Total Maximum Daily Loads for the Willamette Subbasins

Response to Public Comments

Temperature

August 2024

State of Oregon
DEQ Department of Environmental Quality

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1. Introduction

This response to public comments document addresses comments and questions received on the proposed rule for the Willamette Subbasins Temperature Total Maximum Daily Loads (TMDL) and Water Quality Management Plan (WQMP). The individuals and organizations shown in Table 1 provided comments on the Draft TMDL and WQMP during the public comment period which was held from January 10 through March 15, 2024. DEQ held a public hearing on February 16, 2024. Comments received during the public comment period and public hearing have been reviewed by DEQ and are addressed in this document to the best extent possible. Comments which required modifications to the TMDL, WQMP, or technical support documents are noted. In total there were 208 unique comments from 31 entities. DEQ made modifications based on 90 of the comments.

Table 1: Commenters who provided comments during the public comment period on the January 2024 Draft Temperature Total Maximum Daily Loads (TMDL) and Water Quality Management Plan (WQMP) for the Willamette Subbasins.

Commenter #	Commenter	Commenter Tag
1	Bureau of Land Management	BLM
2	Bonneville Power Administration	BPA
3	City of Dallas	Dallas
4	City of Gresham	Gresham
5	City of Lake Oswego	Lake Oswego
6	City of Portland	Portland
7	City of Sandy	Sandy
8	City of Sodaville	Sodaville
9	City of Troutdale	Troutdale
10	Civil West (City of Lowell)	Lowell
11	Clackamas Water Environment Services	WES
12	Clean Water Services	CWS
13	Willamette Riverkeeper, The Conservation Angler, and the Northwest Environmental Defense Center (collectively, the “Conservation Commenters”)	Conservation Commenters
14	EWEB	EWEB
15	International Paper	IP
16	Lane County	Lane County
17	Matt and Kim-Chi Harrell	Harrell
18	Northwest Pulp & Paper Association	NWPPA
19	Oregon Department of Forestry	ODF
20	Oregon Department of Fish and Wildlife	ODFW
21	Oregon Department of Transportation	ODOT
22	Oregon Association of Clean Water Agencies	ACWA
23	Oregon Forest Industries Council	OFIC
24	Oregon Water Resources Congress (OWRC)	OWRC

Commenter #	Commenter	Commenter Tag
25	PGE	PGE
26	Port of Portland	Port of Portland
27	Santiam Water Control District	Santiam WCD
28	Scott N.	Scott N
29	U.S. Army Corps of Engineers (USACE)	USACE
30	U.S. EPA	USEPA
31	WaterWatch of Oregon	WaterWatch

2. Comments from: BLM

BLM #1

Description: TMDL/WQMP- reconsider the applicability of the draft requirements to intermittent, non-fish bearing streams managed by BLM

Comment: We argue that intermittent streams, by their very nature, do not contribute to increased temperature during periods of potential non-attainment. These streams flow only during certain times of the year, primarily in response to precipitation or snowmelt, and thus, during dry periods or drought conditions, they do not flow at all. The concern for stream warming is primarily associated with continuous water flow, where prolonged exposure to sunlight can significantly raise water temperatures. In the case of intermittent streams, the absence of flow during critical warm periods negates the risk of contributing to temperature non-attainment areas. Therefore, the management strategies for these streams should reflect their distinct hydrological characteristics, acknowledging that their impact on overall water temperature and quality is significantly different from that of perennial streams.

In light of these points, we respectfully request that DEQ reconsider the applicability of the draft requirements to intermittent, non-fish bearing streams managed by BLM.

Response: The TMDL allocations apply to intermittent streams because they may contain residual pools that support aquatic life and be flowing during periods when the TMDL allocations apply. The classification and mapping of intermittent streams often do not account for these situations. DEQ updated the WQMP to clarify this distinction. DEQ also updated the TMDL rule to clarify TMDL allocations apply to intermittent streams that have surface flow or residual pools during the TMDL allocation period. An expanded discussion was added to TMDL Technical Support Document Section 2.4.

Changes were made based on this comment.

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3. Comments from: Bonneville Power Administration

BPA #1

Description: Extend public comment period

Comment: Extend the public comment period for the Willamette Subbasins Temperature TMDL.

Response: DEQ extended the comment period for the minimum required 21 days as requested.

BPA #2

Description: TMDL-HUA-Reservoirs: Reservoirs should receive a portion of the HUA (a)

Comment: The TMDL allocates 0.00°C to dam and reservoir operations but provides upward of 0.05°C to water management activities and water withdrawals and 0.02°C to solar loading from existing transportation corridors, existing buildings, and existing utility infrastructure. Bonneville requests that ODEQ describe why this sector was not given a portion of the allocation and in the revised TMDL, provide the rationale for why dam and reservoir operations received its load allocation. The TMDL does not explain how the minimum duties provision is not also applicable to the other nonpoint anthropogenic sources that received a portion of the human use allowance. Dam and reservoir operations should receive a portion of the human use allowance allocation.

Response: DEQ must develop temperature TMDLs based on the current water quality standards and set allocations such that they add up to the Loading Capacity defined in OAR 340-042-0040(4)(d) and 40 CFR 130.2(f) as the amount of a pollutant or pollutants that a waterbody can receive and still meet water quality standards. We have provided allocations that add up to the Loading Capacity and will meet the current water quality standards. DEQ is not required to identify in a TMDL how the allocated loads are to be achieved. It is DEQ's expectation, per OAR 340, division 42, that DMAs or responsible persons evaluate their operations and propose management strategies in their TMDL implementation plans that will show achievement of allocations.

BPA #3

Description: WQMP-Reservoirs: Consider complexity of dam operations

Comment: [The] application of the temperature water quality criteria is oversimplified and not aligned with the WVS's obligation to operate the dams to protect ESA-listed fish. Seasonally appropriate dam releases [are] conducted to improve habitat for ESA-listed fish under the existing National Marine Fisheries Service Biological Opinion. An additional example is the

strategic release of warm water that occurs at Cougar Dam and Detroit Dam during the warm season for the benefit of fall water temperatures.

Response: The DEQ acknowledges that multiple constraints affect WVS's ability to implement best management practices. If constraints preclude BMP implementation, then they may be stated in the implementation plan.

BPA #4

Description: WQMP-Reservoirs: Allow flexible implementation activities other than operational changes

Comment: WVS dams [have] operational constraints due to their congressionally authorized purposes and further constrained by court order and Endangered Species Act-related operational requirements. There is little, if any, margin remaining for altering operations to address water temperature. Bonneville requests that the WQMP acknowledge constraints of large dam owners that impact their ability to implement measures to achieve their load allocation in compliance with other laws.

Response: The DEQ is aware that the operators of reservoirs face multiple constraints that affect their ability to implement best management practices. These constraints should be described in any TMDL implementation plan submitted by the BPA or other reservoir operator. Once operational constraints have been described, then operational latitude can also be described. The DEQ expects that operational strategies to reduce temperature impacts will be identified within the constraints described in an implementation plan. If no operational latitude exists, then this should be explicitly stated in the implementation plan. It is also important to point out that if monitoring or modeling shows a reservoir has no effect on stream temperature, then the DEQ may not require an implementation plan.

BPA #5

Description: WQMP-Reservoirs: Streamline reporting requirements

Comment: ODEQ should align reporting with the Corps' requirements for the 2008 Biological Opinion issued by the National Marine Fisheries Service and the U.S. Fish and Wildlife Service, and any future Biological Opinions. This manner of reporting will create a streamlined process, which will reduce additional administrative burdens.

Response: The DEQ appreciates the need to streamline reporting and manage administrative burdens. In cases where multiple reports containing the same information are required, reports can be combined by the reporting agency. The timing of yearly reporting requirements in a TMDL implementation plan is typically proposed by the agency submitting the plan, in this case BPA. The DEQ does not have the latitude, however, to change the specific information that yearly reports will be required to contain. The BPA is encouraged to explore the option of submitting combined annual reports, and propose this option in their implementation plan if it is more convenient and streamlined.

BPA #6

Description: TMDL/TSD: Correction to TMDL and TMDL TSD

Comment: In the TMDL TSD under Section 9.3.1 Dam and reservoir operations (pg. 109) the "minimum duties provision" reference to OAR 340-042-0028(12)(a) should be changed to OAR 340-041-0028(12)(a). The same correction should be made in the TMDL under Section 9.1.4.1 Dam and reservoir operations (pg. 45).

Response: Thank you for the correction. The cited references in the TMDL and TSD have been changed to OAR 340-041-0028(12)(a).

Changes were made based on this comment.

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4. Comments from: City of Dallas

Dallas #1

Description: TMDL - Correct Dallas WWTP discharge location in TMDL Table 7.1

Comment: The Dallas WWTP discharges at river mile 9.3 per the NPDES permit, not rive mile 10.5 as indicated in Table 7.1 of the January 2024 draft TMDL. Please correct the discharge location

Response: The location of the Dallas STP discharge has been updated to Rickreall Creek, River Mile 9.3 in the TMDL (Table 7-1) and in the Technical Support Document (Table 7-1).

Changes were made based on this comment.

Dallas #2

Description: TMDL - Consider application of migration corridor criterion in Rickreall Creek from October to May

Comment: We generally agree with the unique conditions of Rickreall Creek addressed in the document. We agree with the cool water period begin from June 1 - September 30 and the 22.8 degrees C criterion during this period. We request that DEQ re-evaluate the temperature criterion of 18 degrees C during October 1 - May 31 and consider the application of the migration corridor criterion of 20 degrees C presented in the previous TMDL.

Response: To determine the temperature target for Rickreall Creek, DEQ consulted with ODFW and reviewed the most recent fish use information available. The available information indicates that the most sensitive cool water species are protected by a temperature target of 22.8 degree Celsius. It also indicates there is juvenile winter steelhead (Oncorhynchus mykiss)

and Coastal Cutthroat trout (Oncorhynchus clarkii) rearing within the lower reach between October 1 and May 31. DEQ selected a temperature target of 18.0 degrees Celsius based on the year-round Salmon and Trout Rearing and Migration criterion, plus the 0.3 human use allowance, in order to protect the salmon and trout rearing uses that occur at those times. Salmonid rearing use is not supported when water temperatures are above 18 degrees Celsius. DEQ's 20 degree Celsius migration corridor criterion is protective of salmonid rearing uses only when applied to the warmest week of the year (e.g. the peak temperature during the summer) which ensures waters can cool sufficiently to support rearing that occurs during other times of the year. Applying a temperature target of 20 degrees Celsius during the fall, winter, or spring is not fully protective of salmonid rearing uses.

Dallas #3

Description: HUA - Change NPDES to 0.2 C

Comment: We question why other tributaries are allocated a 0.2 C human use allowance to NPDES point sources and 0.03 C to reserve capacity, but Rickreall Cr is only allocated 0.15 C to NPDES point sources and 0.08 C to reserve capacity. We request changing the allocation for NPDES point sources to 0.2 C like in other tributaries in the document.

Response: The human use allowance (HUA) to NPDES point sources on Rickreall Creek has been changed to 0.22 C.

Changes were made based on this comment.

Dallas #4

Description: WQ Trading - Ensure WQ trading remains a viable option

Comment: One strategy that the City wants to ensure remains a viable option is the application of water quality trading using riparian vegetation enhancements to block solar loads to Rickreall Creek and to offset ETLs resulting from wastewater effluent discharge. Without water quality trading as a viable option for offsetting ETLs, dischargers will be left with less favorable options such as cooling towers, chillers, and/or projects that reduce stream flows downstream.

Response: The DEQ appreciates the need to clarify that Water Quality Trading is a viable compliance option. The DEQ agrees with the City of Dallas that riparian vegetation enhancements are preferrable to cooling towers and chillers. Trading is allowed statewide as long as the requirements listed under OAR 340-39 are met. The WQMP will be updated to explicitly state that water quality trading is and remains a TMDL compliance option.

Changes were made based on this comment.

Dallas #5

Description: TMDL - Dallas WTP (1)

Comment: We are concerned that inclusion of this facility-specific waste load allocation would likely make the WTP ineligible for the 200-J General NPDES Permit. This facility would have to apply for an individual NPDES permit at considerable cost, which would place a significant economic burden on the City for questionable benefit. It does not appear that DEQ has thought through the permitting implication and compliance mechanisms associated with regulating this type of discharge through numeric temperature limits that would arise from the prescribed waste load allocations. Clearly, this discharge should be addressed, to the extent practicable, through management practices, without the potential requirement of cooling towers or chillers. Utilizing a management practice-based approach would enable DEQ to ensure that appropriate actions are taken at the water treatment plant to minimize temperature impacts and would ensure that filter backwash discharges continue to be eligible for the 200-J General NPDES Permit.

Response: For any NPDES permit renewal, permit discharge limits must be consistent with the assumptions and requirements of an applicable TMDL. A TMDL does not contain a requirement for the type of permit issued, individual or general, for this purpose. DEQ assigned a human use allowance and waste load allocation to 200-J registrants because there is a reasonable potential for 200-J registrants to increase temperature. Allocations are part of the TMDL framework and we believe are needed in this situation to ensure temperature warming from all sources, including discharges from individual permittees, general permit registrants, and nonpoint sources will cumulatively attain the 0.3 degree Celsius human use allowance requirement of the temperature standard.

Dallas #6

Description: TMDL - Dallas WTP (2)

Comment: Clarify - instead of the wastewater plant and water plant getting an equal portion of the HUA, can the allocations between the water treatment plant and the wastewater treatment plant be shared?

Response: DEQ considered a shared allocation but concluded there is insufficient information and not enough time during the TMDL process to work through some of the complexities of this option. The two facility outfalls are located in different assessment units with different temperature criteria and different beneficial use timing. In addition, Dallas STP has an individual permit while Dallas WTP is currently a registrant under a 200-J general permit. How the two permits incorporate a shared allocation is unclear. DEQ feels the appropriate avenue for sharing (or trading) an allocation is through development of a water quality trading plan. Trading is allowed statewide as long as the requirements listed under OAR 340-39 are met. The WQMP has been updated to explicitly state that water quality trading is and remains a TMDL compliance option. Alternatively, Dallas could complete cumulative effects modeling to show there is heat dissipation between these two facilities. This information could be used to support a reserve capacity request to increase the portion of the human use allowance and waste load allocations assigned to Dallas STP or Dallas WTP.

Dallas #7

Description: TMDL/200J Permit - Dallas WTP (3)

Comment: We further expect that when the 200J filter backwash water discharge permit is renewed, and an individual NPDES permit not required, that the 200J permit acknowledges the thermal load WLA assigned to their drinking water plant.

Response: For any NPDES permit renewal, permit discharge limits must be consistent with the assumptions and requirements of an applicable TMDL. A TMDL does not contain a requirement for the type of permit issued, individual or general, for this purpose.

Dallas #8

Description: Retain bubble allocation

Comment: In addition, this small point source discharge does not contribute significantly to the cumulative heat sources to the Willamette River and the "bubble allocation" approach provided for small point source discharges in the 2006 TMDL should be retained.

Response: The Willamette River bubble allocation approach included in the 2006 temperature TMDL applied to the mainstem of the Willamette River, not the tributaries addressed by the Willamette Subbasins temperature TMDL. DEQ's analysis shows many minor individual point sources, 100-J, and 200-J general permit registrants have reasonable potential to increase stream temperature, particularly on streams with very low flow rates. For this reason, all individual NPDES permittees and 200-J registrants are provided numeric waste load allocations in the TMDL. Numeric wasteload allocations for individual 100-J registrants were removed from the TMDL and replaced with narrative allocations and other requirements that apply to current and any future registrants. The approach for 100-Js include an assigned human use allowance for all registrants and limits on the number of new registrants based on available dilution and other factors. This aspect works similar to the bubble allocation used in the 2006 temperature TMDL. DEQ added additional information into the TSD to improve the documentation of our analysis and findings regarding individual point sources, 200-Js, and 100-J registrants.

Changes were made based on this comment.

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5. Comments from: City of Gresham

Gresham #1

Description: Supports ACWA's comment letter

Comment: Gresham echoes the comments made by the Oregon Association of Clean Water Agencies in response to the proposed Temperature TMDL updates for both subbasins

Response: DEQ acknowledges the City of Gresham's support of comments submitted separately by the Oregon Association of Clean Water Agencies.

Gresham #2

Description: Fiscal Analysis - request DMA implementation incurred costs as part of reporting

Comment: While recognizing the court-mandated deadlines for these updates lead to DEQ relying on pre-existing data sources where possible for these updates, it should be noted that the Fiscal Analysis completed for both subbasins depended on quite out-dated project cost data, as compiled in "DEQ's Cost Estimate to Restore Riparian Forest Buffers and Improve Stream Habitat in the Willamette Basin, Oregon (2010)." That document presents riparian and in-stream project costs that are 15-18 years old, and which are based on project areas typically outside confined urban areas. Projects in urban areas typically have to meet multiple objectives to fit into the constrained landscape, and incur additional project costs. Gresham has an extensive list of recognized riparian and in-stream restoration needs that far exceed our ability to take on even low interest debt of the type outlined in the DEQ fiscal analyses. The degree of staff time and matching resources needed for pursuing grant options impact progress via those routes as well. The fiscal analysis states rate payers may incur costs, but at least in Gresham, it's a certainty that these natural resource investments will impact stormwater rate payers. The statements in the fiscal analysis about the income generated by Portland area tourism should not be portrayed as a relevant compensating variable for low-income suburbs that are rarely tourist destination hot spots. In short, the fiscal analysis as currently written doesn't speak to implementation feasibility or inform implementation rate projections for at least one low-income suburb. DEQ staff reviewing annual and 5-year reporting requirements during the 2/16/24 webinar enumerated reporting requirements for DMAs, and notably, actual project costs were not mentioned, despite the importance of fiscal resources in making forward progress. To better inform future DEQ decisions on adequacy of adaptive management proposed by DMAs, future Temperature TMDL updates, or state funding decisions to support DMA progress, we recommend DEQ begins requesting basic, standard reporting metrics on actual incurred costs for riparian and in-stream restoration costs when either annual or 5-year progress reports are submitted by DMAs. DMAs could submit project-specific costs on a $X/acre for 5-year riparian restoration projects, and $X/linear ft of in-stream restoration.

Response: DEQ acknowledges that the fiscal analysis relied on dated project costs in the absence of updated information. The rulemaking advisory committee did not provide cost information to DEQ. DEQ also recognizes that DMAs have different levels of funding available to implement their TMDL plans and that some cities may need to increase fees, such as stormwater fees to help supplement costs of implementation.

DEQ removed language in the Willamette Subbasins Statement of Fiscal and Economic Impact regarding tourism dollars generated from tourists in Portland.

The commenter suggested that DEQ staff request standard reporting metrics on actual incurred costs for stream restoration with either the TMDL annual reports or as part of the Year Five

TMDL reviews. This cost information could help inform future temperature TMDL updates. DEQ agrees with this suggestion and added language to the Implementation Costs and Funding section in the WQMP giving DMAs an option for including actual implementation costs as part of TMDL annual reporting. This reporting would not be a requirement.

Changes were made based on this comment.

Gresham #3

Description: WQMP - Include all in-channel ponds over an acre

Comment: Strategies Beyond Shade Needed. A main conclusion from the WQMP documents is that to meet the Water Quality Temperature Standard, DMAs need to increase shade, and that if we increased shade to its potential, we would generally stay below the Standard (see Fig 4-1 in the same Appendix document). However, if Johnson Creek already has more than twice the shade that the model suggests and yet that subwatershed is still routinely exceeding the temperature standard, will this predominant focus on stream shade result in temperature improvements as assumed by the DEQ modeling? These data sources suggest Gresham would be expected to increase shade where it is already at or near full potential. And, while the conflict between the Effective Shade model and actual conditions sets the jurisdiction up to easily demonstrate improved stream shade conditions when comparing current conditions against the 2002 baseline (as established by the Effective Shade Model), Gresham is motivated to invest efforts where public resource investment will contribute to real temperature improvements when combined with the investment of other Johnson Creek stakeholders. Recent water quality monitoring on Johnson Creek has resulted in DEQ expanding the critical period window for Johnson Creek to February 15 through November 15, newly reflecting heat exceedances during the time of year that we have leaf-off conditions. It is unlikely that direct solar radiation is the source of heat loading in the late fall and late winter months that have been added to the critical period, thus strategies other than shade are especially important to explore. In Gresham's experience the Water Quality Management Plans strategies, as listed in Table 2 of the Willamette Subbasin WQMP should include the impacts of private reservoirs/in-channel impoundments and protection of shallow subsurface groundwater (addressed in a separate comment).

(1) The impacts of private reservoirs/in-channel impoundments

We recommend adding language that requires all in-channel ponds over an acre to be addressed, instead of focusing only on those located on publicly owned land. Both DEQ and Gresham are aware of the sometimes substantial heat loadings from both public and private in-channel ponds in these subbasins. Gresham has tried multiple strategies over the last 20 years to incentivize stream restoration and/or riparian improvements in areas where historic stream impoundments were created as a centerpiece aesthetic feature for a subdivision, or as recreational features for golf courses. Despite numerous long-standing efforts, only negligible changes have resulted with no discernable reduction in heat loading. The City lacks authority to require private in-channel impoundments be retrofit to address heat loading without TMDL language necessitating these areas be addressed, yet it may be private impoundments that are the larger heat source in some systems. The current focus on public reservoirs may miss significant heat sinks. For instance, Gresham will be required to report on continued efforts to improve a 1.5-acre publicly owned pond surrounded by trees on Butler Creek (tributary to Johnson Creek), while immediately upstream, an entirely unshaded 1.3-acre private pond will

remain unaddressed, under the current draft of the Willamette Subbasin WQMP. On another Johnson Creek tributary (Hogan Creek) a private golf course system of in-line ponds and a Homeowner Association-maintained in-channel impoundment contribute over 5 acres of privately owned, unshaded reservoirs and those will continue to contribute substantial heat loading to designated critical habitat. Kelly Creek (a tributary to the Sandy River) has summer flows that are largely groundwater-fed and often attain the temperature standard until the creek passes through a golf course and then heats up further in the 1.7-acre private pond on Mt. Hood Community College campus. Fairview Creek is also largely groundwater-fed and generally attains the temperature standard throughout the summer except where large in-channel ponds are present. Publicly owned Fujitsu Ponds (~20-acres) are a high priority for Gresham to retrofit, and opportunities are being pursued. Downstream of these ponds, Fairview Creek empties into a >100-acre private reservoir from which the Columbia Slough emerges, and no amount of shade can offset that impact. Tree shade may help prevent heat loading from direct sun, but shade can't be assumed to offset heat loading upstream. By not including privately held in-channel impoundments in these Temperature TMDL updates, at least a portion of public investment in downstream shade improvements are negated.

Response: DEQ appreciates the City of Gresham's motivation to invest in efforts to reduce instream heat loads. DEQ also acknowledges that small in-channel impoundments may create an environment that introduces heat into waterways. A wide range of features unique to each impoundment will affect the amount of heat introduced. These features include residence time, canopy cover, location of the outlet, water clarity, etc. The TMDL considers the impact of small, in-channel reservoirs to the extent that TMDL modeling includes empirical data from watersheds containing small in-channel reservoirs. DEQ has prioritized implementation for a subset of reservoirs holding the largest volume of water within the Willamette Basin. DEQ supports voluntary in-channel pond removal as a generally effective best management practice to reduce water temperature. Anecdotal evidence suggests that in-channel dam removal or modification is a feasible, effective, and landowner-acceptable solution that also benefits fish passage and water quality. DMAs who have legal authority, through municipal code or other land use rules, over riparian areas will help achieve riparian shade targets along small in-channel impoundments.

Gresham #4

Description: WQMP - Protection of shallow subsurface groundwater by requiring DOGAMI and DSL to develop TMDL plans

Comment: Protection of shallow subsurface groundwater.

Gresham has documented reaches of sub-surface cold water inputs in both the Sandy subbasin (Kelly Creek) and the Lower Willamette subbasin (Johnson/Kelley Creeks). These inputs are found to create cool areas in these streams, even in areas without the benefit of riparian shade. Protection of "groundwater inflows" and correspondingly, "stream volume" are mentioned specifically in OAR 340-041-0028(11) yet aren't part of the criterion or considerations presented in either the Willamette or Lower Columbia-Sandy Subbasin WQMPs. Disruption or exposures of shallow groundwater and related reduction of bank storage and decreased support of hyporheic flow are anthropogenic sources of warming, thus we recommend that Department of State Lands (DSL) and Oregon Department of Geology and Mineral Industries (DOGAMI) have more explicit requirements for managing temperature than what is currently indicated in both the

Sandy and Willamette Subbasin WQMPs. While DSL and DOGAMI are listed as DMAs under the Temperature TMDL updates, both are currently exempted from having any type of implementation plan responsibility due to their limited ownership of streamside property that could be shaded. However, their jurisdictional decisions have significant impacts on preservation of groundwater inflows, stream volume, and cold water refuge support throughout many watersheds in the state, including those relevant to the Temperature TMDL updates discussed here. While the full Temperature Management Implementation Plans required of most DMAs may not be appropriate for these agencies given their state-wide activities, Gresham would recommend to DEQ that these DMAs are expected to consider their mitigation decisions in the context of the 5th and 6th field HUC scales at which DEQ regulates other DMA activity. Even the minimal degree of reporting expected of reservoir operators to demonstrate their management activities aren't resulting in heat loading of a given stream seems a reasonable minimum to expect of these state agencies so that their management decisions are not made without considering temperature impacts to TMDL streams. An equivalent expectation could be to report on impacts permitted and mitigation required within the relevant 5th or 6th field HUC. Future riparian tree planting efforts cannot offset current heat exceedances as well as offset future decreases in infiltration, groundwater flow, bank storage, and hyporheic flow support that occurs when nearby wetlands are filled and then mitigated for elsewhere in the state (via in lieu fee payments) or mitigated at a 3rd or 4th field HUC scale. Similarly, no amount of stream shading can offset the changing hydrology conditions that come from industrial mining sites where industrial discharges start and stop to accommodate extraction activities. Groundwater monitoring near Fairview Creek (in the Lower Willamette) demonstrates that the groundwater gradient is reversed during certain mining activities, and stream flows are significantly altered as mining activities evolve at a site, affecting the survival of riparian vegetation—even negating all past public investment in riparian conditions. These actions are the largest impacts on bank storage and stream volume Gresham has noticed to date, yet are not addressed in the current Temperature TMDL updates.

Response: Neither DOGAMI nor DSL has been exempted from developing a plan, as DEQ may require a plan in the future. DEQ evaluated whether DOGAMI should develop a TMDL implementation plan as suggested by the commenter. DOGAMI is DEQ's primary agent for implementing two DEQ permits: the 1000 WPCF and 1200-A. The 1000 WPCF permit is for sand, gravel and other non-metallic mineral quarrying and mining operations that dispose of process wastewater and storm water by recirculation, evaporation, and/or controlled seepage with no discharge to surface waters. The 1200-A general permit is for mining and quarrying of nonmetallic minerals, such as sand and gravel mining, that may discharge stormwater or mine dewatering water from a point source to surface waters or conveyance systems to surface waters. DOGAMI does not own or manage land near waterbodies but ensures these two permits are implemented according to permit conditions.

Oregon's 1200-A general permit expired in 2017. DEQ is currently researching best practices for managing the discharge of stormwater and pond dewatering from sand and gravel mining activity covered under this permit, including evaluating if discharges have the potential to exceed the temperature standard, or other considerations around hydrologic impacts to nearby waterbodies. DEQ believes evaluation of these permits, rather than DOGAMI developing a TMDL implementation plan would be a better pathway for implementing any needed protective measures. DOGAMI will remain as a DMA for both the Willamette Subbasins and Sandy Temperature TMDLs in the event that new information indicates there would be water quality benefits from DOGAMI developing and implementing a TMDL plan.

DSL regulates activities that occur in wetlands and other waters within the Willamette Basin. Within the Willamette Subbasins project area, DSL ownership within 150 feet of a waterbody is approximately 37 acres. DSL administers Oregon's Removal-Fill Law, whose purpose is to protect water resources, navigation, recreation, fisheries, wildlife habitat, and water quality. DSL jurisdiction extends up to the ordinary high-water mark, and therefore is less relevant to streamside shade-producing trees. DSL may require compensatory wetland mitigation in some cases, and shade is generally one of the functions under consideration. The current limited role of DSL in riparian protection does not indicate that an implementation plan for streamside shade is needed at this time. DEQ did not assess whether any needed changes, including permitted activity and mitigation impact evaluation, to DSL's removal-fill permits are warranted, or how various DSL jurisdictional decisions could impact stream warming.

Gresham #5

Description: Revision of OAR 141-086-0350 (2)(b) - Locally Significant Wetlands

Comment: Gresham requests that DEQ incorporate into their Temperature TMDL update process a review and collaborative revision of OAR 141-086-0350 (2)(b), in conjunction with the relevant state agencies. The existing language was developed by a technical advisory committee in the late 1990s in association with DSL, DLCD, and DEQ staff, prior to any TMDL approvals in Oregon. The language is the primary directive used by local jurisdictions to require buffer protections of wetlands meeting local significance criteria. Recent challenges to Gresham's legal ability to consider a wetland "locally significant" due to proximity of a 303(d)-listed waterway have highlighted the need for this language to be reviewed and updated at such times that DEQ alters their assessment of streams for inclusion on the 303(d) list and for TMDL listing. If that language does not reflect current DEQ practices, local jurisdictions may lose justification for local wetland protections, and therefore lose the ability to protect these areas on the landscape that are critical for infiltration, groundwater flow, bank storage, and hyporheic flow support.

Response: The request to coordinate and revise Department of State Lands rule language in OAR 141-086-0350(2)(b) is outside the scope of this rulemaking. However, DEQ's limited understanding of this language continues to give local governments the ability to identify a wetland as locally significant if it occurs within a horizontal distance of less than a quarter mile from a waterbody listed by DEQ as water quality limited (303(d) list), and the wetland's water quality function is described as "intact" or "impacted or degraded" using the Oregon Freshwater Wetland Assessment Methodology. If the commenter's concern is that local governments may lose the ability to protect these wetlands if DEQ does not make a determination that the nearby waterbody is impaired for a pollutant, or that a TMDL is effective for that waterbody, then DEQ suggests reaching out to DSL about potentially clarifying this language. In general, DEQ is supportive of wetland protections and recognizes their water quality contribution to lakes and streams.

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6. Comments from: City of Lake Oswego

Lake Oswego #1

Description: WQMP- typo

Comment: The City requests that Y/N flags be used in Figure 3 of the WQMP to the revised temperature TMDL to clarify the process.

Response: Thank you for your comment. Figure 3 in the WQMP was updated to include “yes” and “no” indicators in the decision tree.

Changes were made based on this comment.

Lake Oswego #2

Description: WQMP- reservoir and DMA jurisdiction

Comment: In Appendix E of the WQMP, the Lake Corporation is listed as a dam owner but was excluded from the DMA list for dam owners (Table 6 of the WQMP). The Lake Corporation manages the water-quality of Oswego Lake and they are the primary source of water in Oswego Creek during the critical time period (April 1 to October 1). The City has very little control over the flow regime of Oswego Creek and by extension its stream temperature especially given the short distance (<0.25 miles above an elevation of 10 feet) for implementing best management practices such as revegetation. Given the City’s lack of control over the flow regime of Oswego Creek and the lack of options for mitigating its temperature, the City respectfully requests that Oswego Creek be removed from the City’s responsibility as a DMA.

Response: The City of Lake Oswego is designated as a DMA for Oswego Creek because it is within the Lake Oswego’s city limits. The DEQ recognizes the City of Lake Oswego’s limited control on the water quality of Lake Oswego. That said, City of Lake Oswego is the DMA responsible for implementing TMDL shade targets on the reach of Oswego Creek within city limits. The DEQ suggests that the City of Lake Oswego specifically describe any of the water quality concerns regarding water exiting Lake Oswego, and entering Oswego Creek, in the City of Lake Oswego’s TMDL implementation plan. The DEQ encourages collaboration between the City of Lake Oswego and the Lake Corporation to address water quality concerns.

Lake Oswego #3

Description: TSD- typo

Comment: A minor correction in Appendix D of the Technical Support Document to the revised temperature TMDL- Oswego Lake is listed as Lake Oswego (a common mistake). The City

requests that the assessment unit listed as “Lake Oswego” in Appendix D of the Technical Support Document be changed to Oswego Lake.

Response: The request to rename an assessment unit is outside the scope of this rulemaking. Assessment unit names are managed by Oregon DEQ’s Watershed Assessment program and are submitted in the 2022 Clean Water Act Section 303(d) List (as part of Oregon’s Integrated Report), which was approved by the EPA on September 1, 2022. The assessment unit names in the TMDL must be consistent with the assessment unit names on the 303(d) List. Contact information for members of DEQ’s Assessments team is online: https://www.oregon.gov/deq/wq/Pages/WQ-Assessment.aspx.

Lake Oswego #4

Description: TSD- DMA assigned to specific waterbody

Comment: In Appendix F of the Technical Support Document for the revised temperature TMDL, the City is listed as the DMA for Park Creek. It does not discharge stormwater to Park Creek. It discharges limited stormwater to the nearby Paget Creek watershed. Because of the City’s limited discharge to the Paget Creek drainage and its lack of discharge to the Park Creek watershed, the City respectfully requests removal of its DMA designation for Park Creek.

Response: The City of Lake Oswego is designated as a DMA for Park Creek because a short reach of Park Creek is within Lake Oswego City Limits. This designation was made independent of stormwater discharge location. This means that the city has legal authority, through municipal code or other land use rules, over riparian area on Park Creek. Therefore, the City of Lake Oswego is the DMA responsible for implementing TMDL shade targets on the reach of Park Creek within city limits.

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7. Comments from: City of Portland

Portland #1

Description: Support ACWA’s comment letter

Comment: BES has participated in the Association of Clean Water Agencies (ACWA) TMDL Work Group and is supportive of the comments submitted by ACWA on behalf of its members.

Response: DEQ acknowledges the City of Portland’s Bureau of Environmental Services support of comments submitted separately by the Oregon Association of Clean Water Agencies.

Portland #2

Description: TMDL - NPS HUA - Recommend that DEQ include a human use allowance for nonpoint sources of 0.02°C

Comment: Nonpoint sources should be assigned a human use allowance (HUA) greater than 0.0°C. A nonpoint source HUA of 0.0°C would require fully vegetated stream corridors with maximum effective shade at every location within a DMA's jurisdiction to achieve the TMDL load allocations. This is not a reasonable goal given site constraints such as, private land ownership, legal authority, infrastructure and safety requirements, and other environmental considerations. Cities and counties are limited in our authority over streamside land use on private property. Portland implements riparian buffer protection and restoration requirements through development codes and ordinances consistent with Statewide Land Use Goal 5—Natural Resources. Without a development application trigger, we cannot compel private property owners to plant and maintain riparian trees.

Additionally, there are areas within Portland with overlapping jurisdictions where we cannot require or implement riparian plantings. One example is the levee system along the Columbia Slough. The levees are managed for flood protection and at this time, plantings are limited to herbaceous plants to protect the levee infrastructure. The stream reaches bordered by the levees are identified in the TMDL as areas that are expected to achieve maximum effective shade, yet the existing infrastructure precludes tree planting. The inclusion of a 0.0°C HUA for solar loading from other nonpoint source sectors would set DMAs up for failure—it would require the implementation of shading activities that are beyond our authority. We recommend that DEQ include a human use allowance for nonpoint sources of 0.02°C, similar to the allowance included for transportation corridor, buildings, and existing infrastructure. Including an allocation for nonpoint sources recognizes both the dynamic nature of streamside vegetation and the limitations that DMAs have in achieving TMDL goals.

Response: DEQ must develop temperature TMDLs based on the current water quality standards and set allocations such that they add up to the Loading Capacity defined in OAR 340-042-0040(4)(d) and 40 CFR 130.2(f) as the amount of a pollutant or pollutants that a waterbody can receive and still meet water quality standards. We have provided allocations that add up to the Loading Capacity and will meet the current water quality standards. DEQ is not required to identify in a TMDL how the allocated loads are to be achieved. It is DEQ's expectation, per OAR 340, division 42, that DMAs or responsible persons evaluate their operations and propose management strategies in their TMDL implementation plans that will show achievement of allocations.

Effective shade surrogate measure targets represent a surrogate for the amount of solar loading that will attain the human use allowance and load allocations for nonpoint sources managing streamside vegetation. The surrogate shade targets are regulatory however, DEQ recognizes that it will take decades for these targets to be met. The WQMP includes strategies other than those that increase streamside shade in the table of priority management strategies. DEQ will assess compliance with the TMDL through DMA tracking and reporting on their DEQ approved implementation plans.

Portland #3

Description: TMDL - Include an option for channel morphology/hydromodification management strategies to contribute towards a DMA's attainment of load allocations

Comment: Include an option for channel morphology/hydromodification management strategies to contribute towards a DMA's attainment of load allocations. BES is highly supportive of the inclusion of channel morphology/hydromodification management strategies as priority management strategies in the Water Quality Management Plan (WQMP). We believe these types of strategies are essential to improving watershed health and have implemented stream restoration projects to improve both stream habitat and water temperature since the 1990s. While the WQMP does include these actions as priority strategies, the TMDL and the nonpoint source load allocations focus exclusively on riparian shade targets. While the inclusion of these strategies in a DMA's implementation plan is encouraged, implementing these strategies will not contribute towards meeting load allocations beyond the tree planting that may be a part of a project. This will limit the ability of a DMA to utilize these strategies to meet their load allocations. We recommend including a broader discussion of these strategies and a framework for obtaining thermal "credits" for implementing these strategies in the WQMP.

Response: Effective shade surrogate measure targets represent a surrogate for the amount of solar loading that will attain the human use allowance and load allocations for nonpoint sources managing streamside vegetation. The surrogate shade targets are regulatory; however, DEQ recognizes that it will take decades for these targets to be met in areas where woody, overstory shade vegetation needs to mature.

The WQMP includes strategies other than those that increase streamside shade (including flow augmentation and channel morphology related restoration) in the table of priority management strategies because DEQ recognizes the importance of these strategies in reducing stream temperatures. At this time DEQ does not plan to develop a framework for DMAs to obtain thermal "credits" for implementing these strategies. However, DEQ continues to encourage DMAs to consider all strategies from Table 2 for inclusion in DMA implementation plans. DEQ will continue to assess implementation compliance with the TMDL through DMA tracking and reporting on DEQ-approved implementation plans in the coming years. Any future evaluation of progress towards meeting effective shade targets will include an evaluation of other implementation efforts that have been completed to improve stream temperatures.

Language has been added to Section 6 of the WQMP to better describe monitoring and evaluation of progress for implementation of this TMDL.

Changes were made based on this comment.

Portland #4

Description: TMDL - Clarify NPDES Stormwater Contributions

Comment: DEQ should update the language in Section 7.1 on page 23 to more directly note that MS4, 1200-C, and 1200-Z NPDES stormwater discharges do not contribute to exceedances of the temperature standard and that no wasteload allocations are necessary. We ask that DEQ amend the current text as follows:

“Based on a review of published literature and other studies related to stormwater runoff and stream temperature in Oregon, DEQ concluded that stormwater discharges authorized under the current municipal (MS4s) permits or the construction (1200-C) and industrial (1200-A and 1200-Z) general stormwater permits do not contribute to exceedances of the temperature standard. Therefore, wasteload allocations for these sources are not included in the TMDL.”

Response: Thank you for the recommendation. DEQ updated the narrative in TMDL Section 7.1 to the following:

“DEQ completed a review of published literature and other studies related to stormwater runoff and stream temperature in Oregon and concluded that stormwater discharges authorized under the current municipal (MS4), construction (1200-C) and industrial (1200-A and 1200-Z) general stormwater permits are unlikely to contribute to exceedances of the temperature standard. Therefore, no additional TMDL requirements are needed for stormwater sources to control temperature, other than those included in the current permit. More specific wasteload allocations can be considered if subsequent data and evaluation demonstrates a need and if reserve capacity is available.”

Changes were made based on this comment.

Portland #5

Description: WQMP - editorial

Comment: Update Figure 3 in Section 5.3 of the WQMP to include the ‘Yes/No’ responses in the flow diagram.

Response: Thank you for your comment. DEQ updated Figure 3 in the WQMP to include “yes” and “no” indicators in the decision tree.

Changes were made based on this comment.

Portland #6

Description: TMDL - editorial

Comment: Update the note in Table 9-10 in Section 9.1.1. There is an incomplete sentence in the table note.

Response: The incomplete sentence was not needed and was removed from the table.

Changes were made based on this comment.

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8. Comments from: City of Sandy

Sandy #1

Description: TMDL/WQMP - City of Sandy supports ACWA's comments

Comment: We support ACWA's comments on the draft TMDL.

Response: DEQ acknowledges the City of Sandy's support of comments submitted separately by the Oregon Association of Clean Water Agencies.

Sandy #2

Description: TMDL - Update Sandy's WLA - include WLA for May, June, Sept, Oct

Comment: The NPDES permit for the City's WWTP authorizes discharge to Tickle Creek in the Clackamas River Basin from November 1 to April 30. The WWTP produces recycled water for use at a local nursery from May 1 to October 31. The Willamette Subbasins TMDL specifies that the TMDL period for streams in the Clackamas River watershed is from May 1 to October 31. The Willamette Subbasins TMDL does not include a wasteload allocation for the City WWTP because the NPDES permit does not include provisions for surface water discharge during the TMDL period.

The City experiences significant precipitation as a result of its location in the Cascade Mountain range. Even though the NPDES permit characterizes the dry season as May 1- October 31, the late spring (May/June) and early fall months (September/October) can be quite wet and there may be little or no demand for recycled water during these months. Additionally, the City has experienced intense, short¬ duration storm events during the late spring and early fall periods (such as the atmospheric river in June 2022), which results in high flows and treated water quantities that far exceed irrigation demand. The City has limited storage capacity, which necessitates discharge to surface waters.

The City requests that DEQ include a wasteload allocation for the City of Sandy WWTP in the Willamette Subbasins TMDL for May, June, September and October. The wasteload allocation and subsequent revisions to the NPDES permit would enable discharge to surface waters in May, June and September and October when weather conditions limit demand for recycled water.

Response: No changes were made to the assigned human use allowance on Tickle Creek. DEQ recognizes the City has a difficult compliance situation and has provided a human use allowance and wasteload allocation for the City on the Sandy River in the Lower Columbia-Sandy Subbasin Temperature TMDL. DEQ believes this allocation will be sufficient to allow summer and wet weather discharge. The TMDL allocation on Tickle Creek does not mean no discharge, just no warming above the applicable temperature criterion.

Sandy #3

Description: HUA - Use reserve capacity for a WLA for the City of Sandy

Comment: Section 9.1 of the TMDL states that the "human use allowance at OAR 340-041-0028(12)(b)(B) identifies the allowed temperature increase reserved for human uses. The rule requires that wasteload and load allocations restrict all NPDES point sources and nonpoint sources to a cumulative increase of no greater than 0.30°C (0.5°F) above the applicable criteria after complete mixing in the water body, and at the point of maximum impact." A series of tables are included that define the source category allocations in various watersheds in the Willamette Subbasins TMDL. Table 9-10 defines the human use allowance allocations that would apply to the City's WWTP discharge to Tickle Creek.

This table shows that 0.075°C has been allocated to NPDES point sources and there is significant reserve capacity (0.155°() that is available. We recommend that DEQ include a portion of the reserve capacity to provide a wasteload allocation for the City's WWTP. Wet weather driven surface water discharges during these periods (i.e., May, June and October) do not have much of an effect on temperature regimes in streams. A wasteload allocation in the Willamette Subbasins TMDL will provide a framework for the City to manage wastewater from the WWTP in an effective and efficient manner.

Response: No changes were made to the assigned human use allowance on Tickle Creek. DEQ recognizes the City has a difficult compliance situation and has provided a human use allowance and wasteload allocation for the City on the Sandy River in the Lower Columbia-Sandy Subbasin Temperature TMDL. DEQ believes this allocation will be sufficient to allow summer and wet weather discharge.

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9. Comments from: City of Sodaville

Sodaville #1

Description: TMDL/ WQMP- unfunded mandate

Comment: TMDL Temperature Rule Public Comments TMDL is a costly unfunded mandate for Oregon's municipalities that provides no utility to protecting the environment in most of the places it is mandated. If the State of Oregon is forced to regulate TMDL, it should be solely responsible for implementation and bear 100% of the costs. Any expansion of the program will be too costly for most municipalities to support, and the Commission should ask the Legislative Assembly to shift the burden to DEQ from Cities.

Response: This TMDL is not an unfunded mandate under Article XI, section 15 of the Oregon Constitution, the "Unfunded Mandate Act." The Unfunded Mandate Act provides that when "any state agency requires any local government to establish a new program or provide an increased level of service for an existing program," the state must allocate funds to the local government to pay for the costs of performing the required service or activity. A "program" means "a program

or project imposed by enactment of the Legislative Assembly or by rule or order of a state agency under which a local government must provide administrative, financial, social, health or other specified services to persons, government agencies or to the public generally." Art. IX, section 15(2)(c) (emphasis added). The Unfunded Mandate Act went into effect in 1997 and only applies to mandates enacted after that date. This TMDL is issued pursuant to the Clean Water Act and state water quality laws that predate the Unfunded Mandate Act. Additionally the TMDL does not require local governments to establish a "program" as defined by the Unfunded Mandate Act but rather regulates the internal activities of those entities to address their pollution to waters of the state. Additionally, the Oregon Court of Appeals decided in Linn County v. Brown, 297 Or App 330 (2019), that the Unfunded Mandates Act does not apply to these sorts of regulatory actions. This decision was affirmed by Oregon Supreme Court in Linn County v. Brown, 366 Or. 334 (2020). DEQ acknowledges the fiscal impact to all entities responsible for implementing the TMDL. DEQ encourages responsible persons and DMAs to coordinate and collaborate with watershed partners on implementation in order to improve implementation efficiency as well as reduce/ share costs when feasible.

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10. Comments from: City of Troutdale

Troutdale #1

Description: WQMP - Remove Troutdale from DMA list

Comment: The City of Troutdale does not discharge to the Willamette River or its subbasins and should not be included as a DMA in either the Willamette Subbasin TMDL or WQMP. Additional documentation can be provided to support this statement.

Response: Thank you for your comment. The City of Troutdale has been removed as a DMA from the Willamette Subbasins TMDL. The City of Troutdale is identified as a DMA in the Lower Columbia-Sandy Subbasin TMDL.

Changes were made based on this comment.

Troutdale #2

Description: TMDL/WQMP - City supports ACWA's comment letter

Comment: The City supports those comments listed in ACWA's comment letter for the Draft TMDL and WQMP for the Willamette Subbasins.

Response: DEQ acknowledges the City of Troutdale's support of comments submitted separately by the Oregon Association of Clean Water Agencies.

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11. Comments from: Civil West (City of Lowell)

Lowell #1

Description: TMDL - Correct the effluent discharge for Lowell STP in Table 9-11

Comment: Regarding Table 9-11 in the Draft TMDL, the flowrate used for the Lowell STP (51477:OR0020044) is the result of a clerical error and does not accurately reflect the City's maximum thermal-WLA-season flowrate. The actual flowrate for the date in question (September 22, 2017) was 0.051 MGD (or 0.095 cfs).

In summary, the "1.96" number that was reported is actually a reading from the City's flow totalizer (total millions of gallons since the unit was installed), not the daily flowrate. The City's DMR worksheet containing the error is attached as "DMR September 2017.xlsm". The calculation for 24hr flow in the "Data input" tab contains a typo for the 9/22/2017 date – the previous day totalizer volume was not subtracted to calculate a 24-hour flowrate. Also attached as "Lowell Effluent Flow Record September 19 2017.pdf" is a scan of the facility's flow record wheel from that date range. This record agrees with the recalculated flowrate of 0.051 MGD.

Response: Thank you for identifying this error. The effluent flow rate used for calculation of Lowell STP's wasteload allocation was updated to 0.790 MGD, which is the highest effluent flow rate reported in discharge monitoring reports dating from 2015-2020 during the period when the TMDL allocation applies (5/1 to 10/31). Based on this correction, DEQ revised the assigned HUA to 0.013 degress Celcius.

Changes were made based on this comment.

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12. Comments from: Clackamas Water Environment Services

WES #1

Description: TMDL - WLAs - Distribute reserve capacity to Boring STP's WLA to provide an achievable wasteload allocation

Comment: The January 2024 draft Willamette River TMDL includes a wasteload allocation (WLA) of 0.125 million kcal/day for the Boring STP. This draft allocation is substantially lower than the current NPDES permit limits which are based on the 2006 Willamette River TMDL. The current 20162021 NPDES permit for the Boring STP specifies wasteload allocations of 0.333 million kcal/day from June 16th to October 14th based on the core cold water criteria (16 C), and 0.357 million kcal/day from October 15th to June 15th based on fish spawning use (13 C). An assessment of recent thermal loads in the STP's effluent shows that the facility would be in

immediate non-compliance with the proposed WLA in the Jan. 2024 draft TMDL. Please see the attached Excel file with Excess Thermal Load data from the Boring STP from April 2020 through October 2023. In many instances, the 7-day average excess thermal load (ETL) discharged during this recent time period exceeds the 0.125 million kcal/day which was allocated to the Boring STP in the Jan. 2024 draft TMDL. Because this is a wastewater treatment plant which serves a community, WES does not have any available options for reducing the temperature or volume of the Boring STP's effluent. Because there is a significant amount (0.155 C) of reserve capacity available in this section of the North Fork of Deep Creek (see Table 9-10), we urge DEQ to distribute some of this reserve capacity to the Boring STP's WLA to provide an achievable WLA for the Boring STP.

Response: DEQ completed a source characterization of Boring STP's discharge using effluent flow and temperatures reported on April - October DMRs from years 2019-2020. DEQ estimated daily mean river flow at Boring STP's outfall for the analysis period (2019-2020) using the drainage area ratio method. USGS 14211400 Johnson Creek at Regner Road was used as the reference gage. The minimum estimated flow during the 2019-2020 period was 0.3 cfs, which is close to the 7Q10 of 0.24 cfs (updated from 0.65 cfs in draft TMDL - see WES' comment about 7Q10). Based on this analysis, DEQ agrees the draft TMDL wasteload allocation could result in immediate noncompliance for Boring STP. DEQ increased the assigned human use allowance to 0.20 deg-C, which eliminated the noncompliance days based on the estimated flows in 2019 and 2020. DEQ also updated the maximum effluent flow (QE) used in the TMDL wasteload allocation calculation to 0.036 MGD. This was the maximum reported effluent discharge on the DMRs that DEQ reviewed.

Changes were made based on this comment.

WES #2

Description: TMDL - WLAs - Conduct assessment of thermal loading for Boring STP

Comment: In the Jan. 2024 draft Willamette TMDL's Water Quality Management Plan, it says this about WLAs for point sources: "The allocation was increased above 0.075 when analysis indicated that 0.075 would result in immediate noncompliance. DEQ only increased the allocation if there was sufficient loading capacity available. An assessment of current thermal loading was not possible for all point sources due to project time constraints or lack of data." It appears that DEQ hasn't yet conducted this assessment of thermal loading for the Boring STP and we urge DEQ to do this prior to finalizing the TMDL.

Response: DEQ completed an assessment of Boring STP's thermal loading. Based on this analysis, DEQ agrees the draft TMDL wasteload allocation would result in immediate noncompliance for Boring STP. DEQ increased the assigned human use allowance to 0.20 deg-C, which eliminated all the noncompliance days. DEQ also updated the maximum effluent flow (QE) used in the TMDL wasteload allocation calculation to 0.036 MGD. This was the maximum reported effluent discharge on the DMRs that DEQ reviewed.

Changes were made based on this comment.

WES #3

Description: TMDL - WLAs - Establish two periods for Boring STP WLAs

Comment: Also prior to finalizing the TMDL, we also encourage DEQ to establish two WLAs for the Boring STP, as was done in the 2006 Willamette TMDL. One WLA would be for the period from June 16th to October 14th and the other would be from October 15th to June 15th.

Response: DEQ is using a single wasteload allocation period in this TMDL because the assigned human use allowance to Boring STP and the waste load allocation are the same number for both the spawning and year-round periods. This approach will accommodate potential revisions to the aquatic life uses in the temperature standard and any changes to the period when spawning or year-round numeric criteria apply.

WES #4

Description: TMDL - WLAs - Confirm the most appropriate 7Q10 was used in WLA calculation for Boring STP

Comment: Finally, the Jan. 2024 draft Willamette TMDL says the North Fork of Deep Creek's 7Q10 flow at the Boring STP is 0.65 CFS, but WES' 2009 mixing zone study for the Boring STP says the 7Q10 flow there is 0.24 CFS, and this is the 7Q10 flow which DEQ relied upon to write portions of the Boring STP's current (2016-2021) NPDES Permit. Please evaluate this situation to be sure that DEQ is using the most appropriate 7Q10 flow in the new TMDL.

Response: DEQ updated the 7Q10 to 0.24 cfs, consistent with WES's 2009 mixing zone study for Boring STP. This calculation was based off of four years of flow data measured at the facility outfall. The mixing zone study states that this 7Q10 should be considered an approximation for the period from July to October. DEQ encourages Boring STP to collect additional flow data in order to improve the 7Q10 estimate. The TMDL allows permit writers to update the 7Q10 at permit renewal.

WES #5

Description: WQMP - DMAs - Add OWRD as a DMA or explain why they were omitted

Comment: Oregon's Water Resources Department should be identified as a DMA (Designated Management Agency) in the Sandy River and Willamette River Watershed Temperature TMDLs. In Appendix A on Page #54 of #83 in the Jan. 2024 draft Willamette River TMDL's Water Quality Management Plan, in rows #126 to #133 in the table, Oregon's Dept. of Forestry (ODF), Oregon's Department of Agriculture (ODA), and several other state agencies are identified as DMAs. Why was WRD omitted from this draft list?
On page #7 of #83 in the Jan. 2024 draft Willamette River TMDL's Water Quality Management Plan, water rights and the benefit of enhancing instream flows are addressed: "Water conservation is a best management practice that directly links the relationship between water quantity and water quality. Leaving water instream functions as a method to protect water quality from flow-related parameters of concern, such as temperature. Under state law, the first

person to file for and obtain a water right on a stream is the last person to be denied water in times of low stream flows. Therefore, restoration of stream flows may require establishing instream water rights. One way this can be accomplished is by donating or purchasing out-of stream rights and converting these rights to instream uses." To support attainment of the allocations in these water temperature TMDLs, the WRD could communicate with senior water rights holders, for example, to verify that they aren't taking more water for consumptive purposes (ie. irrigating crops) than is allowed by their water right in order to maintain higher instream flows and lower instream temperatures.

Response: The comment asserts that the Oregon Water Resources Department (OWRD) should be listed as a DMA because of OWRD's role in water management. DEQ recognizes the temperature impacts that water withdrawals can have. However, OWRD's role as the state agency that administers the laws governing the allocation of water rights can be distinguished from the roles of other state agencies that have regulatory authority managing activities and uses of property that contribute to water quality impairments, such as ODA and ODF. The EQC TMDL rules specifically address the roles that ODA and ODF have in implementing TMDLs in OAR 340-042-0080. Given OWRD's unique role that does not involve land management, rather than designating OWRD as a DMA at this time, DEQ has determined that it will work with OWRD to evaluate ways in which the agencies can further partner in efforts to increase flows to improve water temperature, such as through commitments specified in a MOU or MOA.

WES #6

Description: WQMP - DMAs - Clackamas WES name error

Comment: On Page #54 of #83 in the Jan. 2024 draft Willamette River TMDL's Water Quality Management Plan, in row #125 in the table found in Appendix A, WES' name isn't spelled correctly. It says "Water and Environment Services". The correct name to use here is Water Environment Services.

Response: Thank you for your comment. Water Environment Services' name has been corrected in Appendix A.

Changes were made based on this comment.

WES #7

Description: TMDL - MS4 - Rename Table 9-11

Comment: Please re-name Table 9-11, which begins on page #40. It current title is "Point Sources" but MS4 Permits, which are point sources, have been excluded. MS4 Permits were included in Table 7-2.

Response: The referenced table is titled "Thermal wasteload allocations (WLA) for point sources". MS4s were excluded from the table because they were not given wasteload allocations. DEQ believes that the current table title makes clear that the point sources listed are

the subset of point sources that receive wasteload allocations; the table name will not be changed.

WES #8

Description: TMDL - MS4s - Clarify what the existing thermal load authorization is for MS4 permits

Comment: Section 9.1.2 says “The wasteload allocation for registrants under the general stormwater permits (MS4, 1200-A, 1200-C and 1200-Z) and general permit registrants not identified in Table 9-11 is equal to any existing thermal load authorized under the current permit.” This is problematic because we’re unsure what the existing thermal load is that was authorized by the Phase II General MS4 Permit, and a NPDES permit cannot authorize a MS4 to discharge an excess thermal load if the load isn’t first properly authorized by the temperature TMDL. Note that this phrase says only “general” MS4 permits are included. Please remember to also consider Phase I individual MS4 Permits when addressing this subject (Clackamas WES’ Phase I MS4 Permit is an individual MS4 permit).

Response: The TMDL language has been revised to include the MS4 phase I individual permits and general permits. The reference to existing thermal load was removed. We clarified the wasteload allocation is set equal to loads permitted by these permits. Individual permittees and registrants must follow their permit conditions to meet the narrative wasteload allocation. Beyond current permit limits, no additional TMDL requirements are needed for stormwater sources to control temperature.

Changes were made based on this comment.

WES #9

Description: TMDL - MS4 - Provide wasteload allocation to MS4s

Comment: On page #23, the draft TMDL says “Based on a review of published literature and other studies related to stormwater runoff and stream temperature in Oregon (see TSD section 7.1.2), DEQ found there is not sufficient evidence to demonstrate that stormwater discharges authorized under the current municipal (MS4s) permits or the construction (1200-C) and industrial (1200-A and 1200-Z) general stormwater permits contribute to exceedances of the temperature standard.” The TMDL also says “Waste load allocations were not assigned to storm water sources such as municipal separate storm sewer systems (MS4s) and combined sewer overflows because they have been determined not to be significant contributors to heat over a seven day period as specified in the temperature standard.” We encourage DEQ to provide a modest temperature WLA to all MS4s in this TMDL – and also in the Sandy River TMDL – to avoid unintended compliance problems if it turns out that one or more MS4s are someday found to be a significant contributor of heat. An example could be a storm sewer system with a large stormwater treatment & detention pond near the outfall with a constant source of spring-fed flow (24-7) during the hot Summer months. In this instance, this spring water could be warmed somewhat on its way through the pond before being discharged into the creek, wetland or river.

Response: DEQ is not assigning WLAs to MS4s in these TMDLs because this would require revisions to the NPDES MS4 General Permit to include any such WLAs. However, if stormwater in general or a specific MS4 is later determined to cause temperature impacts that affect TMDL attainment, then the associated MS4(s) may apply for available Reserve Capacity.

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13. Comments from: Clean Water Services

CWS #1

Description: Public hearing oral comment: Thermal Load Trading

Comment: Comment summary: DEQ should include, emphasis, and encourage processes that continue to allow for thermal load trading along with a clear statement that allows trading. Note: The content in the oral comment was included in CWS' written comments.

Response: Thank you for your comment. This comment was also presented in CWS' written comments. Please see CWS' written comments for responses.

CWS #2

Description: WQ Trading—Specify water quality trading as a compliance option

Comment: DEQ should be explicit about the role of water quality trading as defined in Oregon Administrative Rules as a compliance option. CWS recommends that the Oregon DEQ include processes that continue to allow for thermal load trading in the TMDL along with a clear statement supporting trading as allowed by rule (and cited in OAR 340-039-0005) in the Willamete Subbasins TMDL. WQ Trading is one of the most efficient and effective tools for offsetting thermal loads from point sources, and it provides environmental benefits that extend into the watershed.

Response: The DEQ appreciates the need for clarity regarding the use of Water Quality Trading for compliance with TMDL requirements. The DEQ agrees with CWS that trading is efficient, effective, and provides ancillary benefits such as sediment, nutrient and carbon sequestration, and wildlife habitat. As CWS is aware, trading is allowed statewide as long as the requirements listed under OAR 340-39 are met. The WQMP will be updated to explicitly state that water quality trading is and remains a TMDL compliance option.

Changes were made based on this comment.

CWS #3

Description: HUA–TMDL–Reserve a portion of the HUA for point source trading

Comment: [A] portion of the nonpoint source shade estimates or human use allowance to solar loading from nonpoint sources other than existing transportation corridors, buildings and utility infrastructure should be reserved for WQ Trading with Point Sources. Clean Water Services is concerned that the way the human use allowance (HUA) was allocated in the Willamette Subbasins TMDL may be read to limit the ability of point sources to create or continue water quality trading programs. The temperature TMDL is allocating thermal loads and using shade as a surrogate for nonpoint sources. The draft Willamette Subbasins TMDL allocates no portion of the HUA to nonpoint sources, except existing transportation corridors, buildings, and utility infrastructure. The DEQ should enunciate how thermal load trading would work and if a portion of the nonpoint source shade estimates, gap analysis, or HUA should be reserved for point source trading.

Response: DEQ is required to develop temperature TMDLs based on the current water quality standards. Allocations are set and their sum equals the Loading Capacity as defined in OAR 340-042-0040(4)(d) and 40 CFR 130.2(f) as the amount of a pollutant or pollutants that a waterbody can receive and still meet water quality standards. We have provided allocations that add up to the Loading Capacity, will meet the current water quality standards, and will enable point sources in the Willamette Subbasins TMDL to participate in water quality trading. Water Quality Trading is allowed statewide so long as the requirements listed under OAR 340-39 are met. Although the DEQ does not reserve a portion of the HUA (human use allocation) for point source trading, we appreciate the need for clarity regarding the use of Water Quality Trading for compliance with TMDL requirements. The WQMP will be updated to explicitly state that water quality trading remains a TMDL compliance option.

Changes were made based on this comment.

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14. Comments from: Conservation Commenters

Conservation Commenters #1

Description: TMDL - Three Basin Rule and hatchery WLAs

Comment: The draft TMDLs violate the Three Basin Rule by allocating unlawful waste load allocations (WLAs) to four fish hatcheries. OAR 340-041-0350. The rule does not permit DEQ to increase thermal load limitations for existing facilities with National Pollutant Discharge System Elimination System (“NDPES”) permits in the McKenzie River (above river mile 15), North Santiam River, and Clackamas River Subbasins. OAR 340-041-0350(1). The Leaburg, McKenzie River, Marion Forks, and Eagle Creek Hatcheries are existing facilities that discharge in these subbasins under NPDES permits. The draft TMDLs allocate new and increased WLAs to these hatcheries, thereby increasing their thermal load limitations in violation of the rule. To comply with the rule, DEQ must remove these proposed WLAs from the draft TMDLs.

Response: The Three Basin Rule, OAR 340-041-0350, limits new or increased waste discharges in the Clackamas, McKenzie and North Santiam Subbasins in certain circumstances. As to the comment that the TMDL violates the rule, waste discharges are authorized through NPDES permits, WPCF permits or Section 401 Water Quality Certifications. TMDLs are inherently planning documents that do not directly authorize discharges and therefore a TMDL cannot violate the Three Basin Rule. An allocation would have to be implemented through a water quality permit or Section 401 Water Quality Certification to authorize a discharge.

Regarding future permitting actions for the hatcheries the comment raises, the TMDL thermal waste load allocations for the Marion Fork and Eagle Creek Hatcheries do not allow an increase to stream temperatures from the previous TMDL or what is incorporated into the current NPDES permit. DEQ uses an excess thermal load approach which incorporates river flow into the loading equation. Changes in the river flow can increase (or decrease) the thermal loading value but does not increase the amount of allowed temperature warming from heat pollution. Consistent with the temperature standard, the amount of heat pollution is measured by the portion of the human use allowance assigned to the facility. The human use allowance assigned to these facilities is the same as what was in the last TMDL and is currently permitted. Regarding McKenzie and Leaburg the draft TMDL provides these existing facilities an assigned a human use allowance that are not greater than what was allowed by the prior TMDL. However, due to an error in the TMDL the allocation could not be incorporated into the NPDES permit. The TMDL assigned the allocation to the wrong stream. These facilities have existed for many decades, and they do not propose a change in operations. The proposed TMDL corrects for this prior oversight and provides allocations that accommodates for this existing use.

While as discussed above the allocations for the facilities have not changed, regardless the Three Basin Rule would not restrict permit renewal. As to renewal of NPDES permits for existing facilities the Three Basin Rule provides: The Director or a designee may renew or transfer NPDES and WPCF permits for existing facilities. Existing facilities with NPDES permits may not be granted increases in their permitted mass load limitations." The rule therefore allows for renewal of permits for existing facilities but does not allow increases in permitted mass load limitations. Temperature is not expressed as a mass load. Federal regulations at 40 CFR § 122.45(f) applicable to states regarding calculating permit conditions provides as to mass limitations that "[a]ll pollutants limited in permits shall have limitations, standards or prohibitions expressed in terms of mass" except a list of pollutants including temperature. The plain language of the rule directed at renewal of permits for existing facilities limits only increases of permit limits expressed in mass load. Given this language, even if incorporation of this allocation into the NPDES permit for this longstanding facility were within the scope of the Three Basin Rule, the rule language addressing renewal is focused on limiting increases in mass load.

Conservation Commenters #2

Description: TMDL - WLAs for Leaburg and McKenzie River hatcheries

Comment: DEQ did not use the 7Q10 streamflow that DEQ identified in the Leaburg and McKenzie River Hatcheries' NPDES permit fact sheets. DEQ did not explain why it used higher 7Q10 streamflow levels than the one it used three years ago in these permit fact sheets. As a result, DEQ used the wrong 7Q10 streamflow values and, as a result, incorrectly calculated higher 7Q10 WLAs for the hatcheries. DEQ should explain why it believes the higher 7Q10

streamflow levels are appropriate for calculating the Leaburg and McKenzie River Hatcheries' respective WLAs.

Response: Due to decommissioning of the EWEB Leaburg Hydroelectric Project, it is DEQ's understanding that water will no longer be diverted from the McKenzie River and through the hydroelectric project. This will eliminate the thermal load associated with reduced flows in the "bypass" reach downstream from Leaburg Dam. Leaburg and McKenzie River Hatchery thermal WLAs have been recalculated based on 7Q10 flow rates for full river flow.

Changes were made based on this comment.

Conservation Commenters #3

Description: HUA - Leaburg Project

Comment: The draft TMDLs must assign a portion of the HUA to the Leaburg Project. Although the Eugene Water & Electric Board (EWEB) voted to decommission the Leaburg Project, the facility won't be removed until the next decade at the earliest, assuming the Federal Energy Regulatory Commission approves the decommissioning plan.32 Therefore, warming caused by the impoundment, which creates "a 345-acre-foot backwater section of the McKenzie River," will continue for years. These impacts must be accounted for in the draft TMDLs.

The draft TMDLs must retain the portion of the HUA assigned to the Leaburg Project in the current TMDL.

If DEQ refuses to assign a portion of the HUA to the Leaburg Project, DEQ should at least explain why it is no longer assigning a portion of the HUA to the project even though it will continue to affect water quality for at least the next decade.

Response: The load allocation for the EWEB Leaburg Project is set to zero. For the 2006 TMDL, a portion of the HUA was assigned to EWEB. This limited impacts of the project on river temperature associated with reducing flow in the river dowstream from the diversion canal for the project. Since it is DEQ's understanding that the project will be decommissioned and is no longer expected to divert significant amounts of water from the McKenzie River, the Load Allocation for the facility is set to zero.

Conservation Commenters #4

Description: WQMP - Reasonable Assurance

Comment: DEQ cannot demonstrate a high likelihood that the draft TMDLs will be implemented because DEQ admits there are few to no assurances of landowner participation, DMAs are not implementing current implementation plans, and there are no new incentives or laws that will change these trends. The draft TMDLs also do not include adaptive management procedures that ensure loading reductions stay on track to attain and maintain water quality standards.

Response: DEQ will work diligently with our partners and stakeholders, as well as the DMAs and responsible persons, to ensure the TMDL is implemented through the WQMP. The management strategies and the existing programs outlined in the WQMP provide reasonable assurance that the allocations will be met through regulatory or voluntary actions. DEQ expects that all relevant management strategies will be applied to the controllable portions of each source toward achieving each responsible entity's portion of the reductions needed. New requirements include a streamside evaluation from DMAs, which will help prioritize and track streamside restoration efforts. The new requirement for ODF, ODA, BLM and USFS to develop and implement TMDL implementation plans that describe strategies specific to restoring streamside conditions are expected to help achieve TMDL shade measures. DEQ will continue to work with DMAs and watershed partners to better understand streamside restoration needs throughout the Willamette Basin and use the adaptive management process described in section 6 to refine and improve implementation overtime.

Conservation Commenters #5

Description: WQMP - Reasonable Assurance ODA

Comment: DEQ proposes that ODA draft a temperature TMDL implementation plan and submit it to DEQ for review. However, DEQ does not explain how writing a new plan will solve the problem of ODA not implementing plans. Therefore, DEQ, EPA, and the public can only be reasonably assured that ODA might engage in a writing exercise rather than implement actions needed to restore riparian conditions and water quality.

Response: DEQ agrees that ODA's current implementation of agricultural water quality rules and area plans are not adequate in all locations to provide the streamside vegetation requirements and targets that are necessary to meet TMDL effective shade targets, load allocations and temperature water quality standards. DEQ believes that requiring ODA to develop a temperature TMDL implementation plan that includes specific measurable objectives and milestones for streamside shade will result in on the ground improvements of streamside shade. DEQ also recognizes that ODA may need to revise agricultural water quality rules in order to meet their obligations under the TMDL if voluntary landowner participation does not increase.

Conservation Commenters #6

Description: WQMP - Reasonable Assurance riparian protection

Comment: DEQ does not explain why it is reasonable to expect DMAs to develop more protective laws during implementation of the draft TMDLs when they have failed to do so during the implementation of the current TMDLs. Based on their performance to date, it is more reasonable to assume that the DMAs will not adopt these laws, especially at the scale necessary to meet shade targets.

Response: DEQ will work diligently with our partners and stakeholders, as well as the DMAs and responsible persons, to ensure the TMDL is implemented through the WQMP. The management strategies and the existing programs outlined in the WQMP provide reasonable

assurance that the allocations will be met through regulatory or voluntary actions. DEQ expects that all relevant management strategies will be applied to the controllable portions of each source toward achieving each responsible entity's portion of the reductions needed. New requirements include a streamside evaluation from DMAs, which will help prioritize and track streamside restoration efforts. The new requirement for ODF, ODA, BLM and USFS to develop and implement TMDL implementation plans that describe strategies specific to restoring streamside conditions are expected to help achieve TMDL shade measures. DEQ will continue to work with DMAs and watershed partners to better understand streamside restoration needs throughout the Willamette Basin and use the adaptive management process described in section 6 to refine and improve implementation overtime.

Conservation Commenters #7

Description: WQMP - Reasonable Assurance Wildfires

Comment: DEQ also failed to account for increasing wildfires caused by climate change, which will delay, if not prevent, the shade targets from being met. As shade coverage declines due to wildfires and summer flows are reduced, the stream temperatures will continue to rise, yet DEQ does not take this climate change-driven increase in wildfires into consideration. To start with, DEQ needs to include conservative assumptions for wildfires in the draft TMDLs and account for them when creating a timeline for meeting shade targets. Ideally, the timeline should require shade targets to be met sooner to account for the likelihood that some shade benefits will be lost due to wildfires and will need to be replaced.

Response: DEQ acknowledges that many factors, including wildfires, will likely impact streamside shade at specific locations in a watershed but restoration and protective measures will increase overall shade in the basin at an accelerated rate. The timelines identified in the WQMP is based on a general timeline of how long it takes for overstory trees to mature and provide streamside shade. Once fully implemented, the management strategies and existing programs outlined in the WQMP provide reasonable assurance that the allocations will be met over time through regulatory or voluntary actions.

Conservation Commenters #8

Description: WQMP - Implementation Tracking

Comment: DEQ should revise the draft TMDLs to provide for a web-based tracking tool that enables the public to track progress toward meeting the draft TMDLs goals, if any.

Response: Thank you for your comment. At this time DEQ does not plan to develop a web-based tracking tool to allow the public to track progress towards meeting the draft TMDL goals. However, DMAs are required to report projects designed to control thermal pollution, that use practices listed in OWEB's OWRI Online List of Treatments, to the OWRI database or other publicly accessible database. Additionally, DMAs will report annually to DEQ on implementation actions taken to achieve load allocations. These performance monitoring reports must include implementation tracking for each of the identified management strategies, progress toward timelines and measurable milestones specified in the implementation plan, and evaluation of the

effectiveness of the strategies. DMAs will track and report implementation actions including the number, type and location of projects, best management practices, education activities, or other actions taken to improve or protect water quality. Most DMAs will track implementation actions they are directly responsible for completing, and some may need to track and report on actions that they implement through their support of other land managers, e.g., private landowners.

TMDL implementation plans and annual reports must be posted to each DMA's website for public transparency. If a DMA does not have a website, these documents must be made available to the public in another manner.

Conservation Commenters #9

Description: WQMP - Implementation Plans/Compliance

Comment: DEQ should at least require ODA and other entities with management authority over land use to develop two-year implementation plans that set two-year milestones for implementing riparian revegetation projects. DEQ should also revise the draft TMDLs to provide that DEQ will impose more restrictive WLAs for NPDES sources when the DMAs fail to meet their two-year milestones.

Response: DEQ requires DMAs to plan implementation of nonpoint source management strategies on a five-year cycle. Keeping the five-year implementation cycle consistent between the Willamette Basin TMDLs will be more efficient. DMA implementation plans also include interim milestones and measurable objectives within each five-year cycle, for DEQ to track progress on an annual basis with the submittal of DMA annual reports and year five review. DMAs that have a waste load allocations are regulated through DEQ's NPDES program and applicable permits. Waste load allocations are not tracked or enforced through nonpoint source implementation plans.

Conservation Commenters #10

Description: TMDL - Climate change impacts on streamflow

Comment: Despite acknowledging scientific evidence demonstrating that streamflows will be lower in the future because of climate change, DEQ did not account for these changes in the draft TMDLs. DEQ must revise the draft TMDLs to account for declining streamflows, otherwise the draft TMDLs will not attain and maintain water quality standards, as required by rule.

Response: Thank you for your comment. DEQ acknowledges the impacts of climate change in Oregon. The current allocations do not allow warming from anthropogenic climate change. DEQ views climate change as an anthropogenic source of warming and has not provided any portion of the human use allowance to accommodate climate change. Therefore climate change sources must achieve zero temperature warming. Oregon DEQ has programs with authority to regulate sources of climate change located within Oregon. DEQ included further information within the TSD Appendix titled Climate Change Summary.

Conservation Commenters #11

Description: TMDL - Climate change impacts on loading capacity and allocation analyses

Comment: The best available scientific data demonstrates that temperatures are rising in most streams, that warming air temperatures are increasing stream temperatures, and that both warming patterns will intensify. DEQ's literature analysis on climate change impacts acknowledges several studies that discuss these trends, although it fails to include other relevant studies. DEQ fails to account for changing conditions in its loading capacity or allocation analyses. As a result, the analyses, assumptions, and allocations in the draft TMDLs are flawed.

Even though climate change is predicted to increase air and stream temperatures in the Willamette River Basin and its tributaries, DEQ only used steady-state air and streamflow temperatures based on historical data to develop the draft TMDLs. Indeed, DEQ made no efforts whatsoever to account for predicted increases in air and stream temperatures that are reasonably certain to occur and can be modelled.

Response: Thank you for your comment. DEQ acknowledges the impacts of climate change in Oregon. The current allocations do not allow warming from anthropogenic climate change. DEQ views climate change as an anthropogenic source of warming and has not provided any portion of the human use allowance to accommodate climate change. Therefore climate change sources must achieve zero temperature warming. Oregon DEQ has programs with authority to regulate sources of climate change located within Oregon. DEQ included further information within the TSD Appendix titled Climate Change Summary.

Conservation Commenters #12

Description: TSD - Climate change references

Comment: DEQ did not consider other studies that found that stream temperatures in the Pacific Northwest are projected to increase significantly in the foreseeable future, in part, due to increasing air temperatures. For example, DEQ's literature analysis on climate change does not cite Beechie et al. (2012), even though it is one of the leading papers on climate change impacts to stream temperatures and salmon and steelhead in the Pacific Northwest.

DEQ also did not consider Wade et al (2013), which used modelled temperature and flow data to calculate water temperatures and flows for rivers throughout the Pacific Northwest.

Lastly, DEQ did not consider the Oregon Climate Change Research Institute's (OCCRI) recent climate change assessment, which predicts that the annual number of days in the Willamette Basin with an extreme heat index will double or triple compared to the period from 1991-2020.90 As DEQ knows, more warm days means more warm water and, therefore, DEQ should have considered this information as well as other available data on future climate change effects (e.g., predicted changes in air temperature, streamflow, and water temperature).

Response: Thank you for your comment. DEQ acknowledges the impacts of climate change in Oregon. The goals of the DEQ literature analysis on climate change (TSD Appendix F: Climate Change Summary) were to establish that climate change is a source of stream temperature

warming in Oregon, and to estimate the impact climate change has had on current water quality conditions. DEQ cited 40 studies and concluded that stream temperatures in the Pacific Northwest have increased due to climate change. Estimates were provided of how current stream temperatures have been elevated due to climate change. It was outside the scope of the literature review to project future climate change-driven stream temperatures.

Conservation Commenters #13

Description: TMDL - Climate change impacts on beneficial uses

Comment: DEQ did not consider climate change effects on four sensitive species that are beneficial uses and will be affected by the draft TMDLs. Specifically, DEQ ignored the existential risk that climate change poses to Lower Columbia River Chinook and steelhead and Upper Willamette River spring Chinook and steelhead, which are all listed as “threatened” species under the Endangered Species Act (“ESA”)

Response: Thank you for your comment. DEQ acknowledges the impacts of climate change in Oregon. The current allocations do not allow warming from anthropogenic climate change. DEQ views climate change as an anthropogenic source of warming and has not provided any portion of the human use allowance to accommodate climate change. Therefore climate change sources must achieve zero temperature warming. Oregon DEQ has programs with authority to regulate sources of climate change located within Oregon. DEQ included further information within the TSD Appendix titled Climate Change Summary.

Conservation Commenters #14

Description: TMDL - Climate change in models

Comment: Apparently, DEQ did not adjust the modelling scenarios at all to account for any of the air and stream temperature changes discussed in the climate change literature analysis, Beechie et al. (2013), Wade et al. (2013), or OCCRI (2023). As a result, none of the allocations or assumptions based on DEQ’s modelling exercises account for loading caused by climate change and, therefore, the draft TMDL allocations are overbudgeted.

Response: Thank you for your comment. DEQ acknowledges the impacts of climate change in Oregon. The current allocations do not allow warming from anthropogenic climate change. DEQ views climate change as an anthropogenic source of warming and has not provided any portion of the human use allowance to accommodate climate change. Therefore climate change sources must achieve zero temperature warming. Oregon DEQ has programs with authority to regulate sources of climate change located within Oregon. DEQ has also included some further information within the TSD Appendix titled Climate Change Summary.

Conservation Commenters #15

Description: HUA - Climate Change

Comment: By failing to assign a portion of the HUA to climate change, DEQ overassigned the HUA and thereby overallocated loading capacity in violation of the HUA and TMDL Rules. OAR 340-041-0028(12)(b)(B), OAR 340-042-0040(4)(d). To comply with both rules, DEQ must revise the draft TMDLs by assigning portions of the HUA to climate change and making necessary reductions to other TMDL allocations to stay within the 0.3° C limit.

DEQ should follow its own advice by assigning a portion of the HUA to climate change and allocating a portion of the loading capacity to that background source.

Response: Thank you for your comment. DEQ acknowledges the impacts of climate change in Oregon. The current allocations do not allow warming from anthropogenic climate change. DEQ views climate change as an anthropogenic source of warming and has not provided any portion of the human use allowance to accommodate climate change. Therefore climate change sources must achieve zero temperature warming. Oregon DEQ has programs with authority to regulate sources of climate change located within Oregon. DEQ has also included some further information within the TSD Appendix titled Climate Change Summary.

Conservation Commenters #16

Description: TMDL - MOS/Climate Change

Comment: DEQ failed to account for climate change in the draft TMDLs' margin of safety, even though predicted climate change impacts eviscerate the accuracy of the draft TMDLs' analyses, allocations, and assumptions.

DEQ should have included an explicit load allocation for climate change in the margin of safety because climate change will undeniably cause warming impacts and an explicit allocation would be transparent to the public. To account for the uncertainty of the draft TMDLs' assessment being accurate or effective in restoring water quality based on climate change effects, DEQ should include an explicit load allocation in the margin of safety to account for climate change. Putting a number on the margin of safety will demonstrate to the public that DEQ has accounted for it.

Response: Thank you for your comment. DEQ acknowledges the impacts of climate change in Oregon. The current allocations do not allow warming from anthropogenic climate change. DEQ views climate change as an anthropogenic source of warming and has not provided any portion of the human use allowance to accommodate climate change. Therefore climate change sources must achieve zero temperature warming. Oregon DEQ has programs with authority to regulate sources of climate change located within Oregon. DEQ included further information within the TSD Appendix titled Climate Change Summary.

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15. Comments from: EWEB

EWEB #1

Description: TMDL-WQMP-Reservoirs: DEQ's authority is preempted by the FERC

Comment: DEQ fails to recognize federal preemption by the Federal Energy Regulatory Commission (FERC) license and relicensing proceeding for the Leaburg and Walterville Projects. The FERC license establishes instream flow requirements for the Projects along with other measures to mitigate for project impacts to the environment. Water quality impacts from hydroelectric projects are addressed through the Section 401-Certification process, which provides DEQ an opportunity to incorporate TMDL temperature allocations during the FERC licensing process. Once the FERC license is issued, it controls operations of the hydroelectric project.

FERC licensing decisions and subsequent judicial review of those decisions preclude new temperature limitations or controls from being implemented at Leaburg and Walterville. …flow and temperature impacts related to the Leaburg and Walterville projects were previously contested and decided as part of the FERC licensing process. Both the DEQ and the Oregon Department of Fish and Wildlife participated in the FERC licensing process and the Ninth Circuit Court of Appeals review of the FERC order.

Response: The DEQ recognizes the role played by the FERC in the operation of hydroelectric projects, and these operational requirements should be included in the EWEB's TMDL implementation plan. A DEQ 401 water quality certification accounts for existing TMDL requirements in place at the time it is issued. A 401 water quality certification may be modified when a new TMDL is issued. Although facilities may be licensed by the FERC, Oregon's Environmental Quality Commission retains authority to develop water quality standards as necessary and to implement those standards through TMDLs. An appeals court review of a FERC order does not preclude the adoption of new temperature limits or controls.

EWEB #2

Description: TMDL-WQMP-Reservoirs: DEQ lacks authority to regulate water withdrawals

Comment: EWEB withdraws water for the Leaburg and Walterville projects from the McKenzie River pursuant to EWEB's water rights established under Oregon law. Neither state nor federal TMDL laws authorize the DEQ to regulate water withdrawals. EWEB believes that the DEQ's attempt to regulate water withdrawals for the Leaburg and Walterville Projects through a TMDL allocation is outside the scope of the DEQ's discretion. DEQ's authority under state and federal TMDL laws only extends to regulating sources that introduce pollutants to the receiving stream. The federal Clean Water Act does not provide the authority to regulate flow and the DEQ lacks the state jurisdiction to regulate withdrawals.

Response: The DEQ agrees with EWEB that state and federal TMDL laws extend to regulating sources that introduce pollutants into a receiving stream. In the present case, a pollutant (heat) may be added to waterways by impoundments or other alteration to a river's natural flow. Current WQMP guidelines under the TMDL requests that DMAs monitor for temperature changes between a project's inflow and outflow. If sufficient data are available to demonstrate that stream temperature does not increase from upstream to downstream of an impoundment, then the reservoir operator may not be required to develop a TMDL implementation plan.

Although the DEQ does not directly regulate water withdrawals, the physical and temporal aspects of water use can fall within the purview of the DEQ. The OWRD ensures that specific quantities of water are used beneficially. The OWRD also works with some agricultural and municipal water suppliers to prepare water management and conservation plans as a proactive evaluation of the management and conservation measures that suppliers can undertake. ORS 536.220 authorizes a single state agency, the Water Resources Commission, to formulate and implement an integrated, coordinated state water resources policy.

EWEB #3

Description: WQMP-Reservoirs: EWEB committed to being a steward of the environment

Comment: If asked by the DEQ to develop a TMDL Implementation Plan for temperature, we will highlight our ongoing and planned efforts to enhance and protect riparian areas along the McKenzie, establish side channels for the benefit of threatened and endangered aquatic species, and address water quality concerns to the extent that we are able. We will make every attempt to comply with the wasteload allocations for temperature that will be incorporated into our NPDES permits for the Carmen Smith and Trail Bridge powerhouses. We will continue to partner with the McKenzie Watershed Council, and other members of the Pure Water Partnership, to improve water quality throughout the Basin.

Response: The DEQ appreciates EWEB's commitment to environmental stewardship, including local partnerships and compliance with wasteload allocations for temperature contained in NPDES permits.

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16. Comments from: International Paper

IP #1

Description: Comment 1: Thermal WLAs should be based on effluent daily temperature average rather than daily maximum.

Comment: Comment 1: Thermal WLAs should be based on effluent daily temperature average rather than daily maximum. The heat load to the river must be calculated using the average daily temperature from a source to determine the actual heat load supplied by the source to the river and to determine compliance with any waste load allocation (WLA) assigned to the river

Response: Temperature criteria are based on 7-d average daily maximum river temperature. Therefore, effluent temperatures to use to derive and evaluate compliance with wasteload allocations are also based on daily maximum temperatures.

IP #2

Description: Comment 2: Thermal WLAs proposed by DEQ (Outfalls 001 and 002) are insufficient to accommodate current thermal loads. WLAs should be revised (increased).

Comment: IP urges DEQ to approve an allocation of 0.20 for the September through October Spawning Period for the Springfield Mill.

Response: The combined wasteload allocation for the IP Springfield Outfalls 001 and 002 has been revised to 0.19 in the fall. Reserve Capacity has been reduced to 0.01 deg C. DEQ performed additional modeling to evaluate the impact of increasing the assigned human use allowance for the fall spawning period to 0.20 degrees Celsius. The modeling indicated that the increase could not be accommodated without eliminating reserve capacity or difficult reductions to other NPDES permittees.

Changes were made based on this comment.

IP #3

Description: Comment 3: Thermal WLAs proposed by DEQ for Outfall 003 to Irving Slough are insufficient to accommodate current thermal loads. WLAs should be revised (increased).

Comment: International Paper Outfall 003 discharges to Irving Slough, which is a city stormwater ditch in the wintertime and a unique tributary of the Willamette River. In the Rearing and Spawning periods of the year, there is essentially no stormwater flow in this Slough. The only water that allows the ponds and wetland areas of North Springfield to not be completely dry in the summer is non-contact cooling water that is discharged from Outfall 003.

In the Rearing and Spawning periods of the year, there is essentially no stormwater flow in this Slough. The only water that allows the ponds and wetland areas of North Springfield to not be completely dry in the summer is non-contact cooling water that is discharged from Outfall 003. The WLA that DEQ has proposed will, in essence, eliminate the ability to discharge any flow at Outfall 003. There is strong support for Outfall 003 by the city and the community along the Slough because it feeds water to the ponds, riparian zones, and wetlands of the Irving Slough system during the summer months.

The relatively low flow of Outfall 003 (1 to ~5 MGD) and its long reach, approximately 8 miles, allow for a high degree of heat loss prior to discharge to the Willamette Mainstem. The elimination of the Outfall 003 discharge requires that the water from 003 be redirected into our McKenzie outfalls 001 and/or 002. This will result in a net increase in heat load to these outfalls.

Response: DEQ recognizes the compliance challenge at Outfall 003 due to the low flow in the storm ditch. It is not possible to increase the WLA for Outfall 003 because the human use allowance has been allocated to other sources, including three other NPDES permitted point sources that discharge to the canal and ditch network leading to Q Street Canal (Arclin, Kingsford Manufacturing, and Sundance Lumber Company). The first two are individual permittees and the latter being a registrant on the 100-J general permit. DEQ analsyis show these other point sources may also have compliance challenges.

IP #4

Description: Comment 4: The proposed TMDL does not have an allocation for IP Springfield's 200-J Permit

Comment: International Paper's 200-J Filter Backwash General Permit discharge is not included in Table 9-11 allocations to permit holders. Based upon other allocations for 200-J permits in Table 9-11, IP requests that DEQ provide this discharge a WLA consistent with similar permits.

Response: DEQ calculated and added thermal WLAs for facilities covered by the 200-J General NPDES Permit, including IP Springfield.

Changes were made based on this comment.

IP #5

Description: Comment 5: To base WLAs on simulations using only the extreme warm, low flow year of 2015 can result in unattainable WLAs. [

Comment: Comment 5: Year 2015 is an extreme warm, low flow year. To base WLAs on simulations using only 2015 can result in unattainable WLAs.

To base TMDL WLAs on simulations using only 2015 meteorological conditions introduces errors and uncertainty into the TMDL and the WLAs. Having a TMDL with restrictive temperature limits without a thorough variability analysis from modeling the extremes can result in unattainable WLAs. International Paper urges DEQ to modify this overly conservative modeling and increase the WLAs as requested in Comment 2 above.

Response: Wasteload allocations are based on 7Q10 river flow conditions, temperature criteria, and effluent flow and temperature characteristics. The Willamette Mainstem model, which includes the McKenzie River model and Upper Willamette River model, is used by DEQ to perform cumulative effects analyses to determine if cumulative thermal loads result in exceedance of the human use allowance included in the temperature water quality standards. Cumulative effects analyses must be performed for critical conditions, which in this case is the 2015 model year.

DEQ is providing thermal wasteload allocations for point source dischargers to the McKenzie River in the Willamette Subbasins Temperature TMDL. Since McKenzie River thermal loads contribute to Willamette River temperature criteria exceedances, DEQ also modeled impacts on the Willamette River to evaluate appropriate thermal WLAs for point sources to the McKenzie River.

The combined wasteload allocation for the IP Springfield Outfalls 001 and 002 has been revised based on a human use allowance of 0.19 degrees Celsius in the fall spawning period.

Changes were made based on this comment.

IP #6

Description: Comment 6: The proposed 7Q10 WLA for the Spring Season contains an incorrect number.

Comment: The Spring Season 7Q10 WLA in Table 9-11 shows a WLA of 730.418E+6 kcals/day for the May 1 to June 15 time period. The equation for the WLA calculates to 730.518 kcals/day based upon the 7Q10 McKenzie River flow rate of 2,459 cfs. This appears to be a typo that requires correction.

Response: The value in the table has been reviewed and appears to be correct. No changes have been made to the thermal WLAs provided.

17. Comments from: Lane County

Lane County #1

Description: WQMP- Table 7 timelines

Comment: Table 7 of the Draft Water Quality Management Plan states DMAs have 18 months after EQC adoption of the Willamette Mainstem TMDL to provide an updated Implementation Plan, complete a streamside evaluation, and submit a project plan and description of the assessment methodology to be used to complete a shade gap analysis. Lane County would like to suggest revising this language to allow DMAs to propose DMA-specific timelines to accomplish these tasks with approval from DEQ. The workload involved in completing these tasks could vary greatly between DMAs; for example, Appendix A notes that some DMAs have as little as 0.1 acres of land under their jurisdiction control within 150ft of a stream while others have as high as 549,814 acres under their jurisdictional control within 150ft of a stream. Further, as noted in section 5.3 of the TMDL, OAR 340-042-0080 states that DMAs identified in a WQMP as responsible for revising implementation plans must provide a timeline for implementing management strategies and a schedule for completing measurable milestones, suggesting variability in the time required for DMAs to accomplish specific strategies. Allowing DMAs to propose and justify their own timelines (with approval from DEQ) could enhance compliance and allow DMAs to address the fundamental goals of the TMDL in a more thoughtful and complete manner based on the level of effort required by the DMA.

Response: DMAs must complete their implementation plans and streamside evaluations according to the timeline established in the WQMP. However, in their implementation plans DMAs may propose timelines for implementation actions specific to their capability and jurisdiction for approval by DEQ.

DEQ has extended the timeline for completion of the streamside evaluation from 18 months after adoption of the Willamette Mainstem temperature TMDL to three years after adoption of

the Willamette Mainstem TMDL to provide additional time for DMAs to evaluate their jurisdictions and create a strategy and rationale for future implementation milestones and objectives.

Changes were made based on this comment.

Lane County #2

Description: WQMP- DEQ should provide tools for desktop analysis of shade gap

Comment: Section 5.3.2 of the Draft Water Quality Management Plan states DMAs required to submit an implementation plan must complete a streamside evaluation and account for shade gap analysis results in their streamside evaluation. Section 5.3.4.1 states if DEQ has provided a shade gap analysis for a jurisdiction, the DMAs must either use DEQ's analysis to inform their streamside evaluation, or location specific methods to assess the current effective shade within the jurisdiction. Per a recent meeting among DEQ and RAC members for the Mainstem TMDL, staff were informed that DEQ used a desktop analysis method to complete shade gap analyses for various DMAs. In order to better clarify expectations of DMAs and streamline compliance toward the fundamental goals of the TMDL, Lane County would like to ask DEQ to consider development of publicly-available spatial analysis tools that would allow DMAs to complete streamside evaluations and shade gap analyses using similar techniques to those used by DEQ, allowing DMAs to use alternative techniques if they choose to do so. This would not only assist DMAs in compliance with the TMDL and decrease timelines to strategy implementation, but could also provide more consistency among data provided to DEQ and provide a clearer picture of implementation efforts across the TMDL area. If spatial analysis tools are not able to be developed, Lane County would like to ask DEQ to consider developing procedural manuals for streamside evaluations and shade gap analyses that would provide examples of how these activities could be completed, both remotely or in the field. This would allow DMAs to have a better understanding of resource needs for accomplishing tasks (e.g., ordering specialized equipment, hiring consultants) and provide more accurate estimates of timelines to accomplish the tasks.

Response: Inputs and methodologies used by DMAs to complete the streamside evaluation will vary widely depending on many factors including location, amount of riparian area under DMA jurisdiction, and shade gap analysis results availability. DEQ expects that DMAs will utilize a variety of methodologies to complete the streamside evaluation depending on their unique circumstances. Due to this variety, DEQ does not plan to develop a publicly available spatial analysis tool at this time. However, DEQ will work with DMAs to provide technical assistance in completing relevant analyses.

Where DEQ has completed a shade gap analysis, DEQ will provide the shade models and resulting data to DMAs on request. DMAs other than ODA, ODF, USFS and BLM are not required to complete their own shade gap analyses but may choose to do so using the methods described in the draft WQMP section 5.3.4.1.

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18. Comments from: Matt and Kim-Chi Harrell

Harrell #1

Description: Public hearing oral comment: Opportunity for future comments

Comment: Formally reserve the right to make future comments.

Response: Thank you for your comment.

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19. Comments from: Northwest Pulp & Paper Association

NWPPA #1

Description: Comment 2: Average temperature should be used for heat load calculations rather than daily maximum temperature.

Comment: The equation used for heat load calculation overestimates the actual heat load. Average temperature should be used for heat load calculations rather than daily maximum temperature.

Response: Temperature criteria are based on 7-d average daily maximum river temperature. Therefore, effluent temperatures to use to derive and evaluate compliance with wasteload allocations are also based on daily maximum temperatures.

NWPPA #2

Description: Comment 1: DEQ needs to clarify whether data points from multiple times of day were used for calculating human use allowance for point and non-point sources.

Comment: It is unclear whether DEQ took time-of-day into account when assessing the maximum temperature and human use allowance criteria. This should be explained and accounted for in the draft rules. Temperature assessed during early morning hours has the potential to be significantly different than temperature assessed during the early afternoon or early evening hours. It is unclear whether assessed data used in allocating human use allowances has been based on more or less sensitive times of day and could therefore not be adequately reflective of attributable compliance risks based on reporting data. We would ask DEQ to clarify whether data points from multiple times of day were used in calculating human use allowances for point and non-point sources.

Response: Water quality criteria are based on 7-day average daily maximum river temperatures. Impacts on 7DADM river temperature at points of discharge are calculated using 7DADM effluent temperatures, which occur at similar times of the day as 7DADM river temperatures. Therefore, daily maximum effluent temperatures are used to evaluate current thermal loads and to derive wasteload allocations. Note that WLAs are river flow based. Therefore, when river flow rates exceed 7Q10, allowable excess thermal loads increase. When river flow rates are less than 7Q10, allowable excess thermal loads are those for 7Q10.

NWPPA #3

Description: Comment 3: The late movement of McKenzie River AUs from Mainstem TMDL to Subbasin TMDL resulted in stakeholders being less responsive or unavailable for consultation.

Comment: The late inclusion of temperature TMDL updates to the McKenzie River Assessment Unit is concerning from a procedural standpoint. RAC members were notified of this scope change on November 30, 2023, nearly 11 months after the first public webinar. However, a RAC meeting was not held to review the scope change and associated updates to the TMDL. Some key stakeholders, such as NPDES permitholders, were not notified of the change until December of 2023. Therefore, the stakeholder consultation process was significantly neglected. The McKenzie River was already slated to be included in the Willamette River mainstem and major tributary temperature TMDL that is set to begin in March 2024 and a short notice change in schedule warrants more explanation and communication on the part of DEQ. Additionally, informing stakeholders of this change just weeks before two major US holidays complicates things further given that it is very common for people to take time off during these holidays, rendering them less responsive or unavailable for stakeholder consultation

Response: DEQ is subject to a court order requiring the development of temperature TMDLs throughout many basins in the state. In particular, the schedule contained in the court order splits the Willamette Basin into two TMDL project areas to apportion the project areas into somewhat similar sized projects, taking into account DEQ's anticipated resources and issuing the entirety of the TMDL projects by 2028. This schedule requires DEQ to work on various projects simultaneously since the projects' timelines overlap. During the development of the Willamette Subbasins TMDL portion, DEQ also needed to work on the mainstem Willamette Basin TMDL due to the fact that these projects must be completed within five months of each other.

In November 2023, DEQ decided to add the Willamette Basin McKenzie River Assessment Unit into the Willamette Subbasins TMDL rather than include the unit in the second phase of project TMDLs —the Willamette Mainstem and Major Tributaries. DEQ was a party to litigation related to ODFW fish hatcheries located in this assessment unit. DEQ's previous 2006 temperature TMDL contained an error related to the WLAs for these facilities. Correcting these WLAs and being able to incorporate the WLAs into the relevant hatchery permits enables DEQ to issue timely, accurate permits for the facilities. Including this assessment unit also resulted in including additional outfalls for the International Paper facility within the scope of this TMDL. International Paper currently has Wasteload Allocations assigned as part of the 2006 TMDL. As a result of adding the McKenzie River Assessment Unit to this TMDL, certain International Paper outfalls have also been assigned a revised Wasteload Allocation in this TMDL that would

have otherwise been included in the Willamette Mainstem and Major Tributaries TMDL which is required to be submitted to EPA in January 2025.

DEQ acknowledges that the timing of this revision resulted in a compressed time for communication and incorporation of additional information. Unfortunately, this timing was not under DEQ's control, and DEQ worked as expeditiously as possible to notify the Rulemaking Advisory Committee, the affected permittees and other interested parties regarding this revision.

The change to move up the schedule for the McKenzie Assessment Unit into the Willamette Subbasins did not alter the outcome for the two permittees regarding the TMDLs in this project. During the adjustment of the schedule for International Paper's outfalls that had previously been included in the Willamette Mainstem and Major Tributaries TMDL into the Willamette Subbasins TMDL, DEQ engaged with International Paper to incorporate these changes into the Willamette Subbasins TMDL. In March 2024, International Paper provided comments to DEQ during the public notice period issued on January 10, 2024. Response to these comments are addressed throughout this Response to Comment Document. In the Notice of Proposed Rulemaking, online https://www.oregon.gov/deq/rulemaking/Pages/willamettetempTMDL.aspx, DEQ highlighted the potential fiscal impacts of the new wasteload allocations on point source dischargers, emphasizing that the impact will vary among permittees. DEQ's evaluation of fiscal impacts is based on those impacts that may occur as a result of this TMDL as compared to existing requirements associated with the 2006 TMDL. Not all Wasteload Allocations became more stringent, and the expression of some Wasteload Allocations changed such that an evaluation of stringency prior to implementation in a permit is difficult. Within the fiscal impact statement, DEQ acknowledged that where there are more stringent WLAs, when those WLAs are incorporated into subsequent permits, those requirements could lead to additional capital improvements or other costs for point sources to achieve compliance. DEQ also outlined potential funding sources to support compliance with the TMDL effective shade targets and implementation requirements.

NWPPA #4

Description: Comment 4: Movement of McKenzie River AUs from Mainstem TMDL to Subbasin TMDL resulted in insufficient time to evaluate fiscal impacts.

Comment: Fiscal impacts of the late inclusion of temperature TMDL updates to the McKenzie River Assessment Unit is of concern. DEQ made an incorrect assumption that there would be no fiscal impacts associated with the inclusion of the McKenzie River assessment unit. This determination was made prior to stakeholder outreach or consultation and does not take into consideration potential fiscal impacts to our member, International Paper (IP), as well as to property owners that rely on IP's retention ponds along the Irving Slough as an identifiable property boundary. These property owners would likely incur costs associated with maintaining property boundaries during warmer months when the stormwater retention ponds have dried for the season.

Response: DEQ is subject to a court order requiring the development of temperature TMDLs throughout many basins in the state. In particular, the schedule contained in the court order splits the Willamette Basin into two TMDL project areas to apportion the project areas into somewhat similar sized projects, taking into account DEQ's anticipated resources and issuing the entirety of the TMDL projects by 2028. This schedule requires DEQ to work on various

projects simultaneously since the projects' timelines overlap. During the development of the Willamette Subbasins TMDL portion, DEQ also needed to work on the mainstem Willamette Basin TMDL due to the fact that these projects must be completed within five months of each other.

In November 2023, DEQ decided to add the Willamette Basin McKenzie River Assessment Unit into the Willamette Subbasins TMDL rather than include the unit in the second phase of project TMDLs —the Willamette Mainstem and Major Tributaries. DEQ was a party to litigation related to ODFW fish hatcheries located in this assessment unit. DEQ's previous 2006 temperature TMDL contained an error related to the WLAs for these facilities. Correcting these WLAs and being able to incorporate the WLAs into the relevant hatchery permits enables DEQ to issue timely, accurate permits for the facilities. Including this assessment unit also resulted in including additional outfalls for the International Paper facility within the scope of this TMDL. International Paper currently has Wasteload Allocations assigned as part of the 2006 TMDL. As a result of adding the McKenzie River Assessment Unit to this TMDL, certain International Paper outfalls have also been assigned a revised Wasteload Allocation in this TMDL that would have otherwise been included in the Willamette Mainstem and Major Tributaries TMDL which is required to be submitted to EPA in January 2025.

DEQ acknowledges that the timing of this revision resulted in a compressed time for communication and incorporation of additional information. Unfortunately, this timing was not under DEQ's control, and DEQ worked as expeditiously as possible to notify the Rulemaking Advisory Committee, the affected permittees and other interested parties regarding this revision.

The change to move up the schedule for the McKenzie Assessment Unit into the Willamette Subbasins did not alter the outcome for the two permittees regarding the TMDLs in this project. During the adjustment of the schedule for International Paper's outfalls that had previously been included in the Willamette Mainstem and Major Tributaries TMDL into the Willamette Subbasins TMDL, DEQ engaged with International Paper to incorporate these changes into the Willamette Subbasins TMDL. In March 2024, International Paper provided comments to DEQ during the public notice period issued on January 10, 2024. Response to these comments are addressed throughout this Response to Comment Document. In the Notice of Proposed Rulemaking, online https://www.oregon.gov/deq/rulemaking/Pages/willamettetempTMDL.aspx, DEQ highlighted the potential fiscal impacts of the new wasteload allocations on point source dischargers, emphasizing that the impact will vary among permittees. DEQ's evaluation of fiscal impacts is based on those impacts that may occur as a result of this TMDL as compared to existing requirements associated with the 2006 TMDL. Not all Wasteload Allocations became more stringent, and the expression of some Wasteload Allocations changed such that an evaluation of stringency prior to implementation in a permit is difficult. Within the fiscal impact statement, DEQ acknowledged that where there are more stringent WLAs, when those WLAs are incorporated into subsequent permits, those requirements could lead to additional capital improvements or other costs for point sources to achieve compliance. DEQ also outlined potential funding sources to support compliance with the TMDL effective shade targets and implementation requirements.

NWPPA #5

Description: Comment 5: DEQ should withdraw McKenzie River AUs from the Subbasins TMDL and address them in the Mainstem TMDL.

Comment: Due to insufficient stakeholder consultation in the inclusion of the McKensie River assessment unit, as well as the potential fiscal impacts to regulated entities and property owners, DEQ should withdraw the McKenzie River assessment unit from consideration under the Willamette Subbasin Temperature TMDL and re-propose the TMDL under the Mainstem Willamette River Temperature TMDL, as was originally planned. This would provide an opportunity for more thorough stakeholder outreach, stakeholder representation during RAC meetings, and a reevaluation of the potential fiscal impacts of the TMDL.

Response: DEQ is subject to a court order requiring the development of temperature TMDLs throughout many basins in the state. In particular, the schedule contained in the court order splits the Willamette Basin into two TMDL project areas to apportion the project areas into somewhat similar sized projects, taking into account DEQ's anticipated resources and issuing the entirety of the TMDL projects by 2028. This schedule requires DEQ to work on various projects simultaneously since the projects' timelines overlap. During the development of the Willamette Subbasins TMDL portion, DEQ also needed to work on the mainstem Willamette Basin TMDL due to the fact that these projects must be completed within five months of each other.

In November 2023, DEQ decided to add the Willamette Basin McKenzie River Assessment Unit into the Willamette Subbasins TMDL rather than include the unit in the second phase of project TMDLs —the Willamette Mainstem and Major Tributaries. DEQ was a party to litigation related to ODFW fish hatcheries located in this assessment unit. DEQ's previous 2006 temperature TMDL contained an error related to the WLAs for these facilities. Correcting these WLAs and being able to incorporate the WLAs into the relevant hatchery permits enables DEQ to issue timely, accurate permits for the facilities. Including this assessment unit also resulted in including additional outfalls for the International Paper facility within the scope of this TMDL. International Paper currently has Wasteload Allocations assigned as part of the 2006 TMDL. As a result of adding the McKenzie River Assessment Unit to this TMDL, certain International Paper outfalls have also been assigned a revised Wasteload Allocation in this TMDL that would have otherwise been included in the Willamette Mainstem and Major Tributaries TMDL which is required to be submitted to EPA in January 2025.

DEQ acknowledges that the timing of this revision resulted in a compressed time for communication and incorporation of additional information. Unfortunately, this timing was not under DEQ's control, and DEQ worked as expeditiously as possible to notify the Rulemaking Advisory Committee, the affected permittees and other interested parties regarding this revision.

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of stringency prior to implementation in a permit is difficult. Within the fiscal impact statement, DEQ acknowledged that where there are more stringent WLAs, when those WLAs are incorporated into subsequent permits, those requirements could lead to additional capital improvements or other costs for point sources to achieve compliance. DEQ also outlined potential funding sources to support compliance with the TMDL effective shade targets and implementation requirements.

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20. Comments from: ODF

ODF #1

Description: WQMP - Flexibility on forestland implementation

Comment: The draft WQMP should allow for flexibility for implementation on forestland. With the Board of Forestry adopting new and revised Forest Practices Act (FPA) rules in the fall of 2022 (effective January 2024), ODF staff are fully engaged in forestland owner outreach, internal and external training, and on the ground rule implementation assistance and enforcement. ODF encourages the ability to evaluate how these new rules are protective of water quality. Additionally, to ensure successful implementation of FPA rules and associated programs, ODF does not have additional capacity or resources to devote to the shade gap analysis and streamside evaluations prescribed in the draft Willamette Subbasin Temperature TMDL WQMP, and certainly not in the proposed required timeframe. Having a prioritized implementation strategy and appropriate timeline would allow ODF to fully engage in this work. In section 2.1 Streamside vegetation management strategies, of the draft Willamette Subbasin Temperature TMDL WQMP, DEQ identifies the necessary strategies to meet the water quality standards in the temperature impaired waterbodies in the Willamette Subbasins. Table 1 below lists specific ODF Rule Divisions and rules that, when implemented, will ensure ODF is meeting the strategies to attain water quality standards when implemented, will ensure ODF is meeting the strategies to attain water quality standards (see original comments for table).

ODF implements rules and programs that employ best management practices, targeting DEQ's identified WQMP strategies including riparian vegetation planting and plant establishment, riparian vegetation protection, and riparian vegetation thinning and management. ODF is actively engaged in working with landowners to ensure proper riparian protection, management, and compliance. ODF desires to be successful as a Designated Management Agency (DMA) in helping Oregon private forestland owners meet the Willamette temperature TMDL non-point source load allocation targets. We will do this by working collaboratively with DEQ staff to adopt language in the WQMP that allows for flexibility in implementation approach and effectively uses the resources and authorities under ODF's existing framework. ODF also recommends that DEQ assist ODF in obtaining additional resources before "requiring" ODF to carry out such prescriptive and time intensive activities (i.e. shade gap analysis and streamside evaluations) for 10 expansive Willamette subbasins included in this TMDL.

Response: DEQ recognizes the efforts between ODF and timber and conservation groups to update the Forest Practices Act through the Private Forest Accord to create additional streamside protections for fish and non-fish bearing streams and other actions.

DEQ has completed a shade gap analysis for some streamside areas under ODF jurisdiction that ODF may use to inform their streamside evaluation and prioritize subbasins with the largest shade gaps. Although DEQ may have resources to complete a shade gap analysis for the remaining streamside areas under ODF jurisdiction, DEQ recognizes that ODF has the flexibility to conduct its own shade gap analysis using remote sensing technologies, such as satellite imagery, coupled with ground-truthing field measurements. DEQ is happy to collaborate with ODF to assess remote sensing technologies with potential utility for shade gap analysis and streamside evaluation.

DEQ also acknowledges that conducting a streamside evaluation within 18 months of the Environmental Quality Commission's adoption of the Willamette Basin Mainstem Temperature TMDL may not allow enough time for ODF to evaluate potential streamside assessment methodologies and conduct the assessment. Therefore, DEQ has updated the timeline in Table 7 (public comment version) from 18 months to up to three years for all DMAs to conduct a streamside evaluation. In addition, ODF may prioritize streams with less streamside buffer protection and collaborate with local watershed councils to fund and implement riparian planting opportunities on private lands.

Changes were made based on this comment.

ODF #2

Description: WQMP - correction to ODF language

Comment: The statement "These rules are not expected to result in after-the-fact restoration of riparian areas" on page 20 of the draft WQMP is inaccurate for the following reasons: if a forest harvest operation occurred, forest practice rules require reforestation when stocking level fall below established thresholds. (OAR 629-610-0020 & -643-0500). Landowners/operators conducting harvest operations under the FPA rules any time prior to January 1, 2024, are required to replant any harvested areas that fall below stocking standards due to tree harvest including areas within the wider no-touch Riparian Management Area's (RMAs) effective January 2024. After- the-fact restoration would have already occurred. Under the new buffer rules those areas planted that now fall within the wider required RMA buffers are not allowed to be harvested. ODF requests DEQ remove this sentence from the draft WQMP.

Response: In this context, "after-the-fact restoration" was intended to indicate special efforts to address deficiencies in previous riparian rules, such as narrower RMAs or lower basal area retention targets. DEQ agrees that reforestation to address harvest and low stocking is required under the FPA. These statements were removed.

Changes were made based on this comment.

ODF #3

Description: WQMP - correction 2 to ODF language

Comment: The following statement in draft WQMP is misleading: “effective shade is likely to be deficient for those riparian areas adjacent to small and medium salmon, steelhead and bull trout streams that were harvested prior to implementation of the new rules.” Page 20. This statement suggests increased streamside vegetation regulatory improvements were not made until 2022. The Oregon Board of Forestry adopted new rules in July of 2017 for streams that are identified as having salmon, steelhead, and bull trout (SSBT) distribution. The SSBT rules resulted in wider RMA’s and increased tree retention along such streams. ODF implemented wider stream buffer rules on small and medium salmon, steelhead, and bull trout streams seven years earlier than this sentence suggests. ODF requests this sentence be revised or removed from the draft WQMP.

Response: The sentence referenced by the commenter as misleading was removed from the WQMP. Additionally, DEQ revised this section in the WQMP to focus on the current Forest Practice Act rules, including the rules associated with the Private Forest Accord and Senate Bills 1501, 1502 and HB 4055.

Changes were made based on this comment.

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21. Comments from: ODFW

ODFW #1

Description: TMDL - Add 2 hatcheries to Table 7-1

Comment: Table 7-1 on pages 20 – 22 of the draft TMDL represents NPDES permitted point sources that have the potential to contribute a thermal load within the Willamette subbasins. Leaburg and McKenzie hatcheries should also be included in this table.

Response: Leaburg and McKenzie hatcheries have been added as NPDES permitted point sources to Table 7-1.

Changes were made based on this comment.

ODFW #2

Description: TMDL - Update location of hatchery discharge

Comment: Table 7-1 on page 21 identifies Marion Forks hatchery discharge at River Mile 72.1. River Mile 72.1 is the confluence of Horn Creek and the North Santiam River. It is not an accurate location for the point of discharge on Horn Creek for Marion Forks hatchery.

Response: The location of the Marion Forks Hatchery has been changed from River Mile 72.1 to River Mile 0.1 in Table 7-1 in the TMDL and in Table 7-1 in the Technical Support Document.

Changes were made based on this comment.

ODFW #3

Description: HUA - Consider allocations between existing and future uses

Comment: ODFW suggest ODEQ consider the split in allocations between existing users and unknown future uses. In many cases, future development may be unlikely. For example, Table 9-6 on page 37 of the draft TMDL document provides a 0.10 Human Use Allowance (HUA) allocation for the Roaring River and Crabtree Creek in the South Santiam basin. Here the reserve capacity for the streams is larger than the amount allotted for current permitted facilities. Similarly, in Table 9-10, allocations for reserve capacity are double that of HUA allocations for Willamette and Marion Forks hatcheries, when these facilities are likely to be the only dischargers to their respective waterbodies.

Response: DEQ believes it is important to preserve the reserve capacity allocations so that they can be allocated to future uses, or expanded existing uses, regardless of the source type. Existing point sources can apply for reserve capacity when it is needed.

ODFW #4

Description: TSD - 4 Typos

Comment: 1. Section 4.7.2, page 30, paragraph 2, sentence one should read "…..cool water species…." 2. The last paragraph on page 31, "larval" should be replaced with "larval lamprey". 3. On page 34, paragraph 2 refers to footnote #2, however there is no footnote #2. 4. In Section 4.7.4, page 38, ODFW suggests using common names for winter steelhead and cutthroat trout for consistency/public understanding.

Response: The suggested edits were incorporated into the Technical Support Document.

Changes were made based on this comment.

ODFW #5

Description: TSD - Review data/explanation for Figure 5-24

Comment: Figure 5-24 reflects the seasonal variation and critical period for the South Santiam below Green Peter Reservoir. ODFW encourages ODEQ to include a broader discussion on the box plot and the explanations why the temperature data is unique. USGS Gage 14186200 is directly below Green Peter Dam in the approximately three-mile stream reach between Green Peter Reservoir and Foster Reservoir, which serves as the re-regulating reservoir. Data are from non-surface withdrawal from Green Peter Reservoir before it flows into Foster Reservoir. ODEQ should consider either including more detailed information on the graph or excluding the graph since it is a heavily modified system that is not reflective of a free-flowing stream system.

Response: A critical period specific to the stretch of the Middle Santiam River represented by USGS Gage 14186200 water temperature data has been created. The critical period for the stretch of the Middle Santiam River between Green Peter Reservoir and Foster Lake is October 15 through November 30. The critical period for the rest of the South Santiam Subbasin has been changed to May 1 through October 31.

Changes were made based on this comment.

ODFW #6

Description: TSD - Add minimum duties provision for 2 hatcheries

Comment: Section 9.1.7 Determination of when minimum duties provision applies omitted Leaburg and McKenzie hatcheries. The minimum duties provision at OAR 340-041-0028(12)(a) 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. ODFW requests this guidance be included for these facilities.

Response: DEQ has revised the TMDL and TSD to clarify applicability of minimum duties for these two facilities and improve the overall narrative for clarity. This included adding additional language in the TMDL rule. The minimum duties provision is applicable to Leaburg but not McKenzie Hatchery. If the ODFW moved the McKenzie intake to the same stream where the outfall is located, the minimum duties provision may be applied.

Changes were made based on this comment.

ODFW #7

Description: TSD - Appendix J - McKenzie River model 1

Comment: Appendix J provides a summary of the McKenzie River CE-QUAL-W2 Model Scenario Report for Point Source simulation. The report states “Two actual withdrawals were configured at the immediate upstream segments above the discharge locations. Regardless of whether the withdrawals are artificial or actual, only the flow rates are specified for withdrawals within W2. The model removes heat associated with the flow, based on the simulated water temperature at the withdrawal location.” ODFW is concerned that the model underestimates the thermal impact of withdrawal into the Leaburg Canal by essentially removing heat associated with the flows into Leaburg (up to 1400 cfs) and assigning the resulting thermal load downstream of Leaburg Dam to ODFW hatcheries. ODFW requests further explanation of how the model differentiates the impact of diversion to the Leaburg Canal from the impact of hatchery discharge. Similarly, clarification of how and where the model incorporates return flow from the canal diversion is recommended. The model that was used was based on the year 2015, which was an historic low flow year and included withdrawals into the Leaburg Canal. The Leaburg Canal has been decommissioned and no longer maintains water in the canal. How will this be reflected in the wasteload allocations for Leaburg and McKenzie hatcheries?

Response: Modeling of current point source impacts was performed for the 2015 model year, which is a low flow year similar to the 2001 year used for model calibration. TMDLs must include implicit or explicit margins of safety (MOS). Use of a conservative low flow year to evaluate thermal impacts, such as 2015, provides an implicit margin of safety. While modeling to evaluate thermal impacts of point sources was performed for 2015, wasteload allocations for ODFW hatcheries are based on current thermal loads and are independent of the year used for modeling.

DEQ has revised wasteload allocations based on an analysis of all data submitted for the Leaburg Hatchery and McKenzie River Hatchery for the time period 2016 to 2023. The revised WLAs are based on the full flow of the McKenzie River with no diversion from the river for the EWEB Leaburg Hydroelectric Project.

Changes were made based on this comment.

ODFW #8

Description: TSD - Appendix J - McKenzie River modeling

Comment: How does the McKenzie River model incorporate the diel nature of hatchery effluent flows, which mimic the diel temperature flux of the mainstem McKenzie River? In contrast to a wastewater treatment plant whose effluent temperatures remain relatively constant during a 24-hour period, temperatures of effluent flows at the hatcheries fluctuate over a 24-hour period, mirroring the diel fluctuation of temperatures in the mainstem (the source water for the hatcheries). Continuous temperature data are taken at hatchery discharge locations at 15-minute intervals, and the daily maximum temperature is used to calculate the thermal load of the hatcheries.

ODEQ uses a very conservative assumption that the maximum temperature is assumed to be static over a 24-hour period, when it may only reach that temperature for a brief 15-minute period or over several hours. This conservative assumption overestimates the thermal load from the hatchery discharge, which is illustrated in Figures 1-1 through 1-3. This results in a modeled maximum temperature increase of 0.03 degrees Celsius which is not measurable by current technology and has an error rate of approximately 0.2 ºC.

Response: Modeling of Leaburg Hatchery and McKenzie River Hatchery point source thermal impacts on the McKenzie River is described in Technical Support Document Appendix J: McKenzie River CE-QUAL-W2 Model Scenario Report, Technical Support Document Appendix K: McKenzie River Wasteload Allocation Scenario Model Report. Effluent water temperature model inputs for the hatcheries were based on temperature deltas (Teff-Tinf) derived using 2016 continuous effluent and influent hatchery temperatures, plus the hourly model calculated water temperature from the model segment upstream of where the hatchery discharges. Therefore, for modeling of Leaburg Hatchery and McKenzie River Hatchery point source thermal impacts, effluent temperature is varied hourly.

Changes were made based on this comment.

ODFW #9

Description: Revise WLAs

Comment: Revise WLAs for Leaburg Hatchery and McKenzie River Hatchery

Response: DEQ has revised wasteload allocations based on an analysis of all data submitted for the of Leaburg Hatchery and McKenzie River Hatchery for the time period 2016 to 2023. The revised WLAs are based on the full flow of the McKenzie River with no diversion from the river for the EWEB Leaburg Hydroelectric Project. Previously, design 7Q10 low flow conditions for the fish hatcheries were based on USGS gage 14163150 (McKenzie River Blw Leaburg Dam, NR Leaburg, OR) which measures flow in the bypass reach downstream from Leaburg Dam. Following decommissioning, 7Q10 flow rates will be similar to those measured further downstream at gage 14164900, McKenzie River Abv Hayden Br, at Springfield. Elimination of flow through the hydroelectric project appears to have had minor impact on Leaburg Hatchery operations. Therefore, data from 2016 through 2023 were used to calculate Leaburg Hatchery thermal loads and derive WLAs. Impacts of elimination of flow through the hydroelectric project on the McKenzie River Hatchery, however, have been significant, since currently only water from Cogswell Creek is available for hatchery operations. Therefore, only data from 2022 and 2023 was used to calculate McKenzie River Hatchery thermal loads and derive WLAs. Revised WLAs for the Leaburg Hatchery are greater than those based on only 2016 data, while revised WLAs for the McKenzie River Hatchery are less. Revised total WLAs for the two hatcheries combined are less than those based on 2016 data.

Changes were made based on this comment.

ODFW #10

Description: TSD - Appendix J - Incorporate additional years of data into WLA model scenarios

Comment: ODFW requests DEQ clarify differences in effluent flows reflected in Tables 2 through 10. Effluent discharge was modeled using data from 2016. Discharge for the months of June 15 – August was abnormally low compared to operations in most years, which is reflected in a wasteload allocation (WLA) that is not representative of normal hatchery operations. ODFW requests that DEQ incorporate additional years of data into WLA model scenarios.

Response: DEQ has revised wasteload allocations based on an analysis of all data submitted for the of Leaburg Hatchery and McKenzie River Hatchery for the time period 2016 to 2023. The revised WLAs are based on the full flow of the McKenzie River with no diversion from the river for the EWEB Leaburg Hydroelectric Project. Previously, design 7Q10 low flow conditions for the fish hatcheries were based on USGS gage 14163150 (McKenzie River Blw Leaburg Dam, NR Leaburg, OR) which measures flow in the bypass reach downstream from Leaburg Dam. Following decommissioning, 7Q10 flow rates will be similar to those measured further downstream at gage 14164900, McKenzie River Abv Hayden Br, at Springfield. Elimination of flow through the hydroelectric project appears to have had minor impact on Leaburg Hatchery operations. Therefore, data from 2016 through 2023 were used to calculate Leaburg Hatchery thermal loads and derive WLAs. Impacts of elimination of flow through the hydroelectric project on the McKenzie River Hatchery, however, have been significant, since currently only water

from Cogswell Creek is available for hatchery operations. Therefore, only data from 2022 and 2023 was used to calculate McKenzie River Hatchery thermal loads and derive WLAs. Revised WLAs for the Leaburg Hatchery are greater than those based on only 2016 data, while revised WLAs for the McKenzie River Hatchery are less. Revised total WLAs for the two hatcheries combined are less than those based on 2016 data.

Changes were made based on this comment.

ODFW #11

Description: TSD - Appendix J - WLAs following completion of decommissioning of the Leaburg Hydroelectric Project

Comment: The 7Q10 river flow rates used to derive WLAs for Leaburg Hatchery and McKenzie River Hatchery do not reflect changes in flows that will occur when the Leaburg Hydroelectric Project is decommissioned. ODFW requests DEQ include text that WLAs will be recalculated following completion of decommissioning of the Leaburg Hydroelectric Project.

Response: DEQ has revised wasteload allocations based on an analysis of all data submitted for the of Leaburg Hatchery and McKenzie River Hatchery for the time period 2016 to 2023. The revised WLAs are based on the full flow of the McKenzie River with no diversion from the river for the EWEB Leaburg Hydroelectric Project. Previously, design 7Q10 low flow conditions for the fish hatcheries were based on USGS gage 14163150 (McKenzie River Blw Leaburg Dam, NR Leaburg, OR) which measures flow in the bypass reach downstream from Leaburg Dam. Following decommissioning, 7Q10 flow rates will be similar to those measured further downstream at gage 14164900, McKenzie River Abv Hayden Br, at Springfield. Elimination of flow through the hydroelectric project appears to have had minor impact on Leaburg Hatchery operations. Therefore, data from 2016 through 2023 was used to calculate Leaburg Hatchery thermal loads and derive WLAs. Impacts of elimination of flow through the hydroelectric project on the McKenzie River Hatchery, however, have been significant, since currently only water from Cogswell Creek is available for hatchery operations. Therefore, only data from 2022 and 2023 was used to calculate McKenzie River Hatchery thermal loads and derive WLAs. Revised WLAs for the Leaburg Hatchery are greater than those based on only 2016 data, while revised WLAs for the McKenzie River Hatchery are less. Revised total WLAs for the two hatcheries combined are less than those based on 2016 data.

Changes were made based on this comment.

ODFW #12

Description: TSD - Appendix J - Refine proposed wasteload allocations using addtional years of monitoring data

Comment: It is also notable that hatchery source water temperatures and dilution flows vary interannually with prevailing climatic conditions. ODFW encourages DEQ to provide more clarification of how effluent temperatures were calculated and used in the model and requests

DEQ incorporate additional years (> one year) of temperature monitoring at McKenzie and Leaburg hatcheries to further refine proposed wasteload allocations.

Response: As discussed in other responses, DEQ has revised WLAs using data from 2016 through 2023, as appropriate.

Changes were made based on this comment.

ODFW #13

Description: TSD - Appendix J - McKenzie River model validatation

Comment: In addition, please provide information on how ODEQ validated this model with measured temperature data.

Response: With regards to model calibration and validation, update of the McKenzie River model for streamflow and water temperature for 2015 was performed by the U.S. Geological Survey. USGS's report on the model update provides plots and model fit statistics comparing model results to measured temperature data. Please see:

Stratton Garvin, L.E., S.A. Rounds, and N.L. Buccola. 2022. Updates to models of streamflow and water temperature for 2011, 2015, and 2016 in rivers of the Willamette River Basin, Oregon: U.S. Geological Survey Open-File Report 2022–1017

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22. Comments from: ODOT

ODOT #1

Description: WQMP - ODOT Implementation

Comment: ODOT activities that limit stream shade are outside of our control to change without jeopardizing public safety. To the extent that it is able, ODOT manages this land in numerous ways that have a beneficial effect on stream temperatures. a. Adding vegetation is mostly incompatible with ODOT's primary function of building and maintaining roads that are safe. ODOT rights of way consist of three sections: i. The paved roadway. This portion of the right of way is not available for planting. ii. The clear zone. This section of right of way is kept clear of non-traversable hazards and fixed objects (including trees) to help ensure that roadway departures result in recovery rather than crash, and to minimize the severity of roadway departure crashes that do occur. Clear zone vegetation is also maintained for other purposes such as maintaining motorist sight distances. The AASHTO Roadside Design Guide recommends a clear zone width of up to 46 feet from the edge of pavement, depending on posted speed limits, traffic volume, and roadside slope and curvature. The clear zone is not available for planting, and in many locations extends fully to the right of way boundary. iii. In some sections of highway, some space remains between the outer clear zone boundary and the property line. It is only in these locations that there is any possibility of taking action that

could shade streams. b. Plantable areas that are on the opposite side of the highway from the stream are of minimal value because trees planted there would have to grow a prolonged period of time before providing any shade to the stream. c. The portion of ODOT right of way that is paved is subject to increase over time as capacity needs increase. This may result in shifting the clear zone toward the property boundary and widening it, and therefore may restrict the width of any remaining right of way outside the clear zone. This is consistent with the intended purpose of the right of way. d. ODOT has no choice but to continue certain tree removal activities (including outside the clear zone) for purposes such as maintaining clear zones, discouraging ice in hazard spots, removing trees in danger of falling onto the roadway, and preventing damage to structures such as culverts, bridges, and stormwater treatment facilities. e. ODOT already routinely engages in many activities that have a beneficial effect on stream temperature: i. ODOT properly restores riparian areas when they are disturbed by ODOT projects. ii. Streambank stabilization maintenance activities incorporate large wood and robust riparian plantings wherever practicable. iii. Although it is sometimes necessary to remove trees as described above, it does so conscientiously and minimally. iv. ODOT minimizes stream turbidity relating to construction activities through conscientious execution of erosion and sediment control plans and through the deployment of effective work area isolation BMPs during in-water work. v. ODOT minimizes stream turbidity relating to stormwater discharges by including energy dissipation structures at outfalls and through flow control measures that prevent streambank erosion.

Response: DEQ acknowledges ODOT's commitment to public safety. It is not DEQ's intent to require streamside protection management strategies that would endanger public safety or not comply with other ODOT safety measures. The goal of a TMDL implementation plan is to identify, prioritize, and implement streamside protection strategies in areas where streamside improvements can be made and still meet ODOT safety standards. This will likely entail going beyond ODOT's current approach to streamside protection and enhancement where possible.

ODOT #2

Description: WQMP - Criteria for identifying DMAs responsible for developing TMDL plans

Comment: Comment 2: The WQMP does not state what criteria were used to identify persons responsible for preparing and executing TMDL implementation plans. Appendix A indicates that ODOT is responsible for 4,856 acres within 150ft of a stream. It appears the decision that ODOT must prepare and execute a TMDL implementation plan is based on ODOT's ownership of land near streams, even in basins where the percentage of ODOT-owned land within the basin and the percentage of ODOT-owned land that is within 150 feet of a stream are both so small that when expressed in whole numbers, they round down to 0%. Based on land ownership areas alone there is little confidence that ODOT has the capability to meaningfully cause or alleviate temperature pollution.

OAR 340-042-0040 requires a reasonable assurance that management strategies and implementation plans will be carried out through regulatory or voluntary actions and that practices capable of reducing the specified pollutant load exist, are technically feasible at a level required to meet allocations and have a high likelihood of implementation. In the case of ODOT, there is reasonable assurance that ODOT will continue having a beneficial effect on stream temperatures in the subject basins by executing myriad activities already required by various

regulations and permits as described above. However, because ODOT is already engaging in these practices to the maximum extent practicable, there is no reasonable assurance that ODOT's preparation and execution of a TMDL implementation plan will meaningfully contribute to reducing loads. It would have no benefit to water quality and therefore be a poor use of public resources for these reasons: a. The amount of land ODOT owns is very small relative to the subbasin. (0% to 2%, averaging 0.5% according to Willamette Subbasins draft WQMP, Appendix B) b. The amount of land ODOT owns is very small relative to other responsible persons. (Less than 0.5% of the total of all responsible persons based on Appendix A; the true number is less because Appendix A doesn't enumerate the areas of special districts.) In other words, based on land area alone (and excluding special districts), ODOT owns less than 1/200th of the land owned or controlled by responsible persons generally. c. The percentage of ODOT land that is close to streams is very small. (0% to 1%, averaging 0.375% according to Willamette Subbasins draft WQMP, Appendix B) d. The great majority of lands that ODOT owns near streams are not at stream crossings, but rather in corridors where the highway parallels the stream such that ODOT has control over land on only one side of the stream. Unlike most responsible persons, ODOT controls at most only half of the riparian area which is probably not typically enough to fully close shade gaps. Therefore, each acre of ODOT land that is available for mitigative purposes is significantly less valuable qualitatively than each acre of land owned by most other responsible persons who can plant both sides of the stream.

Response: DEQ provided criteria in Section 5.1.1 to identify persons responsible for preparing TMDL implementation plans, including DMA ownership or jurisdiction over land management activities within a streamside area, as well as limited streamside area under its jurisdiction, but DEQ acknowledges that additional criteria information would be beneficial. DEQ made updates to the WQMP.

As the commentor stated, DEQ analysis shows that ODOT jurisdiction covers 4,856 acres within 150 feet of a stream in the Subbasins project area. DEQ agrees that in some subbasins ODOT has very few acres within 150 feet of a stream. Many DMAs have similar situations where the percentage of jurisdictional acres within a subbasin are small compared to other DMAs. However, stream warming is often a result of cumulative impacts of natural warming processes, channel and hydrological disturbance, and differences in streamside protection as water flows downstream. Rather than determining a relative pollutant contribution for each responsible person, DEQ's policy is to require TMDL implementation plans for all or most responsible persons who have jurisdiction near a waterbody and can implement management strategies. DMAs that have few acres in a subbasin may prioritize restoration activities in another subbasin with greater jurisdictional streamside acres.

Changes were made based on this comment.

ODOT #3

Description: WQMP - ODOT requirements

Comment: Requiring ODOT to complete a streamside evaluation will have no benefit to water quality and would be poor use of public resources for the reasons described in Comment 1 and Comment 2.

Response: Conducting a streamside evaluation allows DMAs to prioritize where agency resources are allocated based on existing streamside shade gaps, channel disturbance, or where physical, safety, or jurisdictional constraints exist. Without a comprehensive streamside evaluation, it would be challenging for ODOT to know where to focus its limited resources on riparian areas with the greatest need. DEQ does recognize the effort to conduct a streamside evaluation and has updated the timeframe for ODOT and other agencies to complete the evaluation from 18 months following the Environmental Quality Commission's adoption of the Willamette Mainstem Temperature TMDL to three years.

Changes were made based on this comment.

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23. Comments from: Oregon Association of Clean Water Agencies

ACWA #1

Description: Public hearing oral comment: TMDL and WQMP

Comment: Comment provided during the public hearing. Comment summary below. These oral comments are included in ACWA's written comments.

• Additional analysis on the HUA – how it's going to allocated • There is no allocation to nonpoint sources and therefore believe that the targets will be unachievable. • DEQ to provide technical assistance beyond the basin coordinators or enhance the basin coordinators knowledge and consistency by creating templates and making the work more accomplishable for members of ACWA without significant resources. • Importance of getting the analysis correct to ensure that point sources are not in immediate noncompliance.

Response: Oregon ACWA also provided similar written comments. Please see Oregon ACWA's written comments for responses.

ACWA #2

Description: RACs - Include Counties

Comment: ACWA requests that future RACs not only include a representative of Oregon cities but also Oregon counties.

Response: Thank you for your comment. DEQ attempts to contact a wide range of potential candidates to serve on the rule advisory committees who serve as their time and resources

allow. A representative from the Association of Oregon Counties is participating in the RAC for the Mainstem Willamette and Major Tributaries Temperature TMDL.

ACWA #3

Description: RACs - Include more discussion of comments between RAC and DEQ

Comment: ACWA is hopeful that the RAC process include discussion of comments between RAC representatives and DEQ and allow time to develop comment letters responding to DEQ's decisions.

Response: DEQ is required to adhere to a court-ordered schedule for the replacement of Willamette Subbasins Total Maximum Daily Loads (TMDLs) for temperature. To ensure compliance with this rigorous schedule, DEQ follows specific procedures to gather input and feedback from various stakeholders.

DEQ provides a one to two-week window after each rule advisory committee for informal, written input. Additionally, a 45-day public comment opportunity, which includes a public hearing, is provided to allow for extensive feedback from the public. DEQ has also made efforts to meet with interested parties in accordance with the rules for public meeting laws, during this compressed schedule mandated by the court.

ACWA #4

Description: TMDL - Explain how and why Willamette Subbasins project area was delineated

Comment: The scope of the Willamette Subbasins TMDL includes the upper portions of the North Santiam, South Santiam, Clackamas, Long Tom Middle Fork Willamette, and Coast Fork Willamette Rivers. It also includes the entire length of the McKenzie River, Molalla-Pudding Rivers, and smaller tributaries to the upper, middle and lower Willamette River. The scope of the waterbodies that are included in the TMDL is very confusing. There is no discussion as to why DEQ chose to delineate the scope of the Willamette Subbasins in this manner. DEQ is asked to provide its thought process in delineating the scope of the Willamette Subbasins TMDL.

Response: DEQ delineated the Willamette Subbasins project area from the Willamette Mainstem and Major Tributaries project area to group the temperature TMDLs that must be replaced in the Willamette Basin into two different TMDL rule development projects. Separating the Willamette Basin into two TMDL projects was in consideration of DEQ staff resources to meet the court ordered project deadlines. The delineation of the Willamette Subbasins project area from the Willamette Mainstem and Major Tributaries project area was based on the extent of the different stream thermodynamics models used to simulate water temperature in the Willamette Basin. The Willamette Mainstem and Major Tributaries project area represents the extent of CE-QUAL-W2 models developed for the original Willamette Basin Temperature TMDLs that were approved in 2006, excluding the McKenzie River model extent. While the McKenzie River downstream of the confluence with the South Fork McKenzie River, as well as the South Fork McKenzie River downstream of Cougar Reservoir, are included in the CE-

QUAL-W2 model extent, DEQ leadership decided to include these stream reaches in the Willamette Subbasins project area to satisfy multiple competing project deadlines.

ACWA #5

Description: TMDL - Explain how Willamette Subbasins and Mainstem project areas will be integrated

Comment: It is not clear how DEQ plans to link the Willamette Subbasins TMDL with the Willamette Mainstem TMDL project that is currently getting underway. DEQ should articulate how they plan to integrate the Willamette Subbasins TMDL with the Willamette Mainstem TMDL and provide the framework for the entire Willamette Basin TMDL.

Response: DEQ intends to merge Willamette Mainstem and Major Tributaries TMDL content with the Willamette Subbasins TMDL content to create one set of final TMDL documents that apply to both the Willamette Subbasins and Willamette Mainstem and Major Tributaries project areas. The TMDL documents will be merged during the Willamette Mainstem and Major Tributaries rulemaking process. The framework of the final TMDL documents will match what is presented in the Willamette Subbasins TMDL documents, with content specific to the Willamette Mainstem and Major Tributaries inserted into the appropriate sections.

ACWA #6

Description: TMDL - Clarify how nonpoint sources will be covered by the Willamette Subbasins or Mainstem TMDL area

Comment: Additionally, clarification is needed regarding the applicability of this TMDL to the Willamette Subbasins and how nonpoint sources are anticipated to either be covered by the Willamette Subbasin TMDL or Willamette Mainstem TMDL. For example:

• The draft TMDL document (Table 2-2) states that the mainstem Willamette River is not addressed by the Willamette Subbasins temperature TMDLs “from the confluence of the Columbia River upstream to the confluence of Coast Fork of the Willamette and Middle Fork of the Willamette Rivers”. However, it is not clear whether that statement applies to both point and nonpoint sources.
• In the nonpoint section of the draft TMDL WQMP, it appears that all areas of a jurisdiction draining to the Willamette River are covered by the Willamette Subbasin TMDL. DMA areas in Appendix A do not appear to exclude areas that drain directly to the mainstem Willamette River without first draining to a tributary.
• The online map, ownership and jurisdictional boundaries do not appear to exclude areas draining directly to the main stem.

ACWA requests that DEQ align maps and jurisdictional DMA areas with intended coverage of the TMDL for clarity and consistency.

Response: DEQ intends to merge Willamette Mainstem and Major Tributaries TMDL content with the Willamette Subbasins TMDL content to create one set of final TMDL documents that

apply to both the Willamette Subbasins and Willamette Mainstem and Major Tributaries project areas. The TMDL documents will be merged during the Willamette Mainstem and Major Tributaries rulemaking process. DEQ will clarify the intended coverage of the TMDL and jurisdictional boundaries for each area of the TMDL at that time.

ACWA #7

Description: TMDL - Critical Period - Add table summarizing the critical periods of specific waterbodies

Comment: The Seasonal Variation and Critical Period section includes a paragraph that describes the critical period for the various waterbodies included in the Willamette Subbasins TMDL. We recommend that DEQ include a tabular summary of the waterbodies and their associated critical periods so that they are readily apparent.

Response: Tables summarizing the critical periods of waterbodies in the Willamette Subbasins have been added to the the Seasonal Variation and Critical Period section of the TMDL (Table 5-1) and the Technical Support Document (Table 5-2). Table numbers may change in the final TMDL and TSD.

Changes were made based on this comment.

ACWA #8

Description: TMDL - NPDES Permits - Rename Table 7-1

Comment: Table 7-1 is titled “Individual NPDES permitted point source discharges that contribute thermal loads to Willamette Subbasins streams at a frequency and magnitude to cause exceedances to the temperature standard.” Many of the sources listed in the table are minor and likely have little or no impact on temperature. Additionally, there are several sources listed in the table for which DEQ did not provide an allocation because they do not discharge during the TMDL period (see Table 9-11), and as such, do not contribute thermal loads at a frequency and magnitude to cause exceedances to the temperature standard as stated by the title of Table 7-1. Thus, the title of Table 7-1 is misleading. This table is merely a listing of the individual point sources in the geographic area covered by the TMDL. The title of the table should be revised to state “Individual NPDES permitted point source discharges to Willamette Subbasins streams.”

Response: Thank you for your comment. The name of the referenced table has been changed to “Individual NPDES permit registrants that have the potential to contribute thermal loads to Willamette Subbasins streams at a frequency or magnitude that contributes to exceedances of the temperature standard”.

Changes were made based on this comment.

ACWA #9

Description: TMDL - MS4 - Clarify the findings on thermal load potential contributions from MS4s

Comment: The MS4 Permits section identifies MS4 permits "as potential sources of thermal load" and notes that "there is not sufficient evidence to demonstrate" that MS4, 1200-C and 1200-Z discharges contribute to exceedances of the temperature standard. DEQ should make a clear, definitive statement on this issue, such as the following:

"Based on a review of published literature and other studies related to stormwater runoff and stream temperature in Oregon, DEQ concluded that stormwater discharges authorized under the current municipal (MS4s) permits or the construction (1200-C) and industrial (1200-A and 1200-Z) general stormwater permits do not contribute to exceedances of the temperature standard. Therefore, wasteload allocations for these sources are not included in the TMDL."

Response: Thank you for the recommendation. DEQ updated the narrative in TMDL Section 7.1 to the following:

"DEQ completed a review of published literature and other studies related to stormwater runoff and stream temperature in Oregon and concluded that stormwater discharges authorized under the current municipal (MS4), construction (1200-C) and industrial (1200-A and 1200-Z) general stormwater permits are unlikely to contribute to exceedances of the temperature standard. Therefore, no additional TMDL requirements are needed for stormwater sources to control temperature, other than those included in the current permit. More specific wasteload allocations can be considered if subsequent data and evaluation demonstrates a need and if reserve capacity is available."

Changes were made based on this comment.

ACWA #10

Description: TMDL - General Permits - Change name of Table 7-3

Comment: This section of the TMDL lists several categories of general NPDES Permits and identifies three general NPDES permit categories (i.e., 100-J (non-contact cooling water), 200-J (filter backwash), and 300-J (fish hatcheries)) as "potential significant sources of thermal load with a temperature impact." Table 7-3 is titled "General NPDES permit registrants that contribute thermal loads to Willamette Subbasins streams at a frequency or magnitude that contributes to exceedances of the temperature standard." Again, the title of the table is misleading. Many of the sources listed in the table are minor and likely have no impact on temperature. This table lists the registrants of the three general permit categories that DEQ has determined "have the potential to discharge thermal loads…". The title of the table should be revised to state "Registrants in the General NPDES Permit categories that have the potential to contribute thermal loads to Willamette Subbasins."

Response: Thank you for your comment. The caption of the referenced table has been changed to "General NPDES permit registrants that have the potential to contribute thermal

loads to Willamette Subbasins streams at a frequency or magnitude that contributes to exceedances of the temperature standard".

Changes were made based on this comment.

ACWA #11

Description: TMDL - HUAs - Re-evaluate allocations based on cost, ease, unintended consequences, and lack of reasonable assurance of implementation

Comment: Section 9 describes the methods and considerations for allocating allowable pollutant loads across point sources, nonpoint sources, margin of safety and reserve capacity. This section includes the following: "OAR 304-042-0040(5) and (6) describe the potential factors of consideration for determining and distributing these allocations of the allowable pollutant loading capacities…Factors to consider in allocation distribution may include: source contributions; costs of implementing management measures; ease of implementation; timelines for attaining water quality standards; environmental impacts of allocations; unintended consequences; reasonable assurance of implementation; and any other relevant factor."

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

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

Response: The factors that DEQ considered for distribution of allocations are identified in the TMDL Technical Support Document section 9, 9.1, 9.2, and 9.3, These sections were updated to provide additional clarity, particularly for the human use allowance assignment to point sources. Note that OAR 304-042-0040(6) identifies factors DEQ or the EQC may consider when distributing wasteload and load allocations. DEQ or EQC is not required to consider or evaluate all the factors listed.

Changes were made based on this comment.

ACWA #12

Description: TMDL - HUA - Provide justification and reasoning for HUA allocations that vary across subbasins and from 2006 TMDL

Comment: DEQ must provide justification and reasoning for its source category allocation of the Human Use Allowance (HUA). The HUAs included in the draft TMDL documents vary across subbasins and have been changed since the 2006 TMDL without substantiation. Where science and fact-based information do not justify a change in HUA allocations, the 2006 allocations should be retained.

Section 9.1 of the TMDL document specifies the sector specific allocations for the HUA. Other than a statement that the "assigned portion of the human use allowance represents the maximum cumulative warming anywhere in the waterbody and at the point of maximum impact from all nonpoint source activities within each source category", there is no explanation for the allocation of the HUA in the Willamette Subbasins TMDL document. For example, the 0.2 deg C is allocated to point sources in the Molalla-Pudding (Table 9-1) and the Clackamas Subbasins (Table 9-2) whereas 0.15 deg C is allocated to point sources in the Upper, Middle and Lower Willamette Subbasins (Tables 9-3, 9-4, and 9-5). There is no explanation provided for the different allocations in the draft TMDL document. The tables below illustrate the differences in sector-specific HUAs that should be explained in the TMDL.

Response: DEQ's rationale for the human use allowance assignments is summarized in section 9, 9.1, and 9.2 of the Technical Support Document. These sections were updated to provide additional clarity.

Changes were made based on this comment.

ACWA #13

Description: TMDL - HUAs - Justify the allocation of 0.0 degC of warming to nonpoint source solar loading

Comment: Please explain why the sector-specific allocations do not include an allocation for solar loading from non-point sources (other than existing transportation and utility infrastructure). There is no justification provided in the documents, nor is there an explanation of why the allocation of 0.0o C is a justified change from the 0.05o C allocation included in the 2006 TMDL. If there is no allocation for non-point 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 aspirational goal unachievable. TMDL policy implications of a 0.0o C HUA for solar loading from other NPS sectors would set DMAs up for failure, because it would require implementation of shading activities that are beyond local governments' authorities. Moreover, setting an unachievable goal in a specific sector would mean that DEQ has not established an achievable path to meet its TMDL targets.

Response: DEQ must develop temperature TMDLs based on the current water quality standards and set allocations such that they add up to the Loading Capacity defined in OAR 340-042-0040(4)(d) and 40 CFR 130.2(f) as the amount of a pollutant or pollutants that a waterbody can receive and still meet water quality standards. We have provided allocations that add up to the Loading Capacity and will meet the current water quality standards. DEQ is not

required to identify in a TMDL how the allocated loads are to be achieved. It is DEQ's expectation, per OAR 340, division 42, that DMAs or responsible persons evaluate their operations and propose management strategies in their TMDL implementation plans that will show achievement of allocations.

Effective shade surrogate measure targets represent a surrogate for the amount of solar loading that will attain the human use allowance and load allocations for nonpoint sources managing streamside vegetation. The surrogate shade targets are regulatory however, DEQ recognizes that it will take decades for these targets to be met. The WQMP includes strategies other than those that increase streamside shade in the table of priority management strategies. DEQ will assess compliance with the TMDL through DMA tracking and reporting on their DEQ approved implementation plans.

ACWA #14

Description: TMDL - HUA - Allocate 0.02 deg C of the HUA to solar loading from nonpoint sources

Comment: While there may well be significant additional potential for local governments to increase effective riparian shade, the measures they can take are limited, and the constraints to achieving DEQ's aspirational shade goal are very real. DEQ needs to factor in some reasonable non-point source HUA to recognize these constraints. We recommend that DEQ include a similar allowance for non-point sources as provided for the "transportation corridor, buildings and existing infrastructure" (0.02deg C). Including an allocation for non-point sources recognizes both the dynamic nature of streamside vegetation and the limitations that Designated Management Agencies (DMAs) have in achieving TMDL goals.

Response: DEQ must develop temperature TMDLs based on the current water quality standards and set allocations such that they add up to the Loading Capacity defined in OAR 340-042-0040(4)(d) and 40 CFR 130.2(f) as the amount of a pollutant or pollutants that a waterbody can receive and still meet water quality standards. We have provided allocations that add up to the Loading Capacity and will meet the current water quality standards. DEQ is not required to identify in a TMDL how the allocated loads are to be achieved. It is DEQ's expectation, per OAR 340, division 42, that DMAs or responsible persons evaluate their operations and propose management strategies in their TMDL implementation plans that will show achievement of allocations.

Effective shade surrogate measure targets represent a surrogate for the amount of solar loading that will attain the human use allowance and load allocations for nonpoint sources managing streamside vegetation. The surrogate shade targets are regulatory however, DEQ recognizes that it will take decades for these targets to be met. The WQMP includes strategies other than those that increase streamside shade in the table of priority management strategies. DEQ will assess compliance with the TMDL through DMA tracking and reporting on their DEQ approved implementation plans.

ACWA #15

Description: TMDl - HUA - Provide allocations to nonpoint source solar loading so that water quality trading can be a compliance strategy

Comment: The zero allocation for non-point sources may mean that point sources will not be able to utilize water quality trading as a compliance strategy. That would negatively impact DEQ's 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 be not set such that it would eliminate opportunities for wastewater utilities to invest in riparian shade enhancement projects. As stated above, DEQ should adjust the sector-specific human use allocations to provide an allocation for solar loading from other non-point sources. A non-point source allocation as recommended above would enable point sources to pursue a water quality trading program as a compliance strategy. DEQ also should include a specific discussion of the water quality trading framework in the TMDL documents.

Response: DEQ supports the use of water quality trading. Water quality trading is allowed as long as the requirements listed under OAR 340-39 are met. DEQ must develop temperature TMDLs based on the current water quality standards. Allocations are set and their sum equals the Loading Capacity as defined in OAR 340-042-0040(4)(d) and 40 CFR 130.2(f) as the amount of a pollutant or pollutants that a waterbody can receive and still meet water quality standards. We have provided allocations that add up to the Loading Capacity and will meet the current water quality standards. DEQ does not believe that the way the human use allowance was allocated in the Willamette Subbasins TMDL in any way limits the ability of point sources to participate in water quality trading. Although the DEQ does not reserve a portion of the HUA for point source trading, we appreciate the need for clarity regarding the use of Water Quality Trading for compliance with TMDL requirements. The WQMP will be updated to explicitly state that water quality trading remains a TMDL compliance option.

Changes were made based on this comment.

ACWA #16

Description: TMDL - WLA - Delete first paragraph in Section 9.1.2 describing WLAs for general permits

Comment: Section 9.1.2 states that "The wasteload allocation for registrants under the general stormwater permits (MS4, 1200-A, 1200-C and 1200-Z) and general permit registrants not identified in Table 9-11 is equal to any existing thermal load authorized under the current permit. More specific wasteload allocations can be considered if subsequent data and evaluation demonstrates a need and if capacity is available." With regards to the stormwater permits (MS4, 1200-A, 1200-C and 1200-Z), this statement conflicts with the findings in Section 7.1 of the TMDL, which states that "there is not sufficient evidence to demonstrate that stormwater discharges authorized under the current municipal (MS4s) permits or the construction (1200-C) and industrial (1200-A and 1200-Z) general stormwater permits contribute to exceedances of the temperature standard." Additionally, the TMDL includes wasteload allocations for general permit registrants (i.e., 100-J, 200-J, and 300-J) that have the potential to cause/ contribute to

temperature exceedances. Therefore, ACWA recommends that the referenced statements in the first paragraph of Section 9.1.2 be deleted.

Response: The cited sentence in TMDL Section 9.1.2 reiterates what is stated in Section 7.1, which is that more specific wasteload allocations can be considered for the referenced permits if subsequent data and evaluation demonstrate a need, and if reserve capacity is available. DEQ has updated the language in Section 9.1.2 to clarify the expectations for stormwater and general permit holders.

Changes were made based on this comment.

ACWA #17

Description: TMDL - WLA - Include wasteload allocations for each use period

Comment: The draft TMDL presents the minimum wasteload allocation. For facilities where multiple criteria apply during the TMDL period (i.e., spawning, core cold water, rearing/migration), DEQ should include wasteload allocations for the different periods. This information is essential in assessing compliance strategies. The above table provides an example of wasteload allocations that would apply during the spawning and rearing periods. In situations where multiple criteria apply, DEQ should include wasteload allocations for each use period.

Response: Separate wasteload allocations for each criterion and fish use designation period are not necessary in these cases because the wasteload allocation and the portion of the human use allowance assigned to each facility is the same regardless of criteria. This approach was used is because EQC has approved, and DEQ has submitted to EPA updates to the fish and aquatic life use designations. As of August 2024, EPA has not taken action on the updated use designations. If approved, the updates will change the applicable temperature criteria and spawning periods for some assessment units addressed by the TMDL. A single human use allowance will accommodate these use designation changes. The other reasons DEQ used this approach is because it required less time to characterize, calculate, and evaluate allocations. DEQ had to consider timing in all aspects of the analysis in order to meet the court ordered schedule.

ACWA #18

Description: TMDL - Ensure that non-discharge period in NPDES permit matches the TMDL time period

Comment: DEQ should ensure that the “non-discharge” period in NPDES Permits for the facilities that were not given a wasteload allocation matches the TMDL time period. The table below identifies municipal treatment facilities that were assigned a wasteload allocation of “zero” in Table 9-11. Presumably, these are for facilities that do not discharge to surface waters during the TMDL period. DEQ should verify that the non-discharge period for these facilities matches the TMDL period. For example, the Scio STP has a zero allocation and the TMDL period is defined as May 1 to November 30. The TMDL period is longer than the typical non-discharge

periods specified in NPDES permits. DEQ should include an allocation for the facility if the TMDL period is longer than the non-discharge period in the NPDES permit.

Response: DEQ agrees that facilities that discharge within the TMDL allocation period should be given wasteload allocations. We reviewed the permits of the facilities in the provided table and made the following updates and conclusions: 1. Aumsville STP was given a wasteload allocation for April 1 - April 30. 2. Scio STP's wasteload allocation period was changed to May 1 - October 31, and the facility no discharge period is May 1 - October 31, so no allocation was given. The wasteload allocation period was changed due to a reevaluation of the instream water temperature data used to determine the critical period for the South Santiam Subbasin. 3. We confirmed that the no discharge period overlaps with the TMDL allocation period for the following facilities: Aurora STP, Brownsville STP, Falls City STP, Gervais STP, Halsey STP, Junction City STP, Mt Angel STP, Philomath WWTP, Sandy WWTP, Scio STP, Tangent STP, Timberlake STP.

Changes were made based on this comment.

ACWA #19

Description: TMDL - Include provisions authorizing weather driven discharges during TMDL period for facilities that do not have WLAs

Comment: The TMDL should include provisions for facilities that do not discharge during the dry season but may be compelled to discharge to surface waters under significant rain events that preclude land application or storage.

Municipal wastewater treatment facilities that do not discharge during the dry season tend to either store treated wastewater and/or land apply treated water for beneficial use. These activities are weather dependent. For example, a facility that irrigates during the dry season may not be able to land apply recycled water during a very wet spring and may have to continue surface discharge. Moreover, a facility may need to discharge in October with the onset of fall rains if there is no storage capacity or demand for irrigation. Surface water discharges during wet weather driven periods have little influence on temperature regimes and DEQ has authorized such weather-driven discharges when circumstances warrant. The TMDL should include a note that authorizes weather-driven discharges during the TMDL period for facilities that do not have a specific wasteload allocation.

Response: Surface water permits typically have very specific discharge seasons when warranted by TMDL, water quality criteria, or other necessary conditions. These permits are designed to protect water quality and beneficial uses of the receiving stream. Requests for discharges outside of these ranges must be incorporated into permits when necessary, via a permit modification or renewal. This is particularly critical for the evaluation of anti-backliding, anti-degradation, and reasonable potential analysis for other pollutants not identified in the TMDL. The TMDL may not authorize exceptions to discharges or permit limits. DEQ provided a wasteload allocation in the TMDL for facilities that have applied for expanded discharges during the wet weather driven discharge (Molalla STP and Sandy WWTP via the Lower Columbia Sandy Subbasin TMDL). For other facilities where the TMDL allocation is not sufficient for the wet weather driven discharge, the facility has the option to apply for TMDL reserve capacity.

ACWA #20

Description: TMDL - WLA - Allocate reserve capacity to Creswell STP to provide an achievable target

Comment: The draft TMDL includes a wasteload allocation of 0.057 million kcal/day for the City of Creswell; this allocation is substantially lower than the current NPDES permit limits which are based on the 2006 Willamette TMDL. The current NPDES permit for Creswell includes a static limit of 4.9 million kcal/day and an option for calculation of flow-based limits. An assessment of thermal loads from the treatment facility shows that the facility would be in immediate non-compliance with the proposed wasteload allocation in the TMDL. See attached temperature data from Creswell. Since there is reserve capacity available (Table 9-3), DEQ should utilize the reserve capacity and provide an achievable allocation for Creswell.

Response: DEQ has updated the 7Q10 wasteload allocation for Creswell STP to 2.491 million kcal/day for discharge during the wasteload allocation period (May 1 - May 31). This is based on an HUA allocation of 0.20 deg-C, an effluent flow of 3.92 MGD, and an annual 7Q10 river flow of 0 cfs. The TMDL provides an option for a flow based allocation so as river flows increase above 7Q10 the thermal wasteload allocation will increase accordingly.

Changes were made based on this comment.

ACWA #21

Description: TMDL - WLA - Allocate reserve capacity to Boring STP to provide an achievable target

Comment: The draft TMDL includes a wasteload allocation of 0.125 million kcal/day for the Water Environment Services (WES) Boring STP. This allocation is substantially lower than the current NPDES permit limits which are based on the 2006 Willamette TMDL. The current NPDES permit for the WES Boring STP specifies wasteload allocations of 0.333 million kcal/day from June 16 – October 14 based on the core cold water criteria and 0.357 million kcal/day from October 15 – June 15 based on spawning use. An assessment of thermal loads from the treatment facility shows that the facility would be in immediate non-compliance with the proposed wasteload allocation in the TMDL. Since there is considerable reserve capacity available (Table 9-10), DEQ should utilize the reserve capacity and provide an achievable allocation for the WES Boring STP.

Response: DEQ increased the HUA allocation to the Boring STP to 0.20 deg-C, which increased the Boring STP wasteload allocation to 0.345 million kcal/day for the entire wasteload allocation period (May 1 - October 31).

Changes were made based on this comment.

ACWA #22

Description: TMDL - WLA - Edit City of Dallas STP WLA to allow for discharge to Rickreall Creek from May - October

Comment: The wasteload allocation for the City of Dallas would result in an effluent temperature target of 18.2 C in May and October based on the stream flow and effluent flow specified in the TMDL. While effluent temperatures in May and October are below the peak summer temperatures, they are likely well above 18.2 C particularly in October. As noted in the April 2023 comment letter, the City has a long history of working with DEQ to address temperature issues in Rickreall Creek and has expended considerable resources over the past three decades. The City has continued to discharge to Rickreall Creek rather than build a pipeline to the Willamette River at the behest of Oregon DEQ, Oregon Department of Fish and Wildlife and downstream water users. In the 1990s, the City applied for and obtained an exception to the temperature standard from the Environmental Quality Commission. The proposed wasteload allocation does not provide a viable pathway for the City to continue to discharge to Rickreall Creek during the entire dry season (May to October).

Response: Thank you for your comment. DEQ set the wasteload allocation based on the applicable temperature criteria and availible loading capacity. DEQ will work with The City of Dallas to implment the TMDL wasteload allocation.

ACWA #23

Description: TMDL - WLA - Conduct compliance assessment on ability of facilities to meet WLAs and allocate reserve capacity if needed

Comment: We urge DEQ's TMDL and permitting groups to conduct a compliance assessment of the ability of municipal treatment facilities to meet the wasteload allocations in the TMDL. If the proposed wasteload allocations in the draft TMDL would result in non-compliance, DEQ should utilize a portion of the reserve capacity and if need be, conduct a cumulative effects evaluation to provide an achievable wasteload allocation for the facility.

Response: Given the court ordered deadline, available resources, and available data it was not possible to complete a model based cumulative effects analysis beyond the streams modeled and presented in the draft TMDL. DEQ was able to complete new thermal loading assessments for multiple NPDES point sources. Based on this assessment, DEQ increased the portion of the human use allowance for some facilities in order to minimize or eliminate non-compliance days. DEQ increased the human use allowance for the following facilities: WES - Boring STP (16592), Coburg Wastewater Treatment Plant (115851), Creswell STP (20927), Veneta STP (92762), Murphy Veneer (97070), Duraflake (97047), Fujimi Corporation (107178), Norpac Foods (84820), Dallas STP (22546), Dallas WTP (22550), RSG Forest Products (72596), and International Paper Springfield Outfall 003 (96244).

Changes were made based on this comment.

ACWA #24

Description: TMDL - WLA - Discuss WLA allocations and viable permitting pathways with cities that have potential compliance concerns

Comment: We further urge DEQ to reach out to these cities to discuss the proposed TMDL wasteload allocations and viable permitting pathways that continue to ensure both the efficient use of limited resources and sufficient flexibility to direct resources to projects with sustainable environmental, community, and economic benefits.

Response: DEQ will work with the cities to implement the TMDL and assist to the best of our ability in identifying different pathways that will achieve water quality standards.

ACWA #25

Description: TMDL - WLA - Do not allocated facility specific WLAs to 200-J NPDES general permit registrants

Comment: There are six registrants for the 200-J NPDES general permit that are identified in the TMDL, and waste load allocations are included for these sources. The 200-J NPDES permit authorizes discharge of filter backwash from drinking water treatment plants. The water used to backwash the filters is often treated in a settling pond prior to discharge to surface waters. Solar heating of the ponds, which are used to settle solids, is the primary source of temperature increases at these facilities. Inclusion of facility-specific waste load allocations would likely make these facilities ineligible for the 200-J NPDES general permit. These facilities would have to apply for individual NPDES permits at considerable cost, which would place a significant economic burden on these municipalities, and would add more permits to DEQ's workload, for little or no environmental benefit. Wasteload allocations leading to numeric limits, which would require issuance of individual permits, are an inappropriate vehicle to address thermal contributions of filter backwash discharges from drinking water treatment facilities. We recommend that DEQ utilize a management practice based approach to reduce potential thermal load from these facilities. Management strategies include consideration of non-discharge alternatives (i.e., land application) and/or operational changes to the extent feasible to minimize the thermal load from these facilities.

Response: For any NPDES permit renewal, permit discharge limits must be consistent with the assumptions and requirements of an applicable TMDL. A TMDL does not contain a requirement for the type of permit issued, individual or general, for this purpose. DEQ assigned a human use allowance and waste load allocation to 200-J registrants because there is a reasonable potential for 200-J registrants to increase temperature. Allocations are part of the TMDL framework and we believe are needed in this situation to ensure temperature warming from all sources, including discharges from individual permittees, general permit registrants, and nonpoint sources will cumulatively attain the 0.3 degree Celsius human use allowance requirement of the temperature standard.

ACWA #26

Description: TMDL - WLA - Use a bubbled allocation approach for small sources similar to what was done in the 2006 TMDL

Comment: In the 2006 TMDL, DEQ included a bubble allocation for small sources, which include minor individual municipal treatment facilities and General NPDES Permits. The 2006 TMDL noted that the "facilities with a valid permit are included in this "bubble allocation" and may continue to discharge their current heat load without affecting the attainment of temperature standards." The 2006 TMDL states that DEQ "will not assign individual effluent limits to each source within the small point source bubble allocation" but "will track the number of small sources within each river reach and estimate cumulative heat loads based on discharge monitoring reports or other effluent characterization approaches." The 2006 TMDL also states that "available reserve capacity will be drawn upon as the small source heat load approaches the bubble allocation limit." DEQ should use a bubbled allocation approach for small sources similar to what was done in the 2006 TMDL. DEQ has not provided data or modeling to demonstrate that a different conclusion and, therefore, a different policy approach, is warranted, and no reasoning has been provided for changing from the approach taken in 2006. Moreover, the permit compliance and cost implications of including waste load allocations for small discharges would be significant, while the temperature reduction impact would be negligible. Using the bubbled allocation approach provides an effective and efficient means of addressing these discharges and will not add to DEQ's permitting workload.

Response: The Willamette River bubble allocation approach included in the 2006 temperature TMDL applied to the mainstem of the Willamette River, not the tributaries addressed by the Willamette Subbasins temperature TMDL. DEQ's analysis shows many minor individual point sources, 100-J, and 200-J general permit registrants have reasonable potential to increase stream temperature, particularly on streams with very low flow rates. For this reason, all individual NPDES permittees and 200-J registrants are provided numeric waste load allocations in the TMDL. Numeric wasteload allocations for individual 100-J registrants were removed from the TMDL and replaced with narrative allocations and other requirements that apply to current and any future registrants. The approach for 100-Js include an assigned human use allowance for all registrants and limits on the number of new registrants based on available dilution and other factors. This aspect works similar to the bubble allocation used in the 2006 temperature TMDL. DEQ added additional information into the TSD to improve the documentation of our analysis and findings regarding individual point sources, 200-Js, and 100-J registrants.

Changes were made based on this comment.

ACWA #27

Description: TMDL - WLA - Alternative to bubbled allocation approach is to use management practice-based plan to address potential thermal impacts from minor 200-J NPDES permittees

Comment: Alternatively, DEQ should utilize a management practice-based or pollutant reduction plan approach to address potential thermal impacts from minor sources under the 200-J NPDES permit. Upon renewal of the 200-J NPDES General Permit, DEQ can require management plans that include best practices for managing temperature at these facilities.

Response: DEQ's analysis shows 200-J general permit registrants have reasonable potential to increase stream temperature, particularly on streams with very low flow rates. For this reason, 200-J registrants are provided numeric waste load allocations in the TMDL.

ACWA #28

Description: TMDL - Shade - State that DEQ will work with DMAs to restore riparian vegetation and shade loss caused by natural disturbance

Comment: Section 9.1.4.3 states “Local geology, geography, soils, climate, legacy impacts, natural disturbance rates, and other factors may prevent effective shade from reaching the target effective shade. No enforcement action will be taken by DEQ for reductions in effective shade caused by natural disturbances.” This section notes that “no enforcement action will be taken by DEQ for reductions in effective shade caused by natural disturbances.” We recommend that DEQ include an additional statement which states that “where natural disturbances prevent achievement of the target effective shade, DEQ will work with the DMAs to develop plans to restore riparian vegetation.” Inclusion of this statement will make it apparent that shade loss caused by natural disturbances will be restored.

Response: Thank you for your comment. The statement has been added as recommended.

Changes were made based on this comment.

ACWA #29

Description: TMDL - Shade - Explain how DMAs in table 9-13 were selected and why only some DMAs receive shade gaps

Comment: Table 9-13 provides shade gaps for selected DMAs. Please provide an explanation for how this list of DMAs was selected and why some DMAs received shade gaps and not others.

Response: DEQ performed shade gap analyses for all areas in the Willamette Subbasins with existing shade models. DEQ mapped land ownership and jurisdiction for the entire state of Oregon based on GIS data of roadways, railways, city limits, tax lot ownership, public land management, zoning and land cover. This information was used to identify the DMAs responsible for TMDL implementation in the project area. The DMAs included in the referenced shade gap table are those that are responsible for implementing the TMDL in the riparian areas of the modeled streams.

ACWA #30

Description: TMDL - Shade - State that effective shade targets derived from shade curves are idealized and do not represent actual shade targets

Comment: Table 9-18 presents the vegetation height, density, overhang and buffer width used to derive effective shade curve targets. A buffer width of 36.8 meters (120 feet) is used for deriving the effective shade curve targets for each mapping unit. As noted in the discussion regarding the allocation of the human use allowance, local jurisdictions have very limited ability

to require or incentivize private property owners to provide a 120-foot buffer width. Additionally, site constraints often restrict the establishment of a 120-foot buffer width. Thus, the assumed buffer width used to derive the effective shade curve targets will likely not be achievable in many areas. We recommend that DEQ include discussion in Section 9.1.4.3 that the shade curves presented in Figures 9-5 to 9-26 and in the Appendix of Effective Shade Curve Tables are based on an assumed vegetation height, density, overhang, and buffer width; these are idealized conditions and not representative actual field conditions. Thus, the effective shade targets obtained from the shade curves do not reflect site potential conditions; the effective shade obtained from the shade curves should be used as a guide to evaluate progress and not as actual effective shade targets.

Response: As stated in the TMDL, the shade targets derived from shade curves are applicable to any stream that does not have site specific shade targets. The TMDL also states that the effective shade curves represent the maximum possible effective shade for a given vegetation type. These targets are regulatory however, DEQ recognizes that it will take decades for these targets to be met. The WQMP and streamside evaluation gives responsible persons including DMAs the flexibility to provide a rationale for how they will prioritize implementation of strategies that increase streamside shade. Specifically, the streamside evaluation allows for responsible persons and DMAs to prioritize implementation using metrics or criteria in addition to DEQ shade targets. DEQ will assess compliance with the TMDL through DMA tracking and reporting on their DEQ approved implementation plans.

For these reasons, DEQ will not add the recommended language to Section 9.1.4.3. However, DEQ will consider using shade targets submitted in DMA implementation plans for compliance assessment.

ACWA #31

Description: WQMP - Edit Table 2 to replace solar radiation with temperature as the pollutant of concern

Comment: In Table 2, “Solar Radiation” is listed as a pollutant. While solar radiation is the primary source of thermal inputs in the Willamette Subbasin TMDL, it is not a pollutant. Solar Radiation should be replaced in the table with “Temperature” as the specified pollutant of concern. A footnote or table note could be added to note that solar radiation is the primary source of thermal pollution.

Response: Thank you for your comment. Table 1 in the WQMP has been updated; solar radiation has been replaced with heat (thermal loading) as the pollutant of concern; this terminology is consistent with the TMDL.

Changes were made based on this comment.

ACWA #32

Description: WQMP - Water Withdrawals - Incorporate framework for additional means for achieving temperature compliance through recycled water offsets to withdrawals

Comment: Section 2.2 discusses flow management strategies. This section notes that because "temperature is a flow-related parameter, water withdrawals can result in increased pollutant concentrations and warmer stream temperatures." The WQMP recommends the pursuit of "instream water rights transfers and leases." Reliance on instream water rights and leases as the vehicle to implement this management strategy will not tap its full potential. This management strategy needs to be more fully developed as there is significant untapped potential to leave cool water instream and offset its consumption with recycled water. Recycled water from municipal wastewater treatment facilities is a viable alternate source of water for many consumptive uses and using it in-lieu-of river water has the double temperature benefit of eliminating a discharge of warmer water to the stream and leaving cooler water in the stream. DEQ should take necessary steps to facilitate expansion of the permitted use of recycled water which would allow entities to transfer water rights for in-stream use. For the purposes of this WQMP, DEQ should incorporate the framework for additional means (other than water rights transfers or leases) for achieving temperature compliance through recycled water offsets to withdrawals, such as contracts.

Response: DEQ acknowledges the benefits of using recycled water from municipal wastewater treatment facilities for non-drinking water uses and appreciates the potential for this to offset the volume of water extracted from surface water bodies. For DEQ to consider assigning temperature credits for the use of recycled water the facility would need to provide sufficient documentation to clearly identify the credited recycled water is replacing extracted surface water and the time of year of extraction that is offset. Given that DEQ staff need to further explore the use of recycled water, DEQ did not incorporate a framework for achieving temperature compliance through recycled water offsets into the WQMP.

ACWA #33

Description: WQMP - Water Withdrawals - Develop strategies for using aquifer storage and recovery systems to reduce water withdrawals

Comment: Additional strategies to address water withdrawals include expanding the use of Aquifer Storage and Recovery (ASR) systems for municipal use. These systems can be used to store water in the wet season and use the stored water in the dry season. This provides a viable method for communities to reduce surface water withdrawals during the dry season. These strategies also should be developed in the WQMP.

Response: DEQ acknowledges that Aquifer storage and recovery (ASR) is a potential permitting compliance tool and has added ASR to the WQMP.

ASR systems replenish ground water stored in aquifers for beneficial purposes. ASR injection facility designs often meet OAR 340-044 criteria for UIC facilities and must be permitted through the UIC Program. Any recovered stored water discharged into a surface waterbody through direct or functionally equivalent discharge must have an individual NPDES permit. The DEQ UIC program has been involved in the permitting process for recent ASR projects in Oregon. For any ASR project the UIC program's main focus is meeting groundwater protection rules in Oregon Administrative Rule 340-040. So long as OAR 340-040 is met, there are clear permitting pathways for ASR projects throughout the state.

Changes were made based on this comment.

ACWA #34

Description: WQMP - Table 2 - Add dam and reservoir management as priority strategy

Comment: Section 2.4 of the WQMP includes “proven strategies (and practices within the strategies) by pollutant source.” Table 2 summarizes these strategies. ACWA agrees with the information included in the table, but the table is incomplete. Dam and reservoir management should be included as a specific priority strategy.

Response: The DEQ agrees that the management of dams and reservoirs can be an important strategy for improving the thermal regime of the Willamette river and its tributaries.

Changes were made based on this comment.

ACWA #35

Description: WQMP - Table 2 - Expand flow management priority strategies to include recycled water offsets and aquifer storage and recovers

Comment: Section 2.4 of the WQMP includes “proven strategies (and practices within the strategies) by pollutant source.” Table 2 summarizes these strategies. ACWA agrees with the information included in the table, but the table is incomplete. Information on flow management strategies should be expanded to reflect the comments regarding recycled water offsets and Aquifer Storage and Recovery (ASR) systems.

Response: Recycled water re-use or offsets and Aquifer Storage and Recovery systems require DEQ or other permits. Therefore, DEQ did not add these potential compliance strategies to Table 2, which is focused on nonpoint source management strategies. As compliance options can vary for each permit holder and specific circumstance, DEQ encourages permit holders to contact DEQ’s permit program representatives to discuss particular circumstances prior to finalizing any compliance strategy. Please see other response to comments about the use of Aquifer Storage and Recovery systems and recycled water offsets.

ACWA #36

Description: WQMP - NPS Strategies - Discuss how to obtain thermal credits for implementing water withdrawal and morphology strategies

Comment: While water withdrawals and channel morphology/hydromodification management strategies are specified as priority management strategies, there is no opportunity to get “credits” for implementation strategies/measures that would address them. The WQMP should include broader discussion of these strategies and include a framework for obtaining thermal “credits” for implementing these strategies. A greater focus by DEQ on these priority management strategies could be developed as a means to achieve the TMDL temperature targets since target effective shade may not be achieved.

Response: The WQMP includes strategies other than those that increase streamside shade (including flow augmentation and channel morphology-related restoration) in the table of priority management strategies because DEQ recognizes the importance of these strategies in reducing stream temperatures. At this time DEQ does not plan to develop a framework for DMAs to obtain thermal "credits" for implementing these strategies. However, DEQ continues to encourage DMAs to consider all strategies from Table 2 for inclusion in DMA implementation plans. DEQ will continue to assess implementation compliance with the TMDL through DMA tracking and reporting on DEQ-approved implementation plans in the coming years. Any future evaluation of progress toward meeting effective shade targets will include an evaluation of other implementation efforts that have been completed to improve stream temperatures.

Language has been added to Section 6 of the WQMP to better describe monitoring and evaluation of progress for implementation of this TMDL.

Changes were made based on this comment.

ACWA #37

Description: WQMP - Point Source Strategies - Add discussion of how point source discharges can implement management strategies as a means of permit compliance

Comment: Section 2.5 discusses point source priority management strategies. The discussion of point source priority management strategies is inadequate. Point source dischargers cannot implement the priority management strategies without viable permitting pathways. The WQMP should include the range of permitting pathways that exist and that need to be developed in order to enable point source dischargers to have access to the priority management strategies as a means of permit compliance for temperature limits. Examples that need to be addressed in this section (or elsewhere in the WQMP as DEQ responsibilities) include, but are not limited to:

• Water quality trading: DEQ should provide a discussion for the framework for the water quality trading program in the WQMP. • Mechanisms for pilot projects or a specific set of performance metrics that can constitute NPDES permit compliance for priority management strategies related to river system (channel morphology and hydromodification) improvement projects such as channel morphology improvements, floodplain function improvements, hyporheic flows through shallow gravels, etc. • A broader set of mechanisms for crediting water left instream and offset by recycled water use. • Pathways to site specific variances and implementation of pollution reduction plans in-lieu-of numeric temperature limits.

Response: Limits and compliance requirements will vary for each individual and general permit issued or renewed by DEQ. As compliance options can vary for each permit holder and specific circumstance, DEQ encourages permit holders to contact DEQ's permit program representatives to discuss particular circumstances prior to finalizing any compliance strategy. Additionally, permit holders will be informed and involved in permit development discussions when new wasteload allocations are implemented, and compliance strategies are needed. A list of potential compliance strategies that may be used to ensure compliance with WLAs in the TMDL includes:

• Trading – watershed/riparian repair • Mechanical – cooling tower • Mechanical – chiller • Aquifer recharge and recovery • Physical shading – tents, awnings, and enclosures • Land application • Natural and Artificial Wetlands

This list is not meant to be exhaustive, and absence of any compliance strategy does not preclude its potential use to comply with WLAs for temperature.

Changes were made based on this comment.

ACWA #38

Description: WQMP - Implementation Responsibility - Remove or correct the jurisdictional acreage calculated for each DMA

Comment: Section 5.1 on page 16 states that "A complete list of responsible persons including DMAs for the Willamette Subbasins Temperature TMDL is in Appendix A. Appendices B and C contain further information divided by subbasin and show jurisdictional area of each DMA by subbasin and within 150 feet of a stream." In reviewing Appendices A, B, and C, we noted many discrepancies when comparing the acreages to jurisdictional mapping and subbasin delineation results. For Phase I NPDES MS4 jurisdictions, contributing area by watershed in accordance with the Willamette Basin TMDL has been detailed and submitted with their NPDES MS4 permit renewal applications and TMDL pollutant load reduction evaluations (PLRE) and benchmarks. These would be the appropriate acreages to include in these tables. We recommend removing these listings of areas altogether and instead list the relevant subbasins for each DMA. The areas do not seem to be necessary information unless they were used in DEQ calculations – in which case, the areas and calculations should be corrected. • For example, Appendix B shows that Oregon City has 878 acres in the Clackamas Subbasin and zero acres in the Middle Willamette Subbasin. Oregon City has estimated through GIS mapping that it has 5487.2 acres in tributary areas to the Middle Willamette and 123.8 acres in areas draining directly to the Middle Willamette. Appendix A shows a total for Oregon City of 6437 acres. So, Appendix A and B don't add up.
• Another example includes Gladstone's drainage area of 20 acres to the Middle Willamette subbasin. Gladstone does not have any drainage to the Middle Willamette Subbasin.
• Oak Lodge Water Services is mistakenly not included in Appendix A, B or C of the WQMP. • Additional examples can be provided on request.

Response: Thank you for your comment. A formatting error incorrectly omitted many DMAs from the table included in WQMP Appendix B. Appendix B has been updated to reflect all jurisdictions mapped within each subbasin.

Appendix B now reflects the correct value for Oregon City in the Middle Willamette Subbasin of 5,559 acres. This total is slightly lower than the total estimate from Oregon City due to the hierarchy used to assign jurisdictional acres during mapping. This hierarchy is described in TSD Appendix A section 2.2.5 and is as follows: 1. Transportation corridors 2. Tribal boundaries 3. City limits 4. Public land management 5. Ownership 6. Zoning 7. Land use/land cover 8. County boundary

Jurisdictional areas were estimated using data Oregon City Limits (2018) from the Oregon Spatial Data Library and watershed boundaries from the National Hydrography Dataset (NHD).

These layers show an area of 20 acres under City of Gladstone jurisdiction within the Middle Willamette Subbasin. This area covers a portion of Meldrum Bar Park at the confluence of the Clackamas and Willamette Rivers.

Oak Lodge Water Services was not included in the mapped jurisdictional acres but has been added to Appendix A as a DMA.

Changes were made based on this comment.

ACWA #39

Description: DMAs - Add OWRD (3)

Comment: Since flow management is an essential component of the proposed management strategies in the WQMP, the Oregon Water Resources Department (OWRD) has an important role. OWRD's mission statement notes that its role is "to restore and protect stream flows and watersheds in order to ensure the long-term sustainability of Oregon's ecosystems, economy, and quality of life". OWRD's role in ensuring sustainable stream flows is a key a component of meeting temperatures targets. Therefore, we recommend that OWRD be listed as a DMA in the WQMP.

Response: The comment asserts that the Oregon Water Resources Department (OWRD) should be listed as a DMA because of OWRD's role in water management. DEQ recognizes the temperature impacts that water withdrawals can have. However, OWRD's role as the state agency that administers the laws governing the allocation of water rights can be distinguished from the roles of other state agencies that have regulatory authority managing activities and uses of property that contribute to water quality impairments, such as ODA and ODF. The EQC TMDL rules specifically address the roles that ODA and ODF have in implementing TMDLs in OAR 340-042-0080. Given OWRD's unique role that does not involve land management, rather than designating OWRD as a DMA at this time, DEQ has determined that it will work with OWRD to evaluate ways in which the agencies can further partner in efforts to increase flows to improve water temperature, such as through commitments specified in a MOU or MOA.

ACWA #40

Description: WQMP - Implementation Plans - Amend FPA to require protection and restoration of previously impacted riparian areas

Comment: Section 5.2.1 includes a discussion of the adequacy of the Forest Practices Act (FPA) to meet TMDL allocations. This section notes that "the rules do not address disturbance of riparian areas harvested under previous rules. It states: "Therefore, effective shade is likely to be deficient for those riparian areas adjacent to small and medium salmon, steelhead, and bull trout streams that were harvested prior to implementation of the new rules." This approach precludes the attainment of target effective shade. If there is no active restoration in watersheds impacted by previous rules, the effective shade targets will not be achieved. To achieve the effective shade target and improve water quality, it seems that the FPA would have to be amended to require protection and restoration of previously impacted riparian areas.

Response: The sentence cited in your comment was removed. It was not entirely accurate and focused on older Forest Practices Act rules that have been revised. The Forest Practices Act does require replanting after harvest. This section of the WQMP has been revised to reflect DEQ's findings relevant to the current Forest Practices Act rules.

Changes were made based on this comment.

ACWA #41

Description: WQMP - Implementation Plans - Identify specific implementation plan updates required to reflect new requirements

Comment: Section 5.3 addresses Implementation Plan requirements. The TMDL requires DMAs to submit TMDL Implementation Plans within 18 months of EPA's approval of the Willamette Basin mainstem TMDL. DMAs identified under the previous Willamette Basin TMDLs would have already submitted plans. If TMDL implementation plans need to be updated to reflect new requirements, DEQ should identify the specifics of the plan update rather than requiring wholesale updates. This effort for all DMAs to submit new implementation plans would be duplicative, resource intensive, and unnecessary to achieve the desired updates to TMDL implementation plans.

Response: OAR 340-042-0080(4)(a)(E) and (4)(b) state that persons, including DMAs identified in a WQMP as responsible for developing and revising sector-specific or source-specific implementation plans must prepare an implementation plan and submit the plan to DEQ for review and approval according to the schedule specified in the WQMP, provide any other analyses or information specified in the WQMP and implement and revise the plan as needed.

The WQMP identifies the requirements for implementation plans some of which differ from the requirements of the previous Willamette Basin TMDLs. DMAs are responsible for evaluating their current implementation plans and updating them to meet the requirements of this TMDL and WQMP. The specifics of the update will depend on the current content of each implementation plan and DMA authority and jurisdiction. If existing implementation plans meet the requirements in the WQMP then DMAs may submit their existing plans for review and approval and do not need to make updates.

ACWA #42

Description: WQMP - Implementation Plans - Require ODF, ODA, BLM, USFS to update plans, new DMAs to create plans, and existing DMA plans to be updated via annual reports

Comment: As shown in Figures 1 and 2 of the WQMP, most of the acreage in the Willamette Subbasins is under the purview of federal and state agencies. Rather than requiring 137 DMAs to provide new implementation plans, DEQ should require Oregon Department of Forestry, Oregon Department of Agriculture, US Bureau of Land Management, and US Forest Service to update their plans. These entities make up 93% of the DMA acres in the stream corridor in the Willamette Subbasins TMDL. While new DMAs need to submit TMDL implementation plans,

existing DMAs that already have TMDL implementation plans should be allowed to update their plans as part of annual reports submitted to DEQ. This approach will reduce the burden on DMAs but ensure that DEQ gets the necessary information. Additionally, this approach will enable DEQ to focus its efforts on the entities that account for most of the acreage in the stream corridor in the Willamette Subbasins Temperature TMDL.

Response: DEQ took into account the number of acres of jurisdiction under purview of Oregon Department of Forestry, Oregon Department of Agriculture, US Bureau of Land Management, and US Forest Service when developing the requirements outlined in the WQMP and will work with these entities to develop or make the necessary updates to their implementation plans.

DMAs with existing implementation plans are responsible for evaluating the current implementation plans and making necessary updates to meet the new requirements of the WQMP. DEQ requires that all DMA implementation plan submission deadlines be the same to ensure that DMAs have equal time to develop and submit the required materials. Due to differing annual report dates - requiring DMAs to submit at the time of annual report deadlines would result in unequal amounts of time for DMAs to complete the required updates.

ACWA #43

Description: WQMP - Implementation Plans - Add Yes/No responses to decision support tree

Comment: Section 5.3, Figure 3 includes a decision support tree to help identify information and analyses requirements for different responsible persons and DMAs. The decision tree does not include responses (Yes/No) to guide the reader through the figure. Please include responses (Yes/No) to assist the reader navigate the decision tree.

Response: Thank you for your comment. Figure 3 in the WQMP was updated to include “yes” and “no” indicators in the decision tree.

Changes were made based on this comment.

ACWA #44

Description: WQMP - Shade Gap Analysis - State which DMAs do not have a shade gap analysis

Comment: We found the draft WQMP to be unclear regarding which DMAs are required to conduct a shade gap analysis.
• Section 5.3.2 (Streamside Evaluation) states that “Entities that have a DEQ shade gap analysis, and entities that must complete a shade gap analysis (see Section 5.3.4), must account for the shade gap analysis results in their streamside evaluation.” However, Section 5.3.4 does not specifically state who must complete a shade gap analysis – it just describes what a shade gap analysis is. ACWA requests that DEQ specifically state which DMAs do not have to do a shade gap analysis.

Response: The entities that are required to complete a shade gap analysis are listed in WQMP section 5.3.4.2. Section 5.3.2 (Streamside Evaluation) has been updated to refer to Section 5.3.4.2. Other DMAs are not required to complete a shade gap analysis but may do so if they choose not to use a DEQ provided shade gap analysis for their jurisdiction.

Changes were made based on this comment.

ACWA #45

Description: WQMP - Clarify what is meant by: "entities must account for the shade gap analysis results in their streamside evaluation"

Comment: We found the draft WQMP to be unclear regarding which DMAs are required to conduct a shade gap analysis.
• What is meant in the first paragraph under Section 5.3.2 of the draft TMDL WQMP document by "Entities that have a DEQ shade gap analysis, and entities that must complete a shade gap analysis (see Section 5.3.4) must account for the shade gap analysis results in their streamside evaluation."? Specifically, for clarification, what is meant by "must account for"?

Response: It is expected that DMAs prioritize areas with the greatest shade gaps for implementation of riparian restoration, unless a rationale indicates that physical, jurisdictional, or other articulated constraints exist. DMAs must clearly articulate which areas within their jurisdictions will be prioritized for restoration and why. This rationale should address the results of the shade gap analysis where it is available.

DEQ has updated the streamside evaluation description in the WQMP to include additional details regarding the evaluation.

Changes were made based on this comment.

ACWA #46

Description: WQMP - Shade Gap Analysis - Clarify what a DMA must do if they have not been provided a shade gap analysis by DEQ

Comment: We found the draft WQMP to be unclear regarding which DMAs are required to conduct a shade gap analysis.
• Section 5.3.4.1 talks about what DMAs must do if they have been provided a shade gap analysis by DEQ. But, this section does not specifically state what to do if you are a jurisdiction that has not been provided with a shade gap analysis by DEQ.

Response: Entities that are required to complete a shade gap analysis are named in section 5.3.4.2 of the WQMP. DEQ has updated WQMP section 5.3.4.1 to indicate that DMAs who do not have a DEQ-provided shade gap analysis are not required to complete a shade gap analysis unless they are named in Section 5.3.4.2.

The streamside evaluation (Section 5.3.2) has been updated to include language regarding both entities that have been provided a DEQ shade gap analysis and those that have not. Entities that do not have a DEQ provided shade gap analysis need to use other available data to estimate the values reported in the streamside evaluation. DEQ will provide technical assistance to these DMAs to support their evaluations.

Changes were made based on this comment.

ACWA #47

Description: WQMP - Shade Gap Analysis - Finalize and release HeatSource 9

Comment: We found the draft WQMP to be unclear regarding which DMAs are required to conduct a shade gap analysis. The shade gap analysis would be generated using a HeatSource model. There are limitations and conflicts when using HeatSource 7 and HeatSource 8 from out of date versions of the TTools in ArcGIS and macros in Microsoft Excel. ACWA encourages DEQ to finalize HeatSource 9 and release it so that it is readily usable by DMAs as a TMDL implementation tool.

Response: DEQ appreciates ACWA's interest in having updated versions of Heat Source and TTools. DEQ staff also want these tools updated. DEQ has also experienced issues when trying to use the older versions of these tools. DEQ has developed work arounds that allow the models to run smoothly. DEQ can share these work arounds with ACWA if needed. DEQ will release the final version of Heat Source 9.0.0 as soon as possible. It has not been released as final because the documentation and user guide have not been updated. The model is available and DEQ encourages ACWA to consider using it. DEQ is working on updating TTools so it can be used with ESRI Arc Pro and Python version 3.8 or higher. We hope the update will be completed by April 2025 or sooner. DEQ also welcomes any feedback or suggestions to improve these tools.

ACWA #48

Description: WQMP - Shade Gap Analysis - Clarify that general vegetation categories can be used

Comment: We found the draft WQMP to be unclear regarding which DMAs are required to conduct a shade gap analysis.
• In Section 5.3.4.1 of the draft WQMP, for those who are required to do a shade gap analysis, if using method 1, it states you must determine vegetation type. Please clarify that these are general categories of vegetation types.

Response: Language has been added to clarify that generalized vegetation categories should be applied.

Changes were made based on this comment.

ACWA #49

Description: WQMP - Shade Curves - Clarify how to use shade curves in a shade gap analysis

Comment: We found the draft WQMP to be unclear regarding the intended use of shade curves. Section 5.3.4 states that "Where DEQ was unable to conduct a shade gap analysis, shade curves were developed (Figures 9.1-9.22 in the TMDL Rule) to allow users to find target percent effective shade values for streams based on several stream characteristics." This sentence could lead one to believe that if DEQ did not conduct a shade gap analysis for a DMA then shade curves can be used to conduct a gap analysis. Please clarify how the shade curves should be used and its correlation to a shade gap analysis. This information should be included on Figure 3 as well.

Response: Language changes have been made in the WQMP to clarify the intended use of shade curves. There is no standalone requirement associated with the use of shade curves. Shade curves were developed to allow users to find target percent effective shade values for streams based on several stream characteristics. Effective shade curves represent the maximum possible effective shade for a given vegetation type. Unlike the shade gap analysis, shade curves do not calculate current effective shade. Any responsible person including DMAs can use DEQ shade curves, or other DEQ-approved methods, to assess and recommend an effective shade target for their jurisdiction. ODA, ODF, USFS, BLM and other DMAs who conduct a shade gap analysis will need to estimate effective shade targets as a part of their analysis. These effective shade targets will be compared to current effective shade values to calculate a percent shade gap for a given location.

Changes were made based on this comment.

ACWA #50

Description: WQMP - Shade Curves - Explain why some areas do not have a shade gap analysis

Comment: DEQ should explain why it performed Shade Gap Analyses for some jurisdictions or areas of the basin but not all.

Response: DEQ performed Shade Gap Analyses for all areas with existing shade models. Shade models were developed by DEQ or partner agencies to support the development of temperature TMDLs in the Willamette Basin. Shade modeling is very resource intensive, and DEQ was not able to model shade across the entire Willamette Basin due to resource and data limitations.

ACWA #51

Description: TSD - Appendix H - Include link to map in appendix document

Comment: In terms of shade curves, they are provided by a mapping unit identifier. The text in Section 9.1.4.3 of the draft Willamette Subbasin TMDL document states that you can find the location of mapping units in Appendix H. Appendix H does not include a link to the map. Please provide a link to the online map in the document itself.

Response: Thank you for your comment. DEQ will provide the map with the TMDL documents on the TMDL project website. DEQ's project website URL occasionally changes, so a link to the online map will be excluded from the document in order to to avoid broken links in the future.

ACWA #52

Description: TMDL - Shade Curves - Add mapping unit legend to interactive shade gap map

Comment: The example in Figure 9-3 of the draft TMDL document shows a legend which would be very helpful in using the interactive map to identify mapping units. However, this legend does not show up when using the online map.

Response: A legend for the "Shade Curve Mapping Units" layer has been added to the Willamette Subbasins Shade Gap Map (Technical Support Document Appendix H).

Changes were made based on this comment.

ACWA #53

Description: TMDL - Shade Curve - Add clarifications to the "how to use a shade curve" section

Comment: The draft TMDL document does not explain a way to use the map to find mapping unit identifiers to match up with the shade curves. Please provide instructions on how to find mapping unit names on the map. For example, how would you find where the Qff1 mapping unit applies on the map? Please provide clarification in the steps provided under "how to use a shade curve" beginning on page 52 of the draft TMDL document on how to use the interactive shade curve map to find a mapping unit.

Response: Thank you for the recommendation. The Effective Shade Curve Surrogate Measure sections in the TMDL (Section 9.1.4.3) and Technical Support Document (Section 9.3.3) have been updated to provide instructions on how to find mapping unit names using the interactive shade gap map.

Changes were made based on this comment.

ACWA #54

Description: TMDL - Shade gap map - add overlay of city boundaries

Comment: Additionally, it would be helpful to have an overlay of city boundaries on the online map (Appendix H).

Response: A GIS layer of city limit boundaries has been added to the Willamette Subbasins Shade Gap Map (Technical Support Document Appendix H).

Changes were made based on this comment.

ACWA #55

Description: TMDL - Shade gap map - Make ownership and jurisdiction layer visible at the same time as mapping units layer

Comment: Currently if you select the "ownership and jurisdiction" layer, you can't also see the "shade curve mapping units" at the same time.

Response: Thank you for your comment. DEQ staff will provide the GIS layers along with Appendix H, allowing individuals to download the files and customize their maps according to their preferences.

Changes were made based on this comment.

ACWA #56

Description: TMDL - Shade gap map - Add legend for ownership and jurisdiction layer

Comment: The "ownership and jurisdiction" layer includes different colors on the map but there is not a legend to indicate what the different colors mean.

Response: A legend for the "Ownership and Jurisdiction" layer has been added to the Willamette Subbasins Shade Gap Map (Technical Support Document Appendix H).

Changes were made based on this comment.

ACWA #57

Description: WQMP - Figure 3 - Add 120ft buffer as option to figure 3

Comment: With respect to Figure 3 in the draft WQMP, if a DMA did not receive a shade gap analysis from DEQ, would one of the options be to select a 120 ft streamside buffer in addition to the option of submitting a streamside evaluation plan and implementation plan? If so, DEQ should specify this as an option in Figure 3.

Response: DMAs that have, but do not want to use, DEQ's shade gap analysis in their streamside evaluation must either 1) perform their own shade gap analysis, or 2) implement a 120-foot streamside buffer. These minimum requirements are identified in the referenced figure:

Decision support tree to help identify information and analyses requirements for different responsible persons and DMAs. DMAs that do not have a DEQ shade gap analysis could also adopt a 120-foot streamside buffer, but it is not a potential minimum requirement, so it is not identified in the figure.

ACWA #58

Description: WQMP - Section 5.3.3 - Explain what is meant by a "slope buffer width zone"

Comment: Section 5.3.3 of the draft WQMP allows for the option of a "120-foot slope width buffer zone". What is meant by a "slope width buffer zone"? Specifically, what is the meaning of the word "slope" in this term?

Response: Thank you for your comment. Language changes were made to the WQMP to clarify the 120-foot slope streamside buffer refers to a distance measured along the ground's contour. It can be calculated when the vertical height (rise) and the horizontal distance (run) of a right angle are known. This is further described in TSD Appendix I, Section 1.1.

Changes were made based on this comment.

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24. Comments from: Oregon Forest Industries Council

OFIC #1

Description: TMDL - Shade Targets Should be Removed

Comment: The Numeric Shade Targets Should Be Removed from the Final Rule For the first time that we are aware of, DEQ has set numerical shade targets for each jurisdiction (by Designated Management Agency) across the subject area. These targets are based on DEQ modeling that attempts to recreate what "restored" vegetative conditions would look like and therefore what degree of shading the basin-wide river and stream network would receive absent human impacts. Table 9-14 in the proposed rule reflects these effective shade surrogate measure targets and – of immediate relevance for OFIC's private forest landowner members – assigns a numeric shade target of 96% effective shade for all private forests regulated by the Oregon Department of Forestry (ODF) in the Southern Willamette Basin. We are concerned about the inclusion of these numeric targets for three primary reasons:

a. Numeric Shade Targets Effectively Treat Nonpoint Sources as Point Sources

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 criteria. 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 by the DEQ. 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 nonpoint source category 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 DEQ), 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.

b. Numeric Shade Targets Treat Temperature Impacts from Solar Radiation Flux as Uniform and Non-Attenuating

This raises a second issue with DEQ's numeric shade targets. Even assuming that the amount of effective shade is in all instances directly correlated to the temperature of a waterbody (which may not be the case), DEQ ignores evidence suggesting that the magnitude of the impact of solar radiation flux is different for different waterbodies (e.g. Vannote et al. (1980); Poole and Burman (2001)) and that such impacts have been shown not to be persistent, but to attenuate over space and time (Bladon et al. (2018)). That is to say, there is abundant evidence suggesting that uncovering a portion of a stream does not result in a persistent increase in stream temperature, but that downstream shading will attenuate upstream impacts. This casts doubt on DEQ's reliance on basin-wide shade targets as necessary and sufficient for meeting nonpoint source load allocations and calls for a more circumspect approach when it comes to addressing landscape-level loading from nonpoint sources.

c. Unresolved Questions Regarding the Accuracy of DEQ's Shade Targets Calls for Removal

Finally, as OFIC and Geosyntec have noted in the past, we have numerous concerns with the assumptions that are built into DEQ's shade model, which concerns, if validated, cast doubt on both the accuracy and achievability of DEQ's shade targets. We have raised concerns regarding the amount of natural disturbance built into DEQ's model and the distribution of that disturbance across the landscape. We have also raised concerns regarding the accuracy of modeled effective shade when compared with in situ measurements from published studies (e.g. Kaylor et al. (2017); Warren et at. (2013); Fiala et al (2006)). Of the major watershed studies in Oregon that we are aware of, none have demonstrated 96% effective average shade. In fact, only two of seventy-seven study sites in the Alsea, Trask, Hinkle, RipStream, ODF 2001, and Andrews studies reached 96% shade, even in dense, mature second-growth forests that, as Kaylor et al. demonstrated in their 2017 study, are consistently more shaded than old-growth stands (Allen and Dent, 2001; Bladon et al., 2016; Groom et al., 2011; Kibler, 2007; Reiter et al., 2020; Warren et al., 2013). This casts serious doubt on DEQ's assessment of system potential vegetation and effective shade in a "restored" forest condition. DEQ agreed in a conversation on 5 February 2024 that its approach is conservative. We would state it more strongly: the shade targets, based on DEQ modeling of restored conditions, are unrealistic and are likely impossible to achieve. We ask DEQ to remove prescriptive shade targets from the documents and give DMAs the flexibility to develop implementation plans with targets and strategies that are realistic to industry practices, to real-world restored conditions, and to the particularities of the streams within each DMA's jurisdictional boundaries. We further ask DEQ to update its restored

vegetation estimates. We understand that these were minimally updated for this revision of this TMDL. We did not find adequate explanation for values embedded in these estimates, including the fraction of land that was modeled as disturbed. It is inappropriate to continue to use this value from an outdated analysis without further justification.

Response: Thank you for your comment.

a). DEQ respectfully disagrees that assigning numeric shade targets to nonpoint sources is equivalent to regulating nonpoint sources as point sources.

b.) DEQ agrees that temperature increases can decrease longitudinally. The temperature water quality standard and TMDL are applicable at the site scale when streams have surface flow during the TMDL allocation period. As summarized in the WQMP section 5.2.1, the vegetated buffers on small type N, small type Np, and small type Ns streams where the TMDL applies may not be sufficient to fully maintain no warming at each harvest site. We are also unsure if the current studies demonstrate the 35-75 foot buffer would sufficiently dissipate all warming when the upstream catchment has multiple harvest units in series on the small type N streams. Bladon et al 2018 stated that temperature increases declined to insignificance but those increases remained higher the 0.30°C human use allowance identified in the temperature standard, and the zero-increase assigned to vegetation management DMAs in the TMDL. Insignificance was defined based on values within the 95% prediction interval. While there may be limits on the model predictive ability, it is not the same thing as saying there are no increases occurring. Temperature increases in small streams are often ameliorated by dilution and limited heat loss. Davis et al (2015) showed that there was an average 56% reduction in temperature increases after a 300m downstream recovery reach. Zwieniecki and Newton (1999) saw reductions in the average temperature increase from +1.09°C to +0.4°C after 350-1600m recovery distance in shaded downstream reaches. In McIntyre et al (2018), the magnitude of the temperature increases as measured at sites about 100 m downstream from treatment reaches also showed reductions in temperature increases with travel distance (range of +0.7-3.4°C cooling to +0.2-1.6°C), with recovery being most dramatic in reaches with significant groundwater inflow. It appears the majority of apparent temperature recovery is due to dilution by cool groundwater rather than only loss of gained heat (Johnson 2004). Across multiple studies, reductions in the magnitude of temperature increases are tied to groundwater inflows rather than loss of heat (Mellina et al 2002, Moore et al 2003, Story et al 2003, Wilkerson et al 2006). This suggests that significant groundwater inflows may be necessary for rapid stream cooling, a condition that does not occur uniformly on the landscape and is difficult to predict without measuring flow at multiple points along a stream. Mellina et al (2002), Moore et al (2003), and Story et al (2003) did not evaluate the effects of upstream harvests, only the cooling rates in the study reaches, so recovery towards pre-harvest temperatures could not be determined within those studies. The results suggest that where groundwater inflows are high, streams could be less sensitive to harvest-induced warming; conversely, where groundwater inflows are relatively low, dilution of heat cannot be counted upon to mitigate harvest effects on stream temperature (Mellina 2006).

c). The models and vegetation assumptions that were used to develop the effective shade targets were developed through extensive collaboration with experts in the field (See Technical Support Document Appendix C: Potential Vegetation). DEQ believes the models to be the best available tool to support TMDL development and estimate shading across a large area. The canopy metrics measured in Kaylor et al 2017 include canopy openness and PAR. Canopy openness (measured with a spherical denisometer) and its inverse canopy cover are related to effective shade but not directly comparable. Canopy openness, and its inverse, are directly

comparable to the canopy density values used in the effective shade models used to develop the shade targets. The Kaylor et al (2017) study was conducted in H.J. Andrews Experimental Forest. At this location the TMDL shade targets are based on the vegetation assumptions of the Upland Forest mapping unit. A canopy density of 75% was used in the Upland Forest shade model. Kaylor reports the mean canopy openness of the old growth reaches as 18%, which converted to canopy density (100 – 18) is 82%. Therefore, at this location, the TMDL assumes lower canopy cover than these old growth units at H. J. Andrews.

Kalyor et al reported the mean PAR (measured in mol m-2 d-1) in the old growth sections in early July as 9.9, 6.4, 4.7, 3.3, and 2.0 m-2 d-1 Converting these values into units of W m-2 (mol m-2 d-1 * 5.73 = W m-2) we get 56.7, 36.7, 26.9, 18.9, and 11.5 W m-2 respectively. Kalyor et al did not report the full sun PAR but it can be derived based on the reported percentages of full sun associated with individual measurements (e.g. 0.6 mol m-2 d-1 was equivalent to 1% of full sun). This works out to about 60 mol m-2 d-1 or 344 W m-2, as the potential solar flux. This is nearly identical to what the model calculates the potential solar flux at H.J. Andrews receives on July 1 (model = 343 W m-2). Using the field measured 344 W m-2 as the potential solar flux, the effective shade at these old growth sites calculates to 84%, 89%, 92% 95%, and 97%. Kalyor et al reported the bank full widths at the old growth sites ranged between 3.1 meters and 10 meters. These streams appear to have a NE to SW aspect. We updated the Upland Forest shade model to calculate effective shade on July 1 so they are comparable to the period when PAR measurements were taken. For these stream aspects and range of widths, the model calculates the target effective shade values between 83% and 95%. These values are similar to the shade values derived from the field data (84% - 97%).

We also modeled the effective shade at each of the 33 RIPSTREAM sites using the pre-harvest conditions in the model. ODF collected all the necessary data at each site including the pre-harvest vegetation height, canopy closure, and channel width. DEQ used a GIS to determine stream aspect at each site. We compared the field measured pre-harvest treatment reach effective shade to our model results. We also calculated the TMDL effective shade target at each RIPSTREAM site using the Upland Forest vegetation assumptions (height = 40.9 m, 75% canopy density).

Based on the field data collected by ODF, the mean pre-harvest vegetation height across all sites in the treatment reach was 25.7 m. The mean pre-harvest canopy closure was 92%. The mean pre-harvest effective shade was 87%. The model estimated mean effective shade for all sites is 91%. Note ODF measured canopy closure (1 – total visible sky in all directions), but our model uses canopy cover (1- visible sky in the vertical direction). No adjustments were made but we believe this difference may be responsible for the slightly higher model derived effective shade. With more time it may be possible to estimate the canopy cover at each site using only the sky gap fractions at near vertical zenith angles. These data are included as part of hemiview outputs calculated by ODF.

The mean effective shade target across all 33 RIPSTREAM sites was 94%. The only difference between the existing conditions model and the shade target model at these RIPSTREAM sites is that we increased the vegetation height to 40.9 m and reduced canopy cover down to 75% from values measured at each site, consistent with the Upland Forest assumptions. Based on this modeling analysis, it appears most pre-harvest RIPSTREAM sites do not achieve the TMDL shade targets because the trees are not tall enough.

For the reasons outlined above, we do not believe it necessary to update the modeling or restored vegetation assumptions. However, the TMDL and WQMP allow DMAs to update the effective shade target (See WQMP Section 5.3.5).

OFIC #2

Description: TMDL - Shade target for private forestlands should be decreased

Comment: If DEQ Maintains Numeric Shade Targets in the Final Rule, the Target for Private Forestlands Should Be Significantly Decreased

As already stated, we have serious concerns regarding the accuracy and feasibility of the shade target established by DEQ for ODF-managed private forestland.

a. Existing Scientific Literature Supports a Lower Effective Shade Target

A review of six published shade studies has provided us with shade data from dense, second-growth forests in Western Oregon, which provide ideal shading conditions (Allen and Dent, 2001; Bladon et al., 2016; Groom et al., 2011; Kibler, 2007; Reiter et al., 2020; Warren et al., 2013). One study took place in the H.J. Andrews Experimental Forest and was split into two datasets to represent old-growth and second-growth forests separately (Warren et al., 2013). A second study, typically referred to as the “RipStream” study, was split into two datasets to represent small and medium sized streams separately (Groom et al., 2011). Out of the 77 pre-harvest study sites examined within these eight datasets, only 2 individual sites reach a value of 96% effective shade (Figure 1). No watershed study reached an average of 96% shade, and median shade values ranged from below 85% to between 90% and 95%. There is also significant variability within datasets, even among pre-harvest streams. We expect these pre-harvest streams to be representative of the restored shade conditions that DEQ has attempted to model. It is therefore unrealistic to expect restored shade conditions to exceed the shade conditions established by these studies, and we believe the “ODF - Private” effective shade target of 96% for the Southern Willamette Basin to be practically unattainable.

We understand from our conversation with DEQ on 5 February 2024 that the high effective shade values in the restored vegetation model, and the difference between model output and shade data from dense, second-growth forests, cannot be explained. This suggests that the model is not well calibrated at high shade values. It is therefore inappropriate for this model output to be used as a regulatory target. Due to our concerns regarding the accuracy of DEQ’s shade model, especially as it pertains to measured and modeled shade values greater than 96%, we conducted an evaluation of the shade measurements used to calibrate the Southern Willamette Shade Model. Figure 2 shows the measured values used to calibrate the model, as reported in Table 2-38 of the Heat Source Model Report (DEQ, 2024), along with the applicable HUC12 boundaries. The figure demonstrates that the 9 shade measurements of 96% or greater are located in three geographical areas: • Five of the 9 measurements, including all four of the measurements greater than 96%, are located in close geographic proximity in Southern Lane County, in the Middle Fork Willamette area, specifically the Packard Creek-Middle Fork Willamette River, Buck Creek-Middle Fork Willamette River, and Coal Creek HUC12 subbasins. • Three of the 9 measurements are located in the Shotcash Creek-Mohawk River HUC12 subbasin. • One measurement is located in the Lower Mary’s River HUC12 subbasin.

The clustering of these shade measurements of 96% or greater, while numerous other measurements in areas of dense shade show substantially lower values, suggests potential inconsistency in the measurements. For example, use of different instruments or personnel, or inconsistent calibration, in some areas may result in elevated measurements inconsistent with other measurements. To the extent that these measurements are biased high, and given that even in dense, mature, second-growth forests, 96% shade is very rarely reached, this would have biased the calibration process—an inappropriately high Canopy Cover value would have been selected in the model to best match the biased measurements. This would have led to modeled values biased high in all modeled areas.

We also note, based on DEQ's calibration scatterplot (Figure 3-248, reproduced below as Figure 3), that the model overpredicts measured values—even the measured values that appear unrealistically high—for high effective shade. The figure appears to show that for 27 of the 30 measurement points where measured shade exceeded 75% (based on Table 2-38), the modeled shade was equal or greater than the measured value, while only 3 of the measured points fall notably below the line. This again indicates that the model was calibrated to predict very high shade for forested areas, and the results are biased high as a result.

We ask DEQ to reassess its model calibration to reconcile the "ODF – Private" shade target with existing effective shade data and to consider setting a more realistic shade target that aligns with effective shade values in existing mature forests (Groom et al., 2011). A simple, albeit coarse, way to do this would be to cap maximum simulated shade values between 90% and 96% effective shade for post-processing and averaging by DMA. This would be done based on understanding that greater than 96% shading is not achieved, even under ideal conditions.

b. Modeling Parameters Regarding Disturbance Should Be Changed

Further, we believe that certain modeling parameters should be changed to better reflect real-world conditions. One obvious target is the manner in which DEQ has modeled for disturbance. At present, DEQ assumes 25% disturbance and evenly distributes this disturbance across the entire watershed. There are two issues with this approach. First, it is not clear from where DEQ's 25% disturbance number is derived. Teensma et al. (1991) reported "at least 35%" and "probably more" of the area of the Pacific Coast Range mapped by the authors had been recently burned. While this study was for the Pacific Coast Range, and not the areas of the Willamette Subbasin TMDL encompassing the west Cascades, it appears to be the document cited in the "Appendix C" of the Technical Support Document and it is further supported by 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. It is unclear how DEQ obtained an estimate of 25% disturbance based on the Teensma study, and we specifically request that DEQ increase the assumed disturbance fraction to 35% and rerun its analysis or reduce the shade targets to account for this uncertainty. Second, DEQ's chosen distribution of the disturbed fraction does not match natural patterns of disturbance. Perhaps the single most common cause of disturbance in Oregon's forest ecosystemis wildfire. Wildfire (and other natural sources of disturbance such as insect kill) cause large, contiguous patterns of disturbance while leaving areas outside of the boundaries of the fire relatively unaffected.This runs counter to the way DEQ has modeled disturbance. DEQ has chosen to model disturbance (which, again, we believe should be set at 35% rather than 25%) dispersed evenly throughout the forestland portion of the restored conditions model, notwithstanding the fact that natural disturbances would create contiguous areas of disturbance. We recommend, therefore, that DEQ model contiguous disturbance by identifying a contiguous 35% of the stream nodes within the upland forest area and assigning all of the vegetation providing shade for these nodes the "Disturbed" model condition. Once this is done, we would ask DEQ to recalculate average

shade under restored condition and make the corresponding changes to the identified shade targets and shade gaps. To evaluate the effects of our suggested approach for modeling disturbance, we evaluated a contiguous 25% disturbance, following the approach described above. A contiguous 25% disturbance was used, rather than our recommended value of 35%, for comparison to the results in the draft TMDL. Specifically, we evaluated this approach for an example HUC12 subbasin, Middle Mosby Creek. This subbasin was selected as an example of a subbasin covered by forestland under the restored conditions scenario.Figure 4 indicates the modeled scenario—the nodes highlighted yellow were selected as "disturbed" and all vegetation providing shade for these nodes used the "Disturbed" forestland condition (56-foot tree height, 25% density, and 2.0-meter overhang as outlined in Appendix C of the Technical Support Document). The remaining vegetation was assigned the "No Disturbance" forestland condition (160-foot tree height, 75% density, 4.9-meter overhang).

We ran the shade model provided by DEQ for the condition described above and compared the results to the output for Middle Mosby Creek for DEQ's restored conditions scenario. Figure 5 presents a comparison of the modeled shade. Specifically, each green dot in Figure 5 represents a modeled node from DEQ's restored conditions scenario. There is a corresponding blue dot for each modeled node using the Contiguous 25% disturbance scenario. The figure indicates that, for many nodes, there is slightly more shade under the Contiguous 25% disturbance scenario—this is because the vegetation surrounding these nodes is fully undisturbed under the Contiguous 25% disturbance scenario, whereas there is random disturbance included in the DEQ restored conditions scenario. However, Figure 5 also shows that for nodes modeled as "disturbed," much less shade is provided under the Contiguous 25% disturbance scenario compared with the restored conditions scenario. Importantly, these nodes do not receive 0% shade—the disturbed forestland condition described in Appendix C of the still includes 56-foot tall trees with 25% density. Nevertheless, when averaged over the modeled nodes for Middle Mosby Creek, the restored condition average from the draft TMDL method for this subbasin is 97%, while the average using the Contiguous 25% disturbance approach is 88%. This analysis indicates that using a more realistic approach to modeling disturbance would result in a lower, and more justifiable, shade target.

We note again here that this example used a Contiguous 25% Disturbance, for purposes of comparison to DEQ's restored conditions scenario. However, based on our review of the literature, we request that DEQ use 35% disturbance.

c. ODEQ Should Address Divergence in Target Effective Shade Among TMDLs

As a final point of comment regarding the modeled effective shade under "restored" conditions, we observed that the target shade values in the Lower Columbia – Sandy TMDL are much lower than those in the Willamette Subbasins TMDL – more than what one would expect from natural regional variability (especially considering that the two regions even border one another). Given that these two TMDLs are being replaced concurrently, DEQ should justify these differences and explain the methodological decisions that drive them.

Response: DEQ believes that the assumptions used to model system potential vegetation and effective shade in the Willamette Subbasins are sound, even if they are different from the assumptions used in the Sandy Temperature TMDL. Site potential vegetation conditions were developed through extensive collaboration with experts in the field (See Technical Support Document Appendix C: Potential Vegetation), and the shade models have gone through extensive review by DEQ and others (See Technical Support Document Appendices A, B, and J). DEQ believes the models to be the best available tools for meeting TMDL objectives.

Effective shade surrogate measure targets represent a surrogate for the amount of solar loading that will attain the human use allowance and load allocations for nonpoint sources managing streamside vegetation. The surrogate shade targets are regulatory however, DEQ recognizes that it will take decades for these targets to be met in areas where woody, overstory shade vegetation needs to mature. The WQMP and streamside evaluation gives responsible persons including DMAs the flexibility to provide a rationale for how they will prioritize implementation of strategies that increase streamside shade. Specifically, the streamside evaluation allows for responsible persons and DMAs to prioritize implementation using metrics or criteria in addition to DEQ shade targets and gaps. DEQ will assess compliance with the TMDL through DMA tracking and reporting on their DEQ approved implementation plans.

For these reasons, DEQ will not decrease the numeric shade targets for private forestlands. However, DEQ will also consider using shade targets submitted in DMA implementation plans for compliance assessment.

OFIC #3

Description: WQMP - ODF sufficiency determination

Comment: DEQ should provide more flexibility for DMAs to demonstrate progress toward attainment of water quality standards in implementation plans

Once the TMDL is finalized and has been approved by the Environmental Quality Commission, DEQ will require DMAs to craft and submit implementation plans for how DMAs will prioritize projects and demonstrate progress toward attainment of water quality standards. OFIC is concerned, insofar as ODF is the DMA with authority to implement the TMDL on private forestland, that DEQ is unnecessarily boxing in the agency, and not leaving flexibility for ODF to deploy the new Forest Practice Act (FPA) rules and the Adaptive Management process that was established as part of the updates that were made to the FPA in 2022. As DEQ is no doubt aware, the FPA was recently amended to, among other things, materially increase riparian management restrictions (including expanded no-harvest buffers and equipment limitation zones) in an effort to better protect aquatic species habitat on private forestland. ODF is presently in the process of implementing the new forest practice standards established pursuant to the FPA.The new FPA rules also include a process by which any future changes to the forest practice rules would be effected through rule review by an Adaptive Management Policy Committee (AMPC), which works in conjunction with an Independent Research and Science Team (IRST) to establish studies and review scientific literature in order to assess the effectiveness of the rules in meeting environmental goals and objectives. DEQ is represented on the AMPC. We believe that the revised forest practice rules abrogate any perceived shortcomings in Oregon's riparian protections on private forestland and are sufficient to address both aquatic species habitat concerns as well as water quality concerns, and that the Adaptive Management process will ensure that any shortcomings or changes in our understanding of the science will be timely addressed. However, we fear that the draft TMDL and the accompanying draft Water Quality Management Plan (WQMP) do not give ODF the operational flexibility to let the new rules take effect and for the Adaptive Management process to be put into practice to address any remaining water quality concerns or questions. This lack of flexibility is demonstrated in at least two ways (aside from the prescriptive numeric shade targets that we address, above).

a. DEQ Assumes FPA Inadequacy in Contravention of Legal Standard in State Statute

In Section 5.2 of the draft WQMP, DEQ addresses existing implementation plans and, in subsection 5.2.1, specifically addresses ODF and the adequacy of the FPA to meet TMDL load allocations. In particular DEQ states that "forest operations conducted in accordance with the Forest Practices Act and other voluntary measures are generally considered to be in compliance with water quality standards," and that implementation of the revised FPA rules "may be effective at meeting shade allocations," but that "[t]hese rules are not expected to result in after-the-fact restoration of riparian areas harvested under previous rules," and "effective shade is likely to be deficient for those…areas adjacent to small and medium [SSBT] streams harvested prior to implementation of the new rules" (emphasis added).

This language is problematic in two regards. First, it directly contravenes the standard established by statute in ORS 527.770. That section states, without qualification, that "[a] forest operator conducting, or in good faith proposing to conduct, operations in accordance with best management practices currently in effect shall not be considered in violation of any water quality standards" (emphasis added). It is true that OAR 240-042-0080(2) contains a provision allowing the EQC to petition the Board of Forestry for a review of all or part of the FPA rules implementing a TMDL if a deficiency is suspected, but this qualified exception must not be allowed to swallow the default rule, which is that the FPA is deemed adequate to meet water quality standards.

Second, the language implying a presumed inadequacy – right out the gate – of the revised FPA rules to restore areas harvested under the old forest practice rules is a premature conclusion that completely ignores the fact that, even under the old rules, landowners were required to replant harvested acres (including riparian areas) and that any uncovering of stream segments resulting from harvest was therefore mitigated over time as those harvested areas regrew. The new FPA rules do not change that mandatory regeneration paradigm. In other words, not only are previously harvested areas guaranteed to be restored, but the new rules impose even greater restrictions on harvesting in riparian areas, thereby guaranteeing that the impacts of future harvests will be greatly reduced.

We would therefore request that DEQ amend the language in 5.2.1 of the WQMP as follows (removed language indicated by strikethrough and new language indicated in bold):

> With the publication of the Private Forest Accord Report and subsequent passage of Senate Bill 1501, 1502 and HB 4055, Forest Practices Act rule revisions were adopted by the Board of Forestry in October 2022 and additional amendments are anticipated through 2025. Implementation of these rules, which include increased riparian widths and additional tree retention, ~~may be~~ **shall be deemed** effective at meeting shade allocations pursuant to ORS 527.770. ~~In addition, as revised rules become effective, implementation 9 of more stringent measures to protect water quality on private forestlands are anticipated to be applied, including in the Willamette Subbasins. These rules are not expected to result in after-the-fact restoration of riparian areas harvested under previous rules. Therefore, effective shade is likely to be deficient for those riparian areas adjacent to small and medium salmon, steelhead and bull trout streams that were harvested prior to implementation of the new rules. The trajectory for providing future riparian shade on these streams is highly variable because it is based on the rules in effect at the time of harvest and the date of replanting.~~ **The effects of the revised rules on riparian areas and on water quality will be assessed over** ~~M~~multiple years **as previously harvested areas are regrown and new harvests are conducted in accordance with revised restrictions on harvest activities in riparian areas.** ~~will be~~

~~needed for potential water quality improvements to be realized so that~~ DEQ **will work with ODF to develop a TMDL implementation plan focused on** ~~can~~ evaluat**eing the** adequacy of the revised rules **over time** in meeting the load allocations and surrogate measures required by the Willamette Subbasins temperature TMDL.

Response: This section of the WQMP was revised to more clearly focus on the current Forest Practice Act rules, including the rules associated with the Private Forest Accord and Senate Bills 1501, 1502 and HB 4055.

DEQ's generalized statements about the interplay of the revised TMDL and the former and current Forest Practice Act rules do not conflict ORS 527.770. To develop a TMDL, DEQ must complete a technical analysis of pollution reductions necessary to comply with water quality standards. This is a different analysis than was completed in the updates to the Forest Practices Act Rules. As referenced by the commenter, state law anticipates the potential that through development of a TMDL DEQ determines that certain requirements of the Forest Practices Act are not sufficient to meet standards.

Regarding revisions suggested under 2) and 3), "after-the-fact restoration" was intended to indicate special efforts to address deficiencies in previous riparian rules, such as narrower RMAs or lower basal area retention targets. We agree that reforestation to address harvest and low stocking is required under the FPA. These statements were removed.

Changes were made based on this comment.

OFIC #4

Description: WQMP - credits for non-shade activities

Comment: We understand that, in this TMDL, the target shade values developed under the shade surrogate concept are the regulatory targets that DMAs must meet. We ask DEQ to clarify whether and how DMAs can receive credit for stream restoration work that cools waterways when stream temperature is not the regulatory target that DMAs must meet. DEQ explained in an e-mail communication that "Basin Coordinators have understood these types of restoration activities (stream channel work, etc.) as making progress in DMA implementation plans." (Martin, 2023). While we agree that stream restoration projects by land managers are desirable, we ask DEQ to include explicit language in the TMDL that explains how this work helps DMAs demonstrate compliance when DMAs have been assigned shade targets, not stream temperatures, as their compliance objectives.

In particular, we would ask DEQ to include clear language in 5.3.2 indicating that implementation of best management practices (including, but not limited to those outlined in subsection f. of 5.3.2) may serve as an alternative strategy to increasing effective shading to meet a prescriptive shade target in areas where such alternatives can be shown to be adequate to protect water quality or where it can be demonstrated that hitting a shade target is not determinative of achieving water quality standards in impaired waters. Such flexibility will, we believe, be essential for ODF to implement the revised FPA and to utilize its new Adaptive Management process to address areas of ongoing concern.

Response: The WQMP includes strategies other than those that increase streamside shade (including flow augmentation and channel morphology-related restoration) in the table of priority management strategies because DEQ recognizes the importance of these strategies in reducing stream temperatures. At this time DEQ does not plan to develop a framework for DMAs to obtain thermal "credits" for implementing these strategies. However, DEQ continues to encourage DMAs to consider all strategies from Table 2: Priority temperature management strategies by source, for inclusion in DMA implementation plans. DEQ will continue to assess implementation compliance with the TMDL through DMA tracking and reporting on DEQ-approved implementation plans in the coming years. Any future evaluation of progress towards meeting effective shade targets will include an evaluation of other implementation efforts that have been completed to improve stream temperatures.

Language has been added to Section 6 of the WQMP to better describe monitoring and evaluation of progress for implementation of this TMDL.

Changes were made based on this comment.

OFIC #5

Description: WQMP - forestland implementation flexibility

Comment: DEQ Does Not Provide the Adequate Flexibility for DMAs to Achieve Load Allocations and Meet Temperature Standards

In response to a concern that we raised in a meeting with DEQ staff on 5 February 2024 regarding what we perceived as a lack of flexibility in the TMDL and WQMP for DMAs to develop IPs that achieve the load allocations in the TMDL in a way that minimizes adverse impacts to affected landowners, DEQ asserted that the streamside evaluation language in 5.3.2 of the WQMP provides adequate flexibility and outlines a process for demonstrating progress toward the ultimate water quality objective other than through strict compliance with an effective shading requirement. Though this could be true were DEQ to remove the prescriptive shade targets as we have requested, above, if a numeric shade target is included in the TMDL, we simply do not see how the streamside evaluation process in 5.3.2 provides any alternative path for compliance to DMAs and the landowners that they regulate.

Response: Effective shade surrogate measure targets (TMDL, Tables 9-13 through 9-17) represent a surrogate for the amount of solar loading that will attain the human use allowance and load allocations for nonpoint sources managing streamside vegetation. DEQ effective shade targets are regulatory and can be used to assess implementation progress in the future. However, DEQ recognizes that it will take decades for these targets to be met in areas where woody, overstory shade vegetation needs to mature, so DEQ will rely on tracking implementation compliance through DEQ approved implementation plans, annual reports, and comprehensive year five reviews. The WQMP and streamside evaluation gives responsible persons, including DMAs, the flexibility to provide a rationale for how they will prioritize implementation of strategies that increase streamside shade and other restoration efforts to improve stream temperature. Specifically, the streamside evaluation allows for responsible persons and DMAs to prioritize implementation using alternative metrics or criteria, in addition to DEQ shade targets and gaps. DEQ will evaluate other restoration efforts that have been

implemented to improve stream temperature, for example, channel morphology and stream flow restoration, protection and enhancement of cold water refuges, etc.

Language has been added to Section 6 of the WQMP to better describe monitoring and evaluation of progress for implementation of this TMDL.

Changes were made based on this comment.

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25. Comments from: Oregon Water Resources Congress (OWRC)

OWRC #1

Description: WQMP - WCDs no plan required

Comment: We wholeheartedly agree that irrigation districts and similar entities should not be required to submit implementation plans but are concerned that the language implies this could be a requirement in the future.

Response: In establishing a TMDL, OAR 340-042-0040(4)(l)(G) states that DEQ will include a WQMP that includes: identification of persons, including Designated Management Agencies (DMAs), responsible for implementing the management strategies. This rule provides that while a WQMP can designate DMAs it can also identify other persons with a role in implementation. DEQ determined that prescriptive requirements for water conveyance entities' activities, related to establishing mature, woody overstory vegetation to provide streamside shade, could be challenging to establish across the basin at this time due to the complexity of existing easement agreements, and other regulatory requirements. However, additional data or information may become available in the future that supports DEQ establishing management measures for water conveyance entities. While DEQ is not requiring specific management measures and implementation plans at this time, water conveyance systems can impact stream temperatures. DEQ believes that system managers are in a position to work in collaboration with landowners and water users to protect and enhance streamside shade in areas where access and other legal requirements are not prohibitive, as well as implement strategies that leave water instream, for example irrigation conservation and management.

OWRC #2

Description: WQMP - WCDs DMA/Responsible Person

Comment: Our district members are not DMAs and "responsible persons" is a nebulous and statutorily undefined term that is inappropriate to apply to irrigation districts and similar entities.

We request that you revise the documents to reflect a list of entities that are not DMAs, nor responsible persons, and are not required to implement WQMPs at this time. “Water conveyance entities” has been used by DEQ previously and we would support the use of that term but we are opposed to being erroneously labeled as DMAs or responsible persons. The materials indicate the WQMP is incorporated into rule by reference and as such we request revisions occur to better reflect what was discussed in the RAC and clarify irrigation districts and similar entities are not DMAs or responsible persons for implementing TMDLs.

Response: In establishing a TMDL, OAR 340-042-0040(4)(l)(G) states that DEQ will include a WQMP that includes: identification of persons, including Designated Management Agencies (DMAs), responsible for implementing the management strategies. This rule provides that while a WQMP can designate DMAs it can also identify other persons with a role in implementation. DEQ determined that prescriptive requirements for water conveyance entities’ activities, related to establishing mature, woody overstory vegetation to provide streamside shade, could be challenging to establish across the basin at this time due to the complexity of existing easement agreements, and other regulatory requirements. However, additional data or information may become available in the future that supports DEQ establishing management measures for water conveyance entities. While DEQ is not requiring specific management measures and implementation plans at this time, water conveyance systems can impact stream temperatures. DEQ believes that system managers are in a position to work in collaboration with landowners and water users to protect and enhance streamside shade in areas where access and other legal requirements are not prohibitive, as well as implement strategies that leave water instream, for example irrigation conservation and management.

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26. Comments from: PGE

PGE #1

Description: HUA - Allocate reserve capacity to existing point sources

Comment: The proposed Willamette Subbasin TMDL for the Clackamas Subbasin allocates the 0.3°C human use allowance (HUA) as follows: 0.00°C for dam and reservoir operations, 0.05°C for management activities and water withdrawals, 0.02°C for solar loading from existing transportations corridors, existing buildings, existing utility infrastructure, 0.075°C for National Pollutant Discharge Elimination System (NPDES) point sources, and 0.155°C for reserve capacity. PGE’s questions and concerns relate to the proposed allocation of the HUA in the Clackamas Subbasin:

Because of recent changes in the interpretation of the scope of the NPDES permit requirement, some existing point sources within the Clackamas Subbasin may need to obtain NPDES permits. Although these existing point sources are not allocated a specific portion of the cumulative 0.075°C allocated to NPDES point sources, page 66 of the proposed TMDL states that, “[i]f DEQ determines the cumulative warming from all NPDES point sources is less than the assigned portion of the human use allowance, the remainder may be considered as reserve capacity for point sources.” The proposed TMDL, however, does not identify the process or criteria for allocating this reserve capacity. Because these are existing point sources, they should have priority for the allocation of the 0.075°C NPDES point source reserve, as well as

the 0.155°C general reserve, if needed. Please clarify the process and criteria for allocating the reserve capacities if these existing point sources apply for NPDES permit coverage.

Response: We are unsure if PGE's comment regarding recent changes in the interpretation of the scope of the NPDES permit requirements is in reference to the updated 100-J general permit for hydropower facilities. DEQ updated the TMDL allocation approach for 100-J general permit registrants. Numeric wasteload allocations for individual registrants were removed from the TMDL and replaced with narrative allocations and other requirements that apply to current and any future registrants. The TMDL includes a portion of the human use allowance for 100-J registrants as long as all the TMDL requirements are met.

The process for requesting reserve capacity is outlined in the TMDL. Requests must be submitted in writing. DEQ may require requesters to demonstrate that there are no reasonable alternatives to an increased load and to prepare modeling or similar analysis to ensure that loading capacity is available at the discharge location(s). Allocations of reserve capacity must be approved by DEQ's Director or designee.

DEQ will use its discretion in making determinations on requests, based on the information available and priorities appropriate at the time of the request. DEQ made minor edits to the reserve capacity narrative to clarify that a model analysis and demonstration that there are no reasonable alternative are not always required.

Changes were made based on this comment.

PGE #2

Description: HUA - Explain 0.0 C allocation for dam/reservoir operations

Comment: The proposed Willamette Subbasin TMDL for the Clackamas Subbasin allocates the 0.3°C human use allowance (HUA) as follows: 0.00°C for dam and reservoir operations, 0.05°C for management activities and water withdrawals, 0.02°C for solar loading from existing transportations corridors, existing buildings, existing utility infrastructure, 0.075°C for National Pollutant Discharge Elimination System (NPDES) point sources, and 0.155°C for reserve capacity.

The proposed TMDL does not justify or explain the allocation of 0.00°C for existing dam and reservoir operations. With the significant presence of dams within the Willamette Basin watershed, the TMDL should provide DEQ's justification for this allocation. OAR 340-042-0040(4)(h) requires load allocations to existing nonpoint sources to be based on "best estimates of loading," and OAR 340-042-0040(6)(g) requires "reasonable assurance that the TMDL's load allocations will be achieved." "Reasonable assurance," in turn, "requires [a] determination that practices capable of reducing the specified pollutant load: (1) exist; (2) are technically feasible at a level required to meet allocations; and (3) have a high likelihood of implementation." Id. The proposed TMDL does not include any information showing that the loading from existing dam and reservoir operations is zero, nor does it provide reasonable assurance that zero loading can be achieved.

Response: DEQ must develop temperature TMDLs based on the current water quality standards and set allocations such that they add up to the Loading Capacity defined in OAR

340-042-0040(4)(d) and 40 CFR 130.2(f) as the amount of a pollutant or pollutants that a waterbody can receive and still meet water quality standards. We have provided allocations that add up to the Loading Capacity and will meet the current water quality standards. DEQ is not required to identify in a TMDL how the allocated loads are to be achieved. It is DEQ's expectation, per OAR 340, division 42, that DMAs or responsible persons evaluate their operations and propose management strategies in their TMDL implementation plans that will show achievement of allocations.

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27. Comments from: Port of Portland

Port of Portland #1

Description: TMDL - WLAs - Remove Port of Portland WLA and facility information from Table 9-11

Comment: The Port of Portland is listed in the draft TMDL document Table 7-1, as a thermal point source for the Portland International Airport's NPDES-IW-B15 permit for discharges to the Columbia Slough at river mile 2.7. In Table 9-11 of the draft TMDL document, thermal wasteload allocations (WLAs), and WLA periods are listed for point sources. Table 9-11 shows the Port has been given a WLA of zero for the period between April 1st through October 31st. The Port's NPDES-IW-B15 permit covers, in part, discharges from the Port's operation of a facility used to treat airport deicing discharges. Discharges from this treatment facility are directed to either the Columbia River or the City of Portland's Columbia Blvd Wastewater Treatment Plant. Discharges from the deicing treatment facility do not drain to the Columbia Slough. Discharges to the Columbia Slough that are covered by this permit only include stormwater runoff. As stated in the draft TMDL (pp 23), DEQ found there is insufficient evidence to demonstrate that stormwater discharges authorized under this permit contribute to exceedances of the temperature standards. Since only stormwater is discharged to the Columbia Slough under the NPDES-IW-B15 permit, this discharge, consistent with DEQ's findings regarding other stormwater discharges, does not contribute to the exceedances of the temperature standards in the Columbia Slough. Therefore, the Port requests that DEQ include a statement in Section 7.1 of the TMDL that only stormwater is discharged to the Columbia Slough under the Port of Portland's NPDES-IW-B15 permit and stormwater does not contribute a thermal load that causes or contributes to exceedances of the temperature standards. Additionally, since WLAs are not included for stormwater discharges, this Port permit along with the zero wasteload allocation should be removed from Table 9-11 of the draft TMDL document.

Response: Thank you for the information. The recommended changes have been made to the TMDL and Technical Support Document.

Changes were made based on this comment.

Port of Portland #2

Description: WQMP - Port of Portland

Comment: In the draft TMDL document, Table 9-13, the Port was assigned a shade gap of 16%. As we understand, this 16% gap must be shaded by the year 2120. A large portion of Port properties are dedicated to aviation use, and as a result, must be managed in accordance with Federal Aviation Administration (FAA) rules and regulations regarding vegetation. Trees can interfere with navigational aids, create obstructions to the approach and departure surfaces, or attract wildlife towards the airfield, impacting an airport's ability to maintain safe aircraft operations. Consequently, the use of aviation properties is significantly constrained by FAA's airport land use compatibility requirements and meeting the proposed 16% increase in effective shade may not be possible and may be in conflict with federal law or policy. The Port requests that a footnote be provided for Table 9-13 stating the listed shade gaps are targets that may need to be altered based on constraints identified as part of the streamside evaluations required for the TMDL Implementation Plan (Section 5.3.2 of the TMDL WQMP).

Response: DEQ recognizes that there are both jurisdictional and physical constraints that limit implementation of vegetation management strategies in some locations, including the Port of Portland's duty to comply with Federal Aviation Administration safety regulations around airports. DMAs with physical or jurisdictional constraints to meeting shade targets should outline these constraints in their streamside evaluation and may choose to prioritize implementation of alternate strategies including those listed as priority management strategies in Table 2 of the WQMP. Because the surrogate shade targets are regulatory, the targets will remain in the WQMP. DEQ will continue to assess compliance with the TMDL through DMA tracking and reporting on DEQ-approved implementation plans.

Port of Portland #3

Description: Adopt ACWA comments

Comment: In addition to these Port-specific comments, and as a member of the Oregon Association of Clean Water Agencies (ACWA), the Port adopts and incorporates by reference the Willamette River Subbasins TMDL comments submitted separately by ACWA.

Response: DEQ acknowledges the Port of Portland's support of comments submitted separately by the Oregon Association of Clean Water Agencies.

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28. Comments from: Santiam Water Control District

Santiam WCD #1

Description: DMAs - Santiam Water Control District as DMA/Responsible Person

Comment: Because SWCD does not meet the definition of DMA, it should not be identified as one. This designation has the potential to impose a compliance obligation without extending the corresponding control over the factors necessary to achieve compliance. DEQ should remove SWCD as a Responsible Person/DMA because, as DEQ states in the WQMP, SWCD does not have authority or control over streamside activities and cannot implement the identified management strategies.

Response: In establishing a TMDL, OAR 340-042-0040(4)(I)(G) states that DEQ will include a WQMP that includes: identification of persons, including Designated Management Agencies (DMAs), responsible for implementing the management strategies. This rule provides that while a WQMP can designate DMAs it can also identify other persons with a role in implementation. DEQ determined that prescriptive requirements for water conveyance entities' activities, related to establishing mature, woody overstory vegetation to provide streamside shade, could be challenging to establish across the basin at this time due to the complexity of existing easement agreements, and other regulatory requirements. However, additional data or information may become available in the future that supports DEQ establishing management measures for water conveyance entities. While DEQ is not requiring specific management measures and implementation plans at this time, water conveyance systems can impact stream temperatures. DEQ believes that system managers are in a position to work in collaboration with landowners and water users to protect and enhance streamside shade in areas where access and other legal requirements are not prohibitive, as well as implement strategies that leave water instream, for example irrigation conservation and management.

Santiam WCD #2

Description: WQMP - Santiam Water Control District, ODA Authority

Comment: SWCD conveys water for agricultural activities on rural lands within the Molalla-Pudding-French Prairie-North Santiam Agricultural Water Quality Management Area ("ODA Management Area"). Therefore, SWCD is subject to ODA's jurisdiction and the ODA Management Area Rules and should not be named in the Draft Rules. Under the rule above, it is ODA and DEQ which must work together to assure that the ODA Management Area rules meet TMDL requirements.

Response: ODA's Agricultural Water Quality Management Area Plans are not regulatory. ODA does not directly regulate water conveyance entities. DEQ agrees that collaborative partnerships are an important component of TMDL implementation, including ODA's potential collaboration with water conveyance entities.

Santiam WCD #3

Description: WQMP - removal of Santiam Water Control District from Draft Rules

Comment: SWCD should be removed entirely from identification in the Draft Rules because "DEQ may require implementation plans from [Responsible Persons] in the future if ownership or jurisdiction of streamside areas increases, or other data or information indicates a TMDL implementation plan is needed to achieve temperature allocations and shade targets identified

in this TMDL." Id. The WQMP language creates broad and undefined criteria under which DEQ may require future responsibility and create future liability for SWCD. Further, the WQMP states that "DEQ may revise the WQMP or issue individual orders to notify them of the required schedule for submitting an implementation plan." If DEQ merely issues individual orders in the future requiring implementation plans, Responsible Persons will not have the benefit of the public notice and comment process.

Response: DEQ determined that prescriptive requirements for water conveyance entities' activities, related to establishing mature, woody overstory vegetation to provide streamside shade, could be challenging to establish across the basin at this time due to the complexity of existing easement agreements, and other regulatory requirements. However, additional data or information may become available in the future that supports DEQ establishing management measures for water conveyance entities. While DEQ is not requiring specific management measures and implementation plans at this time, water conveyance systems can impact stream temperatures. DEQ believes that system managers are in a position to work in collaboration with landowners and water users to protect and enhance streamside shade in areas where access and other legal requirements are not prohibitive, as well as implement strategies that leave water instream, for example irrigation conservation and management.

Santiam WCD #4

Description: WQMP - identify criteria for requiring future implementation plan

Comment: If DEQ does not remove SWCD from identification in the Draft Rules as a DMA/Responsible Person, the Draft Rules must identify specific criteria under which DEQ may require DMAs/Responsible Persons to submit an implementation plan in the future. For example, the WQMP does not identify the threshold for what it considers to be "an increase" in ownership or jurisdiction of streamside areas. DEQ must clearly identify the criteria for when implementation plans will be required under the WQMP.

Response: DEQ determined that prescriptive requirements for water conveyance entities' activities, related to establishing mature, woody overstory vegetation to provide streamside shade, could be challenging to establish across the basin at this time due to the complexity of existing easement agreements, and other regulatory requirements. However, additional data or information may become available in the future that supports DEQ establishing management measures for water conveyance entities. While DEQ is not requiring specific management measures and implementation plans at this time, water conveyance systems can impact stream temperatures. DEQ believes that system managers are in a position to work in collaboration with landowners and water users to protect and enhance streamside shade in areas where access and other legal requirements are not prohibitive, as well as implement strategies that leave water instream, for example irrigation conservation and management.

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29. Comments from: Scott N.

Scott N #1

Description: TMDL- load calculations for background sources

Comment: 1. The thermal load allocations for background sources should be calculated using the daily average temperature for a stream attaining the relevant 7DADM-based criterion, not the criterion itself. The load allocations are expressed in terms of kilocalories/day, which should be calculated using average daily flows and average daily temperatures. By using the temperature criteria–which are based on maximum daily temperatures–in, for instance, Equation 9-2, too much heat is assigned to background sources. This type of error doesn't affect the load reductions summarized in Table 8-2 because the river's daily average temperature could reasonably be expected to cool to the same degree as the daily maximum temperature if the river were brought into compliance. It does become a factor, however, when applying the surrogate measure for dam and reservoir operations (see comment 2).

Response: Thank you for your comment. The load allocation to background sources must be calculated using the 7DADM-based criterion to ensure that the loading capacity for the waterbody will meet water quality standards.

Scott N #2

Description: TMDL- load calculations for reservoirs

Comment: Section 9.1.4.1: If the upstream temperatures for the surrogate measure are expressed in terms of the 7DADM, then the downstream compliance point should be far enough downstream of the reservoir that the stream is able to recover its diurnal fluctuation. "The minimum duties provision states that anthropogenic sources are only responsible for controlling the thermal effects of their own discharge or activity in accordance with its overall heat contribution" (page 45). By only evaluating maximum temperature directly below a reservoir, however, not all of the thermal effects of a reservoir's discharge are accounted for. Reservoirs ordinarily release water at a constant temperature throughout the day, so the maximum temperature is also the average and minimum temperature. Much more heat can be sent downstream than is entering the reservoirs without it affecting the maximum temperature at the compliance point. Downstream of the compliance point, however, that water will reach much higher temperatures than it would have otherwise (if the minimum temperature were not essentially the same as the maximum temperature). Put another way, the kilocalories/day calculated using the daily mean temperature will be higher downstream than upstream of the reservoir. If the point of compliance is not moved far enough downstream to allow for the return of appropriate diurnal fluctuation, then the upstream measure should be based on the daily average temperature of reservoir inflows, not their daily maximum. At the point of release, just downstream of the dam, the biological impact will also be greater than in a stream with a natural diurnal fluctuation having the same daily maximum. In the EPA Region 10 Guidance For Pacific Northwest State and Tribal Temperature Water Quality Standards (2003), the EPA makes clear in recommending, for instance, 13 degrees 7DADM for spawning salmon that their recommendation is based largely on laboratory studies using constant temperature that show impacts beginning above 12 degrees. The recommended 13 degree 7DADM criterion was assuming diurnal fluctuation (page 20). The greater the fluctuation, the more protective the criterion.

Response: Thank you for your comment. DEQ has determined that 7DADM stream temperature is the appropriate metric, and that a compliance point directly downstream of the

dam, or just downstream of where impounded water is returned to the free-flowing system, is the appropriate location for determining surrogate measure compliance with the minimum duties provision.

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30. Comments from: U.S. Army Corps of Engineers (USACE)

USACE #1

Description: Extend public comment period

Comment: Extend the public comment period for the Willamette Subbasins Temperature TMDL.

Response: DEQ extended the comment period for the minimum required 21 days as requested.

USACE #2

Description: TMDL–WLA–Reservoirs: Develop NPDES Hydropower Permits in tandem with the TMDL requirements

Comment: The Corps applied for NPDES permits for the WVS hydropower dams in September 2019, and according to Oregon DEQ's Statewide Permit Issuance Plan for Federal Fiscal Years 2024-2028 these permits planned year of issuance is 2025. The draft TMDL does not include waste-load allocations. These permits should be developed in tandem with the TMDL and should not impair the Corps' ability to effectively operate and maintain the dams for the multiple congressionally authorized purposes. It would benefit DEQ and the Corps if a consistent methodology and rule set is defined between Temperature TMDL requirements in the Willamette and Columbia rivers.

Response: The TMDL was updated to include numeric wasteload allocations for the four USACE dams within the Willamette Subbasins project area (Couger, Green Peter, Hills Creek, and Lookout Point). These wasteload allocations apply to the discharges included in the USACE's NPDES applications.

Changes were made based on this comment.

USACE #3

Description: LA–Reconsider the zero load allocation for reservoirs under OAR 340-42-0040(6)

Comment: ODEQ TMDL rule, 340-42-0040(6) considers the distribution of load allocations. The draft TMDL does not use any of these considerations when assigning a zero heat load allocation to dams. Please consider: (a) Contributions from sources; (b) Costs of implementing measures; (c) Ease of implementation; (d) Timelines for attainment of water quality standards; (e) Environmental impacts of allocations; (f) Unintended consequences; (g) Reasonable assurances of implementation and (h) Any other relevant factor.

Response: DEQ must develop temperature TMDLs based on the current water quality standards and set allocations such that they add up to the Loading Capacity defined in OAR 340-042-0040(4)(d) and 40 CFR 130.2(f) as the amount of a pollutant or pollutants that a waterbody can receive and still meet water quality standards. We have provided allocations that add up to the Loading Capacity and will meet the current water quality standards. DEQ is not required to identify in a TMDL how the allocated loads are to be achieved. It is DEQ's expectation, per OAR 340, division 42, that DMAs or responsible persons evaluate their operations and propose management strategies in their TMDL implementation plans that will show achievement of allocations.

USACE #4

Description: WQMP-Reservoirs: Include elements from OAR 340-42-0040(4)(l) in the WQMP

Comment: The WQMP included in the draft TMDL the does not include elements listed in the [Oregon Administrative] rule 340-42-0040(4)(l) framework, especially related to the Corps' implementation plan.

Response: The OAR 340-42-0040(4)(l) referenced by the commenter refers to a schedule for implementation plans. Section 5.4 of the Water Quality Management Plan is titled "Schedule for implementation plan submittal." This section states that implementation plans are required within 18 months of EQC adoption of the Willamette Basin mainstem TMDL.

USACE #5

Description: TMDL-HUA-Reservoirs: Reservoirs should receive a portion of the HUA (b)

Comment: Reservoirs should be allocated a portion of the Human Use Allowance because they have been identified as a source contributing to temperature impairment. Reservoirs are the only nonpoint source category which is required to monitor instream temperature and quantify their impact. For comparison, consumptive use and existing infrastructure (not dams/reservoirs) received 0.02 deg C and 0.05 deg C, respectively, but have few obligations. The statement in Section 9.3.1 of the TMDL TSP that "Dam and reservoir operations have been allocated 0.00ºC of the human use allowance" does not account for the human uses in which the Corps reservoirs were built to support. Please explain the methodology for allocating the human use allowance. A non-zero human use allowance should be allocated for Corps dam and reservoir projects, as the dams were authorized by Congress in federal law and constructed for multiple uses, some of which are human uses (e.g., flood risk management, hydropower, recreation, fish and wildlife) in each Willamette tributary reach where dams exist.

Response: DEQ must develop temperature TMDLs based on the current water quality standards and set allocations such that they add up to the Loading Capacity defined in OAR 340-042-0040(4)(d) and 40 CFR 130.2(f) as the amount of a pollutant or pollutants that a waterbody can receive and still meet water quality standards. We have provided allocations that add up to the Loading Capacity and will meet the current water quality standards. DEQ is not required to identify in a TMDL how the allocated loads are to be achieved. It is DEQ's expectation, per OAR 340, division 42, that DMAs or responsible persons evaluate their operations and propose management strategies in their TMDL implementation plans that will show achievement of allocations.

USACE #6

Description: TMDL/TSD–Reservoirs: Explain influence of upstream warming

Comment: Upstream influences of warming caused by forestry practices and wildfire may have an influence on upstream water temperature in each sub-basin. How have these factors been incorporated into the implementation of the temperature TMDL?

Response: DEQ acknowledges the importance of forest harvest and natural disturbances including wildfire on water temperatures and that temperature increases in upper parts of subbasins can have lasting contributions to elevated temperatures in downstream waters. These effects are accounted for by load allocations for forestry and natural background, respectively. Implementation of forestry load allocations is assigned to DMAs for federal forestlands (US Forest Service and Bureau of Land Management) and non-federal forestlands (Oregon Department of Forestry). Those DMAs will submit implementation plans subject to DEQ's review and approval for sufficiency to successfully achieve load allocations over time.

USACE #7

Description: TMDL/TSD–Reservoirs: Goals in the TMDL TSD vaguely defined

Comment: The phrase "With DEQ approval…" in Section 9.3.1(a) of the TMDL TSD does not establish a definitive goal to achieve. This is problematic in the context of a regulatory document, adding vulnerability and uncertainty dependent on the interpretation of different agency staff that may change at any moment. Additionally, the current WQMP does not provide sufficient detail regarding implementation plan requirements. The Corps requests that DEQ provide more definitive verbiage so that Designated Management Agencies (DMAs) like the Corps can submit an approvable water quality implementation plan.

Response: Section 9.3.1(a) of the TMDL TSD describes a surrogate measure temperature approach to implement the load allocation for dam and reservoir operations. The language regarding DEQ approval exists to facilitate DEQ oversight regarding the approach used to calculate the surrogate. This portion of the rule provides a way to recalculate the temperature target, therefore it is important for the DEQ to be consulted to ensure that a mainstream, scientifically defensible methodology is used. Some DMAs may also be unfamiliar with robust methodologies for calculating temperature targets. Although it is unlikely that the USACE would use an unusual methodology, the TSD is written to anticipate a wide range of eventualities.

USACE #8

Description: TMDL/TSD–Reservoirs: Clarify cumulative effects analysis details

Comment: It is not clear where a cumulative effects analysis is needed or who will be performing this task. Section 9.3.1 of the TMDL TSD discusses DEQ approval of a cumulative effects analysis but does not discuss who would be performing this action. Section 5.3.5.1 of the WQMP discusses this as an option for dam owners, while Table 7 in the WQMP suggests that this analysis is required to be submitted following a QAPP and temperature assessment submittal. If this is a requirement of dam owners, please provide a definition of the term "cumulative effects" and an example of a "cumulative effects analysis" as it pertains to nonpoint sources and reservoir operations. Also, it is unclear whether cumulative effects allow for temporal effects in any given year. Dam releases often provide a beneficial cooling effect during spring spawning periods that should be accounted for as a benefit in the annual thermograph downstream of Corps dams. Please clarify whether cumulative annual heat loadings (above/below the surrogate without dams temperatures) can be used to assess compliance. Please also provide a definition of "cooler ambient temperatures".

Response: The language in TSD Section 9.3.1, TMDL Section 9.1.4.1, and WQMP Section 5.3.6 has been revised to provide a contextual definition of cumulative effects analysis. Specifically, the WQMP provides that reservoir operators may choose to perform a cumulative effects analysis as one of two options. The purpose of the cumulative effects analysis would be to show that outflowing water that is warmer than the surrogate measure would not contribute to downstream exceedances of water quality standards.

"Cooler ambient temperatures" refers to water temperatures above reservoirs that are below temperature standards. It is discussed in Section 5.3.6.2 of the WQMP because the protecting cold water criterion does not allow for reservoirs to warm streams to the temperature standard. The TMDL does not allow for the banking of days below the standard to offset days above the temperature standard later in the year, as suggested by the commenter.

Changes were made based on this comment.

USACE #9

Description: TMDL/TSD: Re-write Section 9.3.1(b) of the TMDL TSD

Comment: Section 9.3.1(b) of the TMDL TSD contains double-negative statements, unnecessarily long sentences, and is difficult to understand by our staff scientists, engineers, and the public. Please re-write this paragraph in plain language and provide an example of how and where the criteria would be applied.

Response: The language in TSD Section 9.3.1 and TMDL Section 9.1.4.1 has been revised.

Changes were made based on this comment.

USACE #10

Description: TMDL–WQMP–Reservoirs: DEQ, NMFS, and the Corps should coordinate relevant temperature criteria and targets

Comment: The likelihood of making real improvements to water temperature will improve if criteria and target development is coordinated and relevant for DEQ, NMFS, and the Corps. The Corps is concerned that the temperature criteria (Section 5.3.5.1 of the WQMP) and temperature target surrogate measures (TMDL Rule Section 9.1.4.1 and TMDL Section 9.3) are not coordinated with temperature targets established by NMFS and included in the Willamette BiOp for ESA-listed anadromous species (winter steelhead and Chinook salmon). NMFS is currently drafting a new BiOp for the WVS, which will likely address water temperature targets in the Willamette Basin. A comparison of temperature targets is provided in Appendix D of the WVS PEIS and provides context for this comment as seen in Figure 1. DEQ has provided comment on the WVS PEIS indicating that temperature targets provided by Resource Agencies (i.e., NMFS) "…might substitute for those provided by the 2006 TMDL". Temperature targets applied to modeling work within the WVS PEIS were based on pre-dam water temperature measurements and previous studies of thermal conditions upstream of USACE Willamette reservoirs5. Such research has shown that in order to target a "natural" seasonal water temperature pattern downstream, warm water needs to be released from near the top of the reservoir during spring and summer. This will reduce the accumulated heat in the epilimnion in summer, thereby reducing release temperatures in autumn when the lake level and thermocline are dropping in elevation to meet the lower outlets.

Response: The DEQ shares the USACE's desire for coordination with NMFS within the sideboards provided by the Clean Water Act and recognizes that releasing a reservoir's water through a temperature control structure, as described in the comment, provides one strategy to make progress toward meeting water quality standards.

Similar to USACE, DEQ must develop temperature TMDLs based on the current water quality standards. The TMDL provides allocations that add up to the loading capacity and will meet the current water quality standards. Allocations are the amount of a pollutant or pollutants that a waterbody can receive and still meet water quality standards.

USACE #11

Description: TMDL/TSD–Reservoirs: Revise temperature water quality criteria for reservoirs

Comment: In describing the nonpoint source contributions from the operation of dams and reservoirs, the temperature water quality criteria are overly simplified and not consistent with measures to improve conditions for ESA-listed fish. Specifically, the statement "Management and operation of dams and reservoirs to minimize temperature warming" (TMDL TSP Section 7.2, 3rd paragraph, 2nd bullet) does not account for seasonally appropriate dam releases intended to improve habitat for ESA-listed fish under the existing NMFS BiOp or what basis is used for defining warming.

Response: Surrogate measure temperature targets accommodate seasonal variation. The surrogate measures are based on temperatures upstream of reservoirs, explained in the

Technical Support Document in section 9.4.1 and is relevant to the section in the TSD about protecting cold water criterion and dams in the Willamette Subbasins. For each of dams listed, DEQ was interested in determining whether the Protecting Cold Water (PCW) criterion applied to immediate downstream and upstream reaches. The protection of the cold water criterion uses multiple components to determine applicability such as having summer seven-day-average maximum ambient temperatures that are always colder than the biologically based criteria, presence of salmon, steelhead, or bull trout, no threatened or endangered salmonid presence, no critical habitat designation, and the colder ambient water is not necessary to ensure that downstream temperatures achieve and maintain compliance with the applicable temperature criteria.

USACE #12

Description: WQMP-Reservoirs: Determine reservoir temperature monitoring needs individually

Comment: Temperature monitoring described in Section 5.3.5.1 of the WQMP should not apply to all reservoirs equally. Temperature management at most Corps Willamette reservoirs is limited by the depth of each outlet (dam configuration), the dam safety rules associated with each outlet, authorized purposes (operations required to meet flood risk management, hydropower generation, irrigation, water supply, fish and wildlife, water quality, recreation), and other legal obligations. Some reservoirs do not regularly exhibit stratification (Fern Ridge Lake), and/or have operations (i.e., re-regulating reservoirs: Big Cliff, Dexter) or outlets (Dorena, Cottage Grove, Blue River, Hills Creek – dams that only have deep regulating outlets that can safely be used in a controlled manner during summer) that limit the potential to manage temperature through operational methods. The Corps has prioritized investment in temperature monitoring at sites where temperature management is possible (Detroit, Green Peter, Foster, Lookout Point). The Corps currently has over 150 continuous monitors through the Willamette Basin USGS Cooperative Stream Gaging Program through an annual contractual funded agreement exceeding $1.1M in 2023 (see footnote). Since 2004, the Corps has invested in developing CE-QUAL-W2 hydrodynamic temperature models and studying the potential temperature management opportunities of each reservoir. In the implementation plan, the Corps will continue to evaluate appropriate monitoring and analysis based on past data and studies.

Response: The DEQ is aware that the Corps routinely collects temperature monitoring data and encourages the USACE to continue this effort. The DEQ agrees that the Corps implementation plan should evaluate appropriate monitoring and analysis based on past data and studies. The DEQ is also aware that temperature management at Corps reservoirs is one of many competing management demands, and that design constraints may limit the range of temperature management strategies that can be employed to meet temperature standards. The temperature monitoring described in Section 5.3.5.1 is intended to characterize basic thermal dynamics for each reservoir, for example the temperature change between a reservoir's inflow and outflow. For reservoirs where monitoring or modeling show that no temperature changes and stratification occur, then more basic monitoring would be appropriate in subsequent implementation plans.

USACE #13

Description: TMDL/TSD–Reservoirs: Remove effective shade gap from Corps reservoir areas

Comment: Effective shade surrogate measure targets to meet nonpoint source load allocations should not be applied to reservoir operations, and therefore Corps reservoir areas should be removed from Section 9.3.2 and Table 9-6 of the TSD. Trees cannot be planted on or near the dams due to dam safety concerns or below typical high reservoir elevations as trees will not survive inundation. Furthermore, based on the interactive shade map provided by DEQ (WilTempMap.html), the Corps reservoirs that had non-zero shade gaps should be clipped to not include the water body are as follows:

○ OR_LK_1709000203_02_100706; Cottage Grove Lake ○ OR_LK_1709000202_02_100705; Dorena Lake ○ OR_LK_1709000404_02_100758; Blue River Lake ○ OR_LK_1709000109_02_100701; Fall Creek Lake ○ OR_LK_1709000301_02_100708; Fern Ridge Lake ○ OR_LK_1709000603_02_100771; Green Peter Lake ○ OR_LK_1709000503_02_100770; Big Cliff Reservoir

Please consider clipping (removing) shade gap from these reservoirs and re-calculating the total for the Corps in Table 9-6 in the TMDL TSD, which would effectively be zero.

Response: Effective shade surrogate measure targets represent a surrogate for the amount of solar loading that will attain the human use allowance and load allocations for nonpoint sources managing streamside vegetation. The surrogate shade targets are regulatory however DEQ recognizes that it will take decades for these targets to be met. The WQMP and streamside evaluation gives responsible persons including DMAs the flexibility to provide a rationale for how they will prioritize implementation of strategies that increase streamside shade. Specifically, the streamside evaluation allows for responsible persons and DMAs to prioritize implementation using metrics or criteria in addition to DEQ shade targets and gaps. DEQ will assess compliance with the TMDL through DMA tracking and reporting on their DEQ approved implementation plans.

For these reasons, the existing effective shade surrogate measure targets will be applied to reservoir operations. However, DEQ will also consider using shade targets submitted in DMA implementation plans for compliance assessment.

USACE #14

Description: TMDL: Furnish reservoir inclusion and exclusion reasoning

Comment: Chap 2, 3rd paragraph, last sentence: “Waters excluded from the Willamette Subbasins TMDLs (Table 2-2) include the Willamette River, Multnomah Channel, and tributaries to the Willamette River downstream of the following dams: River Mill Dam, Detroit Dam, Foster Dam, Fern Ridge Dam, Dexter Dam, Fall Creek Dam, and Cottage Grove Dam.” Please provide reasoning and logic as to why each tributary is included or excluded from the TMDL. For example, why not also exclude Dorena, Blue River, Cougar, Green Peter, Lookout Point, or Hills Creek Dams in the Subbasin TMDL?

Response: DEQ delineated the Willamette Subbasins project area from the Willamette Mainstem and Major Tributaries project area to group the temperature TMDLs that must be

replaced in the Willamette Basin into two different TMDL rule development projects. Separating the Willamette Basin into two TMDL projects was in consideration of DEQ staff resources to meet the court ordered project deadlines. The delineation of the Willamette Subbasins project area from the Willamette Mainstem and Major Tributaries project area was based on the extent of the different stream thermodynamics models used to simulate water temperature in the Willamette Basin. The Willamette Mainstem and Major Tributaries project area represents the extent of CE-QUAL-W2 models developed for the original Willamette Basin Temperature TMDLs that were approved in 2006, excluding the McKenzie River model extent. While the McKenzie River downstream of the confluence with the South Fork McKenzie River, as well as the South Fork McKenzie River downstream of Cougar Reservoir, are included in the CE-QUAL-W2 model extent, DEQ leadership decided to include these stream reaches in the Willamette Subbasins project area to satisfy multiple competing project deadlines.

USACE #15

Description: TMDL: Furnish a GIS version of Table 8-2

Comment: Table 8-2: Please include a URL in the PDF document to a GIS version of Table 8-2 so that the reach of interest can be verified.

Response: DEQ appreciates your suggestion. Unfortunately, DEQ does not have the capacity to provide a GIS version of this information at this time.

USACE #16

Description: TMDL/TSD: Provide definition of GNIS streams

Comment: Figure 2-2: Please define what the difference is between GNIS streams and others.

Response: The Watershed GNIS Streams GIS layer in Figure 2-2 identifies the impaired streams within an impaired Watershed Unit. A Watershed Unit is a fixed assessment unit that groups all streams within a HUC 12 subwatershed with a Strahler Stream Order of 4 or less for impairment consideration. Individual monitoring stations within a Watershed Unit are assessed for impairment, then the impairment determination is rolled up into a single Watershed Unit conclusion in order to meet EPA reporting requirements. The Streams GIS layer in Figure 2-2 identifies the large streams or rivers listed as temperature impaired, and the Waterbodies GIS layer identifies the lakes or reservoirs listed as temperature impaired in the project area. Please see the Final Assessment Methodology of Oregon DEQ's 2022 Integrated Report for more information regarding how Oregon's waterbodies are assessed for water quality impairment.

Changes were made based on this comment.

USACE #17

Description: TSD - Revise Legend in Figure 4-2

Comment: Figure 4-2: Legend for Salmon and Steelhead Spawning Use Designations has the same colored line associated with different dates and is therefore not clear which reaches apply to which dates. Please clarify or provide a table with Salmon and Steelhead Spawning Use Designations and numeric criteria for each reach on the map.

Response: Figure 4-2 in the Technical Support Document has been revised to include a broader spectrum of colors so that readers can distinguish between different salmon and steelhead spawning use designations.

Changes were made based on this comment.

USACE #18

Description: WQMP-Decision Tree Edit

Comment: Fig 3: Please include “yes” and “no” text for each branch of the decision tree.

Response: Thank you for your comment. Figure 3 in the WQMP was updated to include “yes” and “no” indicators in the decision tree.

Changes were made based on this comment.

USACE #19

Description: Corps commitment to compliance and protecting the nation’s waters

Comment: The Corps is committed to environmental compliance and protection of the nation’s waters. The Corps also recognizes and acknowledges DEQ’s role as defined by the Clean Water Act and appreciates the opportunity to comment on these rules to improve water temperature conditions in the Willamette Basin.

Response: The DEQ shares the Corps’ commitment to environmental protection and appreciates the acknowledgement of the DEQ’s role defined by the Clean Water Act.

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31. Comments from: USEPA

USEPA #1

Description: TMDL - HUAs - Identify the HUA allocations for each Assessment Unit

Comment: Although the TMDL identifies waterbody names in the captions of the Human Use Allowance (HUA) allocation tables (Tables 9-1 through 9-9), because the TMDL addresses 236 impaired assessment units (AUs) and 677 unlisted or unassessed AUs, the EPA requests that ODEQ explicitly identify within the TMDL or Technical Support Document (TSD) the HUA

allocations assigned to each assessment unit (AU). One potential solution is to identify the associated HUA allocation table for each AU listed in Appendix D.

Response: Human use allowance assignments have been identified for each Assessment Unit in Technical Support Document Appendix D.

Changes were made based on this comment.

USEPA #2

Description: TMDL - AU criteria - Identify the applicable year-round and spawning criteria and associated timing for each of the impaired AUs

Comment: Figures 4-1 and 4-2 broadly show fish use designations and the applicable timing of spawning use designations at the project area scale, but it is difficult to discern the applicable year-round and spawning criteria and associated timing of each for the AUs addressed in the TMDL; this information is needed to calculate the loading capacity using Equation 8-1 and background and nonpoint source allocations for each AU using Equations 9-2 and 9-3, respectively. The EPA requests that ODEQ add information to the TMDL or TSD identifying the applicable year-round and spawning criteria and associated timing for each of the impaired AUs addressed in the TMDL.

Response: Technical Support Document Appendix D has been updated to include information identifying the allocation period and applicable temperature criteria and spawning period for each assessment unit.

Changes were made based on this comment.

USEPA #3

Description: TMDL - WLAs - Identify the AU for point source discharges and add figure showing point source HUA allocations

Comment: To assist in the EPA's review of the wasteload allocations to point sources, the EPA requests that ODEQ identify the AU ID of the receiving water (or nearest downstream AU) for point sources assigned a numeric wasteload allocation and add a figure to the TMDL, TSD, or associated appendices showing the value and applicable location of point source HUA allocations identified in Tables 9-1/9-2 of the TSD.

Response: Information has been added to Technical Support Document Appendix D that identifies the receiving stream assessment unit ID for all point sources receiving numeric wasteload allocations. Additionally, information has been added to the tables in the TMDL, TSD, and TSD Appendix D to clarify the HUA assignments applicable to each assessment unit. A map was added to the Technical Support Document to show the total number of NPDES point sources discharging to each assessment unit. While putting this information together, DEQ fixed various errors and made adjustments where necessary to accommodate updates to the allocations.

Changes were made based on this comment.

USEPA #4

Description: TMDL - Add example calculation

Comment: Neither the TMDL nor the TSD show the calculated nonpoint source load allocation(s) using Equation 9-3 for any of the impaired AUs or include a non-conceptual example showing the TMDL elements and surrogates in one place. The EPA requests that ODEQ add at least one example calculation for an impaired waterbody showing the daily load capacity and all associated wasteload allocations, load allocations, and surrogates, as well as the supporting information needed to calculate each component (e.g., flow, applicable criteria, HUA allocations). This could include a reference to existing information for the load capacity, wasteload allocation, background load allocation, and surrogates.

Response: Tables with the requested example allocation calculations have been added to Technical Support Document Section 9.5: Allocation summary. Additional information that assists making these calculations was added to TSD Appendix D. TSD Appendix D additions include the human use allowance assignments on each assessment unit, the applicable temperature criteria on each assessment unit, and the assessment unit where each NPDES point source discharges.

Changes were made based on this comment.

USEPA #5

Description: TMDL/TSD - Discrepancies between TMDL and TSD documents

Comment: The EPA has noted some discrepancies between the text and tables or figures and requests clarification from ODEQ on these items: 1) p. 41 of the TSD indicates monitoring sites with the longest period of exceedance of applicable temperature criteria were used to identify the TMDL critical period for each subbasin and cites the Middle Willamette (Figure 5-16) as having exceedances starting in April, however, May 1 is identified as the start of the critical period for all waterbodies of the Middle Willamette Subbasin; and 2) The following facilities listed in Table 6-3 of the TSD have no receiving stream identified or have a receiving water listed as unknown, but have receiving waters listed in Table 7-3: 108298, 103774, 65610, 103832, and 110603.

Response: Thank you for your comments. 1) DEQ reviewed the data displayed in Figure 5-16 and decided that this location should not be assumed as representative of the entire Middle Willamette Subbasin, since the monitoring location is located on a small tributary in a very urban area. Figure 5-16 displaying Mill Creek data has been removed, and the critical period for the Middle Willamette Subbasin remains May 1 - October 31, except on the Middle Fork Willamette River below Green Peter Dam. Plots for other monitoring stations were added to improve characterization of seasonal temperatures. The narrative summarizing how DEQ determined the critical period was revised to provide additional clarity. 2) Table 6-3 in the Technical Support

Document has been updated so that the receiving waters of the facilities match the receiving waters listed in Table 7-3.

Changes were made based on this comment.

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32. Comments from: WaterWatch of Oregon

WaterWatch #1

Description: WQMP - Water management and withdrawals

Comment: 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.

Response: Thank you for your comments.

WaterWatch #2

Description: DMAs - add OWRD (2)

Comment: Given the express recognition of water management and water withdrawals as a nonpoint source of heat, the Oregon Water Resources Department (OWRD) should be a Designated Management Agency (DMA) required to prepare an implementation plan. OWRD has legal authority over water management and water withdrawals in the basin. OWRD can influence the water-temperature impact of water management and water withdrawals in many ways, including but not limited to: (a) by adequately conditioning (e.g., by requiring temperature mitigation) or not issuing permits for new water withdrawals and storage, and permits for existing but unpermitted 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 require 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.

Response: The comment asserts that the Oregon Water Resources Department (OWRD) should be listed as a DMA because of OWRD's role in water management. DEQ recognizes the temperature impacts that water withdrawals can have. However, OWRD's role as the state agency that administers the laws governing the allocation of water rights can be distinguished from the roles of other state agencies that have regulatory authority managing activities and uses of property that contribute to water quality impairments, such as ODA and ODF. The EQC TMDL rules specifically address the roles that ODA and ODF have in implementing TMDLs in OAR 340-042-0080. Given OWRD's unique role that does not involve land management, rather than designating OWRD as a DMA at this time, DEQ has determined that it will work with OWRD to evaluate ways in which the agencies can further partner in efforts to increase flows to improve water temperature, such as through commitments specified in a MOU or MOA.

WaterWatch #3

Description: WQMP - water management and withdrawal strategies

Comment: Management strategies for limiting the impact of water management and water withdrawals (including those at pages seven and 10 of the WQMP) are too limited and too general. The potential for water right transfers and leases is likely limited and insufficient to ensure attainment of the load allocations. Other measures suggested in Table 2 are also too limited and general. For example, the strategies do not suggest what should be done in "water right application reviews" or by whom (such as DEQ recommending denial without full temperature mitigation). The table also should include: (a) management strategies suggested in the preceding comment; (b) applications and/or support for additional instream water rights as appropriate; (c) conversion of unused hydroelectric water rights to instream water rights pursuant to ORS 543A.305; and (d) requiring full temperature mitigation for current and future water withdrawals (including permitted but undeveloped withdrawals) whenever possible, including on applications for extension of time to develop unused water use permits and on applications for permits and certifications associated with development and/or continuation of water withdrawals (e.g., removal-fill permits and water quality certification for water withdrawal and/or water-use infrastructure).

Response: The WQMP includes strategies other than those that increase streamside shade (including flow augmentation and channel morphology-related restoration) in the table of priority management strategies because DEQ recognizes the importance of these strategies in reducing stream temperatures. However, the listed strategies are not exhaustive, and it is DEQ's expectation is that other water management and withdrawal strategies will be implemented or explored to meet the load allocation. DEQ will continue to encourage DMAs to consider all alternative strategies for inclusion in DMA implementation plans. DEQ will continue to assess implementation compliance with the TMDL through DMA tracking and reporting on DEQ-approved implementation plans in the coming years. Any future evaluation of progress toward meeting effective shade targets will include an evaluation of other implementation efforts that have been completed to improve stream temperatures.

The Oregon Water Resources Department administers the laws governing the allocation of surface and groundwater quantity. As a member of OWRD's Division 33 Interagency Review Team, DEQ can recommend flow mitigation to offset potential impacts to water quality for waterbodies impaired for flow-related parameters, such as temperature. The process for water right reviews is established in OWRD's rules.

WaterWatch #4

Description: LA - Assessment of water withdrawals

Comment: The draft TMDL documents do not seem to include an assessment of the extent to which current water withdrawals contribute to exceedances of water quality criteria relative to the proposed load allocations, or include any plan for determining in the future (by surrogate measure or otherwise) whether heat loads contributed by water management and withdrawals are within the load allocations or, if not, the extent to which they are not.

Response: DEQ has established methods for determining the heat loads contributed by water management and withdrawals and for assessing whether those heat loads attain Human Use Allowance allocations. DEQ assessed the impact of water withdrawals on stream temperature for four of the modeled streams in the Willamette Subbasins Temperature TMDL project area. This assessment is summarized in Technical Support Document Appendix A, Section 4: Model Scenario Results. In Johnson Creek we evaluated stream temperature response to water withdrawals and found that a 4% reduction of natural streamflow resulted in a stream temperature increase equal to the portion of the Human Use Allowance allocated to water withdrawals (0.05 °C). In the Molalla River we evaluated stream temperature response to removing water withdrawals entirely and found that withdrawals were responsible for a 1.50 °C temperature increase at the point of maximum impact. In the Pudding River we evaluated stream temperature response to removing water withdrawals entirely and found that withdrawals were responsible for a 4.01 °C temperature increase at the point of maximum impact. In Thomas Creek we evaluated stream temperature response to removing water withdrawals entirely and found that withdrawals were responsible for a 1.83 °C temperature increase at the point of maximum impact. A new section has been added to the Technical Support Document to explicitly summarize the results of water management and withdrawals analyses.

In the Willamette Subbasins Water Quality Management Plan, DEQ considers the flow-related strategies in Table 2 and described narratively in Section 2.2 as strategies and practices that should receive special focus during TMDL implementation plan development. These strategies are not exhaustive. DEQ's expectation is that other water management and withdrawal strategies can also be implemented or explored. DEQ can currently recommend denial of new water right applications without full temperature mitigation as part of Oregon Water Resources Department Division 33 reviews. In addition, DEQ can recommend flow mitigation to offset potential impacts to water quality for waterbodies impaired for flow-related parameters, such as temperature.

WaterWatch #5

Description: WQMP - ODA role

Comment: We appreciate the acknowledgement that ODA regulation is not achieving water quality objectives and that more needs to be done on private agricultural lands. (p. 21.)

Response: Thank you for your comment.

WaterWatch #6

Description: DMAs - major water withdrawers/permit holders

Comment: Major water withdrawers and permit holders should also be responsible persons required to prepare implementation plans to show how withdrawals will be reduced or eliminated and how any temperature impacts from continuing withdrawals will be offset.

Response: The Oregon Water Resources Department administers the laws governing surface and groundwater use. ORS 536.220 authorizes a single state agency, the Water Resources Commission, to formulate and implement an integrated, coordinated state water resources policy. Whereas the commenter advocates regulating water use based on withdrawal size (e.g., “major water withdrawers”), current water law regulates water use based on the date of original application of water use (e.g., priority date). OWRD works with some agricultural and municipal water suppliers to prepare water management and conservation plans as a proactive evaluation of the management and conservation measures that suppliers can undertake. For these reasons, DEQ does not intend to add water right holders to the list of responsible persons in the WQMP.

WaterWatch #7

Description: TMDL - reservoirs/cumulative impacts/OWRD

Comment: The TMDL documents give inadequate consideration to the cumulative impact of numerous small, in-channel reservoirs that add heat through increased thermal exposure of the water through pooling and expanded surface area. In addition to those listed at page 73 of Appendix E that are not required to monitor temperature impacts, OWRD routinely permits reservoirs under thresholds for dam safety (which can be unlimited in size if the dam is less than 10 feet high) with limited storage seasons that cannot practicably be enforced and with conditions that are not adequate to prevent the reservoirs from increasing stream temperatures. This further illustrates why OWRD should be a DMA under the TMDL.

Response: The TMDL considers the impact of small, in-channel reservoirs to the extent that TMDL modeling includes empirical data from watersheds containing small in-channel reservoirs. The commenter refers to the impracticality of monitoring and enforcing conditions on the thousands of small inline ponds that exist throughout the Willamette basin, and the DEQ shares this concern. WaterWatch is encouraged to share this concern with the OWRD.

WaterWatch #8

Description: TMDL/TSD - Climate change effects

Comment: The TMDL documents should include in the modeling and loading analysis and allocations the estimated future effects of climate change on stream flows, air temperatures and water temperatures.

Response: Thank you for your comment. DEQ acknowledges the impacts of climate change in Oregon. The current allocations do not allow warming from anthropogenic climate change. DEQ views climate change as an anthropogenic source of warming and has not provided any portion of the human use allowance to accommodate climate change. Therefore climate change sources must achieve zero temperature warming. Oregon DEQ has programs with authority to regulate source of climate change located within Oregon. DEQ has also included some further information within the TSD Appendix titled Climate Change Summary.
