Project Completion Report for OWEB Grant 221-5060-19630

## Final Completion Summary

During this two year grant, GRMW and OWRD operated and maintained 12 stream gauges in the Grande Ronde River Basin. The OWEB dollars in this grant were matched by Bonneville Power Administration funds and in-kind staff time by OWRD and GRMW. These stream gauges provided year-around, near real time flow data and in some cases, water temperature data. The data are available online at https://apps.wrd.state.or.us/apps/sw/hydro_near_real_time/. The data from these stream gauges have been consistently used by stream habitat restoration partners for developing hydraulic models to inform restoration designs. The data are also used by partners for hydrologic monitoring to determine changes in flow quantity and timing due to climate conditions and restoration efforts. Additionally these gauges provide irrigators and OWRD staff the data they need to manage water rights. Partners on this project include GRMW, OWRD, OWEB and BPA.

## Background

In 2006 GRMW assumed all coordination and management responsibility for 12 stream gauges in Union and Wallowa Counties. GRMW has contracted with OWRD to complete fieldwork, record production, publishing, real-time data transmission, and equipment replacement. This proposal provided two additional years of partial funding to operate these gauges in the 2022/23 water year. Funding for gauge station operation and maintenance is becoming increasingly difficult but long term consistent data is very important, so the funds provided by this grant are increasingly important. Cooperators in this program of operation include OWRD Watermaster's District 6 office, the USFS La Grande Ranger District, and the Confederated Tribe of the Umatilla Indian Reservation (CTUIR).

## Work Done

This project continued the operation, maintenance, record production and review of twelve flow gauges in the GRB. The intent of this project is to produce the highest quality data possible. This has been achieved through a production partnership between the GRMW and OWRD, where OWRD completes all field work and data analysis, and GRMW is the project sponsor. OWRD follows USGS standard protocol in fieldwork, record production, record review and publishing. The result of following the USGS protocol is data of the highest quality.

The five gauges operating in Wallowa County have been strategically placed to document several flow characteristics including:
1. Bracket the effects of irrigation withdrawal on the Lostine River, Bear Creek, and the Wallowa River (above Cross-Country Canal to lower end of Wallowa Valley below all irrigation withdrawal). These gauges document water in and out of irrigation-influenced reaches.
2. Gauges 13330000 (Lostine R. near Lostine) and 13330500 (Bear Cr. near Wallowa) are long- term installations established in the early 1900's. Their continued operation strengthens a data set by which cumulative effects can be accessed.
3. Gauge 13331450 (Wallowa R. below Water Canyon) documents water leaving the Wallowa Valley.

The five USFS gauges in Union County on National Forest land have been strategically places for the following reasons.
1. The data will characterize the hydrographs for long term monitoring of the potential effects of management activities on stream flow and the effectiveness of restoration activities directed at meeting desired conditions.
2. Stream flow data will be used to correlate monitoring parameters such as air temperature, solar radiation, relative humidity and yearly variation in instream habitat parameters.
3. These data, in conjunction with historical records of stream flow for the Grande Ronde River near Perry (gauge #13318960), provide for long-term, comprehensive characterization of stream flow for the Upper Grande Ronde River Drainage.

The two OWRD gauges in Union County have been placed to document the following flow characteristics.
1. When compared to the Upper Catherine Creek gauge Catherine Creek at Union brackets irrigation withdrawal above the town of Union.
2. The Grande Ronde R. near Perry site documents the amount of water leaving the Upper Grande Ronde above the town of La Grande. This site is critical to four of the five USFS sites and its continued operation strengthens a long-term data set by which cumulative effects can be accessed.

In addition to the above stations five additional gauges exist that strengthen the overall flow- monitoring network.
1. Station #13292000 (Imnaha R. at Imnaha) documents flow at the lower end of the Imnaha subbasin, is a long term installation, and is important to fisheries and watershed management in the basin. Idaho Power funded and operated.
2. Station #13331500 (Minam R. nr. Minam) characterizes flow in the Minam River, a stream in the Eagle Cap Wilderness, the serves as a reference data set. USGS funded and operated.
3. Station #13324300 (Lookingglass Cr. near Looking Glass). This installation assists in the management of Lookingglass fish hatchery and also characterizes flow in a mid-elevation stream in the GRB. USGS funded and operated.
4. Station #13333000 (Grande Ronde R. at Troy). This station near the bottom end of the GRB, below most major tributary influence, is a good indicator of flow leaving the basin. USGS funded and operated.
5. Station #13320000 (Catherine Cr. near Union). This station is necessary for bracketing the irrigation influenced reach on Catherine Creek above the town of Union and has been in operation since 1912. OWRD funded and operated.
6. Station #13329100 Wallowa River at Enterprise. Documents water leaving the acres irrigated in Prairie Creek served by the Wallowa Lake Reservoir.
7 Station #13325500 Wallowa River above Wallowa Lake near Joseph, OR. Documents water coming into the Wallowa Lake Reservoir.

## Public Awareness or Education

There were no specific outreach activates during the grant period but the data are available online at https://apps.wrd.state.or.us/apps/sw/hydro_near_real_time/. Additionally, GRMW is working with a doctoral fellow from Virginia Tech to use existing flow data from these gauges and flow data collected by the USFS to try and determine if there is a measurable change in flow or flow timing in the Upper Grande Ronde River watershed due to restoration projects.

All current and historical data is retrievable from either USGS (http://waterdata.usgs.gov/or/nwis/current/?type=flow ), OWRD (https://apps.wrd.state.or.us/apps/sw/hydro_near_real_time/Default.aspx), or Idaho Power (https://idastream.idahopower.com/Data/DataSet/Summary/Location/13292000/DataSet/Flow/DayMean/Interval/Latest), via an internet based data clearinghouse. The continued compilation of flow data augments water quality monitoring efforts undertaken by DEQ, SWCD's, ODA, GRMW, US Forest Service and others. All data, including daily, monthly, and annual statistics generated from this project and previously collected flow data are available upon request from the data collection agency if not available on the internet.

Examples of entities commonly requesting flow data and examples of use in the GRB include:

1. Nez Perce Tribe - Fisheries and project development
2. Confederated Tribe Umatilla Indian Reservation - Fisheries and project development
3. Natural Resources Conservation Service - Project development
4. Soil and Water Conservation Districts - Project development
5. GRMW - Project development
6. Municipalities - Safety and storm water management
7. Irrigation districts/companies - Irrigation water management
8. Consultants - Project development & research
9. Academia - Research
10. ODFW - Fisheries and project development
11. ODEQ - TMDL development and permitting
12. ODSL - Permitting
13. USFWS and NMFS - Consultation
14. Union County - Place Based Water Planning Project

Entities requesting data are typically sent to the web-based data clearinghouse, as this is the easiest way to obtain the data of interest. Project staff presents data at irrigation district and agency meetings, conferences, or project development discussions.

### Lessons Learned

There are a few groups in the Grande Ronde Basin (Place-based water planning, Meadow Creek Collaborative, etc.) that are attempting to add some gauge stations to address flow data gaps. So far, they have not been successful in securing funding which furthers emphasizes the importance of this

OWEB grant to continue flow data collection at these long term gauge station sites. In addition, costs to operate and maintain these stream gauges will continue to increase so GRMW anticipates needing to bring on additional funding partners to continue this project.

## Special Conditions

A progress report was required to be submitted on 11/01/2022. The report was submitted by Kayla Morinaga on time.

## Funding Sources

| Source | Indentifier | Cash | InKind Type | Inkind |
|---|---|---|---|---|
| Bonneville Power Administration | 90768 REL 2 & 79905 REL 16 | $159,384.00 | | $0.00 |
| Grande Ronde Model WS Foundation | | $0.00 | Labor | $7,200.00 |
| Oregon Water Resources Dept | | $0.00 | Labor | $110,000.00 |
| OWEB | 221-5060-19630 | $101,002.00 | | $0.00 |

## Totals

| OWEB Amount | Non OWEB Cash | Inkind Total | Non OWEB Amount | OWEB Match | Total Project Cost |
|---|---|---|---|---|---|
| $101,002.00 | $159,384.00 | $117,200.00 | $276,584.00 | 274.0% | $377,586.00 |

## Uploaded Files

| Image Type | File Name | Description |
|---|---|---|
| Final Payment Checklist | Final Payment Check List 221-5060-19630.pdf | Final Payment Request Checklist |
| Data Submission Confirmation | Gauging Stations List GRB.pdf | Station Description List and Data Retrieval Link |
| Other | Stream_Gauging_Protocol.pdf | Stream gauge protocol |
| Map | GaugingStationMap.pdf | Gauge stations location map |
| Final Monitoring Analysis Report | Exhibit C - Technical Report for Water Years 2022 and 2023.pdf | Exhibit C.2.g - Technical Report for Water Years 2022 and 2023 |
| Final Metrics | Metrics-O-Monitoring - Gauge Station Water Year 2022-2023.doc | Gauge Station metrics for water years 2022-23 |
| Exhibit B | 19630_Conditions.pdf | |