

# **Klickitat Subbasin Plan**

## **Review Summary**

The Klickitat Subbasin Plan partially meets the scientific elements of a subbasin plan as described in the Council's 2000 Fish and Wildlife Program and Subbasin Planning Technical Guide. The Assessment is strong on its ecological focus and provides good detailed descriptions of the physical environment, selected focal habitats, and characterizations of focal species in the subbasin. However, the Management Plan is quite incomplete and offers few biological objectives, limiting factors are frequently stated as outcomes or impacts (not active factors leading to degraded conditions), and there is no indication of any prioritization of the objectives.

The Klickitat River is a rather unique environment within the Columbia. As noted by the authors, it is one of the largest un-dammed rivers in the Northwest and approximately half of the land ownership is protected in the Yakama Nation Reservation. Plus, with the recent completion of the Castile Falls project, a large area of the upper river is now more accessible to anadromous fish. Unfortunately, even with these habitat features, the status of the fish resource is not good. The plan identifies that the historical background of spring chinook is unknown, fall chinook have been introduced and are largely a hatchery-based production, coho are hatchery produced, and the background of steelhead is unknown, but summer steelhead are heavily influenced by hatchery production. Winter steelhead is likely the only non-enhanced stock in the Klickitat River. Resident fish are not much better off given that bull trout are suspected to be present in only one tributary shared with brook trout. The status of Westslope Cutthroat seems better, but they are not a major feature of this plan? The Council should be concerned for achieving a balance of hatchery, harvest needs, and natural production but this seems to be the major challenge for this subbasin.

Two major concerns of the reviewers are (1) the assumption that the Klickitat will continue to be managed primarily for hatchery production to support harvest (this is a potential conflict with Council's Fish and Wildlife Program and the ESA), and (2) the plan appears to give little thought or effort for integrating the results of the EDT analysis or applying these results to identify the priority key findings in the subbasin or the limiting factors.

Nevertheless, the plan does a good job of summarizing limited data, and its restoration matrix is a good beginning approach for future development of an effective management plan.

## **Assessment**

The Assessment's background work is well developed and is the strongest part of the plan, but it still has some deficiencies. The wildlife summary tables do not identify limiting factors correctly. The work done on the focal fish species is fragmented and more effort needs to be directed towards integrating the results of the EDT analysis or applying these results to identify the "priority" key findings in the subbasin or the limiting factors. While the groundwork has been laid for a strong management plan, the important synthesis and interpretation is weak and not technically supportable in this state.

The Klickitat Subbasin Overview provides an adequate general description of the subbasin, but the description of the subbasin in a regional context is incomplete. The Assessment does not explain why conserving spring chinook, bull trout, and summer and winter steelhead is important in a regional context. The wildlife overview was quite similar to the one for the Yakima. The lack of trend data and consideration of human population projections and usage are notable omissions. More detail could certainly be provided.

The description of the physical environment of the subbasin is excellent. It is detailed and systematic, and synthesizes across elements, e.g. geology, hydrological patterns, water quality, and riparian habitat. The plan would have benefited from a more complete discussion of water uses, particularly the location and amount of water withdrawals. It is always helpful to have a map showing diversions, waste water discharges, etc.

The plan offers a good discussion of focal habitats and their changes over time under various influences. The text includes a discussion of the rationales for focal species selection, historic conditions, current conditions, and stresses. There is an excellent table summary of human disturbances and their effect on ecosystem components by focal habitat type.

Overall, the planners have tried to be as accurate as they can in describing the effect of the environment on fish and wildlife populations, but they have limited data to work with. The background for the wildlife species is quite well presented. For focal fish, the EDT work is apparently complete for spring chinook and steelhead, although there is no indication of different concerns for winter or summer steelhead, and there is nothing presented for bull trout. The reporting of EDT results is weak (there are no EDT results presented in the text or appendices). This draws into question whether the planners understand the appropriate use of this model. The planners have not considered how to effectively summarize their analysis for the subbasin. From their experience with EDT and the knowledge in the subbasin, it seems they could go farther in their assessment. The plans agenda appears to be focused on three major goals related to supplementation and passage projects at Castille Falls and Lyle Falls. Habitat work above Castille Falls needs to be emphasized.

The planners discuss ecological interaction in a general way that was comparatively more attentive than other plans.

Limiting factors are identified for each focal habitat and for each focal species within a habitat type. Working hypotheses are tied to these. The description of the findings on limiting factors is difficult to fully understand. The limiting factors are stated as symptoms. The comparison for historical, current, and restoration is only conducted for spring chinook and steelhead trout. The summary comments in the tables and the text seem to be a re-iteration of the EDT output, but without any description of methods used or assumptions etc. Extensive text tries to present information on “priority” reaches, but the selections differ by species and there is no overall assessment at the subbasin scale.

The planners have a logic path problem; some key findings are not justified in the Assessment. The majority of the key findings appear to be more like a list of belief statements or desired issues to address, such as hatchery supplementation and Pacific lamprey (neither of which are

addressed in the assessment). Biological objectives are not stated for all of the key findings and the strategies refer to the Klickitat Fisheries Master Plan several times. This latter report is another 100+ page report that has only recently been completed and not reviewed to our knowledge. The authors should be able to state the objective and a strategy without referring to another proposed plan.

### **Inventory**

The Inventory section of the plan is simply incomplete and inadequate. Existing protections are not listed. Existing plans and management programs are provided in Table 27 as "projects," but the information about these projects is general and does not identify the gaps that should be addressed in a comprehensive management plan. Inadequate effort is made to relate the Inventory to the Assessment.

### **Management Plan**

The Management Plan presents a partial synthesis of objectives, limiting factors, and strategies designed to address the limiting factors. Objectives could be specified in a more measurable form. The plan does not provide a lot of detail about its implementation processes. The explicit recognition of ten-year monitoring is informative, but the plan is weak on funding, coordination and implementation, and data management issues.

The biological objectives aspect of the Management Plan is difficult to understand. For wildlife, the plan is marginally related to the Assessment, but there is no indication of it having a relation to the Inventory. The plan offers few biological objectives, and limiting factors are frequently stated as outcomes or impacts (not active factors leading to degraded conditions), and there is no indication of any prioritization of the lists of objectives. The summary tables for fish species do not provide the requested information. The 'Strategies and Objectives' in column number 1 of the summary tables are combined as a listing of desired outcomes or actions, but includes topics that are not addressed in the Assessment. There is no indication of any working hypotheses. The fish tables are not related to the focal species and make no reference to the Council's Fish and Wildlife Program.

The RME section identifies what kind of information needs to be collected in order to determine if the plan's vision and objectives are being met in a general way by project. The planners have a long list of factors that would need to be monitored, but no indications of how these data would be collected. There is no consideration of monitoring sites or needed sampling capabilities, or any consideration of the need for reference streams (controls) or how to assess natural production. This list of factors to be monitored should also be prioritized.

An RME section specific to the needs of monitoring and evaluating the strategies implemented in the subbasin management plan should be developed. The RME section is more directed at a suite of projects than as part of the overall logic path, although the projects are tied to the strategies. The critical data gaps are not identified, although there are many. Specific recommendations for research to address the acknowledged limits of available information are significant omissions. The Management Plan mentions adaptive management, but offers few details regarding how monitoring information will be used to alter management plans. The Management Plan also does not describe a data and information archive infrastructure.

## Conclusion

The state of preparation in this subbasin is very difficult to assess given the presentation of work in this report. The absence of the appendix of EDT results and presentation of the reaches mapped in Assessment Units makes assessing the data impossible. The presentation of the wildlife habitat assessment was better than the aquatic portions, but the use of wildlife focal species seemed confused in the management plan presentation. Overall, a better basis for planning likely exists in the Klickitat than is presented in this report. Substantial revision is required to clarify what that plan might be, and evidence of community consultation and agreement is needed.

## Review Checklist

<b>I. The Subbasin Assessment</b> (See generally pages 4-6, 9-10 of the Technical Guide; the checklist is derived from 18-24 of the Technical Guide.) Reviewers should consider the soundness, completeness, analytical approach, and transparency (documentation of methods and decision-making process) of the following components of a subbasin assessment.		
<b>I. A. Subbasin Overview</b>  <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>		
<b>I. A.1. General Description</b>		<i>(Y)es, (P)artial, (N)o</i>  <i>Need for additional treatment (0-4)</i>
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: The subbasin overview is complete, but it is not as detailed as those of some of the other subbasins. For instance, its information on jurisdictional authorities is limited.  The subbasin is notable for its small percentage (<1%) of federal land, and large proportion (~ 50%) of tribal land. The assessment provides a good description of tribal forestland management and state wildlife plans.		Yes  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)?	

<p>Reviewers: The plan would have benefited from a more complete discussion of water uses, particularly the location and amount of water withdrawals. It is always helpful to have a map showing diversions, waste water discharges, etc.</p> <p>The description of the physical environment of the subbasin is excellent. It is detailed and systematic, and synthesizes across elements, e.g. geology, hydrological patterns, water quality, and riparian habitat.</p> <p>The map of the subbasin is not clear and does not have Outlet Creek, a creek referred to several times. There is no map of irrigation areas.</p>	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)?	
<p>Reviewers: A general description of anthropogenic disturbances is presented in the Assessment, followed by more specific discussions of human disturbances in the sections on focal species and habitats. The focal species section contains excellent summary tables of land uses and their effects on components of each focal habitat.</p> <p>The plan's statements are not very quantitative. In one case where they were quantitative (Table 10), the table simultaneously showed a loss of shrub-steppe habitat while at the same time indicating that this habitat type has increased 30% over historical.</p> <p>Again, a clear map of the subbasin would have been useful.</p>	Yes	2
I.A.1.4	Does the assessment provide a list of native and non-native fish and wildlife species present in this subbasin including those species that: a. have been designated as threatened or endangered under the Federal Endangered Species Act or state equivalents, b. have been recognized by applicable federal, state, or local resource management agencies, or by the Nature Conservancy or state heritage program, as being especially rare or significant in the local area, c. have special ecological importance within the subbasin, d. are recognized by Native American tribes as having special cultural or spiritual significance, or e. are not native to this subbasin?	
<p>Reviewers: A full list of wildlife species is provided in an appendix. Sixty-nine of the 365 wildlife species are either federal or state listed as of concern; they are threatened or endangered. Wildlife species used in the HEP for dam losses are listed in an appendix.</p> <p>The plan does not list non-native fish. It appears that the planners are not particularly concerned about species that are not harvested.</p>	Partial	2
I.A.1.5	Does the assessment identify plants that have been designated as threatened or endangered under the Federal Endangered Species Act or state equivalents, and/or that are recognized by Native American tribes as having special cultural or spiritual significance, or (optional) that have special ecological importance within the subbasin?	

Reviewers: An appendix lists rare plants included in the Washington State Natural Heritage Program. Plants of cultural importance to the Yakama Nation are also included - they are listed in an appendix and also were considered as one of the criteria for selecting focal habitat. Also, vegetation is explicitly discussed in the focal habitat sections.  Placing or referencing this information in the body of the text would strengthen the plan.		Yes	1
<b>I.A.2. Subbasin in the Regional Context</b>		<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: The subbasin's placement within the Columbia River basin is indicated on a map. A brief description of the subbasin within the Columbia Gorge Province is presented. The plan is well integrated with the Yakima Subbasin Plan (both are covered by the YKFP), but did not give many details about how it fit with the other subbasins aside from mentioning that many of the salmon eggs for the Klickitat hatchery came from out of basin.		Yes	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 <b>units</b> . <sup>1</sup> ) where this information was available during the planning process?		
Reviewers: One statement indicates that bull trout were found in the system, but the subbasin's relationship to the USFWS planning units is not described.  The plan states that the subbasin is run for hatchery production to support harvest. The plan does not, however, really address how the Klickitat fits into ESA salmon recovery.		Yes	2
I.A.2.3	Does the assessment summarize external environmental conditions that might have an effect on fish and/or wildlife in this subbasin (the ocean, the estuary, the mainstem downstream from the subbasin, and, as relevant, upstream areas and adjacent subbasins)?		
Reviewers: The plan does not cover external environmental conditions, except through the brief descriptions of the Columbia Gorge Province.		Partial	3
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)?		

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

<p>Reviewers: The plan makes a brief mention of historical human settlement patterns and it provides data for recent population sizes, but it offers no forward projections on the future climate and population changes. It offers minor comments on human land use, and no trend data.</p>	<p>Partial</p>	<p>3</p>
<p><b>Summary comments and evaluation on the Subbasin Overview:</b> Does the assessment provide the geographical, demographical, and environmental context for fish and wildlife resources in this subbasin?</p>		
<p>Reviewers: The Klickitat Subbasin Overview is adequate for the general description of the subbasin, but the description of the subbasin in a regional context is incomplete. For example, the plan does not explain why conserving spring chinook, summer and winter steelhead, and bull trout was important in a regional context, or how the Klickitat subbasin factored in. The wildlife overview is quite similar to the one for the Yakima. The lack of trend data and consideration of human population projections and potential changes in development or land use are significant omissions. More detail should certainly be provided.</p>	<p>Partial</p>	<p>2</p>

<p><b>I.B. Species Characterization and Status</b></p>		
<p><i>General question: Does the assessment adequately describe the current status of fish and wildlife focal species?</i></p> <p>Note to reviewers: for this section of the review, the checklist should be applied to each focal species. Please identify which species your evaluation applies to in the comment field. Use the ranking fields (Y,P,N; 0-4) to give an overall evaluation across all focal species. Note differences among approaches to species in the comment field. If necessary, once the plans are received, assignments will be made to cover an individual species or a series of focal species.</p>	<p>(Y)es, (P)artial, (N)o</p>	<p><i>Need for additional treatment (0-4)</i></p>
<p>I.B.1. Does the assessment identify a series of focal species that will be used to characterize the status of fish and wildlife species within the subbasin? These should include one or more wildlife, resident fish, and, where present, anadromous fish species. Anadromous fish may also be included in subbasins where they 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,<sup>2</sup> and c) cultural significance.</p>		
<p>Reviewers: Four focal habitats contain the nine focal species: montane coniferous wetlands (two focal species), ponderosa pine/Oregon white oak forests and woodlands (three focal species), interior grasslands (two focal species), and interior riparian areas (two focal species). These are mapped.</p> <p>A rationale for selection of focal habitats is presented: habitats that can be used to evaluate ecosystem health and establish management priorities at the subbasin level (coarse filter); habitats that have experienced a dramatic reduction in acreage or quality; habitats that are naturally sensitive and have likely undergone reduction in quantity and quality, although historical records may be lacking (riparian habitats); other considerations including</p>	<p>Yes</p>	<p>0</p>

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

<p>cultural, economical, ecological and special factors, although these criteria aren't explicitly explained. A good summary of changes in the quantity and quality of these habitats is provided. The plan offers good summary tables linking habitats to focal species.</p> <p>Within these representative habitats nine wildlife species are identified as focal species: Western gray squirrel, Rocky Mountain mule deer / Columbian black-tailed deer, grasshopper sparrow, white headed woodpecker, beaver, yellow warbler, greater sandhill crane, Oregon spotted frog, and flammulated owl.</p> <p>The criteria for selection as focal species are: primary association with riparian or wildlife habitats for breeding; specialist species that are obligate or highly associated with key habitat elements / conditions important in functioning ecosystems; declining population trends or reduction in their historic breeding range; cultural significance of the species, from a tribal and non-tribal perspective; special management concern or conservation status; professional knowledge.</p> <p>Three focal fish species are: steelhead/rainbow, spring chinook salmon and bull trout. In addition, Pacific lamprey is a "species of interest".</p> <p>The flow diagram of the focal habitat and species selection process is useful.</p> <p>One "species of interest" (coho) is not native, according to the plan.</p> <p>The flow diagram of the focal habitat and species selection process is useful.</p>		
<p>I.B.2. Does the assessment identify and characterize focal species populations; i.e. delineate unique population units and, as applicable and where information is available, meta-populations, subpopulations and/or other genetic/behavioral groupings used by scientists or managers?</p>		
<p>Reviewers: Many of the plan's discussions of chinook, steelhead, and coho refer to various hatchery transplants. The metapopulation or subpopulation structure of naturally spawning fish is not known or is generally inferred.</p> <p>The plan appears to present this information for wildlife to the extent that it is available, although this is not always explicitly mentioned.</p>	Yes	1
<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: The plan adequately describes hatchery returns, but its assessments of naturally spawning fish are usually weak. There are relatively few productivity, spatial structure (other than general distribution maps), or trend data. Productivity analyses are based strictly on EDT runs. The information is limited at times.</p> <p>The plan offers a good discussion of focal habitats and their changes over time under various influences. The text includes a discussion of the rationales for focal species selection, historic conditions, current conditions, and stresses.</p> <p>There is an excellent table summary of human disturbances and their effect</p>	Partial	3

<p>on ecosystem components by focal habitat type.</p> <p>There is a good description of population status and trends for wildlife species that cites literature is cited and appears to summarize available information well. The plan has a good discussion of the effects of various stresses on focal habitats and their wildlife.</p> <p>For migratory birds, more information on out of basin effects, such as what is happening to their habitat in their wintering areas, how out of basin effects are likely to affect them in the subbasin, etc. would be useful context.</p> <p>Reviewers wonder if there was more data available than was used. Is there more information on redd counts etc. that could be used to assess recruits per spawner, etc. This information is needed to make decisions about supplementation and acclimation.</p>		
<p>I.B.4. Does the assessment describe the population's life history, including identifying distinct life stages?</p>		
<p>Reviewers: The plan's description of species life history stages is pretty good for bull trout. It is adequate for the other fishes. Wildlife life history descriptions are general, and they were not closely tied to the Klickitat subbasin, except perhaps for sandhill cranes.</p> <p>The assessment provides good descriptions of wildlife focal species, including distribution, relation to focal habitat, relation to other species, habitat needs at different life stages, and major disturbances. Good maps showing potential habitat. Good detail is provided for fish species.</p> <p>The discussion of each focal species also includes lists of strategies that can be taken to address specific life stages.</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 plan presents available information on genetic diversity for fish focal species well. It is presented for Spring chinook and summer steelhead trout, does not comment on Fall chinook or coho but these were not identified as focal species</p> <p>The assessment gives the origin of some of the stock transfers (there are many), but does not address the interaction between these and naturally produced populations.</p> <p>Genetic information is not presented for wildlife species. The implication of the wildlife discussion is that this information is lacking.</p>	<p>Partial</p>	<p>3</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 plan’s harvest information is adequate for salmon and steelhead, but weak for other fishes. Where available, comments are presented for fish species and concerning deer hunting.</p> <p>Harvest is addressed as a limiting factor, included in synthesis tables (key findings). Harvest data are summarized in tables for aquatic species, but not for wildlife species.</p> <p>Given the early importance of beaver trapping and trade in this region it would be useful to include information about the magnitude of the harvest, the likely interactions of beaver with other species when their populations were larger, and the implications for restoring beaver to these levels.</p>	Partial	2
<p><b>Summary comments and evaluation on the Species Characterization and Status Subsection:</b> Does the assessment adequately describe the current status of fish and wildlife focal species?</p>		
<p>Reviewers: The plan’s fish assessment section does a reasonable job in describing the past and current status of the focal aquatic species. The wildlife assessment section is very thorough, considering the lack of available data regarding specific populations.</p> <p>This subbasin’s mainstem populations’ are fairly well known, but its tributary populations are less well known. Many of the wildlife assessments were quite similar to those of the Yakima. Were some portions of Yakima and Klickitat subbasins done together?</p> <p>In this plan, as with most others, harvest is not addressed at the level needed to best direct management actions. The planners do not adequately consider species as a means of monitoring the effect of changes in the habitat.</p>	Partial	2

<p><b>I.C. Environmental Conditions</b> <i>General question to be addressed: Does the assessment adequately describe the effect of the environment on fish and wildlife populations?</i></p>		
<p><b>I.C.1. Environmental Conditions within the Subbasin</b></p>		<p>(Y)es, (P)artial, (N)o <i>Need for additional treatment (0-4)</i></p>
<p>I.C.1.1</p>	<p>Does the assessment describe the current condition of the environment in this subbasin, and characterize the condition of the environment under the following reference conditions: a) historic,<sup>3</sup> b) potential,<sup>4</sup> c) future/no new action,<sup>5</sup> and the potential condition of aquatic and terrestrial habitats within the subbasin? Does the assessment include a determination of the difference between current conditions and the various reference conditions?</p>	

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

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

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

<p>Reviewers: The Assessment’s description of the current and reference condition of the environment is limited. Stream habitat surveys are from old TFW inventories, timber company assessments, or EPA Storet data. These may be out of date. There appear to be many best professional judgment calls.</p> <p>For wildlife, these authors use table summaries for each focal habitat and each species within the habitats. The Limiting Factors identified, however, are the results of actual limiting factors, not the active factors that lead to the noted results. For fishes, the authors apparently used EDT and the historical, current, and restoration templates, but there are no results presented. Appendix E for EDT consists of only the data sources, no results; and the text is largely a re-iteration of the output reach summaries without any integration or summary.</p> <p>A general theme across the subbasin is a reduction in the quantity and quality of all types of wildlife habitat. Riparian wetlands have been lost, as floodplain habitats have been converted to human uses. Agriculture, other human development, altered fire frequencies and invasive weed species have resulted in the diminution and fragmentation of the shrub steppe habitat. Habitat quality and ecological function in Ponderosa pine / Oregon white oak habitat has been reduced because of altered forest species composition and age structure resulting from harvest. The montane coniferous wetland habitat suffers from altered plant species composition due to inappropriate grazing, altered fire frequencies, timber activities and off-road vehicle use.</p> <p>A useful table comparing current to historic conditions of fifteen habitat types is included. Maps of current vs. historic vegetation are also provided but as they are of such a small scale, are of limited use.</p> <p>Aquatic species habitat is assessed in detail at the reach scale, with habitat attributes summarized for each aquatic focal species.</p> <p>The EDT tables do not take the analysis far enough to be useful. In general they have a good start, but they need to further synthesize the EDT analysis.</p>	<p>Partial</p>	<p>3</p>
<p>I.C.1.2</p>	<p>Does the assessment classify 6<sup>th</sup> 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>	
<p>Reviewer: All reaches are rolled into four large Assessment Units but there is no logic presented on why these large units are used. The current condition is adequate, but the potential for restoration should be based on more than just EDT predictions. There is no map of the reaches in each Assessment Unit, so that reach descriptions later in the plan cannot be put into geographic patterns or context.</p> <p>The mid-Klickitat contains numerous types of habitat that a finer scale may have been more useful for analyzing. Summit Creek is included in lower Klickitat; the reason for doing this needs to be explained.</p>	<p>Yes</p>	<p>2</p>

<b>I.C.2. Out-of-Subbasin Effects and Assumptions</b>			
I.C.2.1	Does the assessment identify factors outside of the subbasin that have a significant effect on each focal species, with particular attention to bottlenecks? These might include effects associated with upstream conditions, downstream conditions, and, in the case of migratory wildlife, conditions in adjacent subbasins. Outside effects are particularly relevant for anadromous fish and may include mainstem passage and habitat, estuary conditions, ocean conditions, and harvest.		
Reviewers: The plan only provides a few very general statements about out-of-subbasin effects.  More on out of subbasin effects could be included for the migratory bird species. The only mention of these is for the sandhill crane.		Partial	3
I.C.2.2	For each focal species, does the assessment establish assumptions for each external effect that can be used to calculate the effects of external conditions on the productivity and sustainability of fish and wildlife within this subbasin?		
Reviewers: The plan only provides a few very general statements on assumptions about external factors.  These are included in the discussion of focal wildlife species, although more interpretive detail could be added.  For anadromous fish the planners should calculate the impact of out-of-basin harvest. There should be a discussion of this.		No	3
<b>I.C.3. Environment / Population Relationships</b>			
For each focal species, does the assessment identify, for each life stage, environmental factors that are particularly important for the species' survival and determine the characteristics that constitute optimal conditions for species health? Does the assessment describe and make a finding regarding the environment's ability to provide such optimal conditions, or conditions that support the long-term viability of these populations.			
Reviewers: While the authors provide many tables that attempt to summarize important environmental factors for species survival over all life stages, by species, and reach, it is impossible for a reviewer to assess the basis of these summaries or how the subbasin, as a whole, would function, or how the species would fare over the long-term. The subsequent verbal summaries of the 'priority' reaches are a literal expression of the EDT output values without any apparent effort to summarize over species. There were no results presented for the bull trout.  A lot of general statements are made about restoring fish to their historic abundance levels but the arguments are not convincing, considering the way in which the subbasin is managed for hatchery production for harvest.  The information in the plan's tables are not consistent. It is not clear what will be done with this analysis. The planners did not adequately discuss what they would do with the analysis. In the long text, it is not clear what is prioritized. The potential returns in some of these reaches are inconsequential (Swale Creek, for example).		Partial	3
		<b>Summary comments and evaluation on the Environmental Conditions Section:</b> Does the assessment adequately describe the effect of the environment on fish and wildlife populations?	

<p>Reviewers: The background for the wildlife species is quite well presented, but the suitability of certain species, as focal species is questionable. The main concern for the wildlife is the Key Findings tables and their use of limiting factors. For focal fish, the EDT work is apparently complete for Spring chinook and steelhead, although there is no indication of different concerns for winter or summer steelhead, but there is nothing for bull trout. The reporting of EDT results is weak and draws into question whether the planners understand the appropriate use of this model. The planners have not considered how to summarize their analysis for the subbasin. Substantial work remains in this aspect of the Assessment.</p> <p>The planners should summarize their EDT output. From their experience with EDT and the knowledge in the subbasin, it seems they could go farther. The plans agenda appears to be focused on three major goals related to supplementation, and passage projects at Castille Falls and Lyle Falls. Habitat work above Castille Falls needs to be emphasized.</p> <p>The planners discuss ecological interactions in a general way that was comparatively more attentive than other plans.</p>	<p>Partial</p>	<p>3</p>
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<p><b>I.D. Ecological Relationships</b></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><b>I.D.1. Inter-species Relationships</b></p> <p>Does the assessment identify important inter-species relationships or interactions, both positive and negative, with specific attention to relationships between anadromous fish and wildlife and specifically identify: 1) wildlife species and habitats that may be influenced, positively or negatively through direct effects of changes in fish abundance or fish community composition; 2) fish species and habitats that may be influenced, positively or negatively, through direct effects of changes in wildlife abundance or wildlife community composition; and 3) key species relationships within this subbasin based on the above?</p>		
<p>Reviewers: The relationship of focal species with their habitats and with other species is done. The entire assessment has an ecological tone.</p> <p>Interspecies relationships are discussed in general, but a more in-depth discussion of the effects of providing artificial passage above natural barriers such as Lyle Falls and Castile Falls on the mainstem and the falls on the Little Klickitat, would be useful. These fish passage measures have surely allowed hatchery fish to affect resident fishes. The hatchery impacts are not adequately considered.</p> <p>There is no section that explicitly addresses interspecies relationships, but examples of these interactions are identified in the discussions of focal species and their habitats.</p>	<p>Partial</p>	<p>2</p>
<p><b>I.D.2. Processes and Functions</b></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: Most of the plan's evaluations of ecological processes and functions are "generic." Erosion rates, recruitment of large wood, rates of wet meadow formation, for example, are not known for the Klickitat and the plan relies on general statements from the literature.	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.

<p>Reviewers: Limiting factors are identified for each focal habitat and for each focal species within a habitat type. Working hypotheses are tied to these.</p> <p>Compared to historic conditions there is now an increase in fine sediment delivery into the Klickitat River system, and an increase in hydro-confinement; there is a decrease of large woody debris in streams, and a decrease in salmon carcasses, effectively limiting critical marine derived nutrients and food availability.</p> <p>Most of the plan's limiting factors are addressed in Section 4.9 (which is actually in the Key Findings section), which illustrates the potential limiting factor and the authors' confidence in its significance. This approach was also used in the Yakima and it does make the analysis transparent. That said, the report does not rate the importance of each factor, but instead gives a lengthy list of limiting factors and the confidence they have in whether it has been correctly assessed. The planners could have gone further in determining relative importance of the factors in different locations within the subbasin. Furthermore, they did not discuss the potential effect of improving fish passage at Lyle and Castile Falls on the resident fish populations upstream. That is a potentially major limiting factor.</p> <p>The description of the findings on limiting factors is difficult to fully understand. The limiting factors are stated as symptoms. The comparison for historical, current, and restoration is only conducted for Spring chinook and steelhead trout. The summary comments in the tables and the text seem to be a re-iteration of the EDT output, but without any description of methods used or assumptions etc. Extensive text tries to present information on 'priority' reaches, but the selections differ by species and there is no overall assessment at the subbasin scale.</p> <p>The planners have some good information and a general feel for limiting</p>	Partial	3
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factors. They have a made good start, but they need to further synthesize the EDT analysis.		
<p><b>I.E.2. Key Findings</b></p> <p>Is the knowledge gained through the assessment synthesized in regard to: 1) the status of species, 2) the status of the subbasin environment, 3) the biological performance of focal species in relationship to the environment, 4) the health of the overall ecosystem, 5) potential conflicts and compatibilities between individual species and ecological processes, 6) a determination of the key factors that impede this subbasin from reaching optimal ecological functioning and biological performance?</p>		
<p>Reviewers: Key findings for wildlife species are summarized in tables that list, for each focal habitat, key findings, limiting factors and working hypotheses for each focal species.</p> <p>Key findings for aquatic species by assessment area are summarized in tables that include finding, working hypotheses related to finding, level of uncertainty, biological objectives and strategies, but these tables are often incomplete.</p> <p>Key findings are presented in a large number of tables, first apparently for the subbasin and then by the assessment units. The table format is similar to that used in the Yakima and is potentially a useful means to summarize a large volume of results from the assessment. It is not clear how the Key Findings in these tables relate to the Assessment. The majority of the Key Findings appear to be more like a list of belief statements or desired issues to address, such as hatchery supplementation and Pacific lamprey (neither of which are addressed in the assessment). Biological objectives are not stated for all of the key findings and the strategies refer to the Klickitat Fisheries Master Plan several times. This latter report is another 100+ page report. The authors should be able to state the objective and a strategy without referring to another proposed plan.</p> <p>The planners have a logic path problem; some key findings are not justified in the Assessment.</p>	Partial	3
<p><b>I.E.3. Subbasin-wide Key Assumptions/Uncertainties (“Working Hypothesis”)</b></p> <p>Does the assessment describe the key assumptions (including uncertainties) that have been made in the “Key Findings” above, and document the data sources and/or analytical tools relied upon?</p>		
<p>Reviewers: Section 4.9 does a good job identifying uncertainties for each focal species and habitat.</p> <p>In the summary tables, the plan’s working hypotheses are mixed with 'causes' but in most cases the confidence in the stated 'causes' was medium to high, indicating a relatively low level of uncertainty. This outcome is not well supported by the results from the assessment nor does it seem consistent with the status of the focal species in this subbasin.</p>	Partial	2

<p>The plan's tables are good summaries, but the evidence for the values in them are not given. The planners need another column that gives the source of the uncertainty. Nutrients not adequately discussed in the assessment, but shows on a table on page 243.</p>		
<p><b>Overall impression and evaluation of the Assessment:</b>  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>		
<p>Reviewers: The planners have made a good start on this Assessment, they have gathered the information and run it through the EDT model, but the summary of the analysis is not there.</p> <p>While the background work appears to have been conducted, the wildlife summary tables do not identify limiting factors correctly. The work done on the focal fish work is fragmented and little thought appear to have been directed towards integrating the results of the EDT analysis or applying these results to identify the 'priority' Key findings in the subbasin or the limiting factors. Unfortunately, while the groundwork has been laid for a strong management plan, the important synthesis and interpretation is weak and not technically supportable in this state.</p> <p>A concern is that the vision for the Klickitat subbasin remains grounded in producing large quantities of primarily hatchery fish, primarily for harvest opportunities. Although restoring healthy ecosystem functions is mentioned frequently, the plan does not really come to grips with how the two objectives (artificial production for harvest; restoring watershed health) can be reconciled. This important issue is sidestepped in the limiting factor analysis. Ultimately, it must be addressed.</p> <p>More information on the out-of-subbasin effects on migratory birds should be added.</p>	<p>Partial</p>	<p>3</p>

<p><b>II. The Inventory</b>  <i>(This checklist section was developed from pages 11-12 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 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).</p>		
<p><b>II.A. Existing Protection</b></p>	<p>(Y)es, (P)artial, (N)o</p>	<p>Need for additional treatment (0-4)</p>

II.A.1	Does the inventory identify areas with protections through stream buffers, municipal or county ordinances, conservation designations, or water resources protection?		
Reviewers: The Inventory does not identify areas with protections through stream buffers, municipal or county ordinances, conservation designations, or water resources protection, but some reference to these areas is presented in the overview.		No	3
II.A.2	Does the inventory assess the adequacy of protections for fish, wildlife, and ecosystem resources?		
Reviewers: The plan does not assess the adequacy of protections for fish, wildlife, and ecosystem resources. It does provide some general discussion about state and federal regulations, but it does not go into a lot of details with respect to specific protections in the Klickitat		No	3
<b>II.B. Existing Plans</b>			
II.B.1	Does the inventory identify and review applicable local, state, tribal, and/or federal fish and/or wildlife management plans and water resource management plans that affect fish and wildlife?		
Reviewers: The plan lists major entities responsible for various projects. Extensive tables list ongoing projects with details for most about scope, duration, target species, responsible parties, etc. Gap analysis statements are not provided for any of the projects. The subbasin plan does not list any plans that are specifically affecting fish and wildlife in the Klickitat Subbasin. In the RME section there is some additional mention of monitoring plans.		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: The missing gap analysis statements would likely provide information on the extent to which existing plans are consistent with the subbasin assessment and their adequacy in protecting and restoring fish, wildlife, and ecosystem resources. This topic is covered, somewhat, in the Management Plan.		No	3
<b>II.C. Management Programs / Restoration and Coordination Projects</b>			
Does the inventory identify management programs implemented through on-the-ground restoration and conservation projects that target fish and wildlife or otherwise provide substantial benefit to fish and wildlife? These include, at a minimum, those implemented within the past five years regardless of funding source.			
II.C.1	Does the inventory identify ongoing or planned public and private management programs or initiatives that have a significant effect on fish, wildlife, water resources, riparian areas, and/or upland areas? <sup>6</sup>		
Reviewers: The list of ongoing projects appears to cover all likely sponsors.		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?		

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

Reviewers: The plan covers most of the descriptive topics asked for: project number/name, responsible party, target species, project description, duration, location, and GAP analysis statement.	Yes	1
II.C.3	For each management program (or project where not clearly part of an overarching management program), does the inventory identify limiting factors or ecological processes the activity is designed to address?	
Reviewers: The inventory generally identifies the limiting factors or ecological processes the activity is designed to address. This is done indirectly for some plans, but none of the plans make explicit reference to limiting factors identified in the assessment.	Partial	3
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: Typically, few restoration projects have been monitored for effects on target species. Accomplishments were only briefly mentioned for three projects in terms of outputs such as plantings. Failures are not assessed. The tables the plan uses do not allow for a summary of accomplishments and failures. For example, they should describe the EMG study results.	No	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: A column in Table 27 is provided to identify needed gaps to be addressed, but no entries are included. Design inadequacies of existing programs are not addressed at all.	No	3
	<p><b>Overall impression and evaluation of the Inventory:</b> As needed elaborate on your evaluation of the various Sections enumerated above. If the plan provides additional information or analysis beyond what is laid out above in the checklist please comment here (e.g., socio-economic descriptions or analysis).</p>	
Reviewers: The Inventory section of the plan is quite incomplete. Existing protections or plans are not listed (if they do not exist a statement to that effect should be inserted). Existing plans and management programs are provided in Table 27 as "projects," but the information about these projects is general and does not identify the gaps that should be addressed in a comprehensive management plan.  The planners appear to have put little effort in this section. A table of projects has been prepared, but there is no indication of how complete this list is, or of the success/failure of the projects, or of any effort to conduct the gap analysis. No effort is made to relate the Inventory to Assessment. The Inventory provides no descriptions or analysis of socio-economic programs.	Partial	3

### III. The Management Plan

*(Derived from pages 12-16 of the Technical Guide.)*

*Reviewers should consider the soundness, completeness, analytical approach, and transparency (documentation of methods and decision-making process) of the following components of a subbasin management plan.*

These checklist tables incorporate Council Question 4, Consistency with the Provincial- and Basin-level Program: Are the vision, objectives, and strategies proposed in the subbasin management plan consistent with those adopted in the program for the province and/or basin levels? This is a three-part question and reviewers must be familiar with the vision, objectives, and strategies described in the 2000 Fish and Wildlife Program (pp. 13-33) and, for mainstem subbasin plans, the Mainstem Amendments (pp.11-28).

#### III.A. The Vision for the Subbasin

Does the Vision Section of the Management Plan 1) describe the desired future condition for the subbasin; 2) describe a vision that will drive development of the biological objectives and thereby the strategies that are incorporated to change conditions within the subbasin; and 3) incorporate the conditions, values and priorities of the subbasin in a manner that is consistent with the Vision described in the Council's 2000 Fish and Wildlife Program? (Council Question 4 to the ISRP):

*(Y)es,  
(P)artial,  
(N)o*

*Need for  
additional  
treatment  
(0-4)*

Reviewers: The focus of the vision appears to be mostly to support harvest and local economic needs and less for protecting and restoring natural resources in the subbasin.

Yes

1

As stated above, the plan seems to endorse the existing policy of managing the subbasin primarily for production of (mainly hatchery) fish for harvest. That is likely not entirely consistent with the values and priorities of the 2000 Fish and Wildlife Program.

The vision statement is identical to those of the Big White Salmon and the Lower Middle Columbia subbasins. These three subbasin plans are developed through the collaboration of WDFW, the Yakima Nation, and the counties.

The vision statement is a very general one, referring to healthy indigenous populations, community based decisionmaking, contribution to economy, and adherence to legal responsibilities. Just about anything would fit into it. The only specific in the vision is its emphasis on native species. Since all three vision statements include "contribute to a sustainable economy" wording, it would be nice if they stretched a little further in the subbasin plan to indicate how they expect this to happen. Actions will have both benefits and costs and the objective would be to try to have the net benefits be positive over the long term.

If the statement about sustainable economy is not followed through in the plan's strategies, and monitoring and evaluation sections it likely should not be included. Viable may be a better word.

"Sustainable," in general, is only a meaningful description when the specific attributes that define it are clearly established.

### 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 aspect of the Management Plan is difficult to understand. For wildlife, the plan is marginally related to the Assessment, but there is no indication of it having a relation to the Inventory. The plan offers few biological objectives, and limiting factors are frequently stated as outcomes or impacts (not active factors leading to degraded conditions), and there is no indication of any prioritization of the lists of objectives. The summary tables for fish species do not provide the requested information. The 'Strategies and Objectives' column is a listing of desired outcomes or actions, but includes topics that are not addressed in the Assessment. There is no indication of any working hypotheses. The fish tables are not related to the focal species and make no reference to the Council's Fish and Wildlife Program.</p> <p>The Management Plan is structured in the same way as those for the Big White Salmon and Lower Mid-Columbia Mainstem subbasins. There is a reasonable amount of text describing the context and conditions that will influence a management plan.</p> <p>The Plan's biological objectives emphasize habitat restoration, but do not address the potential conflict between releasing several million hatchery fish into the river and their effect on naturally spawning populations. The planners discuss not being able to present biological objectives in one place in the Plan, but then they do in another part of the plan [Table 4.9?]. This document is not internally consistent. The objectives are so general they are not operational.</p>	<p>Partia</p>	<p>3</p>
<p>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.<sup>7</sup></p>		
<p>Reviewers: The planner's strategy appears to be "more of the same" with respect to both hatchery production (although they state the need to beef up NATURES-type rearing) and to habitat restoration. It appears that they were taking their guidance more from the Klickitat Master Plan than from the Council's 2000 Fish and Wildlife Program. There is no reference to the Council's 2000 Fish and Wildlife Program.</p> <p>The Plan's objectives are not listed in the introductory text, but are discussed in a general form in that section. The objectives do appear in a more specific form on the various tables. The wildlife tables (by habitat</p>	<p>Yes</p>	<p>2</p>

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

<p>type) are a systematic approach to identify objectives, strategies, priorities, and source of information.</p> <p>As with the other two plans, the objectives are worded in a general form (restore, protect, etc.) rather than in specifically measurable terms, so it would be difficult to monitoring and evaluate progress toward meeting those objectives, and it is not possible from their current specification to determine what "success" looks like. The tables do, however, pull together objectives, strategies, actions and priorities in a systematic way that is directed toward addressing the limiting factors in the subbasin.</p>		
<p>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.)</p>		
<p>Reviewers: The objectives are based on the Assessment. They are quite general in form. They should be listed in a more specific measurable form in the text as well as being presented in tables. The planners conducted a straight EDT analysis, with all the assumptions about biological responses that model entails. The Key Findings are usually based on the Assessment, but even this is not always true.</p>	Partia	3
<p>III.B.3. Where possible, are the biological objectives empirically measurable and based on an explicit scientific rationale; i.e., quantitative with measurable outcomes?</p>		
<p>Reviewers: Quantifiable and measurable biological objectives are not presented for wildlife or focal fishes. The authors state that, "an EDT analysis would be necessary to present quantitative biological objectives with a high level of confidence." It is not clear if this was done for spring Chinook and steelhead.</p> <p>Most of the plan's biological objectives are worded quite generally (reduce damage, restore habitat, "retain decadent trees" etc.), but some are reasonably specific. Target numbers or thresholds are not included, though.</p>	Partia	3
<p>III.B.4. Are biological objectives identified for both the short and long-term?</p>		
<p>Reviewers: The planning horizon of the document is five to ten years. Distinctions within this period are not made, except for those strategies listed as higher priority, based on their ability to be implemented in five years. The text implies that the longer-term are less likely to be successful and are "secondary" in priority.</p> <p>This is done better for wildlife than for fish.</p>	Yes	2
<p>III.B.5. Are the biological objectives complementary to programs of tribal, state and federal land or water quality management agencies in the subbasin?</p>		
<p>Reviewers: Since no biological objectives are stated, and no comparisons are made with other programs, except some references to the Klickitat hatchery supplementation programs and given the list of participants the biological objectives are likely to be complementary to programs of tribal, state and federal land or water quality management agencies in the subbasin, but it is difficult to tell for sure because the Inventory is too</p>	Partia	3

incomplete.		
III.B.6. <i>Clean Water Act</i> : Does the management plan describe how the objectives and strategies are reflective of and integrated with the water quality management plan and Total Maximum Daily Load schedule within that particular state? I.e., does this subsection of the management plan assess and describe the consistency-coordination-findings of the Water Quality Plan with the subbasin plan? <sup>8</sup>		
Reviewers: The plan makes only a brief statement that its biological objectives will be consistent with the CWA.	Partia	2
III.B.7. <i>Endangered Species Act</i> : The USFWS and NOAA Fisheries are developing recovery plans for listed species (bull trout, white sturgeon, salmon). Recognizing that those ESA-based efforts are in various states of completion across the Columbia basin (some efforts are well underway, others just beginning), does the management plan describe how the objectives of the subbasin management plan are reflective of and integrated with the ESA-based goals for listed species within the subbasin? <sup>9</sup>		
Reviewers: The plan makes brief statement that the biological objectives will be consistent regarding ESA recovery plans for listed steelhead and chinook. This is not indicated in the Management Plan, but these plans are discussed in the Assessment. Improving fish passage at the falls would help winter steelhead and adfluvial bull trout, but the real reason for the passage improvements was to get more steelhead upstream. This will impact the resident bull trout.	Partia	4
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: Disagreements between co-managers are not identified. If there were no disagreement among co-managers than the planners should insert a statement to that effect.	na	na

### III. C. Strategies<sup>10</sup>

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)<sup>11</sup>

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

<sup>9</sup> 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](http://www.nwcouncil.org/library/2002/nmfstargets2002_0404.pdf).

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

<sup>11</sup> This is one of the most important review questions. The set of seven questions from Council asks the ISRP to evaluate the internal consistency, scientific soundness, and thoroughness of subbasin plans. Internal consistency

Reviewers: Strategies are presented in the introductory text preceding the management plan tables, and the strategies are only generally discussed but most are not linked to or even differentiated from the biological objectives. In the first column of the tables for wildlife species, strategies and objectives are differentiated but often mixed up (i.e. strategies are really the objectives and visa versa). For fish species the biological objectives and strategies are lumped together in the first column and not even differentiated.	Partial	3
<b>III.C.2. Consistency with the Fish and Wildlife Program.</b> Are the Strategies proposed in the subbasin management plan consistent with those adopted in the program? (Council Question 4)		
Reviewers: The plan's heavy emphasis on production is not entirely consistent with the Council's Fish and Wildlife Program. Otherwise, the plan appears to be consistent with the Council's Fish and Wildlife Program although no specific reference is made to it.	Yes	2
<b>III.C.3. Consideration of Alternative Management Responses.</b> 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) <sup>12</sup>		
Reviewers: Alternative management actions are rarely mentioned. The Assessment makes some mention of the Council's guidance on approaches, but the Management Plan does not have any details on this.	Partial	3
<b>III.C.4. Prioritization.</b> Does the Strategies Section describe a proposed sequence and prioritization of strategies?		
Reviewers: By the plan's own admission, restoration actions are not prioritized in a quantitative way. They do, however, mention some actions (fish passage at dams; fixing problem road culverts) that are given high priority.  Strategies are prioritized into primary and secondary priorities, according to whether they can be implemented in the next five years, address significant limiting factors, and the degree of their likelihood of success.  The prioritization is done in terms of short-term feasibility, but the prioritization is not done in terms of what actions would have the greatest impact towards meeting the plan's biological objectives. The wildlife section is better done on the strategy side than the fish section. The fish side is a length list of objectives that could have been compiled without the	Partial	3

means there is scientific support for the conclusion that the strategies proposed in a subbasin plan will in fact address the problems identified by the subbasin assessment; i.e., does the Strategies Section take into account not only the desired outcomes, but also the physical and biological realities of the subbasin environment. The ISRP's Subbasin Plan Logic Path flow chart, attached below, provides a straightforward illustration of the logic path reviewers should look for in subbasin plans. Rick Williams, ISRP chair, developed and has presented this flow chart to subbasin planners around the basin, emphasizing the importance that subbasin plans demonstrate a clear logic path.

<sup>12</sup> The 2000 Fish and Wildlife Program directs that the subbasin management plan's strategy section must include an explanation of how and why the strategies presented 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.

Assessment or the Inventory.		
III.C.5. <b>Additional Assessment Needs.</b> Does the Strategies Section describe, if necessary, additional steps required to compile more complete or detailed assessment?		
Reviewers: The plan’s additional assessment needs are mentioned in the strategies section. The Assessment that the plan already possesses is mostly complete. If the planners feel that they have no additional assessment needs than they should insert a comment to that effect.	No	3
III.C.6. <b>Clean Water Act:</b> Does the management plan describe how the strategies are reflective of and integrated with the water quality management plan and Total Maximum Daily Load schedule within that particular state?		
Reviewers: The plan has a brief mention of the CWA found in the Biological Objectives section. The planners do address bringing some streams into compliance with 303d requirements.	No	3
III.C.7. <b>Endangered Species Act:</b> Recognizing that ESA-based efforts are in various states of completion across the Columbia basin, does the management plan describe how the strategies of the subbasin management plan are reflective of and integrated with the ESA-based goals for listed species within the subbasin?		
Reviewers: The plan only mentions ESA-based efforts to the extent that they do not interfere with the plan’s primary goal of producing fish for harvest.	Partial	3

### 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	<b>Research:</b> Does the RME section of the plan describe a research agenda with specific conditions and situations identified in the subbasin that will require specific research studies to help resolve management uncertainties? Is the research agenda framed around the relationships between the assessment data and the stated vision, biological objectives, and strategies in describing uncertainties? Does the RME section prioritize research topics that are of critical importance to the subbasin?	(Y)es, (P)artial, (N)o	<i>Need for additional treatment (0-4)</i>
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	<p>Reviewers: The RME plan lays out a general research agenda. The critical data gaps are not identified, although there are many. The only research needs noted are found in the outline for fisheries monitoring needs (most are focused on artificial production, supplementation, and harvest) developed from the Yakima subbasin RME plan. Several of them relate to strategies found in Table 26 - 44 (Management Plan section).</p> <p>For wildlife focal species the research agenda is presented in a form with a reasonable tie to the objectives and strategies identified in the Management Plan. More discussion is provided for aquatic species, with reference to the ongoing programs.</p>	Partial	3
III.D.2	<p><b>Monitoring Objectives:</b> Does the RME subsection identify what kind of information needs to be collected in order to determine if the plan's vision and objectives are being met? I.e., what indicator variables will be monitored?</p>		
	<p>Reviewers: The RME section identifies what kind of information needs to be collected in order to determine if the plan's vision and objectives are being met in a general way by project.</p> <p>Wildlife monitoring is not developed. Fish monitoring and evaluation is a listing of topics from the Yakima Fisheries Program, but without any development within the Klickitat system. There is no consideration of monitoring sites or needed sampling capabilities, or any consideration of the need for reference streams (controls) or how to assess natural production. There was mention of a need to develop a program for bull trout.</p> <p>The planners have a long list of factors that would need to be monitored, but no indications of how these would be collected. This list needs to be prioritized and be specifically related to this subbasin..</p>	Partial	3
III.D.3	<p><b>Monitoring Indicators:</b> Does the RME subsection identify measurable indicators of physical, chemical, biological, or socioeconomic conditions that may act as environmental signposts by which progress towards achieving the stated vision can be evaluated? E.g., does the RME subsection describe performance standards or quantitative benchmarks for reference conditions against which observations can be compared? Does the plan prioritize which indicators are most needed to answer management questions (include a short list)?</p>		
	<p>Reviewers: The RME plan gives habitat indicators and identifies the need for trend monitoring over the next ten years. This is good, however, benchmark reference conditions are lacking and there is no prioritized list of indicators.</p> <p>As above, the plan offers long lists of parameters that could be measured, but they are not prioritized or specific to this plan and subbasin.</p>	Partial	2

III.D.4	<b>Data and Information Archive:</b> Does the RME subsection describe an infrastructure to archive relevant data and meta data generated through monitoring efforts in existence for the subbasin (e.g., locally or at a regional Fish and Wildlife Program funded database such as StreamNet, the Fish Passage Center, or DART)? Specifically, does the RME subsection include discussion of quality assurance/quality control (QA/QC), data management and analysis, and data reporting?	No	3
Reviewers: The plan does not describe a data and information archive infrastructure.			
III.D.5	<b>Coordination and Implementation:</b> Does the RME subsection describe who will collect the information and data collection methods whether collection is done by a subbasin, provincial, state, or a regional entity, or a combination of entities? This should include a description of coordination with regional RME efforts in the basin (Regional Partnership, Action Agencies Research, Monitoring, and Evaluation Plan, etc) with standardization of data methods. It should also include estimates of how much the proposed M and E will cost.	No	3
Reviewers: The plan does not describe the coordination and implementation of a data archive.			
III.D.6	<b>Summary Question. RME Logic Path (Evaluation and Adaptive Management):</b> Does the subbasin plan provide a scientifically supportable procedure for refining the biological objectives as new information becomes available about how fish, wildlife, and the environment interact, and in relationship to how the plans are implemented over time? (Council Question 7) Specifically, does the RME subsection describe a scientifically sound logic path for how to test if the subbasin plan's strategies are helping to reach the stated vision and objectives? I.e., Is the RME agenda adequately framed around the relationships between the assessment data and the stated vision, biological objectives, and strategies in describing uncertainties?	Partial	3
<p>Reviewers: The Management Plan mentions adaptive management, but offers few details regarding how monitoring information will be used to alter management plans.</p> <p>The RME section consists of a general outline modeled after the Yakima RME plan plus a guide taken from Washington State SRFB documents. A RME section specific to the needs of monitoring and evaluating the strategies implemented in the subbasin management plan should be developed. The Management Plan acknowledges an intention or desire to do this, but provides no plan.</p> <p>The RME section is more directed at a suite of projects than as part of the overall logic path, although the projects are tied to the strategies.</p>			
<p><b>Overall impression and evaluation of the Management Plan:</b> As needed elaborate on your evaluation of the various Sections enumerated above. If the plan provides additional analysis beyond what is laid out above in the checklist please comment here (e.g., socio-economic descriptions or analysis).</p>			
<p>Reviewers: The Management Plan presents only a partial synthesis of objectives, limiting factors, and strategies designed to address the limiting factors. Objectives need to be specified in a more measurable form. The plan does not provide a lot of detail about its implementation processes. It would have been good to see more of the "how to effectively deal with anthropogenic factors" addressed.</p> <p>The explicit recognition of ten-year monitoring is nice, but the plan is weak on funding, coordination and implementation, and data</p>		Partial	3

management issues.		
There is no scientific basis to the Management Plan to review. The authors either did not understand the requested presentation or were completely out of time for this portion of the work. There is a very large amount of work required to complete a plan based on this presentation. Some sections of the Management Plan are incomplete, especially the RME section.		

<p><b>General Council Question. Consistency with the Fish and Wildlife Program and its Scientific Foundation</b></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"> <li>1. The abundance, productivity, and diversity of organisms are integrally linked to the characteristics of their ecosystem.</li> <li>2. Ecosystems are dynamic, resilient and develop over time.</li> <li>3. Biological systems operate on various spatial and time scales that can be organized hierarchically.</li> <li>4. Habitats develop, and are maintained, by physical and biological processes.</li> <li>5. Species play key roles in developing and maintaining ecological conditions.</li> <li>6. Biological diversity allows ecosystems to persist in the face of environmental variation.</li> <li>7. Ecological management is adaptive and experimental.</li> <li>8. Ecosystem function, habitat structure and biological performance are affected by human actions.</li> </ol> <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 identity how well the eight principles were addressed.</p> <p><b>Summary comments and evaluation of the subbasin plan’s consistency with the eight principles of the Fish and Wildlife Program’s Scientific Foundation:</b></p>		
<p>Reviewers: This plan is strong on its ecological focus. It is lacking in explicit acknowledgement of scale and hierarchy. It is not experimental nor does it build an adaptive process. It acknowledges the role of human actions, but does not include much assessment about how to influence them.</p> <p>The discussions in the presentation indicated that implementation of restoration etc. for wildlife is to explicitly consider issues such as social acceptability of the restoration of the beaver. Some actions not considered acceptable are not included in the plan. This should be explicitly addressed in the plan: e.g. we chose X because... we chose not to do Y because...</p> <p>The plan does a good job of summarizing limited data, and the restoration matrix is generally clear (although some terms like "artificial carcasses" are obscure). Two concerns are the assumption that the Klickitat will continue to be managed primarily for hatchery production to support</p>	Partial	2

<p>harvest (this a potential conflict with Council’s Fish and Wildlife Program and ESA), and the general sense that the plan supports the status quo with respect to restoration emphasis. Whatever the planners got from their EDT analysis does not seem to have changed their minds about anything that's currently going on in the Klickitat Subbasin.</p> <p>As a general comment, this plan is not linked to the Lower Columbia Province Plan, but it would be strengthened by a closer link to it.</p>		
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## Editorial and Other Specific Reviewer Comments

The following overview statement raises the issue that hatchery production and harvest have dominated interests in the basin.

Overview, page 14, 2<sup>nd</sup> last para: “Hatchery releases have resulted in some hybridization of the native spring chinook stock. Escapements for these species have been managed to provide for hatchery requirements, with no allowance for natural production (Hymer, et al. 1992).”

The Council should be concerned for achieving a balance of hatchery, harvest needs, and natural production but this seems to be the major challenge for this basin. It is actually not clear what the above paragraph means ... is natural production not a priority or does it simply imply that there is no concern for surplus hatchery returns that could be used in supplementing natural spawning?

p. 18, Section 4.1.1: reference to figures 2 and 3 (1<sup>st</sup> para.) but should be Figures 4 and 5 (as noted on page 19); Figures 4 and 5 should be enlarged as the details can not be gained from this presentation.

p. 21 Rare Plants and Plant Communities (Appendix D also) ... the text states that there are 76 rare plants and 46 rare or high quality plant communities, but Appendix D includes 51 rare plants and 23 communities? What is the reason for the differences?

Appendix D regarding plants: Appendix D and Tables D.4 and D.5 captions refer to Rock Creek and/or Yakima. Do these same tables apply to the Klickitat?

p. 23, last paragraph, refers to a ‘figure 4’, reviewers expect this is Table 6, page 25. If so, it is not obvious that this figure does describe the rationale or process for selecting focal species. A text description may be more effect. And, if a diagram is used, there should be an entry for the ability to monitor the species. A species that is very rare, even if important, may not be a good choice as a focal species if you are using the species to track changes in the basin.

p. 27, Table 9: this is a useful little summary but we could not find any explanation of ‘ECA’ in the text. As a general note, captions to figures and tables should always be fully descriptive of the headings and content. The rule is that any table or figure should be able to ‘stand on its own and be understood’.

p. 27, Table 10: comparing Interior Grasslands and Shrub Steppe, one of these rows must be incorrect regarding the sign of changes. It seems both have lost area but only the Grasslands have a negative sign?

p. 29, intro to Table 11: this paragraph refers to Appendix C, table C.7 for an entire list of species associated with the focal habitats; but that table only refers to the PHS indicators, is this the correct table reference?

Table C.7. Priority Habitat Species (PHS) known to occur in Klickitat subbasin, based on IBIS data (WDFW 2003c).

p. 49-52, Section 4.3: This section on Shrub Steppe/Interior Grasslands ... the text is not clear on whether Grasslands or Shrub Steppe is the focal habitat. Previous to this section seem to indicate that Grasslands had suffered the major loss (97%) but this section now seems to indicate that Shrub Steppe is critical focal habitat. Which is the important habitat, is it both, or actually Grasslands?

p. 53, Section 4.3.1, Deer(s): This text would suggest that deer species may not be a good focal species candidate. If the population trend is most dependent on winter habitat and severity of conditions, what value would there be in associating deer population trends to Grassland habitats. Plus, again in this section, Grasslands do not seem to be the focal species. Also, the status of deer seems to indicate substantial numbers of deer including harvest. How sensitive an indicator would deer be then, and is the monitoring adequate to actually track these changes?

Tables 15,16, 17: very good format for summarizing focal habitat and key findings etc.

p. 111, Section 4.5.4, Habitat Concern – Agriculture: this section makes an important and valid point about the continuance of agriculture and its impact. However, in a planning process, couldn't consideration be given to managing the mosaic of natural habitats and agriculture to better protect the focal species? Has this issue been discussed with local interests?

p. 115, Table 20, Spring Chinook returns: very unimpressive rates of returns for the numbers of hatchery fish release! What are the possible reasons? Is there any reference to Figure 21 on spawning time?

Comment on Spring chinook text: Are there no references to stock assessments for spring chinook in this basin? The section would be improved with some explanation of spawning survey methods, and discussion of accuracy of the assessments based on redd counts (i.e., is any trend in Table 20 real?).

p. 119, caption to Table 21: This caption clearly fails to be descriptive of the content of this table! The footnotes for Table 21 do not seem to be included (or the number below the table is lost). Comments above on spring chinook also apply here.

p. 121, Figure 23: Is a repeat of a previous figure, but still without any explanation.

p. 129: Environmental Conditions by Assessment Units

The references to appendices in this paragraph are incorrect and a significant omission in the material provided for review. The results of the EDT analysis were not provide in material received for review.

“As a part of the subbasin plan development process environmental assessments were developed in table form to organize changes in environmental conditions by reach. The tables, which are included as an appendix to this document (**NOT**), characterize change within an EDT framework, from past to present. Specific definitions for particular attributes may be found in the appendix[place definitions in appendix, in **Appendix E**]. The methodologies employed to provide rankings for each attribute are distinct, and in some cases different methodologies were employed for a single attribute due to incongruities of available data (appendix E ... **but NOT**).”

p. 129, 2<sup>nd</sup> para., 3<sup>rd</sup> sentence, Environmental Conditions:

“From these working hypotheses and the patterns of change key findings were derived.”

While the reviewers understood the process described, this sentence certainly seems to be expressed backwards. Key findings of the EDT assessment are the observations that should lead to working hypotheses that are possible explanations of the issue or how the key finding resulted.

### **Summary tables in the Reach Assessments**

Reviewers found these extensive summaries to be of very limited use. There was not mapping of reaches so that patterns in the basin could be examined. The tables were basically a transcription of the reach assessment provided by EDT and there was not synthesis of results or synthesis of results within the Assessment Units. Also, no EDT results even presented. There was no description of the table format or content, the formats between AU's were not consistent or complete, and there was not explanation of any results (e.g., “large increase in fish pathology” was suggested as a Ecological Habitat Condition; but where does this idea come from, there was nothing in the text that identified this issue?). The reach assessments also lacked any description of how the data for EDT was collected, how much was empirical versus expert opinion, and was the confidence in data quality considered in anyway?

There is lots of data to summarize, but these tables failed to provide useful information and clearly indicated a lack of any synthesis of the EDT results. This presentation was inadequate.

### **Synthesis and Interpretation**

p. 228, Reach Rankings: This is the type of prioritization sought from the basin plans, but how the rankings were done is not clear from this paragraph. Could you provide an example of the scoring and ranks? Do you mean that the score was the sum of all parameters with a + or minus change from the current state to the restoration condition?

In the first example, why were Steelhead selected first? Was it because the 30% decline in life history diversity was the largest change in the basin? Also, is the text suggesting that restoration

of this reach would only accomplish a 4% restoration of the 30% decline ... and this defines the top ranked insight derived from EDT?

If so, this seems to imply a literal interpretation of the EDT input and results without any synthesis or local assessment. EDT should be considered a tool to examine potential relative change or types of habitat attributes that consistently are associated with changes in habitat capacity. The use of EDT requires some interpretation and expert assessment.

### **Key Findings for Subbasin Watershed and Ecosystem Processes**

p. 243, Section 4.9: The key findings section uses a table format very similar to that used in the Yakima. The essential elements for linking key findings, hypotheses, strategies are included (including indications of confidence levels in the assessment) but the table entries are very concise and therefore lack detail. The key findings were to be derived from the subbasin assessment but many of these key findings are not. They are frequently expressed as a list of belief statements, including support for hatchery mitigation and changes in the abundance of lamprey, but without any real evidence presented. There were no comments in any key findings concerning Bull trout. The tables are incomplete as many key findings do not have any biological objectives or strategies. Several strategies refer to the Klickitat Fisheries Master Plan (KFMP) but this is another large document that is presumably in the 'for review' stage of development (given that it has an April 2004 date). This large appendix was not the subbasin plan that was the focus of our review, but a preliminary examination would suggest that many of the anadromous salmon plans for this basin are contained in that report. The KFMP would have to be fully integrated with the basin habitat and terrestrial wildlife aspects before we could consider this plan complete.

If these tables could be condensed so that the true Key Findings are identified (and agreed) and then the table completed under each column, then this presentation could have been useful. However, at this point, the idea was sound but the effort incomplete. Please review the Technical Guide (Council Docu. 2001-20) also to ensure that the intended content under the primary headings (working hypotheses, biological objectives, etc.) are clear understood.

### **Inventory (page 273, Section 5)**

This section simple did not meet the expectations described in the Technical Guide and is technically inadequate at this time. Compared to the original effort undertaken by the Yakima subbasin plan, it is difficult to understand how so little was completed in this basin. The omission of a gap analysis is a significant limitation when considering where to direct future funding.

### **Management Plan (p. 291, Section 6)**

p. 294, 2<sup>nd</sup> last paragraph (Section 6.2)

“The strategies in the fish and wildlife management plan matrixes attempt to address the limits to fish and wildlife productivity existing in the Klickitat watershed. Biological objectives were not identified because insufficient data and confidence was present for technical committee and

planning committee members to identify quantitative measures. Some objectives may have been more clearly identified with a longer planning timeline, with the goal of reaching physical habitat capacities, but were unavailable within the current limitations. Therefore, the left column of the fish matrixes contains strategies and types of actions that address key findings rather than quantitative biological objectives. New assessment activities, comprehensive monitoring and evaluation, and an EDT analysis would be necessary to present quantitative biological objectives with a high level of confidence.”

Given the Key Findings table structure (and content) in the Assessment, it is very difficult to understand the purpose of this paragraph, particularly the underlined texts. All of the necessary information for the management plan should be available at this stage, or much of the assessment should not have been reported. This needs to be clarified and ... on the next page

“Areas and actions identified in the primary tier category are able to be implemented within the next five years and have a high likelihood of achieving the targeted biological effect.”

If there are targeted biological effects then there are biological objectives. The “actions” needed to reach these targets are what these plans were to identify, but what are these strategies or actions?

The entire introductory section 6.2 (Management Plan Matrixes) needs to be reviewed, much of the material is redundant to earlier sections, and this one only adds confusion (sorry).

**Reviewers’ question:** How do the tables in the Management Plan relate to the tables in the Assessment chapter, in particular the terrestrial habitat and focal wildlife tables (after each focal habitat type) and the fish tables in Section 4.9, page 243 onward? The relation between terrestrial habitats and the tables in the Management Plan is much more obvious than for aquatic species.

The table structure in the Management Plan could be an informative summary but care needs to be taken in use of limiting factors (Key findings), objectives, strategies, etc. For example, in many instances, the limiting factors are expressed as the outcomes and not the active factor leading to the degraded conditions.

Focal species in the tables are included as separate rows or tables and would imply they are not integrated with their associated habitat. Why aren’t the focal species integrated **within** their habitats and used as recovery strategy or monitoring tool? The value of the focal species was not principle for their values (e.g., hunting) but were barometers of change in the focal habitats.

In the aquatic tables, the objectives and strategies are a list of desired outcomes or actions but seldom are direct outcomes of the assessment, and are not related at all to the Inventory. The ranking of strategies within Assessment Units pertains to what could be done in the next 5 years

but does not comment or estimate the potential benefits to the basin, salmon recovery, or the Council FWP. **There is no ranking by importance or overall for the subbasin.**

In both the terrestrial and aquatic sections of the Management Plan there is no evidence of community consultations and so no indication of the acceptability of the proposed strategies. These long lists of strategies are of limited value without a level of confidence in your ability to deliver these actions, and without an estimation of the potential benefits to the focal species and people in the community.

**p. 353 to 372, Research, Monitoring and Evaluation**

This is a long section that is very difficult to understand as a plan for RM&E. There is clearly a need for target research and biological inventory in this subbasin, but the major issues are not clearly presented. The wildlife section is a list of some current and desired activities but there is no plan suggested. The fish section is a list similar to activities conducted in the YKFP in the Yakima, but it is not developed for the Klickitat yet. There is no consideration of monitoring needs critical to stock assessments and no consideration of reference habitats or fish populations to serve as “control” areas for long-term assessments. The only specific suggestions refer to harvest or hatchery supplementation programs. However, in the absence of an agreed management plan, any comments on the M&E program may actually be premature. **The absence of a research plan and steps to quantitative stock assessment could be significant omissions.**

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