

Entiat

Review Summary

Overall, this subbasin plan is quite nicely constructed. The Assessment is relatively complete and the strategies in the Management Plan are prioritized. The Inventory provides a very thorough list of projects implemented in the Entiat, although there is not much detail provided about existing regulatory or management programs. This good plan, however, seems to have missed the point of the Council's intent. It is oriented more toward watershed planning than to the Council's Fish and Wildlife Program. As a result, the plan may need to be revised before it can become the basis of a Council amendment.

Assessment

The Assessment does a good job of offering a general overview of the Entiat Subbasin that is oriented to the public. There are, however, a few changes that would make it more user-friendly for both scientists and the public, such as including more maps in relevant sections. Effects outside the subbasin are discussed only in the appendix, not in the text. Incorporating the information from the appendix into the body of the text as its own subsection and expanding that information to include a concise examination of mainstem passage, ocean survival, and the effects of external fisheries would increase the usability of the plan substantially. All of these factors have the potential of adversely affecting the potential for success of proposed actions within the subbasin plan insofar as their success depends upon improved survival or productivity of the focal fish species within the subbasin. The plan would be enriched as well by consideration of the out-of-basin effects for migratory birds. Finally, the potential genetic or ecological effects of artificial production are not addressed in sufficient detail.

The Synthesis and Interpretation section provides a very nice link between the Assessment and the Management Plan. Although this section is very complete for the fish focal species, it is less so for the wildlife focal species and habitats. Some additional explanation of how the wildlife Assessment is used to identify objectives and strategies would have helped to make linkages across the various components of the plan as a whole. In addition, a more direct treatment of the assumptions used in the EDT analysis and the wildlife habitat interpretations is needed.

Inventory

Little detail is provided about the current status of protections in place within the subbasin. Given the very high proportion of the subbasin that is managed by the Forest Service, the USFS plans should be described in more detail (salvage logging plans, erosion control measures, campground and roadway relocation, etc.). The plan also fails to mention the Habitat Conservation Plans of Douglas and Chelan County Public Utility Districts. These plans may be significant in terms of their potential effects on the subbasin. The HCPs call for the PUDs to undertake work to enhance fish populations in the tributaries to the extent that they are unable to meet survival goals for salmonids at the three mainstem dams: Wells, Rocky Reach and Rock Island. The HCPs are multi-governmental agreements that satisfy requirements of numerous federal and state laws, while recognizing the treaty fishing rights of affected tribes. This plan should incorporate these HCPs to a greater extent.

Management Plan

This Management Plan is well done. It is one of the few plans that have attempted to prioritize strategies. Some additional detail in the RME section and identification of the most critical RME questions, however, would help to focus this part of the plan. The RME description in the plan fails to mention other RME efforts in the region that may be helpful to the efforts in the Entiat. These efforts should have been included in the plan.

For additional detailed comments on the terrestrial approach taken by the Columbia Cascade Province planners, see the ISRP/AB reviews of the Methow and Upper Mid-Columbia Mainstem subbasins. Those comments apply to this plan as well.

Review Checklist

I. The Subbasin Assessment			
(See generally pages 4-6, 9-10 of the Technical Guide; the checklist is derived from 18-24 of the Technical Guide.) Reviewers should consider the soundness, completeness, analytical approach, and transparency (documentation of methods and decision-making process) of the following components of a subbasin assessment.			
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>			
I. A.1. General Description		(Y)es, (P)artial, (N)o	Need for additional treatment (0-4)
I.A.1.1	Does the assessment provide a general orientation to the subbasin (location, size, distinguishing natural and cultural features, land use, land ownership) and an overview of jurisdictional authorities (state, county, federal lands, tribal lands and fishing rights)?		
Reviewers: Although the orientation to the subbasin is generally adequate, the Assessment needs both watershed maps and a better description of the location of the Assessment Units early in the document. They are provided much later than needed for orientation.		Partial	1
I.A.1.2	Does the assessment provide a general description of the subbasin's macro-environment (geology, climate and weather, land cover, vegetation) and of the subbasin's water resources (hydrography and watersheds, hydrologic regimes, water quality, riparian and wetland resources), water uses, and modifications to water resources (hydropower projects and operations, water diversions, channel modifications)?		
Reviewers: The general overview is good, but it could use more specifics.		Yes	1
I.A.1.3	Does the assessment provide a general description of anthropogenic disturbances to the aquatic and terrestrial environment, organized by the source of disturbance (urbanization, agriculture, forest practices, water development, mining, transportation, and other)?		

Reviewers: Although anthropogenic disturbances are covered in a general way, the section would be improved by cross-referencing to later sections that provide more detail on this subject.		Yes	1
I.A.1.4	Does the assessment provide a list of native and non-native fish and wildlife species present in this subbasin including those species that: a. have been designated as threatened or endangered under the Federal Endangered Species Act or state equivalents, b. have been recognized by applicable federal, state, or local resource management agencies, or by the Nature Conservancy or state heritage program, as being especially rare or significant in the local area, c. have special ecological importance within the subbasin, d. are recognized by Native American tribes as having special cultural or spiritual significance, or e. are not native to this subbasin?		
Reviewers: Good tables.		Yes	0
I.A.1.5	Does the assessment identify plants that have been designated as threatened or endangered under the Federal Endangered Species Act or state equivalents, and/or that are recognized by Native American tribes as having special cultural or spiritual significance, or (optional) that have special ecological importance within the subbasin?		
Reviewers: Although this topic is not neglected entirely, the treatment is very superficial. The Plan notes that less than 50% of the subbasin has been surveyed for threatened or endangered plants. What was discovered in those surveys that have been completed, however, is not presented. Although there is mention that there are 22 rare plant communities, no specifics are provided regarding rare plant species or where they are found (other than that they are associated with shrub steppe and forest habitat types).		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)?		
Reviewers: Relative to the other subbasins in the province, this Assessment does a good job of describing the Entiat. It seems, however, that the Assessment fits the subbasin into the Province better than to the greater Columbia River Basin. Assessment of the subbasin in the context of the Columbia River Basin would further enhance the plan. Specifically, there needs to be a description of the relative "importance" of the species/habitats in the Entiat subbasin to the rest of the region. This description would help in both provincial planning and ESA recovery planning roll up.		Partial	1

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?	Yes	0
Reviewers: The assessment adequately describes the subbasin's relationship to the Endangered Species Act.			
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)?	Partial	3
Reviewers: This topic is treated only as appendix material that is not discussed in the text. Incorporating the information from the appendix into the body of the text as its own subsection and expanding that information to include a concise examination of mainstem passage, ocean survival of stocks inhabiting the Entiat, and the effects of external fisheries would increase the usability of the plan substantially. All of these factors have the potential of adversely affecting the potential success of activities proposed in subbasin plan insofar as their success depends upon improved survival or productivity of the focal fish species within the subbasin.			
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)?	Partial	2
Reviewers: A relatively good treatment of past and present conditions was provided. Insufficient attempt was made, however, to identify potential constraints on species recovery due to future changes in land use or other human impacts. Including an overview of the possible effects of long-term climate change on the subbasin would also strengthen the plan.			
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?			
Reviewers: Overall, the assessment did a good job of offering a general overview of the Entiat Subbasin that was oriented to the public. The suggested changes, such as including more maps in relevant sections, would make it more user-friendly for both scientists and the public. This plan did a good job of demonstrating the Columbia Cascade Province's relation to the greater Columbia River Basin. Making an equally strong effort at demonstrating the Entiat Subbasin's relationship to the Columbia River Basin would further enrich this plan. Addition of a discussion on effects in the mainstem, effects of fishing outside of the basin, and effects of the variable survival of salmonids in the estuary and ocean would enhance this section and provide a direct link to the Monitoring section.		Partial	2

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.B. Species Characterization and Status		
<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 suggested for selecting focal species include a) designation as Federal endangered or threatened species, b) local ecological significance,² and c) cultural significance.</p>		
<p>Reviewer: The plan generally did a good job at identifying focal species. The aquatic focal species were the usual salmonids and Pacific lamprey. This mix of species, however, may not be fully representative of the complete array of aquatic habitats in the basin, and some consideration might have been given to non-salmonids that are more abundant than the lamprey (see programmatic comments on this point). The selection of the terrestrial focal species seems to have been based on the plan's concentration on focal habitats.</p>	Yes	0
<p>I.B.2. Does the assessment identify and characterize focal species populations; i.e. delineate unique population units and, as applicable and where information is available, meta-populations, subpopulations and/or other genetic/behavioral groupings used by scientists or managers?</p>		
<p>Reviewers: The Assessment does not delineate separate populations for the focal species within the subbasin. It does, however, provide the general ESU level definitions for salmon. There is also some mention of NMFS interim population metrics for recovery for the Chinook salmon and steelhead stocks. It would be a plus if this type of information (if available) could be presented for the other listed fish species as well.</p>	Partial	4
<p>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>		
<p>Reviewers: It appears that the plan does contain the available quantitative information on the focal fish species. Redd counts and adult counts at Rocky Reach are provided. There is very little information, however, provided for the focal wildlife species other than a very general description of their habitat requirements.</p>	Yes	1
<p>I.B.4. Does the assessment describe the population's life history, including identifying distinct life stages?</p>		

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.

Reviewers: The plan adequately describes the life history for the populations involved.	Yes	0
I.B.5. Does the assessment characterize the genetic diversity of the population, especially regarding possible effects of artificial production? Specifically does the assessment describe the historic and current status of introductions, artificial production, or captive breeding programs in this subbasin or affecting the subbasin through straying or other means, and describe the relationship between the artificial and naturally produced populations?		
Reviewers: The plan provides an historical account of the operation of hatcheries in the subbasin in the appendix. Integrating the information from this appendix into the plan would increase the plan's readability and efficacy. The treatment of the genetic or ecological effects of artificial production on naturally spawning fish, however, is not addressed in sufficient detail, and this is a significant omission.	Partial	2
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: Harvest information was primarily provided only in the appendices. While the Assessment addresses historic harvest rates and their probable effects on salmon populations, it does not discuss current harvest rates and their potential for affecting the vision or objectives of the plan. This may be of particular importance, for example, in the case of the proposal to reintroduce coho salmon to the subbasin. Measures have been undertaken to reduce harvest rates in the lower river, and maintenance of this reduction is probably key to the success of reintroduction of coho salmon into the Entiat as well as other mid-Columbia subbasins.	Partial	3
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: In general, the Assessment appears to have collected what information on Species Characterization and Status is available. For some of the fish focal species the data were relatively good, although it appears that there is not much known about genetic breakdown in this subbasin. Information on the current status of wildlife focal species was not provided.	Partial	2

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	

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.

	within the subbasin? Does the assessment include a determination of the difference between current conditions and the various reference conditions?		
	Reviewers: The Assessment coverage is good for both current and past conditions, but not much emphasis was put on future scenarios, except for the goals provided. Adding this information would increase the efficacy and utility of the plan. The plan also does not describe or consider adequately the extensive assessments such as ICBEMP and others done by the USFS that include worthwhile information for the Entiat subbasin. For example, the USFS has maps identifying alluvial plains and other important habitats that would be very useful to this Assessment.	Partial	3
I.C.1.2	Does the assessment classify 6 th field HUCs (or appropriate assessment unit) within the subbasin according to the degree to which each area has been modified and the potential for restoration?		
	Reviewers: Although 6 th field HUCs are not explicitly used, the assessment units used in the plan are adequate for planning purposes.	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: Effects of hydrosystem operations are briefly covered in an Appendix, but this information is not integrated into the plan. It should be. Although the assessment mentions the HCPs, the full significance is not explained as to the potential effects that they might bear on strategies undertaken in the Entiat River. In addition, there should be more discussion in general about the mainstem hydrosystem and its effects on survival of fish produced in the Entiat subbasin, and how it might or might not impinge on the vision and goals for the subbasin. The plan also would be further enriched by consideration of the out-of-basin effects for migratory birds.	Partial	3
I.C.2.2	For each focal species, does the assessment establish assumptions for each external effect that can be used to calculate the effects of external conditions on the productivity and sustainability of fish and wildlife within this subbasin?		
	Reviewers: There is no analysis of external effects on the productivity and sustainability of fish and wildlife in the subbasin included in the Assessment. These issues are raised only in the appendix material. Including a thorough and detailed examination of these issues in the Assessment would help maximize the efficacy and utility of the plan.	No	3
I.C.3. Environment / Population Relationships			
For each focal species, does the assessment identify, for each life stage, environmental factors that are particularly important for the species' survival and determine the characteristics that constitute optimal conditions for species health? Does the assessment describe and make a finding regarding the environment's ability to provide such optimal conditions, or conditions that support the long-term viability of these populations.			

Reviewers. A good treatment of habitat requirements by life stage was provided for the fish species. Although provided, the habitat requirements for the focal wildlife species was much more general. There was only a very general treatment of the capacity of the subbasin to provide the habitats required by each species, and there was no consideration given relative to long-term viability. Although EDT analysis is used for the fish species, it does not provide an indication of long-term viability.	Partial	2
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Summary comments and evaluation on the Environmental Conditions Section: Does the assessment adequately describe the effect of the environment on fish and wildlife populations?		
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Reviewers: Environmental conditions are well covered in several places in the plan. Including a discussion of the out-of-subbasin effects within the mainstem, estuary, and ocean as they affect different life stages of the Entiat’s stocks of anadromous fishes would bolster the Assessment. Integrating information that is present in the hydropower appendix would help the discussion on out-of-basin effects. All told, the data included in this section are too cursory. As was noted above, there are USFS and ICBEMP reports that are up-to-date and could improve this Assessment. Although the plan could use more quantification in places, such quantification likely does not exist for all issues (as the plan’s authors state clearly). Getting this information is addressed in the RME section.	Partial	2
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I.D. Ecological Relationships <i>Question to be addressed: Does the assessment describe the key inter-species relationships and the key functional relationships?</i>	(Y)es, (P)artial, (N)o	<i>Need for additional treatment (0-4)</i>
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I.D.1. Inter-species Relationships Does the assessment identify important inter-species relationships or interactions, both positive and negative, with specific attention to relationships between anadromous fish and wildlife and specifically identify: 1) wildlife species and habitats that may be influenced, positively or negatively through direct effects of changes in fish abundance or fish community composition; 2) fish species and habitats that may be influenced, positively or negatively, through direct effects of changes in wildlife abundance or wildlife community composition; and 3) key species relationships within this subbasin based on the above?		
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Reviewers: This identification is done in a fairly qualitative narrative, but is generally good. The discussion focused on competitive and predatory interactions of salmon. There was, however, little discussion of interactions that might affect focal wildlife species. The discussion of inter-species relationships, although it is general and qualitative in nature, is adequate for planning purposes.	Yes	2
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I.D.2. Processes and Functions Does the assessment identify key ecological functions for species within this subbasin and assess the current status of ecological processes and functions in the subbasin?		
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Reviewers: The descriptions of key ecological functions for species within the subbasin were simplistic and generally restricted to salmon. Some additional discussion of key ecological functions associated with the focal wildlife species should be included. A more complete examination of processes and functions for all species would improve this plan.	Partial	2
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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 plan does a good job of describing both historic and current factors that are impacting ecological processes and focal species and habitats in the subbasin	Yes	0
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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 synthesis is well done for the fish focal species and wildlife habitats. Although the connection between the wildlife habitats and focal species is not well described, in general, this section was quite good.		
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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: Although the Key Findings for fish are based on an EDT analysis, the assumptions used in the model, the uncertainties associated with those assumptions, and the data used in the analysis were not described. The assumptions used in determining the Key Findings for the wildlife habitats also were not discussed.		
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<p>Overall impression and evaluation of the Assessment:</p> <p>Does the assessment 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>		
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Reviewers: The Assessment, including the synthesis, which followed the inventory, is quite good, although it is general, and could use more details in places, especially for the wildlife habitats and species. A more direct treatment of the assumptions used in the EDT analysis and the wildlife habitat interpretations is needed. With this addition, the assessment would provide a sound foundation for the Management Plan.		
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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 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).

II.A. Existing Protection	(Y)es, (P)artial, (N)o	Need for additional treatment (0-4)
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II.A.1	Does the inventory identify areas with protections through stream buffers, municipal or county ordinances, conservation designations, or water resources protection?	
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Reviewers: The Inventory contains a comprehensive list of projects that have been implemented in each assessment unit. Although a general discussion of the management programs that affect habitat in the subbasin was given in the Subbasin Overview section, there was very little detail provided about the type or extent of habitat protection afforded by these programs. For example, more complete information on the location and size of stream buffers would provide some basis for conducting the gap analysis. Are the current riparian buffers sufficient to protect riparian wetlands or are additional measures required?	Partial	2
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II.A.2	Does the inventory assess the adequacy of protections for fish, wildlife, and ecosystem resources?	
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Reviewers: Little detail was provided to describe the current protections in place within the subbasin. Given the very high proportion of the subbasin managed by the Forest Service, the USFS plans should be described in more detail (salvage logging plans, erosion control measures, campground and roadway relocation, etc.). In addition, the plan fails to mention the Habitat Conservation Plans of Douglas and Chelan County PUDs. These plans may be significant in terms of their potential effects on the subbasin. The HCPs call for the PUDs to undertake work to enhance fish populations in the tributaries if these populations are unable to meet survival goals for salmonids at the three mainstem dams: Wells, Rocky Reach and Rock Island. The HCPs are multi-governmental agreements that satisfy requirements of numerous federal and state laws, as well as recognize the treaty fishing rights of affected tribes. This plan should incorporate these HCPs to a greater extent.	Partial	2
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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: Although other regulatory and management programs are mentioned in the Subbasin Overview, little detail is provided about the level of protection afforded by them.		Partial	2
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: Because the Inventory does not examine other plans in detail, there was no attempt to judge the consistency of existing programs with the conclusions of the Assessment. As noted above, some discussion of other management programs was provided in the overview.		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 does an excellent job of identifying who, what, where, when, and for how much for each Assessment Unit.		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 focuses on projects that have been implemented since 1992 and does provide information on cost and responsibilities. Whether or not the projects were successful, however, is not addressed. There is not a comparable treatment for other management programs or plans.		Yes	1
II.C.3	For each management program (or project where not clearly part of an overarching management program), does the inventory identify limiting factors or ecological processes the activity is designed to address?		
Reviewers: Although the reader can infer relationships to the limiting factors by reading the project descriptions, the Inventory could be improved by tying the management programs and projects more specifically to the limiting factors list.		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		

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?

Reviewers: The list of accomplishments is insufficient. There is a list of projects provided in the Inventory, but no mention is given of the success of these projects. There is no discussion of the adequacy of other management or regulatory programs.		Partial	3
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: There were no comparisons of current projects with the limiting factors identified in the Assessment. To accomplish this task, a more detailed description of the protections associated with existing programs is needed. There is a very complete listing of projects that have been implemented in the various assessment units. A more explicit association of the objectives of these projects with the limiting factors would provide a thorough gap analysis.			2
	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).		
Reviewers: The Inventory for the Entiat is quite good in that the description of projects implemented over the last decade in the subbasin was presented well. This Inventory could be improved, however, by the inclusion of more detailed information about relevant programs and plans or past or ongoing management programs, especially the Habitat Conservation Plans of Douglas and Chelan County PUDs and USFS assessments and programs. The Inventory also could have provided information on the effectiveness (success/failure) of the many projects it inventoried.		Partial	1

<p>III. The Management Plan <i>(Derived from pages 12-16 of the Technical Guide.)</i> Reviewers should consider the soundness, completeness, analytical approach, and transparency (documentation of methods and decision-making process) of the following components of a subbasin management plan.</p> <p>These checklist tables incorporate Council Question 4, Consistency with the Provincial- and Basin-level Program: Are the vision, objectives, and strategies proposed in the subbasin management plan consistent with those adopted in the program for the province and/or basin levels? This is a three-part question and reviewers must be familiar with the vision, objectives, and strategies described in the 2000 Fish and Wildlife Program (pp. 13-33) and, for mainstem subbasin plans, the Mainstem Amendments (pp.11-28).</p>		
<p>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>Need for additional treatment (0-4)</p>
Reviewers: The plan provides an adequate general vision, although it is more people oriented than resource oriented and does not mention the	Yes	0

Council's Fish and Wildlife Program, which is the reason for the subbasin planning procedure. The vision statement puts the emphasis instead on the ESA and the Clean Water Act.		
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: Both habitat and biological objectives are given in the terrestrial and aquatic sections. The description of the in-channel conditions to achieve the biological objectives appears to be taken directly from the NOAA-Fisheries "Matrix of Pathways and Indicators". This type of fixed-numerical standard has been roundly criticized in the scientific literature for the last decade because it does not account for natural spatial and temporal variation in conditions. For example, having 20 pieces of wood per stream mile everywhere all the time is likely not attainable and if it were achieved, would probably be detrimental to some of the focal species. A more realistic framing of the desired channel conditions, explicitly considering natural disturbances and spatial variation in watershed characteristics, should be developed. See the ISAB Tributary Habitat report (2003) for a thorough discussion of this concern.		
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: Although the Fish and Wildlife Plan is not mentioned specifically, the biological objectives are consistent with it.	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: Although in general there is a good logic flow from the limiting factors identified in the Assessment to the objectives, some objectives do appear that are not based on information in the Assessment. For example, increasing nutrient delivery to each of the assessment units was stated as an objective. There were no data presented in the Assessment, however, describing the current nutrient status of streams in the subbasin.		
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: Many of the biological objectives are qualitative, although some measurable objectives are provided. As noted above, there is some question as to the appropriateness of some of the objectives (e.g., single-value goals for in-channel habitat features). It appears that the planners inserted a table of PFC for aquatic systems without any consideration about the biological characteristics of the subbasin or variation introduced by natural	Partial	2

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.

disturbances. The planners have not provided metrics for aquatic species (fish numbers). The wildlife section provided good detail on plans for monitoring and evaluation.		
III.B.4. Are biological objectives identified for both the short and long-term?		
Reviewers: Biological objectives are not explicitly identified as such. Near-term opportunities are given, and many of the others are long term.	Partial	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: Although the biological objectives appear to be complementary to tribal, state and federal land or water quality management agencies in the subbasin, the plan does not state this explicitly.	Yes	1
III.B.6. <i>Clean Water Act</i> : Does the management plan describe how the objectives and strategies are reflective of and integrated with the water quality management plan and Total Maximum Daily Load schedule within that particular state? I.e., does this subsection of the management plan assess and describe the consistency-coordination-findings of the Water Quality Plan with the subbasin plan? ⁸		
Reviewers: The Plan states explicit objectives for meeting them.	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: Not explicitly. These species are identified in the assessment and linked to the habitats they require. Although the plan includes very general objectives to increase the representation of these habitat types, there is not a detailed explanation of how the plan will contribute to attaining ESA objectives. The plan does explain the criteria that enter into listing of a species under the ESA: abundance, population growth, spatial structure of the population, and life history diversity. The plan, however, does not make it clear whether NOAA Fisheries have final or interim numbers for delisting ESA listed species; their status should be clarified. Explicitly mentioning how the subbasin management plan is reflective of ESA objectives will enrich this portion of the plan.	Partial	2
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.)		

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.

Reviewers: The plan did not present any discussion of disagreements or alternative objectives, even though there might be some.	na	na
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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 are mostly in the RME plan summary, but seem good.	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 strategies are consistent, but the F&WP is not mentioned.	Yes	1
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: There was no discussion of why the strategies selected were considered superior to other approaches. Strategies were assigned a priority, so it seems reasonable that some consideration of various approaches to each objective were considered. No explanation of this process, however, is provided.	Partial	3
III.C.4. Prioritization. Does the Strategies Section describe a proposed sequence and prioritization of strategies?		
Reviewers: Priorities are given with each strategy. The process used for prioritization could have been described more fully.	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: The RME section spells out information needs.	Yes	1

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.

<p>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?</p>		
<p>Reviewers: In some cases, this is spelled out. It might more clearly state the status of TMDLs and other CWA needs.</p>	<p>Yes</p>	<p>1</p>
<p>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?</p>		
<p>Reviewers. This was not discussed explicitly in the Plan, although the general plans match what would be needed. Although survival standards are specified quantitatively in the HCPs, the connection of the HCPs to the subbasin plan was not covered. The subbasin plan might have discussed the implications of these with respect to the vision and objectives in the Entiat subbasin. See ESA discussion above.</p>	<p>Partial</p>	<p>2</p>

<p>III.D. Research, Monitoring, and Evaluation</p>			
<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>			
<p>III.D.1</p>	<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: Generally, this section was pretty well done. A research agenda is provided, and specific areas where additional information is needed are identified. The research agenda is tied back to issues identified in the Assessment. There are, however, no priorities associated with the many possible research and monitoring tasks identified in the plan.</p>		<p>Yes</p>	
<p>III.D.2</p>	<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>Reviewers: A large number of possible variables are listed. Because it is unlikely that the RME effort could measure all these possible variables, identification of the critical variables that are essential to evaluating the effectiveness of the plan is needed.</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: Measurable indicators are provided.</p>		<p>Yes</p>	<p>0</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: There is some confusion as to whether the data will be stored at multiple locations, which is generally a bad idea, or if the county will serve as the primary data archive. The text of the plan indicates that the lead entity for the subbasin (the county) will archive the data. The large RME table, however, indicates that multiple entities will be responsible for collecting and archiving the data of certain types. No infrastructure is described.</p>		<p>Partial</p>	<p>1</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: Although the table does indicate the organizations responsible for the collection and interpretation of various types of data, there is no mention of coordination with regional RME efforts. Some indication of the BPA-funded effort in the Wenatchee should have been included. Some of the information generated in this effort will be applicable to issues in the Entiat. In addition, there are RME components associated with the PUD HCPs, and these also should have been discussed in the plan.</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 Plan does a good job of describing an RME plan that could lead to adaptive management. It appears that the collaborative/cooperative process that has been underway in the Entiat subbasin for some time will be used for this purpose, although it is not</p>		<p>Partial</p>	<p>1</p>

<p>directly stated in the context of modifying the objectives. At the presentation to the ISRP/AB, the planners talked about the importance of the NOAA action effectiveness pilot study in the Wenatchee, but the plan itself should describe the application of that study to the Entiat plan in greater detail. The same is true for any RME efforts in the HCPs.</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: This Management Plan is well done. It is one of the few plans that have attempted to prioritize strategies. Some additional detail in the RME section and identification of the most critical RME questions would help to focus this part of the plan. The RME description in the plan, however, fails to mention other RME efforts in the region that may be helpful to the efforts in the Entiat. These should have been included.</p>	<p>Yes</p>	<p>1</p>

<p>General Council Question. Consistency with the Fish and Wildlife Program and its Scientific Foundation</p> <p>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:</p> <ol style="list-style-type: none"> 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. <p><i>See 2000 Fish and Wildlife Program, pages 14-15 for full detail.</i></p> <p>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.</p> <p>Summary comments and evaluation of the subbasin plan’s consistency with the eight principles of the Fish and Wildlife Program’s Scientific Foundation:</p>		
<p>Reviewers: This good plan seems to have missed some of the Council's intent. The plan is oriented more towards watershed planning than to the Council’s Fish & Wildlife Program. Although the end result is pretty much the same, it lacks tie-in to the F&WP. That might need to be fixed before it can become the basis of a Council amendment.</p>	<p>Yes</p>	<p>1</p>