

Umatilla

Review Summary

The Umatilla Subbasin Plan, including Willow Creek, is one of the most complete plans from within the Columbia River Basin. This likely in part reflects the fact that this subbasin had a pre-existing planning structure that was used effectively as a basis for the subbasin planning. The plan includes a thorough Assessment, an adequate Inventory, and a workable Management Plan. The entire document is well organized and clearly reasoned and presented, thus quite user-friendly. The plan includes many features that could serve as good examples for others to follow.

The Umatilla Subbasin Plan substantially meets a majority of the scientific elements for subbasin plans called for in the 2000 Fish and Wildlife Program and the Subbasin Planning Technical Guide, with the exception that the research, monitoring, and evaluation plan is incomplete. The RME plan is in need of refinement, integration, and prioritization, although even these initial elements of an RME plan are extensive by comparison with other draft subbasin plans.

Assessment

This is one of the more thorough assessments done in the Columbia River Basin, and the planners have used the Assessment well in their Inventory and Management Plan. Reviewers were impressed with the overall breadth of the Assessment, which brings together appropriate information and includes a thoughtful integration of human factors. The Assessment clearly recognizes future needs and acknowledges the limits of current data, which often are lacking. The Assessment's evaluation of results under a set of hypothesized scenarios is well done and should be helpful in deciding upon strategies. Uncommon to most other subbasin plans is a fairly cogent application of economic data to integrate human and wildlife uses in the subbasin. The Assessment provides a generally thoughtful, extensive, and apparently candid discussion of human-caused disturbances over time. The analysis of the relative benefits that predicted by the EDT to result from alternative management scenarios is particularly informative. The planning and technical teams from the Umatilla Subbasin are to be applauded for producing one of the more thoughtful and clearly presented Assessments.

Terrestrial and aquatic focal species are identified, along with a rationale for inclusion. For aquatic salmonid species, the Assessment generally identifies listed units under the US Endangered Species Act. An enhancement of the description to include the role and potential contribution of the populations to the status of ESUs or Planning Units would be an appropriate next step in the discussion. Additionally, missing is the inclusion of non-salmonid species, other than Pacific lamprey, such as the Umatilla dace or marginated sculpin, for instance. The inclusion of "taxa of interest" may address part of this latter concern, as it will motivate effort to collect more general ecological information on the species of interest. The terrestrial assessment takes a more habitat-based approach, which works well for both landscape and wildlife. The subbasin is strongly affected by agriculture, and there is a good description of the impact of land conversion, exotic plant introduction, forestry practices, grazing, urbanization, and water development.

Although the Assessment is generally well done, planners could make a greater effort in determining what is feasible and what each species is likely to need (core and sub-populations,

connectivity, distribution, population sizes etc.) to persist. Assessments are always based on insufficient data, so modeling, data from other species, or "best available assessments" will have to provide the starting point for an adaptive management strategy, with monitoring providing the basis for corrections. Species' needs can be compared to the distribution of appropriate habitat (including biologically important details such as nutrients) in the basin to see if the needs for persistence could be met by protected habitats. If not, areas that can provide adequate hydrology, etc., but are somehow otherwise degraded, should be considered to see if needs can be met. If the projected needs cannot reasonably be expected to be met, that fact should be identified. In this plan, the numerical goals for anadromous species are projected from an assumption that all habitat can be modified to comply with EDT standards, which seems to be an unrealistic assumption.

Inventory

The Inventory is mostly complete for the subbasin as a whole, but consideration of individual projects or programs by stream reach or subwatershed is less complete. The Inventory should attempt to clarify what is possible (and by when) for each portion of the subbasin. The requirements for viability (distribution and abundance of core and sub-populations) should be considered to ensure that the plan addresses these requirements first. Among alternatives for meeting needs, the option with the greatest chance of success in the near-term should be pursued. This observation applies to the Assessment and Management Plan as well. Overall, the Inventory was not as thorough an accounting as the rest of the plan. A better representation of projects from the past five years would enhance the plan.

Management Plan

The Management Plan is thoughtful, well developed, and well supported by the Assessment. It gives a reasonable and clearly stated prioritization of objectives and strategies, and identifies areas in which to focus actions; thus, the document can guide funding decisions. It is one of the few management plans to complete an extensive strategies section that includes prioritization. Prioritization is, in many ways, the crux of the subbasin planning process, and the Umatilla Subbasin Planning Team deserves credit for completing this crucial part of the plan.

Despite its many strengths, the Management Plan could be improved in a number of ways. In most cases, the plan generally explains the linkage between its biological objectives, vision statement, and assessment. There remains, however, a subtle cart-before-horse effect with supplementation and outplanting. It appears that the planners have committed to supplementation and will support its use to permit harvest for recreational and cultural purposes, regardless of its effectiveness at restoring natural productivity. Another exception is the odd separation of natural and artificial production objectives and strategies, as well as the separation of the overall discussion of fish from the two categories. A statement of harvest management targets for hatchery fish is needed, along with the goal for wild smolt production to offset poor survival out of the basin.

In addition, explicit identification of the populations, including structures and abundances, that are needed for the viability (health) of the focal species would increase the Plan's scientific credibility. It is easy to assume that, if the quantities of habitat are protected/rehabilitated, then greater densities and viable populations will result. The goal, however, is to gain healthy

ecosystems, with the focal species serving as indicators; the quantitative elements of viability (health) for these indicators need to be defined and set as program objectives. These objectives provide guidance for identification of habitat needs, selection among alternative hypotheses, specific guidance for monitoring, and numeric endpoints for adaptive management.

A theme that appears repeatedly throughout the text is an emphasis on the so-called “Phase III” project that is proposed to pump additional water from the Columbia River to supplement flows in the Umatilla River for the benefit of irrigators and fish. There is inadequate discussion of the potential costs of this proposed measure, such as the annual cost of electricity required to pump the water, in addition to the capital costs of facilities needed to accommodate the water. During the ISRP review several years ago, we learned that the cost of the “Power Repay” project amounted to \$600,000 in the previous year – a very large and perpetual economic subsidy. This cost-effectiveness of this proposal for development of Phase III, including the alternative of buying water rights from willing sellers, should be assessed by the IEAB. This would provide a basis for economic comparison of costs and benefits. The alternative of buying water rights is listed in the text, but is not evaluated formally with EDT, as are three other scenarios considered in the Management Plan. From the analysis provided, it appears that additional benefits to steelhead provided by Phase III are not expected to be large, relative to other habitat improvement measures that might be undertaken.

The initial elements of the RME plan are extensive, though still incomplete and in need of refinement, integration, and prioritization. Nevertheless, the draft RME plan is thoughtful in presenting the major issues that are of concern in an effective RME plan. The terrestrial components are better developed than are the aquatic, and these are commendable in drawing upon and attempting to incorporate and coordinate with existing RME efforts in the region. The planners acknowledge that more work is required and state that they are in the process of doing that work. A more complete M&E plan apparently will be available shortly and will reflect regional, in addition to subbasin, needs; that integrated and coordinated approach should be encouraged. It was apparent that the authors of the subbasin plan know the key issues that need to be addressed and are seeking help to complete their RME plan. Consequently, the RME plan is likely to be completed and should contribute to improved knowledge of the biological resources and the mechanisms underlying their dynamics, as well as being useful for adaptive management. Reviewers encourage guidance from the Council in coordination of a basin-wide RME plan; material provided in this Umatilla plan can assist in the process.

It is a strength of this plan that species outside of the standard charismatic megafauna and endangered salmonids are considered. It is also a strength that monitoring of biodiversity is included in the RME plan.

The implementation of strategies from this plan could impact other subbasins. For instance, fish released from the hatcheries may create carrying capacity concerns downstream, mixed harvest problems, etc. Consideration and discussion of such concerns would improve the presentation.

Overall, the planners have provided a thoughtful plan, regardless of reviewers’ reservations regarding supplementation levels and potential impacts in and out of the subbasin.

Review Checklist

I. The Subbasin Assessment

(See generally pages 4-6, 9-10 of the Technical Guide; the checklist is derived from 18-24 of the Technical Guide.) Reviewers should consider the soundness, completeness, analytical approach, and transparency (documentation of methods and decision-making process) of the following components of a subbasin assessment.

I. A. Subbasin Overview

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. A.1. General Description	<i>(Y)es, (P)artial, (N)o</i>	<i>Need for additional treatment (0-4)</i>
I.A.1.1	Does the assessment provide a general orientation to the subbasin (location, size, distinguishing natural and cultural features, land use, land ownership) and an overview of jurisdictional authorities (state, county, federal lands, tribal lands and fishing rights)?	
	<p>The Assessment presents a huge amount of information, provided by an impressive list of contributors, and includes a general orientation to the subbasin, including ecological, social, and economic contexts. Land ownership is described and plotted in maps and tables; 85% of the land is privately owned. This section is extensive and describes the salient features of the watershed. It clearly links summary information with more extensive treatments.</p>	
I.A.1.2	Does the assessment provide a general description of the subbasin’s macro-environment (geology, climate and weather, land cover, vegetation) and of the subbasin’s water resources (hydrography and watersheds, hydrologic regimes, water quality, riparian and wetland resources), water uses, and modifications to water resources (hydropower projects and operations, water diversions, channel modifications)	
	<p>Reviewers: The Assessment includes a generous presentation of maps and other graphic material. Moreover, there is an excellent general description of the overall environment, including geology, soil types, water resource availability and use, and current land cover types and uses.</p> <p>A description of the economic base of the subbasin was especially useful. It makes an appropriate use of secondary economic data sources, and includes graphs and tables of the composition of total county earnings by sector.</p> <p>The hydrology discussion is also excellent. The Umatilla River and its tributaries are discussed in detail and presented with maps and graphs. There is an outstanding and extensive discussion of water quality issues, sources of impairment, and the state water quality management plan for the Umatilla subbasin. Hydrological trends are also discussed.</p> <p>Discussion of riparian and wetland resources are good. There is a CTUIR</p>	

wetlands management plan for the mainstem of the Umatilla River.			
I.A.1.3	Does the assessment provide a general description of anthropogenic disturbances to the aquatic and terrestrial environment, organized by the source of disturbance (urbanization, agriculture, forest practices, water development, mining, transportation, and other)?		
<p>Reviewers: The assessment provides a generally thoughtful, extensive, and apparently candid presentation and discussion of human-caused disturbances over time.</p> <p>The Assessment is unique amongst many of the other subbasin plans in that it clearly indicates that historic land uses have greatly contributed to the depressed conditions of many native species. This is perhaps most compelling because the stakeholders (who appeared to be part of the process) provide admission that their actions have been part of the problem.</p> <p>For agriculture, there is a good description of the impact of land conversion, exotic weed introduction, forest practices, grazing, urbanization, and water development. All of these factors are well described.</p> <p>Table 4 is excellent - it brings all of these elements together in a table that summarizes impact, practice causing impact, ecological effect, and an example of their extent in the Umatilla subbasin.</p> <p>In another section there is a superb fourteen-page discussion of the effect of human activities on fish and wildlife resources over time. This is a very clear and thoughtful discussion that is well referenced.</p>		Yes	0
I.A.1.4	Does the assessment provide a list of native and non-native fish and wildlife species present in this subbasin including those species that: <ul style="list-style-type: none"> a. have been designated as threatened or endangered under the Federal Endangered Species Act or state equivalents, b. have been recognized by applicable federal, state, or local resource management agencies, or by the Nature Conservancy or state heritage program, as being especially rare or significant in the local area, c. have special ecological importance within the subbasin, d. are recognized by Native American tribes as having special cultural or spiritual significance, or e. are not native to this subbasin? 		
<p>Reviewers: The Assessment provides an extensive, and apparently complete, set of lists of fish and terrestrial wildlife species.</p> <p>Lists are presented of fish, wildlife, and plant species that are ESA-listed or candidates for listing. There are also various other lists of sensitive species, and extensive lists of birds, plants, mosses, fungi, invertebrates, etc., that are rare.</p> <p>The extensive lists of fish, animal, and plant species fall into various categories of abundance. There are also lists of managed game species and of USFWS HEP mitigation species.</p> <p>The Assessment includes a discussion of extirpated and introduced species and a table of all aquatic species known to exist in the Umatilla Subbasin.</p>		Yes	0

There is a text discussion of the same issues for wildlife.			
The Assessment's list of species that are considered important by Native Americans is general. Adding more details, as culturally appropriate, concerning species of importance for Native Americans would further enrich the plan.			
I.A.1.5	Does the assessment identify plants that have been designated as threatened or endangered under the Federal Endangered Species Act or state equivalents, and/or that are recognized by Native American tribes as having special cultural or spiritual significance, or (optional) that have special ecological importance within the subbasin?		
Reviewers: The plan identifies both listed plants and those that are of special importance to Native American tribes. Generally, the plant descriptions are extensive, but the descriptions of plants that are important to Native Americans is general.		Yes	0
I.A.2. Subbasin in the Regional Context		<i>(Y)es, (P)artial, (N)o</i>	<i>Need for additional treatment (0-4)</i>
I.A.2.1	Does the assessment describe how this subbasin fits within its regional context (size in relation to the total Columbia Basin, placement within the ecological province and relationship to other subbasins in this province, qualities that distinguish this subbasin from others in the province)?		
Reviewers: The Assessment describes well the watershed within a regional context, especially in relation to other subbasins within the region and entire basin.		Yes	0
I.A.2.2	Does the assessment describe this subbasin's relationship to Endangered Species Act planning units (NOAA Fisheries-designated evolutionarily significant units (ESU) and U.S. Fish and Wildlife Service-designated bull trout planning units. ¹) where this information was available during the planning process?		
Reviewers: The assessment generally identifies the Subbasin's focal species as part of listed (for salmonids) units under the US Endangered Species Act. An enhancement of the description to include the role and potential contribution of the populations to the status of ESUs or Planning Units would be an appropriate next step in the discussion. Bull trout populations and abundances required for viability were outlined.		Yes	1
I.A.2.3	Does the assessment summarize external environmental conditions that might have an effect on fish and/or wildlife in this subbasin (the ocean, the estuary, the mainstem downstream from the subbasin, and, as relevant, upstream areas and adjacent subbasins)?		
Reviewers: The Assessment provides a broad discussion of out-of-basin conditions that affect fish and wildlife in the subbasin. The three down-river dams and oceanic conditions are specifically highlighted. For salmonids in particular, the discussion includes presentation of relative habitat use both in and out of basin. Some additional presentation of the contexts on climatic variation, especially in relationship to habitat changes		Yes	1

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

due to, e.g., altered fire regimes, and persistence or expansion of non-native species, is warranted.			
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)?		
<p>Reviewers: The planners do not discuss macroclimate and human trend projections over the next 50 years. The plan addresses immediate past and future of climate and population trends ten to fifteen years out. If 50-year demographic projections are available, then they should be included in the plan. Specifically, the plan would be improved by a better description of the potential impact of climate change, human population growth, and economic change on a subbasin that is already experiencing significant hydrological issues.</p> <p>The statement that no trends in climate or hydrology over the last century have been detected (page 10, Executive Summary) needs to be justified or made consistent with the statement on page 90 of the Assessment. Reviewers refer the planners to the general comments on climate change in the programmatic review and encourage them to explore the future implications of climate more thoroughly in their subbasin planning.</p>		Yes	3
<p>Summary comments and evaluation on the Subbasin Overview: Does the assessment provide the geographical, demographical, and environmental context for fish and wildlife resources in this subbasin?</p>			
<p>Reviewers: The overall breadth of the Subbasin Overview is impressive. Uncommon to most other subbasin plans, this overview cogently uses and presents economic data. The plan includes a useful discussion of the local economy, with an intelligent and thorough use of secondary economic data to integrate the human uses of the environment with fish and wildlife issues. The plan recognizes the need to provide survey data.</p>		Yes	1
<p>I.B. Species Characterization and Status</p> <p><i>General question: Does the assessment adequately describe the current status of fish and wildlife focal species?</i></p> <p>Note to reviewers: for this section of the review, the checklist should be applied to each focal species. Please identify which species your evaluation applies to in the comment field. Use the ranking fields (Y,P,N; 0-4) to give an overall evaluation across all focal species. Note differences among approaches to species in the comment field. If necessary, once the plans are received, assignments will be made to cover an individual species or a series of focal species.</p>			
<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</p>			

for selecting focal species include a) designation as Federal endangered or threatened species, b) local ecological significance, ² and c) cultural significance.		
Reviewers: The plan identifies ten terrestrial and four aquatic focal species and provides a rationale for their inclusion. Missing, perhaps, is the inclusion of additional non-salmonid species, other than Pacific lamprey, such as the Umatilla dace, or marginated sculpin (<i>Cottus marginatus</i>). The species of interest approach may address part of this concern, as it will motivate the effort to collect more general ecological information on these species; the inclusion of mussel species is most uncommon in other subbasin plans. Reviewers recommend consideration and discussion of occurrence of supplemented populations within the larger ecological context within the basin. An explanation of how supplemented salmonids and outplanted lamprey can serve as indicators of ecosystem health would augment the plan.	Yes	1
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?		
Reviewers: The population-level context for aquatic focal species needs some additional consideration and discussion of how supplemented and recipient populations interact. For terrestrial wildlife focal species, population-level data are sparse, and therefore the plan focuses on habitats; but population data should be continually integrated as it becomes available.	Partial	1
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)?		
Reviewers: The Assessment generally describes the current and historic status of the focal species and “taxa of interest”, with data summaries and maps.	Yes	1
I.B.4. Does the assessment describe the population’s life history, including identifying distinct life stages?		
Reviewers: The plan describes life history variation, including distinct stages, for each species that displays them. The life history for birds and some mammals does not appear to be as well known.	Yes	1
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?		

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

<p>Reviewers: The Assessment presents genetic data in general terms for salmonid focal species. These data are fairly extensive, but would benefit from an additional discussion of what is known for the species both in the subbasin and within a basinwide context. Most of the terrestrial wildlife species apparently have not received the same level of genetic analyses as the aquatic species. The Assessment includes a Hatchery Genetics Management Plan for the subbasin as an appendix. The effects of interaction between hatchery and wild fish are described in a general sense. Given the expectation that supplementation will continue to be a strategy used within the subbasin, the Assessment would be enhanced by further consideration of interactions of hatchery and wild fish, including consideration of domestication, straying, inbreeding and outbreeding effects, ecological impacts, mixed-stock fisheries, and related issues. Planners may wish to explore decision analysis tools to address alternative strategies.</p>	<p>Partial</p>	<p>2</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 presents general harvest data, as numbers, from within the subbasin, but does not present out-of-basin, and therefore total, harvest. The assessment generally describes out-of-subbasin conditions that affect populations.</p>	<p>Yes</p>	<p>1</p>
<p>Summary comments and evaluation on the Species Characterization and Status Subsection: Does the assessment adequately describe the current status of fish and wildlife focal species?</p>		
<p>Reviewers: This section is broadly descriptive and highly informative. The Assessment's discussion of focal species is generally complete, but additional presentation of genetic and harvest data would be beneficial. Limited local information is available on most wildlife focal species in the subbasin, but contemporary, referenced information is provided from the regional and subbasin-levels. The authors might better detail their plans for sampling and working with data from focal species that are rare.</p>	<p>Yes</p>	<p>1</p>

<p>I.C. Environmental Conditions</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>I.C.1. Environmental Conditions within the Subbasin</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,³ b) potential,⁴ c) future/no new action,⁵ and the potential condition of aquatic and terrestrial habitats within the subbasin? Does the assessment include a determination of the difference between current conditions and the various reference conditions?</p>	

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

<p>Reviewers: The Assessment describes environmental conditions for aquatic species more extensively than do many other plans, especially in terms of future scenarios or conditions. Several specific future scenarios are developed for aquatic species, but more future scenarios with various desired possibilities should be explored, as the plan is further implemented and modified.</p> <p>For wildlife species, future scenarios are not presented explicitly. Their potential habitat is mapped, KECs for each habitat type are listed, and changes in KEFs from their historical to present status are mapped.</p> <p>The planners appear to feel that they need more application of EDT. Potential conditions seem to be projected from EDT and translated into numbers of fish, but feasibility may need to be assessed further.</p>	<p>Partial</p>	<p>2</p>
<p>I.C.1.2</p>	<p>Does the assessment classify 6th 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?</p>	
<p>Reviewers: An appropriate level of geographic classification and delineation is presented. An aquatic Geographic Area concept and a terrestrial habitat type approach are sufficiently employed.</p>	<p>Yes</p>	<p>0</p>
<p>I.C.2. Out-of-Subbasin Effects and Assumptions</p>		
<p>I.C.2.1</p>	<p>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>	
<p>Reviewers: Out-of-subbasin environmental factors are described and discussed as general categories with a couple of exceptions. First, apparently little is known about the extent of out-of-basin effects for terrestrial species. The plan acknowledges that little is known about out-of-basin effects of migratory terrestrial species, but generalized estimates can be made. These are summarized for each of the five migratory bird species. Second, out-of-basin conditions are very relevant to salmonid populations, as indicated by recruit-to-smolt ratios that fall below replacement. A discussion of these issues would augment the plan. A better discussion of hydropower and ocean effects would also enrich the plan and should be possible to do with the information that is available.</p>	<p>Yes</p>	<p>2</p>
<p>I.C.2.2</p>	<p>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>	

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

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

<p>Reviewers: The basic assumptions for each of the out-of-basin effects are captured for some of the aquatic species, but they are not presented as well for terrestrial species.</p> <p>Excellent tables are provided showing survival rates of juvenile salmonids in the Columbia River and Ocean, as well as within the subbasin. A presentation and analysis of survivals through each life stage would benefit the plan by clearly indicating where effort in restoration is required.</p> <p>The important issue of sustainability is not well covered. For example, it is clear that the wild steelhead population is not sustainable if current conditions continue (i.e., average R/S < 1 for the last decade), and the major bottleneck is out of basin, particularly in the ocean. The planners should consider what options are available to address and improve conditions for this population, what knowledge gaps remain, and the quantity of improvement in survival during the freshwater life stage that may be required to offset poor survival from the smolt-to-adult stage. The discussion should include an assessment of the feasibility of the last consideration, which may be done best through modeling.</p>	<p>Partial</p>	<p>1</p>
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I.C.3. Environment / Population Relationships

For each focal species, does the assessment identify, for each life stage, environmental factors that are particularly important for the species' survival and determine the characteristics that constitute optimal conditions for species health? Does the assessment describe and make a finding regarding the environment's ability to provide such optimal conditions, or conditions that support the long-term viability of these populations.

<p>Reviewers: The Assessment discusses population status relative to environmental conditions in general, especially for aquatic species. The presentation by individual life stage is somewhat limited for fishes. For wildlife species, this discussion is less extensive, in part because terrestrial wildlife populations are examined indirectly by habitat condition rather than directly by population measurement.</p> <p>The Assessment offers several assumptions. Habitat change is assumed to have been deleterious. Even small habitat improvements that do not significantly influence hydrologic processes (e.g., riparian plantings, addition of debris, etc.) are assumed to create benefits. Little attention is directed to the feasibility of making many of the recommended changes, given ownership and other potential hurdles. The criteria for optimal conditions of species health are general statements (less sediment, more water, more LWD, etc.), but optimum distribution of these characteristics across a basin is not considered. Offering more data, analysis, and a thoughtful consideration of the feasibility of making these changes would improve the plan.</p> <p>A number of environmental factors are identified as important to various life stages. For aquatic focal species, the most important of these are adequate flows and a properly functioning riparian area; low flows and riparian vegetation loss have been significant problems throughout the</p>	<p>Yes</p>	<p>1</p>
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<p>subbasin.</p> <p>The plan assesses environmental factors for terrestrial species by evaluating the habitat conditions for wildlife focal species and assessing key environmental correlates - factors within a habitat correlated with focal species' presence. The habitat condition for each species is mapped. The changes in ecological function that is associated with numerous types of wildlife from historical (1850) to present are mapped. The description of environment-population relationships of wildlife is thoughtful and informative.</p>		
<p>Summary comments and evaluation on the Environmental Conditions Section: Does the assessment adequately describe the effect of the environment on fish and wildlife populations?</p>		
<p>Reviewers: This section describes the relationship between environmental conditions and populations in a general way. Some additional concerns or areas of discussion might be addressed to complete this assessment. For example, out-of-basin effects need to be expanded, especially for wildlife as data become available. Also, assumptions should be more explicitly defined. Except for "potential habitat" maps, the plan offers no discussion of future conditions given present trends. Adding this information would augment the plan.</p> <p>Much of the Assessment is based on assumptions regarding benefits of proposed actions. This plan acknowledges that the quantitative information needed to justify all assumptions is not available.</p>	Yes	1

<p>I.D. Ecological Relationships</p> <p><i>Question to be addressed: Does the assessment describe the key inter-species relationships and the key functional relationships?</i></p>	<p>(Y)es, (P)artial, (N)o</p>	<p><i>Need for additional treatment (0-4)</i></p>
<p>I.D.1. Inter-species Relationships</p> <p>Does the assessment identify important inter-species relationships or interactions, both positive and negative, with specific attention to relationships between anadromous fish and wildlife and specifically identify: 1) wildlife species and habitats that may be influenced, positively or negatively through direct effects of changes in fish abundance or fish community composition; 2) fish species and habitats that may be influenced, positively or negatively, through direct effects of changes in wildlife abundance or wildlife community composition; and 3) key species relationships within this subbasin based on the above?</p>		
<p>Reviewers: Information on interspecies relationships is noted as a data gap. Data from other subbasins is used to generate hypothesized interactions in the Umatilla. Fish-wildlife interactions, such as black bear behavioral changes associated with an increase in salmon production, are described. Wildlife-wildlife interactions are also described.</p> <p>The presentation made clear that the subbasin technical groups are interested in doing more with this approach. Certainly there is plenty of room to better develop community and ecosystem-level understandings as the plan is implemented and as actions and RME bring more information</p>	Partial	2

<p>with which to understand local interactions and their consequences.</p> <p>The terrestrial assessment relied extensively on the Interactive Biodiversity Information System (IBIS) and, as needed, used OHNIS data to get to a finer scale. IBIS focuses on trophic relationships, foodwebs, rather than habitat interactions; e.g., beaver aren't listed as linked to salmon, which presents a problem that the planners recognized.</p> <p>The reliance upon EDT, with its habitat focus, implies a relationship with wildlife, as the primary focus of the wildlife portion of the plan is on habitat types. The most immediate interaction of fish and wildlife would occur in the Riparian Wetlands habitat. The plan discusses the effects of salmon as food for wildlife and effects of salmon carcasses on productivity in the stream and riparian zone.</p> <p>The plan describes details of interspecies (or even inter-population) relationships in a cursory manner only. Given the extent of non-native species introductions throughout the basin, it would be appropriate to expand this discussion.</p>		
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I.D.2. Processes and Functions

Does the assessment identify key ecological functions for species within this subbasin and assess the current status of ecological processes and functions in the subbasin?

<p>Reviewers: The Assessment categorically identifies Key Ecological Functions of the focal species, but does not provide a more thorough assessment of the distribution and extent of these functions (especially in terms of lost capacity). Such additional information might form a useful component of the RME plan. It is likely that much of local significance is to be learned, beyond what is in IBIS or the conventional general wisdom.</p>	Yes	2
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I.E. Interpretation and Synthesis / Limiting Factors and Conditions

I.E.1. Limiting Factors and Conditions

Does the assessment describe:

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

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

<p>Reviewers: The plan uses EDT on 310 reaches on the Umatilla River to identify limiting factors. QHA is also used. A number of limitations are identified, including a lack of information about passage barriers and general limitations of the EDT model, such as errors in routing and the need for updating.</p> <p>Limiting factors are identified for each of the aquatic focal species. Priority areas for protection and restoration are identified for each focal species.</p>	Partial	1
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<p>The Assessment gives inadequate description of the historic and current nutrient dynamics of the subbasin, both in soil and in water. Nutrients are key to ecological functions and processes and so changes to these need to be considered explicitly. Nutrient levels in streams in and near human settlements often have been found to be lower in headwater areas but higher near the mouths of streams. The effects of Phase III on nutrient dynamics in the affected streams should be explored.</p> <p>Factors leading to decline of terrestrial focal species are identified by habitat type. Current conditions are compared to historical. The presentation of limiting factors mostly discusses those factors that occur within the subbasin, but, for fish, the key limiting factor is quite possibly occurring outside of the subbasin.</p> <p>The species' ecological potential is assumed to be attainable and capable of producing the projected number of animals. The analysis of species' ecological potential, however, needs to recognize that a complete fix of all the limitations may not be feasible. Short of gaining "historic" conditions, there is only a weak basis for projecting benefits of partial or site specific "fixes."</p>		
<p>I.E.2. Key Findings</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: Primary limiting factors in the Umatilla are obvious: the shortage of water and the high temperatures of the water. A key factor preventing optimal ecological functioning and biological performance in the subbasin is the alternative uses of water in the basin. More attention to feasibility is needed to strengthen the plan. The "health" of the ecosystem is not defined. Focal species are chosen as indicators of ecosystem health, but several of these species are supplemented with hatchery-produced individuals or with individuals translocated to the basin. "Optimal" ecological performance is not defined. Better defining optimal performance would enhance the plan.</p> <p>Restoration scenarios are run through EDT. Abundance under properly functioning conditions is analyzed by Moberand.</p> <p>The plan provides a good synthesis of wildlife, including a discussion of how this synthesis differs from that of aquatic species.</p> <p>The conflicts and compatibilities amongst species and processes, and among the outcomes of various management strategies, need to be more thoroughly explored in implementing the plan.</p>	<p>Yes</p>	<p>1</p>

I.E.3. Subbasin-wide Key Assumptions/Uncertainties (“Working Hypothesis”)		
Does the assessment describe the key assumptions (including uncertainties) that have been made in the “Key Findings” above, and document the data sources and/or analytical tools relied upon?		
<p>Reviewers: The Assessment adequately describes key assumptions, uncertainties, and working hypotheses for the subbasin. This information appears to be mostly found in the Management Plan.</p> <p>The Assessment depends heavily on the habitat assessment models. The plan identifies data gaps and uncertainties for EDT. The planners acknowledge that there are major uncertainties regarding the success in getting stakeholders to cooperate in meeting goals. The plan includes several hypotheses that may be reasonable, but they need to be quantitative and testable. Many of the action items include statements such as, "as opportunities arise." These limitations preclude any test of the hypotheses that are guiding restoration activities.</p> <p>The plan identifies uncertainties and working hypotheses for focal habitat types and focal wildlife species.</p>	Yes	0
	<p>Overall impression and evaluation of the Assessment: Does the assessment adequately synthesize the information regarding the health and functioning of this subbasin ecosystem? Does it adequately: a) bring together the single-species and community assessments to form a holistic view of the subbasin’s biological and environmental resources, b) provide a foundation for the development of scientific hypotheses concerning ecological behavior and the ways that human intervention might prove beneficial? As needed elaborate on your evaluation of the various Sections enumerated above. If the plan provides additional analysis beyond what is laid out above in the checklist please comment here (e.g., socio-economic descriptions or analysis).</p>	
<p>Reviewers: The Assessment was well presented. It brings together the right information, is thorough, and includes a thoughtful integration of human factors. The Assessment recognizes future needs, and acknowledges the limits of current data, which are often lacking. The Assessment’s evaluation of results under a set of hypothesized scenarios is particularly well done and should be helpful in deciding upon strategies.</p> <p>Some of the basic assumptions about the efficacy of supplementation would benefit from a more serious analysis of likely outcomes if the practice were suspended vs. reduced vs. increased, and so forth. An examination of these scenarios would significantly enrich the plan.</p> <p>The Assessment should make a greater effort to determine what future actions and scenarios are feasible, as well as what each species is likely to need to persist (core and sub-populations, connectivity, distribution, population sizes, productivity increases, etc.). Assessments are always based on insufficient data, so modeling, data from other species, or "best available assessments" must provide the starting point for an adaptive management strategy, with monitoring providing the basis for corrections. Assessment-based needs can be compared to the distribution of appropriate habitat in the subbasin to see if species’ needs for</p>	Yes	1

<p>persistence can be met by protected habitats. If not, situations that can provide normal hydrology, etc., but are somehow otherwise degraded, should be considered to see if the needs can be met. If the projected needs cannot be reasonably expected to be met, that fact should be identified. In this plan, the numerical goals for anadromous species are projected from an assumption that all habitat can be modified to comply with EDT standards, which seems to be an unrealistic assumption. It appears that the planners have recognized the need to address this.</p> <p>This is one of the more thorough Assessments done in the Columbia River Basin and the planners have used the Assessment well in their Inventory and Management Plan.</p>		
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<p>II. The Inventory <i>(This checklist section was developed from pages 11-12 of the Technical Guide.)</i> <i>Reviewers should consider the soundness, completeness, analytical approach, and transparency (documentation of methods and decision-making process) of the following components of a subbasin inventory, specifically whether the inventory includes an assessment of the adequacy of current legal protections, plans, and projects to protect and restore fish, wildlife, and ecosystem resources. Does the inventory adequately synthesize past activities and their biological achievements? Planners were requested to, as applicable, describe the extent to which these programs and activities extend beyond the subbasin to a larger scale (provincial and basin-wide).</i></p>			
II.A. Existing Protection		<p><i>(Y)es, (P)artial, (N)o</i></p>	<p><i>Need for additional treatment (0-4)</i></p>
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 provides a brief list of areas with federal, state and county protections. A map of protected status lands (distribution of protection categories) generated through IBIS is not working in the PDF file.</p>		Yes	1
II.A.2	Does the inventory assess the adequacy of protections for fish, wildlife, and ecosystem resources?		
<p>Reviewers: The Inventory provides information on existing ecological protections, but does not offer much assessment of adequacy. The degree of protection for wildlife habitat is ranked by IBIS in the gap analysis section, and is presented in tables according to habitat type, land ownership, and space.</p>		Partial	1
II.B. Existing Plans			
II.B.1	Does the inventory identify and review applicable local, state, tribal, and/or federal fish and/or wildlife management plans and water resource management plans that affect fish and wildlife?		
<p>Reviewers: The plan, with a table and brief text, adequately identifies and briefly describes applicable local, state, tribal, and/or federal fish and/or wildlife management plans and water resource management plans that affect fish and wildlife.</p>		Yes	0
II.B.2	Does the inventory assess the extent to which existing plans are consistent with the subbasin assessment and their adequacy in protecting and restoring fish, wildlife, and ecosystem resources? (It is possible that this analysis is done in another section of the plan, e.g. in the management plan.)		

Reviewers: The consistency of existing plans with the subbasin assessment is not done explicitly by plan, but is addressed in the Gap analysis. The plan acknowledges that past activities have not been monitored and therefore provide no basis for either continuing or halting existing plans.		Partial	1
II.C. Management Programs / Restoration and Coordination Projects			
Does the inventory identify management programs implemented through on-the-ground restoration and conservation projects that target fish and wildlife or otherwise provide substantial benefit to fish and wildlife? These include, at a minimum, those implemented within the past five years regardless of funding source.			
II.C.1	Does the inventory identify ongoing or planned public and private management programs or initiatives that have a significant effect on fish, wildlife, water resources, riparian areas, and/or upland areas? ⁶		
Reviewers: The Inventory adequately identifies ongoing public and private programs of ecological importance. They are very briefly described and there is a good table of projects.		Yes	0
II.C.2	For each management program (or project where not clearly part of an overarching management program), does the inventory describe the program, project or activity; identify the management or lead entity; identify how the program/project was authorized and who is responsible for implementation; identify the funding source; and identify the relationship to other activities in the subbasin?		
Reviewers: The Inventory adequately describes each management program/project. These are presented as a list in a table, with lead entity and ‘limiting factors’ the project is to address. More projects are used for the gap analysis than are listed on the table. The planners appear to have made a very good effort at contacting and involving many groups, and at conducting public meetings.		Yes	0
II.C.3	For each management program (or project where not clearly part of an overarching management program), does the inventory identify limiting factors or ecological processes the activity is designed to address?		
Reviewers: The Inventory identifies the limiting factors the programs are mean to address in a general way by presenting them briefly in a table.		Yes	1
II.C.4	For each management program (or project where not clearly part of an overarching management program), does the inventory summarize accomplishments/failures of activity		
Reviewers: The Inventory explicitly comments on the successes and failures of the management programs. Some of this information is in the gap analysis. The Inventory includes some discussion of improved conditions, but doesn’t provide data to show the benefit to fish and wildlife; data are generally not available to assess accomplishments or failures. More work is required here, but the research need is acknowledged. Perhaps it is not reasonable to expect a thorough analysis, as needed information seems not to exist. The planners acknowledge that their previous efforts to restore coho were not successful.		Partial	2

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

II.C.5	Does the inventory relate the assessment to the existing activities and identify the gaps between actions that have already been taken or are underway and additional actions that are needed to address the limiting factors and meet recovery and other goals, and identify inadequacies in both design and implementation?			
<p>Reviewers: For each of the aquatic focal species, the Inventory generally identifies 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. The restoration and protection priorities are indexed by GA.</p> <p>The Inventory makes the point that, although the gap analysis can be used to identify whether limiting factors are being targeted by projects, it is not adequate for assessing the effectiveness of projects because of the mismatch between the EDT data baseline and ongoing projects.</p> <p>Gaps in the knowledge of terrestrial focal species for each focal habitat are identified in the synthesis section of the assessment, working hypotheses are provided, and opportunities are identified.</p> <p>Since the benefits of past or ongoing activities often were not assessed, identification of "gaps" is a guessing game. The plan acknowledges that assessment data often were not collected.</p> <p>This section is more complete for aquatic species than terrestrial species. The planners recognize that they are weak in this area and identify it as a research need.</p>		Partial	2	
	<p>Overall impression and evaluation of the Inventory: As needed elaborate on your evaluation of the various Sections enumerated above. If the plan provides additional information or analysis beyond what is laid out above in the checklist please comment here (e.g., socio-economic descriptions or analysis).</p>			
<p>Reviewers: The Inventory is mostly complete for the subbasin as a whole, but does not clearly link individual projects or programs by stream reach or subwatershed. The planners obtained useful information through questionnaires, and summarize this information in an appendix.</p> <p>Alternatives or societal preferences for ongoing projects were not considered, but are difficult to incorporate.</p> <p>The Inventory should include some classification of what is possible for each portion of the basin. The requirements for viability (distribution and abundance of core and sub-populations) need to be considered to ensure that the plan addresses these requirements first, and, among alternatives for meeting these needs, the option with the greatest chance of success in the near-term should be pursued. Focal species should reflect conditions in the ecosystem. Overall, the Inventory was not as thorough an accounting as the rest of the plan. A better representation of the past five years of projects would enhance the plan.</p>		Yes	2	

III. The Management Plan

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

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

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

III.A. The Vision for the Subbasin

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

	(Y)es, (P)artial, (N)o	Need for additional treatment (0-4)

Reviewers: The Plan provides an adequate vision statement. The desired future condition is generally and qualitatively described for aquatic and terrestrial focal species and their habitats. The vision statement is accompanied by goals covering four areas: human use, habitat, population (fish and wildlife), and RME. This is a very comprehensive vision, and it could include harvest targets with a little more effort.

Yes	0
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III.B. Biological Objectives

Does the Biological Objectives Section of the Management Plan describe physical and biological changes within the subbasin needed to achieve the vision?

Reviewers: The Plan's biological objectives adequately describe physical and biological changes within the subbasin that are needed to achieve the vision. Phases I-III of the Umatilla water project are well-defined in their expected outcomes for several aquatic species. Protective and restoration changes to terrestrial habitats are defined for terrestrial species. The plan provides sixteen qualitative management objectives for natural production, hatcheries, flow and passage, fisheries, and communication, along with specific anadromous return objectives. Further assessment of the feasibility of numerical goals for aquatic species would strengthen the Plan.

Yes	0
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III.B.1. Are the biological objectives consistent with basin-level visions, objectives, and strategies adopted in the program? (Council Question 4) The 2000 Fish and Wildlife Program, pages 16-18, provides general descriptions for basin-level goals, objectives, and strategies. The Mainstem Amendments provide additional biological objectives as well on pages 11-14.⁷

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

Reviewers: The Council's objectives include the protection of natural habitat first, protection of habitat that can be rehabilitated second, and learning to live with changes that are irrevocable last. The Plan is not clearly consistent with these objectives. Is there enough protected habitat in the Umatilla Basin, and does it provide the "connectedness" needed to ensure the persistence of the focal species? If not, can enough habitat be rehabilitated in the short-term to meet these needs? Considering these questions would augment the Plan. Otherwise, the Plan's consistency with the Council's program is generally adequate.	Yes	1
III.B.2. Are the biological objectives based on the subbasin assessment? (This question relates to the Logic Path in the subbasin plan. Question III.C.1 is a similar question for the Strategies Section.)		
Reviewers: The Plan's biological objectives are adequately based on the subbasin Assessment. They are clearly linked to the assessment of the limiting factors, mainly defined for fish through use of EDT. The planners did a nice job of using information to establish goals and priorities. The planners state some uncertainty in the gap analysis' ability to capture existing conditions and recent progress. The logic path seems to collapse, however, when the protection or rehabilitation of amounts of potential habitat becomes the objective. The presumed overall goal is something referred to as "ecosystem health" and the measure of that is the "health" of focal species. The health of these species in an area depends on population size, structure, and movements. Therefore, objectives need to be associated with these elements of viability.	Yes	0
III.B.3. Where possible, are the biological objectives empirically measurable and based on an explicit scientific rationale; i.e., quantitative with measurable outcomes?		
Reviewers: The biological objectives are easily converted to quantitative hypotheses. In addition to a series of qualitative objectives, there are numeric population goals for returning adults of steelhead and salmon. However, it will be difficult to account for out-of-basin effects. There are also very specific objectives for habitat. The planners acknowledge that scientific rationale was less of a factor than public and agency information/opinion.	Yes	1
III.B.4. Are biological objectives identified for both the short and long-term?		
Reviewers: The Plan's biological objectives are implicitly identified for the short and the long-term. The terrestrial section states that longer-term objectives have been given preference over shorter-term objectives. The short-term terrestrial objectives have target dates attached to them.	Part	1
III.B.5. Are the biological objectives complementary to programs of tribal, state and federal land or water quality management agencies in the subbasin?		

Reviewers: The Plan's biological objectives are adequately complementary to programs of tribal, state and federal land or water quality management agencies in the subbasin. A table is provided that shows objectives set in plans developed by various entities. Specific return objectives generated by various plans are summarized in Table 2.	Yes	0
III.B.6. <i>Clean Water Act</i> : Does the management plan describe how the objectives and strategies are reflective of and integrated with the water quality management plan and Total Maximum Daily Load schedule within that particular state? I.e., does this subsection of the management plan assess and describe the consistency-coordination-findings of the Water Quality Plan with the subbasin plan? ⁸		
Reviewers: The Plan adequately describes how the objectives and strategies are reflective of and integrated with the water quality management plan and Total Maximum Daily Load schedule. This is well discussed in the assessment.	Yes	0
III.B.7. <i>Endangered Species Act</i> : The USFWS and NOAA Fisheries are developing recovery plans for listed species (bull trout, white sturgeon, salmon). Recognizing that those ESA-based efforts are in various states of completion across the Columbia basin (some efforts are well underway, others just beginning), does the management plan describe how the objectives of the subbasin management plan are reflective of and integrated with the ESA-based goals for listed species within the subbasin? ⁹		
Reviewers: The Plan's reflection of ESA-based measure is well discussed in the assessment. The persistence requirements, however, need further attention. What are the ESA goals in the subbasin? It is not clear if they are mentioned, or achievable? It is not certain if the planners provide a discussion of the interim targets.	Part	1
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 planners insist that the Umatilla has long-standing, and successful, collaboration among stakeholders. If disagreements occur, they are not presented, so it is assumed that there are none. If that is the case, the plan should plainly state that there are no disagreements, to guarantee that there is no confusion.	na	na

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

⁹ E.g. NOAA Fisheries has provided interim targets in a letter from NOAA Fisheries to the Council, Bob Lohn to Larry Cassidy: http://www.nwcouncil.org/library/2002/nmfstargets2002_0404.pdf.

III. C. Strategies¹⁰		
III.C.1. Internal Consistency of the Plan. Does the Strategies Section of the Management Plan explain the linkage of the strategies to the subbasin biological objectives, vision and the subbasin assessment? (Council Questions 2 and 3) ¹¹		
Reviewers: In most cases, the Plan explains the linkage between its biological objectives, vision statement, and assessment. There remains, however, a subtle cart-before-horse effect with supplementation and outplanting. It appears that the planners have committed to supplementation and will support its use to permit harvest for recreational and cultural purposes, regardless of whether it might not be effective at restoring natural productivity. Another exception is the odd separation of natural and artificial production objectives and strategies, as well as the overall discussion of fish from the two categories. This is especially odd given that artificial production is stated to supplement natural production.	Yes	1
III.C.2. Consistency with the Fish and Wildlife Program. Are the Strategies proposed in the subbasin management plan consistent with those adopted in the program? (Council Question 4)		
Reviewer: The strategies proposed in the subbasin Management Plan are generally adequately consistent with those adopted in the Council's Fish and Wildlife Program, and they are explicitly linked. The plan's strategies are directed at understanding causative factors, restoring natural processes, and artificially enhancing natural processes. Most efforts are directed at establishing conditions for natural functions. There are also quantitative habitat objectives and qualitative artificial production objectives. However, it is not clear whether the artificial production objectives are consistent with the Council's Fish and Wildlife Program.	Yes	0
III.C.3. Consideration of Alternative Management Responses. Does the Strategies Section explain how and why the strategies presented were selected over other alternative strategies (e.g. passive restoration strategies v. intervention strategies)? (Council Question 5) ¹²		

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

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

¹² The 2000 Fish and Wildlife Program directs that the subbasin management plan's strategy section must include an explanation of how and why the strategies presented were selected over other alternative strategies (e.g. passive restoration strategies v. intervention strategies). The Council does not expect subbasin plans to be structured like an Environmental Impact Statement with a list of alternative actions and descriptions of why each were not

<p>Reviewers: The planners explain that they considered alternatives in section 5.4.1, and explain why they decided against alternative strategies. The aquatic section explicitly treats three alternatives. Strategies and their rationales are well described.</p> <p>The plan explicitly explores restoration scenarios for fish in the Assessment. For the terrestrial habitats and species, consideration of alternatives is implied by the priorities and in sections of the Assessment that set out problems to be solved.</p> <p>The EDT analysis was used to compare the effects of following several scenarios as strategies for improvement. In almost all cases, for most species, the scenario that includes Phase III of the water development program is predicted to lead to the largest increases in abundance. In most cases, however, the predicted increase over other scenarios is slight.</p> <p>In particular, a fourth scenario that was not included in the EDT analysis deserves further analysis. That scenario is described in the plan as the purchase of water rights, rather than the pumping of additional water from the Columbia River as proposed in Phase III. The relative costs and benefits of these two alternatives certainly deserve comparison. The ongoing costs of electricity to pump water from the Columbia River are very high, whereas purchase of water rights would be a one-time expense.</p>	<p>Partial</p>	<p>2</p>
<p>III.C.4. Prioritization. Does the Strategies Section describe a proposed sequence and prioritization of strategies?</p>		
<p>Reviewers: The planners have generated a group of fourteen strategies. Strategies, the limiting factors they address, and their function (e.g. restore natural processes) are summarized in a detailed table (p.5-10). The strategies are phased.</p> <p>Strategies for aquatic species are organized by each Geographic Area and are prioritized for protection and restoration generated by EDT. There are several high priorities in the terrestrial section; this suggests the need for further sorting.</p> <p>All told, the Plan gives a reasonable and clearly stated prioritization of objectives and strategies, as well as prioritization of areas in which to focus actions. The document thus can guide funding decisions. This is especially notable as few of the subbasin plans have been able to adequately prioritize their strategies.</p>	<p>Yes</p>	<p>0</p>
<p>III.C.5. Additional Assessment Needs. 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 in the limiting factors section.</p>	<p>Yes</p>	<p>0</p>
<p>III.C.6. Clean Water Act: Does the management plan describe how the strategies are reflective of and integrated with the water quality management plan and Total Maximum Daily Load schedule within that particular state?</p>		

recommended. The Council's primary interest is on why and how a strategy was selected -- the rationale for the selected strategy -- which necessary includes some discussion of alternatives.

Reviewers: Section 5.5 includes a statement of intent to describe how the strategies are reflective of and integrated with the water quality management plan and Total Maximum Daily Load schedule, but provides no specifics. In Strategy 1 there is a reference to ongoing Umatilla Basin projects and their water quality aspects. A more explicit treatment of CWA issues would further enrich this plan.	Partial	2
III.C.7. Endangered Species Act: Recognizing that ESA-based efforts are in various states of completion across the Columbia basin, does the management plan describe how the strategies of the subbasin management plan are reflective of and integrated with the ESA-based goals for listed species within the subbasin?		
Reviewers: The Plan needs to include quantitative objectives for gaining the structure and abundances needed to be confident that these species will persist in the basin. If the ESA goals were quantitatively stated for the Umatilla River, then, based on its generally high quality, this Plan could likely address them effectively and specifically. As it stands, the ESA goals are broadly stated and apply to a set of subbasins. As a result, this Plan only addresses the issue broadly.	Partial	2

III.D. Research, Monitoring, and Evaluation

This RME Checklist Section provides the review elements necessary for the ISRP/ISAB to answer *Council Question 6. Plan for Assessing Progress toward Subbasin Goals*. The ISRP/ISAB is asked to determine whether a subbasin plan includes a procedure for assessing how well subbasin objectives are being met over time. This question focuses on accountability and self-assessment, and reflects on the adequacy of the Management Plan’s research, monitoring and evaluation component. This RME component needs to be closely connected to a limiting factors analysis and the biological and environmental objectives. A prioritized RME agenda reflecting the critical uncertainties and limiting factors should be developed and presented with the detail requested below (Technical Guide pp. 14-16). *NOTE: The focus of the RME component should be on the strategy level rather than individual project level.*

Subbasin planners were encouraged to incorporate, or link their RME framework and strategies with the “regional” RM&E strategies being developed by the Pacific Northwest Aquatic Monitoring Partnership and the Columbia Basin-Wide Research, Monitoring and Evaluation (RM&E) Program, a coordinated effort developed by State, Federal, and Tribal entities in response to the Basin-wide Salmon Recovery Strategy 2000 and the FCRPS 2000 Biological Opinion. Products from these regional RME efforts could be used to meet elements of a subbasin plan’s RME section (Technical Guide pp. 14-16), particularly in the areas of monitoring protocols and methodologies. The subbasin plan should also explain how they incorporated existing monitoring guidance from state programs.

III.D.1	Research: Does the RME section of the plan describe a research agenda with specific conditions and situations identified in the subbasin that will require specific research studies to help resolve management uncertainties? Is the research agenda framed around the relationships between the assessment data and the stated vision, biological objectives, and strategies in describing uncertainties? Does the RME section prioritize research topics that are of critical importance to the subbasin?	(Y)es, (P)artial, (N)o	<i>Need for additional treatment (0-4)</i>
Reviewers:	The Plan provides a list of research needs and summarizes the strategies to address them in a table. The types of analyses to be used for ecosystem assessment are described: associative, structural, trends, geo-statistical, and functional. The Plan does not give a specific research agenda. The aquatic section includes only a general framework, but the terrestrial section is more complete. It appears that the RME section is still in progress, and the Plan states that the RME will be	Partial	2

	completed later. The major entirely missing element that is needed in the RME section is prioritization, or at least a set of criteria to be used in prioritization. Providing this would increase the utility of the Plan.		
III.D.2	Monitoring Objectives: Does the RME subsection identify what kind of information needs to be collected in order to determine if the plan's vision and objectives are being met? I.e., what indicator variables will be monitored?		
	Reviewers: The Plan identifies "... spawner success, juvenile sub-populations, and their surroundings" as variables to monitor. The plan includes long discussions of monitoring. It often refers to existing published strategies that will be followed and general categories to be monitored. It identifies the EDT monitoring requirements and discusses the need for indicators reflecting ecosystem dynamics. The planners identify a course of "effectiveness" monitoring that includes indicators and appropriate variables. The RME section describes an approach for aquatic and terrestrial monitoring and refers to other plans. Sampling methods are described. An ecosystem approach to monitoring identifies various scales of monitoring. This is not a complete RME plan yet, but it's one of the best draft RME plans among the subbasins.	Partial	2
III.D.3	Monitoring Indicators: Does the RME subsection identify measurable indicators of physical, chemical, biological, or socioeconomic conditions that may act as environmental signposts by which progress towards achieving the stated vision can be evaluated? E.g., does the RME subsection describe performance standards or quantitative benchmarks for reference conditions against which observations can be compared? Does the plan prioritize which indicators are most needed to answer management questions (include a short list)?		
	Reviewers: The Plan presents a reasonable list of monitoring metrics at different scales. For aquatic these are general; for terrestrial they are more specific. Again, the lack of prioritization is the main problem that needs to be addressed for the Plan to be readily implemented.	Partial	2
III.D.4	Data and Information Archive: Does the RME subsection describe an infrastructure to archive relevant data and meta data generated through monitoring efforts in existence for the subbasin (e.g., locally or at a regional Fish and Wildlife Program funded database such as StreamNet, the Fish Passage Center, or DART)? Specifically, does the RME subsection include discussion of quality assurance/quality control (QA/QC), data management and analysis, and data reporting?		
	Reviewers: The document notes the need for and the importance of an infrastructure to archive relevant data and metadata that are generated through existing monitoring efforts in the subbasin, and it states the intent to participate in solving the problem in a constructive, useful way.	Partial	2
III.D.5	Coordination and Implementation: Does the RME subsection describe who will collect the information and data collection methods whether collection is done by a subbasin, provincial, state, or a regional entity, or a combination of entities? This should include a description of coordination with regional RME efforts in the basin (Regional Partnership, Action Agencies Research, Monitoring, and Evaluation Plan, etc) with standardization of data methods. It should also include estimates of how much the proposed M and E will cost.		
	Reviewers: The Plan's data coordination is identified in Table 11, which summarizes research needs and strategies. There is a special Umatilla monitoring and evaluation program for networking among agencies in the subbasin. There is no specification, however, of where the data will reside.	Partial	2

This subsection does not provide specific detail, but it does outline the basic problems and the desire for solutions. Realistic cost estimates are well in the future for all of the RME plans.			
III.D.6	Summary Question. RME Logic Path (Evaluation and Adaptive Management): Does the subbasin plan provide a scientifically supportable procedure for refining the biological objectives as new information becomes available about how fish, wildlife, and the environment interact, and in relationship to how the plans are implemented over time? (Council Question 7) Specifically, does the RME subsection describe a scientifically sound logic path for how to test if the subbasin plan's strategies are helping to reach the stated vision and objectives? I.e., Is the RME agenda adequately framed around the relationships between the assessment data and the stated vision, biological objectives, and strategies in describing uncertainties?		
<p>Reviewers: A reasonable adaptive management plan is outlined. A flow diagram is presented and the formation of a group called the "Implementation Oversight Committee" is described. The planners present a good logic path and provide a long list of what they need to do. There are lots of good ideas, but more specifics are needed, including a prioritization of monitoring activities. Even though the RME plan is not fully developed, it represents a thoughtful approach to implementation of an RME plan that would reflect the limiting factors, objectives, and strategies identified in the Plan. The planners acknowledge that information is vital to adaptive refinement of their management over short and longer-term time frames.</p> <p>While the magnitude of the endeavor is large, it appears to follow a basic logic path from action to evaluation to adapting future management. However, the RM&E section is diffuse and is in need of refinement and prioritization. Reviewers had trouble locating simple approaches, such as a measure that would count adult fish at the window in the ladder at Three Mile Dam.</p> <p>Reviewers could be persuaded that the Umatilla deserves the rather sophisticated-looking RME design, considering the uniqueness of the situation. For example, monitoring may be especially important here because of issues with flow (pumping) and potential effects of hatchery production on this and other basins. But the planners should explain why specific and overall elements of monitoring are needed and of priority.</p> <p>This is a subbasin for which analysis of cost effectiveness would be especially useful to help guide future actions.</p>		Yes	1
<p>Overall impression and evaluation of the Management Plan: As needed elaborate on your evaluation of the various Sections enumerated above. If the plan provides additional analysis beyond what is laid out above in the checklist please comment here (e.g., socio-economic descriptions or analysis).</p>			

<p>Reviewers: This Plan is thoughtful, well developed, and well supported by the Assessment. The entire document is well organized, and its elements are clearly reasoned and presented. Thus, it is quite user-friendly, which is important for a public document. The Plan includes many features that could serve as good examples for others to follow and is evidence of progress in the Umatilla subbasin over the last decade.</p> <p>The Plan also could be improved in a number of ways. Identifying populations and structure and abundances needed for the viability (health) of the selected focal species would increase the Plan’s scientific credibility. It is easy to fall back to the assumption that, if the quantities of habitat are protected/rehabilitated, then greater densities and viability in focal populations will result. The goal, however, is to gain healthy ecosystems, with the focal species serving as indicators, and the quantitative elements of viability (health) for these indicators need to be defined and set as program objectives. These objectives provide guidance for identification of habitat needs, selection among alternative hypotheses, specific guidance for monitoring, and numeric endpoints for adaptive management.</p> <p>The initial elements of the RME plan are extensive by comparison with most draft subbasin plans, though still incomplete and in need of refinement, integration, and prioritization. Nevertheless, the draft RME is thoughtful in presenting the major issues that are of concern. The planners acknowledge that there is more work required and state that they are in the process of doing that work. A more complete M&E plan is intended to be available shortly and will reflect regional, not just subbasin, needs. Such a coordinated approach should be encouraged. Since the planners know the key issues that need to be addressed, and are seeking help in development of their RME plan, it is likely to be completed and lead to useful information that will provide a basis for adaptive management.</p> <p>It is a strength of this Plan that species outside of the standard charismatic megafauna and endangered salmonids are considered more than in most. It is also a strength that monitoring of biodiversity monitoring is included in the RME plan.</p> <p>The implementation of strategies from this Plan could impact other subbasins. For instance, fish released from the hatcheries may create carrying capacity concerns downstream, mixed harvest problems, etc., and such potential effects should be further explored.</p> <p>The planners have provided, by and large, a thoughtful Plan, regardless of reviewers’ reservations regarding supplementation levels and potential impacts within and outside of the subbasin.</p>	<p>Yes</p>	<p>1</p>
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General Council Question. Consistency with the Fish and Wildlife Program and its Scientific Foundation

The Council asks the ISRP to evaluate a subbasin plan for its consistency with the Scientific Foundation adopted as part of the Program and with the requirements for “biological objectives” as described in the program. The core of the Council’s Scientific Foundation is a set of eight Scientific Principles:

1. The abundance, productivity, and diversity of organisms are integrally linked to the characteristics of their ecosystem.
2. Ecosystems are dynamic, resilient and develop over time.
3. Biological systems operate on various spatial and time scales that can be organized hierarchically.
4. Habitats develop, and are maintained, by physical and biological processes.
5. Species play key roles in developing and maintaining ecological conditions.
6. Biological diversity allows ecosystems to persist in the face of environmental variation.
7. Ecological management is adaptive and experimental.
8. Ecosystem function, habitat structure and biological performance are affected by human actions.

See 2000 Fish and Wildlife Program, pages 14-15 for full detail.

Questions on consistency with the objectives and strategies section of the Fish and Wildlife Program are incorporated in the table above. Consistency with the Program’s scientific foundation is interwoven throughout the checklist, and this comment table provides reviewers a place to specifically summarize and identify how well the eight principles were addressed.

Summary comments and evaluation of the subbasin plan’s consistency with the eight principles of the Fish and Wildlife Program’s Scientific Foundation:

<p>Reviewers: This Subbasin Plan is quite consistent with the Council’s Fish and Wildlife Program, and is explicitly tied to the Council’s objectives and principles. The documents are well supported by the current relevant literature and other information sources, and they are consistent with the Council’s Fish and Wildlife Program and its Scientific Foundation. The Principles, perhaps especially Principle 2, probably need revisiting each time implementation decisions are made and as outcomes are assessed and interpreted.</p> <p>This Plan includes a great deal of information and analysis, and it has great potential to become an exemplary subbasin plan. To further improve, it should focus more attention to the selection of focal species, to the numeric and distributional needs of these species, and to setting quantitative objectives for meeting these needs. The plan should incorporate more filtering of potential habitat to identify areas that cannot be rehabilitated (including more consideration of exotic species) or that require that someone will someday offer their property up for sale.</p> <p>The Plan is framed as an ecosystem plan, but it has a large element of fish production for harvest, likely exceeding the productive capacity of the system. The hatchery program could be expanded presumably to meet any future demand for harvestable fish. Accordingly, the focal species should be species that are actually supported by the ecosystem’s resources and potentially threatened by the presence of the fish production capacity included in the system.</p>	<p>Yes</p>	<p>1</p>
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Issues of ecological process and dynamics may have been somewhat lost in the EDT analysis, but the Plan provides evidence of a good understanding of ecological issues.		
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