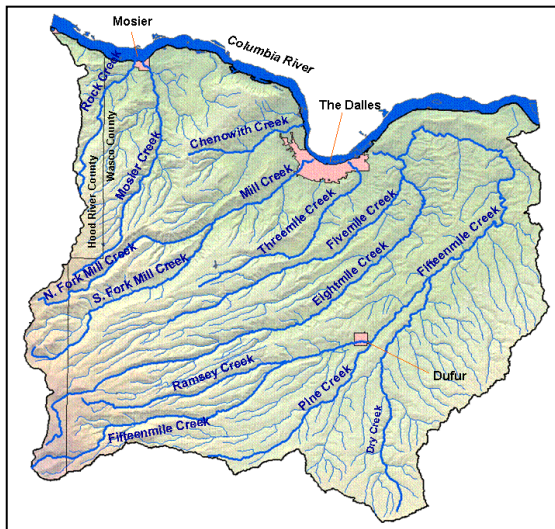


Miles Creeks Subbasin: Proposed Temperature TMDL

Background

The Miles Creeks Subbasin is the eastern portion of the Middle Columbia-Hood Subbasin in Oregon. The Subbasin includes streams that flow into the Columbia River from Mosier Creek east to Fifteenmile Creek. Many of the streams in the Subbasin do not currently meet water quality standards for temperature. Standards assure that beneficial uses of the rivers, such as swimming, fishing and drinking water sources are protected.



The federal Clean Water Act requires DEQ to develop a plan with goals and pollution control targets for improving water quality in watersheds where water quality standards are not met. DEQ is doing this in the Miles Creeks Subbasin by establishing limits known as Total Maximum Daily Loads (TMDLs) for heat (the pollutant causing the water quality standard violations). A TMDL is the maximum amount of pollution that can be present in a water body without exceeding standards. It identifies where pollution comes from within the basin and “allocates” the pollution loads among different sources.

This fact sheet summarizes DEQ's upcoming plan to address stream heating in the Miles Creeks Subbasin.

The Problem

Many of the streams in the Miles Creeks Subbasin are not cool enough in the summer to fully protect salmon and trout (salmonids). These streams include: Fifteenmile Creek, Eightmile Creek, Ramsey Creek, Dry Creek, Fivemile Creek, Threemile Creek, Mill Creek,

Chenoweth Creek, Mosier Creek and Rock Creek. The salmonids present in much of the Subbasin that are most sensitive to this heating include: steelhead, rainbow trout, and coastal cutthroat trout. Various temperature standards (criteria) have been adopted to protect the full range of life stages of these fish.

During the summer and early fall, low stream flows and high solar input cause the water temperature to rise to levels that can be deadly to cold water species. At temperatures ranging from 70-80 °F (which is common within the Miles Creeks Subbasin), these fish are inefficient at hunting, hiding and processing food. In addition, warmer water can also harm salmonids by increasing the incidence of disease, impairing their ability to spawn, reducing growth rates, and decreasing survival of eggs.

Water temperature can be greatly affected by a variety of human activities. The principal human-caused sources of stream heating identified in the Miles Creeks Subbasin include:

- removal of trees and other shade-producing vegetation from stream banks which allows direct sunlight to heat the water;
- reduction of summertime stream flows which decreases the thermal assimilative capacity of the stream, causing larger temperature increase in stream segments where flows are reduced;
- channel modifications and widening which increase the stream surface exposed to solar radiation; and
- discharges of warm water from point sources, such as wastewater treatment plants.

TMDL Analysis

The TMDL defines the amount of heat that can be added and still be protective of the river. These amounts are known as “loads.” The TMDL analyzes the effects of point source discharges (e.g., sewage treatment plants) and nonpoint sources (e.g., runoff and deteriorated vegetation) and divide these load amounts among the various sources.

For point sources of heat waste load allocations have been developed that will limit the increase in temperature of the receiving stream no more than 0.2 °C above the applicable criterion. There were two point sources of heat identified in the Miles Creeks Subbasin; the Dufur Wastewater



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Treatment Plant (WWTP) and The Dalles Wicks Water Treatment Plant. The Dufur WWTP discharges into Fifteenmile Creek, but is not allowed to discharge during the summer months under the terms of their current permit. The Wicks Water Treatment Plant discharges into South Fork Mill Creek throughout the year.

For nonpoint sources of heat, the load allocation is based on the development of natural vegetation in the area adjacent to the stream, known as the riparian zone. Natural vegetation species and heights were determined by ecoregion for the Miles Creeks Subbasin with the assistance of a local Technical Advisory Committee. DEQ terms this condition “system potential vegetation.” Ecoregions are a geographic concept that takes into account differences in climate, soils, slope, elevation and historic vegetation.

Proposed load allocations for nonpoint sources will require reductions in heating associated with agriculture, forestry, and transportation corridors. In general, this means restoring stream-side areas so that banks are stable and vegetation can establish. Where appropriate, increasing stream flows and narrowing stream channel widths could also help restore natural thermal conditions in Subbasin streams. However, it is important to recognize that DEQ does not regulate flow, nor is the TMDL intended to affect existing water rights.

TMDL Documentation & Implementation

The TMDL is a single document, about 90 pages in length. Chapters 1 and 2 contain an Introduction and general Subbasin description, Chapter 3 contains the TMDL numeric objectives and Chapter 4 is a Water Quality Management Plan (WQMP). These are relatively brief and non-technical reading. The lengthier technical appendix describes data, evaluation and mathematical modeling of discharge, heating and temperature, for those who seek an understanding of how the TMDL allocations were developed.

The WQMP is designed to identify strategies and approaches for implementing the TMDLs. The WQMP identifies the Designated Management Agencies (local, state and federal government agencies with responsibility for addressing pollution problems), as well as proposed management strategies designed to meet the allocations in the TMDL. It also establishes a schedule for the submission of Implementation Plans by Designated Management Agencies (DMAs).

Some Implementation Plans already exist. For example, the Implementation Plan for agriculture, the Lower Deschutes Agricultural Water Quality Management Area Plan, has already been developed by local stakeholders and approved by the Oregon Department of Agriculture. This document will be revised as needed for TMDL implementation. Other Implementation Plans, such as those describing activities on Federal lands or city and county jurisdictions, have not yet been developed. It is expected that all Implementation Plans will be developed within 18 months of TMDL issuance and that the Plans will address sources of heating which the DMA has jurisdiction over.

Adaptive Management

An “adaptive management” approach is employed to implement TMDLs. This involves ongoing tracking and evaluation of actions taken to reduce pollution. If TMDL implementation efforts prove to be inadequate, DMAs will need to revise their TMDL Implementation Plans.

If DEQ, in consultation with DMAs, concludes that all feasible steps have been taken to meet the TMDL and attainment of a standard is not practicable, DEQ will reopen and revise the TMDL as appropriate. DEQ will also reopen the TMDL if new information indicates that updating is needed.

For more information

For more information, contact Bonnie Lamb at (541) 633-2027 or use the toll-free number in Oregon at (800) 452-4011. The TMDL document can be viewed at:
<http://www.deq.state.or.us/wq/TMDLs/TMDLs.htm>

Alternative formats

Alternative formats (Braille, large type) of this document can be made available. Contact DEQ's Office of Communications & Outreach, Portland, at (503) 229-5696, or toll-free in Oregon at 1-800-452-4011, ext. 5696; via fax at (503) 229-6762; or by e-mail to deqinfo@deq.state.or.us