

Lower John Day River Subbasin

Place-Based Integrated Water Resource Planning Pilot

Final Work Plan – Steps 2 through 5

June 8, 2017

Table of Contents

Introduction	1
Work Flow	1
Planning Step 2	2
Preface	2
Task 2A: Collaboration and Stakeholder Activities	3
Task 2B: Data Collection	3
Task 2C: State of Water Resources Report	9
Task 2D: Complete Step 3 Work Plan/Budget	9
Task 2E: Project Management and Reporting	9
Task 2F: Project Administration	9
Deliverables	9
Planning Step 3 Outline	10
Planning Step 4 Outline	11
Planning Step 5 Outline	12

Introduction

The Oregon Water Resources Department (“OWRD”) released its Integrated Water Resources Strategy in 2012. This strategy included outlined a process for completing Place-Based Integrated Water Resource Planning (“place-based planning”). In 2015, the Oregon State Legislature provided the OWRD with funding to support place-based planning using a five-step collaborative process. The Lower John Day River Subbasin was one of four areas selected in 2016 to pilot this approach. The Lower John Day River Working Group (“working group”) of the John Day Basin Partnership will lead this effort, with Christina Kirwan of the Gilliam Soil & Water Conservation District, and Debra Bunch of the Mid John Day-Bridge Creek Watershed Council as the formal conveners. Step 1 of the planning process was completed in 2016. The purpose of this Work Plan is to provide a step-by-step description of Step 2 – Characterize Water Resources, Water Quality, and Basin Conditions, as well as identify expected tasks to be performed in Steps 3 through 5. As the working group progress through the planning process it will create detailed work plans for each additional step in turn. Further, a budget is appended that provides cost estimates for completing this Work Plan.

Work Flow

Work flow for completion of place-based planning in the Lower John Day will generally be as follows:

1. The Conveners will develop the Work Plan, which outlines specific tasks and present them to the working group and/or to the appropriate committee which may be leading a specific task.
2. The working group or committee will review, develop, comment, edit, and/or complete the task as required and submit to the group for review/approval.
3. The Conveners will finalize, publish, and make available the work product from each task.

Planning Step 2: Characterize Water Resources, Water Quality, & Ecological Issues

Preface

The purpose of Step 2 is to help the planning partners collectively identify challenges currently facing the community, and to start mapping out potential solutions or opportunities to address water supply, water quality, or ecological issues. This planning step represents the data gathering and assessment phase. Oregon's 2012 water resources strategy provides a statewide framework of critical issues and processes to address them that can be used for reference.

This step of the planning process is also an opportunity to tell the story of what makes the planning area unique, describing the landscape, like the source and origin of water resources, as well as economic, social, and cultural characteristics of the community.

Extensive planning efforts in the 1960s through the early 1990s examined water resources issues for most areas of the state and resulting basin programs describe how water can be allocated in the future. During this step we will consider existing basin program policies, objectives, and classifications (OAR Chapter 690, 500-520) overseen by OWRD, and any other existing plans, data, and legal considerations, when characterizing water resources issues.

In addition to surface water, we will describe the availability of groundwater resources to the extent known and identify additional data needs. The group will also note any groundwater protected areas and the status of groundwater in these areas. Existing data or basin investigations are available from OWRD, the U.S. Geological Survey, and other sources.

In Step 2 we will describe water quality –both surface water and groundwater– in the planning area. Items to consider for water quality include: designated beneficial uses, impaired water bodies, groundwater management areas, total maximum daily loads, permitted discharges, non-point sources of pollution, and any monitoring data or relevant publications that can be used to otherwise characterize surface water or groundwater quality conditions.

Additionally, this step will create a general description of the ecological health of the planning area. It will include a description of key species and habitats. We will also describe the historical and current presence of aquatic species, including any migratory fish, listed species under the Endangered Species Act with their current status, and species on Oregon Department of Fish & Wildlife's State Sensitive List. A discussion of limiting factors that affect aquatic habitats in the watershed will close this section. As an example, the 2006 Oregon Conservation Strategy provides a list of limiting factors to consider: water quantity (low flows), water quality, invasive species, water temperature, sedimentation, passage barriers, degraded riparian condition, and loss of habitat complexity.

The six tasks that make up planning Step #2 are further described below.

Task 2A: Collaboration and Stakeholder Activities

We plan to hold public working group meetings every other month through the planning process. The group has formed two committees so far: Work Plan Committee and Outreach Committee. The in-between months will be utilized by assigned committees and individuals to complete individual tasks or assignments as needed. It is expected that at the beginning of Step 2 we will create a Water Resource Data Committee (“Data Committee”) to collect data as described in the preview to Step #x below. These committees, especially the data committee, are expected to meet frequently during Step 2.

We will also implement the outreach activities included in the Outreach Plan developed in Step 1. The Outreach Plan will be included as an appendix to the report.

Task 2B: Data Collection

This task will be completed primarily by the data committee who will be tasked with collecting and organizing data that will cover at a minimum:

Describe the Place
Physical and landscape characteristics:
<ul style="list-style-type: none">○ Major rivers & tributaries○ Aquifer systems and springs○ Reservoirs and lakes○ Conveyance systems○ Weather & Climate○ Hydrology (rain, snow or spring fed systems), etc.
Economic, social, cultural characteristics that impact water resources
Other unique features or attributes
Surface & Groundwater
Availability
Water allocations—assessment of out-of-stream and instream water allocations (water rights), including HUC 10 level assessment of over/under allocation and use.
Existing protections
OWRD basin programs
Beneficial uses (water quality) and applicable water quality criteria

Impaired water bodies
<ul style="list-style-type: none"> ○ 303d list and Integrated Report ○ DEQ’s Ambient water quality network data (status and trends) ○ Other water quality data
Total maximum daily loads
Permitted discharges
Nonpoint sources
Ground Water Levels
Past Trends for all factors discussed
Ecological Health of the Watershed
Key species & habitats
Historical and current fish species
ESA STE species; ODFW sensitive species
Limiting factors
History of Restoration and Water Project Implementation
Compilation of completed and ongoing restoration/water projects
Compilation of active partners in planning area
Funds invested in the planning area

Sources of data include USDA, NOAA, NRCS and the National Weather Service.

We will describe the unique physical and landscape characteristics of the planning area including major rivers and tributaries. The planning process is based around the Lower John Day River. We will identify important tributaries for fisheries, irrigation, municipal and industrial uses. Additionally, we will identify aquifer systems and the role of springs, existing reservoirs and conveyance systems, and the hydrology (rain, snow, or spring fed systems) of the lower John Day Subbasin. Surface and groundwater will both be explored for quality and quantity.

Quality data will be collected based on the designated beneficial uses for the John Day River and its tributaries. Designated beneficial uses are the uses that are considered to be in the public interest. It is the responsibility of the state of Oregon to protect these public interests for the greater good.

Fish and aquatic life uses and water contact reaction uses are often the uses with the highest water quality requirements. For this reason, we can narrow our focus to the water quality criteria associated with these uses. Water quality criteria are developed by DEQ through scientific research and coordination with the public and federal agencies.

Water quality criteria that apply across the Lower John Day River and tributaries include, but are not limited to the following:

Parameter	Criteria	Rule
pH	6.5-9.0	OAR 340-041-0175(1)
Total dissolved solids	Concentrations must not exceed 500 mg/l	OAR 340-041-0175(2)
Bacteria	Concentrations must not exceed a 90-day geometric mean of 126 E. coli organisms per 100 mL; No single sample may exceed 406 E. coli organisms per 100 mL.	OAR 340-041-0009(1)(a)
Biocriteria	Waters of the State must be of sufficient quality to support aquatic species without detrimental changes in the resident biological communities.	OAR 340-041-0011
Chlorophyll a	In natural lakes that thermally stratify, concentrations must not exceed 0.01 mg/l; In natural lakes that do not thermally stratify, reservoirs, rivers and estuaries, concentrations must not exceed 0.015 mg/l;	OAR 340-041-0019(1)(b)
Copper	Equation based on the hardness of the water.	OAR 340-041-0033 Table 30
Turbidity	No more than a ten percent cumulative increase in natural stream turbidities may be allowed, as measured relative to a control point immediately upstream of the turbidity causing activity	OAR 340-041-0036

Fish uses vary across time and space. This means that some water quality criteria based on fish use vary across time and space. The following table shows how temperature and dissolved oxygen criteria vary across the Lower John Day Basin.

Parameter	Criteria	Rule
Temperature	20C: John Day River	OAR 340-041-0028(4)(d)
	18C: Tributaries to John Day River	OAR 340-041-0028(4)(c)
	13C: Tributaries designated for salmonid spawning use Jan 1 st - May 15 th .	OAR 340-041-0028(4)(a)
Dissolved oxygen	Concentrations must not fall below 6.5 mg/l.	OAR 340-041-0016(3)

	On tributaries designated for salmonid spawning use, concentrations must not fall below 11 mg/l from Jan 1 st – May 15 th .	OAR 340-041-0016(1)
--	---------------------------------------------------------------------------------------------------------------------------------------------------	---------------------

303(d) List and Integrated Report

The Oregon Department of Environmental Quality (DEQ) collects data and assesses whether water bodies are impaired. DEQ publishes these impairments in the Integrated Report which is finalized and approved by the EPA. Several water bodies of the Lower John Day Basin are impaired at various times and locations for the following parameters: temperature, sedimentation, biological criteria, dissolved oxygen, flow modification, and habitat modification.

For each water body listed as impaired (Category 4 or Category 5) in the Integrated Report, DEQ develops total maximum daily loads (TMDLs). Each TMDL describes the capacity of a water body to absorb each type of pollutant and allocates portions of that capacity to existing point and non-point sources and to potential future uses.

The Lower John Day Basin is covered by the TMDLs developed for the John Day Basin. The John Day Basin has TMDLs for temperature, bacteria, and dissolved oxygen.

TMDL	Recommendations
Temperature	Plant riparian vegetation, reduce sediment/erosion, and increase stream flow.
Bacteria	Reduce sediment/erosion
Dissolved Oxygen	Reduce algal growth by addressing temperature, erosion, and nutrient management.

Water Quality Status and Trends

DEQ tracks water quality status and trends at monitoring sites across the state. The status and trends are described by an index value which is derived from a subset of the water quality data collected at the site. Water quality parameters included in the index are dissolved oxygen (percent saturation and concentration), biochemical oxygen demand (BOD), pH, total solids, ammonia and nitrate nitrogen, total phosphorus, temperature and bacteria (*E. coli*). The index weights some water quality parameters more than others. DEQ gathers data at each site on a monthly basis and calculates the index scores seasonally. The status value represents the average minimum seasonal index score for the past 10 years, October 2006-September 2015. The trend value describes the statistically significant changes in the past 10 year period. OWQI scores range from 10 (worst case) to 100 (ideal water quality). DEQ uses the index to communicate information on overall water quality of Oregon’s rivers in an easy-to-understand, non-technical manner to the public, agency managers and the Oregon Legislature.

Other Water Quality Data

DEQ collects and maintains water quality data from many sources including monitoring data collected by DEQ, monitoring data from NPDES and WPCF permittees, and monitoring data from volunteer groups. DEQ has water quality data for 4 surface water sites and one groundwater site in the Lower John Day Basin. The table below describes the data available from these sites.

Site	Date Range	Data Frequency (approximately)	Number of Parameters Measured
Rock Creek near Mouth	Oct 2011 – present	Bi-monthly	50
John Day River at Hwy 206	Sept 1973 – present	Monthly	53
John Day River at McDonalds Ferry	Aug 1960 – Sept 1986	Monthly	43
	2004	Continuous	
John Day River at Service Creek	Oct 1979 – present	Monthly	55
Chemical Waste Management Monitoring Well	Oct 2016	One day	74

In order for the Lower John Day Basin to achieve and maintain the water quality needed to support its designated beneficial uses, point sources of pollution must meet their permit requirements and nonpoint sources of must make steady and continual progress on their TMDL implementation plans. There is one permitted discharge in the Lower John Day Basin: an ODOT maintenance facility south of Spray.

There are several nonpoint sources of pollution in the Lower John Day Basin. The two designated management agencies (DMAs) have submitted implementation plans for addressing pollution sources within their jurisdiction: USFS TMDL Implementation Plan, Lower John Day Agricultural Water Quality Management Area Plan. Other DMAs have been identified in the John Day TMDL but have not yet submitted implementation plans.

Turning our eye to quantity, we will determine current water conditions and availability in the Lower John Day Basin. This analysis should include a detailed accounting of current water use (magnitude, source, purpose, timing, etc.) and availability (surface flows and groundwater) in the basin. Estimates of use and availability should be based on both existing Oregon Water Resources Department (OWRD) generated models, as well as on local datasets and knowledge (regional Watermasters, etc.). The primary source for water usage data is OWRD. Surface and groundwater data can be acquired from OWRD, the U.S. Geological Survey, some Soil and Water Conservation districts, and other county, state, and federal agencies. Please note significant data gaps where additional data would be helpful.

Extensive planning efforts in the 1960s through the early 1990s examined water resources issues for most areas of the state and resulting basin programs describe how water can be allocated in the future. We will identify all current known water protections in the basin. This will include an assessment of

water right certificates or permits dedicated to instream flow restoration, biological needs, etc. the report will provide annual timeseries of cumulative instream protections for reaches with instream water rights and discuss the frequency that they are met. In addition, there is great interest in identifying how precipitation input, surface water flows, and groundwater levels have changed in the basin over time. We will evaluate how these water sources have varied over past decades, as well as how water consumption has changed in time (source and purpose).

Ecological Health of the Watershed will be illustrated within the report. We will determine key species and aquatic habitats from area management plans. The list should include key species - ESA Threatened Steelhead and Bull Trout, ODFW sensitive species - (Resident redband trout and westslope cutthroat trout). We will also include an ecological history of the subbasin, including changes in land use resulting in changes to upslope, riparian, and instream habitats. And include historical information on declining fish runs (Federal) based on Columbia numbers. As well as a discussion on straying of hatchery origin fish (if appropriate), and discussion on life history of key species - including migrations and barriers. Also include overall fish periodicity of key species life history presence in basin.

Information for this section of the draft work plan may be gathered from the following resources:

- CTWSRO Strategy - limiting factors (ODFW based crosswalked with NOAA)
- ODFW Streamnet and other mapping (presence / absence, barriers, habitat, etc)
- ODFW Mid C Plan
- Power Planning Council John Day Subbasin Plan
- NOAA - Ecological concerns and limiting factors
- ODFW - Carmichael and Ruzycski Papers on straying, Population reports

To demonstrate the trend in water quality and quantity within the planning area we will include a tabulation of the recently completed restoration and water related projects, including:

- Compilation of completed and ongoing restoration/water projects
- Compilation of active partners in planning area
- Funds invested in the planning area

A list of completed and ongoing relevant projects in the Lower John Day will be compiled using multiple partner reporting systems. Most notably, The Oregon Watershed Restoration Inventory (OWRI), as it is the single largest restoration information database in the Western United States with nearly 17,000 completed projects reported in Oregon since 1995. The Bonneville Power Administration has a contract reporting database called Pisces and this would be used to compile relevant federal project information. The Oregon Department of Fish and Wildlife also tracks all projects that pertain to the Conservation and Recovery Plan for Oregon Steelhead Populations in the Middle Columbia River Steelhead Distinct Population Segment (Oregon Mid-C Recovery Plan) and this database would also be utilized.

Additionally, all active partners will be asked to provide project information that is unique to their program that may have been missed by the databases listed above. The list of active partners can be obtained by the John Day Basin Partnership Steering Committee. This compilation of projects will include general location information, project type, and funds leveraged. This could be used to estimate the amount invested in the planning area.

Task 2C: State of Water Resources Report

Upon completion of the data gathering phase we will compile, evaluate, and identify challenges, opportunities, and solutions based the data collected under Task 2B into a State of Water Resources Report (“report”).

Task 2D: Complete Step 3 Work Plan/Budget

In the latter stages of Step 2 the Conveners will lead the process of developing a detailed work plan and budget for Step 3 of the process. A Work plan Committee will be established and tasked with completing the work plan based on group input for each step in turn.

Task 2E: Project Management and Reporting

This task includes general support and management as well as a semi-annual progress report to be submitted to the OWRD no later than 45 days after June 30th, 2017. This task will be completed by staff of the Gilliam County Soil and Water Conservation District. As the Convener of the place-based planning process in the Lower John Day, it is the responsibility of the Gilliam SWCD to ensure all aspects of the process are properly completed within the guidelines and timelines of the project.

Task 2F: Project Administration

This task includes administration of all fiscal requirements of the grant, match funds, requests and distributions of funding, record keeping and financial reporting.

Deliverables:

2A: Collaboration and Stakeholder Activities

- Group Meetings
- Committee Meetings
- Technical Review

2B: Compilation of data collected in Basin

2C: State of Water Resources Report

2D: Complete Step 3 Work Plan/Budget

2E: Project Management and Reporting

2F: Project Administration

Planning Step 3: Quantify Existing & Future Needs/Demands

Existing and Future Needs/Demands

- Instream and out-of-stream
- Quantity, quality, & ecosystems
- Future pressures (e.g., population, land-use, etc.)

Out-of-Stream Needs

- Agricultural uses (irrigated and non-irrigated)
- Municipal uses
- Industrial uses
- Domestic uses

Instream Needs

- Meeting existing targets (water rights, scenic waterways flows, etc.)
- Fish and wildlife, water quality, recreation, etc.

Climate Change & Natural Hazards

- Human and natural risks
- Infrastructure and built environment risks
- Drought, floods, seismic, other natural hazards
- Multi-year, worst-case scenario

Deliverables:

3A: Integrated Water Resources Needs and Vulnerabilities Report

3B: Complete Step 4 Work Plan

3C: Progress Reporting

3D: Project Administration

Planning Step 4: Develop Integrated Solutions for Meeting Long-Term Water Needs

Efficiency & Conservation Measures

- Allocation of Conserved Water; on-farm activities
- Infrastructure upgrades
- Household level conservation programs

Built & Natural Storage

- Capacity & operations
- Above & below
- Natural storage (forests, floodplains, wetlands, snowpack)

Transfers & Rotation Agreements

- Permanent transfers
- Temporary transfers
- Instream leases
- Rotation or forbearance agreements

Non-Traditional Techniques

- Recycled or reclaimed water projects
- Graywater, rainwater, stormwater
- Desalination

Infrastructure

- Aging water and wastewater systems
- Energy efficiencies
- Storage capacities
- Safety (e.g., seismic, flood risk)
- Regional partnerships
- Long-term maintenance strategies

Watershed & Habitat Restoration

- Improve/maintain ecological health
- Utilize existing plans/efforts (e.g. Oregon Plan)
- Fish passage barriers/screening

Instream Flow Protections

- New instream water rights
- Streamflow restoration priorities
- Improved measurement/monitoring

- Consult with ODFW

Water Quality Protections

- Pollution reduction strategies
- Nonpoint source projects
- Source water protection
- Toxics (e.g., nutrients reduction)
- Education and outreach

Monitoring

- Measurement (streamflows/water use)
- Program Effectiveness
- Quality assurance
- Shared information

Deliverables:

4A: Integrated Water Solutions Report

4B: Complete Step 5 Work Plan

4C: Progress Reporting

4D: Project Administration

Planning Step 5: Plan Adoption & Implementation

5A: Review Process

- Three-year completion timeframe
- Seek input from WRC
- Inter-agency review

5B: Adoption

- Planning members adopt
- Seek approval from boards/commissions
- Submit to WRC for acceptance process
- Develop workplan/implementation strategy

Deliverables:

5C: Approved Integrated Water Resource Plan

5D: Project Administration