

# Grande Ronde

## Review Summary

The Grande Ronde Subbasin Plan shows concerted effort to meet the requirements of the Council's 2000 Fish and Wildlife Program and the Subbasin Planning Technical Guide. However, significant scientific elements remain to be provided in the Assessment, the Inventory, and the Management Plan before the Plan can best guide solicitation, development, and selection of fish and wildlife projects.

A notable characteristic of this subbasin is its high proportion of privately owned land, which influences the approach to fish and wildlife restoration. An opportunistic approach is taken to developing restoration projects with willing landowners, and these projects then serve as demonstration projects to other landowners. Such collaboration with private landowners has resulted in major utilization of the USDA's CREP program, and it promotes the participation of landowners in fish and wildlife restoration. However, strict reliance on opportunity does not necessarily result in an integrated and effective management plan. A prioritized, strategic Management Plan is needed to guide evaluation of opportunities that arise, as well as to suggest where additional efforts are necessary. Such a Plan would promote a more systematic and science-based approach to addressing the limiting factors in the subbasin.

The Subbasin Plan should form a framework for selecting strategies that lead to projects that best benefit fish and wildlife, but the use of EDT in the Assessment seems to be of little value to this endeavor (see detailed comments below and in the Checklist). Reviewers were confused by the presentation of the use of EDT in this subbasin, and were left with a strong sense that the EDT portion of the Assessment is incomplete and includes significant misunderstandings of how and for what EDT should be used. In its approach to management, the plan appears to be a step backward from the progress the ISRP has seen through the NEOH Master Plan and the provincial reviews. Reviewers are confident that fisheries scientists at NPT and ODFW have a better understanding of the subbasin than is evident in the draft Subbasin Plan. The subbasin has been extensively studied, and information from the numerous research studies of aquatic species and environments should be better incorporated into the aquatic Assessment.

Despite strong concerns about the use of EDT, and several other scientific shortcomings, the Grande Ronde Draft Subbasin Plan is thoughtful and has some strong elements. It has a stronger wildlife section than most draft plans. The documents provide considerable interpretive detail, and indicate appropriate inclusion of stakeholders. The Plan follows the Council's template outline, so includes at least some consideration of all of the requested elements. The planners acknowledge that information is vital to adaptive refinement of management, and they include gathering needed information as a prominent element of their Plan. Nevertheless, the reviewers strongly recommend that the procedures and results of the EDT assessments be reviewed independently before application of this subbasin plan.

The Management Plan provides biological objectives that are consistent with the Assessment, though direct linkage could be stronger and this would be facilitated by using the Assessment and Inventory to aid in prioritization of objectives, strategies, and areas in which efforts are

focused. The Plan contains an extensive outline of how to develop a monitoring and evaluation program. The major parts of the plan have been developed, but it remains to prioritize tasks and approaches, and to develop an agreed process for acquiring and adjusting to new information.

Finally, the Plan is substantially flawed by typographical errors, unreferenced assertions, incorrect references to tables, figures, or appendices, unclear figure legends and table captions, and other sources of confusion. Many such errors are noted in the final section of this report (Editorial and Other Specific Reviewer Comments) and in comments in the Checklist, and the final Subbasin Plan must be much more carefully proofread and corrected if it is to be a clear, accessible, and useful public document.

### **Assessment**

The Assessment is reasonably well-developed, compared to many other subbasins, but, given the work that has already been done in this subbasin and the knowledge that exists, reviewers think this plan should have been more thorough. The Assessment generally describes and references the geographical, demographical, and environmental contexts for fish and wildlife within the basin. The treatment of current levels of degradation and impact is sufficient. However, the Assessment does not adequately cover conflicts and compatibilities between species. Even more importantly, it does not address human influences on ecological processes that may impede desired ecological functioning and biological performance. A sound analysis of these should be included and would augment the plan's usefulness.

Species lists for wildlife, plants, and insects are well done. The plan lists three focal fishes, thirteen focal animals (selected to represent ten habitat types and including a mix of mammals, birds, and an amphibian), and two focal plant species (representing two additional habitats of particular interest). The inclusion of focal plant species is unusual among the plans and is a thoughtful and valuable addition. The inclusion of one or more non-salmonid resident species, such as sculpin or dace, would improve representation of the breadth of ecologically important aquatic resources present in the watershed and would enhance the plan.

The terrestrial assessment provides summary descriptions of historical and current limiting factors (primarily assumed to be habitat extent or quality) for wildlife species, utilizing the IBIS and Oregon Natural Heritage Information Center (ONHIC) databases. The assessment provides more data on terrestrial habitats than terrestrial populations. Factors that affect terrestrial components are generalized by habitat types and types of human impacts.

For aquatic species, the Assessment describes historical and current limiting factors and conditions by watershed, the watersheds delineated according to unique population units of each focal species. There are good descriptions of historical and current artificial production; however, sections on the *effects* of artificial production of fish are too limited and vague. There is allusion to "potential domestication effects" and to genetic effects on "both the artificially propagated population and the wild population" (p. 92), but the scientific literature on this issue is not cited. Unlike the wildlife analysis, the aquatic section does not effectively address human impacts on the subbasin. Adding this information would augment the efficacy of the plan.

The aquatic assessment uses EDT for spring chinook and summer steelhead, but does not quantitatively assess for bull trout. Four habitat attributes (sediment, temperature, flows, and channel condition) are identified as limiting factors for aquatic species, according to EDT analysis of 509 stream reaches, according to 46 attributes. The large number of reaches and attributes apparently challenged the use of EDT; for instance, only 20% of the data used were empirical. The authors do summarize a large volume of results into a good summary table (Table 46). The text then provides detailed comments by stream sections (pages 195-203), but the synthesis/interpretation (section 3.6.1) is weak because many of the statements are either unsupported assumptions or are not testable hypotheses. Thus, the Assessment includes many useful presentation strategies, but there are apparent problems with the EDT model output that is presented and with documentation of assertions and assumptions. For instance, EDT predicts no fish in areas where fish are indeed found; uncertainty in the EDT input values is not considered, and the effect of conducting EDT analyses on individual population units is unclear. The inability to maintain spring chinook in Catherine Creek should be investigated, and the effect of the analysis "bug" (page 191) needs to be examined and accounted for. Significant work has been invested in the aquatic assessment, but it needs to be verified and the assumptions should be reconsidered. This subbasin Assessment may demonstrate the difficulty of using EDT in such a large setting. In the end, confidence in its conclusions is limited.

Reviewers had a strong sense that the EDT portion of the assessment is incomplete, that it seems to be seriously flawed and thus may be misleading, and that planners in the Grande Ronde may have serious misunderstandings of the use of EDT. EDT is a modeling tool to examine habitat capacity (largely freshwater streams) and the expected changes in salmonid production, given certain changes to habitat conditions or availability. It may be a predictive tool in the sense of predicting the scale and direction of change, but it is not a forecasting tool that should be expected to predict actual returns. Unless there is much more empirical data than is evident in this subbasin, any expectation that EDT could be "calibrated" to current actual returns is likely very unrealistic. Thus, when the authors comment on the need for more calibration, it is unclear what they would propose. It could be possible to "tune" the habitat attributes and ecological rules in EDT to give reasonable estimates of natural production for a section of a stream, but this may actually defeat the general purpose of the EDT method. Once rules are "calibrated" to one section, could they be generalized to the next section and would they scale-up to larger streams or rivers? Several of the cautionary statements made about EDT by the authors are exactly the types of questions that EDT is capable of addressing, suggesting that the planners did not understand EDT and may have misused it and misinterpreted its outputs.

Further, there is a major omission in these EDT assessments: there appears to be no discussion and analysis concerning the releases of substantial numbers of supplementation smolts into streams within the subbasin. EDT could be used to examine interactions with the natural production, an important issue. If the hatchery-released fish immediately emigrate and do not compete with the natural, then excluding them would be understandable; however, if this is the case, then that should be clearly documented in the plan.

Despite concerns about the EDT analyses, the approach taken by the planners and their presentation of results have some positive attributes. The Assessment attempts to organize its analyses into meaningful biogeographic units, dividing the subbasin into stream groups that have

unique population units of focal fish species, then presenting EDT results for each such stream group. It summarizes the extensive assessment results into key findings for aquatic species, and includes extensive reporting of outputs, both from EDT for each stream group and for wildlife by habitat. The wildlife summaries are excellent and include identification of data gaps. The planners make efforts to thoroughly interpret and present results of EDT analyses, including presentation of “consumer reports” diagrams that show which environmental attributes are most in need of attention in each stream. This biogeographical grouping and analysis of where management may be most needed went well beyond what was provided in many other subbasin plans.

## **Inventory**

The Inventory provides tables and maps of ongoing conservation and restoration activities throughout the subbasin, as well as a thorough listing of protection areas, plans, programs, and projects. However, it fails to relate these extensive listings to the Assessment and key findings, and it provides no information on accomplishment or failures, in terms of biological results.

The Inventory summarizes projects by restoration activity and amount of habitat treated, but does not evaluate success or failure of projects or whether topics have been adequately addressed (the gaps). Terrestrial data gaps are identified, but are based on the qualitative assessment of the planning team. Presumably, these are not being addressed in the subbasin now, but this is not evident from the text.

The Inventory makes a good effort to collate the projects (a database is maintained) and to summarize activity types. Further analysis to identify the most effective activities for restoration and fish production would be useful.

The Inventory adequately presents land use designations (wilderness, wild and scenic rivers) that confer protection. The map of the subbasin with four categories of protection is useful. Overall, protection status is well described and mapped and can be seen to have increased substantially over time.

The gap-assessment section of the Inventory details existing protections, plans, programs, and projects. It concludes that there are sufficient laws and activities to fulfill the fish and wildlife needs for the subbasin, but this conclusion appears to be at odds with the depleted state of the subbasin’s fish and wildlife. It would be more helpful if the gap assessment rated each protection for each limiting habitat variable in each watershed to clarify where protections are adequate and where existing rules are insufficient.

The Inventory identifies aggregate project funding by source. A good map of salmon restoration projects in the subbasin is provided. Additionally, the plan has extensive tables of restoration projects for species and task, with techniques, objectives, and benefits.

The Grande Ronde has a Watershed Planning Group, and is a model watershed for the Council. More than 400 projects have been executed in the subbasin. The Inventory contains virtually no assessment of the success of these efforts, which is a critical omission in evaluation of past

actions and which constrains the ability to chart an effective course forward from what has already been done.

### **Management Plan**

The major parts of the Management Plan have been developed, but several important elements remain to be completed. Important features missing from the Management Plan include prioritization of objectives, analysis of which species are of the most concern, production/recovery goals for the aquatic species, a set of short versus longer-term goals, and a clear process for assessing progress and modifying the plan as more data are acquired. Additionally, the planners need a formal planning framework beyond what may arise as a passive consequence of acting on the opportunities supplied by landowners who are willing to participate in restoration or protection activities. Opportunistic selection of projects should be guided by a comprehensive and clearly reasoned, science-based Management Plan.

The plan's vision for the subbasin includes desired future conditions that are consistent with the Council's Fish and Wildlife Plan. The vision statement also expresses historical and present cultural and ecological values, as well as economic and social factors. Its guiding principles are based on an ecological, rather than single-species, approach. However, the verb "create [a healthy ecosystem]" could indicate lack of full appreciation of potential constraints to management actions and outcomes, given conflicting values (of humans and of various animals and plants) and dynamic underlying ecosystem processes.

The Management Plan provides biological objectives that are consistent with the Assessment (though reviewers comment above and in the checklist as to concerns about the soundness of the aquatic assessment), but does not adequately use results of the Assessment directly to develop related management strategies and priorities. Using EDT or other formal analysis to more clearly and directly inform knowledge and to craft and prioritize strategies would increase the scientific soundness of the plan.

Most of the plan's biological objectives are presented as formal null and alternative hypotheses. For the aquatic species, biological objectives are stated for four habitat attributes, summarized from the EDT results, and considered over the subbasin and for the three focal fishes. In recognition of advice from the ISAB, the authors are careful to have their objectives acknowledge the dynamic nature of these environments; they state that the objectives are a "road map of how to arrive at the dynamically stable future condition that will support" the aquatic species. The biological objectives for aquatic species represent a step towards more natural conditions, recognizing the limits imposed by human conditions and natural variation. The biological objectives for terrestrial species are adequately presented. Quantitative measurable indicators of the objectives, however, are not stated, either for terrestrial or aquatic habitats or for focal species. In addition, strategies are not prioritized by action or location.

The plan's research monitoring and evaluation (RME) section is incomplete and confusing, and it does not follow through into adaptive management. A strength is its incorporation of the NEOH Draft Monitoring and Evaluation Plan as a foundation to assess the anadromous focal species and to investigate the uncertainties of using artificial production as a primary strategy. Weaknesses include lack of performance measures for habitat characteristics and wildlife, lack

of agreement among co-managers on abundance and performance of hatchery and natural anadromous fish, lack of integration of habitat restoration and protection with salmon production objectives, and lack of a research section or research agenda. This section is especially limited for terrestrial species and habitats; the terrestrial RM&E section is only a bare beginning and would benefit from more detail and attention.

## 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>	(Y)es, (P)artial, (N)o	Need for additional treatment (0-4)
I.A.1.1	Does the assessment provide a general orientation to the subbasin (location, size, distinguishing natural and cultural features, land use, land ownership) and an overview of jurisdictional authorities (state, county, federal lands, tribal lands and fishing rights)?	
<p>Reviewers: The Grand Ronde is a rural subbasin in the Blue Mountain Province. Land ownership is appropriately described and mapped; land ownership is about 50% Federal. The Grand Ronde Model Watershed Program (GRMWP) has a strong board of directors that comprise the management and policy group for the subbasin plan. The subbasin planning process has good stakeholder representation of private landowners, tribes, and agencies. The Plan reflects the same hands-on practical approach to problem solving that the reviewers saw in their provincial site review.</p> <p>This section concisely describes the salient features of the watershed. It clearly links summary information with more extensive treatments. There is a short but good description of the economic base of the subbasin. A section on employment categories is included. In addition to having the percentage of employment accounted for by resource-based industries, it would be useful to show the percentage of land used in resource-based industries.</p> <p>The Assessment does not, however, show the subbasin's size and it includes no obvious reference to its jurisdictional authorities. An additional description of fishing rights would be helpful. The maps are very difficult to see in pdf file form because the contrast is poor. Providing</p>		<p>Partial</p> <p>1</p>

<p>more readable maps and addressing details noted above would increase the usefulness of the assessment.</p> <p>Minor note: the citation for Ewing (1938) is missing from the list of references.</p>			
I.A.1.2	<p>Does the assessment provide a general description of the subbasin's macro-environment (geology, climate and weather, land cover, vegetation) and of the subbasin's water resources (hydrography and watersheds, hydrologic regimes, water quality, riparian and wetland resources), water uses, and modifications to water resources (hydropower projects and operations, water diversions, channel modifications)?</p>		
<p>Reviewers: The Assessment provides an appropriate description of the watershed's macro-environment and water resources. The details are somewhat limited, although more detail is provided for hydrologic regimes, water quality, and impoundments. There is a brief but effective description of native vegetation land cover. The plan offers good descriptions of the three watersheds and their many streams, and provides useful tables of parameters that limit water quality of streams.</p> <p>Figure 5, the ODEQ map, suggests that most streams in the basin are listed; is this correct? It is not possible to tell from the text. Section 3.1.3.3 indicates that information on the number of water diversions and the number of water right holders is unavailable. How is this possible in this basin after the extensive work noted later in the text, particularly work done by GRMWP?</p> <p>Figure 3 needs more explanation in text. Why average these two periods? Why the gap between the time series? Isn't it more relevant to identify any changes over time? If it is pretty stable, that should be indicated. Can the minimum/maximum flows be put into larger context?</p> <p>Can the plan put aquifer volume into context? Also, what about withdrawals and recharge rates? Can the standards in Table 7 be related to stream temperatures in the Grande Ronde Subbasin?</p> <p>The plan includes no information on climate or on soils. Adding a concise discussion on these topics would augment the plan.</p>		Yes	1
I.A.1.3	<p>Does the assessment provide a general description of anthropogenic disturbances to the aquatic and terrestrial environment, organized by the source of disturbance (urbanization, agriculture, forest practices, water development, mining, transportation, and other)?</p>		
<p>Reviewers: The Assessment briefly describes anthropogenic disturbances, but this could be usefully expanded beyond a simple list of disturbance types. The Assessment defines the nature and extent of present and future challenges in terms of watershed (both in-channel and out of channel) uses and disturbances. The plan notes the effects of the railroad bed along the Grande Ronde River, the draw-bottom roads along streams, water diversions, culvert blockage, degraded riparian zones, and the lack of vegetation. Reference is made to these impacts throughout the plan. The assessment states that fire suppression in the past requires that fires be a</p>		Yes	2

<p>part of restoration activities in the future.</p> <p>Water rights influence anthropogenic disturbance much more than is noted in the Assessment. A more complete discussion of water rights and other effects of the people in the subbasin would enrich the plan.</p>			
I.A.1.4	<p>Does the assessment provide a list of native and non-native fish and wildlife species present in this subbasin including those species that:</p> <ul style="list-style-type: none"> <li>a. have been designated as threatened or endangered under the Federal Endangered Species Act or state equivalents,</li> <li>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,</li> <li>c. have special ecological importance within the subbasin,</li> <li>d. are recognized by Native American tribes as having special cultural or spiritual significance, or</li> <li>e. are not native to this subbasin?</li> </ul>		
<p>Reviewers: The plan lists an estimated 38 species of fish, including 15 introduced species and six species that are federally listed as Threatened or Species of Concern. A total of 411 wildlife species are listed for the Blue Mountain Ecological Province, most of which may be found in some portion of the Grande Ronde subbasin. There are extensive and complete lists of aquatic and terrestrial species found in the Grande Ronde subbasin, with pictures, included in an appendix.</p> <p>The plan offers a good listing of fish and wildlife species that are listed under ESA or listed as "species of concern" by the USFWS. There is an extensive listing (by various entities) of species with special ecological importance. More text explanation of these, placing them into the subbasin context, would be helpful.</p> <p>The plan includes in Appendix 6.7, a good, but seemingly limited, description of species of importance to the tribes (e.g., the only aquatic species discussed were lamprey and freshwater mussels).</p> <p>A good description is provided of locally extirpated and introduced aquatic and terrestrial species, including noxious weeds and other introduced plant species.</p>		Yes	0
I.A.1.5	<p>Does the assessment identify plants that have been designated as threatened or endangered under the Federal Endangered Species Act or state equivalents, and/or that are recognized by Native American tribes as having special cultural or spiritual significance, or (optional) that have special ecological importance within the subbasin?</p>		
<p>Reviewers: The Assessment has excellent summary tables of plant species of concern under federal, state, or "natural heritage" listings. A link to the natural heritage codes is given, but a little more explanation of it in the text would be helpful.</p>		Yes	0
<p><b>I.A.2. Subbasin in the Regional Context</b></p>		<p><i>(Y)es,</i> <i>(P)artial,</i> <i>(N)o</i></p>	<p><i>Need for additional treatment (0-4)</i></p>

I.A.2.1	Does the assessment describe how this subbasin fits within its regional context (size in relation to the total Columbia Basin, placement within the ecological province and relationship to other subbasins in this province, qualities that distinguish this subbasin from others in the province)?	Partial	2
<p>Reviewers: A map of the ecological province is included, and it notes that the Grande Ronde is the largest of the four subbasins.</p> <p>The subbasin's relationship to other subbasins in the province is adequately presented; however, its importance to the Columbia River Basin needs additional description. A comparison of the proportion of historical and current Grande Ronde anadromous fish production and their contributions to Columbia Basin production would be particularly useful.</p> <p>Examples of the coordinated efforts of the Grande Ronde and Imnaha have been presented to the ISRP in the past. This integration is not captured in the stand-alone Grande Ronde and Imnaha Subbasin plans, but would strengthen both plans.</p>			
I.A.2.2	Does the assessment describe this subbasin's relationship to Endangered Species Act planning units (NOAA Fisheries-designated evolutionarily significant units (ESU) and U.S. Fish and Wildlife Service-designated bull trout planning units. <sup>1</sup> ) where this information was available during the planning process?	Partial	2
<p>Reviewers: The Assessment described the context of the biota within ESUs and BTPUs. Section 3.2.1.1 has several tables of species lists, but the information is not used again in the plan. The plan describes the ESU association of subbasin populations. It does not discuss the breadth of the ESU, or the number of ESU units in the Grande Ronde Subbasin, or the importance of the Grande Ronde sub-populations to the ESUs. This could be done in one or two paragraphs and would enhance the plan.</p>			
I.A.2.3	Does the assessment summarize external environmental conditions that might have an effect on fish and/or wildlife in this subbasin (the ocean, the estuary, the mainstem downstream from the subbasin, and, as relevant, upstream areas and adjacent subbasins)?	Partial	2
<p>Reviewers: The Assessment offers an excellent summary of PATH, IDF&amp;G, and other analyses of hydrosystem effects on focal anadromous salmon. Out-of-subbasin effects are detailed in section 3.3. The discussion of aquatic species is referenced to the TOAST (2004) material and is much more detailed than that of terrestrial species. The ocean and estuary are not treated in sufficient detail to judge the extent to which management actions in these ecosystems are required to bring about recovery of salmon in the Grande Ronde subbasin.</p> <p>Reviewers have some concern about some of the statements in this section. The introduction suggests that the subbasin is "limited primarily by out-of-basin factors" and "out of subbasin harvest is also potentially a limiting factor for naturally produced spring chinook and steelhead stocks ...". But these comments are inconsistent with evidence, particularly on</p>			

<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>harvest, for these two species, and contrary to assessments by Kareiva <i>et al.</i> (2000) and NRC (2004). For example, the last sentence of the second paragraph on page 130 is completely contradictory to these citations. The statement is "it is unlikely that potential survival improvements within the Snake Subbasins alone can increase survival to a level that ensures recovery of anadromous fish populations."</p> <p>The last sentence of the Terrestrial Harvest section (p. 131) is, "State-wide coordination of species management and harvest precludes the potential for undue influence of out-of-subbasin harvest on Grande Ronde subbasin managed species populations." This sentence is unclear as written and should be clarified. The general comments in this section should be reviewed and, if the opinion of the authors is contrary to these other citations, then they should clearly present their reasoning.</p> <p>Discussion of out-of-subbasin effects can also be found scattered through the document and appendices.</p> <p>Although the discussion of wildlife and terrestrial habitat is generally thoughtful and thorough, external factors require more consideration. The Management Plan poses numerous active management approaches (such as fire management and control of exotics), but does not support these plans with discussion of the important larger constraints, such as the interrelationships of fire, exotics, human population and activities, and climate.</p>		
I.A.2.4	Does the assessment identify macroclimate and human occupation and use trends that may affect hydrological or ecological processes in this subbasin over the long-term (50 years into the future and beyond)?	Yes	0
	<p>Reviewers: The Assessment adequately identified past trends in macroclimate and human use, although it would help to have the anticipated rate of human population growth in the subbasin dealt with explicitly.</p> <p>Although the discussion of wildlife and terrestrial habitat is generally thoughtful and thorough, external factors require more consideration. The Management Plan poses numerous active management approaches (such as fire management and control of exotics), but does not support these plans with discussion of the important larger constraints, such as the interrelationships of fire, exotics, human population and activities, and climate.</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 Overview generally describes the geographical, demographical, and environmental contexts for fish and wildlife within the basin. Especially useful are the numerous maps providing spatially explicit detail to species' conditions and status, although the lack of contrast makes the maps difficult to read in pdf format. The treatment of current levels of degradation and impact are sufficient. Species lists for wildlife, plants, and insects are well done. The Assessment covers most topics requested, but in only limited detail and with little consideration for the projections of population growth or impacts. The latter is a significant omission in a planning document. This plan would be improved by adding much more detail on expected future human demographic trends.</p> <p>The information on the economic base of the subbasin is useful.</p> <p>The Overview is very thorough on species and on important economic activities, but does not integrate these and analyze the potential impacts in the future, the give and take between stakeholders, and the tough economic issues that are likely to arise. Most of the species are on unprotected land, making these projections particularly relevant.</p> <p>This section could be improved by the addition of projections for human population and use of land and resources, and by more consideration of climate scenarios, effects of climate, and effects of land ownership</p>	<p>Partial</p>	<p>3</p>
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<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: The Assessment lists three and 13 terrestrial focal species, as well as two focal plant species. It provides a good description of focal species selection and their habitat associations. The basis for the selection of aquatic species is clear, but the basis for the selection of each terrestrial and plant species is not as clearly presented (p. 48). Wildlife focal species</p>	<p>Yes</p>	<p>1</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>apparently are chosen to represent habitats which are themselves the primary targets of the Assessment, but why the particular species? Selection of terrestrial focal species relies on an extensive table in Appendix Table 3 (p. 334), but this table does not obviously indicate the criteria for choosing the species. Explicit statement of the reasons for choosing focal species would strengthen this plan.</p> <p>The inclusion of one or more non-salmonid resident species, such as sculpin or dace, would broaden representation of ecologically important resources that are present in the watershed and would further enhance the plan. The presenter did mention sculpin, but did not say why it was not selected as a focal species.</p>		
<p>I.B.2. Does the assessment identify and characterize focal species populations; i.e. delineate unique population units and, as applicable and where information is available, meta-populations, subpopulations and/or other genetic/behavioral groupings used by scientists or managers?</p>		
<p>Reviewers: The Assessment identifies, to the apparent extent known, the current and historic status of the focal species. The subbasin plan presents a complete picture of the interpretation of population structure currently accepted by the TRT within the subbasin.</p> <p>Wildlife descriptions are extensive, and done for several related subbasins. These are included as Appendix 3 and summarized in the Assessment. Many other plans have not summarized pertinent appendix material in the body of the report, and the planners deserve credit for that effort to make their Plan more accessible and useful.</p> <p>More clearly identifying the relationship of populations in the subbasin to their entire ESUs, where relevant, would strengthen the plan.</p>	<p>Yes</p>	<p>1</p>
<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 Assessment describes the current and historic status of the focal species and presents trend data. The assessment provides ample output from EDT on salmonids and IBIS for terrestrial wildlife. There is a good map of current and past distribution, with summary descriptions of the human causes of the differences.</p> <p>The Assessment describes the current and historic status of wildlife focal species very well. It provides good descriptions of limiting factors and shows changes in the quality and quantity of habitat for terrestrial focal species. The list of wildlife focal species is large, diverse, and interesting.</p> <p>For spring chinook and summer steelhead, the plan cites the NOAA Fisheries programmatic biological opinion (NOAA 2003a); for bull trout it cites USFWS (2002). For these species there is insufficient trend data, and the assessment is heavily reliant on material in the cited documents. Out-of-basin-effects are not introduced until after this section. The material for terrestrial species is less quantitative but the authors seem to have tried to address each topic by species (some not described, presumably indicating</p>	<p>Yes</p>	<p>2</p>

<p>no data). The use of gray color in distribution maps is a point of confusion; some backgrounds and all of the subbasins are shaded gray, but the text is unclear whether this implies a distribution throughout the subbasin. If so, that would seem incorrect for some of the species descriptions. With some clarifications provided, the material is good background.</p> <p>The presenters discussed significant problems with their use of the current EDT model and note their belief that previous use of EDT almost a decade ago, with a simpler set of parameters, was better. The problems in using EDT pose serious concerns for quality and validity of the aquatic assessment for anadromous species. The EDT model is in essence a structured analysis that helps users understand habitat and the habitat attributes that determine its capacity for fish production. The planners needed to start with their understanding of fish presence, habitat conditions, and ensure that the model produces a reasonable characterization of current levels of production (i.e., is it “calibrated” to current local understanding and habitats). For example, they needed to capture longitudinal variability in Catherine Creek (the stream that they identified as a problem). The core value of EDT is organizational, but perhaps this could have been done better with QHA or an easier model. These planners ended up identifying limiting factors that they believed to be responsible for depression of the focal anadromous fish species. Ultimately, the EDT exercise provides the broad overview of what people thought they already knew, but it does not generate reach-specific limiting factors.</p>		
<p>I.B.4. Does the assessment describe the population’s life history, including identifying distinct life stages?</p>		
<p>Reviewers: The Assessment adequately describes the life histories for each species, with the exception of the life history complexity of bull trout, which is covered only marginally. Habitat-source risks by life stages are assessed with EDT for aquatic species. Existing life history information is well described for aquatic species.</p> <p>For terrestrial species, life history is described to the extent that data allow.</p>	<p>Yes</p>	<p>0</p>
<p>I.B.5. Does the assessment characterize the genetic diversity of the population, especially regarding possible effects of artificial production? Specifically does the assessment describe the historic and current status of introductions, artificial production, or captive breeding programs in this subbasin or affecting the subbasin through straying or other means, and describe the relationship between the artificial and naturally produced populations?</p>		
<p>Reviewers: The Assessment amply characterizes genetic diversity for some populations/species, but offers less information for others. Wild populations of focal species are well analyzed and described, and that information is used well later in the document.</p> <p>The Assessment provides, in general terms, a description of the introductions, artificial production, and captive production in the subbasin. Historical and current artificial production practices are well described. Descriptions of the <i>effects</i> of artificial production of fish are, however, too</p>	<p>Yes</p>	<p>2</p>

<p>limited and vague. There is an allusion to "potential domestication effects" and to genetic effects on "both the artificially propagated population and the wild population" (p. 92), but current knowledge from the scientific literature is not cited. Adding this information would improve the discussion. Section 3.2.3.4.5 on the relationship between naturally and artificially produced populations briefly mentions "risks" that could occur, and says: "Hence, monitoring and evaluation are integral to managing the risk associated with supplementation", but it does not mention halting or changing the artificial production program. This section tends to gloss over the risks and is too vague. Exploring and discussing these risks in detail would improve the utility of the assessment.</p> <p>Extensive material on artificial production and captive breeding is provided for spring chinook, and some background is given for steelhead. Regarding the chinook broodstock strategy and management, the plan states "spawning matrices are used to avoid giving any individual a selective advantage" (p. 93). This statement fails to take into account, however, that, in natural spawning, selection operates against individuals whose traits make them the least likely to reproduce effectively. The planner's statement obscures the disadvantageous effect that an artificial "spawning matrix" is just as likely to include those least effective individuals as it is to include those with superior traits.</p> <p>The co-managers have not agreed to the HGMP for summer steelhead, and although the HGMP is cited as Appendix D, it is not discussed in the body of the Assessment, as it should be.</p> <p>Information on genetic diversity is provided for each aquatic focal species. Limited information is presented on introductions of brook trout, lake trout, and mysid shrimp but without discussion of their effect within the subbasin. Examining their effects would enrich the plan.</p> <p>Re-introductions of species are included in the terrestrial species analysis, and a discussion of genetic diversity is included for several of the terrestrial focal species and one focal plant.</p> <p>The material provided appears consistent with past reviews conducted by the ISRP.</p> <p>The NEOH 3-Step and ISRP NEOH review could have been better described. Reviewers note that much of the NEOH Master Plan material is incorporated into the plan, but the Grande Ronde subbasin plan does not cite the NEOH Master Plan. Why that completed material was not included was a concern to reviewers.</p>		
<p>I.B.6. Does the assessment describe historic and current harvest, including both in-subbasin harvest and downstream or ocean harvest affecting the focal species?</p>		
<p>Reviewers: The assessment offers a general description of in-subbasin harvest and out-of-basin harvest conditions affecting species' populations. The comments are brief, especially for out-of-basin harvest. This probably</p>	<p>Partial</p>	<p>3</p>

<p>reflects the limited harvest effect on spring chinook and summer steelhead, but other comments in the out-of-basin effects section raise questions about whether the authors support this statement. More explicit consideration of this topic is needed.</p> <p>Harvest is treated superficially in various places in the plan. Given the role of US v. Oregon the planners should have a specific section that explores harvest in detail in all places that it occurs. A more thorough assessment of harvest would be helpful.</p>		
<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: By and large, the Species Characterization and Status Subsection is broadly descriptive and informative. The portions on wild fish populations are well organized and clearly presented, as is the species-and-life-stage material. The species status information is good and the wildlife literature is excellent and up-to-date. The terrestrial section is thoughtful, thorough, and includes background context and scientific rationale. The issue of map clarity for terrestrial species distributions should be resolved, either through better description in the text or clarification of figures. The basis for selection of terrestrial focal species could also be clarified, but overall, the text provides a clear description of their current status. The effects of artificial production are inadequately addressed. Some additional discussion (or clear reference to published works) on the impacts of artificial propagation and supplementation is warranted.</p>	<p>Yes</p>	<p>2</p>

<p><b>I.C. Environmental Conditions</b></p>		
<p><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</p>	<p><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>	
<p>Reviewers: The Assessment adequately presents historic and current environmental conditions by sub-watershed. The descriptions are fairly extensive. The assessment especially recognizes four general limitations of current conditions for aquatic species: overall channel condition;</p>	<p>Partial</p>	<p>2</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>sediment loads; riparian condition and function; and effects of altered flows.</p> <p>The authors apply EDT to spring chinook and summer steelhead, but do not use any assessment model for bull trout, not even QHA. The authors only conduct an historic versus current comparison, and note the use of a standard out-of-basin effects dataset so that changes reflect conditions within the subbasin. Empirically based inputs to the model only represent about 20% of the "data," but no consideration of uncertainty is included. It is also not evident why EDT estimates of "returns" differ from "escapement" given the assumptions in these analyses (e.g., see Figures 30 vs. 31, page 52 and 53). Further, some comments draw into question how the EDT model was used: spring chinook in Catherine Creek (comments page 61, comments on limitations of EDT on page 55), and reference to a "bug" in the model (p. 191). No future scenarios are conducted; this probably reflects a sense throughout the text that the authors are uncertain about the outcome of the EDT analyses. Reviewers expressed concern about the validity of multiple separate EDT runs for populations within a basin, as they all must use a common corridor for emigration. If negative density dependent effects predominate in the corridor, the sum of results of individual runs of EDT would likely over-estimate the productivity and abundance of the total population. It appears, however, that in the final application of these results, the authors have used the relative outcomes of the EDT analyses correctly. Results for bull trout, terrestrial wildlife, and two plant species are done qualitatively.</p> <p>Alternative actions (future under different scenarios) are not well-considered. The Assessment offers no explicit treatment of future no action/new action scenarios. Exploration of alternative future scenarios would improve the justification for strategies suggested in the Management Plan. For terrestrial sections, this analysis is critical, especially given the apparent emphasis on active management in later sections of the Plan. Realistic consideration of and prioritization of strategies requires such an analysis to appear in the Assessment and then be applied to develop and prioritize the Management Plan.</p>			
I.C.1.2	Does the assessment classify 6 <sup>th</sup> field HUCs (or other appropriate assessment units) within the subbasin according to the degree to which each area has been modified and the potential for restoration?		
Reviewers: The assessment units are adequate, and particularly good for the purposes of the plan. They are well outlined in Appendix 8.		Yes	0
<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.		

	<p>Reviewers: The examination of out-of-basin effects is based on TOAST (2004). The Assessment describes outside factors for the two anadromous focal species and for the migratory terrestrial species. The treatment of the hydrosystem appears to be sufficient. The treatment of harvest and the estuary is not sufficient to make assertions of bottlenecks or identify critical linkages that need to be addressed to recover fisheries.</p> <p>There is a concern that the comments on out-of-basin effects relate more to the planner's belief in the out-of-basin effects' limitations on fish populations in the subbasin. If the authors wish to attribute OOB as a major limiting factor, then they should present specific analyses to demonstrate this and ensure that their information and analyses are current. This analysis would have to include evaluation of smolt survival from beginning of emigration to the first downstream dam where smolt survival could be estimated.</p> <p>This assessment includes a better description of terrestrial out-of-basin effects than most other subbasin plans.</p>	Yes	2
I.C.2.2	For each focal species, does the assessment establish assumptions for each external effect that can be used to calculate the effects of external conditions on the productivity and sustainability of fish and wildlife within this subbasin?		
	<p>Reviewers: The plan uses TOAST 2004 to provide a summary of hydrosystem and marine survival (for the years with releases of tagged groups) problems for spring chinook and steelhead. However, the explanation of quantitative treatment of out-of-subbasin effects in the EDT analysis is insufficient. The reviewers need to explain how out-of-subbasin factors were treated in EDT, specifically, how the general summary of out-of-subbasin presented on pages 128 - 131 of the Assessment was translated into scores and values for the EDT analysis.</p> <p>The plan could attempt to address the relative effects of OOSE and internal effects through use of focal fishes with different life histories and ecology.</p>	Partial	2
<p><b>I.C.3. Environment / Population Relationships</b></p> <p>For each focal species, does the assessment identify, for each life stage, environmental factors that are particularly important for the species' survival and determine the characteristics that constitute optimal conditions for species health? Does the assessment describe and make a finding regarding the environment's ability to provide such optimal conditions, or conditions that support the long-term viability of these populations.</p>			
	<p>Reviewers: The Assessment adequately identifies environmental factors important for each life stage of terrestrial species. However, the analysis for aquatic species is inadequate because it does not examine long-term viability, and life stage survival results inherent in the EDT analyses are not presented or used.</p> <p>For wildlife - within the limits of the IBIS and other data - comparisons of historical and current habitat quantity are summarized in tables. The tables include useful comments about the quality of the data. The plan</p>	Partial	3

<p>provides excellent descriptions for each focal habitat of current and historical acreage, status and trends, key disturbance factors, and associated species. The plan also provides photographs and maps. The terrestrial portion is very well done.</p> <p>To the extent possible from EDT, the plan presents environmental factors that are particularly important to life stage survival for spring chinook and summer steelhead and also includes some comment on bull trout. However, there is very little consideration of conditions "that support the long-term viability of these populations." Only historic undisturbed conditions are compared with EDT; consequently, no assessment could be made regarding the recovery of EDT focal or ESA species. (This topic is considered qualitatively, however, in the Management Plan.)</p> <p>The plan uses EDT to evaluate stream reaches. Environmental factors important for the species' survival are embedded in EDT rules. One difficulty of this approach is that the rules are not transparent and are not easily altered from one subbasin to another. Therefore generic, rather than subbasin-specific, survival factors are assigned to each life-stage for a particular environmental condition. In the Grande Ronde, the state of the factors is known for only 20% of the reaches; expert opinion is substituted for other 80%. In the end, the EDT analysis is difficult to interpret, and the reviewers have many remaining questions about the output.</p> <p>A discussion and analysis of long-term viability is not included. This exemplifies the lack of long-term planning that pervades this Plan. Including a discussion and analysis of long-term viability of focal species would improve the plan's efficacy and utility.</p>		
	<p><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>	
<p>Reviewers: The plan presents the results of EDT and IBIS in extensive detail relating to environmental conditions. However, QHA for bull trout is not completed and presented. The section was often rich in biological information, particularly for terrestrial organisms and habitat, but it lacks a forward-looking analysis, especially of water, water rights, and potential climate change.</p> <p>The Assessment presents EDT output well by breaking the stream system into small, understandable units, according to logical biological criteria (by stream segments). The EDT outputs are nicely described by column headings and captions; this facilitates interpretation when combined with the discussion narrative in the text. The figures and tables in the body of the Assessment nicely summarize results; detailed displays of data are properly placed in appendices.</p> <p>The expert opinion on environmental degradation within the subbasin is adequate, although it may not be correct (nor is it presented). An assessment of restoration potential is not provided; including one is</p>	<p>Partial</p>	<p>2</p>

essential to project recovery efforts and focus the plan on priority task that most benefit freshwater habitat capacity.  Many comments throughout the text make the EDT analysis appear questionable.		
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<b>I.D. Ecological Relationships</b>  <i>Question to be addressed: Does the assessment describe the key inter-species relationships and the key functional relationships?</i>	(Y)es, (P)artial, (N)o	<i>Need for additional treatment (0-4)</i>
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<b>I.D.1. Inter-species Relationships</b>  Does the assessment identify important inter-species relationships or interactions, both positive and negative, with specific attention to relationships between anadromous fish and wildlife and specifically identify: 1) wildlife species and habitats that may be influenced, positively or negatively through direct effects of changes in fish abundance or fish community composition; 2) fish species and habitats that may be influenced, positively or negatively, through direct effects of changes in wildlife abundance or wildlife community composition; and 3) key species relationships within this subbasin based on the above?		
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The identification of inter-species relationships is general, but, for the most part, adequate, given the guidance provided to planners. For aquatic species, the discussion is only sufficient to aid in identifying relationships that may be limiting focal species abundance, productivity, or distribution. The discussion is better for wildlife. The brief discussions in section 3.4.3 (p 191) and in earlier sections on artificial production and interactions with natural production (section 3.2.3.4.4/5, page 95) need more attention. Better integration of terrestrial, wildlife, and fish information would also improve the Plan.	Yes	1
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<b>I.D.2. Processes and Functions</b>  Does the assessment identify key ecological functions for species within this subbasin and assess the current status of ecological processes and functions in the subbasin?		
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Reviewers: The planners begin an ecological function and processes subsection. It is not complete, and the reviewers acknowledge that this is a difficult task. This plan identifies ecological functions and processes adequately for terrestrial species, but not for aquatic species.  The ecological function of the aquatic focal species is the focus of little discussion in this plan, although this aspect is better addressed for terrestrial wildlife, and, in particular, for the two plant species. Ecological processes are not specifically addressed. Moreover, by focusing on "charismatic" aquatic species, some of the key ecological functions of the more "mundane" resident species are overlooked.	Partial	1
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<b>I.E. Interpretation and Synthesis / Limiting Factors and Conditions</b>
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### 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: The Assessment describes historical and current limiting factors and conditions for focal species in detail, with specific details presented by species within each assessment unit by factor. This is well covered in the graphs on habitat protection/restoration priorities (e.g., Fig. 9) and on habitat attribute priorities (e.g., Fig. 10).</p> <p>The plan offers brief but adequate summary descriptions of historical and current limiting factors for wildlife species, derived through the IBIS and ONHIC databases. The plan provides more data on habitat types than on species populations. Factors that affect terrestrial components are generalized by types of habitat and types of human impacts.</p> <p>For aquatic species, the plan describes past and current limiting factors and conditions by watershed. Four habitat attributes (sediment, temperature, flows, and channel condition) are identified as limiting for aquatic species. The results of the EDT assessment are used for the aquatic species. There are 509 stream reaches and 46 attributes. The large number of reaches and attributes creates a challenge in using EDT. Eighty percent of the EDT input was professional opinion of subbasin biologists, some of whom have been active in the subbasin for years.</p> <p>Table 46 summarizes priority attributes from EDT analyses for spring chinook and steelhead, and qualitative assessment for bull trout. The text then provides detailed comments for stream sections (pages 195-203). There are some problems with the EDT model output; for instance, it predicts there would be no fish in areas where fish are indeed found. The plan compares the EDT model output to estimated historical and current adult returns and smolt production. Good summary tables of the resulting restoration and protection tables are provided. More information on limiting factors for aquatic and terrestrial species is found throughout the Assessment. Information is also summarized in section 3.5 (page 191).</p> <p>The plan paid no real attention to the potential negative consequences of artificial production and supplementation; therefore, the plan appeared to presume that these actions are beneficial. A thorough examination of the potential dangers and potential benefits of artificial production and supplementation is needed.</p> <p>Table 46 and the subsequent discussion is a good effort to compile the information from EDT and for bull trout. The language used in Table 46, however, is so truncated and dense that the Table loses some of its efficacy. A summary table used to be collate large amounts of</p>	Yes	1
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<p>information must also be clear and precise. Many comments in this table are simply too vague for reviewers to understand. Cleaning up the syntax and sharpening the precision of the diction in the plan would increase its readability and utility. These are important for a public document that should inform and be used by a wide audience of stakeholders and implementers.</p>		
<p><b>I.E.2. Key Findings</b></p>		
<p>Is the knowledge gained through the assessment synthesized in regard to: 1) the status of species, 2) the status of the subbasin environment, 3) the biological performance of focal species in relationship to the environment, 4) the health of the overall ecosystem, 5) potential conflicts and compatibilities between individual species and ecological processes, 6) a determination of the key factors that impede this subbasin from reaching optimal ecological functioning and biological performance?</p>		
<p>Reviewers: Key findings are scattered in various places throughout the Assessment and are adequate within the limitations of existing data. Key findings for aquatic species are in Table 46, then summarized in the Management Plan. Key findings for terrestrial species are summarized in a series of formatted pages 206-222 in section 3.6.2. The format is a useful summary by wildlife habitat type and focal species, including limiting factors, working hypotheses, and management considerations/strategies.</p> <p>The plan offers a good interpretive summary of key findings and uncertainties for aquatic species, and excellent summaries by habitat type for wildlife. Data gaps are identified. However, the potential conflicts and compatibilities between individual species and ecological processes, as well as factors that impede optimal ecological functioning and biological performance, are absent from the plan. A similar omission is found in other subbasins. Including a brief overview of this would augment the plan.</p> <p>The results are thoughtfully presented, but it appears that time ran out before completion of this planning exercise (no Executive Summary, no prioritization, inadequate linkage of Management Plan to Assessment). The Assessment of current conditions and how they came to be seems to be thorough and to provide excellent background; however, the possible futures and how one might get to them are not explored in any formal or detailed way that would help one prioritize and select reasonable strategies.</p>	<p>Yes</p>	<p>1</p>
<p><b>I.E.3. Subbasin-wide Key Assumptions/Uncertainties (“Working Hypothesis”)</b></p>		
<p>Does the assessment describe the key assumptions (including uncertainties) that have been made in the “Key Findings” above, and document the data sources and/or analytical tools relied upon?</p>		
<p>Reviewers: The Assessment addresses terrestrial species by habitat type. The terrestrial focal species section (section 3.6.2) includes good statements of key uncertainties and working hypotheses.</p> <p>The working hypotheses for aquatic species are not well-prepared or well-written (p. 204, section 3.6.1). Ten bullets or “primary assumptions</p>	<p>Yes</p>	<p>3</p>

<p>and working hypotheses" are presented: the first three bullets pertain to the assessment team's judgment and use of EDT, but these are not stated as testable hypotheses; the fifth bullet suggests that factors other than sediment, temperature, flow, or channel conditions can be ignored. Given the role and scale of hatchery production and the author's comments on obstructions, this appears unlikely; adding consideration of these factors to the analysis would improve the plan. Bullets six and seven are essentially statements that were addressed in bullets four and five.</p> <p>Bullet eight states that, "Static, 'one size fits all' biological objectives are inadequate for outlining a restoration strategy and management plan for the Grande Ronde subbasin. As noted by the ISAB, biological objectives must be developed with consideration given to inherent variability both in space (among the reaches in various parts of the watershed, and within the reaches themselves) and over time, in response to natural disturbance and channel evolutionary response. The biological objectives, particularly for channel and riparian condition, have been outlined with this in mind." This may be true, but this statement is not a hypothesis.</p> <p>Bullet nine asserts that, "Many, if not most, of the likely strategies derived from these biological objectives are already being implemented within the subbasin. The products from the aquatic assessment do not implicate a change in direction for the various land management agencies, individuals, or other entities (e.g., watershed council) within the subbasin. Rather, the products here will (hopefully) help direct and prioritize these ongoing activities at the watershed scale." This statement appears to be out of place, since it has not been addressed yet in the plan, and the planners provide no basis for this assumption.</p> <p>The second sentence of the tenth bullet reads, "The underlying assumption of the work presented here is that it is appropriate to focus on habitat, and the focal species response will follow (i.e., "if you build it they will come")." This is a better example of a working hypothesis. The issue of confidence levels in the data used for EDT, however, is not even addressed in this section; a brief examination of this would increase the efficacy of the plan.</p>		
	<p><b>Overall impression and evaluation of the Assessment:</b>  Does the assessment adequately synthesize the information regarding the health and functioning of this subbasin ecosystem? Does it adequately: a) bring together the single-species and community assessments to form a holistic view of the subbasin's biological and environmental resources, b) provide a foundation for the development of scientific hypotheses concerning ecological behavior and the ways that human intervention might prove beneficial? As needed elaborate on your evaluation of the various Sections enumerated above. If the plan provides additional analysis beyond what is laid out above in the checklist please comment here (e.g., socio-economic descriptions or analysis).</p>	
<p>Reviewers: This Assessment does an excellent job of presenting habitat considerations for terrestrial wildlife. The text is well reasoned, information-rich, and well organized, but would benefit from additional</p>	<p>Yes</p>	<p>3</p>

proofreading and correction. The Assessment provides a lengthy description of the physical and biological condition and history of the subbasin. The terrestrial description provides an extensive integration of multiple species with vegetation and habitat types. Overall, the terrestrial sections are well done, in particular the summary section 3.6.2, but there is obviously a need for better data to improve these assessments.

The aquatic assessment uses EDT for spring chinook and summer steelhead, but does not include quantitative assessment for bull trout. The lack of consideration of uncertainty in the EDT input values is a weakness, and the effect of using EDT on individual population units is unclear. The authors do summarize a large volume of results into a summary table (Table 46), but the synthesis/interpretation (section 3.6.1) is weak, because many of the statements are either unsupported assumptions or untestable hypotheses. The inability to maintain spring chinook in Catherine Creek should be investigated, and the effect of the analysis "bug" (page 191) needs to be examined and accounted for. For a large watershed, significant work has been invested in the aquatic assessment, but it needs to be verified and the assumptions should be reconsidered. This Assessment may illustrate the difficulty of using EDT in such a large setting. In the end, confidence in conclusions from EDT is limited.

This Assessment is generally detailed in comparison with that of many other subbasins, but, given the extent of the work that has already been done and the knowledge that exists in this subbasin, the reviewers think the assessment should be able to go further in describing and analyzing pertinent matters. The planners have probably arrived at the likely limiting factors through their assessment; however, unlike the wildlife analysis, the aquatics section does not address the human impacts on the subbasin. The planners present the outputs from EDT, but they do not further utilize these data by applying the results in analysis and interpretation to inform current knowledge and craft strategies.

The planners do not adequately consider future conditions, such as human demographics, nor do they adequately address water use.

The Grande Ronde Subbasin seems to have fallen into "the assesment trap". The assessment of the current situation and how it developed is adequate, if the problems with data and process (e.g., difficulty with use of EDT) did not result in flawed results, and nicely done for terrestrial habitat and wildlife. However, the follow-through from the Assessment to priorities for objectives, strategies, etc., remains to be done. This is a critical flaw that must be addressed before the Plan is operational and can guide funding decisions. Further, single species versus whole community and ecosystem perspectives should be more thoroughly considered if implementation of intensive and extensive active management is to be a major strategy for the Grande Ronde. Potential conflicts between biological species, habitats, land uses, water use, human population, and

various human economic and cultural pursuits need to be given more explicit discussion. Realistically, one cannot expect to increase all habitats without changing any land uses or having effects on and interactions with economic and social conditions and activities.		
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<p><b>II. The Inventory</b>  <i>(This checklist section was developed from pages 11-12 of the Technical Guide.)</i>  <i>Reviewers should consider the soundness, completeness, analytical approach, and transparency (documentation of methods and decision-making process) of the following components of a subbasin inventory, specifically whether the inventory includes an assessment of the adequacy of current legal protections, plans, and projects to protect and restore fish, wildlife, and ecosystem resources. Does the inventory adequately synthesize past activities and their biological achievements? Planners were requested to, as applicable, describe the extent to which these programs and activities extend beyond the subbasin to a larger scale (provincial and basin-wide).</i></p>			
<b>II.A. Existing Protection</b>		<i>(Y)es, (P)artial, (N)o</i>	<i>Need for additional treatment (0-4)</i>
II.A.1	Does the inventory identify areas with protections through stream buffers, municipal or county ordinances, conservation designations, or water resources protection?		
<p>Reviewers: The Inventory adequately describes land use designations (wilderness, wild and scenic rivers) that confer protection; the map of the subbasin with four categories of protection is useful. Other sorts of protection (forestry rules, road building protections, etc.) are summarized in section 4.5, the gap assessment of existing protections. Figure 62 summarizes existing protections at a fairly high level; the text provides more detailed descriptions. Overall, protection status is well described and mapped. Over time, there has been a substantial increase in protections on the land.</p>		Yes	0
II.A.2	Does the inventory assess the adequacy of protections for fish, wildlife, and ecosystem resources?		
<p>Reviewers: The Inventory assesses the adequacy of protections by ranking the degree of protection from high to low. It comments on acres protected or miles of river protected, but does not address the overall adequacy of protections. Also, tables were not clearly organized and explained (e.g., table on page 221).</p> <p>Section 4.5 of the plan is the gap assessment of existing protections, plans, programs, and projects. It concludes that there are sufficient laws and activities to fulfill the fish and wildlife needs for the subbasin. However, this statement appears at odds with the depleted state of the subbasin's fish and wildlife resources. It would be more helpful if the gap assessment would rate the level of protection for each limiting habitat variable in each watershed. This would clarify where protections are adequate and where existing rules are insufficient.</p>		Partial	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?		

<p>Reviewers: The Inventory adequately identifies and reviews existing plans. A large number of federal, state, and local plans are described in detail and placed in the context of the Grande Ronde subbasin. The adequacy of these plans is not assessed.</p>	<p>Yes</p>	<p>0</p>
<p>II.B.2</p>	<p>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.)</p>	
<p>Reviewers: As stated in II.A.2, Section 4.5 of the plan is the gap assessment of existing protections, plans, programs, and projects. It concludes that there are sufficient laws and activities to fulfill the fish and wildlife needs for the subbasin. However, this statement appears at odds with the depleted state of the subbasin's fish, wildlife, and other environmental resources. It would be more helpful if the gap assessment would rate the level of protection for each limiting habitat variable in each watershed. This would clarify where protections are adequate and where existing rules are insufficient.</p> <p>Appendix 5 provides an extensive listing of management plans and programs related to activities in the Grande Ronde subbasin. Titles and short descriptions described activities and website references are provided. The relation to the subbasin assessment and value of the programs are not included. Including a section in the body of the text that links these programs to the Grande Ronde subbasin would strengthen the efficacy of the Inventory.</p>	<p>Partial</p>	<p>3</p>
<p><b>II.C. Management Programs / Restoration and Coordination Projects</b></p>		
<p>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.</p>		
<p>II.C.1</p>	<p>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></p>	
<p>Reviewers: Ongoing and planned management programs are extensively described, with relevance to the Grande Ronde subbasin. The planners note that many projects are based on the participation of willing landowners and are therefore opportunistic. Appendix 5 provides a listing of these management plans and programs.</p> <p>Federal public lands that operate under FLMPs are especially oriented towards restoration and conservation. In the case of the US Forest Service, the overarching principles found with PACFISH and INFISH guide much of their habitat management.</p>	<p>Yes</p>	<p>0</p>

<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?

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?		
<p>Reviewers: The Inventory identifies aggregate project funding by source. There is a good map of salmon restoration projects in the subbasin. The plan provides extensive tables of restoration projects by species for task and techniques, objectives, and benefits.</p> <p>The layout of the programs and projects tables does not permit making the connections requested by II.C.2. This information is, however, provided in Appendix 6, where existing programs since 1994 are described from a database (610 projects) prepared by GRMWP, and 400 are itemized. The excellent table format includes monitoring activities. These projects are largely related to the aquatic species and habitats or to riparian areas.</p> <p>The text asserts that what is being done is what will continue to be done, but the actions are not clearly analyzed for consistency with the Assessment or against estimates of adequacy of outcomes.</p>	Yes		0
II.C.3	For each management program (or project where not clearly part of an overarching management program), does the inventory identify limiting factors or ecological processes the activity is designed to address?		
<p>Reviewers: Limiting factors are identified in tables summarizing programs, plans, and projects, but are not described for all of the programs, plans, and projects.</p> <p>The listing in Appendix 6 provides the locations of projects, objectives (frequently identified as the limiting factor), activities, and monitoring attributes. Again, these projects are largely related to the aquatic species and habitats or to riparian areas.</p>	Yes		1
II.C.4	For each management program (or project where not clearly part of an overarching management program), does the inventory summarize accomplishments/failures of activity		

<p>Reviewers: The Grande Ronde has a Watershed Planning Group and is a model watershed for the Council. More than 400 projects have been executed in the subbasin. However, virtually no assessment of the success of these efforts is provided. This is a significant omission from the subbasin plan.</p> <p>The authors have prepared a detailed table (Table 48) of restoration projects by task, objectives, and expected benefits. The table also includes a brief description, and is organized within restoration categories. The following tables list the type of restoration tasks conducted, and the miles or acres of habitat treated (in the subbasin and by population segments). Unfortunately, these latter tables are not well described in a caption. This is the only assessment of success/failures and it does not comment on fish produced or water quality improvements, etc. It is not clear, in the caption or by the methods, how linear miles of treatment have been equated to acres treated.</p>	<p>Partial</p>	<p>2</p>
<p>II.C.5</p>	<p>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?</p>	
<p>Reviewers: The Inventory and Assessment conclude that prior assessments identify the same limiting factors as EDT and that current projects are addressing these factors. No gaps are identified in the project activities. A good interpretive "gap assessment," however, would provide some evaluative discussion of programs, projects, strategies, and protections.</p> <p>On the terrestrial side, the planners list data gaps, but state they are doing everything they should be and have a framework under which to operate in the future. (p. 257). Section 4.5 (p. 255) is more of a gap discussion than an assessment. Even though the planners have developed an extensive database of projects, they have not linked the projects back to the assessment and key findings. Section 3.6.2 in the Assessment provides comments on gaps for the terrestrial habitats and species. These terrestrial gaps are not linked or related to any projects or programs. Providing these linkages would strengthen the utility of the plan.</p> <p>Overall, the Inventory is weak in addressing how well past and current actions fit with those that would be expected to be needed given the Assessment.</p>	<p>Partial</p>	<p>3</p>
	<p><b>Overall impression and evaluation of the Inventory:</b> As needed elaborate on your evaluation of the various Sections enumerated above. If the plan provides additional information or analysis beyond what is laid out above in the checklist please comment here (e.g., socio-economic descriptions or analysis).</p>	
<p>Reviewers: The Inventory provides tables and maps that indicate an extensive inventory of conservation and restoration activities that are ongoing throughout the basin. The plan also offers useful, categorized</p>	<p>Partial</p>	<p>3</p>

<p>listings of activities and projects, but it provides no information on accomplishment or failures in terms of biological results.</p> <p>The Inventory includes a thorough listing of protection areas, plans, programs, and projects, but it fails to relate these extensive listings to the assessment and key findings. The Inventory makes a significant effort to summarize projects by restoration activities and amount of habitat treated, but it gives no consideration of success or failures of projects or of topics that have not been adequately addressed (i.e., the gaps). Terrestrial gaps are identified, but are based on the qualitative assessment of the planning team. Presumably the gaps are not currently being addressed in the subbasin, but this is not evident in the text. Clarification would enhance the interpretation and utility of the Inventory.</p> <p>The plan makes a very good effort to collate the projects (a database is maintained) and to summarize activity types, but the planners should finish making the linkage back to the subbasin assessment and key findings. Identification of the most effective activities for restoration and fish production is needed to guide the plan. Analysis of information in the Inventory should provide the bridge from what is already being addressed (some or enough) with what is to be done.</p>		
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**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).

<b>III.A. The Vision for the Subbasin</b> Does the Vision Section of the Management Plan 1) describe the desired future condition for the subbasin; 2) describe a vision that will drive development of the biological objectives and thereby the strategies that are incorporated to change conditions within the subbasin; and 3) incorporate the conditions, values and priorities of the subbasin in a manner that is consistent with the Vision described in the Council’s 2000 Fish and Wildlife Program? (Council Question 4 to the ISRP):	(Y)es, (P)artial, (N)o	<i>Need for additional treatment (0-4)</i>
Reviewers: The plan’s vision for the subbasin includes desired future conditions that are consistent with the Council’s Fish and Wildlife Plan. The historical and present cultural, and ecological values of the subbasin are included in the vision statement. The vision statement also includes economic and social factors. Its guiding principles are based on an ecological, rather than a single- species, approach. However, the vision statement is rather vague, and almost any criteria could fulfill the vision. In the biological objectives section a decision on the desired future condition of anadromous fish production is deferred because co-managers could not agree on numbers. Without a vision that reflects consensus among	Yes	1

<p>stakeholders about abundance and productivity of hatchery and natural anadromous fish populations, there will continue to be confusion among co-managers.</p> <p>The vision statement is also a statement on human power; it implies that the subbasin managers can ‘create’ an ecosystem as an act of will. Is such a vision completely realistic? How consistent is this with information in the Assessment or with the Scientific Principles? A better approach might instead embrace ecosystem-based management, meaning managing human actions, based on the best knowledge we have about ecosystems and their natural processes.</p> <p>The vision is perhaps not adequately attentive to potential conflicts and how they may be resolved.</p>		
<p><b>III.B. Biological Objectives</b></p> <p>Does the Biological Objectives Section of the Management Plan describe physical and biological changes within the subbasin needed to achieve the vision?</p>		
<p>Reviewers: The Plan does not provide a single biological objectives section. Rather, terrestrial habitats and focal species’ biological objectives are included in Section 3.6.2 of the assessment and are referred to as “Management Conditions”; each is quite well described. More generalized statements are also presented in section 5.3. For the aquatic species, biological objectives are stated for four habitat attributes, summarized from the EDT results, and considered over the subbasin and for the three focal species. Acknowledging advice from the ISAB, the authors are careful to have their objectives reflect the dynamic nature of environments, and state that the objectives are a "road map of how to arrive at the dynamically stable future condition that will support" the aquatic species. The four biological objectives for aquatic species represent a step towards more natural conditions, but recognize the limits imposed by human conditions and natural variation. Whether the subbasin will achieve its vision is unknown.</p> <p>The Plan weaves its biological objectives into Section 5.2 for aquatic and terrestrial habitats. While some quantitative standards (in terms of stream length and adult returns of salmon, etc.) are provided for aquatic species and habitats, the terrestrial objectives are presented as "upward trends." The planners acknowledge an absence of accurate acreage of habitat. This is a key information gap that should be filled in the future.</p> <p>The Plan’s goal statements include biological objectives. Goals, including development guidelines, are provided for aquatic and terrestrial species. Habitat conditions (environmental characteristics) needing improvement are identified in the plan. Limiting conditions are summarized by subwatershed. The Plan defers the decision to determine the necessary biological performance for fish production as partitioned by hatchery and</p>	<p>Yes</p>	<p>3</p>

<p>natural fish and allocated to "escapement needs" (i.e. eggs plus ecosystem function); this is a critical omission that the planners should address to create a useful management plan.</p> <p>As a basis for developing management objectives, the "generalization" (assumption) that "habitat quantity and habitat diversity attributes are a function of channel condition" is incomplete. Under many, if not most situations, the condition of the riparian plant community is probably the key factor in the suitability of the stream channels as fish habitat. In other words, "channel condition" depends heavily on riparian condition. Not acknowledging this is a shortcoming in the plan's approach to stream fish habitat. The above-quoted statement and the objectives and strategies that follow from it should be changed to prominently feature riparian conditions. Aspects of plant succession should also be incorporated. A self-restoring riparian zone can be expected to rapidly change channel width, depth and lateral stability; and it should eventually become the source of wood debris recruitment. The plan's companion "generalization" is that "Temperature is largely a function of riparian condition and/or low flows." The more specific objectives that follow those generalizations could easily be made to conform to a riparian emphasis. Cautions about building artificial structures (especially out of rock) should be given more emphasis.</p> <p>The Plan's recognition of the need for remedying straightened stream reaches and for alleviating artificially low flow is on the mark. The planners should make progress on fish production goals. They should remove the question marks from the fish production numbers, place the numbers in the plan, and justify them. The numbers should be five or ten year averages, with ranges for variances. This may take some work, because of the lack of agreement on issues in the subbasin. The lack of a decision on reintroduction of sockeye salmon to Wallowa Lake could impede decisions on steelhead and spring chinook. The planners should look to the Hood, Clackamas, and Umatilla subbasin plans to see examples where realistic fish production numbers are beginning to be developed.</p> <p>The biological objectives for the terrestrial species are not in quantitative terms or in geographic perspective. These considerations will matter in prioritizing objectives, strategies, and areas in which actions are taken. It seems very unlikely that simple opportunism, doing whatever fits into a program that offers funding and for which there is a willing participant (e.g., CRP with a willing landowner somewhere), will produce an adequately focused and coordinated approach to solving environmental resource problems. The Plan needs to move toward a more detailed and realistic landscape and multiactivity context.</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</p>		

basin-level goals, objectives, and strategies. The Mainstem Amendments provide additional biological objectives as well on pages 11-14. <sup>7</sup>		
Reviewers: The Plan's biological objectives are consistent with basin-level visions, objective and strategies. They are not static; they focus on restoring ecological processes; planners note the dynamic nature of ecosystems and the natural environmental conditions.	Yes	0
III.B.2. Are the biological objectives based on the subbasin assessment? (This question relates to the Logic Path in the subbasin plan. Question III.C.1 is a similar question for the Strategies Section.)		
Reviewers: The Plan's biological objectives are based on the limiting factors identified in the Assessment. Sediment, flow, temperature, and riparian condition are identified as limiting factors throughout the subbasin. The objectives are targeted at specific habitat attributes (limiting factors). The objectives tend to be generally worded, and some, but not all, provide rationale and what appears to be an appropriate list of strategies. The Plan does not take the next step and describe how it will do this. Its strategies are not prioritized.  Although the reviewers remain uncertain of the validity of the current EDT analyses, the authors appear to have followed a "logic path" to identify key limiting factors for the aquatic species and to have developed quite contemporary statements of biological objectives. The terrestrial path is less quantitative, but the objectives seem consistent with the material presented in the plan. Working hypotheses are presented for each terrestrial habitat, but the rationale for the recommended strategies is not clearly stated. For instance, strategies include: "Restore forest function through burns and silviculture", or "Fund and coordinate weed control". In other cases, very specific targets are described, but without clear justification, and some of these seem very narrowly specific and perhaps unrealistic (e.g., "native forbs 10-30% cover, vegetation height greater than 10", exotics less than 10%). Much direct statement of how these strategies were selected and of how they can be applied to achieve the objectives, as well as clear statement of the objectives in measurable form, is needed before the plan is clearly sound or ready for implementation.	Yes	1
III.B.3. Where possible, are the biological objectives empirically measurable and based on an explicit scientific rationale; i.e., quantitative with measurable outcomes?		
Reviewers: The Plan provides a good rationale for its aquatic habitat objectives, but the plan's objectives are generally worded (e.g. achieve "appropriate conditions") and so are not measurable without further definition. More specifically worded objectives would strengthen the plan. For instance, the anadromous return objectives are quite specific.  The Plan's terrestrial habitat objectives are not quantitative. The need for	Partial	3

<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>more assessment of existing habitat quantities is noted.</p> <p>The need for quantitative measurable outcomes is not highlighted in this plan, for either terrestrial or aquatic habitats or for focal species. The dynamic nature of the aquatic biological objectives would make this more difficult, but this information certainly could be incorporated, particularly for priority restoration areas.</p> <p>NEOH has recently produced a comprehensive Monitoring and Evaluation Draft Plan to assess the integration of hatchery and natural production in the Grande Ronde and Imnaha subbasins. The ISRP assessment of this program is largely positive. Most of the biological performance section of the subbasin management plan is adopted from the NEOH document and should be acceptable. In contrast, habitat characteristics are not sufficiently identified to develop measurable metrics. The following is quoted from the management plan: “Management Objective 4: Understand the current status and trends of habitat conditions as they relate to focal species status in the Grande Ronde; Key performance measures: N/A.” Integrating the habitat improvements with natural and hatchery production is an essential objective of the entire subbasin plan. Not including habitat performance measures and fish production objectives in the subbasin plan is likely to limit its value.</p> <p>Section 5.2.2 is titled, “Fish Production / Population Strategies.” This section refers the reader to section 3.2.3.4.2 for production goals, but that section only refers to hatchery/supplementation production of smolts, not adult production for the subbasin. Tables 61 and 62 in section 5.2.2 also do not provide useful quantitative goals for adult production, since the co-managers have apparently not yet agreed to many of the goals (check footnoting to Table 61; they are inconsistent on page 264 and 265). The objectives in this plan are not set forth in the detail necessary for them to be empirically measurable. No quantitative objectives or time frames are presented.</p> <p>The NEOH Master Plan elements are cut and pasted into this document and provide a level of detail not presented in the plan. This NEOH plan does not cover all the activities in the basin, for steelhead and bull trout, for example.</p>		
<p>III.B.4. Are biological objectives identified for both the short and long-term?</p>		
<p>Reviewers: The Plan’s objectives are stated without reference to time frame or priority, except for the fish production objectives in section 5.2.2, and no long-term objectives are agreed to for that production. No apparent specific time frames are discussed in terms of objectives.</p> <p>Identifying short-term and long-term biological objectives would augment the plan.</p>	<p>No</p>	<p>3</p>
<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>		

Reviewers: To the extent practicable, the Plan's biological objectives appear to be consistent with and inclusive of federal, tribal, state, and local land & water quality agency mandates. A comparative summary table of these is presented in the Assessment.	Yes	1
III.B.6. <i>Clean Water Act</i> : Does the management plan describe how the objectives and strategies are reflective of and integrated with the water quality management plan and Total Maximum Daily Load schedule within that particular state? I.e., does this subsection of the management plan assess and describe the consistency-coordination-findings of the Water Quality Plan with the subbasin plan? <sup>8</sup>		
Reviewers: The Plan includes only one sentence on CWA. The planners appear to have assumed that the subbasin plan is consistent with CWA. In section 5.4, the authors state that the Grande Ronde subbasin Plan's consistency with the water quality plan is included "as discussed throughout the document ...". There is substantial discussion of Water Quality in the introduction to the Plan, but it is not broached in any other actual section. Some specific detail and description is warranted to support this.	Yes	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: In section 5.4, the authors state that ESA-based material is included "as discussed throughout the document ...". There is substantial discussion of ESA species throughout this Plan. The planners appear to have assumed that the subbasin plan is consistent with ESA. The ESA is imbedded in the plan, although not addressed in a separate section.	Yes	2
III.B.8. If there are disagreements among co-managers that translate into differing biological objectives, are the differences and the alternative biological objectives fully presented? (The Council's review will examine whether the plan is consistent with legal rights and obligations of fish and wildlife agencies and tribes with jurisdiction over fish and wildlife in the subbasin, and agreed upon by co-managers in the subbasin.)		
Reviewers: The only apparent example of disagreements included in the plan is the aquatic production objectives in Tables 61 and 62. Differences of opinion are included in those tables.  The co-managers have yet to reach agreement on anadromous fish production goals. How to resolve this very central objective is not discussed. There is no explicit presentation of alternatives for reaching habitat objectives. If there are no other disagreements then the planners should note that.	Yes	0

<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).

<b>III. C. Strategies<sup>10</sup></b>		
<b>III.C.1. Internal Consistency of the Plan.</b> Does the Strategies Section of the Management Plan explain the linkage of the strategies to the subbasin biological objectives, vision and the subbasin assessment? (Council Questions 2 and 3) <sup>11</sup>		
<p>Reviewers: The Plan appeared to be challenged in developing terrestrial strategies and in getting good habitat data. There are inconsistencies in definitions of habitat types among IBIS, USFS, and other databases. The Plan does not provide much information on the species themselves.</p> <p>The subbasin planning process will fit in well with the federal planning processes. The linkage and internal consistency of the plan is well explained in general and socioeconomic terms. The plan will continue to be opportunistic and depend on landowner cooperation. The plan will continue to emphasize outreach and education and to be proactive.</p> <p>However, it is not clear that the Plan provides conceptual linkages among its vision, biological objectives, assessment, and strategies. The Plan’s strategies are listed by biological objective. Indirectly, they then relate to the vision and assessment, but they do not follow directly from the assessment, with the exception of some of the wildlife strategies. The strategies cover a wide range of activities and are not listed in priority.</p> <p>Strategies are not clearly drawn from the Assessment, nor are they prioritized.</p>	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)		
<p>Reviewers: Generally, the Plan emphasizes protection of habitat and the restoration of ecological processes. Supplementation plans for spring chinook have been reviewed by the ISRP, but the steelhead plans have not been considered yet. The issue of a balance between natural and supplemented production is not addressed in the plan since co-managers do not agree on goals (Tables 61 and 62). Strategies built on ecological process are consistent, but the use of hatchery supplementation may not be. This cannot be assessed until the information is presented.</p>	Partial	2

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

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

<p>The Plan states that mostly passive restoration methods will be used for terrestrial species and habitat, unless it is determined that the damage done requires a more active approach. Despite this emphasis on passive restoration, the planners also lay out an active management approach that utilizes techniques such as weed spraying and fire management. This apparent contradiction should be resolved.</p> <p>Clearer prioritization of goals and strategies and more specific development of the Management Plan are needed to fully assure consistency with the FWP.</p>		
<p><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></p>		
<p>Reviewers: The plan lists some alternative strategies, but does not consider them. It includes a good explanation of its use of the opportunistic approach, and its dependence on landowner cooperation.</p> <p>The plan's integration of artificial and natural production, and its integration of fish production with habitat protection and restoration are inadequate.</p> <p>Explaining how and why the planners choose some strategies over others would significantly strengthen the Plan.</p>	No	3
<p><b>III.C.4. Prioritization.</b> Does the Strategies Section describe a proposed sequence and prioritization of strategies?</p>		
<p>Reviewers: The planners have not prioritized strategies. The list provided by the Plan allows for an opportunistic approach with landowners, but does not provide adequate guidance for prioritizing opportunities to ensure that scarce funds are allocated to best benefit fish and wildlife. The prioritization of strategies should provide a strategic framework for this guidance. Explicitly prioritizing strategies, or defining criteria to be used in future prioritization decisions, would strengthen this plan.</p>	Partial	3
<p><b>III.C.5. Additional Assessment Needs.</b> Does the Strategies Section describe, if necessary, additional steps required to compile more complete or detailed assessment?</p>		
<p>Reviewers: The Plan adequately describes additional assessment needs. Many of the management objectives and monitoring plans address the uncertainties of integrating artificial and natural production; these are drawn from the NEOH monitoring plan. Their principal weakness is a lack of evidence of a plan or mechanism for using the evaluations to modify the management strategies and biological objectives.</p> <p>Throughout the plan there are comments about the need to verify EDT</p>	Yes	0

<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.

<p>data and outcomes, and many data needs are identified for terrestrial habitat mapping and assessment of wildlife species. Additional information poses a major component of what is recommended for action.</p> <p>The plan outlines habitat data needs for further assessment: acquire habitat data; refine/calibrate EDT; use the EDT scenario generator to define watershed priorities; refine terrestrial species data, etc.</p>		
<p><b>III.C.6. 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?</p>		
<p>Reviewers: The Plan does not explicitly state that its strategies are reflective of and integrated with the water quality plan, but it appears that this is done implicitly. Section 5.4 vaguely refers to this. Some specific detail and description is warranted to support this.</p> <p>The plan does not mention any strategies specifically for water quality, but strategies for reduction of sediment and increasing flow would address some CWA issues. Also, the plan acknowledges pollutants (p. 264), but planners expect local impacts to decline as "best management practices are implemented." No other direct strategies are mentioned.</p>	<p>Partial</p>	<p>2</p>
<p><b>III.C.7. 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?</p>		
<p>Reviewers: Section 5.4 of the plan vaguely refers to the integration of ESA-based efforts. Some specific detail and description is warranted to support this.</p> <p>The plan is considering strategies for recovery for spring chinook (supplementation projects), but not for summer steelhead or bull trout. The plan provides no reference for terrestrial species.</p>	<p>Partial</p>	<p>2</p>

### 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	<p><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?</p>	<p><i>(Y)es, (P)artial, (N)o</i></p>	<p><i>Need for additional treatment (0-4)</i></p>
<p>Reviewers: The plan's RME section does not differentiate between research and monitoring. Nevertheless, the plan does describe an aggressive set of information needs for research and monitoring with assumptions and hypotheses. Many information needs are noted throughout the plan; however, there is no research section in the RME. The RME objectives are mislabeled as "Management Objectives." To "understand" and "assess" are not management strategies. The plan incorporates the NEOH draft M&amp;E Plan for salmon production; this is good material, but does not fit as an entire Subbasin RME Plan. The habitat component is not well developed; there is essentially no terrestrial RME, just a cursory, superficial list of 7 bulleted suggestions.</p>		<p>Partial</p>	<p>3</p>
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: This Plan provides a good list of adequately explained monitoring objectives, incorporating the draft NEOH Monitoring and Evaluation (M&amp;E) Plan for salmon production. The habitat component is not as well developed. The RME section does not differentiate between research and monitoring. Regardless, the plan does describe an aggressive set of information needs for research and monitoring with assumptions and hypotheses.</p> <p>The plan has a confused organization and needless repetition: The heading "Monitoring and Evaluation Objectives" follows the statements of those objectives (which are mislabeled as management objectives). Following the "M&amp;E Objectives" heading is a long array of performance measures (Table 63). They are grouped into categories of (population) abundance, distribution, habitat, and the objectives to which they apply are listed by code. It would probably be more helpful to group the performance measures according to objective, with the objectives spelled out, as is done a few pages further on (this might relegate Table 63 to appendix status). The hypothesis under each of the (repeated) objectives is probably not needed and should be eliminated.</p> <p>The Plan is very reliant on the NEOH M&amp;E Plan and PNAMP, and so the monitoring and evaluation framework and indicators describe the information needs primarily for aquatic species and habitats. Discussion is much more limited for terrestrial species and habitats. The terrestrial RM&amp;E section is only a bare beginning and would benefit from more detail and attention. The NEOH M&amp;E Plan (and PNAMP, as it develops) do not cover all of the monitoring issues in the basin.</p>		<p>Partial</p>	<p>?</p>

III.D.3	<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)?		Partial	3		
	<p>Reviewers: The plan is very reliant on the NEOH M&amp;E Plan and PNAMP, but the monitoring and evaluation framework and indicators are adequately provided only for aquatic species and habitats. They are much more limited for terrestrial wildlife species. Habitat indicators are not identified.</p> <p>Each explicitly stated monitoring objective includes hypotheses, assumptions, indicators, and statistical tests.</p> <p>Table 63 lists 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.</p>	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?		Partial	2
	<p>Reviewers: The Plan includes an explicit discussion of intent to use protocols identified by PNAMP and to archive data and information. GRMWP has a person on staff to coordinate monitoring and bring together information on previous monitoring under separate projects. These are acknowledgements of what should be in the Plan.</p>	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.		Partial	2
	<p>Reviewers: The subbasin is a Council Model Watershed and has a board of directors that should be able to coordinate and implement the subbasin plan. Coordination and implementation might also be done through PNAMP. How the wildlife plan would be coordinated and implemented is not clear.</p> <p>The ongoing challenge of establishing a vision and biological performance objectives for balancing artificial and natural production is an impediment that will have to be overcome.</p>	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?		<p>Reviewers: The planners acknowledge that information is vital to adaptive refinement of their management, and their effort, though unfinished, states a basic logic path from action to evaluation to adapting future management. However, although an RME logic path table is provided, it does not appear to lead to revisions of the vision, biological objectives, or strategies.</p> <p>The planners may have misinterpreted this question. They have presented a table of research monitoring and evaluations, with ties to guiding principles used in developing the vision statement. There is no evidence of interim goals, testing hypotheses, and process to incorporate research monitoring and evaluation results to guide the long-term program. Given the extensive monitoring and evaluation discussions of the past, with NEOH step reviews and proposal reviews in the Council's provincial project selection process, this appears to be an obvious omission.</p> <p>The Plan uses the NEOH M&amp;E Plan for the artificial production program as its aquatic management plan. However, a lot of restoration activities are underway but are not adequately covered in this M&amp;E section. The interactions between artificial production and the habitat restoration efforts aren't adequately described or incorporated. The plan needs to consider what part of the production can be provided naturally and what part must be provided through artificial production. Some numbers on this are given, but these numbers are not justified with analysis and contextual information. A terrestrial component of RME is not developed, except that data needs are identified in the Plan as future research needs.</p>	Partial	4
	<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: This subbasin plan shows a concerted effort to meet the requirements of the 2000 Fish and Wildlife Program and the Subbasin Plan Technical Guide. The aquatic assessment makes progress on an improved understanding of the subbasin, but does not get to the point of adequately synthesizing or analyzing the information generated. Given the conditions of the subbasin, one might question the planners decision to rely heavily on supplementation for salmon, while virtually ignoring other "non-charismatic" members of the aquatic community. The wildlife assessment is very well done; however, the wildlife strategies are not so well explained and justified. The Plan falls short on several key issues, most notably prioritizing objectives and strategies and providing a monitoring and evaluation plan that would show whether the subbasin strategies would meet the intended objectives.</p>	Partial	3		

The Plan should form a framework for selecting projects that best benefit fish and wildlife. The current run of the EDT model is likely of little value to this endeavor. In its approach to management, the plan appears to be a step backward from the progress the ISRP has seen through the NEOH Master Plan and the provincial reviews. Reviewers are confident that fisheries scientists at NPT and ODFW have a better understanding of the subbasin than is evident in the plan. This is a subbasin that has been extensively studied, and numerous research projects have been conducted on the aquatic side. This information should be better incorporated into this plan.

The Plan lacks adequate description of how the planners intend to meet their vision. Feasibility of actions needs to be evaluated, given the conditions and interests in the subbasin. It appears that the draft Plan seeks more of everything: more salmon, more irrigation, more habitat (all focal types), and more population, but more of everything is rarely possible, given a finite resource base.

The Management Plan provides biological objectives that are generally consistent with the assessment, and it contains an extensive outline of how to develop a RME program. Quantitative indicators of the objectives, however, are not stated, strategies are not clearly related to the assessment nor are they prioritized by action or location, and no research agenda is described. Other serious issues for this subbasin plan include prioritization of objectives, analysis of which species are of most concern, development of production/recovery goals for aquatic species, and setting of shorter- versus longer-term goals, so that the Plan can be assessed and modified as data is acquired. The major parts of the Plan are present, but the remaining tasks noted above need to be incorporated. The planners need a comprehensive planning framework within which opportunities for restoration or protection activities with willing landowners are assessed.

The biological objectives state a strong ecological and dynamic component. Many of the strategies proposed are passive and would emphasize natural processes. A major exception could be the extent of supplementation, but this has been reviewed for spring chinook already.

A strength of the Management Plan is its incorporation of the NEOH M&E Plan as a foundation to assess the anadromous focal species and investigate the uncertainties of using artificial production as a primary strategy. However, the plan lacks performance measures for habitat characteristics, requires agreement among co-managers on abundance and performance of hatchery and natural anadromous fish, and should better integrate habitat restoration and protection with salmon production objectives. The plan's RME section is incomplete and confused, and it does not follow through into adaptive management. Addressing these weaknesses will enhance the plan.

<p>There is concern about the summary comments after the Inventory, as well as others. If the subbasin had sufficient protective mechanisms and programs in place, and they have been targeting the same limiting factors for the past decade ... then how can these authors account for the present state of habitats and continued depressed status of the focal species? Comments like those cause serious concern as to who has prioritized past activities and how well the results of past programs have been assessed. Further, if the current results indicate similar limiting factors to those from the past assessments, then what confidence do we have that future investments in similar programs will be more beneficial?</p>		
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<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 identify 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: The Plan is partly consistent with the Council’s eight principles. Drawing explicit connection between the plan and each of the eight principles would strengthen the Management Plan. The plan could give attention to this in summary statements, particularly in a concluding section. The Grande Ronde Plan especially needs to give much more serious and explicit consideration to Principles 2, 4, 5, 6, and 7. Issues of water management, such as those concerning the State Ditch, are not adequately covered.</p>	<p>Partial</p>	<p>2</p>

## Editorial and Other Specific Reviewer Comments

### Assessment, Section 3.2.3.1 (page 52) Spring Chinook

**NB:** Page 52 is the first introduction to EDT for this sub-basin plan. While the text is generally accurate, a more complete description of the template is provided on page 96, well after the presentation of the spring chinook and steelhead analyses. Section 3.2.3.5 (page 96) describes the template as a mix of historic conditions in reaches with “little cultural modification” and some undefined level of restoration in reaches with “infrastructure that is vital to modern society and that is likely to remain in place for the foreseeable future.” *These qualifications need to be included on page 52 when current and template are first introduced, and a table of reaches that were not assigned historic conditions should be provided.* A future user of this analysis could not repeat the work without a much more complete description of which reaches were “restored” and how restoration was represented in the EDT habitat attributes. If my understanding of how EDT was applied in the Grande Ronde is correct, the current conditions were only compared to this hybrid-like template (i.e., it is neither pre-development/historic nor future restoration). Presumably, the reaches that were not assigned scores representative of the historic conditions were left as they were scored in the current or patient condition.

Page 52 also indicates that only 20% of the reach/attribute scores were based on empirical data, but no consideration of uncertainty in the data was included in the analyses or write-up. Examples of how uncertainty could be incorporated can be reviewed in the Methow sub-basin plan.

P 52, 2<sup>nd</sup> para, 3<sup>rd</sup> line: states that “... another 45 attributes for historical conditions” were scored. Actually 45 of the original 46 attributes were re-scored to represent the historical condition; they are not another 45 attributes (i.e., different ones). Also, why is it 45 and not 46? Perhaps due to the omission of obstacles, but this needs to be clarified.

P 52, last para: “out-of-conditions” is presumably out-of-basin conditions

P 52 and p53, Tables 30 and 31: It is not evident from this text why the “returns” (Table 30) should differ from the “spawner abundance” (Table 31, caption in Table 31 still says returns)? If the only influence on returns is the fixed set of out-of-basin effects, then how would these two analyses differ? This needs to be clarified in the text.

P 53, 2<sup>nd</sup> para: refers to a Figure 2, but is likely Figure 8?

P55, 4<sup>th</sup> para: This paragraph cautions about the interpretation of EDT results, but reviewers do not believe any of these three limitations are strictly correct,

a) ... does not route impacts... this is actually a function of the reach sizes and the spatial resolution of your data, not a limitation of EDT. Clearly there is a limit to the spatial resolution that can be expected, but with reasonable data and reach definitions, the source of an effect could be quite well located and examined.

b) ... the EDT model does [not] address opportunity ... (presumably the ‘not’ was omitted or the sentence does not make sense). EDT is a tool for examining habitat capacity but cannot discern whether something will be done. If planners expect that an action would not be taken, then presumably they would score the habitat attributes in that reach appropriately (as you seem to have done, section 3.2.3.5 (page 96).

c) ... the EDT model is species and area specific ... but it does not have to be, this is only how you used it. There are likely limitations to the interactions of species that may not be fully captured, but areas within species do not have to be run separately, and likely should not be.

For example, the individual analysis of the six spring chinook populations cannot evaluate any density-dependent interaction between the populations. This could lead to an over-estimation of productivity and abundance since a limiting factor was not accounted for.

One major issue in the Grande Ronde that is not addressed in any discussion of the EDT analyses is how the planners accounted for the large releases of fish for supplementation into the natural habitats. ***This is a significant omission in the EDT discussion.***

P 61, EDT results for Catherine Creek: The results for this population must be much more carefully examined and an explanation of the results provided. There are spring chinooks in this drainage and significant plans for supplementation to establish a larger natural population, so how can these results be reconciled with the other objectives and the existing production of the fish? The discussion of flow limitations in the Mid-Catherine Creek reaches (discussion much later in the text) may explain these results, but the local experts need to address and explain these results.

***NB: on page 192 of this report***, you report the existence of a software problem, “ a bug in the Application that really throws off patient and template values ...” Since this statement is made so much after the EDT analyses, it must be assumed that the results presented are influenced by this error, but what was the effect? Presumably, given the statements on page 192, the analyses were not re-run. Such statements clearly question the validity of the results in this document, but the impact is not placed in any context ... which species, what attributes, how large an error, etc. This revelation should be made in the EDT results sections (i.e., much earlier) and its impact must be much more thoroughly explained. Acknowledging an error late in an analysis and then without any qualification is not an acceptable technical standard.

### **Section 3.2.3.2 Summer Steelhead (p. 69 – 70)**

Tables 32 and 33 drawn into question again what these two tables actually represent and how they were generated. The results in these tables are more what would be expected for two runs using the same model, but what differed between these analyses? The fact that they are quite similar may actually be the expected outcome, and the result for spring chinook the unexplained, but one cannot differentiate between these unless the text is clearer.

p. 70, 3<sup>rd</sup> para: Table 22 should likely be Figure 22. In Figure 22, how do you explain the similarity of decrease in life history diversity in the four populations? If Lower Grande Ronde and Wallowa populations are in largely undisturbed habitats, why would they have lost such diversity relative to the disturbed populations in Joseph Creek and the Upper Grande Ronde? Each of these populations would share common out-of-basin effects, but these effects would not explain loss of diversity.

p. 75 Wallowa steelhead, 2<sup>nd</sup> para: double reference to Figure 27

p. 75 to 76: duplication and re-numbering of the same five “specific priority areas”

p. 77, Upper GR Steelhead, 2<sup>nd</sup> para: “There was no one area indicated that restoration ...” the planners should check on whether this statement is correct statistically. Considering that there were 38 reaches and over 600 miles of streams involved, would you expect one area to dominate or would many smaller increments not be the expected outcome? It is notable that four of the geographic areas actually did have 20+% increments, and most others indicated some improvements.

### **3.2.3.3. Bull trout**

p. 82: reference to a Figure (x) ... likely Figure 31, page 84 (map)

The text states that EDT or QHA were not run for bull trout, but the plan does not indicate how habitat concerns for bull trout were identified or assessed. Comments are made about habitat concerns for Bull trout (e.g., Table 46), ***but there is no documentation concerning what process was used to identify historical and current habitat issues for this focal species.***

**Artificial Production** section, page 94: reference made to an Appendix D for the summer steelhead HGMP, but this is not in the appendices.

P. 94/95, Section 3.2.3.4.3: Last two paragraphs are essentially duplication

p. 95, Section 3.2.3.4.4 Ecological consequences, 1<sup>st</sup> para: “Uncertainty is a function not only of unpredictability and ecological randomness ...”. Ecosystems are unpredictable due to environmental variation and their complex interactions, but ecosystems are not random. This statement is technically incorrect.

At this point in the assessment of the aquatic species, two issues are conspicuous by their absence: within and out-of-basin harvest levels and any estimates of harvest rates, and any assessment of the supplementation programs and hatchery production. This type of information is available as it has been reviewed in past ISRP reviews, but it is not included in this text ... why? It is essential information and should be included.

### **Section 3.2.4 Terrestrial Focal Species, page 97 ...**

Common problem with the distribution maps ... while the text commonly discusses associations of these focal species and specific habitat types, the maps frequently show grey (i.e., the species distribution) throughout the sub-basin. The habitat type maps, though, are much more specific on the distribution of habitats, so what does the grey on the species-specific maps actually represent? If this reflects the understanding of the species distribution, then the text must more clearly describe this limitation. Reviewers found the terrestrial sections to be very good generally, but these maps were confusing.

Also, in the text discussing protected habitats, the authors frequently use the phrase “... enjoy a lower level of protection ...” The use of enjoy in this context seems inappropriate; clearly the species is unlikely to enjoy the consequences of no protection. This wording should be changed to simply reflect the level of existing protection.

p. 100, section 3.2.4.1.8: is this material correct for the spotted frog? It seems to be a general discussion used for each of the wetland species and could be more correctly labeled.

p. 102, section 3.2.4.2.7: Some aspects of this text relate to Blue Herons, but most of it does not (at least not in specifics). Is this material simply extracted from an uncited source?

p. 107, section 3.2.4.5: a number of sub-sections of this section were not completed. There is inconsistency in the years used for Table 39, caption refers to 1997 but the text refers to 2003 and the table includes data after 1997.

p. 108, section 3.2.4.6, Yellow Warbler: The text for this species identifies something not adequately discussed anywhere in this plan. While riparian habitats are identified, and total length or acres of the habitat is estimated, what is the quality and status of this habitat?

p. 113, top line: “Sage sparrow is an occasional host for brown-headed cowbird ...” Is host the correct word here, or are they actually preyed upon by cowbirds?

p. 128, Section 3.3 Out-of-Basin Effects: Comments are made in the checklist, but there are several strong statements that out-of-basin effects are the primary limiting factors for this sub-basin. However, no information or citations are provided to support this. Additionally, two major references (Kareiva et al. 2000. Recovery and management options for spring/summer chinook salmon in the Columbia River

Basin. Science 290: 977-979, and the recent publication by the National Research Council on the Columbia Basin) would contradict these and other statements (e.g., last sentence, 2<sup>nd</sup> para, page 130). Clearly, if the opinion of the sub-basin planners differs from these other analyses, then that needs to be stated and justified. A statement without justification is simply an opinion and is not science.

p. 128, Section 3.3.1: 3<sup>rd</sup> para refers to a Figure 1, but is likely Figure 48.

p. 131, Section 3.3.2.1 Harvest, last sentence: please clarify what point is being made in this sentence. Try as they could, reviewers could not determine what was being suggested.

P. 193, Section 3.5.1 Limiting Factors: Table 46 is a good summary format but members found some of the entries to be too concise or cryptic. A point not addressed in this summary is the confidence level assigned to various assessments. The text notes only 20% of EDT attribute values were based on empirical values, but the text never discusses an accounting for the uncertainty associated with these attributes.

### **Section 3.6 Synthesis/Interpretation** (page 204):

Section 3.6.1: see the checklist for comments on the aquatic working hypotheses. Reviewers found the ten working hypotheses for the aquatic species to be very weak, and they were not written as testable hypotheses. All of these hypotheses should be revisited and revised, but see text in the checklist.

p. 206, Section 3.6.2 Terrestrial: Reviewers thought this format and content of presentation was very good. The hypotheses are much better statements, and the objectives, strategies, and gaps followed in a logical presentation.

Many of the RM&E comments concerning the terrestrial focal species clearly identify the need for improved mapping resolution and for data for simple trend monitoring and assessments. Why were these not strongly presented in the research needs sections?

### **p. 222, Section 4 Inventory**

Sections 4.1 to 4.3 are informative lists of protection levels, plans, and programs, but the reader is left to interpret whether levels of protection are adequate and whether the plans and programs are adequately utilized. Is there a way to make these points clearer?

One issue with Section 4 is the reference to appendices. The numbers all need to be verified, as they do not refer to appendices with the information referred to in the text. For example, Appendix 4 is a table of data sources for GIS data, but Reviewers could not find any reference to this appendix in sections where this would be appropriate. Appendix 5 is a good list of plans and programs, but this list is not referenced in the first sub-sections of Section 4. References to Appendix 5 in Section 4.4 are likely meant to be Appendix 6 of the projects. Etc.

p. 231, beginning of Section 4.4: in the first few paragraphs there should be a reference to Table 48 but there isn't one.

Table 48 and Table 49: Table 48 is a very good summary of project types but reviewers suggest referring to benefits as 'expected benefits'. The subtle difference is that benefits implies some assessment of the benefits achieved, as opposed to the use in Table 48, which is simply the expected benefits of the project. Table 49 expands on Table 48, but Table 49 does not have adequate explanation of column headings

(captions should explain the table). For example, is there a fixed relationship that was used to translate miles treated to acres treated? If so (or not) how was this translation made?

After these extensive lists and tables, the scope of potential protection and work is outlined, and the scale of work conducted is presented (miles and acres), but there is no comment on the utility of all this effort. What activities have proven useful and what monitoring has been conducted to demonstrate this? Table 47 indicates a large sum of money expended, but for what benefits achieved?

P. 255, Section 4.5 Gap Analysis: Given the extensive effort to complete the assessment and having developed and maintained a database inventory of projects, Reviewers found this gap analysis to be limited to a gap discussion. While the intention of a gap analysis is evident in the text, there has not been a direct effort to link projects to limiting factors identified in the assessment. ***With the effort invested in the project database and the assessment, this more formal gap analysis should be conducted.***

Further, it is very difficult to see the support for the authors' summary on page 257. Given the status of the current assessment (numerous cautionary statements on EDT from the authors) and of the aquatic resources in the subbasin, what is the technical basis for such a statement? Further, the inventory is very largely for the aquatic resources; would the same statement be presented for the terrestrial species?

#### **p. 257 Management Plan:**

The Vision statement and discussion to reduce EDT results to four more general biological attributes (channel condition, sediment reduction, riparian function, and low flow) present reasonable arguments.

p. 260 Channel conditions: Eight strategies are listed, but some of them are very similar activities: 2<sup>nd</sup> and 6<sup>th</sup>, 3<sup>rd</sup> and 7<sup>th</sup>, and 4<sup>th</sup> and 8<sup>th</sup>. Keeping the strategies as separate and well defined activities will improve the understanding of what is intended: what are the different activities that could address the objective?

p. 264, Section 5.2.2 Fish Production:

p. 264, suggests that fish production goals are addressed in Section 3.2.3.4.2 (page 86), but this does not seem to be the case, as these discussions of supplementation only deal with smolt releases and not adult production.

P. 264, para above the table: reference to a Table (x) ... presumably this is Table 61?

p. 264 and 265, Table 61: check the footnoting to this table. The footnotes are repeated but the numbering is not consistent.

***The lack of agreed fish production goals, both for hatchery-based and naturally produced fish, is a major limitation to this subbasin plan. Achieving agreement and setting these goals should be a high priority for this subbasin.***

#### **p. 269, Section 5.5 RM&E**

p. 271: Why are there now five focal aquatic species? Is it the intention to monitor the five, as opposed to the three presented?

Without going through each page, it is very difficult to determine what is being suggested or committed to. Is this section the outline of the intended RME plan, or is this just an example of an agreed RM&E plan for the NEOH spring chinook project? For example, what is the intent of the six questions on page 271? These questions are obviously only six of many that could be asked, but why these and where did

they come from? Reviewers fear that they are missing the authors' message in this section, but reviewers cannot determine what is being proposed or has been agreed.

This subbasin has an almost unique opportunity to study three unsupplemented populations with relatively undisturbed habitats and to compare these with the restoration and supplementation efforts in other places in the same basin. Why wouldn't this opportunity for specific use of this comparison be presented in a research plan or the M&E plan? This issue has definitely been discussed with agencies within the Grande Ronde in the recent past.

p. 281, Statistical Test: refers to "electrophoretic phenotypes" ... do the authors actually propose to use electrophoretic techniques in the future, as opposed to the more current and more informative DNA analyses? If so, why?

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