Total Maximum Daily Loads: Temperature TMDL
Replacement Project: Lower Columbia-Sandy Subbasin

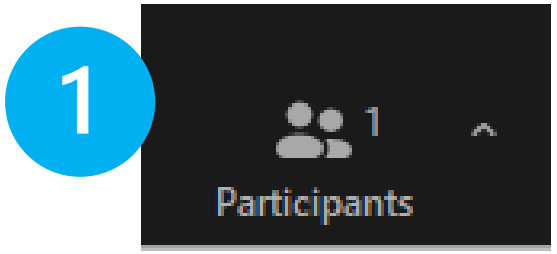
April 5, 2023, 10 a.m. PT

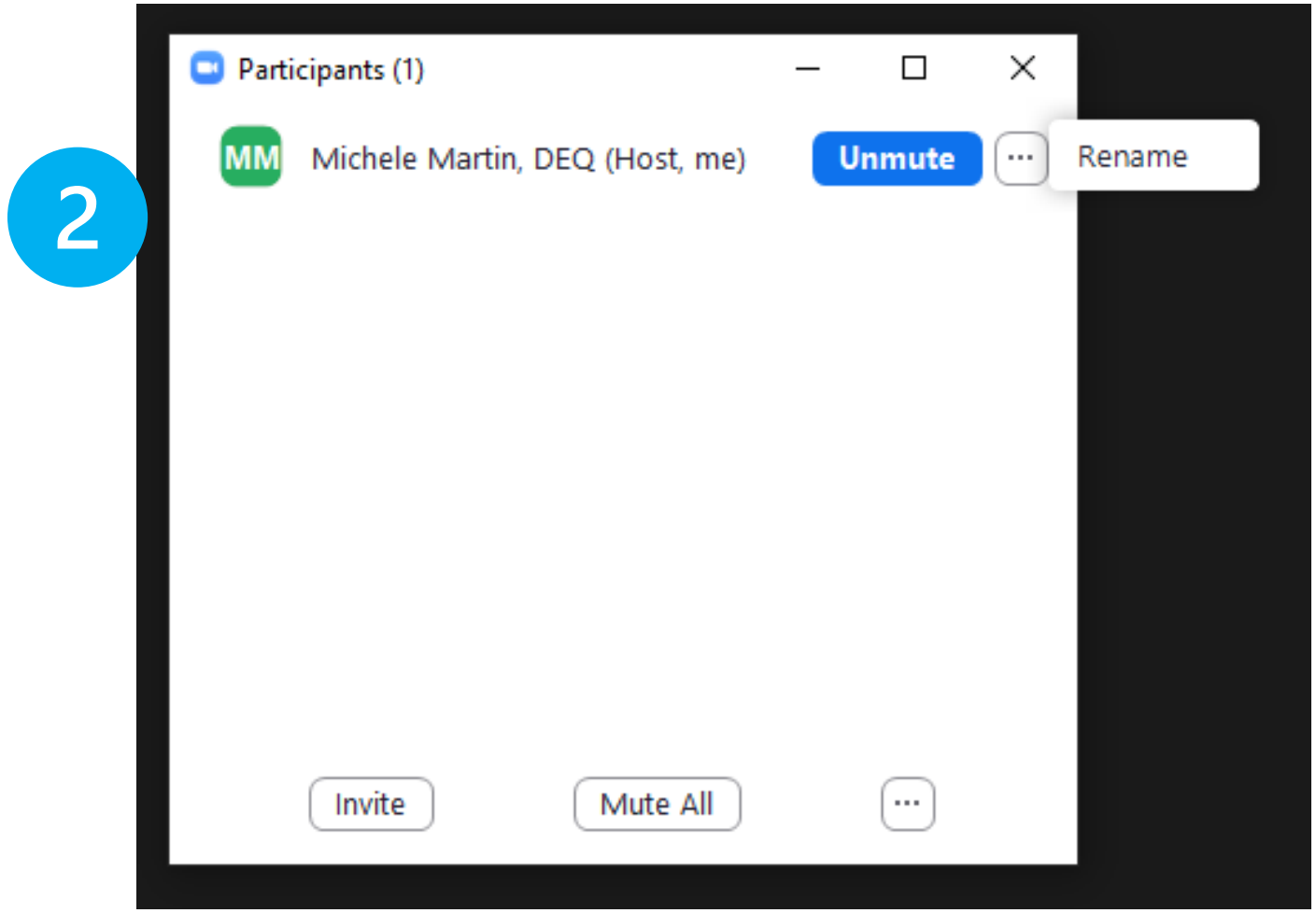
Rule Advisory Committee meeting #2

Agenda

Time	Topic
10 a.m.	Welcome, introductions, meeting agenda
10:10 a.m.	Draft Total Maximum Daily Load rule, changes from meeting #1
11 a.m.	Draft Water Quality Management Plan, changes from meeting #1
11:50 a.m.	Break (5 min.)
11:55 a.m.	Draft Fiscal and Economic Impact Statement
12:25 p.m.	Wrap up, next steps
12:30 p.m.	Adjourn meeting

Add “AC” to your name in Zoom to identify you as an advisory committee member, e.g., AC Michele Martin



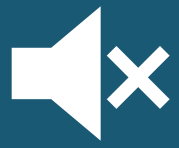


Zoom logistics and meeting ground rules

Raise hand to be recognized for questions or comments; please speak for yourself when recognized, let others speak without interruptions

Use chat to:

- Ask questions
- Provide informational resources
- Second ideas/issues



Mute when not speaking

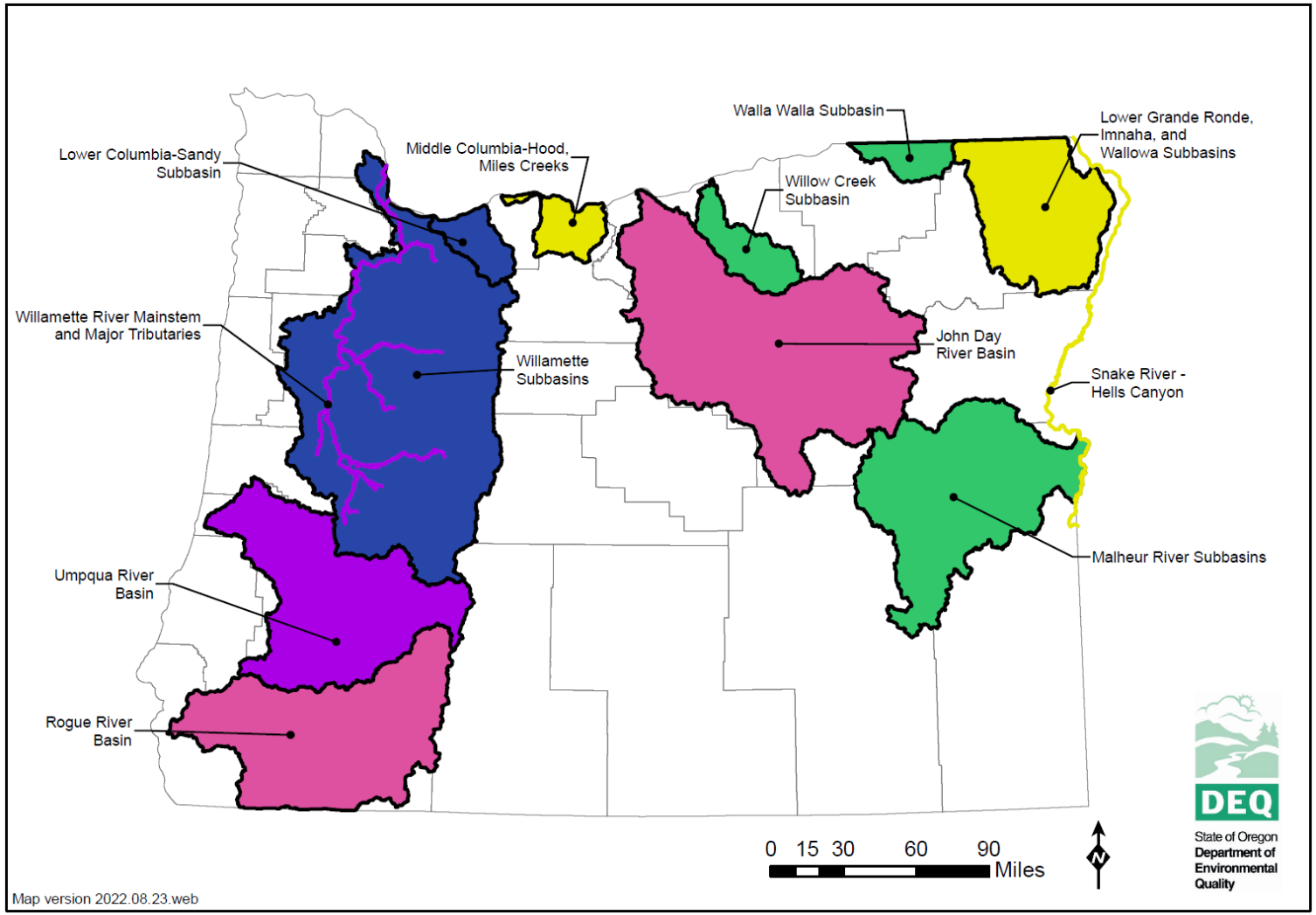
If using phone: press *9 to raise hand, *6 to mute/unmute

Rule advisory committee meeting materials

1. Agenda
2. **Rule** Draft Total Maximum Daily Loads for Lower Columbia-Sandy Subbasin, Temperature (clean copy and redline)
3. **Rule** Draft Water Quality Management Plan, Lower Columbia-Sandy Subbasin, Temperature (clean copy and redline)
4. Lower Columbia-Sandy Subbasin draft Fiscal and Economic Impact Statement, (clean copy and redline) draft
5. TMDL Technical Support Document draft

Meeting materials are online

Temperature TMDL Replacement project areas



[TMDL Replacement Project web page]

Key dates for **EPA approval or disapproval** of Temperature TMDLs

Jan. 15, 2024
- Willamette Subbasins*
- Lower Columbia-Sandy Subbasin

Feb. 28, 2025
- Willamette River Mainstem and Major Tributaries*
- Umpqua River Basin

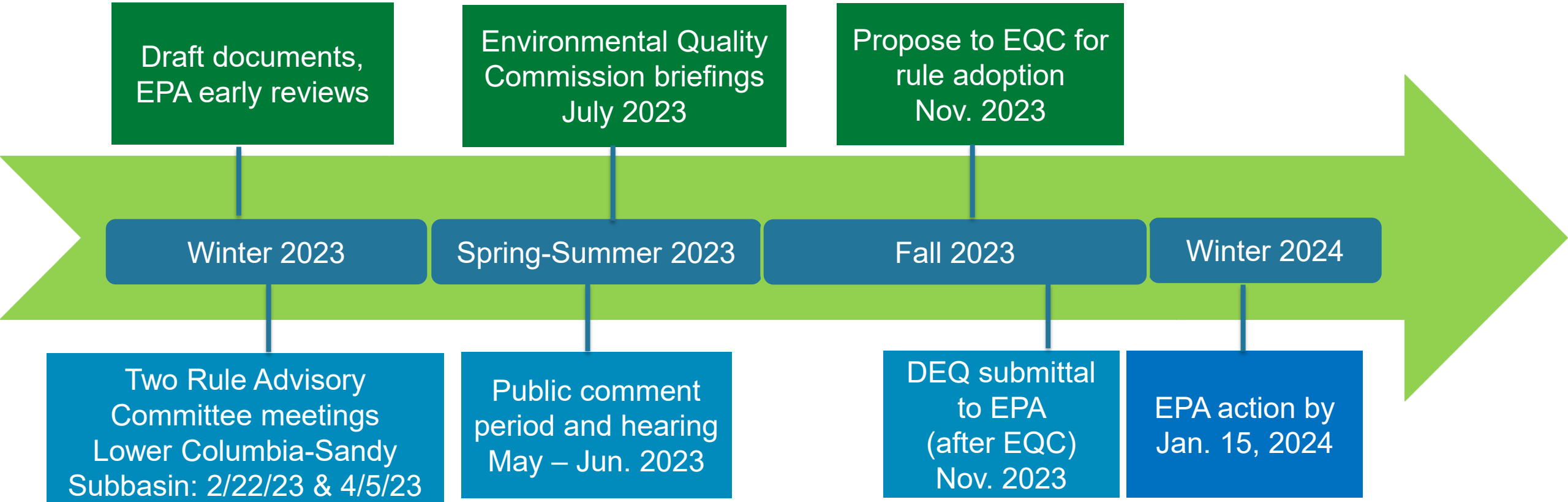
April 17, 2026
- Rogue River Basin
- John Day River Basin

June 4, 2027
- Snake River - Hell's Canyon
- Lower Grande Ronde, Imnaha, and Wallowa Subbasins
- Middle Columbia-Hood, Miles Creeks

May 29, 2028
- Walla Walla Subbasin
- Willow Creek Subbasin
- Malheur River Subbasins

*The Willamette temperature TMDL replacement will occur in two waves: Jan. 15, 2024, and Feb. 28, 2025

Lower Columbia-Sandy Subbasin
Temperature TMDL Replacement rulemaking milestones



TMDL Replacement Project web page

Abbreviations – partial list

BLM – Bureau of Land Management

DMA – Designated Management Agency

DOGAMI – Dept. of Geology and Mineral Industries

DSL – Dept. of State Lands

FIS – Fiscal Impact Statement

ODA – Oregon Dept. of Agriculture

ODF – Oregon Dept. of Forestry

ODFW – Oregon Dept. of Fish & Wildlife

OSMB – Oregon State Marine Board

OWEB – Oregon Watershed Enhancement Board

RAC 1 – rule advisory committee meeting 1

RAC 2 – rule advisory committee meeting 2

RP – Responsible Person

SWCD – Soil and water conservation district

TMDL – Total Maximum Daily Load(s)

USFS – U.S. Forest Service

WLA – waste load allocations

WQMP – Water Quality Management Plan

WWTP – waste water treatment plant

Total Maximum Daily Load: Lower Columbia-Sandy Subbasin

Sandy River – photo credit: Susan Barnes, ODFW

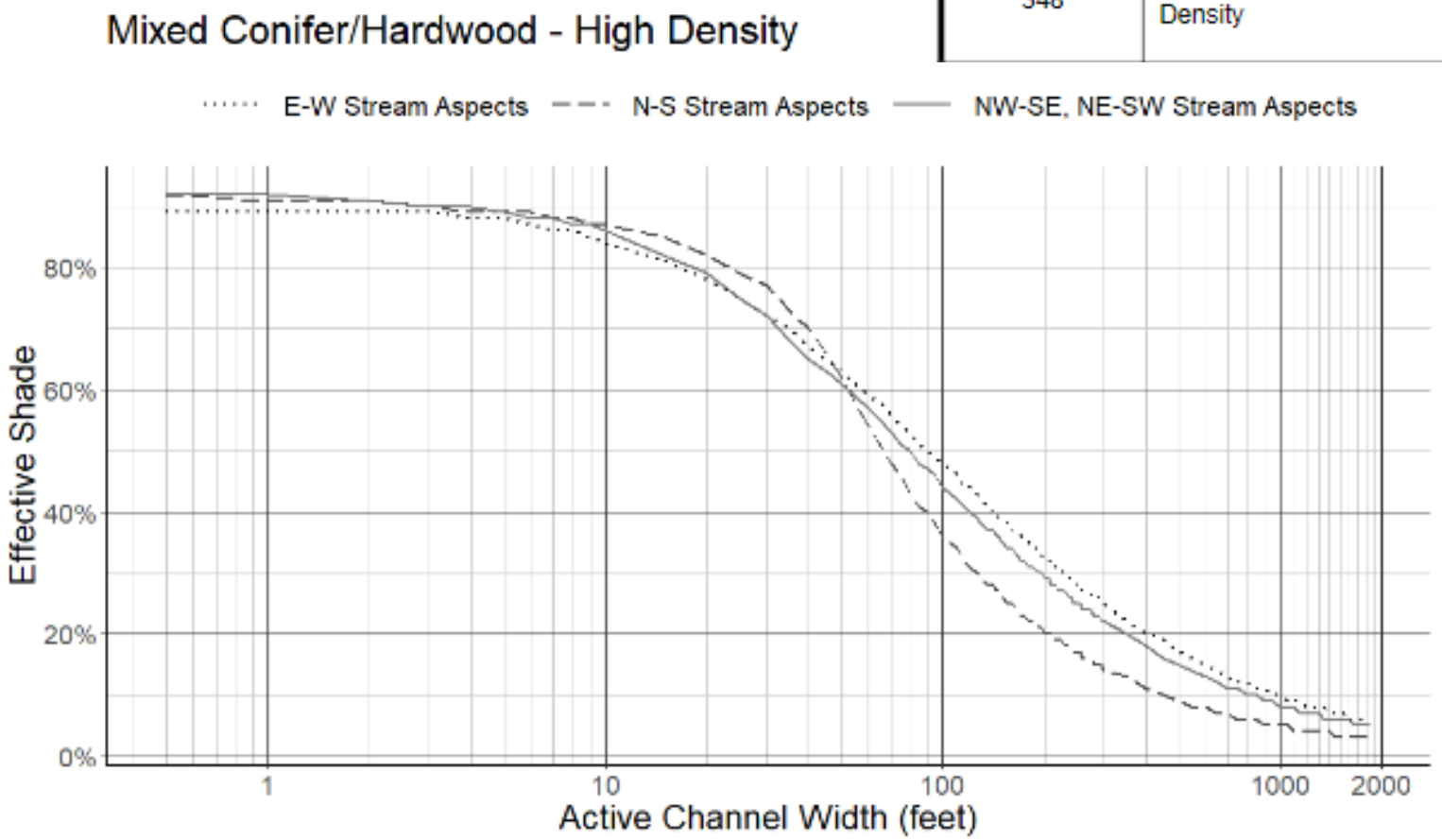
Total Maximum Daily Load – changes from RAC 1

1. Overview of temperature water quality data evaluation (Section 6)
2. Identification of rivers requiring background reductions (Section 7.3)
3. Clarification of allocation equation conversion factor when using flow rates
4. Clarification that human use allowance includes existing buildings and existing utility infrastructure
5. Correction of 7Q10 and WLA for City of Sandy WWTP (Section 9.1.1)
6. Correction to the date the TMDL allocation period starts from June 1 to May 1 (Section 9.1.1 and Section 9.1.2)
7. Addition of language in City Portland surrogate measure on designated use updates (Section 9.1.2.1.1)
8. Addition of equation to allow recalculation of site specific effective shade targets (Section 9.1.2.1.2)
9. Addition of site specific effective shade targets for Little Sandy River and Zigzag River (Table 9.11)
10. Margin of safety narrative (Section 9.2)
11. Addition of effective shade tables (Section 13)

Effective shade curve surrogate measure

Table 9.12. Vegetation height, density, overhang, and horizontal distance buffer widths used to derive generalized effective shade curve targets.

Landcover Code	Vegetation Type	Height (m)	Height (feet)	Density (%)	Overhang (m)	Buffer Width (m)
348	Mixed Conifer/Hardwood - High Density	26.7	87.6	60%	3.3	36.8



TMDL section 9.1.2.1.1

Effective shade curve surrogate measure table

Table 13.4. Effective shade targets for high density mixed conifer and hardwood dominated stream sites.

Active Channel Width (m)	Active Channel Width (feet)	Effective Shade Target for E-W Stream Aspects	Effective Shade Target for NW-SE, NE-SW Stream Aspects	Effective Shade Target for N-S Stream Aspects
0.2	0.5	89%	92%	92%
0.3	1	89%	92%	91%
0.6	2	89%	91%	91%
0.9	3	89%	90%	90%
1.2	4	88%	90%	89%
1.5	5	88%	89%	89%
1.8	6	87%	88%	89%
2.1	7	86%	88%	88%
2.4	8	86%	87%	88%
2.7	9	85%	87%	87%
3	10	84%	86%	87%
4.6	15	81%	82%	85%
6.1	20	78%	79%	82%
7.6	25	75%	75%	79%

TMDL section 13

Buffer width literature review

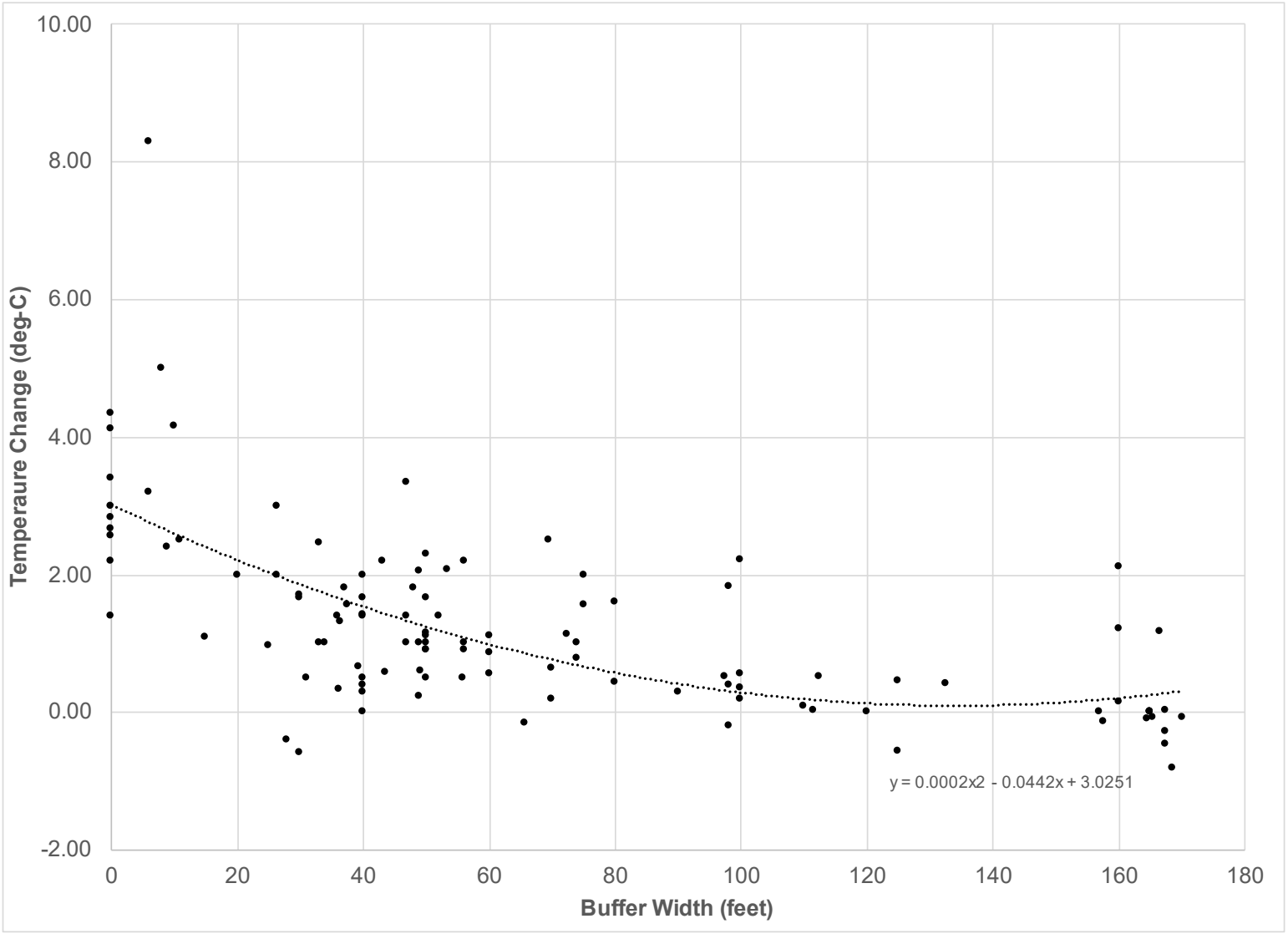
Question: What buffer width treatment minimizes stream temperature increases?

- Buffer treatment and temperature or shade response extracted from published articles or reports; or obtained directly from authors. See "**Temperature and Shade Values**" listed under technical support document
- Temperature response from buffer width treatments
- Shade response from buffer width treatments
- Temperature response from shade reduction

Buffer recommendation of 120 feet based upon no increase in temperature or reduction in shade

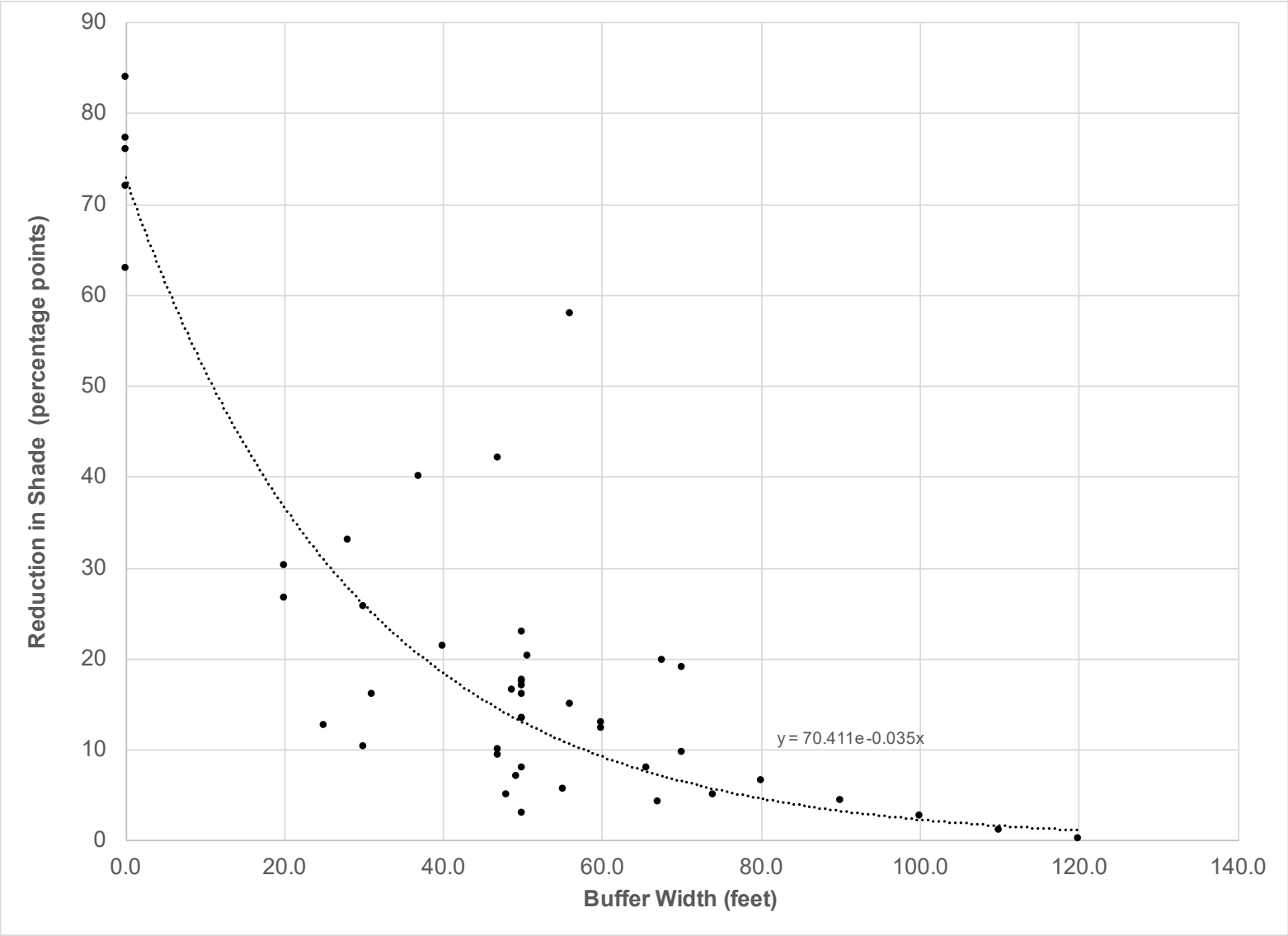
Acknowledgements: Cowan et al. 2019, Leinenback, 2013

Temperature response from buffer width treatments



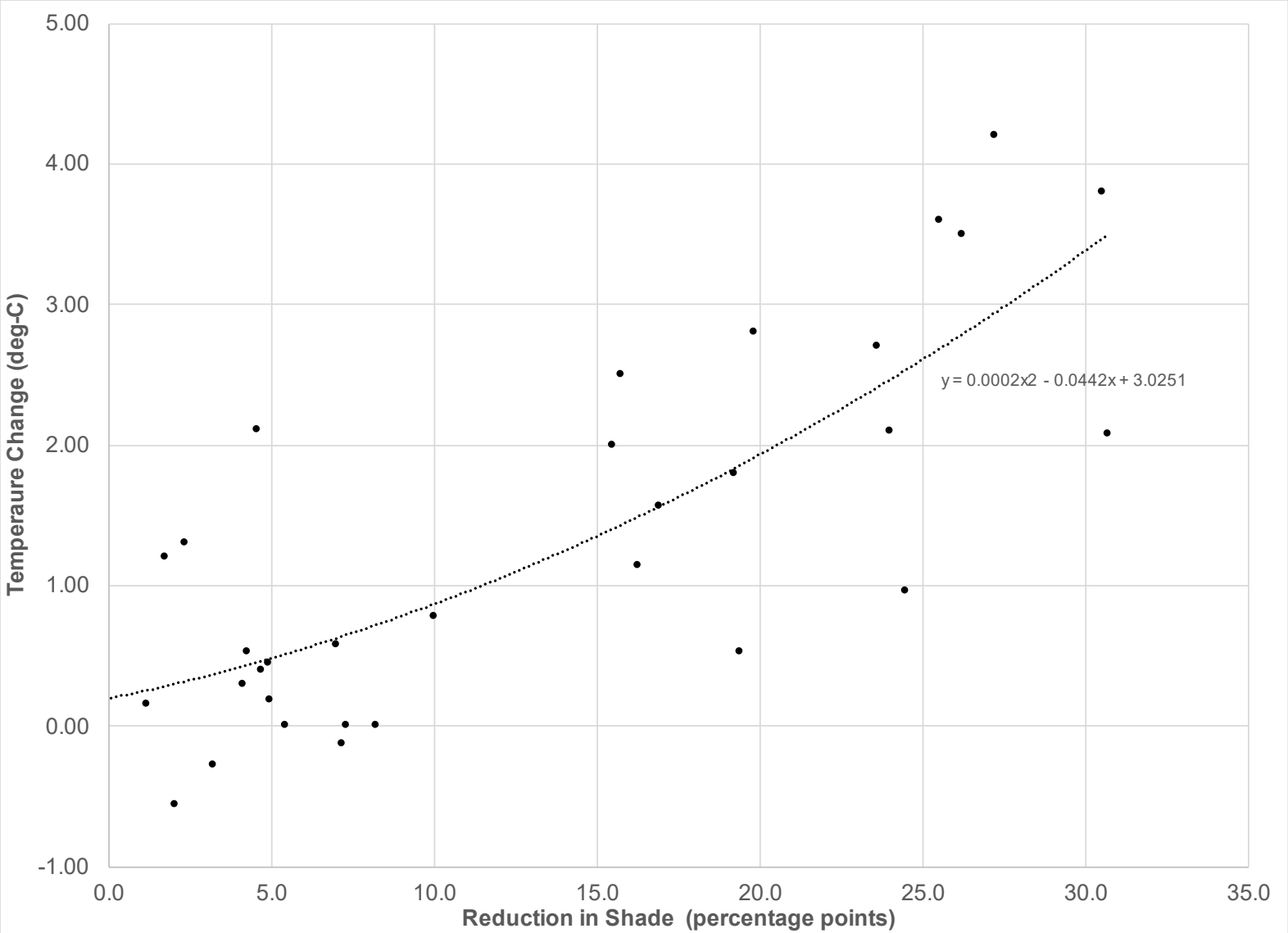
N = 112
studies = 12

Shade response from buffer width treatments



N = 80
studies = 7

Temperature response from shade reduction



N = 43
studies = 3

Water Quality Management Plan: Lower Columbia-Sandy Subbasin

Water Quality Management Plan components

WQMP Section 5.3 Implementation plan requirements, page 16

- Name Responsible Persons, including Designated Management Agencies
- 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

Reference: Oregon Administrative Rule 340-042-0040(4)(l)

Water Quality Management Plan – changes from RAC 1

1. Updates to entities responsible for developing implementation plans
2. Management Strategies
   - Minor updates to Section 2
   - Shade assessment and timeline
3. OWRI reporting
4. Requirement for certain DMAs to work with DEQ on a temperature monitoring strategy
5. Implementation plan timeline
6. WQMP now includes bacteria information from 2005 WQMP

Reference: Oregon Administrative Rule 340-042-0040(4)(l)

Proposed List of Responsible Persons and Designated Management Agencies

Entity	Jurisdiction	Approximate percentage of total subbasin area	Approximate percentage of acreage within 150' of streams
US Forest Service	USFS managed lands and roads	70.38%	70.11%
Oregon Department of Forestry	Non-federal forestlands: State and private forest operations, practices and activities (including roads)	12.88%	13.62%
US Bureau of Land Management	BLM managed lands and roads	4.16%	5.11%
Oregon Department of Agriculture	Agricultural lands and activities	3.81%	2.79%
Clackamas County #	County-owned lands, county roads and rural land use	2.93%	2.57%
Multnomah County #	County-owned lands, county roads and rural land use	1.11%	0.88%
City of Portland	City-owned lands, parks, facilities and roads	0.82%	1.04%
Oregon Parks and Recreation Department	State park lands and facilities	0.77%	0.65%
Oregon Department of Transportation	Highways, rights-of-way and facilities	0.74%	0.40%
City of Gresham #	City-owned lands, parks, facilities and roads	0.78%	0.54%
City of Troutdale #	City-owned lands, parks, facilities and roads	0.50%	0.33%
City of Sandy #	City-owned lands, parks, facilities and roads	0.17%	0.18%
Union Pacific Railroad *	Rail lines and rights-of-way	0.12%	0.07%
Oregon Department of Fish and Wildlife *	State-owned/operated refuges	0.06%	0.11%
Port of Portland *	Port-owned/operated facilities and roads	0.04%	0.03%
Notes: * Indicates entity is not required to develop a TMDL implementation plan # Indicates entity was previously identified as a DMA for bacteria in the 2005 Sandy WQMP			

WQMP section 5.1 Identification of implementation responsibilities, page 9

Responsible persons and Designated Management Agencies not required to submit an implementation plan

- Limited acres of jurisdiction
- Unclear what measures they need to and can implement to address the TMDL shade measures
- Entities could be required to develop an implementation plan in the future

Management strategies, updates from RAC 1 input

- Overall temperature management strategies were unchanged
  - Vegetation management
  - Water withdrawals
  - Channel morphology/hydromodification

- Added identification and protection of cold water refuges to Table 2

- Added bacteria management strategies to Table 2

- Noted permits are often needed for stream restoration work and that DMAs need to conduct site-specific evaluations of streams (rather than DEQ guidance in WQMP)

Prioritizing areas for restoration and protection

WQMP section 5.3.2, page 16

No changes – use either:

- Shade gap - percent difference between current effective shade and site potential effective shade (restored condition)
- Compare current riparian vegetation characteristics to a restored riparian condition

Shade assessment

WQMP section 5.3.2, page 17

- Measure effective shade at the stream surface using standard stream monitoring equipment, such as the Solar Pathfinder™, or advanced methods using hemispherical imagery. Determine vegetation type, canopy density, stream width and stream orientation.
- Confirm and protect or establish overstory, woody vegetation in a 120-foot width buffer zone from the stream bank.
- Conduct modeling using the Heat Source model (as used in this TMDL) or another method approved by DEQ through the implementation plan approval process.
- Shade assessment timeline
  - By end of Year 3 of implementation for Federal and State agencies
  - By end of Year 5 of implementation for all other DMAs

Oregon Watershed Restoration Inventory

Section 5.3.3.1, Page 17

- WQMP proposes to require DMAs to enter temperature related restoration activities into OWRI, or other DEQ approved publicly accessible databases

- DEQ expects DMAs will enter project information that are implemented through partnerships

- Privacy concerns: DMA/OWEB can attribute a project to a public entity, such as a SWCD, rather than a specific landowner if needed
  - Specific project information increases DEQ's ability to report on restoration and implementation actions

Timeline for attaining water quality standards

- OAR 340-042-0040(I)(F) requires an estimated timeline for attaining water quality standards
- Relationships between management strategies and pollutant load reductions cannot always be precisely quantified
- Water quality monitoring required to determine progress toward meeting water quality standards
- Adaptive management will be used to develop effective implementation plans and achieve water quality standards

Designated Management Agency required monitoring

WQMP section 5.3.3.1, page 17; section 6.1, page 22

- All Responsible Persons and DMAs are required to track and monitor implementation
- DEQ monitors and assesses stream temperatures over time to determine water quality status
- DEQ anticipates developing a temperature monitoring plan to assess progress attaining temperature standards over time
  - Monitoring plan will require specific DMAs to work with DEQ in developing and implementing the plan
  - USFS, BLM, ODF, ODA, City of Portland

Schedule for implementation plan submittal

WQMP section 5.4, page 21

Plans proposed to be due 18 months after EQC adoption of the Willamette Mainstem Temperature TMDL and must include:

- 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; annual and Year Five reporting
- Shade Assessment and timeframe to complete

WQMP - Bacteria

- WQMP now includes bacteria specific information from the existing 2005 WQMP
- No new assignment of Designated Management Agencies
- Carries forward management strategies included in the existing WQMP

Water Quality Management Plan: Lower Columbia-Sandy Subbasin

Questions?

Break – back at 11:50

Draft fiscal impact statement: Lower Columbia-Sandy Subbasin

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)
- Environmental justice consideration ORS 182.545
- Land use compatibility statement

Fiscal impact analysis – updates from RAC 1

1. Added acknowledgement of potential monitoring costs for the USFS, BLM, ODA, ODF, and the City of Portland
2. Updated the percent of land managed by entities
3. "May" to "will" require TMDL implementation plans for ODA and ODF
4. Added comment from a RAC member that acknowledges financial incentive programs can be challenging for individual landowners or operators to navigate
5. Removed ODFW since DEQ proposes ODFW will not need to develop a TMDL implementation plan
6. Added a comment from RAC member about significant adverse impact on small businesses
7. Environmental Justice considerations: recommend bilingual and physical educational materials be provided to the public

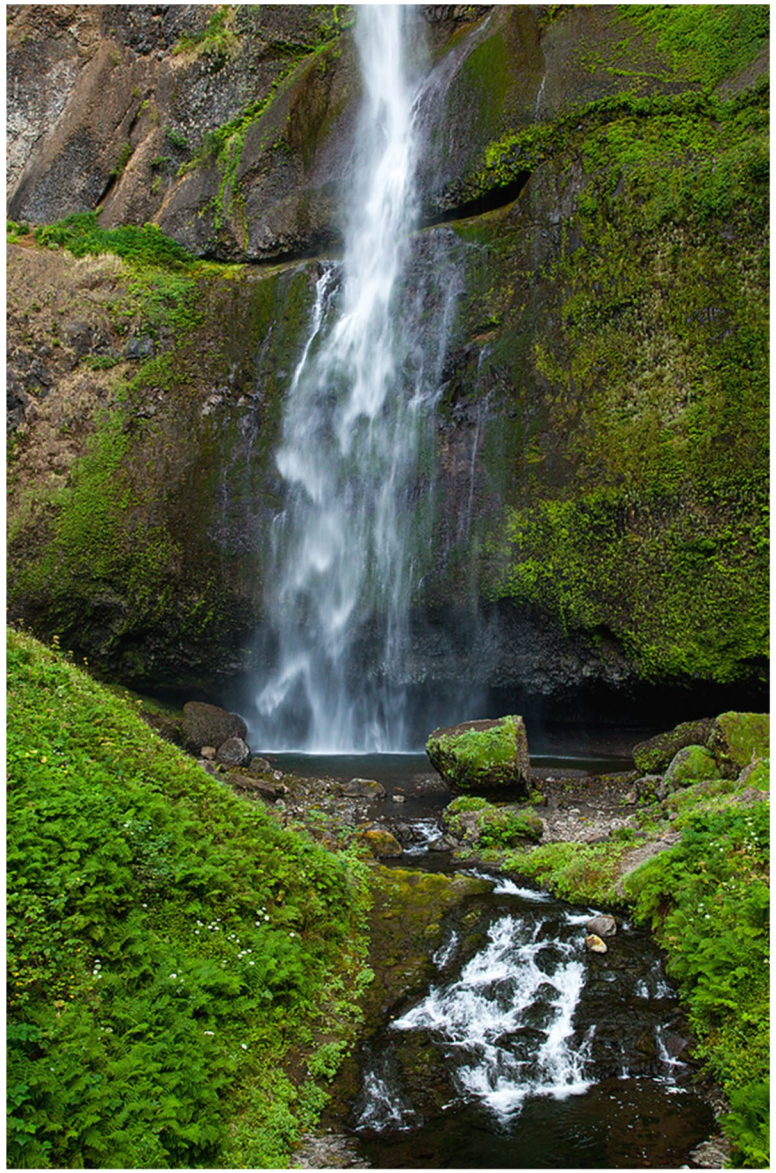
Fiscal impact analysis – questions for feedback

1. Will the draft rule have a significant adverse impact on small businesses?
2. If a significant impact is identified, how could DEQ reduce the fiscal impact on small business (ORS 183.333 and 183.450)
3. Will the proposed rule impact racial equity?
4. What are additional considerations for environmental justice for this draft rule?
5. What types of entities will be impacted by the proposed rule?
6. How and to what extent will the proposed rule have a positive, negative, or no impact on these entities?

Comments, discussion

Next steps

Rule advisory committee input after meeting #2 email Sandy.SubbasinTMDL@DEQ.oregon.gov	**Due April 14, 2023**
Public notice (45 days)	May 2023 – June 2023
Environmental Quality Commission meeting	Nov. 2023
EPA approval / disapproval due date	Jan. 15, 2024



Contacts and resources

Gene Foster, Water Quality Manager eugene.p.foster@deq.oregon.gov
Ryan Michie, Water Quality Analyst lead ryan.michie@deq.oregon.gov
Evan Haas, Basin Coordinator Evan.haas@deq.oregon.gov
Michele Martin, Project Manager Michele.martin@deq.oregon.gov

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

Project page: https://www.oregon.gov/deq/wq/tmdls/Pages/tmdlRlc-sandy.aspx

Rulemaking webpage:
https://www.oregon.gov/deq/rulemaking/Pages/sandytempTMDL.aspx

Committee input and rulemaking email:
Sandy.SubbasinTMDL@DEQ.oregon.gov

Title VI and alternative formats

DEQ does not discriminate on the basis of race, color, national origin, disability, age or sex in administration of its programs or activities.

Visit DEQ's Civil Rights and Environmental Justice page.

Español | 한국어 | 繁體中文 | Русский | Tiếng Việt | العربية
Contact: 800-452-4011 | TTY: 711 | deqinfo@deq.state.or.us