The Confederated Tribes of the Chehalis Reservation

Surface Water Quality Standards Proposed List of Changes

Prepared for:
The Confederated Tribes of the Chehalis Reservation
30 Niederman Road
Oakville, WA 98568

Prepared by:
Paul J. Pickett
Consultant
4040 Gull Harbor Road
Olympia, WA 98506

Introduction

Water quality standards (WQS) are a regulatory tool created by the federal Clean Water Act. WQS describe the desired conditions of a water body, and how to protect or restore those conditions. The U.S. Environmental Protection Agency (EPA) can delegate to Tribes the authority to establish WQS through "treatment as a state" (TAS). The Chehalis Tribe gained TAS authority in March 1995 and had their WQS regulations approved in February 1997.

What are Water Quality Standards? Water bodies serve both the needs of people and of the natural world. People use rivers, stream, and lake for purposes such as fishing, cultural and spiritual needs, recreation (e.g. swimming and boating), and scenic enjoyment. And of course, these waters are the home to many aquatic organisms. To protect human health and aquatic life in these waters, the Chehalis Tribe established its WQS, which form a legal basis for controlling pollutants entering the waters of the United States on their Reservation lands.

Water quality standards consist of three core components:

- The designated uses of a water body – the conditions in the aquatic environment that the standards are designed to protect
- Criteria to protect designated uses – these can be narrative or specific physical, chemical, and biological measures.
- Antidegradation requirements that protect existing uses and high quality/high value waters.

In addition, other components can be included, such as general considerations, changes or variances in the standards, implementation and enforcement.

The Chehalis Tribe is upgrading its standards to current levels of science and environmental protection. As a first step to develop revised standards and obtain EPA approval, a list of proposed changes to the standards has been developed. The members, leaders, and staff of the Chehalis Tribe have an opportunity to review this list, confirm what is important to them, and suggest ways to improve the list.

To develop this list, proposed and existing WQS from several States and Tribes were reviewed, including:

- Washington State Department of Ecology ("ECY", https://ecology.wa.gov/Water-Shorelines/Water-quality/Water-quality-standards)
- Oregon Department of Environmental Quality ("ODEQ", https://www.oregon.gov/deq/wq/Pages/WQ-Standards.aspx)
- Swinomish Indian Tribal Community (https://swinomish-nsn.gov/)
- Makah Tribe (https://makah.com/)
- Confederated Tribes of Coos, Lower Umpqua and Siuslaw Indians ("CTCLUSI", https://ctclusi.org/)
- Kalispel Tribe of Indians (https://kalispeltribe.com/)
- Coeur d'Alene Tribe ("CdA", https://www.cdatribe-nsn.gov/)

Washington and Oregon are states with conditions similar to the Chehalis Reservation. The selected Tribes have standards that they are currently developing, that they have submitted to EPA, or that were recently approved by EPA.

List of changes to Tribal Water Quality Standards

Proposed changes to the Chehalis Tribe Water Quality Standards are presented below. For each item, the table shows the current approach (location in the current standards), the proposed revisions, and an example from other standards that are recommended as a guide for the new approach. In the lists below, priorities for revision are listed as level 1 ("must have") and level 2 ("should consider").

Structural changes

A fundamental change to the Tribal WQS will be to eliminate the "classes" of waters and switch to a "use-based" approach. Linking criteria directly to uses is the current accepted approach in all standards. Although this approach is more complex, it is more scientifically defensible, and is the approach that EPA will approve. Many of the changes in the lists below reflect the switch from class-based to use-based.

Introductory sections

All Standards begin with an Introduction, Purpose statement, location of waters, and some "General Considerations". Notes on the items in these sections:

- Introduction, Purpose, Location of Tribal waters and Definitions are standard items currently included in the Chehalis Tribe WQS that can be updated.

- The current standards address how criteria are handled at the boundaries of different criteria, and can be updated.
- Consideration of testing methods and their precision and accuracy are overarching issues that are in the current standards and will be reviewed and updated.

Item	Old approach[1]	New approach	Example	Priority
Introduction / Purpose	11.50.010	add more details – authority, purpose, scope	Makah	1
Location of water	11.50.110 - list of waters and specific classes	Geographic authority. List of waters with uses. Maps in appendix.	Makah	1
Definitions	11.50.020	Update	All	1
General considerations	11.050.030			
At the boundaries of different criteria, the more protective prevails	11.050.030(A)	review and update		1
Protection of downstream waters	Na	Recommend adding	Swinomish	1
precision and accuracy considered	11.050.030(D)	review and update		1
Analytical testing methods	11.050.030(E)	review and update		1

Designated Uses – aquatic life

The revised standards will list the uses protected by the standards, and list the waterbodies for with those uses will be protected. Uses can be categorized generally into aquatic life, various kinds of human uses, and ecological features representing unique uses (such as wetlands, floodplains, and lakes).

The most important aquatic life use for the Chehalis Tribe will be the protections of salmon life stages. These are generally divided into spawning, rearing, and migration. Protection of oxygen in spawning gravels is a relatively new area for protecting salmon life stages. They are now included in Oregon's WQS and are being considered by Ecology; they are recommended for the Chehalis Tribe WQS. "Core summer habitat" provides an additional use definition that combines several life stages for summer conditions.

Additional uses that are designated include "cold water aquatic life", which protects all other species that depend on cold water conditions, and "warm water aquatic life" to protect species in areas with naturally warmer waters.

[1] na = not in current water quality standards

Item	Old approach	New approach	Example	Priority
Designated Uses - aquatic life	Classes: 11.50.040	list life stage use		
Salmon migration	Under classes	list life stage use	Ecology	1
Salmon rearing	Under classes	list life stage use	Ecology	1
Salmon spawning - column	Under classes	list life stage use	Ecology	1
Salmon core summer	Na	list life stage use	Ecology	1
Salmon spawning - gravel	Na	list life stage use	ODEQ	2
Cold water aquatic life	Na	list life stage use	ODEQ	2
Warm water aquatic life	Na	list life stage use	Ecology	2

Designated Uses – human uses and special habitats

EPA uses the term "primary contact" to describe use of the water involving immersion and the potential to drink water or have it interact with the skin, eyes, or other areas. "Secondary contact" refers to activities near the water where the user may get splashed or accidentally immersed. Almost all standards protect primary contact and don't include secondary contact separately.

The protection of water for ceremonial, religious, or cultural uses are a unique feature of Tribal water quality standards, and protections will be reviews and enhanced.

Other uses in the current Chehalis Tribe WQS include: water supply; commerce and navigation; and wildlife. Often the water quality needs of these uses are protected by criteria for more sensitive uses. For example, water supply can be treated, so the quality of the water required is generally lower than necessary for primary contact or aquatic life. And protections for human health will protect wildlife as well.

Wetlands and lakes have unique features and are generally protected as uses unto themselves, both for human enjoyment and their unique aquatic ecosystems. Protection of floodplains is proposed as a new ecological feature that would be unique to the Chehalis Tribal Standards. Given the emerging science of the unique features of floodplains in supporting aquatic ecosystems, this may be an opportunity to break new ground in an area of importance to the Chehalis tribe.

Item	Old approach	New approach	Example	Priority
Designated Uses – human uses and special habitats				
Recreation: primary contact, fishing, swimming, aesthetics, secondary contact	Primary contact, fishing, aesthetics	review and update (secondary contact rarely used)	Makah, Kalispel	1

Item	Old approach	New approach	Example	Priority
Ceremonial and religious (C&R)	in classes	Review and update as use		1
Water supply: domestic, industrial, agricultural, stock	in classes	Review and update as use		1
Commerce, navigation, boating	in classes	Review and update as use		1
Wildlife (w hunting)	in classes	Review and update as use	Swinomish	1
Wetlands	na	consider adding	Swinomish	2
Lakes	na	consider adding	Makah	2
Floodplains	na	consider adding		2

Narrative criteria

The standards set criteria to protect the designated beneficial uses of the Tribe's waters. Standards include narrative criteria to provide general protection where a numeric value has not been established. Narrative criteria are potentially a powerful tool, both to bring in new science and to address unexpected situations beyond the common pollution problems anticipated in the standards.

Notes on narrative criteria:

- Narrative criteria that address aesthetics, ceremonial and religious uses, and general protections, provide fundamental overarching protection and are found in most Tribal standards.
- The narrative criteria for toxic, radioactive, and deleterious substances often provide critical protection for emerging contaminants, for which EPA has not established numeric criteria. Tribes are often on the forefront of protecting the environment and public health, and may feel the need to address urgent issues before EPA is motivated to take action.
- Wetlands, floodplains, and lakes are complex ecosystems and criteria that are general and protective are difficult to establish. Narrative criteria for these systems allow site-specific studies to be linked to the standards for stronger protection.
- Narrative criteria for aquatic life and biological assessments allow a way to link studies using metrics like BIBI to the protection of aquatic life uses through the standards.
- Narrative standards for water supply, recreation, and the prohibition of waste discharge are recommended to provide additional layers of protection for future pollution problems.

Item	Old approach	New approach	Example	Priority
Narrative criteria	Briefly mentioned			
General	na	consider adding	ODEQ or Swinomish	1

Item	Old approach	New approach	Example	Priority
Aesthetic	Under classes	same or update	ECY or Swinomish	1
Ceremonial and religious	na	consider adding	Makah or Kalispel	1
Toxic, radioactive, or deleterious material	11.50.050 and classes	review and update	EPA guidance	1
Wetlands, floodplains, lakes	na	consider adding	Swinomish	2
instream flow	na	consider adding	Swinomish	2
aquatic life and biological	na	consider adding	Swinomish	2
wildlife habitat	na	consider adding	Swinomish	2
water supply: domestic, agricultural, industrial, stock	na	consider adding	ODEQ	2
recreation: bathing (primary contact)	na	consider adding or combine w C&R	CTCLUSI	2
Waste discharge	na	consider adding	Kalispel	2

Numeric criteria - aquatic life, ceremonial and religious (C&R)

Numeric criteria provide specific measurable values that protect the designated beneficial uses. As the science advances, these values are updated or new values developed. For aquatic life numeric criteria, many different values are likely to be adopted to fit each life stage. In some cases, criteria may apply to specific seasons, such as spawning periods.

Notes on the items below:

- Dissolved oxygen concentration criteria are currently included in the Chehalis Tribe WQS. The addition of a percent saturation criterion can add protection, and as discussed above criteria for spawning gravels are recommended.
- Temperature criteria are included in the current Chehalis Tribe WQS, but current science and the need to address climate change are leading to a greater array of temperature protections in recent standards.
- Criteria for pH, turbidity, and total dissolved gas are fairly straight-forward, although clarifications could be considered for minimum changes in pH from human activities, and how turbidity criteria are assessed.
- Criteria for toxics to protect aquatic life will be developed together with the criteria to protect human health. EPA has provided guidance on calculating criteria for a long list of substances.
- Chlorophyll-a and total phosphorus criteria are often site-specific and acceptable levels can be subjective. But given the potential for nutrient pollution in Chehalis Tribal waters, they should be strongly considered. Examples and guidance could help establish levels that are protective and defensible.

- Suspended sediment is a key parameter for protecting salmon spawning. Many studies in the Pacific Northwest have explored quantifying levels necessary to project spawning redds, and Ecology has proposed adding them to the Washington State standards. Given the importance of sediment to salmon and the high sediment loads of the Chehalis River basin, criteria for this parameter should be considered.

Item	Old approach	New approach	Example	Priority
Numeric criteria - aquatic life, ceremonial and religious (C&R)				
Dissolved Oxygen (aquatic life) - concentration, percent saturation - water column and spawning gravels	under Classes	review and update	Ecology	1
Temperature (aquatic life) - daily maximum - 7-day average - Thermal refuges	under Classes	review and update	Ecology	1
pH (aquatic life)	under Classes	review and update	Ecology	1
Turbidity (aquatic life, C&R)	under Classes	review and update	Ecology	1
Total Dissolved Gas (aquatic life)	under Classes	review and update	Ecology	1
Toxic substances (aquatic life, C&R)	Table in 11.50.050.C	Revise for uses	EPA calculator	1
Chlorophyll-a (aquatic life, C&R)	Na	consider adding	ODEQ	2
Total Phosphorus (aquatic life, C&R)	Na	consider adding	CTCLUSI, EPA guidance	2
Suspended sediment (aquatic life)	Na	consider adding	Ecology (proposed)	2

Numeric criteria - human health (HH), C&R, water supply

Numeric criteria for human health are focused on pollutants that can cause disease or illness if they contact people through their skin or eyes, or through breathing, drinking, or eating. They are intended to also protect Cultural and Religious activities, which may include close contact with water, and water supply for human use.

Notes on the list below:

- All recent WQS are using enterococcus and E. Coli instead of fecal Coliform for protection of human health from pathogens associated with human and animal waste. An explanation of how to average bacteria for compliance with standards will be included with the criteria, moved from the General Consideration section in the current standards.
- Several steps in determining toxic criteria are listed, but they are all part of a single process to develop a table of criteria. Although the standard of 1 per 1 million people lifetime cancer risk broadly adopted, the fish consumption rates are often higher for the Tribes. Absent a specific study of fish consumption for the Chehalis Tribe, information from other studies of Tribal fish consumption will be used by reference. EPA has provided a calculator for criteria, which should aid in developing criteria. However, some of the specific criteria are complex and controversial, such as for mercury. Therefore, developing these criteria is likely to demand a great deal of attention, due both to their importance and their complexity.
- Radioactive substances are a generic category, and criteria are based on standards established in public health rules by radiation health specialists.
- Harmful algae blooms are a long-time problem that is increasing with climate change. These are leading-edge criteria based on emerging science and only recently appearing in standards. EPA is providing guidance on establishing toxic algae criteria. Given the characteristics and history of the Chehalis and Black Rivers, adopting these criteria is recommended for the Chehalis Tribe.

Item	Old approach	New approach	Example	Priority
Numeric criteria - human health (HH), recreation, C&R, water supply				
enterococcus (HH, recreation, C&R)	Na	Add	Swinomish	1
E. Coli (HH, recreation, C&R)	Na	Add	Ecology	1
Bacteria averaging	11.050.030(B)	Include with criteria		1
Toxics - lifetime cancer risk (HH, C&R)	Na	Add: 1 per 1 million risk	All	1
Toxics - fish consumption rate (HH, C&R)	Na	Add: Ecology (175 g)? Or Swinomish (384 g)? Or other?	Ecology, Swinomish	1
Toxics - water supply protection (HH, C&R)	Na	Add: 2.4 L	Ecology	1
Toxics - table of criteria (HH, C&R)	Table in 11.50.050.D	Revise for uses	EPA calculator	1
Radioactive substances	11.50.060 - reference WAC246-221 and USEPA	review and update	Ecology or Makah	1
Harmful algal blooms (HH, C&R	Na	consider adding	CTCLUSI	2

Antidegradation

An Antidegradation policy is already included in the Chehalis Tribe WQS, but an implementation section should be added. The focus on these sections will be to provide updates and improvements based on choosing the best from other State and Tribal standards. The approach to Antidegradation varies widely – some standards have long complex sections, and some are more streamlined. The examples cited represent more streamlined approaches, which seem appropriate for the scale of the Chehalis Tribe's jurisdiction.

Item	Old approach	New approach	Example	Priority
Antidegradation				
Antidegradation policy	11.050.030(F) and 11.50.80	review and update	Swinomish, CTCLUSI	1
Antidegradation implementation	na	consider adding	Swinomish, CTCLUSI	1

Standards application and management

WQS typically include a variety of items related to ways that standards can be temporarily adjusted or permanently revised, and in general interpreted or implemented.

Some notes on these items:

- A variance or short-term modification is useful to all allow important projects to move forward, such as environmental restoration or bridge rebuilding. The standards provide a process to allow a short-term exceedance of criteria designed for minimum harmful impact.
- In the future, a scientific study may show that critieria can be adjusted for a particular system or season. A mechanism is provided for that change, should it be desired.
- Similarly, studies may provide new information on the designated uses, such as the life stages of salmon in a particular area. A mechanism is provide to adjust the uses in the standards, when appropriate.
- Mixing zones are allowed in most standards for a permitted wastewater discharge. Pollutants are allowed to increase above criteria in a limited area near a wastewater outfall, but must be mixed to meet standards at the edge of the mixing zone. Not all standards allow mixing zones, but it is a common allowance to reduce costs to governments or industry with little or a limited impact on aquatic life or human health.
- Many standards define the design flows used for determining compliance with criteria. Adding this item is recommended.
- Compliance schedules can be allowed to give an identified source of pollution a reasonable amount of time to obtain the funding and complete a project to comply with standards. There

may be opportunities to improve this section in the current Chehalis Tribe WQS based on other examples.

- The standards finish with explanations of how standards will be achieved, implemented, and enforced. This is another area where other examples of standards might suggest areas of improvement to the current Chehalis Tribe standards.

Item	Old approach	New approach	Example	Priority
Standards application and management				
WQS Variance / Short-term modifications	11.50.100	review and update	Many	1
Revised or Site-specific criteria	11.50.080(B)	review and update	Swinomish, Makah	1
Modifications of uses and criteria	na	consider adding	Swinomish, Makah	2
Mixing Zone	11.50.090	review and update	Many	1
Design flows for numeric criteria	na	consider adding	Makah or CdA	2
Compliance Schedules	11.50.130.D	review and update	Swinomish, CdA	1
Achievement considerations	11.50.120	review and update	Ecology	1
Implementation	11.50.130	review and update	Swinomish, Makah	1
NPDES requirements	11.050.030(C)	Include with implementation		1
Enforcement	11.50.150	review and update	Swinomish, Makah	1

Other items considered but not recommended

Other standards have items that might be of interest to the Chehalis Tribe, but appear to be too labor-intensive or insufficiently relevant to be included.

Notes on these items:

- Salmon harvesting is mentioned in the current Chehalis Tribe WQS, but in the revised standards it should be covered by the uses being added or upgraded, such as expanded salmon life stages and ceremonial and religious uses.
- Char and redband trout are not found in Chehalis Reservation waters. They can still be protected if needed by other aquatic life numeric and narrative criteria.
- Cool water aquatic life are a use designated by Oregon, who have three categories of warm, cool, and cold water life. Two categories – warm and cold – are sufficient for Chehalis Tribal waters.

- Human health is listed as a specific use in the Swinomish standards, but it is already covered by other uses and the criteria to protect human health for those uses.
- Fecal Coliform and Total Coliform are used to protect shellfish harvest, but Chehalis Tribal standards will not include marine waters for this revision. Swinomish included them for fish as well, but this is the sole case known where fish are listed for protection from bacteria. In general, these protections are needed for filter-feeding mollusks, and not for fish high on the food chain.
- Total dissolved solids (TDS) and conductivity are measures of salinity. They were included in Oregon's standards for protecting agricultural water supply and in CTCLUSI standards for protecting Cultural and Ceremonial Uses. These criteria do not appear to be needed for Chehalis Tribal waters.

Item	Old approach	New approach	Example	Priority
Designated Uses				
Salmon harvesting	Under classes	implicit in other uses?		3
Char	na	list life stage use (if present)	Ecology	3
redband trout	na	list life stage use (if present)	Ecology	3
cool water aquatic life	na	list life stage use (if desired - more detail than necessary perhaps)	ODEQ	3
human health	na	consider adding	Swinomish	3
Numeric criteria - human health (HH), C&R, water supply				
Fecal coliform - HH, fish and shellfish harvest	under Classes - FC	consider adding	Swinomish	3
Total coliform - HH, fish and shellfish harvest	na	consider adding	Swinomish	3
TDS or conductivity - C&R, water supply	na	consider adding	ODEQ	3