

Clackamas Subbasin Water Quality Overview

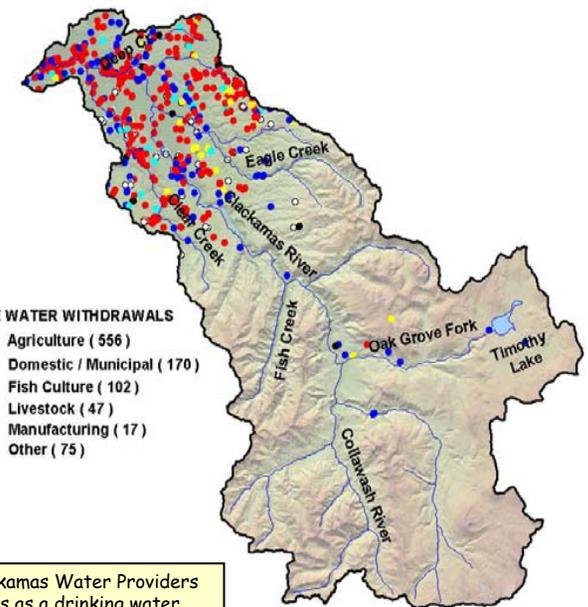
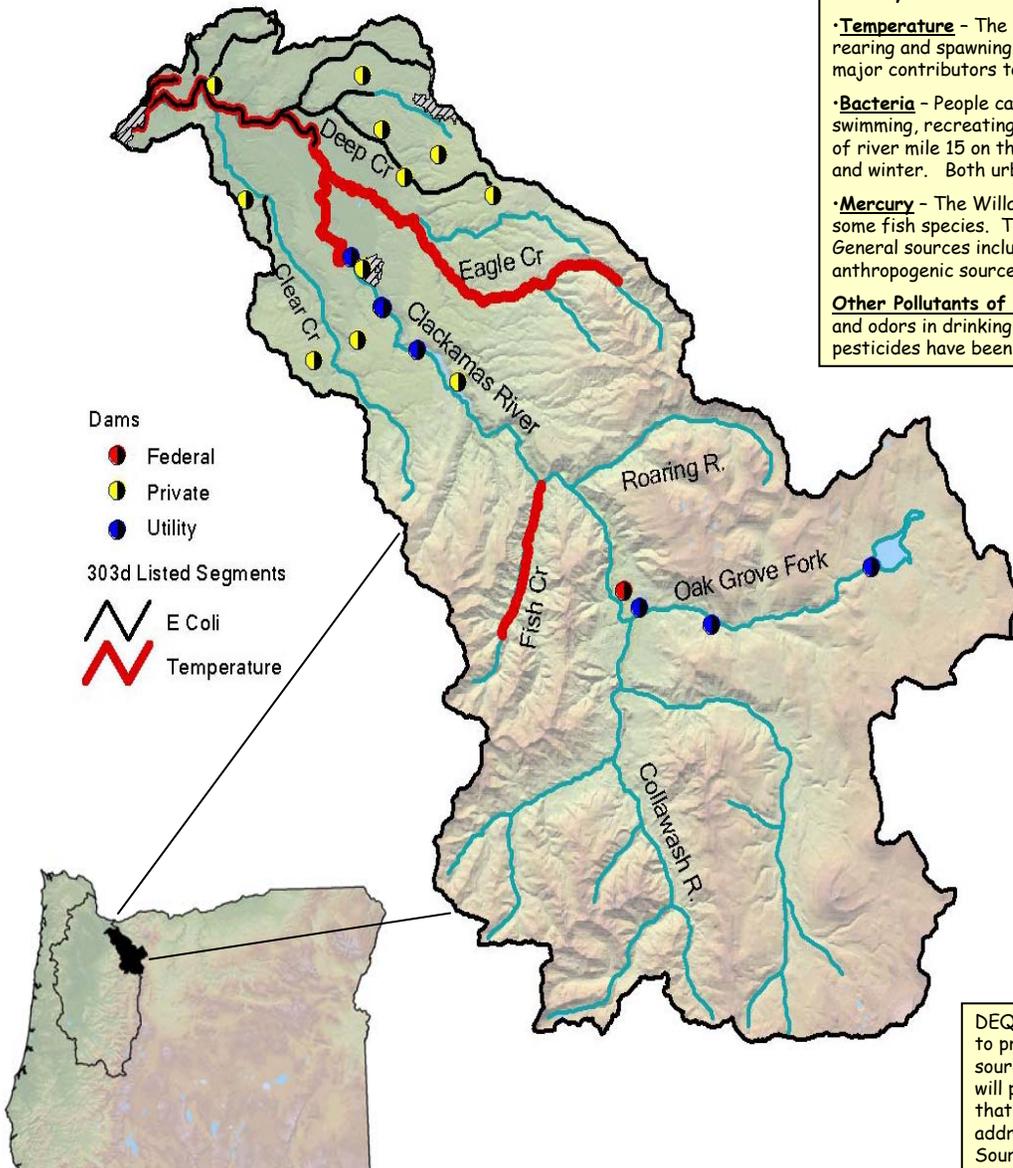
Total Maximum Daily Loads (TMDLs): DEQ has developed TMDLs to address **temperature, bacteria and mercury** in the Clackamas Subbasin.

• **Temperature** - The Clackamas River and tributaries are warmer than is necessary to protect salmonid rearing and spawning. Lack of riparian vegetation, water withdrawals and hydroelectric operations are the major contributors to high temperatures.

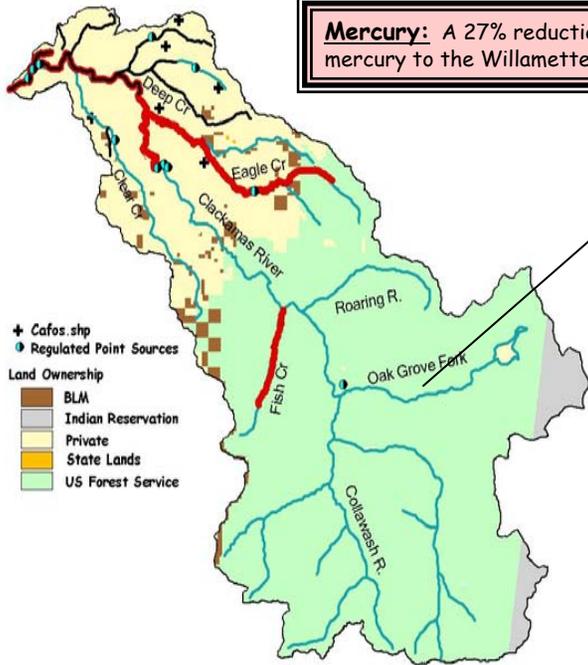
• **Bacteria** - People can become sick if they ingest water that is contaminated with bacteria when they are swimming, recreating or in contact with the water. Bacteria levels exceed the state standard downstream of river mile 15 on the mainstem Clackamas during the summer and in some tributaries during both summer and winter. Both urban and rural/agricultural sources are major contributors to the high bacteria levels.

• **Mercury** - The Willamette River has fish consumption advisories due to elevated levels of mercury found in some fish species. The Clackamas Subbasin will be addressed as part of a basin-wide strategy for mercury. General sources include air deposition and erosion of soils which contain mercury from natural and anthropogenic sources. There is an abandoned mercury mine on the Oak Grove Fork.

Other Pollutants of Concern: Nutrients and algal blooms may contribute to elevated pH as well as tastes and odors in drinking water withdrawn from the lower Clackamas. Additionally, sedimentation, metals and pesticides have been identified as parameters of concern needing additional study.



DEQ will work with Clackamas Water Providers to protect the Clackamas as a drinking water source for approximately 175,000 people. DEQ will provide technical assistance to communities that develop Drinking Water Protection Plans to address sources of contamination identified in Source Water Assessments.



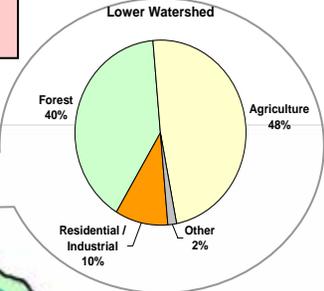
Mercury: A 27% reduction in the load of total mercury to the Willamette basin is needed.

- Municipalities and certain industries will complete monitoring and mercury minimization planning;
- DEQ Water Quality and Site Assessment sections will coordinate on mercury mine investigations, risk assessments and cleanups;
- DEQ will further characterize the load of mercury from major tributaries to the mainstem Willamette;
- Implement additional erosion and storm water control measures to reduce the loading of native mercury-containing soils to streams.

Partners: DEQ has been working with a variety of partners during TMDL development and will need to include a wide variety of partners for successful TMDL implementation. These partners include the cities, counties, Clackamas River Basin Watershed Council, Clackamas and East Multnomah Soil and Water Conservation Districts (SWCDs), Portland General Electric, state and federal agencies. The Clackamas Basin Watershed Council has completed Watershed Assessments and an Action Plan for all the lower Clackamas watersheds. The U.S. Forest Service has completed Watershed Analyses for each of the watersheds they manage in the upper Clackamas. DEQ has funded a joint project coordinated by the Clackamas and East Multnomah SWCDs as part of TMDL implementation. DEQ also provided comments to the biannual review of the Agricultural Water Quality Management (SB1010) Plan for the subbasin.

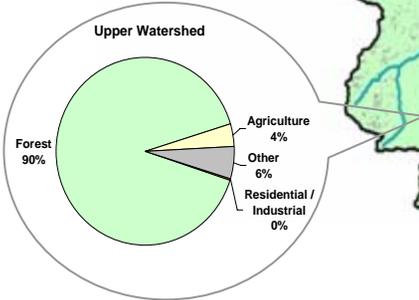
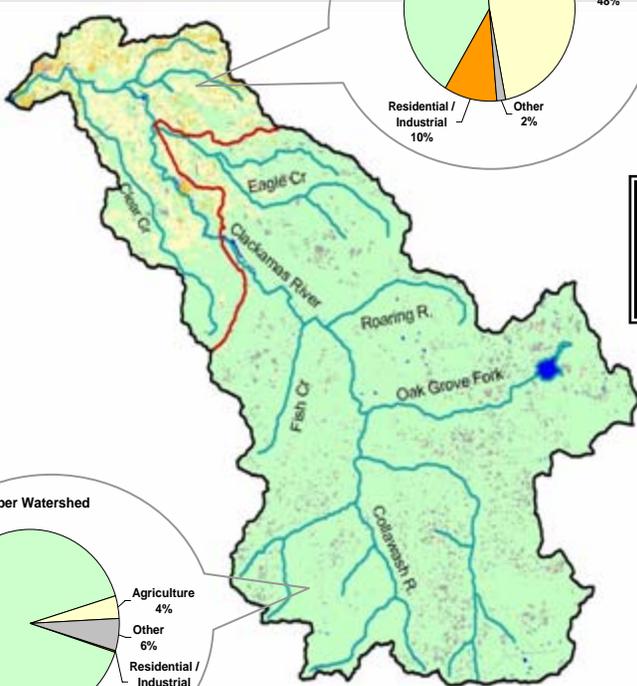
Substantial population growth is occurring in the lower Clackamas Watershed. DEQ will work with Clackamas County, Metro and local cities to develop strategies that protect water quality as rural areas are urbanized.

Major DEQ activities include: NPDES permitting of stormwater, TMDL development, Cleanup activities, grant and loan funding for source identification and TMDL implementation activities.



Temperature: Planting vegetation to increase stream-side shading will result in significantly cooler stream temperatures. Temperatures may also be reduced by allowing more water to remain in the river.

Bacteria: Reduce bacterial loads in Clackamas River and tributary streams 78% to 89% by addressing direct discharges and runoff of bacterial sources.



Resources are available for assisting with temperature improvements and habitat restoration projects:

- Work with Oregon Department of Agriculture (ODA) and Soil and Water Conservation Districts (SWCDs) on Agricultural Water Quality (SB1010) Plan implementation as well as with other partners on plan implementation.
- Loans and grants are available to help municipalities, watershed councils and SWCDs to fund and implement projects.
- Incorporate temperature reduction strategies through the water quality certification portion of hydroelectric project relicensing of Portland General Electric's projects.

- Work being done under stormwater permits will address contributions from urban sources;
- ODA and SWCD will address contributions from agricultural and rural lands under Agricultural Water Quality management (SB1010) Plans and Confined Animal Feedlot Operations (CAFO) permits.
- Work with counties to identify and address failing septic systems.
- Work with municipalities to address inflow and infiltration problems that cause sewage bypasses.