

# **Methow**

## **Review Summary**

The Methow Subbasin Plan's Assessment adequately meets most of the scientific elements called for in the Council's 2000 Fish and Wildlife Program and the Subbasin Technical Guide. The Inventory and to some extent the Management Plan, however, fall short in providing fully acceptable components. The planners should be encouraged to move forward in continuing to improve the plan. To accomplish that, strategies need to be prioritized, numerical targets or ranges established for the objectives, and the research, monitoring and evaluation section needs to be completed and explicitly linked back to the objectives and strategies.

### **Assessment**

Although this Assessment represents a reasonable starting point, a better presentation and clearer organization would help to create a more integrated document. The Assessment does provide an adequate general orientation to the subbasin, including a nice overview of jurisdictional authorities and a pretty good job of providing the geographical, demographical, and environmental context for fish and wildlife resources in this subbasin. Although the Assessment itself does not adequately describe the current status of fish and wildlife focal species, much of the needed information is included in Appendices in much more current detail. The terrestrial assessment depends on identification of focal habitats and is based on the general Washington document by Ashley and Stovall (2004). Information on individual focal species should be brought forward into the plan and considered specifically for this subbasin. Assessment of terrestrial focal habitats and focal species should be focused on this subbasin.

One area that needs attention is the inadequacy of the treatment of hatchery effects. The Assessment should provide a brief timeline of hatchery production and releases for each focal species and current production programs, finishing with the most recent discussion on potential competition with naturally produced fish and genetic analyses on the consequences of introductions. Finally, although this assessment is better than most in this area, the section on environmental conditions could benefit from a substantial editing and a more thorough consideration of what is known and believed about the environment in the subbasin. In general, although the Assessment can be improved in several areas, it does provide enough information to develop a useful management plan.

### **Inventory**

The inventory is inadequate as a starting point to evaluate successes, failures, uncertainties of past activities in the subbasin, to identify biological objectives or strategies needed to fix the limiting factors identified by the EDT and QHA analysis. Although a host of federal, state, and non-governmental programs and laws applicable to fish and wildlife planning in the Methow subbasin are provided, there is little synthesis to explain how they apply to the Methow subbasin. There is little or no explanation of the effectiveness of past actions in the subbasin, something that would help greatly in making informed decisions about what projects should continue or not and what new project are needed. In addition certain topics are underdeveloped; i.e., the relationship between hatchery production and natural production is not treated adequately.

## Management Plan

The plan provides a reasonable outline of where the subbasin wants to go; only a lack of detail and clarification hinders its adequacy. Although the subbasin vision is consistent with the Council's 2000 Fish and Wildlife Program, linkage of the vision to the biological objectives and strategies is less transparent. In addition, the characterization of objectives and strategies is somewhat problematic in this Plan. For each focal species there is an overarching biological objective that reads more like a subbasin vision statement. That objective is followed by several other, more specific objectives, some of which are specific numerical targets for abundance and productivity levels desired for focal anadromous species. The time scale to achieve these objectives is not clear. Even though strategies to achieve these objectives are included, some of these strategies appear to be research topics, whereas others appear to be management activities. In the end, the Management Plan does not adequately describe the physical changes needed within the subbasin to achieve the vision. Strategies are provided for each of the "objectives" for each focal species, but their linkage is not explained explicitly. There is a diagram early in the plan that provides the planner's views on linkage in a general sense, but the specifics showing how any particular biological objective, strategy, or assessment outcome is linked are not presented. Furthermore, the strategies read more like projects than the broad conceptual strategies as suggested in the mainstem amendments and 2000 F&W program. Finally, the Management Plan does recognize that one function of RME is to resolve uncertainties and to provide the empirical basis for future decision-making. Although an explicit adaptive management loop is not discussed, the plan does discuss an iterative process, involving the Technical Team and other participants to refine the plan. If time and funding permits, the plan could be substantially improved by making it shorter and more concise.

## 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  <i>Need for additional treatment (0-4)</i>
I.A.1.1	Does the assessment provide a general orientation to the subbasin (location, size, distinguishing natural and cultural features, land use, land ownership) and an overview of jurisdictional authorities (state, county, federal lands, tribal lands and fishing rights)?	
Reviewers: The assessment provides an adequate general orientation to the subbasin and an overview of jurisdictional authorities.		Yes      0

I.A.1.2	Does the assessment provide a general description of the subbasin's macro-environment (geology, climate and weather, land cover, vegetation) and of the subbasin's water resources (hydrography and watersheds, hydrologic regimes, water quality, riparian and wetland resources), water uses, and modifications to water resources (hydropower projects and operations, water diversions, channel modifications)?		
Reviewers: The assessment provides an adequate general description of the subbasin.		Yes	0
I.A.1.3	Does the assessment provide a general description of anthropogenic disturbances to the aquatic and terrestrial environment, organized by the source of disturbance (urbanization, agriculture, forest practices, water development, mining, transportation, and other)?		
Reviewers: Although a general description/list of anthropogenic disturbance is provided, specific detail would improve the document. For example, the assessment states that mining was extensive years ago, but is less common now. Specifics on the duration, type, and extent of mining in the past would have been helpful.		Yes	2
I.A.1.4	Does the assessment provide a list of native and non-native fish and wildlife species present in this subbasin including those species that: a. have been designated as threatened or endangered under the Federal Endangered Species Act or state equivalents, b. have been recognized by applicable federal, state, or local resource management agencies, or by the Nature Conservancy or state heritage program, as being especially rare or significant in the local area, c. have special ecological importance within the subbasin, d. are recognized by Native American tribes as having special cultural or spiritual significance, or e. are not native to this subbasin?		
Reviewers: The assessment provides a list of native and non-native fish and wildlife species present in this subbasin.		Yes	0
I.A.1.5	Does the assessment identify plants that have been designated as threatened or endangered under the Federal Endangered Species Act or state equivalents, and/or that are recognized by Native American tribes as having special cultural or spiritual significance, or (optional) that have special ecological importance within the subbasin?		
Reviewers: The assessment identifies plants that have been designated as threatened or endangered.		Yes	0
<b>I.A.2. Subbasin in the Regional Context</b>		(Y)es, (P)artial, (N)o	<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 Methow subbasin's relationship to other Columbia Cascade subbasins is adequately presented. Its relationship to the larger Columbia River Basin, however, needs additional work.		Yes	1
I.A.2.2	Does the assessment describe this subbasin's relationship to Endangered Species Act planning units (NOAA Fisheries-designated evolutionarily significant units (ESU) and U.S. Fish and Wildlife Service-designated bull trout planning <b>units.</b> <sup>1</sup> ) where this information was available during the planning process?		

<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.)

Reviewers: Although the Assessment presents a fair amount of information regarding the Methow subbasin's relationship to the ESA, it mistakenly refers to ESUs as though they are geographic areas, rather than biological/management entities; that misrepresentation should be corrected. In addition, the Assessment should clearly state which NOAA ESUs inhabit the subbasin, and the portion of each ESU that lies in the subbasin		Partial	2
I.A.2.3	Does the assessment in this subbasin (the ocean, the estuary, the mainstem downstream from the subbasin, and, as relevant, upstream areas and adjacent subbasins)?		
Reviewers: The Assessment does a reasonable job of adequately summarizing the external environmental conditions that might have an effect on fish and/or wildlife.		Yes	1
I.A.2.4	Does the assessment identify macroclimate and human occupation and use trends that may affect hydrological or ecological processes in this subbasin over the long-term (50 years into the future and beyond)?		
Reviewers: There was no discussion of projected population growth or changes in human use patterns.		Partial	2
<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?			
Reviewers: Overall, the Assessment did a pretty good job of providing the geographical, demographical, and environmental context for fish and wildlife resources in this subbasin.		Partial	1

<b>I.B. Species Characterization and Status</b>			
<i>General question: Does the assessment adequately describe the current status of fish and wildlife focal species?</i>			
Note to reviewers: for this section of the review, the checklist should be applied to each focal species. Please identify which species your evaluation applies to in the comment field. Use the ranking fields (Y,P,N; 0-4) to give an overall evaluation across all focal species. Note differences among approaches to species in the comment field. If necessary, once the plans are received, assignments will be made to cover an individual species or a series of focal species.		(Y)es, (P)artial, (N)o	Need for additional treatment (0-4)
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.			
Reviewers: Although the Assessment provides an adequate process for picking focal wildlife habitats and species, the rationale explaining how each of the habitat types was chosen is not sufficient. Likewise, the rationale for which fish species were chosen is also insufficient. There was, however, a section of an appendix that described why several species were picked as focal species throughout the Columbia Cascade Province. This section of that appendix needs to be brought forward into the body of the assessment and the appendix deleted.		Yes	1

<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.

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 characterization of stock structure for fish species in the Assessment is inadequate; all the citations are decades old, and much additional synthesis has been completed since then. This material should be replaced with much more complete information included in the Appendix provided. The terrestrial assessment depends on identification of focal habitats and is based on the Washington document by Ashley and Stovall (2004). Information on individual focal species should be brought forward into the plan and considered specifically for this subbasin.	Partial	2
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: As in the comment above for I.B.2, the material in the Appendix is better than material in the Assessment. Because it would be very helpful to have a clearer presentation of what historic data are available, the Reviewer recommends substituting the Appendix for the Assessment.	Partial	2
I.B.4. Does the assessment describe the population's life history, including identifying distinct life stages?		
Reviewers: Again, for both terrestrial and aquatic species a more thorough presentation of life history variation, spawning reaches, etc. are found in the Appendix, which should be incorporated into the main body of the Assessment.	Partial	2
I.B.5. Does the assessment characterize the genetic diversity of the population, especially regarding possible effects of artificial production? Specifically does the assessment describe the historic and current status of introductions, artificial production, or captive breeding programs in this subbasin or affecting the subbasin through straying or other means, and describe the relationship between the artificial and naturally produced populations?		
Reviewers: The presentation of hatchery effects is generally inadequate. Because the organization of material is different for spring, summer/fall chinook, and summer steelhead, using a parallel organizational structure would be helpful. For example, the spring chinook presentation jumps right into the presumptive genetic consequences of hatchery releases without providing the scale and time frame of artificial production. Similarly for summer/fall Chinook, although some historical background is provided, no conclusions are reached. In addition, none of the assessments include the most recent syntheses. The Assessment should provide a brief timeline of hatchery production and releases for each focal species and current production programs, finishing with the most recent discussion on genetic analyses on the consequences of introductions. Genetic information on terrestrial species is generally missing.	Partial	2
I.B.6. Does the assessment describe historic and current harvest, including both in-subbasin harvest and downstream or ocean harvest affecting the focal species?		
Reviewers: The Assessment adequately describes historic and current harvest.	Yes	1
<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?		
Reviewers: Although the Assessment itself does not adequately describe the current status of fish and wildlife focal species, much of the needed information is included in Appendices. The terrestrial assessment depends on identification of focal habitats and is based on the Washington document by Ashley and Stovall (2004). Information on individual focal species should be brought forward into the plan and considered specifically for this subbasin. Incorporating its information in to the Assessment would help greatly.	Partial	2

<b>I.C. Environmental Conditions</b>			
<i>General question to be addressed: Does the assessment adequately describe the effect of the environment on fish and wildlife populations?</i>			
<b>I.C.1. Environmental Conditions within the Subbasin</b>		(Y)es, (P)artial, (N)o	Need for additional treatment (0-4)
I.C.1.1	Does the assessment describe the current condition of the environment in this subbasin, and characterize the condition of the environment under the following reference conditions: a) historic, <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?		
Reviewers: The presentation of environmental conditions is confusing and does not address historic, potential, and future possible actions in a direct way. The treatment of fish and wildlife is different; fish have focal species, wildlife have focal habitats - with a suite of species within each habitat. Section 3.9 summarizes wildlife focal habitats. Each summary begins with an introductory narrative followed by unnumbered subsections on Protection Status, Factors Affecting the habitat type, and Recommended Future Conditions. All of this material is presented under the "focal species" portion of the assessment. Then there is section 3.10: Environmental Conditions. Section 3.10.1 is a 2-page section on "changes in wildlife habitats". It is too general, and does not provide an effective determination of the difference between current conditions and the various reference conditions. This is followed by Section 3.10.2: Changes in Fish Habitats. This fish habitat section begins by asserting that, "diking, conversion of riparian areas to agriculture and residential uses, and LWD removal along the mainstem Methow River, have resulted in loss of side-channel access, riparian vegetation, and overall habitat complexity." It concludes that, "much of the habitat within this area, however, has not been adequately inventoried or assessed and data gaps exist regarding the extent of habitat alterations." This fish section has subsections on current reference conditions, protection status and ecological features - which itself has sub-subsections on rare plant communities and noxious weeds, finishing with a subsection on introduced wildlife. The fish subsection on current reference conditions reads as a wildlife piece. The remainder of the section seems out of place, most likely its placement being an editorial error.		No	3
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: Although the assessment units used for fish include virtually all of the significant tributaries of any size, there was no formal use of the HUC system.		Yes	0
<b>I.C.2. Out-of-Subbasin Effects and Assumptions</b>			

<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.

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.	Partial	1
Reviewers: Although general hydrosystem factors are presented, specifics for how they relate to ESUs is lacking. A review of what BAMP and NOAA (and others) believe about the survival through the hydrosystem attributable to smolt passage, upstream migration, predation, etc would be helpful. Out-of-subbasin effects on terrestrial species are discussed very briefly in the general Washington document by Ashley and Stovall (2004). That information should be brought forward and specialized for this specific subbasin.			
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?	Yes	0
Reviewers: This Assessment does a better job than most others in establishing its assumptions; e.g., the assessment reviews and chooses a SAR for chinook and steelhead that incorporates a factor for average expected ocean survival. The information is missing for terrestrial species.			
<b>I.C.3. Environment / Population Relationships</b>			
For each focal species, does the assessment identify, for each life stage, environmental factors that are particularly important for the species' survival and determine the characteristics that constitute optimal conditions for species health? Does the assessment describe and make a finding regarding the environment's ability to provide such optimal conditions, or conditions that support the long-term viability of these populations.			
Reviewers: This is accomplished for the most part, but this topic is addressed in the EDT results section under limiting factors for aquatic species. The information on terrestrial species could be better specialized to the subbasin.		Yes	0
<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?			
Reviewers: Although this assessment is better than most in this area, the section on environmental conditions could benefit from a substantial editing and a more thorough consideration of what is known and believed about the environment in the subbasin. Assessment of terrestrial focal habitats and focal species should be focused on this subbasin.		Partial	2

<b>I.D. Ecological Relationships</b>		(Y)es, (P)artial, (N)o	Need for additional treatment (0-4)
<i>Question to be addressed: Does the assessment describe the key inter-species relationships and the key functional relationships?</i>			
<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?			

Reviewers: Although over 25 pages are given to ecological relationships (section 3.11) and community structure (section 3.12), and additional information on competition, predation, disease, and parasitism, the information should be better specialized and discussed relative to this subbasin. The planners need to determine whether or not alterations in ecological relationships and/or community structure are contributing to the decline of focal species in this subbasin.	Yes	1
---	-----	---

### 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?

Reviewers: Section 3.18: <i>The Form and Function of Ecosystem Change</i> touches on the subject of ecological processes and functions. But also discusses general land use, hatchery, fishing, and other public policy issues. Most of this is general text that is not brought into a specific Methow subbasin perspective. The following quote serves as an example:  “In general, the limiting factors analyses describe a network of tributaries that has been degraded by assorted human activities, and where ecological processes have been compromised, the implication being that some of these areas may well be important in limiting the productivity of anadromous fish in the basin.”	Partial	2
--	---------	---

### I.E. Interpretation and Synthesis / Limiting Factors and Conditions

#### I.E.1. Limiting Factors and Conditions

Does the assessment describe:

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

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

Reviewers: The Assessment should be much more explicit in defining the limiting factors. The EDT results do form a testable hypothesis that these are the limiting factors for focal anadromous species, and the assessment units identified are priority areas for restoration and protection. To quote from an EDT assessment subsection, however, "The difference between current and template values for these assumptions were driving the results that these survival factors were primary limiting factors in the Methow Basin, and there was no way to validate our assumptions about template conditions." In addition, the Assessment does not deal directly with competition or other interaction between hatchery production and natural production, which is a significant oversight. Limiting factors for focal terrestrial habitat are less well developed.	Partial	2
--	---------	---

#### I.E.2. Key Findings

Is the knowledge gained through the assessment synthesized in regard to: 1) the status of species, 2) the status of the subbasin environment, 3) the biological performance of focal species in relationship to the environment, 4) the health of the overall ecosystem, 5) potential conflicts and compatibilities between individual species and ecological processes, 6) a determination of the key factors that impede this subbasin from reaching optimal ecological functioning and biological performance?

Reviewers: Although the key findings identifying which regions would be best for protection and restoration are explained for single and multiple species, how the EDT analysis was performed and how the scores for attributes that drove the analyses were determined are not sufficiently transparent. Key findings for terrestrial focal habitats were less well documented.	Yes	1
--	-----	---

<b>I.E.3. Subbasin-wide Key Assumptions/Uncertainties (“Working Hypothesis”)</b>		
Does the assessment describe the key assumptions (including uncertainties) that have been made in the “Key Findings” above, and document the data sources and/or analytical tools relied upon?		
Reviewers: Although the analytical tools used are cited for aquatic species, how they were used, how the experts scored habitat attributes and what those scores were is not sufficiently transparent. The planners state that they have no way to validate the assumptions in their assignment of template conditions. Consequently, the uncertainty inherent in the Assessment must be fairly large. Uncertainties are not discussed relative to terrestrial focal habitats.	Yes	1
<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>		
Reviewers: Although this draft of the assessment is a reasonable starting point, more work on both organization and presentation, and in creating an integrated assessment would be beneficial. Assessment of terrestrial resources should be better brought into the plan and specialized to the subbasin rather than depending totally on the Washington document by Ashley and Stovall (2004).	Yes	1

<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>		
<b>II.A. Existing Protection</b>	(Y)es, (P)artial, (N)o	Need for additional treatment (0-4)
II.A.1	Does the inventory identify areas with protections through stream buffers, municipal or county ordinances, conservation designations, or water resources protection?	
Reviewers: The Inventory summarizes detailed information given only in appendices. Protected areas are discussed to some extent in the subbasin Introduction and Assessment. Furthermore, although the treatment of protection in the Assessment did not cover specifics of things like stream buffers, it noted regions like wilderness areas that were under that type of protection, or tracts under US Forest Service stewardship.	Partial	2
II.A.2	Does the inventory assess the adequacy of protections for fish, wildlife, and ecosystem resources?	
Reviewers: No real assessment of protections was performed.	No	3
<b>II.B. Existing Plans</b>		
II.B.1	Does the inventory identify and review applicable local, state, tribal, and/or federal fish and/or wildlife management plans and water resource management plans that affect fish and wildlife?	

Reviewers: Although mention is made of a Methow watershed plan, no other plans are described.		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: Same comment as above.		No	2
<b>II.C. Management Programs / Restoration and Coordination Projects</b>			
Does the inventory identify management programs implemented through on-the-ground restoration and conservation projects that target fish and wildlife or otherwise provide substantial benefit to fish and wildlife? These include, at a minimum, those implemented within the past five years regardless of funding source.			
II.C.1	Does the inventory identify ongoing or planned public and private management programs or initiatives that have a significant effect on fish, wildlife, water resources, riparian areas, and/or upland areas? <sup>6</sup>		
Reviewers: A host of federal, state, and non-governmental programs and laws applicable to fish and wildlife planning in the Methow subbasin are provided. The extent to which they apply to the Methow, however, is unclear.		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: Same comment as above.		Partial	2
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: This portion of the inventory is largely ignored. The relationship between hatchery production and natural production is not treated adequately for aquatic species.		No	3
II.C.4	For each management program (or project where not clearly part of an overarching management program), does the inventory summarize accomplishments/failures of activity		
Reviewers: A summary of activities, together with a statement on perceived results, is provided for some hatchery programs,		Partial	2
II.C.5	Does the inventory relate the assessment to the existing activities and identify the gaps between actions that have already been taken or are underway and additional actions that are needed to address the limiting factors and meet recovery and other goals, and identify inadequacies in both design and implementation?		
Reviewers: There is no real GAP analysis performed.		No	3
<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).			
Reviewers: The inventory is inadequate as a starting point to evaluate successes, failures, and uncertainties of past activities in the subbasin, as well as to point the way to either biological objectives or strategies to fix the limiting factors identified for either aquatic or terrestrial habitat/species.		Partial	3

<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?

### 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 subbasin vision is consistent with the Council's 2000 Fish and Wildlife Program. Linkage between the subbasin vision, biological objectives, and strategies is less transparent. There is a very detailed hypothesis, list of biological objectives, and set of strategies provided for assessment units for aquatic species. The presentation for terrestrial habitats/species lacks specialization to the subbasin.

Yes

0

#### 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 characterization of objectives and strategies is inconsistent in this Plan. For each focal species there is an overarching biological objective that reads more like a subbasin vision statement, followed by several other, more specific objectives. Some of these objectives are specific numerical targets for abundance and productivity levels desired for focal anadromous species. Strategies are also included to achieve these goals. Some of these strategies appear to be research topics; others are management activities. The management plan does not adequately describe the physical changes needed within the subbasin to achieve the vision. The subbasin guide and the 2000 Fish and Wildlife program call for two components for the biological objectives, population attributes and environmental attributes. A limited number of population attributes are included in the biological objectives, but indicators or thresholds for desired future conditions for environmental attributes are missing. The plan also includes "objectives" for hatchery production. These objectives probably need to be changed to "strategies." Terrestrial objectives appear to be generic rather than specialized to the subbasin.

Yes

2

III.B.1. Are the biological objectives consistent with basin-level visions, objectives, and strategies adopted in the program? (Council Question 4) The 2000 Fish and Wildlife Program, pages 16-18, provides general descriptions for basin-level goals, objectives, and strategies. The Mainstem Amendments provide additional biological objectives as well on pages 11-14.<sup>7</sup>

Reviewers: The biological objectives for population attributes are consistent with basin-level visions, objectives, and strategies. Biological objectives for environmental attributes need to be developed.

Partial

2

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.)

<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.

Reviewers: The population attributes for aquatic species - abundance and productivity - are drawn from NOAA Fisheries interim recommendations for recovery standards, BAMP, and HCP plans for the region. These numerical targets could be better placed into the context of the Assessment. That is, based on the improvements hypothesized by the EDT analysis, it is not certain whether or not these population attributes are realistic. Terrestrial objectives appear to be a generic list and are not specifically based on the assessment.	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: Although the abundance of stocks can be measured, environmental measures or indexes for habitat conditions and improvements need to be developed. Although specific methods to be used for measurement are not specified, general criteria are provided that are to guide the conduct of M&E efforts.	Yes	1
III.B.4. Are biological objectives identified for both the short and long-term?		
Reviewers: The time scale of objectives is not clear.	No	2
III.B.5. Are the biological objectives complementary to programs of tribal, state and federal land or water quality management agencies in the subbasin?		
Reviewers: There is a good discussion of this element, including state, tribal, federal, and private (PUD) initiatives	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 directive of subbasin planning to integrate with Clean Water Act Total Maximum Daily Load schedules is discussed, and the plan asserts that its efforts are complementary. The mechanism to achieve the integration is not transparent from the material provided.	Partial	2
III.B.7. <i>Endangered Species Act</i> : The USFWS and NOAA Fisheries are developing recovery plans for listed species (bull trout, white sturgeon, salmon). Recognizing that those ESA-based efforts are in various states of completion across the Columbia basin (some efforts are well underway, others just beginning), does the management plan describe how the objectives of the subbasin management plan are reflective of and integrated with the ESA-based goals for listed species within the subbasin? <sup>9</sup>		
Reviewers: The directive of subbasin planning to integrate with ESA recovery planning is discussed, and acknowledged for aquatic species. Although the plan asserts that recovery-planning goals are included in subbasin planning, no actual comparison of the biological objectives of the subbasin plan with interim recovery targets is provided to confirm the consistency. No mechanism is described to update the subbasin plan's biological objectives if recovery-planning goals require population abundance greater than subbasin planning. Recovery of ESA listed terrestrial species is not well integrated into the plan.	Partial	2

<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).

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: This topic is not discussed.	na	na

<b>III. C. Strategies<sup>10</sup></b>		
III.C.1. <b>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>		
Reviewers: Strategies are provided for each of the "objectives" for each focal species, but their linkage is not explicitly explained. There is a diagram early in the plan that provides the planner's views on linkage in a general sense, but the specifics for any particular biological objective, strategy, or assessment outcome are not presented.	Partial	2
III.C.2. <b>Consistency with the Fish and Wildlife Program.</b> Are the Strategies proposed in the subbasin management plan consistent with those adopted in the program? (Council Question 4)		
Reviewers: The strategies read more like projects than the broad conceptual strategies in the mainstem amendments and 2000 F&W program. Although reconfiguring the plan's biological objectives and strategies to better fit the expected structure It should not be an enormous task to, the subbasin stakeholders would need to reach consensus, which might be more difficult.	Partial	2
III.C.3. <b>Consideration of Alternative Management Responses.</b> Does the Strategies Section explain how and why the strategies presented were selected over other alternative strategies (e.g. passive restoration strategies v. intervention strategies)? (Council Question 5) <sup>12</sup>		
Reviewers: There was no real consideration of alternative management responses.	No	3
III.C.4. <b>Prioritization.</b> Does the Strategies Section describe a proposed sequence and prioritization of strategies?		

<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.

<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.

Reviewers: Although an explanation of the stakeholder’s position on prioritization is provided and the plan outlines an approach to determining priorities, no strategies were actually prioritized. There were EDT results, though, that would have allowed that kind of assessment for aquatic focal species.	Partial	3
<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?		
Reviewers: Some needs for research are specified, particularly in the wildlife section, to affirm that the choice of focal habitats does indeed reach the focal species. Some unknowns are identified for fish.	Yes	1
<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?		
Reviewers: There is some discussion of TMDLs, but how they would be integrated is not clear. Furthermore, there should be some description of how the plan would handle septic systems and the like.	Partial	2
<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?		
Reviewers: The need for integration with ESA recovery planning is discussed, however, no actual comparison of the biological objectives of the subbasin plan with interim recovery targets is provided.	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	<b>Research:</b> Does the RME section of the plan describe a research agenda with specific conditions and situations identified in the subbasin that will require specific research studies to help resolve management uncertainties? Is the research agenda framed around the relationships between the assessment data and the stated vision, biological objectives, and strategies in describing uncertainties? Does the RME section prioritize research topics that are of critical importance to the subbasin?	(Y)es, (P)artial, (N)o	<i>Need for additional treatment (0-4)</i>
---------	---	------------------------------	--

<p>Reviewers: There is a framework within the plan, even though the research components of the RME are not explicitly identified. Many of the "strategies" in the plan are actually research assignments to close information gaps on the fish/habitat relationships to improve the EDT analysis, and on protection and restoration actions. It would be helpful if these strategies were reorganized into a research section. Furthermore, although data gaps and M&amp;E needs are included in tables for each fish species, most of these are worded so briefly that it is not possible to figure out what is intended to be measured or how it might be accomplished. For example, on page 312 the table lists "Spatial and temporal thermal regime" - some expansion of text is needed.</p>	<p>Partial</p>	<p>2</p>
<p>III.D.2</p>	<p><b>Monitoring Objectives:</b> Does the RME subsection identify what kind of information needs to be collected in order to determine if the plan's vision and objectives are being met? I.e., what indicator variables will be monitored?</p>	
<p>Reviewers: The plan lists many objectives and strategies designed to accomplish them. The plan endorses that being developed within the comprehensive state, tribal initiatives, and federal pilot projects (Wenatchee, John Day, and Upper Salmon), and the top-down framework and considerations being developed by PNAMP. In fact, there is too much work proposed without prioritization. Similar plans should be developed for cooperation in monitoring of terrestrial resources.</p>	<p>Partial</p>	<p>2</p>
<p>III.D.3</p>	<p><b>Monitoring Indicators:</b> Does the RME subsection identify measurable indicators of physical, chemical, biological, or socioeconomic conditions that may act as environmental signposts by which progress towards achieving the stated vision can be evaluated? E.g., does the RME subsection describe performance standards or quantitative benchmarks for reference conditions against which observations can be compared? Does the plan prioritize which indicators are most needed to answer management questions (include a short list)?</p>	
<p>Reviewers: The plan identifies performance indicators for physical and biological responses for status and trend monitoring. It notes that specific chemical monitoring may be needed for mine reclamation, and it provides biological and sociological indicators for artificial production. Standards for these indicators, however, are not provided, and the plan does not prioritize its long list of indicators. Furthermore, the linkage between the indicators and environmental and fishery management objectives could be made more clear.</p>	<p>Partial</p>	<p>2</p>
<p>III.D.4</p>	<p><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?</p>	
<p>Reviewers: The plan acknowledges that such an archive is needed, but does not suggest one that would work.</p>	<p>Partial</p>	<p>2</p>
<p>III.D.5</p>	<p><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.</p>	
<p>Reviewers: The plan recognizes the ongoing RME work regionally and asserts a willingness and interest in participating. The details of executing this action are not developed. In addition, the details of any relationship to the Wenatchee pilot program should be described clearly.</p>	<p>Partial</p>	<p>2</p>

III.D.6	<p><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>
<p>Reviewers: Although the RME section is incomplete, the Methow subbasin planners have made a better start than those in many subbasins. Cooperative approaches for monitoring of terrestrial resources are lagging behind the efforts for aquatic resources. The plan recognizes that one function of RME is to resolve uncertainties and to provide the empirical basis for future decision-making. Although an explicit adaptive management loop is not discussed, the plan does discuss an iterative process, involving the Technical Team and other participants to refine the plan.</p>	<p>Partial 2</p>
	<p><b>Overall impression and evaluation of the Management Plan:</b> As needed elaborate on your evaluation of the various Sections enumerated above. If the plan provides additional analysis beyond what is laid out above in the checklist please comment here (e.g., socio-economic descriptions or analysis).</p>
<p>Reviewers: As with the assessment and inventory, the plan lays a reasonable outline of where the subbasin wants to go. If time and funding permits, the plan could be substantially improved to make it shorter and more concise, and to resemble more closely what the Council viewed as biological objectives and strategies.</p>	<p>Partial 2</p>

<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>
---

Reviewers: The plan is generally consistent with the scientific foundation in the 2000 Fish and Wildlife program. The consistency is interspersed throughout the plan. Identifying specific elements that fulfill the scientific foundation, or are contrary to it, would require assigning foundation principles to the many plan elements. An ongoing challenge will be evaluating whether or not hatchery production and natural fish production are in conflict.	Yes	1
--	-----	---

---

w:\em\subbasin plan review\1 final reports (not for comment)\methowfinal.doc