

# **Lobster Creek Watershed**

## **Total Maximum Daily Load (TMDL) & Water Quality Management Plan (WQMP)**

### **Response to Public Comment**



State of Oregon  
Department of  
Environmental  
Quality

*April 2002*

*Prepared by:  
Oregon Department of Environmental Quality*



## RESPONSE TO PUBLIC COMMENT

**Introduction**

This Response to Public Comments document addresses comments and questions received regarding the Draft Lobster Creek Watershed Total Maximum Daily Load (TMDL) and Water Quality Management Plan (WQMP) dated September, 2001.

**List of Commentors**

The following individuals and organizations provided comments on the Lobster Creek Watershed TMDL/WQMP during the Public Comment Period from November 13, 2001 through January 13, 2002. No oral comments were received at the public meeting and hearing held in Gold Beach, Oregon on December 19, 2001. Two sets of comments were received by the DEQ during the public comment period (mailed and e-mailed).

Comments submitted by the Siskiyou Regional Education Project (SREP) were received via e-mail on January 14, 2002. Because these comments were received after the official close of public comment period, these comments are not included or addressed in this response to comment document. We regret not being able to address this set of comments in this document. We suggest that many of the issues presented by this group were addressed as party of the Rogue Basin Lower Sucker Creek TMDL and WQMP Response to Public Comment document. In addition, we will keep these comments in mind as we revisit this TMDL in the future and appreciate the SREP's efforts to prepare these comments.

<b>Code</b>	<b>Commentors</b>	<b>Date Received</b>	<b>Form of received Comments</b>	<b>Format Available</b>
EPA	Environmental Protection Agency	January 10, 2002	E-mail and Written	Hardcopy Digital
TCG	The Campbell Group	January 11, 2002	E-mail and Written	Hardcopy Digital

Each of the comments received has been individually addressed in this document. All comments have been considered by DEQ and, in all instances, have resulted in some change to the final TMDL and WQMP that will be submitted to the Environmental Protection Agency (EPA). A copy of this responsiveness summary will be submitted as well.

DEQ appreciates the time and effort reviewers invested in this project. The quality of comments received reflects the interest in this TMDL and WQMP. The comments received have contributed to making the TMDL/WQMP a better document and a better plan.

As with any analysis, there is some uncertainty in the Lobster Creek Watershed TMDL. It is DEQ's opinion that the acknowledgment of such uncertainty should not be used to delay the implementation of improvements in the watershed. Designated Management Agencies (DMA's), DEQ and partners responsible for implementing allocations in the TMDL need to be able to adjust their programs and enhancement efforts over time as new monitoring information becomes available, and changes in water quality standards or land management practices occur. To facilitate these changes, DEQ employs an adaptive management approach for this TMDL. We recognize the need for a mechanism to change the TMDL and WQMP as we learn more while at the same time moving forward with implementation measures that will improve water quality.

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**The Campbell Group**

The Campbell Group (TCG) on behalf of Lincoln Timber LLC appreciates the opportunity to comment on the Department of Environmental Quality's (DEQ) draft Lobster Creek, Lower Rogue Subbasin, TMDL & WQMP. Being a partner in the development of this report we appreciate the amount of work by all parties that has gone into the draft. We hope consideration of our comments will make the final TMDL a better product and assist in the accomplishment of its goals.

**OVERVIEW**

- It is Lincoln Timber LLC and not Lincoln Timber Company as noted in several areas. Similarly, the "T" is always capitalized in The Campbell Group. Also "Management" is not part of The Campbell Group name.

Response: Corrected throughout the document

- The divisions of the report are confusing as there are chapters within the chapters. Suggest changing TMDL and WQMP into "Parts" with chapters under each part. Having several table of contents also leads to confusion.

Response: Preface added to help clarify. Appendices identification has been clarified.

- The Fish Distribution Maps are incomplete. TCG is aware of fish use that has been verified by the Oregon Dept. of Fish and Wildlife (ODFW) on Fall Creek, Deadline Creek, an unnamed creek (flows from Bark Shanty Prairie south to Lobster Creek), and some of these creeks' tributaries. Suggest contacting them for specific species information and having them review the map for other changes.

Response: ODFW is in the process of digitizing fish distribution information. A footnote was added to the fish distribution map indicating fish presence in Fall and Deadline Creeks.

- The report implicates many land-use activities (riparian harvest, roads), but has little specific data from the watershed that supports these theoretical impacts. The conclusion that many of these activities have "impacted" temperature would be more accurately stated as "potentially impacted".

Response: This change was made in several areas of the document.

- Not taking into account the historical natural disturbance (wildfire, storms, ecological succession, etc.) does make the analysis easier but also can lead to erroneous conclusions and improper management. The stand replacement history for wildfires and storms should be able to be estimated to provide a reasonable determination of what was the average historical pre-European shade value and the corresponding Stream temperature. It is possible that with the wildfire policies of the last 100 years that the current shading may be greater or equal to historical. Any anthropogenic attempt to make the stream temperature cooler could then be considered by the EPA as a pollutant.

Response: The following language was added; Disturbance of the riparian area and stream channel from disease, wild fires and storms are considered natural processes. The gain or loss of riparian vegetation by these natural processes can fluctuate and has not been quantified within the scope of this assessment.

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Wildfire suppression policies of the past 100 years have likely reduced the influence of fire as a natural event on riparian shade quality.

- On a similar note, the natural watershed potentially had a higher large woody debris (LWD) loading than is currently present. LWD loads are strongly correlated to wider, shallower channels. Wider channels have more water volume exposed to solar radiation, and are therefore more prone to heating; hence, higher temperatures. While more LWD can provide local refuge (through pool development) and will likely have great biological value, its impact to the stream temperature is negative.

Response: Wording added; The natural watershed potentially had a higher large woody debris (LWD) loading than is currently present. LWD loads are strongly correlated to wider, shallower channels. Wider channels have more water volume exposed to solar radiation, and are therefore more prone to heating; hence, higher temperatures. While more LWD can provide local refuge (through pool development) and will likely have great biological value, its short term impact to the stream temperature can be negative.

- In watersheds that naturally did not always meet the standards at all locations, there is a potential that in managing for what is perceived to be the optimum for one species or group of species, we may imperil others who have naturally evolved in the Lobster Creek Watershed but whose optimum may be a bit different. In other words the natural situation provided adequate but not optimum habitat for both types or groups of species; however, while providing the optimum habitat to one group may enhance that group, it may have the unexpected consequences of endangering the other. A sentence stating the need to be cautious in managing a watershed for one group of species is needed.

Response: Wording added; Salmonid fishes, often referred to as cold water fish, and some amphibians appear to be highly sensitive to temperature. In particular, Coho salmon and migratory cutthroat and steelhead trout are among the most temperature sensitive of the cold water fish species during the juvenile rearing time period. It is not the intent of this TMDL to manage conditions within this watershed for only one group of species. Resident cutthroat and rainbow trout likely maximize refugia during summer warm periods and in general populations would likely benefit from improved cool water habitat conditions.

- The TMDL implicates longitudinal shading as an important mitigating factor. However, Zwieniecki & Newton (1999), as well as the Alsea Watershed Project conclude that no longitudinal memory exists in forested watersheds. Oregon Forest Industry Council (OFIC) analysis has also found that DEQ's "Heat Source" model shows that downstream temperatures reach a natural equilibrium with downstream ambient conditions at some point regardless of upstream temperatures. The laws of thermodynamics also support the concept that stream temperatures reflect the local conditions, not upstream inputs.

Response: Clarified in Chapter 1 page 15 and 16; Generally, stream temperatures follow a longitudinal (downstream) heating pattern. Lobster Creek 7 day seasonal maximum average temperature regimes are influenced by cooler groundwater and small tributary inputs. These inputs have a cooling influence on the Lobster Creek mainstem. Summer of 1999 seven-day maximum average temperatures in upper Lobster Creek above Lost Valley Creek occurred in August and reached 65.4°F. Data indicate that longitudinal heating occurs in the mainstem until the cooling influence of flows from Deadline Creek. Lobster Creek mainstem then cools 2.6°F as it moves through the gorge area. This cooling likely occurs due to channel narrowing, topographical shade increases, and cooler groundwater and tributary inputs. Lobster Creek mainstem then heats

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0.8°F, as measured at the confluence with the Rogue River. The mainstem warms only 0.9°F over the nearly 10 miles of stream length. Important cool water inputs from relatively small tributaries have large effects on longitudinal heating in this watershed.

Longitudinal heating is a natural process and downstream temperatures can, at some point, reach a natural equilibrium with local ambient conditions. However, rates of heating are dramatically reduced when high levels of shade exist and solar radiation loading is minimal. The overriding justification for the solar loading reduction (loading capacity) is to minimize longitudinal heating. A limiting factor in reducing longitudinal stream heating is the existing effective shade level and tributary inputs.

- In regards to the road sediment discussion, temperatures can be affected by large increases in coarse sediment sufficient to change channel morphology. Roads typically deliver fine sediment, which generally do not affect morphology in gravel-bedded channels. Therefore, the road program may not improve the temperature regime unless it is focused on limiting mass-wasting potential (the source of coarse sediment).

Response: Clarified in Chapter 1 page 14; It is difficult to definitively say that management related sediment is the cause of any channel form issues in the Lobster Creek Watershed. The assumption made here is that management related sediment will potentially have an impact on the system, and that efforts to reduce management related inputs will be implemented.

Furniss et al. (1991), concluded that forest roads contributed more sediment than all other forest activities combined on a per unit area basis. Roads are primary sources of sediments to streams, both through chronic erosion and as trigger points of mass failures (Spence et al., 1996). To reduce potential channel plan and profile adjustments initiated by increased sediment loading, potential sources of management related sediment are being identified and treated.

**INTRODUCTION**

- Discusses that the “plan focuses on areas where management activities have exacerbated natural disturbances...”. How do we account for the areas where natural disturbance has been prevented or limited by management, i.e., wildfire exclusion? In these areas, management activities would have had the opposite affect in relationship to shade and associated temperature. Is it assumed that management has disturbed any area that does not have the maximum potential shade? If so, we do agree with this assumption.

Response: The following language was added; Disturbance of the riparian area and stream channel from disease, wild fires and storms are considered natural processes. The gain or loss of riparian vegetation by these natural processes can fluctuate and has not been quantified within the scope of this assessment. Wildfire suppression policies of the past 100 years have likely reduced the influence of fire as a natural event on riparian shade quality.

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**TMDL (Part 1)**

- Table 1 under “LAs” mentions “100% natural conditions”. This would not be natural condition if this excludes natural disturbance regimes.

Response: Chapter 1 page 25 - Given the likelihood of future riparian area disturbances from disease, flood, or fire, the “target” shade increase values predicted by the SHADOW model should be assumed to be a theoretical goal, based on the potential of undisturbed riparian stands to develop shade.

- Section 1: Could Lobster Creek be a case where at least part of the temperature violation is due to natural causes? Map 3 appears to indicate that even under a no disturbance regime (maximum potential shade), which is not natural, there are still a few areas (the most northern part) that would not meet the temperature criteria. Under natural conditions more areas out of compliance would be expected.

Response: Language added Chapter 1 page 24; Where the naturally occurring quality parameters of waters of the Rogue Basin are outside the numerical criteria of the assigned water quality standards, the naturally occurring water quality shall be the standard (340-41-0365 (3)).

## CHAPTER 3

- Section 1: Where can the “documented” concerns in this watershed relating to effects of excessive water temperatures be obtained? Were these concerns from scientists, resource managers, the public, environmental groups, etc.? Would not Lobster Creek be a situation where the natural conditions become the numeric criteria?

Response: Language added Chapter 1 page 7; In this forested watershed, water quality data review identified stream temperatures in exceedance of the numeric criteria portion in the temperature standard. This data review initiated development of this TMDL.

## CHAPTER 4

- Section 1: If the Global Warming Theory is correct, climate may not be completely outside of human control.

Response: While climate and geographic location are outside human control, the condition of the riparian area, channel morphology, and hydrology can be affected by land use activities. This does not take into account long term climate changes that may occur as a result of the Global Warming Theory.

## CHAPTER 8

- The decline of Salmonid populations has not only been “linked to impoverished ecosystem form and function” but also ocean conditions, over fishing, hatchery management, and dams. The current statement implies that impoverished ecosystems are the only cause for the decline.

Response: Clarification made Chapter 1 page 28; The decline of Salmonid populations has been linked in part to impoverished ecosystem form and function. Clearly ocean conditions, fishery harvest, and hatchery and dam management activities also effect salmonid populations.

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- Section 1: Any data that is generated that indicates possible changes will first be reviewed by TCG management and watershed scientists before any changes are made to TCG's portion of the WQMP.

Response: Language added; Although not formally identified as Designated Management Agencies (DMA's), Lincoln Timber LLC as managed by The Campbell Group and the Lower Rogue Watershed Council are actively involved in management and enhancement activities in this watershed. These partners are significant contributors to this assessment and management plan. DMA's should seek to work cooperatively with these entities.

Both ODF and DEQ will continue to work with partners to monitor TMDL implementation and the effectiveness thereof. In the event that data generated through subsequent monitoring efforts indicate that changes are warranted in this TMDL or WQMP, these changes will be made by DEQ, USFS, Lincoln Timber LLC, The Campbell Group, Lower Rogue Watershed Council, and the Oregon Department of Forestry.

## APPENDIX A

- Shade Width: Studies have shown that all or almost all of the shade is realized in the first 100'. Increases beyond this provide little additional shade. Hopefully, the model takes this into account.

Response: Appendix A page 8; The width of the shade-producing riparian belt is assumed to be 100 feet currently for the modeled reach for private timber lands. This width is based upon current Oregon Forest Practices Act riparian requirement for large fish bearing streams. Lands managed under federal ownership assume a shade producing riparian belt of 300 feet. Again this riparian width was selected because it represents current federal lands riparian management practices. The shade-producing riparian belt was increased to 300 feet throughout the modeled reach in the system potential scenario to maximize shade densities in system potential stands.

Clarification; Shade density influences solar loading more than overhang on a north – south orientated stream. Overhang influences solar loading more than density on an east – west orientated stream. System potential densities were assumed at 80% except where current densities exceeded the system potential. Young stands may provide increased densities over mature system potential stands.

**WQMP (Chapter 2)**

## Chapter 1

- We disagree that this document with all appendixes is a just "starting point" and a "foundation" for the WQMP elements being developed by DEQ. It is a complete management plan that can be updated as facts and technology advance.

This wording has been removed.

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## Chapter 5

- Private landowners are responsible for the implementation of the FPA and riparian area management. ODF approve FPA notifications, but the landowner implements it and manages the land.

Response: Wording added Chapter 1 page 10; Private landowners are responsible for the implementation of water protection rules within the Forest Practices Act. Although ODF reviews notifications, landowners implement the project as designed and “manage” the landscape.

## Chapter 6

- Table 5: It should be noted that active management activities would occur when opportunities exist to conduct such activities – usually associated with similar activities that are occurring on adjacent upland sites.

Response: Wording added page 13; Active riparian management activities on private timber holdings would occur when opportunities exist to conduct such activities. These opportunities are usually associated with similar activities that are occurring on adjacent upland sites.

## Chapter 7

- Modifications to this plan, at least for that component that is the responsibility of LTC, should not be expected on an annual or more frequent basis. That short of time period does not allow any time to determine if the current plan is adequate.

Response: Wording added page 14; Modifications to the WQMP and the Implementation Plans will occur as needed on a frequent basis. Review of this TMDL is expected to occur approximately five years after the final approval of the TMDL, or whenever deemed necessary by DEQ.

- Table 8: Need to define “unstable terrain” and “high risk stream crossings”. A high risk to one may be a low or medium risk to another. What are the criteria used to make the determination? Our concern is that upon taking care of the current “high risk” sites, the medium risk sites will then be transferred into the high risk category? Definitions will make it so that everyone is operating from the same page.

Response: Wording added page 23 at the bottom of table 13 (old table 8); High risk stream crossings are those facilities that:

- the risk of failure in a 50 year storm event is present
- unstable terrain are those areas that have the potential for mass failure
- the site has the potential to directly deliver sediment to the stream

## Chapter 9

- Table 10: Please footnote that Project Effectiveness will be evaluated through the Oregon Watershed Enhancement Board annual reporting process

Response: Wording clarified page 28; Road improvement and habitat enhancement projects completed each calendar year have been and will be summarized and conveyed to the Oregon Watershed Enhancement Board.

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OWEB manages a statewide database and produces a yearly report summarizing private and state land accomplishments.

## Appendix 1 (now Appendix B)

- The information supplied in this report indicate that “current” forestry practices within the basin are not contributing to the impairment of water quality – that is why current rules will be adequate along with continuing to follow the Governor’s Oregon Plan in regard to road improvements. The discussion on agricultural and urban areas that follows does not apply and needs to be deleted.

Response: The discussion on agricultural and urban areas has been deleted.

## Appendix 2

- Element 1 (p 87): Lincoln Timber LLC as managed by The Campbell Group needs to be included as a cooperator in the writing of this WQMP.

Response: Change made.

- Element 1 (p 87): The fish distribution map (incomplete) is in Map 6 not Figure 3.

Response: ODFW is in the process of digitizing fish distribution information. A footnote was added to the fish distribution map indicating fish presence in Fall and Deadline creeks.. Reference changed to be accurate.

- Element 1 (p 95): “John Hancock” needs to be changed to “Lincoln Timber LLC”.

Response: Change made.

- Element 1 (Table 7): The document needs to provide the ecological/physiological justification for braking the seral stages at those ages. If within a 100’ RMZ, the seral stages were a mix, i.e., 60’ of mid and 40’ of early, what group would it get classified in and what is the criteria for placing mixed RMZs in one category or another. There appears to be some older seral RMZs within Lincoln Timber LLC that were not picked up in Map 8.

Response: Page 15 language added; This information has been generated utilizing a GIS layer. This layer was developed from imagery providing 30 meter pixel resolution. Because of the resolution, narrow riparian areas may not be recognized. The shade assessment in this document (Shadow) does provide improved resolution (aerial photo interpretation of 1:24K aerial series).

The predominant seral stage was characterized.

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- Element 1 (p 51): What is the USFS 80% determination for natural condition Douglas-fir forest based on – is it the combined mid and late seral percentage? Is the same percentage used for Douglas-fir in the Olympic Peninsula's rain forest or does it vary within the range of Douglas-fir? Does this number reflect that which would be expected in this region of Douglas-fir?

Response: Page 15 language added; Potential tree heights and shade densities were based on measured and estimated tree heights in adjacent areas that had not been disturbed by human activities. Douglas-fir in the watershed can grow to a height of 160 feet and provide densities of 80 %. Potential shade differs from existing shade in riparian areas that had been harvested, or where it seems reasonable to assume that future vegetation would be different from what is there today, with natural growth.

- Element 1 (p 97): We disagree with the assumption that forest management related sediment has an impact on the watershed while assuming the opposite when it comes to the current in-creek mining activities.

Response: Page 13 and 16; Recreational mining is conducted on federal ownership within the watershed and is considered a point source activity. It is the only point source activity present in the assessment area. As currently conducted, this activity is not affecting riparian and/or channel conditions. This activity is currently managed under the 0700J General NPDES Permit Appendix D. A load allocation of zero was established for current and future point source activities. Point source influences are not allowed to contribute pollutant load to the system. Lincoln Timber LLC lands are not open to the general public for recreational mining activities.

As the 0700 general permit for recreational mining is renewed, it will be revised to insure that all 303(d) related issues are addressed in the permit. This permit activity will help assure that elements of the TMDL WQMP involving channel stability will be achieved.

Page 21; DEQ is committed to monitoring the compliance with and effectiveness of the 0700 General Permit

- Element 1 (p 98): Unclear on how road construction decreases the amount available for summer base flows. Please elaborate.

Response: Page 17 wording clarifies; Timber harvest has the potential to increase water yield by removing agents of evapotranspiration. This may increase summer base flows. Road construction has the potential to concentrate water, increasing storm flows thereby reducing upland storage of groundwater. Because of this road building can result in decreasing the amount available for summer base flows.

- Element 7 (p 106): Lincoln Timber LLC has just two long term temperature monitoring sites – Mainstem Lobster @ REMAP Site and Mainstem Lobster below Deadline. The others are temporary and one is a USFS long term site.

Response: Correction made

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- Element 7 (Table 15): Delete Paragraph after table. It is essentially the same paragraph as that which is before the table. Project effectiveness is determined through these OWEB reports.

Response: Correction made

We appreciate the difficulty in putting together this document and the opportunity to provide comment. The complexity of the subject matter along with our incomplete knowledge of the processes leads to having to rely on some assumptions. We look forward to your response.

**EPA Office of Ecosystems and Communities** - Comments on the Lobster Creek Water Quality Management Plan

Inclusion of an implementation plan as part of a TMDL is valuable and progressive. After all, the purpose of Section 303(d) of the Clean Water Act is restoration of waterbodies not meeting water quality standards. Listing and analysis are preliminary steps. The implementation plan is the key to getting measures on the ground where needed in order to meet specific targets and goals laid out in the TMDL. We are pleased that development of WQMPs is an integral part of Oregon's TMDL process.

We recognize that while the Water Quality Management Plan is being submitted by DEQ as part of the TMDL, the Plan was developed by groups and agencies who have responsibility for the various components of the Plan (designated management agencies). Therefore EPA's comments on this Plan are directed primarily toward the applicable designated management agencies, although in the case of this Lobster Creek WQMP, some comments also pertain to the Lower Rogue Watershed Council and private timber companies who contributed much to the development of this WQMP.

In the Oregon Plan for Salmon and Watersheds, communities and government agencies at all levels have made commitments to conserve and restore crucial elements of natural systems that support fish, wildlife and people. This Water Quality Management Plan includes some actions which are fruition of commitments made in the Oregon Plan.

It is understood that tributaries to the Lower Rogue mainstem which provide habitat and thermal refugia for cold water salmonid species are important and merit early action. It is becoming more widely recognized that the spatial and temporal patterns in aquatic temperature conditions are important, particularly for salmonids who need well-connected, well-distributed cold water areas throughout the aquatic system. That concept is an important one to recognize and articulate because it affects decisions on which protection and recovery actions will be undertaken and where. We support the concept and hope that restoration and enhancement activities will be carried out in these important places immediately, even as the TMDL is being developed for the rest of the Lower Rogue Basin. We are also pleased to note that there is recognition of function and connectivity in the basin as a whole and that the concept is maintained as work is done at multiple scales.

The Lobster Creek Watershed TMDL is a scientifically sound analysis of excellent data, establishing a connection between landscape condition and water quality, and translating loads into understandable and achievable surrogate targets such as system potential effective shade, and stream morphology aspects, such as width-to-depth ratios. As such, the TMDL is a primary mechanism to use in order to ultimately meet water quality standards. It is an excellent tool for improving overall watershed health.

The Lobster Creek WQMP is unusual in that the first section and Appendix 1 are "cookie cutter" framework documents, identifying DMAs and programs, and laying out a pathway for more detailed planning and tracking. As such, they have only general, conceptual ties to the TMDL

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load allocations. The exceptions are the pieces from and the references to Appendix 2 which is a collaborative, more detailed and focused plan that is related specifically to the load allocations for Lobster Creek and its tributaries. The Siskiyou National Forest, Lincoln Timber Company, The Campbell Group, Lower Rogue Watershed Council, and DEQ are to be commended for taking a proactive approach in using the TMDL analyses to craft specific goals and actions that apply to the relevant situation and landscape. It is refreshing to see collaborative watershed work done across land ownership boundaries that incorporates good data and scientific principles.

**Chapter 3 Condition Assessment**

Under 3.4, Existing Sources of Water Pollution, we suggest adding language to the channel widening condition that describes how sediment loads affect channel widening. The language in Appendix 2, page 96 captures the concepts exactly.

Response: Wording added.

**Chapter 5 Identification of Responsible Participants**

Since the Lower Rogue Watershed Council and the timber companies are such valuable participants in this plan, it would make sense to list them here as partners or significant participants. They are key to actual implementation actions and should be recognized as such. For instance, the DMA for private forestry could be ODF in partnership with Lincoln Timber Company and The Campbell Group.

Response: The following wording was added; Although not formally identified as Designated Management Agencies (DMA's), Lincoln Timber LLC as managed by The Campbell Group and the Lower Rogue Watershed Council are actively involved in management and enhancement activities in this watershed. These partners are significant contributors to this assessment and management plan. DMA's should seek to work cooperatively with these entities.

**Chapter 6 Proposed Management Measures**

The road inventory work and corrective actions described at the bottom of page 59 could be included in Table 5, showing that channel form is getting attention on private forest land too. What about large wood on private holdings?

Response: Wording added.

**Chapter 7 Timeline For Implementation**

In my copy, Table 7 appears as a series of empty boxes.

Response: Table 6 (old table 7) has been corrected.

In Table 8, we suggest some kind of indication that road inventory information will be used to develop interim benchmarks for channel form objectives.

Response: Chapter 2 page 16; It is difficult to definitively say that management related sediment is the cause of any channel form issues in the Lobster Creek Watershed. The assumption made here is that management related sediment will potentially have an impact on the system, and that efforts to reduce management related inputs will be implemented.

No significant channel improvement was predicted in this project.

For the shade targets, 100 years is a long time with no interim benchmarks to gage progress. Within this time frame it is quite likely that timber cutting cycles under both the Northwest Forest

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Plan and Oregon Forest Practices will drastically change landscapes in this watershed. Have these things been factored in? Seral stages and their juxtaposition along streams of all sizes is important.

If adaptive management is actually to be used, people will need relevant interim benchmarks to measure progress and effectiveness in ways that will influence decisions about on-the-ground actions.

Response: Wording added; DEQ will seek to work with DMA's and partners to identify riparian areas where measurable shade increases were predicted by Shadow modeling. The Shadow assessment provides reach specific information regarding current and future potential shading conditions. Although recovery interim benchmarks are very long term and difficult to measure on a watershed scale, site specific shade recovery can be monitored in the near term. Some site specific shade recovery targets exceed 50%.

Cumulative impacts are important throughout the entire hydrologic system of the watershed. The idea is to prevent heating as much as possible throughout the watershed and to maintain or restore natural landscape hydrologic functions that tend to keep cold water cold. Because of the cumulative nature of temperature dynamics, the role of small and intermittent streams should also be factored into protection and recovery planning.

Response: Page 15 wording added; It is understood that tributaries to the Lower Rogue mainstem which provide habitat and thermal refugia for cold water salmonid species are important and merit early action. It is becoming more widely recognized that the spatial and temporal patterns in aquatic temperature conditions are important, particularly for salmonids who need well-connected, well-distributed cold water areas throughout the aquatic system. That concept is an important one to recognize and articulate because it affects decisions on which protection and recovery actions will be undertaken and where. This WQMP recognizes the importance of function and connectivity in the basin as a whole and proposes that this approach be maintained as work is done at multiple scales.

### **Chapter 8 Reasonable Assurance**

Keeping in mind the strategy to prevent heating in as many stream systems as possible throughout the basin and the fact the headwaters of these streams are in the forested areas of the basin, the first challenge is to those who manage forests to do it in ways that prevent heating and erosion, and protect, maintain and restore natural landscape function. Standards and guidelines for forest management on federal, state and private lands are spelled out in rules applicable to ownership. DMAs in the Lobster Creek Watershed have begun to evaluate whether the applicable standards and guidelines are consistent with the specific load allocations developed for the Lobster Creek Watershed on a more site specific basis. We particularly commend the Siskiyou National Forest, the Campbell Management Group, and the Lincoln Timber Company along with DEQ and the Lower Rogue Watershed Council for doing so.

The Forest Practices Act in and of itself does not ensure that load allocations will be met in a specific watershed. A closer look is needed. As is being done in the Lobster Creek Watershed, those who manage the lands should look at both the provisions of the FPA and any additional work being done that addresses factors that contribute to water quality conditions.

We will continue to work with the processes in place to review and revise the Oregon Forest Practices Act. We recently provided comments to both DEQ and Oregon Department of Forestry (ODF) on the adequacy of current forest practices to meet temperature water quality standards. We concluded that there are water quality impairments due to forest management activities even with FPA rules and BMPs. Consequently, we would expect that those rules and BMPs be revised and improved to better align with allocations in TMDLs intended to meet water quality standards.

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Otherwise, the temperature impairments will persist and water quality standards as called for by this TMDL will not be achieved and recovery of salmonid species may be compromised.

**Chapter 9 Monitoring and Evaluation**

It is difficult to see how the monitoring and evaluation laid out in this chapter will help people decide whether land management actions are on track toward reaching the load allocations or not. Better interim benchmarks are needed. Careful attention should be given to monitoring design, data analysis, and how information is used to make land management decisions. Appendix 2 is helpful in providing more detail.

Response: DEQ will seek to work with partners to identify riparian areas where measurable shade increases were predicted by Shadow modeling. The SHADOW assessment provides reach specific information regarding current and future potential shading conditions. Although recovery interim benchmarks are very long term and difficult to measure on a watershed scale, site specific shade recovery can be monitored in the near term. Some site specific shade recovery targets exceed 50%.

The monitoring section has been improved. Although benchmarks to recovery are very long term the statement above was added. By working with partners DEQ hopes to initiate site specific shade monitoring. Both the USFS and Lincoln Timber LLC eluded to implementing this type of monitoring in the future.

Funding looks tentative. If we are depending on adaptive management as a functional tool, it is imperative that monitoring and evaluation are funded up front and that all participants will understand how information will be gathered and used in decision making.

Response: DEQ will continue to work with partners to assist in funding long term monitoring commitments. DEQ TMDL Implementation staff will work with local partners and DMA's on the implementation of monitoring programs described within this document. DEQ will also continue to be a partner in funding sediment abatement projects throughout the watershed.

Overall, the Lobster Creek WQMP is quite good, particularly regarding the engagement of local land managers, and the willingness to use data and sound scientific principles to guide land management decisions. We expect to learn valuable things from the good work being done here.

**Environmental Protection Agency's (EPA) Comments on the Draft Total Maximum Daily Load (TMDL).**

EPA would like to acknowledge the considerable amount of effort that went into developing this TMDL. In particular, the outreach to stakeholders and their active participation in the Watershed WQMP is exemplary. The cooperation of Forest Service and the private landholders in the process has led to a more detailed and accurate TMDL which will be of much greater value in guiding water quality restoration efforts.

**EXECUTIVE SUMMARY**

*Page iii*

In the following sentence: "Following further assessment, a Total Maximum Daily Load (TMDL) will be **developed and** implemented to restore water quality." language should be added referring to the development of the TMDL as shown.

Response: Wording adjusted.

## RESPONSE TO PUBLIC COMMENT

**TABLE 1 LOBSTER CREEK WATERSHED TMDL COMPONENTS**

In the top box the date is listed as "December 1999", this should be updated.

Response: Date updated.

Under "Applicable Water Quality Numeric Criteria", the wording of the temperature standard explanation is misleading. There is already exceedance of the temperature standard and that is what invokes the TMDL process. Also "no measurable increase" language is used as a target in the state water quality standard it should be shown here too.

Response: Wording adjusted.

**CHAPTER 3. APPLICABLE WATER QUALITY STANDARDS**

The temperature standard reference in the Oregon Administrative Rules for the Rogue Basin is OAR 340-041-0365(2)(b)(A). Citations on pages ii, 3,8, 10 and 55 should be revised to reflect this.

Response: Standard citations corrected.

*Page 9, Sub-section 3.2 Lobster Creek Water Quality Impairments, paragraph 2*

Do allocations only relate to the seven significant tributaries and the mainstem, or all perennial streams? If allocations apply to all perennial streams that should be stated here.

Response: Wording added; This TMDL and subsequent load allocations apply to assessed stream segments. Other, smaller perennial streams and/or springs may provide important habitat and/or refugia for sensitive salmonids. Protection of these small cool water sources should be addressed by DMA's on an individual basis prior to management activities that may result in shade reduction and/or sediment delivery to sensitive receiving channels.

*Page 10, Sub-section 3.2 Lobster Creek Water Quality Impairments*

The timing of spawning, egg incubation and fry emergence are discussed in the second paragraph. It would be clearer if there was a table showing the time frames involved for the different species.

Language similar to the following (copied from page 18) would be helpful in this section:

***Meeting the Salmonid spawning criteria is an objective of the TMDL. Attainment of desired conditions identified in this TMDL will result in the attainment of the optimum temperature regimes for spawning, egg incubation, and fry emergence as well as juvenile rearing that the area is capable of producing. System potential conditions should result in maximum shading and more natural temperature patterns during most of the year.***

Allocations lead to attainment for all waters, therefore this section should have a paragraph stating the scope of the allocations and also language that explaining how summer attainment will lead to year-round attainment (shade, channel structure work all seasons, no measurable increase from anthropogenic sources applies all seasons, therefore targeted conditions attained year- round.)

Response: Wording added and expanded; Some data was available for use in determining system compliance with temperature criteria designed to be applied at times

## RESPONSE TO PUBLIC COMMENT

and in waters that support salmonid spawning, egg incubation and fry emergence from the egg and from the gravel. These periods of the salmonid life cycle vary according to species, weather, and stream flow regimes. Spawning, egg incubation, and fry emergence can occur in the Lobster Creek watershed beginning in October and continue through July. Meeting the salmonid spawning criteria is an objective of this TMDL. Achieving surrogate targets identified in this TMDL will result in the attainment of optimum temperature regimes for spawning, egg incubation, and fry emergence as well as juvenile rearing that the area is capable of producing. System potential conditions should result in maximum shading and more natural temperature patterns during most of the year. Available data indicates that temperature spawning criteria are currently not being met for portions of October and July in most years.

These allocations will lead to the attainment of applicable temperature criteria in all significantly sized perennial streams in the watershed. As this TMDL addresses attainment of the temperature criteria for salmonid spawning as well as the rearing, no additional waterbodies will need to be listed under 303(d).

In the following sentence from the fourth paragraph: "Following further assessment , a TMDL will be **developed and** implemented to restore water quality." language should be added referring to the development of the TMDL as shown.

Response: Wording adjusted; Section 303(d) of the Federal Clean Water Act (1972) requires that water bodies that violate water quality standards, thereby failing to fully protect *beneficial uses*, be identified and placed on a 303(d) list. Following further assessment, a TMDL will be developed and implemented to restore water quality. In addition to watershed condition assessment and problem statements, a WQMP requires identification of water quality goals and objectives, designation of responsible parties, implementation of the TMDL, some measure of assurance that the TMDL will actually be implemented, and a monitoring feedback loop (DEQ WQMP guidance 1997). **This document fully meets the requirements of Section 303(d) is submitted as the TMDL for the Lobster Creek Watershed.**

*Page 10 and 11, Sub-section 3.3 Beneficial Uses and Table 5 Beneficial Uses Occurring in Lobster Creek*  
and

*Water Quality Management Plan, Sub-section 3.2 Beneficial Uses, on page 55 and Table 1 Beneficial Uses Occurring in the Lobster Creek Watershed*

The reference in the Oregon Administrative Rules for beneficial uses in the Rogue Basin (including Lobster Creek) is OAR 340-41-365 Table 2 "Rogue Basin, Tributaries". This table lists many beneficial uses that are not current existing uses in Lobster Creek and not shown on the tables in the TMDL and WQMP plans. However these are the legally designated uses which are used to establish the water quality targets. It would be more correct to cite this list.

Response: Citation corrected.

#### CHAPTER 4. PROBLEM ASSESSMENT - STREAM TEMPERATURE

*Page 13, 4.1 Background*

Earlier in the TMDL Plan (page 10, paragraph 1) it states: "there are no consumptive water withdrawals within the assessed area." If this is the case then why is there a need to analyze reduced flow from withdrawals?

## RESPONSE TO PUBLIC COMMENT

Response: Consumptive water uses are **not** present within the watershed boundary and do not impact summertime base flows and are **not considered a significant contributor** to stream temperature increases.

Flow is mentioned here only to indicate that consumptive water uses were examined.

If there are point sources in the watershed then waste load allocations need to be given, though they may be “no measurable increase”. Paragraph six should be edited as shown, to reflect this. **“No waste load allocation was established. Since point source influences contribute no pollutant load to the system, a waste load allocation of zero (or no measurable increase) was established.”**;

Response: Wording adjusted.

*Page 17, Sub-section 4.6 Shade Related to Longitudinal Stream Heating*

We recommend edits to this sentence from paragraph three. “Heat Source modeling was **conducted based on conditions** for July 22, 1999,…”

Response: Wording adjusted.

## CHAPTER 5. TMDL - LOADING CAPACITIES AND ALLOCATIONS

*Page 18*

We recommend edits to the following sentence from paragraph four. “Analysis presented in this TMDL demonstrates that developed solar loading capacities will ensure attainment of **the** narrative **portion of the state’s temperature State water quality standards** .”

Response: Wording adjusted.

*Page 19, Sub-section 5.2 Loading Capacities*

In the first paragraph on this page it states that: “...even with this shade increase, the system is not expected to attain the numeric criteria under extreme environmental conditions.” Where is this finding made in the document? This should be referenced.

Response: Wording clarified; Solar loading capacities are determined for streams based upon future vegetative potential or vegetative system potential. In this assessment, the potential to provide measurable shade increases and subsequent temperature improvement has been shown in Appendix A. Even with measurable shade increases, the system is not expected to attain the numeric temperature criteria under all environmental conditions. Stream 7 day maximum average temperatures for the period of record 1990 through 1999 varied as much as 3.5°F.

There are conflicting values shown for the target load capacity for solar energy for the system as expressed in btu/square feet/day. In the following places it is shown as 195 btu/square feet/day:

page 3 “Loading Capacity”

page 19, targeted (solar) loading capacity

page 96 of the WQMP, Appendix 2, Element 1, Table 8 “Target Solar Loading”

page 133 WQMP Appendix C “Calculation of TMDL for Solar Energy” in both the calculations on that page and the table labeled “Target Solar Loading or TMDL”

At the locations listed below it is stated as 390 btu/square feet/day:

page 20; 5.3 “Surrogate Measures Defined”

page 21, para. 4; 5.4 “Water Quality Attainment...”;

## RESPONSE TO PUBLIC COMMENT

Pages 40 and 41, of the first Appendix A, Figures 14 and 15 add to the confusion regarding the correct target load capacity. These figures indicate a system potential load capacity of more than 195 btu/square feet/day, and possibly one which exceeds 390 btu/square feet/day . This value should be consistent throughout the report.

Response: BTU loading figures were reviewed and adjusted; A target solar loading capacity (based upon system potential vegetative conditions) of 195 Btu/ft<sup>2</sup> per day has been derived from reach weighted potential shade modeling. **This load is based upon the reach weighted effective shade potential for the watershed.** The target value is the load capacity (TMDL) and provides a reference for calculating the amount of pollutant reduction predicted (solar energy). The methodology used to collect data and derive this value is illustrated further in Chapter 2 Appendix C-3.

The Heat Source modeling exercise included only the lower 9.5 miles of the mainstem of the watershed. The solar loading target of 659 Btu·ft<sup>-2</sup>·day<sup>-1</sup> was derived from Heat Source modeling for the **mainstem** only of Lobster Creek.

Formal loading capacities and allocations were based upon the more comprehensive riparian and channel assessments conducted throughout the entire watershed.

*Page 20, Sub-section 5.4 Water Quality Attainment - Temperature Change Related to Shade Surrogate Measures and Solar Loading Capacities*

All three “**Effective Shade by Channel Width for Various Vegetation Heights**” (WQMP Appendix D, page 134 shows one for a North-South orientation) should be displayed in this section. It would be desirable to add btu/square feet/day to the right vertical axis on these charts.

Response: All three shade curves were provided. Following language provided; Effective shade curves are provided below for three different aspects and for various channel widths and riparian vegetation heights. These curves allow easy viewing of a variety scenarios for riparian vegetation, channel width’s, and stream aspect. BTU Loading can easily be determined from % shade values. A total of 2440 Btu·ft<sup>-2</sup>·day<sup>-1</sup> is available to strike a flat plane at this latitude and longitude.

*Page 21, Sub-section 5.4*

Figure 18 should be labeled and identified as containing data obtained on July 22, 1999. The light blue line on the figure should be explained, or removed.

Response: Additional information included. Light blue line removed.

In paragraph two, the explanation of the lines in Figure 18, the word “thick” should be replaced with “red” .

Response: Change made.

*Page 22, Sub-section 5.4*

This clarification should be inserted into the second paragraph. “Based on this modeling outcome, this system is most likely to attain the **rearing** temperature standard during most conditions. Protections of small tributaries to Lower Lobster Creek are important to achieving this goal. **However, the spawning, egg incubation and fry emergence criteria is not likely to be met during the summer months (July).**”

Response: Wording changed to; Based on this modeling outcome, this system is likely to attain the temperature rearing standard during most conditions. Maintaining the cool

## RESPONSE TO PUBLIC COMMENT

water inputs of small tributaries to Lower Lobster Creek mainstem is important to achieving this goal. However the spawning, egg incubation, and fry emergence criteria is not likely to be met during the late summer months and early fall (July, October).

*Page 22, Sub-section 5.5 Allocations, Waste Load Allocations*

**The point source waste load allocation for the NPDES permit holder should be “no measurable increase.” It would be good to include a sentence about any future sources that may impact the watershed allocated at “no-measurable increase in surface water temperature”, especially since it is included in the Summary Allocation Table (Table 6, page 22). The following edits are suggested. ~~“No waste load allocation was established. Since this point source influences does not contribute no additional pollutant load to the system, a waste load allocation of “no measurable increase” has been assigned.”~~**

Response: Clarifications made.

*Page 22, Sub-section 5.5 Allocations*

**The “Load Allocations” explanation should be revised to state that since the numeric criteria is not being met “no measurable surface water temperature increase resulting from anthropogenic activities” is required by the state water quality standard.**

Response: Clarification made.

*Page 22, Table 6 Summarizes Load Allocations*

“Future Sources” should be changed to read “Future Point Sources”. All of the load allocations in the table are shown as “0”. They should add up to the load capacity for the system or 100%. This table should be made consistent with the listings on page 3. Also, the allocation for point sources and future point sources should be shown as “no measurable increase”.

Response: Changes made.

## CHAPTER 7. SEASONAL VARIATION

Page 24, top of page

In section 3.2 “Lobster Creek Water Quality Impairments” (page 10, paragraph 2) the statement is made: “Spawning, egg incubation, and fry emergence can occur in Lobster Creek beginning in October and continue through July.” Therefore the months covered under the numeric criteria for rearing only (and not the more stringent standard for spawning, egg incubation and fry emergence) would be August and September. The most critical period would be late July (and possibly early October) for attainment of the 55.0 F spawning, egg incubation and fry emergence standard. This needs to be brought out in the discussion.

Response: Wording added; Data indicate that stream temperatures exceed state water quality standards designed to protect salmonid fish rearing during portions of the summer and early fall period (July, August and September). Data also indicate that exceedance of the spawning, egg incubation, and fry emergence standard occurs in late July and possibly early October. The analysis presented in this TMDL is performed during summertime periods in which controlling factors for stream temperature are most critical. The predominant driver for seasonal variability in stream temperatures is flow.

## RESPONSE TO PUBLIC COMMENT

**APPENDIX A OF THE TMDL PLAN**

*Page 45, Figures 20 and 21*

These figures appear to show no exceedance of the 64.0 F standard in the present, which contradicts the listing and the data shown in Table 3 "Stream Temperature Monitoring Data" on page 9. **These discrepancies should be resolved.**

Response - Stream temperatures for the selected modeling day did not exceed the 64°F numeric criteria. Figure 20 indicates that 100% of the time under current conditions attains the numeric criteria. Lobster Creek did exceed the numeric criteria during the summer of 1999. Figure 21 reflects a cooler temperature regime under system potential conditions for the day selected for this modeling exercise

The 1999 years seasonal 7 day maximum average water temperatures were recorded for the period August 23 through August 30. The Heat Source modeling date (7/22/99) was selected because it was in close proximity to the date that field flow measurements were collected (7/15/99) and because the diurnal temperature curve seemed to indicate that coastal fog was not present. Flow measurements were collected during adverse conditions, near the peak solar loading period, and during a period when field staff were available.