

**PRIORITIZATION PROCESS USED for Oregon's  
2002 303 (d) List of Water Quality Limited Water bodies  
January 2003**

**INTRODUCTION:** Section 303(d) of the Clean Water Act provides an important building block for managing the quality of the Nation's waters. Sections 303(d) and 303(e), used in conjunction with water quality standards, provided the tools to establish water quality goals in any geographic area, to assess the condition of those waters, to identify areas needing special attention, and to develop and implement plans which remedy problems. Specifically, the Section 303(d) process consists of:

1. Identifying waters where required pollution controls are not expected to attain or maintain water quality standards (this is the 303(d) List);
2. Setting priorities and targeting resources for use in developing Total Maximum Daily Loads (TMDLs) for addressing point and nonpoint source pollutants; and
3. Establishing TMDLs.

This paper describes the process used by the Oregon Department of Environmental Quality (DEQ) to prioritize resources for use in developing Total Maximum Daily Loads (TMDLs). This prioritization process is based on that originally developed for the 1994/96 303(d) list. The same prioritization process was used for the 1998 303(d) list.

**BACKGROUND:** After States develop lists as required under Section 303(d), they are required to prioritize and submit the list of waters to EPA for review and approval. Section 303(d) states that each "State shall establish a priority ranking for such waters, taking into account the severity of the pollution and the uses to be made of such waters." As part of the ranking, each state is expected to identify which "high" priority waters will be targeted for TMDL development within two years following the listing process. The list and priority ranking are to be updated every two years (by April 1 of even numbered years).

A priority ranking is necessary to establish a work plan for the state to develop Total Maximum Daily Loads during the listing cycle. DEQ considers all listed waters to be important resources to the state. However, with hundreds of stream segments listed, many for multiple parameters, it is clear that not all TMDLs can be developed at the same time. The amount of staff time and resources required for TMDL development may vary widely depending on the amount of existing information, complexity, type of pollutant, number of point and non point sources, resources available and other issues.

EPA's Clean Water Strategy document addresses this problem. "Where all water quality problems cannot be addressed immediately, EPA and States will, using multi-year approaches, set priorities and direct efforts and resources to maximize environmental benefits by dealing with the most serious water quality problems and the most valuable and threatened resources first."

The DEQ priorities for TMDL development should be viewed as a work plan in which DEQ will focus staff resources. A high or low priority ranking does not necessarily mean that the river or lake is more important or less important, but rather that it is a water body

selected for TMDL development for reasons identified in the prioritization process. The priority ranking also should not be viewed as a comprehensive prioritization for value of water bodies in the state. The priority ranking is limited in its scope to only water bodies that are listed on the 303(d) list. Also, it is only a priority ranking for where DEQ will commit staff resources to develop a TMDL. DEQ will continue to perform its work in all river basins in the state in such areas as monitoring water quality, working with permit holders and enforcing the state's environmental regulations.

DEQ uses a multi-step process for priority ranking and targeting. Generally, DEQ develops TMDLs on a subbasin (US Geological Survey 4<sup>th</sup> field) scale. Once this geographic area has been targeted for TMDL development, DEQ may apply further criteria (second tier criteria) to identify the high priority areas within the sub basin. These criteria are explained below.

**ASSUMPTIONS:** DEQ used the following basic assumptions to develop criteria for prioritizing water bodies listed on the 2002 303(d) list.

1. All streams, rivers and estuaries on the 303(d) list are important and valuable resources. It is important for DEQ to develop Total Maximum Daily Loads (TMDLs) for all listed streams, as required by federal law, as quickly as resources allow.
2. The criteria used to prioritize the streams should be as objective as possible, but allow some flexibility through the "targeting" process to meet state and local needs and priorities.
3. In most cases, the geographic area was an entire sub-basin unless specific pollutants that affected an impaired beneficial use could be addressed uniquely on a smaller level (e.g. toxics affected a single water body such as one lake within a sub-basin). In that case, the specific watershed or other defined area related to the beneficial use would be ranked separately from the remainder of the sub-basin. Within a sub-basin, dissimilar water bodies could be ranked separately if listed for unrelated parameters. For example, bays and lakes listed for bacteria may be separated from the rest of a sub-basin that is listed for other parameters affecting fish.
4. DEQ will use beneficial uses, looking at severity of impairment and severity of pollution, to determine the priority. An example of this is a "Threatened and Endangered Species" listing or Health Advisory would be given a higher priority based on the severity of impairment or pollution.
5. DEQ will re-examine criteria used for prioritizing and targeting TMDL development in each listing cycle.

**RANKING METHODOLOGY:** All 4<sup>th</sup> field sub-basins which had water bodies listed on the 1994/1996 303(d) list were ranked in "First Tier" priority categories of 1 through 4 (where 1 is high priority and 4 is lower priority) as described below. Where multiple uses within a sub-basin are limited by impaired water quality, the sub-basin would be ranked using the highest priority. A "Second Tier" set of criteria are suggested that can be used to further develop priorities or set targets within a sub-basin. The "Second Tier" priorities

were not used to further define priorities at this time and will be the subject of further refinement by the Department.

Sub-Basins (hydrologic units) were ranked as Priority 1 through 4 based on the ranking scheme described below:

## **FIRST TIER CRITERIA:**

### **Priority 1:**

#### **Endangered Fish Species:**

Spawning and rearing water bodies for federally listed threatened or endangered species or species addressed under the Oregon Plan.

Parameters of Concern: Biological Criteria, Dissolved Oxygen, Flow Modification, Habitat Modification, pH, Sedimentation, Temperature, Total Dissolved Gas, Toxics, Turbidity

#### **Health Advisories:**

Streams and Lakes where the Oregon Health Division has issued a fish consumption advisory.

Parameters of concern: Toxics (tissue)

#### **Drinking Water:**

Public and Private Domestic water supply where standard pretreatment technology (filtration and disinfection) is inadequate to meet drinking standards.

Parameters of Concern: Total Dissolved Solids, Toxics (water column)

### **Priority 2:**

#### **Candidate Fish Species:**

Spawning and rearing water bodies for fish species that are candidates or proposed for federal listing as threatened or endangered species or listed as critical on the Oregon Sensitive species list.

Parameters of Concern: Biological Criteria, Dissolved Oxygen, Flow Modification, Habitat Modification, pH, Sedimentation, Temperature, Total Dissolved Gas, Toxics, Turbidity

#### **Shellfish:**

Water bodies that experience periodic closures for not meeting standards for shellfish growing waters.

Parameters of concern: Bacteria, Toxics

#### **Water Contact Recreation:**

Water bodies that experience chronic dry weather exceedences which corresponds with higher recreational usage (generally June through September).

Parameters of concern: bacteria

**Priority 3:**

**Salmonid habitat:**

Water bodies designated for salmonid spawning and rearing that do not meet appropriate water quality standards.

Parameters of Concern: Biological Criteria, Dissolved Oxygen, Flow Modification, Habitat Modification, pH, Sedimentation, Temperature, Total Dissolved Gas, Toxics, Turbidity

**Water Contact Recreation:**

Water bodies that experience chronic wet weather exceedences which correspond with lower recreational usage (generally October through May) or non-health related (aesthetic) concerns.

Parameters of concern: bacteria, aquatic weeds or algae, chlorophyll a, nutrients, turbidity

**Wild & Scenic Rivers and State Scenic Waterways:**

Federally or State designated Wild & Scenic waters not meeting water quality standards that relate to aesthetics or other recreational water use.

Parameters of Concern: aquatic weeds or algae, chlorophyll a, nutrients, turbidity

**Industrial Water Supply:**

Waters designated for industrial water supply where standard pretreatment technology is inadequate to meet standards.

Parameters of concern: Total Dissolved Solids, Turbidity

**Priority 4:**

**Livestock Watering**

Waters designated for livestock watering that do not meet appropriate water quality standards.

Parameters of concern: Chlorophyll a or algae

**Other Resident Fish and Aquatic Life:**

Water bodies not designated for salmonid spawning and rearing that do not meet appropriate water quality standards.

Parameters of Concern: Biological Criteria, Dissolved Oxygen, Flow Modification, Habitat Modification, pH, Sedimentation, Temperature, Total Dissolved Gas, Toxics, Turbidity

**Aesthetics:**

Other waters (not federally or State designated Wild & Scenic waters) not meeting water quality standards that relate to aesthetics or other recreational water use.

Parameters of Concern: aquatic weeds or algae, chlorophyll a, nutrients, turbidity

## **SECOND TIER CRITERIA (to be used within the “first tier” priorities):**

Once the list is ranked into Priorities 1 through 4, a “Second Tier” of priorities could be used to further rank, refine priorities or target resources within a sub-basin. A sub-basin may be too large of an area for development of management plans (for example, federal agencies have been working at a watershed or sub-watershed scale when developing Watershed Assessments).

Second Tier criteria could include:

- Oregon Department of Fish & Wildlife (ODFW) Identified Core Area: These are reaches or watersheds within individual sub-basins that ODFW has judged to be of critical importance to the sustenance of salmon populations that inhabit those basins.
- Likelihood of Success: Examples include: areas where local groups are ready to start developing a management plan or where cost effective and reasonable efforts are likely to resolve the problem at least to a level that partially supports the use.
- Drinking Water Withdrawals: Higher priority could be given where water is used for drinking water and limited by criteria affecting drinking water.
- Wild and Scenic Rivers: These river segments could rank a higher priority than others for certain parameters (such as bacteria and algae) that affect the use of water for recreation or affect the aesthetic of such waters.
- Water Quality Trending: A higher priority could be assigned where there is a declining trend in water quality or a lower priority could be assigned where there is an improving trend in water quality.
- Weighted based on types of pollutants and severity of use impairment: Pollutants could be weighted based on impact on beneficial use. For example, a stream segment may be impaired for several parameters that affect salmon but certain parameters may be major limiting factors to fish production and need to be dealt with first so that improvements in other factors would be more beneficial (e.g. temperature of a stream may need to be addressed so that fish have access to habitat which may also be limiting).
- Economic Development: Higher priority could be assigned where economic development is a local priority or where a sewage treatment plant needs increased capacity.

### **Results:**

New listings for Oregon will be integrated into the existing 303 (d) list implementation schedule that is in effect for the 1998 listings, whenever possible. Thus, listings will be addressed on a sub-basin level according to the existing schedule. The original schedule was developed based on the priorities established at the time. This new schedule will maintain the integrity of the original schedule and the related consent decree. In general, new listings will be incorporated into sub basin efforts that will be underway in 2003 or later.

Some listings will be placed on a new schedule starting in 2008 if the new listing requires additional monitoring data or analyses that would delay the existing completion date for the sub-basin. This is to preserve the existing schedule for completion of the 1998 listings. In such cases, the new listing would be tied to the anticipated review date for that sub basin. Typically, the review date is five years after issuance of the TMDL. New listings for sub basins that have already been completed will also be added to the review schedule, usually starting in 2008. Below is the sub basin 1998 schedule. In addition, individual exceptions for the 2002 listings are noted below if they can not be incorporated into the existing sub basin schedule.

**2003 (Includes sub basins not yet completed scheduled prior to 2003)**

Alvord Lake  
Applegate  
Chetco  
Imnaha  
John Day – Middle Fork  
John Day – North Fork  
Little Deschutes  
Lost River  
Lower Columbia – Clatskanie  
Lower Columbia – Sandy  
Lower Columbia – Youngs  
Lower Grande Ronde  
Lower Klamath  
Lower Malheur  
Middle Columbia – Hood  
Middle Columbia – Lake Wallula  
Nehalem  
Necanicum  
Smith  
Snake  
South Fork Coquille  
Umpqua  
Upper Deschutes  
Upper Malheur  
Upper Quinn  
Walla Walla  
Wallowa  
Warner  
Willamette Basin (except Molalla-Pudding and Yamhill)  
Willow

**2004**

Beaver - South Fork  
Illinois  
Lower Crooked  
Lower Rogue  
Middle Rogue  
Upper Crooked  
Upper John Day

Upper Rogue

**2005**

Burnt

Coos

Coquille

Lower John Day

Wilson/Trask/Nestucca – New Listings for Dissolved Oxygen, pH, Iron

**2006**

Columbia River (Crosses Sub basins) – New Listings for Polynuclear Aromatic Hydrocarbons

Crooked – Rattlesnake

East Little Owyhee

Jordan

Lower Columbia –Youngs– New Listings for Toxics (Cr, Cu, Fe, Mn, Zn)

Lower Deschutes

Lower Owyhee

Middle Owyhee

Middle Snake - Succor

South Fork Owyhee

Trout

**2007**

Clackamas – E Coli

Donner und Blitzen

Goose Lake

Guano

Harney – Malheur Lakes

Lake Albert

Lower Columbia – Sandy – New Listing for E Coli

Molalla-Pudding

Silver

Silvies

Summer Lake

Thousand - Virgin

Yamhill

**2008 – New Listings**

Alesea (moved from 2006)

Applegate – Dissolved Oxygen

Coast Fork Willamette – Ammonia

Lower Willamette – Iron, Manganese, Chlordane, Polynuclear Aromatic, E Coli

Middle Columbia – Hood – Chlorpyrifos, Zinc, Guthion, Iron

Middle Willamette – Copper, Lead, Zinc

North Umpqua – Toxics (Arsenic, Copper, Iron, Lead, Manganese, Mercury)

Siletz – Yaquina (moved from 2006)

Siltcoos (moved from 2006)

Siuslaw (moved from 2006)

South Umpqua - Toxics (Arsenic, Copper, Iron, Lead, Manganese, Mercury)

Umatilla – Dissolved Oxygen, Iron, Manganese

Umpqua - Toxics (Arsenic, Copper, Iron, Lead, Manganese, Mercury)

Upper Deschutes/Lava Lake – Dissolved Oxygen

Upper Willamette – E Coli, Lead, Malathion

Willamette (Crosses Sub basins) – Aldrin, Arsenic, DDT, Dieldrin, Chlorophyll a  
Dissolved Oxygen, Iron, Manganese, Polynuclear Aromatic Hydrocarbons

**2009 – New Listings**

Middle Rogue (Bear Creek System) – Dissolved Oxygen

Tualatin – Toxics (Cr, Cu, Pb, Ag, Zn)