

Executive Summary

Section 1.0: Introduction

The Lower John Day Placed-Based Partnership (Work Group) represents 17 parties that are working together to help plan for future instream and out-of-stream water needs in the Lower John Day Basin (Basin). For the past year, the Work Group worked to develop this Step 4 *Integrated Water Strategies Report*. Much of the Work Group's findings are based on the Step 2 and Step 3 reports, along with public input and professional and scientific expertise of our members and partners. This report, as well as the previous two reports, and a list of the Work Group, can be found on our website: <https://www.lowerjohndaypbp.com/>

Clean, reliable water is essential to meet basic human needs and support the economy and natural systems upon which all organisms depend. In the previous Planning Steps 1, 2, and 3, the Work Group's focus was to define the current state of water resources in the Basin and present findings on the water needs and demands across instream, agricultural, and municipal sectors. These steps have laid the foundation for the critical issues and strategies that are outlined in this Step 4 *Integrated Water Strategies Report*. The report outlines 20 critical issues the Work Group identified that impede the lower Basin's ability to meet both instream and out-of-stream water needs. Along with each critical issue are a set of strategies that, when put into place, will address or help to overcome the critical issue of concern.

This report represents the completion of Planning Step 4 and creates the framework for the Step 5 Integrated Water Resource Plan and accompanying Action Plan for the Basin.

Section 2.0: Development of Critical Issues and Potential Strategies

The critical issues identified by the Work Group's placed-based planning effort were compiled from information presented in the Work Group's two previous reports - the Step 2 *State of Water Resources in the Lower John Day Basin* report and the Step 3 *Water Needs and Vulnerabilities of the Lower John Day*. In addition to issues highlighted in these reports, the Work Group conducted public outreach through surveys and public presentations to collect the public's recommendations on critical issues they see in the Basin as well as on strategies or solutions to those issues they believe should be acted upon to address water issues of concern.

After a broad list of critical issues was identified from the Work Group and public outreach process, the issues were further refined, and a list of strategies was identified and prioritized with the goal of balancing near and long-term instream and out-of-stream water needs.

The process of identifying, inventorying, and listing critical issues and then strategies was done internally and externally over a 12-month process. The following methods were used:

- In-person Work Group meetings
- Public survey
- Anonymous survey

- Natural Resources Conservation Service, Gilliam County Soil and Water Conservation District, Gilliam Watershed Council meetings, and landowner event surveys
- Spreadsheet strategy development
- Dot voting to rank priority of importance for critical issues
- Work Group exercise to rank strategies using the seven guiding principles
- Presentations from subject experts and information sharing on potential strategies, including certain strategies that could be used by the Work Group
- Development and approval of issues, goals, and strategies guiding document, which included connecting strategies back to the Step 2 and 3 reports
- Developing metrics to measure impact of the strategies
- Subcommittee editing followed by Work Group review and general consensus approval
- Watershed area boundary prioritization and ranking with the creation of a water availability basin (WAB) ranking spreadsheet
- Analysis of strategies across critical issues with the creation of a Strategic Impact Analysis spreadsheet

The following are recommended strategies to meet the identified critical issues:

- Protect riparian areas from livestock using fencing and off-stream stock watering systems
- Protect, enhance, and/or restore native riparian vegetation
- Reconnect floodplains (beaver dam analogs, beaver restoration, floodplain restoration, etc.)
- Restore upland function by improving plant communities with juniper removal and planting appropriate perennial bunchgrasses, shrubs, and forbs
- Maintain and increase stream flows
- Encourage and assist state agencies with creating additional instream water rights
- Encourage voluntary leases and transfers of existing water rights to instream use
- Control noxious weeds
- Complete a feasibility study to assess potential off-channel water storage projects¹
- Develop off-channel storage projects as suggested by the feasibility study
- Encourage improved irrigation efficiency projects and use of Conserved Water Act (to reduce out-of-stream demand through efficiency improvements and to protect portion of water saved instream)

¹ The Work Group intends the feasibility study to address: (a) potential locations for storage projects; (b) water availability, including consideration of all categories of instream flow needs (as recognized in the Step 3 report) and changing hydrographs due in part to climate change; (c) instream and out-of-stream needs for water from storage; and (d) other costs and benefits.

- Conduct outreach to irrigators about more efficient irrigation practices and systems and encourage adoption
- Promote utility, state, and federal incentive programs for improving irrigation efficiency
- Replace inefficient and failing diversions and/or screens such as push-up dams with new structures that maintain or improve native fish passage
- Pipe open ditches
- Replace inefficient irrigation systems with more efficient systems (e.g., replace flood irrigation with sprinklers)
- Identify, protect, and restore seeps and springs supplying cool water
- Provide full fish passage (removal, repair, and/or replacement) at priority artificial obstructions including culverts and dams
- Support additional personnel for flow and diversion monitoring and management
- Advocate for irrigator incentives for measurement of diversions, including installing measurement devices
- Promote existing incentives for measurement of diversions
- Increase pace and scale of forest restoration, including prescribed burning and thinning
- Support maintenance of existing gauges
- Support installation and maintenance of additional gauges at discontinued and recommended new sites
- Assist cities in creating and/or improving Water System Management Plans and/or Water Management and Conservation Plans that identify necessary system improvements. Assess whether these plans cover all needed improvements.
- Assist entities with public water and wastewater systems in funding and implementing infrastructure improvement projects
- Support and advocate for increased communication for water conservation in public/municipal water systems and infrastructure needs
- Conduct process-based hydrologic study, including how stream and groundwater flows change with land use and future climate change
- Analyze existing groundwater data and conduct a groundwater study in the basin
- Establish, support, and help fund additional groundwater monitoring wells and support community groundwater monitoring networks
- Promote good vegetative cover/cover crops
- Promote mulch tillage, ridge tillage, zone tillage, no till, chemical fallow, and Conservation Reserve Program as ways to improve soil health, etc.
- Support payment programs for landowners adopting soil carbon improvement practices and management that mitigate for greenhouse gas emissions

- Conduct study regarding changes in prevalence and function of springs and causes of changes
- Implement prescribed burn and thinning for forest management
- Provide assistance or technical expertise through Oregon Water Resources Department support on installing well level monitors
- Conduct additional monitoring for temperature and dissolved oxygen
- Assist Oregon Department of Fish and Wildlife with updating list of priority fish-passage barriers, if necessary
- Create and promote wildland urban interface buffers and defensible space around rural homes and buildings
- Support community wildfire response plans
- Support AgriMet station in John Day Basin
- Support collection of additional light detection and ranging data
- Analyze existing data on crop and climate
- Promote best management practices for the capture and safe release of water (water and sediment control basins, etc.)
- Conduct voluntary survey for non-municipal well users to capture issues associated with domestic water availability and quality
- Provide information on where to get well water testing kits and technical support for water quality issues

Section 3.0: Critical Issues, Goals, and Strategies

The Work Group started the Step 4 planning by identifying 20 critical issues facing the Basin. For each critical issue, the Work Group identified an accompanying problem statement, a goal, and “strategies” for addressing the issue.

The 20 critical issues in order of priority are:

1. Poor riparian habitat
2. Elevated summer stream temperatures and low instream oxygen
3. Insufficient instream flow
4. Storage needs
5. Degraded native plant communities
6. Insufficient efficient irrigation infrastructure
7. Inadequate gauge data
8. Outdated and insufficient municipal water and wastewater infrastructure
9. Lack of data on condition of groundwater aquifers and interactions between groundwater and surface water
10. Fish passage barriers
11. Inadequate diversion data

12. Poor soil health in many of the WABs
13. Simplified stream morphology
14. Inadequate surface water for wildlife
15. Risk of intense or catastrophic wildfire that impacts water quality and quantity
16. Insufficient data on crops, climate, and datasets to support analysis
17. Degraded forest health
18. Erosion and sediment transport/control
19. Unmet water demands
20. Rural and domestic well data gaps

Section 4.0: Results and Findings

A results and findings section for the Step 4 report was created to help narrow and organize priorities. With limited funding and capacity, the Work Group used the following analysis to help prioritize strategies and watershed areas.

The 20 critical issues that were identified and then prioritized by the Work Group through dot voting were analyzed through two spreadsheets to identify subject and critical issue overlap. A crosswalk table (Appendix A) was created that paired critical issues of concern with subject or resource areas to help determine which critical issues fall into which subject or resource category. The topic and resource areas and the number of critical issues in each category will help the Work Group prioritize strategies for the Step 5 Action Plan. The crosswalk table was grouped into the seven topic and resource areas bulleted below. The number following the subject area represents the number of strategies that are recommended for each bulleted category, also shown in Appendix A.

- Riparian, instream, and aquatic restoration (26)
- Upland management and restoration (30)
- Off-channel storage (3)
- Municipal and domestic water (8)
- Data collection, monitoring, and feasibility (19)
- Outreach and education (18)
- Funding/policy option packages (N/A)

A second analysis was done by creating a Strategy Impact Table (Appendix B), which “crosswalks” all 46 strategies with the 20 critical issues. The exercise illustrates which strategies are likely to address or improve a variety of the critical issues facing instream and out-of-stream water demands. As capacity and funding constraints prevent partners in the Lower John Day from acting on all strategies at once, the table helps to prioritize high impact strategies across a variety of critical issues. The strategies appearing to address the highest number of critical issues were:

- Protect riparian areas from livestock using fencing and off-stream stock watering systems
- Protect, enhance, and/or restore native riparian vegetation

- Reconnect floodplains (beaver dam analogs, beaver restoration, floodplain restoration, etc.)
- Restore upland function by improving plant communities with juniper removal and planting of appropriate perennial bunchgrasses, shrubs, and forbs.

Meetings were held to discuss these issues (Appendix C). A separate evaluation to prioritize WABs for each critical issue was conducted (Appendix D). In Section 3 of this report, priority WABs are listed under each correlating critical issue.

While prioritization of WABs may vary across critical issues and strategies, and while this work should be subject to adaptive management principles, the Step 4 analysis suggested the following WABs may be top priorities for restoration, further study, analysis, and funding:

1. Bridge Creek (above West Branch)
2. Bridge Creek (mouth)
3. Butte Creek
4. Rock Creek (above Wallace Canyon)
5. Rock Creek (mouth)

Section 5.0: Public Participation and Outreach

Throughout the Step 4 process (July 2019 to December 2020), the Work Group met once per month in meetings open to the public at meeting spaces in the Lower John Day Basin. Meetings in April 2020 through December 2020 were held online through the GoToMeeting platform due to COVID-19 safety protocols. Meetings were publicized through newspaper advertisements, radio interviews, and on the Lower John Day Place-Based Planning website (<https://www.lowerjohndaybbp.com>). Project progress was presented at several meetings throughout the area. The Step 4 report will be open to public comment in February 2021.

Section 6.0: References

Documents referenced in this report are included in this section.

Section 7.0: Appendices

Appendices included in this section are:

- Appendix A, Critical Issue and Strategy Crosswalk Evaluation
- Appendix B, Strategy Impact Analysis Evaluation
- Appendix C, Step 4 Meeting Notes
- Appendix D, Water Availability Basin Prioritization Spreadsheet