JOHN DAY RIVER BASIN

TOTAL MAXIMUM DAILY LOAD (TMDL)
& WATER QUALITY MANAGEMENT PLAN (WQMP)

RESPONSE TO PUBLIC COMMENT

November 2010

State of Oregon
Department of Environmental Quality

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INTRODUCTION

This *Response to Public Comments* document addresses comments received regarding the Draft *John Day River Basin Total Maximum Daily Load (TMDL) & Water Quality Management Plan (WQMP)* dated June 2010. All comments have been considered by the Oregon Department of Environmental Quality (DEQ) and, where appropriate, have been addressed in the final document.

The comments received generally led to changes that improved the TMDL and WQMP. DEQ appreciates the time and effort of the reviewers.

BACKGROUND

The public comment period on the proposed John Day Basin TMDL and WQMP opened on June 8, 2010 and extended through August 9, 2010. Two formal public hearings, each with an associated informational session, were held. The hearings were convened in the Basin on July 21, 2010 in the City of Fossil and July 28, 2010 in the City of John Day. The hearings were collectively attended by twenty-three people. Comments received by DEQ were submitted as recorded oral testimony and in written form (paper, FAX and email).

The public notice for the public comment period was sent to everyone on a list of interested parties maintained by DEQ. In addition, the public notice was emailed to roughly 200 people, including a community forum organized for John Day Basin TMDL and WQMP development, with requests to various groups to send it to their member lists. Organizations identified as designated management agencies (DMAs) in the WQMP were contacted. The public notice was placed on DEQ's website and was advertised through local newspapers.

The TMDL and WQMP were available for downloading from DEQ's website throughout the comment period. Hard copies of the document were also available for viewing at the Grant Soil and Water Conservation District office, the Gilliam and Grant County Libraries, the North Fork John Day Watershed Council and at DEQ's offices in Portland, Pendleton and Bend. Copies of the document were also provided to those individuals who requested copies.

The parties identified in the **Table 1** provided comments on the draft John Day Basin TMDL and WQMP during the formal public comment period. **Table 2** and **Table 3** identify abbreviations and describe terms used in this document.

Table 1. List of individuals and organizations providing comment

Name	ID Code for written comments	Affiliation	Date Received	Form of Comment
Will Boettner		Wheeler County Planning Commission	July 21, 2010	oral
Lois Hunt Elder			July 21, 2010	oral
Marilyn Garcia			July 21, 2010	oral
Ted Molinari		Wheeler Soil & Water Conservation District	July 21, 2010	oral
Phil St. Clair		St. Clair Ranch, Grant SWCD, Upper South Fork John Day Watershed Council	July 28, 2010	oral
Kimberly Priestly	WW	Water Watch	August 5, 2010	letter, 4 pages
Helen Rueda	USEPA	US Environmental Protection Agency	August 6, 2010	letter, 3 pages
Rick & Ronda Henslee, Ken & Pat Holliday, Pat & Hedy Voigt, John & Charlene Morris	HHVM	Collective landowners and agricultural producers	August 8, 2010	letter, 1 page
Hiram Li	HL	Research (Oregon State University)	August 8, 2010	letter, 1 page
Lauren Goldberg	CRK	Columbia Riverkeeper, Oregon Wild, Sierra Club, the Northwest Environmental Defense Center, and the Hells Canyon Preservation Council	August 9, 2010	letter, 9 pages
Roger and Meredith Ediger	RME	Box T Ranch	August 9, 2010	letter, 2 pages
Brett Brownscombe	TFT	The Fresh Water Trust	August 9, 2010	letter, 8 pages
Jason Kehrberg	GSWCD	Grant Soil & Water Conservation District, Self	August 9, 2010	letter, 3 pages
Mike & Joanne Keerins	MJK		August 9, 2010	Fax, 2 pages
Nina Bell	NWEA	Northwest Environmental Advocates	August 9, 2010	letter, 16 pages
Kevin Martin	USFS-UNF	US Forest Service, Umatilla National Forest	August 9, 2010	letter, 5 pages
Homer Faver	USBLM	US Bureau of Land Management, Prineville District	August 9, 2010	letter, 6 pages

Table 2. Abbreviations and terms used in this document

ºC	Degrees Celsius
CAFO	Confined Animal Feeding Operation
cal	Calorie
CFS	Cubic Feet Per Second
DEQ	Department of Environmental Quality
DMA	Designated Management Agency
DO	Dissolved Oxygen
E. Coli	*Escherichia coli*
EPA	United States Environmental Protection Agency
ºF	Fahrenheit
HUA	Human Use Allowance
HUC	Hydrologic Unit Code
km	Kilometer
LA	Load Allocation
LC	Loading Capacity
MOU	Memorandum of Understanding
MOA	Memorandum of Agreement
MOS	Margin of Safety
MW	Megawatt
NOAA	National Oceanic and Atmospheric Administration
NPDES	National Pollutant Discharge Elimination System
NRCS	USDA Natural Resource Conservation Service
NTP	Natural Thermal Potential (Natural Condition Criteria, OAR 340-041)
OAR	Oregon Administrative Rules
ODA	Oregon Department of Agriculture
ODF	Oregon Department of Forestry
ODFW	Oregon Department of Fish and Wildlife
OSU	Oregon State University
OWRD	Oregon Department of Water Resources
RC	Reserve Capacity
SWCD	Soil and Water Conservation District
TIR	Thermal Infrared Radiometry(synonym for Forward Looking Infrared Radiometry)
TMDL	Total Maximum Daily Load
USACE	United States Army Corps of Engineers
USBLM	United States Bureau of Land Management
USDA	United States Department of Agriculture
USFS	United States Forest Service
USFW	United States Fish and Wildlife Service
USGS	United States Geological Survey
WLA	Wasteload Allocation
WWTP	Waste Water Treatment Plant
WQ	Water Quality
WQMP	Water Quality Management Plan
WRIS	Water Rights Information System

Table 3. Description of Selected Terms

Highlighted terms are defined in rule and the reader should refer to the text of the rule.

303(d) Listing	Listing of a water body in accordance with Section 303(d) of the Clean Water Act.
7DADM	The seven day rolling average of the daily maximum temperature
Criteria, Biologically Based Criteria	Typically used herein in the context of water quality standards. The 'criteria' is the numeric or narrative target of the standard, designed to protect beneficial uses. Biologically based criteria are derived from studies of the requirements of aquatic organisms, often fish. Other criteria, such as the *protecting cold water criteria*, may target other provisions of water quality standards such as the anti-degradation policy.
Designated Management Agency	Organization responsible for Implementation Planning designed to attain TMDL load allocations and surrogates. OAR 340-042-0025: Federal, state or local government agency that has legal authority over a sector or source contributing pollutants, and is identified as such by the DEQ in a TMDL.
Human Use Allowance	Potentially allowable temperature difference in excess of applicable water quality criteria (OAR 340-041-0028 (12)(b))
Hydrologic Unit Code	A nesting classification of watersheds.
Load Allocation	Loading capacity for nonpoint sources (Refer to OAR 340-041-0002(29) for definition)
Loading Capacity	Maximum amount of pollutant present in a water body while meeting standards (Refer to OAR 340-041-0002(30) for definition)
Nonpoint Source	Diffuse landscapes source of pollution
Natural Thermal Potential	Natural Condition Criteria, OAR 340-041. The determination of the thermal profile of a water body using best available methods of analysis and the best available information on the site-potential riparian vegetation, stream geomorphology, stream flows, and other measures to reflect natural conditions (OAR 340-041-0002(39))
Point Source	Localized human-made source of pollution, conveyed to water body via human made conveyance.
Reserve Capacity	Loading capacity set aside for new or expanded sources of pollution (Refer to OAR 340-041-0002(47) for definition)
Sinuosity	The curving path of a stream, measured as valley length divided by stream length.
Subbasin	4th field of the Hydrologic Unit Code classification of watersheds.
Surrogate	An alternative target to a load allocation, a measure to achieve a load allocation, expressed typically in units or measures other than mass per time.
Wasteload Allocation	Loading capacity for point sources (Refer to OAR 340-041-0002(65) for definition)

In the following sections, responses are organized in the order of occurrence in the document, beginning with the more general comments. The original text of the three sets of comments is compiled in a companion document (*Comments as Received*). The changes identified in the following responses have been made to the TMDL/WQMP document. An asterisk (*) indicates that the TMDL document has been modified based on a comment. Additional grammatical, editorial, and formatting errors are not addressed here but corrections have been made in the document.

COMMENTS AND RESPONSES

General Comments

July 21, 2010 Hearing in Fossil

(G-1) Will Boettner (transcript of recorded comment):
I am a professional geologist and Chairman of the Wheeler County Planning Commission. The comment I have to offer in the process planning for the TDML in the John Day Basin is that a consideration both within the modeling and within the feasibility evaluation of TMDL determination be inclusive of what appears to be a pretty significant amount of ongoing climate change. I'm concerned that we may be establishing TMDL that will be historical artifacts from the very onset because we will never be able to achieve the natural conditions that existed prior to say 40 or 50 years ago. I would encourage serious consideration of the climate and increasing aridity issues we have here. Thank you.

DEQ response: Climate change is a global and regional phenomenon and will influence factors addressed or used in this TMDL (water temperature, flow, vegetation, fish distribution, etc). TMDLs are developed based on the use of historical data and current conditions to meet current water quality standards. Water quality standards are reviewed periodically and are revised when appropriate. In addition, TMDLs are revisited and revised based on new information and conditions. If or when climate change affects water quality, we expect to address those changes when we revisit TMDLs or revise water quality standards. Also, refer to the responses to comments G-3, 2.1-34 and 2.1-36.

(G-2) Lois Hunt Elder (transcript of recorded comment):
In 2011, we will have been in unbroken farming and ranching operation in Wheeler County for 100 years. My family has farmed without interruption for 67 years in the same spot. We have done that without any help from the State of Oregon or the Federal Government. My personal feeling is if the State of Oregon is broke and looking for money and if the Federal Government is broke and looking for money there is a lot better uses for the money than trying to fix something that isn't broken.

DEQ response: State and Federal law require measures towards meeting water quality standards. It is our sincere hope that in addition to addressing these statutes, ecologically improved stream conditions can enhance human as well as wildlife conditions in the Basin.

(G-3) Marilyn Garcia (transcript of recorded comment):
I have lived in Wheeler County the best part of 70 years. My concern with this entire program is that at one time we had many streams that flowed year around, our water table was great. Our seasons have changed, we do not have the snowfall we used to have and we also have about a million Juniper trees that were not here and those Juniper trees take a lot of the water out of our ground. So I'm thinking that this program may not give us back the water that evidently someone thinks is hidden someplace or the water control. We cannot control the climate. We cannot control the Juniper trees. So I think that some other issues need to be looked at here before we start spending money on what little water we have left. Thank you for your time.

DEQ response: We agree that that climate variability has influenced watershed conditions, likely throughout the region, and will continue to do so. That said, we believe that measures such as less human disturbance of stream channels and vegetation, and water conservation; are feasible and will lessen stream heating and water loss in the near term and decrease the potential impacts

of climate change. In addition, we recognize that environmental conditions are not constant. We do not intend to target measures that are unachievable, and will adapt planning and numeric objectives as their attainability is better understood.

(G-4) Ted Molinari (written):
I hope DEQ will remain committed to working with agencies like Soil and Water conservation Districts in pursuing this planning process and always consider the needs of landowners who are involved.

DEQ response: We intend to do so, and we view Soil and Water Conservation Districts and landowners as essential partners in watershed protection and restoration.

July 28, 2010 Hearing in John Day

(G-5) Phil St. Clair (transcript of recorded comment):
Mr. St. Clair stated that the TMDL was based on many guesses and estimates and he felt that it was fodder for third party lawsuits. He thought it would have a significant impact on people in the basin who are working to meet water quality goals. He asked how the USBLM and USFS will implement the TMDL and what impact will that have on grazing permittees.

Mr. St. Clair closed by stating that the TMDL documents were very difficult to understand and interpret. This sentiment, along with the concern about lawsuits, was expressed by others during the informal discussion session prior to the public hearing.

DEQ response: The TMDL is a goal-setting and planning process. The implementing plans are generally developed by locally based natural resource organizations and local government entities (including Oregon Department of Agriculture, US Forest Service, US Bureau of Land Management, Counties, Cities and others). We expect the plans to layout feasible measures toward TMDL attainment over time and identify limiting factors. Implementation of these plans is the mechanism of TMDL progress. We recognize that TMDL attainment at the Basin scale is a long-term process – a continuous planning process (as called for in the Clean Water Act, Section 303(e)). Interim objectives are expected and measures to achieve them are usually adaptive to capability and current knowledge of best management practices. ODA, USBLM, USFS, and others already have plans in place designed to establish trends toward achievement of water quality standards and TMDLs.

With regard to lawsuits and effects on communities, these can be difficult to fully predict in planning processes, but we do not foresee adverse outcomes. To the extent that history may help, similar TMDLs exist in nine other Oregon Basins and some have been in place for a decade. We encourage concerned individuals to look to neighboring basins and provide feedback to us of any adverse socioeconomic impacts. We also note that when managers carry out TMDL implementation plans then they are in compliance with the TMDL process. Compliance with the plan constitutes compliance with the TMDL. In addition, there are no provisions for citizen lawsuits under Section 303(d) of the Clean Water Act, for nonpoint sources. Accordingly, the load allocations should not create a risk of citizen suits.

Regarding the difficulty in understanding and interpreting the document, we agree that TMDLs include policy terms and scientific discussion that make them difficult for the many who do not have backgrounds in these areas. We do have fact sheets and summaries, and have provided many summary presentations to the John Day Basin community. Throughout the agency, we are working towards better expressing documents in plain language, while at the same time accurately addressing the terms and intent of various laws and rules in the multi-disciplinary science context of watershed assessment.

Regarding "guesses" and estimates, we at DEQ disagree that TMDL informational inputs are guesses. We do acknowledge that as with most technical evaluations, the TMDL assessment includes estimation. We believe that the uncertainty associated with such estimates is within reasonable bounds. Perhaps one of the most difficult aspects of the temperature TMDL is to estimate the height and density of natural potential vegetation in areas where it has been removed. While at any location this estimate may be in error, we've incorporated the best available science to ensure that it is accurate on average, such that simulated temperature and heat load estimates are within acceptable ranges at large-reach scales. Further, we clearly state in the document that where additional information provides for refinement of TMDL targets, we would review and modify the targets as appropriate.

(G-6) HHVM, Letter in Common from landowners and agricultural producers:

We appreciate the opportunity to comment on the Draft John Day River Basin Total Maximum Daily Load and Water Quality Management Plan. As landowners and agricultural producers located in the John Day Basin we believe this document has the potential to be the most dangerous threat we have faced in decades. At the very least the Draft TMDL Plan is extremely confusing and difficult to read. The document is based on computer modeling using assumptions showing bias and a process that targeted a predetermined outcome.

We have many concerns relating to the document. Those concerns are listed below.

- All the beneficial water uses need to be listed. To exclude industrial, hydro power, irrigation and livestock watering insinuates that those beneficial uses are less important.
- We have grave concerns regarding the modeling parameters used to develop the natural thermal potential. The natural thermal potential (NTP) stated will create excessive management and financial hardship on agricultural producers in the Basin. It is unrealistic to expect the 14º F difference between the existing and the NTP 7 Day Average of the Daily Maximum Temperature could ever be achieved.
- The plan puts no value on the tremendous amount of restoration work that has been completed in the John Day Basin in the last twenty years. As landowners we feel that no amount of restoration work will ever be enough in the eyes of regulatory agencies.
- Any comments made towards improving flow conditions should include a statement in support of the validity of state privately held water rights and that any flow restoration efforts would only be pursued through voluntary means. That being said, I have grave concerns of the impacts to the financial stability of the county tax base if water rights are relinquished to instream flows as those lands would no longer be assessed at the higher value of irrigated lands.

It appears to us the modeling techniques used in this plan were designed to achieve an expected outcome and not confirmable water measurements. Modeling methods that include a factor of human expectation lends itself to the bias of those producing the model. This has resulted in the generation of limits that far exceed the realistic capabilities of the Basin and its natural resource economies.

The completion of the TMDL and its addition of regulatory authority will not further conservation efforts in the John Day Basin. It is our opinion it will have the opposite effect. It will hamper future voluntary water quality improvement projects as landowners withdraw from programs to avoid the potential identification of a violation.

DEQ response: Regarding the first paragraph of this comment, refer to the response to comment G-5. The document and TMDL assessment were not prepared to target a pre-determined outcome, other than to assess the level of pollution reduction needed to achieve water quality standards.

1st bullet: All designated beneficial uses are listed in **Section 1.4.2**, including industrial, hydropower, irrigation and livestock watering. Following in the main document, each TMDL chapter notes the most sensitive beneficial use. The most sensitive beneficial use is that use which needs the highest quality of water. Standards are designed to address the most sensitive use, and hence address all others as well, rather than excluding them.

2nd bullet: The TMDL heat loads are based on natural thermal potential goals for vegetation and channel narrowing. They are determined from the best available information. As more information becomes available, TMDLs can be revised. It is important to recognize that the natural conditions goal stems from the temperature water quality standard. The temperature TMDL, for the most part, targets that goal. The temperature standard would not be influenced via modifications to this document. Standards development is a different process.

3rd bullet:* DEQ greatly appreciates the abundance of watershed stewardship and restoration in the John Day Basin. We affirm these efforts in **Sections 1.4.1, 2.1.12, 3C** and **3D** of the draft TMDL document. For instance, the document states in **Section C** of **Chapter Three** that "The Department appreciates that restoration, conservation planning and efforts have been ongoing for decades in the John Day Basin, in a manner supportive of TMDL attainment. This is occurring through the efforts of landowners, Tribes, Watershed Councils, Soil and Water Conservation Districts, Trusts, local government, and others." In addition, **Figure 2.1-22** is a map of OWEB and other restoration/enhancement efforts throughout the Basin. As well, we will add acknowledgement of past efforts to **Section 1.3** of the document.

4th bullet:* Regarding flow, refer to the response to comment 1-13.

2nd to last paragraph: Refer to the first paragraph of this response.

Last paragraph: We plan to work with the Basin community and the organizations charged with TMDL implementation to develop best approaches to support the Basin community in achieving water quality that fully supports human and ecologic uses of streams and rivers. Your input is important, on both mechanisms of improvement and limiting factors.

(G-7) USEPA general comment:
EPA would like to acknowledge the great effort that went into developing this TMDL.

We commend you for the efforts you have made to date and look forward to the submittal of the final TMDL in the near future.

(G-8) HL general comment:
Congratulations. This is an excellent and fair depiction of the status and condition of water quality issues in the John Day Basin. It is backed by the data you gathered and by scientific literature. The strongest section addresses the issue of temperature. The deductions made to draw conclusions for management purposes were very careful. I appreciated the effort to incorporate sources of measurement error and the influences of natural variation due to weather and annual discharge. I think that the links of stream temperature by the conditions of the riparian vegetation, groundwater exchanges, irrigation and channel morphology and structure were clear.

Your document represents the latest in thinking and with respect to water quality, it is science done well. I hope that some of my advice will make this a better document and that the information I have sent to you and your co-workers will add to the quality of your presentation.

(G-9) HL general comment:
Additional influence diagrams relating the role of each factor upon water quality and temperature would be helpful to the lay public. I would begin each appendix with the "General Influence Diagram" and highlight the compartment of the factor under discussion. This would be followed by another influence diagram depicting the forces that influence the factor under discussion. Annotations within each variable compartment to signify chapter and appendix location for additional information, would be helpful.

DEQ response: We will retain this suggestion for inclusion to the Heat Source manual. The temperature TMDL analysis (Appendices A and B of the draft document) reference this manual to provide background information and explain relationships between the variables that effect stream temperatures, in order to reduce redundancies as well as the length of the document.

(G-10) HL general comment:
The supplemental sections that influence water quality were very informative. It was important to show that temperature is the primary effector of low dissolved oxygen although that coliform bacteria levels were quite high. The aeration effect on maintaining D.O. levels and killing bacteria in swift water helps to do that in steep gradient systems, although bacteria will tend to accumulate and become problems in slower runs and pools of low gradient reaches. Nomographs of oxygen saturation show that oxygen is less soluble as temperature increases, but I have rarely read an account which tried as thoroughly to account for change on a large scale.

I also appreciated the reach-by-reach depictions of overall water quality overall, and by factor where studied. Moreover, I thought that showing annual variability of this over years graphically and as averages and variances will be a very helpful to the public.

Likewise, the showing portions of the basin that are important to different life stages of different salmonids and the water quality status of these reaches was a very nice touch. With regard to this issue, I am sending four documents of interest to you. Bayley and Li (2008) finds that fencing projects are not paying off. Essentially, they are too small to have an effect on temperature (restoration attempts are located in the wrong places. However, they do find that grazing exclosures do benefit YOY. These advantages are not conferred to 1+ and older trout. In short there is a survival bottleneck. We cite Rodnick et al. (2004) which states that physiologically the YOY have an advantage and that they have a richer array of prey (size-related prey availability). Recently Fowler et al. (2009) shows that heat shock proteins protect younger fish from trauma than older ones.

I believe that John Tiedemann of the USDA Forest Service when he was stationed in John Day also addressed coliform bacteria in the basin. Unfortunately, I was not able to track this down in my files yet. I will send it to you when I do. There is a MS Thesis that incorporates information. I believe that the student took it from locations in the mainstem JD, Middle, North and South forks of the basin. It will be in the appendix, but there is a brief mention in the thesis itself. The water quality analysis was done by microbiology. The counts were so high that they were off the scale. You can probably get a copy through OSU's interlibrary loan.

> Eric Leitzinger. 1993. The influence of riparian habitat and salmonid microhabitat selection on fish assemblage structure in the upper John Day Basin, Oregon.

DEQ response: We expect that such information will support TMDL implementation and future TMDL development. Regarding the study by Bayley and Li (2008), DEQ agrees that fragmented fencing projects are not effective or the goal of the TMDL. The temperature TMDL load allocations call for effective shade targets which assume mature potential vegetation communities along much of the stream corridor. To the extent feasible, DEQ expects DMAs to submit implementation plans that will protect and restore longitudinally contiguous riparian areas with natural potential vegetation and channel/floodplain form.

(G-11) CRK general comment:
The John Day TMDL and WQMP offer a critical opportunity to improve water quality in a river of national significance. The John Day River is the second-longest undammed river in the Western United States and supports wild salmon and steelhead populations that are not supplemented by hatcheries. Even without major dams, the significant impacts of excessive water temperature on wild fish in the John Day River are not a theoretical exercise; major fish kills are a reality. In turn, DEQ must revise the draft TMDL and WQMP to achieve timely, effective improvements in water quality.

Salmon and other cold-water species depend on cold water temperature for survival and recovery. Excessive temperature impacts salmon metabolism, growth rate, and disease resistance, as well as the timing of salmonid migrations, fry emergence, and smoltification. Salmon in the Columbia River and its tributaries suffer from the extremely high water temperatures during the summer months. As DEQ is aware, excess temperature is one reason for the decline of Columbia River salmon and steelhead. In turn, the Conservation Organizations respectfully submit these comments and questions on the draft TMDL and WQMP.

DEQ response: We agree with Columbia Riverkeepers that stream temperature is a critical concern for salmon and trout, and that John Day Basin water quality is important to salmonids. In terms of the recommendation to revise the draft TMDL and WQMP, we will respond via the more specific comments.

(G-12) CRK general comment:
III G. The Conservation Organizations Urge DEQ to Develop TMDLs/WQMPs that are more Reader-Friendly.

Oregon law requires DEQ to prepare public communications in language that is as clear and simple as possible. *See generally* ORS 183.750. The Conservation Organizations recognize that TMDLs and WQMPs are technical documents and require extensive use of scientific and legal terminology. However, DEQ should strive to improve the readability of the John Day TMDL and WQMP. This is particularly important given the number of entities and individuals impacted by the TMDL/WQMP. The Washington State's Lower Skagit River Tributaries Temperature TMDL (July 2008) provides a helpful example of a similar TMDL (*i.e.,* for temperature, impacting a number of diverse stakeholders) which applies a more reader-friendly, engaging explanation of the TMDL and implementation plan. While TMDLs require technical modeling and scientific analyses, their ultimate success hinges on modifying multiple individuals' and entities' behavior. Therefore, the importance of preparing reader-friendly TMDLs and WQMPs cannot be overstated.

DEQ response: Refer to the response to comment G-5 (3rd paragraph of response).

(G-13) CRK general comment:
III. Conclusion.

The Conservation Organizations recognize that DEQ's staff exerts a significant amount of time, thought, and effort in preparing a TMDL and WQMP. Thank you in advance for considering these comments on the Draft TMDL and WQMP.

(G-14) RME general comments:
As a member of the Public Advisory Committee which participated in the development of our 10 – 10 Ag. Water Quality Management Plan, a conservation practice participant with Oregon Water Enhancement Board, Natural Resources Conservation Services, Grant SWCD, and Confederated Tribes of the Warm Springs Reservation, a third generation cattle rancher, and a water rights

holder and water user for irrigation and stock use I am very disturbed and highly concerned by your current TMDL Draft Plan for our basin.

Without question this plan will have a most serious and deleterious impact on all agriculture and water use in our area basin wide. Although our concerns are numerous the following will indicate but a few for illustration of our objection to this plan:

I. The John Day River, in its current physical configuration is, in a very great part, the result of the 1964 flood event we experienced. In the "corrective phase" of the after flood repair, the "best science of the day" was applied by the Army Corp of Engineers when they straightened, widened, and applied rip-rap to both banks. The results of this well intended work directly contributed to many of the issues indicated in your document and which agriculture is working to overcome today.

II. Agriculture is the unquestioned backbone of the economy of our region. Yet your plan seems to neglect or overlook agriculture as a most significant beneficial use of the water of our region. As such it would seem that protection of our rights and uses of water for agriculture could be jeopardized.

III. The value of flood irrigation in our basin seems to be overlooked. It is this practice which takes water from more abundant times and recharges our shallow ground water table and thus allows for this "used" water to sub back into the river during times of lower flows thus helping to maintain both flow and lower water temperatures. The numerous projects which individual land owners have participated in from return flow cooling projects, riparian fencing, push-up diversion retirement, as well as others have all contributed to the improvement of factors impacting TMDL (temperature and flow) but yet they seem to not be worthy of mention as positive practices which those in agriculture have volunteered to participate in.

IV. There seems to be an abundance of language which strongly suggests a lack of sound science from which to build some of the conjectures put forth. The words or phrases, such as "theoretical", "thought to best", "best characterize", "computer model" are subject to influence by personal or philosophical bias on the part of the developers and or writers. It would seem that an agenda is perhaps being incorporated into this document which is directed towards some desired preconceived outcome which, in reality, may be unattainable or may have never existed. The lack of foundation for your NTP would clearly suggest this as there is no data to substantiate that such "theoretical" temperatures ever existed or could be achieved under the conditions present, many of which the landowners have, nor never have had, any control over.

V. The document seems to have written by "scientists" for "scientists" in that units used in tables and discussions are all metric. As a holder of a degree in Biology, and a teacher of Biology and Science for over thirty years I have no problem with that but the general public, especially those in agriculture this document targets, would find this a most cumbersome read.

VI. As written this document with its conjecture, lack of sound science and supporting data for many of its initiatives (NTP as an example) presents the potential for all involved in agriculture water use to be open to litigation from any number of anti-agriculture and or anti-resource use groups. Hardly a positive potential for the mainstay of the economy or our region.

Having participated in a preliminary review of this document as presented at a Grant SWCD meeting last year I am struck by the observation that those presenting that evening either found little or no value in the comments given at that time or they elected to not hear or ignore them.

The regulatory authority "tone" put forth in this document will have a most serious impact on all involved in agriculture, specifically those property owners with live streams or river frontage as well as water right holders and users of water for agriculture. A direct result of this "tone" will be a decrease in willingness on the part of property owners to engage with any related public agency,

or department, for fear of undue attention being drawn to them or their practices. It is highly probable that this document will reduce the conservation practices in our basin due to that possibility. That would be very sad to deter the voluntary involvement in those practices which have a positive impact on issues you are trying to "theoretically" improve.

DEQ response: 2nd paragraph – refer to the response to comment G-5.

I. This comment is consistent with the history and hydrologic theory that we have gleaned through in-Basin interviews. In addition, there has been speculation among investigators that the dramatic flood modifications along the John Day River, associated with the 1964 flood, were due in part to management (roads, bridges, channelization, bank disturbance from agriculture and other land uses) that decreased channel resilience, consistent with the general literature on river-form and land use. Regardless of cause, we acknowledge that legacy effects can be the most difficult to overcome. The TMDL generally does not link specific land use causes to specific locations and times. We recognize that in various situations, it may take a combination of current management, legacy repairs and passive recovery –to achieve the goals. At a minimum, we encourage existing stressors to be reduced.

II. Refer to the response to comment G-6, 2nd paragraph of response (addressing first bullet). TMDLs such as the draft John Day River temperature load allocation apply along the river regardless of land use. As described in the document, **Sections 1.4.2, 1.4.4** and **1.4.7**, we recognize agriculture is a predominant land use. We view agricultural producers as key to TMDL progress, and DEQ, along with other organizations (e.g., ODA, OWEB, NRCS, OSU), supports farmers and ranchers in watershed protection and enhancement.

III. Evaluating the benefits of flood irrigation can be complex. It can lead to cold water returning to streams. Yet when based on stream diversion, as with other forms of irrigation it simultaneously depletes instream flow at the point of diversion, including at critical low-flow times. This depletion makes streams more sensitive to solar heating. In addition, overland return flow can cause warming.

IV. Refer to the responses to comments G-5 (last paragraph of response) and G-6 (1st paragraph of response). In addition, we here note that there is a relatively extensive amount of scientific literature that the natural potential vegetation estimate was based on – refer to **Appendix C** of the draft document.

V. * We agree that using units that are not common is awkward and we have, and will again, review the document with this in mind. In some instances we will retain metric units for various purposes. For instance, river miles are subject to change as river channels adjust through time, and the software used in the TMDL assessment, to measure the existing configuration, does so in meters. Because river miles were mapped based on a previous configuration, the current condition measurements cannot be converted to the familiar mapped river miles, and to do so might be misleading. Unit conversion can lead to errors, changes in precision and can take substantial time and resources. We have attempted to accommodate this concern by supplying conversions in key places, such as landmarks at various positions along the river (**Tables 1.4-3** through **1.4-5** in the draft). In particular, we assume that the technical appendices are more likely to be read by a scientific audience.

VI. Refer to the response to comment G-5.

Final paragraphs: We believe that we have incorporated local input to a large extent. Local input has substantially informed pollutant sources, natural potential vegetation identification, and the abundance of water quality progress in the Basin. There are limitations to incorporating input. For instance, one expressed concern is that natural potential may not be a realistic goal. Even so, we are compelled to base the TMDL targets on natural conditions, because the water quality standard requires that. If those goals are not realistic, this should be accounted for in the

implementation plans –adaptive management (setting interim targets to see what is realistic) should ultimately answers the question. Carrying out approved TMDL implementation plans does constitute compliance with the TMDL process. The document does not attempt to unduly focus on agriculture, other than as an outcome of its predominance in land use area. Regarding regulatory tone, TMDLs are implemented by management plans that are encouraged to employ a range of methods and incentives, some regulatory, some not. Regarding deterrence of voluntary efforts, we see the potential concern but sincerely hope this will not be an outcome – refer to the responses to comments G-2, G-5 (response paragraphs 1 and 2) and G-6 (final paragraph of response).

(G-15) TFT general comments:
II B. Management Categories—relevant actions:

The TMDL and WQMP do not appear to discuss the importance to water temperature of restoring instream pool complexity. Projects such as large wood placement and other actions can significantly shape pool development. These pools provide temperature refugia for fish. While temperature standards can likely not be expected to be met along every linear foot of 303(d) listed stream, it is important to recognize that the existence of pools / temperature refugia at points along stream reaches is a desirable (and pragmatic) way to achieve overall TMDL compliance. The TMDL and WQMP should speak more to this.

In addition, the role of natural wet meadow and floodplain restoration should be further discussed in the TMDL and WQMP. Over time, significant and often detrimental changes have occurred in the Basin with respect to the existence and ability of historic wet meadows and floodplains to store water. Floodplain sinuosity is important to storing, cooling, and more slowly releasing water, and is this important to water temperature. Wet meadows, if existing or restored, can also store significant amounts of water underground for late season / critical temperature period releases as well as filter bacterial and nutrients. These actions should be incentivized.

DEQ response: We will add discussion of the importance of large wood and channel complexity to **Section 2.1.6.2**. Natural channel form, including complexity, is called for in the draft document as one of the load allocation surrogates. We will include mention of large woody debris in this section as well. Large woody debris is also discussed in the draft document in **Section 2.4** and **Chapter 3**, **Section C**. Meadows are recognized in the document in terms of natural potential vegetation in the temperature TMDL generalized shade curve load allocations and in **Appendix C**.

(G-16) TFT general comments:
II C. Point Sources—advancement of a habitat-based compliance option.

It appears the few point sources in the basin (municipal sewage treatment facilities) will be assigned a “non-zero” wasteload allocation. It should be clarified what exactly this means, but one can assume it means these sources will be allowed to pollute some amount above zero. At least with respect to the municipal facilities, TFT would like DEQ to consider inclusion in the TMDL and WQMP of a habitat-based approach to wasteload compliance for these entities. This would be similar to what is being pursued with the City of Medford, and what has been advanced by DEQ and Clean Water Services in the Tualatin Basin. In other words, the municipal non-point sources should have the option of buying credits derived from up-stream projects that reduce temperature, lower bacteria levels, etc. In this way, the municipality can use habitat work upstream to achieve water quality compliance rather than simply put money into technology fixes at the municipal point-source. The TMDL and WQMP should build in room for this approach.

DEQ response: This option is generally in place via DEQ's water quality trading protocol, and is provided for in the TMDL through quantification of point source heat load maxima and associated

temperature targets, and by providing simulation and methodology for quantifying nonpoint source improvements. We will include discussion of water quality trading in the WQMP (**Section C**), as follows: " With regard to TMDL implementation, another available management strategy is water quality trading. Trading allows DMAs to earn pollution reduction credit. This credit can be applied in situations where TMDL compliance might otherwise be difficult. For instance, a City treatment plant may have difficulty reducing heat loads to required levels. Rather than reducing the outfall temperature, the City could compensate by enabling upstream temperature reduction. This could occur through channel and riparian restoration efforts or funding directed to upstream heat reduction. DEQ has prepared documentation describing trading possibilities (http://www.deq.state.or.us/wq/trading/trading.htm)."

(G-17) TFT general comment:
III. Basis of tiering other TMDL's to Temperature TMDL

The DEQ appears to consistently state that achievement of the dissolved oxygen and bacteria TMDL's will be met so long as the temperature TMDL is fully implemented (at least with respect to summer dissolved oxygen; spawning season dissolved oxygen issues are deferred). The document also states that the biological criterion TMDL is also based on the temperature TMDL. The biological criterion standard on which this TMDL is based is a measure of biological-community health (including aquatic insect diversity). It is unclear how this standard will be met with temperature actions alone. For example, how will the temperature TMDL ensure that biological community components such as wet meadows, beaver dam complexes, kingfisher, gravel bars, or large wood jams will be restored? These attributes all seem to be unique biological criteria that have been reduced over time, and that a biological criterion TMDL would be relevant to restoring. We would like to better understand DEQ's rationale for tying the biological TMDL directly to the temperature TMDL.

DEQ response: The TMDL necessarily focuses on pollutant reduction. Many of the attributes addressed in this comment are not pollutants and are difficult to quantify in terms of relationship to pollutant loading. We believe that achieving the conditions needed for temperature reduction (improved hyporheic exchange, greater sinuosity, narrower channels, more vegetation, etc.) will lead to a range of habitat conditions that improve the overall biological condition. That said, in the revised document we will limit the application of the biological criteria TMDL approach, to current listings. Refer to the response to comment 2.4-1.

(G-18) TFT general comment:
VII. Conclusion. The draft TMDL and WQMP draw attention to critical issues facing the John Day Basin's freshwater health. The TMDL and its associated implementation measures are very important to restoring water quality and ESA-listed fish. The pace and scale of adoption of TMDL implementation measures are critical for fish and water quality, and both will likely depend on how well DEQ and others work with local landowners and leaders to address nonpoint source issues. We appreciate the time DEQ has put into this TMDL work, and we look forward to working with the agency, local interests, and others in advancing meaningful on-the-ground progress.

(G-19) GSWCD general comments:

The modeling techniques outlined in this document seem to be shaped to fit expected outcomes and not verifiable water measurements. Modeling methods that include a factor of human expectation, lends itself to the bias of those producing the model and have resulted in generating limits that far exceed the practical capabilities of the Watershed and its natural resource based economies. Although this document provides for evaluation and future modification based on monitoring results, proceeding forward with the proposed water quality plan will saddle the Basin's Citizens with the excessive burden, both regulatory and financially, of pursing unattainable goals before any adjustments are agreed upon or finally implemented. Conversely, completion of the TMDL and its added regulatory authority will not expedite conservation efforts in the John Day Basin and will most likely hinder future voluntary water quality improvements projects as land managers withdraw from programs to evade the potential identification of a violation.

Expanding on the Grant Soil and Water Conservation District Letter, in a companion public comment letter, Mr. Kehrberg states: "As a landowner and agricultural producer located in the John Day Basin I believe this document has the potential to significantly limit the management and harvest of natural resources from private property and is an overall threat to private property rights."

DEQ response: Refer to the responses to comments G-2, G-5 and G-6 (first, third and final paragraphs of response) and G-14 (final paragraph of response).

(G-20) MJK general comment:

We appreciate the opportunity to comment on the Draft John Day River Basin Total Maximum Daily Load and Water Quality Management Plan. This plan is confusing and difficult to read. The plans for the implement of the TMDLs are formed from using a computer model. We believe that that the parameters of temperature, potential vegetation, flow and channel morphology minus man influence is not realistic. Man is in the Basin living in cities and raising agriculture products. Why use a model that is incomplete at the start?

DEQ response: Refer to the responses to comments G-2, G-5 and G-6 (third and final paragraphs of response). In addition, note that the *natural conditions* called for in the temperature TMDL and in the temperature standard, refer to thermal conditions. That is to say, eliminating human-caused heating does not mean eliminating human-related activities. As mentioned previously, we rely on the basin community for progress towards water quality efforts and will support the Basin in doing so.

(G-21) MJK general comments:

NTP – Natural thermal potential is an important objective in the TMDL- Why are you using a criterion and evaluation without man? Man is here and has to do the work to change things and to evaluate the results. Other items that have to be factored into the model are the wild horses, other wildlife, as animals and birds; they change the riparian area and channel morphology and upland and river vegetation.

The South Fork of the John Day was included in the upper John Day. We have different regulations at this time, because of the listed fish in the upper John Day. Someone could be reading this and assume that what is required for the Upper John Day is also required for the Upper South Fork of the John Day. We need to clarify that the Upper South Fork John Day is different than the Upper John Day River Basin.

More required regulation could have the opposite affects for positive change in the John Day Basin. We need to have guidelines and have the improvements as voluntary from the landowners in the area.

DEQ response: Regarding the natural thermal potential targets effect on people, refer to the responses to comments G-14 (final paragraph of response) and G-20.

We agree that the South Fork is different from the upper mainstem. In both areas, the general goal of the temperature TMDL is natural thermal conditions, and both rivers have exceeded the bacteria standard, although the south fork to a much lesser extent. The differences in flow and bacteria between the two areas are detailed in the bacteria technical appendix. Also refer to the South Fork discussion in the response to comment G-27.

Final paragraph. TMDL implementation is not just regulation. Up to date, voluntary efforts have been a very important part of TMDL implementation. TMDL implementation is built on outreach, technical assistance, planning, incentives, public and private funding and regulation. The TMDL progress mechanisms are based on "reasonable assurance of implementation" (Federal Advisory Committee on TMDLs). Refer to the responses to comments G-5 (2nd paragraph of response), G-6 (last paragraph of response), G-14 (last paragraph of response).

(G-22) MJK general comments:
Could the comment time be extended? Some people do not know how important this TMDL and WQMP is in the future of the John Day River Basin. If you model your plan without man are you trying to remove man from the valley?

DEQ response: We appreciate the need for thorough review. After careful consideration, the Department decided not to extend the public comment period because (1) this was the only extension request we received and it came on the last day of the comment period, (2) we are under a court-ordered consent decree that requires us to complete this effort by the end of this year, and (3) though it is difficult to reach everyone, we have undertaken an extensive public participation process over several years, with particular emphasis on 2009 and 2010, during which we organized a community forum and, through several public meetings, described the TMDL components and asked for input on each developing chapter of the document. We will work as closely as possible with the Basin community on future developments. Many of the concerns expressed in this document address next steps (how the TMDL will be implemented, the content of the to-be-developed implementation plans), and we expect public input throughout the process.

(G-23) NWEA general comment:
Northwest Environmental Advocates appreciates that the draft John Day River Basin TMDL has been prepared in the same fashion as most of Oregon's other TMDLs but, as with Oregon's other TMDLs, it falls well short of being what someone might term a scientifically-based clean up plan. In our opinion, it is instead merely an academic investigation into the problems of the John Day River Basin which will do little if anything to restore water quality and protect beneficial uses. It suffers from a failure to evaluate all sources of natural conditions while concurrently declaring it has determined the natural conditions, a failure to address the entire basin while claiming that it is a TMDL for the entire basin, and a failure to be prescriptive in its load allocations such that it will lead to any restoration of water quality. We appreciate the Department's investigation into likely natural vegetation but until it structures its TMDLs in such a way as to make these vegetative outcomes, along with other critical surrogate measures, into load allocations, the entire process is deeply flawed.

DEQ response: The degree to which site-specific pollutant sources are evaluated and the specification of TMDL geographic areas are related to the type and location of impairment, cost and scale of reasonably available data, and other factors. The draft TMDL was strategically prepared to address all identified water quality concerns on the 303(d) list (except sedimentation, discussed elsewhere in this document), as comprehensively as feasible, recognizing that further assessment is needed and will be carried out during TMDL implementation.

Regarding specification of plant structure or communities as a direct TMDL target, DEQ is open to different forms of load allocation surrogates. Determining the best approach is an evolving process. In this TMDL, we elect to continue with the current approach, in part because of the difficulty of pre-identifying site-specific vegetation potential in the diverse terrain of the John Day Basin. In either approach, the goal would still be natural conditions.

(G-24) USFS-UNF general comment:

Thank you for the opportunity to comment on the public review draft of the John Day River Basin Total Maximum Daily Load (TMDL) and Water Quality Management Plan (WQMP). The Umatilla National Forest has been a partner in the development of TMDLs with DEQ for over 10 years now, and we value our relationship with you and your agency.

The Umatilla National Forest manages about 12.4 percent of the John Day Basin, in the North Fork John Day, Middle Fork John Day, and Lower John Day subbasins. Multiple segments are 303(d) listed for temperature and sediment on the Forest so the Draft TMDLs and management plan is of great interest to us. We provided original data and reports used in the listing of impaired waters in the mid 1990s, and have been actively involved in development of TMDLs, consistent with the MOU between Region 6 of the Forest Service and Oregon DEQ. The Umatilla Forest along with our neighboring National Forests and USBLM Districts in the Basin, have been active in protecting and restoring public lands in the basin following direction contained in land management plans (Umatilla Land and Resource Management Plan, 1990) as amended by PACFISH (1995). In 2002, emphasis on the John Day Basin came as Forest Service Region 6 guidance under the Regional Aquatic Restoration Strategy which identified the John Day as a priority basin for watershed restoration in the Pacific Northwest. We are proud of the progress made through strong partnerships with Tribes, watershed councils, SWCDs, and numerous operators, permittees, and landowners who have worked with us over the last 20 years. For example, over 5 million dollars in watershed and aquatic restoration activities have been invested in restoring two "focus watersheds", Wall Creek and Granite Creek (shared with the Wallowa-Whitman), in recent years. Activities include: upland road decommissioning and stabilization, riparian fencing and planting with native vegetation, improving floodplain connectivity, instream habitat improvement, and aquatic passage barrier removal. We also acknowledge that our work is not done and additional investments will be needed to complete critical restoration work in coming years, but plans are in place to meet this goal.

General Comments: In reviewing this draft, we offer general support in concept for the goals contained in the TMDL and management plan to improve water quality in support of beneficial uses. The nonpoint source temperature TMDL establishes targets for shade needed to protect and restore stream temperatures, essentially relying on site potential riparian shade to achieve numeric water quality criteria or natural condition. Forest Service water quality programs include riparian protection as directed in PACFISH which established large areas "where riparian-dependent resources receive primary emphasis". In our view, National Forest program goals are complementary to and consistent with the TMDL.

(G-25) USFS-UNF general comment:

Comment specific to the decision by DEQ to defer sediment in the TMDL.

The National Forests recognize the role that water quality and habitat conditions play in supporting beneficial uses. To this end, the Forests in the John Day Basin have identified focus watersheds for restoration, these include Granite Creek (Umatilla and Wallowa-Whitman NF), Wall Creek (Umatilla NF), Camp Creek and the Upper MFJD (Malheur NF). These watersheds are priority areas for active restoration in the John Day to meet the goals of the Regional Aquatic Restoration Strategy. Focus watersheds receive special emphasis for funding treatments identified in "Watershed Action Plans" (WAPs). WAPs document past and present management

actions contributing to current conditions, and identify critical restoration needs to accelerate recovery. Focus watersheds are priority for Regional funding to complete critical restoration but are not the only areas of emphasis. Management across all NF watersheds follows direction contained in conservation and restoration strategies, including special emphasis on riparian areas where management is subject to specific standards and guidelines (BMPs).

Many ongoing and proposed restoration actions are targeted to reducing sediment, in addition to improving other water quality parameters. Essentially the Forests have already initiated plans, which represent our target to meet TMDL allocations for sediment, even though a quantitative allocation has not been developed. The Umatilla NF was also actively involved in two recent sediment studies including a sediment source assessment in the Wall Creek Watershed. Regardless of sediment allocations developed at a future date, the Forests will continue to carry out actions to improve water quality and aquatic habitat. Restoration actions which reduce sediment delivery to streams also improve temperature conditions (i.e. riparian protection and planting). These action items will be addressed in the implementation plan to meet the WQMP, and would not change whether a load allocation is developed for sediment or not. For these reasons, I strongly recommend that current sediment 303d listings (excepting Baldy Creek, see Wallowa-Whitman NF comments), and potential sediment sources be addressed in the WQMP through measures sufficient to meet sedimentation goals without a specific quantitative TMDL allocation. This approach emphasizes current management programs and actions that reduce sediment and will achieve desired results on the ground. If and when a TMDL for sediment is developed by the State, the National Forests will recognize that target for meeting their allocation. We are also interested in the State's development of sediment benchmarks and would like to continue involvement in this process, through discussion, review, and opportunity for formal comment.

DEQ response: As described in the draft John Day Basin TMDL document, we are deferring the development of a TMDL to address sedimentation listings until suitable assessment measures are arrived at. We appreciate that the Umatilla National Forest is undertaking assessment, planning and on-the-ground improvements with regard to sedimentation, preceding a draft load allocation for sedimentation.

We agree that in advance of a TMDL, the sedimentation listings in the John Day Basin should be addressed through best management practices designed to minimize erosion and/or streambed deposition of fine sediment. We can review the above-mentioned WAP, as TMDL implementation plans, in that light. TMDL implementation plans are subject to DEQ approval. During our review, if requested, we could evaluate whether implementation plans address sedimentation listings, in advance of a sedimentation TMDL. This would be based on applying robust criterion such as 'all feasible measures towards minimizing adverse sedimentation.'

We will evaluate the Baldy Creek 303(d) listing in the next 303(d) cycle. Preliminary evaluation (**Appendix F** of the draft TMDL document, and the US BLM 2009-2010 channel condition assessment) is consistent with de-listing Baldy Creek as un-impaired.

We welcome USFS participation in the development of sedimentation benchmarks for 303(d) list purposes.

(G-26) USBLM general comment:
The TMDL is very complex and I commend the Oregon Department of Environmental Quality (ODEQ) on the detailed, thorough analysis. The USBLM looks forward to working with ODEQ and submitting Water Quality Restoration Plan much in the same fashion as was done for 150 miles of the John Day Wild and Scenic River in the Wild and Scenic River Plan of 2001.

(G-27) USBLM general comment:

Why was the South Fork of the John Day not included in any of the TMDL monitoring or modeling efforts?	Because the South Fork is 303d listed for temperature and is a significant tributary of the John Day River, modeling exercises should be conducted along the South Fork to determine its Natural Thermal Potential.

DEQ response: The South Fork is slated for temperature modeling in a related research effort through the US Bureau of Reclamation, NOAA Fisheries, OSU and others – DEQ has collaborated in that effort. However, due to limited resources we were not able to incorporate this into the TMDL. We note that the gains in understanding the South Fork watershed would be relatively small compared to the other model corridors, as the flow in the South Fork above Izee Falls is too slight for temperature simulation during critical days of the year. This limitation would exclude much of the river from temperature simulation. Accordingly, for temperature TMDL purposes, we consider that the generalized allocation method is sufficient.

(G-28) USBLM general comment:

There seems to be an information gap relating streams that are 303d listed but not modeled within the document.	Establish a framework to address how the 303d listed streams within the John Day basin that are not addressed within the document will be dealt with.

DEQ response: In the draft John Day Basin TMDL and other basin or subbasin scale temperature TMDLs in Oregon, there are at least two approaches to temperature load allocations. Typically each addresses both 303(d) listed and non-listed streams. One is the temperature modeling approach, where site-specific heat loads are developed. The other is a generalized heat curve approach. In the latter approach, mathematical relationships between channel width and solar loading (and corollary effective shade) are developed for an array of natural potential vegetation scenarios. These heat loads are allocated in the form of aspect-dependant equations. Given the latter approach, for un-modeled areas, we do not believe that site-specific modeling is needed for each stream of potential concern. This framework is described in the document (**Sections 2.1.4.1** and **2.1.8**).

Through this process, all streams in the John Day Basin are addressed, for temperature, regardless of whether they are listed. For bacteria, the approach similarly provides Basin-wide coverage.

Chapter 1 Comments (Introduction)

(1-1) MJK comments:

Page 1 1.1 The TMDL Purpose and Background – all designated beneficial uses of water of the state should be listed. Some people may take it to be just recreation, drinking water supply and fisheries.

Page 1, 1.1 it says the TMDL assessment will be used as a benchmark of water quality and landscape conditions that currently exist. The model says that we are short by 14 degree F at this time, and we have done millions of dollars of restoration improvements. It makes us question the model results.

DEQ response: Regarding listing beneficial uses, refer to the response to comment G-6 (2nd paragraph of response addressing 1st bullet). Regarding model results, they are based on an assessment of existing and potential conditions. The model computations do indicate that temperatures could be improved by a range of temperature reductions, including as much as 14 ºF in some locations, based on a more natural stream corridor (more abundant tall vegetation, decreased channel width, more flow). Cost and feasibility assessment are ongoing and should be included in the TMDL implementation planning processes.

Based on model runs for the Middle Fork, looking at estimated pre-restoration scenarios, we believe that improvements of 3.6 ºF have already occurred due to restoration efforts. Many studies have assessed the temperature influence increased stream shading, and 5-10 ºF improvement is not unusual, for increased vegetation alone. When this is combined with improved flow and channel form, we believe that substantial cooling will occur, as reflected in the TMDL model results. We also note that some of the restoration efforts that were made many years ago may be leading to thermal improvements not yet realized – it can take decades after stressors are removed, for increased vegetation height and density and a more natural channel form to fully manifest.

Range of temperature difference between current and simulated natural conditions, for modeled rivers in the John Day Basin

River	Range (ºC)		Range (ºF)	
Mainstem	0.75	10	1.35	18
North Fork	0.2	3.25	0.36	5.85
Middle Fork	1.4	7	2.52	12.6

(1-2) GSWCD comments:

- **Page 1, 1.1 TMDL Purpose and Background, Paragraph 2 (Framed) – Although water quality standards are based on criteria to not impair the most sensitive beneficial uses (water supply, recreation, fisheries), when beneficial uses are listed, all need to be presented to prevent subtle influence that other uses like industrial, hydro power, irrigation and livestock watering are less important or not beneficial uses of water. It must be clear to readers of the document that Oregon Law (OAR 340-41-0170) requires "water in the John Day Basin is to be managed to protect all recognized beneficial uses."**

- **Page 26, Tables 1.4-3, 4 & 5 – It would be more useful to non Government users if they included conversions from Kilometers to Miles or Fahrenheit to Celsius. River miles are on most maps that are readily available to the public. Comment includes all tables and figures where applicable.**

- **Page 38, 1.4.5 Water Management, Paragraph 2 – Concern is provided towards diversion of water during late summer. However, the overall benefits of flood irrigation to recharge adjacent shallow aquifers to enhance warm season flows should be included in this section. Any delay that is provided in water leaving the Basin during the summer is valuable. The benefits are not all well understood but are observable if one spends much time on the river. Historic accounts (before settlement & irrigation) document that sections of the Upper John Day River were found to be dry during late summer. Research in the Walla Walla Basin support that flood irrigation practices provide shallow aquifer recharge which is essential to maintaining spring and stream channel flows throughout the year. Specific projects have been installed in the Walla Walla Basin to divert water throughout the winter to overcome negative impacts from irrigation efficiency projects which were installed primary to improve habitat for fish.**

DEQ response: Regarding listing beneficial uses, refer to the response to comment G-6 (2nd paragraph of response – addressing 1st bullet of comment G-6). Regarding use of non-metric units, refer to the response to comment G-14 (V). Regarding flood irrigation the TMDL generally does not attempt to itemize specific management practices, given that such choices are often specific to a given area and land use; and are deferred to the implementing organizations. Also with regard to flood irrigation, refer to the response to comment G-14 (III).

(1-3) USFS-UNF comment:

Page 17. Request DEQ recognize and/or acknowledge that watershed protection and restoration activities have been underway for decades and that improvements have been made.

DEQ response:* Refer to the response to comment G-6 (4th paragraph of response-3rd bullet). As well, we will add acknowledgement of past efforts to **Section 1.3** of the document.

(1-4) USFS-UNF comment:

Page 17. Seems to prescribe monitoring and reporting, we recommend emphasis be placed on taking advantage of existing monitoring programs.

DEQ response: TMDL implementation monitoring and reporting are discussed in **Section K** of **Chapter 3**, and we agree that emphasis should be placed on not duplicating efforts. Additional guidance is available in DEQ's *TMDL Implementation Plan Guidance – for State and Local Government Designated Management Agencies (http://www.deq.state.or.us/WQ/TMDLs/implementation.htm).* While this is not designed for

federal agencies, it does have substantial relevance, along with existing and developing memoranda of understanding between DEQ and federal partners.

(1-5) NWEA comments:

The TMDL states that "[n]ormally a participant's [TMDL] Implementation Plan represents an expansion of an existing program." In fact, the existing programs for nonpoint sources are utterly inadequate to reduce pollution sufficient to meet the load allocations, or the loading capacity set out in the TMDL. Therefore, an "expansion" is not an adequate response. In addition, with the use of the word "normally," DEQ seems to indicate that in some cases there will not even be an "expansion." The TMDL goes on to say that the "[implementation] process occurs in ongoing cycles, based on implementation effectiveness, the availability of information, new 303(d) listings and the state of understanding of watershed and management processes. DEQ recognizes that TMDL allocation attainment is not always feasible, due to socioeconomic constraints." What DEQ has just described is the status quo *without* a TMDL. The TMDL should be a new starting point. However, the draft TMDL provides no explanation of the "ongoing cycles" to which DEQ refers here and elsewhere, how they will be triggered, who will set what expectations, and how anything will change. For example, what will DEQ do if it determines that no changes are taking place? What will even trigger such a determination?

While DEQ has made an unenforceable commitment to revisit TMDLs when, and if, it complete TMDLs for waters on its 303(d) list, there is no assurance that it will, in fact, complete those TMDLs and move to the review stage. Therefore, there is no assurance it will revisit any completed TMDLs on an "ongoing cycle" including the John Day River Basin TMDL. Likewise, there is no indication that implementation ineffectiveness will be evaluated and adjustments made. Finally, DEQ's candid acknowledgment that load allocations may well not be attained is the opposite of a margin of safety, providing reasonable assurance that the TMDL will be achieved, or an assurance there is any such thing as a reserve capacity. Instead, it is a statement that the load allocations have little or no value and therefore cannot be relied upon for the issuance of NPDES permits for existing or new facilities, cannot be considered as having an implicit margin of safety, and cannot be the basis for a reserve capacity.

It is unclear why DEQ states that the "purpose of the TMDL is not to eliminate human activity in riparian areas." Why is that not a purpose? Has DEQ concluded that some level of human activity is compatible with the load allocations to nonpoint sources? If so, DEQ should clarify what that level of activity is. Otherwise, this statement is not helpful and, in fact, it is harmful because it leaves open the prospect for unfettered human activity in riparian areas which is, by in large, the status quo.

DEQ states further that it "envisions that substantial initiative exists to achieve water quality goals in Oregon. Should the need for additional effort [to control nonpoint sources] emerge, it is expected that the responsible agency will work with land managers to overcome impediments through education, technical assistance, funding, enforcement or other incentives and support." What evidence does DEQ have of this "substantial initiative"? What existing level of initiative is DEQ relying upon in concluding that it is sufficient such that only in the future the need for additional effort may emerge? How will DEQ identify when "implementation of TMDL planning or effectiveness of management techniques is found to be inadequate [and] DEQ expects management agencies to revise planning or benchmarks to address these deficiencies"? There is no point is saying these things if there is no clear plan on how they will take place. Instead, these types of comments are a tacit statement that DEQ expects exactly nothing to change.

DEQ response: 1st paragraph. We consider the phrase "normally a participant's Implementation Plan represents an expansion of an existing program" to be appropriate, and would not want to create inefficiency by requiring programmatic redundancy. "Normally" contrasts with the other alternative, that a DMA may elect to carry out a TMDL-specific program. The term "ongoing cycles" stems from the iterative nature of TMDLs, ongoing review of plan efficacy and the call for

a "continuous planning process" in Section 303(e) of the Clean Water Act. Specific time-lines and triggers for re-evaluation have been developed in some sectors and not yet determined in others.

2nd paragraph. The assurance of ongoing cycles of TMDL implementation is provided for via DEQ's obligations under the Clean Water Act, Oregon's TMDL rule, and the very existence of the DEQ TMDL Program. We expect that TMDL attainment may be challenging in various situations. We do not believe that stating this diminishes the value of the allocations or invalidates the margin of safety or reserve capacity.

3rd paragraph. Using the temperature TMDL as an example, eliminating human-caused heating does not mean eliminating human activities. Refer to the response to comment G-20.

4th paragraph. "Substantial initiative" at the Basin scale is generally demonstrated by the commitment of the many Soil and Water Conservation Districts and Watershed Councils in the Basin, the large number of restoration projects (for example, 319, OWEB, BPA, Federal and Tribal projects) and millions of dollars spent in the last 20 years, all dedicated to watershed enhancement in the Basin, not to mention the ongoing stewardship and complex management undertaken by landowners. TMDL implementation effectiveness evaluation methods are still being developed, in Oregon as elsewhere.

(1-6) NWEA comments:
Section 1.4.1. The TMDL states that

> The hydrologic curve has shifted from historic times, with peak flows greater than in the past and late season flows more diminished. It is suspected that these effects are due to greatly reduced rates of soil infiltration, reduced capacity for ground water / riparian storage, and diminished in channel storage in beaver ponds (NWPC, 2001).

The TMDL does not explain why DEQ suspects these changes in the hydrologic curve are due to reduced rates of soil infiltration, etc., but more important it does not identify what those historic flows were and how they can be restored. Those outcomes should be expressed as load allocations in order that they may be achieved. If, instead, they are merely used as underlying assumptions to other load allocations, the load allocations cannot be achieved because the assumptions will always be out of step with reality.

DEQ response: We will withdraw the referenced statement from the document. This is because the assertion of hydrologic shift (1) is from other sources and has not been confirmed by DEQ, and (2) was intended as general background information that is not critical to the load allocations, which are based on recent or steady flow regimes (bacteria) or are not flow dependant (temperature), and (3) readers with hydrologic and local experience have questioned its validity.

Regarding expressing flow goals as load allocations, refer to the response to comment 1-13.

(1-7) MJK comment:
We did not see any information discussing river flow peaks and lows compared to what moisture has fallen that year. (Page 24) Figure 1.4-6. Mean annual flows in the John Day Basin, McDonald Ferry gage #1404800 We disagree with the conclusion, that it is due to greatly reduced rates (influenced but not all) of soil infiltration, reduced capacity for ground water / riparian storage and diminished in channel storage in beaver ponds. It could be because we have received less moisture?

Nature - moisture from rain, snow, heat evaporation, and flash flood morphology need to be in your model. Man has to help you change the parameter for your model, than nature can take years to show the results. The draft has not reported all the time and amount of restoration work that has been completed in the John Day Basin in the last twenty years. Some of the results will not appear for years. We are still recovering from the best scientific information of channeling stream and removing wood material of the 1960's.

DEQ response: 1st paragraph: refer to the response to comment 1-6 (1st paragraph of response).

Regarding 'still recovering from the best scientific information, we agree that many "mistakes" have been made, insofar as water quality effects are concerned, including through governmental guidance promoting channel straightening and wood removal.

Regarding reporting restoration work in the Basin, refer to the response to comment G-6 (4th paragraph of response referring to 3rd bullet).

(1-8) USFS-UNF comment:
Section 1.4.1.5. "The hydrologic curve has shifted from historic times…" statement is misleading. Would be more reasonable to state that peak flows may be higher and low flows may be lower than historic, or more variability in flow patterns influenced by the various activities listed. Analysis of gage data rarely leads to such direct cause and effect inference of human effects at the basin scale. Climate variability is as big a driver of hydrologic change, with changes in snowpack and earlier runoff affecting peaks and lows.

DEQ response: Refer to the response to comment 1-6 (1st paragraph of response).

(1-9) USFS-UNF comment:
Section 1.4.4.1. Lacks description of land use and management on forest and rangelands, and the variety of past and present land uses.

DEQ response: We will expand this section to address this comment, in the document revision.

(1-10) USFS-UNF comment:
Page 31. Minor comment, "populations are small", clarify low density compared to state average, term diffuse not really appropriate, perhaps dispersed?

DEQ response: We will clarify this in the document revision.

(1-11) NWEA comments:
Section 1.4.2. This section discusses water quality standards' "address[ing] the most sensitive beneficial use, for any given type of impairment, thus protecting all uses." The TMDL does not include, however, any demonstration that it will result in the full protection of the existing and designated uses, despite the fact that these are just as much a part of the legal definition of a water quality standard as the numeric and narrative criteria cited by the Department. Water quality standards are defined as the designated beneficial uses *in combination with* the numeric and narrative criteria to protect those uses and an antidegradation policy. 40 C.F.R. § 131.6. The antidegradation policy includes a requirement to protect existing uses, regardless of whether they have been designated. 40 C.F.R. § 131.12(a)(1). Existing uses are defined as "those uses actually attained in the water body on or after November 28, 1975, whether or not they are included in the water quality standards." 40 C.F.R. § 131.3(e). Numeric criteria adopted in water quality standards should be promulgated to protect the "most sensitive use." 40 C.F.R. §

131.11(a)(1). However, since this is not always possible, and certainly is not the case when the criterion is a narrative, the task of evaluating whether standards have been met also requires an assessment of the impacts to beneficial uses, both designated and existing. In *PUD No. 1 of Jefferson County v. Washington Department of Ecology*, 114 S.Ct. 1900 (1994), the U.S. Supreme Court underscored the importance of protecting beneficial uses as a "complementary requirement" that "enables the States to ensure that each activity – even if not foreseen by the criteria – will be consistent with the specific uses and attributes of a particular body of water." *Jefferson County* at 1912.

In contrast to legal requirements, DEQ has focused only on the agency's numeric and narrative criteria on temperature and these narrative criteria that make the numeric criteria less stringent. This ignores the requirement to protect designated and existing uses. For example, where the natural conditions narrative overrides the biologically-based numeric criteria, DEQ cannot blindly include all the exceptions set out in its standards if those exceptions would impair the beneficial uses. This TMDL, however, contains no such analysis.

In addition, this TMDL oddly fails to include an essential narrative aspect of the numeric 20ºC criterion that applies to the John Day River:

> In addition, these water bodies must have coldwater refugia that are sufficiently distributed so as to allow salmon and steelhead migration without significant adverse effects from higher water temperatures elsewhere in the water body.
>
> OAR 340-041-0028(4)(d). In fact, there is no reference to the requirement for refugia anywhere in this TMDL. It is not clear if the Department believes that use of the natural conditions narrative overriding the 20ºC biological criterion means that the coldwater refugia requirement does not apply or if the Department simply finds it expedient to ignore the requirement. In any case, it is obvious that 20ºC temperatures – and temperatures that are higher – require some areas of relief for the salmonids attempting to rear and migrate through such waters. If the Department takes the position that the natural condition narrative excludes coldwater refugia, it should make that clear.

DEQ response: 1st paragraph. We agree that protecting all beneficial and existing uses is the underpinning of water quality standards. Oregon's water quality standards are based on protection of the most sensitive beneficial use, which in turn protects all others. We believe the wording and intent of the draft TMDL document is consistent with these principles.

2nd paragraphs. This seems to be an argument with the standard, not the TMDL. In the draft document temperature TMDL, both narrative and numeric criteria are applied – appropriately in our view. The standard clearly states that the natural condition narrative criteria can "supersede the biologically based criteria" when "the natural thermal potential... exceeds the biologically based criteria...". This demonstration is reflected, in detail, in the document (**Appendix B** and **Chapter 2.1** of the main body of the document).

3rd paragraph. The standard does address cold water refugia, as cited –OAR 340-041-0028(4)(d). The TMDL implicitly reflects this stipulation through the load allocations for vegetation and channel morphology, both of which provide for a host of habitat improvements that include cold water refugia.

(1-12) USFS-UNF comment:

Section 1.4.4.3. "Dedicated preservation areas" makes no mention of other FS, USBLM or private land restoration actions. See OWEB John Day maps of restoration actions in the Basin.

DEQ response: We will clarify this in the document revision.

(1-13) NWEA comments:

Section 1.4.5. This section, and the one immediately below, discusses the issue of consumptive water use but fails to say anything about its impacts on water quality and beneficial uses or how withdrawals will affect the ability of the TMDL to achieve water quality standards if the load and wasteload allocations were fully implemented. Given that the calculations of pollutant loads is utterly dependent upon the flow provided for dilution, making the case that standards will be achieved with the allocations, margin of safety, and reserve capacity is essential and cannot be ignored. NWEA recommends that flow requirements be included as load allocations in this TMDL in order to ensure that actions taken pursuant to the TMDL bring the waters into attainment with water quality standards and to ensure the integrity of the technical analysis set out in the TMDL. In fact, EPA has both written and approved TMDLs that include flow volumes and regimes *as load allocations. See, e.g.*, Potash Brook TMDL (VT)[1], Potash Brook TMDL Expanded Technical Analysis[2], and draft Accotink Creek TMDL (VA)[3]. Despite these TMDLs' being for stormwater sources, they demonstrate the merits of the approach.

[1]Http://www.anr.state.vt.us/dec//waterq/stormwater/docs/sw_pot_tmdl_finalappoved.pdf.
[2]Http://www.vtwaterquality.org/stormwater/docs/sw_potash_expanded_ technical_analysis_final.pdf.
[3]Http://www.epa.gov/reg3wapd/tmdl/VA_TMDLs/AccotinkCreek/Accotink-Creek-TMDL6-30-2010DRAFT.pdf.

DEQ response: With regard to lack of consumptive use discussion, we will add a general description of the causes of flow depletion, to **Section 1.4.7.2**.* We believe that we've clearly and quantitatively explained the impact of warm season low flow on stream temperature (**Sections 1.4.7.1**, **2.1.6.2**, **2.1.8.7**; **Figures 2.1-3 through 2.1-5**, **Appendix B**).

In the public comment period, we received several comments addressing flow. Questions and concerns were expressed regarding (1) whether flow requirements should be allocated, (2) whether WRD should be designated to respond to the TMDL, (3) whether flow targets should be quantified, enforceable or voluntary, (4) whether the State should commit to obtaining instream water rights; and related issues. Because these topics are inter-related, an integrated explanation is included in the following paragraphs (asterisks where modified in response to public comment).

The TMDL analysis demonstrates that natural thermal conditions are needed to meet the stream temperature standard, throughout the John Day Basin. This includes natural conditions with regard to vegetation, channel form and flow.

In developing this temperature TMDL, DEQ estimated natural potential temperature profiles for major rivers, focusing on summer afternoons. This is an outcome of the natural conditions provision of the temperature standard. Locally based temperature targets are established, that vary along a stream corridor, for the warmest part of the day. To address this, the TMDL allocations are prepared as heat limits targeting natural temperatures. The heat load maxima are based on reduced solar heating associated with natural potential vegetation and channel form. Natural flows are accounted for as well, though not through heat loads.

Pollutant (heat) reduction alone will not lead to attainment of temperature objectives in Basin streams with flow depletion. In order to address both heat inputs and flow, DEQ applies a dual approach for the TMDL: (1) set TMDL solar heating allocations (vegetation and channel form) and call for their implementation, and (2) *establish a non-quantitative load allocation surrogate to address flow. This surrogate is defined as: *Where feasible, instream flows should be protected to target natural discharge levels during April through September (**Section 2.1.8.7** in revised document).

DEQ's current process to promote flow protection and restoration relies on voluntary measures and community initiative. This approach is planned to include instream water right acquisition

through DEQ (OAR 340-056) and mechanisms that will be determined through the Integrated Water Resources Strategy (http://www.oregon.gov/OWRD/LAW/ Integrated Water Supply Strategy.shtml) and discussions with basin communities and other agencies. In the past, DEQ has applied for in-stream water rights in some basins, as has the Oregon Department of Fish and Wildlife.

The TMDL allocations do not state or assume that a DMA (DMA- a legal authority for sectors contributing pollutants to waterbodies) must cease withdrawing water in order to meet this TMDL and the water quality standard. How a sector makes its operations consistent with the allocation is to be established later through the planning process provided through sector-specific TMDL Implementation Plans, developed following TMDL issuance (**Chapter 3**).

In general, water diversions are regulated by the Oregon Water Resources Department. We do not name the OWRD as a DMA. DEQ and OWRD are cooperating to develop strategies to address the influence of water quantity on water quality, through the Integrated Water Resources Strategy noted above.

(1-14) WW comment:

1. Section 1.4.5, Water Management. This section should be amended to include a description of the WRD's role in water management, and also list activities that could help the meeting of the TMDL related to temperature. WRD management activities, such as enforcement against illegal use, measurement of water use, conditioning of new reservoir permits to protect peak and ecological flows, coordinating with DEQ on the application/approval of instream water rights, etc., are key to the attainment of the water quality goals set forth in this document. However, as with the WQMP, we could not find a single reference to this key state agency despite the fact that it is the only state agency with direct authority over water allocation and management.

Additionally, it would be helpful to the reader to have an understanding of how overappropriated the John Day River system is. In most stream reaches more water has been given away than exists, which creates challenges to streamflow restoration efforts. The WRD has ample information on "water availability" in the John Day River Basin, found at: http://apps2.wrd.state.or.us/apps/wars/wars_display_wa_tables/search_for_WAB.aspx. This information should be included in this section.

DEQ response: Refer to the response to comment 1-13. Regarding over appropriation of stream and river water, refer to the natural and potential flow profiles for modeled rivers in **Appendix B**. We assess human-related flow depletion in the temperature-model corridors. While we recognize that stream flow depletion is common elsewhere, we have not assessed its thermal influence outside of the model corridors. We will reference the OWRD water availability information cited in this comment, in the revised document.*

(1-15) USFS-UNF comment:

Section 1.4.5. 3rd sentence of 2nd paragraph…assumption is incorrect and generalized, natural stream profiles do not always "gain" in a downstream direction, commonly "lose" in semi arid environments such as the lower John Day Basin, where precipitation is seasonal, declines with elevation, and ET demands are high.

DEQ response: In the draft TMDL document, this sentence is qualified by the phrases "summer flow depletion can be roughly estimated" and "particularly in the headwaters." In natural settings, surface water channels generally drain the groundwater table during low flow seasons and ground water sinks are not the rule. As such, reaches that lose water to the subsurface are less common in natural potential settings, compared to areas with significant ground water withdrawal. And we agree that evaporation and plant extraction can play a substantial role. As a generality, we do not view the draft statement as incorrect.

(1-16) WW comment:

2. Section 1.4.6.2, Impoundments: This section should be expanded to include note of the many small to mid-sized reservoirs in this basin.[1] The cumulative effects of these small ponds on the overall flows and temperatures of the John Day River system cannot be understated.

[1] For instance, currently the WRD is reviewing (among others) a request to build 86 reservoirs in the Thirtymile Creek system, totaling over 200 AF. WRD is also proposing issuance of a number of eight reservoirs totaling over 330 AF in the Squaw Creek, Mountain Creek and Sixshooter Creek subbasins (R-87490, R-87491, R-87489). These are in addition to the many ponds/reservoirs already in existence.

DEQ response: Most if not all of the mid and small sized impoundments that are mapped and named are noted in this section. As to the hundreds of low-head impoundments throughout much of the Basin, we note that infrared photography does not reveal significant thermal impact from most of these structures – some warm and some cool streams, most have minimal apparent thermal signals. In addition, small impoundments can deplete or increase instream flow during critical times. More information is needed before definitive statements can be made. The temperature load allocation for reservoirs (**Section 2.1.8.4**) includes further discussion and generally addresses the thermal influence of any impoundment in the Basin.

(1-17) NWEA comment:

Section 1.4.7.1. As with all of the Department's TMDLs, this TMDL notes the role of stream straightening and concurrent loss of sinuosity, increase in velocity, loss of groundwater/hyporheic flow, and associated erosivity of stream banks, but the TMDL fails to establish meaningful surrogate measure load allocations to address any of these issues. Moreover, the TMDL fails to assess this shortcoming in the context of the alleged implicit margin of safety the Department claims exists. Yet, as this section of the TMDL itself demonstrates, loss of sinuosity has significant impacts on, among other aspects, the width to depth ratio of the waterbodies, a critical temperature issue. At a minimum, it is not helpful for the Department to observe that "[t]hese situations are common in the John Day Basin, as elsewhere." These kinds of platitudes are intended to assure land owners that the status quo is acceptable whereas the role of the TMDL is to demonstrate that it most assuredly is not.

With regard to excess fine sedimentation, the TMDL observes that "[b]est management practices for erosion control are effective and readily found in watershed literature." Unfortunately DEQ bypasses the opportunity to use this TMDL to establish the level of erosion control that is necessary and effective and will result in attainment of temperature standards. Without control of sedimentation, a shade-based surrogate temperature TMDL is likely worthless. DEQ should establish the effective erosion controls necessary as load allocations in this TMDL.

DEQ response: With regard to measures of progress such as sinuosity, groundwater interaction and bank stability, improvement is generally concomitant with implementation of the load allocations for effective shade and natural channel form. As to whether we should consider these improvements directly as TMDL surrogates, refer to the response to comment G-23 (2nd paragraph of response).

Refer to the responses to comments 1-5 (2nd paragraph of response), 2.1-1 and 2.1-7, which addresses margin of safety and reserve capacity.

With regard to addressing erosion controls in order to support temperature reduction, we agree that this is important. This is the primary reason that natural channel form is included as a load allocation surrogate for the temperature TMDL. Natural channel form generally requires natural sediment loading. Measures to achieve natural channel form should be included in the sector specific implementation plans. Upland and channel erosion reduction measures are called for in the WQMP.

(1-18) WW comment:
3. Section 1.4.7.1, Causes: The fine sediment section should call out the impact of livestock grazing on stream sediment. While this is presumably alluded to by the reference to "bank disturbance", the document should be transparent on this issue.[2]

[2] As a side note, we found little attention given to the effects of this issue despite the widespread prevalence of livestock grazing in the basin.

DEQ response: The approach of this TMDL is to target improvement measures, recognizing that with some issues the root cause is not yet determined. Where cause is known, this should be included in the pollutant source assessment. While some source assessment is available in the TMDL document, some is deferred to sector-specific implementation plans. This relates to scale issues and limited available site-specific studies. Clearly livestock are abundant and their presence can disturb channel and vegetation leading to stream warming, and are a likely source of excess bacteria, and this is mentioned in the draft TMDL document (**Sections 1.4.7.1, 2.2.6** and **Appendix E**). The degree to which they are a substantial concern, and locations thereof, have not been mapped.

(1-19) USFS-UNF comment:
Section 1.4.7.1. Pollutants addressed are heat and bacteria, but brief discussion of sediment at end of section and elsewhere in document, perhaps because section only addresses TMDL pollutants? CLARIFY

DEQ response:* This discussion of fine sediment will be moved to the preceding discussion of thermal controls in the revised document (as fine sediment loading generally modifies channel form which influences temperature). The referenced draft text location mistakenly implies that fine sediment is a pollutant in this TMDL to address sedimentation listings.

(1-20) USFS-UNF comment:
Section 1.4.7.1. Statement that straightening increases width is a generalization, streams may be diked or otherwise constrained and deepened through bed incision rather than widened (common in dredged reaches).

DEQ response: We agree. However, we believe that as a generalization the statement holds true. In unconstrained alluvial channels, human-caused modifications such as bank and vegetation disturbance, increased sediment loads and channel straightening, lead more to increased width (or increased wetted width to depth ratios during low flow) than otherwise. Incision is typically an unstable state, followed by widening. That said, we do recognize that restoration in the John Day Basin in some reaches has led to channel widening due to the removal of constraining materials (dredge spoils). Because of this and the difficulty of estimating natural channel width/depth in the Basin, we've included natural channel form and complexity as the channel surrogate for the temperature TMDL, and have not specified any channel narrowing target as a load allocation surrogate.

We do invoke a general estimate of 30% reduction in channel width for the natural temperature profile calculations, to approximate the overall temperature reduction from improved channel form, vegetation and flow, and the relative benefit of each. The 30% channel width reduction is not a load allocation surrogate or target. The temperature simulations that incorporate reduced width provide information in support of restoration, planning and point source permits. In addition, refer to the response to comment 2.1-4.

(1-21) USFS-UNF comment:
Section 1.4.7.2. Management Roles section is confusing, does this section refer to land uses or to land managers or both? Agricultural activities do not occur on all 54% of the land area in this

category, many areas of rangeland, same with forest lands which are actually mixed forest and rangeland. Again overgeneralization, for example “Forestry…addressing 45% of the Basin land…” implies forestry activities on all acres when forestry activities do not occur on every acre, a fraction of forested lands are managed in timber production. Generalizations of land use effects should be qualified as leading or contributing to…”stream heating and fine sediment deposition”. No mention or discussion of recreation activities. Need a more descriptive and qualified discussion of the distribution and types of land uses, land use history, and the land managers in the John Day Basin. Many of the challenges are legacy problems from activities that occurred decades to over a century past.

DEQ response:* We agree and will re-phrase this section for clarity and accuracy.

(1-22) WW comment:
4. Section 1.4.7.2, Management Roles: This section should note that irrigation withdrawals are the primary cause of low flows in the basin. As is reads now, low flows are not mentioned at all.

DEQ response:* We agree, with regard to current potential, and will re-phrase this section accordingly. As noted in various comments in this document, climate change may play a role as well. As stated in the response to comment 1-13, we believe that we've clearly and quantitatively assessed and described the impact of warm season low flow on stream temperature (**Sections 1.4.7.1**, **2.1.6.2**, **2.1.8.7**; **Figures 2.1-3** through **2.1-5**, **Appendix B**).

Chapter 2 Comments (TMDL Chapter)

Section 2.1 (Temperature TMDL)

(2.1-1) NWEA comment:

Section 2.1. Table 2.1-1 states that "[g]enerally, the natural conditions criterion is applied across the Basin. For point sources at times or locations without natural temperature determination, other narrative and biologically based criteria of the standard are applied." This is not a helpful comment to understand *exactly* where the natural conditions criterion applies in the John Day River Basin and what the resulting criteria are. Because attainment of the water quality standards is the goal of the TMDL, the Department must set out what that goal actually is including, to the extent required, where narrative criteria override numeric criteria, whether that results in more or less stringent results. Instead, this TMDL leaves ambiguous precisely what the standard is and specifically where the natural conditions criterion has been applied. Because this TMDL is the only place in which DEQ will be establishing the role of natural conditions criterion – to date it has failed to set out any information on its website as to where the criterion has been applied – it is essential to do so here. Not only does DEQ need to establish where it has used its natural conditions criterion to override the biologically-based numeric criteria but it must also establish what those natural conditions are. A TMDL that is intended to demonstrate attainment of standards cannot leave open what those standards are. The discussion of natural thermal potential is peculiar. First, it states the "NTP refers to the best estimate of vegetation, channel shape, stream flow and other thermal controls that would occur without past and present human disturbance," and then it states that "[t]emperatures are simulated for various flow profiles as well." Does this mean that flows are included in NTP or not? Or, are they partially included The text appears to imply both.

The TMDL states in this section that "[a]nalytical capabilities for solar heating assessment are generally robust, though other factors also influence natural temperatures. Practical difficulties in assessing the influence of groundwater and increased sinuosity limit the ability to estimate natural temperatures," yet none of these shortcomings are discussed in the margin of safety which alleges that the margin of safety is implicit in this TMDL. In addition, to the extent that the TMDL concludes that "[i]mproved flow and riparian conditions set the stage for channel evolution and shading that ultimately lead to natural temperatures," the TMDL needs to be extremely clear as to what that flow improvement and those riparian conditions need to be. Instead, as discussed below, the TMDL resorts to the use of shade curves which have no practical application whatsoever.

DEQ response: The applicable criteria are specified by time and place, in **Sections 2.1.7** and **2.1.8**. The application of the natural condition criteria is specified in previously established temperature TMDLs as well – those that post-date the most recent temperature standard (May 2004).

Does NTP include flow? Yes for the temperature profile and no for the allocations. *In the introduction to **Chapter 2.1**, we'll clarify that "The NTP channel and vegetation geometry are the basis for the load allocations of this TMDL, and figure into the wasteload allocation method. The NTP temperature simulation addresses natural channel form, vegetation and flow." For further clarification, refer to the response to comment 1-13.

The margin of safety is implicit in that it is illogical to expect to achieve lower temperatures than targeted in the TMDL – those provided by natural conditions. We do not consider application of best-available science a shortcoming.

Regarding the shade curves, refer to the responses to comments G-23, G-28, 1-17, 2.1-22 and 2.1-27.

(2.1-2) USBLM comment:

Table 2.1-1 Section 2.1.1	Quote: Water body John Day Basin stream network, HUC 170702 Quote: The John Day Basin temperature TMDL applies to all streams in the Basin, year round. By including all streams within the John Day Basin for the temperature TMDL could be construed to incorporate all intermittent and ephemeral channels many of which do not flow during the peak temperature period (mid July to Mid August) and therefore do not necessarily contribute to the load of the stream. Including all streams in the TMDL is including extensive channel networks with no causal linkage or no recorded impairment.	USBLM recommends that ODEQ be explicit on which streams are applicable through definition either in the text or in the definitions. The definitions should contain an explanation of channels and specifically those that pertain to the TMDL, such as perennial streams, interrupted perennial streams, or intermittent streams that may contribute hyporheic flow during the summer months.

DEQ response: The temperature TMDL applies to all perennial and intermittent streams in the John Day Basin. DEQ believes that it is important that TMDLs for temperature apply to these streams because temperature impacts are cumulative and based on conditions in and above the reaches that are impaired. Also, intermittent stream conditions can have significant impacts on water quality, including downstream channel form influence. Intermittent stream conditions are important for temperature because they can:

(1) Be "dry" but retain residual pools primarily fed by groundwater. There is at least one published study in Oregon documenting the presence of fish in these pools over the entire summer (Wiginton et al 2006). Residual pools and the aquatic life that use them (e.g. bull trout) must be protected from temperature increases.

(2) Influence temperature directly during the time in which they flow. Though this typically is not during the annual "thermal peak", there are other times of year when temperature is a critical concern, such as at the beginning or end of the summer, or during spawning periods.

(3) Exert thermal influence to downstream perennial water bodies. Some influence sustains when the intermittent streams are not flowing. For example, while flowing they can be sources of increased sediment loading where modified through land and vegetation disturbance. High sediment loading can cause downstream channels to widen and shallow, increasing solar heating. That is to say, stream temperature is influenced by channel shape, which is in turn influenced by upland and headwater sediment loading. Restoration and maintenance of healthy riparian condition throughout the stream network provides for stream bank stability and reduced erosion.

(4) Be flowing subsurface because they are currently degraded. In Eastern Oregon, there are examples of degraded intermittent streams becoming perennial after restoration. Restoring the riparian vegetation will allow the system to aggrade, raising the water table and returning flow to the surface (Elmore and Beschta 1987).

If resource managers have data that demonstrate that conditions in a non-perennial stream do not affect downstream water quality on streams addressed in this TMDL, DEQ can consider alternative management on those non-perennial streams. DEQ would work with DMAs on this during the development of TMDL Implementation Plans.

(2.1-3) USFS-UNF comment:

Section 2.1.3.1. We support in concept the natural conditions criteria approach with the caveat that actual natural conditions are more variable than displayed because of modeling assumptions (vegetation, flow, channel morphology). Therefore targets should be based on best available information including management strategies already in place to accelerate recovery of natural conditions.

DEQ response: We agree.

(2.1-4) USBLM comment:

2.1.3.1	Using a 30% width reduction throughout the entire basin to calculate the natural thermal potential may not be realistic or possible within all reaches of the basin. In addition, this component oftentimes resulted in some of the largest decreases in stream temperature (Appendix B, figure B3). While a 30% reduction in width might be expected along some of the smaller, lower gradient sections of river, it is likely much too great for some of the lower sections or the higher gradient headwater reaches.	Break the basin into different subsections and utilize a more realistic channel width reduction value based upon factors such as landform type and vegetative community. One example would be using regional curves, as developed by Janine Castro in her 1997 Ph.D. thesis for Oregon State, to predict a bankfull width based on drainage area and compare it with actual widths that are currently present. This could give width reduction targets that are more regionally specific.

DEQ response: The selection of a single general estimate of 30% reduction is partly an artifact of limited available information, particularly in the larger rivers. We undertook an extensive literature review and worked with several methods of regression analysis, including one modified from Castro et al. (Castro, Janine M. and Jackson, Philip L., 2001. Bankfull Discharge Recurrence Intervals and Regional Hydraulic Geometry Relationships: Patterns in the Pacific Northwest, USA. Journal of the American Water Resources Association, American Water Resources Association, Oct 2001, p. 1249-1262). Each was hampered by a lack of information in some part of the Basin. As an alternative, supported by the sources cited in **Appendix B** [Anderson et al. 2004, Beechie et al. 2007, Castro & Jackson 2001, Grande Ronde Model Watershed 2002, Hey 2006, Li et al. 1994, McDowell 2000, ODSL 2005, River Design Group 2007, Rosgen 1996, Smith & Smith 1984, USBLM 1998, USFS 1995, USFS 2007, Nick Bouwes (for NOAA Fisheries) - personal communication 2005, Jeff Fields (The Nature Conservancy) - personal communication 2007, Tom Friedrichsen (Malheur National Forest) - personal communication 2008, Anna Smith (US BLM) – personal communication 2009, Wayne Elmore (US BLM, retired) - personal communication 2010, Welcher, K.E. 1993.], we simulated a range of plausible width reductions (10-50%), and documented this range of temperature influence, considering channel shape alone, and in combination with other natural thermal potential attributes. **Appendix B** shows the range of effective shade, flows, and maximum 7DADM temperatures that result from the range of NTP scenarios for each model (e.g., **Figure B-14**). When only one NTP scenario was required, the median value was used to represent the average NTP values. Note that the thermal load allocations of the draft TMDL are not based on quantified channel width reduction. Also, refer to the response to comment 1-20.

(2.1-5) NWEA comment:

Section 2.1.3. This section repeats the error made elsewhere in defining a water quality standard, as discussed above, namely ignoring the fact that full support of the designated uses, as well as the existing uses, are requirements for the TMDL to attain. Instead, the text strongly hints that only the numeric and narrative criteria must be met. There is no analysis in this TMDL as to

whether the projected "natural conditions" are sufficient to protect designated and existing uses or whether full use support in fact overrides those narrative criteria. Moreover, there is no clear indication how far from natural conditions the predictions are. Appendix A refers to conditions' "reflecting minimized anthropogenic (human-caused) warming," without explaining how minimal the anthropogenic influences are in the estimates. Appendix A at 2. Likewise, the TMDL states that "many areas have been altered to the point that the historic condition is no longer attainable given irreversible changes" but it fails to identify the degree to which DEQ has identified "irreversible changes" and how that affects the predicted "natural" condition. *Id.* at 3. DEQ does not clearly identify if such irreversible changes are considered to be allowed in the assessment of natural conditions or not but the text implies that they have been taken into account. If that is true, then DEQ needs also to evaluate the use of its human use allowance (e.g., allocate the HUA to the irreversible impacts) and to determine if the so-called natural conditions are sufficient to protect designated and existing uses. Moreover, protection of uses is not just attaining a temperature but, as the numeric criterion for 20ºC waters points out, it includes such matters as coldwater refugia and temperature regimes. There is no analysis, however, of such matters in this TMDL.

DEQ does note some specific influences that would have historically caused waters to be colder including groundwater and hyporheic flows and increased channel complexity and more coarse woody debris. *Id*. at 5. Simulated scenarios also limit potential bankfull width for estimating natural conditions by choosing 30% when that may be a significant underestimate. And, there is a statement that for simulating natural conditions "[n]o temperatures adjustments were made to tributary inputs." *Id.* at 20. This statement strongly suggests that tributary temperatures were not adjusted to remove human influences from these watersheds, an implication confirmed by DEQ. Personal comm. with Don Butcher, August 4, 2010. Again, despite these known coldwater influences, DEQ determines a "natural" condition and deems it sufficient to protect uses by virtue of its being "natural." And then DEQ adds a human use allowance.

DEQ response: Regarding targeted criteria, refer to the responses to comments G-6 (3rd paragraph of response), 1-11 and 2.1-1.

Regarding the channel width reduction, refer to the responses to comments1-20 and 2.1-4.

Regarding adjustments to tributary temperatures, DEQ did not attempt to estimate natural temperatures for un-modeled inflows to modeled streams. While DEQ knows that cold water tributaries are important in watershed wide temperature management, we cannot quantify their influence. There wasn't sufficient information available. We ran sensitivity simulations for hypothetical tributary-input temperature ranges, and generally found that there were not substantial influences to the North and Middle Forks and the John Day River. The natural thermal potential conditions that were known on modeled tributaries (North and Middle Forks) were input to the appropriate receiving model.

(2.1-6) NWEA comment:

Section 2.1.3.1. The TMDL states that the Department has made a determination "based on warm season analysis of the natural thermal potential of three corridors: the John Day River, the North and Middle Fork John Day Rivers." It goes on to say that for each modeled river, five scenarios are shown with the natural thermal potential being the combination of restored vegetation, which is the estimated natural vegetation, estimated natural flow, and a 30% width reduction, the mid-range of modeled channel width/depth reductions. The TMDL then concludes that on the basis of these three rivers, "the NTP scenario (5), compared to the biologically based criteria, provides the basis for determining the applicability of the natural conditions criteria" which supersedes the biological criterion and that "[e]xceptions to NTP applicability may occur where (and when) biologically based criteria are greater than NTP and cumulative effects are not an issue, particularly regarding point sources." It concludes further that "[t]he natural conditions criterion, accordingly, is the basis for John Day Basin load allocations." None of this is clear. First,

the Department has a critical fact buried deeply in a table of Appendix B. This fact is that the modeled scenarios include only restoring natural vegetation to the mainstem modeled rivers, not the tributaries entering those rivers. So, in fact, DEQ has not modeled natural basin conditions. Yet it is confident in predicting that the modeled results are the natural thermal potential. This is a highly flawed conclusion. In addition, DEQ is correct in stating that in some instances the numeric criteria will apply, according to the way the standards are written, but it must identify where that is true, not just make a general observation. Otherwise, the TMDL not only will do nothing to restore water quality but it will not even clarify what the standards are. The TMDL states that "[w]here or when NTP temperatures are not known, the biologically based criteria may be applicable," but does not explain why the Department has used the word "may" and how permit writers can use the TMDL to establish WQBELs. Finally, the TMDL states that "[t]ypically, the cold water protection criterion will only apply in spawning waters," but it fails to identify any waters that would be subject to this more protective criterion. And it fails to address the provisions that govern whether the cold water "protection" criterion (which actually allows deterioration, not protection) applies, including whether there are there are threatened or endangered salmonids currently inhabiting the water body, the water body has been designated as critical habitat, and the colder water is not necessary to ensure that downstream temperatures achieve and maintain compliance with the applicable temperature criteria. OAR 340-041-0028 (11)(c)(A)(B)&(C). Moreover, Appendix A states that the "NTP is not necessarily an estimate of pre-settlement conditions. Although it is important to consider historic land cover patterns, channel conditions and hydrology, data are often scarce and many areas have been altered to the point that the historic condition is no longer attainable given irreversible changes." Appendix A at 3. Once again, the Department alleges that its water quality standards require a representation of completely natural conditions but its actions demonstrate it has no intention of doing so. A determination of what is natural is not dependent on whether there are irreversible changes that cannot be remedied. Since the TMDL does little if anything to remedy completely reversible changes, it could at the very least identify the natural conditions criterion accurately.

DEQ response: We consider the application of the natural condition criterion appropriate. Refer to the responses to comments G-6 (3rd paragraph of response – 2nd bullet), 1-11, 2.1-1 and 2.1-5.

There are logic branches in the temperature standard, dictating the conditions, times and locations at which various criteria apply. Therefore, it is appropriate to employ the phrase "may be applicable" in this general introductory section. Applicability is specified in **Sections 2.1.7** and **2.1.8**. Further specificity is also available in the language of the standard, as referenced in the TMDL document. Application of the coldwater protection criteria is dependent on stream temperatures at a particular time – because this changes each year, it would normally be pre-estimated only where it were critical for winter effluent limits. This may take place during permit development, depending partly on whether there is winter discharge. Currently the wastewater treatment plant for the City of Dayville is the only individual NPDES facility discharging to a John Day Basin stream.

We view that DEQ's estimate of natural condition is a best available estimate. As to whether the TMDL addresses irreversible changes, perhaps the best example of a thermal irreversible change would be channel incision, in which a new and narrower floodplain re- establishes at a lower elevation, following post-disturbance equilibration. This may represent a newly evolved natural condition.

(2.1-7) NWEA comment:

Section 2.1.3.4. Based on the standards, the TMDL concludes that "[i]t follows that the TMDL allocations of this chapter are based on the applicable criteria described earlier in this section (Section 2.1.3.1), plus the portion of the human use allowance allotted to any given source." This analysis is flawed. The Department has failed to consider that full support of existing and designated uses overrides any narrative and numeric criteria that allow less stringent protection than application of the numeric biological criteria when they are superseded. Therefore, the

Department is not free to determine its so-called natural thermal potential as the narrative natural conditions and then add 0.3ºC to that temperature without first evaluating the cumulative impact of that result. This analysis is required to give meaning to the legal definition of water quality standards. The TMDL also states that "[p]otential future sources may draw on the reserve capacity." However, the Department has not explained how it can establish a reserve capacity that apparently any source can draw upon that is consistent with federal regulations, namely that a proposed new discharge into an impaired stream must demonstrate that (1) "there are sufficient remaining pollutant load allocations to allow for the discharge" and that (2) "existing discharges into that segment are subject to compliance schedules designed to bring the segment into compliance . . . ." 40 C.F.R. § 122.4(i).

As the Ninth Circuit Court of Appeals stated in discussing this provision, The TMDL merely provides for the manner in which Pinto Creek *could* meet the water quality standards if all of the load allocations in the TMDL were met, not that there are sufficient remaining pollutant load allocations under existing circumstances." "Here the existing discharges from point sources are not subject to compliance schedules designed to bring Pinto Creek into compliance with water quality standards. Thus, Carlota has not demonstrated that clause (2) of 40 C.F.R. § 122.4(i) has been met. This is the regulation upon which Carlota and the EPA rely for issuance of the permit. *Friends of Pinto Creek v. U.S. EPA*, 504 F.3d 1007 (9th Cir. 2007). Thus, the TMDL incorrectly states that "[i]f a new point source requests to access the general reserve capacity, DEQ will evaluate the discharge and assign the appropriate reserve capacity HUA so that the overall HUA threshold of 0.3 ºC is not exceeded." This is inconsistent with the *Pinto Creek* decision and therefore misleading.

DEQ response: The first four sentences of this comment appear to address the standard, and as such is not the topic of this public review, though closely related. In addition, the comment questions the natural thermal potential (NTP) determination of the TMDL. Regarding the NTP estimate, refer to the responses to comments G-6 (3rd paragraph of response – 2nd bullet), 1-11, 2.1-1 and 2.1-5.

A small part (0.1 ºC in areas with point sources) of the loading capacity is set aside for reserve capacity. As such, it is not available for existing uses. The other components (load and wasteload allocations) are defined from the remaining LC. It follows that cumulative existing sources, at their maximum thermal output while not exceeding the draft TMDL, will allow availability of the remaining 0.1 ºC for future sources consistent with 40 C.F.R. § 122.4(i). In order to support existing sources in not cumulatively exceeding their allocations, a cumulative effects analysis was carried out (**Section 2.1.7.2.1** of the draft document).

In the second paragraph of this comment, if it is being asserted that Reserve Capacity (RC) are invalid in cases where LC are currently exceeded, then the definition of the RC as a portion of the LC would differ in context from the LA portion of the loading capacity. Clearly, LA are assigned in advance of their attainment. The RC is as well, in Oregon's TMDLs and in those of other States.

(2.1-8) GSWCD comment:

- **Page 50-51, 2.1 Temperature TMDL, Paragraph 2 – The modeling parameters for developing the natural thermal potential (NTP) will create excessive management and financial hardship on agricultural producers. To produce the riparian vegetation growth and the channel shape necessary to reflect the NTP (Approximately a 14° F difference between existing and the NTP 7 Day Average of the Daily Maximum Temperature at John Day) with the minimal HUA allocation (0.5 F, Both Point & Nonpoint Sources), large tracts of high value and productive crop land would be removed from production. As channel geometry evolves to reach the TMDL Temperature Standard through channel width reductions and increased sinuosity, improvements including irrigation systems, management fencing, structures, cropland and roads would need to be modified, moved or replaced. This expense will be absorbed by the landowners and citizens of the Basin. Any comments towards improving flow conditions should include a statement in support of the validity of state privately held water rights and that any flow restoration efforts would only be pursued through voluntary means. It would also be helpful to include a list of specific strategic sites in the Basin comparing their existing condition to the plans expected NTP conditions (temperature, vegetation, channel width, flow) for comparison examples.**

- **Page 56, 2.1.3.4 Human Use Allowance, Paragraph 1 – Needs clarification and reference to how the HUA was determined (OAR 340-041-0028 (12)(b)(B)). Should provide information to support how the 0.5 degree Fahrenheit HUA is reflective of practical conservation efforts that are complimentary to sustainable agricultural and timber production. This temperature increase allocation is extremely conservative and does not consider the maintenance of valuable and limited crop land and existing road infrastructure which primarily lies adjacent to these stream channels. This makes the Temperature Standards unrealistic and puts landowners at future risk of regulation and third party lawsuits.**

DEQ response: Regarding the potential for hardship, refer to the responses to comments G-2, G-6, G-14, G-21, 1-1. In particular, refer to the response to comment G-5 (2nd paragraph of response).

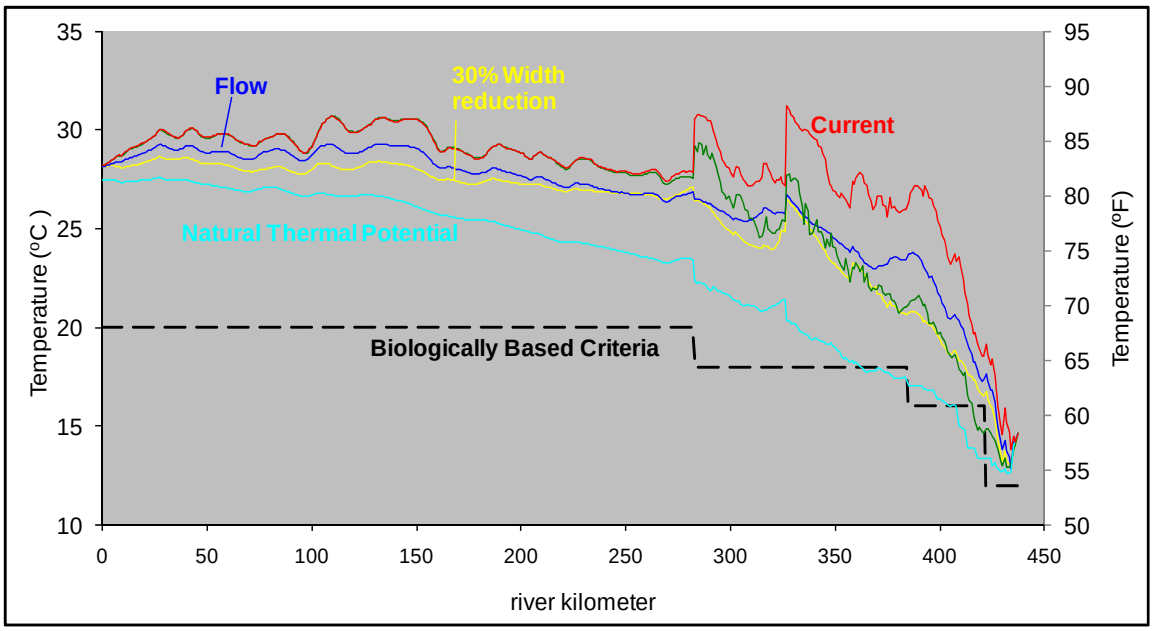
Regarding flow restoration efforts and voluntary means, refer to the response to comment 1-13.

The comment addressing the human use allowance applies to the temperature standard, which the TMDL necessarily addresses. This public review addresses the TMDL document and not the standard. Standards are prepared on a state-wide basis, subject to review each three years.

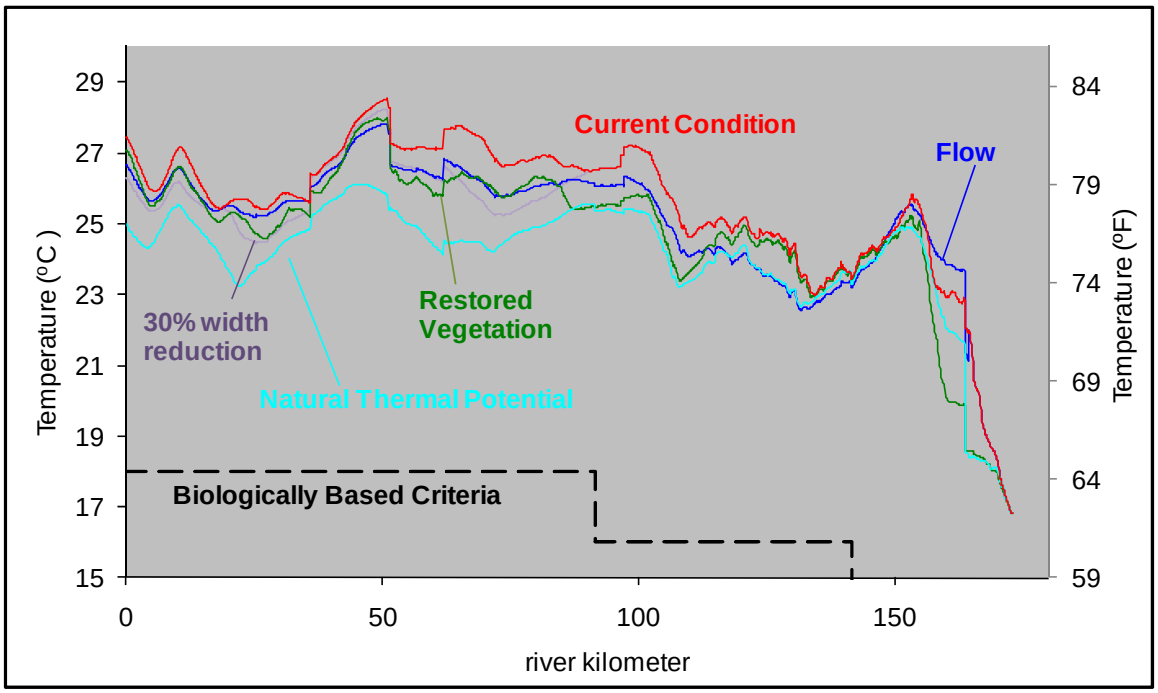
(2.1-9) USEPA comment:

1. Page 55. Figure 2.1-3 through Figure 2.1-5. The Natural Thermal Potential text and line are fuzzy. It would be helpful if these could be made clearer.

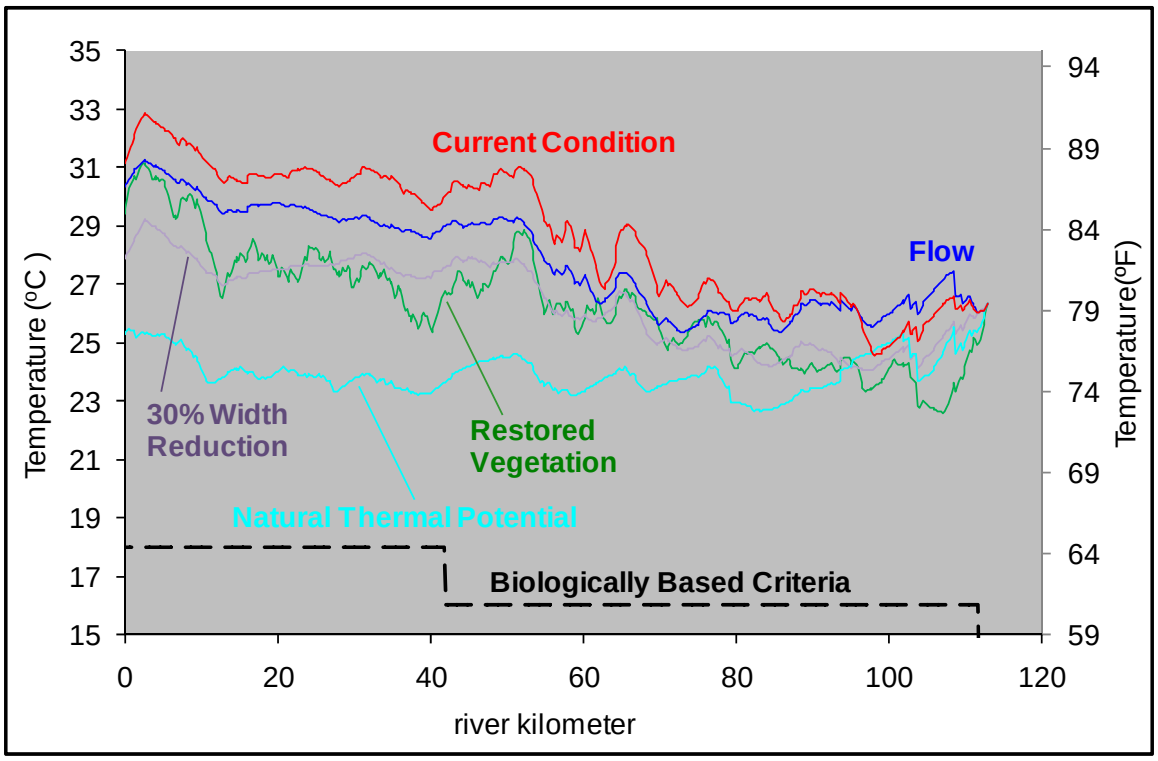
DEQ response:* We will correct this in the revised document as follows:



John Day River



North Fork John Day River



Middle Fork John Day River

(2.1-10) USFS-UNF comment:
Section 2.1.3.5. See comment above, also we found potential flow modeling methodology difficult to track here and in Appendix B, Section 3, (details limited, no discussion of assumptions or limitations).

DEQ response:* The OWRD median estimate of natural flow at the North Fork John Day River at Monument was noticeably higher than the current flow, even though DEQ does not believe the flow has been altered significantly in the USFS managed lands. The following discussion is based primarily on the USGS stream gage near the City of Monument (gage # 14046000). When examining the 81 year historical record at that site, we found that the model calibration year (2002) had a lower average August flow (81.5 cfs) than 73% of the other August-average flows. The median August-average flow on record was 114 cfs. Had the model year been a more average flow year, the difference between the current flow and average flow would have been less. In addition, the OWRD estimate of natural flow could be high. If the flows on record represent unaltered flows, then the median OWRD estimate of natural flow should be about 114 cfs. Instead, the median OWRD estimate is 153 cfs. This is an artifact of the methodology OWRD employs to estimate natural flow on a basin wide or state wide scale, and it may be that there are significant withdrawals between Monument and USFS lands. Note that at Monument, there is considerable OWRD-estimated consumptive use (CU) associated with the water rights above this gage. Please see the table below. In discussions with OWRD, they note that CU is not based solely on the water rights upstream of the gage, but on other factors as well. This TMDL used the OWRD estimates in the North Fork John Day River to be consistent with our natural flow estimates across the basin. This does not effect the draft load allocations.

The methodology OWRD used to estimate natural flow is provided here: Oregon Water Resources Department (2002). Determining Surface Water Availability in Oregon, Open File Report SW 02-002, by Richard M Cooper, Salem, Oregon., http://www1.wrd.state.or.us/pdfs/reports/SW02-002.pdf

Natural Stream Flow Estimates for Watershed 14046000

Exceedance Level: 50

Month	Gage Flow	CU	Nat. Flow
1	638.00	1.94	640.00
2	1220.00	2.04	1220.00
3	1800.00	3.84	1800.00
4	3130.00	20.44	3150.00
5	3420.00	56.46	3480.00
6	1600.00	42.20	1640.00
7	305.00	43.70	349.00
8	125.00	33.27	158.00
9	118.00	22.47	140.00
10	158.00	9.52	168.00
11	238.00	1.87	240.00
12	483.00	1.91	485.00

We will clarify in the revised document that the difference between existing and potential flow, for the North Fork results from annual variability and generalized estimation methods for potential flow. These changes to **Appendix B** are shown below. *An abbreviated explanation will be included in the main document as well, in **Section 2.1.3.5**.

APPENDIX B, SECTION 3. POTENTIAL FLOW

Potential flow is the volume of water estimated to be in the modeled reach if there were no ~~anthropogenic~~ human-related influences. ~~The~~ In parts of the Basin, flow of water in the John Day Basin has been altered significantly from historic and natural conditions. **Table B-2** shows the mean August flow during the model year at four gages in the Basin. The percent exceedance shown in the Table is the percent of other years' mean August flows that exceeded that of the model year. In other words, the John Day River August flows at John Day were relatively high during 2002 (only 34% of years on record had higher August flows), while the North Fork John Day River August flows at Monument were relatively low (only 27% of years on record had lower August flows). It is important to note that there is relatively little consumptive use in the upper North Fork drainage – progressively less above Monument and much less above the Middle Fork. The difference between 2002 and NTP temperature and flow profile, above the Middle Fork, should not be interpreted as human-caused flow deficit. Rather, the estimate reflects annual variability and generalized estimation methods.

Oregon Water Resources Department (OWRD) provided estimates of natural potential flow using the methodology outlined in *Determining Surface Water Availability in Oregon* (OWRD 2002). OWRD estimates were available monthly along the modeled rivers and for some tributary inflows to the model streams. At these points, OWRD ~~provides~~ provides estimates of the 50% and 80% exceedances level natural flows meaning that during any natural flow year, there is a 50% and 80% chance, respectively, that the actual flow will exceed the estimated values. The estimated 50th percentile natural flows were used herein to target a median natural flow year.

To simulate natural potential flow to the modeled reaches, we started by modifying tributar~~iesy flow~~ ~~with~~(to model corridors) where OWRD ~~estimates of~~estimated natural

~~inflows~~flows. These tributar~~ies~~y inputs were modified to reflect the natural flow estimate. After comparing the resulting ~~instream~~ modeled river (model corridors – North Fork, Middle Fork and John Day River) flow with ~~OWRD~~the natural flow ~~estimates of the river~~estimated by OWRD, further flow modifications in the tributaries were ~~made to balance the effects of OWRD tributary and natural flow estimates.~~necessary. ~~The tributary flows~~Inflows from the tributaries were modified to ~~most closely match~~create the closest match between the model flows and OWRD estimates during the lowest flow period of the year, generally August. The resulting natural potential flow estimates in the model, and the associated thermal influence, are shown subsequently in this appendix.

(2.1-11) USEPA comment:

2. Page 57 Table 2.1-3 This Table gives 0.2 C of the human use allowance to general reserve capacity "outside of cumulative effect reaches, relative to existing point sources". In those cumulative effect reaches, relative to existing point sources, it is not spelled out what portion of the human use allowance is given to general reserve capacity. The examples in the text below the table are helpful, but it might be clearer to also put it in the table. For example:

Application	Portion of HUA	Notes
Load Allocation	0.10 °C	All nonpoint sources
Wasteload Allocation	0.10 °C	Combined increase in temperature associated with effluent from Long Creek WWTP, Dayville WWTP, Mt. Vernon WWTP
Specific Reserve Capacity		John Day WWTP
General Reserve Capacity	0.20 °C	outside reaches with cumulative effect relating to existing point sources
	0.10 °C	within reaches with cumulative effect relating to existing point sources

DEQ response:* The document will be revised in accordance with this recommendation.

(2.1-12) WW comment:

5. Section 2.1.3.5, Natural Conditions Flow Context: DEQ should commit to applying for instream water rights in this section. Moreover, it should be noted that "natural flow" conditions are rarely, if ever, present in the John Day River Basin. This stream is heavily overappropriated. It should be noted that natural flow conditions include a whole range of flows, including peak and ecological flows.

DEQ response: Refer to the responses to comments 1-13, 1-14* and 1-22*. Regarding the rarity of natural flows in recent times, whereas stream flow is commonly depleted through diversions, this is not true everywhere in the Basin (e.g., upper North Fork), and we are not aware of an inventory reflecting this conclusion. Regarding peak flow protection, refer to the response to comment 3-17.

(2.1-13) NWEA comment:

Section 2.1.3.5. The Department notes that "[n]atural flow patterns in streams, for instance, are often required to achieve natural temperatures" and that "flow is addressed in the NTP temperature profiles," but also that "it is not addressed in the load allocations." As a consequence, even if load allocations and wasteload allocations were fully met, the TMDL would not result in the attainment of standards. Therefore, the TMDL fails to meet legal requirements and fails to demonstrate what actions are necessary to protect threatened and endangered coldwater species.

Instead, the Department offers up some platitudes – it "promotes flow restoration efforts and is a partner in planning and it "view[s] the natural flow-based temperature profiles as providing important information" – none of which provide any assurance that the TMDL will be met due to loss of flows.

DEQ response: Refer to the responses to comments 1-13.

(2.1-14) USFS-UNF comment:
Section 2.1.5. Excess solar load shows some of the limitations in modeling using flow estimation and interaction of variables (more flow→wider channels→"negative" excess load).

DEQ response: Refer to the response to comment 1-20.

(2.1-15) NWEA comment:
Section 2.1.6.2. This section of the TMDL sets out the physical causes of stream heating, many of which the Department readily acknowledges are not included in the load allocations to nonpoint sources and therefore are not subject to remedy. For this reason, the TMDL is not ecologically conservative and requires an explicit margin of safety.

DEQ response: Refer to the responses to comments G-23, 1-17, 2.1-1 and 2.1-5.

(2.1-16) WW comment:
9. Section 2.1.6.2, Physical Causes of Stream Heating: The TMDL needs to be much more transparent as to the human causes of stream heating: The descriptions of "causes" of human related stream heating are ambiguous and fail to candidly discuss the human related causes such as irrigation withdrawals, dams and grazing. The document should be amended to include a unambiguous explanation of the human causes of stream warming. For instance, rather than "decrease in streamflow" state "substantial diversions of water that deplete streamflows"; rather than "modified upland hydrology influencing timing of instream flow" state "building/presence of dams that influence timing and amount of instream flow", etc.

DEQ response: We have carried out extensive source analysis in terms of the direct cause of stream heating – alterations to vegetation, channel and flow. With regard to flow, we generally agree with this comment - refer to the response to comment 1-22.* With regard to vegetation and channel form, the human-related causes to disturbance vary widely across the basin and are sometimes complex. For instance, channel widening at a given location may be due to a combination of a road, a levee, upland sediment loads, livestock usage, legacy mining, legacy channel straightening and existing land development. In general, DEQ has not assessed location-specific human-related activities that lead to vegetation and channel disturbance. We are not aware of such studies in the basin that are applicable at an appropriate scale. Some of this information will become more clear with TMDL implementation – as apparent stressors are addressed then those remaining should become more clear. We ask each TMDL designated management agency to evaluate their sector's contribution to pollution. Also, refer to the response to comment 1-18.

(2.1-17) USBLM comment:

2.1.6.2	Quote: "Channel de-stabilization due to structures or the above three factors, leading to increased channel cross-sectional area (causing increases in ratio of wetted width/depth during low flow)" Increases in channel cross-sectional area do not necessarily lead to stream heating, as could be noted by a channel that is becoming deeper and narrower.	Change "increased cross-sectional area" to increased width to depth ratios.

DEQ response: Refer to the responses to comments 1-20 and 2.1-4.

(2.1-18) WW comment:

10. Section 2.1.6.3, Jurisdictions: Water management regimes—both past and present should be noted in the discussion of systematic thermal modifications. The document should also discuss the agencies with land, water, and pollution control authorities. Or, in the alternative, the section should clarify that "land" includes "water" under Oregon law.

DEQ response: Regarding additional discussion of water management, refer to the responses to comments 1-13 and 1-22.* Land management authorities responsible for TMDL implementation are identified in **Chapter 3**, **Sections G**, **H** and **I**.

(2.1-19) USFS-UNF comment:

Page 70. We recognize the load allocation is a computational exercise that included tributary inputs. Site specific modeled reaches and generalized shade curves for tributaries identify targets and show overall patterns where greatest gains may be made according to model and curves…but actual improvement more variable and complex (acknowledged in Appendix B, p. 51) and probably lower given natural disturbance.

DEQ response: We agree. Note that natural disturbance is not quantified in this TMDL, however it is accounted for narratively. The intent of the TMDL is not to eliminate natural disturbance (**Section 1.3** of draft document).

(2.1-20) NWEA comment:

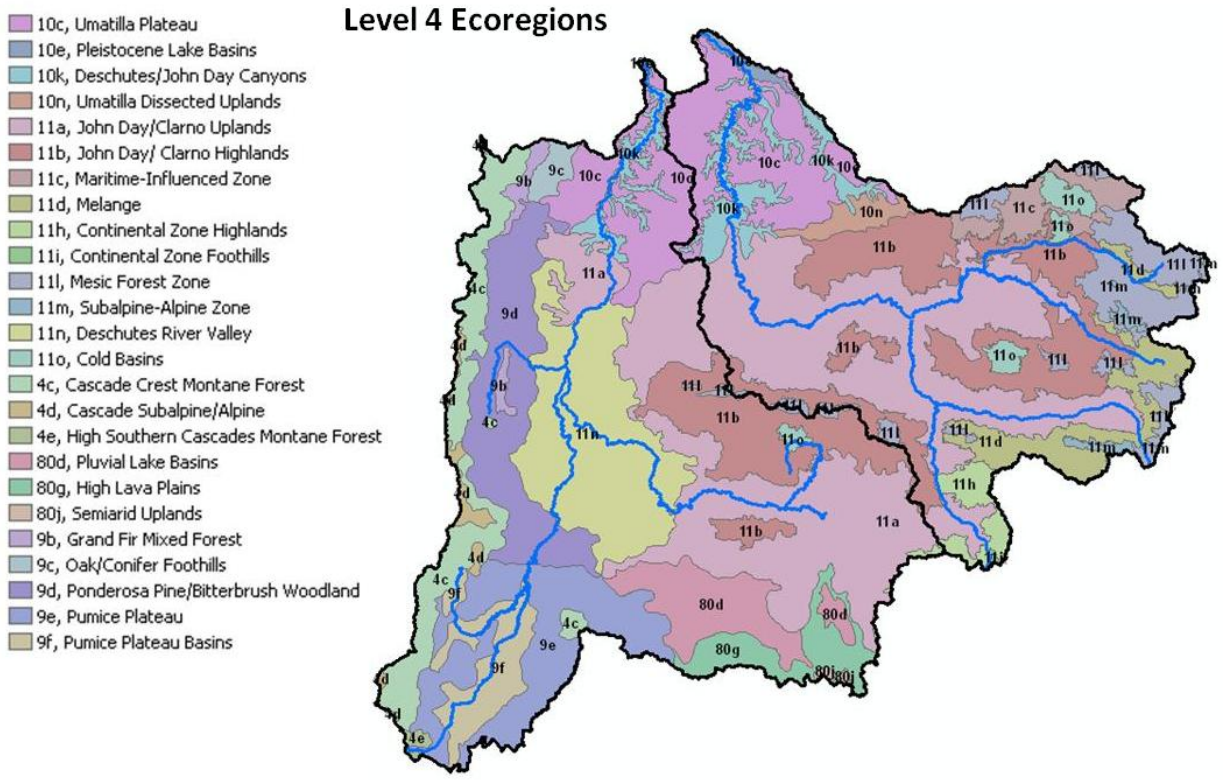
Section 2.1.8.1. The TMDL concludes that "the heating directed to the streams is based on NTP vegetation without the additional 0.1 ºC HUA. In comparison to the total nonpoint source solar input, the heating associated with an additional 0.1 ºC would not appreciably change the appearance of the graphs." Nonetheless, given the allegedly natural temperatures the Department predicts, it is required to evaluate whether any additional human use allowance can be given. In addition, it is unclear why the Department has departed from its practice in previous TMDLs in granting a load allocation of zero to nonpoint sources and, instead, requiring "site-specific and generalized percent effective shade." It should do both.

DEQ response: The human use allowance derives from Oregon's water quality standard for temperature, which is not the subject of this review, as stated in prior responses in this document. The Department has worked with Basin communities to apportion the human use allowance to various sources. Prior to the 2004 revision of Oregon's temperature standard, a human use allowance was not explicit and generally nonpoint sources were allocated zero thermal loading.

(2.1-21) USEPA comment:

2. Page 73. Reference to Appendix C, Figure A2-3. It is hard to read this figure. It would be helpful to make this clear.

DEQ response: This will be corrected as follows:



(2.1-22) NWEA comment:

Section 2.1.8.3. This section of the TMDL instructs the reader how to pick one of the many shade curves that constitute the load allocations of the TMDL. While the method sounds sophisticated – it includes stream aspect (flow direction) as well as geographic position and date – the reality is that this complexity is irrelevant. After choosing the correct shade curve, the reader will then know "the effective shade indicated by the curve for that channel width is the expected shade if NTP vegetation height and density is in place. Simply put, perennial tributaries should target the NTP vegetation range." While the "simply put" sentence is helpful, it is unclear why the TMDL does not make this more pointed. Instead, it insists on giving load allocations as shade curves which have no meaning. Why not make the load allocations a statement of what exactly needs to be located in the riparian area? This would make clear to other agencies and land owners precisely what must be effected in order to meet the requirements of the TMDL. Shade curves do not make requirements clear.

DEQ response: We believe that the document is clear, repeatedly so, in calling for natural vegetation, natural channel form and other thermal moderators. The 'percent effective shade' metric provides a practical method of measuring solar heating and each graph includes a solar power axis, thus providing a load assessment – directly satisfying the State and Federal requirement to establish Total Maximum Daily Loads on water quality limited streams.

(2.1-23) USFS-UNF comment:
Page 73. Directions to land managers for determining the NPT vegetation range – again relies on generalization, do not wish to enter into a reach by reach debate on targets. Following the outlined methodology for a 303d temperature example stream (Wilson Creek) to determine target, two options depending on ecoregion selected (stream at break between categories) regardless, height and density of vegetation represent NPT target. Current height/density are lower than target values but the reach is in protected status (fenced), has been replanted, and riparian conditions are on an improving trend. Under our current management plans and programs there is no more to be done here.

DEQ response: We acknowledge that the ultimate realization of success comes after the vegetation is allowed to mature and the channel form to equilibrate.

(2.1-24) USBLM comment:

2.1.8.3	Maximum potential vegetation height occurring along all reaches of the modeled streams are likely unrealistic.	USBLM recommends discussing incorporating different age classes of vegetation at the first five year review in order to provide a more realistic estimate of the influence of shade.

DEQ response: Adaptive management targets can be developed by DMAs and are encouraged (**Section 1.3** and **3.0** of draft document). Targets that account for natural disturbance are appropriate (**Section 1.3**). Also, refer to the responses to comments 2.1-19 and 2.1-23.

(2.1-25) USBLM comment:

Figure 2.1-13	USBLM notes that the shade curves are provided for 3 major stream orientations however no average curve is provided. When dealing with implementation plan development and condition assessment it is helpful to deal with 1 curve per Eco-region. (precision?). The more site specific assessment would use the orientations provided.	Recommend providing an “average” or “mean” curve in each of the eco-region curves as has been provided in other past TMDLs

DEQ response: We are reluctant to increase the complexity of the document, but encourage implementing organizations to develop their best approach to targeting natural vegetation. If average curves would support monitoring LA attainment or progress, we could work with USBLM to develop them after TMDL issuance as part of ongoing implementation efficacy evaluation. Or USBLM could develop generalized shade metrics as part of their TMDL implementation plan.

(2.1-26) WW comment:
6. Section 2.1.8.4, Load Allocation Surrogate---Channel Morphology: The effects of livestock grazing on channel morphology should be mentioned here.

DEQ response: Refer to the response to comment 2.1-16.

(2.1-27) NWEA comment:
Section 2.1.8.4. We appreciate why DEQ comments that it cannot provide more than a narrative channel morphology load allocation surrogate. The Department says that “only a rough estimate was made – a general likelihood of thirty percent reduction in channel width. . . . From Basin literature, history and existing reference conditions, it is clear that much of the channel network

has been modified – straightened, dozed, leveed, bank disturbance, etc. and that natural channel width estimates range widely from 5 to more than 50 percent less than today's." However, the TMDL does not take this wide range into account in establishing the margin of safety, in evaluating the reasonable assurance the load allocations will be implemented so as to allow the wasteload allocations established, or to evaluate the use of any human use allowance whatsoever in this basin. DEQ does however, admit that "because of the importance of stream morphology in moderating temperature, the narrative surrogate of this section is established." The ambiguity of the narrative does not mitigate against the lack of clarity in how to achieve it. If anything, a TMDL is the place where agencies should interpret narratives so that they are clear, not to create new ambiguous narratives with no methodology of demonstrating whether they have been attained. This analysis and extremely vague load allocation is a serious shortcoming for a temperature TMDL.

We urge the Department to consider the paper, Stream Temperature Relationships to Forest Harvest in Western Washington, by Pollock et al., with is attached.[4] The authors of this paper find that forest harvest activities that trigger channel-scouring landslides can convert alluvial channels to bedrock channels, thus reducing hyporheic exchange and contributing to increased stream temperatures. In other words, shade alone does not account for temperature increases. This is particularly important because the Oregon Department of Forestry insists that its logging practices are sufficient to meet Oregon's water quality standards. While there is considerable dispute over this allegation, what is not in dispute is ODF's belief that TMDLs have no role in determining the sufficiency of those practices. This was made clear at the July 15, 2010 meeting of the Non-NPDES Work Group for the Toxics Rulemaking. As Pollock et al. point out in their reply[5] to a Discussion of their paper, evaluating retention of riparian vegetation during timber harvest for sufficiency to *maintain* stream temperatures is "quite different from the question of sufficiency to recover stream temperatures to a natural thermal regime, which is the question we addressed in our paper. . . . We suggested that reestablishment of riparian forests alone may not be sufficient to return stream temperature regimes to natural conditions if debris flows from past forestry activities have removed the alluvium and led to higher stream temperatures."

Table 2.1-10. This doesn't do anything but provide more precise shade curves based on location of the site. It's as if DEQ thinks that shade curves are a useful end in themselves; they are not.

[4] Pollock, Michael M., Timothy J. Beechie, Martin Liermann, and Richard E. Bigley, 2009. Stream Temperature Relationships to Forest Harvest in Western Washington. Journal of the American Water Resources Association (JAWRA) 45(1):141-156. DOI: 10.1111 ' j.1752-1688.2008.00266.x.

[5] Reply No. JAWRA-10-0022-Y of the Journal of the American Water Resources Association (JAWRA). a 2010 American Water Resources Association. No claim to original U.S. government works. DOI: 10.1111 ' j.1752-1688.2010.00456.x.

DEQ response: Refer to the responses to comments G-15 (targets other than shade), G-23 (alternative surrogates), 2.1-1 (margin of safety), 2.1-4 (channel form surrogate) and 2.1-22 (usefulness of effective shade curves). In addition, the TMDL does not suggest that shade is a sole moderator of stream temperature. The TMDL includes allocations and surrogates for channel form and recommendations for increased instream flow. Vegetation restoration brings a host of other thermal improvements in addition to shade, including a more natural channel form. Restored channels provide increases in cooling groundwater exchange and typically reduced surface area for solar heating. The response to comment G-28 discusses effective shade as well.

(2.1-28) NWEA comment:
Section 2.1.8.5. The TMDL establishes a load allocation surrogate for reservoirs of "reservoir downstream heating is restricted to a cumulative increase of no greater than their HUA portion,

above NTP temperatures and other applicable criteria." It is unclear how this is a load allocation that is capable of being interpreted and applied, let alone how compliance monitoring could determine if it is met.

DEQ states that "[i]n the warm season the greater of NTP or biologically based criteria temperatures would apply" to reservoirs. Given the high temperatures of the modeled segments and the use of the natural conditions narrative – even without taking into account ecologically conservative assumptions – it is unclear why DEQ believes that it can allow any warming in reservoirs. Allowing either the NTP or the biologically based criteria – which are intended to apply at the most downstream location of a waterbody – is too warm.

Then DEQ concludes that "[a]s NTP is generally not determined for reservoirs, and the targets listed above could be complicated, other approaches may be preferred." It goes on to say that there should be a "a trajectory toward NTP temperatures" that "could be established by equating outlet to inlet temperatures, recognizing that as upstream heating diminishes through time, NTP is approached downstream." It does not go beyond musing about what "could" be but it does claim that "[u]ltimately, the natural conditions are ecologically conservative and generally an acceptable alternative to other criteria." However, DEQ does not explain how so-called natural conditions can be "ecologically conservative" when they are not reflections of actual natural conditions throughout the basin such that they reduce tributary temperatures. Finally, the TMDL states that "the Department recommends restricting reservoir outlets to temperatures that are less than instream ambient temperatures (upstream where uninfluenced by reservoir), plus the temperature allowance described in the following paragraph." Why should reservoirs be granted any allowance considering the high temperatures predicted for the modeled rivers, temperatures which are far higher than can be tolerated by coldwater species, especially those facing extinction? While concluding that as "Basin heating and thermal impacts are better understood, reservoirs could be further restricted in the future," DEQ clings to the notion that it its margin of safety is implicit.

At the end of this section, the TMDL states that "[w]here there are identified thermal issues, or if identified in the future, the Department will call for a temperature management plan or TMDL implementation plan." There is no information on how these "issues" will be identified as there is no monitoring and evaluation plan or timeframe for evaluating the question.

DEQ response: Comment 1st paragraph – the reservoir LA surrogate could be assessed through upstream and downstream temperature monitoring, as stated in **Section 2.1.8.5** of the draft document.

Comment 2nd paragraph – the human use allowance and natural condition criterion are provided for via the temperature standard. It is important to note that this allowable increase is applied relative to the targeted temperatures. If applicable criteria are exceeded, the temperature target would be the applicable criteria plus the HUA, not the existing temperature plus the HUA.

Comment 3rd paragraph – we believe that the TMDL estimate of natural condition temperatures is the best available estimate. Any determination of natural conditions is an estimation. If it is determined in the future that the estimate is in error, it will be revised. The tributary temperature potential is discussed in the response to comment 2.1-5. The margin of safety is discussed in the response to comment 2.1.1.

Comment 4th paragraph – We agree and recognize that the need for monitoring and prioritization ever persists.

(2.1-29) WW comment:
7. Section 2.1.8.6, Load Allocation Surrogates—Intermittent and Ephemeral Streams: Livestock grazing and in-channel reservoirs should be noted here, as they have an effect on sediment and temperature.

DEQ response: Refer to the responses to comments 1-18 and 2.1-16.

(2.1-30) NWEA comment:
Section 2.1.8.6. We strongly support DEQ's including intermittent and ephemeral streams in the TMDL load allocations. However, there is no clear chart where this is made clear. The TMDL states that "minimization of erosion-causing disturbance is expected and does not necessarily require extensive evaluation." But nowhere does the TMDL require this minimization of erosion causing disturbance as a load allocation necessary to attainment.

DEQ response: For intermittent and ephemeral streams, the temperature TMDL surrogate "...NTP vegetation and channel conditions throughout..." is the erosion minimization measure. Perennial streams are similarly addressed in that the LA calls for natural land cover and channel morphology, which would lead to minimized channel erosion. When the Department addresses sedimentation 303(d) listings (TMDL preparation deferred at this time), it may be that upland erosion is addressed explicitly.

(2.1-31) WW comment:
Conclusion: The lack of attention to water management is a fatal flaw in this document, as adequate instream flows and proactive water management are key to attaining water quality goals in the basin. To truly succeed in this endeavor, WRD should be named as a DMA and water management directives should be included in this document.

DEQ response: Refer to the responses to comments 1-13 and 1-22.

(2.1-32) WW comment:
8. Section 2.1.8.7, Instream Flow: It would seem appropriate that "water withdrawals" be included as a load allocation surrogate given the causal relationship between withdrawing water and resultant temperature problems, especially in the overallocated John Day River basin. Also, to the extent this section is discussing restoration/protection of instream flows, DEQ should commit to applying for instream water rights in this section, and WRD should commit to ensuring protection of baseline, peak and ecological flows needed for the attainment of the TMDL.

DEQ response: Refer to the responses to comments 1-13 and 1-22.

(2.1-33) NWEA comment:
Section 2.1.8.7. The Department notes that "[f]low restoration is critical to attainment of water quality standards" but admits it has not "quantified or allocated" flow restoration requirements. Therefore, the TMDL is not ecologically conservative as claimed and its margin of safety is not implicit. The TMDL should establish the flows required as load allocations.

DEQ response: Refer to the responses to comments 1-13,1-22 and 2.1-1.

(2.1-34) CRK comment:
III B. The Draft TMDL/WQMP Fail to Account for Climate Change.

The Draft TMDL/WQMP mentions climate change in one sentence. *See* Draft TMDL/WQMP at 64 ("With further analysis for subsequent TMDL development, NTP estimates could be updated, particularly as climate change is better understood."). Unlike DEQ, the Washington Department of Ecology addressed climate change in the Lower Skagit River Tributaries Temperature TMDL. *See* Skagit River Tributaries TMDL at 21, available online at http://www.epa.gov/waters/tmdldocs/Lower%20Skagit%20River%20Tribs%20Temp%20TMDL.pdf).

> Question 3: Why did DEQ exclude any discussion of climate change in the John Day River TMDL? Please explain.

DEQ's failure to analyze climate change—or, at the very least, explain why Pacific Northwest climate models are inadequate at this time—calls into question the adequacy of the draft TMDL/WQMP.

DEQ response: Refer to the responses to comments G-1 and 2.1-36. In addition, while we generally agree with the Lower Skagit River TMDL approach, we interpret that they have taken a similar approach to that of Oregon DEQ, as indicated in the following excerpt from the referenced document:

> Lower Skagit TMDL, Page 22: "Stream temperature improvements obtained by growing mature riparian vegetation corridors along stream banks, reducing channel widths, and enhancing summer base flows may all help offset the changes expected from global climate change – helping keep conditions from getting worse. It will take considerable time, however, to reverse those human actions that contribute to excess stream warming. The sooner such restoration actions begin and the more complete they are, the more effective we will be in offsetting some of the detrimental effects on our stream resources. These efforts may not cause streams to meet the numeric temperature criteria everywhere or in all years. However, they are expected to help maximize the extent and frequency of healthy temperature conditions, creating long-term and crucial benefits for fish and other aquatic species.
>
> The state is writing this Report to meet Washington State's water quality standards based on current and historic patterns of climate. Changes in stream temperature associated with global climate change may require further modifications to the human-source allocations at some time in the future. However, the best way to preserve our aquatic resources and to minimize future disturbance to human industry is to begin now to protect as much of the thermal health of our streams as possible."

(2.1-35) TFT comment:
IV. Climate Change.

Most contemporary planning efforts, including the Mid-Columbia ESA Recovery Plan for Steelhead, devote a section to anticipated climate change impacts and how the relevant plan will address them. While downscaling of climate change modeling is still needed, enough information exists for the Pacific Northwest so as to predict future scenarios in the John Day Basin. If ODFW did this for the Mid-C Plan, it is unclear why DEQ would not do the same for this TMDL effort. In addition, DEQ should ensure that the TMDL wasteload allocations and WQMP management actions for TMDL compliance account for climate change impacts. In other words, will TMDL compliance still be achieved based on the existing load allocations and WQMP (if fully implemented) in light of climate change impacts? If DEQ has not done a climate change analysis as part of this TMDL effort, it seems impossible to answer that question.

DEQ response: Refer to the responses to comments G-1, 2.1-34 and 2.1-36.

(2.1-36) USBLM comment:

2.1	No mention of climate change and the potential effects over the TMDL period.	Since there is general consensus that climate change (increases in air temperature and changes in flow regime) is upon us, and that changes can occur over the term of the TMDL, it seems that climate change is felt to be more predictable than some of those listed. Suggest Climate Change be given more acknowledgement by including it in this list. The document in general is silent on the effect of Climate Change on effects to stream temperature.

DEQ response:* Agreed. **Section 2.1.6.2** (Physical Causes of Stream Heating) references **Section 1.4.7**. Under the *Temperature* subsection of **Section 1.4.7**, the following text will be added:

> "The expected changes coming to the region's climate underscore the importance of protecting and restoring the mechanisms that help keep stream temperatures cool. The thermal regimes of streams are expected to change in response to reduced summer stream flows, and increased air temperatures. Climate change can influence vegetation and shade patterns as well.
>
> Stream temperature improvements obtained by growing mature riparian vegetation corridors along stream banks, reducing channel widths, and enhancing summer base flows will help mitigate the expected stream heating resultant from climate change. While some numeric objectives of the TMDL may not be attainable due to factors such as climate change, the general goal remains – natural thermal conditions, given the climatic conditions of the future.
>
> Changes in stream temperature associated with global and regional climate change may require further modifications to the human-source allocations at some time in the future."

Also, regarding climate change, refer to the response to comment G-1.

(2.1-37) NWEA comment:

Section 2.1.9 (i). DEQ is incorrect in stating that the margin of safety is met implicitly in this TMDL in which it cites to the TMDL's maximizing of heat reduction objectives, adaptive reassessing "through an iterative TMDL process," and omission of the impact of natural disturbance of riparian areas. In fact, this TMDL is not ecologically conservative and therefore requires a margin of safety in order to account for uncertainty. The reasons for this include but are not limited to: the TMDL's failure to address loss of instream flow (cited in 2.1.8.7.), its failure to include climate change impacts, its failure to adopt channel morphology targets as allocations in the TMDL (cited in 2.1.8.4), its failure to consider basin-wide natural conditions in establishing the so-called natural conditions of the modeled rivers, etc. Moreover, the items DEQ cites as being conservative assumptions are not, in fact, conservative. The "iterative TMDL process" has no basis in fact. And the estimates of natural disturbances are not measured against other non-conservative assumptions such as those mentioned immediately above and elsewhere in these comments. DEQ cannot claim anything it finds as conservative, ignore those items which are not conservative, and then claim the balance is conservative. In short, this TMDL does not include the statutorily-mandated margin of safety.

DEQ response: It is our view that natural disturbance is part of the natural condition and is consistent with ecological support. We further believe that maximizing heat reduction objectives, and applying an iterative TMDL process – do comprise an ecologically conservative approach.

While the load allocations do not quantitatively address flow restoration, flow is not neglected and the approach has been modified in light of public comments received (refer to response to comment 1-13). We disagree with the assertion that the draft TMDL does not call for natural conditions along streams, basin-wide. And we are not aware of having ignored significant non-conservative items. Also, refer to the response to comment 2.1-1.

(2.1-38) NWEA comment:
Section 2.1.11.1. The TMDL states that it has an "explicit allocation" for "reserve capacity throughout the John Day Basin" which "is available for use by either nonpoint or point sources to accommodate future growth as well as to provide an allocation to any existing source that may not have been identified during the development of this TMDL." DEQ is misinformed as explained above.

DEQ response: Refer to the responses to comments 2.1-7 and 2.1-37.

(2.1-39) NWEA comment:
Section 2.1.11.2. Likewise, the TMDL's attempt to establish a "specific reserve capacity" for the John Day WWTP fails for the reasons explained above.

DEQ response: Refer to the responses to comments 2.1-7 and 2.1-37.

(2.1-40) NWEA comment:
Section 2.1.12. The authors of this TMDL seem to not understand why the Oregon regulations require this particular analysis. It is not an opportunity to note the fact that landowners are not interested in or likely to make the changes that are necessary to meet the TMDL. Nor is it an opportunity for DEQ to make vague statements such as "attainment is approached through an adaptive process, wherein TMDL implementation plans include milestones and strategies that are revised as capacity for and mechanisms of improvement are better understood." The TMDL should, at a minimum, establish the timeframe so that the implementation plans can include milestones that are necessary to meet the timeframe of the TMDL. Instead, DEQ has it backwards. In addition, this is not a place for musing, as in DEQ's comments that "[o]n smaller order streams where vegetation or flow diversion is the thermal control, temperature standard attainment could occur within 1- 15 years. On larger order streams and where channel evolution is needed, many decades may elapse before natural conditions are approached, even without considering the amount of time before land uses enable that trajectory." Yes, DEQ is correct in stating that "[a]ttainment timing is informed by estimation of the current departure from water quality standards" so why does DEQ then not be informed and make the estimate? That is what it is supposed to do. DEQ concludes that "[w]e recognize the existence of economic and social impediments, and that passive restoration is often the more available mechanism," but even in this instance DEQ does not hazard a guess as to how long passive restoration will take. And, nothing in the TMDL suggests that even passive restoration will take place because the load allocations, expressed as shade curves, are so vague as to be meaningless.

DEQ response: While the physical configuration of the watershed needed to achieve water quality goals is relatively clear, socioeconomic capacity and adoption timeframes are being evaluated by individual communities and a variety of organizations through the implementation planning process that follows TMDL issuance. We believe it is best to allow communities and land use authorities to submit implementation plans. DEQ plans to work collaboratively with and provides technical assistance to DMAs during the planning and implementation processes.

(2.1-41) USEPA comment:
3. Page 88. Figure 2.1-20 There are no values on the axes of this figure.

DEQ response: We will make clear that the figure is a map rather than a graph.

(2.1-42) CRK comment:
III E. The TMDL Should Describe the Role of Groundwater in Achieving Compliance with the Temperature Water Quality Standard.

DEQ acknowledges the impacts of groundwater on stream temperature in the Draft John Day Temperature TMDL. However, DEQ's 2002 Western Hood Basin TMDL contains a more extensive discussion of groundwater. In particular, the Western Hood Basin TMDL notes the value of data on thermal impacts from temperature in creating and revising TMDLs. Specifically, page 54 of the Western Hood Basin TMDL states:

Groundwater inflow has a cooling effect on summertime stream temperatures.

Subsurface water is insulated from surface heating processes. Groundwater temperatures fluctuate little and typically cool . . . Many land use activities that disturb riparian vegetation and associated flood plain areas may affect the surface water connectivity to groundwater sources. Groundwater inflow not only cools summertime stream temperatures, but also augments summertime flows. Reductions or elimination of groundwater inflow will have a compounding warming effect on surface water. The ability of riparian soils to capture, store and slowly release groundwater is largely a function of floodplain/riparian area health.

The Western Hood Basin TMDL goes on to state that DEQ did not analyze groundwater in the TMDL effort. The Western Hood Basin TMDL states:

The data required to completely assess thermal effects of groundwater, such as forward-looking infrared radiometry (FLIR) have not been collected in the Western Subbasin. ODEQ recommends such data collection for future groundwater/stream analysis.

> Question 6: Did DEQ analyze groundwater in the John Day River Draft TMDL? Please explain.
>
> Question 7: Did DEQ consider, or will DEQ now consider, recommending groundwater data collection for the John Day River TMDL? Please explain.

DEQ response: We are working with researchers who are carrying out local hyporheic (groundwater influenced by streams) interaction studies within the basin, and we have run sensitivity simulations on groundwater along the Middle Fork. We have extensively assessed thermal infrared remote sensing for the North Fork, the Middle Fork and the John Day River. We acknowledge the importance of groundwater as a thermal moderator. We used current techniques to quantify groundwater in the meadows of the Middle Fork (see **Appendix B, Section 6.3.8**). That said, useful groundwater studies at the Basin scale would be either extremely expensive or assumption-driven. In addition, we do not see that they would benefit the allocations. In order to achieve increased groundwater interaction, a more natural channel form and vegetation are needed, as called for in the TMDL.

Chapter 3, **Section A**, cites "decreased floodplain availability" in the problem description.
Chapter 3, **Section B**, calls for restoration of "floodplain area and connectivity" in promotion of groundwater-stream system restoration.

Meadows are assessed in their thermal influence on the Middle Fork. We recognize that, in wet meadow complexes, channel shape and groundwater likely dominate over vegetation as thermal

moderators. Meadow potential vegetation and channel morphology are accommodated in the load allocations.

(2.1-43) TFT comment:

V. Groundwater.

The draft TMDL recognizes the connection between groundwater and stream temperature. Springs, interstitial flow, and entry points on stream channels generally contribute pulses of cooler water that create cool water refuge places for fish and other organisms. The locations of these places are important for water quality protection and restoration, especially as it relates to this temperature TMDL. Does any infrared imagery (FLIR) or other research on groundwater exist for the John Day Basin? Does the TMDL consider this issue important, and if so, how is it addressed?

Floodplain disconnection and spring or wet meadow desiccation, which has occurred in parts of the Basin, can interrupt groundwater connection and its relationship with stream temperatures. The TMDL should prioritize activities that protect and restore connections between surface flows and subsurface flows / groundwater given that the latter is generally cooler than the former and can thereby support TMDL water temperature compliance.

In addition, groundwater withdrawals / pumping can have an impact on surface flows and thus water quality. It does not appear that the TMDL evaluated the impacts and trends related to groundwater use in the Basin, and how this relates to surface water quality, especially temperature. Perhaps we overlooked something, but the TMDL should evaluate whether this is an issue of concern.

DEQ response: We generally agree with this comment, and that additional assessment and location-specific prioritization of groundwater-related efforts (e.g., floodplain restoration) should be carried out through the TMDL implementation process and plan development. Refer to the response to comment 2.1-42.

(2.1-44) GSWCD comment:

- **Page 88 - It is not clear that the plan writers detect value in the hundreds of miles of riparian protection fencing that have been completed and the corresponding natural re-vegetation of the subject stream banks, that over 100 push-up diversion sites have been treated by Grant SWCD alone (eliminating thousands of feet of annual stream channel disturbance) and the thousands of acres of uplands that have been improved through voluntary conservation programs. The concern being that if all the millions of dollars of projects implemented to date have not positively influenced the restoration goals, what can landowners look forward to in the future.**

DEQ response: Refer to the responses to comments G-5 (1st two paragraphs of response), G-6 (paragraph 4 of response).

(2.1-45) NWEA comment:

III. ESA Terms and Conditions. The National Marine Fisheries Service Biological Opinion for the 2003 temperature standards, included the following non-discretionary terms and conditions required of the U.S. Environmental Protection Agency.

1. The EPA shall implement the following term and condition to monitor water temperatures and evaluate use designations. EPA will set up a team consisting of representatives from EPA, NOAA Fisheries, USFWS, and ODEQ with the purpose of designing a temperature monitoring plan to

validate assumptions with regard to spatial and seasonal temperature patterns associated with application of the numeric criteria and to identify waters that are colder than the criteria in selected basins with distinct populations of ESA listed coho, steelhead, and bull trout. The team will leverage to the greatest extent possible existing state and local monitoring programs to meet the objectives of the monitoring plan. If needed, the team will seek additional funding and develop partnerships to collect temperature data that implements the plan and to the greatest extent possible simultaneously meets other monitoring objectives to maximize the usefulness of the data. The team will be assembled by December 30, 2004. The team will design a monitoring plan by March 30, 2005, with the goal of initial data collection during the summer of 2005 and complete data collection during the summer of 2006. This term and condition is the same as CM 1 described in section 1.2.3 above.

2. The EPA shall implement the following term and condition to validate and monitor thermal plume provisions to obtain information needed to validate that the thermal plume provisions in the Oregon rule protect anadromous fish. There are two parts to this measure:

a. To validate the thermal plume modeling associated with thermal plume provisions.
b. To assess the effectiveness of the provision in the Oregon Rules related to the protection of salmonids from impacts of thermal plumes and heat loads.

During Part A of this conservation measure, EPA will work with ODEQ and the Services to identify three representative NPDES permits to be issued by ODEQ containing thermal plume provisions, for oversight consistent with the coordination procedures of the National Memorandum of Understanding (MOA). The three permits will be selected to represent different conditions (*e.g.*, large river system, small river system). The EPA, ODEQ, NOAA Fisheries, and USFWS collaboration on these permits will ensure that adequate thermal plume provisions are incorporated in the permits, and that the permits contain monitoring requirements to validate the modeling. During Part B of this conservation measure, EPA will work with the Services and ODEQ to design a monitoring study to validate that point source thermal discharges in accordance with the thermal plume provision in Oregon's water quality standards avoid or minimize adverse effects to salmon and steelhead. Study design work will begin within approximately 60 days of EPA's identification of the each of the three permits in Part A and will be completed within 120 days. Upon completion of the monitoring study design, EPA will seek funding from all possible sources, including private industry associations to support the monitoring study. EPA will report to NOAA Fisheries and the USFWS on the status of funding efforts within 180 days of commencing the search for funding. Should EPA secure funding, monitoring work shall begin during the next summer following funding, and EPA will provide the study results to the Services within 6 months after the monitoring is completed. This term and condition is the same as CM 2 described in section 1.2.3 above.

3. EPA shall implement the following term and condition to monitor implementation of Oregon's antidegradation implementation methods. Within two years of the date of EPA's approval of the Oregon rules, EPA will participate with ODEQ, NOAA Fisheries, the USFWS, and interested tribes in a review of the Oregon Division 41 Rules, including consideration of: (1) Implementation of the antidegradation provisions, the natural conditions provisions, the thermal plume provisions, heat load limits, and variances; (2) identification of cold water refugia under the migration corridor criterion; (3) progress on effluent trading pilot programs; and (4) application of the requirement to ensure no adverse effects to threatened and endangered species as part of ODEQ's antidegradation implementation methods. This term and condition is the same as CM 3 described in section 1.2.3, above.

There is no evidence that EPA has completed any of these three terms and conditions. Our attempt to obtain any results of these terms and conditions from DEQ failed to produce any. The lack of these documents has hampered our ability to comment on this draft TMDL. In addition, the apparent failure of EPA to complete these terms and conditions renders any TMDL based on Oregon's temperature standard potentially inadequate to protect the threatened and endangered species in the basin to which it pertains. In the absence of this information's having been

developed, it would appear that Oregon DEQ bears the burden of demonstrating that the results of this TMDL will be sufficiently protective of these beneficial uses, something that DEQ has not done as explained above.

DEQ response: While we appreciate that this comment is cogent here, it primarily addresses the temperature water quality standard. It informs ongoing developments in our standards program and we envision that the US EPA will consider it as well. The US EPA will receive a copy of this response document.

(2.1-46) NWEA comment:

Conclusion. In conclusion, with all of the work that DEQ has put into this TMDL to estimate the natural vegetation potential in the near-stream environment of the modeled rivers, it is not clear why DEQ stops short of stating that this natural vegetation potential *is* the load allocation for any nonpoint source activity. Nor is it clear why this basin-wide TMDL says so little about tributaries to the modeled rivers. Instead, DEQ uses the information to identify shade curves that have little if any value in establishing clearly what level of restoration must be attained to reach the projected "natural" temperatures the TMDL identifies are both the standard and the loading capacity for this basin. The difference between the road taken and that not taken is the kind of clarity that land owners and the agencies that support, fund, and regulate them need. DEQ passes up the opportunity to make real change in Oregon's water quality.

DEQ response: The temperature load allocations, as stated in the document, are designed to achieve natural conditions. They target the natural condition criterion of the temperature standard. This is stated in several places in **Chapter 2.1** and elsewhere in the document. The load allocations are defined as "the daily sum of the natural background solar heat load, throughout the Basin stream network..." The definition of natural thermal potential, referenced in the natural condition criterion of the temperature standard, calls for "site-potential riparian vegetation..." In our view, this seems like a fairly comprehensive approach to targeting natural thermal conditions.

Section 2.2 (Bacteria TMDL)

(2.2-1) USBLM comment:

2.2.8	"The Department deems it appropriate to apply a uniform reduction of 83.2 percent across all flow regimes and all stations." Being that the 83.2% value was recorded just downstream from the John Day WWTP which has been acknowledged as being linked to the John Day river through rapid infiltration of the treatment ponds, this value may not be representative of what is happening throughout the basin as a whole.	Include the caveat "or until water quality standards regarding bacteria are reached" following the recommendation of the 83.2% reduction. This will thus not force areas that are only slightly impaired to go above and beyond the required standards.

DEQ response:* We agree with the recommendation and will add the caveat to the revision as suggested. Also note that the John Day WWTP treats effluent with chlorine prior to the ponds and monitors for bacteria as well. They are unlikely to be a source of bacteria.

Section 2.3 (Dissolved Oxygen TMDL)

(2.3-1) GSWCD comments:

- **Page 114, 2.3.3.1 Pollutant Parameter Target - Wording in this paragraph indicates that the scientific process targets a predetermined outcome or shows bias: "This selection is based on the equation that (1) is thought to best characterize the DO-controlling processes, (2) exhibits the best statistical performance measures and (3) most closely matches theoretical outcomes."**

- **Page 118, 2.3.12 Water Quality Standard Attainment Analysis - It would be more appropriate to say that mathematical analysis of a process (Appendix D) *suggests,* rather than demonstrates, that if the temperature TMDL is implemented, the dissolved oxygen target will be achieved. Same comment for second sentence.**

DEQ response: 1st bullet – we believe that the conclusion is consistent with theoretical outcomes, rather than developed to target them. Each quoted criteria are based in objective statistical analysis.

2nd bullet* - The text will be changed as follows: "**Appendix D** ~~demonstrates~~ is consistent with the hypothesis that if the temperature TMDL is implemented, the dissolved oxygen target will be achieved."

(2.3-2) USEPA comment:

4. Page 114. Pollutant Parameter Target. It would be desirable to explain here in laymen's terms what a quantile regression is and why it is being used. Though this is described in the appendix, that is still a rather technical description. It assist those readers who may lack a strong grounding in statistics to understand why this methodology is being used and how it works, similar to the description of load duration curves provided in the bacteria section.

DEQ response: The following explanation will be added to Chapter 2.3 of the revised document: "The regression analysis employed herein is a statistical model developed to represent the influence of physical, chemical, and biological processes on the DO conditions in the John Day River. The specific model used is a linear model. An example of a linear model is: DO = slope × Flow + intercept. In this example, the slope and intercept relate DO concentrations to instream flow. We estimated the slope and intercept using regression analysis. This analysis not only provides estimates of the slope and intercept, but also provides information about the uncertainty of estimates. The information about the uncertainty of the slope and intercept estimates was used to select the specific observed data (flow data in the example) used in the model. In order to use the most amount of information provided by the observed data, we used quantile-regression. Unlike most regression methods that provide a single pair of slope and intercept estimates, quantile-regression estimates multiple pairs of slopes and intercepts (one pair for each selected quantile), These estimates cover the entire distribution of the data; thus using the maximum amount of information contained in the observed data. We then selected a single pair of slope and intercept estimates from those provided by quantile-regression to use in setting the load allocation for the pollution target. The steps we used in the estimate selection process were: 1) estimate pairs of slopes and intercepts using quantile regression; 2) keep pairs with estimate uncertainty below an acceptable level and use them to model DO; 3) keep models with inputs that could be controlled by human activities (like flow in the example); 4) compare estimated DO from models to current conditions; 5) select model that represented the current conditions the best based on several measures of performance. We based the load allocation on the selected model. We then used this model to determine the amount of the pollutant that could be present in the water when DO concentrations meet the DO water quality standard."

(2.3-3) USEPA comment:

5. Page 115. Dissolved Oxygen TMDL. The chapter on dissolved oxygen (DO) and Appendix D discusses the DO-impaired waters and the different regressions and relationships between DO and several other parameters. For the John Day River waters impaired for the cool water DO criteria, temperature and DO have the best quantitative correlation, and temperature allocations serve as a surrogate to address DO problems. Please include an explanation for what the likely sources of DO are and why temperature has the biggest impact on DO impairment or is the best means to address the impairment.

DEQ response: The following explanation will be added to the text: "In general, the causes of depleted dissolved oxygen in streams are oxygen consumption through chemical and biological processes. These include decomposition of organic material in the water column and in streambed sediment, and inputs of oxygen-depleted water or oxygen demand from point sources. In the John Day River, point sources are small and infrequent. Regarding the warm season DO concerns being addressed in this TMDL, the most probable cause of low DO concentrations, which occur in the early morning, is excess algae. The growth and die-off of algae and related bacteria produce a distinct daily cycling of DO concentrations, with the highest concentrations occurring in the afternoon when oxygen release from photosynthesis is at a maximum. In the early morning, bacterial die-off and decomposition depletes the water column of DO. Continuous DO monitoring in the John Day River produces data that are consistent with this pattern of daily cycling.

Algal growth is controlled by light, heat and nutrients, which in turn are related to flow and temperature. The assessment documented in Appendix D analyzed a range of nutrients and algae-associated indicators, for the upper John Day River during the period in which the cool water DO criterion applies. Of the most feasible controls, temperature has a stronger relationship with dissolved oxygen than other constituents."

(2.3-4) CRK comment:

III F. Spawning Season Dissolved Oxygen TMDL and WQMP.

DEQ is deferring spawning season dissolved oxygen TMDL development "until more information is available." Draft TMDL/WQMP at i.

> Question 8: Why did DEQ determine that too little information is available to establish a spawning season dissolved oxygen TMDL? Please explain.
>
> Question 9: Is there a plan or a timeline to obtain the requisite spawning season information? Please explain.

The Conservation Organizations urge DEQ to revise the TMDL and disclose: (a) why currently available information is not adequate to develop a spawning season dissolved oxygen TMDL; and (b) what steps are being taken and when steps will be completed to obtain the necessary information. In a similar situation in which a TMDL was created in Minnesota, the court directed that the "revised TMDL shall contain a margin of safety that accounts for lack of knowledge concerning the relationship between effluent limitations and water quality**.**" *Minnesota Center for Environmental Advocacy v. U.S. Environmental Protection Agency*, 2005 WL 1490331, *6 (D. Minn. 2005)

DEQ response: Regarding question 8, because the spawning season concern was generally not identified until after the 2004-2007 TMDL-specific monitoring (focusing on canvassing for locations of impairment) was completed; the additional data needed to further evaluate cause has not yet been recruited. Other than through TMDL monitoring, very little relevant data exists to assess the cause of low dissolved oxygen during the spawning season in the John Day Basin.

Regarding question 9, the additional monitoring needed to sufficiently evaluate the spawning season has not been scheduled. The issue will be prioritized based on statewide need for TMDL development, other monitoring needs, and available monitoring resources.

Section 2.4 (Biological Criterion)

(2.4-1) USEPA comment:

6. Pages 119 – 121 Biological Criterion. This comment addresses listed and unlisted biological impairments in the John Day Basin giving general guidelines for when biocriteria listings and unlisted impairments can be addressed through temperature TMDL allocations.

There have been two biological surveys in the basin. The first was in the early 1990's and resulted in the five biocriteria impairment listings currently on the state's 303(d) list. From 2000 through 2005, biological assessments of macroinvertebrate communities were conducted as part of EMAP, and approximately 19 stream segments showed impaired conditions, though these waters have not yet been added to Oregon's 303(d) list. Attachment 1 includes tables of all listed and potential unlisted biological impairments and a map of these locations in the John Day Basin.

The earlier assessments from the 1990's used different sampling protocols, sampled lesser numbers of macroinvertebrates, had fewer reference sites and used Bioassessment Index Scores to evaluate the health of the waterbody's biota. The more recent assessments used a more robust sampling framework and these data were evaluated using the PREDATOR model to determine the status of the macroinvertebrate communities. Additional analysis inferred the temperature and fine sediment stress affecting macroinvertebrate communities. Data from the earlier biological assessments are not sufficient to allow reevaluation using the PREDATOR model or assessment of temperature and fine sediment stress.

The draft TMDL document states that all waterbodies with biological impairment in the John Day basin will be addressed by the allocations of the basin-wide temperature TMDL. The allocations include controls for lowering stream temperature through (1) point source controls through NPDES permits, (2) more natural riparian vegetation conditions and quantities of in-channel large woody debris, (3) minimization of stream channel and upland erosion, and (4) increased sinuosity, channel complexity, floodplain extent and groundwater interaction (Draft John Day TMDL, 2010). The TMDL discusses biological stressors related to temperature, habitat, and sediment and states that streams listed for biological impairments will be addressed through these surrogates.

While the temperature TMDL allocations can adequately address biological impairments at some sites, there are other waters where these allocations not sufficient. A more site specific assessment is needed to determine which water bodies can be addressed by the temperature TMDL allocations.

For the biocriteria impaired streams, a site specific assessment of upstream activities and other available information is needed to make the case that other stressors are not likely to be a significant stressor to the biological communities.

Allocations in the temperature TMDL will be considered acceptable to address biological impairment for the existing impaired streams if:

a.) A discussion of the upstream land use shows a low likelihood of other significant contaminant sources, (such as historic or current mining, point source discharges, urban development etc…)

and

b.) There are no current impairment listings for other pollutants unaddressed by TMDLs or other controls or a rationale is given for why these pollutants are unlikely to be significant stressors on macroinvertebrate communities

The Clean Water Act requirement for TMDLs is: “use of best available data”. The differences in data quantity between the existing biocriteria listings and the more recent unlisted impairments will cause the more recent listings to be assessed at. The more recent, data-rich biological assessments will be expected to use this additional information in making a case that temperature is the significant stressor at these sites.

DEQ response:* In view of this comment, we have decided that the revised document should reflect that the current biological criteria TMDL will focus on the existing (2004/2006) 303(d) listings. A discussion of upstream land uses ('a' in comment) and any related un-addressed listings ('b') will be included in **Chapter 2.4**. All current listings are located in rural agricultural or forest areas where the most probable upstream water quality impairment would be addressed through geomorphic and botanical measures applied through temperature TMDL implementation.

While temperature TMDL implementation is expected to substantially address identified future listings, the resources needed to comprehensively evaluate this aren't available within the current TMDL schedule. Accordingly, the text of **Section 2.4.1** will be modified as follows:

> "This Chapter addresses biological criterion impairment for ~~wadeable streams throughout the John Day Basin (HUC 170702), including~~ the existing 303(d) listed segments in the John Day Basin (**Figure 1.2-6, Table 1.2-5**, HUC 170702). Future listings will not be addressed via this TMDL without further evaluation."

We agree that future listings should be based on best available monitoring and data assessment protocols, such as EMAP monitoring and PREDATOR modeling.

Chapter 3 Comments (Water Quality Management Plan)

(3-1) USEPA comment (general):

7. Water Quality Management Plan. This section describes the designated management agencies, expectations, existing agreements, and timelines. This section provides information that will be helpful in implementing the TMDL. EPA looks forward to supporting ODEQ's efforts. The natural vegetation information will also be helpful in planting riparian vegetation.

(3-2) CRK comment (general):

III D. DEQ Must Revise the TMDL/WQMP to Address Best Management Practices for Nonpoint Sources.

DEQ's Water Quality Management Plan must meet the minimum requirements of 40 C.F.R. § 130.6. Among these requirements, DEQ must include nonpoint source management and control measures. 40 C.F.R. § 130.6(4)(i) states in full:

> The plan *shall describe* the regulatory and non-regulatory programs, activities and Best Management Practices (BMPs) which the agency *has selected* as the means to control nonpoint source pollution where necessary to protect or achieve approve water uses. Economic, institutional, and technical factors shall be considered in a continuing process of identifying control needs and evaluating and modifying the BMP as a necessary to achieve water quality goals.

(emphasis added). Throughout the WQMP, DEQ delays the discussion and selection of "activities and Best Management Practices (BMPs)" to a future, unspecified date. This approach fails to comply with the Clean Water Act and OAR Division 42.

DEQ response: The WQMP (**Chapter 3** of the TMDL document) is an umbrella plan that will be enhanced by subsequent implementation planning. Refer to the response to comment G-5 (1st paragraph of response). The intent of DEQ's TMDL program, taken altogether, includes meeting the cited rules. TMDL implementation planning is generally due within 18 months of issuance of the TMDL. The exception is the agricultural sector, where plans are updated biennially – leading to plan revision that will sometimes precede and sometimes postdate the 18-month timeline.

(3-3) GSWCD comment:

- **Page 131, (C) Proposed Management Strategies, Management Categories – Basins that have made a conceded effort to improve irrigation efficiency on a large scale (Klamath, Walla Walla) are finding that spring and stream flows are reduced as the shallow aquifer is depleted. Within the Water Quality Management Plan, page 47, confirms that water exchange between ground water and surface stream flow provides a cooling effect and states that decreased groundwater input is caused by less floodplain area to collect spring floodwater. Isn't this benefit goal exactly what irrigation is already providing within the Basin. Water storage is also a viable solution that should be included in the management measures for stream flow. The pond and reservoir measures statement indicates that all impoundment of water is negative to water quality, however managed water release from thermally stratified reservoirs can have both a benefit to stream temperature and flow.**

DEQ response: Refer to the responses to comments G-14 (paragraph III) and 1-2.

(3-4) TFT comment (general, Section C, water quantity):
TFT has significant funding available to restore instream flow in the John Day Basin based through market-based agreements with willing landowners. We have conducted assessments as to the relative priority streams and reaches for flow restoration work. A variety of approaches exist to achieve flow restoration, which can add to rather than subtract from the overall value of an agricultural landowner's portfolio. This work can be very compatible with the enhancement of agricultural working landscape values, and we would like to see this TMDL and WQMP as an opportunity to enhance instream flow restoration in the John Day basin. However:

- The TMDL does not appear to specify to any meaningful degree how much temperature improvement can be expected (i.e., how much movement towards TMDL compliance) per given unit of flow restoration (e.g., per 1 cfs).
- Given the causal relationship between water diversion out of stream and the stream temperature instream (or bacteria levels, or dissolved oxygen), why would water withdrawals not be one of the load allocation surrogates used in this TMDL?
- In addition, while the TMDL does provide information on current versus natural estimated flow (Figure 3-5), it apparently does not evaluate where current instream flow conditions are adequate to achieve temperature and where they are not. It would be helpful to have DEQ provide some information on or means of ascertaining what is and adequate amount of flow in a given reach in order to achieve meaningful temperature (or bacteria, or D.O.) compliance or progress.

We would appreciate DEQ's response to these concerns and how an entity like ours should proceed when trying to explain to a landowner that restoring flow will result in meaningful TMDL legal compliance.

DEQ response: We appreciate the proactive restoration approach reflected in this comment. 1st bullet – we have worked with local groups in other Basins, carrying out requested simulations on model corridors. As resources allow, we are interested in supporting the John Day Basin similarly. Currently, one broad-scale method of prioritizing flow restoration via thermal effects might be to scan **Figures 2.1-4** through **2.1-6** in the draft TMDL document (main document) for areas where estimated natural flow results in the greatest temperature reduction. This can be compared with the flow profiles of **Appendix B** to correlate the amount of flow increase.

2nd bullet – Why would water withdrawal not be one of the load allocation surrogates? Refer to the response to comment 1-13.

3rd bullet – Regarding flows needed to meet criteria, the bacteria load allocations are flow dependent. However, the targets are not based on a limiting flow (as concentration reduction is a viable alternative to meet the standard). With temperature, the target of the standard is natural conditions, including site potential stream flows. However, the TMDL does not set numeric flow targets as referenced in the preceding paragraph of this response. We and other organizations will work with the Basin community to restore instream flows, working toward more natural levels.

(3-5) USFS-UNF comment:
Figure 3-5, Page 133-134. Map of flow deficit for upper NFJD includes large tract of wilderness with minimal flow alteration and low priority for active restoration.

DEQ response: Refer to the response to comment 2.1-10.

(3-6) WW comment (Section G):
1. The Water Resources Department needs to be included as a Designated Management Agency: Throughout the draft TMDL and WQMP low stream flows are identified as one of the causes of the temperature problems plaguing the John Day River Basin. Irrigation withdrawals are identified as a primary cause of the low flows. That said, notably absent from this document is

any reference and/or management direction to the Oregon Water Resources Department (WRD). The WRD is directly responsible for the allocation and management of water rights in the John Day basin. As such, their actions directly affect both stream flows and channel structure, and thus temperature. Samplings of the WRD's actions that affect flow levels (and thus stream temperature) in the John Day include:

- Issuance of new water rights, including hydraulically connected groundwater rights
- Issuance of new reservoir rights, including in-channel dams (i.e. WRD is currently reviewing an application for 86 reservoirs in the Thirtymile Creek subbasin).
- Approval of extensions of time for development of old water rights that could affect flow and/or temperature (i.e. Bates Pond)
- Management of existing water rights (i.e. regulation, measurement, etc.)
- Trust responsibility to ensure protection of the John Day instream water rights
- Enforcement responsibility regarding illegal diversions of water (i.e. non permitted uses and/or permitted users taking more than is allowed by their water right)
- Protection of peak and ecological flows in permitting decisions
- Protection of Scenic Waterway Flows in surface water and ground water permitting decisions
- Protection of flows for threatened, endangered or sensitive fish in permitting decisions

The absence of any reference to the WRD is notable not only because this agency's actions are so integral to the attainment of temperature standards in the basin, but also because, as the DEQ should be aware, there is currently major planning strategy underway to develop statewide Integrated Water Resources Strategy that aims to tie together the management activities of a number of state agencies as they relate to water, most notably WRD, DEQ and ODFW (see HB 3369, 2009). The WQMP provides a clear nexus where integrated management should be taking place.

Moreover, to the extent DEQ might rationalize its omission on the premise that it is focusing only on agencies that have authority over state lands, under Oregon law "lands" include water. ORS 273.006(5). Thus, the inclusion of WRD is appropriate. For all the above reasons, WRD should be included as a DMA.

DEQ response: Refer to the response to comment 1-13.

(3-7) TFT comment (Section E):

II. WQMP / TMDL Implementation.

II A. Who is responsible, when, and what will accountability look like?

Section (e) of the WQMP states:

> For nonpoint sources of pollution, sector-specific Implementation Plans will include specific management strategies and timelines. Management strategies should be clearly linked to the load allocations and their surrogates. Designated participants are expected to prepare an annual report and undertake an evaluation of the effectiveness of their plans every five years to gauge progress toward attaining water quality standards. If it is determined that an Implementation Plan is not sufficient to achieve the load allocation, the planning entity will be required to revise the plan accordingly. All of these actions, taken together, will target attainment of water quality standards.

Who is responsible for preparation of these sector-specific Implementation Plans? The current lack of such plans, timeline commitments, and responsible entities in the document causes doubt over the likelihood of the TMDL's implementation. In addition, it makes the management actions

listed in the WQMP "Management Categories" section seem general and abstract in their application. The TMDL and WQMP should be more clear as to where these management actions are needed, and especially clear about expectations and accountability for implementation, including what happens if a) designated participants fail to develop sector-specific Implementation Plans within a specified timeframe, b) who determines if these Plans are adequate to achieving TMDL allocations and objectives, and c) what happens if the Plans are not implemented in a way that achieves implementation of specified management actions in X period of time. As to this last concern, the WQMP Section (f) discusses the fact that actual water quality improvements may take a long time. However, it does seem that the WQMP or sector-specific Implementation Plans should include measurable benchmarks / metrics as to whether the actions necessary to achieving those eventual water quality improvements (e.g., riparian planting, instream flow, etc.) have been undertaken by X date.

In addition, the WQMP delays the discussion and selection of "activities and Best Management Practices (BMPs)" for non-point sources to a future, unspecified date. The TMDL and WQMP should be more specific as to BMPs and activities so as to better direct what the sector-specific Implementation Plans need to contain. This seems required by OAR Division 42 rules and will help all who are affected by this TMDL understand DEQ's expectations.

DEQ response: Regarding 'who is responsible for preparation' of the sector-specific implementation plans, refer to the lists and specifications of designated management agencies in **Chapter 3, Sections G, H** and **I**. Also refer to the response to comment G-5 (1st paragraph of response) laying out the implementation process. DEQ is responsible for oversight, including ensuring that DMAs do prepare plans and plan approval, as explained in the introductory sections of **Chapter 3**.

Regarding benchmarks, we call on DMAs to prepare further assessment as needed, planning objectives and/or adaptive management target. Ideally, this is enhanced by their sector-specific knowledge. Implementation plan performance monitoring is called for as well (**Chapter 3: TMDL Implementation Plan – Expected Components**).

Regarding BMP specificity, again we call on the DMAs, emphasizing their knowledge of their land use and capabilities (refer to the response to comment 1-2, for example). Beyond the WQMP, their additional and more detailed planning is slated to take place, with DEQ oversight, as described in the responses to comments G-5 (1st paragraph of response) and 3-2.

(3-8) CRK comment (Section G, implementing organizations):
III A. DEQ Must Revise the TMDL to Include the Oregon Water Resources Department as a Designated Management Agency.

Notably absent from the draft TMDL and WQMP is the Oregon Water Resources Department ("OWRD"). As an initial matter, the TMDL and WQMP recognize the impact of water withdrawals on water quality impairment. *See* Draft John Day Basin TMDL at i ("The principal causes of stream heating in the basin are near-stream vegetation removal, channel reconfiguration *and instream flow loss*.") (emphasis added); *id.* at 47 ("Diminished instream flow contributes to high temperature as well, particularly in July and August as flow approaches the annual minimum, surrounding temperatures are high and solar radiation is relatively direct—and irrigation crops need ample water."); *id.* at 80 ("While flow restoration requirements are not quantified or allocated, the Department strongly encourage reasonable and effective efforts toward flow restoration. Flow restoration is critical to attainment of water quality standards."). While recognizing the impact of water withdrawals and irrigation return flows, DEQ nonetheless omits OWRD as a Designated Management Agency ("DMA"). The Conservation Organizations disagree with this determination and urge DEQ to reconsider and include OWRD as a DMA.

> Question 1: What is DEQ's rationale for excluding OWRD as a DMA in the John Day TMDL/WQMP? Please explain.
>
> Question 2: Has DEQ ever included OWRD as a DMA in an Oregon TMDL/WQMP? Please explain.
>
> > Question 2.a.: If DEQ responded affirmatively to Question 2, please explain why the circumstances in the John Day TMDL/WQMP do not warrant including OWRD as a DMA.

In its comments to DEQ, Water Watch explains in detail why OWRD must be included as a DMA. By this reference, the Conservation Organizations incorporate the public comments of Water Watch. Water Watch's comments address the critical role of water quantity on water temperature in the John Day Basin. Aside from the role of diminished water quantity, the draft TMDL/WQMP recognizes the impact of irrigation return flows on water temperature. *See* Draft TMDL/WQMP at 131 ("Irrigation Return Flows. Limiting irrigation surface return-flows of water can also help meet the heat reduction called for in the TMDL.") (emphasis in original). Yet, DEQ fails to address how OWRD's water right permitting decisions set the stage for the ultimate quantity of return flows.

Without the participation of OWRD in the TMDL/WQMP implementation process, it is entirely unclear how the John Day River will ever achieve compliance with state water quality standards. For the reasons stated in the Water Watch public comment and described herein, the TMDL/WQMP should be revised to include OWRD as a DMA.

DEQ response: Question 1 – Refer to the response to comment 1-13.
Question 2 – The authors of this document are not aware of any instance where OWRD had been named a DMA in the TMDL process.

(3-9) TFT comment (Section G, implementing organizations):
TFT also engages in policy work aimed at advancing the restoration of freshwater ecosystems through conservation approaches that are positively received by private landowners. The John Day TMDL and WQMP offer a critical opportunity to improve water quality and comply with the Clean Water Act (CWA). We applaud DEQ's effort in advancing this document and drawing attention to in-basin water quality restoration needs. The TMDL and WQMP also present a possible source of tension with private landowners. It is hard to argue that in-basin land management practices, over time and ongoing, have not resulted in elevated water temperatures, bacteria levels, and other conditions that contravene CWA standards and are detrimental to fish listed under the Endangered Species Act (ESA). That said, we understand that a one-size-fits all approach is not necessarily accurate in characterizing historic conditions. Stream restoration work, including instream flow restoration, presents a real opportunity to meaningfully address water quality improvements through habitat actions that can also bring local economic benefit.

We hope that the DEQ and basin landowners and local leaders will work together on a pragmatic approach to TMDL implementation that results in actual water quality improvements instead of progress on paper only. To the extent TFT can play a positive role in this work, we are more than willing to engage. In the meantime, what follows are comments based on our review of the TMDL and WQMP.

I. Role of Instream Flow and the Oregon Water Resources Department.

While the draft TMDL in many areas recognizes the importance to stream temperature (and other parameters) of restoring instream flow during critical periods, The Oregon Water Resources Department (OWRD) as absent from the list of official Designated Management Agencies (DMA) in implementing this TMDL. A discussion of OWRD's role in water management should be included in the TMDL, as this agency clearly has jurisdiction over an issue (i.e., water quantity)

that is significantly related to the water quality purposes of this TMDL. In addition, given the importance of instream flow restoration and achievement of compliance with water quality listing parameters, DEQ should indicate the actions OWRD should take as part of achieving TMDL implementation.

The legal role of the OWRD is "To serve the public by practicing and promoting responsible water management." TFT works directly with OWRD as well as the local watermaster's office in advancing instream flow restoration, as the agency is integral to this work. Irrigators also work directly with OWRD and the watermaster's office on irrigation water supply concerns. The OWRD and its actions and activities play a primary when it comes to water management in the Basin. OWRD should be engaged in the specification of how it will work to meet the objectives of this TMDL given the connection between stream flow and stream temperature, bacteria levels, dissolved oxygen, and biological criteria. If there is a rationale for why OWRD should not be listed as a DMA, we would appreciate knowing the rationale. In addition, OWRD is not listed in Table 3-1 p. 136 as among the state-level "Potential TMDL Implementation designated participants." It is unclear why the agency would be absent.

DEQ Response: We agree with your comment "... the DEQ and basin landowners and local leaders will work together on a pragmatic approach to TMDL implementation that results in actual water quality improvements instead of progress on paper only."

We also agree that OWRD should be (and is) involved. However, we do not require them to prepare TMDL implementation plans, as discussed in the response to comment 1-13.

(3-10) USBLM comment:

WQMP 3(H)	Revision is recommended for this statement: (Memorandum of Agreement 2003)	An update to the 2003 Memorandum of Agreement is being completed in 2010 and will be signed by the end of fiscal year '10. So you could change it to: In Process US Bureau of Land Management (Prineville District): ***Water Quality Restoration Plan*** (DEQUSBLM Memorandum of Agreement 2010)

DEQ response: We will carry out this revision as suggested.

(3-11) USBLM comment:

WQMP 3(H)	In the preamble on the DMA's requirements for completing implementation plans, (WQRPs) please note that USBLM completed a WQRP for 150 miles of the John Day Wild and Scenic River in the Wild and Scenic River Plan of 2001. Also, please provide feedback as to the accuracy of this initial WQRP and what remains to be completed by USBLM.	It is USBLM's intent that all actions identified in the USBLM's John Day Basin RMP (currently available in Draft) will be sufficient to attain the TMDL. USBLM intends to develop a prioritized list of monitoring for consideration by ODEQ in their submittal of a WQRP in order to more efficiently inform the basin wide monitoring effort for the TMDL. This will allow USBLM to direct its funding more efficiently.

DEQ response: We will acknowledge the lower John Day Riparian Management Plan in the revised document. Once the TMDL is issued we will review USBLM's RMP as to approvability as a TMDL implementation plan (referred to as WQRP – Water Quality Restoration Plans – in interagency memoranda between DEQ, USBLM and USFS). Meanwhile we appreciate that

USBLM has moved ahead in planning, and that we've interacted throughout the RMP development process. This and many other efforts in the Basin, public and private, underscore that TMDL-consistent management has been emerging for quite awhile in the Basin.

(3-12) USBLM comment:

WQMP 3(H)	Revision is recommended to this statement: "Review of the TMDLs, WQMP and Implementation Plans will tentatively target a 5-year cycle" Need to add the review of the USBLM MOA will be done on a 5 year cycle as stated in the updated MOA.	Review of the TMDLs, WQMP,MOA and Implementation Plans will be done on a 5-year cycle.

DEQ response: We will note that the updated MOA calls for a 5 year cycle.

(3-13) CRK comment (page 142-147):
III C. Timeline for Implementation.

Threats facing Columbia River Basin's salmon and steelhead are severe by any measure. As noted above, conditions on the John Day reach lethal conditions for ESA-listed fish. Consequently, the TMDL and implementation measures it produces are critical to protecting and recovering multiple salmonids and other species listed as threatened and endangered under the ESA. In short, time is of the essence.

Despite the pressing nature of improving water quality in the John Day, DEQ's TMDL and WQMP fails to establish any meaningful timeline for TMDL implementation. The formidable task at hand does *not* excuse DEQ from establishing an implementation measures and a schedule for implementation. *See* 40 C.F.R. § 130.6 (c)(6) (describing the implementation measures requirement and stating "[i]dentification of implementation measures necessary to carry out the plan, including financing, the time need to carry out the plan . . . ."); OAR 340-042-0040(4)(l)(D) (stating that WQMP's will include a timeline for implementing management strategies, which includes a "[s]chedule for revising permits," a "[s]chedule for achieving appropriate incremental and measurable water quality targets," a "[s]chedule for implementing control actions," and a "schedule for completing other measurable milestones."); OAR 340-042-0040(4)(l) (F) (stating that WQMPs will include a "[t]imeline for attainment of water quality standards." Simply put, the TMDL and WQMP must be revised to comply with state and federal law.

The WQMP section titled "Planning Preparation Time Line" illustrates the TMDL/WQMPs' deficiencies. *See* Draft TMDL/WQMP at 142. For example, the timeline specified for the Oregon Department of Forestry states in full: "The DEQ and ODF are expected to review whether current forest practices are sufficient with ***18 months*** of TMDL issuance." *Id.* (emphasis in original). The timeline for the Oregon Department of Transportation simply states: "TMDL implementation time lines have not been developed. DEQ and ODOT are expected to review potential transportation related water quality conditions, in relation to the load allocations of **Chapter 2,** within ***18 months*** of TMDL issuance." *Id.* (emphasis in original). Overall, the "Timeline for Implementation" section reads more like a precursor to a TMDL than an actual timeline for the *implementation* of the TMDL. The Conservation Organizations urge DEQ to revise the TMDL and WQMP to include an implementation timeline that meets the requirements of federal and state law.

Question 4: What is the "biennial schedule" for ODA?

Question 5: Is DEQ "beyond 18-months" approach for ODA consistent with state and federal law? Please explain.

DEQ response: DEQ agrees that more is needed, in terms of detail and scheduling, than can be found in the WQMP. Sector-specific planning is underway or will be shortly (within 18 months of issuance, as noted), and until then the needed information is generally not available. Refer to the responses to comments G-5 (1st paragraph of response), G-21 (3rd paragraph of response), 1-18, 3-2 and 3-7.

> Question 4: ODA reviews its Agricultural Water Quality Management Area Plans (39 in the state) and rules every two years and revises them as needed. AgWQM Area Plans applicable to John Day TMDLs will be up for review in 2011 and 2012, depending on location. There are four plan areas that address the entire John Day Basin. Note that ODA's biennial review process results in their preceding 18 months more often than exceeding it.
>
> Question 5: Certain state agencies and DEQ have statutory relationships, which are mentioned in Division 42 TMDL rules. The information in WQMP is consistent with OAR 340-042-0080 (3) and is consistent with state and federal law.

(3-14) NWEA comment (general, timelines and need for specific actions):

II. WQMP. The WQMP is useless. On matters where Oregon rules require clarity, such as the timeline for attainment, the WQMP merely refers back to the TMDL discussions on the topics that are themselves unclear and unhelpful. There is nothing other than the usual boilerplate about various agency jurisdictions to indicate that any meaningful action will be taken to respond to load allocations. For example, the WQMP merely states that DEQ and ODF "are expected to review whether current forest practices are sufficient within **18 months** of TMDL issuance." TMDL/WQMP at **142** (emphasis in original). Not only is "are expected" vague but it is unclear how this review will take place and why it needs to take place given the findings of the TMDL. It certainly stops short of explaining DEQ's expectations of forest practices changing as a result of the TMDL and the timeline for that action. Likewise, the WQMP states that the Oregon Department of Agriculture plans that are "programmatically updated" will be "updated as needed after the TMDL is issued, through the **biennial schedule** of ODA." Id. (emphasis in original). There is no clarity as to how these plans will be updated so as to conform to the load allocations in the TMDL. Based on past responses by these two key agencies to Oregon temperature TMDLs, the expectation of action can be zero or close to it. Therefore, the WQMP provides no assurance the load allocations will be met.

DEQ response: Refer to the response to comment 3-13. Also, we continue to work with various agencies, including ODA and ODF, in terms of how best to support their implementation of TMDLs.

(3-15) USFS-UNF comment:

Page 144-145. DEQ expectations -- acknowledge that existing management programs in place to achieve water quality protection will be incorporated into management plans, include addressing sedimentation even though TMDLs have not been established, actions that reduce sediment such as protection of riparian areas may also reduce water temperatures.

DEQ response: We will include this acknowledgement in the revised document. Also refer to the response to comment G-25.

(3-16) WW comment (general, instream water rights):

2. The WQMP should call upon the Department of Environmental Quality to apply for Instream Water Rights to protect base flows relied upon in the development of the John Day River TMDL: As we understand it, pollutant loading factors are based upon specific stream flow assumptions. Given the underlying interrelatedness of flow levels to TMDLs, the DEQ should immediately apply

for instream water rights to protect the base flows underlying the TMDL. Both the 1997 Water Quality Water Quantity Task Force Report to Governor Kitzhaber and the Oregon Plan call on DEQ to do this very thing. This directive should be included in the John Day River QWMP.

DEQ response: Refer to the response to comment number 1-13.

(3-17) WW comment (general, expand water quantity measures):
3. The "Proposed Management Categories" should be expanded to include additional water quantity measures: As noted above, WRD should be included as a DMA.

Along with that, the WQMP should be expanded to clearly address flow activities under WRD authority. For instance, we'd suggest the following amendments to the existing category language:

- Channel Condition: Protection of peak flows to help maintain and restore channel diversity should be noted here.
- Stream Flow: Management directives such as measurement of diversions, stopping illegal diversions of water and enforcing water right permit conditions should be noted here. Moreover, while this section notes that withdrawals should be reduced, it should also direct WRD to conduct water allocation decisions (i.e. extension application for Bates Pond, new reservoir applications) consistent with the goals of the TMDL/WQMP. DEQ should commit to applying to instream water rights for the John Day River Basin.
- Ponds and Reservoirs: WRD should not issue any further in-channel reservoir permits. Existing permits holders on in channel ponds/reservoirs should be required to install measuring devices both above and below the pond/reservoir to ensure that no water is appropriated outside of the storage season. WRD and relevant agencies should investigate the removal of dams that significantly impact water temperature (i.e. Bates Pond). Peak and ecological flows should be protected in the issuance of new reservoir permits.
- Bacteria Management/Nutrient Reduction/Upland Management: Measures to keep livestock out of streams should be mentioned in all three of these categories.

DEQ response: Regarding OWRD as a DMA, refer to the response to comment 1-13. With regard channel condition, we will revise the document accordingly.* The responses to comments 1-18, 1-22 and 2.1-16 address the livestock and flow management* issues. On a case-by-case basis we continue to work with OWRD regarding permits for diversions and impoundments. As well, development of the statewide Integrated Water Resource Strategy (referenced in the response to comment 1-13) is underway, including collaboration between OWRD and DEQ.

(3-18) TFT comment (general, Conserved Water Program):
II D. ODA and Conserved Water Projects:

Relevant to the WQMP (section 3), we recognize that Oregon Department of Agriculture (ODA) will work closely with Soil and Water Conservation Districts to carry out ODA's responsibilities. This TMDL and WQMP should encourage ODA to work with the local SWCD's to more comprehensively evaluate potential irrigation efficiency projects that could improve instream flows as part of the Allocation of Conserved Water Program, and specifically to ensure that water savings through efficiency projects get protected instream.

The Allocation of Conserved Water Program (ACWP, ORS 537.455) was adopted as law by the Oregon legislature to provide significant benefits to both the general public and private water right holders. The ACWP incentivizes the installation of improved irrigation delivery systems. A water right holder that goes through the process of making capital improvements to irrigation water delivery such as piping an open ditch or converting from flood to sprinkler irrigation can submit an

application to OWRD that can provide multiple benefits to the community. The OWRD will review the project and make a determination on the amount of water that has been conserved through the project. If all parties agree, a minimum of 25 percent of the conserved water would be permanently transferred instream for public benefit, and in turn benefit water quality. The remainder of the conserved water is then allocated by the percentage of public funding that was invested in the project. Water right holders have up to 5 years to evaluate their new irrigation delivery system and determine if they want to accept the findings of the OWRD under the ACWP.

One potential benefit to the water right holder includes the opportunity to irrigate new lands that do not have an existing water right. There is also a potential opportunity to submit a proposal to be compensated from an organization such ours to transfer that water in-stream. In short, this program provides a means to instream flow and thus water quality improvement that is consistent with agricultural values. It is important that water saved through efficiency projects gets protected instream, and in this way counts towards supporting TMDL water quality compliance. TFT can serve as an entity that works with SWCD's and others to complete the legal paperwork necessary to ensure this protection, and the ACWP provides an applicable vehicle. We also encourage DEQ to engage other parties that support irrigation efficiency investments to evaluate their work under the ACWP and en-sure water saving projects are not only prioritized but that the saved water gets protected. These groups would include the Tribes, Bonneville Power Administration, local watershed councils and the US Department of Agriculture's Natural Resource Conservation Service.

DEQ response: We are aware of the Allocation of Conserved Water Program, and will add discussion of this to the WQMP.

(3-19) USFS-UNF comment:

Page 155. Natural Resource Agencies – please recognize/acknowledge programs of all 4 NFs, include Wallowa-Whitman, Umatilla, Malheur, and Ochoco; and the Bureau of Land Management Prineville District, and our partners who include Tribes, watershed councils, SWCDs, operators, permittees, and land owners.

DEQ response: This was an un-intended omission, though these organizations are recognized elsewhere in the document. We will incorporate this recommendation into the section addressed by this comment (**Chapter 3: TMDL-Related Programs, Incentives and Voluntary Efforts**).

Appendices Comments

Temperature

(A-1) HL comment:

The appendix for water temperature was immense. However, it was daunting because some of the colors were too close in shade to differentiate among lines on graphs. I suggest you use both colors and line styles (e.g., dots and dashes) to help. Not all of the axes were labeled in many graphs, which also made comprehension difficult. I also suggest that you split your glossary and add them to the beginning of each appendix and chapter of each heading. I know that this will add to the text, but it would clarify issues quickly. I suspect that most may download PDF files and it is much easier to scroll back a few pages than it is to jump sections electronically. This is my opinion and others may differ.

DEQ response: We will consider these helpful editorial comments during the document revision.

(A-2) GSWCD comment:

- **Appendix A, Page 9, Channel Morphology and Vegetation - Much stream damage in the Basin resulted from the 1964 flood. Much more channel modification then resulted from the Army Corp post flood damage "restoration" work. Readers should be aware that only a few years ago in geologic time it was considered good management of streams to straighten and deepen channels and to remove any wood material.**

DEQ response: Refer to the response to comment G-14(I). In addition, refer to the response to comment 1-7.

(B-1) GSWCD comment:

- **Appendix B, Page 2, POTENTIAL FLOW - "The flow of water in the John Day Basin has been altered significantly from historic and natural conditions." What is the basis for this statement? It is not relevant to determining the potential flow within the Basin.**

DEQ response: We believe that it is factual and relevant that stream flow, particularly in the summer, in many John Day Basin streams, is depleted relative to natural conditions. For documentation, refer to OWRD water permits/POD database, or to the John Day Subbasin Plan (March, 2005) developed through the Northwest Power Planning and Conservation Council. Other planning and assessment documents make this conclusion as well (refer to USBR, OWRD). Note that in the TMDL context *potential* refers to *natural potential*.

(B-2) USFS-UNF comment:

Page 3. Discussion of the NFJD floodplain restoration work on 9 miles between 1993 and 1996 needs clarification, this is not an "exception", many miles of streams confined by dredge tailing were artificially narrowed and channels deepened by scour, restoration to improve overbank flow and restore floodplain function, (including storage of sediment), results in a channel evolution sequence of widening. Over time, channels may narrow again as floodplain vegetation matures. This scenario occurred on other reaches that were dredge for gold including Granite and Clear Creek which have also had active restoration (2000-2007) and are undergoing a similar sequence of response.

DEQ response:* We will clarify in the document revision that the referenced North Fork restoration does not stand alone as an exception, in terms of the generality that channels have widened, through time, when subjected to a variety of human impactcs.* Based on this comment,

it appears we agree that generally human-related disturbance leads to widening, ultimately, and restoration to narrowing. And we agree that this is not always the case. Refer to the response to comment 1-20. We also note that the TMDL surrogate for channel configuration targets natural form, regardless of the direction of change.

(B-3) USFS-UNF comment:
Page 24. Restored flow documentation difficult to understand, see also comment p. 51 and 58, restored flow scenario seems over-predicted in terms of flow alteration above Desolation Cr (Km 97.2)

DEQ response: This is addressed in the response to comment 2.1-10.

(B-4) USFS-UNF comment:
Page 25-27. Restored morphology, recovery let to net widening due to channel adjustment after removal of channel confining dredge tailings. Channels may narrow in coming decades as vegetation continues to reestablish however we agree with limiting this scenario to underpredict rather than overpredict contribution of morphology. We question the potential for scenarios with >20 % narrowing in the lower John Day (Fig B-25)

DEQ response: Refer to the responses to comments 1-20, 2.1-4 and B-2.