

Appendix D

Hood Basin Report

1. Basin Description

The Middle Columbia-Hood Basin is in the north-central part of Oregon occupying approximately 1,140 square miles. The basin is a collection of rivers and creeks which are tributaries to the Columbia River and enter the river roughly between the cities of Cascade Locks to the west and The Dalles to the east. The basin can be split into two geographic regions that generally follow county lines: Hood River County in the western half of the basin (including the Hood River Watershed) and Wasco County in the eastern half (including the Mosier Creek, Mill Creek and Fifteenmile Creek Watersheds). Projects and active partnerships generally follow the county lines. The entire basin contains lands ceded to the Confederated Tribes of the Warm Springs Reservation of Oregon.

Hood River County Streams in the basin's western half originate on the eastern slope of the Cascade Range largely in conifer forests and flow north from Mt. Hood. The Hood River and a number of its upper tributaries are fed by glacial sources and can transport large amounts of bedload and sediment. This portion supports a wide range of native fish, including bull trout, spring Chinook salmon, summer and winter steelhead, rainbow and cutthroat trout, and lesser numbers of fall Chinook and Coho salmon. In 1998, steelhead and bull trout in the Hood River were listed as threatened under the Endangered Species Act.

In this western half of the basin, approximately 85 percent of the land is forestland, with more than two-thirds of this managed by the Mt. Hood National Forest. Agriculture, primarily fruit production, is the second largest land use, accounting for over 7 percent of the land area. Agriculture is the leading industry, followed by tourism, outdoor recreation and forestry. Approximately 4 percent of the land area has urban and/or residential development. The population in the county is dispersed, with almost 70 percent of county residents living outside urban growth boundaries. There are four small urban centers in the county: Hood River, Cascade Locks, Odell and Parkdale.

Major human disturbances that have affected hydrology, aquatic life and water quality in the area include:
* Diminishment or depletion of stream flows at irrigation, hydropower and municipal water diversions * Fish migration barriers at dams, diversions and road crossings * Loss of large woody debris recruitment and reduced riparian-floodplain interactions caused by historic timber practices * Channel confinement and interference with stream and riparian processes by roads and other land use * Water quality alteration by sediment inputs from roads and irrigation networks, pesticide and nutrient contamination from agricultural and other non-point sources, temperature increases from flow modification, reservoir discharge, or riparian vegetation removal

Wasco County Streams in this eastern half of the basin originate on the forested eastern slopes of the Hood River Range, a north-south range starting approximately nine miles east of Mt. Hood and running north to the Columbia River. The Cascade Mountains produce a rain-shadow effect, drastically reducing the total precipitation to the east. Average annual precipitation varies from 65-80 inches in the higher elevation headwaters in the west to 10-11 inches on the eastern border of the basin. Only 5-10 percent of the moisture falls from June through August. Because of both the seasonality of moisture and the total low precipitation, tributaries originating at lower elevations are usually not perennial. The watershed is home to a variety of fish species, including Pacific lamprey, resident Redband trout and coastal cutthroat trout.

The economy of the eastern half of the basin is based on agriculture, recreation and grazing, with a smaller component of forest production. Approximately 84 percent of the land is privately owned and is

Appendix D: Hood Basin Report
 2019 Oregon Nonpoint Source Pollution Program Annual Report

largely dominated by cropland and rangeland. Of the cropland, the vast majority is non-irrigated and is almost exclusively in wheat or other grain production. Less than 5 percent is irrigated orchards and vineyards. Approximately 4 percent of the land area has urban and/or residential development.

Major human disturbances that have affected hydrology, aquatic life and water quality in the area include:
 * Changes to land cover that affect wildlife habitat, hydrologic regimes and erosion rates * Alteration of instream and riparian conditions through channelization of streams, road-building, removal of large woody debris, and historic logging patterns * Pesticide and fertilizer use * Groundwater overdraft

Table D-1: 2011 Land use and land cover for each subbasin in the Hood.

Subbasin	Watershed Area (km2)	% Urban/Roads	% Forest	% Cultivated	% Range/Forest Disturbance	%Other
Middle Columbia-Hood	2958.793	3.9	37.9	20.7	36.1	1.5

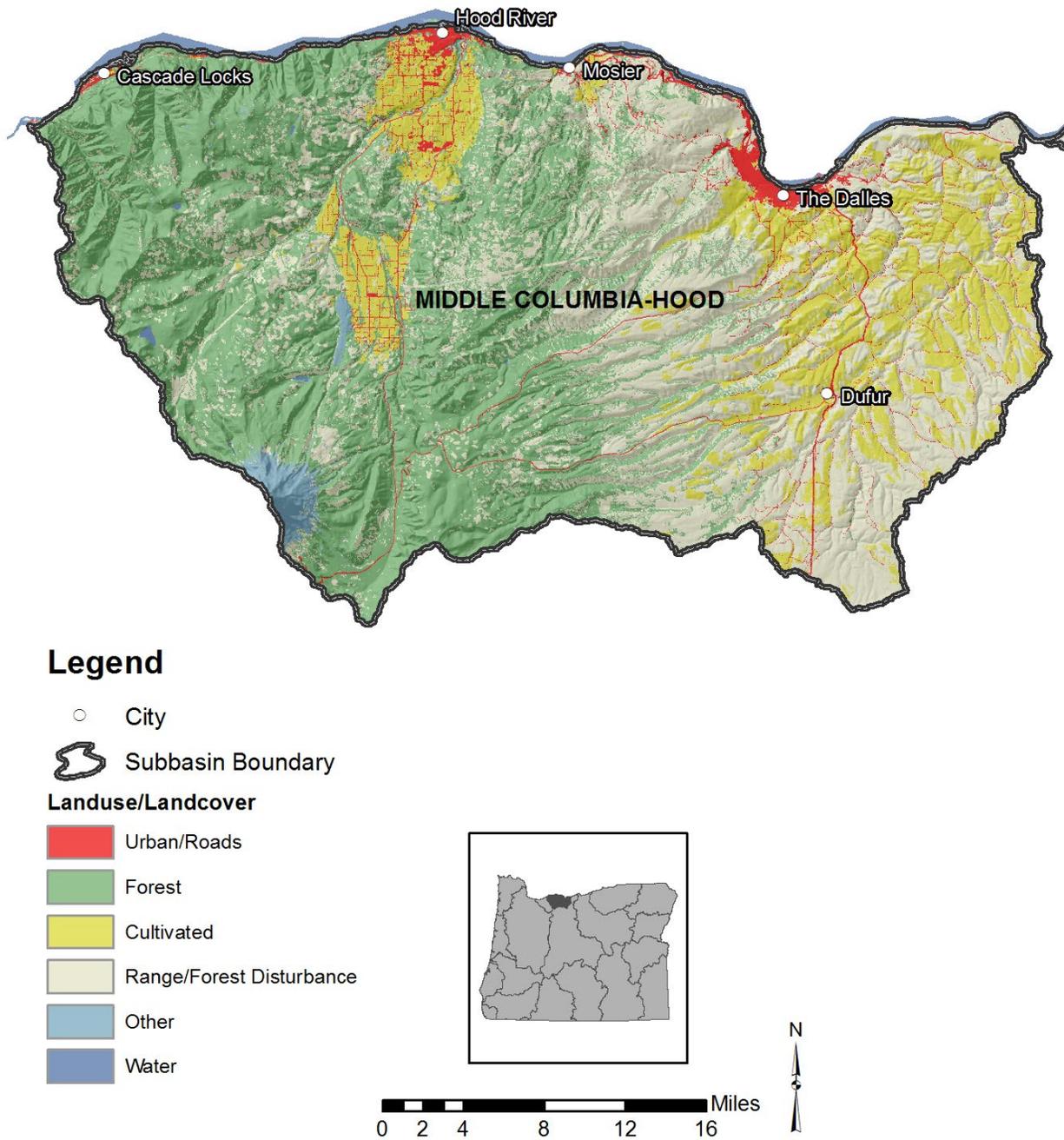


Figure D-1: Land use in the Hood administrative basin.

1.1 Basin Contacts

Table D-2: Oregon DEQ basin contact.

Administrative Area	DEQ Basin Coordinator
Middle Columbia - Hood Basin	Smita Mehta: 541-633-2022: mehta.smita@deq.state.or.us

2. Water Quality Impairments and TMDLs

2.1 Water Quality Impaired Stream Segments

Under Section 303(d) of the Clean Water Act, states, territories and authorized tribes must submit lists of impaired waters. Impaired waters are those that do not attain water quality standards or support all designated uses. The law requires that states establish priority rankings for waters on the lists and develop Total Maximum Daily Loads (TMDLs) for these waters. Table D-3 identifies the number of Hood Basin waterbody segments impaired by parameter from the 2012 Integrated Report and the number of segments with approved TMDLs. Sources: [ODEQ](#), [USEPA](#)

Table D-3: Number of impaired stream segments with and without a TMDL as identified in Oregon's 2012 Integrated Report and Assessment database.

Parameter	Segments without a TMDL	Segments with a TMDL
4,4'-DDD	4	0
4,4'-DDE	6	0
4,4'-DDT	4	0
Arsenic	2	0
Biological Criteria	10	0
Chlorpyrifos	6	0
Copper	3	0
Dieldrin	4	0
Dioxin (2,3,7,8-TCDD)	0	4
Dissolved Oxygen	3	0
E. Coli	4	0
Guthion	4	0
Heptachlor epoxide	2	0
Iron	6	0
Lead	1	0
Malathion	2	0
Mercury	1	0

Parameter	Segments without a TMDL	Segments with a TMDL
pH	3	0
Polychlorinated Biphenyls (PCBs)	1	0
Sedimentation	6	0
Silver	2	0
Temperature	1	74
Thallium	3	0
Total Dissolved Gas	0	2
Zinc	1	0

2.2 Total Maximum Daily Load Watershed Plans

The federal Clean Water Act requires that water pollutant reduction plans, called Total Maximum Daily Loads (TMDLs), be developed for water bodies that are listed in Category 5 of the Integrated Report (303(d) List). TMDLs describe the maximum amount of pollutants that can enter the river or stream and still meet water quality standards.

TMDLs take into account the pollution from major sources including discharges from industry and sewage treatment facilities, runoff from farms, forests and urban areas, and natural sources. TMDLs include a margin of safety to account for uncertainty, and may include a reserve capacity that allows for future discharges to a river or stream. DEQ typically develops TMDLs on a watershed, subbasin, or basin level and occasionally at the reach level depending on the type and extent of impairments.

The Water Quality Management Plan (WQMP) is the framework for TMDL implementation that is issued by Oregon along with the TMDL (Oregon Administrative Rules 340-042-0040(1)). The TMDL and WQMP serve as a multi-sector plan and provides the blueprint for TMDL related implementation activities. Table D-4 lists the TMDLs that have been approved in the Hood Basin.

Table D-4: Approved TMDLs in the Hood Basin and the impairments addressed by those TMDLs.

TMDL Document Name	Impairments Addressed
Middle Columbia-Hood (Miles Creeks) Subbasin TMDL and WQMP	Temperature
Western Hood Subbasin Temperature TMDL	Temperature

3. Implementation Highlights

3.1 Section 319 Grants

Federal Section 319(h) funds are provided annually through the EPA to states for the development and implementation of each state’s Nonpoint Source Management Program. In Oregon a portion of 319 grant funding is “passed through” to support community or partner projects that address Oregon’s nonpoint source program priorities. Generally, DEQ requires grantees to report annually on the progress made implementing their grant project. This section highlights those outputs and accomplishments reported to

DEQ in 2019. Note this section does not identify or include projects proposed and awarded a grant in 2019. Outputs and accomplishments for those projects will be reported to DEQ in future years once they have been implemented. For a listing of projects proposed and awarded a grant in 2019 see Section 3.6.2 of the main report.

In 2019 there were no 319 projects with reported outputs in the Hood.

3.2 Clean Water State Revolving Fund (CWSRF)

The Clean Water State Revolving Fund loan program provides below market rate loans to public agencies for the planning, design and construction of various projects that prevent or mitigate water pollution. Eligible agencies include federally recognized Indian tribal governments, cities, counties, sanitary districts, soil and water conservation districts, irrigation districts, various special districts and intergovernmental entities. DEQ partners with Oregon communities to implement projects that attain and maintain water quality standards, and are necessary to protect beneficial uses. This section highlights the ongoing projects and the outputs and accomplishments reported to DEQ in 2019.

In 2019 there were two nonpoint source related Clean Water State Revolving Fund projects active that reported project outputs and accomplishments to DEQ. Combined the projects have a total budget of \$4,071,574. Table D-5 describes the projects and the reported outputs.

Table D-5: Nonpoint source related Clean Water State Revolving Fund project outputs reported in 2019.

Project Name	Grantee	Project Description	Reported Outputs
Dee Irrigation District Distribution System Pressurization Project	Dee Irrigation District	The project will conserve water/reduce water loss, increase energy efficiency, improve water quality, increase instream flow to the West Fork Hood River, improve aquatic habitat and access to spawning and rearing for ESA-listed species and provide temperature benefits for the West Fork Hood River TMDL.	In progress - construction of irrigation system improvements expected to begin any day; waiting for County permits
Reservoir Enhancement Project: Outlet Replacement and Dam Raise	Farmers Irrigation District	The project will upgrade micro hydroelectric systems, replace open ditches and irrigation canals. The project will improve water efficiency, water quality, increase instream flow to Hood River and subbasin tributaries including Indian Creek, improve aquatic habitat for ESA listed fish species and provide temperature benefits for the Hood River TMDL.	In progress - planning for reservoir and pipe enhancement, working on completing the Army Corp and DSL permitting and environmental review processes.

3.3 Source Water Protection Grants

The Oregon Health Authority regulates drinking water under state law and the Safe Drinking Water Act and works cooperatively with DEQ on source water protection efforts. Using the Drinking Water Revolving Loan Fund, OHA funds Source Water Protection Grants (up to \$30,000 per public water system) for source water protection activities, monitoring, and planning in Drinking Water Source Areas.

In addition, loans are available for improving drinking water treatment, source water protection activities, or land acquisition in source areas. Oregon’s Infrastructure Finance Authority is responsible for administering these projects. The loan fund set-asides also fund five Drinking Water Protection positions at DEQ that provide technical assistance to public water systems and communities while they develop and implement strategies that reduce the risk within the delineated source water areas. This section highlights the ongoing projects and the outputs and accomplishments reported to DEQ in 2019.

In 2019 there were no nonpoint source related Drinking Water Source Protection program projects with reported outputs in the Hood.

3.4 Drinking Water Provider Partnership Grants

Oregon DEQ participates in the Drinking Water Providers Partnership (DWPP) with USDA Forest Service Region 6, EPA Region 10, the U.S. Bureau of Land Management OR/WA Office, the Washington Department of Health, Geos Institute and WildEarth Guardians. Together, these partners coordinate a competitive grant solicitation and award program for environmental conservation and restoration projects in municipal watersheds across the Northwest. The Drinking Water Providers Partnership made the first of the annual awards in 2016 and most projects have a focus on nonpoint sources of pollution. The goal of the Partnership and the funding is to develop and support local partnerships to restore and protect the health of watersheds which communities depend upon for drinking water while also benefiting aquatic and riparian ecosystems, including the native fish that inhabit them. This section highlights the ongoing projects and the outputs and accomplishments reported to the DWPP in 2019.

In 2019 there were no active Drinking Water Providers Partnership projects with reported outputs in the Hood.

3.5 OWEB Grant Funded Projects

The Oregon Watershed Enhancement Board (OWEB) is a state agency that provides grants to help Oregonians take care of local streams, rivers, wetlands, and natural areas. These grant projects often address nonpoint sources of pollution and are thus included in this report.

Based on the most recent data available in OWEB’s Oregon Watershed Restoration Inventory (OWRI) database, there were eight OWEB funded projects completed in 2018 with a total cash and in-kind budget of \$343,497. The tables below summarize reported outputs for different project activities in each Hood subbasin.

Learn more about OWEB grant programs at <https://www.oregon.gov/OWEB/grants/Pages/grant-programs.aspx>.

Table D-6: Summary of OWEB grant funded fish passage projects completed in 2018, the most recent year data is available in the OWEB OWRI database.

Subbasin	Fish Passage Non-crossing improvement (Number of treatments)
Middle Columbia-Hood	2

Table D-7: Summary of OWEB grant funded instream projects completed in 2018, the most recent year data is available in the OWEB OWRI database.

Subbasin	Engineered structures installed (Number of treatments)
Middle Columbia-Hood	6

Table D-8: Summary of OWEB grant funded upland projects completed in 2018, the most recent year data is available in the OWEB OWRI database.

Subbasin	Irrigation system improvement (Acre)
Middle Columbia-Hood	83.1

Table D-9: Summary of OWEB grant funded upland projects completed in 2018, the most recent year data is available in the OWEB OWRI database.

Subbasin	Upland tree planting (Area treated)	Upland vegetation planting (Area treated)
Middle Columbia-Hood	458.5	148.2

3.6 TMDL Implementation Highlights

TMDL implementation actions taken by Designated Management Agencies (DMAs) or third parties are described in the table below. Most of these actions were summarized from annual reports submitted by DMAs to DEQ in calendar year 2019.

Table D-10: TMDL implementation activities reported in 2019 by Designated Management Agencies or third parties.

TMDL	DMA	Reported Actions
Miles Creeks Temperature TMDL	City of Dufur	Met with DEQ and began TMDL implementation planning
Miles Creeks Temperature TMDL	Cit of Mosier	Met with DEQ and began TMDL implementation planning
Miles Creeks Temperature TMDL	City of The Dalles	Met with DEQ, began TMDL implementation planning, and submitted plan
Miles Creeks Temperature TMDL	Northern Wasco County Parks and Recreation District	Met with DEQ, began TMDL implementation planning, and submitted plan draft
Miles Creeks Temperature TMDL	Wasco County	Met with DEQ, began TMDL implementation planning, and submitted plan
Miles Creeks Temperature TMDL	Mt. Hood NF	Met with DEQ and restarted TMDL implementation planning
Western Hood Temperature TMDL	City of Hood River	Met with DEQ and began 5 year planning review
Western Hood Temperature TMDL	Hood River County	Met with DEQ and began 5 year planning review