

Chehalis River Watershed
1st Annual Summary of Partner's Work
To Protect Water Quality
--January 2008 Review--

Purpose of the work

Pollution concerns were documented in several Chehalis studies by various organizations. Low levels of dissolved oxygen (DO) and higher temperatures were determined to be limiting factors affecting the aquatic habitat and fish in the Chehalis system. Fecal coliform bacteria (BacT) levels have been high enough during certain periods to violate standards set for protection of shellfish harvest outside the river mouth at Grays Harbor. During certain periods BacT levels are high enough at several other places to violate standards set for protecting people during swimming or other recreation in the river.

Many people and organizations are working to improve water quality. A workshop of those people was held in late 2007 to discuss their work. The following information briefly summarizes the workshop presentations by more than 15 organizations on what they've been doing to help protect and restore water quality in the Chehalis watershed.

What is being done?

To address the fishery resource concerns various organizations are helping to protect and enhance the riparian corridor. Landowners, the local conservation districts, the Confederated Tribes of the Chehalis Indian Reservation, cities, volunteer groups including students and local fishery support groups provide labor and plant materials for stabilizing the stream banks and to increase plant cover and shade. Increased shade is the most important feature to lower temperatures in the river. Landowners install fencing to keep livestock from eroding the banks and plant more trees to increase shade. The fence and vegetative "barriers" help block animal waste or other sheet erosion to keep it out of the river. Because the shoreline protections prevent or reduce transport of nutrient and BOD materials into the river, they help improve dissolved oxygen conditions too.

A wide section of the river near the cities of Centralia and Chehalis is considered the critical segment for temperature and DO conditions. Natural conditions were found to be a major cause of higher temperatures and lower dissolved oxygen in that segment known as the "Centralia reach". To ensure that wastewater treatment discharges do not compound the natural pollution, the plants discharges to the river are halted during low-flow river conditions (i.e., when flows are less than 1,000 cubic feet per second.) During the critical low river flow period the treated effluent from the city of Chehalis wastewater treatment plant is instead utilized as reclaimed water and applied as agricultural irrigation. The City of Centralia currently discharges to the Chehalis River downstream of the area designated as the critical "Centralia reach"

A local discussion and water resource planning group called the Chehalis Basin Partnership (CBP) helped develop the plans for water quality improvement. They expect to continue serving as a focal point for coordinating implementation of local elements of the implementation plans. A water quality committee of the CBP serves to advise priorities for conducting a comprehensive water quality monitoring plan throughout the basin. To track changes in water quality conditions since several water quality studies were done about 10 years ago, about 100 sites are presently being sampled at least once per month. This sampling is conducted primarily by the Confederated Tribes of the Chehalis Indian Reservation, with technical and administrative support from Grays Harbor Community College, and financial support from Ecology.

Status of the projects

Actions described by participants at the review session are summarized in meeting minutes from Puget Sound Meeting Services, September 15, 2007. The minutes are available, on request.

Workshop Presenters were:

- **Confederated Tribes of the Chehalis Indian Nation**
- **Washington State Department of Agriculture Pesticide Management Program**
- **Washington State Department of Agriculture Dairy and Livestock Nutrient Management Program**
- **City of Centralia**
- **Quinalt Indian Nation**
- **Grays Harbor Community College**
- **City of Chehalis**
- **Chehalis River Basin Land Trust**
- **Chehalis River Council**
- **Capitol Land Trust**
- **Audubon Society, Grays Harbor Chapter**
- **Lewis County Conservation District**
- **Chehalis Basin Education Consortium/ Education Service District 113**

Results of the comprehensive monitoring program were also summarized by Grays Harbor Community College in an "Annual State-Of-the-River Report (2006-2007) for the Chehalis Basin".

Following are examples of some water quality improvement actions reported during the 2007 progress review workshop.

Agricultural Best Management Project activities coordinated by Conservation Districts

- Farm plans completed for 57 individual farms.
- 159 BMPs installed on 151 farm parcels,
- 6,609 Acres treated with agricultural BMPs to reduce fecal coliform, bacteria, BOD, ammonia, and nutrient loadings
- 50.6 miles of fencing and riparian planting installed by landowners cooperating with the Thurston and Lewis Conservation Districts alone.

Livestock Nutrient Management

The Washington State Department of Agriculture oversee implementation of the state's Dairy Nutrient Management Act, and coordinate w/ the Dept. of Ecology to help implement the Concentrated Animal Facilities Operations (CAFO) rules. This means provide tech.

assistance to farmers as needed to reduce delivery of manure or other BOD materials to waterways. Enforcement when voluntary compliance has not been achievable.

On-Site Septic System System Management

Thurston County and Grays Harbor County Health Departments reported their ongoing work to oversee safe operation of on-site septic systems. They permit installation of new/expanded septic systems, oversee operations and maintenance program, and review land-use proposals to protect sensitive areas.

General actions to protect shorelines/ buffers include:

Confederated Tribes of the Chehalis Indian Nation contribute significantly to fencing and riparian planting throughout the upper Basin. They often partner w/ the City of Centralia, Port of Centralia, Chehalis Land Trust, local classrooms to plant and protect riparian zones. The Lewis, Thurston, and Grays Harbor Conservation Districts reported on several riparian tree-planting and shoreline stabilization projects that they helped landowners implement. The CDs reported helping 71 farmers develop and implement farm plans with improved conservation practices. They collectively helped install treatments improving more than 6700 acres of land, and installed about 100 miles of fencing and riparian planting. Many farms installed conservation practices without direct involvement from the CDs: e.g., the Holm farm, and Heernet Foundation conducted an ambitious riparian evaluation and new planting of shoreline buffers on their properties. These treatments help reduce pollution movement to the Chehalis river system.

Land Acquisition for Perpetual Conservation:

Capital Land Trust and Chehalis River Land Trust continue to acquire land for perpetual conservation, with a special focus in the Black River subbasin of the upper Chehalis. This area is near the geographic center of many previously documented polluted water segments. More than 4800 acres have recently been conserved by the land Trusts in the upper basin. Acquisition and reforestation of 3,000 acres in the lower Hoquiam River by the Audubon Society is home to a valuable surge-flood plain protection project. The Nature Conservancy has acquired easements and done noxious plant management work to protect habitat and water quality in the lower Chehalis basin and Grays Harbor estuary.

New construction or retrofitting of several wastewater facilities is a major benefit to Chehalis River Basin Water Quality: Grand Mound sewage treatment plant upgrades, City of Chehalis Reclaimed Wastewater Facility and land-application operation, construction of new treatment plants at Centralia, and Chehalis. Upgrades to the treatment plants at PeEll, Elma, McCleary, Montesano. Collection system upgrades at the Aberdeen plant, and improvements of sludge handling and capacity concerns at Westport treatment plant. The high capital costs of these improvements are proving to be excellent investments- the actions help reduce fecal coliform bacteria, BOD, ammonia, and nutrient loadings. The combined state and Federal grant costs for the facilities improvements exceeded \$ 40 Million dollars, with an added separate cost to the cities of about \$34 Million (generally state loans). The facility work represented here happened between 1996 and 2007.

Investments in Non-Point Water Quality Protection Projects: Including the facility work above, more than 65 projects have been implemented. Some categories of the non-facility work include: aquatic vegetation removal for habitat improvement, stormwater infrastructure installations like sediment traps, catch basins and filter strips. There's been several direct investments with grants to bolster the capacity of the Chehalis Basin

Partnership to conduct water quality sampling, create an annual state-of-the-river report, setup a GIS clearinghouse, hire a coordinator for CBP activities and committee meetings, and increase the focus on community outreach and education. During the past several years the value of those project investments, is about \$4.5 Million in state and federal grants. Project sponsors contributed about \$1 million in cost share to the water quality protection investments.

The Chehalis Basin Education Consortium has been the most visible partner in implementing a strategic-level learning program for students 4th grade through 14th grade throughout the Chehalis watershed. Students conduct water sampling and streamside analysis, interpret the data, then discuss and share their information with their families. Some students take their projects to the next level, formulating and delivering briefings for public officials, to recommend socio-political solutions to the conservation issues the students discovered from their school and field studies.

The Chehalis River Council is another active partner conducting grass-roots level resource conservation education especially in the upper Chehalis system. The CRC has conducted different water quality monitoring projects, and was the first to include benthic macroinvertebrate sampling as a more direct gauge of the health of the water affecting actual aquatic organisms.

Unfortunately the above list of partners and their activities is only a summary of the work reported. A copy of the 2007 Review meeting minutes is available on request.

Water Quality Improvements Noted in 2007!

Between 79% and 86% of samples (parameter dependant) covered in the Grays Harbor College *2007 State-of-the-River Report* met Washington State water quality standards. pH, followed by dissolved oxygen and temperature accounted for the majority of water quality violations; however this was highly variable depending on location and season. In general, November had the most water quality violations (across all parameters) and March had the fewest. The frequency and magnitude of water quality violations was greater in the upper Basin (WRIA 23); however, within any given subbasin (including the mainstem of the Chehalis), water quality was generally better in headwater reaches and decreased downstream. These results support the findings of previous studies, further suggesting that, although there are general trends in water quality throughout the Chehalis Basin, specific needs for restoration and preservation of water quality are likely to be site-specific. Fecal coliform bacteria standards were attained in 93% of all samples. Only six of the 83 sites failed the most-protective "90th percentile criteria" for BacT. This suggests that the landowner BMPs and treatment plant construction improvements are at a minimum, effective for lowering BacT inputs. More project information is available on the Dept. of Ecology's website at:

<http://www.ecy.wa.gov/programs/wq/tmdl/ChehalisRvrTMDLSummary.html>

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