

Willow Creek Subbasin
Temperature, pH and Bacteria
Total Maximum Daily Loads
and
Water Quality Management Plan

Response to Public Comments

Prepared by:
Oregon Department of Environmental Quality
January 2007

TMDL & WQMP approved by the US Environmental Protection Agency on 2/19/2007



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*Willow Creek Subbasin
Temperature, pH and Bacteria
Total Maximum Daily Loads and
Water Quality Management Plan*

Response to Public Comments

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The comments received by DEQ were submitted in written (paper and electronic) form. In the following sections, responses to comments are organized in the order of occurrence in the document, beginning with the more general comments. The original text of the comments is included here as Appendix A. An asterisk (*) indicates that the revised document has been modified based on a comment. “The Department” means the Oregon Department of Environmental Quality, unless otherwise stated.

Introduction

This Response to Public Comment addresses the draft document entitled: *Willow Subbasin Temperature, pH and Bacteria Total Maximum Daily Loads and Water Quality Management Plan*. The Draft document reviewed during the public comment period represents several years of data collection, data analysis, public participation and document development.

All comments have been considered by the Oregon Department of Environmental Quality (DEQ) and, where appropriate, have been addressed in the final TMDL and WQMP. The final documents have been submitted to the US Environmental Protection Agency (EPA) along with a copy of this response. EPA has 30 days to either approve or disapprove the TMDL.

Not all comments resulted in modifications to the document. Some comments represent different views of the Clean Water Act, State authority, the strength of the scientific knowledge, and the ability of designated management agencies to implement the TMDL.

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 for the proposed Willow Subbasin TMDL & WQMP opened on August 25, 2006. The due date for comments was October 10, 2006. One public information open house and hearing was held on September 19 of 2006 in Heppner, OR. DEQ staff and four other people attended and informational discussion took place. No formal comments were made at the hearing.

The public notice for the public comment period and hearing was sent to interested parties in Oregon with concerted effort within the Willow Creek Subbasin. DEQ maintains lists of interested parties and the Morrow Soil and Water Conservation District provided an extensive email list as well. Direct mailings of the public notice were sent to local officials and also placed on DEQ's website. In addition, the public notice was advertised through the Heppner Gazette and the East Oregonian newspapers. Further outreach was conducted through numerous presentation and discussion forums throughout TMDL development. The Morrow Soil and Water Conservation District, in partnership with DEQ, provided an ongoing venue for outreach.

The TMDL & WQMP document and technical appendix were available for downloading from DEQ's website throughout the comment period. Hard copies and CDs of the documents were also available for viewing at the County Courthouse, the Morrow Soil and Water Conservation District and at DEQ's offices in Pendleton and Portland. Notification included designated management agencies (DMAs) and other land/water authorities: US Forest Service (USFS), Oregon Department of Forestry (ODF), Oregon Department of Agriculture (ODA), Oregon Water Resources Department (WRD), County Commissioners, and the US Army Corps of Engineers (USACE). Copies of the documents were also provided to those individuals who requested copies.

List of Reviewers Issuing Public Comment

Code	Comments Received From	Date Received	Media
EPA	US Environmental Protection Agency (2 pages)	10-06-06	Mail
ODF	Oregon Department of Forestry (3 pages)	10-10-06	Mail

Comment & Response – General

(G-1) ODF Comment: In the Department’s (ODF) opinion, there continue to be significant technical and policy issues with the TMDL process and methodology in general, some of which apply to the Willow Creek Watershed. Specifically, there are technical inaccuracies within the Willow Creek Water Quality Management Plan that, if corrected, would help towards the development of a more credible plan. For example, on page 2-9 of the Water Quality Management Plan the DEQ states:

“Down trees left in place, over fairly large areas, are apparent within the Willow Creek riparian area in non-federal reaches. Further discussion and evaluation is needed as to whether this practice is detrimental to stream temperature. Aerial photograph shows considerable area of apparent low vegetation density and height in the non-Federal forest of upper Willow Creek – however, the pixel resolution is low in this area and any interpretation would need validation. Temperature simulation indicates that unnatural heating begins in the forested headwaters immediately below the Federal boundary. Whether heating in this region is due to legacy or current practices remains a question. Also, tributaries to Willow Creek have not been evaluated.”

“DEQ has an expectation that inter-departmental discussion and evaluation is needed to determine in the non-Federal forested area of the Sub-basin along all perennial streams: (1) the level of compliance with FPA, (2) the degree to which unnatural heating is occurring and (3) to the extent that unnatural heating is occurring, is it resultant from legacy or current forest operations? Once these questions are answered, a strategy needs to be produced to address any deviations from the NTP.”

In reviewing the documents the ODF was unable to locate the data analysis to support these statements, and in fact the DEQ’s own description of the data analysis points out a lack of adequate data analysis to draw such a conclusion.

Response – The simulated rate of heating (e.g., Apx D, Figure D4-9) is consistent with low density of forest canopy apparent in both aerial photography and field observations. Documentation of this exists in the aerial photos utilized in the analysis, which are not included in the document but are generally available and referenced in the draft TMDL document. Additional basis includes ground level observations and ground photographs. Areas of the riparian forest are clearly disturbed or immature. We acknowledge that this could be related to natural conditions (e.g., insect or fire related). Also refer to DEQ/ODF resolution* below.

It is unclear whether down trees left in place are the results of a forest operation or a range improvement/juniper eradication effort unrelated to forest operations.

Response – The Willow Creek riparian forest is generally a fir/pine/spruce/deciduous forest, not juniper-range landscape.

An effort as significant as this TMDL would seemingly deserve at least some on the ground review to ascertain if the reported low vegetation density and height is in fact a result of human action, and if it is, whether it is associated with grazing management or forest operations.

Response – Yes, ground level observations were made and ODF staff was consulted prior to the public comment period. This process was not conclusive, hence the call for further evaluation.

Further, past language agreed upon by DEQ and ODF for use in water quality management plans has been changed significantly and the meaning diluted. We are concerned that this has been done without our concurrence. There should be an opportunity for both agencies to make changes to the agreed upon wording in a collaborative process.

Response* – As to process, we sent the language to ODF prior to public comment and received no suggested revisions to the text or comments regarding the text. Further, DEQ does not expect all language in Subbasin TMDL plans to be standardized, as watershed conditions and parameters being addressed vary from one subbasin to another. DEQ does agree that collaboration and input is important during development and implementation of TMDLs. After the public comment period, DEQ and ODF agreed to the following text, which will replace the existing text of the section of concern in the Water Quality Management Plan – Section H:

Non Federal Forest Lands

The Oregon Department of Forestry is the DMA for water quality protection from non-point source discharges or pollutants resulting from forestlands on non-federal forestlands in Oregon.

The Forest Practices Act (FPA) applies regional rules to forestlands and also provides for watershed specific protection rules. Watershed-specific protection rules are a mechanism for subbasin-specific TMDL implementation in non-Federal forest land where water quality impairment is attributable to current forest practices. Legacy issues are addressed through management planning with ODF as a participant. Coordination between ODF and DEQ is guided by a Memorandum of Understanding (MOU) signed in April of 1998. This MOU was designed to improve the coordination between the ODF and the DEQ in evaluating and proposing possible changes to the forest practice rules as part of the TMDL process. ODF and DEQ are involved in several statewide efforts to analyze the existing FPA measures and to better define the relationship between the TMDL load allocations and the FPA measures designed to protect water quality.

The TMDL that applies in forest lands is for temperature.

Current Status

DEQ staff reviewed aerial photography and conducted ground level observations along the length of Willow Creek. The forest area in the nonfederal lands area extending 4 miles below Cutsforth Park includes various areas where shade-producing vegetation along Willow Creek appears disturbed. This is indicated by large quantities of down trees and areas of immature trees and, compared to much of the Blue Mountain riparian areas with conifer dominance, low densities of large trees and low effective shade. Computer simulation based on estimates of tree height and density for mature forest stands results in mature forest stands producing significantly less stream heating. Simulated heating could be exacerbated by inaccurate estimates of natural potential. The natural condition of riparian areas in dry forest site conditions and fire prone environments such as upper Willow Creek need further evaluation. Reflecting DEQ's policy of *Implementation and Adaptive Management*, page vi of the TMDL states that even where load allocations based on full natural potential are not met, this is permissible in the event of natural disturbance such as drought, fire, disease, etc. Further assessment is needed in order to determine whether the current situation is due to natural forest dynamics. It is also important to recognize that the TMDL focused on the mainstem - the tributaries to Willow Creek were not evaluated in the assessment.

DEQ and ODF joint plan for next steps. Inter-Departmental discussion and evaluation is needed to determine, in the non-Federal forested area of the Sub-basin along all perennial streams: (1) whether unnaturally increased heating is occurring and (2) if so, is the excess heating related to current or past forest practices, or practices unrelated to forestry. Once these questions are answered, a strategy needs to be produced to address any deviations from the natural condition criteria of the Oregon temperature standard.

(G-2) ODF Comment: The DEQ is also encouraged to consider a reexamination of the water quality standards, specifically related to temperature, as there continues to be substantial concerns over the technical credibility and feasibility of the temperature standard and associated criteria. The resolution of these issues would help to better ensure a TMDL process that would garner a greater level of understanding, acceptance and support among the range of stakeholders in the Basin.

Response – During the course of numerous public meetings in the Subbasin and several years of collaborative TMDL development, we received no indication of a lack of understanding, acceptance and support among the Stakeholders. In fact, the TMDL development process was well supported by locally based stakeholders and organizations.

Regarding the temperature standard, your statement regarding credibility and feasibility has been forwarded to our water quality standards section. Standards are a broader issue than a subbasin TMDL and similarly go through extensive inter-organizational scientific and policy review.

Comment & Response – Part One

(1-1) EPA Comment, p. 1-21: It would be desirable to cite the applicable portions of the temperature standard here. Because there are point source discharges it would be helpful to also quote the relevant portions of the Temperature Thermal Plume Limitations OAR 340-041-0053 (2) (d).

Response* – The draft Sections 1.3b and 1.3c include citations to applicable portions of the temperature standard targeted by the TMDL. Some sections of the standard are not mentioned because they are broadly applicable regardless of the TMDL. The text of Section 1.3c will be modified to reference the part of the standard presented in 1.3b and to quote and cite OAR 340-041-0053 (2)(d), and to cite OAR 340-041-0028(4)(e).

(1-2) EPA Comment, p. 1-26 – Waste Load Allocations: It would be clearer and more informative if the equations used to determine the waste load allocations and the allocations during the critical period were presented here, in the body of the TMDL. It would also be good to explain here why each of the facilities are given two-thirds of the human use allowance.

Response* – The revision will incorporate this correction as stated. The equations will be excerpted from Appendix D, and example WLA calculations presented for the worst-case time of year (late July – early August). The two-thirds allotment of the human use allowance will be explained in Section 1.3b and cited in the waste load allocation section (1.3g).

(1-3) EPA Comment, p. 1-34 – Willow Creek Reservoir Allocations: Similar to the waste load allocation comments it would be helpful if the equations used to determine the load allocation to the Reservoir and the allocation during the critical period were presented here, in the body of the TMDL. It would also be good to explain here why the Reservoir is given an allowance of 0.2 °C.

Response* – The revision will incorporate this correction as stated. The equation will be excerpted from Appendix D, and an example WLA calculation presented for the worst-case time of year (late July – early August). The 0.2 °C allotment of the human use allowance will be explained in Section 1.3b and cited in the waste load allocation section (1.3g).

(1-4) EPA Comment, p. 1-44 – pH TMDL Waste Load Allocations: The dissolved inorganic nitrogen levels in the current permits should be stated in this section as these are being designated as waste load allocations.

Response* – There are insufficient nutrient data available to characterize current loading and no limits are specified in the permits. In the most recent permit iteration, monthly monitoring of nutrients was required of Heppner which provided data for the few analyses now available (Appendix E, Table E-3). The text of this subsection will be modified to include: “the Department and/or permittees will statistically

characterize the dissolved inorganic nitrogen concentration trends when sufficient samples are available and take action as needed if a significant increase is indicated.”

(1-5) EPA Comment, p. 1-44 – pH TMDL Load Allocations: The last two allocations specified cannot function as either allocations or surrogate measures, because they are not quantified.

Response* – The text of the Load Allocation subsection will be modified such that the last two items are removed from the list of allocations. They will be retained in the subsection narrative as recommendations rather than allocations, as follows: “Other measures are encouraged in support of pH moderation: as feasible, natural flow levels should be established in Willow Creek during July through September; and nutrient output loading from Willow Creek Reservoir should be minimized.”

(1-5) EPA Comment, p. 1-51 – Bacteria TMDL: The last sentence of this section seems to indicate that the allocations apply only from March through December. Is this true?

Response* – The data indicate that March through December is the period during which reduction is needed. However, a larger data set would be needed to eliminate January and February from concern entirely. The text will be modified as follows: “Based on this review, the applicable priority time frame for the numeric objectives of this TMDL load allocation to target for TMDL implementation and further evaluation is March through December, though the TMDL percent-reduction surrogate is based on the available year-round data set. As a precautionary measure, the load allocation and surrogate apply year round.”

Comment & Response – Part Two

Several comments from ODF regarding Part Two, while generally addressing the TMDL process as well, are addressed in the preceding Section ‘*Comment & Response – General.*’

(2-1) ODF Comment, page 2-9: The ODF regulates forests on state, private, county and municipal forests. On page 2-9 of the Water Quality Management Plan under *Non Federal Forest Lands* the statement “The Forest Practices Act (FPA) applies broadly to state forest lands...” is inaccurate. State-owned forestland is how we typically refer to ‘state forests’; while forests managed by private individuals or companies is typically referred to as ‘private forests’.

Response* – The wording will be changed to “... non-federal forestlands...”.

Appendix: Text of Comments as Received

(in the order received)



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 10
OREGON OPERATIONS OFFICE
811 S.W. 6th Avenue
Portland, Oregon 97204

Reply To
Attn Of: OOO

October 6, 2006

Mr. Don Butcher
Oregon Department of Environmental Quality
700 SE Emigrant, Suite 330
Pendleton, OR 97801

Dear Mr. Butcher,

Following are the U. S. Environmental Protection Agency Region 10 (EPA) comments on the draft Total Maximum Daily Loads (TMDL) and Water Quality Management Plan (WQMP) for Willow Subbasin, released for public comment on August 18, 2006.

This draft document presents TMDLs and WQMPs for Willow Subbasin and the analysis utilized in developing the TMDLs. The pollutants addressed include temperature, pH and bacteria. In general, EPA finds the information presented in the TMDLs to be clear and complete and inclusive of all the statutory and regulatory components required of TMDLs. The following comments provide some suggestions on minor changes, which would clarify the Willow Subbasin TMDLs. In addition, comments are presented on how improvements can be made to the Willow Subbasin WQMP to make it more effective in guiding implementation to restore water quality.

EPA would like to acknowledge the effort that went into developing this TMDL. Oregon's basin-wide approach to the TMDL process is a major undertaking, but we believe it provides a more complete and integrated understanding of water quality issues in a watershed.

Following are comments on specific elements of the TMDL:

Stream Temperature TMDL

p. 1-21 Water Quality Standards and Beneficial Uses

It would be desirable to cite the applicable portions of the temperature standard here. Because there are point source discharges it would be helpful to also quote the relevant portions of the Temperature Thermal Plume Limitations OAR 340041-0053 (2)(d).

p. 1-26 – Waste load Allocations

It would be clearer and more informative if the equations used to determine the waste load allocations and the allocations during the critical period were presented here, in the body of the TMDL. It would also be good to explain here why each of the facilities are given two-thirds of

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the human use allowance.

p. 1-34 Willow Creek Reservoir Load Allocation

Similar to the waste load allocations comments it would be helpful if the equations used to determine the load allocation to the reservoir and the allocations during the critical period were presented here, in the body of the TMDL. It would also be good to explain here why the reservoir is given an allowance of 0.2 degrees Celsius.

pH TMDL

p. 1-44 Waste load Allocations

The dissolved inorganic nitrogen levels in the current permits should be stated in this section as these are being designated as waste load allocations.

Load Allocations

The last two allocations specified cannot function as either allocation or surrogate measures, because they are not quantified.

Bacteria TMDL

p. 1-51 Seasonal Variation

The last sentence of this section seems to indicate that the allocations apply only from March through December. Is this true?

CONCLUSION

We commend you for the efforts you have made to date and look forward to the submittal of the final TMDLs in the near future. If you have any questions regarding comments on the draft Willow Subbasin TMDL and WQMP, please contact me at 503-326-3280.

Sincerely,



Helen Rueda
TMDL Project Manager, USEPA Region 10

Cc: Mitch Wolgamott, Oregon Department of Environmental Quality, Pendleton Office
Dan Turner, Oregon Department of Environmental Quality, Headquarters

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October 10, 2006



Don Butcher
Basin Coordinator
Oregon Department of Environmental Quality
Water Quality Division Eastern Region
700 S.E. Emigrant Street, Suite 330
Pendleton, OR 97801

RE: ODF comments on proposed Willow Creek TMDL

Dear Don:

The Department of Forestry (ODF) appreciates the opportunity to comment on DEQ's Draft Willow Creek Watershed Total Maximum Daily Load (TMDL). ODF regulates forest operations on private lands within the Willow Creek Watershed and, as a designated management agency, coordinates with the Oregon Department of Environmental Quality (DEQ) to ensure attainment of water quality standards in the basin.

Under current Oregon Revised Statutes, a forest operator conducting, or in good faith proposing to conduct, operations in accordance with best management practices are considered in compliance with State water quality standards. Reliance upon the Forest Practices Act best management practices to comply with the water quality standards provides a valuable service to the forest landowner by ensuring a measure of regulatory certainty, while also providing a mechanism for adaptive management to occur under the auspices of the Board of Forestry and Environmental Quality Commission processes. As a designated management agency, the ODF is committed to continuing to work with the DEQ to ensure the best management practices under the Forest Practices Act continue to meet water quality standards to the maximum extent practicable, and to utilize such best management practices as the TMDL Water Quality Management Plan for non-federal forestlands.

General Comment

The ODF regulates forests on state, private, county and municipal forests. On page 2-9 of the Water Quality Management Plan under *Non-Federal Forest Lands* the statement "The Forest Practices Act (FPA) applies broadly to state forest lands..." is inaccurate. State-owned forestland is how we typically refer to 'state forests'; while forests managed by private individuals or companies is typically referred to as 'private forests'.

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Temperature

In the Department's opinion, there continue to be significant technical and policy issues with the TMDL process and methodology in general, some of which apply to the Willow Creek Watershed. Specifically, there are technical inaccuracies within the Willow Creek Water Quality Management Plan that, if corrected, would help towards the development of a more credible plan. For example, on page 2-9 of the Water Quality Management Plan the DEQ states:

"Down trees left in place, over fairly large areas, are apparent within the Willow Creek riparian area in non-federal reaches. Further discussion and evaluation is needed as to whether this practice is detrimental to stream temperature. Aerial photograph shows considerable area of apparent low vegetation density and height in the non-Federal forest of upper Willow Creek – however the pixel resolution is low in this area and any interpretation would need validation. Temperature simulation indicates that unnatural heating begins in the forested headwaters immediately below the Federal boundary. Whether heating in this region is due to legacy or current practices remains a question. Also, tributaries to Willow Creek have not been evaluated."

"DEQ has an expectation that inter-departmental discussion and evaluation is needed to determine in the non-Federal forested area of the Sub-basin along all perennial streams: (1) the level of compliance with FPA, (2) the degree to which unnatural heating is occurring and (3) to the extent that unnatural heating is occurring, is it resultant from legacy or current forest operations? Once these questions are answered, a strategy needs to be produced to address any deviations from the NTP."

In reviewing the documents the ODF was unable to locate the data analysis to support these statements, and in fact the DEQ's own description of the data analysis points out a lack of adequate data analysis to draw such a conclusion. It is unclear whether down trees left in place are the results of a forest operation or a range improvement/juniper eradication effort unrelated to forest operations. An effort as significant as this TMDL would seemingly deserve at least some on the ground review to ascertain if the reported low vegetation density and height is in fact a result of human action, and if it is, whether it is associated with grazing management or forest operations. Further, past language agreed upon by DEQ and ODF for use in water quality management plans has been changed significantly and the meaning diluted. We are concerned that this has been done without our concurrence. There should be an opportunity for both agencies to make changes to the agreed upon wording in a collaborative process.

The DEQ is also encouraged to consider a reexamination of the water quality standards, specifically related to temperature, as there continues to be substantial concerns over the technical credibility and feasibility of the temperature standard and associated criteria. The resolution of these issues would help to better ensure a TMDL process that would garner a greater level of understanding, acceptance and support among the range of stakeholders in the Basin.

ODF is committed to working with DEQ to explore and develop alternatives that may be needed to address some of those issues. We suggest that we work jointly to develop a landscape

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shade modeling perspective with the assistance of the OSU College of Forestry. Recent work by the Coastal Landscape Analysis and Modeling Study (CLAMS) may allow us to look at a watershed and examine riparian shade conditions over time in aggregate across the watershed under different disturbance assumptions.

Finally, given the recognition of the Forest Practices Act as the current statutory and policy framework for meeting water quality standards on non-federal forestlands, the ODF is generally supportive of the implementation plan for non-federal forestlands included as part of the Water Quality Management Plan. ODF is also committed to continuing to engage in substantive discussions with DEQ staff regarding TMDL model assumptions and possible water quality standard revisions that give more consideration to current scientific understandings of the dynamic nature of forest ecosystems.

Thank you for taking ODF's comments under consideration. Please don't hesitate to contact me or Jo Morgan for questions or additional clarification.

Sincerely,

Robert Young
Acting Program Director
Private Forests Program

Cc: Stephanie Hallock
Ted Lorensen, ODF
Eric Nigg, DEQ