussion or systematic presentation of long and short-term considerations in the scheme of objectives, even though tables and outlines often state target dates or durations for reaching a particular objective.	Partial	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?		

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 extent to which the biological objectives compliment other pertinent programs is not explicitly discussed or indicated in all cases, but the coordination provided at the provincial level and the extent of stakeholder involvement would promote this outcome. In some cases, reference is made to other objectives, such as bull trout recovery.	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: Water quality issues and TMDL assessments are explicitly addressed in the plan.	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 USFWS bull trout recovery plan is covered.	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 Management Plan mentions no disagreements. The IMP comment covers this. Note that the province plan describes the participation process in planning and the way the individual plan describes differences of opinions and what entity dominated the final choices.	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

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.

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

Reviewers: The plan is thoroughly internally consistent.	Yes	1
III.C.2. Consistency with the Fish and Wildlife Program. Are the Strategies proposed in the subbasin management plan consistent with those adopted in the program? (Council Question 4)		
Reviewers: The objective and strategy section is very explicit its consistency with the Fish and Wildlife Plan throughout.	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 process in itself clearly addressed alternative strategies, but within the plan more context and rationale could be provided on why certain strategies are chosen and not others.	Partial	2
III.C.4. Prioritization. Does the Strategies Section describe a proposed sequence and prioritization of strategies?		
Reviewers: The Plan has a systematic approach (including criteria) for setting priorities; this constitutes a good procedure and bodes well for refining the prioritization. Refinement is needed because the plan rates many strategies as high-priority, and this does not permit choosing among strategies in order to accommodate a very limited budget. The prioritization done thus far is a major accomplishment.	Yes	1
III.C.5. Additional Assessment Needs. Does the Strategies Section describe, if necessary, additional steps required to compile more complete or detailed assessment?		
Reviewers: Some strategies describe steps toward additional information. A particular need is to complete the direct and indirect fish and wildlife loss assessments. On page 10-10, under Objective 1C2 (and page 11-7, bottom), regarding "Strategy d*: Do formal genetic analyses of existing populations and determine the appropriateness/usefulness of infusing other genes from other populations," what information is available from existing literature on any fish populations regarding appropriateness of infusing genes from other populations? Is this known in general to be a good idea? From how far away is it considered useful or ecologically safe to import genes into a fish population?	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?		

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.

Reviewers: Water quality issues and TMDL assessment are explicitly addressed in the plan.	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: ESA goals are explicitly addressed in the plan.	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 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). *NOTE: The focus of the RME component should be on the strategy level rather than individual project level.*

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.

III.D.1	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?	(Y)es, (P)artial, (N)o	<i>Need for additional treatment (0-4)</i>
Reviewers: The province plan identifies research needs. These are not prioritized within the subbasin. The RME plan is essentially in tabular form. It would make this section more useful to have more text on explanation and rationale. The tables worked better for monitoring and evaluation than for research. The research could be tied closer to the objectives. This research section flowed more from the Management Plan than from the Assessment and Inventory; it should link back to them more clearly.		Partial	2
III.D.2	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>Reviewers: The RME subsection represents substantial progress in developing a monitoring and evaluation plan. Monitoring types and scales are listed by strategy and objective. Specific indicators are not identified; the section tends to be very general on this. Methods are shown (inconveniently for readers) by code numbers that refer to a “tool box,” which is a list of standard technical references. The methods lists shown for various objectives appear not to designate which method would be best for a specific purpose.</p> <p>More work is needed on the RME plan. There is an inadequate statement of coordination for standard protocols. Evidence of progress towards cooperative monitoring of projects within the basin is lacking.</p>	<p>Partial</p>	<p>2</p>
<p>III.D.3</p>	<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>Reviewers: No monitoring indicators are listed other than those expressed or implied in the objectives. The Intermountain Province comment implies that the “tool box” identifies indicators, but the reviewers find that statement too indirect and unwieldy. Desired future conditions and measurable objectives should be explicitly discussed in terms of appropriate indicators.</p>	<p>No</p>	<p>3</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 plan describes no infrastructure for RME quality assurance, data management/analysis, data reporting, and data archiving.</p>	<p>No</p>	<p>4</p>
<p>III.D.5</p>	<p>Coordination and Implementation: 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: Agency responsibility for RME work is not shown. The toolbox might represent a start toward coordination, but further steps are needed. A top-down decision needs to be made on standard regional protocols.</p>	<p>No</p>	<p>3</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</p>	

	objectives, and strategies in describing uncertainties?		
Reviewers:	Adaptive management is not addressed in the subbasin RME plan. The logic path presentations in the province plan do incorporate this, but the subbasin RME plan does not seem to refer back to this. Failure to explain how the information from monitoring and evaluation will be used for adaptive management is a major flaw that ultimately will hamper effectiveness of restoration and protection in the subbasin.	Partial	3
	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).		
Reviewers:	This Management Plan has an excellent outline summary of conclusions from the Assessment and Inventory and is strong on specification of objectives and strategies that address the limiting factors identified in the Assessment, and that are consistent with province and basin-level objectives. The plan would be made more effective by incorporating a more ecological outlook and by augmenting its largely outline format with more explanatory text. The RME section is incomplete but a good start; in particular, its paths into adaptive management should be described. The province plan sets the stage for management planning very well. The subbasin plan needs more work in building on that.	Yes	1

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:

Review: A notable strength of this subbasin plan is its direct linkage to and consistency with the Fish and Wildlife Plan and its base principles. The planners' strong focus on developing the plan to meet what they think would be BPA responsibilities, detracts from their taking a more ecological outlook.	Yes	1
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