

Umpqua River Basin

Temperature TMDL Replacement informational webinar

July 23, 2024, 1:30 p.m.

Presented by EPA Region 10 and Oregon DEQ

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



Agenda

Time	Topic
1:30 p.m.	Welcome, introductions, meeting agenda (Oregon DEQ)
1:40 p.m.	Review of TMDL and development steps
1:50 p.m.	TMDL status update – draft source, loading capacity, and wasteload allocations
2:20 p.m.	Permits and wasteload implementation
2:30 p.m.	Questions, comments
3:25 p.m.	Wrap up, next steps
3:30 p.m.	Adjourn

Meeting logistics and ground rules



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

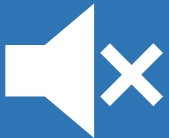


Use chat to:

Ask questions

Provide informational resources

Second ideas/issues



Mute when not speaking



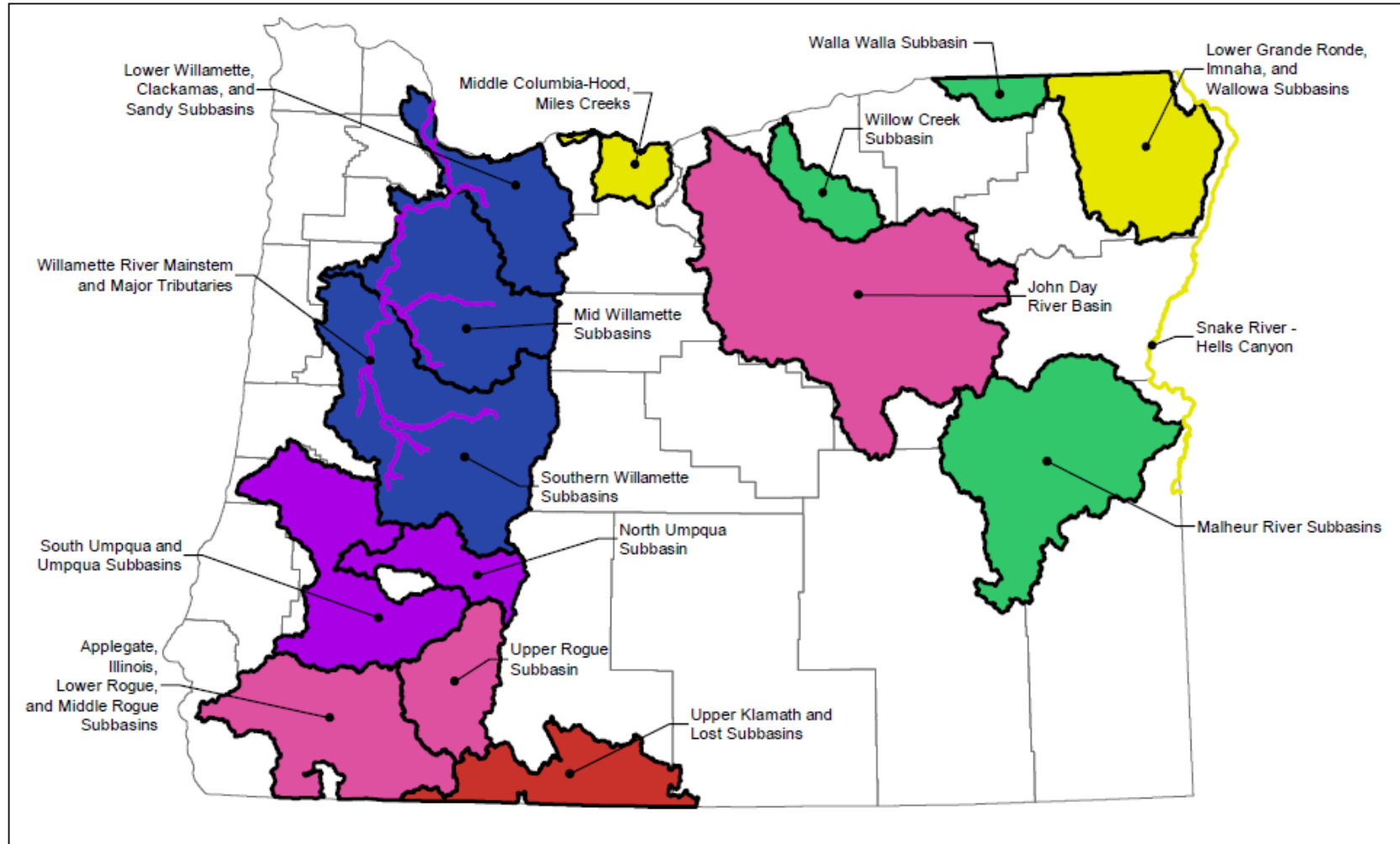
If using phone: press *9 to raise hand, *6 to mute/unmute

Review of TMDLs and the development process

- Why is EPA establishing the TMDL?
- What is the TMDL development process?
- Where are we in the process?



Temperature TMDL Replacement project areas



Key dates for EPA action of temperature TMDLs

September 15, 2024

- Willamette Subbasins*
- Lower Columbia-Sandy Subbasin

February 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

Umpqua TMDL public participation and timeline

April 23, 2024

Kick-off Webinar

July 23, 2024

Technical TMDL development

Oct.1 – Nov. 15, 2024

45-day Public Comment

Mid-late Oct 2024

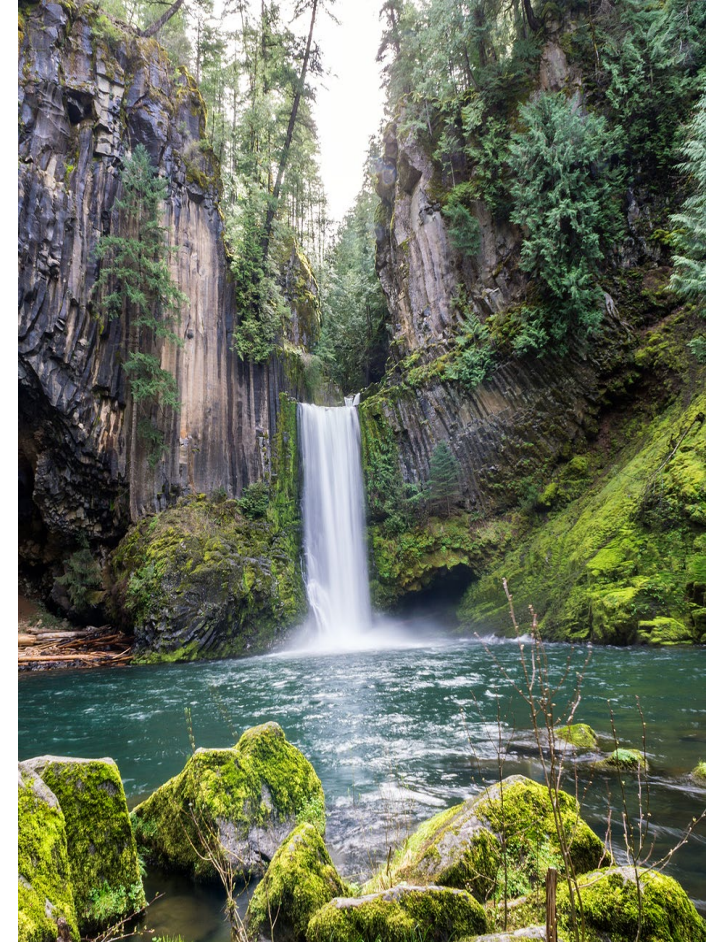
Webinar 3

Feb. 28, 2025

Issue Final TMDL

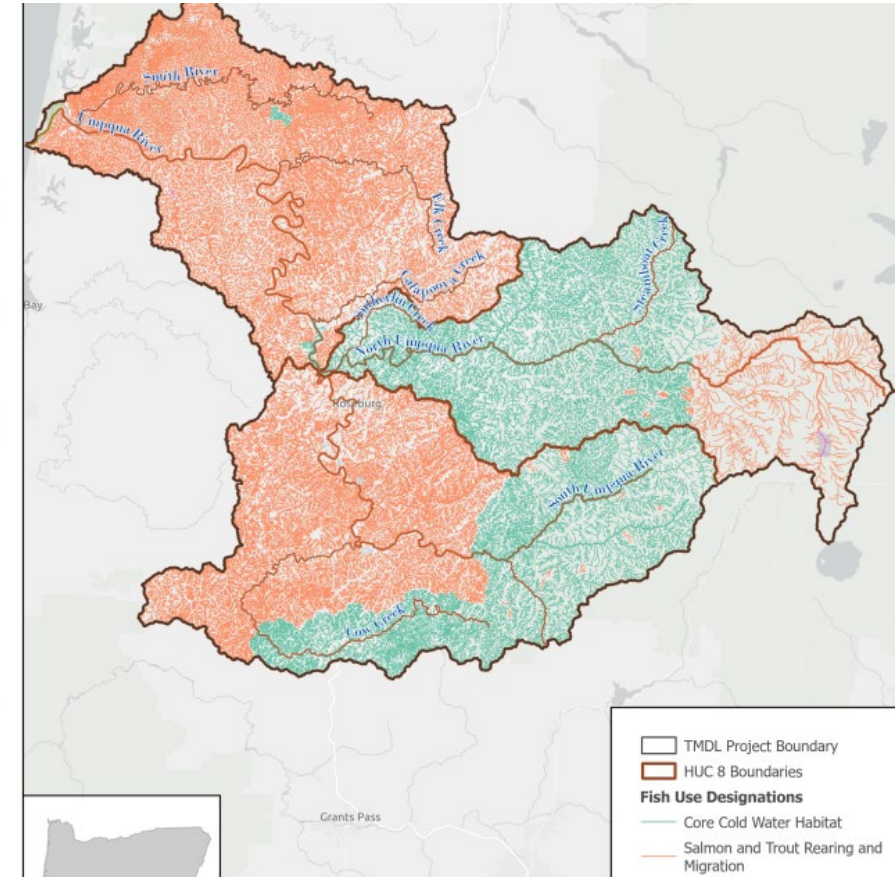
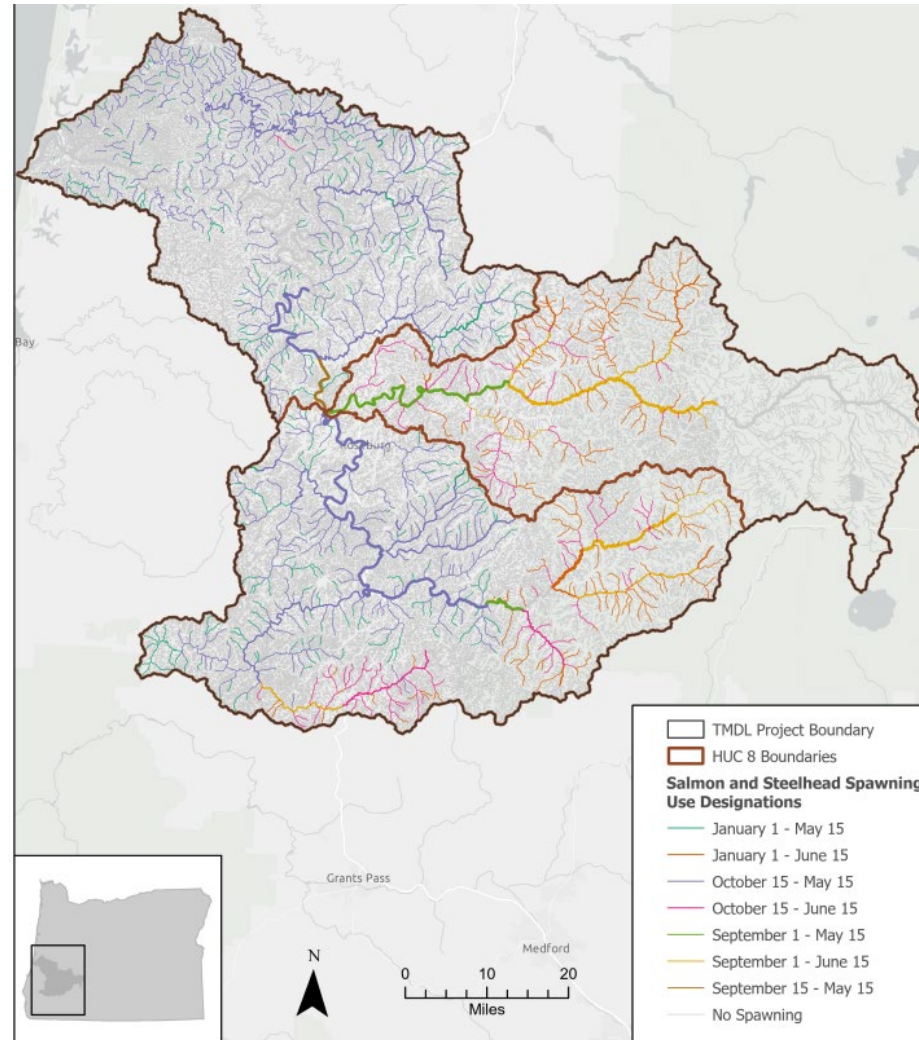
Umpqua River Basin TMDL development process

- Working in partnership with DEQ
- Rely on data and information shared from DEQ
- **Conduct Heat Source water quality model**
 - **Summer season and spawning season**
- **Determine loading capacity and loads from sources**
- **Determine load reduction need and assign allocations**
 - **Wasteload allocations for point sources**
 - **Load allocations for nonpoint sources**
- **Public participation**
- Draft TMDL
- Final TMDL



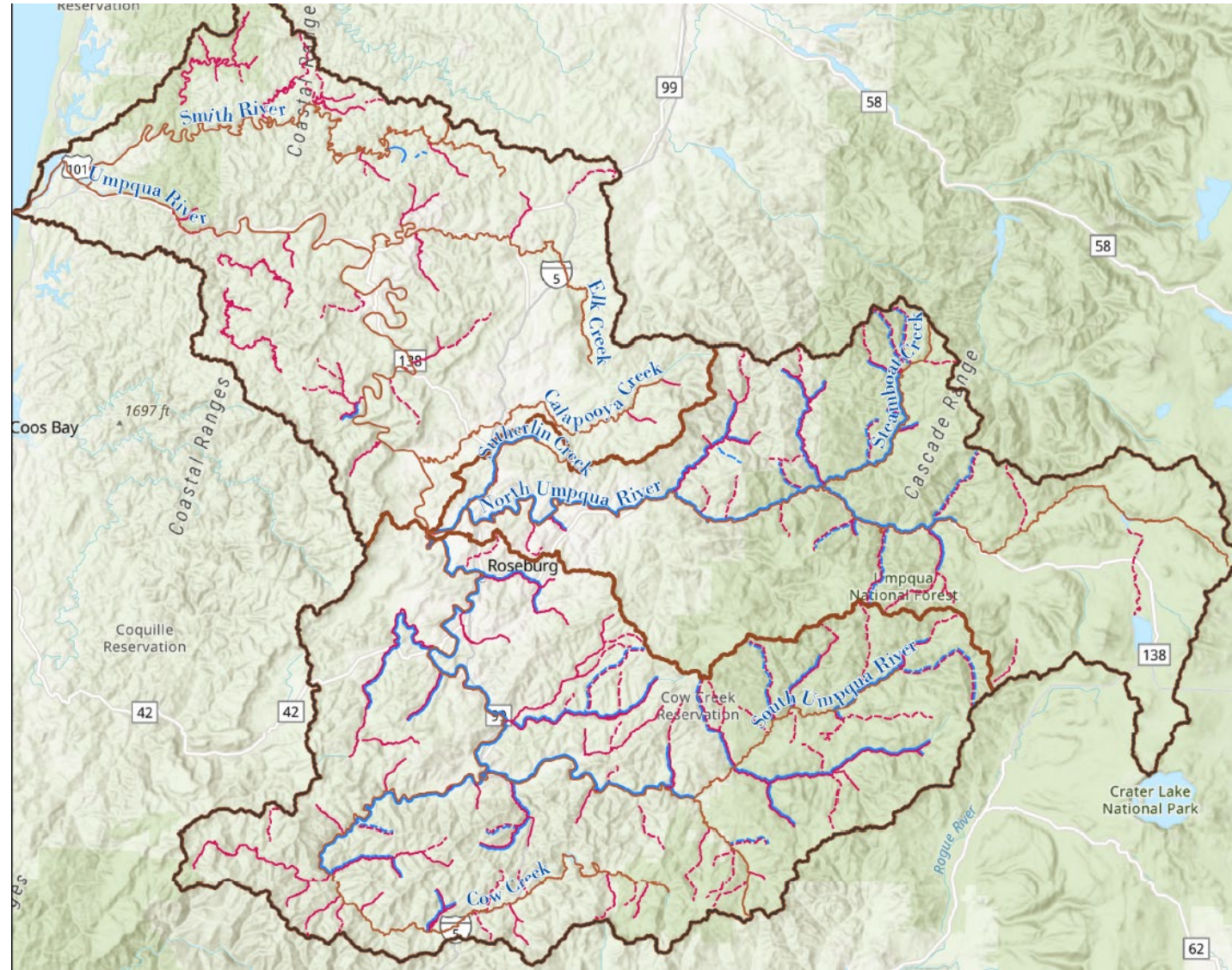
Umpqua water quality standards

- Salmon and steelhead spawning: 13.0°C
- Core cold water habitat: 16.0°C
- Salmon and trout rearing and migration: 18.0°C

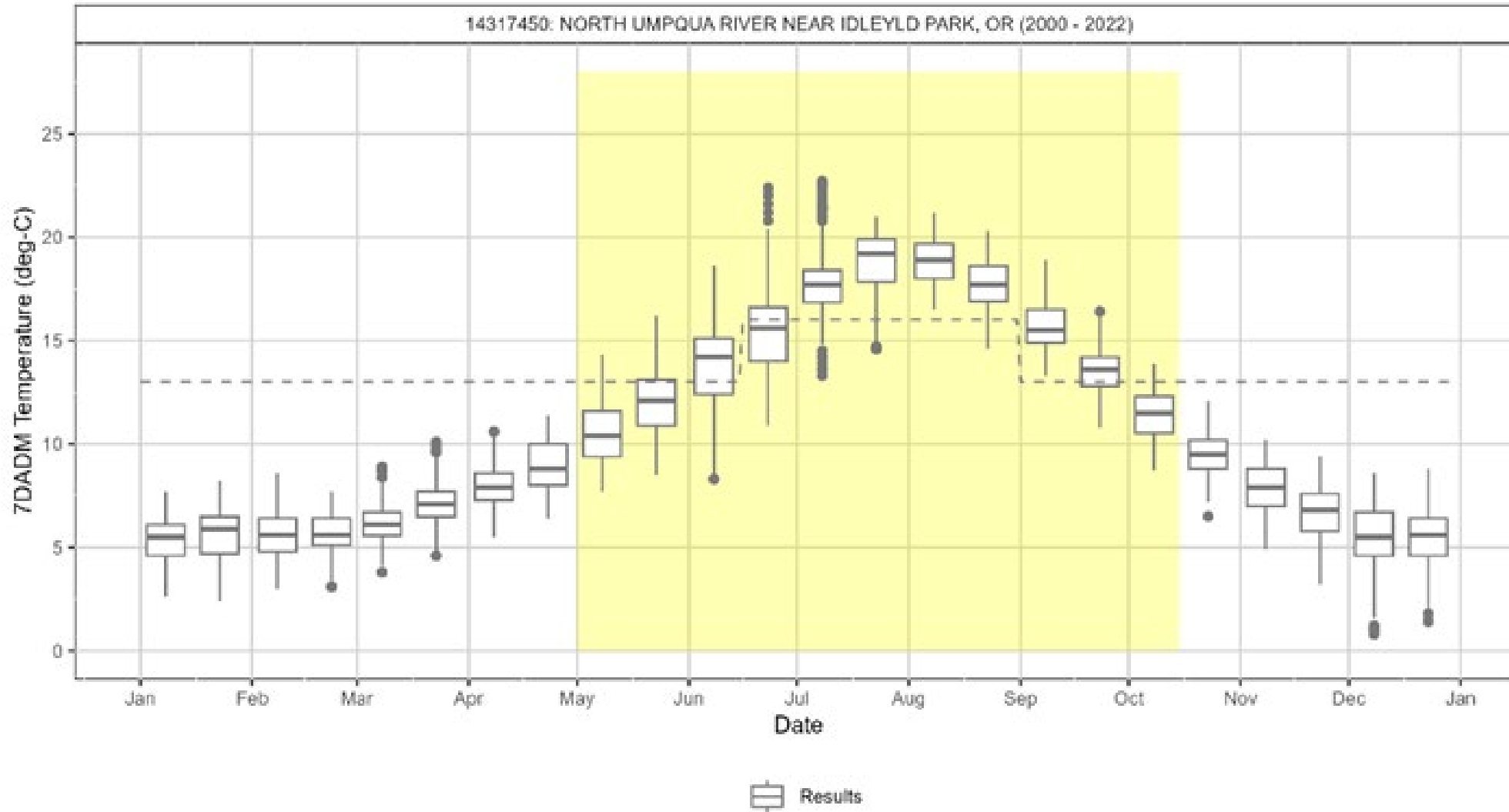


Umpqua River Basin impaired waters

Based on the 2022 Integrated Report



Critical Condition



Source Assessment

Identify sources of heat to rivers in the Umpqua Basin

Point Sources

- 19 Individual permittees
- General permittees
 - 9 Cooling water, 100-J
 - 15 Filter backwash, 200-J
 - 1 Fish hatchery, 300-J

Nonpoint Sources

- Solar radiation due to lack of near stream vegetation
- Dam & reservoir operation
- Channel modifications/widening
- Flow modifications

Loading Capacity

DRAFT

The greatest amount of pollutant loading the waterbody can receive without violating water quality standards

$$LC = (T_C + HUA) \cdot Q_R \cdot C_F$$

T_C = temperature criteria

HUA = human use allowance

Q_R = daily mean river flow

C_F = conversion factor

- Calculated under low flow (7Q10) to ensure beneficial uses are protected
- Calculated at spatially representative sites

AU Name	AU ID	Annual 7Q10 (cfs)	Criteria		7Q10 LC Year Round (kcal/day)	7Q10 LC Spawn (kcal/day)
			Year Round + HUA	Spawn + HUA		
Calapooya Creek	OR_SR_1710030301_02_105442	2.0	18.3	13.3	9.13E+07	6.64E+07
Calapooya Creek	OR_SR_1710030301_02_105443	1.6	18.3	13.3	7.12E+07	5.17E+07
Canton Creek	OR_SR_1710030106_02_105331	1.5	16.3	13.3	5.90E+07	4.82E+07
Canton Creek	OR_SR_1710030106_02_105332	7.0	16.3	13.3	2.81E+08	2.29E+08
Cavitt Creek	OR_SR_1710030110_02_105363	4.2	16.3	13.3	1.68E+08	1.37E+08
Cavitt Creek	OR_SR_1710030110_02_105364	1.3	16.3	13.3	5.06E+07	4.13E+07
Cow Creek	OR_SR_1710030206_02_105417	4.8	18.3	13.3	2.17E+08	1.58E+08
Cow Creek	OR_SR_1710030209_02_106367	30.2	18.3	13.3	1.35E+09	9.81E+08

Human Use Allowance

DRAFT

- State provision that allows small addition of heat above the criteria
- Point sources and nonpoint sources cumulative increase of 0.3°C
- Point source assignment same as 2006 TMDL

Source or Source Category	Portion of the HUA (°C)
NPDES point sources	0.1
Water management and water withdrawals	0.05
Solar loading from existing infrastructure (e.g., transportation, buildings, utility easements)	0.05
Solar loading from other NPS source categories	0.0
Dam and reservoir operations	0.0
Reserve capacity	0.1
Total	0.3

Reserve Capacity

DRAFT

- Explicit RC allocations set aside for allocation to increased or new thermal loads or previously unidentified sources requiring an HUA
- RC assignment same as the 2006 TMDL

Source or Source Category	Portion of the HUA (°C)
NPDES point sources	0.1
Water management and water withdrawals	0.05
Solar loading from existing infrastructure (e.g., transportation, buildings, utility easements)	0.05
Solar loading from other NPS source categories	0.0
Dam and reservoir operations	0.0
Reserve capacity	0.1
Total	0.3

Wasteload Allocations

DRAFT

- Can be incorporated into permit as static number or dynamic flow-based limit
- Permit writers authorized to update 7Q10 or maximum effluent discharge information

$$WLA = (\Delta T) \cdot (Q_E + Q_R) \cdot C_F$$

WLA = wasteload allocation (kcal/day), 7-day rolling average

ΔT = allocated portion of the HUA

Q_E = daily mean effluent flow

Q_R = mean daily river flow

C_F = conversion factor

Wasteload Allocations

DRAFT

- Individual WLAs based on
- maximum effluent flow
 - 7Q10

Subbasin	Facility	Allocated HUA	WLA (kcal/day) at 7Q10	WLA Effluent Temp (°C)	Month max WLA occurred
Umpqua	Brandy Bar Landing, Inc.	0.1	24,442,365	32.0	June
Umpqua	Drain STP	0.1	630,199	13.2	November
Umpqua	Oakland STP	0.1	475,217	13.2	April
Umpqua	Reedsport STP*	0.1	248,692,913	32.0	April
Umpqua	Rice Hill East Lagoon	0.1	37,477	18.1	June
Umpqua	Rice Hill West Lagoon	0.1	25,477	18.1	November
Umpqua	Sutherlin STP	0.1	2,138,588	13.1	April
Umpqua	Winchester Bay STP*	0.1	247,194,933	32.0	April
Umpqua	Yoncalla STP	0.1	3,536,368	14.0	November
South Umpqua	Canyonville STP	0.1	13,958,263	17.4	October
South Umpqua	Glendale STP	0.1	6,144,770	14.8	May
South Umpqua	Green Diamond Performance Materials, Inc. (no discharge)	0.1	0	0	NA
South Umpqua	Hoover Treated Wood Products (no discharge)	0.1	0	0	NA
South Umpqua	Myrtle Creek STP	0.1	30,353,447	15.0	April
South Umpqua	R.U.S.A. Roseburg STP	0.1	44,295,580	13.5	April
South Umpqua	Riddle STP	0.1	7,746,405	15.1	April
South Umpqua	USFS Tiller Ranger Station STP	0.1	7,613,519	32.0	September
South Umpqua	Winston-Green WWTF	0.1	15,598,941	13.9	April
North Umpqua	Glide-Idleld Sanitary District	0.1	164,997,468	32.0	August

*ocean & bays criterion allowable 0.1 °C increase



Next steps, TMDL development

- Load Allocations
 - Anthropogenic nonpoint sources
- Surrogate measures
 - Shade targets
 - same as 2006 TMDL
 - Temperature monitoring for dams and reservoir



DEQ maintains responsibility for TMDL implementation

- Regulating point sources through the NPDES permit program.
- Assisting permit holders to meet waste load allocations through permit revisions.
- Collaborating with Designated Management Agencies to plan and implement management strategies



Implementing Temperature TMDL wasteload allocations in NPDES permits

- DEQ is required under federal rule to address revised waste load allocations during the permit renewal process.
- DEQ will do this during each permit renewal once the TMDL has been finalized.
- Permit Issuance Plans are online:
<https://www.oregon.gov/deq/wq/wqpermits/Pages/default.aspx>

SCHEDULE A: WASTE DISCHARGE LIMITS

Example of Incorporating Temperature wasteload allocations into NPDES permits

Example of permit limit

- Example wasteload allocation given to a facility: excess thermal load of 210 million kilocalories per day, or a corresponding flow-based load limit

1. Outfall 001 – Permit Limits

During the term of this permit, the permittee must comply with the limits in the following table:

Table A1: Permit Limits

Parameter	Units	Average Monthly	Average Weekly	Daily Maximum
BOD ₅ (May 1 – October 31)	mg/L	10	15	N/A
	lb/day	1.9	2.9	3.8
	% removal	85	N/A	N/A
Chlorine, Total Residual	mg/L	0.15	N/A	0.40
pH	SU	Instantaneous limit between a daily minimum of 6.0 and a daily maximum of 9.0		
<i>E. coli</i> (See note a)	#/100 mL	Must not exceed a monthly geometric mean of 126, no single sample may exceed 406		
Excess Thermal Load Limit (ETLL) (See note b) (June 1 – Sept. 30)	Million kcal/day (Mkcal/day)	Option A: ETLL = 210 as a 7-day rolling average		
		Option B: $ETLL = 0.1 \cdot (Q_e + Q_r \cdot 0.646) \cdot 3.785$ as a 7-day rolling average		
Notes:				
a. The permittee may take at least 5 consecutive re-samples at 4 hour intervals beginning within 28 hours after the original sample was taken. The geometric mean of the 5 re-samples must be less than or equal to 126 <i>E. coli</i> organisms/100 mL to demonstrate compliance with the limit.				
b. The permittee must select either Option A or Option B as the applicable 7-day rolling average Excess Thermal Load Limit (ETLL). If the permittee selects Option B, the permittee must calculate the daily ETLL using the above equation. The permittee must then calculate the 7-day rolling average ETLL from the daily ETLLs each day the Option B limit is selected. Q_e = Daily Average Effluent Flow (MGD) and Q_r = Daily Average River Flow (cfs). The minimum river flow value to be used is 842 cfs, the 7Q10 low flow. The permittee must use river flow data from the USGS stream flow gage number 14321000 (Umpqua River at Elkton, river mile 56.9) or another DEQ-approved data source for the river flow.				



Example of Permit Monitoring/Reporting Requirements

- The measured daily average flow and daily maximum temperature is used to calculate the "excess thermal load" discharged by the facility using provided equation.
- If the permittee elects to use the "option B" flow-based limit, then that limit needs to be calculated for each day used.

Table B3: Effluent Monitoring Requirements

Item or Parameter	Units	Time Period	Minimum Frequency	Sample Type/ Required Action (See note a.)	Report Statistic (See note b.)
Temperature (00010)	°C	Jun. 1 – Sep. 30	Daily	Grab or Continuous (See note h.)	Daily Maximum Maximum 7-day Rolling Average (See note g.)
		Oct. 1 – May 31	1/week		
Excess Thermal Load Limit	Mkcal/day	Jun. 1 – Sep. 30	Daily	Calculation (See Table A1, Option B, also see note e.)	7-day Rolling Average
Excess Thermal Load (51405)	Mkcal/day	Jun. 1 – Sep. 30	Daily	Calculation (See note d.)	Maximum 7-day Rolling Average (See note g.)

Notes:

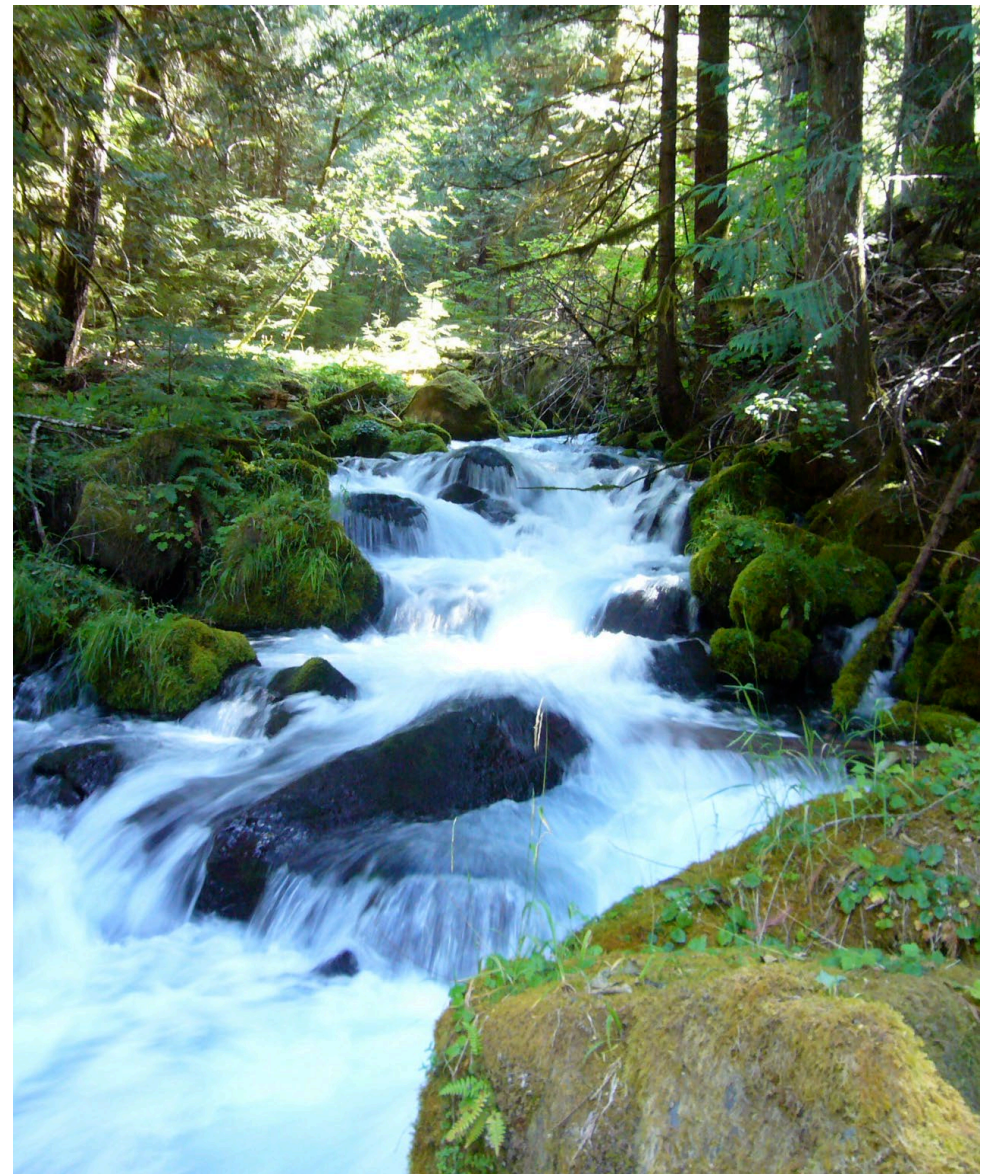
- The permittee must calculate daily excess thermal load (ETL) discharged using the daily maximum effluent temperature, the corresponding daily average effluent flow, and the formula below. The permittee must then calculate the 7-day rolling average from the daily ETLs each day from June 1 through September 30.
The permittee must calculate the daily ETL as follows: $ETL = 3.785 * Q_e * \Delta T$
Where:
ETL = Excess Thermal Load (million kcal/day)
 Q_e = Daily Average Effluent flow (MGD)
 ΔT = Daily Maximum Effluent temperature (°C) minus ambient criterion (18°C)
- If the permittee selects Excess Thermal Load Limit (ETLL) Option B from Table A1, then the permittee must calculate the ETLL (million kcal/day) each day the permittee uses this option. The permittee must use the equation and procedure noted in Table A1.
- The 7-day Rolling Average for any day is the average of the daily values for that day and the preceding six (6) days. The maximum 7-day Rolling Average is the maximum value from this series of 7-day averages.
- If facility personnel conduct temperature monitoring using grab samples, then facility personnel must collect the samples between 10 a.m. and 4 p.m..



Next steps, project work

- Public comment period
 - Oct. 1 – Nov. 15, 2024 (estimated)
- Webinar 3
 - Draft TMDL informational meeting, question/answer opportunity
 - Oct. 2024

Sign up for DEQ email GovDelivery notifications online:
https://public.govdelivery.com/accounts/ORDEQ/subscribe/new?topic_id=ORDEQ_41



Contacts



Jenny Wu
Watershed Section Manager
206- 553-6328
Wu.Jennifer@epa.gov

Sarah Sauter
Basin Coordinator - WQMP
541-774-5905
Sarah.Sauter@deq.oregon.gov

Rebecca Veiga Nascimento
TMDL Technical Lead
208-378-5767
VeigaNascimento.Rebecca@epa.gov

Steve Mrazik
Watershed Management Manager
503-229-5379
Steve.Mrazik@deq.oregon.gov

Project page:
<https://www.oregon.gov/deq/wq/tmdls/Pages/tmdlRumpqua.aspx>

Ranei Nomura
Manager - Wastewater and Individual Permits
503-378-5081
Ranei.Nomura@deq.oregon.gov

