Item K: Fish and Aquatic Life Toxics Criteria Revisions

Water Quality Standards Program

September 27, 2024
Portland, OR

Overview

- Background on water quality standards and criteria
- Summary of proposed rule amendments
- Advisory committee input and public comments
- Proposed motion to the commission

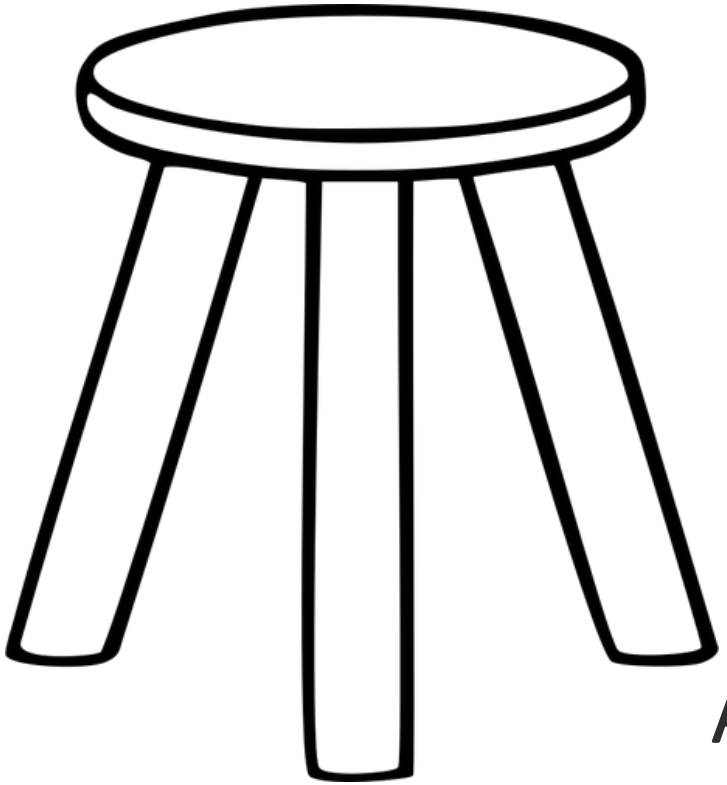
Objective

These amendments will:

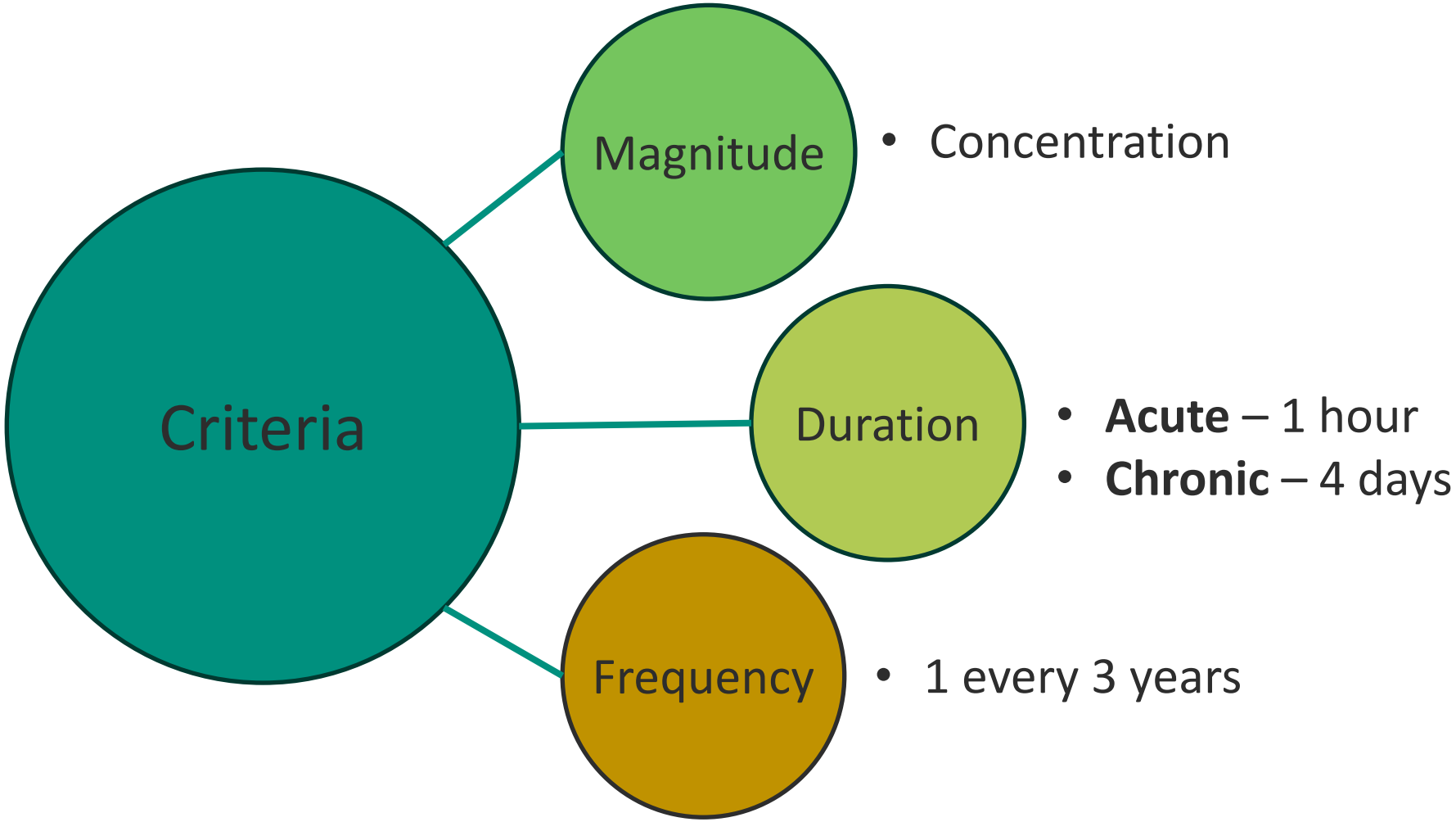
- Update the state's Aquatic Life Water Quality Criteria for toxic pollutants based on EPA's latest recommendations; and

- Remove nonregulatory guidance values for some toxic pollutants for clarity.

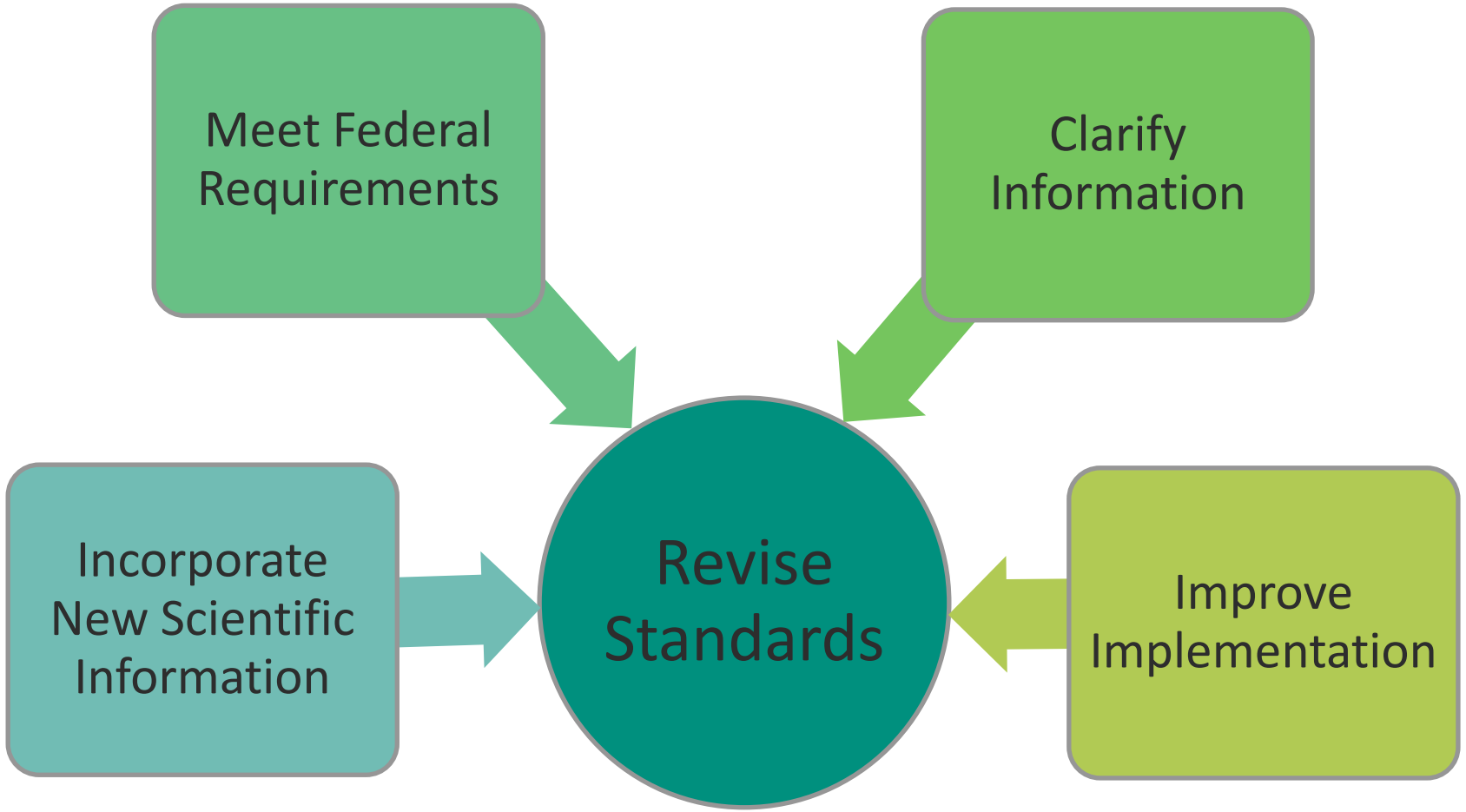
Clean Water Act and Water Quality Standards



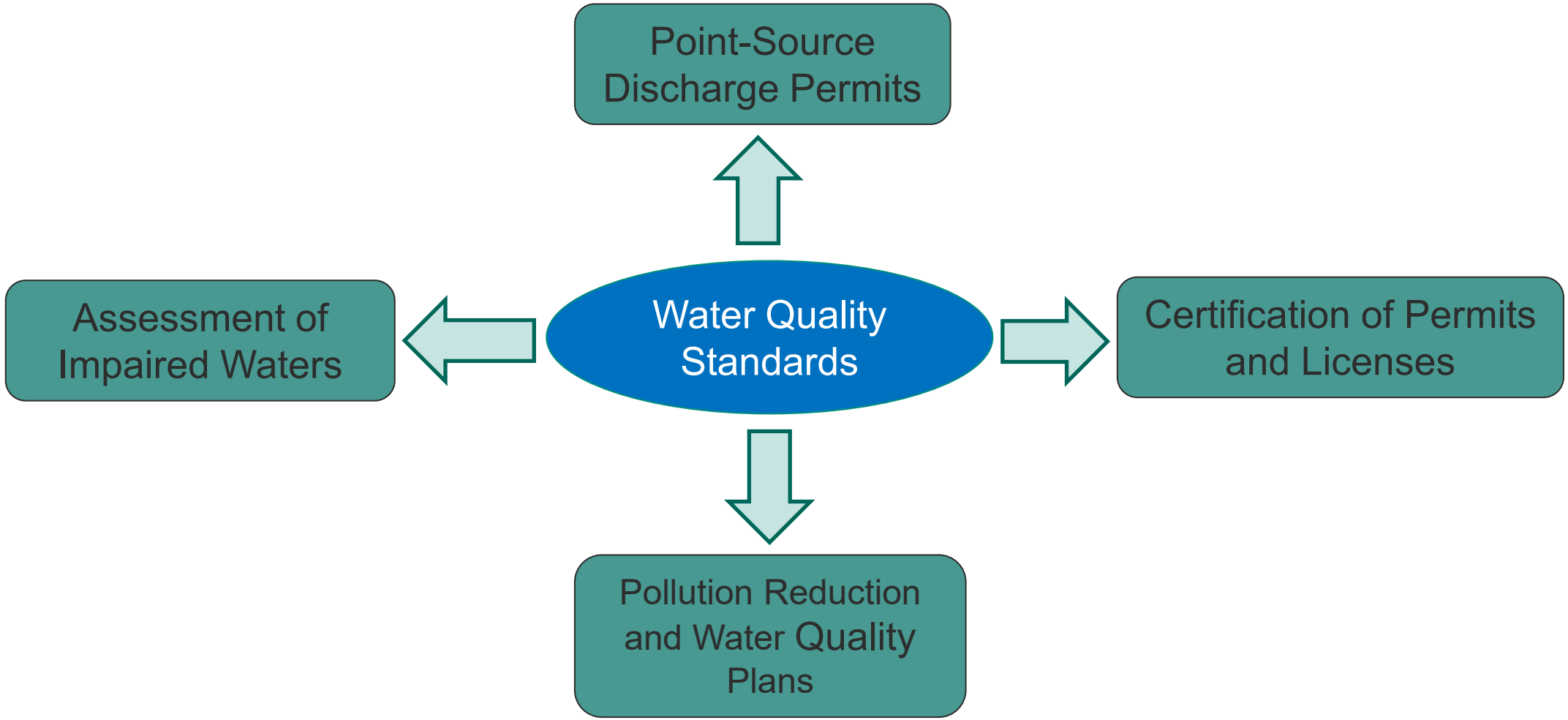
Parts of a water quality criteria



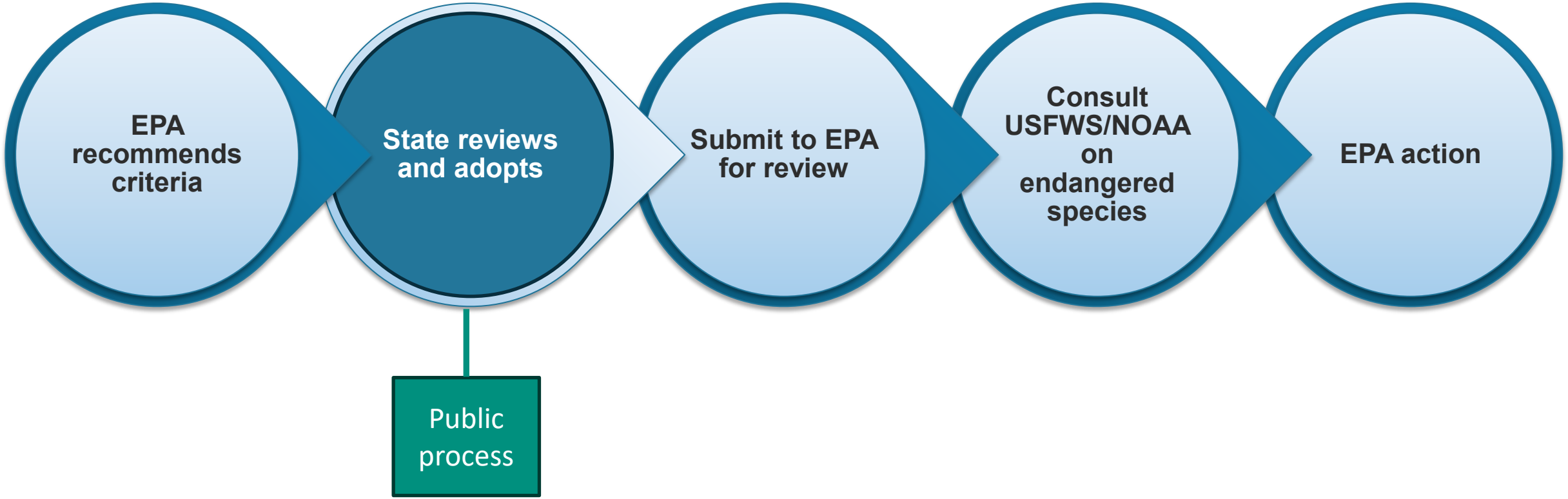
Why revise standards?



Standards are foundation for other programs



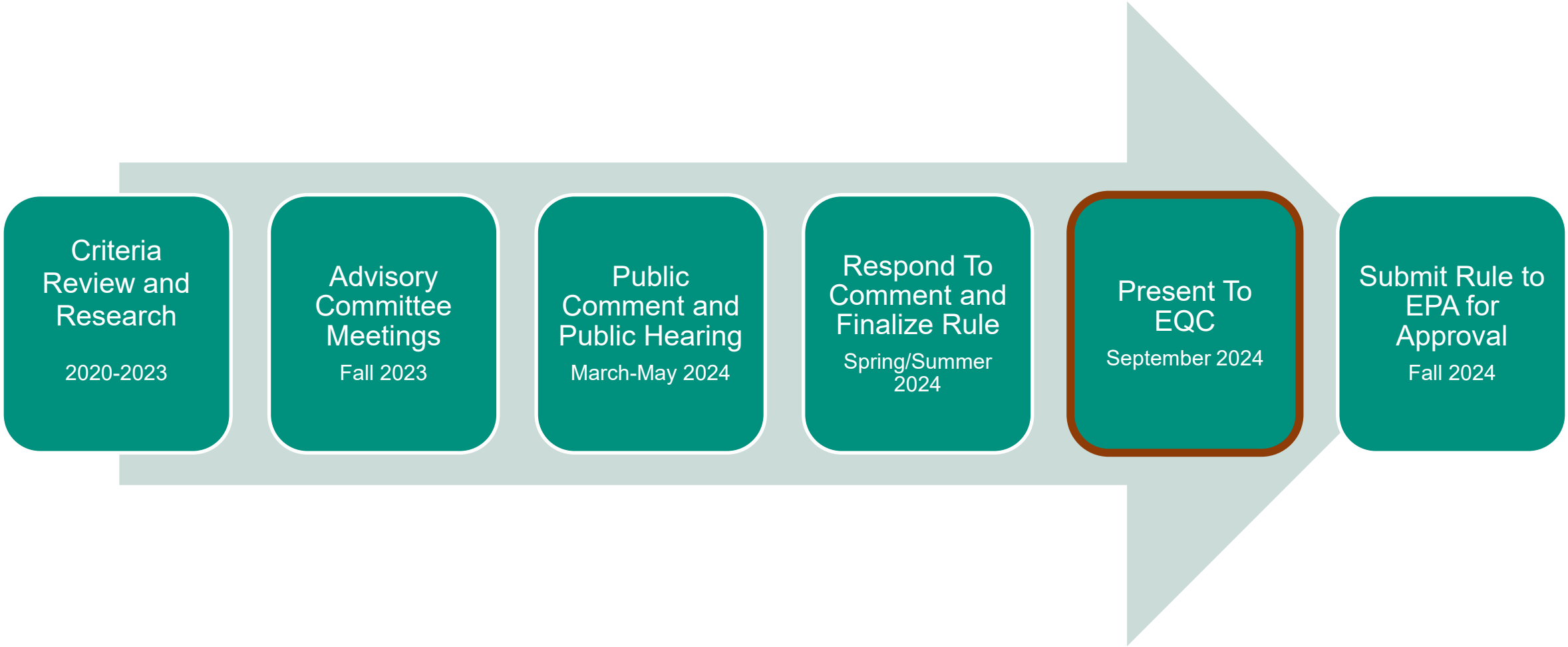
Overview: Adopting WQ Criteria



Why update the aquatic life toxics criteria now?

- DEQ's last comprehensive update of aquatic life toxics criteria was 2004
- EPA has updated several aquatic life criteria on latest science
- High priority in 2021 Triennial Review Workplan

State Rulemaking Process



Proposed Fish and Aquatic Life Criteria

Pesticides

- Acrolein
- Carbaryl
- Diazinon
- Tributyltin

Toxic Metals

- Aluminum
- Cadmium (acute)

Acrolein

- Pesticide and industrial chemical
- Used in irrigation canals to prevent algal/bacterial growth
- Typically measured below criteria in Oregon waters

Criteria	Freshwater (µg/L)		Saltwater (µg/L)
	Acute	Chronic	-
Oregon's Current	-	-	-
Proposed	3.0	3.0	-

Carbaryl

- An urban and agricultural insecticide
- Fruit and grain crops
- Residential pests
- Typically below criteria in Oregon waters

Criteria	Freshwater (µg/L)		Saltwater (µg/L)	
	Acute	Chronic	Acute	Chronic
Oregon's Current	-	-	-	-
Proposed	2.1	2.1	1.6	-

Diazinon

- A restricted use insecticide
- Fruit and grain crops
- Typically measured below the criteria in Oregon waters

Criteria	Freshwater (µg/L)		Saltwater (µg/L)	
	Acute	Chronic	Acute	Chronic
Oregon's Current	-	-	-	-
Proposed	0.17	0.17	0.82	0.82

Tributyltin

- A synthetic marine biocide
- Federal and state regulations restrict use in marinas and estuaries
- DEQ adopted draft recommended values in 2004
- No data for Oregon waters

Criteria	Freshwater (µg/L)		Saltwater (µg/L)	
	Acute	Chronic	Acute	Chronic
Oregon's Current	0.46	0.063	0.37	0.01
Proposed	0.46	0.072	0.42	0.0074

Cadmium

- Naturally occurring element
- Used in batteries, electronics, pigments, metal coatings
- EPA promulgated freshwater acute criteria for Oregon in 2017
- Toxicity a function of water hardness
- Rainbow trout are especially sensitive

Criteria	Freshwater (µg/L)		Saltwater (µg/L)	
	Acute	Chronic	Acute	Chronic
Oregon's Current	EPA Rule Applied	Equation	40	8.8
Proposed	Equation	No Change	33	7.9

Cadmium example based on proposed rule

- Criteria value calculated by an equation
- Example based on a water hardness of 100 mg/L

Water Chemistry Hardness = 100 mg/L	**Example Freshwater values (µg/L)**	
	Acute	Chronic
EPA Rule Currently Applied	1.8	0.25
Proposed	1.8	0.25

Aluminum

- Most abundant element in Earth's crust, 2nd most widely used metal
- Well tolerated by plants and animals
- Toxicity a function of pH, DOC, water hardness
- Wide range of aluminum levels in Oregon

Criteria	Freshwater (µg/L)		Saltwater (µg/L)	
	Acute	Chronic	Acute	Chronic
Oregon's Current	EPA Rule Applied	EPA Rule Applied	-	-
Proposed	Calculator	Calculator	-	-

Application procedures for aluminum

- Written procedures for using the calculator
- Apply the standard consistently
- What to do when measured input data are not available

Water Chemistry DOC = 1.0 mg/L pH = 7.0 hardness = 100 mg/L	**Example freshwater values (µg/L)**	
	Acute	Chronic
EPA Rule Currently Applied	980	380
Proposed	980	380

Propose removing Table 31 "Guidance Values"

- Not regulatory criteria
- Many values out of date
- Increase clarity of rules

OAR 340-041-8033
Table 31
Aquatic Life Water Quality Guidance Values for Toxic Pollutants

EPA No.	Pollutant	CAS Number	Freshwater		Saltwater	
			Acute	Chronic	Acute	Chronic
56	Acenaphthene	83329	1,700	520	970	710
17	Acrolein	107028	68	21	55	
18	Acrylonitrile	107131	7,550	2,600		
1	Antimony	7440360	9,000	1,600		
19	Benzene	71432	5,300		5,100	700
59	Benzidine	92875	2,500			
3	Beryllium	7440417	130	5.3		
19 B	BHC (Hexachlorocyclohexane-Technical)	319868	100		0.34	
21	Carbon Tetrachloride	56235	35,200		50,000	

Rulemaking Advisory Committee (RAC)

Potential Impacts of Implementation

- Three new pesticide criteria will add to monitoring requirements for permits
- Low probability of increased permit requirements and future TMDL implementation needs
- No new impacts from adopting aluminum, cadmium, and tributyltin – criteria already implemented

Summary of Fiscal Impact Analysis

- No immediate fiscal impact of adopting amendments to Table 30 and Table 31
- Potential increase in the monitoring costs for some NPDES or stormwater permits
  - Estimated at $0 to $8,300 per facility over 5-year permit cycle
- Potential economic benefits for commercial and recreational use of fish and aquatic life, or for Tribal uses

Racial Equity and Environmental Justice Considerations

- Increased protection of fish, shellfish, and other aquatic species a positive impact for all Oregonians
- Benefits to communities that rely on healthy fish populations and ecosystems culturally and for foo
- Protect natural and cultural resources for aquatic life to the benefit of the Tribes

Summary of Public Comments

Comments from 8 individuals or organizations:

- Oregon Association of Clean Water Agencies (ACWA)
- Clean Water Services
- U.S. EPA
- General public

Key Comments

1) General support for proposed rule
2) Fiscal impact of monitoring costs
3) Measure bioavailable aluminum
4) Minor clarifications to rule language

Incorporating Comments

- Carefully considered all comments
- Addressed additional monitoring costs in Fiscal Impact Statement
- Reinforced intent to measure bioavailable aluminum
- Clarifications to rule language, as suggested

Next Steps

- EQC Adoption – September 2024
- Submittal to EPA – October 2024
- Federal Approval Process – 2025→?

Upper Metolius River

Questions or Comments

Metolius River, Oregon

Proposed Motion Language

"I move that the Environmental Quality Commission adopt the proposed rules, as shown in Attachment A, to amend Chapter 340, Division 41, Rule 8033, Table 30 and Table 31 of the Oregon Administrative Rules."

Title VI and alternative formats

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