

Appendix K

Owyhee Basin Report

1 Basin Description

The Owyhee Basin encompasses 11,049 square miles of Southwestern Idaho, Southeastern Oregon and North Central Nevada. The Owyhee River originates in North Central Nevada and flows in a northwest direction through the southwest corner of Idaho and Southeast Oregon. It then turns north to empty into the Snake River near the town of Nyssa, Oregon. The total length of the mainstem is 280 miles. The major subbasins in Oregon are the Lower Owyhee, Middle Owyhee and Crooked/Rattlesnake. Smaller subbasins in Oregon are the Middle Snake-Succor, Jordan and East Little Owyhee/South Fork Owyhee.

A majority of the land in the Owyhee Basin is public, managed mainly by the Bureau of Land Management and the State of Oregon. Rangeland is the dominant use in the basin along with irrigated private agricultural land concentrated near the Snake River. The climate is arid to semi-arid, and agriculture is very dependent on the use of water stored in reservoirs. Owyhee Reservoir is formed behind the Owyhee Dam in the lower river. The reservoir extends along approximately 40 miles of the Owyhee River, and provides irrigation water to farms near the mouth of the Owyhee and along the Snake and Malheur Rivers. Efforts to improve water quality in the basin have mainly focused on improving irrigation efficiency and minimizing irrigation-induced erosion, along with improvements to riparian vegetation condition through improved farm and livestock management.

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

Subbasin	Watershed Area (km ²)	% Urban/Roads	% Forest	% Cultivated	% Range/Forest Disturbance	%Other
Crooked-Rattlesnake	3443013	0.3	0.0	0.2	99.4	0.1
East Little Owyhee	343314	0.0	0.0	0.0	100.0	0.0
Jordan	1812600	0.8	1.4	2.6	88.3	6.9
Lower Owyhee	5116416	0.2	0.3	2.0	96.0	1.4
Middle Owyhee	3110806	0.1	0.5	0.2	98.8	0.4
Middle Snake-Succor	835923	1.1	0.3	10.4	86.0	2.2
South Fork Owyhee	21926	0.0	0.0	0.0	100.0	0.0
Upper Quinn	1400281	0.4	0.5	0.1	97.0	2.0

Legend

- City
-  Subbasin Boundary
- Landuse/Landcover**
-  Urban/Roads
-  Forest
-  Cultivated
-  Range
-  Other
-  Water

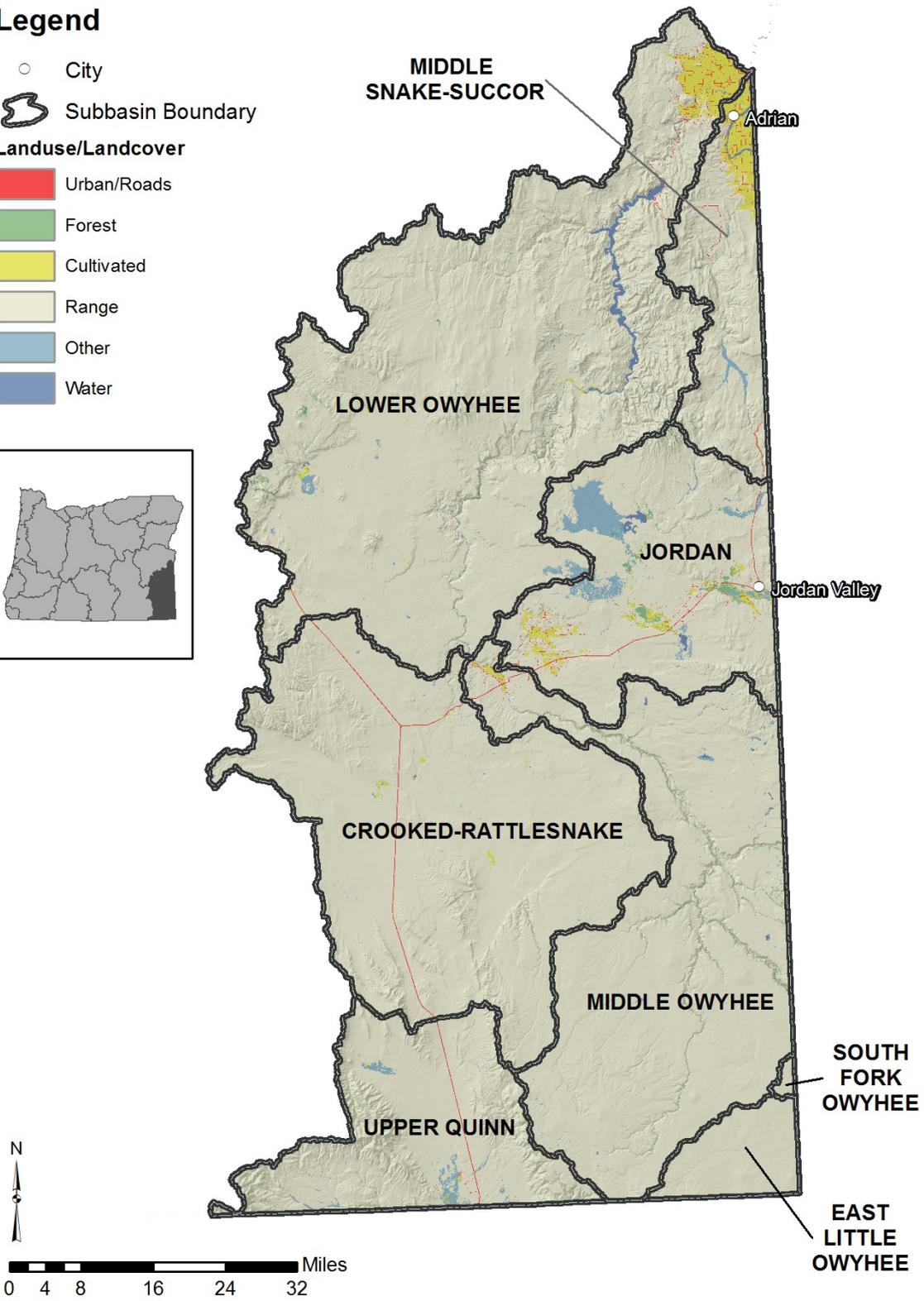


Figure K-1: Landuse in the the Owyhee administrative basin.

1.1 Basin Contacts

Table K-2: Oregon DEQ basin contact.

Administrative Area	DEQ Basin Coordinator
Owyhee	John Dadoly: 541-278-4616: dadoly.john@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 K-3 identifies the number of Owyhee Basin waterbody segments impaired by parameter from the 2012 Integrated Report and the number of segments with approved TMDLs. Sources: [ODEQ](#), [USEPA](#)

Table K-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
Arsenic	5	0
Chlorophyll a	1	0
Copper	1	0
DDT 4,4	1	0
Dieldrin	1	0
E. Coli	3	0
Fecal Coliform	1	0
Iron	2	0
Lead	1	0
Mercury	8	0
Temperature	9	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.

- **Currently there are no TMDLs in the Owyhee Basin.**

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 2017. Note this section does not identify or include projects proposed and awarded a grant in 2017. 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 2017 see Section 3.6.2 of the main report.

In 2017, there was one 319 project active that reported project outputs and accomplishments to DEQ. Combined the projects have a total grant budget of \$48,877. Table K-4 describes the project and the reported outputs.

Table K-4: Project outputs reported in 2017 for Section 319 pass through grants.

Project Name	Grantee	Project Description	Reported Outputs
Owyhee River Improvement Project Phase 4	Malheur SWCD	Water quality sampling to provide data for project development and implementation monitoring.	Conducted sampling of irrigation system, shared results with ODA and LAC

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 2017.

In 2017 there were no nonpoint source related Clean Water State Revolving Fund projects with reported outputs in the Owyhee.

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 2017.

In 2017 there were no nonpoint source related Safe Drinking Water State Revolving Fund projects with reported outputs in the Owyhee.

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 2017.

In 2017 there were no active Drinking Water Providers Partnership projects with reported outputs in the Owyhee.

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 15 OWEB funded projects completed in 2016 with a total cash and inkind budget of \$1,543,279. The bar graph in Figure K-2 shows the total cash and inkind budget for the different project types in each Owyhee subbasin. Table K-5 describes the projects and the reported outputs.

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

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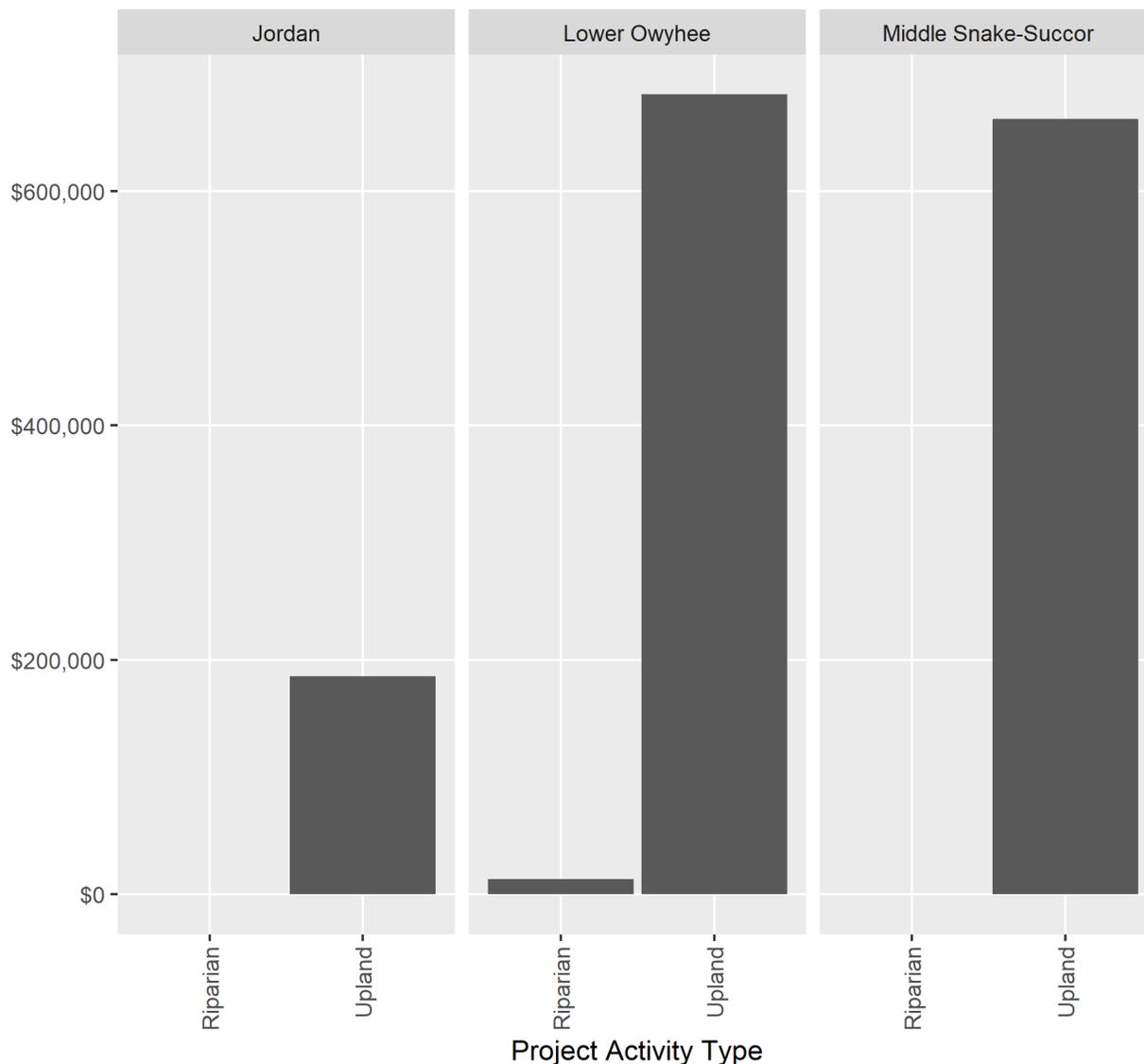


Figure K-2: Cash and in-kind dollars spent in each subbasin for different project types completed in 2016, the most recent year data is available in OWEB's OWRI database.

Table K-5: OWEB grant funded projects completed in 2016, the most recent year data is available in the OWEB OWRI database.

Subbasin	Project Name	Project Type	Project Description	Participants	Reported Outputs
Jordan	Cow Creek Water Quality	Upland	Irrigation system improved: converted from dirt ditch to pipeline delivery; Irrigation system improved: converted from flood to sprinkler irrigation	OWEB, Owyhee Watershed Council, Private Landowners	50 acres treated (upland activities)

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Subbasin	Project Name	Project Type	Project Description	Participants	Reported Outputs
Jordan	Jordan Valley Weed Restoration	Upland	Upland treated for non-native or noxious plant species	BLM, DSL, Jordan Valley Cooperative Weed Management Area, Jordan Valley Irrigation District, Jordan Valley Rodeo Board, Malheur County Weed Department, ODOT, OWEB, Owyhee Watershed Council, Private Landowners	3458.3 acres treated (upland activities)
Lower Owyhee	Piping Fletcher Drain	Riparian, Upland	Livestock stream access/crossing created or improved; Livestock manure management	Malheur SWCD, OWEB, Private Landowners	1 acre treated (riparian activities), 0.08 linear stream miles treated (riparian activities), 0.72 acres treated (upland activities)
Lower Owyhee	Beet Dump Water Quality Improvement	Upland	Other irrigation system improvement; Irrigation system improved: converted from flood to sprinkler irrigation	OWEB, Owyhee Watershed Council, WBH Farms	80 acres treated (upland activities)
Lower Owyhee	Black Rock Water Quality Improvement	Upland	Irrigation system improved: converted from flood to sprinkler irrigation	Green Spruce LLC, OWEB, Owyhee Watershed Council	161 acres treated (upland activities)
Lower Owyhee	CH Dreamin Water Quality Improvement Project	Upland	Irrigation system improved: converted from flood to sprinkler irrigation	OWEB, Owyhee Watershed Council, Private Landowners	35 acres treated (upland activities)
Lower Owyhee	Grand Water Quality Improvement	Upland	Irrigation system improved: converted from flood to sprinkler irrigation	OWEB, Owyhee Watershed Council, Private Landowners	100 acres treated (upland activities)

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Subbasin	Project Name	Project Type	Project Description	Participants	Reported Outputs
Lower Owyhee	May Water Quality Improvement	Upland	Irrigation system improved: converted from flood to sprinkler irrigation	OWEB, Owyhee Watershed Council, Private Landowners	69 acres treated (upland activities)
Lower Owyhee	Whitenburg Riparian Fencing	Upland	Grazing management: livestock rotation (pasture forage improvement through rotational livestock grazing); Off-channel watering sites developed; Upland fencing	Greeley Ranch, OWEB, Owyhee Watershed Council	150 acres treated (upland activities)
Middle Snake-Succor	Dad's Hill Water Quality Improvement	Upland	Irrigation system improved: converted from flood to sprinkler irrigation	OWEB, Owyhee Watershed Council, Private Landowners	40 acres treated (upland activities)
Middle Snake-Succor	Kettle-Buck Water Quality Improvement	Upland	Irrigation system improved: converted from flood to sprinkler irrigation	OWEB, Owyhee Watershed Council, Private Landowners	46 acres treated (upland activities)
Middle Snake-Succor	Pac-Man Water Quality Improvement	Upland	Irrigation system improved: converted from flood to sprinkler irrigation	OWEB, Owyhee Watershed Council, Private Landowners	28 acres treated (upland activities)
Middle Snake-Succor	Rim Rock Water Quality Improvement	Upland	Irrigation system improved: converted from flood to sprinkler irrigation	OWEB, Owyhee Watershed Council, Private Landowners	86 acres treated (upland activities)
Middle Snake-Succor	Salty Dawg Water Quality Improvement	Upland	Irrigation system improved: converted from flood to sprinkler irrigation	OWEB, Owyhee Watershed Council, Private Landowners	79 acres treated (upland activities)
Middle Snake-Succor	Triad Water Quality Improvement	Upland	Irrigation system improved: converted from dirt ditch to pipeline delivery	Ishida Farms, OWEB, Owyhee Watershed Council	28 acres treated (upland activities)