

Presented below are water quality standards that are in effect for Clean Water Act purposes.

EPA is posting these standards as a convenience to users and has made a reasonable effort to assure their accuracy. Additionally, EPA has made a reasonable effort to identify parts of the standards that are not approved, disapproved, or are otherwise not in effect for Clean Water Act purposes.

Confederated Tribes of the Warm Springs Indian Reservation of Oregon Water Quality Standards, Beneficial Uses and Treatment Criteria

Effective July 20, 2006

The attached WQS document is in effect for Clean Water Act purposes with the exception of the following provision on which EPA did not take action:

- The following provision was withdrawn by the Confederated Tribes Of The Warm Springs Reservation on July 19, 2006:
 - The Drinking Water Maximum Concentration Levels (MCLs) included in Table 3, *Water Quality Criteria Summary*.

**CONFEDERATED TRIBES OF THE WARM SPRINGS
INDIAN RESERVATION OF OREGON**

WARM SPRINGS TRIBAL CODE CHAPTER 432

**ORDINANCE NO. 80
RESOLUTION NO. 10,610
MARCH 21, 2006**

**WATER QUALITY STANDARDS, BENEFICIAL USES,
AND TREATMENT CRITERIA**

INDEX

432.001	Legislative History
432.005	Territory Covered
432.010	Applicability and Administration
432.015	Definitions
432.020	General Considerations Applicable to the Entire Reservation
432.025	Beneficial Water Uses to be Protected in Deschutes, Clackamas, and Santiam River Basins on the Reservation
432.100	Water Quality Standards not to be Exceeded in Deschutes, Clackamas, and Santiam River Basins on the Reservation
432.110	Site Specific and Criteria based on Natural Conditions.
432.200	Minimum Design Criteria for Treatment and Control of Wastes for the Deschutes, Clackamas, and Santiam River Basins on the Reservation
432.300	Biological Criteria
432.400	Nuisance Phytoplankton Growth
432.500	Special Policies and Guidelines for Waters of the Clackamas and North Santiam River Basins on the Reservation:
TABLE 1:	BENEFICIAL USES for the DESCHUTES, CLACKAMAS, and SANTIAM RIVER BASINS on the RESERVATION
TABLE 2:	DISSOLVED OXYGEN CRITERIA
TABLE 3:	WATER QUALITY CRITERIA SUMMARY
TABLE 4:	WATER QUALITY REACHES, FISH SPECIES, LIFE HISTORY & BENEFICIAL USE DESIGNATIONS
TABLE 5:	INDIGENOUS FISH AND CRAYFISH SPECIES IN THE DESCHUTES BASIN ON THE WARM SPRINGS RESERVATION.
TABLE 6:	INTRODUCED FISH SPECIES IN THE DESCHUTES BASIN ON THE WARM SPRINGS RESERVATION.

FIGURE 1: GENERALLY ACCEPTED PERIODS OF NATIVE SALMONID SPAWNING, EGG INCUBATION, AND FRY EMERGENCE FOR WATERBODIES ON THE WARM SPRINGS RESERVATION.

- MAP R** Waterbodies on the Warm Springs Indian Reservation.
- MAP A** Beneficial Use Reaches for the Lower Deschutes R., Paquet Gulch, Nena Cr., Eagle Cr., and Oak Cr. Watersheds.
- MAP B** Beneficial Use Reaches for the Lower Warm Springs R., Middle Deschutes R., Skookum Cr. and Dry Cr. Watersheds.
- MAP C** Beneficial Use Reaches for Shitike Cr. and Seekseequa Cr. Watersheds; the Upper Deschutes R., Reregulation Dam Pool, and Lake Simtustus.
- MAP D** Beneficial Use Reaches for the Metolius R., Whitewater R., Jefferson Cr. and Tributaries.
- MAP E** Beneficial Use Reaches for Mill Cr., Boulder Cr., Badger Cr., Middle Warm Springs R., and the Upper Clackamas R. Watersheds.
- MAP F** Beneficial Use Reaches for the Upper Warm Springs R. and Upper Clackamas R. Tributary Watersheds.
- MAP G** Beneficial Use Reaches for Beaver Cr. Coyote Cr., Quartz Cr. and Clear Cr. Watersheds.

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432.001 Legislative History

- (1) On August 3, 1967, the Confederated Tribes of the Warm Springs Indian Reservation of Oregon ("Tribe") approved and adopted the "Water Resources Inventory and Water Management Plan for the Warm Springs Indian Reservation". The purpose of the plan is to determine what the Reservation water resource consists of, what the present and future uses of the resource are, and what the priority of uses will be, and specifically how these rights will affect individuals and the community. On April 17, 1968, this plan was adopted as Ordinance No. 45; the official Water Code of the Warm Springs Indian Reservation.
- (2) On July 18, 1980, the Tribe approved technical information entitled "Implementing Provisions of the Warm Springs Water Management Plan". The implementing provisions set forth plans for management of the quality of waters including establishing water quality standards for surface waters on lands under the jurisdiction of the Tribe.
- (3) Under this plan and amendments thereof, the Tribe will continue to manage water quality by evaluating each discharge and activity, whether existing or a new proposal, on a case-by-case basis, based on the best information currently available and within the limiting framework of minimum standards, treatment criteria, and policies set forth in the plan.

432.005 Territory Covered

The provisions of these water quality standards shall apply to all surface waters within the boundaries of the Warm Springs Indian Reservation ("Reservation") of Oregon. The Reservation consists of approximately 648,000 acres. (**MAP R**).

432.010 Applicability and Administration.

- (1) The water quality standards shall be used by the EPA Regional Administrator for establishing any water quality based National Pollutant Discharge Elimination System (NPDES) Permit for point sources on the Reservation.

- (2) In conjunction with the issuance of Section 402 or Section 404 permits, the Tribe may designate mixing zones in the waters of the Reservation on a case-by-case basis. The size of such mixing zones and the in-zone water quality in such mixing zones shall be consistent with applicable procedures and guidelines in EPA's **Water Quality Standards Handbook** and the **Technical Support Document for Water Quality Based Toxics Control** and subsequent updates of the handbook and technical support documents (see section 432.100(4)).
- (3) In conjunction with the issuance of Federal licenses or permits to conduct any activity including, but not limited to, the construction or operation of facilities, which may result in any discharge into the waters of the Reservation, the licensing or permitting agency must apply for certification from the Tribe under Section 401 of the Clean Water Act. The Tribe shall approve or deny certification of any federally licensed or permitted activity to ensure compliance with applicable water quality standards.
- (4) The Tribe may further apply these water quality standards to protect the integrity of all surface waters within the boundaries of the Reservation. As such, the Tribe may apply these water quality standards to any activity including, but not limited to, the construction or operation of industrial or commercial facilities, which may result in any discharge (including nonpoint sources) into any of the surface waters on the Reservation.

432.015 Definitions.

Definitions applicable to all basins on the Reservation:

- (1) "Acute Toxicity" refers to a stimulus severe enough to rapidly induce an effect; in aquatic toxicity tests, an effect observed in 96 hours or less is typically considered acute. When referring to aquatic toxicology or human health, an acute effect is not always measured in terms of lethality.
- (2) "Anthropogenic", when used to describe "sources" or "warming", means that which results from human activity.
- (3) "Appropriate Reference Site or Region" means a site on the same waterbody, or within the same basin or ecoregion that has similar conditions, and represents the water quality and biological community attainable within the areas of concern.
- (4) "Aquatic Species" means any plant or animal which lives at least a part of their life cycle in water.
- (5) "Biological Criteria" means numerical values or narrative expressions that describe the biological integrity of aquatic communities inhabiting waters of a given designated aquatic life use. Biological criteria serve as an index of aquatic community health.
- (6) "BOD" means 5-day 20°C biochemical oxygen demand.

- (7) "Chronic Toxicity" means a fairly long-term adverse effect to an organism (when compared to the life span of the organism) caused by or related to changes in feeding, growth, metabolism, reproduction, a pollutant, genetic mutation, etc. Short-term test methods for detecting chronic toxicity may be used.
- (8) "Cold-Water Aquatic Life" means the aquatic communities that are physiologically restricted to cold water, composed of one or more species sensitive to reduced oxygen levels. Including but not limited to *Salmonidae* and cold-water invertebrates.
- (9) "Cool-Water Aquatic Life" means the aquatic communities that are physiologically restricted to cool waters, composed of one or more species having dissolved oxygen requirements similar to the cold-water communities. Including but not limited to *Cottidae*, *Osmeridae*, *Acipenseridae*, and sensitive *Centrarchidae* such as the small-mouth bass.
- (10) "Critical Habitat" means those areas, which support rare, threatened or endangered species, or serve as sensitive spawning and rearing areas for aquatic life.
- (11) "Cultural and Religious water use" means waters which are used to support and maintain the way of life or traditional activities involving the Native American people of the Warm Springs Reservation. These activities include, but are not limited to, spiritual practices which involve, among other things, primary (direct) and secondary contact with water; uses of a water body to fulfill cultural, traditional, spiritual or religious uses; use of water for instream flow, habitat for fisheries and wildlife, preservation of habitat for berries, roots and other vegetation significant to the people of the Reservation. Water quality standards for this purpose will be numerically identical to water contact recreation standards.
- (12) "Department" means the Department of Natural Resources of the Tribe.
- (13) "Designated Beneficial Use" means the purpose or benefit to be derived from a water body, as designated by the Tribe, whether or not they are currently attained.
- (14) "DO" means dissolved oxygen.
- (15) "Ecological Integrity" means the summation of chemical, physical and biological factors capable of supporting and maintaining a balanced, integrated, adaptive community of organisms having a species composition, diversity, and functional organization comparable to that of the natural habitat of the region.
- (16) "Ecologically Significant Cold-Water Refuge" exists when all or a portion of a water body supports stenotypic cold-water species (flora or fauna) not otherwise widely supported within the subbasin, and either:

- (a) Maintains cold-water temperatures throughout the year relative to other segments in the subbasin, providing summertime cold-water holding or rearing habitat that is limited in supply; or,
 - (b) Supplies cold water to a receiving stream or downstream reach that supports cold-water biota.
- (17) "EPA" means the United States Environmental Protection Agency.
- (18) "EPA Regional Administrator" means the Administrator of EPA's Region X.
- (19) "Existing Uses" means those uses actually attained in the water body on or after November 25, 1975, whether or not they are included in the water quality standards".
- (20) "High Quality Waters" means those waters, which meet or exceed those levels that are necessary to support the propagation of fish, shellfish, wildlife, and recreation in and on the water, and other designated beneficial uses.
- (21) "Indigenous" means supported in a reach of water or known to have been supported according to historical records compiled by Tribal, Federal, and State agencies or published scientific literature.
- (22) "Industrial Waste" means any liquid, gaseous, radioactive, or solid waste substance or a combination thereof resulting from any process of industry, manufacturing, trade, or business or from the development or recovery of any natural resources.
- (23) "Integrated Planning Process" refers to the planning direction and process laid out in Ordinance 74, "The Integrated Resource Management Plan for the Forested Area" adopted in 1992. The public participation provisions meet 40 CFR Part 25.
- (24) "Intergravel Dissolved Oxygen" (IGDO) means the concentration of oxygen measured in the stream gravel pore water. For the purposes of compliance with criteria, the dissolved oxygen concentration should be measured within a redd or artificial redd, down-gradient of the egg pocket. Measurements should be taken within a limited time period, for example, prior to emergence of fry, typically during the month of March.
- (25) "Low Flow" means the flows in a stream resulting primarily from groundwater discharge or base flows during the driest period of the year.
- (26) "Measurable Temperature Increase" means an increase in stream temperature of more than 0.25°F.
- (27) "mg/l" means milligrams per liter.

- (28) "Minimum" (dissolved oxygen) means the minimum recorded concentration including seasonal and diurnal minimums.
- (29) "Natural background" is defined as background concentrations due only to non-manmade sources, e.g., non-anthropogenic.
- (30) "Natural Condition" means any physical, chemical, or biological condition existing in a water body before any significant human-caused influence on, discharge to, or addition of material to the water body.
- (31) "Nonpoint Sources" means diffuse or unconfined sources of pollution where either waste can enter into or be conveyed by the movement of water to - "waters of the Reservation".
- (32) "Numeric Temperature Criteria" are measured as the seven-day moving average of the daily maximum temperatures. If there is insufficient data to establish a seven-day moving average of maximum temperatures, the numeric criteria shall be applied as an instantaneous maximum. The measurements shall be made using a sampling protocol appropriate to indicate impact to the beneficial uses.
- (33) "Outstanding Resource Waters" means those waters designated by the Tribe where existing high quality waters constitute an outstanding Reservation resource based on their extraordinary water quality or ecological values, or where special water quality protection is needed to maintain critical habitat areas.
- (34) "Point Sources" means a stationary location or fixed facility (e.g. a pipe or ditch) from which pollution is discharged to "waters of the Reservation".
- (35) "Pollution" means such contamination or other alteration of the physical, chemical, or biological properties of any waters of the Reservation, including change in temperature, taste, color, turbidity, silt, or odor of the waters, or such radioactive or other substance into any waters of the Reservation which either by itself or in connection with any other substance present, will or can reasonably be expected to create a public nuisance or render such waters harmful, detrimental, or injurious to public health, safety, or welfare, or to domestic, commercial, cultural, industrial, agricultural, recreational, or other legitimate beneficial uses or to livestock, wildlife, fish or other aquatic life, or the habitat thereof.
- (36) "Reach" refers to a specifically identified section of a stream or water body. Reaches are identified by a "reach break" mark on each of the maps (Maps A - G). The information provided in Table 4 refers to data associated with the channel downstream of the reach break to the next "reach break" mark or the mouth of that stream.
- (37) "Resident Biological Community" means aquatic life expected to exist in a particular habitat when water quality standards for a specific ecoregion, basin, or water body are met. This shall be established by accepted biomonitoring techniques.

- (38) "Secondary Treatment" may be required in the following context:
- (a) "Sewage Wastes" means the minimum level of treatment mandated by EPA regulations pursuant to Public Law 92-500;
 - (b) "Industrial and other waste sources" imply control equivalent to best practicable treatment (BPT).
- (39) "Seven day mean minimum" (dissolved oxygen) -- The minimum of the seven (7) consecutive day floating average of the calculated daily *mean* dissolved oxygen concentration.
- (40) "Seven day minimum mean" (dissolved oxygen) -- The minimum of the seven (7) consecutive day floating average of the daily *minimum* concentration. For purposes of application of the criteria, this value will be used as a reference for diurnal minimums.
- (41) "Sewage" means the water-carried human or animal waste from residences, buildings, industrial establishments, or other places, together with such groundwater infiltration and surface water as may be present. The admixture with sewage as herein defined, of industrial waste or wastes, as defined in sections (7) and (10), shall also be considered "sewage".
- (42) "Source Specific" includes one or more discharges, including point and non-point sources, who's impacts and management practices are similar.
- (43) "Spatial Median" means the value which falls in the exact middle of a data set of multiple IGDO measurements taken within a spawning area. Half the samples should be greater than, and half the samples should be less than the spatial median.
- (44) "SS" means suspended solids.
- (45) "Thirty day (30-day) mean minimum" (dissolved oxygen) --The minimum of the 30 consecutive day floating average of the calculated daily *mean* dissolved oxygen concentration.
- (46) "Tribe" means the Confederated Tribes of the Warm Springs Indian Reservation of Oregon.
- (47) "Triennial review process" refers to Section 303(c)(1) of the Clean Water Act, which requires the Tribe shall, from time to time, but at least once every three years, hold public hearings to review applicable water quality standards and, as appropriate, to modify and adopt revised or new standards. The Tribe will follow guides provided in Chapter 6 "Procedures for Review and Revision of Water Quality Standards" from EPA's **Water Quality Standards Handbook** to conduct all triennial reviews.

- (48) "Wastes" means sewage, industrial wastes, and all other liquid, gaseous, solid, radioactive, or other substances, which will or may cause pollution or tend to cause pollution of any waters of the Reservation.
- (49) "Waters of the Reservation" means lakes, bays, ponds, impounding reservoirs, springs, wells, rivers, streams, creeks, marshes, wetlands, inlets, canals, and all other bodies of surface or underground water, natural or artificial, inland, fresh, public or private (except those private waters which do not combine or effect a junction with natural surface or underground waters), which are within the Reservation, located in the State of Oregon.
- (50) "Without Detrimental Changes in the Resident Biological Community" means no loss of ecological integrity when compared to natural conditions at an appropriate reference site or region.
- (51) "7Q10" means the lowest streamflow for seven consecutive days that occurs on average once every ten years.

432.020 General Considerations Applicable to the Entire Reservation.

- (1) In order to maintain the quality of waters on the Reservation, the following is the general policy of Tribe:
 - (a) Antidegradation Policy for Surface Waters. The purpose of the Antidegradation Policy is to guide decisions that affect water quality such that unnecessary degradation from point and non-point sources of pollution is prevented, and to protect, maintain, and enhance existing surface water quality to protect all existing beneficial uses as indicated in Table 1. The Antidegradation Policy consists of the following three tiers:
 - (A) Tier 1: Existing instream water uses and water quality necessary to support existing uses shall be maintained and protected;
 - (B) Tier 2: Where the actual water quality exceeds levels necessary to support the propagation of fish and wildlife and recreation in and on the water, that quality shall be maintained or protected unless the Tribe finds, after full satisfaction of the public participation of the Tribe's continued and integrated planning process, that
 - (1) allowing lower water quality is necessary to accommodate important economic or social development in the area where water is located and outweighs the environmental costs of lowered water quality,

¹ Definition added to amended Ordinance 80, Resolution #10,610 (March 21, 2006)

- (2) lowering the water quality will not violate the applicable criteria in Table 3, or site specific criteria established under 432.110,
 - (3) the resulting water quality will fully protect existing uses,
 - (4) lowering of a water quality standard for economic or social development purpose shall not authorize other users to increase their loading; and
 - (5) all wastes and other substances discharged will be treated and controlled to achieve:
 - (i) the highest statutory and regulatory requirements for all new and existing point sources and
 - (ii) all cost-effective and reasonable best management practices for non-point sources.
- (C) Tier 3: Where high quality waters constitute an outstanding resource of the Reservation, such as waters of National, and Tribal Wild & Scenic Areas, wildlife refuges and waters of exceptional recreational, ecological, cultural or religious significance, that water quality shall be maintained and protected. Such waters may be classified as "Outstanding Resource Waters of the Reservation".

432.025 Beneficial Water Uses to be Protected in Deschutes, Clackamas, and Santiam River Basins on the Reservation.

Water quality in the Deschutes, Clackamas, and Santiam River Basins on the Reservation shall be managed to protect the recognized beneficial uses as listed in **Table 1, and Table 4**. Within Table 1, the Tribe has made a general designation of beneficial uses within specified watershed areas. Within Table 4, and appropriate map, the Tribe has designated beneficial uses specifically for individual reaches within individual streams. This table also includes the most significant fish species associated with each reach and the most critical life history for that species within the reach. All tributaries or reaches without a specific beneficial use designation or fish species will be managed to meet the designated beneficial uses in the immediate downstream reach. These tables may be revised in the future to include additional beneficial uses as long as existing uses are protected and after full satisfaction of the public participation of the Tribes' continued and integrated planning process. Changes and revisions to this document including all figures and tables constitute changes to the water quality standards regulations and will be submitted to EPA for review and approval after adoption by the Tribe.

432.100 Water Quality Standards not to be Exceeded in Deschutes, Clackamas, and Santiam River Basins on the Reservation.

- (1) Notwithstanding the water quality standards contained below, the highest and best practicable treatment and/or control of wastes, activities, and flows shall in every case be provided so as to maintain dissolved oxygen and overall water quality at the highest possible levels and water temperatures, coliform bacteria concentrations, dissolved chemical substances, toxic materials, radioactivity, turbidities, color, odor, and other deleterious factors at the lowest possible levels.
- (2) No wastes shall be discharged and no activities shall be conducted which either alone or in combination with other wastes or activities will cause violation of the following standards in the waters of the Deschutes, Clackamas, and Santiam River Basins on the Reservation. The Tribe has designated specific water bodies and stream reaches within these basins in **Table 4**, indicating the designated beneficial use, fish species, life history and temperature regime. In **Figure 1**, the Tribe has established the period of time for native salmonid spawning, egg incubation and fry emergence.

As additional information is developed, changes may be made to **Table 4**, and **Figure 1**, based on site specific data for stream reaches, water bodies, fish species and their associated life histories. Changes may be made by the Tribe, only after full satisfaction of the public participation of the Tribe's continued integrated planning process. Changes to Table 4 and Figure 1 constitute changes to the water quality standards regulations and will be submitted to EPA for review and approval following adoption by the Tribe.

(a) Dissolved oxygen (DO):

- (A) For water bodies identified by the Tribe in **Table 4**, as providing salmonid spawning (see **Tables 5 & 6** for indigenous and introduced species list), during the periods from spawning until fry emergence from the gravels, listed in **Figure 1**, the following criteria apply:
 - (i) The seven day mean minimum dissolved oxygen shall not be less than 11.0 mg/l. However, if the minimum intergravel dissolved oxygen, measured as a spatial median, is 8.0 mg/l or greater, then the DO Criteria is 9.0 mg/l, (**Table 2**);
 - (ii) Where conditions of barometric pressure, altitude, and temperature preclude attainment of the 11.0 mg/l or 9.0 mg/l criteria, dissolved oxygen levels shall not be less than 95 percent of saturation.
 - (iii) Periods of native salmonid spawning, egg incubation, and fry emergence from the gravel are flow and temperature dependent and tend to vary with elevation. If necessary, site specific dates for these periods may be established by the Tribe after full satisfaction of the public participation of the Tribe's continued and integrated planning process. Changes to Table 4, and Figure 1, constitute changes to the

water quality standards regulations and will be submitted to EPA for review and approval following adoption by the Tribe.

- (B) For waterbodies identified by the Tribe in **Table 4**, as providing salmonid spawning, during the period from spawning until fry emergence from the gravels (**Figure 1**), the spatial median intergravel dissolved oxygen concentration shall not be less than 6.0 mg/l.
 - (C) A spatial median of 8.0 mg/l intergravel dissolved oxygen shall be used to identify areas where the designated use of salmonid spawning, egg incubation and fry emergence from the egg and from the gravels may be impaired and therefore require action by the Tribe. Upon determination that the spatial median intergravel dissolved oxygen concentration is below 8.0 mg/l, the Tribe, after full public participation in the Tribes' continued and integrated planning process, may initiate pollution control strategies as warranted, and evaluate and implement necessary best management practices for point and non-point source pollution control;
 - (D) For waterbodies identified by the Tribe in **Table 4**, as providing cold-water aquatic life, the dissolved oxygen shall not be less than 8.0 mg/l as an absolute minimum. Where conditions of barometric pressure, altitude, and temperature preclude attainment of the 8.0 mg/l, dissolved oxygen shall not be less than 90 percent of saturation. After full public participation in the Tribes continued and integrated planning process, when the Tribes determine that adequate information exists, the dissolved oxygen levels shall not fall below 8.0 mg/l as a 30-day mean minimum, 6.5 mg/l as a seven-day minimum mean, and shall not be less than 6.0 mg/l as an absolute minimum (**Table 2**);
 - (E) For waterbodies identified by the Tribe in **Table 4**, as providing cool-water aquatic life, the dissolved oxygen shall not be less than 6.5 mg/l as an absolute minimum. After full public participation in the Tribes' continued and integrated planning process, when the Tribe determines that adequate information exists, the dissolved oxygen shall not be less than 6.5 mg/l as a 30-day mean minimum, and shall not be less than 5.5 mg/l as an absolute minimum (**Table 2**);
- (b) Temperature:
- (A) No measurable surface water temperature increase resulting from anthropogenic activities is allowed unless a management plan has been reviewed and approved by the Tribe. The Tribes may allow a variance to the standards on a site specific basis in accordance with section **432.120**, and after full satisfaction of the public participation of the Tribe's continued integrated planning process. Variance standards will be set using the best

data available and reviewed every three years as part of the triennial review process. This plan must show how the thermal load is (or will be) minimized and how the activity does not (or will not) interfere with attainment of numeric criteria within the watershed in question (See attached **Table 4**, and appropriate watershed maps for locations). This standard applies to the following:

- (i) In a water body for which salmonid fish rearing (Table 4) is a designated beneficial use, and in which surface water temperatures exceed 64.0°F (17.8°C); or
 - (ii) In waters and periods of the year determined by the Tribe, (listed in **Table 4**, and **Figure 1**), to support native salmonid spawning, egg incubation, and fry emergence from the egg and from the gravels in a reach which exceeds 55.0°F (12.8°C); or
 - (iii) In waters determined by the Tribe to support or to be necessary to maintain the viability of native Oregon bull trout, (listed in **Table 4**, and **Figure 1**), when surface water temperatures exceed 50.0°F (10.0°C); or
 - (iv) In waters determined by the Tribe to be ecologically significant cold-water refugia (Table 4); or
 - (v) In stream segments containing federally listed Threatened and Endangered species; or
 - (vi) In Reservation waters when the dissolved oxygen (DO) levels are within 0.5 mg/l or 10 percent saturation of the water column or inter-gravel DO criterion for a given stream reach or sub-basin; or
 - (vii) In natural lakes.
- (B) An exceedance of the numeric criteria identified in subparagraphs (A)(i) through (iii) of this subsection will not be deemed a temperature standard violation if it occurs when the air temperature during the warmest seven-day period of the year exceeds the 90th percentile of the seven-day average daily maximum air temperature calculated in a yearly series over the historic record (local weather stations on the Reservation and in neighboring communities will be used to calculate air temperatures). All thermal sources must continue to meet permit or management plan requirements.

- 2(C) Low Flow Condition. An exceedance of the numeric criteria identified in subparagraphs A(i) through (vi) of this subsection will not be deemed a temperature standard violation during stream flows that are less than the 7Q10 low flow condition for that water body.
- (D) Any source may petition the Tribe for a variance to subparagraphs (A)(i) through (vii) of this subsection (in accordance with section 432.120) for discharge above the identified criteria if:
- (i) The source provides the necessary scientific information to describe how the designated beneficial uses would not be adversely impacted; or
 - (ii) A source is implementing all reasonable management practices or measures; its activity will not significantly affect the beneficial uses; and the environmental cost of treating the parameter to the level necessary to assure full protection would outweigh the risk to the resource.
- (c) Turbidity (Nephelometric Turbidity Units, NTU): No more than a ten percent cumulative increase in natural stream turbidities shall be allowed, as measured relative to a control point immediately upstream of any or all turbidity-causing activity(ies). However, limited duration activities necessary to address an emergency or to accommodate essential dredging, construction or other legitimate activities and which cause the standard to be exceeded may be authorized provided all practicable turbidity control techniques have been applied and one of the following has been granted:
- (A) Emergency activities: Approval by Tribe under conditions they may prescribe to accommodate response to emergencies or to protect public health and welfare;
 - (B) Dredging, Construction or other Legitimate Activities: Permit or certification authorized under terms of Section 401 or 404 (Permits and Licenses, Federal Water Pollution Control Act), and Tribal Hydraulic Permit Application (HPA), with limitations and conditions governing the activity set forth in the permit or certificate.
- (d) pH (hydrogen ion concentration): pH values shall not fall outside the range of 6.5 – 8.5 with the following exception:

Waters impounded by dams existing prior to adoption of these water quality standards, which exceed the pH criterion shall not trigger a violation of the standard provided the following conditions are met:

- (A) The exceedance of the pH criterion occurs as a result of the impoundment, in response to primary productivity supported by nutrients that arise from sources not associated with the impoundments; and
 - (B) All practicable measures have been taken to minimize the factors related to the impoundment that lead to increased primary productivity.
 - (C) In cases where this exemption could be applied, the Tribe will work closely with all involved entities to help develop a TMDL for the watershed, develop a site specific criterion for the waterbody, or develop a use attainability analysis to modify the use for portions of the reservoir.
- (e) Bacteria standards:
- (A) Numeric Criteria: Organisms of the coliform group commonly associated with fecal sources (MPN or equivalent membrane filtration using a representative number of samples) shall not exceed the criteria described in subparagraphs (i) and (ii) of this paragraph. For freshwaters:
 - 3(i) A 30-day geometric mean of 126 *E. coli* organisms per 100 ml, based on a minimum of five (5) samples;
 - (ii) No single sample shall exceed 406 *E. coli* organisms per 100 ml;
 - (B) Raw Sewage Prohibition: No sewage shall be discharged into or in any other manner be allowed to enter the waters of the Reservation unless such sewage has been treated in a manner approved by the Tribe or otherwise allowed by these standards;
 - (C) Animal Waste: Runoff contaminated with domesticated animal wastes shall be minimized and treated to the maximum extent practicable before it is allowed to enter waters of the Reservation;
- (f) Bacterial pollution or other conditions deleterious to waters used for domestic purposes, livestock watering, irrigation, bathing, or otherwise injurious to public health shall not be allowed;
- (g) The liberation of dissolved gases, such as carbon dioxide, hydrogen sulfide, or other gases, in sufficient quantities to cause objectionable odors or to be deleterious

³ Statistical method changed to adhere to EPA standards in amended Ordinance 80, Resolution #10,610 (March 21, 2006)

to fish or other aquatic life, recreation, or other reasonable uses made of such waters shall not be allowed;

- (h) The development of fungi, algae or other growths having a deleterious effect on stream bottoms, fish or other aquatic life, or which are injurious to health, recreation, or industry shall not be allowed;
- (i) The creation of tastes or odors or toxic or other conditions that are deleterious to fish or other aquatic life or adversely affect the potability of drinking water or the palatability of fish or shellfish shall not be allowed;
- (j) The formation of appreciable bottom or sludge deposits or the formation of organic or inorganic deposits deleterious to fish or other aquatic life or injurious to public health, recreation, or industry shall not be allowed;
- (k) Objectionable discoloration, scum, oily sleek or floating solids, or coating of aquatic life with oil films shall not be allowed;
- (l) Aesthetic conditions offensive to the human senses of sight, taste, smell, or touch shall not be allowed;
- (m) Radioisotope concentrations shall not exceed concentrations which result in a significant hazard to public health in drinking water in accordance with the Federal Safe Drinking Water Act, or which may cause acute or chronic toxic conditions to aquatic biota, or which may adversely affect designated beneficial uses.
- (n) The concentration of total dissolved gas relative to atmospheric pressure at the point of sample collection shall not exceed 110 percent of saturation, except when stream flow exceeds the ten-year, seven-day average flood. However, for hatchery receiving waters and waters of less than two feet in depth, the concentration of total dissolved gas relative to atmospheric pressure at the point of sample collection shall not exceed 105 percent of saturation;
- (o) Total Dissolved Solids: Criteria listed below shall not be exceeded unless otherwise specifically authorized by the Tribe upon such conditions as it may deem necessary to carry out the general intent of this plan and to protect the beneficial uses:
 - (A) Deschutes River Basin on the Reservation.....500.0 mg/l;
- Sodium Chlorides and Sulfates in domestic water sources.....250.0 mg/l;
 - (B) Clackamas and Santiam River Basins on the Reservation.....100.0 mg/l;
- (p) Toxic Substances:

- (A) Toxic substances shall not be introduced to the waters of the Reservation in amounts, concentrations, or combinations which may be harmful, may chemically change to harmful forms in the environment, or may accumulate in sediments or bioaccumulate in aquatic life or wildlife to levels that adversely affect public health, safety, or welfare; aquatic life; wildlife; or other designated beneficial uses;
- 4(B) Levels of toxic substances shall not exceed the criteria listed in **5Table 3, Water Quality Criteria Summary**, which were primarily based on criteria established by EPA and published in *National Recommended Water Quality Criteria*, (EPA-822 2004). Human health criteria were revised using EPA's latest methodology, *Methodology for Deriving Ambient Water Quality Criteria for the Protection of Human Health* (EPA-822-B-00-004, October 2000). A fish consumption rate was derived from Table 7 of *A fish consumption survey of the Umatilla, Nez Perce, Yakama, and Warm Springs Tribes of the Columbia River Basin* (CRITFC, Technical Report No. 94-3, October 1994). A fish consumption rate of 170 grams per day was established from Table 7 in order to protect 95% of the Tribal population.
- (C) The criteria in paragraph (B) of this subsection shall apply unless data from scientifically valid studies demonstrate that the most sensitive designated beneficial uses will not be adversely affected by exceeding a criterion or that a more restrictive criterion is warranted to protect beneficial uses, as accepted by the Tribe on a site specific basis in accordance with section 432.110 and after full satisfaction of the public participation of the Tribe's continued integrated planning process. Where no published EPA criteria exist for a toxic substance, public health advisories and other published scientific literature may be considered and used, if appropriate, to set guidance values;
- (D) Bio-assessment studies such as laboratory bioassays or instream measurements of indigenous biological communities, shall be conducted, as the Tribe deems necessary, to monitor the toxicity of complex effluents, other suspected discharges or chemical substances without numeric criteria, to aquatic life. These studies, properly conducted in accordance with standard testing procedures, may be considered as scientifically valid data for the purposes of paragraph (C) of this subsection. If toxicity occurs, the Tribe shall evaluate and implement measures necessary to reduce toxicity on a case-by-case basis.

4 Used updated methodology for calculating human health criteria and identified a new fish consumption rate from CRITFC's Technical Report #94-3, October 1994 in amended Ordinance 80, Resolution #10,610 (March 21, 2006)

5 Updated to reflect new fish consumption rate and current EPA standards in amended Ordinance 80, Resolution #10,610 (March 21, 2006)

- (3) Where the naturally-occurring quality parameters of waters of the Deschutes, Clackamas, and Santiam River Basins on the Reservation are outside the numerical limits of the above assigned water quality standards, the natural background water quality shall be the standard. Where no historical or background data exists, data collection and analyses for a 10-year period will be used to determine the standard. Data from an appropriate reference site, which reflects the natural condition, may also be used for this purpose. The Tribes will establish interim standards on a site specific basis according to section 432.110.
- (4) Mixing zones:
- (a) The Tribe may allow a designated portion of a receiving water to serve as a zone of dilution for wastewaters and receiving waters to mix thoroughly and this zone will be defined as a mixing zone. Mixing zones will not have a reasonable potential to substantially interfere with the existing and designated uses of a waterbody. No mixing will be allowed where the presence of a mixing zone may result in any adverse affect to Threatened and Endangered species;
- (b) The Tribe may suspend all or part of the water quality standards, or set less restrictive standards, in the defined mixing zone, provided that the following conditions are met:
- (A) The water within the mixing zone shall be free of:
- (i) Materials in concentrations that will cause acute toxicity to aquatic life as measured by an EPA approved bioassay method. Acute toxicity is lethal to aquatic life as measured by a significant difference in lethal concentration between the control and 100 percent effluent in an acute bioassay test. Lethality in 100 percent effluent may be allowed due to ammonia and chlorine only when it is demonstrated on a case-by-case basis that immediate dilution of the effluent within the mixing zone reduces toxicity below lethal concentrations. The Tribe may on a case-by-case basis establish a zone of immediate dilution if appropriate for other parameters;
- (ii) Materials that will settle to form objectionable deposits;
- (iii) Floating debris, oil, scum, or other materials that cause nuisance conditions;
- (iv) Substances in concentrations that produce deleterious amounts of fungal or bacterial growths.
- (v) Substances in concentrations that produce objectionable color, odor, taste or turbidity.

- (B) The water outside the boundary of the mixing zone shall:
 - (i) Be free of materials in concentrations that will cause chronic (sub-lethal) toxicity. Chronic toxicity is measured as the concentration that causes long-term sub-lethal effects, such as significantly impaired growth or reproduction in aquatic organisms, during a testing period based on test species life cycle. Procedures and end points will be specified in wastewater discharge permits;
 - (ii) Meet all other water quality standards during low flow conditions as specified in EPA's National Toxics Rule - 7Q10 for chronic toxicity, 1Q10 for acute toxicity, and the harmonic mean flow for carcinogens.

- (c) The limits of the mixing zone shall be described in the wastewater discharge permit. In determining the location, surface area, and volume of a mixing zone area, the Tribe may use appropriate mixing zone guidelines to assess the biological, physical, and chemical character of receiving waters, and effluent, and the most appropriate placement of the outfall, to protect instream water quality, public health, and other beneficial uses. Based on receiving water and effluent characteristics, the Tribe shall define a mixing zone in the immediate area of a wastewater discharge to:
 - (A) Be as small as feasible;
 - (B) Avoid overlap with any other mixing zones to the extent possible and be less than the total stream width as necessary to allow passage of fish and other aquatic organisms;
 - (C) Minimize adverse effects on the indigenous biological community especially when species are present that warrant special protection for their economic importance, tribal significance, ecological uniqueness, cultural value or for other similar reasons as determined by the Tribe and does not block the free passage of aquatic life;
 - (D) Not threaten public health;
 - (E) Minimize adverse effects on other designated beneficial uses outside the mixing zone.

- (d) The Tribe may request a permitted discharge for which a mixing zone is required, to submit all information necessary to define a mixing zone, such as:
 - (A) Type of operation to be conducted;

- (B) Characteristics of effluent flow rates and composition;
 - (C) Characteristics of low flows of receiving waters;
 - (D) Description of potential environmental effects;
 - (E) Proposed design for outfall structures.
- (e) The Tribe may, as necessary, require mixing zone monitoring studies and/or bioassays to be conducted to evaluate water quality or biological status within and outside the mixing zone boundary;
 - (f) The Tribe may change mixing zone limits or require the relocation of an outfall if it determines that the water quality within the mixing zone adversely affects any existing beneficial uses in the receiving waters.
- (5) ALLOWANCE FOR COMPLIANCE SCHEDULES
- (a) NPDES permits, and orders and directives of the Department issued under Tribal authority, for existing discharges or activities may include a schedule for achieving compliance with water quality criteria contained in this chapter. Such schedules of compliance shall be developed to ensure final compliance with all water quality criteria in the shortest practicable time, but not to exceed five years. Decisions regarding whether to issue schedules of compliance will be made on a case-by-case basis by the permitting agency and must be approved by the Tribe. Schedules of compliance may not be issued for new discharges or activities. Schedules of compliance may be issued to allow for:
 - (A) construction of necessary treatment capability;
 - (B) implementation of necessary best management practices;
 - (C) implementation of additional best management practices for sources determined not to meet water quality criteria following implementation of an initial set of best management practices;
 - (D) completion of necessary water quality studies.
 - (b) For the period of time during which compliance with water quality criteria is deferred, interim limitations and/or other conditions may formally be established, based on the best professional judgment of the permitting agency and the Tribe.
 - (c) Prior to establishing a schedule for compliance, the permitting agency shall require the permittee to evaluate the possibility of achieving water quality criteria via non-construction changes (e.g. facility operation, pollution prevention).

- (6) Testing methods: The analytical testing methods for determining compliance with the water quality standards contained in this ordinance shall be in accordance with the most recent edition of **Standard Methods for the Examination of Water and Waste Water published jointly by the American Public Health Association, American Water Works Association, and Water Pollution Control Federation** and other methods approved by EPA or the Tribes.

432.110 Site Specific Criteria and Criteria based on Natural Condition.

- (1) The Tribe may revise criteria on a Reservation-wide or waterbody specific basis as needed to protect aquatic life and human health and other existing and designated uses and to increase the technical accuracy of the criteria being applied.
 - (a) Whenever the natural conditions of the surface waters of the Tribes are of a lower quality than criteria assigned, the Tribe may determine that the natural conditions shall constitute the water quality criteria.
 - (A) If the natural condition varies with time, the natural condition will be determined as the prevailing highest quality natural condition measured during an annual, seasonal, or shorter period of time prior to human caused influence.
 - (B) The Tribe may, at its' discretion, determine a natural condition for one or more seasonal or shorter time periods to reflect variable ambient conditions.
 - (C) Historical data or data from an appropriate reference site, that represent natural condition, may be used to determine the criterion.
- (2) Any modifications to the criteria in Table 3, will be adopted in regulation.
- (3) The Tribe shall formally adopt any revised criteria following public review and comment.
- (4) Revised criteria will be submitted to EPA, after adoption by the Tribe, for review along with any information that will aid EPA to determine the adequacy of the scientific basis of the revised criteria.

432.120 Variations from Water Quality Standards.

- (1) Variations from meeting certain water quality standards may be granted by the Tribe provided they are consistent with the following requirements:
 - (a) When granted by the Tribe, individual variations are to be pollutant and source specific, and will be included as a part of this section.

- (b) In order to obtain a variance from a water quality standard the discharger must demonstrate that meeting the standard is unattainable based on one or more of the following grounds:
 - (A) Naturally occurring pollutant concentrations prevent attainment of the standard, or,
 - (B) Natural, ephemeral, intermittent, or low flow conditions or water levels prevent attainment of the standard, or,
 - (C) Human caused conditions or sources of pollutants prevent attainment of the standard and cannot be remedied or would cause more environmental damage to correct than to leave in place.
 - (D) Dams, diversions or other type of hydrologic modifications preclude attainment of the standard, and it is not feasible to restore the water body to its original condition or to operate such modification in a way that would result in attainment of the standard, or,
 - (E) Physical conditions related to the natural features of the water body, unrelated to water quality, preclude attainment of the standard, or,
 - (F) Controls more stringent than technology-based effluent limitations would result in substantial and widespread economic and social impact.
- (c) The discharger must submit to the Tribe documentation that treatment(s) more advanced than required by technology-based effluent limitations has/have been considered and that alternative effluent control strategies have been evaluated.
- (d) Any variance granted by the Tribe will remain in effect for a period of five years or the life of the permit.
 - (A) Upon expiration of the five-year time period or permit, the discharger must either meet the standard or must re-apply for the variance in accordance with these rules.
 - (B) In considering a re-application for a variance, the Tribe will require the discharger to demonstrate reasonable progress toward meeting the standard.

432.200 Minimum Design Criteria for Treatment and Control of Wastes for the Deschutes, Clackamas, and Santiam River Basins on the Reservation.

Prior to discharge of any wastes from any new or modified facility to any waters of the Deschutes, Clackamas, and Santiam River Basins on the Reservation, such wastes shall be treated and

controlled in facilities designed in accordance with the following minimum criteria. (In designing treatment facilities, average conditions and a normal range of variability are generally used in establishing design criteria. A facility once completed and placed in operation should operate at or near the design limit most of the time but may operate below the design criteria limit at times due to variables, which are unpredictable or uncontrollable. This is particularly true for biological treatment facilities. The actual operating limits are intended to be established by permit and recognize that the actual performance level may at times be less than the design criteria).

(1) Sewage wastes:

(a) Deschutes River downstream from the Reservation boundary to the Pelton Regulating Dam (river mile 100):

(A) During periods of low stream flows (approximately April 1 to October 31): Treatment resulting in monthly average effluent concentrations not to exceed 10 mg/l of BOD and 10 mg/l of SS or equivalent control;

(B) During the period of high stream flows (approximately November 1 to March 31): A minimum of secondary treatment or equivalent control and unless otherwise specifically authorized by the Department, operation of all waste treatment and control facilities at maximum practicable efficiency and effectiveness so as to minimize waste discharges to public waters.

(b) Deschutes from the Pelton Regulating Dam (river mile 100) downstream to the point where it flows off the Warm Springs Reservation:

(A) During periods of low stream flows (approximately April 1 to October 31): Treatment resulting in monthly average effluent concentrations not to exceed 10 mg/l of BOD and 10 mg/l of SS or equivalent control;

(B) During the period of high stream flows (approximately November 1 to March 31): A minimum of secondary treatment or equivalent control and unless otherwise specifically authorized by the Department, operation of all waste treatment and control facilities at maximum practicable efficiency and effectiveness so as to minimize waste discharges to public waters.

(c) Tributaries to the Deschutes River on the Reservation:

(A) During periods of low stream flows (approximately April 1 to October 31): Treatment resulting in monthly average effluent concentrations not to exceed 10 mg/l of BOD and 10 mg/l of SS or equivalent control;

(B) During the period of high stream flows (approximately November 1 to March 31): A minimum of secondary treatment or equivalent control and unless otherwise specifically authorized by the Department, operation of all

waste treatment and control facilities at maximum practicable efficiency and effectiveness so as to minimize waste discharges to public waters.

- (d) Metolius River downstream from the Reservation boundary and its' tributaries on the Reservation:
 - (A) Treatment resulting in monthly average effluent concentrations not to exceed 5 mg/l of BOD and 5 mg/l of SS or equivalent control.
 - (e) Tributaries to the Clackamas and Santiam Rivers on the Reservation:
 - (A) During periods of low stream flows (approximately May 1 to October 31): Treatment resulting in monthly average effluent concentrations not to exceed 10 mg/l of BOD and 10 mg/l of SS or equivalent control;
 - (B) During the period of high stream flows (approximately November 1 to April 30): A minimum of secondary treatment or equivalent control and unless otherwise specifically authorized by the Department, operation of all waste treatment and control facilities at maximum practical efficiency and effectiveness so as to minimize waste discharges to public waters.
 - (f) Effluent BOD concentrations in mg/l, divided by the dilution factor (ratio of receiving stream flow to effluent flow) shall not exceed one unless otherwise specifically approved by the Tribe;
 - (g) Sewage wastes shall be disinfected after treatment equivalent to thorough mixing with sufficient chlorine to provide a residual of at least one part per million after 60 minutes of contact time unless otherwise specifically authorized by permit. In the event that Chlorine is used as the disinfectant, effluent chlorine concentrations in ug/l, divided by the dilution factor (ratio of receiving stream flow to effluent flow) shall not exceed eleven.
 - (h) Positive protection shall be provided to prevent bypassing raw or inadequately treated sewage to public waters unless otherwise approved by the Tribe where elimination of inflow and infiltration would be necessary but not presently practicable;
 - (i) More stringent waste treatment and control requirements may be imposed where special conditions may require.
- (2) Industrial wastes:
- (a) After maximum practicable inplant control, a minimum of secondary treatment or equivalent control (reduction of suspended solids and organic material where present in significant quantities, effective disinfection where bacterial organisms of

public health significance are present, and control of toxic or other deleterious substances) is required;

- (b) Specific industrial waste treatment requirements shall be determined on an individual basis in accordance with the provisions of this plan, applicable federal requirements, and the following:
 - (A) The uses, which are or may likely be made of the receiving stream;
 - (B) The size and nature of flow of the receiving stream;
 - (C) The quantity and quality of wastes to be treated; and
 - (D) The presence or absence of other sources of pollution in the same watershed.
- (c) Where industrial, commercial, or agricultural effluents contain significant quantities of potentially toxic elements, treatment requirements shall be determined utilizing appropriate bioassays;
- (d) Industrial cooling waters containing significant heat loads shall be subjected to offstream cooling or heat recovery prior to discharge to public waters;
- (e) Positive protection shall be provided to prevent bypassing of raw or inadequately treated industrial wastes to any Waters of the Reservation;
- (f) Facilities shall be provided to prevent and contain spills of potentially toxic or hazardous materials and a positive program for containment and cleanup of such spills should they occur shall be developed and maintained.

432.300 Biological Criteria

Surface waters of the Reservation shall be of sufficient quality to support native aquatic species without detrimental changes in the resident biological communities.

432.400 Nuisance Phytoplankton Growth

The following values and implementation program shall be applied to lakes, reservoirs, and streams, except for ponds and reservoirs less than 10 acres in surface area and marshes:

- (1) The following average Chlorophyll a values shall be used to identify water bodies where phytoplankton may impair the recognized beneficial uses:
 - (a) Natural lakes, which thermally stratify on the Reservation: 0.01 mg/l;

- (b) Natural lakes and reservoirs, which do not thermally stratify, and streams on the Reservation: 0.015 mg/l.
- (2) Average Chlorophyll a values shall be based on the following methodology: A minimum of three samples collected over any three consecutive months at a minimum of one representative location (e.g., above the deepest point of a lake or reservoir or at a point mid-flow of a river) from samples integrated from the surface to a depth equal to twice the secchi depth or the bottom (the lesser of the two depths); analytical and quality assurance methods shall be in accordance with the most recent edition of **Standard Methods for the Examination of Water and Wastewater** and other methods approved by EPA or the Tribe.
- (3) Upon determination by the Tribe that the values in section (1) of this standard are exceeded, the Tribe may:
 - (a) Approve a schedule for completion and authorize such studies as are necessary to describe present water quality; determine the impacts on beneficial uses; determine the probable causes of the exceedance and beneficial use impact; and develop a proposed control strategy for attaining compliance where technically and economically practicable. Proposed strategies could include standards for additional pollutant parameters, pollutant discharge load limitations, and other such provisions as may be appropriate. Where natural conditions are responsible for exceedance of the values in section (1) of this standard or beneficial uses are not impaired, the values in section (1) of this standard may be modified to an appropriate value for that water body;
 - (b) Conduct necessary public hearings preliminary to adoption of a control strategy, standards or modified values; and
 - (c) Implement the strategy upon adoption by the Tribe.
- (4) In cases where waters exceed the values in section (1) and the necessary studies are not completed, the Tribe may approve new activities, new or additional discharge loadings from point sources provided that it is determined that beneficial uses would not be significantly impaired by the new activity or discharge.

432.500 Special Policies and Guidelines for waters of the Clackamas and North Santiam River basins on the Reservation:

In order to preserve the existing high quality water for municipal water supplies and recreation, it is the policy of the Tribe to prohibit any new or increased discharge of sewage or process wastes to the waters of the Clackamas and the Santiam River basins on the Reservation.

Support Documents: The publication(s) referred to or incorporated by reference in this document are available from the office of the Department of Natural Resources.

TABLE 1
BENEFICIAL USES for the
DESCHUTES, CLACKAMAS, and SANTIAM RIVER BASINS
on the RESERVATION

Use No.	Beneficial Uses	Deschutes River tributaries	Deschutes River mainstem downstream to Pelton Regulating Dam	Deschutes River Main Stem downstream from Pelton Regulating Dam to the point where it flows off the Warm Springs Reservation	Pelton-Round Butte project reservoir complex ^a	Metolius River and tributaries	Clackamas River and Tributaries	Santiam River and tributaries
1	Public domestic water supply ^b	X	X	X	X	X	X	X
2	Private domestic water supply	X	X	X	X	X	X	X
3	Industrial water supply	X	X	X	X	X	X	X
4	Irrigation	X	X	X	X	X	X	X
5	Livestock watering	X	X	X	X	X	X	X
6	Anadromous fish passage ^c	X	X	X	X	X		
7	Salmonid fish rearing ^c	X	X	X	X	X	X	X
8	Salmonid fish spawning ^c	X	X	X	X	X	X	X
9	Resident Fish and Aquatic life ^c	X	X	X	X	X	X	X
10	Wildlife and Hunting	X	X	X	X	X	X	X
11	Fishing	X	X	X	X	X	X	X
12	Boating / Rafting	X	X	X	X			
13	Water contact recreation	X	X	X	X	X	X	X
14	Aesthetic quality	X	X	X	X	X	X	X
15	Hydro Power		X		X	X ^d		
16	Commercial Navigation & Transportation ^e							
17	Cultural and Religious practices	X	X	X	X	X	X	X

- a. Includes Lake Billy Chinook, Lake Simtustus, and regulating pool.
- b. With adequate pretreatment (filtration and disinfection) and natural quality to meet drinking water standards.
- c. Beneficial uses (Table 4 and appropriate watershed maps) associated with these fisheries and cold or cool depend upon species and life stages of species.
- d. In the early 1980's the Tribes completed a feasibility study for a hydropower facility on the Whitewater River. This project may be pursued in the future.

- e. The Deschutes, Clackamas, and Santiam River Basins on the Reservation are considered to be non-navigable.

TABLE 1A: Criteria to Support Designated Beneficial Uses on the Warm Springs Reservation of Oregon.

Designated Uses	Applicable Criteria
1. Public domestic water supply	Drinking Water primary and secondary MCL's, TDS criterion, narrative criteria, bacterial criteria, pH,
2. Private domestic water	Drinking water primary and secondary MCL's, narrative criteria, TDS Criterion, bacterial criteria, pH,
3. Industrial water supply	pH criteria, narrative criteria
4. Irrigation	pH Criteria, narrative criteria
5. Livestock watering	aquatic life criteria, pH Criteria, narrative criteria
6. Anadromous fish passage	Table 3 aquatic life and human health criteria, temperature criteria, DO criteria, narrative criteria, toxics narrative criteria, turbidity, TDG
7. Salmonid fish rearing	Table 3 aquatic life and human health criteria, temperature criteria, DO criteria, narrative criteria, toxics narrative criteria, turbidity, TDG
8. Salmonid fish spawning	Table 3 aquatic life and human health criteria, salmonid spawning DO, salmonid spawning temperature, narrative criteria, toxics narrative criteria, turbidity, TDG
9. Resident Fish and Aquatic Life	Table 3 aquatic life and human health criteria, temperature criteria, DO criteria, narrative criteria, toxics narrative criteria, turbidity, TDG
10. Wildlife and Hunting	Narrative Criteria, bacteria criteria
11. Fishing	Bacteria criteria
12. Boating / Rafting	Bacteria criteria
13. Water Contact Recreation	Bacteria criteria
14. Aesthetic Quality	Narrative criteria
15. Hydro-Power	Narrative criteria
16. Commercial Navigation & Transportation	NONE – No Reservation waters are designated as navigable.
17. Cultural & Religious practices	Bacteria criteria, narrative criteria

The applicable Criteria for each designated beneficial use may be adjusted on an as need basis by the Tribal Water Control Board following appropriate notice to Tribal Governmental Agencies and Tribal members.

TABLE 2

DISSOLVED OXYGEN CRITERIA

Class	Concentration and Period ¹ (All Units Are mg/l)				Use/Level of Protection
	30-D	7-D	7-Mi	Min	
Salmonid Spawning		11.0 ^{2,3}		9.0 ³	Principal use of salmonid spawning and incubation of embryos until emergence from the gravels. Low risk of impairment to cold-water aquatic life, other native fish and invertebrates. The IGDO criteria represents an acute threshold for survival based on field studies.
				8.0 ⁴ 6.0 ⁵	
Cold Water	8.0		6.5	6.0	Principally cold-water aquatic life. Salmon, trout, cold-water invertebrates, and other native cold-water species exist throughout all or most of the year. Juvenile anadromous salmonids may rear throughout the year. No measurable risk level for these communities
Cool Water	6.5			5.5	Mixed native cool-water aquatic life, such as sculpins and lampreys. Water bodies includes estuaries. No measurable risk to cool-water species, slight risk to cold-water species present.
No Risk	No Change from Background				The only DO criterion that provides no additional risk is "no change from background". Water bodies accorded this level of protection include natural and conditional use areas (i.e. Wilderness areas).
1	30-D = 30-day mean minimum as defined. 7-D = 7-day mean minimum as defined. 7-mi = 7-day minimum as defined. Min = Absolute minimums for surface samples when applying the averaging period spatial median of IGDO.				
2	When Inter-gravel DO levels are 8.0 mg/l or greater, DO levels may be as low as 9.0 mg/l as an absolute minimum, without triggering a violation.				
3	If conditions of barometric pressure, altitude and temperature preclude achievement of the footnoted criteria, then 95 percent saturation applies.				
4	Inter-gravel DO action level, spatial median minimum				
5	Inter-gravel DO criterion, spatial median minimum				
Notes: Shaded values represent the absolute minimum criteria, unless the Tribes believe that adequate data exists to apply the multiple criteria and associated periods. Periods of salmonid spawning, egg incubation, and fry emergence are detailed in Figure 1.					

***Table 3 Water Quality Criteria Summary**

Compound Name (or Class)	Priority Pollutant	Carcinogen	Concentration in Micrograms Per Liter (ug/l) for Protection of Aquatic Life		Concentration in Micrograms Per Liter (ug/l) For Protection of Human Health			
			Fresh Acute Criteria (CMC)	Fresh Chronic Criteria (CCC)	Water & Fish Ingestion	Fish Consumption Only	Drinking Water M.C.L.	
Acenaphthene	Y	N			97.4 b,u	102 b,u		
Acenaphthylene	Y	Y						
Acrolein	Y	N			28.3	29.9		
Acrylonitrile	Y	Y			0.0183 b,c	0.0245 b,c		
Aldrin	Y	Y	3.0 g		0.00000517 b,c	0.00000519 b,c		
Alkalinity	N	N		20,000				
Aluminum	N	N	750	87				
Ammonia	N	N	See Notes Below / Use National Criteria in EPA's Quality Criteria for Water 1986					
Anthracene	Y	Y			2,960 b	4,120 b		
Antimony	Y	N			5.16 b	65.9 b		
Arsenic	Y	Y	340 a,d,k	150 a,d,k	0.00422 c,m,s	0.00535 c,m,s	0.01mg	
Asbestos	Y	Y			7.0E+06 fibers/l			
Benzene	Y	Y			0.441 b,c	1.44 b,c		
Benidine	Y	Y			0.000018 b,c	0.0000205 b,c		
Benzo(a)Anthracene	Y	Y			0.00135 b,c	0.00188 b,c		
Benzo(a)Pyrene	Y	Y			0.00135 b,c	0.00188 b,c		
Benzo(b)Fluoranthene	Y	Y			0.00135 b,c	0.00188 b,c		
Benzo(g,h,i)Perylene	Y	Y						
Benzo(k)Fluoranthene	Y	Y			0.00135 b,c	0.00188 b,c		
Beryllium	Y	Y						
BHC alpha-	Y	Y			0.000461 b,c	0.000503 b,c		
BHC beta-	Y	Y			0.00161 b,c	0.00176 b,c		
BHC delta-	Y	Y						

***Table 3 Water Quality Criteria Summary**

Compound Name (or Class)	Priority Pollutant	Carcinogen	Concentration in Micrograms Per Liter (ug/l) for Protection of Aquatic Life		Concentration in Micrograms Per Liter (ug/l) For Protection of Human Health		
			Fresh Acute Criteria (CMC)	Fresh Chronic Criteria (CCC)	Water & Fish Ingestion	Fish Consumption Only	Drinking Water M.C.L.
BHC gamma- (Lindane)	Y	N	0.95 k	0.08	0.174	0.19	
Boron	N	N	750 lcr				
Bromoform	Y	Y			3.36 b,c	13.9 b,c	
4-Bromophenyl Phenyl Ether	Y	N					
Butylbenzyl Phthalate	Y	N			193 b	199 b	
Cadmium	Y	N	2 d,e,k,bb	0.25 d,e,k,bb	z		0.005mg
Carbon Tetrachloride	Y	Y			0.104 b,c	0.169 b,c	
Chlordane	Y	Y	2.4 g	0.0043 g,aa	0.0000834 b,c	0.0000834 b,c	
Chlorobenzene	Y	N			74.6 z,u	160 u	
Chlorodibromomethane	Y	Y			0.316 b,c	1.31 b,c	
Chloroethane	Y	N					
Chloride	N	N	860mg/l	230mg/l			
Chlorine	N	N	19	11			
Chlorpyrifos	N	N	0.083	0.041			
Bis(2-Chloroethoxy)Methane	Y	N					
Bis(2-Chloroethyl)Ether	Y	Y			0.0201 b,c	0.0543 b,c	
Bis(Chloromethyl)Ether	N	Y			0.000025 e	0.0000297 e	
2-Chloroethylvinyl Ether	Y	N					
Chloroform	Y	Y			4.35 c,p	18 c,p	
Bis(2-Chloroisopropyl)Ether	Y	N			1,160 b	6,670 b	
2-Chloronaphthalene	Y	N			154 b	163 b	
2-Chlorophenol	Y	N			14.1 b,u	15.4 b,u	
Chlorophenoxy Herbicides(2,4,5-TP)	N	N			10		
Chlorophenoxy Herbicides(2,4-D)	N	N			100		
4-Chlorophenyl Phenyl Ether	Y	N					
3-Methyl-4-Chlorophenol	Y	N			u	u	

***Table 3 Water Quality Criteria Summary**

Compound Name (or Class)	Priority Pollutant	Carcinogen	Concentration in Micrograms Per Liter (ug/l) for Protection of Aquatic Life		Concentration in Micrograms Per Liter (ug/l) For Protection of Human Health		
			Fresh Acute Criteria (CMC)	Fresh Chronic Criteria (CCC)	Water & Fish Ingestion	Fish Consumption Only	Drinking Water M.C.L.
Chromium (III)	Y	N	570 d,e,k	74 d,e,k	z Total		0.05mg
Chromium (VI)	Y	N	16	11 d,k	z Total		
Chrysene	Y	N			0.00135 b,c	0.00188 b,c	
Copper	Y	N	13 d,e,k,cc	9 d,e,k,cc	1300		
Cyanide	Y	N	22 k,q	5.2 k,q	129 jj	129 jj	
Demeton	N	N		0.1			
DDT 4,4'-	Y	Y	1.1 g,ii	0.001 g,aa,ii	0.0000226 b,c	0.0000226 b,c	
DDE 4,4'-	Y	Y			0.0000226 b,c	0.0000226 b,c	
DDD 4,4'-	Y	Y			0.000032 b,c	0.000032 b,c	
Dibenzo(a,h)Anthracene	Y	Y			0.00135 b,c	0.00188 b,c	
1,2-Dichlorobenzene	Y	N			110	133	
1,3-Dichlorobenzene	Y	N			81.9	99.2	
1,4-Dichlorobenzene	Y	N			16.4	19.8	
3,3'-Dichlorobenzidine	Y	Y			0.00283 b,c	0.00293 b,c	
Dichlorobromomethane	Y	Y			0.428 b,c	1.77 b,c	
1,1-Dichloroethane	Y	Y					
1,2-Dichloroethane	Y	Y			0.349 b,c	3.77 b,c	
1,1-Dichloroethylene	Y	Y			237	735	
2,4-Dichlorophenol	Y	N			23.5 b,u	30.4 b,u	
1,2-Dichloropropane	Y	Y			0.387 b,c	1.5 b,c	
1,3-Dichloropropene	Y	N			0.301 c	2.17 c	
Dieldrin	Y	Y	0.24 k	0.056 k,o	0.0000055 b,c	0.00000551 b,c	
Diethyl Phthalate	Y	N			3890 b	4510 b	
2,4-Dimethylphenol	Y	N			78 b	87.8 b,u	

***Table 3 Water Quality Criteria Summary**

Compound Name (or Class)	Priority Pollutant	Carcinogen	Concentration in Micrograms Per Liter (ug/l) for Protection of Aquatic Life		Concentration in Micrograms Per Liter (ug/l) For Protection of Human Health		
			Fresh Acute Criteria (CMC)	Fresh Chronic Criteria (CCC)	Water & Fish Ingestion	Fish Consumption Only	Drinking Water M.C.L.
Dimethyl Phthalate	Y	N			86,200	114,000	
Di-n-Butyl Phthalate	Y	N			409 b	463 b	
2,4-Dinitrophenol	Y	N			62.1 b	549 b	
Dinitrophenols	Y				62	545	
2,4-Dinitrotoluene	Y	Y			0.0851 c	0.348 c	
2,6-Dinitrotoluene	Y	Y					
Di-n-Octyl Phthalate	Y	N					
Dioxin (2,3,7,8-TCDD)	Y	Y			5.27E-10	5.28E-10	
1,2-Diphenylhydrazine	Y	Y			0.014 b,c	0.0207 b,c	
Bis(2-Ethylhexyl)Phthalate	Y	Y			0.207 b,c	0.226 b,c	
Endosulfan alpha-	Y	N	0.22 g,y	0.056 g,y	8.77 b	9.15 b	
Endosulfan beta-	Y	N	0.22 g,y	0.056 g,y	8.77 b	9.15 b	
Endosulfan Sulfate	Y	N			8.77 b	9.15 b	
Endrin	Y	N	0.086 k	0.036 k,o	0.0062	0.00622	
Endrin Aldehyde	Y	N			0.031 b	0.0311 b	
Ethylbenzene	Y	N			167	220	
Fluoranthene	Y	N			14.2 b	14.3 b	
Fluorene	Y	N			394 b	549 b	
Guthion	N	N		0.01			
Heptachlor	Y	Y	0.52 g	0.0038 g,aa	0.00000816 b,c	0.00000817 b,c	
Heptachlor Epoxide	Y	Y	0.52 g,v	0.0038 g,v,aa	0.00000404 b,c	0.00000404 b,c	
Hexachlorobenzene	Y	Y			0.0000296 b,c	0.0000296 b,c	
Hexachlorobutadiene	Y	Y			0.363 b,c	1.90 b,c	
Hexachloroethane	Y	Y			0.298 b,c	0.338 b,c	0.004mg
Hexachlorocyclopentadiene	Y	N			30.7 u	114 u	

***Table 3 Water Quality Criteria Summary**

Compound Name (or Class)	Priority Pollutant	Carcinogen	Concentration in Micrograms Per Liter (ug/l) for Protection of Aquatic Life		Concentration in Micrograms Per Liter (ug/l) For Protection of Human Health		
			Fresh Acute Criteria (CMC)	Fresh Chronic Criteria (CCC)	Water & Fish Ingestion	Fish Consumption Only	Drinking Water M.C.L.
Ideno(1,2,3-cd)Pyrene	Y	Y			0.00135 b,c	0.00188 b,c	
Iron	N	N		1000	0.3mg		
Isophorone	Y	N			26.8 b,c	99 b,c	
Lead	Y	N	65 d,e,bb,gg	2.5 d,e,bb,gg			0.015mg
Malathion	N	N		0.1			
Manganese	N	N			50mg	100ug	
Mercury	Y	N	1.4 d,k,hh	0.012 ll	0.14	0.15	0.002mg
Methoxychlor	N	N		0.03	40MCL		
Methyl Bromide	Y	N			37.2 b	154 b	
Methyl Chloride	Y	N					
2-Methyl-4,6-Dinitrophenol	Y	N			9.3	29.2	
Methylene Chloride	Y	Y			4.34 b,c	61 b,c	
Methylmercury	Y					0.031 mg/kg j	
Mirex	N	N		0.001			
Naphthalene	Y	N					
Nickel	Y	N	470 d,e,k	52 d,e,k	140 b	175 b	
Nitrates	N	N			10,000 MCL		
Nitrobenzene	Y	N			14 b	61.2 b,h,u	
2-Nitrophenol	Y	N					
4-Nitrophenol	Y	N					
N-Nitrosodibutylamine	N	Y			0.00501	0.0224	
N-Nitrosodimethylamine	Y	Y			0.000685 b,c	0.311 b,c	
N-Nitrosodiphenylamine	Y	Y			0.569 b,c	0.618 b,c	
N-Nitrosodi-n-Propylamine	Y	Y			0.00456 b,c	0.0521 b,c	
Nitrosopyrrolidine,N	N	Y			0.0164	3.51	

***Table 3 Water Quality Criteria Summary**

Compound Name (or Class)	Priority Pollutant	Carcinogen	Concentration in Micrograms Per Liter (ug/l) for Protection of Aquatic Life		Concentration in Micrograms Per Liter (ug/l) For Protection of Human Health		
			Fresh Acute Criteria (CMC)	Fresh Chronic Criteria (CCC)	Water & Fish Ingestion	Fish Consumption Only	Drinking Water M.C.L.
Oil and Grease	N	N		0.01 lc50			
Parathion	N	N	0.065	0.013			
Polychlorinated Biphenyls PCBs	Y	Y		0.014 n,aa	0.0000066 b,c,n	0.0000066 b,c,n	
Pentachlorobenzene	N	N			0.154	0.155	
Pentachlorophenol	Y	N	19 f,k	15 f,k	0.151 b,c	0.312 b,c,h	
Phenanthrene	Y	Y					
Phenol	Y	N			18,880 b,u	176,000 b,u	
Pyrene	Y	Y			296 b	412 b	
Selenium	Y	N	l,r,t	5.0 t	124 z	429	0.01mg
Silver	Y	N	3.2 d,e,g				0.05mg
Sulfide-Hydrogen Sulfide	N	N		2			
1,2,4,5-Tetrachlorobenzene	N	N			0.109	0.11	
1,1,2,2-Tetrachloroethane	Y	Y			0.123 b,c	0.412 b,c	
Tetrachloroethylene	Y	Y			0.244 c	0.338 c	
Thallium	Y	N			0.0438	0.0483	
Toluene	Y	N			733 z	1,540	
Toxaphene	Y	Y	0.73	0.0002 aa	0.0000285 b,c	0.0000286 b,c	0.005mg
1,2-Trans-Dichloroethylene	Y	N			123 z	1,040	
1,2,4-Trichlorobenzene	Y	N			6.55	7.22	
1,1,1-Trichloroethane	Y	N					
1,1,2-Trichloroethane	Y	Y			0.444	1.61	
Trichloroethylene	Y	Y			1.46 c	3.08 c	
2,4,5-Trichlorophenol	N	N			338	374	
2,4,6-Trichlorophenol	Y	Y			0.231 b,c	0.25 b,c,u	
Vinyl Chloride	Y	Y			0.0227 c,kk	0.251 c,kk	
Zinc	Y	N	120 d,e,k	120 d,e,k	2,100 u	2,630 u	

The concentration for each compound listed in this chart is a criteria or guidance value* not to be exceeded in "waters of the Reservation" for the protection of aquatic life and human health. Specific descriptions of each compound and an explanation of values are included in Quality Criteria for Water (1986). Selecting values for regulatory purposes will depend on the most sensitive beneficial use to be protected, and what level of protection is necessary for aquatic life and human health. The acute criteria refer to the average concentration for one (1) hour and the chronic criteria refer to the average concentration for 96 hours (4 days), and that these criteria should not be exceeded more than once every three (3) years.

Values for Protection of Human Health calculated using a fish consumption rate of 170 grams per day. 170 g/day derived from Table 7 of, *A fish consumption survey of the Umatilla, Nez Perce, Yakama, and Warm Springs Tribes of the Columbia River Basin*, (CRITFC, Technical Report No. 94-3, October 1994). 170 g/day provides protection to 95% of the Tribal population (fish consumers and non-fish consumers) and 99+% of Tribal youth.

Values for Protection of Aquatic Life derived from, *National Recommended Water Quality Criteria*, (EPA-822 2004).

Human health criteria for carcinogens reported for three risk levels. Value presented is the 10⁻⁶ risk level, which means the probability of one concern case per one million people at the stated concentration. Criteria in the matrix based on carcinogenicity (10⁻⁶ risk). For a risk level of 10⁻⁵, move the decimal point in the matrix value one place to the right.

Water and Fish Ingestion: Values represent the maximum ambient water concentration for consumption of both contaminated.

Fish Ingestion: Values represent the maximum ambient water concentration for consumption of fish or other.

Footnotes:

a This recommended water quality criterion was derived from data for arsenic (III), but is applied here to total arsenic, which might imply that arsenic (III) and arsenic (V) are equally toxic to aquatic life and that their toxicities are additive. In the [arsenic criteria document](#) (PDF, 74 pp., 3.2M) (EPA 440/5-84-033, January 1985), Species Mean Acute Values are given for both arsenic (III) and arsenic (V) for five species and the ratios of the SMAVs for each species range from 0.6 to 1.7. Chronic values are available for both arsenic (III) and arsenic (V) for one species; for the fathead minnow, the chronic value for arsenic (V) is 0.29 times the chronic value for arsenic (III). No data are known to be available concerning whether the toxicities of the forms of arsenic to aquatic organisms are additive.

b This criterion has been revised to reflect The Environmental Protection Agency's q1* or RfD, as contained in the Integrated Risk Information System (IRIS) as of May 17, 2002. The fish tissue bioconcentration factor (BCF) from the 1980 Ambient Water Quality Criteria document was retained in each case.

c This criterion is based on carcinogenicity of 10⁻⁶ risk. Alternate risk levels may be obtained by moving the decimal point (e.g., for a risk level of 10⁻⁵, move the decimal point in the recommended criterion one place to the right).

d Freshwater and saltwater criteria for metals are expressed in terms of the dissolved metal in the water column. The recommended water quality criteria value was calculated by using the previous 304(a) aquatic life criteria expressed in terms of total recoverable metal, and multiplying it by a conversion factor (CF). The term "Conversion Factor" (CF) represents the recommended conversion

factor for converting a metal criterion expressed as the total recoverable fraction in the water column to a criterion expressed as the dissolved fraction in the water column. (Conversion Factors for saltwater CCCs are not currently available. Conversion factors derived for saltwater CMCs have been used for both saltwater CMCs and CCCs). See "[Office of Water Policy and Technical Guidance on Interpretation and Implementation of Aquatic Life Metals Criteria](#)," (PDF, 49 pp., 3M) October 1, 1993, by Martha G. Prothro, Acting Assistant Administrator for Water, available from the [Water Resource center](#) and 40CFR§131.36(b)(1). Conversion Factors applied in the table can be found in Appendix A to the Preamble- Conversion Factors for Dissolved Metals. Appendix A can be referenced from, *National Recommended Water Quality Criteria*, (EPA-822, 2004).

e The freshwater criterion for this metal is expressed as a function of hardness (mg/L) in the water column. The value given here corresponds to a hardness of 100 mg/L. Criteria values for other hardness may be calculated from the following: CMC (dissolved) = $\exp\{m_A [\ln(\text{hardness})] + b_A\}$ (CF), or CCC (dissolved) = $\exp\{m_C [\ln(\text{hardness})] + b_C\}$ (CF) and the parameters specified in Appendix B- Parameters for Calculating Freshwater Dissolved Metals Criteria That Are Hardness-Dependent. Appendix B can be referenced from, *National Recommended Water Quality Criteria*, (EPA-822, 2004).

f Freshwater aquatic life values for pentachlorophenol are expressed as a function of pH, and are calculated as follows: CMC = $\exp(1.005(\text{pH}) - 4.869)$; CCC = $\exp(1.005(\text{pH}) - 5.134)$. Values displayed in table correspond to a pH of 7.8.

g This Criterion is based on 304(a) aquatic life criterion issued in 1980, and was issued in one of the following documents: [Aldrin/Dieldrin](#) (PDF, 153 pp., 7.3M) (EPA 440/5-80-019), [Chlordane](#) (PDF, 68 pp., 3.1M) (EPA 440/5-80-027), [DDT](#) (PDF, 175 pp., 8.3M) (EPA 440/5-80-038), [Endosulfan](#) (PDF, 155 pp., 7.3M) (EPA 440/5-80-046), [Endrin](#) (PDF, 103 pp., 4.6M) (EPA 440/5-80-047), [Heptachlor](#) (PDF, 114 pp., 5.4M) (EPA 440/5-80-052), [Hexachlorocyclohexane](#) (PDF, 109 pp., 4.8M) (EPA 440/5-80-054), Silver (EPA 440/5-80-071). The Minimum Data Requirements and derivation procedures were different in the 1980 Guidelines than in the [1985 Guidelines](#) (PDF, 105 pp., 4.5M). For example, a "CMC" derived using the 1980 Guidelines was derived to be used as an instantaneous maximum. If assessment is to be done using an averaging period, the values given should be divided by 2 to obtain a value that is more comparable to a CMC derived using the [1985 Guidelines](#) (PDF, 105 pp., 4.5M).

h No criterion for protection of human health from consumption of aquatic organisms excluding water was presented in the 1980 criteria document or in the *1986 Quality Criteria for Water*. Nevertheless, sufficient information was presented in the 1980 document to allow the calculation of a criterion, even though the results of such a calculation were not shown in the document.

i This criterion for asbestos is the Maximum Contaminant Level (MCL) developed under the Safe Drinking Water Act (SDWA).

j This fish tissue residue criterion for methylmercury is based on a total fish consumption rate of 0.0175 kg/day.

k This recommended criterion is based on a 304(a) aquatic life criterion that was issued in the [1995 Updates: Water Quality Criteria Documents for the Protection of Aquatic Life in Ambient Water](#), (EPA-820-B-96-001, September 1996). This value was derived using the GLI Guidelines (60FR15393-15399, March 23, 1995; 40CFR132 Appendix A); the difference between the 1985 Guidelines and

the GLI Guidelines are explained on page iv of the 1995 Updates. None of the decisions concerning the derivation of this criterion were affected by any considerations that are specific to the Great Lakes.

l The $CMC = 1/[(f1/CMC1) + (f2/CMC2)]$ where $f1$ and $f2$ are the fractions of total selenium that are treated as selenite and selenate, respectively, and $CMC1$ and $CMC2$ are 185.9 g/l and 12.82 g/l, respectively.

m EPA is currently reassessing the criteria for arsenic.

n This criterion applies to total pcbs, (e.g., the sum of all congener or all isomer or homolog or Aroclor analyses.)

o The derivation of the CCC for this pollutant (Endrin) did not consider exposure through the diet, which is probably important for aquatic life occupying upper trophic levels.

q This recommended water quality criterion is expressed as g free cyanide (as CN)/L.

r This value for selenium was announced ([61FR58444-58449](#), November 14, 1996) as a proposed GLI 303(c) aquatic life criterion. EPA is [currently working on this criterion](#) and so this value might change substantially in the near future.

s This recommended water quality criterion for arsenic refers to the inorganic form only.

t This recommended water quality criterion for selenium is expressed in terms of total recoverable metal in the water column. It is scientifically acceptable to use the conversion factor (0.996- CMC or 0.922- CCC) that was used in the GLI to convert this to a value that is expressed in terms of dissolved metal.

u The organoleptic effect criterion is more stringent than the value for priority toxic pollutants.

v This value was derived from data for heptachlor and the criteria document provides insufficient data to estimate the relative toxicities of heptachlor and heptachlor epoxide.

y This value was derived from data for endosulfan and is most appropriately applied to the sum of alpha-endosulfan and beta-endosulfan.

z A more stringent MCL has been issued by EPA. Refer to drinking water regulations (40 CFR 141) or Safe Drinking Water Hotline (1-800-426-4791) for values.

aa This criterion is based on a 304(a) aquatic life criterion issued in 1980 or 1986, and was issued in one of the following documents: [Aldrin/Dieldrin](#) (PDF, 153 pp., 7.3M) (EPA 440/5-80-019), [Chlordane](#) (PDF, 68 pp., 3.1M) (EPA 440/5-80-027), [DDT](#) (PDF, 175 pp., 8.3M) (EPA 440/5-80-038), [Endrin](#) (PDF, 103 pp., 4.6M) (EPA 440/5-80-047), [Heptachlor](#) (PDF, 114 pp., 5.4M) (EPA 440/5-80-052), Polychlorinated biphenyls (EPA 440/5-80-068), Toxaphene (EPA 440/5-86-006). This CCC is currently based on the Final Residue Value (FRV) procedure. Since the publication of the Great Lakes Aquatic Life Criteria Guidelines in 1995 (60FR15393-15399, March 23, 1995), the Agency no longer uses the Final Residue Value procedure for deriving CCCs for new or revised 304(a) aquatic life criteria. Therefore, the Agency anticipates that future revisions of this CCC will not be based on the FRV procedure.

bb This water quality criterion is based on a 304(a) aquatic life criterion that was derived using the [1985 Guidelines](#) (PDF, 105 pp., 4.5M) (*Guidelines for Deriving Numerical National Water Quality Criteria for the Protection of Aquatic Organisms and Their Uses*, PB85-227049, January 1985) and was issued in one of the following criteria documents: [Arsenic](#) (PDF, 74 pp., 3.2M) (EPA 440/5-84-033), [Cadmium](#) (EPA-822-R-01-001), [Chromium](#) (EPA 440/5-84-029), [Copper](#) (PDF, 150 pp., 6.2M) (EPA 440/5-84-031), [Cyanide](#) (PDF, 67 pp., 2.7M) (EPA 440/5-84-028), Lead (EPA 440/5-84-027), Nickel (EPA 440/5-86-004), Pentachlorophenol (EPA 440/5-86-009), Toxaphene, (EPA 440/5-86-006), Zinc (EPA 440/5-87-003).

cc When the concentration of dissolved organic carbon is elevated, copper is substantially less toxic and use of Water-Effect Ratios might be appropriate.

dd The selenium criteria document (EPA 440/5-87-006, September 1987) provides that if selenium is as toxic to saltwater fishes in the field as it is to freshwater fishes in the field, the status of the fish community should be monitored whenever the concentration of selenium exceeds 5.0 g/L in salt water because the saltwater CCC does not take into account uptake via the food chain.

ee This recommended water quality criterion was derived on page 43 of the [mercury criteria document](#) (PDF, 144 pp., 6.4M) (EPA 440/5-84-026, January 1985). The saltwater CCC of 0.025 ug/L given on page 23 of the criteria document is based on the Final Residue Value procedure in the 1985 Guidelines. Since the publication of the Great Lakes Aquatic Life Criteria Guidelines in 1995 (60FR15393-15399, March 23, 1995), the Agency no longer uses the Final Residue Value procedure for deriving CCCs for new or revised 304(a) aquatic life criteria.

ff This recommended water quality criterion was derived in *Ambient Water Quality Criteria Saltwater Copper Addendum* (Draft, April 14, 1995) and was promulgated in the Interim final National Toxics Rule ([60FR22228-22237](#), May 4, 1995).

gg EPA is actively working on this criterion and so this recommended water quality criterion may change substantially in the near future.

hh This recommended water quality criterion was derived from data for inorganic mercury (II), but is applied here to total mercury. If a substantial portion of the mercury in the water column is methylmercury, this criterion will probably be under protective. In

addition, even though inorganic mercury is converted to methylmercury and methylmercury bioaccumulates to a great extent, this criterion does not account for uptake via the food chain because sufficient data were not available when the criterion was derived.

ii This criterion applies to DDT and its metabolites (i.e., the total concentration of DDT and its metabolites should not exceed this value).

jj This recommended water quality criterion is expressed as total cyanide, even though the IRIS RFD we used to derive the criterion is based on free cyanide. The multiple forms of cyanide that are present in ambient water have significant differences in toxicity due to their differing abilities to liberate the CN-moiety. Some complex cyanides require even more extreme conditions than refluxing with sulfuric acid to liberate the CN-moiety. Thus, these complex cyanides are expected to have little or no 'bioavailability' to humans. If a substantial fraction of the cyanide present in a water body is present in a complexed form (e.g., $\text{Fe}_4[\text{Fe}(\text{CN})_6]_3$), this criterion may be over conservative.

kk This recommended water quality criterion was derived using the cancer slope factor of 1.4 (LMS exposure from birth).

ll If the FCC for total mercury exceed 0.012 ug/L more than once in a 3 year period in the ambient water, the edible portion of the aquatic species of concern must be analyzed to determine whether the concentration of methyl mercury exceeds the FDA action level (1.0 mg/kg). If the FDA action level is exceeded, the Tribe will notify the appropriate EPA Regional Administrator, initiate a revision of the mercury criterion in the standards to protect designated uses, and will take other appropriate actions such as to issue a fish consumption advisory for the affected areas.

lcr Long term irrigation of sensitive crops.

MCL Maximum Contaminant Level

Note : Ammonia Acute Criteria = $1000 \times 0.52/\text{FT}/\text{FPH}/2$ where $\text{FT} = 10-0.03(20-\text{TCAP})$; $\text{TCAP} \leq \text{T} \leq 30$; $10-0.03(20-\text{T})$; $0 \leq \text{T} \leq \text{TCAP}$; $\text{FPH}=1$; $8 \leq \text{pH} \leq 9$; $\text{FPH} = (1+10^{-7.4-\text{pH}}) / 1.25$; $6.5 \leq \text{pH} \leq 8$. $\text{TCAP} = 20 \text{ C}$; Salmonids or other sensitive coldwater species are present, or =25C if Salmonids and other sensitive coldwater species are absent. Ammonia Chronic Criteria = $1000 \times 0.8/\text{FT}/\text{FPH}/\text{RATIO}$. FT,FPH are the same as the Acute Ammonia standard, and $\text{RATIO} = 13.5$: $7.7 \leq \text{pH} \leq 9$. $\text{Ratio} = 20.25 \times (10^{-\text{T}x 7.7-\text{pH}})/(1+10^{-7.4-\text{pH}})$: $6.5 \leq \text{pH} \leq 7.7$. $\text{TCAP} = 15 \text{ C}$; Salmonids or other sensitive coldwater species are present, or =20C if Salmonids and other sensitive coldwater species are absent. Values in Table 3 are applicable to all basins on the Reservation; All metals are listed as total recoverable.

**TABLE 4:
WATER QUALITY REACHES, FISH SPECIES, LIFE HISTORY & BENEFICIAL USE DESIGNATIONS**

Reach	Stream Name	_Map	* Beneficial Use Codes	★Fish Species	Life History	Temp Regime
ANTOKEN 1	ANTOKEN CR.	A	7,8,9,10,14	STEELHEAD	JUVENILE REAR	
DESCH 1	DESCHUTES R.	A	5,6,7,8,9,10,11,12,13,14,17	FALL_CHIN	SPAWN/INCUB	
EAGLE 1	EAGLE CR.	A	7,8,9,10,14	STEELHEAD	SPAWN/INCUB	
NENA 1	NENA CR.	A	1,5,7,8,9,10,14,17	RAINBOW	SPAWN/INCUB	
OAK 1	OAK CR.	A	7,9,10,14	N/A		COOL
PAQUET 1	PAQUET GULCH	A	5,9,10,17	N/A		COOL
DESCH 2	DESCHUTES R.	B	4,5,6,7,8,9,10,11,12,13,14,15,17	FALL_CHIN	SPAWN/INCUB	
DRY 1	DRY CR.	B	5,9,13	N/A		COOL
DRY 2	DRY CR.	B	5,9,10,14,17	N/A		COOL
WARMSP 1	WARM SPRINGS R.	B	1,3,4,5,6,7,8,9,10,11,13,14,17	SPRING_CHIN	SPAWN/INCUB	
WARMSP 2	WARM SPRINGS R.	B	4,5,6,7,8,9,10,11,12,13,14,17	SPRING_CHIN	SPAWN/INCUB	
WARMSP 3	WARM SPRINGS R.	B	3,4,5,6,7,8,9,10,13,14,17	SPRING_CHIN	SPAWN/INCUB	
WARMSP 4	WARM SPRINGS R.	B	5,6,7,8,9,10,14,17	SPRING_CHIN	SPAWN/INCUB	
DESCH 3	DESCHUTES R.	C	1,3,4,5,6,7,8,9,10,11,12,13,14,17	FALL_CHIN	SPAWN/INCUB	
DESCH 4	DESCHUTES R.	C	4,5,7,8,9,10,11,12,13,14,17	FALL_CHIN	SPAWN/INCUB	
NOISY 1	NOISY CR.	C	7,8,9,5,10,14	RAINBOW	SPAWN/INCUB	
NOISY 2	TRIB. TO NOISY CR.	C	5,9,10,14	N/A		COLD
NOISY 3	TRIB. TO NOISY CR.	C	5,9,10,14	N/A		COLD
RESERV 1	REREG DAM POOL	C	4,9,10,15	N/A		COLD
RESERV 2	LAKE SIMTUSTUS	C	1,2,4,9,10,11,12,13,14,15	N/A		COLD
SEEK 1	SEEKSEQUA CR.	C	3,4,5,9,10,13,14,17	N/A		COOL
SHITIKE 1	SHITIKE CR.	C	3,7,8,9,10,11,13	SPRING_CHIN	SPAWN/INCUB	

Reach	Stream Name	_Map	* Beneficial Use Codes	★Fish Species	Life History	Temp Regime
SHITIKE 2	SHITIKE CR.	C	4,7,8,9,10,11,14	SPRING_CHIN	SPAWN/INCUB	
SHITIKE 3	SHITIKE CR.	C	4,7,8,9,10,11,13	SPRING_CHIN	SPAWN/INCUB	
SHITIKE 4	SHITIKE CR.	C	5,7,8,9,10,11,13,14,17	SPRING_CHIN	SPAWN/INCUB	⁶
SHITIKE 5	SHITIKE CR.	C	5,7,8,9,10,11,13,14,17	SPRING_CHIN	SPAWN/INCUB	
SHITIKE 6	SHITIKE CR.	C	7,8,9,10	SPRING_CHIN	SPAWN/INCUB	
SHITIKE 7	SHITIKE CR.	C	7,8,9,10	SPRING_CHIN	SPAWN/INCUB	
SHITIKE 8	SHITIKE CR.	C	7,8,9,10,11,13,14,17	STEELHEAD	SPAWN/INCUB	
SHITIKE 9	SHITIKE CR.	C	7,8,9,10,14	STEELHEAD	SPAWN/INCUB	
SHITIKE A1	TRIB. TO SHITIKE CR.	C	9,10, 13	N/A		COOL
SHITIKE B1	TRIB. TO SHITIKE CR.	C	9,10, 13	N/A		COOL
SHITIKE C1	TRIB. TO SHITIKE CR.	C	9,10, 13,14	N/A		COLD
SHITIKE C2	TRIB. TO SHITIKE CR.	C	9, 10,11,12,13,14	N/A		COLD
TENINO 1	TENINO CR.	C	9, 10, 13	N/A		COOL
WOLFORD 1	SHITIKE CR.	C	9, 5,10, 13	N/A		COOL
JEFF 1	JEFFERSON CR.	D	3,5,7,8,9,10,11,13,14,17	BULLTROUT	SPAWN/INCUB	
JEFF 2	JEFFERSON CR	D	7,8,9,10,14,17	BULLTROUT	SPAWN/INCUB	
MARIEL 1	MARIEL CR.	D	7,9,10,14,17	BULLTROUT	JUVENILE REAR	
METOLIUS 1	METOLIUS R.	D	4,5,7,8,9,10,11,13,14,17	BULLTROUT	SPAWN/INCUB	
PARKER 1	PARKER CR.	D	7,8,9,10,14,17	BULLTROUT	SPAWN/INCUB	
RACING 1	RACING CR.	D	9,10,14,17	N/A		COLD
RESERV 3	LAKE BILLY CHINOOK	D	7,9,10,11,12,13,14,15,17	KOKANEE	ADULT	
SHEEP 1	SHEEP CR.	D	7,9,10,14,17	N/A		COLD
WHITEWTR 1	WHITEWATER R.	D	5,7,8,9,10,11,14,17	BULLTROUT	SPAWN/INCUB	

Reach	Stream Name	_Map	* Beneficial Use Codes	★Fish Species	Life History	Temp Regime
BADGER 1	BADGER CR.	E	5,7,8,9,10,14,17	STEELHEAD	SPAWN/INCUB	
BADGER 2	BADGER CR.	E	4,5,7,8,9,10,14,17	RAINBOW	SPAWN/INCUB	
BADGER 3	BADGER CR.	E	5,7,8,9,10,11,13,14,17	RAINBOW	SPAWN/INCUB	
BOULDER 1	BOULDER CR.	E	5,7,8,9,10,14,17	STEELHEAD	SPAWN/INCUB	
BOULDER 2	BOULDER CR.	E	5,7,8,9,10,14,17	BROOK	SPAWN/INCUB	
CLACK 1	CLACKAMAS R.	E	3,5,8,9,10,14,17	CUTTHROAT	SPAWN/INCUB	
MILL 1	MILL CR.	E	5,6,7,8,9,10,11,13,14,17	SPRING_CHIN	SPAWN/INCUB	
MILL 2	MILL CR.	E	4,5,6,7,8,9,10,11,13,14,17	SPRING_CHIN	SPAWN/INCUB	
MILL 3	MILL CR.	E	5,7,8,9,10,14,17	STEELHEAD	SPAWN/INCUB	
BUNCH 1	BUNCHGRASS CR.	F	7,8,9,10,14	RAINBOW	SPAWN/INCUB	
LEMITI 1	LEMITI CR.	F	7,9,10,11,13,14,17	CUTTHROAT	SPAWN/INCUB	
OAKGRV 1	OAK GROVE FK. CR.	F	3,5,7,8,9,10,14,17	CUTTHROAT	SPAWN/INCUB	
SFWARM 1	S.F. WARM SPRGS R.	F	3,5,7,8,9,10,11,13,14,17	RAINBOW	SPAWN/INCUB	
SFWARM 2	S.F. WARM SPRGS R.	F	9, 10,14,17	N/A		COLD
SLOW 1	SLOW CR.	F	7,8,9,10,11,13,14,17	CUTTHROAT	SPAWN/INCUB	
TWNFLWR 1	TWIN FLOWER CR.	F	7,8,9,10,14	RAINBOW	SPAWN/INCUB	
WARMSP 5	WARM SPRINGS R.	F	5,6,7,8,9,10,14	SPRING_CHIN	SPAWN/INCUB	
WARMSP 6	WARM SPRINGS R.	F	6,7,8,9,10,11,13,14	SPRING_CHIN	SPAWN/INCUB	
WARMSP 7	WARM SPRINGS R.	F	3,5,6,7,8,9,10,11,13,14,17	SPRING_CHIN	SPAWN/INCUB	
WARMSP 8	WARM SPRINGS R.	F	3,5,6,7,8,9,10,11,13,14	SPRING_CHIN	SPAWN/INCUB	
WARMSP 9	WARM SPRINGS R.	F	3,7,8,9,10,14	SPRING_CHIN	SPAWN/INCUB	
WARMSP 10	WARM SPRINGS R.	F	3,7,8,9,10,14	RAINBOW	SPAWN/INCUB	
BEAVBT 1	BEAVER BUTTE CR.	G	3,5,7,8,9,10,14,17	RAINBOW	SPAWN/INCUB	
BEAVER 1	BEAVER CR.	G	3,5,6,7,8,9,10,11,13,14,17	SPRING_CHIN	SPAWN/INCUB	
BEAVER 2	BEAVER CR.	G	3,5,6,7,8,9,10,11,13,14,17	SPRING_CHIN	SPAWN/INCUB	
BEAVER 3	BEAVER CR.	G	3,5,7,8,9,10,14,17	RAINBOW	SPAWN/INCUB	

Reach	Stream Name	_Map	* Beneficial Use Codes	★Fish Species	Life History	Temp Regime
BUTTE 1	BUTTE CR.	G	3,5,7,8,9,10,14,17	STEELHEAD	SPAWN/INCUB	
CDRSWMP 1	CEDAR SWAMP CR.	G	3,5,9,10,14,17	N/A		COLD
CLEAR 1	CLEAR CR.	G	3,5,7,8,9,10,14,17	RAINBOW	SPAWN/INCUB	
COYOTE 1	COYOTE CR	G	3,5,9,10,17	N/A		COOL
INDIAN 1	INDIAN CR.	G	3,5,7,8,9,10,14,17	RAINBOW	SPAWN/INCUB	
INDIAN 2	INDIAN CR.	G	3,5,7,8,9,10,14,17	RAINBOW	SPAWN/INCUB	
QUARTZ 1	QUARTZ CR.	G	3,4,5,9,10,17	N/A		COOL
QUARTZ 2	QUARTZ CR.	G	4,5,9,10,11,12,13,14,17	N/A		COOL
QUARTZ A1	TRIB. TO QUARTZ CR.	G	5,9,10,17	N/A		COOL
WILLOW 1	WILLOW CR.	G	3,5,7,8,9,10,14,17	STEELHEAD	SPAWN/INCUB	
WILSON 1	WILSON CR.	G	3,5,7,9,10,14,17	RAINBOW	SPAWN/INCUB	

_Map: Refers to Specific Map where this reach has been identified.

* Beneficial Use Codes: See Table 1 for Beneficial Use associated with each number

Fish Species: See table 5 and 6 for additional fish species that may exist in these reaches.

“Reach” refers to a specifically identified section of a stream or waterbody. Reaches are identified by a “reach break” mark on each of the maps. The information provided in Table 4 refers to data associated with the channel downstream of the reach break to the next “reach break” mark or the mouth of that stream.

All tributaries or reaches without a specific beneficial use designation or fish species will be managed to meet the designated beneficial use in the immediate downstream identified reach.

Fish Species Definitions – The reach will be managed for the species listed in the table.

FALL_CHIN	-	FALL CHINOOK	(ONCORHYNCHUS TSHAWYTSCHA)
SPRING_CHIN	-	SPRING CHINOOK	(ONCORHYNCHUS TSHAWYTSCHA)
STEELHEAD	-	SUMMER STEELHEAD	(ONCORHYNCHUS MYKISS)
RAINBOW	-	RAINBOW TROUT	(ONCORHYNCHUS MYKISS)
BULLTROUT	-	BULL TROUT	(SALVELINUS CONFLUENTUS)
CUTTHROAT	-	CUTTHROAT TROUT	(SALMO CLARKII)
BROOK	-	BROOK TROUT	(SALVELINUS FONTINALIS)

Life History Definitions

Spawn/incub	-	Adult spawning and egg incubation for the identified Fish Species occur within that reach.
Juvenile Rear	-	Juveniles of the identified Fish Species rear in the reach.
Adult	-	Adults of the identified Fish Species live in the reach.

**TABLE 5:
INDIGENOUS FISH AND CRAYFISH SPECIES IN THE DESCHUTES BASIN ON THE WARM SPRINGS
RESERVATION.**

COMMON NAME	SCIENTIFIC NAME	UPPER DESCHUTES RIVER (Above Pelton ReRegulation Dam)	LOWER DESCHUTES RIVER (Below Pelton Reregulation Dam to Reservation Boundry)	METOLIUS RIVER (Reservation Boundry to Lake Billy Chinook)
Spring Chinook	<i>Oncorhynchus tshawytscha</i>	Extinct	X	Extinct
Summer Chinook	<i>Oncorhynchus tshawytscha</i>	Extinct	unknown	Extinct
Fall Chinook	<i>Oncorhynchus tshawytscha</i>	Extinct	X	Extinct
Pacific Lamprey	<i>Lampetra tridentata</i>	Extinct	X	Extinct
Summer Steelhead	<i>Oncorhynchus mykiss</i>	Extinct	X	Extinct
Sockeye (Kokanee)	<i>Oncorhynchus alutaceus</i>	Not Present	X	Extinct
Bull Trout	<i>Salvelinus confluentus</i>	Not Present	unknown	X
Rainbow Trout	<i>Oncorhynchus mykiss</i>	X	X	X
Mountain Whitefish	<i>Prosopius williamsoni</i>	X	X	X
Chiselmouth	<i>Acrocheilus alutaceus</i>	X	X	Not Present
Largescale Sucker	<i>Catostomus macrocheilus</i>	X	X	X
Bridgelip Sucker	<i>Catostomus columbianus</i>	X	X	Not present
Northern Squawfish	<i>Ptychocheilus oregonensis</i>	X	X	Not Present
Peamouth	<i>Mylocheilus caurinus</i>	Not Present	X	Not Present
Redside Shiner	<i>Richardsonius balteatus</i>	Not Present	X	Not Present
Longnose Dace	<i>Rhinichthys cataractae</i>	X	X	X
Speckled Dace	<i>Rhinichthys osculus</i>	Not Present	X	Not Present
Shorthead Sculpin	<i>Cottus confusus</i>	X	X	X
Torrent Sculpin	<i>Cottus rhotheus</i>	Not Present	X	Not Present
Slimy Sculpin	<i>Cottus cognatus</i>	Not Present	Not Present	Not Present
Paiute Sculpin	<i>Cottus beldingi</i>	Not Present	X	Not Present
Molted Sculpin	<i>Cottus bairdi</i>	Not Present	X	Not Present
Prickly Sculpin	<i>Cottus asper</i>	Not Present	Not Present	Not Present
Reticulate Sculpin	<i>Cottus perplexus</i>	X	Not Present	Not Present
Signal Crayfish	<i>Pacifastacus leniusculus</i>	X	X	X

TABLE 6: INTRODUCED FISH SPECIES IN THE DESCHUTES BASIN ON THE WARM SPRINGS RESERVATION.

COMMON NAME	SCIENTIFIC NAME	UPPER DESCHUTES RIVER (Above Pelton ReRegulation Dam)	LOWER DESCHUTES RIVER (Below Pelton Reregulation Dam to Reservation Boundry)	METOLIUS RIVER (Reservation Boundry to Lake Billy Chinook)
Coho Salmon	<i>Oncorhynchus kisutch</i>	X	X	Not Present
Atlantic Salmon	<i>Salmo salar</i>	X	Not Present	Not Present
Brown Trout	<i>Salmo trutta</i>	X	X	X
Brook Trout	<i>Salvelinus fontinalis</i>	X	X	X
Cutthroat Trout	<i>Salmo clarkii</i>	X	X	Not Present
Lake Trout	<i>Salvelinus namaycush</i>	X	Not Present	Not Present
Largemouth Bass	<i>Micropterus salmoides</i>	X	X	Not Present
Smallmouth Bass	<i>Micropterus dolomieu</i>	Not Present	X	Not Present
Black Crappie	<i>Pomoxis nigromaculatus</i>	X	X	Not Present
White Crappie	<i>Pomoxis annularis</i>	X	X	Not Present
Bluegill	<i>Lepomis macrochirus</i>	X	X	Not Present
Brown Bullhead	<i>Ictalurus nebulosus</i>	X	X	Not Present
Carp	<i>Cyprinus carpio</i>	Not Present	X	Not Present
Tui Chub	<i>Gila bicolor</i>	X	Not Present	Not Present
Blue Chub	<i>Gila coerulea</i>	X	Not Present	Not Present
Goldfish	<i>Carassius auratus</i>	Not Present	X	Not Present
Three-spine Stickleback	<i>Gastrosteus aculeatus</i>	X	Not Present	Not Present
Green Sunfish	<i>Lepomis cyanellus</i>	Not Present	X	Not Present

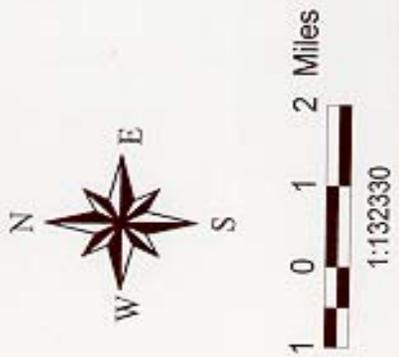
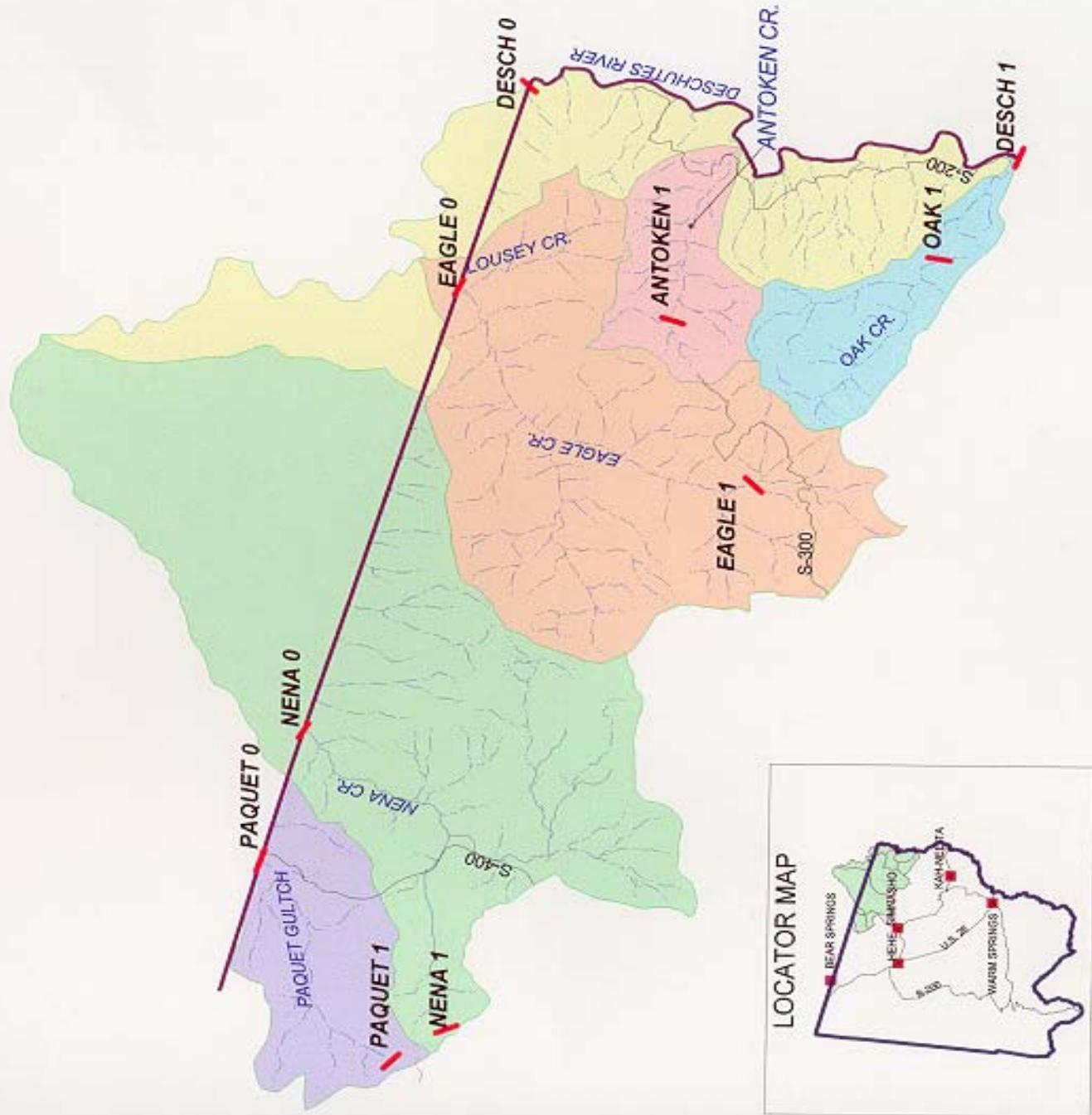
FIGURE 1. Generally accepted periods of native salmonid spawning, egg incubation, and fry emergence for waterbodies on the Warm Springs Reservation

Species	Tributary streams to the Deschutes mainstem, Clackamas and Santiam Rivers	Metolius River and its Tributaries	Deschutes River mainstem downstream from Pelton Reregulation Dam to the point where it flows off the Reservation
Steelhead (Summer)	Spawning: March 1 to May 30 Fry Emergence ends by July 31	N/A	Spawning: March 15 through May 15 Fry Emergence ends by July 15
Chinook (Summer/Fall)	N/A	N/A	Spawning : October 1 through December 15th Fry Emergence ends by: March 31
Chinook (Spring)	Spawning: August 15 through September 30 Fry Emergence ends by: March 31	N/A	N/A
Bull Trout	N/A	Spawning : August 15th through November 30th Fry Emergence ends by: May 15	N/A
Kokanee (Sockeye)	N/A	Spawning: September 1 through November 15 Fry Emergence ends by March 1	N/A
Cutthroat Trout only in the Clackamas River	Spawning: April 1 through June 30 Fry Emergence ends by August 15	N/A	N/A
Rainbow Trout	Spawning March 1 through June 15 Fry Emergence ends by August 15	Spawning February 15 through June 15 Fry Emergence ends by August 15	Spawning March 15 through August 15 Fry Emergence ends by October 1

* Periods of native salmonid spawning, egg incubation, and fry emergence are flow and temperature dependent and tend to vary with elevation. If necessary, site specific dates for these periods may be established by the Tribe after full satisfaction of the public participation of the Tribe's continued and integrated planning process.

MAP A

BENEFICIAL USE REACHES FOR THE LOWER DESCHUTES R., PAQUET GULCH, NENA CR., EAGLE CR., AND OAK CR. WATERSHEDS

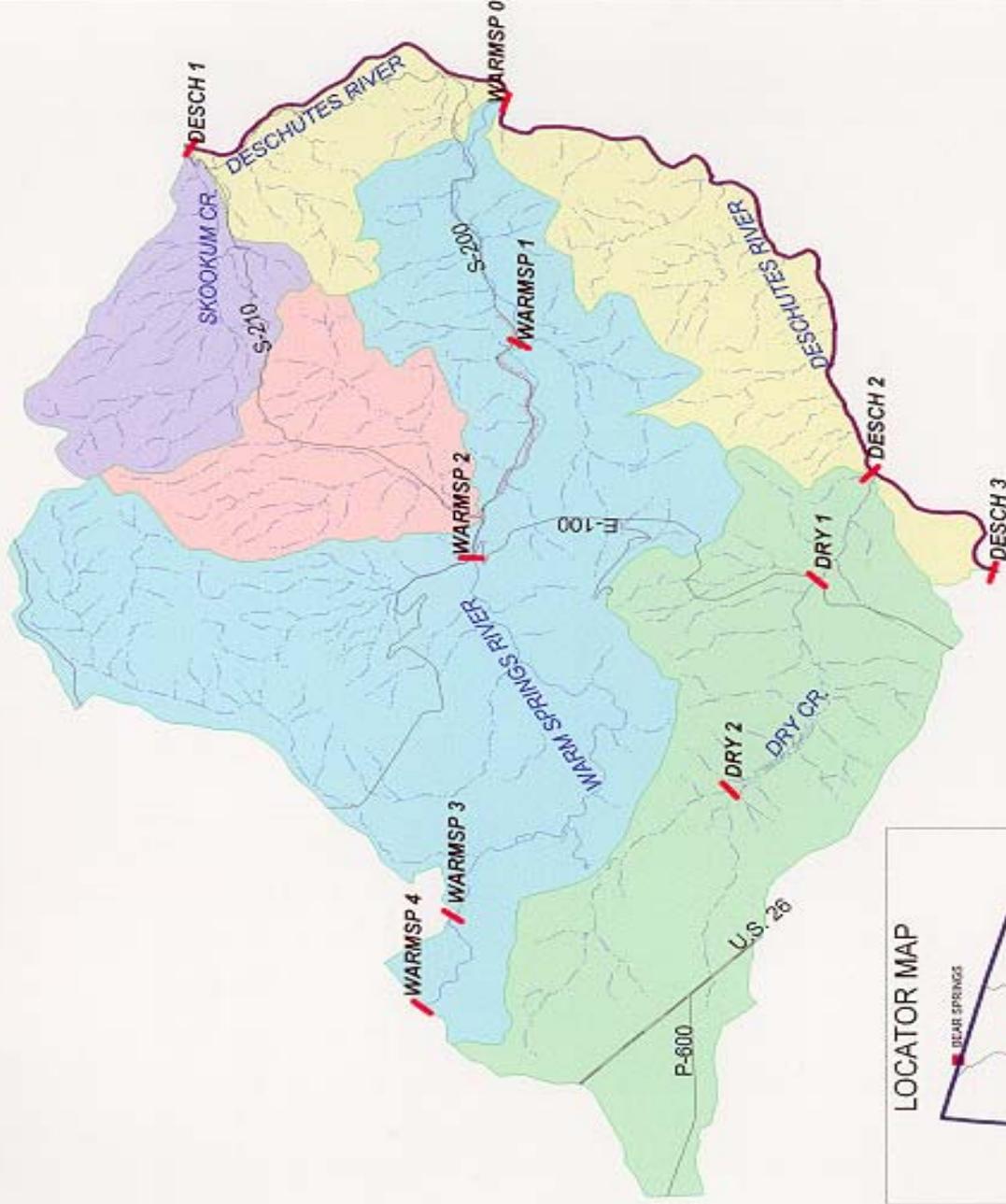


LEGEND

- BENEFICIAL USE REACH BREAKS
 - RESERVATION BOUNDARY
 - WATER MONITORING STATIONS**
 - CTWS WATER QUALITY MONITORING STATION
 - USGS STREAM GAUGING STATION
 - CTWS WQMS and USGS SGS
 - STREAMS**
 - Perennial
 - Intermittent
 - Canal or Ditch
 - ROADS**
 - Highway
 - Road
-
- WATERSHEDS**
 - Antoken Creek
 - Eagle Creek
 - Nena Creek
 - Oak Creek
 - Paquet Gulch
 - Intermittent Tribut. to Deschutes River

MAP B

BENEFICIAL USE REACHES FOR THE LOWER WARM SPRINGS R., MIDDLE DESCHUTES R., SKOOKUM CR., AND DRY CR. WATERSHEDS



LEGEND

- BENEFICIAL USE REACH BREAKS
- RESERVATION BOUNDARY
- WATER MONITORING STATIONS**
 - CTWS WATER QUALITY MONITORING STATION
 - USGS STREAM GAUGING STATION
 - CTWS WQMS and USGS SGS
- STREAMS**
 - Perennial
 - Intermittent
 - Canal or Ditch
- ROADS**
 - Highway
 - Road

- WATERSHEDS**
 - Chanley Canyon
 - Dry Creek
 - Lower Warm Springs River
 - Skookum Creek
 - Intermittent Tribes to Deschutes River

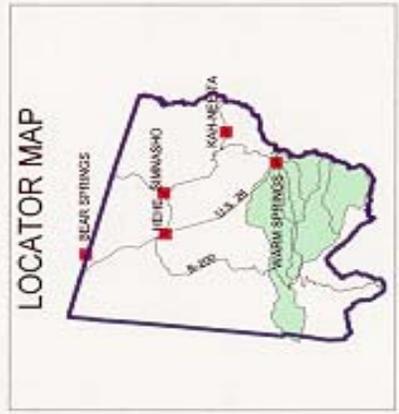


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MAP C

BENEFICIAL USE REACHES FOR SHITIKE CR., AND SEEKSEQUA CR. WATERSHEDS
THE UPPER DESCHUTES R., REREGULATION DAM POOL, AND LAKE SIMTUSTIUS



LEGEND

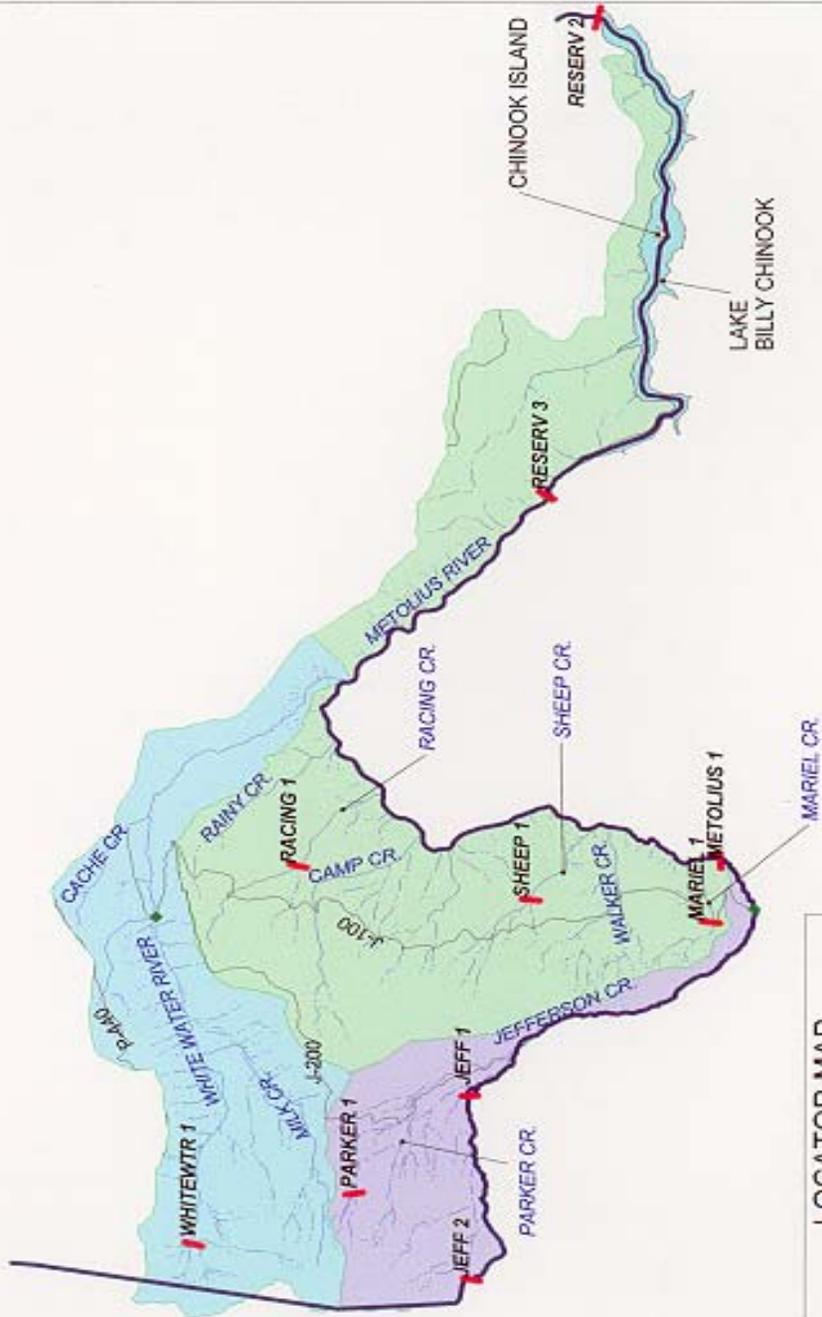
- BENEFICIAL USE REACH BREAKS
 - RESERVATION BOUNDARY
 - WATER MONITORING STATIONS**
 - ▲ CTWS WATER QUALITY MONITORING STATION
 - USGS STREAM GAUGING STATION
 - CTWS WQMS and USGS SCS
 - STREAMS**
 - Perennial
 - - - Intermittent
 - Canal or Ditch
 - ROADS**
 - Highway
 - Road
-
- WATERSHEDS**
 - Shitike Creek
 - Seeksequa Creek
 - Tenoio Creek
 - Inheribent Trib. to Deschutes River



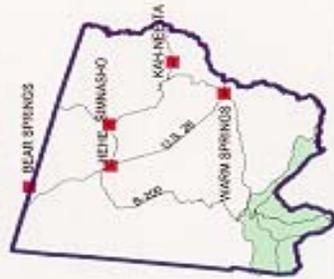
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MAP D

BENEFICIAL USE REACHES FOR THE METOLIUS R., WHITEWATER R.,
JEFFERSON CR., AND TRIBUTARIES



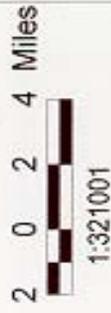
LOCATOR MAP



LEGEND

- BENEFICIAL USE REACH BREAKS
- RESERVATION BOUNDARY
- WATER MONITORING STATIONS**
 - T CTWS WATER QUALITY MONITORING STATION
 - A USGS STREAM GAUGING STATION
 - CTWS WQMS and USGS SGS
- STREAMS**
 - Perennial
 - Intermittent
 - Canal or Ditch
- ROADS**
 - Highway
 - Road

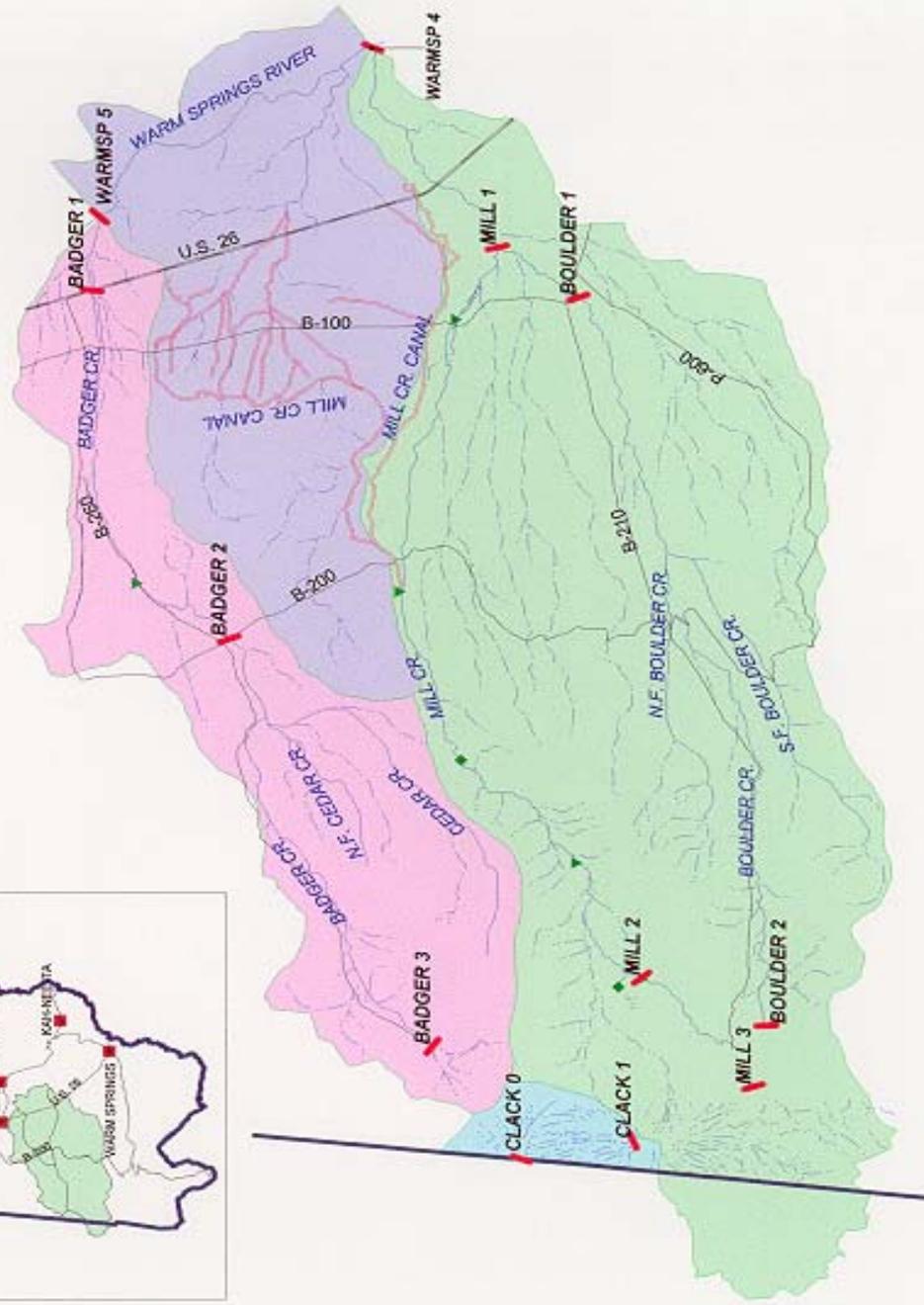
- WATERSHEDS**
 - Jefferson Creek
 - Metolius River
 - Whitewater River
- CHINOOK ISLAND
- LAKE BILLY CHINOOK



MAP E

BENEFICIAL USE REACHES FOR MILL CR., BOULDER CR., BADGER CR.,
MIDDLE WARM SPRINGS R., AND THE UPPER CLACKAMAS R. WATERSHEDS

LOCATOR MAP



LEGEND

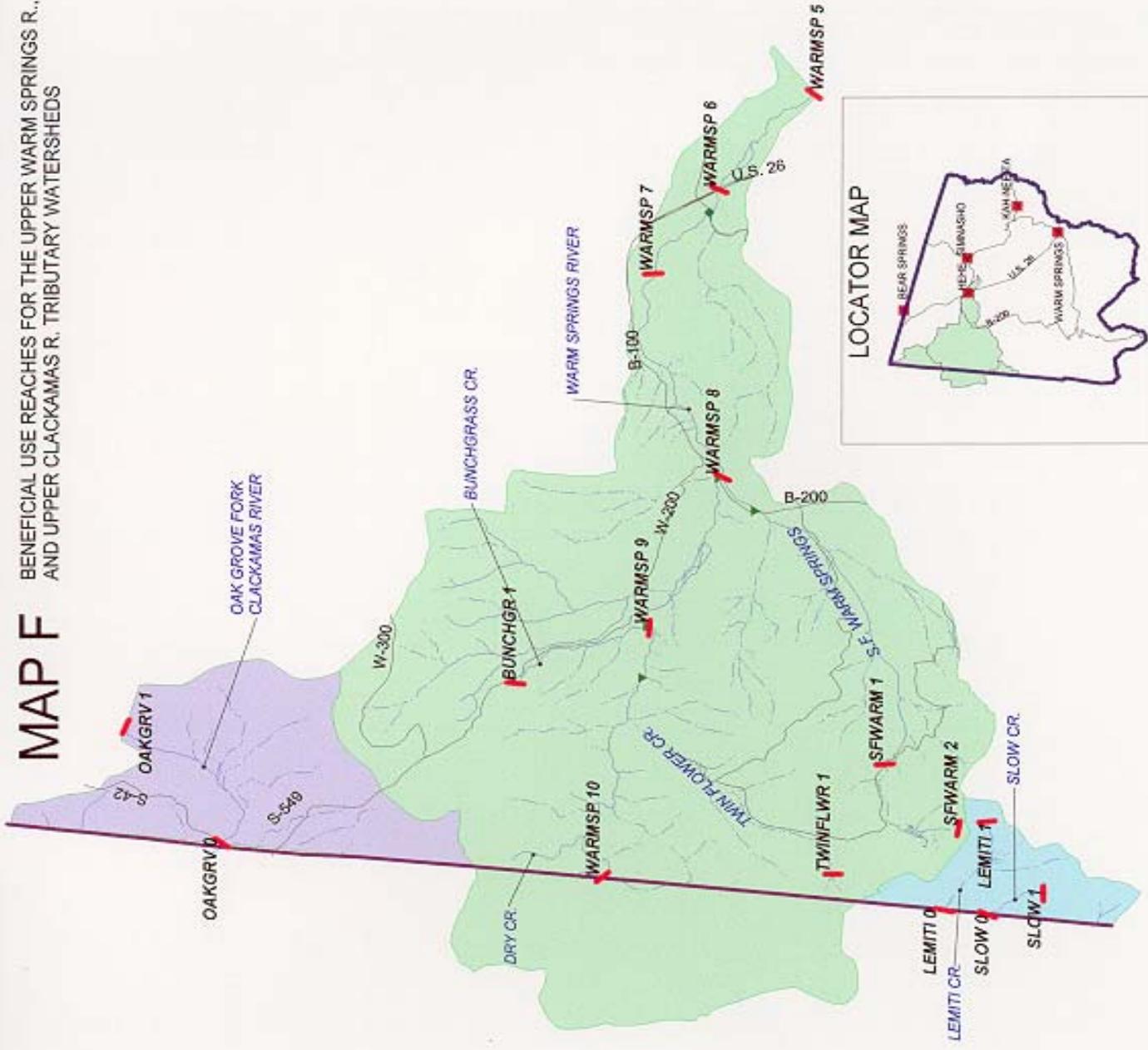
- BENEFICIAL USE REACH BREAKS
- RESERVATION BOUNDARY
- WATER MONITORING STATIONS**
 - CTWS WATER QUALITY MONITORING STATION
 - USGS STREAM GAUGING STATION
 - CTWS WQMS and USGS SGS
- STREAMS**
 - Perennial
 - Intermittent
 - Canal or Ditch
- ROADS**
 - Highway
 - Road

- WATERSHEDS**
 - Badger Creek
 - Mill Creek
 - Middle Warm Springs River
 - Olalla Fl. Clackamas River



MAP F

BENEFICIAL USE REACHES FOR THE UPPER WARM SPRINGS R., AND UPPER CLACKAMAS R. TRIBUTARY WATERSHEDS



LEGEND

- BENEFICIAL USE REACH BREAKS
- RESERVATION BOUNDARY
- WATER MONITORING STATIONS**
 - CTWS WATER QUALITY MONITORING STATION
 - USGS STREAM GAUGING STATION
 - CTWS WQMS and USGS SGS

STREAMS

- Perennial
- Intermittent
- Canal or Ditch

ROADS

- Highway
- Road

- ### WATERSHEDS
- Lemhi Fk. Clackamas River
 - Oak Grove Fk. Clackamas River
 - Upper Warm Springs River



LOCATOR MAP



MAP G

BENEFICIAL USE REACHES FOR BEAVER CR., COYOTE CR., QUARTZ CR., AND CLEAR CR. WATERSHEDS



LEGEND

- BENEFICIAL USE REACH BREAKS
- RESERVATION BOUNDARY
- WATER MONITORING STATIONS**
 - CTWS WATER QUALITY MONITORING STATION
 - USGS STREAM GAUGING STATION
 - CTWS WQMS and USGS SGB
- STREAMS**
 - Perennial
 - Intermittent
 - Canal or Ditch
- ROADS**
 - Highway
 - Road

- WATERSHEDS**
 - Beaver Creek
 - Clear Creek
 - Coyote Creek
 - Quartz Creek

