

## Working for Clean Water in the Tualatin River Sub-basin

From swift moving creeks in the coast range to a slow moving urban river, the Tualatin River watershed has significant diversity in both its physical environment and human influence. This diversity has created both challenges and opportunities for its water management. Efforts to improve water quality in the Tualatin Basin have been ongoing for more than 30 years.

This fact sheet summarizes DEQ's and its partners' activities to address Tualatin basin water quality dating back to the 1980s, and describes plans for future work that will reduce pollution. Pollution reduction has already resulted in significant improvements for fish and wildlife, fishing and swimming, drinking water, agricultural and other uses. Current changes to the pollution abatement plans will further the water quality improvements in the basin and will also provide regulatory certainty for waste water treatment over the next several years. This will allow Clean Water Services, the provider for municipal waste water collection and treatment, to efficiently plan for future population growth, and manage ratepayer fees.

### Diverse watershed

The Tualatin River and its tributary streams drain more than 700 square miles of land, mostly within Washington County. The basin supports a growing population of more than 450,000 and a diverse agricultural industry. In 2000, Washington County had the fourth highest agricultural gross income in Oregon.

The first 25 river miles descend about 1,800 feet in elevation, swiftly flowing through forests and scattered pasture lands in Oregon's Coast Range. The river then slows down, because it drops only 100 feet in elevation over the remaining 55 river miles. Here the river drains largely urban and agricultural lands, and flows into the Willamette River near West Linn. Major tributaries include Scoggins, Gales, Dairy, McKay, Rock, Beaverton and Fanno Creeks.

Many streams in the Tualatin River subbasin do not meet Oregon water quality standards. These streams have high water temperatures and low dissolved oxygen levels that can harm fish and other aquatic life. Some water bodies have bacteria counts that are higher than the Oregon's water quality standard. High bacteria levels, especially those associated with sources of

untreated human waste, can harm people who come into contact with these waters.

### Background

The Federal Clean Water Act requires DEQ to develop plans with goals and pollution control targets for improving water quality in these streams. If a river or stream does not meet water quality standards, DEQ identifies the stream as "water quality limited" and places it on a list of impaired water bodies known as Oregon's 303(d) list.

DEQ uses scientific data collection and analysis to determine the amount and source of each pollutant entering the river system, and allocates pollutant loads to each source at levels that would ultimately restore water quality to clean water standards. These pollution load limits, known as Total Maximum Daily Loads or TMDLs, are calculated for each pollutant for which the stream is listed. A load is the amount of each pollutant a waterway can receive and not violate water quality standards. The TMDL accounts for pollution from all sources, and identifies pollutant limits, called allocations, for each source.

Oregon DEQ completed TMDLs for phosphorus and ammonia for the Tualatin River Sub basin in 1988. In the 1990s, DEQ added temperature, bacteria and dissolved oxygen to the list of water quality impairments. In 2001, DEQ issued TMDLs for those pollutants and updated the earlier phosphorus and ammonia TMDLs.

To implement the TMDL, DEQ modifies industrial and municipal wastewater discharge permits to address the limits in each TMDL. DEQ also works with cities, counties and other designated management agencies to develop management plans to meet the TMDL goals.

### Water quality improvements

From the 1970s on and into the early 1990s, several actions improved water quality in the mainstem Tualatin River. Clean Water Services, then known as USA) closed several small treatment plants. Upgrades in treatment were made at the remaining large facilities. Stream flows increased and were better managed after completion of Scoggins Reservoir in 1978. Since the late 1980s, municipalities and management agencies representing urban,



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agriculture and forestry have developed and implemented management plans that address potential sources of pollutants from runoff and associated activities throughout the basin. In order to meet the temperature requirements of the 2001 TMDL, Clean Water Services entered into a pollution trading program that included releasing additional water from Hagg Lake and planting trees and native plants along stream banks in the basin. Over the past 5 years, Clean Water Services released an average of 35 cubic feet per second of stored water from Hagg Lake during the critical summer months of July and August and has completed over 30 miles of stream side plantings to offset the temperature effects of its wastewater treatment facilities.

As a result of these actions, the water quality on the mainstem Tualatin River continues to improve. Phosphorus and ammonia levels dropped significantly in 1994 when Clean Water Services improved waste water treatment techniques. Dissolved oxygen and pH have improved in some areas of the basin both in response to the lower phosphorus and ammonia, and to increased flow. Water temperature in portions of the mainstem Tualatin has also dropped because of the additional flow from Hagg Lake. Cooler water temperatures in tributaries and the mainstem are expected in the future as shade trees grow and reduce stream temperatures even more.

### **Allocating loads**

The TMDLs define the amount of heat, bacteria, phosphorus and ammonia that can be added and still be protective of the river. These amounts are known as “loads.” The TMDLs divide these load amounts among the various sources. The result is called the load allocation. These Loads were set in the 2001 TMDL for both point sources, end-of-pipe discharge, and non-point sources, all other pollutant sources, in the Tualatin Basin.

Clean Water Services received waste load allocation at two of its’ four plants in the 2001 TMDL, because two of its plants do not discharge during the TMDL summer season. In the future, Clean Water Services plans to discharge from all four plants year-round, to accommodate population growth.

### **Updating Clean Water Plans and amending TMDLs**

The TMDLs for phosphorus and ammonia will be amended to include allocations for all four of Clean Water Services discharge locations.

### **Plan implementation**

State water quality standards require that a water quality management plan be developed and implemented by all sources that may impair water quality in the Tualatin River Basin. The plan explains the roles of various land management agencies in implementing the actions necessary to meet the allocations in the TMDLs. The 2001 Tualatin Basin Water Quality Management Plan will also be updated with the TMDL.

Plan implementation in the Tualatin River Basin has been on-going since the 1988 TMDL, including activities on private agricultural and forested land and within the cities and counties of the Tualatin Basin. An Agricultural Water Quality Management Area Plan, which addresses agricultural activities on private lands, has been adopted for the basin by the Oregon Department of Agriculture. Water quality impairment in urban areas has been addressed through Implementation Plans, as well as through DEQ’s National Pollution Discharge Elimination System program.

The revised Water Quality Management Plan will require existing plans to be updated, and new plans to be submitted from newly identified responsible parties in the Tualatin Basin.

### **Public process and participation**

DEQ has conducted numerous meetings with stakeholders during the development of the TMDLs including a public hearing and comment period held in the fall of 2011. DEQ also distributed information to the public by direct mailing to interested parties and posting on the Willamette Basin TMDL web page at: <http://www.deq.state.or.us/WQ/TMDLs/willamette.htm#>.

### **For more information**

If you would like to be placed on the mailing list or have questions regarding the TMDL documents or process, contact the DEQ Tualatin Basin Coordinator Avis Newell at 503-229-6018 or [Newell.Avis@deq.state.or.us](mailto:Newell.Avis@deq.state.or.us)

### **Alternative formats**

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