Cooper Creek Draft Interim Instream Flow Report Review
All Agency Comments

No.	Source	Comment	Action
1	USFS	We have a question as to how MWH's Potential Cooper Creek Protection, Mitigation and Enhancement Measures (PME Measure Report, August 2004) will integrate with the revised SNTMP model. The MWH report assesses the conceptual approaches to providing warmer water to Cooper Creek. Based on the HDR memo summarizing the change in results following re-calibration, most of the temperatures presented are +/- 0.5 degrees different than shown in the August version of the PME Measure Report. We recommend that the scenarios presented in the MHW Report get analyzed in the revised Instream Flow Reports, so that they may be considered and evaluated by the Instream Flow Group and the Settlement Working Group.	The PME report cited the best available output data from an unfinished temperature model in the summer of 2004. If this report is revised in the future, it will include the final model output. Some of the scenarios in the PME report, including the "Warming Pond" concept, was considered to have too little positive impact on the temperatures of the Cooper Creek system, and was not considered in the final temperature model.
2	USFS	On October 15, 2004 the Forest Service forwarded a request (drafted by R2 Resources) for additional information on the Draft Cooper Creek Instream Flow Report. An additional request to that list would be that the Final Report include composited weighted usable area (WUA) vs. discharge curves by fish species and life stage. These composited curves provide at what habitat changes occur in Cooper Creek under different flow and temperature scenarios.	Flow vs. WUA curves were attached to the final report as Appendix H.
3	USFS	The Draft Cooper Creek Instream Flow Report looks at salmon and trout spawning and rearing, but does not evaluate egg incubation times. The model can be used to predict fry emergence times under different temperature scenarios. A table displaying emergence times for individual species under various scenarios (based on cumulative thermal units since spawning) would be useful for comparing different scenarios. The timing of fry emergence can be critical to survival.	An emergence analysis was added to the final report.
4	USFS	Sockeye salmon were not evaluated in the report. However, over 200 sockeye were found spawning in Cooper Creek this year. We recommend the report comment on spawning habitat availability for sockeyes in Cooper Creek. Possibly coho salmon spawning habitat could be used as a surrogate.	The modeling analysis per the IFIM methodology considers only the selected key species and life stages agreed upon by the IFIM working group. However, we agree that sockeye salmon should be considered and discussions of sockeye salmon have been added to the "Potential Changes…" section.
5	USFS	**Page 7**, *Table 2*. Evidence from weir studies on Cooper Creek as well as spawning on other Kenai Peninsula streams suggest that Dolly Varden spawning can extends into November.	Noted. No change in the final report because habitat modeling does not consider the time period later than October 31.
6	USFS	**Page 7**, *Habitat Model Results.* The report evaluates only the current situation and scenarios involving diversion of 10 or 30 cfs from Stetson Creek. A number of other alternatives that are considered in the Draft License Application and in the "Draft Potential Cooper Creek Protection, Mitigation, and Enhancement Measures" Report (August 2004) have not been modeled or evaluated in this current draft of the Instream Flow Report. No rationale is provided as to why these alternative scenarios were dropped from analysis. We recommend that the scenarios be evaluated so that they can be quantitatively compared.	See response for item #1.

7	USFS	**Page 17,** *Chinook Spawning.* The last paragraph states, *"The figures [3, 4, and 5] indicate that spawning habitat currently exists for chinook salmon in Cooper Creek during the critical time period. The models predict that the two '30 out' scenarios would provide more habitat, the '30 in, 10 out' scenario would provide less habitat, and the '10 in, 10 out' scenario would provide roughly equal habitat as the existing condition during the critical period."* These comparisons of the different scenarios report some changes in habitat availability by scenario, with habitat losses for the "30 in, 10 out" scenario. While these changes may be what would be expected based on flow volume alone, the report needs to evaluate the benefits of increased stream temperature at the same time. The amount of spawning habitat gained as a result of chinook salmon resuming use of the stream should be discussed. The real comparison is the existing condition (virtually zero habitat available) and the habitat available under the different scenarios. The "30" out scenarios would show a dramatic increase in available spawning habit	We agree. This comment was addressed in the final report.
8	USFS	**Page 19**, *Coho Salmon, Fry Rearing, 5th paragraph.* The Report states that, *"The initial analysis suggests that habitat is currently available for both spawning and rearing lifestages of coho salmon and that water temperature is already within the optimal range for spawning."* Despite these existing characteristics, coho salmon use of Cooper Creek appears to be minor. This calls to question what factors currently present on Cooper Creek may be adversely affecting use, or if there are incorrect assumptions being used for the model.	The model results speak for themselves and will be presented as is within the IFIM discussion. However, we agree that there is an apparent contradiction. A discussion of the possible reasons for the lack of coho salmon in Cooper Creek has been added to the "Potential Changes..." section.
9	USFS	**Page 20**, *Dolly Varden, Spawning.* The third paragraph speaks to the number of days that the optimal temperature range for spawning Dolly Varden would be exceeded under various scenarios. The fifth paragraph states, *"The scenarios would add warmer water to the upstream end of Cooper Creek, simultaneously decreasing the cold water inflow from Stetson Creek. This would result in a substantial net increase in water temperatures throughout the creek. This would likely have a deleterious effect on Dolly Varden populations."* Although the scenario temperatures would clearly be warmer as identified by the temperature model, we do not agree that this would necessarily be harmful to Dolly Varden. "Deleterious" effects do not necessarily occur if temperatures are somewhat higher than the optimal 3 to 4º C. Dolly Varden can and do spawn at temperatures above 4º C. On Cooper Creek it is possible that Dolly Varden spawning could be delayed by several weeks to allow stream temperatures to drop sufficiently.	The "deleterious" sentence has been removed from the discussion on page 20. Discussion of effects on Dolly Varden has been significantly expanded in the "Potential Changes…" section to discuss the potential for both deleterious and beneficial effects.

10	USFS	**Page 24,** *Rainbow Spawning*. The comparisons of the different scenarios only report minor changes in habitat availability. While this may be what would be expected based on flow volume alone, the report needs to evaluate the benefits of increased stream temperature at the same time. The amount of spawning habitat gained as a result of rainbow trout resuming use of the stream should be discussed. The real comparison is the existing condition (zero habitat available) and the habitat available under the different scenarios. The "30" out scenarios would show a dramatic increase in available spawning habitat.	We agree. The discussion has been clarified to reflect this point.
11	USFS	**Page 26**, *Potential Changes to Aquatic Habitats and Fish Populations.* The last paragraph, first numbered item states, *"1. Stream temperatures in most of Cooper Creek would be increased during the late May through October period."* Modeling (and collected data) indicates that the period of temperature increase would be from early May through mid November. The fourth numbered item states, *"A minimum winter flow of 5 cfs would be guaranteed in the reach from the dam to the mouth of Stetson Creek."* While we are in agreement that a 5 cfs outflow would improve the winter habitat potential for Cooper Creek, we are not clear on what basis was used to arrive at this value. We ask that the rationale for this 5 cfs value be explained in the Report.	The modeling only considered the period through the end of October. We agree that warming would likely extend into November and have modified the statement on page 26 to reflect this likelihood. The rationale for the use of 5 cfs as a winter flow release amount has been explained in the report.
12	USFS	**Page 27**, *Analysis by Stream Reach, Lake and Falls Reaches.* The first paragraph talks about "Cooper Lake fish carried downstream through the dam release structure". This might not be desirable, and could be avoided by screening the outlet structure(s). The second paragraph states that, *"Existing beaver ponds would likely become scoured out and new stream channel would be created in some areas."* As long as these beaver dams are active, it is unlikely that flow increases of 10 to 30 cfs would impact the dams.	The discussion has been expanded to address the screening option. We agree that beaver activity would probably continue under a higher flow regime, but we disagree that the channel configuration would stay the same as it is now. Discussion in the report has been expanded to address the comment.
13	USFS	**Page 28**, Stetson Reach. The second paragraph states, "Warmer summer temperatures would likely be disadvantageous to juvenile Dolly Varden, either through direct avoidance of warm water or as a result of competition with juvenile salmon and rainbow trout." Evidence has not been present to support this assertion. We believe a reasonable possibility exists that Dolly Varden could actually benefit. Increases in the nutrient availability from surface lake water, and carcasses and eggs of spawning salmon could very well increase overall population productivity. The third paragraph, fourth numbered item states, *"4. The number and density of juvenile Dolly Varden would decrease from existing conditions because of competitive interaction with juvenile trout and coho salmon."* We think this statement is speculative and is not reflective for Dolly Varden interactions with other trout and salmon on some nearby streams.	The Dolly Varden discussion has been expanded in the "Potential Changes…" section of the report to address these issues.

14	USFS	Page 30, Potential Numbers of Fish within the Anadromous Portion of Cooper Creek, Chinook Salmon. The first paragraph examines Chinook escapements on the alluvial fan reaches of Juneau and Crescent Creeks. While the alluvial fans on these two streams are comparable in physical character to Cooper Creek's fan, neither Juneau nor Crescent Creeks have much if any available spawning area upstream from their fans. Cooper on the other hand has almost 4 miles of accessible channel with usable chinook spawning habitat that is currently excluded from use apparently by low stream temperatures and nutrient availability. The potential productivity of the Canyon and Stetson Reaches of Cooper Creek should be evaluated for the different scenarios and included in comparisons with Juneau and Crescent Creeks. In addition, we note that on streams where fish counts are made by walking and conducting visual estimates, the number of fish is almost always lower than actual. If stream residence times are not taken into account, counts can be still further underestimated.	We agree that Cooper Creek could potentially have more accessible habitat than Juneau and Crescent Creeks. That fact was taken into consideration in the numbers analysis. The discussion has been clarified to address this point. We also agree that stream counts usually underestimate the number of fish present and are not equivalent to total escapement. This point has been clarified in the report.
15	USFS	Because of problems with escapement extrapolation we believe determining the number of possible returning adults needs to be done in relative terms - such as comparing hundreds, thousands, and tens of thousands. We believe the estimates stated in the current draft Instream Flow Report have been given with too much precision (i.e. 200-400 spawners.)	
16	USFS	We are not clear that Bradley River provides a useful comparison to Cooper Creek. Without comparing flow temperature and physical habitat characteristics and habitat quantities it does not seem reasonable to compare escapements. Perhaps an even greater difference between the two systems is rearing habitat. We assume that chinook fry need to rear in Bradley River, where on Cooper Creek, rearing habitat may not be a critical requirement for productivity, since fry can move down into the Kenai River to rear.	
17	USFS	**Page 31,** *Dolly Varden, second paragraph.* Adult Dolly Varden in Cooper Creek include not only fluvial adults, but also residents. We believe your population estimate is low. The ADF&G weir had persistent problems with fish bypassing the weir without being counted. We again dispute that the presence of other trout and salmon in Cooper Creek would exclude Dolly Varden, and believe reasonable evidence to back this assertion has not been provided.	The numbers of adult Dolly Varden cited in the report include a correction factor applied by ADF&G for underestimation due to escapement through the weir. The Dolly Varden discussion has been expanded to address the various concerns.
18	USFS	**Page 32,** *Rainbow Trout, second paragraph* . Stream counts for rainbow trout in the Russian River are visual counts and consequently low, representing a "minimum" number of fish present.	Agreed. This point has been clarified in the discussion.
19	USFS	**Page 33,** *Rainbow Trout, Summary Assessment.* Numbers for adult returns is an educated guess and actual numbers would be likely to contain a high degree of variability. We recommend using relative changes based on orders of magnitude.	Noted.
20	ADFG	In particular, we recommend the following information be added to the report: - A general description of the project background and the purpose for the study;	This was added to the final report.
21	ADFG	A Table of Contents;	This was added to the final report.
22	ADFG	A detailed figure that shows the study area with all the study sites and study reaches labeled;	This comment describes Figure 1.

23	ADFG	A general description of IFIM and PHABSIM, including a discussion on the intended use of PHABSIM results including assumptions and limitations.	This description was added to the final report.
24	ADFG	A table describing the macro habitats defined for each study reach is needed.	This was added to the final report.
25	ADFG	Combine Habitat Time Series results into each study reach and into one single relationship for the entire study area by species/life phase. This would allow analyses of habitat results by reach and over the entire study area as well as allow for comparison with the discussion on expected fisheries utilization.	A Flow-WUA table was developed for each reach and is included in Appendix H.
26	ADFG	The scenarios modeled in the report do not directly relate to the protection, mitigation and enhancement measures (PME) proposed in the Draft License Application (DLA) and at the July 14, 2004 meeting. Therefore, it is difficult to compare the options under consideration.	See response for item #1.
27	ADFG	We request an additional scenario be modeled – Cooper Lake outlet monthly averages (based on USGS historical gage records #15260000). This information would provide a range of habitat conditions from existing to pre-project (when sustainable productivity of fisheries resources occurred). Although the channel has changed since pre-project conditions, this approach would provide a comparative scenario for higher flow alternatives discussed in the DLA, and the model would reflect modified conditions based on site-specific information.	This request was noted, but the requested modeling scenario was not included for this draft of the final report.
28	ADFG	It is unclear how the Habitat Time Series data were combined and computed to obtain final results and graphs using the report and spreadsheet provided by Jason Kent on October 19, 2004. A detailed description is needed along with a step-by-step example to follow. It is critical that all stakeholders be able to follow the process used to come up with these results for decision-making.	This description was added to the final report.
29	ADFG	How were the weighted usable area (WUA) results expanded between simulated discharges?	This question is addressed in updated text in the Methods section of the final report.
30	ADFG	A description is needed on how you chose the different model runs and how the simulated discharge values were computed. For example, how did you calculate the discharges that were used in PHABSIM to simulate for the “10 in 10 out” scenario?	This is described in the final report, and the hydrology is attached as Appendix J.
31	ADFG	A description is needed of the habitat modeling program chosen for the simulations and the composite suitability index that was used.	A detailed description of the program was added to the final report.
32	ADFG	PHABSIM provides a relationship between available habitat conditions under various flow scenarios. It does not provide an estimate of fish population abundance or biomass, and this should be clearly stated in the report. However, we agree that providing a range of assumed benefits to the fisheries resources will help decision makers compare the different alternatives under consideration.	Noted. This statement was added to the final report.

33	ADFG	We recommend changing the wording under the Summary Assessment descriptions for Chinook and Coho salmon (and other species if include in revised report) to the following: "*Although PHABSIM can only predict available habitat under different flow conditions, we assume the number of adult Chinook/coho salmon that could potentially spawn in Cooper Creek under mitigated conditions may range from XXXX to XXXX fish, based in part on PHABSIM results, fish and habitat surveys, and professional judgment* ."	The qualifiers relative to PHABSIM and kinds of information used in the analysis have been clarified in the introduction to the "Potential Changes…" section. We do not think it is necessary to repeat them in each summary section.
34	ADFG	We believe it is unfounded to limit the upper range of anticipated fish abundance under mitigated conditions based on the limited information available.	Noted. We believe that the existing information base provides useful insight into potential fish abundance in Cooper Creek.
35	ADFG	The fish periodicity table discussed on page 16 is not necessarily the "primary" time for fish life stages but includes the full range of timing for a species/life stage.	Agreed. This point has been clarified in the discussion.
36	ADFG	Although the predicted water temperatures for Dolly Varden may be slightly higher than optimum, they are well below the high limiting temperatures. Also, Dolly Varden can tolerate competition from other species because of habitat partioning (e.g. they occupy different habitat than other species in the presence of food). Under mitigated conditions, there will be more productivity and habitat availability in Cooper Creek, and we request the report include these considerations in their discussions, for Dolly Varden as well as other species.	The Dolly Varden discussion has been expanded in the "Potential Changes…" section of the report to address these issues.
37	ADFG	Also, we recommend the report include a description for sockeye salmon, even though they were not modeled, since they utilize the system and therefore should be discussed to provide a complete representation of fisheries resources in Cooper Creek. Furthermore, sockeye were not modeled because the selected target species were assumed to provide representation conditions and thereby to limit the number of species modeled.	The modeling analysis per the IFIM methodology considers only the selected key species and life stages agreed upon by the IFIM working group. However, we agree that sockeye salmon should be considered and discussions of sockeye salmon have been added to the "Potential Changes..." section.
38	ADFG	We disagree with the comment that rainbow trout abundance would be limited because of the scarcity of pool habitat and generally high gradient. Rainbow trout would likely utilize a wider range of habitat including riffle-boulder and riffle-cobble habitat, which are predominant in Cooper Creek.	We agree that rainbow trout would utilize a variety of habitat types within the Canyon Reach if temperature limitations were eliminated. However, we still contend that the overall habitat value is relatively low compared to other rainbow trout streams because of the high gradient and lack of pools.
39	ADFG	Also, we disagree with the statement on page 27, 1st paragraph stating that fish would be allowed access from Cooper Lake downstream into Cooper Lake. We would recommend screening requirements to prevent such a scenario.	Noted. The discussion has been expanded to address the screening option.
40	ADFG	We recommend the report include a discussion on the productivity benefits from salmon for all fish species and life stages instead of only for rainbow trout.	Agreed. This point has been clarified in the discussion.
41	NMFS	A Methods section is needed. A great deal of work went into this study. It is not clear how the end products were obtained. The techniques for data collection need to be described or referenced for a previous document. All the steps taken for building the model need to be spelled out. This will allow all of us to defend the scientific credibility of the model should it come into question by an individual or group.	Add to report

42	NMFS	The temperature analysis addresses fish spawning and rearing. It does not address egg incubation. Stream temperatures are a major factor in the development of an egg into an emergent fry. The existing regime appears to be too cold for the eggs of most species to develop and produce a fry within the appropriate emergence timing window. The information produced by the model can be used to predict fry emergence of the species of interest. This is important. Warming the water may help attain the proper number of temperature units needed for fry emergence within the proper timing window, but it would be nice to use the data from the model to verify this. This data will also be needed to model appropriate flows from the lake if the settlement negotiations move in that direction. This approach is more useful than the concept of optimal temperatures for spawning. Optimal temperatures seldom happen in nature. Fish adjust to a much wider range of spawning temperatures than those listed as optimal. The number of days temperatures are below or above optimal are not nearly as important as temperature units needed for incubation.	An emergence analysis was added to the final report.
43	NMFS	The Kenai River has both an early and late run of chinook salmon. Most of the early run fish spawn in colder water tributaries such as Cooper Creek. Most of the late run fish spawn in the mainstem Kenai River. The chinook salmon section of the Habitat/Temperature Synthesis should note this and focus on analysis based on the early run fish life history.	Analysis up to this point has assumed the early Kenai River run of chinooks would utilize the cold water tributaries. This comment is addressed in the final report.
44	NMFS	The Analysis by Stream Reach implies several times that rainbow trout may move out of Cooper Lake and become established in Cooper Creek as a result of the mitigation scenario. NOAA Fisheries agrees this is possible. However, NOAA Fisheries does not feel outmigration is likely. The proposed location of the outlet structure and the small amount of water released do not create a high probability of rainbow trout outmigration. In addition, steps can be taken in the mitigation plan to prevent this from happening (i.e. screening the outlet structure).	The discussion in the report has been expanded to include both screened and unscreened options. In the absence of screening, we feel that outmigration of juveniles (either accidental or intentional) is a near certainty over a period of years.
45	NMFS	The discussion of chinook salmon potential numbers within the anadromous portion of Cooper Creek should be focused on the early run Kenai River component. Using Juneau Creek and Crescent Creek chinook salmon numbers for comparative purposes is probably valid. However, it should be noted that the numbers used are from foot surveys. These estimates are likely low since foot surveys are known to be minimal estimates of spawning numbers and not absolute numbers of spawners.	The discussion of chinook salmon numbers does focus on the early run. We agree that foot surveys underestimate numbers and wording has been added to the report to acknowledge this point.
46	USFWS	Page 7, Habitat Model Results- We recommend that the report evaluate no Stetson Creek diversion and a flow release from Cooper Lake which approximates conditions prior to the dam, since the Stetson Creek diversion may prove to be too expensive.	Noted. This statement was added to the final report.

47	USFWS	Page 7, Habitat Model Results- In both the draft license application and the August 2004 Cooper Creek PME report, a wider range of alternatives than those included in the instream flow report were evaluated. We believe that an alternative which increases Cooper Creek flows and temperatures combined with habitat modification in the alluvial reach is likely to result in the most effective fish habitat migration. We understand why the instream flow report does not evaluate alluvial reach habitat modification, but we recommmend that the report should note that other options may result in increased fish mitigation when combined with the flow and temperature modifications.	We agree with the idea that restoration of mechanically altered stream reaches (such as the Alluvial Reach of Cooper Creek) can effectively increase physical microhabitat for one or more target lifestages. Language to this effect was added to the analysis of stream habitat. However, this alternative was not addressed in habitat modeling.
48	USFWS	The instream flow report should clearly state why only the five alternatives included were evaluated so that readers are not confused	Language was added to this effect in the final report.
49	USFWS	The instream flow report should also explain the relationship of the report to other documents including the license application and the PME report.	Language was added to this effect in the final report.
50	USFWS	As discussed in the October meeting, 2003 and 2004 are considered to be abnormal in terms of temperatures and stream flow. Therefore, data gathered during these years which were used to develop the models should be put in perspective relative to more normal conditions.	A section describing an analysis of historical climatology, and the perspective it provides, was added to the final report.
51	USFWS	Page 10- Fry Rearing (and other portions of the report which describe rearing) - The key months for fry rearing are described but fry overwintering has not been described. It is likely that some overwintering of fry may occur in Cooper Creek, but as described in our DLA comments, many fry will potentially move downstream to overwinter in the Kenai River or other tributaries. The instream flow report should be revised to reflect this.	An emergence analysis was added to the final report.
52	USFWS	Page 16- General Comments on Habitat/Temperature Synthesis- The report describes optimal water temperatures for the various fish species evaluated. The report should note that optimal conditions are rarely achieved in nature and that fish have adapted to a much wider range of conditions. The statement on Page 17 that "the presence of chinook salmon fry...is primarily dependant on spawning in the creek rather than water temperature" should be clarified. If creek temperatures are so cold that entrance of either adult or juvenile chinook is prevented, than temperature is the more important factor. With regard to Dolly Varden we continue to take exception to statements that increased water temperatures will have "a deleterious effect" on Dolly Varden populations (Page 20). The notes from the October 12 meeting and our draft license application comments reflect our position that increased temperatures may in fact result in a positive benefit to Dolly Varden if habitat productivity is increased.	A qualifying statement has been added to the report to address the "optimal temperature" issue. We agree that temperature is the limiting factor to chinook fry if adults are unable to spawn. This has been clarified in the report. The Dolly Varden discussion has been expanded in the "Potential Changes..." section to address the various issues.
53	USFWS	Page 26- General Comments on Potential Changes to Aquatic Habitats and Fish Populations- This section of the report describes the essential features of the "optimal" mitigation scenario. Part of this scenario is the release of a continuous 5 cfs from the dam during the winter. The report should describe why a continuous 5 cfs is considered to be optimal and how this was selected. Further evaluation may demonstrate that a larger release would prove to be optimal. This may be possible if diversion of all by 6 cfs from Stetson Creek (up to 70 cfs maximum) allowed water storage in the lake with subsequent winter release to Cooper Creek.	The rationale for the selection of 5 cfs has been explained in the description of the "optimal" mitigation scenario.

54	USFWS	As stated in previous written and verbal comments, we are reluctant to base mitigation recommendations or define success on the number fish which might be produced because such numbers are highly spectulative. We prefer to define success of mitigation based on the amount and quality of habitat produced by increased flows and temperatures in Cooper Creek. It is also important to note that even though potential fish numbers may be small, there are other benefits, such as increased genetic diversity in the Kenai River, increased nutrient supply, or increased food for wildlife, which may result. These other benefits are difficult to quantify. These other benefits are particularly important given the pressure the Kenai River system is under and the potential to reverse at least some of the incremental loss of habitat.	Noted. A paragraph has been added to the "Potential Changes…." section to acknowledge the presence of values beyond fish numbers.
55	USFWS	While we are concerned about speculative numbers of fish associated with potential PME measures, we understand Chugach's desire to inform the public and decision makers about the potential number of fish which may be produced. However, we believe that presenting average numbers of fish is misleading and underestimates the number of fish produced over the life of the project. It is more appropriate to state potential numbers of fish as a fairly large range, which is normal. It is not appropriate to state potential numbers of fish as absolute, because fish are adaptable animals which respond to changing environmental conditions. Additionally, the number of adult spawners which may return to Cooper Creek does not represent the number of fish produced and which are available for harvest.	Noted. In most cases, numbers of fish have not been presented as absolutes.
56	R2	General: a. Study Project Map b. Site Maps depicting locations of each study sites; locations of temperature recorders, locations of substrate samplings, fish samplings, etc. c. Representative photographs of study sites; transect specific photos under different flow conditions can be appended. d. Statement of Study Objectives – What key questions does the report try to address? Provide a review of fishery resources. Identify target species and life stages.	These items were added to the final report.
57	R2	Methods section that provides details of: i. Study Site Selection - how was this done? ii. Hydrology derivation- what hydrology was used in this analysis? Describe gage locations and records, data analysis methods and hydrology development. iii. Hydraulic Model Calibrations – Reference to appendices containing specifics. iv. Habitat Suitability Curve Development – Provide final approved curve sets in an appendix v. Habitat Modeling – What models were used and why; HABTAT?; HABTAV? vi. Time series analysis – How was this done? What are the scenarios? Explain why the scenarios were selected as a basis for the modeling. vii. SNTEMP Modeling – Provide the calibration details. Much of this can be provided in appendix including temperature monitoring data files. viii. Fish Production Estimation Procedures – Explain the rationale(s) used. ix. Geomorphology methods – Provide a cross reference to methods used.	All these items were addressed in the final report.

58	R2	Provide a map delineating habitat mapping types throughout the stream. Highlight spawning areas and rearing areas.	This analysis was done in the Fish Resources Study. Mapping from this study was included in the final report as Appendix D.
59	R2	Results: i. Describe habitat features of each site. ii. Display the habitat mapping results and include photographs of sites in the Appendix. Providing representative photos of selected sites under different flow conditions in the text would be useful for giving visual comparison of habitat features under different flows. iii. Hydrology – Present the hydrologic statistics used in the analysis. iv. Hydraulic model results – Provide the details of the modeling in Appendix v. Habitat modeling – Provide WUA-Discharge curves by life stage and species. Normalize the WUA vs. discharge curves – i.e. present on percentage of maximum basis vi. Time Series analysis – Provide results in figures and tables. Much of this may be in the Appendix vii. SNTEMP Modeling – Display the model calibration. Display the temperature runs that illustrate time series analysis under different scenarios. 1. Include Cooper Lake reservoir temperature profiles. .Define how much water is available in the lake. Note linkages to CEQUALW2 model.	These items were addressed in the final report. There is no linkage to CE-QUAL-W2 model in the current set of alternatives.