Umpqua Basin Temperature TMDL

U.S. Environmental Protection Agency, Region 10

Comment Summary and Responses

June 27, 2025

List of Public Comment Letters Received
1. Oregon Association of Clean Water Agencies
2. Oregon Department of Environmental Quality
3. Oregon Department of Fish and Wildlife
4. Oregon Forest Industries Council
5. PacifiCorp
6. Roseburg Urban Sanitary Authority
7. Water Watch of Oregon

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	Oregon Association of Clean Water Agencies	
1.1	Thank you for the opportunity to provide comments on the proposed Umpqua River Basin Temperature TMDL Replacement ("Umpqua Temperature TMDL"). These comments are provided on behalf of the Oregon Association of Clean Water Agencies (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.	Comment Noted.

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1.2	As you likely know, ACWA has been closely involved with the TMDL Replacement Project from the start. ACWA members have served on the RAC for both the Willamette River Mainstem Temperature TMDL and the recent Oregon Environmental Quality Commission (EQC)-approved Willamette Subbasin and Sandy Temperature TMDL Replacements ("Subbasin Temperate TMDL"). Previous ACWA comment letters to DEQ were sent on April 14, 2023, March 1, 2024, May 23, 2024, and November 25, 2024. ACWA requests that all four of these previous comment letters be added to the Umpqua Temperature TMDL record. Oregon DEQ will have this correspondence. The reasoning for adding these previous ACWA comment letters to the record is that EPA is generally following the approach used by DEQ and so many of the comments will be appropriate and applicable to this TMDL replacement project. Similarly, ACWA asks that DEQs response to public comments to the Willamette Subbasin Temperature TMDL presented to the EQC on August 26,2024 (See EQC packet Attachment F), as many of ACWA's comments were addressed by DEQ. The ask is for the EPA to use a similar response and approach to the issues already resolved.	The EPA disagrees that previous comment letters for other TMDL projects should be added to this administrative record. TMDL projects are site specific, and comments made to one TMDL project are not necessarily relevant to another TMDL project. The EPA relies on the commenter to draw conclusions from one set of its comments on a different project. The previous comment letters are not relevant to the EPA's decision because they do not relate to this TMDL project, and the EPA did not consider these comments directly or indirectly in making its decision. Finally, EPA notes that the comments referenced were between the commenter and the Oregon Department of Environmental Quality (ODEQ), were not provided by the commenter, and therefore are not before the Agency as it makes its decision.
1.3	**Rulemaking Process Created Unnecessary Confusion** One process comment is very important for ACWA to make, and this comment goes to both EPA and DEQ. ACWA was assured several times by DEQ that the Umpqua Temperature TMDL process as managed by EPA would be no different than any of the other TMDL Temperature Replacement projects. In essence, we were told that EPA was essentially operating as a subcontractor to DEQ given the lack of DEQ resources and the need to meet strict Court-mandated deadlines. In fact, to my knowledge EPA used its own TMDL development process and used its own rulemaking process rather than follow DEQ and	The EPA disagrees that the process of drafting this TMDL created unnecessary confusion. As a federal agency the EPA is bound by its own processes and cannot employ the state rulemaking process. The EPA worked closely with staff at Oregon DEQ to conduct stakeholder outreach throughout the TMDL development process. While the EPA did not and was not required to hold a public hearing, the EPA and Oregon DEQ jointly hosted three public webinars (April 23, 2024, July 23, 2024, October 29, 2024) for this TMDL project to provide information, answer questions, and listen to concerns. The EPA intentionally partnered with Oregon DEQ on TMDL outreach

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	state of Oregon public comment and public hearing (EPA held NO public hearing) practices. In the event EPA serves as a resource in the future, DEQ should not allow this. It was confusing to stakeholders, most of whom know nothing of EPA processes. The TMDL temperature replacement process is complicated enough without throwing in needless confusion. The Oregon process is well-understood and frankly quite good and well-accepted. Whether using the federal rather than State process is legally objectional or not (I do not know the answer to that question), it should not be the model moving forward.	activities to leverage state staff knowledge of local stakeholders and to make use of resources such as stakeholder email lists to disseminate information.
1.4	**Request for Extension and ACWA's Support of Comments from Roseburg Urban Sanitary Authority (RUSA)** Both ACWA and RUSA asked for short extensions of time. Both requests were based on resource constraints. The goal was to ensure that the Umpqua Temperature TMDL is based on the most reasoned, expert, accurate input and the best data. Both requests were denied. ACWA and RUSA appreciate that EPA is only developing the TMDL and that DEQ will develop the Water Quality Management Plans (WQMP) and assist with implementation plans. WQMPs are a critical element for implementing nonpoint source load allocations. For point source discharges, the implementation procedures are relatively straightforward as the TMDL-established WLA are incorporated into NPDES permits. There was no assessment of the impacts of the WLA on the communities in the Umpqua River Basin. Having the necessary time to review the WLA, evaluate whether communities would be able to meet these WLA, and provide outreach to communities to discuss compliance options would have been time well spent to ensure successful implementation of the TMDL. Hopefully the implementation plan process will allow DEQ the time to consider any oversights in the current	The EPA disagrees that time extensions were appropriate in this process. The Federal District Court for the District of Oregon set a deadline for Oregon DEQ and the EPA to establish this TMDL project and to assuredly meet this deadline the EPA was unable to provide an extension of the 45-day comment period. The EPA did however, host two public webinars during the TMDL development period (April 23, 2024, July 23, 2024) and one public webinar during the public comment period (October 29, 2024) to support a transparent TMDL development process. These webinars provided an opportunity for stakeholders to acquire information, ask question, and discuss concerns prior to the official 45-day public comment period. In particular, the second public webinar held on July 23, 2024, was focused on wasteload allocations (WLA) for NPDES permittees. Information on WLA calculations and draft WLAs for individual facilities were provided. Additionally, a fact sheet on draft WLA was posted on the ODEQ Umpqua TMDL project web page. NPDES permittees were encouraged to contact EPA and/or ODEQ staff to discuss any questions or concerns with

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	rushed process. ACWA members subject to this TMDL look forward to DEQ's sharing of expertise in identifying pathways to meet TMDL WLAs and achieve water quality standards. RUSA will also be submitting its own comment letter. RUSA is a critical stakeholder in the Umpqua Basin and likely has more influence and ability to assist smaller municipalities and agencies than any other utility in the region. ACWA has worked closely with RUSA's consultant on previous Temperature TMDL replacement projects. ACWA strongly supports RUSA's comments.	draft WLAs. There was 78 days, prior to public comment period, when EPA provided information and solicited feedback on draft WLAs from communities in the Umpqua River Basin. No community responded to this opportunity.
1.5	**Other Considerations** ACWA has several issues of concern that it asks EPA to consider. These are asks that ACWA made of DEQ previously. DEQ considered these requests but did not fully implement or in some cases disagreed with the proposed approach. **<u>Bubble Allocation Approach for Small Facilities</u>** ACWA requested that DEQ consider use of a bubbled allocation approach for small sources in the 2006 Willamette Temperature 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 Umpqua is the discussion, there would seem to be good reason to reconsider the bubble allocation approach or other management practice-based approach suggested by ACWA in previous comments. DEQ outlined an	The EPA finds that a bubble allocation approach for small facilities is not technically suitable for this project because the facilities are spatially disaggregated and individually impact stream temperature. The EPA recognizes that the approach of grouped bubble allocations has been used for some source categories in past TMDLs. However, the source assessment for this TMDL evaluated small individually permitted facilities and facilities under general permits and quantified and/or characterized those that would contribute to temperature criteria exceedances. These facilities received individual numeric wasteload allocations because they individually have an impact on in-stream water temperature and in many cases are spatially disaggregated. These factors support assigning individual allocations over a bubble allocation approach.

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	approach that "works similar to the bubble allocation used in the 2006 temperature TMDL." That may be the case, but EPA is encouraged to use the approach that has a proven track record of successful implementation.	
1.6	The 2006 Umpqua TMDL did not identify minor sources such as filter backwash from drinking water treatment facilities as contributing to the exceedances of the temperature standard. The draft TMDL proposes the inclusion of 15 facilities that discharge filter backwash water from drinking water treatment facilities. These facilities are currently permitted by DEQ under the 200-J General NPDES permit. The draft TMDL generally concludes that the provisions of the 200-J general permit would enable facilities to meet an assigned HUA of 0.1 C. However, it is not clear how this approach would be implemented. For example, can a general permit still be issued for these facilities? Can DEQ define management practices as a basis of concluding that the facilities will not cause or contribute to exceedances of the temperature standard?	As presented in TMDL section 9.1.1, EPA finds that the permit required minimum dilution ratio of 30:1 will be sufficient for most permittees to be within the allowable 1 ^{o}C HUA provided for NPDES point source discharges. However, if necessary, a facility may access a portion of the HUA reserve capacity per ODEQ procedures and approval. Oregon DEQ is the NPDES permitting authority for both individual and general permits. and is responsible to implement this TMDL HUA and associated wasteload allocations for general permits according to agency program procedures consistent with the requirements of 40 CFR 122.44(d)(1)(vii)(B). The EPA encourages permittees contact ODEQ to address specific implementation questions; the state is best equipped to address these questions.
1.7	**<u>Water Quality Trading/Shading Requirements</u>** ACWA is appreciative of DEQ's and EPA's longstanding and consistent support of the use of water quality trading as a TMDL compliance option. ACWA is, however, concerned that there may not be anything left to trade under a TMDL where there is a zero allocation for non-point sources (for riparian shade), which means that the TMDL target requires fully vegetated riparian areas. EPA, 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 Umpqua Basin. The draft TMDL presents language which could	Generally, EPA supports water quality trading and has developed resources to support and guide states when developing trading programs. Oregon DEQ has a well-established water quality trading program and state rules to guide this program (OAR 340 Division 39). Consistent with other recent Oregon Temperature TMDLs the EPA did not provide an HUA for solar loading for other nonpoint source categories, which includes lack of streamside vegetation. Additionally, the lack of an HUA for this source category does not preclude water quality trading as an implementation option. The opportunity for parties to participate in water quality trading would occur as part of

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	use clarification to avoid misinterpretation, unintended consequences, and inadvertent preclusion of water quality trading. EPA should adjust the sector-specific HUA to provide an allocation for solar loading from other nonpoint sources. A nonpoint source allocation would provide a strong foundation and framework for point sources to pursue a water quality trading program as a compliance strategy.	TMDL implementation. ODEQ is responsible for TMDL implementation and parties may work with ODEQ to include the topic of water quality trading in the WQMP.
1.8	**Data Quality** The need for quality data has been a continuing comment from ACWA throughout the Temperature TMDL Replacement process thus far. No doubt EPA agrees with ACWA that the TMDLs will only be as accurate as the underlying data relied upon. ACWA asks that prior to finalizing this TMDL, EPA take a deep dive into the data. 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. Where applicable, EPA 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. Additionally, 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	The EPA disagrees with the implication that a "deep dive into the data" has not already occurred. Oregon DEQ conducted a statewide public data solicitation event from July – October 2020; this data solicitation had the explicit purpose of acquiring data to support the development of temperature replacement TMDL projects statewide, including the Umpqua Basin. This data solicitation event was an opportunity for NPDES permit holders to provide data relevant to TMDL development. In addition, data evaluated as part of this TMDL was obtained from sources such as, but not limited to, ODEQ water quality monitoring programs, monitoring conducted by other state and or federal agencies, and regulatory programs (e.g., discharger monitoring reports). Data was used in a wide range of capacities in TMDL analyses conducted by the EPA. EPA agrees that for some analyses using 10 years of data was applicable. Some analyses did include 10-year datasets (or longer), and others are shorter time periods, as technically suitable. Interannual variability in flow and temperature conditions are reflected in these datasets. Finally, past actions by DMAs to mitigate thermal loading continue to support improving temperature water quality conditions, which is the goal of this TMDL. The TMDL WLAs are

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	thermal discharges, DMAs that have taken past measures to reduce their discharges are not being credited for their efforts.	specific to individual facilities; if a facility has made efforts in the past to reduce thermal loading those efforts would be reflected in the current TMDL source assessment. At the same time, if the facility still has thermal impacts greater than the water quality standard the facility will still need to reduce thermal loads consistent with allocations established in this TMDL.
1.9	**<u>Providing Adequate Capacity for Growth</u>** 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. Oregon Governor Tina 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. EPA must consider the impact on temperature that this near-term and future growth will have. EPA 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. The TMDL must be calculated in such a way that compliance is possible. *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*	The EPA has incorporated the HUA provision, which expressly authorizes a small increase in thermal loading for human uses, into this TMDL. This TMDL provides HUA reserve capacity in the majority of watersheds across the basin. This reserve capacity can be used to accommodate future or increased sources of thermal loading in the watershed. The HUA reserve capacity provides a pathway for future growth and increased WLAs, if needed, while still attaining water quality criteria and protecting beneficial uses. The areas where the total HUA of 0.3°C is fully assigned are in areas dominated by federal lands (National Forest and Bureau of Land Management) or rural private forest lands where the EPA has not foreseen future municipality growth. The EPA disagrees with the implication that it has not appropriately "match(ed) WLAs to specific use periods." The EPA calculated wasteload allocations in accordance with the assigned HUA, which is an allowable thermal load above the applicable criteria. It is correct that the underlying applicable water quality standards are seasonal; however, the assigned HUA is not seasonal, which means that the facility is allowed to discharge the wasteload allocation based on the assigned HUA in all seasons. In this way the HUA and wasteload allocations are independent of seasonal standards; therefore, it is not

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	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 EPA's source category allocations directly relate to the factors listed above. EPA 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 EPA and DEQ 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.	necessary for the TMDL to present seasonal wasteload allocations. The EPA disagrees with the comment that the TMDL project fails to explain the basis or reasoning for allocation to the source categories. TMDL Section 4 provides background information on temperature and water quality impacts and characterizes the conditions in the Umpqua Basin. Moreover, TMDL section 7 identifies and quantifies sources of heat to rivers in the Umpqua Basin. EPA assigned allocations consistent with federal regulations 40 CFR §130.7(c) to be within the TMDLs' loading capacities and attain water quality standards. All individual point sources received a portion the HUA and associated WLAs were calculated based on facility specific information (e.g., effluent discharge). The approach and information used to assign TMDL allocations is in Section 9 of the TMDL document. The EPA disagrees that OAR 304-042-0040(5) and (6) are relevant to this TMDL project. The TMDLs do not mandate the manner of establishing allocations to meet the TMDL targets and EPA is not required to follow state rules when developing and issuing a TMDL project. Therefore, it is not necessary for the EPA to reevaluate allocations in the context of state rules. The EPA supports successful TMDL implementation and encourages stakeholders to work closely with Oregon DEQ who will direct TMDL implementation.

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1.10	We fully recognize the Court-mandated schedule for the series of replacement Temperature TMDLs. However, we also recognize that the proposed Umpqua 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 your partner, Oregon DEQ. To achieve the greatest environmental benefit in an implementable and cost-effective way, it is imperative that EPA 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.	The EPA agrees that this TMDL project must be both timely and must adhere to all legal requirements. The EPA developed a technically robust TMDL that complies with applicable regulations and provides a strong foundation for the ODEQ Water Quality Management Plan to guide implementation actions to restore water quality and protect beneficial uses.
	Oregon Department of Environmental Quality	
2.1	The Oregon Department of Environmental Quality appreciates the opportunity to provide comments on the U.S. Environmental Protection Agency's Umpqua River Basin Temperature TMDL, which was released for public comment on October 9, 2024. DEQ's comments on the TMDL are listed below.	Comment noted.
2.2	TMDL pages 26-28, Section 4.1.2 and Figures 11 and 12. The current OAR 340-014-0320, Figures 320A and 320B, are not the same as the TMDL Figures 11 and 12. Suggest updating or changing TMDL figures to match OAR 340-014-0320 Figures 320A and 320B.	The EPA disagrees that these figures should be updated. The EPA recognizes that Oregon DEQ revised state water quality standards in 2023 (Administrative Order No. DEQ-27-2023) and submitted a water quality standards package to EPA Region 10 for review and action on February 5, 2024. However, the EPA has yet to act on this package, and therefore the revisions made by Oregon DEQ in 2023, including OAR 340-014-0320, Figures 320A and 320B, are not effective for Clean Water Act purposes. As a result, this TMDL has been developed based on the current water quality standards (i.e., those approved by EPA and effective for Clean Water Act programs prior to changes contained in Administrative Order No.DEQ-27-2023).

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		The EPA has added language to the TMDL to clarify the applicable water quality standards. If in the future EPA Region 10 approves revised criteria associated with Administrative Order No.DEQ-27-2023 the revised criteria can be applied in this TMDL and the TMDL may be revised or amended, if needed.
2.3	TMDL page 57, Table 20. The protecting cold water criterion is an important component of Oregon's temperature standard and should be included in the section of the table identifying targets for waters that do not exceed the applicable biologically based numeric temperature criteria.	The EPA agrees with this comment and has added the protecting cold water criterion to Table 20 as a TMDL numeric target.
2.4	TMDL page 57, Table 20. Suggest creating a new section of the table called something like "Narrative Temperature Standards," which would include targets for the Oceans and Bays and Natural Lakes narrative criteria. Targets for these narrative criteria do not rely upon attaining the biological based numeric criteria so it is confusing to group them under that section.	The EPA agrees with this comment and Table 20 was revised to distinguish the natural lakes and oceans and bays numeric targets from the temperature criteria numeric targets.
2.5	TMDL page 57, Table 20. The Natural Lakes and the Oceans and Bays narrative criteria are noted as having an "instantaneous maximum" averaging period. We recognize the language of the rule does not specify the metric, but where DEQ has implemented these narratives, primarily in NPDES permits, the precedent is to use a 7DADM (see DEQ's reasonable potential analysis, Temperature Workbook version 4-24). DEQ's now disapproved natural condition criteria relied upon a natural condition temperature same as the Natural Lakes and the Oceans and Bays narrative. The natural condition criteria was implemented as a 7DADM (see page 29, DEQ's Temperature Water Quality Standard Implementation Temperature IMD, DEQ 2008). DEQ has understood the 7DADM to apply to these	Because the water quality standards language does not include an averaging period for these criteria the averaging period is interpreted to be an instantaneous maximum (EPA 440/5-86-001). However, as part of translation when implementing these narrative criteria Oregon DEQ may employ a 7DADM averaging period upon demonstration that the 7DADM averaging period provides an equal or greater level of water quality protection. A footnote has been added to Table 20 stating this implementation provision. Note, that information and averaging periods in the EPA Region 10 Guidance for Pacific Northwest State and Tribal Temperature Water Quality Standards (EPA 910-B-03-002) is based on river and stream diel variability and not marine

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	narratives because the 7DADM was the basis for evaluating the natural condition narrative, and the Natural Lakes and Oceans and Bays narratives were based relative to the natural condition. DEQ's use of the 7DADM and general approach to the temperature standard mirrors the recommendations included in EPA's Region 10 guidance for Pacific Northwest State and Tribal temperature water quality standards (EPA, 2003). In this document, EPA recommends use of the 7DADM for all temperature criteria (page 19). EPA recommends use of the 7DADM because "it describes the maximum temperatures in a stream, but is not overly influenced by the maximum temperature of a single day. Thus, it reflects an average of maximum temperatures that fish are exposed to over a weeklong period. Since this metric is oriented to daily maximum temperatures, it can be used to protect against acute effects, such as lethality and migration blockage conditions." We recommend EPA update these averaging periods to a 7DADM. As an alternative, the table could be updated to clarify that the averaging period is not specified in the standard and therefore not included.	waters or lakes. Thus, EPA finds it is not suitable to apply that analysis to marine waters or lakes.
2.6	The HUA assigned to dam and reservoir operations in the North Umpqua is 0.225°C (TMDL Table 30) but the PacifiCorp allocation scenario, which we assume is intended to evaluate the dam and reservoir surrogate measure, adjusts the boundary conditions at Soda Springs by 0.3 °C (Appendix G, PDF pages 363, 380, and 387, TMDL Figures 61 – 62, pages 126-127). We believe the increase included in this model scenario should reflect the assigned HUA of 0.225 °C.	The EPA intended this model scenario to reflect combined HUA temperature increase. The adjustment of the boundary condition at Soda Springs by 0.3°C was done because the scenario evaluated the combined HUA assignments to the North Umpqua Hydroelectric project. The North Umpqua Hydroelectric project has been assigned HUAs for the dam and reservoir operation (0.225°C) and for NPDES discharges (0.075°C). This is a combined HUA of 0.3°C.

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2.7	The North Umpqua PacifiCorp allocation scenario model results (Appendix G, PDF pages 363, 380, and 387; TMDL Figures 61 – 62, pages 126-127) show that an increase of 0.3°C at Soda Springs Dam results in a maximum temperature increase above the applicable temperature criteria of 0.14°C in the summer and 0.11°C during the spawning period. However, the assigned HUA for dam and reservoir operations is set to zero (Table 32) for the assessment units downstream of Soda Springs Dam (OR_SR_1710030111_02_106415, OR_SR_1710030111_02_105365, OR_SR_1710030108_02_105342, OR_SR_1710030108_02_105340, and OR_SR_1710030108_02_105339). The HUA assigned to dam and reservoir operations for these AU's should reflect the warming from attainment of the surrogate measure. Please see DEQ's related comment about the temperature increases used in the PacifiCorp allocation scenario model scenario not reflecting the assigned HUA.	EPA agrees with this comment and has updated the HUA tables in Section 9 to reflect downstream warming from attainment of the North Umpqua Hydroelectric project assigned HUAs. See response to comment 2.6.
2.8	TMDL page 89, Table 30 and Table 31. There are assessment units located in the identified watersheds not listed in the table. Please review and confirm that these AUs were intended to be left out of Tables 30 and 31 and the assigned HUA is based on the values in Table 32. The text should be updated to clarify if not all AUs were intended to be included. AUs not included in Table 30 but located in the Upper North Umpqua Watershed (1710030105): OR_LK_1710030105_02_100184 OR_LK_1710030105_02_100185 OR_WS_171003010501_02_105644 OR_WS_171003010502_02_105645	The EPA agrees with this comment and has added these assessment units to the HUA tables.

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	OR_WS_171003010503_02_105812 OR_WS_171003010504_02_105646 OR_WS_171003010505_02_106440 AUs not included in Table 30 but located in the Clearwater River Watershed (1710030103): OR_WS_171003010301_02_105637 OR_WS_171003010302_02_105638 OR_WS_171003010303_02_105808 AUs not included in Table 31 but located in the Rock Creek Watershed (1710030109): OR_WS_171003010901_02_105663 OR_WS_171003010902_02_105664	
2.9	TMDL page 89, Tables 30 – 32. Suggest adding a tabular TMDL appendix that identifies the HUA assignment for each assessment unit in the Umpqua River Basin. The values would reflect the information in TMDL Tables 30 – 32. Having this information organized by assessment unit will provide clarity and simplify future lookup.	The EPA does not agree that added the suggested appendix is necessary because the HUA assignments for each assessment unit can be determined from Tables 30-33.
2.10	TMDL page 91, Table 33. There is an asterisk symbol (*) next to the assigned HUA for Reedsport STP and Winchester Bay STP but not a corresponding note at the bottom of the table. Please review and edit as necessary.	The EPA notes this correction. The asterisk symbol was a typo and has been deleted. The original intention of the asterisk symbol was to indicate that the 0.1^{o}C allowable temperature increase was based on the oceans and bays temperature criterion and not the HUA. The asterisk symbol was replaced with a superscript.
2.11	TMDL Section 9, Thermal Wasteload Allocations for Point Sources section. Please include a sentence along the lines of: The following wasteload allocations for discharges currently covered by general permits may also be applied to these	The EPA has added language to TMDL Section 9 to clarify that wasteload allocations for a facility enrolled under a general permit may also be applicable to an individual permit, if the facility obtains an individual permit in the future.

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	discharges if they are regulated in the future by an individual NPDES permit.	
2.12	TMDL page 98, Table 35. This table does not accurately reflect required flows currently in effect. Required flows are established in the June 13, 2001 Settlement Agreement section 5.1. The flows are implemented through DEQ's June 28, 2002 401 Water Quality Certification in Exhibit A, the Temperature Management Plan. In June 2005, DEQ approved a modification to Exhibit A to address changes related to a 12-09-2003 revision to DEQ's numerical criteria for temperature in the Umpqua Basin but this did not change the required post-anadromous flows established in the settlement agreement.	The EPA agrees with this comment and appreciates the commenter's clarifying the correct minimum required flows. The EPA has updated table in the TMDL document to provide the correct information.
2.13	TMDL page 98, Section 9.1.4 - The approach to evaluating 401 certification modification should be refined/revised to address redundancy and consistency with the settlement agreement. Please strike the 2nd sentence in the 1st paragraph following Table 35: It may be necessary to revise this facility's Clean Water Action §401 Certification and modify the required minimum bypass reach flows.	The EPA has struck this sentence.
2.14	TMDL, page 100. Suggest including a table of effective shade targets for each model stream in addition to shade targets for each DMA.	The EPA agrees with this comment and has added a table presenting effective shade targets by assessment unit to the TMDL document (Table 38).
2.15	Many of EPA's TMDL conclusions, allocations, and targets rely upon the summer period modeling DEQ completed to support the 2006 TMDL. Other than the new models that EPA developed, none of the original modeling documentation is included in EPA's updated TMDL. To keep the TMDL documentation together in one package, we suggest including the 2006 TMDL Appendix 2, sections 1-4, and 6 as a new appendix in EPA's TMDL.	EPA agrees with this comment and has added documentation from the 2006 TMDL document as an appendix to the 2025 TMDL document.

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2.16	Appendix G, PDF pages 337-38. Please add a table of contents, list of tables, and list of figures to the No Dams model scenario memo.	The EPA agrees with this comment and has added these tables to the No Dams Model Development and Scenario memo.
2.17	TMDL Appendix G. The definition of model scenarios on PDF page 192 (North Umpqua River Scenarios memo) and PDF page 437 (South Umpqua and Umpqua River Scenarios memo) includes an Attainment Scenario but it is difficult to determine which plots show the attainment scenario because the figure captions and plot titles use other terms. Suggest updating the figure captions and plot titles so the scenario naming is consistent throughout the entire document. These updates will greatly improve understanding and interpretation of the results.	The EPA agrees with this comment. Appendix G figure captions and plot titles have been revised to improve clarity and communication of results.
2.18	Please add documentation identifying which flow gages and methods (e.g. Log-Pearson Type III, or StreamStats) were used to calculate 7Q10 for each AU and NPDES point source. This information will support DEQ during permit renewal and for TMDL implementation.	The EPA agrees with this comment and has added a new appendix to provide this information. Appendix I contains a table specifying which 7Q10 calculation method the EPA used for the assessment units.
2.19	TMDL, Sections 1-3. The labels in the maps are difficult to read (Fig 1-3, 7, 8). Please make the images larger or increase resolution.	The EPA appreciates this comment but will not make aesthetic edits to maps at this late stage of the TMDL project because EPA finds the maps sufficiently legible. The EPA notes this comment for future projects.
2.20	Numbers are missing from the tier two TMDL headings. Please update headings to include numbers.	The EPA finds that this formatting suggestion is not necessary. Edits were not made to the multilevel section numbering in the document.
2.21	TMDL Section 4.1.5, page 31. “Data assessed in this section was collected by USGS, UFSS, and ODEQ.” DEQ was not responsible for collecting temperature data. Suggest amending indicate that DEQ’s temperature data was obtained through DEQ’s data call.	The EPA did utilize data from Oregon DEQ monitoring program for the summary of current water quality conditions (Section 4.1.5). The EPA agrees that the language in this section could be made more inclusive because some data in the Oregon DEQ AWQMS database may have been collected by other organizations and yet tagged as Oregon DEQ data. Language in section 4.1.5 has been revised. The data used for the summary

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		of current water quality conditions was not obtained through Oregon DEQ's 2020 data solicitation.
2.22	TMDL, page 47, section 4.1.8. Suggest including the USGS eight-digit HUC codes (17100301, 17100302, and 17100303) and the subbasin names (North Umpqua Subbasin, South Umpqua Subbasin, and Umpqua Subbasin) in the narrative when defining the Umpqua River Basin and the geographic scope for the TMDL.	The EPA agrees with this comment. The EPA has made this change to the TMDL document.
2.23	TMDL Section 6. Suggest adding the Rock Creek seasonal variation plot into section 6 with more explanation to document why it has a different critical period (April 15 – Oct 31) compared to all the other waters in the Umpqua River Basin (May 1 – Oct 31).	The EPA disagrees that these suggested changes are necessary. The critical season plots for Rock Creek can be found in Appendix B, Figures 24 and 25. The critical season for Rock Creek is April 15 through October 31 based on when stream temperatures exceed the water quality criteria and when seasonal beneficial uses apply. Critical season plots for Rock Creek were not added to TMDL Section 6; plots for the mainstems of North Umpqua River, South Umpqua River, and Umpqua River are included in Section 6.
2.24	Suggest modifying TMDL Table 21, Table 24, and Table 25, or create a new table, that identifies the assessment units receiving point source discharge.	The EPA declines to incorporate these formatting comments. Nonessential edits to the tables were not made at this late stage of the project. This comment will be noted for future projects.
2.25	TMDL page 70, Table 25. Should the header for the third column be "EPA Number & WQ File Number"?	The EPA has determined that the column heading is correct. The permit number and DEQ WQ File number are Oregon DEQ's naming convention. The EPA does not have permit numbers for general permits.
2.26	TMDL Figures 47, 48 and 52 appear to be identical (page 77-78, 101). Please confirm that the correct maps were included.	The EPA agrees with this correction. The maps have been revised. There was an issue when the symbology was copied from one map to another.
2.27	TMDL, page 89, Table 30 and Table 31. For clarity, suggest replacing the word "subwatershed" with "watershed". USGS considers the ten-digit HUC codes listed in the caption and table (1710030105, 1710030103, and 1710030109) a watershed.	The EPA agrees with this comment. The EPA has made this change to the TMDL document.

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2.28	TMDL Page 93. The TMDL should indicate that DEQ has discretion to allow 200-J permitted facilities to access the 0.1 °C HUA. Please update the last paragraph to read: DEQ may allow facilities enrolled under the 200-J permit ~~may~~ to utilize the 0.1 °C HUA provided to NPDES point sources and individual facility wasteload allocations ~~shall be~~ calculated according to Equation 2 incorporating the 30:1 dilution for variable Q_R as required by the 200-J permit. If an additional HUA allowance is needed, DEQ may allow facilities to ~~may~~ access a portion of the reserve capacity per ODEQ procedures and approval.	The EPA finds that the TMDL assignment of the HUA to NPDES permittees, including 200-J permitted facilities, provides an allowable increased thermal loading of 0.1 °C (Tables 32 and 33). Based on analyses in the TMDL, 200-J facilities have the potential to increase in-stream temperatures and a 0.1 °C HUA helps to mitigate the risk of immediate non-compliance for these facilities. The EPA made a change to the TMDL document to highlight that access to HUA reserve capacity is per DEQ approval.
2.29	TMDL Page 95. The TMDL should indicate that DEQ has discretion to allow 300-J permitted facilities to access the 0.1 °C HUA. Please update paragraph two to read: DEQ may allow facilities enrolled under the 300-J general permit ~~also have the opportunity to~~ select Equation 4 directly incorporated into the permit, as described above for individual NPDES permits, for the wasteload allocation to be implemented as a daily flow-based allocation in their permit.	The EPA finds that consistent with other Oregon DEQ temperature TMDLs, 300-J enrollees have the opportunity for Equation 4 to be incorporated into their permit and utilize the regulatory flexibility of daily flow-based permit limits.
2.30	TMDL page 96. Table 34. Suggest adding the 7Q10 and applicable temperature criteria into the table (similar to Table 29) to demonstrate how the loads for each AU were calculated using Equation 5.	The EPA does not agree that this change should be made. Equation 5 and associated text provide satisfactory information regarding load allocation calculations. Nonessential edits to the tables were not made at this late stage of the project.
2.31	TMDL page 99, fifth paragraph. The equation number is missing from the text in two locations in this paragraph. Should say "Equation 7 may also be used to…".	The EPA agrees and has revised this paragraph in the TMDL document.
2.32	TMDL page 126, Comprehensive Wasteload and Load Allocation Assessment Section. The following sentence is not clear due to one or more typos/inaccurate words: The scenario employes linked modes from both North and South Umpqua rivers to ensure cumulative downstream impacts on the Umpqua does	The EPA agrees and has corrected the typo.

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	not exceed the 0.3 °C HUA. Should it be "employed linked models"?	
2.33	TMDL Page 129, Reasonable Assurance Section. The inclusion of 401 certification conditions is unclear/imprecise, as DEQ's implementation could include issuance of 401 certifications that are not related to dams or reservoirs. Suggest revising the following sentence: "Implementation of this TMDL will depend on development of implementation plans by the State of Oregon and DMAs, ~~dam~~ requirements put in place through established in 401 certification conditions, NPDES permits, and international efforts addressing climate change."	The EPA agrees and made the suggested change to the sentence.
2.34	TMDL page 129. Progress towards Implementing heading. Suggest removing the third bullet point and modifying the first bullet point to: These DMAs submit annual TMDL implementation reports that describe progress towards meeting their five-year plans.	The EPA agrees; this change was made to the TMDL document.
2.35	TMDL Appendix E. Please fix broken references in the various equations.	The EPA agrees and broken references and links have been addressed.
2.36	TMDL Appendix G. Remove or update plots for nonsense scenarios or scenario comparisons that are not needed. For example, Jackson Creek does not have point sources but there are plots showing results of a No Point source scenario (Figure 4-2, PDF page 441) and a scenario comparison of No Point Sources Minus Background (Figure 4-6, PDF page 443). The comparison should probably be CCC minus Background. There are similar examples for other rivers.	The EPA agrees and model reports in Appendix G have been revised to clarify scenario comparisons and improve results communication.
2.37	DEQ appreciates EPA's extensive work on this TMDL, and the collaborative work undertaken to meet the court-ordered deadlines for the Temperature TMDL Replacement Project. We value the opportunity to work alongside EPA and look forward to your continued coordination as you finalize the TMDL. If you	Comment noted, thank you.

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	would like to discuss these comments, you can reach me at steve.mrazik@deq.oregon.gov or (503) 229-5379.	
	Oregon Department of Fish and Wildlife	
3.1	The Oregon Department of Fish and Wildlife (ODFW) appreciates the opportunity to provide comment on the Environmental Protection Agency's (USEPA's) draft Umpqua River Basin Temperature TMDL. ODFW's mission is "to protect and enhance Oregon's fish and wildlife and their habitats for use and enjoyment by present and future generations." Water quality is an important component of habitat for fish and wildlife and ODFW supports efforts to maintain and enhance water quality conditions in Oregon's waterways. Through adoption of its climate and ocean change policy in 2020, the agency recognized that Oregon is already experiencing impacts from changing climate and ocean conditions, including high water temperatures which are a major threat to self-sustaining populations of vulnerable native species and can severely limit population viability for Oregon's native anadromous and cold-water species. The Oregon Department of Fish and Wildlife (ODFW) offers the following comments and suggestions on the draft Umpqua River Basin Temperature TMDL.	Comment noted.
3.2	**Section 4.1.3 Minimum Duties Provision** Section 4.1.3 identifies the minimum duties provision (OAR 340-041-0028(12)(a)) of the temperature water quality standard which states that anthropogenic sources are only responsible for controlling the thermal effects of their own discharge or activity in accordance with their overall heat contribution. The minimum duties provision states that there is no duty for anthropogenic sources to reduce heating of the waters of the state below their	Comment noted. The EPA agrees that the TMDL document should broaden the language in this section. The EPA changed language in Section 4.1.3 of the TMDL document to include both 300 J enrollees and individual NPDES permit holders.

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	natural condition. As stated in the TMDL on page 95, "*ODEQ or the appropriate permitting authority, may utilize the state's minimum duties provision (OAR 340-041-0028(12)(a)) and associated procedures, as applicable, when implementing wasteload allocations for facilities enrolled under the 300-J general permit.*" ODFW recommends that EPA broaden the language to include individual permits as well in the case the Rock Creek Fish Hatchery would require an individual permit. The Willamette Subbasins Temperature TMDL specified that "*For point sources, DEQ is implementing the minimum duties provision if a facility operation meets acceptable operation and design requirements. The facility must be operated as a "flow through" facility where intake water moves through the facility and is not processed as part of an industrial or wastewater treatment operation. If a facility mixes the intake water with other wastewater, or as a method to cool equipment, DEQ considers the thermal effects of this operation to be part of the facility's own activity, and the minimum duties provision does not apply. The intake water must also be returned to the same stream where the intake is located. If the water is not returned to the same stream the thermal effects do not originate from the receiving stream and therefore are considered as part of the facilities own discharge."* During the summer months, intake water from the Rock Creek Fish Hatchery is combined from points of diversion on both Rock Creek and the North Umpqua River. Since North Umpqua River temperatures are generally cooler than Rock Creek in the summer, Rock Creek receives added benefit from cooler hatchery discharges when intake flows are mixed. Given that a proportion of the water discharged into Rock Creek originates in Rock Creek, ODFW encourages EPA to work with DEQ during development of the	The EPA agrees with the comment that it should work with ODEQ on the upcoming WQMP. The EPA has discussed the anticipated revised Umpqua Basin WQMP with Oregon DEQ and intends to participate in the WQMP development process.

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	Water Quality Management Plan to implement the minimum duties provision for the Rock Creek Fish Hatchery.	
3.3	**Section 7.0 Source Assessment** The source assessment (Section 7.0) that was performed for the TMDL identifies the critical condition for waterbodies within the Umpqua River Basin with NPDES permitted point sources. Table 22 and 25 represent "worst case scenarios" for waterbody temperature impairments, i.e. maximum exceedance of temperature criteria and 7Q10 low flows; the tables do not represent observed thermal impact. ODFW encourages USEPA to clarify that the source assessment is a conservative look at the most critical condition in each waterbody and does not represent facilities' current thermal loads.	EPA finds that Table 22 and 25 in Section 7 are sufficiently clear. Section 7 of the TMDL assesses the maximum excess thermal loading to ensure comprehensive analyses and that allocations will be sufficient to attain water quality standards and protect beneficial uses. The text and table headings in Section 7 make clear that load quantification is representative of maximum excess thermal load.
3.4	Figures 47 and 48 in Section 7.1.5 illustrate current and target shade conditions for modeled reaches in the Umpqua basin. ODFW suggests additional clarification on how the maps are different, as no discernable difference is detectable.	EPA agrees and the maps have been corrected. There was an issue when the symbology was copied from one map to another.
3.5	**Overall Comment** Data solicitation for the draft Umpqua River Basin TMDL took place in July-October of 2020, and data from 2008-2017 represent current conditions in the TMDL. Drastic changes in stream temperature have occurred in the Umpqua basin since the Archie Creek fire in 2020 and subsequent fires in the unburned portions of the watershed. This creates an inaccurate picture of current conditions and the amount of time that may be needed to return to a pre-burn condition, let alone a restored condition. More recent temperature data are available and ODFW encourages EPA to utilize it when refining and finalizing the TMDL document. ODFW urges EPA to expand on the effects of wildfire on stream temperatures in the basin and adjust timelines for restoration accordingly.	The EPA agrees that wildfire is a significant event that destroys riparian vegetation and has an impact on stream temperature. TMDL Section 7.1.4 describes the removal of riparian vegetation as a source of increased thermal loading, although the section does not discuss causes of riparian removal. The TMDL documents do not include timelines for restoration. Restoration activities would take place as part of TMDL implementation, which will be directed by Oregon DEQ. The time period of in-stream water quality data used to characterize current conditions, seasonal variation, and critical conditions was related to the availability of data at various locations across the basin, and the most recent readily available data was used. In many cases data collected as recent

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	ODFW supports a continued collaborative approach with EPA and DEQ to continue protecting Oregon's aquatic resources as efficiently and effectively as possible.	as 2022 was included in water quality evaluations; however, data was not excluded from analysis based on age. Data was obtained from sources such as, but not limited to, ODEQ water quality monitoring programs, monitoring conducted by other state and or federal agencies, and regulatory programs (e.g. discharger monitoring reports). Timelines for implementation actions and/or riparian restoration will be addressed by Oregon DEQ as part of TMDL implementation.
	Oregon Forest Industries Council	
4.1	This comment letter is being submitted in response to the publication of the Environmental Protection Agency's (EPA's) Draft Umpqua River Basin TMDL for Temperature (the Umpqua TMDL), which was noticed for public comment on October 9, 2024. These comments herein are being submitted on behalf of the Oregon Forest Industries Council (OFIC), which represents forestland owners and forest products manufacturers from across the state of Oregon. Together, our members provide for themselves, their families and nearly 60,000 other households via direct employment from our lands and manufacturing facilities. OFIC has been engaged with the Oregon Department of Environmental Quality (DEQ) as a member of the Rulemaking Advisory Committee (RAC) for all three temperature TMDL replacement projects that DEQ has completed (or that are in process) to date. Though EPA's process was notably different, in that it followed federal rulemaking procedures and allowed for less direct stakeholder involvement, we have, to the greatest extent possible, also tracked the present rulemaking, and many of the concerns that we raised with DEQ on their earlier rules apply equally to EPA's draft Umpqua TMDL.	Comment noted.

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	Knowing that the EPA is subject to the same court-ordered deadlines as DEQ has been, and the tight schedule that the agency is hewing to as a result, we wish to be as direct as possible with these comments. We recognize the importance at this stage of development for offering proposed solutions to identified problems rather than just pointing out the problems themselves. To that end, we would like to raise a number of issues of concern that we have with the draft Umpqua TMDL and propose tangible ways that these concerns could be addressed in the final rule.	
4.2	**The Numeric Surrogate Shade Targets by DMA Should Be Removed from the Final Rule** It was surprising to us to see numeric effective shade targets for various Designated Management Agencies (DMAs) reflected in Table 36 of the proposed rule, as this concept was absent from the 2007 rule that had met with EPA's approval, was not the issue of controversy in the lawsuit that led to the statewide temperature TMDL replacement effort, and was also absent from earlier drafts of the Umpqua TMDL shared by EPA during the present rulemaking. Given that DEQ introduced numerical shade targets for each DMA in the revised temperature TMDLs that it has been working on, we think it is therefore likely that DEQ has asked EPA to include something similar in the Umpqua TMDL. We believe that this is problematic for three primary reasons.	Comment noted. The approach of using shade targets as the surrogate measure to address nonpoint source thermal loading due to removal of riparian areas was included in the 2006 TMDL. However, the specific modeled shade data in the 2006 TMDL was not spatially averaged by designated management agency (DMA) as it is in Table 37 of the current Umpqua Basin Temperature TMDL document. Likewise, the EPA made its intention to employ shade targets in the 2025 Umpqua Basin Temperature TMDL Project clear in three public webinar presentations (April 23, 2024, July 23, 2024, October 29, 2024). The approach to average shade targets by DMA is also consistent with other recent ODEQ Temperature TMDLs. Please see responses to specific comments below.
4.3	**Numeric Shade Targets Effectively Treat Nonpoint Sources as Point Sources**	The EPA disagrees with the comment that it has dealt with nonpoint sources of pollution inappropriately. The TMDL document (Section 9) assigns allocations to nonpoint sources of pollution consistent with 40 CFR 130.2 (g) and 130.7(c).

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	The Clean Water Act (CWA) maintains a clear distinction between the regulation of point sources and nonpoint sources for purposes of allocating loading for waters that are impaired as to a given water quality criterion. Point sources that are required to operate under NPDES permits (whether individual or general) are subject to mandatory, enforceable effluent limitations that are meant to ensure that these sources do not exceed the wasteload allocations assigned to them. For point sources, the analysis is simple: discharges must meet numeric effluent limits in order to be in compliance with the Act. For nonpoint sources, on the other hand, a considerable amount of flexibility is provided by the Act for demonstrating compliance and achieving the load allocations written into a TMDL. However, by assigning an effective shade target to each DMA authorized by DEQ to implement the TMDL, DEQ is essentially treating each DMA as a single point source, merely swapping in a numeric shade measurement for the numeric effluent limits that would be imposed on a permitted point source. There is a clear reason that the CWA distinguishes between point and nonpoint sources: the principles that apply to one simply do not fit the other. This is especially true when dealing with a water quality standard such as temperature. There are myriad factors that impact the temperature of water on the landscape (a fact reflected by the complexity built into the *Heat Source* model used by EPA), and that complexity means that a single surrogate measure, such as shade, effects different waterbodies in different ways depending on a host of attendant factors. The draft rule ignores this, and essentially treats shade the same way as it treats effluent from a single, discreet conveyance.	Section 9.1.3 provides load allocations to anthropogenic nonpoint sources according to Equation 6. The lack of riparian streamside vegetation is identified as a source of thermal loading and receives load allocations according to Equation 6. Section 9.1.5 of the TMDL document, provides surrogate measures to represent the TMDL load allocations. The surrogate measure for riparian/streamside vegetation is effective shade. Effective shade provides a surrogate for the amount of solar loading that will attain the HUA and load allocations for entities managing streamside vegetation. Effective shade can be easily measured in the field and is simpler to monitor as compared to a precise kilocalorie daily thermal load. This approach of using surrogate measures to represent load allocations provides flexibility and functionality for nonpoint source responsible parties to achieve the goals of the TMDL when working with state programs to implement the TMDL. This approach is not analogous to effluent limits in an NPDES permit. Moreover, the TMDL document does not dictate the manner of implementation for nonpoint source load allocations and associated surrogate measures. The TMDL document appropriately quantifies pollutant sources and specifies necessary load reductions and responsible parties may employ various strategies to achieve load allocations, consistent with state implementation programs. Section 4, entitled Problem Identification, of the TMDL document and Figure 10 provide background information on the sources, factors, and pathways in which temperature can

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		cause water quality impacts. The sources presented in Figure 10 are further characterized and quantified in the TMDL. Entities with streamside vegetation management are responsible for the assigned load allocation and associated shade target surrogate measure and are distinctly not responsible for other factors that may influence stream temperatures. Finally, the TMDL does not rely on a single surrogate measure to address multiple sources; it employes three surrogate measures to represent load allocations for three nonpoint source categories and wasteload allocations for numerous point sources. The approach summarized above for nonpoint source load allocations is meaningfully different than the approach for point source wasteload allocation. Notably the wasteload allocations are assigned to discrete discharges as thermal loads in the units of kilocalories/day. See section 9.0 of the TMDL document. For further discussion on these topics, see response to comment 4.4
4.4	**EPA Does Not Have Statutory Authority to Regulate Nonpoint Sources in This Manner** This raises a second issue with these numeric shade targets. Even assuming that the amount of effective shade were in all instances directly correlated to the temperature of a waterbody (which is not the case), nonpoint sources are not regulated under the federal CWA and any enforcement of load allocations	The TMDL document (Section 9) assigns allocations to nonpoint sources of pollution consistent with EPA regulations (40 CFR §§ 130.2 (g), (i) and 130.7(c)). Although the EPA is issuing this TMDL project, Oregon DEQ will be primarily responsible for implementation of both wasteload and load allocations consistent with state authorities. EPA is not regulating nonpoint sources in this or any TMDL project nor is it circumventing any requirements of the Clean Water Act.

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	for point sources may only occur under state law. See *Pronsolino v. Nastri*, 291 F.3d 1123, 1140. However, if, as we assert [sic?], these DMA shade targets effectively treat each DMA as a point source (subject to numeric shade targets rather than effluent limits) then EPA is, by this rule, regulating nonpoint source load allocations in a manner that exceeds its statutory authority. This reading of the DMA numeric shade targets is further supported by DEQ's statements during development of the Willamette Subbasin Temperature TMDL that such shade targets are regulatory in nature. Even though EPA is conducting this rulemaking at the behest of the DEQ, it is our contention that it is operating pursuant to the federal CWA, and is therefore subject to the limitations placed on the agency therein. That DEQ may take a certain action under state law authorities does not mean that EPA may circumvent the legal limitations outlined in the CWA.	In *Pronsolino v. Nastri*, the Ninth Circuit Court of Appeals determined that section 303(d) TMDL requirements applied even for waters with no point sources of pollution, see *Pronsolino* at 1126, which included assigning load allocations for non-point pollution sources. As in the Garcia River TMDL at issue in *Pronsolino*, the EPA acknowledges that "implementation and monitoring are state responsibilities" and "for this reason, the EPA did not include implementation or monitoring plans within the TMDL (document)." *Prosolino* at 1140. While the TMDL document does include shade targets, these targets are included to provide flexibility and functionality and responsible parties may employ various strategies to implement the targets, consistent with state implementation programs. As in the Garcia River TMDL, this TMDL Project does not "treat each DMA as a point source." Regarding the commenter's assertion that DMA shade targets are wasteload allocations and are otherwise treated like point sources, see response to comment 4.3.
4.5	**Questionable Assumptions in Development of the Shade Targets Call for Removal** Finally, we have serious concerns with some of the assumptions that are built into EPA's shade model, which concerns, if validated, would cast doubt on what "restored conditions" look like and therefore what an appropriate shade target would be, particularly on forested landscapes. Of particular note, we are concerned with the natural disturbance parameters that are built into EPA's model – both with regard to the amount and distribution of natural disturbance that would be expected	The EPA disagrees with the statement that "faulty assumptions" were used when modeling natural disturbance. The models employed in this project are technically sound and suitable for TMDL analyses. The scenarios are effectively constructed to characterize temperature impacts under a variety of conditions during the simulation period and inform decision making. EPA disagrees that there is inadequate information on how the TMDL developed effective shade targets. The Heat Source models were used to calculate shade targets. The effective shade target is the arithmetic mean of effective shade values at all model nodes assigned to each

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	under "restored" conditions on the forested landscape. We will outline these concerns in more detail, below. For now, suffice it to say that, if we are correct and EPA has used faulty assumptions regarding natural disturbance impacting streamside vegetation (and therefore shade), then the DMA-specific shade targets that EPA has included likely do not accurately reflect system potential vegetation and effective shade in a "restored" forest condition. In view of these uncertainties and the other points raised, above, we would ask EPA to remove this table and not include DMA-specific shade targets in the final rule.	organisation/agency (TMDL Equation 7). See Appendix G and Appendix H for documentation of model configuration and scenario results. Please see response to comments 4.7 and 4.8 below.
4.6	**If Numeric Shade Targets are Included in the Final Rule, EPA's Modeling Parameters Should Be Clarified and the Target for Oregon Department of Forestry-Regulated Lands Should be Decreased** As already stated, we have concerns regarding what we perceive to be faulty assumptions baked into EPA's shade model, particularly with how natural disturbance in a "restored" condition has been modeled. We say "perceive," because it is not entirely clear from the documentation accompanying the rule exactly how restored conditions were modeled to arrive at the included effective shade targets, which leads to our first request.	Comment noted, for discussion on this topic see response to comments 4.7 and 4.8.
4.7	**EPA Should Clarify How It Modeled Certain Parameters** At the outset, we request that EPA clearly explain how natural disturbance was incorporated into its restored shade condition model used to develop shade targets for the modeled streams.	The EPA agrees to add additional information in response to this request and has added the 2006 Umpqua Basin Temperature TMDL Appendix 2 as Appendix H in this 2025 Umpqua Basin Temperature TMDL document. This appendix provides information on how natural disturbance was previously modeled. This TMDL project relied on previous

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	The draft Umpqua TMDL discusses natural disturbance in the context of effective shade curves, noting that expected natural disturbance can be used to justify the use of a lower effective shade curve (e.g. "Mixed" instead of "Conifer), and notes that such disturbance is one of several factors that can prevent effective shade from reaching targets. However, the draft does not discuss how natural disturbance factors were incorporated into the DMA-specific shade targets. Therefore, we can only assume that the same approach that was used for the 2006 temperature TMDL was used for the updated draft TMDL. The 2006 TMDL used a range of 0.25-2% disturbance per year, assigned randomly across the landscape, and then simulated 100 years of disturbance by assigning this disturbance factor in each year and replicating that 100 times. 10 different versions of random disturbance were developed and run in Heat Source, and the average of the 10 were used to represent natural thermal potential conditions. We request clarification on whether this was also done for this updated TMDL to develop the Shade targets. If natural disturbance was simply not included in EPA's analysis, we request that EPA modify its analysis to include the effects of natural disturbance.	analyses from the 2006 Umpqua Basin Temperature and carried the approach forward to these TMDLs. The EPA incorporated estimates of natural disturbance frequency and severity into the TMDL analysis. Specifically, a range of 0.25-2.0% per year mixed severity natural disturbance per year was used in the simulations. Please see response to comment 4.8 for additional details on the modeling approach.
4.8	**EPA has Like Modeled for Too Little Disturbance Under "Restored" Conditions** Assuming that EPA did simply use the disturbance data from the 2006 TMDL, one of the problems with replicating this approach for the present rulemaking is that it does not update the model with data regarding the frequency, distribution, and severity of wildfire (which is the single biggest sources of natural	The EPA agrees that evaluating disturbance is an important consideration in this TMDL project but disagrees with the specific approach endorsed in the comment. The intent of adding estimates of natural disturbance into restored shade conditions was to broadly capture the effect of natural disturbance on stream shade conditions at the basin scale, and subsequently its relative impact on stream

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	disturbance) in the years since 2005. For example, the Archie Creek fire in 2020 was the largest wildfire in the history of Douglas County (which covers almost all of the Umpqua Basin), and in addition to Archie Creek, the overall frequency of fires in Douglas County has increased since the early 2000s, as reflected in Figure 1, below. EPA should evaluate data regarding wildfire frequency from the past twenty years and update the evaluation of natural disturbance, accordingly. We would recommend applying natural disturbance to at least 35% of the model nodes, distributed contiguously to mimic the actual effects of fire. This 35% figure is based on Teensma et. al (1991), which found that at least 35%, and probably more, of the Oregon Coast Range area mapped for the study had been recently burned. This figure is further supported by the findings in a 1902 USGS survey that similarly found over 33% of the forested land in Oregon west of the Cascade crest existed at that time in a recently burned-over state.	temperature conditions. This effort was not intended to determine the site-specific impact from a particular natural disturbance event due to the highly stochastic/random nature, both spatially and temporally, of natural disturbance events. The current method applied an annual disturbance rate of 0.25% to 2% disturbance, which was shown to result in a large portion (>50%) of the riparian zone exposed to disturbance within a 100-year period (for example, see Figure 38 in Appendix H). Also, this effort included riparian vegetation growth (reestablishment) following the disturbance which will result in "recovery" of these areas over the 100-year assessment period (i.e., thus, it is likely that the magnitude of shade loss illustrated in the Figure 38 example is a function of the length of time since the randomly estimated disturbance). In addition, it was shown in the modeling effort that "total loss" of riparian vegetation in these randomly determined disturbance events over the 100-year period were proportionally similar to that of "mixed severity loss" of riparian vegetation, i.e., the amount of vegetation loss from the particular disturbance events are randomly determined (see Table 2 in Appendix H), as compared to the much greater temperature impact associated with current, primarily anthropogenic, riparian disturbances (for example, see Figures 40 and 41 in Appendix H). Finally, the 2006 assessment also showed that higher levels of natural disturbance can lead to higher likelihood of stream temperature above the numeric criterion (see Figure 37 in Appendix H), leading to no assimilative capacity for these particular streams.

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		Accordingly, the modeling scenarios included in this analysis are representative of the expected distribution of disturbance events over the 100-year assessment period. The modeling showed that disturbance severity was appropriately accounted for in the assessment scenarios and that the site-specific differences in severity are much less than effects from anthropogenic disturbances. From a long-term perspective (i.e., 100-year assessment period), disturbance frequency is accurately represented on a watershed perspective. EPA finds it is not necessary to revise the model analysis to increase the percentage of disturbance. Regardless, the TMDL Source Assessment (Section 7.1.5) identified and quantified thermal loading due to a lack of riparian vegetation. Consistent with 40 CFR 130.2(g) and 130.7(c) the TMDL project assigns load allocations to this nonpoint source and reductions are needed from this source of thermal loading to attain the TMDLs and restore beneficial uses. However, the TMDL project does not dictate the manner of compliance and responsible parties may employ various strategies to achieve load allocations, as desired. For further discussion on these topics, see response to comment 4.7
4.9	**Disturbance Should Be Distributed Contiguously, Rather Than Through Assignment of a "Disturbed" Condition to Randomly Distributed Model Nodes** As stated above, when modeling natural disturbance, EPA should ensure that disturbance is distributed contiguously rather than by randomly distributed model nodes. Contiguous distribution	The EPA finds that the approach proposed in this comment is not necessarily superior to the approach the EPA adopted in the TMDL project. The timing, location, extent, and severity of natural disturbance events are unpredictable and not necessarily spatially contiguous. The intent of adding estimates of natural disturbance into restored shade conditions was to broadly capture the effect of natural disturbance on stream

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	better mimics the real-world effects of natural disturbance events such as wildfire and will almost certainly yield different results than random distribution (since "disturbed" nodes would not be receiving partial shade from neighboring "undisturbed" nodes). It is not entirely clear if this is how EPA has modeled disturbance, but if not, we would request that the model be re-run with this parameter addressed.	shade conditions at the basin scale, and subsequently its relative impact on stream temperature conditions. For discussion on how EPA modeled natural disturbance, see response to comment 4.7 and 4.8
4.10	**EPA Should Clarify the Applicability of Shade Targets to Upstream Reaches of the Steam Network** It is our understanding that the draft Umpqua TMDL shade targets are only meant to apply to land surrounding the Waters of the United States. We would request that EPA include figures mapping land where the shade targets do and do not apply so that DMAs and regulated landowners can clearly identify where the rule is imposing a regulatory target. We would further ask EPA to clarify that shade targets do not apply to those upstream reaches of the stream network that are seasonal or ephemeral in nature, as these reaches do not flow during those portions of the year when temperature exceedances are most likely, and by definition, therefore, do not contribute to such exceedances.	The EPA agrees that clarifying TMDL allocation applications is important but disagrees that the TMDL Project has not already done so. Oregon DEQ is responsible for TMDL implementation and requests for additional maps can be made to Oregon DEQ, as part of the WQMP development process. Any updated shade curves and implementation of shade curve targets is expected to follow a process and methods outlines by ODEQ as part of TMDL implementation. With regard to the second request in this comment, the shade targets in the TMDL document, which are included to provide flexibility and functionality in implementation, do apply to seasonal and/or ephemeral streams. These streams may contribute to excess thermal loading during periods when TMDL allocations apply and even if not flowing can have residual pools that are a refuge for aquatic life. Studies have documented the importance of upstream residual pools in small order Oregon streams on juvenile survival within downstream perennial stream reaches (Wingington et al 2006[1]). Responsible parties may employ various strategies to implement the targets, consistent with state implementation programs.

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		Note, that this EPA established TMDL is not a rule and does not set regulatory targets. [1]Wigington Jr, P. J., et al. "Coho salmon dependence on intermittent streams." *Frontiers in Ecology and the Environment* 4.10 (2006): 513-518.
4.11	The forestry sector in Oregon is committed to contributing to a healthy, stable aquatic ecosystem and in taking steps to ensure that its activities are being carried in a manner that is responsible, sustainable, and protective of the environment. We firmly believe that our current suite of state forest laws ensure this outcome, and that any changes needed to bring waters impaired for temperature into compliance do not implicate the state's forested landscape. It is our hope that EPA will carefully consider the comments and suggestions that we have articulated in this letter, that it will remove the DMA-specific shade targets, and that it will address any identified deficiencies in how restored conditions are modeled, specifically with regard to temperature.	Comment noted. For discussion on these topics, see response to comments 4.7 and 4.8
	PacifiCorp	
5.1	PacifiCorp owns and operates the North Umpqua Hydroelectric Project (Project) on the North Umpqua River and two of its tributaries, Clearwater River and Fish Creek, in the Umpqua River Basin. On October 9, 2024, the United States Environmental Protection Agency (EPA) issued a draft Umpqua River Basin Total Maximum Daily Load for Temperature (Draft TMDL) for public comment. PacifiCorp respectfully provides the following comments on the Draft TMDL for EPA's consideration.	Comment noted.
5.2	**Overview of the Project**	Comment noted.

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	To provide context for PacifiCorp's comments, this section provides an overview of the Project and its operations. PacifiCorp operates the Project pursuant to a Federal Energy Regulatory Commission (FERC) license issued on November 18, 2003 for a term of 35 years (License). The License includes Clean Water Act Section 401 Certification Conditions (Certification Conditions) issued by the Oregon Department of Environmental Quality (DEQ). The Project includes eight developments, each with a dam and powerplant. From upstream to downstream on the North Umpqua River, these developments include Lemolo No. 1, Lemolo No. 2, Toketee, Slide Creek, and Soda Springs. These five developments span approximately 26.3 river miles from the upstream extent of Lemolo Reservoir at River Mile (RM) 95.6 to Soda Springs powerplant at RM 69.3. Two developments, Clearwater Nos. 1 and 2, are on the Clearwater River, which is tributary to the North Umpqua immediately downstream of Toketee Dam. One development, Fish Creek, is on Fish Creek, which is tributary to the North Umpqua River approximately 1.4 river miles downstream of Slide Creek Dam. Three major reservoirs, Lemolo Reservoir, Toketee Reservoir, and Soda Springs Reservoir, provide water storage. Fish passage facilities at Soda Springs Dam provide access for migratory fish to the North Umpqua River upstream of Soda Springs Dam and to Fish Creek. Slide Creek Dam is the current barrier to upstream anadromous fish passage in the North Umpqua River. Fish passage facilities, including a fish ladder and fish screens on the waterway intake, at Fish Creek Dam provide	

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	access for fish in Fish Creek, but there are two natural, partial and/or seasonal upstream passage obstacles For fish downstream of this dam: an approximately 6-foot-high waterfall at RM 1.8 and a series of major cascades at RM 3.2. Pursuant to Condition 3.a. of the Certification Conditions, PacifiCorp provides minimum in-stream flows to bypassed reaches downstream of Project diversions pursuant to the schedule and flow volumes identified in the Settlement Agreement finalized on June 13, 2001 between PacifiCorp and seven federal and state agencies, including DEQ. PacifiCorp ceases diversion if inflows to a dam are less than the minimum in-stream flow required downstream of the dam. This is typically the case each year at the Fish Creek development, which, on average, does not divert water from Fish Creek from June through December due to incoming flows that are less than the minimum in-stream flow of 130 cubic feet per second (cfs) in the bypassed reach downstream of the dam.	
5.3	**Application of the Protecting Cold Water Criterion, Draft TMDL section 4.1.6 pp. 45-46** As stated on page 45 of the Draft TMDL, the protecting cold water temperature criterion applies where summer seven-day-average maximum ambient temperatures "upstream of reservoirs [are] lower than the biologically-based numeric criteria and where salmon or steelhead trout are present" (Emphasis added; see OAR 340-041-0028(11)(a)). Based on a review of ambient temperature data, the Draft TMDL includes a "preliminary" determination that this criterion "is potentially applicable in the upper North Umpqua basin in the area of the PacifiCorp Hydroelectric Project (Lemolo Dam, Toketee Dam,	The EPA disagrees that the preliminary assessment should be revised. The EPA conducted a preliminary assessment (Table 16) to evaluate the applicability of the protecting cold water criterion (OAR 340-041-0028(11)). This assessment was done based on available temperature data and the criteria component considering the presence/absence of fish was not included in this preliminary assessment. The EPA has considered this comment's description of restrictions to fish movement and potential fish population locations; however, the general descriptions provided are not sufficient for the EPA to make a full determination regarding the application of the protecting cold water criterion. Technically suitable data/information and associated meta data on fish populations

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	Slide Creek Dam, Soda Springs Dam and Stump Lake Dam)." No anadromous salmon or steelhead are present, however, upstream of Toketee Dam, Slide Creek Dam, or Stump Lake Dam (i.e., Clearwater No. 1 Dam). Resident, non-native kokanee are in the reservoir upstream of Lemolo Dam, but Oregon's water quality standards define "salmon" as the anadromous salmonids "chinook, chum, coho, sockeye and pink salmon." OAR 340-041-0002(51). There may also potentially be salmon and steelhead in Fish Creek upstream and downstream of Fish Creek Dam, although the summer ambient temperatures in Fish Creek exceed the applicable biologically based temperature criteria. Accordingly, the protecting cold-water criterion could potentially apply within the Project area only in the North Umpqua River downstream of Slide Creek Dam, but not in the North Umpqua River upstream of Slide Creek Dam, in Fish Creek, or in the Clearwater River. The preliminary assessment of the application of the criterion in Table 16 on Page 46 of the Draft TMDL should be revised to state that the criterion also does not apply in the rows for "Stump Lake/Clear[water] River", "Lemolo/North Umpqua," Toketee/North Umpqua," and "Toketee/Clearwater R[iver]."	is needed. Therefore, the EPA did not make changes to Table 16. However, as part of TMDL implementation, Oregon DEQ will verify the application of the criterion.
5.4	**Clarification for Draft TMDL Table 24, p. 69** In Table 24 on Page 69 of the Draft TMDL, the first column of the third row should be "PacifiCorp, Fish Creek Plant," and the Receiving Water for "PacifiCorp, Lemolo Plant #2" should be "North Umpqua River."	The EPA agrees with this comment and made relevant edits to Table 24.
5.5	**Inappropriate Comparisons to the Temperature Effects of Dam Operations in the Willamette Basin, Draft TMDL § 7.1.4, p. 27**	The EPA has satisfactorily characterized and quantified thermal loading impacts due to dams in the Umpqua Basin. The EPA disagrees that the TMDL document insufficiently considers the range of thermal impacts from different dam types. Because

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	Page 72 of the Draft TMDL inappropriately relies on studies of the temperature effects of dam and reservoir operations in the Willamette Basin to draw conclusions regarding the temperature effects of dam and reservoir operations in the Umpqua River Basin, and particularly the Upper North Umpqua River Basin encompassing the Project. The second sentence of the first full paragraph notes "some similar characteristics" between the basins but does not elucidate the characteristics or their applicability to the Umpqua Basin. This same paragraph asserts that "[r]eleases of cold water from lower in the water column results in summer waters that tend to be colder than they would be without dams." PacifiCorp's monitoring data at Lemolo Reservoir is counter to this assertion. Cold water entering Lemolo Reservoir from the North Umpqua River follows bottom contours of the reservoir to the intake for the low-level outlet of the dam, which is approximately 110 feet below the normal maximum water surface elevation of the reservoir. The outlet discharges water to the bypassed reach of the North Umpqua River downstream of the dam. The discharged water in summer is approximately the same temperature as the water entering the reservoir from the North Umpqua River. The Draft TMDL further notes that later in the fall, stored surface waters released downstream "increase warming during a period where, without the presence of the dam, a river would be cooler because of shorter days, cooler air temperatures, and shallower depths." This is unlikely at Lemolo Reservoir, which is the only significantly thermally stratified Project reservoir, as fall weather patterns and wind result in mixing within the water column, and the discharge is still approximately 85 feet below the normal minimum water surface elevation during the winter drawdown. The last paragraph on Page 72 starting with "In the Lower	there are different types of dams in the basin the TMDL Source Assessment Section 7.1.4 describes the potential range of thermal impacts from different dam types. Paragraph two generally describes the types of dams associated with hydroelectric projects. A clarifying sentence has been added that in the Umpqua Basin, hydroelectric dams are located in the North Umpqua subbasin. The next two paragraphs describe large water supply dams and in-channel ponds. Figure 44 and the supporting paragraph text makes clear that the Galesville Dam is the representative dam to illustrate seasonal temperature changes and warming associated with large dams. Finally, the last paragraph describes thermal impacts of in-channel ponds, and this description of thermal impacts is not extrapolated to dams associated with a hydroelectric project. The TMDL source assessment correctly characterizes thermal impacts for different types of dams. Moreover, the source assessment includes a quantification of thermal loading specific to the North Umpqua Hydroelectric Project immediately following the general description of dam impacts. The project was found by the EPA to be responsible for elevated stream temperatures as a result of flow diversions. The no dam model scenario conducted for the 2025 TMDL project indicates that the project dams have a warming effect on river temperatures and the point of maximum impact was 2.9 ^{o}C warming at river km 38.10 (Figure 46).

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	Willamette Basin…" concludes that "Similar stream temperatures changes may be expected in the Umpqua Basin". This statement is not supported for the North Umpqua project reservoirs for the reasons noted above. Of the fourteen dams identified in the Willamette Basin by Rounds (2010; see Table 1) as cited in the Willamette Basin temperature TMDL, ten are greater in height than Lemolo Dam, the tallest dam on the Project, and two of those dams, Detroit and Cougar, are more than four times the height of Lemolo Dam (463 feet and 452 feet, respectively). Only one of the dams identified by Rounds is less than the height of Soda Springs Dam, the second tallest dam on the Project. PacifiCorp requests that the Draft TMDL be revised to remove generalizations regarding the temperature effects of dam and reservoir operations or to provide information regarding the temperature effects of specific dam and reservoir operations within the Umpqua Basin.	
5.6	**Clarification of Project Information, Draft TMDL § 7.1.4, pp. 73-74** The last paragraph of Section 7.1.4 on Page 73 of the Draft TMDL notes that there are 50 dams in the Umpqua Basin, all of which have a dam height of 10 feet or more and store at least 9.2 acre-feet of water. Review of Figure 45 on Page 74 confirms that this statement is intended to include the Project dams, which are identified in the figure. However, several Project dams are less than these thresholds. Lemolo No. 2, Clearwater No. 2, and Fish Creek dams are all small diversion dams with less than 9.2 acre-feet of storage, and Fish Creek Dam is only 6 feet high.	Comment noted. The thresholds used to classify dams in the National Inventory of Dams, Oregon Water Resources Department Dam Inventory dataset does not align with the detailed information on dam height and storage capacity in this comment. The EPA revised the language on page 74 of the TMDL document to more generally describe the dams included in the dataset and presented in Figure 45.

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5.7	**Project Temperature Effects, Draft TMDL §§ 7.1.4, 7.1.7, 9.1.4, 10, pp. 74-75, 80-81, 97-98, 127** Page 74 of the Draft TMDL states that "PacifiCorp's hydroelectric project was found to be responsible for elevated stream temperature," but this statement is based on out-of-date and incomplete data and scenarios. As an initial matter, the Draft TMDL generally understates the minimum bypass reach flows required by the Project's FERC License and Certification Conditions. The minimum bypass reach flows referenced on Draft TMDL Pages 74-75 and shown in Draft TMDL Table 35, Page 98, were the minimum flows for temperature required under the Project's initial Temperature Management Plan. In a letter dated June 6, 2005, DEQ removed the required minimum flows for temperature in June and July for all bypass reaches other than Fish Creek, Slide Creek, and Deer Creek. The License and Certification Conditions, however, require minimum bypass reach flows for fish habitat and other reasons that are greater than or equal to the minimum bypass reach flows now required for temperature, and that, with the exception of the minimum flows for the Lemolo No. 1 bypass in July and the Lemolo No. 2 bypass in June and July, are greater than or equal to those shown in Draft TMDL Table 35flows. See Certification Condition 3.a. (requiring the Project to provide the minimum bypass reach flows specified in the North Umpqua Settlement Agreement). These minimum bypass reach flows are the currently applicable minimum flows for the Project and are shown in Table 1, below. PacifiCorp requests that EPA replace the minimum bypass reach flows in Draft TMDL Table 35 with the following minimum flows in Table 1 and that EPA use these	Comment noted, providing an updated table on the minimum bypass flows was helpful. Table 36 in the TMDL has been corrected to reflect the minimum bypass flows required per Settlement Agreement Section 5.1. The EPA disagrees that the 2006 TMDL model analysis is outdated or incomplete; this analysis is still relevant to characterize the impact of the hydroelectric project on stream temperatures. This model scenario used minimum bypass flows consistent with the June 13, 2001, Settlement Agreement Section 5.1. The EPA used minimum flows of 80 cfs (in 4 reaches) and 275 cfs (in 1 reach) to model the North Umpqua from Lemolo Reservior to the confluence with Steamboat Creek. Moreover, the no dam model scenario completed for this 2025 TMDL project also demonstrated a warming effect due to the dam complex (Figure 46). The flows in Table 35 of the draft TMDL document were not the flows used in 2006 model scenarios or 2025 model scenarios. The text in TMDL document section 7.1.4 has been revised to clarify that minimum bypass flows used in the model scenario were acquired from the 2001 Settlement Agreement. In developing the draft TMDL, requirements per the settlement agreement were mistakenly equated with requirements in the § 401 certification. As a result, Table 35 included erroneous information. However, this did not impact model scenarios. In response to this comment, and upon confirmation with Oregon DEQ, the EPA has corrected Table 36 (formerly Table 35).

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	flows in its modelling and analysis of Project temperature impacts.	
5.8	The first full paragraph on Page 75 of the Draft TMDL states that "[a]lthough, the stream temperature warming [from the dams] is below the applicable criteria for all reaches upstream of the Soda Springs powerhouse…[i]n the model reach below the Soda Springs powerhouse, stream temperatures greater than the spawning criterion are observed downstream in the North Umpqua River" with a point of maximum impact (POMI) at RM 23.7 (River Kilometer (RKM) 38.10) and increases of 2.9 °C observed in early September. PacifiCorp has the following concerns in the modeling approach used to derive this result in Appendix G, which generally overestimates the Project's temperature impacts:	Comment noted, please see responses to specific comments below. For discussion on these topics, see response to comments 5.9, 5.10, 5.11, 5.12, 5.14, 5.16, and 5.17.
5.9	This analysis did not consider PacifiCorp's cessation of diversion at Fish Creek in September. Non-operational (i.e., non-anthropogenic) thermal loading in Fish Creek occurs without Project diversions in September and results in warming of the North Umpqua River downstream of Slide Creek Dam.	The EPA disagrees that the model inappropriately addressed Fish Creek flows. The North Umpqua River Model 4 (Slide Powerhouse to Soda Springs Reservoir) includes Fish Creek as a tributary and uses gaged flows and observed water temperatures to configure the model boundaries. The impact of the dams in the model no dams scenario is based on the removal of the structures in the North Umpqua River mainstem only and not based on changes to tributary flows. Fish Creek flows were not adjusted when evaluating dam impacts. The Fish Creek flows represent observed flows used in the calibration.

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		Fish Creek flows were represented in the model using flows from USGS gage number 14315950 (Fish Creek above Slipper Creek near Toketee Falls) scaled to the mouth (see Section 6.3.4 in the modeling report). Observed hourly water temperatures at the mouth of Fish Creek (monitoring site UmpNF-039) were used for water temperature inputs to North Umpqua Model 4. Any changes due to project diversion on Fish Creek, for the existing condition on North Umpqua Model 4, would be reflected at the downstream gage North Umpqua below Slide Creek Dam (USGS 14315700), which was used to configure the upstream boundary for Model 4 for calibration with dams present. This gage inherently encompasses flows due to project diversion/non diversion on Fish Creek. For the model no dams scenario, there is no Fish Creek diversion incorporated, and free flowing conditions are simulated for the North Umpqua River.
5.10	The analysis is based on a single year and considers only the maximum difference between the no dams and the calibrated current conditions scenarios. The maximum difference is reported to be on 8/7/2009, which is within the first 7 days of the simulation. It is unclear how the uncertainty in initial conditions for water levels and temperatures are reconciled, and how those could have affected the calculation of the seven-day average daily maximum (7DADM) based on the first 7 days of simulated temperatures.	The EPA disagrees that the model results are substantially impacted by initial conditions. The TMDL analysis includes a no dams scenario to evaluate the impact of the dams on water quality. The EPA applies the maximum temperature difference between the no dams scenario and current conditions scenario to characterize the full scope of potential temperature changes and ensure that the TMDL will serve to restore and protect beneficial uses under the comprehensive range of potential impacts. The model results are not substantially impacted by initial conditions because the model is showing a consistent response to the observed air temperature and boundary conditions. At locations where there are observed data at the start of the modeling period, the model is able to capture

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		observed hourly temperature data and daily maximum temperatures well. All models have been calibrated to stream temperatures with an RMSE of less than 1 ^{0}C. The model performed satisfactorily at the start of the model period and the calculated 7DADM is reliable.
5.11	The current conditions model appears to underestimate temperatures in the reaches below Soda Springs (North Umpqua Model 5 calibration Figures 6-64 and 6-65 in Appendix G). The largest extent of underprediction occurs between the confluence with Steamboat Creek (RKM 85) and North Umpqua River at Idleyld Park (RKM 57.9). The identified point of maximum impact (POMI) is approximately 45.6 river miles downstream of Soda Springs powerplant (RKM 38.1) and includes the reaches where the model underestimates the observed temperatures. This section includes several major tributaries to the North Umpqua River, including Steamboat Creek, Rock Creek, and Little River in addition to downstream point sources (e.g., Glide-Idleyld Sanitary District). The model does not appear to be adequately capturing the thermal loads and heat fluxes within this section. Long-term temperature observations show that the river gains substantial thermal load just in the approximately 2 mile stretch between the Soda Springs (United States Geological Survey (USGS) No. 14316460; RM 69.2) and Copeland (USGS No. 14316500; RM 67.2) gage sites, which are both downstream of Soda Springs powerplant, according to a comparison of the long-term monitoring records at these sites.	The EPA disagrees with this comment. The North Umpqua model calibration is technically sound and suitable for TMDL analyses. The calibrated North Umpqua model was configured using observed flow and water temperature data from several major tributaries to the North Umpqua River, including Steamboat Creek, Rock Creek, and Little River in addition to a downstream point source (e.g., Glide-Idleyld Sanitary District). The model calibration focused on capturing the daily maximum temperatures well, since the TMDL criteria are based on the seven-day average of daily maximum values (7DADM); emphasis was placed on satisfactorily capturing the daily maximum temperature. Typical model calibration statistics of mean error (ME), mean absolute error (MAE) and root mean square error (RMSE) were used for this project. Model performance was based on a narrative list of model acceptance criteria identified in the North Umpqua Modeling Quality Assurance Project Plan (DEQ, 2022); these criteria were used when evaluating the model calibration. Based on visual evaluation and calculated statistics the models meet the acceptability criteria. Furthermore, the two identified locations within the 2-mile stretch between Soda Springs and Copeland are also well calibrated (up stream of Boulder Creek (23898-ORDEQ) and above Copeland Creek (14316500)), with a RMSE of 0.22 and

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		0.31 ^{0}C, respectively. As noted in PacifiCorp's comment, there is some underestimation during colder periods, which is also documented in the TMDL Appendix G, Water Quality Model Calibration and Scenario Reports, yet all error statistics were within 1 degree Celsius. Overall, the condition at the downstream reach reflects a balance across all the calibration station locations in the North Umpqua River.
5.12	The North Umpqua Model 2 upstream boundary conditions are not indicative of typical conditions for the Lemolo 2 bypassed reach as measured at USGS No. 14313700 for the model simulation period in 2009. Figure 6-30 in Appendix G identifies an upstream boundary flow of approximately 360 cfs during the period from August 1, 2009 through October 15, 2009 for the North Umpqua Model 2. PacifiCorp was conducting maintenance activities on the Lemolo 2 diversion waterway at that time in 2009 and discharging the full inflow to Lemolo 2 Dam to the bypassed reach below the dam. During typical years that are not subject to maintenance outages, PacifiCorp discharges minimum flows of 80 cfs per Table 1. Therefore, PacifiCorp believes that the modeled condition for the bypassed reach is not reflective of the actual conditions that occur typically within this reach.	The EPA is aware of the maintenance work that was performed during 2009 at the Lemolo 2 diversion, which resulted in discharging the full inflow to Lemolo 2 Dam. However, the 2009 calibration year took advantage of measured water temperature data collected at four separate locations along this modeled reach (stations located upstream, middle, and downstream in the reach). Oregon DEQ conducted a special study in 2009 to collect data that would support model development for the spawning period TMDL. This dataset is the most complete dataset to support model development. We acknowledge that the dam impacts for 2009 may not be representative of a typical year and different impacts may be seen if the model was run for a different year. Yet, the conditions in 2009 better reflect those that would occur with the river flowing fully in the bypass reach and since the calibration condition includes a larger flow in the river, it more closely reflects the no dam scenario. Thus, 2009 likely better reflects the target conditions than an average year. Note that typically once calibrated, a model can be used to simulate a variety of scenarios, which include different flow conditions.
5.13	PacifiCorp notes several apparently conflicting items in the development of the riverine models for Toketee Reservoir and Soda Springs Reservoir in Appendix G as follows:	The EPA agrees that the figures in the draft report were not updated. The graphs in the report do not reflect the revised flows used in the final no dams conditions model. The flows

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	The upstream boundary inflows for the Toketee Reservoir riverine model (Figure 1-11 in the No Dam Scenarios memo) show a nearly constant flow of approximately 12 cubic meters per second (cms). Based on a simple flow routing calculation between Clearwater River inflow (Figure 1-12) and the upstream boundary inflow (Figure 1-11), PacifiCorp does not see a plausible way to get to the downstream flow predicted for the riverine model (Figure 1-15) unless there are other sources and/or sinks represented in the Toketee riverine model. Despite this apparent discrepancy in the flow routing, the downstream end of the hydrograph for the Toketee riverine model (Figure 1-15) more closely resembles the hydrograph farther upstream (Figure 1-8). The upstream boundary condition for the Soda Springs riverine model (Figure 1-18) does not appear to show a run-of- -river condition. Flows would not drop suddenly to the extent indicated in the figure in mid-August if it were a purely riverine condition. Furthermore, it is noted in Section 1.3.2 that there are no tributary inputs, yet the downstream end of the riverine Soda Springs model shows a time varying hydrograph (Figure 1-20) that cannot be explained with the upstream boundary condition without additional sources and/or sinks. If under a riverine condition it can be presumed that flows from the upstream only pass through the riverine segments of Soda Springs, and there are no additional inflows as indicated in the text, then Figure 1-20 seems inconsistent with the upstream boundary condition. EPA should provide an explanation of all the sources and sinks or explain the causes for the apparent	presented in the figures referenced in this comment were the original estimations but were later updated to better represent the no dams condition. However, the TMDL document inadvertently did not update the figures in the draft report to match the model update. The actual model inputs and results are correct, and no changes are necessary. The relevant figures have been replaced in the No Dams Model Setup and Scenarios found in Appendix G. The following figures were updated and can be found in the document: • Figure 1-11. Upstream boundary flows at North Umpqua upstream of Toketee Lake • Figure 1-13. Upstream boundary water temperature at North Umpqua upstream of Toketee Lake • Figure 1-18. Upstream boundary flow at North Umpqua upstream of Soda Springs • Figure 1-19. Upstream boundary water temperature at North Umpqua upstream of Soda Springs.

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	discrepancies noted above and reassess whether these inputs affect the temperatures in any of the riverine simulations.	
5.14	Due to these concerns above, PacifiCorp requests that EPA revise the modeling analyses for the final TMDL to reflect the Project information provided herein, address the discrepancies noted above, and reanalyze the effects of the dams for a time period that is more reflective of typical project operations as authorized under the FERC license.	The EPA does not agree that the modeling analyses need to be revised. As noted above in response 5.13, the EPA has corrected figures in the draft report, and there are no discrepancies in the model inputs and results. The EPA has determined that the North Umpqua model calibration is technically sound and suitable for TMDL analyses, and the scenarios are properly constructed to characterize the temperature impact of dams in the North Umpqua River subbasin during the simulation period. For discussion on these topics, see response to comments 5.8 to 5.13 and TMDL Appendix G.
5.15	In Section 7.1.7 (Modifications to Flow/Discharge) on Page 81 of the Draft TMDL, Table 27 identifies 7DADM temperature increases above the applicable criterion associated with flow modifications. As previously noted, PacifiCorp typically does not divert flow from Fish Creek from June through December. Without temporal values identified for Table 27, PacifiCorp cannot definitively comment on the accuracy of the table. However, PacifiCorp assumes that the table considers the period of maximum stream temperatures (i.e., late-August through early-September), and if this assumption is correct, the purported 1.8 °C of temperature increase in Fish Creek cannot be assigned to flow modification from PacifiCorp's Project, as there is typically no diversion from Fish Creek by the Project during that time frame.	The model results for Fish Creek are provided in Figure 8-7 and Table 8-3 of Appendix G, and this includes the date of maximum impact (July 11). The simulation period was July 8 – 11, 2001. The model developed by ODEQ incorporated the available data for this model simulation period, and that data included a withdrawal at river kilometer 11.2 of 0.658 cubic meters per second (cms). This withdrawal drives the change in temperatures observed when comparing model scenarios. The temperature changes presented in Table 27 are part of the TMDL source assessment and are used to characterize stream conditions and estimated source impacts. They do not have a direct relevance on the load allocations assigned to the North Umpqua Hydroelectric Project. It is possible that the Fish Creek temperature changes due to 2001 flow modifications are not representative of typical conditions. Nevertheless, the model estimates for the impact of the 2001 withdrawals are sound based on available information.

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5.16	Table 27 also identifies flow modification as the source of a 1.4 °C temperature increase in the stream segment from Soda Springs Reservoir downstream to Steamboat Creek, in which the only known diversion is PacifiCorp's Soda Springs Dam. However, as previously noted, there is substantial thermal loading downstream of Project effects as measured between the Soda Springs water quality monitoring station and the Copeland gage, and therefore the 1.4 °C of temperature increase is not solely the effect of flow modifications. Similarly, the 0.14 °C and 0.1 °C temperature changes at RM 23.4 (RK 37.6) and RM 37.9 (RK 61.0), respectively, during the summer and spawning season, respectively, as depicted in Figures 61 and 62 on Page 127 of the Draft TMDL, are beyond the scope and scale of potential Project effects.	This comment misunderstands the objective of the modeling scenarios. When comparing two model scenarios the objective is to only change one variable between the scenarios and thereby characterize the impact associated with that variable. In this case all model inputs except flow modifications were unchanged between the background and natural flow scenarios. This approach incorporates the same external thermal loading and heat budget processes in both scenarios, and therefore any observed warming can be attributed to flow modifications. The analyses presented in Figures 61 and 62 were conducted to evaluate the attainment of the temperature HUA of 0.3 °C provided the North Umpqua Hydroelectric Project. All factors between the scenarios were unchanged except a change in temperature of 0.3 °C at the North Umpqua Project. The observed downstream warming can be attributed to the impact of the assigned HUA. Since the scenario results show that the downstream changes in temperature are less than the allowable increase of 0.3 °C, the entire HUA can be assigned to the North Umpqua Hydroelectric Project.
5.17	Clarification of Draft TMDL Figures 47 and 48, pp. 77-78 Figures 47 and 48 appear to depict the same attribute data despite figure titles identifying current and target shade conditions, respectively.	The EPA has revised these figures. There was an issue when the symbology was copied from one map to another.
5.18	Clarification of Watershed Human Use Allowance Assignments, Draft TMDL Table 30, p. 89 The Lower Fish Creek watershed (12-digit Hydrologic Unit Code 171003010404) should be included in Table 30, which identifies	The EPA has added the Lower Fish Creek watershed to Table 30.

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	the Human Use Allowance assignments associated with dam and reservoir operations of the Project, on Page 89 of the Draft TMDL. Table 30 currently only includes the Upper North Umpqua and Clearwater River subwatersheds, which are not inclusive of the entire Project.	
5.19	Clarification of Monitoring Stations, Draft TMDL App. A, Figure 1 and Table 1, pp. 5-6 There are inaccuracies in Draft TMDL Appendix A, Figure 1 and the corresponding Table 1. The sites identified as Monitoring Stations 3 and 4 on Figure 1 are the North Umpqua River at Soda Springs near Toketee Falls, Oregon (USGS No. 14316460) and North Umpqua River Above Copeland Creek near Toketee Falls, Oregon (USGS No. 14316500) gage sites, respectively. Both of these sites are operated by USGS as funded by and in cooperation with PacifiCorp. However, in Table 1 Map Monitoring Station Numbers 3 and 4 are identified as "USGS-1431650" and "UmpNF-082", respectively. "USGS-14316460" is identified as Map Monitoring Station Number 2 in Table 1, but Monitoring Station 2 on Figure 1 appears to be at the Lake Creek crossing of State Route 138.	The EPA reviewed the GPS coordinates to produce the maps and tables in Appendix A finds that monitoring stations are correctly identified.
5.20	Use of Project Load and Wasteload Allocations, Draft TMDL Table 30, p. 89 Table 30 of the Draft TMDL, Page 89, allocates 0.225 °C and 0.075 °C of the human use allowance (HUA) to the Project's dam and reservoir operations and to NPDES point sources within the Project's subwatersheds, respectively. PacifiCorp requests that the final TMDL clarify that any unused portions of these allocations may be used by the operations within the other allocation, as needed and authorized by DEQ. For example, if	The EPA agrees with the request to provide clarification in this comment. Language has been added to Table 30 to allow the North Umpqua Hydroelectric Project share HUA assignments between source categories.

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	NPDES point sources within the Project's subwatersheds use only 0.05 °C of the HUA, the remaining 0.025 °C of the allocation to NPDES point sources may be used by the Project's dam and reservoir operations. Similarly, if the Project's dam and reservoir operations use only 0.2 °C of the HUA, the remaining 0.025 °C of the allocation may be used by NPDES point sources. Allowing these uses subject to DEQ approval would avoid the need for future TMDL revisions while ensuring that human-caused temperature effects within the Project area remain within the 0.3 °C HUA.	
	Roseburg Urban Sanitary Authority	
6.1	Thank you for the opportunity to provide comments on the draft Umpqua River Basin Temperature TMDL (Umpqua Temperature TMDL). The Roseburg Urban Sanitary Authority (RUSA) operates a wastewater treatment plant (WWTP) located along the South Umpqua River at 3485 West Goedeck Road, Roseburg, OR 97470. Treated water from the RUSA WWTP is discharged to the South Umpqua River at River Mile 7.65. RUSA is a municipal corporation that serves as an independent sanitary authority with an elected government board. RUSA has a service population of 40,000 customers with a median income of approximately $50,297 in the Roseburg metropolitan area encompassing the Roseburg Urban Growth Boundary.	Comment noted.
6.2	To address water quality impairments for algal growth, pH, and temperature in the South Umpqua River, DEQ developed a TMDL for the South Umpqua River in 2006. In 2008, RUSA and Oregon DEQ entered into a Stipulated Order & Memorandum of Agreement (MOA) that describes the schedule and framework for RUSA to take action "to ensure that it will not cause or contribute to a violation of state water quality standards and that it will comply with its permit and DEQ rules, including	Comment noted.

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	requirements related to DEQ's Total Maximum Daily Load Order related to nutrients and stream temperature for the South Umpqua River Basin". The MOA defines approaches to achieve treatment performance benchmarks for nutrients and temperature; the MOA also establishes monitoring and reporting requirements for evaluating the performance of the natural treatment system (NTS).	
6.3	RUSA designed and built the NTS to provide additional treatment to the effluent from the RUSA WWTP to protect the water quality of the South Umpqua River. The NTS was constructed on a 340-acre farm that RUSA owns near the WWTP on the southwest side of the South Umpqua River. Construction of the NTS was completed in 2012. The NTS includes two additional pumping systems to transport treated effluent along a 3,600-foot pipeline to the treatment wetlands and irrigation pond at the farm, an irrigation pump station, land application at agronomic and high-rate irrigation, hyporheic discharge, mitigation wetlands, and restoration of historical natural wetlands. The new system includes a chemical system (bisulfite) to dechlorinate the WWTP's effluent before we return water to the South Umpqua. RUSA has monitored the performance of the NTS in accordance with the MOA and submitted annual reports to DEQ regarding its performance. Since its construction, the NTS has been effective in reducing algal growth and stream temperatures in the South Umpqua River as documented in the annual monitoring reports. RUSA has invested approximately $10 million in options analysis, testing, engineering and construction of the Natural Treatment System.	Comment noted. The EPA notes the description of the natural treatment system.

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	In addition to the nutrient reduction and temperature reduction that the NTS provides, RUSA constructed an anaerobic ammonium oxidation (anammox) system to reduce the ammonia levels of the effluent discharge. RUSA utilized an aeration basin that was not in use and self-performed the construction of the improvement. RUSA invested approximately $270,000 in this project to address the high ammonia levels. We offer the following comments on the draft Umpqua Temperature TMDL.	
6.4	Water Quality Standards Section 4.1.2 of the draft Umpqua Temperature TMDL identifies the applicable temperature criteria to protect designated beneficial uses. For the South Umpqua River, the beneficial uses include salmonid spawning, and salmonid rearing and migration. Section 4.1.5 includes an assessment of current water quality conditions in the basin. Several plots are included in this section which show that the temperature regimes in the South Umpqua River vastly exceed the applicable temperature criteria. Table 9 shows that the maximum stream temperatures in the South Umpqua River near Myrtle Creek are more than 10 °C higher than the applicable water quality criteria for much of the TMDL period (May to October). Figures 39 and 40, which present box plots of South Umpqua temperature data near Myrtle Creek and above its confluence with the North Umpqua River, further illustrate this point. The draft Umpqua Temperature TMDL estimates the benefits associated with the implementation of various nonpoint management practices. Table 26 presents the impacts of riparian	The EPA disagrees that site specific criteria for the South Umpqua River should be developed as part of the TMDL project. The authority to develop site specific criteria resides with the state Water Quality Standards program consistent with 40 CFR 131.4 and 131.11. The applicable temperature water quality criteria for the South Umpqua River are found in OAR 340-041-0028 and associated designated fish use maps (OAR 340-041-0320 Figure 320A and 320B). Consistent with 40 CFR 130.7 TMDLs must be written to attain the applicable water quality standards. This TMDL project identifies several sources (both point and nonpoint) of thermal loading causing temperature water quality impairments, and load reductions from these sources are needed to attain water quality criteria and protect beneficial uses. Efforts to address thermal loading from diverse sources will need to occur collaboratively across agencies and organizations with various authorities. Opportunities and pathways to engage these efforts can be pursued as part of TMDL project implementation.

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	shade on stream temperatures. For the South Umpqua River, the draft Temperature Umpqua TMDL estimates that riparian vegetation contributes a maximum of 1.6 °C increase in stream temperatures during the summer rearing and migration period, and a maximum of 1.8 °C increase in stream temperature during the spawning period. Table 27 presents the impact of flow modifications on stream temperatures. For the South Umpqua River, it is estimated that flow modification results in a temperature increase of 0.87 °C above the applicable temperature criterion. Except for one section of Cow Creek that had unusually wide channels, the draft Umpqua Temperature TMDL did not identify other segments of the Umpqua River where channel modification and widening significantly contributed to increase in stream temperatures. Taken together, nonpoint source management practices would have the potential to reduce stream temperature about 2.5 °C during the summer. Even with full implementation of nonpoint source actions and necessary controls for point sources, the South Umpqua River would not meet water quality criteria for temperature. Continuing to use an unattainable temperature criteria to determine thermal loads inflates the impact from point sources. For example, the discharge from the RUSA NTS is substantially cooler than the South Umpqua River for much of the TMDL period. This is not apparent in the excess thermal load calculations, which continues to use the salmonid spawning, and salmonid rearing/migration criteria to determine excess thermal loads. As part of the TMDL assessment, EPA (and DEQ) should develop site specific criteria for the South Umpqua River. The site specific	

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	criteria can be used to define realistic goals and achievable temperature targets for the South Umpqua River.	
6.5	Allocation of the Human Use Allowance Table 32 of the draft Umpqua Temperature TMDL specifies the sector specific allocations for the Human Use Allowance (HUA). The HUA that would apply to the South Umpqua basin are presented below. [To see Table 32 (now Table 33) included with the comment letter, see the original comment letter or TMDL document page 91, Table 33] The HUA allocation for solar loading from nonpoint sources of 0.0 °C is not realistic. The sector-specific allocations do not include an allocation for solar loading from nonpoint sources (other than existing transportation, buildings and utility infrastructure). There is no justification provided in the documents, nor is there an explanation of why the allocation of 0.0 °C is a justified change from the 0.1 °C allocation included in the 2006 TMDL. If there is no allocation for nonpoint sources, that would mean that achieving the TMDL target requires fully vegetated stream corridors at maximum effective shade. Factual, on-the-ground constraints, established laws, and competing environmental needs in some areas to retain solar access, make this target unachievable. The TMDL policy implications of a 0.0 °C HUA for solar loading from other NPS categories would set Designated Management Agencies (DMAs) up for failure, because it may require implementation of shading activities that are beyond	The EPA disagrees with the comment that the HUA allocation is unrealistic. The TMDL loading capacity (Section 8) and allocations consistent with 40 CFR 130.2 (f)(g)(h) entail thermal loading reductions. The loading capacity calculations include the HUA, and allocations were assigned equal to the loading capacity and expected to attain water quality standards. The HUA allows sources to contribute additional warming above the criteria. Sources such as solar loading from other nonpoint sources may contribute warming within the criteria assimilative capacity, but are not provided an allowance for additional warming above the criteria. This is consistent with other recent Oregon Temperature TMDLs.

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	local governments' authorities. Moreover, setting an unachievable goal in a specific sector would mean that the draft Umpqua Temperature TMDL has not established an achievable path to meet its TMDL targets. We recommend that EPA include an allowance for nonpoint sources as provided for transportation corridor, buildings and utility easements. Including an allocation for nonpoint sources recognizes both the dynamic nature of streamside vegetation and the limitations that DMAs have in achieving TMDL goals.	
6.6	Assigning a zero allocation for nonpoint sources may limit compliance strategies for point source discharges. A zero allocation for nonpoint sources may mean that point sources may not be able to utilize water quality trading as a compliance strategy. That would negatively impact the ability to achieve the TMDL target over time and would likely lead to public expenditure of funds for unsustainable mechanical cooling infrastructure that provides little to no benefit to the river or fish habitat and runs counter to the State's climate protection/carbon reduction goals. The permit compliance strategy implications for point sources need to be more fully evaluated, and the allocation should not be set such that it would potentially eliminate opportunities for wastewater utilities to invest in riparian shade enhancement projects. EPA should adjust the sector-specific HUA to provide an allocation for solar loading from other nonpoint sources. A nonpoint source allocation would provide a strong foundation and framework for point sources to pursue a water quality trading program as a compliance strategy.	Please see the response to comment 1.7 regarding water quality trading. The TMDL does not dictate the manner of achieving its targets and EPA did not evaluate permit compliance strategies. ODEQ is responsible for TMDL implementation and as the NPDES permitting authority in Oregon is best suited to address any topic or issues regarding permit compliance.
6.7	Thermal Wasteload Allocation for Point Sources	The EPA correctly applied water quality criteria and used suitable flow information in wasteload allocation calculations.

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	Wasteload Allocations based on Different Use Periods For facilities where multiple criteria apply during the TMDL period (e.g., spawning during the spring and fall, and rearing/migration during the summer), the TMDL should specify WLA for the different periods. Additionally, the TMDL should use appropriate stream flows and effluent flows associated with each time period in determining the WLA. This approach would be helpful in identifying time periods of concern and associated compliance strategies. This approach was used in the recent draft of the Willamette Temperature TMDL. A snip from the WLA table from the Willamette Temperature TMDL is provided below to illustrate this point.	The wasteload allocations are based on the assigned HUA, which is an allowable thermal load above the applicable criteria. It is correct that the underlying applicable water quality criteria are seasonal; however, the assigned HUA is not seasonal, which means that the facility is allowed to discharge the wasteload allocation based on the assigned HUA in all seasons. In this way the HUA and wasteload allocations are independent of seasonal criteria; therefore, it is not necessary for the TMDL project to present season wasteload allocations. EPA calculated wasteload allocations (Section 9, Table 33) based on the annual 7Q10. TMDLs must account for seasonality and stream flow critical conditions (40 CFR 130.7(c)); using the 7Q10 is a conservative approach and addresses this requirement. Moreover, the TMDL provides for wasteload allocations to be based on daily flow as part of permit implementation. This allows dischargers to take advantage of any assimilative capacity in the river on a daily basis. Table 34 in the TMDL document provides the same information as the example provided of Table 9-2 from the draft Willamette Basin Temperature TMDL document.
6.8	Wasteload Allocations for RUSA Table 33 includes two wasteload allocations for the RUSA WWTP (excerpt provided below). A WLA is provided for the South Umpqua outfall and a separate WLA is provided for the NTS. The South Umpqua outfall WLA is based on a 0.1 °C HUA with mixing/dilution provided by the South Umpqua River. The NTS WLA also includes a 0.1 °C HUA but specifies “zero” as the	The EPA disagrees that the TMDL wasteload allocation should apply to the combined discharge of the outfalls discussed in the comment. Table 34 includes two wasteload allocations for the RUSA facility because there are two different discharge locations: 1) outfall 001 to the South Umpqua River and 2) the natural treatment system (NTS) to Slyman Creek. The wasteload

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	applicable stream flow, which results in a substantially lower WLA. As noted above, RUSA entered into a MOA with DEQ for the construction and use of the NTS. From May to October, treated water from the WWTP is directed to the NTS for additional treatment prior to discharge. The NTS is used for nutrient reduction and thermal load reduction from May to October. The treated water from the NTS ultimately discharges to the South Umpqua River. The MOA also allows for the discharge of treated water from the WWTP directly to the Umpqua River although the direct discharge to the South Umpqua outfall (Outfall 001) is expected to be minimal from May to October. Since the MOA authorizes the use of both the NTS and the South Umpqua outfall, the WLA should apply to the combined discharge from these locations.	allocation for outfall 001 is based on the annual 7Q10 flow for the South Umpqua River, which is 146 cfs and the wasteload allocation for the NTS is based on the annual 7Q10 flow for Slyman Creek, which is 0 cfs. The South Umpqua River has greater assimilative capacity and thus the wasteload allocation for outfall 001 is larger than the NTS wasteload allocation. The MOA may allow for the facility to discharge via outfall 001 or the NTS; nevertheless, these are two different discharge locations and two different receiving waters, the South Umpqua River and Sylman Creek, respectively. The wasteload allocation for two different discharge locations and two different waterbodies cannot be combined. Two separate wasteload allocations for the RUSA facility will be maintained in Table 34. Note, Sylman Creek is a tributary to the South Umpqua River; however, the NTS discharges to Sylman Creek not the South Umpqua River. This is visible on maps of the NTS, Sylman Creek, and the South Umpqua River (e.g., Figure 2-2, Roseburg Regional Water Resources Reclamation Facility Natural Treatment System 2024 Farm Operations Plan). Additionally, the MOA Number WQ/M-WR-11-064 describes the NTS as discharging to Sylman Creek.
6.9	The MOA establishes SW-5 (or Location 5) as the NTS discharge monitoring location to evaluate the effectiveness of the system in meeting the performance benchmarks for nutrients and temperature. From May to October, flow and temperature data from SW-5 and Outfall 001 (when discharging) are used to calculate thermal loads to the South Umpqua River. It is imperative that the Umpqua Temperature TMDL clearly identify	The EPA disagrees that the TMDL document should specify monitoring locations to evaluate compliance. TMDLs do not specify compliance monitoring locations for individual NPDES permits. Specific individual facility requirements such as, compliance monitoring locations will be addressed by Oregon DEQ as the state permitting authority as part of permit renewal.

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	the WLA and monitoring location(s) that would be used to evaluate compliance. The monitoring location(s) for evaluating compliance with the WLA must be consistent with the framework established in the MOA. Towards that end, we recommend that Table 33 be updated as follows: A single WLA should be included for RUSA and this should be based on the discharge to the South Umpqua River; the WLA for the NTS should be deleted. Since the MOA authorizes the use of both the NTS and the South Umpqua outfall (Outfall 001), the WLA should apply to the combined discharge from these two locations. A note should be included at the end of Table 33 that identifies the combined discharge from the NTS and Outfall 001 (when discharging) as the monitoring and compliance points for the RUSA facility. Temperature and flow monitoring would be conducted at SW-5 and Outfall 001 (when discharging) to determine the excess thermal load from the RUSA facility.	See response to comment 6.6.
6.10	An evaluation of excess thermal loads from the RUSA facility was conducted for a 5-year period (2020 – 2024). Effluent flow and temperature data from SW-5 were used to calculate excess thermal loads from the RUSA facility; there was no discharge to the South Umpqua River through Outfall 001 from May to October during the 5-year period. The following figures present the excess thermal loads from the RUSA facility, and the TMDL WLA for the South Umpqua outfall from 2020 to 2024. The blue bars represent the daily flow from the NTS as measured at SW-5. [to see Figures 1 – 5, please see original comment letter]	The EPA finds the figures included with this comment incorrectly indicate that the WLA applicable to outfall 001 is also applicable to discharges to Sylman Creek. This is not the case; please see response to comment 6.8. The EPA agrees, based on analysis conducted for the TMDL, that the RUSA facility will likely need to reduce thermal loading to meet the TMDL WLAs.

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	The assessment shows that the discharge has the potential to exceed the TMDL WLA during the spring spawning period during each of the 5 years examined. The excess thermal loads from the facility are significantly above the TMDL WLA till mid-May when the salmonid spawning criterion applies. There are also periodic exceedances of the TMDL WLA during the summer rearing/migration period when air temperatures were abnormally high (e.g., August 2023). Additionally in 2023, the excess thermal load from the facility exceeded the TMDL WLA during October when the spawning criteria applies. Based on the 5-year temperature data assessment, it is apparent the discharge from the RUSA facility would not be able consistently meet the TMDL WLA.	
6.11	RUSA has already made significant investments to reduce nutrient and temperature loading to the South Umpqua River. Since there is significant reserve capacity, we recommend that EPA use a portion of the 0.1 °C reserve capacity to increase the assigned HUA and update the WLA for the RUSA facility. We recommend that the HUA assigned to the RUSA facility be increased to 0.2 °C during the spring spawning period, and 0.15 °C during the summer rearing/migration period and fall spawning period. It should be noted that the increase in the assigned HUA by itself will not enable RUSA to consistently meet the WLAs. Additional management practices will also be necessary to reduce thermal loads to consistently meet the WLAs.	The EPA disagrees that this TMDL project should assign a portion of the identified reserve capacity to the RUSA facility. The EPA recognizes and values the effort and investment RUSA has made to reduce nutrient loading. The TMDL does reserve 0.1 °C of the HUA in the South Umpqua River assessment unit receiving discharges from the RUSA facility. However, Oregon DEQ, as the state agency with water quality management responsibilities and the state NPDES permitting authority, is better positioned to determine if a portion of this reserve capacity may be assigned the RUSA facility. Oregon DEQ may work with the EPA to revise these TMDLs and modify wasteload allocations in the future if found necessary.
6.12	Thank you for your consideration of RUSA's comments. If you have any questions, please contact me.	Comment noted.
	Water Watch of Oregon	
7.1	Founded in 1985, WaterWatch of Oregon (WaterWatch) is a nonprofit conservation organization dedicated to protecting and	Comment noted.

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	restoring instream flows, and the free-flowing character, of Oregon's rivers and streams. WaterWatch also works to ensure wise management of Oregon's water resources in general, including groundwater. Please consider the following comments of WaterWatch on the Umpqua River Basin Replacement Temperature TMDLs (TMDLs). Given its mission, WaterWatch's focus with respect to the TMDLs is on the water-quality impacts of water withdrawals and water management.	
7.2	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.	Comment noted.
7.3	The section claiming reasonable assurance that the TMDLs will achieve water quality standards is not fully persuasive. The discussion of expected Oregon DEQ implementation of the TMDL does not provide an adequate basis for assuming that DEQ implementation of these TMDLs will bring sources of heat pollution within their respective allocations and achieve compliance with water quality standards. Our understanding is that DEQ implementation of temperature TMDLs to date generally has not been successful at achieving compliance with applicable water quality criteria. The draft replacement	The EPA disagrees that the TMDL does not provide an adequate basis for full implementation. TMDL document Section 9 provides wasteload and load allocations and the allocations are established at levels needed to reduce thermal loading and attain the applicable water quality standards. This includes a load allocation to background nonpoint sources, and reductions from background thermal loading are needed to fully implement the TMDLs and attain water quality standards.

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	temperature TMDLs for the Umpqua Basin do not adequately explain how implementation of these TMDLs will be different. In particular, there is no explanation for assuming that the load allocations to water withdrawals will be achieved when the TMDLs indicate that loading from water withdrawals already is significantly greater than the allocations (what will be done to reduce those contributions?). Similarly, the draft TMDLs do not provide an adequate basis for assuming that past implementation approaches will be successful in reducing (and especially not to zero) the heat load added to basin waterways by the loss of riparian vegetation.	The TMDL document presents reasonable assurance that implementation efforts, over time, will achieve the TMDL WLAs and LAs. TMDLs do not dictate the manner of achieving their targets, and the TMDL document's reasonable assurance section describes implementation progress and highlights that authorities and actions related to implementation reside with the state. Oregon DEQ will be primarily responsible for TMDL project implementation through a variety of state regulatory and non-regulatory programs. This TMDL document does include allocations to some sources (e.g., water withdrawals, background) that involve unique implementation challenges. This TMDL document recognizes that reductions from these sources are needed; however, efforts to address these sources will need to occur collaboratively across agencies and organizations with various authorities. The TMDL provides a strong scientific foundation by identifying these sources and quantifying loads and associated reductions. Opportunities and pathways to address these sources can be pursued as part of TMDL implementation.
7.4	The reasonable assurance section also relies too heavily on past identification of responsible parties by DEQ. Given the specific identification these TMDLs of water management as a source of heat pollution, and given the specific allocations to that, the TMDLs should provide direction to DEQ s to at least make the Oregon Water Resources Department (OWRD) a Designated Management Agency (DMA) required to prepare an implementation plan. OWRD has significant legal authority over water management and water withdrawals, a specifically identified source of heating. Whether it owns property in the	The EPA disagrees with this comment. The TMDL Reasonable Assurance Section 12 presents various projects and progress towards implementing the 2006 Umpqua Basin Temperature TMDL and summarizes work to date that supports the objective of attaining water quality standards. This section does not name any new designated management agency; nor does EPA have the authority to identify, or direct Oregon to identify, an agency/organization as a designated management agency. The authority ((OAR 340-042-0040, 340-042-0080) and requirement to identify designated management agencies

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	basin (the basis for distinction in other TMDLs) is beside the point. 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.	resides with the state and as part of TMDL implementation Oregon DEQ may identify designated management agencies, as needed. Oregon DEQ plans to update the Umpqua Basin Water Quality Management Plan once the TMDL is finalized. The Water Quality Management Plan development process is an opportunity for stakeholders to engage the state on TMDL implementation interests.
7.5	The TMDL documents do not give adequate consideration – such as counting them – 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	The EPA disagrees that counting in-channel reservoirs is necessary to accomplish the TMDL project's goals. The TMDL Source Assessment Section 7.1.4 does describe the impact of in-channel ponds on water temperature. Although, the thermal impact of these ponds is not individually quantified, the TMDL project does characterize thermal contributions from small in-channel ponds to the extent that modeling analysis included empirical data from watersheds containing small in-channel ponds. See response to comment 7.4

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	why OWRD should be a DMA under the state's implementation plan.	
7.6	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.	Due to resource limitations for this project and deadlines, the modeling analyses for this project did not include a site-specific scenario to evaluate the impact of climate change on stream temperature. However, Appendix D provides a synthesis of relevant scientific literature examining the role of climate change in increasing stream temperatures in Oregon. This information includes estimated climate change impacts on flow, air temperatures and water temperatures, and this information was relied upon in the TMDL document Source Assessment. Climate change was not assigned any portion of the human use allowance. The background sources of warming described in the TMDL document can be influenced and/or exacerbated by anthropogenic actions, including climate change. Background sources received a combined load allocation in the TMDL, and reduction of background sources will be necessary to attain the temperature criteria.
7.7	The TMDL documents should include in the modeling and loading analysis, and in the allocations, the estimated effects of increase water withdrawals in the future under existing water appropriation permits that have not been fully developed and/or under any new permits that could be issued depending on current water availability analysis in the affected areas.	Given the court ordered deadlines and the time and resources available to develop and issue this TMDL it was not possible to expand the scope of modeling analyses in the manner described. Nevertheless, water withdrawals are addressed in the load allocations for nonpoint sources in the TMDL document. EPA agrees that future water use demands would likely impact water temperatures in the Umpqua Basin. The TMDL project also provides HUA reserve capacity for the majority of the basin and this reserve capacity can be allocated to future sources of thermal loading.