

Appendix L

Powder Basin Report

1 Basin Description

The Powder River is a tributary of the Snake River located in east-central Oregon along the border with Idaho. The Powder River Basin is approximately 3,500 square miles in size, and the main channel of the Powder River is approximately 144 miles long. The Powder River Basin is divided into three subbasins: Burnt River, Powder River and Brownlee. All streams in these watersheds drain into the Snake River.

Approximately 50 percent of the land in the Powder River Basin is public, managed mainly by Bureau of Land Management and the U.S. Forest Service. Rangeland is the dominant use in the basin along with forested lands in the western and northeastern portions of the basin, and irrigated pasture and other agricultural land concentrated in the central Baker Valley, Burnt River, Keating and Lower Powder valleys to the south and east. The climate is semi-arid and agriculture is very dependent on the use of water stored in reservoirs that are filled by streams draining the Blue Mountains and Wallowa Mountains. Efforts to improve water quality in the basin have mainly focused on improving irrigation efficiency and minimizing irrigation-induced erosion, limiting livestock access to streams and improvements to riparian vegetation condition and floodplain connection.

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

Subbasin	Watershed Area (km ²)	% Urban/Roads	% Forest	% Cultivated	% Range/Forest Disturbance	%Other
Brownlee Reservoir	1630993	1.1	29.9	5.5	63.0	0.5
Burnt	2847495	1.0	28.0	2.1	68.0	0.9
Powder	4423313	1.6	34.8	10.5	51.4	1.6

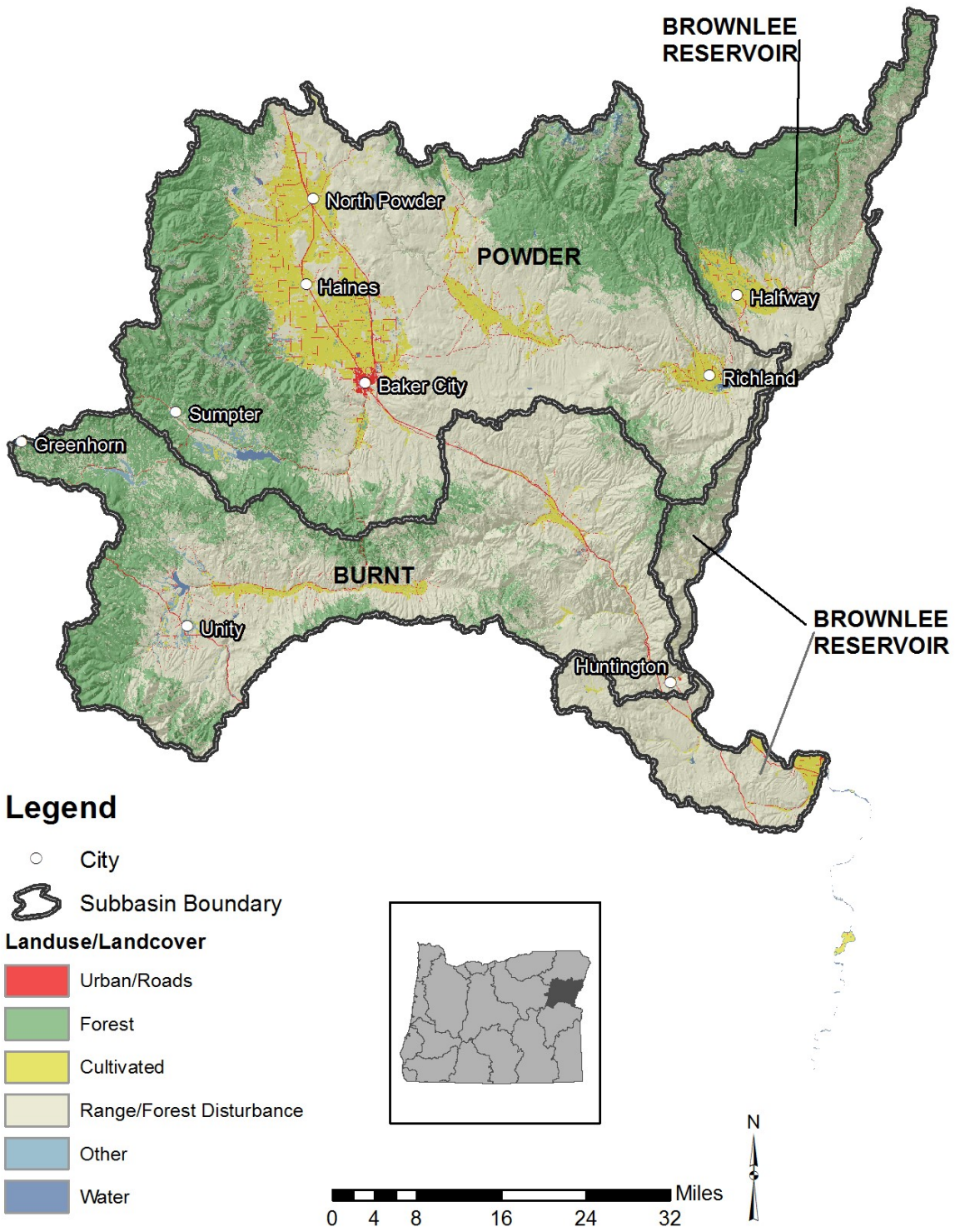


Figure L-1: Landuse in the the Powder administrative basin.

1.1 Basin Contacts

Table L-2: Oregon DEQ basin contact.

Administrative Area	DEQ Basin Coordinator
Powder	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 L-3 identifies the number of Powder Basin waterbody segments impaired by parameter from the 2012 Integrated Report and and the number of segments with approved TMDLs. Sources: [ODEQ](#), [USEPA](#)

Table L-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	2	0
Biological Criteria	2	0
Chlorophyll a	1	0
Dissolved Oxygen	9	0
E. Coli	11	0
Fecal Coliform	2	0
Mercury	4	0
pH	1	0
Sedimentation	6	0
Temperature	39	0
Turbidity	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.

- **Currently there are no TMDLs in the Powder 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 were two 319 projects active that reported project outputs and accomplishments to DEQ. Combined the projects have a total grant budget of \$77,413. Table L-4 describes the projects and the reported outputs.

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

Project Name	Grantee	Project Description	Reported Outputs
Powder Basin Outreach Equipment	Powder Basin WC	Purchase Enviroscope model for outreach to students	Model was purchased and outreach events were held in community.
PBWC Water Quality Monitoring Extension and Expansion	Powder Basin WC	Water quality monitoring involving local stakeholders and students	gathered wq data, engaged stakeholders, working on annual monitoring report that will be shared at WC meetings .

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 Powder.

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 was one nonpoint source related Safe Drinking Water State Revolving Fund project active that reported project outputs and accomplishments to DEQ. Combined the projects have a total budget of \$6,200. Table L-5 describes the project and the reported outputs.

Table L-5: Nonpoint source Safe Drinking Water State Revolving Fund projects and outputs for 2017.

Project Name	Grantee	Project Description	Reported Outputs
Watershed signage, cameras, and security fencing in sensitivity areas.	Baker City	Limit watershed access by cattle and others using watershed signage, cameras, and security fencing in sensitivity areas.	Completed Initial project planning.

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 Powder.

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 2016 with a total cash and inkind budget of \$379,501. The bar graph in Figure L-2 shows the total cash and inkind budget for the different project types in each Powder subbasin. Table L-6 describes the projects and the reported outputs.

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

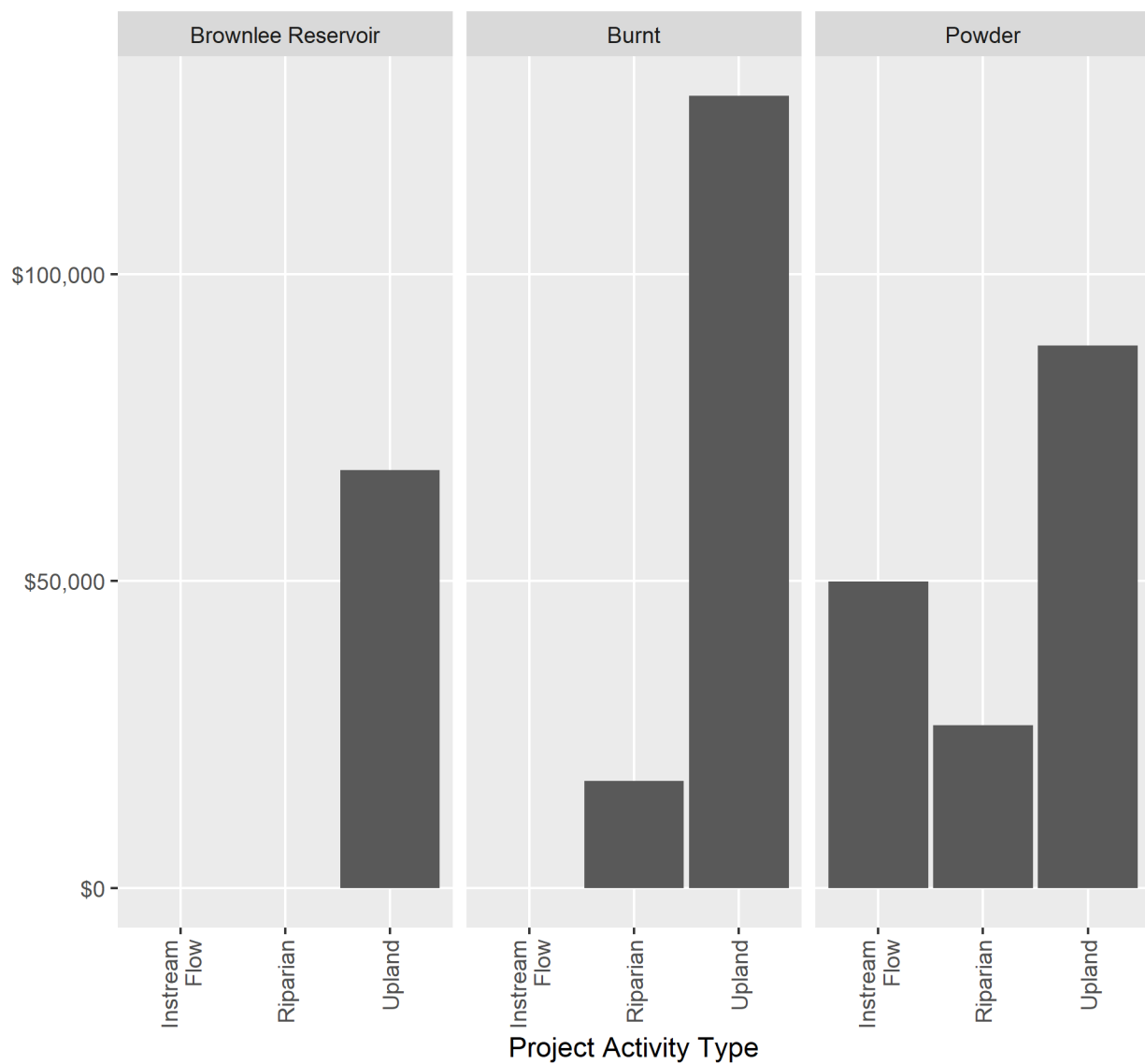


Figure L-2: Cash and inkind dollars spent in each subbasin for different project types completed in 2016, the most recent year data is available in OWEB’s OWRI database.

Table L-6: 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
Brownlee Reservoir	Moore's Hollow Upland Enhancement	Upland	Grazing management: livestock rotation (pasture forage improvement through rotational livestock grazing); Off-channel watering sites developed; Upland treated for non-native or noxious plant species	Malheur SWCD, OWEB, Private Landowners	3168 acres treated (upland activities)
Burnt	Johnny Aspenseed Project	Riparian	Riparian fencing; Other riparian vegetation management	Burnt River SWCD, OWEB, Private Landowners	0.42 linear stream miles treated (riparian activities), 24 acres treated (riparian activities)
Burnt	Iron Mountain Pipeline	Upland	Grazing management: livestock rotation (pasture forage improvement through rotational livestock grazing); Off-channel watering sites developed	BLM, Burnt River SWCD, OWEB, Private Landowners	4966 acres treated (upland activities)
Burnt	Vaughan Irrigation	Upland	Irrigation system improved: converted from flood irrigation to gated pipe	Burnt River SWCD, OWEB, Private Landowners	14 acres treated (upland activities)
Powder	Defreezing the McEwen Valley Ditch	Instream Flow	Off-channel watering sites developed; Other irrigation practice improvement (for instream flow)	Baker Valley SWCD, OWEB, Private Landowners, USFWS	7 water flow acquired, 9 stream miles protected for adequate flow
Powder	Hibbard Gulch Riparian	Riparian, Upland	Riparian fencing; Riparian trees planted: hardwood; Irrigation system improved: converted from flood to sprinkler irrigation	Baker Valley SWCD, OWEB, Private Landowners	0.31 linear stream miles treated (riparian activities), 8.8 acres treated (riparian activities), 38 acres treated (upland activities)

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Subbasin	Project Name	Project Type	Project Description	Participants	Reported Outputs
Powder	Viewpoint Aspen Restoration	Upland	Other upland vegetation management	Baker Valley SWCD, OWEB, Private Landowners	11 acres treated (upland activities)
Powder	Wright Irrigation	Upland	Irrigation system improved: converted from flood irrigation to gated pipe	Baker Valley SWCD, OWEB, Private Landowners	5.8 acres treated (upland activities)