

Total Maximum Daily Loads (TMDLs): Temperature TMDL Replacement project: **Willamette** **Subbasins**

Feb. 16, 2024, 9 a.m. PT
Public Hearing

Agenda

Time	Topic
9 a.m.	Welcome
9:10 a.m.	Inform about the draft rule for the Total Maximum Daily Load
9:25 a.m.	Inform about the draft rule for the Water Quality Management Plan
9:40 a.m.	Questions and answers about the proposed rule
10 a.m.	Formal public comment about the proposed rule

Zoom logistics and meeting ground rules



Raise hand to be recognized for questions



Use chat to: Ask questions

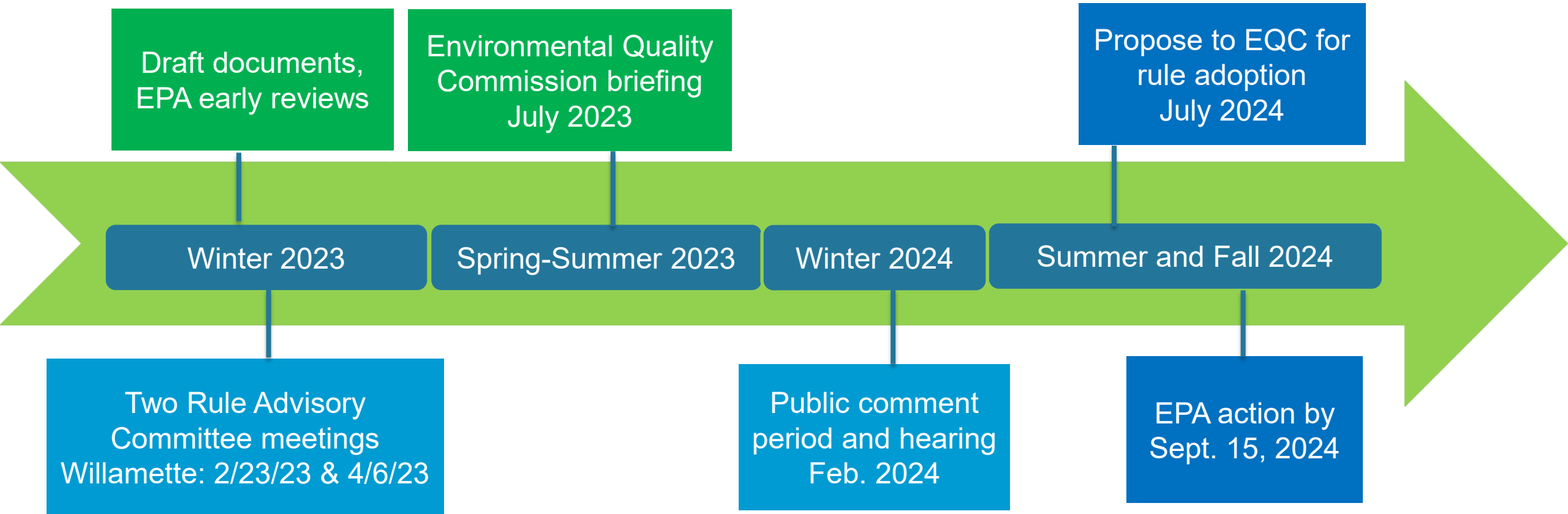


Mute when not speaking



If using phone: press *9 to raise hand, *6 to mute/unmute

Willamette Subbasins Temperature TMDL Replacement rulemaking milestones



Project website: <https://www.oregon.gov/deq/wq/tmdls/Pages/tmdlreplacement.aspx>

Temperature TMDL Replacement project litigation

2012: NWEA vs. USEPA, NMFS, USFWS

- Lawsuit was seeking judicial review of the EPA's decision to approve Oregon's revised water quality standards (including the Natural Conditions Criteria) and the Services' "no jeopardy" BiOp.
- Judge found "the EPA was unable to articulate a rationale [sic] basis for its approval of the NCC".
- Court's judgment resulted in EPA's disapproval of the Natural Conditions Criteria.

2019: NWEA vs. USEPA

- Lawsuit asserted the EPA unlawfully approved TMDLs that were based on the now disapproved Natural Conditions Criteria.
- The court issued a judgment on Oct. 4, 2019, requiring DEQ and EPA to replace 15 Oregon temperature TMDLs that were based on the Natural Conditions Criterion and to reissue the temperature TMDLs based on the remaining elements of the temperature criteria.

Website: <https://www.oregon.gov/deq/wq/tmdls/Pages/tmdlreplacement.aspx>

Total Maximum Daily Loads – Willamette Subbasins



A TMDL, or clean water plan, is a science based approach to cleaning up polluted water so that it meets state water quality standards.

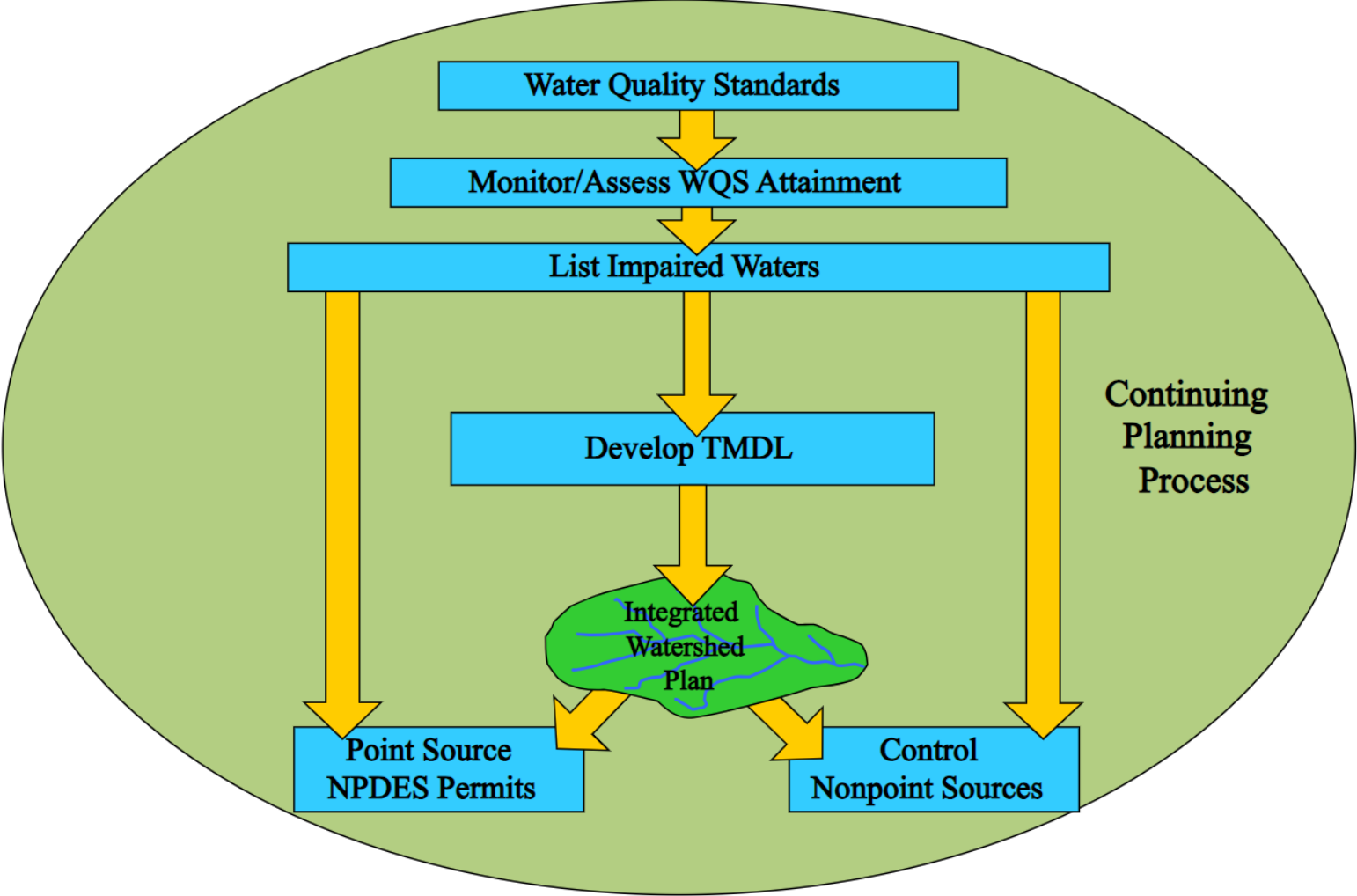


A TMDL is also a numerical value that represents the highest amount of a pollutant a surface water body can receive and still meet the standards. *The numerical value TMDL is also known as a loading capacity.*

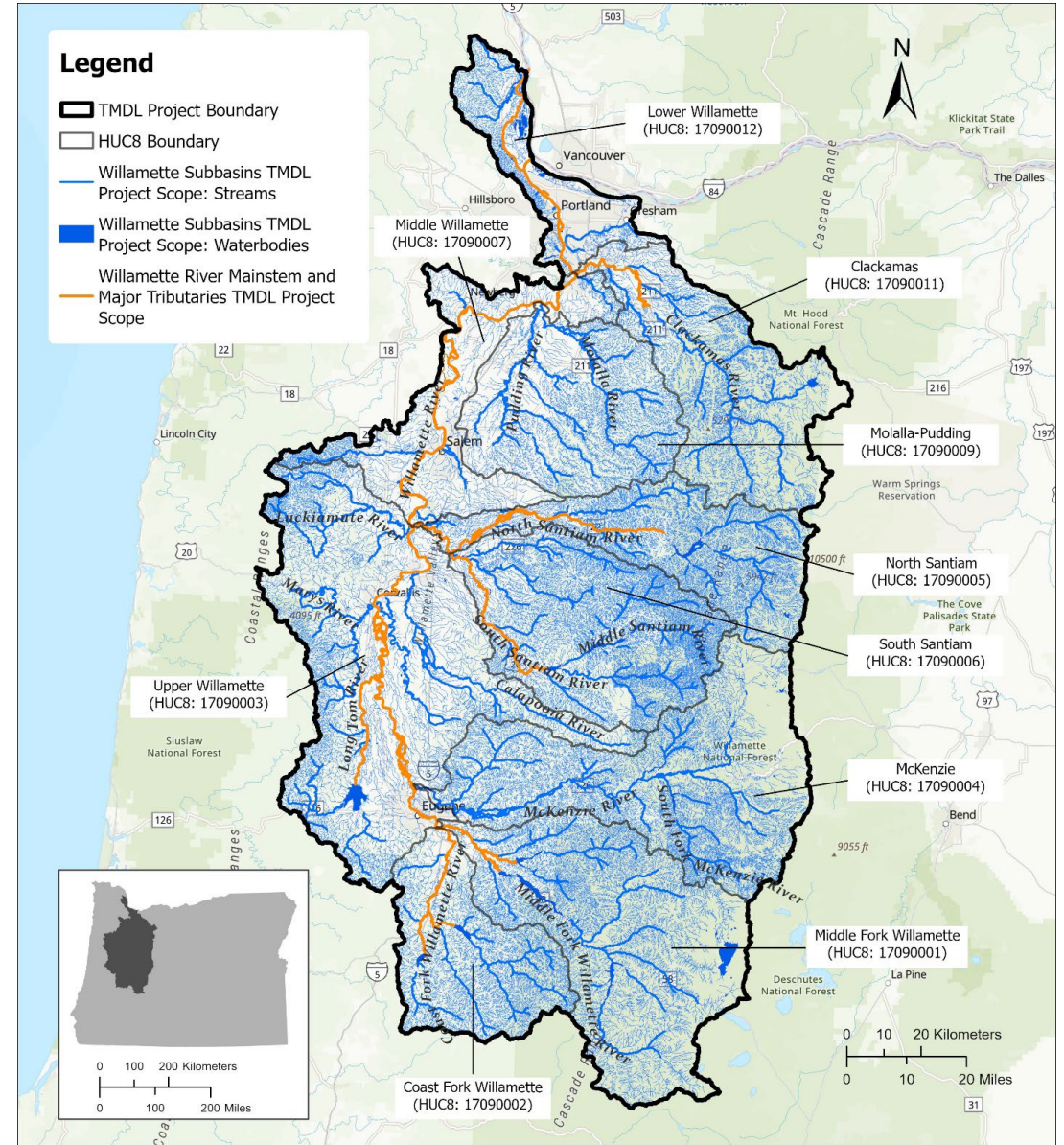
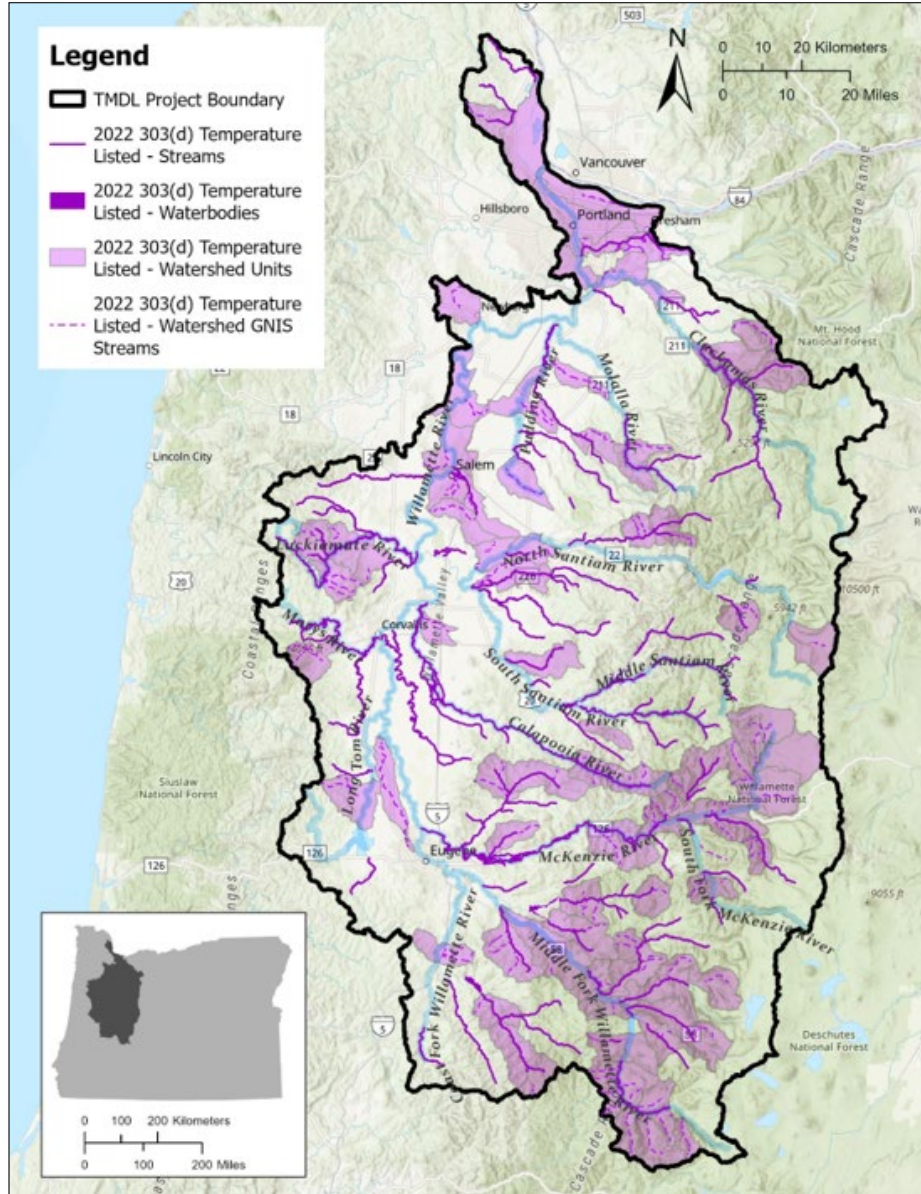


TMDL webpage: <https://www.oregon.gov/deq/wq/tmdls/Pages/default.aspx>

Clean Water Act framework



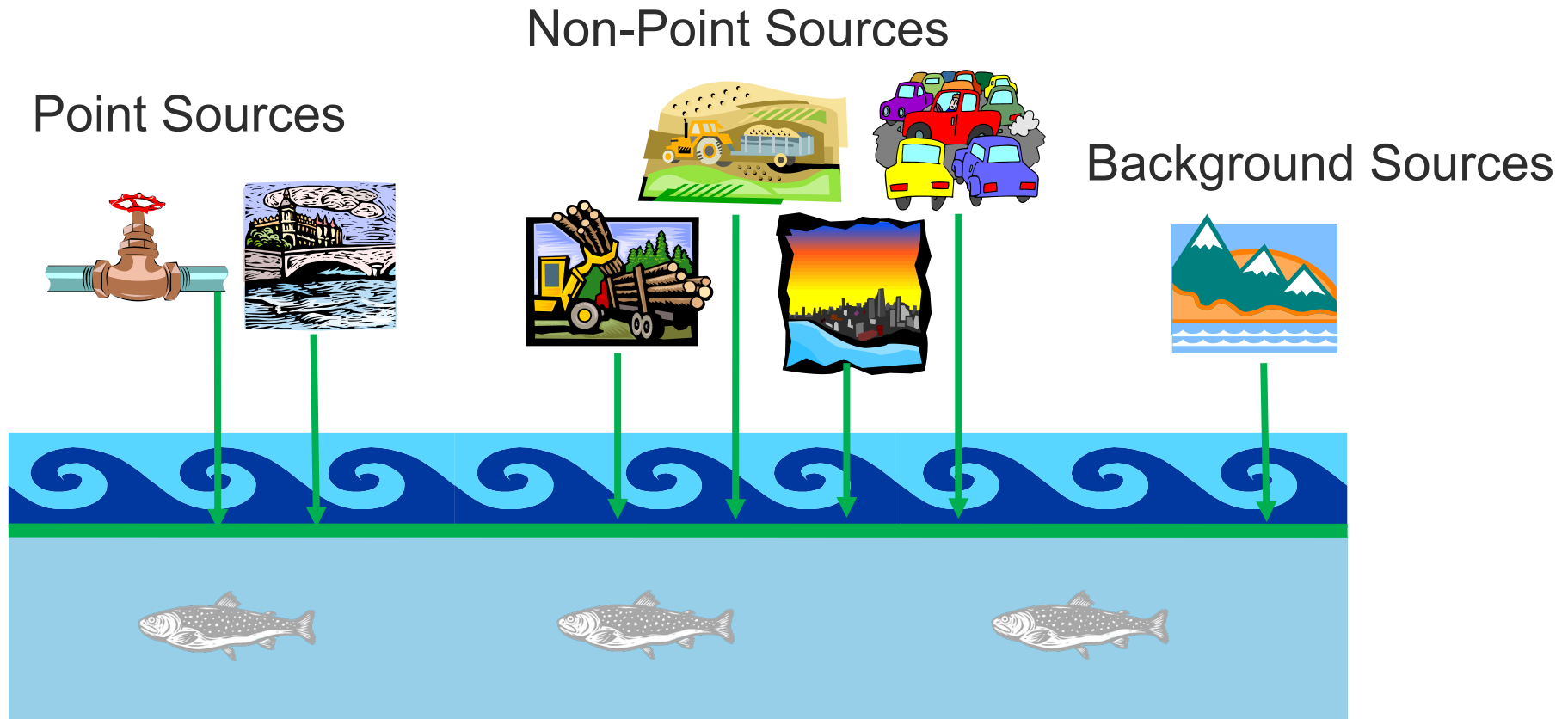
Willamette Subbasins Temperature TMDL project area



TMDL process

1. Identify water quality concerns
2. Identify pollutant sources
3. Link pollutant sources to water body conditions
4. Calculate the pollutant reduction needed to restore water quality

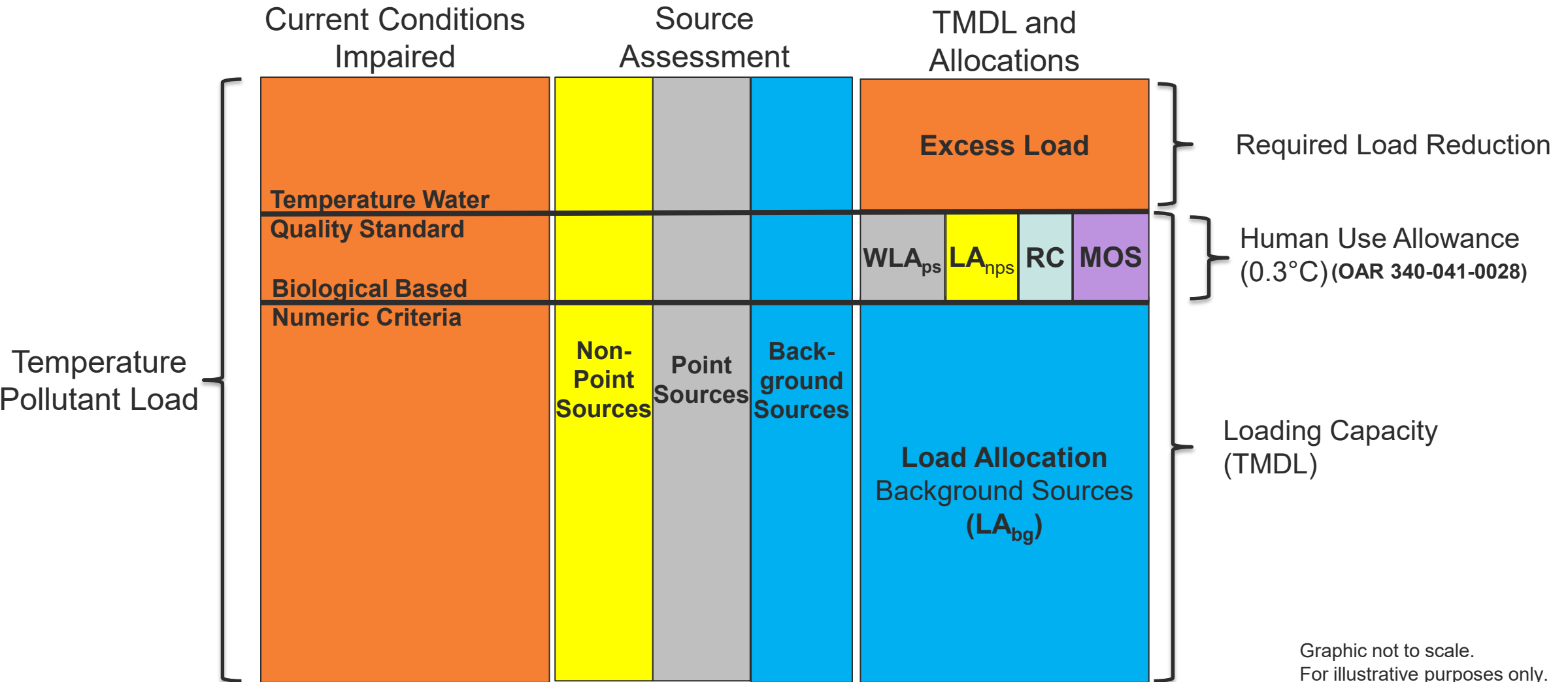
TMDL source assessment and calculation



$$\text{TMDL} = \text{WLA}_{\text{ps}} + \text{LA}_{\text{nps}} + \text{LA}_{\text{bg}} + \text{MOS} + \text{RC}$$

Waste Load Allocation: point sources Load Allocation: Non-point Sources Load Allocation: background sources Margin of Safety Reserve Capacity

$$\text{TMDL} = \text{WLA}_{\text{ps}} + \text{LA}_{\text{nps}} + \text{La}_{\text{bg}} + \text{MOS} + \text{RC}$$



Graphic not to scale.
For illustrative purposes only.

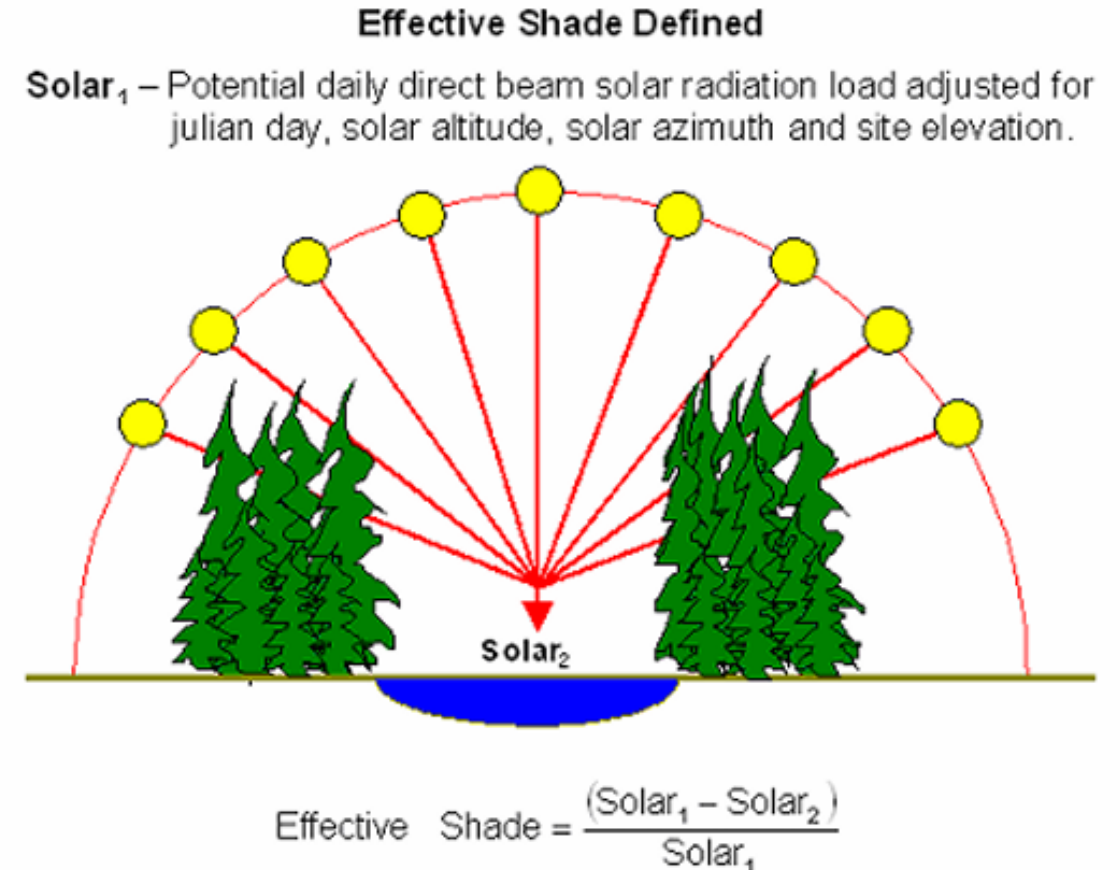
Sources of heat in the Willamette Subbasins

- Point sources
- Nonpoint sources
 - Removal of near stream vegetation
 - Channel modification and widening
 - Dam and reservoir operation
 - Stream flow modification
 - Background sources



TMDL Surrogate Measures

- “Surrogate Measures” are substitute methods or parameters used in a TMDL to represent pollutants.
- Effective shade is the surrogate measured used to represent heat.



Willamette Subbasins TMDL Allocations

Example: Human Use Allowance allocations in the Willamette Subbasins TMDL

Portion of HUA (°C)	Source or source category
0.20	NPDES point sources
0.00	Dam and reservoir operations
0.05	Water management activities and water withdrawals
0.02	Solar loading from existing transportation corridors, existing buildings, and existing utility infrastructure
0.00	Solar loading from other nonpoint source sectors
0.03	Reserve capacity
0.30	Total

Willamette Subbasins TMDL Surrogate Measures

Example: Shade surrogate measure targets to meet nonpoint source load allocations

DMA	Assessed current effective shade (%)	TMDL target effective shade (%)	Shade gap (%)	Total stream kilometers assessed
1	32	85	53	4823
2	1	92	91	0.2
3	37	73	36	13.8
4	70	96	26	8603.4
5	85	97	12	526.6

Willamette Subbasins temperature TMDL format

- Willamette Subbasins Total Maximum Daily Load – adopted, by reference into rule
- Willamette Subbasins Water Quality Management Plan – adopted, by reference into rule
- Willamette Subbasins TMDL Technical Support Document
 - Appendix A: Heat Source Model Report
 - Appendix B: Lower Willamette Shade Model Memo
 - Appendix C: Potential Near Stream Land Cover
 - Appendix D: Assessment Units addressed by Temperature TMDLs for the Willamette Subbasins
 - Appendix E: Southern Willamette Shade Results
 - Appendix F: Lower Willamette Shade Results
 - Appendix G: Climate Change and Stream Temperature in Oregon: A Literature Synthesis
 - Appendix H: Willamette Subbasins Shade Gap Map, interactive map
 - Appendix I: Stream Buffer Width Literature Review
 - Appendix J: McKenzie River CE-QUAL-W2 Model Scenario Report
 - Appendix K: McKenzie River Wasteload Allocation Scenario Model Report

Rulemaking page: <https://www.oregon.gov/deq/rulemaking/Pages/willamettetempTMDL.aspx>

Water Quality Management Plan: Willamette Subbasins



What is a Water Quality Management Plan?

Oregon Administrative Rule 340-042-0040(4)(I)

- The WQMP is part of the TMDL document - it's the plan of action for implementing the TMDL pollutant allocations.
- The WQMP includes specific implementation information:
 - Identifies responsible persons, including Designated Management Agencies, that must implement strategies to meet TMDL allocations through development of a **TMDL Implementation Plan**
 - Proposes management strategies designed to meet the TMDL allocations.
 - Describes reasonable assurance that management strategies and sector-specific or source-specific implementation plans will be carried out through regulatory or voluntary actions.

135 Designated Management Agencies/Responsible Persons proposed in WQMP (Appendix A)

Plan needed

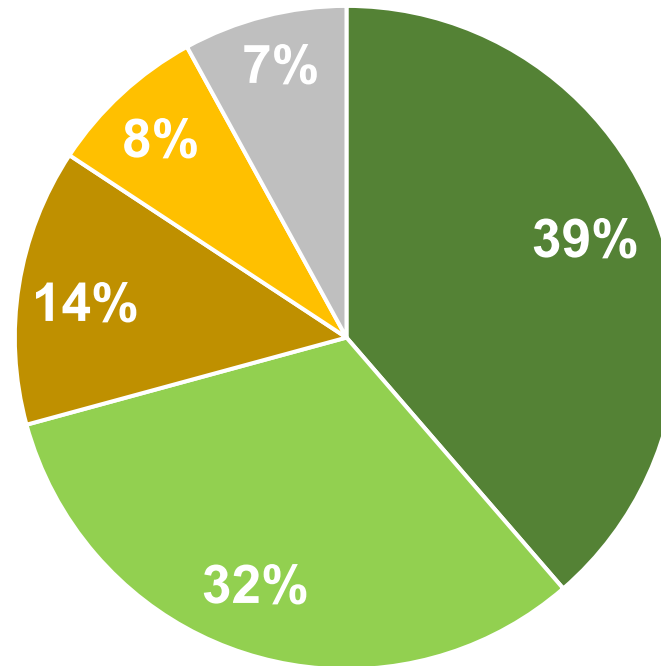
- Cities (67)
- Counties (9)
- Special Districts (Metro, WES)
- Port of Portland, Port of Columbia County
- Public Utility (EWEB, PGE)
- State agencies (ODA, ODF, ODFW, ODOT, OPRD)
- Federal agencies (BLM, USFWS, USFS, USACE)

Plan not needed

- Water conveyance entities (22) (irrigation and drainage districts)
- Railroads (11)
- Tualatin
- Curry, Lincoln, Washington Counties
- BPA
- Pacific Power & Light
- DEQ, DSL, DOGAMI

New DMAs = **46** (7 require TMDL plans)

Percent estimated acres in project area owned or managed by DMAs 150 feet from stream centerline



- U.S. Forest Service
- Oregon Department of Forestry
- Oregon Department of Agriculture
- U.S. Bureau of Land Management
- All Other (DMA acres $\leq 1\%$ acres each)

TMDL implementation plans

Oregon Administrative Rule [340-042-0080\(4\)\(a\)\(A\)-\(E\)](#)

- Management strategies that the entity will use to achieve load allocations and reduce pollutant loading
- Timeline for strategy implementation and a schedule for completing measurable milestones
- Performance monitoring and a plan for periodic review and revision of implementation plans
- Any other analyses or information specified in the WQMP (e.g. streamside evaluation)

What's changed from the 2006 WQMP requirements?

- Emphasis still on meeting % effective shade targets (i.e. used as a surrogate measure for temperature load allocations)
 - DMAs can use DEQ shade gap analyses completed in parts of the Lower Willamette and southern Willamette waterbodies
- Recognition that other activities, such as flow, channel, and dam modification also impact stream temperature
- More specific streamside evaluations and reporting required from DMAs
- Required upstream and downstream temperature monitoring for 32 large dams (dam-specific TMDL plans may also be needed)
- USFS, BLM, ODA, ODF: Required streamside shade gap analysis and temperature monitoring as part of a Willamette Basin wide monitoring strategy

Table 2 summary of management strategies

Streamside shade

- Tree & shrub planting
- Invasive species removal
- Streamside protection (e.g. livestock exclusion fencing, environmental ordinances)

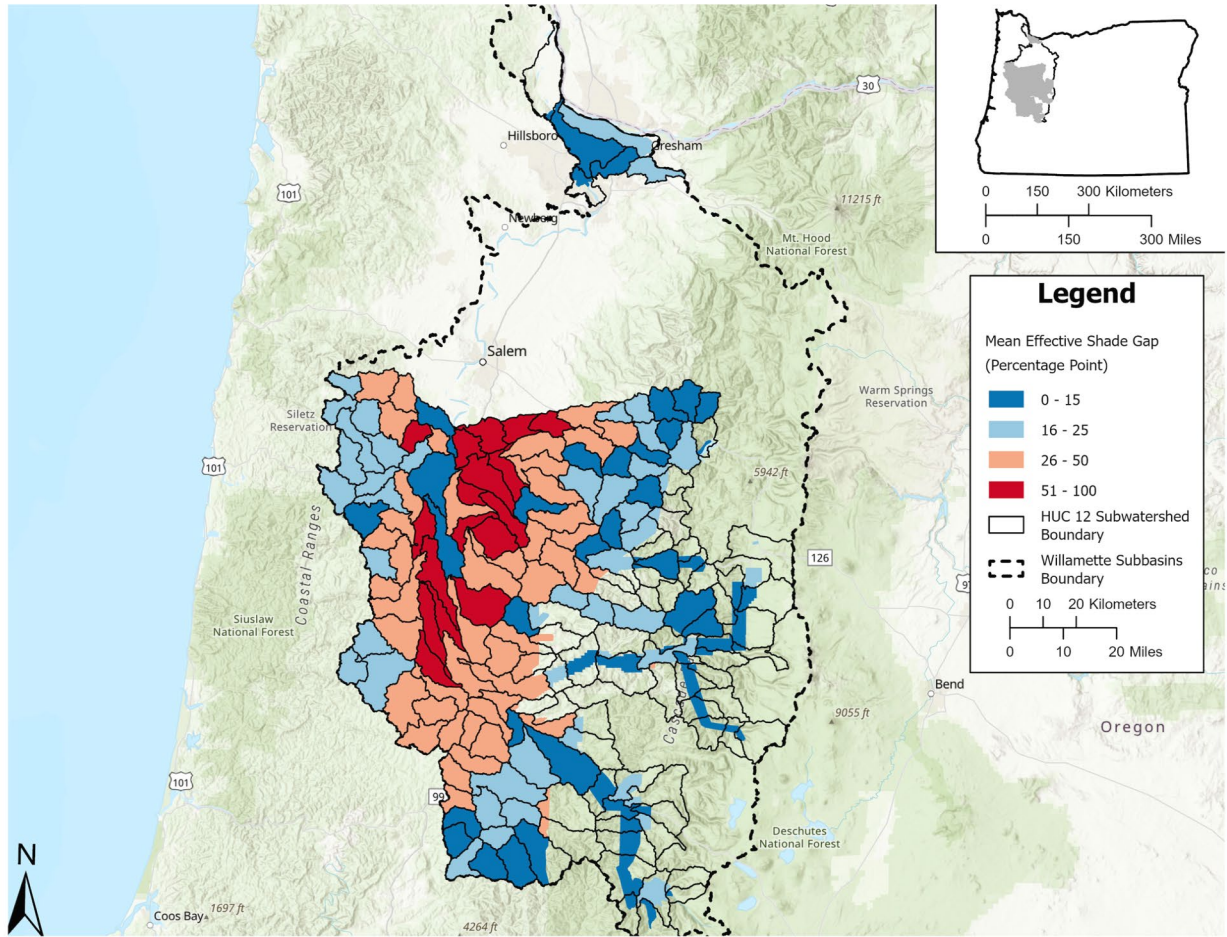
Flow augmentation

- Pursue instream water right transfers
- Promote water conservation strategies
- Repair leaking infrastructure

Channel restoration

- Whole channel restoration projects
- Increase floodplain interactions
- Dam management strategies

DEQ Shade Gap analysis



- Shade gap - percent difference between current effective shade and site potential effective shade (restored condition)
- Southern Willamette and Lower Willamette shade model areas
- Where available, DMAs must use DEQ analysis to inform their streamside evaluations

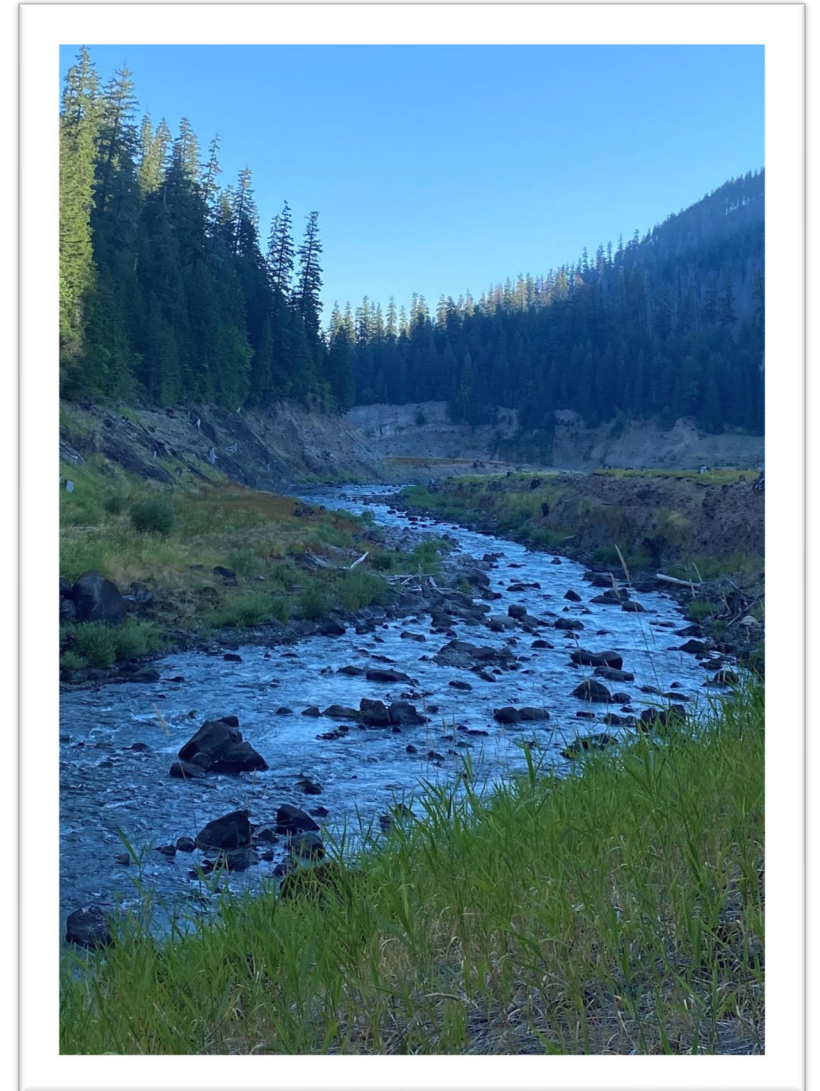
Streamside Shade Gap analysis requirement

- ODA, ODF, BLM and USFS must perform assessment to determine whether effective shade allocations are being met for those areas where DEQ did not complete a shade gap analysis.
- DMAs that have a DEQ shade gap analysis may choose to perform their own assessment, instead of using DEQ's, to determine whether effective shade allocations are being met.
- Effective shade assessments must use location-specific methods.



Streamside evaluation

- Responsible persons and DMAs that are required to submit an implementation plan must complete a streamside evaluation
 - Goal is to review current conditions to support development of implementation measurable objectives and milestones
 - Must use DEQ shade gap analysis results in streamside evaluation where available
 - Where DEQ shade gap analysis is not available, use other information to complete your streamside evaluation
- The streamside evaluation will be included in implementation plans and utilized during the five-year review



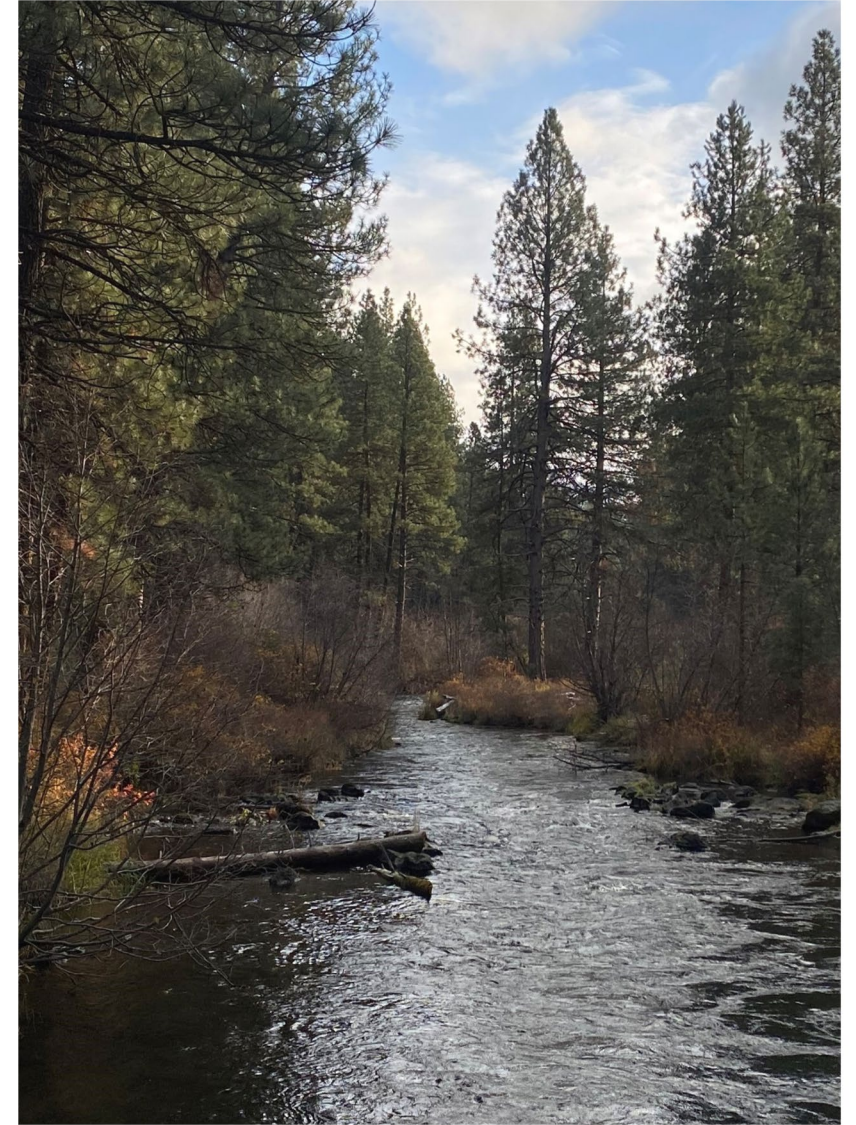
Streamside evaluation components



- Quantify in acres
 - Streamside area that needs enhancement
 - Streamside area that may not need action beyond protection
 - Streamside area where **physical constraints** exist that preclude implementation of vegetation management strategies
 - Streamside area where **jurisdictional constraints** exist that limit implementation of vegetation management strategies
- Report opportunities that may exist to address constraints
- Report areas where there is potential to implement BMPs such as in-stream restoration, flow augmentation projects, experimental temperature management techniques, or enhancement and protection of cold water refuges
- Evaluate data from the above items to prioritize implementation actions

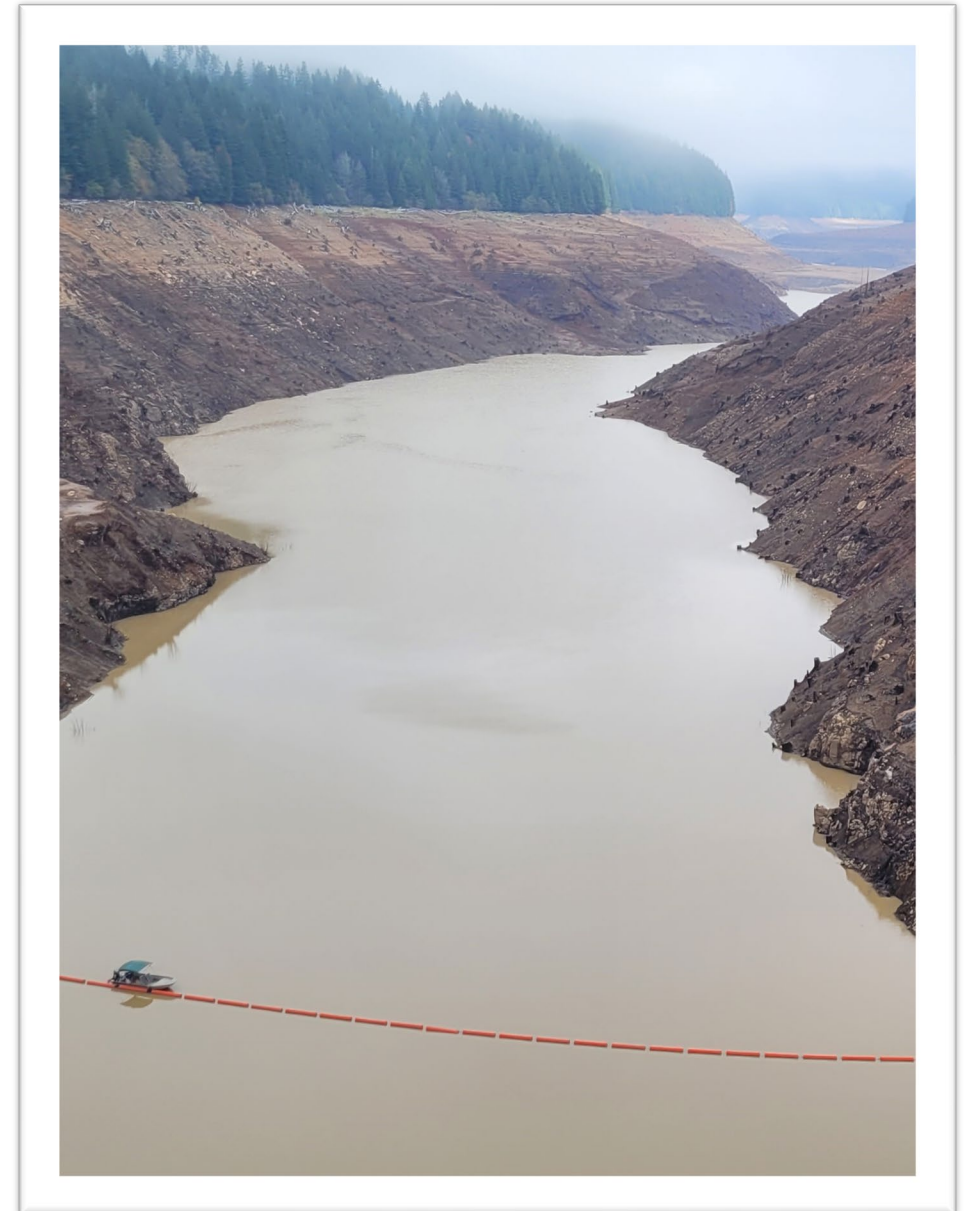
120 foot Buffer Alternative

- Potential shade loss associated with a 120' riparian buffer will not cause stream temperature increases for most water bodies (TSD Appendix I)
- Option to establish and protect overstory woody vegetation within a 120' slope width buffer zone from the stream bank through development of enforceable ordinances or regulations
 - May select 120' buffer alternative instead of completing shade gap analysis
 - Still required to complete streamside evaluation



Dam owner requirements

- 32 dams to monitor temperature
- Surrogate measure: no additional warming between dam inflow and outflow
- Characterize temperature dynamics
 - Comparisons of inflow and outflow temperatures
 - Stratification timing and extent
 - Water level fluctuations and outflow rates
- Reporting
 - Management Constraints
 - License obligations
 - Operational features
 - Annual Reports
 - Monitoring results
- Adaptive Management
- A TMDL implementation plan may be required



Submittal timelines

Requirement	Due date / timeframe
TMDL implementation plan (Appendix A)	Due 18 months after EQC adoption of Willamette Mainstem TMDL*
Streamside evaluation (Sec. 5.3.2)	Due 18 months after EQC adoption of Willamette Mainstem TMDL
Project plan and description of the assessment methodology to be used to complete a shade gap analysis (Sec. 5.3.4)	Due 18 months after EQC adoption of Willamette Mainstem TMDL
Streamside shade gap analysis (Sec. 5.3.4) and updated streamside evaluation or 120 ft. streamside buffer that establishes and protects overstory, wood vegetation (sec. 5.3.3)	Four years after implementation plan submission deadline
Reservoir operators named in Table 6 (Sec. 5.3.5)	Submit a Quality Assurance Project Plan for temperature monitoring for each reservoir 18 months after EQC adoption of Willamette Mainstem TMDL. Following the temperature assessment, the DMA will consult with DEQ on a timeframe for submitting a cumulative effects analysis, or TMDL implementation plan as needed.

*The Willamette Mainstem TMDL is a separate temperature TMDL to be developed and approved following the Willamette Subbasins TMDL.

Reporting Requirements

- OWRI reporting of BMPs
 - Upon completion, projects utilizing practices listed in OWEB's OWRI Online List of Treatments must be reported to the OWRI database
 - OWRI database is used to track implementation activities
 - Other acceptable databases will be identified when developing implementation plans
- Annual reporting
 - Tracking of management strategy implementation
 - Progress towards timelines and measurable milestones specified in the implementation plan
 - Evaluation of the effectiveness of the management strategies
- Year 5 reporting
 - Must summarize implementation and effectiveness over the preceding four years
 - Revised to reflect updated implementation timelines

Willamette Basin Temperature Monitoring Strategy

- DEQ, working with partners, will develop a water column sampling and analysis plan
 - Finalized after issuance of Willamette Mainstem Temp TMDL
 - Strategy will be revised as needed
 - USFS, BLM, ODA, and ODF will be required to conduct water quality monitoring
 - Jurisdiction over ~ 93% of streamside areas in the TMDL project area
 - QAPPS to be developed under monitoring strategy

Fiscal impact analysis

Oregon APA (ORS Chapter 183)

- Public notice must include a Statement of Fiscal Impact
- DEQ must solicit input from a rule advisory committee on:
 - Whether the rule has fiscal impact
 - The extent of that impact
 - Whether the rule will have a significant adverse impact on small businesses
- Racial equity statement ORS 183.335(2)(b)(F)
https://www.oregonlegislature.gov/bills_laws/ors/ors183.html
- Environmental justice consideration ORS 182.545
https://www.oregonlegislature.gov/bills_laws/ors/ors182.html
- Land use compatibility statement

Questions



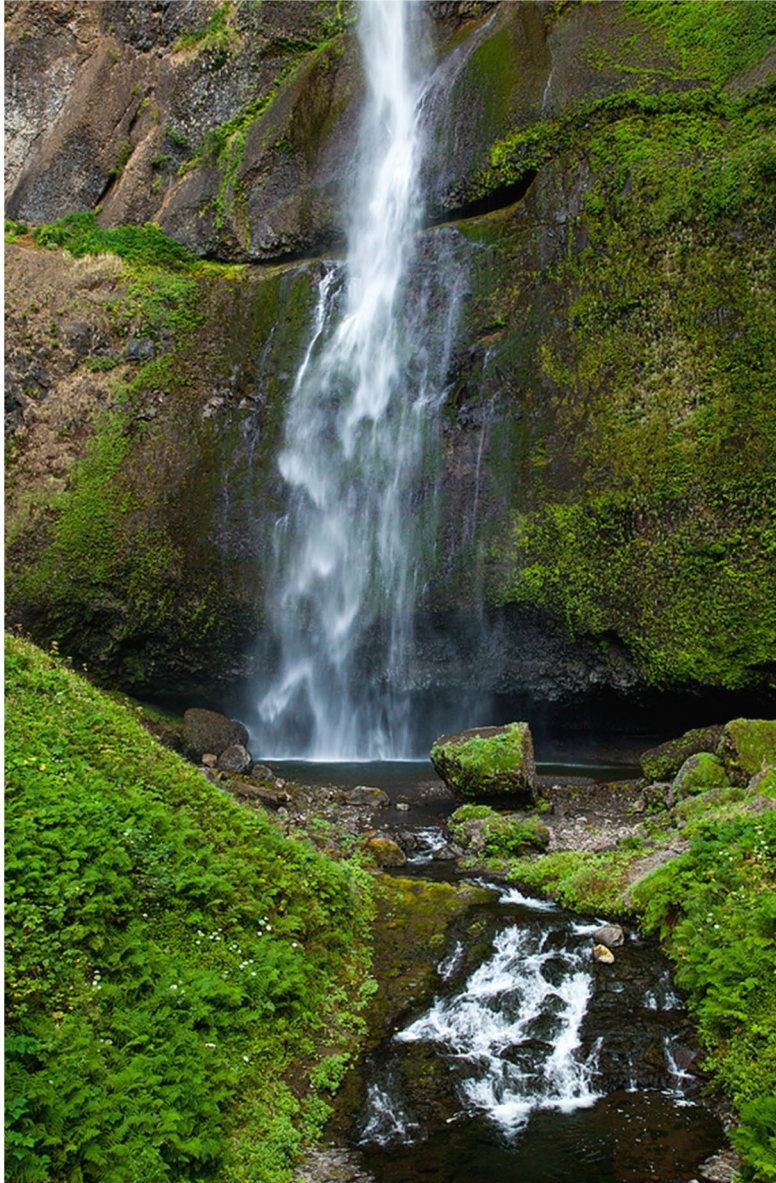
Public hearing for the Willamette Subbasins

To make a formal comment, please let us know by raising your virtual hand or adding your name and email to the chat.

When commenting provide your name, affiliation, and email address.

Web pages (links to rulemaking pages, Quality Assurance Project Plans, more)

- **Project page:** <https://www.oregon.gov/deq/wq/tmdls/Pages/tmdlRwillamette.aspx>
- **Rulemaking page:** <https://www.oregon.gov/deq/rulemaking/Pages/willamettetempTMDL.aspx>
- **Rulemaking email:** Willamette.TemperatureTMDL@DEQ.oregon.gov



Contacts and resources

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Web pages (links to rulemaking pages, Quality Assurance Project Plans, more)

Project page:

<https://www.oregon.gov/deq/wq/tmdls/Pages/tmdlRwillamette.aspx>

Rulemaking page:

<https://www.oregon.gov/deq/rulemaking/Pages/willamettetempTMDL.aspx>

Rulemaking email: Willamette.TemperatureTMDL@DEQ.oregon.gov

Title VI and alternative formats

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