



State of Oregon Department of Environmental Quality

Written Comments

Willamette Subbasins TMDL amendment to include Willamette mainstem and major tributaries

This document is a compilation of written comments received during the public comment period for the Willamette Subbasins TMDL amendment to include the Willamette mainstem and major tributaries.

DEQ accepted public comment on the proposed rulemaking from Aug. 8, 2024, until 4 p.m. on Oct. 14, 2024. DEQ extended the public comment period for 21 days at the request of the public.

DEQ held one public hearing on Sept. 17, 2024, 1:30 p.m. DEQ received no comments at the hearing. Sections of this document include original comments received during the public comment period.

Translation or other formats

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From: Calvert, Paula P (BPA) - E-4 <ppcalvert@bpa.gov>
Sent: Thursday, September 12, 2024 11:24 AM
To: * DEQ Willamette MAINSTEM <Willamette.MainStem@DEQ.oregon.gov>
Cc: Leary, Jill C (BPA) - LN-7 <jcleary@bpa.gov>
Subject: Extension Request for Public Comment Period

Hello Michele,

I would like to request an extension of the public comment period for the Willamette River Mainstem and Major Tributaries Temperature TMDL Replacement, which currently closes on September 23, 2024.

Thank you for your consideration.

Best regards,

Paula

Paula Calvert

Clean Water Act Policy Advisor | Fish & Wildlife, E-4

Bonneville Power Administration

[bpa.gov](https://www.bpa.gov) | P 503-230-5651 | C 360-684-0294 | ppcalvert@bpa.gov



Department of Energy

Bonneville Power Administration
P.O. Box 3621
Portland, Oregon 97208-3621

POWER SERVICES

October 11, 2024

In reply refer to: PGA-1

Comment submitted via email: Willamette.TemperatureTMDL@DEQ.oregon.gov

Ms. Michele Martin
Oregon DEQ, Water Quality Division
700 NE Multnomah St #600
Portland, OR 97232

Subject: Comments to the Oregon Department of Environmental Quality on Amended Temperature TMDLs for the Willamette Subbasins to add temperature TMDLs for the Willamette River Mainstem and Major Tributaries.

Dear Ms. Martin:

The Bonneville Power Administration (Bonneville) appreciates the opportunity to provide comments on the Oregon Department of Environmental Quality's (DEQ) draft Willamette Mainstem and Major Tributaries Temperature Total Maximum Daily Loads (TMDL). The draft TMDL and associated draft Water Quality Management Plan (WQMP) place implementation requirements for temperature management on the U.S. Army Corps of Engineers' (Corps) Willamette Valley System (WVS) dams. Bonneville is providing comments related to the Corps as a Designated Management Agency.

Bonneville markets and transmits the hydropower generated at thirty-one Federal Columbia River Power System dam and reservoir projects, including eight Corps dams in the WVS. Bonneville, as part of the U.S. Department of Energy, operates as a not-for-profit federal entity, selling cost-based electrical power and transmission services to benefit the Pacific Northwest, especially the public bodies and cooperatives that serve domestic and rural consumers. In providing these services, Bonneville must balance multiple public duties and purposes, including: assuring the Pacific Northwest has an adequate, efficient, economical, and reliable power supply; promoting energy conservation and the use of renewable resources; and, acting consistent with the program developed by the Northwest Power and Conservation Council by protecting, mitigating, and enhancing fish and wildlife in the Columbia River basin that are affected by the development and operations of the federal facilities from which Bonneville markets power.¹

¹ 16 U.S.C. § 839. Unlike most federal agencies, Bonneville does not receive annual congressional appropriations; instead, the agency is self-financed from revenues received from the sale of power and transmission services. Bonneville utilizes this revenue to not only pay for the continuing costs associated with its programs (including

The Corps operates and maintains thirteen WVS dams for multiple congressionally authorized purposes including flood risk management, hydropower generation, water quality, irrigation, navigation, recreation, water supply, and fish and wildlife benefits. While the Corps is congressionally authorized to operate the WVS dams for multiple purposes, Bonneville is the federal agency Congress authorized to market and distribute the power generated at eight dams in the WVS. In return, Bonneville is required to pay, either directly to the Corps, or as a reimbursement to the U.S. Treasury, (1) all costs associated with power-specific operations and assets (e.g. turbines); and (2) a share of “joint costs,” which benefit or mitigate, for all purposes of the facility (e.g. fish mitigation, water quality). Any additional costs applied to the hydropower project purpose costs in the WVS as a result of TMDL implementation will increase Bonneville’s costs, which in turn will impact Bonneville’s ratepayers throughout the Northwest.

Bonneville’s comments pertain to the following temperature TMDL documents provided by DEQ, which have been amended to include the Willamette mainstem and major tributaries:

- Draft Amendment Total Maximum Daily Loads for Temperature (TMDL)
- Draft Amendment Water Quality Management Plan (WQMP)
- Draft Amendment TMDL Technical Support Document (TMDL TSD)

Bonneville’s comments reiterate and clarify comments provided to DEQ on March 15, 2024 (March 15 comments) on the draft Willamette Subbasins TMDL, which DEQ may not have directly addressed in their response to comments. These comments focus on aspects of dam and reservoir operations’ load allocation, flexibility for TMDL implementation, and reporting:

1. Nonpoint source Human Use Allowance allocation and Minimum Duties provision

The TMDL allocates 0.00°C to dam and reservoir operations but provides upward of 0.05°C to water management activities and water withdrawals, upwards of 0.02°C to solar loading from existing transportation corridors, existing buildings, and existing utility infrastructure, and an exception for the PGE Willamette Falls Hydroelectric Project, which was assigned a load allocation of 0.10°C. In Section 9.1.5.1, Equation 9-3, the TMDL states that the minimum duties provision in OAR 340-041-0028(12)(a) is justification for the 0.00°C allocation. However, the TMDL does not explain how the minimum duties provision is not also applicable to the other nonpoint anthropogenic sources that received a portion of the human use allowance.

Dam and reservoir operations should receive a portion of the human use allowance

power, transmission, and fish and wildlife actions) but also to repay the United States Treasury for the power share of the original federal investment used to construct the Federal Columbia River Power System. The Bonneville Administrator must operate the agency in a manner that allows it to recover its costs “in accordance with sound business principles.”

16 U.S.C. § 839e(a)(1). This includes the objectives of setting the lowest possible rates for Bonneville services, while enabling Bonneville to make timely repayments to the United States Treasury and simultaneously fulfilling multiple public purposes for the benefit of the Pacific Northwest.

allocation. Bonneville requests that DEQ describe why this sector was not given a portion of the allocation in the revised TMDL. DEQ responded to a similar March 15 comment from Bonneville by stating that allocations must add up to the total loading capacity, and DEQ is not required to specify how load allocations are to be met. However, DEQ did not provide any explanation on how it assigned the 0.00°C allocation to dam and reservoir operations, but not other sources, from the starting point of the minimum duties provision.

2. **Generalization of water temperature control**

Bonneville also requests DEQ become familiar with WVS operations because the application of the temperature water quality criteria is oversimplified and not aligned with the WVS obligation to operate the dams to protect Endangered Species Act (ESA)-listed fish. The TMDL TSD Section 7.2 includes “Management and operation of dams and reservoirs to minimize temperature warming,” as a necessary component for achieving TMDL allocations. However, nowhere in the TMDL and related documents is there an acknowledgement of important factors such as seasonally appropriate dam releases conducted to improve habitat for ESA-listed fish under the existing National Marine Fisheries Service Biological Opinion. An additional example is the strategic release of warm water that occurs at Cougar Dam and Detroit Dam during the warm season for the benefit of fall water temperatures.

DEQ’s response to a similar March 15 comment requested constraints be stated in the implementation plan. DEQ seems to confuse BMP implementation with operations for ESA-listed fish, so Bonneville requests acknowledgement in the TMDL or WQMP that operations, such as those conducted for improving conditions for ESA-listed fish, may preclude attainment of the load allocation.

3. **TMDL Implementation for controlling water temperature via operational strategies for dam and reservoir operators**

The WQMP Section 5.3.7 states that if large dam owners contribute warming in comparison to upstream temperatures, they are “to include structural and operational strategies for mitigating temperature increases” in their implementation plan if they are not able to show that water released does not contribute to downstream exceedances of water quality standards.

In DEQ’s response to Bonneville’s March 15 comments, DEQ stated in regard to TMDL implementation plans, “Once operational constraints have been described, then operational latitude can also be described. DEQ expects that operational strategies to reduce temperature impacts will be identified within the constraints described in an implementation plan. If no operational latitude exists, then this should be explicitly stated in the implementation plan.”

Based on this response, Bonneville understands DEQ to mean that it will accept a

description of realistically implementable operations, if any, that fit within the confines of operational and budgetary constraints, for mitigating temperature increases. If this was not DEQ's intent, Bonneville requests DEQ clarify what it expects in an implementation plan.

Bonneville appreciates the opportunity to provide comments on DEQ's draft Willamette Subbasins Temperature TMDL and related documents to ensure that any new requirements are reasonable, purposeful, implementable, practicable, and cost effective. This is especially important to Bonneville because the draft TMDL and WQMP conditions would further impact Bonneville's costs, and thus, the region's ratepayers. We welcome the opportunity to discuss our comments with DEQ. Please contact Paula Calvert, at (503) 230-5651, if you have any questions about these comments.

Sincerely,

Michelle Cathcart
Vice President of Generation Asset Management
Bonneville Power Administration



PUBLIC WORKS – OPERATIONS

310 Waverly Drive NE, Albany, Oregon 97321 | PHONE 541-917-7600

October 14, 2024

Michele Martin
DEQ Water Quality Division
700 NE Multnomah Street, Suite 600
Portland, OR 97232-4100

Sent via email to: Willamette.MainStem@DEQ.oregon.gov

Dear Michele Martin:

RE: COMMENTS ON THE DRAFT WILLAMETTE MAINSTEM TEMPERATURE TMDL

Thank you for the opportunity to provide comments on the proposed amended Willamette Mainstem and Major Tributaries Temperature TMDL. I was a member of the Willamette mainstem rulemaking advisory committee (RAC) on behalf of the League of Oregon Cities. These comments are provided on behalf of the City of Albany, which provides drinking water, wastewater, and stormwater utility services to its community. Albany is a designated management agency (DMA) for the Willamette mainstem with an individual NPDES domestic discharge permit, Phase II MS4 stormwater permit, 200-J NPDES filter backwash permits, and 1200-Z industrial stormwater permit. Below are Albany's comments on the draft amended temperature TMDL, draft Water Quality Management Plan and associated documents.

1. Albany is a member of the Oregon Association of Clean Water Agencies (ACWA) and supports the comments submitted by ACWA in response to the proposed amended temperature TMDL.
2. The process by which DEQ approached the TMDL replacement projects was confusing and made for a difficult review. DEQ first updated and adopted the Willamette Subbasin temperature TMDL and then combined the documents to include the mainstem and major tributaries which made the changes from the previous mainstem documents difficult to track and was very confusing. While the additional time for public comment is appreciated, the timelines for the temperature TMDL replacement project has not been adequate for thoughtful review.
3. Figures 10-13, 10-14, and 10-15 in the Technical Support Document show significant increases in modeled stream temperatures between approximately river miles 114 and 109, more than 4 miles downstream of Albany and ATI discharges. DEQ states that the point of maximum impact (POMI) for point sources is in this location, just upstream of the confluence of the Santiam River (river mile 109). It was explained by DEQ during a RAC meeting that the sharp increase in modeled temperature in this segment of the upper Willamette is not due to another point source discharge as it appears but is the result of the cumulative effects modeling, yet details were not provided. Most all the other river segments show a steep increase in temperature at a point discharge and then trend in a gradual decline

after the discharge. The 2006 Temperature TMDL also had the point of maximum impact near this location downstream of the former IP/Weyerhaeuser discharge. This mill facility no longer exists, and its discharge permit has long been closed by DEQ. As a non-conservative pollutant, the temperature profile of the river shown at this location cannot be justified without some unidentified additional heat load.

4. The ATI Millersburg discharge shares an outfall with the Albany-Millersburg WRF to the Willamette River. The river mile in Table 7-1 for ATI Millersburg should be corrected to river mile 118 (not river mile 2). Additionally, Figures 10-13, 10-14, and 10-15 in the Technical Support Document should be updated to show that the ATI discharge is located at river mile 118 (not river mile 119).
5. Table 9-12 for Albany-Millersburg WRF and Adair Village STP the WLA period end dates for November should be 11/15 (not 11/30).
6. DEQ conducted a vegetation height and shade gap analysis within many DMA jurisdictions and lists the percent shade gap between the current and target effective shade. DMAs cannot verify the data or analysis that was used or evaluate if the targets are achievable. What will be the process if DMAs review the site-specific data that DEQ used and determine that the effective shade gaps listed in the TMDL should be revised?
7. The City of Albany maintains a 200-J filter backwash permit for its drinking water treatment plant and has been assigned a thermal waste load allocation (WLA) for this minor discharge instead of being included in a "bubble allocation" for small sources as it was in the 2006 TMDL. This approach of assigning and complying with individual WLAs for small sources like water treatment plants and minor wastewater treatment plants is overly burdensome and will not result in meaningful change in water quality.

Thank you for your consideration of Albany's comments. If you have any questions, please do not hesitate to contact me at kristin.preston@albanyoregon.gov.

Sincerely,



Kristin F. Preston, PE
Operations Manager

c: Chris Bailey, Public Works Director



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October 10, 2024

Michele Martin, Project Manager
Oregon Department of Environmental Quality
Water Quality Division
700 NE Multnomah Street, Suite 600
Portland, Oregon 97232-4100

Sent via email to: Willamette.MainStem@DEQ.oregon.gov

Dear Michele Martin:

Thank you for the opportunity to provide comments on the draft Willamette Mainstem and Major Tributaries Temperature TMDL (Willamette Temperature TMDL). The City of Salem operates the Willow Lake Water Pollution Control Facility (WPCF), which serves a population of 258,098 in the Salem-Keizer metropolitan area. Treated water from the Willow Lake WPCF is discharged into the Willamette River at River Mile 78.4. The City has reviewed the draft Willamette Temperature TMDL and the proposed wasteload allocations for the Willow Lake WPCF and offers the following comments.

Section 9.2: Point Source Wasteload Allocations in the Technical Support Document states that DEQ's approach to point sources that discharge to the Willamette River or major tributaries was to estimate the maximum current thermal loads of each discharge during spring spawning,

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summer non-spawning, and fall spawning periods. Evaluations were performed to determine whether the individual or cumulative impacts of current thermal loads exceed acceptable levels. In most cases, it was determined that thermal WLAs could be set equal to or slightly greater than current maximum thermal loads.

During the TMDL development period, the City provided DEQ with effluent flow and effluent temperature data from 2019 -2023. Based on this data and the approach specified in Section 9.2 of the Technical Support Document, wasteload allocations were proposed for the Willow Lake WPCF. The following table presents the assigned human use allowance (HUA), the maximum 7-day average Excess Thermal Load (ETL) from the Willow Lake WPCF, and the minimum variance (i.e., difference) between the 7-day average flow-based wasteload allocations and the 7-day average ETLs for the spring, summer and fall periods:

Table 1: 7-day Average Excess Thermal Load (ETL) and Minimum Variance (2019-2023 data)

Time Period	Assigned HUA (C)	Maximum 7-day Average ETL, Mkal/day*	Minimum Variance, Mkal/day*
Spring: April 1 – May 15	0.024	570	118
Summer: May 16 – Oct 14	0.036	445	54
Fall: Oct 15 – Nov 15	0.058	1,000	469

*Million kcal/day

A review of the thermal loads based on the 2019-2023 data shows that the discharge should be able to meet the proposed wasteload allocations during the spring, summer and fall time periods. The critical time period is during the summer where there isn't much of a cushion between the proposed wasteload allocations and the thermal loads from the Willow Lake WPCF. To better understand the variability associated with effluent flows and temperatures, and assess the City's ability to meet the proposed wasteload allocations, effluent flow and temperature data over a 10-year period (2014- 2023) were reviewed. The results of the assessment are presented in the table below:

Table 2: 7-day Average Excess Thermal Load (ETL) and Minimum Variance (2014 - 2023 data)

Time Period	Maximum 7-day average ETLs, Mkal/day*	Minimum Variance, Mkal/day*
Spring: April 1 – May 15	581	118
Summer: May 16 – Oct 14	488	29
Fall: Oct 15 – Nov 15	1,382	352

*Million kcal/day

The data continues to show that the primary period of concern is the summer period. With the inclusion of the 10-year data set, the results show that the 7-day average ETLs from the Willow Lake Facility are higher, and the City would have a reduced cushion (minimum variance) when compared to the 5-year data set during the summer. Based on the assessment of the 10-year data set, the City is concerned that the proposed wasteload allocations based on the 5-year data set does not account for variations in climatic conditions.

Additionally, the City is concerned that the proposed wasteload allocations do not account for near-term growth forecasted for the Willow Lake service area. The table below shows the impact of near-term growth that results in a 15% (i.e., 4.5 MGD) increase in effluent flow on ETLs from the Willow Lake WPCF and the associated cushion based on the 10-year data set:

Table 3: 7-day Average Excess Thermal Load and Minimum Variance (2014-2023 data)

Time Period	Maximum 7-day average ETLs w/Growth, Mkal/day*	Minimum Variance, Mkal/day*
Spring: April 1 – May 15	668	41
Summer: May 16 – Oct 14	562	-42
Fall: Oct 15 – Nov 15	1,590	241

*Million kcal/day

Based on the 10-year data set and the forecasted near-term growth in the service area, the Willow Lake WPCF would not be able to consistently meet the proposed wasteload allocations during the summer rearing period.

The City conducted an evaluation to determine the HUA based on the 10-year data set using the approach that DEQ used to develop the HUA. The table below presents the calculated HUA based on the 10-year data set, the effluent flow and temperature associated with the calculated HUA, and the recommended HUA, which includes an allowance for near-term growth.

Table 4: Calculated and Recommended HUA (2014 - 2023 data)

Time Period	Calculated HUA, C	7-day Average Effluent Flow, cfs	7-day Average Effluent Temp, C	Date	HUA w/15% allowance for growth, C
Spring: April 1 – May 15	0.0224	59.46	17.04	May 15, 2014	0.026
Summer: May 16 – Oct 14	0.0348	41.07	22.86	August 29, 2014	0.040
Fall: Oct 15 – Nov 15	0.0847	112.49	18.46	October 19, 2016	0.097

Use of the 10-year data set along with a 15% increase to account for near-term growth and uncertainty would result in wasteload allocations that would be achievable for the near-term. Even with these minor adjustments in wasteload allocations, the City will need to consider thermal load reduction or thermal load offset strategies to continue to meet the wasteload allocations in the long-term.

We urge DEQ to establish the HUA and associated wasteload allocations for the Willow Lake WPCF based on the 10-year data set to better account for climatic variability and to include an allowance for near-term growth. We are submitting an MS Excel file with the City's 10-year effluent flow and temperature data, along with the HUA calculation for your review.

Table 9-11 of the draft Willamette Temperature TMDL presents the HUA assignments for source categories on the Willamette River. In the segment where the Willow Lake WPCF discharges, there is a reserve capacity of 0.04°C. We request that DEQ use a portion of the reserve capacity to define the HUA for the Willow Lake WPCF.

Thank you for your consideration of Salem's comments. If you have any questions, please do not hesitate to contact me.

A handwritten signature in blue ink, appearing to read 'Jue', with a long, sweeping horizontal stroke extending to the right.

Jue Zhao, PhD, PE

Assistant Public Works Director

Willow Lake Treatment Plant Division

City of Salem



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October 9, 2024

Oregon DEQ
Attn: Michele Martin
Water Quality
700 NE Multnomah Street, Suite 600
Portland, Oregon 97232-4100

Sent via email to: Willamette.MainStem@DEQ.oregon.gov

RE: Willamette River Temperature-Mainstem and Major Tributaries

Dear Michele,

Thank you for the opportunity to comment on the Willamette Mainstem and Tributaries Temperature TMDL. Corvallis, with a population of 61,656 as of 2023, is home to Oregon State University. The City holds an NPDES permit to discharge treated effluent at RM 130.8 and uses the Willamette River as a source of drinking water upstream of that point.

The City of Corvallis has reviewed the Total Maximum Daily Loads (TMDL) for the Willamette Subbasins (<https://ormswd2.synergydcs.com/HPRMWebDrawer/Record/6800931/File/document>) and has the following comment.

Corvallis notes a very small difference between the current load and the flow-based TMDL WLAs during the summer.

The TMDL assessment shows the discharge would be able to meet the draft WLAs based on 2014-2023 data provided to DEQ as part of this assessment; however, there is limited cushion between current thermal loads and the flow based TMDL WLAs during the summer months. The difference was particularly noticeable in 2015 and 2021, characterized by warm, dry spring and summer months (see Figure 1 and Figure 2). Both figures present the 7-day average Excess Thermal Load (ETL), the minimum (i.e., 7Q10-based) WLAs, and the flow-based WLAs for 2015 and 2021.

Figure 1 2015 ETLs and TMDL WLAs

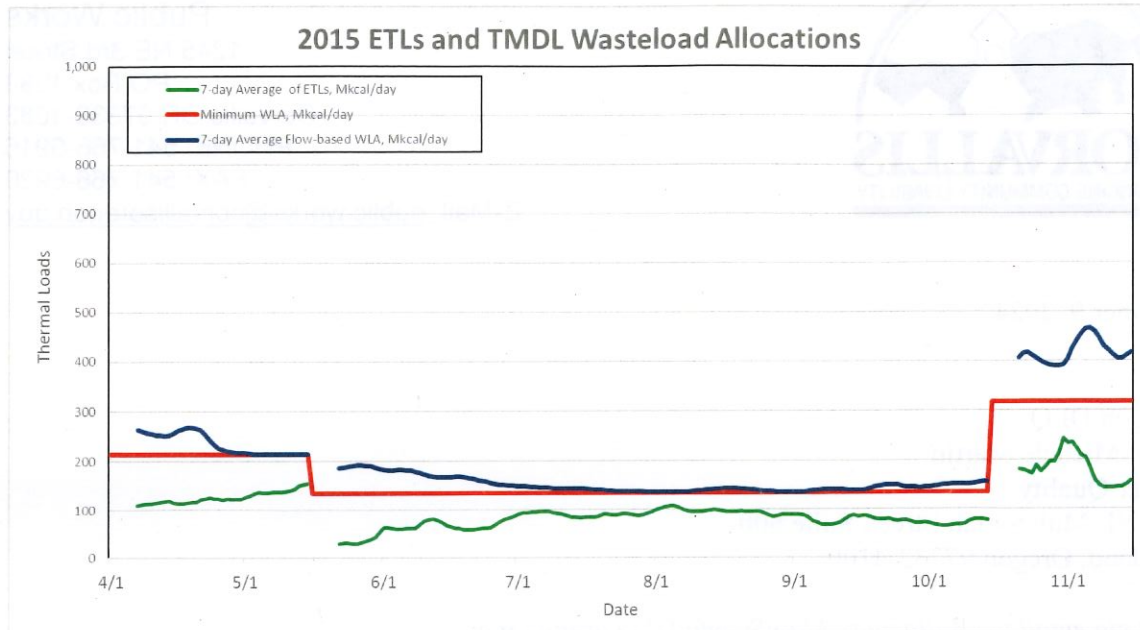
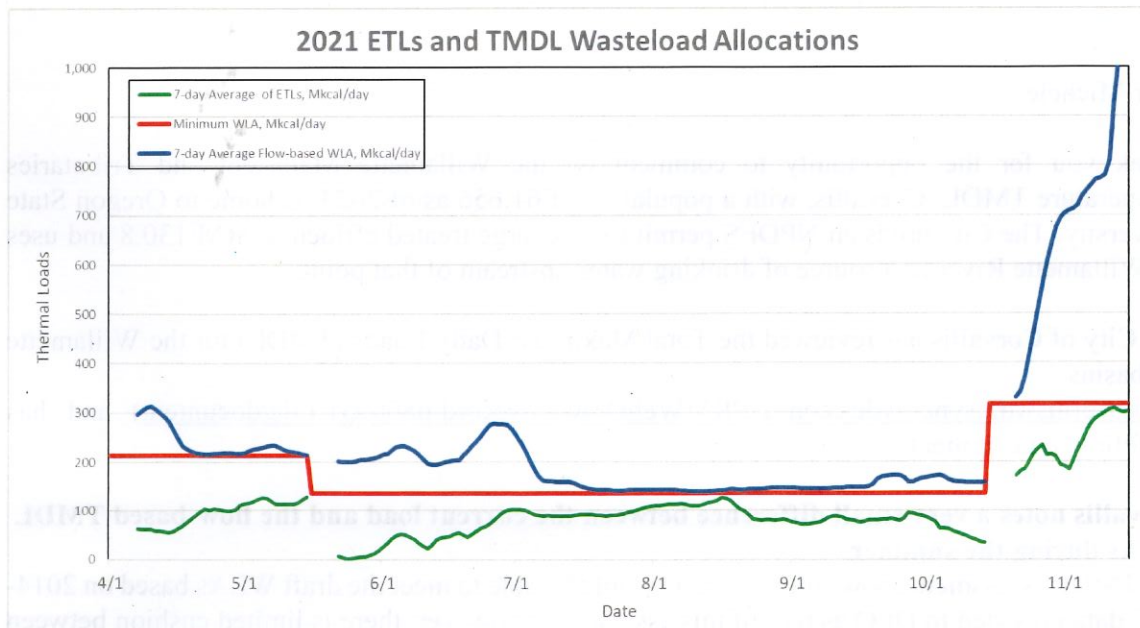


Figure 2 2021 ETLs and TMDL WLAs



The cushion (i.e., the difference between the minimum WLAs and the ETLs) was as low as 29 Mkcal/day in 2015 and 15 Mkcal/day in 2021 during the summer months. These allocations suggest that the Corvallis STP facility may be unable to accommodate flow increases and thermal loads associated with near-term growth in the service area.

An evaluation was conducted to determine the critical ΔT values based on the 10-year data set using the DEQ approach to develop the Human Use Allowance. Table 1 presents the draft TMDL HUA, critical ΔT values based on 2014-23 data, and recommended HUA with an allowance for near-term growth.

Table 1 TMDL HUA, critical ΔT values based on 2014-23 data, and recommended HUA with an allowance for near-term growth

Time Period	Draft TMDL HUA, C	Critical ΔT based on 2014-23 data, C	HUA w/10% allowance for growth, C
Spring: April 1 – May 15	0.015	0.0145	0.0160
Summer: May 16 – Oct 14	0.015	0.0145	0.0160
Fall: Oct 15 – Nov 15	0.031*	0.0428	0.0471

*Note that DEQ reduced this value from 0.042 C to 0.031 C in the latest iteration of the TMDL

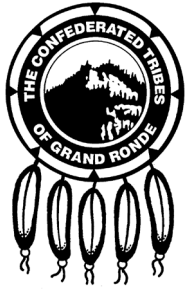
The City of Corvallis requests that DEQ use the critical ΔT based on 2014-23 data, including a 10% allowance to account for near-term growth, which would result in wasteload allocations achievable in the near term. Therefore, the City of Corvallis requests that DEQ establish the HUA and associated wasteload allocations based on the 10-year data set to better account for variability and include an allowance for near-term growth.¹

Sincerely,



David A. Gilbey
Environmental Services & Regulatory Affairs Supervisor
City of Corvallis, Oregon

¹ The City of Corvallis assumes an annualized 0.732% growth rate to project and plan for the community's future. Using this method, Corvallis has a projected population of **65,823 in 2036**. Corvallis needs 177 new housing units per year every year until 2036 to meet the demands of our projected population growth and per Executive Order 23-04, Corvallis needs 500 new housing units per year to meet production goals. Sources: Portland State Population Estimates, Corvallis 2016 Urbanization Study.



The Confederated Tribes of the Grand Ronde Community of Oregon

Ceded Lands Department
Phone (503) 879-1316
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9615 Grand Ronde Road
Grand Ronde, OR 97347

October 12, 2024

Oregon Department of Environmental Quality
Attn: Michele Martin, Water Quality
700 NE Multnomah Street, Suite 600
Portland, Oregon 97232-4100

*Sent by email to Willamette.MainStem
@DEQ.oregon.gov*

RE: Comments to Oregon DEQ on Proposed Willamette River Mainstem and Major Tributaries Temperature TMDLs

Dear Ms. Martin,

We appreciate the opportunity to comment on the Draft Total Maximum Daily Loads for the Willamette River Mainstem and Major Tributaries for Temperature (“draft TMDLs”). The following comments are submitted by staff of the Confederated Tribes of the Grand Ronde Community of Oregon (“Grand Ronde”).

Grand Ronde is a federally recognized Tribe that includes over 30 Tribes and bands from western Oregon, northern California, and southwest Washington. Since time immemorial, tribal people have relied on traditional landscapes, including the Willamette River, for our livelihood. The native fish, wildlife, water, soil, sediment, and plants of the Willamette River and Basin are all considered natural and cultural resources of the Tribe. After signing the ratified Willamette Valley Treaty of 1855, the original tribes and bands of the Willamette Basin were forcibly removed to the Grand Ronde Reservation at the western edge of the Basin. However, Tribal connections to our homelands have remained unbroken, and today the Tribe continues its traditions of fishing, hunting, and gathering plant materials in the Willamette River and Basin. Grand Ronde advocates for its rights and interests in cool, clean Willamette water, partly through enforcement of protective laws and regulations.

We have several concerns about the draft TMDLs, which are highlighted below.

I. The Draft TMDLs Lack Reasonable Assurances

A TMDL must include a water quality management plan (“WQMP”), which provides the framework of management strategies to attain and maintain water quality standards.¹ The WQMP must describe reasonable assurances that management strategies and implementation plans will be carried out through regulatory or voluntary actions.² To establish reasonable assurances, DEQ must determine that the practices capable of reducing thermal loads “exist, are technically feasible, and have a high likelihood of implementation.”³

DEQ has not demonstrated that there is a high likelihood of implementation to reduce thermal loads. First, it is unreasonable to assume that voluntary landowner actions will meet the shade targets, especially without strong financial incentives. DEQ admits that there has been “a lack of implementation of area plans to achieve TMDL

¹ OAR-340-042-0040(4)(I).

² OAR-340-042-0040(4)(I)(J).

³ OAR-340-042-0040(6)(g).

allocations and there are no or few assurances that voluntary landowner action will be able to bridge the gap between current and needed riparian condition and function.”⁴ DEQ does not adequately explain why landowners will voluntarily restore riparian vegetation.

Second, it is unreasonable to assume that new implementation plans for designated management agencies (“DMAs”) will be effective. For example, the Oregon Department of Agriculture (“ODA”) has not been able to adequately incorporate or implement water quality priorities identified in the 2006 TMDL.⁵ DEQ proposes that ODA draft a new implementation plan, but does not explain how a new plan will solve the implementation problem.

DEQ should revise the draft TMDLs to include reasonable assurances that shade targets will be met. Revisions should include strict oversight of ODA and other DMAs to ensure implementation.

II. The Timeline for Implementation of Management Strategies is Too Lengthy and Uncertain

According to the WQMP, estimated timelines to meet water quality standards are primarily based on streamside planting activities.⁶ The plan relies on responsible persons, including DMAs, to establish commitments for streamside planting and protection in TMDL implementation plans. DEQ acknowledges that based on the number of stream miles requiring restoration and the pace of restoration logged, restoration rates will need to accelerate.⁷ Yet the timelines prescribed do not reflect an accelerated pace.

DEQ expects responsible persons to meet 10 percent of shade targets across the basin every ten years beginning in 2030 and to meet all shade targets in 96 years.⁸ DEQ also acknowledges that meeting shade targets on all waterbodies “may not be possible” and that significant uncertainty exists in meeting timelines for establishing shade.⁹

Grand Ronde recognizes that meeting shade targets takes time, but the implementation timeline in the draft TMDLs is not aggressive enough and too uncertain to address the serious temperature problems.

III. DEQ Does Not Properly Account for Climate Change Impacts

While there is no agreed-upon methodology for incorporating climate change predictions into TMDLs, EPA encourages “water quality authorities to consider climate change impacts when developing wasteload and load allocations in TMDLs where appropriate.”¹⁰ Consideration of climate change impacts is appropriate in this case. Our rivers, including the Willamette River, are rapidly warming due to climate change. Climate change impacts include increased ambient air temperature, reduced snowpack, and shade reduction caused by forest fires.

A. Seasonal Variation

A TMDL must account for seasonal variation and critical conditions in stream flow, sensitive beneficial uses, pollutant loading, and water quality parameters.¹¹

⁴ DEQ, Draft Amendment Technical Support Document at 282–283.

⁵ Id. at 282.

⁶ DEQ, Draft Amendment Water Quality Management Plan at 14.

⁷ Id. at 12.

⁸ Id.

⁹ Id. at 11–12.

¹⁰ U.S. Env’t Prot. Agency, Final Project Report: EPA Region 10 Climate Change and TMDL Pilot – South Fork Nooksack River, Washington. EPA/600R-17/281. U.S. Env’t Prot. Agency, Nat’l Health and Env’t Effects Research Lab., Western Ecology Division, Corvallis, OR at 1 of unpaginated abstract (2016).

¹¹ OAR-340–042-0040(4)(j).

DEQ did not account for predicted climate change effects when assessing seasonal variation. The best available scientific data demonstrates that climate change is decreasing streamflows, increasing seasonal stream temperatures, and harming salmon and steelhead.¹² Upper Willamette River Chinook salmon and Upper Willamette River steelhead are currently listed under the Endangered Species Act (“ESA”) and climate change will put these cold-water species at further risk.¹³

DEQ should revise the draft TMDLs to analyze and provide modeling on climate change impacts to ESA-listed Chinook salmon and steelhead. And DEQ should allocate part of the Human Use Allowance to climate change.

B. Margin of Safety

A TMDL must include a margin of safety, which accounts for a lack of knowledge or uncertainty.¹⁴ A margin of safety can be expressed “either explicitly, as a portion of the allocations, or implicitly, by incorporating conservative assumptions into the analyses.”¹⁵ Despite admitting that some effects of climate change are unknown,¹⁶ DEQ failed to account for climate change in the margin of safety.

DEQ should revise the draft TMDLs to include an explicit load allocation in the margin of safety to account for climate change.

IV. DEQ should evaluate the heat impacts of major dams.

The TMDL does not adequately consider the temperature impacts of major dams and reservoirs operated by the U.S. Army Corps of Engineers (“Corps”), especially due to the rapidly changing future of reservoir management. We expect the Corps to complete a 30-year management plan for the Willamette Valley System in 2025 and NOAA Fisheries will complete a Biological Opinion (“BiOp”) by the end of 2024. The plan and BiOp will likely increase the use of deep drawdowns to promote juvenile salmon outmigration. Congress has also instructed the Corps to evaluate deauthorizing hydropower.

While there is still uncertainty about future dam operations, the TMDL should consider the likely scenarios and build in the ability to modify load allocations. DEQ recognizes that “dams of all sizes can increase stream temperatures.”¹⁷ The large Corps dams and reservoirs have a strong influence on temperature. Grand Ronde would like to explore how DEQ and EPA can evaluate the water quality impacts of dam operations moving forward.

For the reasons outlined above, Grand Ronde would like to engage Oregon DEQ in consultation regarding the Draft TMDL, in order to address Tribal concerns and protect Tribal rights and interests in the fish, wildlife, and water resources of the Willamette River and Basin. Please feel free to contact me at (503) 879-1316 or at Michael.Karnosh@grandronde.org for questions and follow up.

¹² NOAA Fisheries, 2024 5-Year Review: Summary & Evaluation of Upper Willamette River Steelhead and Upper Willamette River Chinook Salmon, at 47 (changes in summer temperature and flow will affect both juvenile and adult salmon in some Willamette River populations). See also, ODFW and the NMFS Northwest Region, Upper Willamette River Conservation and Recovery Plan for Chinook Salmon and Steelhead (2011), https://www.dfw.state.or.us/fish/CRP/docs/upper_willamette/UWR%20FRN2%20Mainbody%20final.pdf at 5-21.

¹³ See ODFW and the NMFS Northwest Region, Upper Willamette River Conservation and Recovery Plan for Chinook Salmon and Steelhead (2011), at 5-21–5-22.

¹⁴ C.F.R. § 130.7(c)(1); OAR 340-042-0040(4)(i).

¹⁵ DEQ, Draft Amendment Total Maximum Daily Load at 108.

¹⁶ DEQ, Draft Water Quality Management Plan at 12.

¹⁷ Id. at 8.

Sincerely,

Michael J. Karnosh

Michael Karnosh
Ceded Lands Manager
Ceded Lands Department

Cc: Stacia Hernandez, Tribal Council Chief of Staff
Bryan Langley, Assistant General Manager
Colby Drake, Natural Resources Department Manager
Kelly Dirksen, Fish and Wildlife Program Manager, Natural Resources Department
Roxy Nayar, Tribal Liaison, Oregon DEQ



REGION 10

SEATTLE, WA 98101

October 10, 2024

Ms. Michele Martin
Oregon Department of Environmental Quality
Water Quality Program
700 NE Multnomah Street, Suite 600
Portland, Oregon 97232
Willamette.MainStem@DEQ.oregon.gov

Re: EPA Comments on the Draft Temperature Total Maximum Daily Loads for Willamette Subbasins,
Amended to include the Willamette River and Major Tributaries

Dear Michele:

The U.S. Environmental Protection Agency has reviewed the Oregon Department of Environmental Quality's Temperature TMDLs for the Willamette Subbasins, which was released for public comment from August 9, 2024, to September 23, 2024, and then extended to October 14, 2024. The EPA's comments on the TMDL document, Technical Support document, and associated appendices are listed below.

1. In Table 4-2 of the TMDL, the EPA recommends clarifying the applicable standards and most sensitive use by identifying the fish use subcategories associated with the numeric criteria excerpted from OAR 340-041-0028(4)(a)-(f) and modifying or removing the "Most sensitive beneficial use" column. While aquatic life is the most sensitive use for temperature, the most sensitive fish use subcategory varies by waterbody and often season depending on the designated uses, but that is not clear in the existing table and may be easier to convey in the text. For example, for the Human Use Allowance, salmonid and steelhead spawning is identified as the most sensitive use but that depends on the designated uses and seasonality.
2. On the Fish Use Designation tab in TSD Appendix D, the Temp_YearRound criterion column for the Long Tom River (OR_SR_1709000301_02_103791) states "cool water species narrative", and for the portion of Rickreall Creek where the cool water species narrative applies, values are presented that do not correspond to the targets presented in the TMDL. Although ODEQ's translation of the cool water species narrative criteria into targets do not cleanly align with the use categories presented in Appendix D, the Appendix is a good summary of the applicable criteria and targets for the TMDL. The EPA recommends denoting the temperature targets for Rickreall Creek and Long Tom River in Appendix D.

3. The following comments pertain to discrepancies between the TMDL document and TSD that appear to relate to updates that were not made to one or the other when content was added to the Willamette Subbasins TMDL for the Willamette River Mainstem and Major Tributaries Project Area.
 - a. It appears the point source facility count was not revised to include the facilities discharging to AUs in the Willamette River Mainstem and Major Tributaries project area within the TSD. For example, the TMDL says 121 individual dischargers whereas the TSD says 69. Also, for clarity, the EPA recommends that the individual permit for Portland International Airport be included in the tally of individual permittees even though it is treated like a stormwater-only source for the wasteload allocation and that the facilities that are still pending coverage be presented in the summary but excluded from the tally of individual permittees.
 - b. TSD Sections 2.3 and 9.4.1.1 say there are 202 large instream dams, whereas the WQMP and TMDL were updated to 206.
 - c. The TMDL document and TSD both state cumulative effects model analyses were completed for point sources discharging to the Molalla, Pudding, and McKenzie Rivers but do not include other modeled waters added as part of the Willamette River Mainstem and Major Tributaries project (e.g., Sections 9.2 and 10.1). Additionally, within the TSD, Section 9.2 reflects the HUA-based approach to wasteload allocations used for sources discharging to AUs in the Willamette Subbasins and Willamette River Mainstem and Major Tributaries project areas, but Section 10.1 was not updated to reflect the approach used for the Willamette River Mainstem and Major Tributaries project area and only focuses on the 0.75°C based approach used for the Willamette Subbasins project area. The EPA recommends that revisions be made so the TMDL and TSD consistently reflect the modeling and allocation approaches used for both project areas.
 - d. TSD Sections 7.2.1-7.2.18 discuss water quality and shade model summaries relative to various source categories for waters from the Subbasins TMDL but except for the addition of channel simplification (Section 7.2.4), it was not revised to include modeling summaries associated with the Willamette River Mainstem and Major Tributaries project. The EPA acknowledges model summaries are included in Appendix M, but particularly since some sources of thermal loading (such as consumptive use) were only incorporated into some models and modeling results are collectively intended to inform the source assessment at the project scale, it is difficult to fully understand the range and magnitude of thermal loading contributed by background and anthropogenic sources within the project area without some consolidated discussion of sources and all model findings. The EPA requests that some of the source assessment information gleaned from the models used for the Willamette River Mainstem and Major Tributaries project area be incorporated into Section 7.2 of the TSD.
4. Section 7.1 of the TMDL concludes stormwater permits are unlikely to contribute to exceedances of the temperature standard, but Section 9.1.2 of the TMDL states they have narrative wasteload allocations based on following existing permit requirements and loads, and similar language is used for 100-J permittees, which do have the potential to exceed the temperature standard. The EPA recommends striking the terminology “narrative wasteload allocation”; the information associated with the narrative wasteload allocations is relevant for

the assumptions and requirements of the TMDL needed to implement NPDES permits but is not an appropriate characterization of wasteload allocations. Additionally, the EPA recommends that ODEQ add some additional information to the TMDL regarding the requirements and assumptions for general permittees, such as the type of permit conditions expected to mitigate thermal loading and support the TMDL objective of restoring beneficial uses.

5. In TSD Tables 6-2 and 6-3, it is unclear what approach was used for flow estimation for the Willamette River AUs where multiple gages are cited, and the EPA recommends some additional explanation in these instances.
6. TMDL Section 5 describes the critical period for downstream waters being applied to upstream waters if downstream monitoring sites have longer exceedance periods relative to upstream waters. This is also cited as a margin of safety to ensure warming of upstream waters does not contribute to downstream exceedances, however, this approach does not appear to be consistently applied. For example, in Table 5-1, inclusion of “all waters” in Subbasins such as the Coast Fork Willamette, Upper Willamette, McKenzie River, and Middle Willamette are identified as having a critical period starting May 1, whereas a downstream major tributary has a critical period starting April 1. The EPA recommends adjusting the re-examining the critical periods for consistency with described approach and adding additional clarification to the TMDL in situations where deviations to this approach were used.
7. In TMDL Section 9.2, the last implicit margin of safety is that “the nonpoint source HUA allocation will be implemented by assessing the cumulative warming of a waterbody by all nonpoint sources.” This doesn’t appear to be a margin of safety because the HUA provision at OAR 340-041-0028(12)(b) states that nonpoint sources should be considered cumulatively. The EPA recommends deleting this margin of safety or clarifying how the approach is a margin of safety.
8. In TSD Appendix M, the summary of HUA allocations in Table 4-1 does not include solar loading from other non-point sources. Although the HUA-based allocation is 0, the EPA recommends adding it to the table for clarity. Also, the HUA-based allocations for consumptive use and for solar loading to existing infrastructure are more variable for waters in the Willamette River Mainstem and Major Tributaries project area versus the Willamette Subbasins project area, and besides the adjustment to the consumptive use to HUA-based allocation on Willamette River AUs due to the PGE Willamette Falls Project allocation, it is unclear in TSD Appendix M or other TMDL documents what other factors influenced the allocations. The EPA recommends adding some additional discussion to Section 9.1 of the TMDL or TSD, and potentially TSD Appendix M.
9. TSD Appendix M extensively documents ODEQ’s cumulative effects analyses not just as they pertain to compliance with the Columbia and Lower Snake Rivers Temperature TMDL but also relative to the effect of Willamette River tributaries on the mainstem. EPA recommends the analyses done to evaluate compliance with the water quality standards and protect downstream waters be more explicitly referenced within Section 10 of the TMDL.
10. Although there are currently no Category 5 listings for lakes where the natural lakes narrative is the applicable criterion, they are within the scope of the TMDL and it is unclear how the loading capacity and load allocation to background sources are intended to be calculated for relevant assessment units identified in the TMDL Scope tab of Appendix D.

The EPA also has the following editorial comments:

- The end of the following sentence in Section 10.1.7 (p. 235) appears incomplete adding additional context to the end of the sentence that states “Impacts in the middle Willamette River between RM 85 upstream from Salem and Willamette are less. “
- In the heading for Figures 4-4 and 4-5 of the TSD, the date periods for the target are not contiguous and it appears to be a typo, as it is correct in TSD Section 4.8.4 and TMDL Section 4.2.1. One target is cited as applying from June 1 to October 14 and the other from November 1 to June 14.
- TSD Table 9-4 is missing the receiving water AU IDs for newly added facilities.
- The summary of unique AUs with Category 5 impairments on TSD page 6 does not match Appendix D, which identifies 257 and not 253.

We appreciate ODEQ’s extensive work on this TMDL as ODEQ works towards meeting court-ordered deadlines for the Temperature TMDL Replacement project. The EPA also appreciates the opportunity to work with ODEQ and looks forward to continued coordination as you finalize this TMDL report. If you would like to discuss these comments, you can reach me at 208-378-5626 or Kusnierz.Lisa@epa.gov.

Sincerely,

Lisa Kusnierz
Water Division

From: PETERSON Zachary J <Zachary.PETERSON@lanecountyor.gov>

Sent: Wednesday, October 9, 2024 11:57 AM

To: * DEQ Willamette MAINSTEM <Willamette.MainStem@DEQ.oregon.gov>

Cc: PAPPAGALLO Mauria <Mauria.PAPPAGALLO@lanecountyor.gov>; FARMER Madeline A <Madeline.FARMER@lanecountyor.gov>

Subject: Public Comment - Draft Willamette River Mainstem and Major Tributaries Temperature TMDL

Oregon Department of Environmental Quality Staff,

Lane County would like to submit the comments below for the Draft Willamette River Mainstem and Major Tributaries Temperature TMDL public comment period:

Comment 1:

Request: Lane County would like to request that key submittals outlined in Table 8 of the Draft Water Quality Management Plan (WQMP) be offset by at least 6 months to provide time for submittals to be developed in a complete and thorough manner. For example, extending the submittal timeline for a project plan and description of the assessment methodology to be used to complete a shade gap analysis from 18 months to 24 months after EQC adoption of amendment to the Willamette Subbasins TMDL.

Reasoning: Our reasoning for this request is based on our observation that Table 8 of the WQMP states DMAs have 18 months after EQC adoption of the amendment to the Willamette Subbasins TMDL to provide 1) an updated implementation plan, and 2) a project plan and description of the assessment methodology to be used to complete a shade gap analysis. Having key submittals due at the same time presents a specific challenge to DMAs with limited resources and large areas of jurisdictional control such as Lane County. While section 5.3.8 of the WQMP provides the option for DMAs to propose alternate timelines for meeting key submittals through the approval of DEQ, it's unclear what criteria DEQ will use to approve or disapprove proposed alternatives.

Comment 2:

Request: Lane County would like to request guidance material on streamside evaluation expectations. For example, additional references, documentation, or procedures documents that provide examples of acceptable streamside evaluations and options for conducting streamside evaluations through both office or field processes.

Reasoning: Our request stems from Section 5.3.2 of the WQMP that states DMAs that are required to submit an implementation plan must complete a streamside evaluation and account for shade gap results in their streamside evaluation. While section 5.3.4.1.1-2 of the WQMP provides a description of acceptable assessment methodologies for shade gap analyses, similar references are not provided for streamside evaluations in section 5.3.2. Acceptable methodologies for streamside evaluations remain unclear, particularly in regard to how these evaluations could be completed both in the office or the field. Reference material would provide clarification, allow DMAs to have a better understanding of resource needs, and provide more accurate estimates of timelines.

We greatly appreciate your consideration of these comments.

Kind regards,

Zach Peterson

Stormwater Coordinator

Lane County Public Works

3040 N Delta Hwy

Eugene, OR 97408

Office/Cell: 541-682-6759



NORTH CLACKAMAS WATERSHEDS COUNCIL

2416 SE Lake Road, Milwaukie, OR 97222 - 503-550-9282 – northclackamaswatersheds.org

Oregon DEQ
Attn: Michele Martin, Water Quality
700 NE Multnomah Street
Suite 600
Portland, Oregon 97232-4100

RE: Temperature TMDL Replacement: Willamette Mainstem and Major Tributaries

Greetings DEQ Staff,

At the North Clackamas Watersheds Council, our mission is to make our watersheds great places for fish, wildlife, and people. Over 165,000 people reside in our watersheds, which include the lower Willamette River and its eastern tributaries within Clackamas County below the Clackamas River and above Johnson Creek.

Regulations that call for increasing shade in our watersheds are consistent with our mission. Our council has been working for over fifteen years to increase shade along the waterways that drain our urbanized basins and flow into the lower Willamette River. **We are in favor of adoption of the draft rule.**

However, the rule doesn't provide direction for how NGOs can partner with the responsible Designated Management Agencies (DMAs) to achieve temperature and bacteria reduction goals. Research shows over half of bacteria in the Oak Lodge Water Services portion of our watersheds is from avian sources, not domestic animals or other human-caused activities. We also find it challenging to affect temperature reduction in watersheds like ours without regulations that include point-source temperature reduction requirements.

We look forward to partnering with the DMAs in our watersheds to increase shade and reduce temperatures in our waterways. Thank you for the opportunity to comment on the draft rule amendment.

Sincerely,

Joseph P. Edge
Chair, Issues and Opportunities Committee

Neil Schulman
Executive Director



*Working with community wastewater treatment and stormwater management agencies
across the state to protect Oregon's water quality since 1987.*

81 East 14th Avenue
Eugene, Oregon 97401
(541) 485-0165 www.oracwa.org

October 14, 2024

Michele Martin
DEQ Water Quality Division
700 NE Multnomah Street, Suite 600
Portland, Oregon 97232-4100

Sent via email to: Willamette.MainStem@DEQ.oregon.gov

Subject: Comments on the Proposed Willamette River Mainstem and Major Tributaries
Temperature TMDL Replacement

Dear Michele Martin:

Thank you for the opportunity to provide comments on the proposed Willamette River Mainstem and Major Tributaries Temperature TMDL Replacement ("Mainstem Temperature TMDL"). These comments are provided on behalf of ACWA, which is a not-for-profit organization of Oregon's wastewater treatment and stormwater management utilities, along with associated professional consulting firms, which are dedicated to protecting and enhancing Oregon's water quality. Our members provide wastewater and stormwater services to over 3 million Oregonians, serving over 75% of Oregon's homes and businesses.

As you know, ACWA has been closely involved with the TMDL Replacement Project from the start. ACWA members have served on the RAC for both the Mainstem Temperature TMDL and the recent EQC-approved Willamette Subbasin and Sandy Temperature TMDL Replacements ("Subbasin Temperature TMDL"). Previous ACWA comment letters to DEQ were sent on April 14, 2023, March 1, 2024, and May 23, 2024. ACWA requests that all three of these previous comment letters be added to the Mainstem Temperature TMDL record.

ACWA's comments were first addressed just prior to the EQC Special Meeting to approve the Subbasin Temperature TMDL on August 26, 2024. DEQ addressed many of ACWA's comments and made multiple requested changes. DEQ's attention to the many issues and details raised is much appreciated. Because DEQ has chosen to merge the Subbasin Temperature TMDL and the Mainstem Temperature into one set of final TMDL documents that apply to both areas, ACWA assumes that changes by DEQ made in response to the ACWA comments thus far will be included in the final document. Section 1 of this letter will refer to the DEQ response to comments for the

Subbasin Temperature TMDL to confirm that this is the case. In Section 2, ACWA will ask DEQ to further consider previous concerns that have not been fully-addressed or request clarification to some of DEQ's previous responses.

Section 1. DEQ Responses to ACWA comments for the Subbasin Temperature TMDL

ACWA will not repeat its previous comments here in detail but is confirming the DEQ responses that appear to have been addressed proactively by DEQ. The numbering is consistent with the numbering (for ACWA comments) in the DEQ response to public comments to the Subbasin Temperature TMDL in the EQC packet, Attachment F.

ACWA #7—Critical Period. DEQ made changes to the Seasonal Variation and Critical Period and Technical Support Document. Similar types of changes should be made for Mainstem data.

ACWA #8; ACWA #10—Rename Table 7-1 and Table 7-3. Please correctly name the tables for the Mainstem.

ACWA #9—Update narrative in TMDL Section 7.1. Please make the same change.

ACWA #20; ACWA #21; ACWA #22; ACWA #23—DEQ was asked to consider pathways to meeting WLAs through use of reserve capacity, HUA allocations, updating 7Q10 WLA and other options. DEQ is encouraged to consider a similar look at the Mainstem permittees and DMAs to enable TMDL WLA compliance.

ACWA #28—Additional language was added regarding the treatment of natural disturbance impacts. The same language should be included for the Mainstem.

ACWA #31—Replace the term “solar radiation” with “heat (thermal loading)” as the pollutant of concern. Please make the same change.

ACWA #32; ACWA #33; ACWA #34, ACWA #35; ACWA #36—DEQ acknowledged the value of using recycled water as an offset and would consider assigning temperature credits with sufficient documentation. DEQ also recognized the use of aquifer storage and recovery systems to reduce water withdrawals and dam and reservoir management strategies for improving the thermal regime. These strategies should be encouraged and elaborated upon for the Mainstem. While DEQ does not plan to develop a framework for DMAs to obtain thermal “credits” for implementing these strategies at this time, DEQ is encouraged to consider developing a credit system in the future. See a further example of a request for “giving credit where credit is due” in Section C below, paragraph 5.

ACWA #38—Removed or corrected jurisdictional acreage calculated for each DMA. DEQ corrected a formatting error and updated to the correct values. The same approach should be used for the Mainstem.

ACWA #40—Removed sentence regarding the Forest Practices Act. Remove the sentence for the Mainstem also.

ACWA #43—Yes/No responses added to Implementation Plan decision support tree. Please do the same again.

ACWA #44-ACWA #58—DEQ made changes or added language, corrected data, clarified legends/maps, updated instructions; added GIS layers for clarity, etc. Similar improvements to the Mainstem should be made. As an aside, the response to ACWA #47 states that “DEQ can share [Heat Source Tool model] work arounds with ACWA if needed.” Please share these work arounds with ACWA.

Section 2. Requests for Further Consideration of TMDL Temperature Improvements or Clarifications

ACWA has several issues that remain of some concern that it asks DEQ to further consider.

A. Bubble Allocation Approach for Small Facilities.

ACWA #26 requested that DEQ consider use of a bubbled allocation approach for small sources similar to what was done in the 2006 TMDL. The approach was successful and created less of a burden on both the smaller sources and DEQ. In its response, DEQ rejected the approach for the Subbasin Temperature TMDL but reasoned that “the 2006 temperature TMDL [bubble allocation approach] applied to the mainstem of the Willamette River, not the tributaries.” The concern mentioned was that many of the streams discharged into by the small sources had “very low flow rates”. Now that the Mainstem is the discussion, there would seem to be good reason to reconsider the bubble allocation approach. DEQ outlined an approach in its response that it states “works similar to the bubble allocation used in the 2006 temperature TMDL.” That may be the case, but why not use the approach that has a proven track record and is already in use on the Mainstem?

B. Water Quality Trading/Shading Requirements.

ACWA continues to be appreciative of DEQ’s longstanding and consistent support of the use of water quality trading. In response to a concern raised by ACWA (#15), DEQ updated the WQMP to explicitly recognize water quality trading as a TMDL compliance option. ACWA’s concerns are not in regards to DEQ’s support of water quality trading but rather if there is anything left to trade under a TMDL where there is a zero allocation for non-point sources and a 100% shading requirement.

Section 2.6 of the TMDL addresses Water Quality Trading Opportunities. Both DEQ and ACWA recognize that water quality trading remains an important tool to achieving the goals of the TMDL and accelerating the rate of effective shade restoration in the Willamette Basin Mainstem, Tributaries, and Subbasins). The draft TMDL presents language which could use clarification to avoid misinterpretation, unintended consequences, and inadvertent preclusion of water quality trading. ACWA has the following comments on Section 2.6:

Amend sentence “DEQ encourages Willamette Basin DMAs to develop water quality trading plans...” to “DEQ encourages Willamette Basin DMAs and NPDES-permitted point sources to develop water quality trading plans...” to ensure the intent for water quality trading is not limited to DMAs.

Amend/edit sentence “Trading is allowed statewide so long as the requirements of OAR 340-039 are met” to “Trading is allowed statewide provided the requirements of OAR 340-039 are met under the following understanding of baseline conditions per OAR 340-039-0030(j) under this TMDL:

- Notwithstanding any DMA adopted regulations to achieve targets under this TMDL, water quality trading is allowed provided the DMA has not yet reached the 100% shade target assessment year as established in Table 3.
- DMAs may adopt non-regulatory approaches to meet shade targets, especially on private lands, provided the DMA demonstrates ability to meet the shade targets presented in Table 3, and those non-regulatory approaches shall not be deemed baseline conditions under OAR 340-039-0030(j).

- DMAs are encouraged to accelerate the rate of effective shade restoration via programs that incentivize conservation easements, public-private partnerships, and water quality trading projects as part of their TMDL Implementation Plans.”

C. Data Quality.

The need for quality data has been a continuing comment from ACWA but is important enough to reiterate. The EQC expressed surprise at the special meeting held to adopt the Subbasin Temperature TMDL about how old some of the data sets were. The question was whether some of the data from 2004 and 2006 in the appendices were actually the most recent available data sets. The DEQ response, to paraphrase, was that due to the need to meet Court-ordered deadlines to finish the TMDLs, DEQ is in a position that it needs to move ahead with whatever data is available, even if seemingly out of date. DEQ emphasized that it does make a call for data but in the end, it must use what it has. No doubt DEQ agrees with ACWA that the TMDLs will only be as accurate as the underlying data relied upon.

One ACWA member reported that the results of DEQ’s thermal load analysis did not align with any data they had on record. DEQ has been willing to review newly submitted data, which is appreciated. However, we are concerned that not all DMA’s have had the opportunity to compare the results of DEQ’s analysis with the most recent data collected.

While the arithmetic associated with the thermal load allocations is not particularly complex, the explanation provided in the *Waste Load Allocation Approach Technical Support Document* (March 2024) is not clear on several items, such as the application of 7-day running averages. This can lead to calculation errors that could cause DMAs to perform faulty thermal load self-analyses. To eliminate such errors, DEQ should consider providing a WLA calculation spreadsheet to DMAs, similar to the Reasonable Potential Analysis (RPA) spreadsheet posted on DEQ’s website.

Where applicable, DEQ should consider using 10 years of data in the analyses. A dry winter in 2014/2015 resulted in low river flows and high river temperatures the following summer. River flows were below the 7Q10 level on numerous occasions. Incorporating this data would result in more conservative analyses and may be more representative of future ambient conditions.

As another example of data that does not seem to add up, Some DMAs have implemented programs that curtail effluent discharge or reduce withdrawals. Examples include wastewater treatment plant effluent reuse and aquifer storage and recovery (ASR) for potable water, respectively. As the approach to thermal allocations is largely based on existing thermal discharges, DMAs that have taken past measures to reduce their discharges are not being credited for their efforts. Figures 10-13, 10-14, and 10-15 in the Technical Support Document show significant increases in modeled stream temperatures between approximately river miles 114 and 109, more than 4 miles downstream of Albany and ATI discharges. DEQ states that the point of maximum impact (POMI) for point sources is in this location, just upstream of the confluence of the Santiam River (river mile 109). It was explained by DEQ during a RAC meeting that the sharp increase in modeled temperature in this segment of the upper Willamette is not due to another point source discharge as it appears but is the result of the cumulative effects modeling, yet details were not provided. Most all the other river segments show a steep increase in temperature at a point discharge and then trend in a

gradual decline after the discharge. The 2006 Temperature TMDL also had the point of maximum impact near this location downstream of the former IP/Weyerhaeuser discharge. This mill facility no longer exists, and its discharge permit has long been closed by DEQ. As a non-conservative pollutant, the temperature profile of the river shown at this location cannot be justified without some unidentified additional heat load.

ACWA asks that prior to finalizing this TMDL, and as the next round of TMDLs are developed, that DEQ take a deep dive into the data and initiate more robust efforts to call for data updates. Using the most recent data and applying the data to appropriately fit river conditions is critical. ACWA would be happy to assist DEQ on an outreach plan if DEQ thinks that would help.

D. Providing Adequate Capacity for Growth.

Oregon continues to grow, in many cases in exactly the communities that are included in this TMDL. These communities have been dealing with growth issues for years, always needing to stay one step ahead. Governor Kotek's aggressive plan to add 30,200 housing units per year for the next ten years to meet the need to house unhoused people, resolve current housing shortages and meet future demand due to population growth will further tax these communities. While the plan is statewide, it is most likely that much of the focus will be the Willamette Valley and will especially impact the jurisdictions subject to the Mainstem Temperature TMDL.

DEQ must consider the impact on temperature that this near-term and future growth will have. ACWA refers DEQ to comments #7, #11, #12, #13, #14, #15, #17, and #18. Review of these comments would suggest that DEQ needs to sharpen its pencil to consider use of HUA, reserve capacity, and matching WLAs to specific use periods (i.e., spawning, core cold water, rearing, and migration) to better reflect actual conditions to make allocated loads achievable. ACWA notes DEQ's terse response to ACWA #13 that "DEQ is not required to identify in a TMDL how the allocated loads are to be achieved. It is DEQ's expectation, per OAR 340, division 42, that DMAs or responsible person evaluate their operations and propose management strategies in their TMDL implementation plans that will show achievement of allocations." The ask is not that DEQ identify for DMAs how to allocate loads to meet the TMDL. The ask is that the TMDL be calculated in such a way that compliance is possible. Neglecting to provide flow-based WLAs matched to critical time periods and not adequately recognizing the impact of growth will make providing compliant TMDL implementation plans in some cases beyond challenging. DEQ needs to calculate the HUA to allow for near- and long-term growth, consider using a portion of the reserve capacity where necessary, and adequately reflect critical time period variations.

In addition, without rewriting the entirety of the comment, please refer to ACWA's Comment Letter dated March 1, 2024, pp.4-11, Section 9. Allocation, Reserve Capacity and Margin of Safety, which describe the above strategies to address growth in greater detail. Worth repeating is the opening paragraphs of the comment:

"OAR 304-042-0040(5) and (6) describe the potential factors of consideration for determining and distributing these allocations of the allowable pollutant loading

capacities...Factors to consider in allocation distribution may include: source contributions; costs of implementing management measures; ease of implementation; timelines for attaining water quality standards; environmental impacts of allocations; unintended consequences; reasonable assurance of implementation; and any other relevant factor.'

As currently crafted, the draft TMDL documents appear to be based on modeling and mathematical analysis, without consideration of the factors cited above. The basis or reasoning for allocations to the source categories is not explained in the TMDL, nor is there an analysis of the allocations with respect to these factors. ***From this TMDL will come permit requirements that must be met and compliance measures that must be implemented.*** The considerations noted above must be considered with due diligence in the development of this TMDL and WQMP in order to create a realistic framework for achieving the temperature targets. ***That means that permit and TMDL implementation plan requirements must be feasible, implementable, cost-effective, and within the resource capacity of permittees and DMAs.***

Our comments regarding DEQ's source category allocations directly relate to the factors listed above. DEQ needs to re-evaluate its recommended allocations through the lens of all the factors of consideration included in OAR 304-042-0040 (5) and (6) and provide greater clarity and transparency as to its conclusions. Our comments below should alert the Department to significant issues related to costs of implementation, unintended consequences, negative environmental impacts of allocations, and lack of reasonable assurance of implementation. All of these will have a ripple effect impacting the attainment of water quality standards."

One additional point is important to call attention to and provide a great deal of well-earned credit to DEQ. In many instances, DEQ offers in its response to comments regarding particularly challenging circumstances that it "will work with the cities to implement the TMDL and assist to the best of our ability in identifying different pathways that will achieve water quality standards." See, e.g., DEQ Response to ACWA #23. In several of the changes made in response to the Subbasin Temperature TMDL, DEQ clearly demonstrated how open and willing it is to consider and, when appropriate, resolve potential compliance issues. ACWA members subject to this TMDL look forward to DEQ's continued sharing of expertise in identifying pathways to meet TMDL WLAs and achieve water quality standards.

E. OWRD as a DMA.

OWRDs role in ensuring sustainable stream flows is undeniable. OWRD should be listed as a DMA in the WQMP and it must play a key role if temperature targets are to be met. See ACWA #39. DEQ offers to "work with OWRD to evaluate ways in which the agencies can further partner in efforts to increase flows to improve water temperature" and suggest the possibility of a future MOU or MOA. The when and how of this hope is far less certain of success than taking the needed step to identify OWRD as a DMA. DEQ reasons that OWRD has a unique role that does not involve land management. Land management should not be the distinguishing factor used to designate a DMA. Rather it should be the capacity or ability to address, or not address, pollutants in such a way

there is a potential for water quality impairment. Certainly, the activities of OWRD in managing stream flows has such a potential. Flow management will be an essential component of management strategies in the WQMP. If OWRD withdrawals result in significant temperature impacts and reduce flow, DMA flow management strategies may be unworkable.

F. A Few Final Technical Details.

TMDL Document:

Table 9-18 includes Site specific effective shade surrogate measure targets to meet nonpoint source load allocations for DMAs in all model areas in the Willamette Subbasins. This table includes a column that reflects Total Kilometers Assessed for each DMA. Some of the numbers in this column are hard to understand and seem questionable. For example, for Oregon City it shows 0.7 km assessed while Oregon City clearly has more kilometers of open channel water bodies in the Willamette Basin. Many of these numbers seem questionable, including those for other DMAs. Please provide a map to clarify the areas that were assessed. This is important given that the shade gap values may be the focus for compliance, and if the shade gap value is not representative of all waterbodies, it may not be an appropriate target to apply to our streamside evaluations.

WQMP:

Section 5.3.1 of the WQMP: Last sentence appears to be missing a word after the term “responsible person’s”. This sentence is unclear. Please reword to “Implementation plans must identify all streamside areas or streamside activities within a DMA’s jurisdiction or responsibility.”

Section 5.3.2 of the WQMP: First paragraph is missing the word “of” in front of the term measurable objectives.

Section 5.3.4.1 of the WQMP: Last sentence of the first paragraph. Please add the word “example” in front of methods. It is not explicitly clear that all three of these methods are not specifically required for conducting a streamside shade gap analysis. Clarification is needed to more explicitly show these are options.

We fully recognize that DEQ is under a Court-ordered time schedule for the series of replacement TMDLs. However, we also recognize that the proposed Mainstem Temperature TMDL will have a tremendous impact on how time, money and other valuable resources will be spent by permittees and DMAs, not to mention DEQ. To achieve the greatest environmental benefit in an implementable and cost-effective way, it is imperative that DEQ not only get this TMDL done on time but also make sure that it is done right.

Thank you for your consideration of ACWA's comments. If you have any questions, please do not hesitate to contact me.

Sincerely,

Jerry

Jerry Linder
Executive Director
Oregon ACWA



Oregon Council Trout Unlimited
POB 740
Gladstone, OR 97027

October 10, 2024

Michelle Martin
Department of Environmental Quality
Rulemaking: Temperature Total Maximum Daily Loads

Dear Ms. Martin

Re: Support for the proposed Willamette River Mainstem and Major Tributaries Temperature TMDL Management Plan

The Oregon Council of Trout Unlimited (OCTU) is the statewide, grassroots (volunteer) affiliate of the national Trout Unlimited organization. We have 3,500 members and supporters in Oregon. Our mission is to care for and recover rivers and streams so our children can experience the joy of wild and native trout and salmon and the clean cold streams we revere in Oregon.

Maintaining healthy temperature gradients is vital to support native aquatic species populations in the basin and to maintain water quality for human uses.

We are pleased to see the following in the August 2024 Willamette River Mainstem Plan:

1. Cold water refuge protection and restoration (section 5.3.6) applicable to designated management agencies (DMAs) in the lower 50 miles of the mainstem.
2. Flow management in the plan (section 2.2) including the pursuit of instream water right transfers and leases as a management strategy for addressing temperature impairments.
3. Guidance on addressing agricultural water quality issues in (section 5.2.2) noting that ODA's existing regulatory program and focus on voluntary restoration efforts isn't likely to address existing temperature impairments.
4. Streamside buffers (section 5.3.3) suggesting 120-foot riparian buffers may be necessary when DMAs do not assess exact shading requirements necessary on site-specific places.

Thank you for the opportunity to comment in support of the proposed Willamette River Mainstem and Major Tributaries Temperature TMDL Management Plan.

Sincerely,

A handwritten signature in blue ink, appearing to read "Mark W. Rogers".

Mark W. Rogers
Chair Oregon Council

From: Brian Posewitz <brian@waterwatch.org>

Sent: Monday, October 14, 2024 3:58 PM

To: * DEQ Willamette MAINSTEM <Willamette.MainStem@DEQ.oregon.gov>

Subject: Comments of WaterWatch of Oregon on Willamette mainstem/major tribs TMDL

You don't often get email from brian@waterwatch.org. [Learn why this is important](#)

Dear Oregon Department of Environmental Quality:

WaterWatch of Oregon (WaterWatch) is a nonprofit organization dedicated to protecting and restoring instream flows and the free-flowing character of Oregon's rivers and streams, and to wise management of Oregon's water resources in general.

Please consider the following comments of WaterWatch on the Amended Willamette Subbasins TMDL to add temperature TMDLs for the Willamette River Mainstem and Major Tributaries:

1. We appreciate the express recognition that water management activities and water withdrawals contribute to the failure of the designated water bodies to comply with water quality criteria. We also appreciate the specific load allocations recognizing the need to quantify the impacts of water management and water withdrawals and to limit or reduce the heat loads caused by those activities such that they do not impact water temperature beyond a specific amount that, in theory and assuming all other impacts are contained within their waste load and load allocations, will ensure attainment of water quality standards for temperature.
2. Given express allocations of loading capacity to water management, the draft TMDL documents should include an assessment of the extent to which current water withdrawals contribute to exceedances of water quality criteria relative to the proposed load allocations, and should include a plan for determining in the future (by surrogate measure or otherwise) whether heat loads contributed by water

management and withdrawals are within the load allocations or, if not, the extent to which they are not.

3. Elimination of allocations for other nonpoint sources of heat, apparently to make room the allocations to water management and on the premise that those contributions can be eliminated completely, does not seem realistic.
4. Given the express recognition of water management and water withdrawals as a nonpoint source of heat, there is no reasonable justification for excluding the Oregon Water Resources Department (OWRD) as a Designated Management Agency (DMA) required to prepare an implementation plan. OWRD has legal authority over water management and water withdrawals in the basin. OWRD can influence the water-temperature impact of water management and water withdrawals in many ways, including but not limited to: (a) by adequately conditioning (e.g., by requiring temperature mitigation) or not issuing permits for new water withdrawals and storage that will contribute to warming in the designated waterways; (b) by requiring better measurement and reporting of water withdrawals and water storage to ensure withdrawals and storage are within legal limits; (c) by enforcing laws against withdrawing water without a permit and/or withdrawing more water than legally allowed under a permit or water right; (d) by enforcing instream water rights to protect instream flows; (e) by ensuring forfeiture of unused water rights to prevent resumption of discontinued withdrawals at a future date; and (f) by requiring water conservation and management plans prepared by cities and irrigation districts to demonstrate stronger efforts to conserve water and reduce water withdrawals and possibly convert more water rights to instream rights.
5. Management strategies for limiting the impact of water management and water withdrawals are too limited and too general. The potential for acquisition of water rights for instream use is likely to be extremely limited relative to the scale of the problem and new instream water rights will have low priority relative to more “senior” out of stream uses. Among other things, the strategies should include requiring full temperature mitigation for current and future water withdrawals (including permitted but undeveloped withdrawals) whenever possible, including on applications for extension of time to develop unused water use permits and on applications for permits and certifications associated with development and/or

continuation of water withdrawals (e.g., removal-fill permits and water quality certification for water withdrawal and/or water-use infrastructure).

6. We appreciate the acknowledgement that ODA regulation is not achieving water quality objectives and that more needs to be done on private agricultural lands.
7. Major water withdrawers and permit holders should also be responsible persons required to prepare implementation plans to show how withdrawals will be reduced or eliminated or to show how temperature impacts from continuing withdrawals will be offset.
8. The TMDL documents do not give adequate consideration to the cumulative impact of numerous small, in-channel reservoirs that add heat through increased thermal exposure of the water through pooling and expanded surface area. In addition to identified reservoirs that are not required to monitor temperature impacts, OWRD routinely permits reservoirs under thresholds for dam safety (which can be unlimited in size if the dam is less than 10 feet high) with limited storage seasons that cannot practicably be enforced and with conditions that are not adequate to prevent the reservoirs from increasing stream temperatures. This further illustrates why OWRD should be a DMA under the TMDL.
9. The TMDL documents should include in the modeling and loading analysis, and in the allocations, the estimated future effects of climate change on stream flows, air temperatures and water temperatures.

Thank you for considering our comments.

Regards,

Brian Posewitz, Staff Attorney

WaterWatch of Oregon

213 SW Ash St.

Portland, OR 97204

(503) 432-8249

Email: brian@waterwatch.org



1210 Center St.
Oregon City, OR
97045

October 14, 2024
Oregon DEQ
Attn: Michele Martin
700 NE Multnomah Street, Suite 600
Portland, Oregon 97232-4100
Submitted via email to Willamette.MainStem@DEQ.oregon.gov

Re: Comments on Proposed Willamette Mainstem and Major Tributaries Temperature TMDL

Dear Ms. Martin:

Willamette Riverkeeper (“WRK”) submits the following comments on the Department of Environmental Quality’s (“DEQ”) draft Total Maximum Daily Loads for the Willamette Mainstem and Major Tributaries for Temperature (the “draft TMDL”).

SUMMARY

In 2019, USEPA and DEQ were court ordered to replace 15 Oregon temperature TMDLs, including the Willamette mainstem and major tributaries. Despite this opportunity to revise the TMDL, and WRK’s comments¹ submitted on the Willamette Subbasin Temperature TMDL, DEQ has failed to reasonably ensure there is a high likelihood TMDL implementation plans will be implemented, conducted an insufficient literature review that failed to include studies on climate change impacts on the Willamette Basin, and failed to account for predicted climate change impacts in any area of the TMDL. These failures are unacceptable and DEQ needs to revise the draft TMDL before submitting it to the Environmental Quality Commission.

I. DEQ failed to account for increased wildfires destroying riparian shade

DEQ also failed to account for increasing wildfires caused by climate change, which will delay, if not prevent, the shade targets from being met. The rate of wildfires has been increasing and will continue to increase as temperatures rise. Experts predict that “[b]y 2040, the region should anticipate a 400-500% increase in the number of acres burned annually and summer flows in the Willamette River and other waterways reduced by 4-60%.”² As shade coverage declines due to wildfires and summer flows are reduced, the stream temperatures will continue to rise, yet DEQ does not take this climate change-driven increase in wildfires into consideration. The only

¹ Willamette Riverkeeper, The Conservation Angler, and the Northwest Environmental Defense Center submitted comments regarding the Draft Total Maximum Daily Loads for Willamette Subbasins for Temperature on March 15, 2024.

² <https://www.eugene-or.gov/ImageRepository/Document?documentId=55983> at 21. *See also*, Jessica E. Halofsky, et al., *Changing wildfire, changing forests: the effects of climate change on fire regimes and vegetation in the Pacific Northwest, USA*, *Fire Ecology* 16, 4 (2020) (“According to projections based on historical records, current trends, and simulation modeling, protracted warmer and drier conditions will drive lower fuel moisture and longer fire seasons in the future, likely increasing the frequency and extent of fires..., [r]eburns are also likely to occur more frequently with warming and drought, with potential effects on tree regenerations and species composition”).

mention DEQ makes of the affects wildfires and other natural disturbances on shade targets is inadequate.

“DEQ acknowledges that factors such as climate change and local geology, geography, soils, climate, legacy impacts, wildfires and floods may hinder achieving the target effective shade. No enforcement action will be taken by DEQ for reductions in effective shade caused by natural disturbances. Where natural disturbances have occurred, DEQ expects responsible persons including DMAs to assess and prioritize these areas for streamside restoration following an event.”³

DEQ’s failure to acknowledge that wildfires and climate change will absolutely reduce riparian shade coverage and not having a plan in place for these reductions other than an expectation that these areas will be assessed and prioritized is DEQ brushing off its duties and deciding that it will be someone else’s problem when it happens. DEQ does not have a timeline for when responsible persons are expected to replant these areas and doesn’t explain how prioritizing these burned areas will not affect other areas that will still need to be planted. Does DEQ expect responsible persons to increase planting activities after these events or is DEQ okay with pushing shade targets past the 96-year timeline that the draft currently has in place?

To start with, DEQ needs to include conservative assumptions for wildfires in the draft TMDL and account for them when creating a timeline for meeting shade targets. The timeline should require shade targets to be met sooner than the current 2120 timeline to account for the likelihood that at least some shade benefits will be lost due to wildfires and will need to be replaced.

II. DEQ failed to account for predicted climate change effects

WRK recognizes that no agreed upon methodologies for incorporating climate change predictions into TMDLs exist yet. However, this lack of consensus does not excuse DEQ failing to incorporate climate change predictions at all into its assessment of loading capacity, underlying wasteload allocations and load allocations, margin of safety, or implementation strategies. DEQ’s use of a stationary climate is directly opposed to EPA’s recognition that TMDLs built upon steady-state assumptions are no longer accurate.

“While many temperature TMDLs have been established, the supporting analyses have generally assumed a stationary climate under which historical data on flow and air temperature can serve as an adequate guide to future conditions. Projected changes in climate over the 21st century contradict this assumption. Air temperature is expected to increase in most parts of the US, accompanied in many areas by seasonal shifts in the timing and amount of precipitation, which in turn will alter stream flow.”⁴

³ Draft Water Quality Management Plan at 28.

⁴ U.S. Env’tl Prot. Agency, Final Project Report: EPA Region 10 Climate Change and TMDL Pilot – South Fork Nooksack River, Washington. EPA/600/R-17/281. U.S. Env’tl Prot. Agency, Nat’l Health and Env’tl Effects Research Lab., Western Ecology Division, Corvallis, OR at 1 of unpaginated abstract (2016).

EPA has noted that “climate change may alter attainability of some designated uses and parameters related to water quality standards (e.g., lower streamflow may increase stream temperature) and recommends that ‘TMDLs and water quality standards should be examined to ensure that these remain protective of aquatic life uses under changing climatic conditions.’”⁵ While EPA recognizes that most TMDLs do not take climate change considerations into account and it would be infeasible to re-open every TMDL to incorporate climate change considerations,⁶ DEQ has already re-opened this temperature TMDL and it is irresponsible and illogical to continue to ignore climate change in the TMDL that will likely be most affected by changing climatic conditions. EPA has offered to collaborate to “further incorporate consideration of the impacts of changing climate conditions,” including considering “the impact of changing environmental conditions when developing and implementing TMDLs...”⁷ Additionally, EPA encourages “water quality authorities to consider climate change impacts when developing wasteload and load allocations in TMDLs where appropriate.”⁸ Scientific evidence shows that stream temperatures in the Willamette River subbasins will increase because of climate change. Because the draft TMDLs do not make any reasonable attempt to incorporate projected climate change impacts into their analyses, allocations, or assumptions regarding implementation effectiveness, the draft TMDLs rely on steady-state assumptions and, therefore, they are built to fail. As a result, the draft TMDLs will not attain and maintain water quality, as required by rule.⁹

As EPA is prioritizing climate change in its own operations, it is time for DEQ to be proactive and truly consider climate change when updating TMDLs. Rising air temperatures can directly lead to rising water temperatures which can then decrease dissolved oxygen and increase nutrients in waterbodies, harming the beneficial uses of these water systems and increasing harm to federally listed fish species.

A. DEQ must account for predicted climate change affects when assessing seasonal variation and critical conditions to not violate the TMDL Rule.

DEQ did not account for predicted climate change effects when assessing seasonal variation and critical conditions in violation of the TMDL rule.¹⁰ This rule requires DEQ to “account[] for seasonal variation and critical conditions in stream flow, sensitive beneficial uses, pollutant loading and water quality parameters so that water quality standards will be attained and

⁵ *Clean Water Act and Pollutant Total Maximum Daily Loads (TMDLs)*, Congressional Research Service Report (updated Jan. 17, 2024) at page 9, <https://crsreports.congress.gov/product/pdf/R/R42752>, quoting U.S. Environmental Protection Agency, Global Change Research Program, National Center for Environmental Assessment, Implications of Climate Change for Bioassessment Programs and Approaches to Account for Effects, Preliminary Draft, EPA/600/R-11/036A, March 2011, p. 7-1, <http://cfpub.epa.gov/ncea/cfm/recordisplay.cfm?deid=233810>.

⁶ See U.S. Environmental Protection Agency, National Water Program 2012 Strategy: Response to Climate Change, Public Comment Draft, March 2012, p. 51, http://water.epa.gov/scitech/climatechange/upload/NWP_Draft_Strategy_03-27-2012.pdf.

⁷ *2022-2032 Vision for the Clean Water Act Section 303(d) Program*, Environmental Protection Agency (September 2022) at 12, https://www.epa.gov/system/files/documents/2022-09/CWA%20Section%20303d%20Vision_September%202022.pdf.

⁸ U.S. Env't'l Prot. Agency, National Water Program 2012 Strategy: Response to Climate Change at 7, 57, 109 (2012).

⁹ See OAR 340-042-0030(15).

¹⁰ See OAR 340-042-0040(4)(j).

maintained during all seasons of the year.”¹¹ The best available scientific data demonstrates that climate change is decreasing stream flows, warming air temperatures, increasing stream temperatures, and harming salmon and steelhead. These impacts will continue to intensify. DEQ failed to account for these changes in the draft TMDL despite overwhelming scientific evidence that these seasonal variations and critical conditions are changing due to climate change.

The Oregon Climate Change Research Institute’s Oregon Climate Assessment found that “temperature in Oregon is projected to increase on average by 5°F by the 2050s and 8.2°F by the 2080s, with the greatest seasonal increases in summer.”¹² Additionally, the “frequency, duration, and intensity of extreme heat events is expected to increase throughout the state during the twenty-first century,” as well as the frequency of droughts and wildfires.¹³ Strangely, it does not appear that DEQ used this assessment when updating the TMDL, despite this being a state-sponsored assessment required under Oregon House Bill 3543.

B. DEQ’s failure to account for climate change will harm federally listed fish species

“Climate change is affecting the timing of seasonal events in the life cycle of some plants and animals, and the viability of some species. Projected decreases in freshwater flows and connectivity are likely to decrease survival and growth of salmon. Projected increases in temperature and changes in precipitation also may have negative effects on some protected species.”¹⁴

DEQ ignored the existential risk that climate change poses to Upper Willamette River spring Chinook and steelhead, which are listed as “threatened” species under the Endangered Species Act (“ESA”).¹⁵ These species are threatened with extinction, in part due to thermal pollution.¹⁶ Oregon Department of Fish & Wildlife (“ODFW”) has explained that climate change will increase stream temperatures and put cold-water species at increased risk.¹⁷ ODFW and the National Marine Fisheries Service summarized some of these risks in the Upper Willamette River Conservation and Recovery Plan for Chinook and Steelhead (the “Recovery Plan”). For example, the Recovery Plan summarizes findings made by the OCCRI and the Climate Leadership Initiative for the Willamette Basin on future climate change effects.¹⁸ As summarized in the Recovery Plan, these findings showed a moderate decrease in historical summer flows, which are influenced by decreased snowpack, earlier snowmelt, and higher air temperatures.¹⁹ Because of these changes, there may be lower base flows and longer low flow periods, which

¹¹ *Id.*

¹² Dalton, M., and E. Fleishman, editors. 2021. Fifth Oregon Climate Assessment. Oregon Climate Change Research Institute, Oregon State University, Corvallis, Oregon at 7, <https://blogs.oregonstate.edu/occric/oregon-climate-assessments/>.

¹³ *Id.*

¹⁴ Fifth Oregon Climate Assessment at 8.

¹⁵ 16 U.S.C. 1531 *et seq.* 50 CFR § 223.102(e).

¹⁶ See NMFS & ODFW, Upper Willamette River Conservation and Recovery Plan for Chinook Salmon and Steelhead at 5-21 (2011), https://www.dfw.state.or.us/fish/CRP/docs/upper_willamette/UWR%20FRN2%20Mainbody%20final.pdf.

¹⁷ *Upper Willamette River Conservation and Recovery Plan for Chinook salmon and Steelhead*, Oregon Department of Fish & Wildlife and National Marine Fisheries Service Northwest Division (Aug. 5, 2011) at 5-22.

¹⁸ *Id.*

¹⁹ *Id.*

warm water temperatures. As a result, threatened Chinook salmon and steelhead could face more direct and indirect mortality and avoid habitat that has become too warm.²⁰ Additionally, modeling consistently showed annual average increases in temperature under all warming scenarios.²¹

DEQ has a responsibility under the ESA to conserve and recover listed species, and failing to account for climate change in the temperature TMDL will not prevent increased stream temperatures which will then lead to increased mortality for listed species. This is in direct odds with the ESA and will increase the likelihood of extinction for these fish species.

C. DEQ failed to account for decreased stream flows due to climate change.

Even though climate change will decrease stream flows, DEQ failed to account for this when updating the temperature TMDL. In fact, DEQ emphasizes that maintenance of minimum instream flows is needed to attain the TMDL allocations, but then doesn't go into how that will be possible when stream flows decrease, except to say that "restoration of stream flows may require establishing instream water rights."²² Without a plan of action, DEQ cannot set targets for acquiring water rights to be converted to instream uses and will quickly fall behind what is needed due to this failure to plan for known effects of climate change. Already, DEQ does not plan to meet temperature water quality standards until 2120, and that is without accounting for the decreasing stream flows expected due to climate change. While the timeline is unacceptably long, the failure to account for decreasing stream flows while noting how important they are to maintain is irresponsible and unrealistic.

DEQ must revise the draft TMDLs to account for declining stream flows, otherwise the draft TMDLs will not attain and maintain water quality standards, as required by rule.²³

D. The TMDL will not attain and maintain water quality standards because climate change impacts on pollutant loading and water quality parameters were not considered

The best available scientific data demonstrates that temperatures are rising in most streams, that warming air temperatures are increasing stream temperatures, and that both warming patterns will intensify. DEQ fails to account for these scientifically accepted changing conditions in its loading capacity or allocation analyses making the analyses, assumptions, and allocations in the draft TMDL flawed and unable to attain or maintain water quality standards, as required by rule.

DEQ's failure to account for rising stream temperatures may in part be due to the incomplete literature review DEQ conducted, failing to include many papers in the Technical Support Document. For example, DEQ's literature analysis on climate change does not cite Beechie et al. (2012), even though it is one of the leading papers on climate change impacts to stream

²⁰ *Id.*

²¹ *Id.* at 5-23.

²² WQMP at 6; *See* TMDLs for Willamette Subbasins, Technical Support Document at 155.

²³ *See* OAR 340-042-0030(15).

temperatures and salmon and steelhead in the Pacific Northwest.²⁴ Beechie et al. (2012) used models to predict streamflow and stream temperatures throughout the Pacific Northwest. The authors made the following finding related to the Willamette River system:

“Increased air temperatures will lead to increased water temperatures on both the west and east sides of the Cascade Mountains, and the scenario indicates a 1–4 °C increase in stream temperatures (maximum weekly mean temperature) across the region by the 2030–2069 period and a 2–6 °C increase by the 2070–2099 period (Figure 8). Highest mean weekly water temperatures vary significantly across the region in all periods, **with highest temperatures in reaches of the Snake and Willamette River basins (Figure 9)**. Because these areas are close to or exceed published thermal tolerances of most salmon species even during the historical period (1970–1999), they are most likely to shift to stressful or lethal thermal conditions in the future.”²⁵

As shown in Beechie et al. (2012), the Willamette River and its tributaries are expected to increase from <1° to as high 5° to 6° C, depending on the tributary.²⁶ The only other river basin that competes with this warming trend is the Snake River Basin, which, unlike the Willamette River, meanders through hundreds of miles of arid desert habitat.²⁶

DEQ also did not consider Wade et al (2013), which used modelled temperature and flow data to calculate water temperatures and flows for rivers throughout the Pacific Northwest.²⁷ The authors found that the greatest temperature increases would occur in the Upper Willamette, Lower Columbia, Upper Columbia, Lower Snake, and Far Upper Columbia River basins.²⁸ In the Willamette Basin, modelled increases in temperatures between the historical period (1970–1999) and 2030–2059 ranged from 1–4° C in the Willamette River and its tributaries.²⁹

Even though climate change is predicted to increase air and stream temperatures in the Willamette River Basin and its tributaries, DEQ only used steady-state air and streamflow temperatures based on historical data to develop the draft TMDLs. Indeed, DEQ made no efforts whatsoever to account for predicted increases in air and stream temperatures that are reasonably certain to occur and can be modelled. Because the draft TMDLs make no attempt to account for these predicted climate change impacts, neither the TMDL allocations nor the management strategies listed in the WQMP will achieve the draft TMDLs’ purpose of attaining and maintaining water quality standards.

E. DEQ Overassigned the HUA and Overallocated Loading Capacity by not accounting for predicted climate change effects.

²⁴ Beechie et al., *Restoring Salmon Habitat for a Changing Climate*, River Res. Applic. (2012) 29: 939–960 DOI: 10.1002/rra.2590.

²⁵ *Id.* at 8 (emphasis added).

²⁶ *Id.* at 11, Fig. 8.

²⁷ Alisa A. Wade et al., *Steelhead vulnerability to climate change in the Pacific Northwest*, Journal of Applied Ecology (2013).

²⁸ *Id.* at 5.

²⁹ *Id.*

By failing to assign a portion of the HUA to climate change, DEQ overassigned the HUA and thereby overallocated loading capacity in violation of the HUA and TMDL Rules.³⁰ To comply with both rules, DEQ must revise the draft TMDLs by assigning portions, if not all, of the HUA to climate change and making necessary reductions to other TMDL allocations to stay within the 0.3° C limit.

The HUA Rule requires that after a TMDL, “waste load and load allocations will restrict all NPDES point sources and nonpoint sources to a cumulative increase of no greater than 0.3 degrees Celsius (0.5 Fahrenheit) above the applicable criteria after complete mixing in the water body, and at the point of maximum impact.”³¹ A load allocation is the “portion of a receiving water's loading capacity that is attributed either to one of its existing or future nonpoint sources of pollution or to natural background sources.”³² Background sources include “all sources of pollution or pollutants not originating from human activities.”³³ For TMDLs, “background sources may also include anthropogenic sources of a pollutant that DEQ or another Oregon state agency does not have authority to regulate, such as pollutants emanating from another state, tribal lands or sources otherwise beyond the jurisdiction of the state.”³⁴

DEQ admits that “climate change is another important factor affecting stream temperature.”³⁵ Despite this admission, DEQ does not go into detail about climate change and its impacts on stream temperatures and does not assign any of the HUA to climate change. There are scientific studies showing how climate change is likely to affect air and water temperatures in the Willamette Basin and how climate change will increase wildfires throughout Oregon, instead of using these studies to strengthen the TMDL, DEQ states that the “effects of climate change...on streamside tree assemblages is unknown.”³⁶ While true that it is not possible to have exact numbers, we do know that with climate change, increased drought, wildfires, and air temperatures are likely, which will directly impact the growth and survival rate of new streamside vegetation and harm already existing vegetation.

DEQ’s failure to assign a portion of the HUA to climate change is hypocritical. DEQ recommended that EPA consider giving an allocation to climate change in the Columbia and Snake River temperature TMDL.³⁷ The EPA summarized DEQ’s recommendation as follows:

“EPA should consider giving an allocation to climate conditions as a source of heat affecting water temperatures. DEQ believes it is important for the TMDL to recognize the role of past and current climate conditions that influence the river temperature and to account for them in the allocations. There are many local and global actions being taken with the objective of reducing impacts from climate, and it is appropriate for the TMDL to reinforce the need for these actions through an allocation.”³⁸

³⁰ See OAR 340-041-0028(12)(b)(B), OAR 340-042-0040(4)(d).

³¹ OAR 340-041-0028(12)(b)(B).

³² OAR 340-041-0002(30).

³³ OAR 340-042-0030(1).

³⁴ *Id.*

³⁵ WQMP at 8.

³⁶ WQMP at 12.

³⁷ U.S. Env’t Prot. Agency, Columbia and Lower Snake Rivers Temperature TMDL Response to Comments at 248 (2021) <https://www.epa.gov/system/files/documents/2021-08/tmdl-columbia-snake-temperature-rtc-08132021.pdf>.

³⁸ *Id.*

The Willamette River and its tributaries are experiencing similar climate change impacts as the Columbia and Snake Rivers, so it is inconsistent and hypocritical for DEQ not to follow its own advice and assign a portion of the HUA to climate change and prepare for the inevitability of warming air and water temperatures. Indeed, Beechie et al. (2012) projects that only the Snake River Basin rivals the Willamette River Basin in terms of projected stream temperature increases caused by rising air temperatures.

Because the draft TMDL does not assign any portion of the HUA to climate change, DEQ is over-assigning loading capacity and instead of meeting water quality standards, the river will continue to warm and water quality standards will continue to be exceeded. Therefore, DEQ should follow its own advice by assigning a portion of the HUA to climate change and allocating a portion of the loading capacity to that background source.

F. DEQ failed to account for climate change in the margin of safety

DEQ's failure to account for climate change in the margin of safety, despite scientific studies showing the predicted climate change impacts, violates the TMDL rule.³⁹ A TMDL must include a margin of safety, which "accounts for uncertainty related to the TMDL and, where feasible, quantifies uncertainties associated with estimating pollutant loads, modeling water quality and monitoring water quality."⁴⁰ This uncertainty may result from "an incomplete understanding of the exact magnitude or quantity of thermal loading from various sources."⁴¹ The margin of safety is "intended to account for such uncertainties in a manner that is conservative and will result in environmental protection."⁴² By failing to account for climate change in the margin of safety, DEQ is ignoring a major impact to water temperature and failing to ensure the environment is protected.

The margin of safety "can be achieved through two approaches: (1) implicitly using conservative analytical assumptions to develop allocations, or (2) explicitly specifying a portion of the TMDL loading capacity as a margin of safety."⁴³ DEQ does not even mention climate change in the margin of safety section, the section that arguably is the most relevant and important section for climate change to be accounted in.

DEQ should have included an explicit load allocation for climate change in the margin of safety because climate change will undeniably cause warming impacts, and an explicit allocation would be transparent to the public. At the very least, conservative assumptions should have been made to account for climate change. It is unreasonable for DEQ to believe that the draft TMDLs will achieve necessary pollutant reductions to meet water quality standards when the draft TMDLs do not even account for worsening climate change effects in their loading analyses. Climate change impacts on stream temperature will likely devour the HUA, which does not allocate any portion to climate change, yet the margin of safety includes no buffer at all for climate change impacts.

³⁹ OAR 340-042-0040(4)(i).

⁴⁰ *Id.*

⁴¹ Draft TMDL at 107.

⁴² *Id.* at 108.

⁴³ *Id.*

To account for the uncertainty of the draft TMDL's assessment being accurate or effective in restoring water quality based on climate change effects, DEQ should include an explicit load allocation in the margin of safety to account for climate change.

Because DEQ did not adequately consider climate change in the margin of safety, it overallocated portions of the loading capacity to other sources and reserve capacity, thereby resulting in an overallocation of loading capacity. As a result, the draft TMDLs will not attain or maintain water quality, as required by rule.⁴⁴

Conclusion

The draft TMDLs will not attain or maintain water quality because DEQ did not account for predicted climate change impacts. No reasonable person could believe, based on the scientific evidence, that WLAs and LAs based on current conditions will be sufficient - along with implementation of shade targets - to achieve water quality standards in a future that will be hotter and drier. Because climate change will undoubtedly affect seasonal variation and critical conditions, DEQ's complete failure to account for climate change at all in its loading capacity analysis, TMDL allocations, and other TMDL elements violates the TMDL Rule.

Sincerely,

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⁴⁴ OAR 340-042-0030(15).