



## Section 319

# NONPOINT SOURCE PROGRAM SUCCESS STORY

# Washington

## Watershed-wide Implementation of Management Practices Restores River

### Waterbody Improved

Fecal coliform (FC) bacteria from agricultural runoff and leaking septic systems impaired shellfish harvesting and primary contact recreation uses in the Chehalis River watershed. As a result, the Washington Department of Ecology (Ecology) added 93 segments of the Chehalis River to the state's Clean Water Act (CWA) section 303(d) list of impaired waters between 1996 and 2004. To address the problems, farmers installed numerous agricultural best management practices (BMPs), and local governments increased efforts to identify and upgrade septic systems. FC levels decreased across the watershed. Ecology removed two segments from Washington's impaired waters list in 2008. Data show that another 76 segments are consistently meeting FC water quality standards; Ecology expects to propose removing those segments from the impaired waters list in 2012.

### Problem

The Chehalis River drains approximately 2,660 square miles on the coast of Washington and empties into Grays Harbor, an important shellfish area (Figure 1). More than 80 percent of the watershed is forested with another 10 percent dedicated to agriculture. Developed and agricultural areas are concentrated in areas close to waterways.

The applicable water quality standard (primary contact recreation use) requires that FC not exceed a geometric mean of 100 colonies (col) per 100 milliliters (mL), and that no more than 10 percent of all samples be greater than 200 col/100 mL. Water quality monitoring in 1990s indicated that numerous segments in the upper and lower Chehalis River Basin violated water quality standards for FC. As a result, Ecology added a total of 93 segments in the upper and lower Chehalis River to the state's CWA section 303(d) list for bacteria impairment in 1996, 1998 and 2004.

Ecology developed total maximum daily loads (TMDLs) for FC for Grays Harbor/Chehalis River in 2002 and for the upper Chehalis River in 2004. The TMDL assessments found that most of the Chehalis River's FC load originates in the upper watershed and that the FC sources in the upper watershed are nearly all nonpoint in origin. Primary FC sources of concern are animal waste from livestock operations and livestock stream access, agricultural and stormwater runoff and untreated human sewage from failing residential and commercial septic systems. Existing FC permit limits for sewage treatment plant discharges met

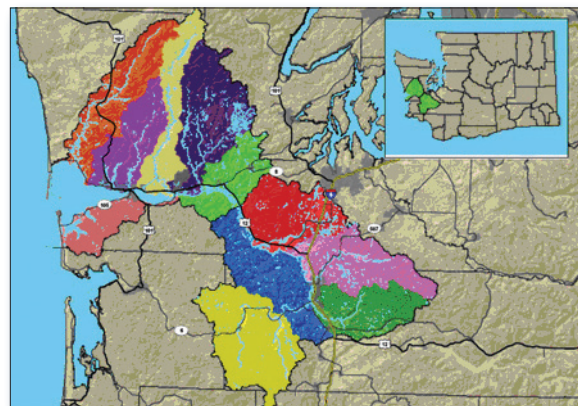


Figure 1. The Chehalis River drains approximately 2,660 square miles in Washington. Colors represent different subbasins within the Chehalis River watershed.

TMDL requirements. To prioritize projects, local partners and Ecology developed a comprehensive water quality implementation plan in 2004.

### Project Highlights

Beginning in 1998, statewide law required that all dairy farmers develop and implement nutrient management plans. In 2004 partners developed a TMDL implementation plan to help focus BMP implementation efforts. Since then, agricultural landowners have implemented drainage management on more than 100 acres, improved livestock waste storage and transfer systems, planted/fenced 56 miles of shoreline, and installed livestock exclusion/control fencing and alternative water systems (including 2,500 feet of livestock

pipeline and three livestock watering troughs). They implemented prescribed grazing on almost 200 acres and created management plans for nutrients (covering 6,700 acres) and pests (1,061 acres).

Forest landowners improved stability of forest roads (16,241 feet), seeded and mulched 15 acres of critical area, installed 135 feet of streambank and shoreline protection, and improved 371 acres of stream habitat. Stakeholders also improved wetland habitat by installing fencing (10,849 feet), restoring wetland areas (1,137 acres) and implementing 600 acres of wetland wildlife habitat management. More than 4,800 acres of land have been placed into perpetual conservation easements in the upper basin. The Chehalis Confederated Tribes installed numerous riparian planting and fencing projects on reservation land and in partnership with many nontribal public and private landowners. Recent grants have enabled the Chehalis Basin Partnership to expand its water quality sampling program and increase its focus on community outreach and education.

Local agencies have worked to reduce sewage-related pollution. Thurston and Lewis County Health Departments offered septic system maintenance trainings and offered low-interest loans for repair or replacement. Local governments upgraded seven treatment plants and built two new plants in Centralia and Chehalis to ensure continued compliance with permit limits.

## Results

Bacteria levels have declined significantly. Most shellfish beds are now open for harvesting in Grays Harbor; harvest will remain prohibited as a routine precaution in areas close to the cities' sewage treatment plants. Of the 93 segments listed as impaired for bacteria by 2004, data indicate that at least 78 segments (covering 128.8 miles) now meet water quality standards. Data collected at a few sites through Ecology's Ambient Monitoring Program showed that two impaired segments met standards in 2004 and 2005, prompting Ecology to remove them from the impaired waters list in 2008.

A watershed-wide sampling study in 2006–2009 showed that FC levels in another 76 segments fell well below the water quality standard of 100 col/100 mL (with an average of 24 samples collected at each of the 94 sampling sites). Further, all sites met the extraordinary FC standard,

which requires a geometric mean of less than 50 col/100 mL (half of the applicable water quality standard) with no more than 10 percent of samples greater than 100 col/100 mL. On the basis of the data, Ecology expects to propose removing the 76 segments from the 2012 impaired waters list for bacteria.

Follow-up monitoring has not been completed for the 15 additional impaired segments. Based on water quality improvements throughout the watershed, Ecology believes those impaired segments likely also meet standards. However, because of a lack of recent data, those 15 segments will remain listed as impaired.

## Partners and Funding

Farmers worked with the Thurston, Grays Harbor, Mason and Lewis County conservation districts (CDs) to implement BMPs. Other partners include the Washington State Department of Agriculture; Thurston, Grays Harbor and Lewis County Health Departments; Confederated Tribes of the Chehalis Indian Nation; city of Centralia Port of Centralia; Chehalis Land Trust; Chehalis River Council; Capital Land Trust; Chehalis Basin Partnership; Chehalis Basin Education Consortium; local schools; watershed residents; U.S. Environmental Protection Agency; and Ecology.

Between 1996 and 2008, project partners received almost \$96 million to improve and protect water quality in the Chehalis River Basin. Nonpoint source project funding included \$675,000 in CWA section 319 grants; \$2.2 million in Centennial Clean Water Fund (CCWF) grants to Thurston, Mason and Lewis County CDs; \$500,000 in Local Toxics Control Account grants for stormwater improvements; \$400,000 in Aquatic Lands Enhancement Account grants for habitat improvement and vegetation control; and \$502,000 in special appropriations administered by the state's Shoreland Environmental Assistance Program. Landowners and project sponsors contributed an additional \$1 million toward those projects in cost-share funds. Although the FC pollution was primarily nonpoint source-related, significantly more funding was channeled to point source controls to support the high cost of maintaining and replacing sewage treatment plants. Funding for treatment plants included \$75.5 million in state revolving fund loans and \$16 million in Washington's CCWF grants.



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