PERFORMANCE AUDIT

Office of the Washington State Auditor
Pat McCarthy

Assessing Success of the Walla Walla Watershed Management Partnership Pilot

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Executive Summary

Background (page 7)

The Walla Walla watershed, whose largest river has headwaters located in Oregon, supports critical farming, endangered species habitat, and tourism, yet more people have legal rights to the water than actual water exists. In the early 2000s, faced with legal issues from federal regulators, people in the area began working together on water conservation, leading to a new partnership plan. Codified in 2009 (RCW 90.92), the Walla Walla Watershed Management Partnership was originally a 10-year pilot allowing water management through a locally focused, collaborative approach without the Department of Ecology's usual regulatory oversight.

The Partnership is governed by a nine-member Board of Directors comprising varying interests who volunteer their time. The pilot was originally scheduled to sunset in 2019; however, the Legislature extended it to 2021 to allow for financial and performance audits, and to allow participants to determine how best to manage water in the region going forward. This performance audit was designed to assess the success of the water management pilot's efforts over its 10-year tenure.

The Partnership did not explicitly identify improving streamflow as a core goal despite clear statutory intent, and board members agree that streamflow did not improve (page 11)

Although the Legislature created the water management pilot to improve streamflow, the board's initial strategic plan only cited it in connection with establishing local water plans. In its 2018 report to the Legislature, the Partnership acknowledged streamflow did not improve, but thought the pilot succeeded in bringing diverse interests to the table. Our statistical analysis also suggests that streamflow did not change, and similar statistical models could be used to help evaluate future efforts.

The Partnership met most statutory requirements, but did not create and use an accountability framework that could have helped it evaluate and adapt its activities to ensure success (page 14)

The Partnership complied with most aspects of the law in creating and running the pilot, but did not include required performance measures in local water plans. An accountability framework that includes data, performance measures and targets allows an organization to understand and respond to its challenges, helping it avoid both the inefficient use of its resources and ineffective activities. However, the pilot lacked data, performance measures and targets related to streamflow, preventing the Partnership from assessing the success of its strategies. Water management organizations in Yakima, Oregon and California offer examples of active performance management.

The Partnership lacked sufficient funds to implement strategies necessary to improve streamflow, but failed to fully exercise its authority to pursue additional revenue (page 18)

Board members cited the lack of funding as a primary barrier to the Partnership's success. However, the Partnership did not fully use its authority to raise funds through fees and grant applications. As a consequence of its limited funds, the Partnership lacked sufficient staffing to acquire significant grants and was unable to pay for its key streamflow enhancement strategies. By contrast, water management organizations in Yakima, Oregon and California aggressively pursue funding beyond that provided by their respective states.

Returning management of the Walla Walla watershed to Ecology could offer better access to funding for needed infrastructure projects

(page 21)

The watershed needs infrastructure improvements that are beyond the current Partnership's capacity. Ecology has access to greater financial resources to support infrastructure projects. Walla Walla's collaborative partnership could continue as an advisory board to Ecology, following the model of the Yakima Project.

Significant streamflow improvements in the Walla Walla watershed require greater state-level cooperation between Washington and Oregon

(page 23)

The volume of water in the Walla Walla River on Washington's side depends largely on the amount of water that crosses the state line from the river's source in Oregon. Oregon and Washington currently lack a formal agreement to collaborate in the Walla Walla watershed, but an interstate compact could help them work together to improve and protect streamflow.

State Auditor's Conclusion (page 26)

For years, the Walla Walla watershed has not had enough water to support local residents and the region's fishing, farming and tourism industries. In 2009, the Legislature created the Walla Walla Watershed Management Partnership as a pilot program to see if cooperative local management could solve the problem and increase the amount of water in the river to the benefit of all who depend on it. While the Partnership may have had some benefits, including bringing diverse interests together for a common goal, after 10 years it is clear that the Partnership has not affected streamflow as intended.

At this point, it makes the most sense to return the responsibility for water management in the Walla Walla watershed to the Department of Ecology while maintaining the benefits of the Partnership in the form of an advisory board that includes current membership. Ecology could then follow a watershed management model similar to that employed in the Yakima watershed, where streamflow has measurably improved.

Perhaps most importantly, because water supply in the Walla Walla watershed is so dependent on actions taken upstream in Oregon, any real solution to streamflow will have to involve cooperation across state lines. For that reason, we recommend the Governor open discussion with state leadership in Oregon to form an interstate compact that can address water management in the watershed.

Recommendations (page 27)

We made a series of recommendations to the Partnership's Board, the Legislature and the Governor to address the future of the water management pilot in Walla Walla, and to help ensure adequate available water for the region's future. We recommend the Partnership's board members continue to inform water use decisions in an advisory role, and work with Ecology to finalize a long-term plan for the region. We recommend allowing the pilot to expire and returning leadership of water management to Ecology, as it was prior to the pilot. We also recommend the Governor pursue a bi-state compact with Oregon to collaborate on water management issues in the Walla Walla watershed, which serves both states.

Next steps

Our performance audits of state programs and services are reviewed by the Joint Legislative Audit and Review Committee (JLARC) and/or by other legislative committees whose members wish to consider findings and recommendations on specific topics. Representatives of the Office of the State Auditor will review this audit with JLARC's Initiative 900 Subcommittee in Olympia. The public will have the opportunity to comment at this hearing. Please check the JLARC website for the exact date, time, and location (www.leg.wa.gov/JLARC). The Office conducts periodic follow-up evaluations to assess the status of recommendations and may conduct follow-up audits at its discretion. See **Appendix A**, which addresses the I-900 areas covered in the audit. **Appendix B** contains information about our methodology.

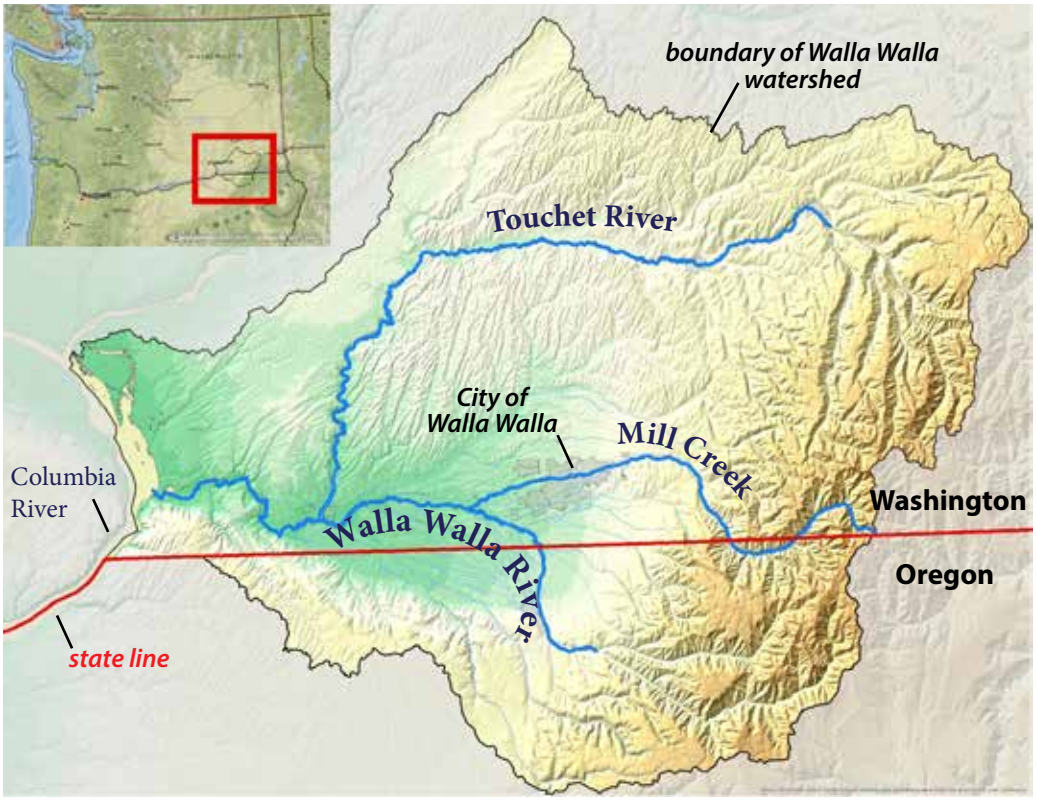
Background

Washington's Walla Walla watershed supports critical farming, endangered species habitat and tourism, yet more people have legal rights to the water than actual water exists

The Walla Walla watershed does not have enough water to support the region's residents and its fish, agriculture and tourism industries. This problem is not new. Water in the Walla Walla watershed has been over-appropriated since the early 20th century, meaning more people have legal rights to the water in the river than the river has actual water flowing in it. As a consequence of people and businesses exercising their water rights, stretches of the Walla Walla River frequently dry up during the summer. Those occurrences threaten not only the region's largely agricultural economy, including grains, onions and wine grapes, but also the federally protected fish that spawn in the river, such as steelhead, bull trout, and Chinook salmon. Climate change and increasing water resource demands from population and tourism growth have both exacerbated the issue.

Managing the Washington portion of the watershed is made more complex by the geography of the basin. One third of the watershed, including the headwaters of the Walla Walla River mainstem, is located in Oregon (shown in the map in **Exhibit 1**). For this reason, water available to Washington's water users relies heavily on what enters the state from Oregon.

Exhibit 1 – Relief map showing the boundaries of the Walla Walla watershed basin in Washington and Oregon



Source: Auditor created using publicly available geodata files.

In the early 2000s, faced with legal challenges from federal regulators, people in the area began working together on water conservation, leading to a new partnership plan

In 2000, the U.S. Fish and Wildlife Service threatened to initiate a legal case under the Endangered Species Act against major irrigators in the watershed to protect endangered trout runs. In response, three irrigation districts voluntarily agreed to conserve water to improve in-stream flow in the river.

That and other efforts resulted in the Water Management Initiative in 2005, which was a collaborative approach to addressing the many challenges in the Walla Walla watershed. In 2007, following that initiative, the William D. Ruckelshaus Center published a report titled "Managing Many Waters," which helped inform coordination and governance efforts for improving water and fish in the region. The report, funded by a grant from the Washington Department of Ecology (Ecology), analyzed the watershed's capacity to achieve the Initiative's identified conservation goals. The report recommended establishing a shared governance mechanism to "provide leadership, streamline coordination and decision-making, and focus on innovative activities to increase stream flows for fish while maintaining a viable agricultural economy." Stakeholders submitted a proposal to the Legislature to create a formal, locally controlled, water management collaborative. Corresponding legislation was drafted and passed into law, establishing the Walla Walla Watershed Management Partnership.

The Partnership was originally a 10-year pilot allowing water management through a locally focused, collaborative approach without Ecology's usual regulatory oversight

The Partnership was a pilot project formally established by the state Legislature in 2009, and set to sunset in 2019. The pilot was designed to improve streamflow in the Walla Walla River through local, collaborative management of water use in the Walla Walla watershed. Its vision statement called for the watershed to become *"…a place where water is managed locally to achieve and sustain a healthy river system where human and natural communities thrive and flourish now and in the future."*

The Partnership was governed by a nine-member volunteer Board of Directors comprising various interests, including local governments, the Umatilla Tribes, water users and environmental organizations. The board was advised by two groups: the Water Resources Panel, to help address water management issues, and the Policy Advisory Group, to help formulate policy. The two groups met to discuss issues and provide recommendations to the board. The board developed the pilot's strategic direction and made decisions by majority vote.

The Partnership is currently staffed by a full-time executive director and a full-time program director, and employed a part-time grant administrator prior to 2019. It operated on a biennial budget of around $515,000 in fiscal years 2017-2019, of which nearly 90 percent was spent on salaries, benefits and other operating expenses.

Ecology is responsible for the development and management of Washington's 62 watersheds, formally known as Water Resource Inventory Areas, including the Walla Walla watershed. The legislation that formalized the 10-year pilot gave the Partnership unique statutory authority to manage water-use decisions without the limitations that are typically imposed by Ecology's regulations. The legislation also authorized the Partnership to seek funding for its activities. The statutory pilot allowed the Partnership to conduct four activities not authorized in other watersheds absent Ecology's regulatory oversight.

- **Water banking:** The Partnership could enter into water-banking agreements, where water rights owners agree not to use an agreed-upon amount of water for a specified time. Water-banking agreements protect water rights during periods of non-use. The Partnership was authorized to enter into such agreements without Ecology's typical review to ensure the banked water is physically and legally available.
- **Local water plans:** The Partnership could work with local water-rights holders to develop and approve plans that set out strategies to increase streamflow.
- **Water rights acquisition:** The Partnership could lease or purchase water rights from water rights holders, to be placed into the state's trust water rights program, for the purpose of improving streamflow.
- **Funding acquisition:** The Partnership was defined by its legislation as an independently funded entity, and could provide for its own funding as determined by the board.

A summary of the legislation that created the water management pilot is in **Appendix C**.

The original pilot was scheduled to sunset in 2019; however, the Legislature extended it to 2021 to allow for a financial audit and this performance audit, and to allow participants to help shape next steps for water management in the region going forward.

The Partnership's Board consists of a member from each of the following:

- Confederated Tribes of the Umatilla Indian Reservation
- Columbia County Commissioners
- Columbia County Conservation District
- Walla Walla County Commissioners
- Walla Walla Conservation District
- Walla Walla City Council
- Water rights holders
- Environmental interests
- Irrigation districts
- Citizen-at-large

This audit examined the extent to which the Walla Walla watershed's collaborative management pilot succeeded in its efforts

This performance audit was designed to assess the success of the water management pilot's efforts over its first 10 years. We conducted this audit at the direction of the Legislature, as a component of the two-year extension of the pilot.

The audit asked the following questions:

1. Did the Partnership meet the intent of the legislation that created it?
2. Did the Partnership achieve its strategic goals and meet its defined targets?
3. Are there opportunities for the Partnership to improve its chances for achieving its desired outcomes in the future?
4. Could the Partnership use statistical methods to determine the extent to which its strategies improve streamflow in Walla Walla River?

To answer these questions, we examined how the Partnership was designed, how it planned for success, how it defined what success would look like, and whether and how it measured and monitored success over the past 10 years. We reviewed its statutory obligations; its charter and strategic plan, including performance measures; its contracts with Ecology; any previous external evaluations; and any reports it gave to the Legislature. In addition, we interviewed Partnership members to better understand their perspectives about the Partnership and its success. We also looked for other collaborative water management groups to identify practices that could serve as examples in areas where the Partnership was not successful.

Audit Results

The Partnership did not explicitly identify improving streamflow as a core goal despite clear statutory intent, and board members agree that streamflow did not improve

Summary of results

Although the Legislature created the water management pilot to improve streamflow, the board's initial strategic plan only cited it in connection with establishing local water plans. In its 2018 report to the Legislature, the Partnership acknowledged streamflow did not improve, but thought the pilot succeeded in bringing diverse interests to the table. Our statistical analysis also suggests that streamflow did not change, and similar statistical models could be used to help evaluate future efforts.

Although the Legislature created the water management pilot to improve streamflow, the board's initial strategic plan only cited it in connection with establishing local water plans

The Legislature clearly intended the water management pilot in the Walla Walla watershed to improve streamflow—the flow of water in the basin's streams and rivers. The authorizing legislation allowed the Partnership's formation only if there existed a "…commitment on the part of the initiating entities and the affected community to enhance streamflows for fish." Similarly, at the time the collaborative pilot was being considered by the Legislature, the Department of Ecology agreed to support flexible, local management of water in the region provided that "stream flows and water quality are enhanced and maintained to support fish."

Despite the intent, the Partnership did not clearly establish improved streamflow as a core goal in its strategic plan. It was not explicit in the mission statement, and only appeared in the strategic plan in an objective associated with one of numerous goals.

Low water in July on the Walla Walla River at Pepper Bridge.

Photo source: State Auditor's Office.

In its mission statement, the Partnership stated its purpose was to carry out the legislation that created it, but did not explicitly cite improving streamflow in the mission statement language itself. While one suggested mission statement put forward by the policy advisory group referred to improving and protecting in-stream flows, the Board of Directors did not adopt that language.

One stated objective in the original strategic plan was to "implement… local water plans in which stream flow is significantly and measurably improved." This objective was specific to the single strategy of adopting local water plans, and responded to the statutory requirement to approve local water plans that "substantially enhance instream flow conditions." As discussed later in this report, however, all of the local water plans the Partnership approved lacked performance measures that would have allowed it to demonstrate its work had led to any improvement in streamflow.

Other objectives that referred to improved streamflow were added and subtracted in future iterations of the strategic plan, but improved streamflow was never framed as part of the Partnership's defined core mission.

Based in part on the lack of clear focus for the Partnership's anticipated outcomes, not all board members shared the same expectations of the pilot when they joined. When asked what they expected the pilot would achieve, some members identified improved streamflow, while most cited other expectations: bringing diverse interests together, protecting water rights, helping irrigated farming and improving water management in the region. One member joined the board without any specific expectations.

In its 2018 report to the Legislature, the Partnership acknowledged streamflow did not improve, but thought the pilot succeeded in bringing diverse interests to the table

The Partnership's 2018 progress report to the Legislature clearly acknowledged that the pilot itself had not resulted in measurable streamflow improvement, although it did not cite any specific analysis used to demonstrate whether the Partnership's strategies affected streamflow. The report did list a number of water-management benefits the pilot provided, including active water-banking agreements, approved local water plans, two water-rights leases, and increased knowledge and awareness about water management in the watershed. The report also pointed to an ongoing bi-state flow study with Oregon, designed to help identify the best strategies for improving streamflow in the Walla Walla River mainstem in the future.

Both the progress report and our interviews with board members highlighted the Partnership's efforts to bring diverse interests to the table as a major success. In the progress report, Partnership participants cited their "…ability to bring diverse interests together, foster productive communications, and help prevent

the outbreak of contentious and adversarial interactions [as] a key outcome of the Partnership." In individual interviews, members agreed that the pilot's greatest success was to bring various interests in water management together to collaborate on relevant water issues. One board member, for example, said that while in other watersheds, the parties "weren't talking," the fact that irrigators, cities, environmentalists and the Tribes were talking in Walla Walla was "a big accomplishment."

Our statistical analysis also suggests that streamflow did not change, and similar statistical models could be used to help evaluate future efforts

We learned from both the Partnership and Ecology that no formal evaluation of streamflow changes resulting from the Partnership's efforts had previously been attempted. To try to assess the Partnership's acknowledgement that streamflow did not change over the course of the pilot, and to gain further understanding of the complexities involved in determining the effects of strategies on streamflow changes, we developed a statistical model of streamflow in the Walla Walla River.

Our model, using publicly available streamflow and weather data from 2002 through 2018, estimated streamflow at a point on the Walla Walla River that typically experiences low flow during the summer months. The model takes into account factors that were outside the Partnership's control, such as variations in weather, climatic shifts, runoff caused by snowpack in a key river upstream, the amount of water that enters Washington from Oregon, and typical seasonal transitions in streamflow. The model compared expected streamflow over the entire 15-year evaluation period to the streamflow that occurred only during the time the Partnership implemented its strategies. A more complete description of the analysis is included in Appendix B. A technical description of the model, which can be used to complete future statistical analyses, is provided in **Appendix D**.

Our analysis suggests that no change in streamflow occurred during the time the Partnership actively implemented its strategies. This is consistent with the assertion from the Partnership's legislative progress report that streamflow had not improved. It is important to note that this model would not be able to assess the unique impacts of the Partnership's activities compared to those of other water conserving efforts.

The Partnership met most statutory requirements, but did not create and use an accountability framework that could have helped it evaluate and adapt its activities to ensure success

Summary of results

The Partnership complied with most aspects of the law in creating and running the pilot, but did not include required performance measures in local water plans. An accountability framework that includes data, performance measures and targets allows an organization to understand and respond to its challenges, helping it avoid both the inefficient use of its resources and ineffective activities. However, the pilot lacked data, performance measures and targets related to streamflow, preventing the Partnership from assessing the success of its strategies. Water management organizations in Yakima, Oregon and California offer examples of active performance management.

The Partnership complied with most aspects of the law in creating and running the pilot, but did not include required performance measures in local water plans

State law established the Partnership and laid out its statutory requirements (RCW 90.92 is summarized in Appendix C). Many of those requirements involved the composition of the board, and how the board was to generally conduct its business. The Partnership fully met most of its statutory obligations, with one notable exception: the requirement to include monitoring and performance measures in its approved local water plans.

The statute allows the Partnership to work with local water-rights holders to develop and approve a plan for their water use to help increase streamflow. The statute also required the Partnership to approve only those plans that "substantially enhance stream flow." However, the Partnership failed to define what standard a local water plan must meet to fulfill this requirement. Because it did not establish a definition for "substantially enhance," the Partnership was not able to demonstrate that the implementation of local water plans contributed to enhanced streamflow. Additionally, the statute required each plan the Partnership approved to identify the monitoring and performance measures needed to ensure the plan met its intended targets. None of the plans approved by the board included any performance, tracking or monitoring measures or procedures to ensure the plans' terms could be enforced.

An accountability framework that includes data, performance measures and targets allows an organization to understand and respond to its challenges, helping it avoid both the inefficient use of its resources and ineffective activities

An accountability framework allows an organization to demonstrate performance in light of expected outcomes. An accountability framework begins with predefined and clear expectations about what success looks like, and includes tools for monitoring and evaluating progress toward that success, such as data, performance measures and targets. Monitoring allows an organization to collect data and information, which can be analyzed to help an organization's leadership understand the effects of its activities. Performance measures use data and information from monitoring to measure the performance of a process. Targets represent the level an organization wants a performance measure to reach. Without an accountability framework, an organization has no way to understand whether its resources are being used in the best way, nor can it know the extent to which its activities are furthering progress toward its goals and objectives, and ultimately its desired outcomes. In other words, an organization must have an accountability framework in place to ensure its success.

The pilot lacked data, performance measures and targets related to streamflow, which prevented the Partnership from assessing the success of its strategies

To learn whether the Partnership met its strategic goals and defined targets, we first had to understand what those goals and targets were, and how the Partnership assessed the extent to which it met them. We developed evaluation criteria based on leading practices in strategic planning, monitoring and evaluation, and water management. The leading practices we used are provided in **Appendix E**.

Overall, the Partnership lacked the tools, such as performance measures and targets, to determine whether it met its strategic goals. Without those tools and the information they provide, the Partnership was not able to understand which of its strategies were working to achieve the desired results and which were not. As a consequence, it could not adapt its strategies based on their performance to help ensure success.

While the Partnership followed some leading practices in creating and implementing its strategic plan, it did not include key monitoring and evaluation components. Its plan defined key elements – such as mission and vision statements, goals and objectives, and action steps – but those components lacked a clear relationship to the Partnership's desired outcomes. To demonstrate a clear relationship between outcomes and the strategic plan, the Partnership would have needed to use data, performance measures and performance targets.

Data is fundamental if an organization wishes to evaluate its activities and understand the state of conditions affecting it at any given time. The statute required an "adequate monitoring system" to be in place as a condition for the Partnership's formation. A monitoring system already existed when the Partnership began, in the form of numerous stream gauges found throughout the watershed. Despite the existence of those gauges, the Partnership did not monitor streamflow or analyze any streamflow data. In acknowledging the Partnership's lack of monitoring during interviews, some board members cited insufficient funds as the reason they did not collect the data to track streamflow.

Performance measures and targets can be defined in terms of expected outputs, such as the number of specific activities conducted, or in terms of specific outcomes, or expected results, of the activities conducted.

The Partnership did identify some *output measures and targets* in its plan, such as the number of water banking agreements obtained and the number of local water plans approved, which served to describe its key activities. Those output measures and targets, however, lacked any tie to expected outcomes.

A solar-powered stream gauge measures water levels near Gardena, Washington.

Photo source: State Auditor's Office.

Organizations use data from monitoring to assess the results of their activities. Outcome measures, which help express those results, demonstrate performance over a set timeframe, whether long or short. The Partnership's strategic plan did not identify any outcome measures or targets for those measures that would have relied on data from monitoring efforts to evaluate the results of its activities. Short-term outcome measures could have included, for example, the amount of actual water saved, or physical "new" water in the watershed, as a result of the water banking agreements and approved local water plans. These and similar short-term outcomes would have told the Partnership about its progress toward its longer-term outcomes, such as improving streamflow.

Water management organizations in Yakima, Oregon and California offer examples of active performance management

Three collaborative water management organizations use practices that may serve as useful examples in the development and implementation of an accountability framework in the Walla Walla watershed in the future: the Yakima River Basin Water Enhancement Project (Yakima Project), Oregon's Walla Walla Basin Watershed Council, and California's system of integrated regional water management. These water management organizations were included in our

analyses not because they are directly comparable to the Walla Walla Watershed Management Partnership but because they offer relevant examples of active performance management.

In the Yakima Project, an advisory group, with representation from private, local, tribal, state, federal and environmental interests, meets quarterly to discuss policy and project development. The group also provides recommendations to the project's decision-makers, Ecology's Office of the Columbia River and the U.S. Bureau of Reclamation, a federal agency that oversees water resource management. As part of the region's long-term integrated plan, water conservation projects are tracked for status reporting purposes. For example, this plan describes "Target Flows," which are detailed water-flow performance measures that help support decision-making. The Office of the Columbia River and the U.S. Bureau of Reclamation are responsible for monitoring flow levels on the Yakima River to track progress. In addition, Yakima Project participants submit an implementation status report to the Legislature biennially. The status report describes measures that have been funded and implemented in the Yakima River basin, and their effectiveness in meeting the plan's objectives.

Oregon has a network of watershed management councils throughout the state. These councils are voluntary, community-based, non-regulatory groups that meet regularly in their community to assess conditions in a given watershed and implement water projects. Councils are supported by a centralized organization called the Network of Watershed Councils, and some councils receive funding from the Oregon Watershed Enhancement Board. Oregon's Walla Walla Basin Watershed Council is located across the state line from the Partnership. It tracks many aspects of its work including water quality and quantity in the main stem of the Walla Walla River, effectiveness of habitat restoration projects, and bull trout and steelhead counts. As part of its monitoring efforts, the Council maintains and uses stream gauges to track streamflow in the Walla Walla watershed, many of which are in Washington.

California has formed regional water management groups. Each group includes at least three local public agencies that have statutory authority over water supply; the program is managed by California's Department of Water Resources. Water management groups leverage state funds to address locally defined projects covering a variety of water management issues. To access some state bond funding, groups must create a watershed plan that includes measurable goals and objectives and submit it to Water Resources for review. Planning standards stipulate that each plan contain performance measures and monitoring methods to evaluate performance toward the plan. For example, the Ventura County Watershed Coalition measures progress toward increased water supply by tracking the amount of "new" water made available. The Coalition is also required to publish a performance progress report every two years.

The Partnership lacked sufficient funds to implement strategies necessary to improve streamflow, but failed to fully exercise its authority to pursue additional revenue

Summary of result

Board members cited the lack of money as a fundamental barrier to the Partnership's success. However, the Partnership did not fully use its authority to raise funds through fees and grant applications. As a consequence of its limited funds, the Partnership lacked sufficient staffing to acquire significant grants and was unable to pay for its key streamflow enhancement strategies. By contrast, water management organizations in Yakima, Oregon and California aggressively pursue funding beyond that provided by their respective states.

Board members cited the lack of money as a fundamental barrier to the Partnership's success

Both the Partnership's 2018 progress report and board members themselves cited the lack of funding as a fundamental barrier to success. In its report, the Partnership said, "Lack of funding has limited implementation of authorities, the monitoring necessary to manage outcomes, and outreach to sustain and improve water user participation." Similarly, in individual interviews, board members and staff cited insufficient funds as a major challenge to their efforts to improve streamflow. They also mentioned the inadequate staffing that is a consequence of insufficient money.

The Partnership's primary expenses were operational, including staffing and office space. With one exception, board members are either elected officials or have full-time jobs, volunteering about two hours monthly for board meetings. As a result, volunteer board members have less time to contribute significantly to the work involved in the Partnership's activities.

The Partnership did not fully use its authority to raise funds through fees and grant applications

The legislation that created the Partnership defined it as an independently funded agency and gave the Board the authority to provide for its own funding. The legislation further clarified that the board could "…solicit grants, loans, and donations and may adopt fees for services it provides."

Despite most board members' assertion that lack of funding was a significant barrier to success, the Partnership took only limited steps to secure funding outside of money awarded to it by Ecology. Much of that money came from Ecology's watershed planning grant programs, and the Partnership had to compete with other watersheds to win funding. In some years, the funding was mandated by the legislature through budget proviso. Of the Partnership's $5.5 million in revenues over the 10-year pilot, nearly 90 percent was provided by Ecology through proviso funding and grants.

The Partnership solicited and received funding from only three other sources, one of which was one-time funding of $10,000 at the outset of the Partnership. Larger grants included recurring funding from the National Fish and Wildlife Foundation that was typically around $70,000 a year until 2017 when it was not renewed, and recurring funding of about $20,000 from the Snake River Salmon Recovery Board.

As a consequence of its limited funds, the Partnership lacked sufficient staffing to acquire significant grants and was unable to pay for its key streamflow enhancement strategies

Without additional funding beyond what the state and the three additional grants provided, the Partnership's staffing was limited to what its budget could support: two full-time employees, including the Executive Director, and a part-time grant administrator. In individual interviews, a few board members suggested that existing staff lacked specific expertise in fundraising and as a result, the Partnership had not done a good job of pursuing grants and donations.

Insufficient funds also prevented the Partnership from implementing all of its key strategies. For example, while the legislation enabled the Partnership to purchase or lease water rights to conserve water, the Partnership was not able to purchase any water rights and leased only two, in 2012 and 2013.

As discussed in previous sections, the legislation allowed the Partnership to approve local water plans to allow a temporary change in a water rights owner's use of water in a way that improved streamflow. For example, some local water plans move points of water diversion to new locations with greater water availability, freeing water at a more highly stressed part of the stream. However, not all of the water-saving strategies could be implemented due to cost. For example, many of the plans relied on aquifer recharge activities—replenishing aquifers to increase natural underground water storage—as a key streamflow enhancement strategy. The recharge activities included in the local water plans required water quality testing. Without funding to pay for that testing, those plans were simply not implemented.

By contrast, water management organizations in Yakima, Oregon and California aggressively pursue funding beyond that provided by their respective states

The three other water management organizations in Yakima, Oregon and California made greater efforts to seek funding far beyond what they received from traditional state support. Additional funding sources included federal grants.

The Yakima Project aims to restore endangered fish populations by efforts such as enhancing water storage, upgrading irrigation systems, and implementing a water market to move water rights from low- to high-value uses. It has acquired significant non-state funding to match the equally significant state investment in the project. For example, in 2016, the Bonneville Power Administration and the U.S. Forest Service invested a total of $44 million to fund strategies in Yakima's long-term integrated plan. Because Washington's Legislature directed Ecology to fund at least half of the Yakima Project's income from non-state sources, Ecology leveraged its funds to acquire funding from the Bureau of Reclamation, the U.S. Forest Service, Bonneville Power Administration, the Yakama Nation, and various county governments and irrigation districts within the watershed.

Oregon's watershed councils typically spend between 10 percent and 30 percent of staff time on fundraising and most operate on less than $150,000 a year. However, the Walla Walla Basin Watershed Council, which covers the Oregon side of the watershed, is much more aggressive—its operational budget was nearly $1.5 million in 2017, of which only $200,000 came from the state of Oregon. This is about half the state support the Partnership receives on average. In addition to Oregon's state support, the Walla Walla Basin Watershed Council receives funding from the Bonneville Power Administration, the Environmental Protection Agency, the Confederated Tribes of the Umatilla Indian Reservation, a Umatilla County economic development grant, and about $100,000 in other grants.

California's regional water management groups aggressively pursue funding to accomplish their goals. For example, one successful water management group has secured more than $170 million in grants and matching funds to finance large infrastructure projects that improve water storage, irrigation efficiency and drinking water quality for a region larger and much more populous than the Walla Walla watershed.

Returning management of the Walla Walla watershed to Ecology could offer better access to funding for needed infrastructure projects

Summary of result

The watershed needs infrastructure improvements that are beyond the current Partnership's capacity. Ecology has access to greater financial resources to support infrastructure projects. The Walla Walla collaborative partnership could continue as an advisory board to Ecology, following the model of the Yakima Project.

The watershed needs infrastructure improvements that are beyond the current Partnership's capacity

A bi-state study, called the Walla Walla Basin Integrated Flow Enhancement Study, began in 2014, and is jointly funded by Ecology and the U.S. Bureau of Reclamation. This ongoing study is designed to examine the best options for improving Walla Walla River streamflow for native fish species while maintaining water availability for irrigated agriculture, residential and urban use. The effort involves stakeholders from both states, and is co-led by the Partnership and Oregon's Walla Walla Basin Watershed Council.

To date, the study has identified several infrastructure projects, such as long-term storage and uphill water pumping from the Columbia River, as essential to improving water availability in the Walla Walla River. These infrastructure projects require significant financial investment and coordination with federal stakeholders. For example, cost estimates for options for the Columbia River pump project range from $59 million to $463 million. This is far beyond the current capacity of the Partnership, which has fewer than three full-time employees and a biennial budget of roughly $500,000.

Ecology has access to greater financial resources to support infrastructure projects

Ecology is in a much better position financially to support larger projects, such as those identified through the flow enhancement study. Ecology's operating budget for the 2017-2019 biennium was nearly $500 million, and its capital budget exceeds $840 million. Furthermore, Ecology's sizeable technical staff, with project experience across the state, could likely offer the expertise and leadership needed to coordinate with federal partners and to secure additional resources.

Partnership board members recognize the benefits that returning management of the Walla Walla watershed to Ecology can bring to the region, especially in ensuring adequate funding and staffing expertise. When asked about desired changes to the Partnership in the future, four board members asked for Ecology's involvement in the future of the Partnership; another two said that a new water management model was essential, but did not specifically mention Ecology. One board member explained that the Partnership worked to address small water projects within its capacity but added that addressing the more significant water challenges in the watershed requires infrastructure projects that are outside the Partnership's current capacity.

Walla Walla's collaborative partnership could continue as an advisory board to Ecology, following the model of the Yakima Project

The Yakima watershed is subject to similar water challenges, but a different water management model is in place there. While Ecology retains its usual regulatory authority over water management issues, decisions are made jointly with a federal partner, collaborating with an advisory group that brings many diverse perspectives to the conversation.

Ecology's Office of the Columbia River (OCR) and the Bureau of Reclamation co-manage the Yakima Project; both agencies provide staff, expertise and paid meeting facilitators to support the project. The co-chairs are the ultimate decision-makers, and work closely with and receive input from the Yakama Nation. OCR and the Bureau co-facilitate the advisory group that includes representation from private, local, state, federal and environmental interests, as well as the Yakama Nation.

Project participants created a 30-year, integrated plan for the basin that identified projects and strategies to improve water availability, drought resiliency and ecosystem function. Now, the advisory group meets quarterly to provide policy and project development recommendations in line with that plan. By working collaboratively, participants in Yakima's water management effort have acquired significant state and federal investments in large infrastructure projects that will store water to deliver to farmers in the Yakima basin at critical times. For example, the Bureau of Reclamation invested nearly $24 million in 2019 in projects such as fish passage and water storage.

Ecology believes the effort in Yakima has been and continues to be successful for several key reasons. Foremost is the support of its active advisory group that brings representatives of diverse interests to the table to develop long-term solutions to difficult problems in water management. With confidence in the decisions made collaboratively, Yakima Project managers have been able to obtain consistent, sufficient funding. This in turn enabled implemention of water conservation and infrastructure projects that have resulted in measurably improved streamflow. The Partnership could transition to a similar model, as stakeholders continue their involvement by participating in an advisory group to offer project and policy recommendations to Ecology.

Significant streamflow improvements in the Walla Walla watershed require greater state-level cooperation between Washington and Oregon

Summary of results

The volume of water in the Walla Walla River on Washington's side depends largely on how much water crosses the state line from the river's source in Oregon. Oregon and Washington currently lack a formal agreement to collaborate in the Walla Walla watershed, but an interstate compact could help them work together to improve and protect streamflow.

The volume of water in the Walla Walla River on Washington's side depends largely on how much water crosses the state line from the river's source in Oregon

Three major streams provide the bulk of water throughout the Walla Walla watershed: the Walla Walla River, the Touchet River and Mill Creek. The Walla Walla River's headwaters are in the Blue Mountains of Oregon, and it flows through rich agricultural land in both states before joining the Columbia River. The Touchet River originates and terminates in Washington, flowing through wheat-farming communities before joining the Walla Walla River in the town of Touchet. Finally, Mill Creek originates in Washington near the Oregon state line, and supplies water to the city of Walla Walla before joining the Walla Walla River. Of the three, the Walla Walla River is particularly significant because of its size and its importance to the survival of endangered species of trout. In addition, it is critical for meeting the needs of irrigated agriculture, sustaining farms growing Walla Walla sweet onions and the grapes that support the burgeoning wine industry. The Walla Walla River is susceptible to periodically drying up in the summer – a fact noted in reports as far back as the 1880s. This is due in part to the streambed's unique physical characteristics and to overappropriation of surface and groundwater supplies.

The Walla Walla River has also been subject to considerable historical controversy. In the 1930s, Washington sued Oregon to deliver more water across the state line in a case that went all the way to the United States Supreme Court in 1936. In that case, Washington v. Oregon, the Court ruled that Oregon was not required to deliver any water into Washington on the Walla Walla River. This means that Washington's water users are entirely dependent upon what is left in the river at the state line after Oregon users have fully exercised their water rights.

Even though Oregon has a legal right to all the water in the Walla Walla River, many irrigators and water managers on the Oregon side of the watershed have implemented water conservation measures that effectively allow more water into Washington. Their goal is to maintain enough flow for trout and salmon to continue upstream to their spawning grounds. However, they have expressed frustration that their efforts do not actually help the streamflow because water rights holders in Washington will exercise their rights to use any available water. Oregonian water managers are concerned that their water conservation efforts do little to enhance the ecological stability of the river.

Oregon and Washington currently lack a formal agreement to collaborate in the Walla Walla watershed, but an interstate compact could help them work together to improve and protect streamflow

Although Partnership staff and staff from the Walla Walla Basin Watershed Council on the Oregon side of the basin have worked together on some issues, including the bi-state flow enhancement study, there is no formal agreement they do so. The Partnership is not represented on the Watershed Council in Oregon, and the Watershed Council is not represented on the Partnership's Board. This means the two organizations lack formal representation in the organization most closely involved in water issues in the other state. Finally, although statewide policies affect the watershed on both sides of the state line, regulatory agencies in Oregon and Washington make their decisions independently.

Other state governments have resolved similar cross-border water management challenges by forming interstate compacts. Interstate compacts are agreements between states that are approved by both state legislatures and in some cases consented to by the United States Congress. Such compacts establish cooperative management of the shared waters or watersheds, and can limit federal intervention in their management. In addition, shared management activities, including conservation and cleanup, can help reduce costs for administration, monitoring and evaluating data for all states involved.

Some interstate water management compacts have established multi-state regulatory bodies, with representation from all the states involved. Perhaps the best-known is the Colorado River Compact, established in 1922. It established a specific entitlement to water for each of the seven participating states, and a commission with representatives from states to resolve controversies between the partners.

Establishing a bi-state compact between Washington and Oregon, expressly to manage the Walla Walla watershed, could bring the two states together to find solutions and head off disputes. For one thing, a compact could negate the 1936 Supreme Court ruling and give Washington the right to some portion of the water in the Walla Walla River. Additionally, it could result in negotiated reductions of water taken by some users to preserve instream flow, which would provide much

stronger protection for that water than the existing administrative rules adopted by Ecology. Current rules protect the rivers from future withdrawals, but do not prevent withdrawals of water available for use by the most senior owners of pre-existing water rights.

Interstate water management compacts can formally apportion water between the two or more states, but not all do. Some are established to serve other purposes, such as recreation or other types of water management. The Great Lakes-Saint Lawrence River Basin Water Resources Compact, for example, is an agreement between eight states touching the Great Lakes to protect the shared ecosystem through cooperative planning as well as data and information sharing. While a compact that does not address apportionment would not negate the 1936 Supreme Court ruling that currently governs the Walla Walla River, it could allow for shared management of the water in a way that has potential to improve streamflow

Water in the Walla Walla watershed is precious: for people, for the irrigation of crops, and to support native populations of fish

Photo source: State Auditor's Office.

State Auditor's Conclusions

For years, the Walla Walla watershed has not had enough water to support local residents and the region's fishing, farming and tourism industries. In 2009, the Legislature created the Walla Walla Watershed Management Partnership as a pilot program to see if cooperative local management could solve the problem and increase the amount of water in the river to the benefit of all who depend on it. While the Partnership may have had some benefits, including bringing diverse interests together for a common goal, after 10 years it is clear that the Partnership has not affected streamflow as intended.

At this point, it makes the most sense to return the responsibility for water management in the Walla Walla watershed to the Department of Ecology while maintaining the benefits of the Partnership in the form of board members' participation on an advisory board. Ecology could then follow a model similar to that employed in the Yakima watershed, where streamflow has measurably improved.

Perhaps most importantly, because water supply in the Walla Walla watershed is so dependent on actions taken upstream in Oregon, any real solution to streamflow will have to involve cooperation across state lines. For that reason, we recommend the Governor open discussion with state leadership in Oregon to form an interstate compact that can address water management in the watershed.

Recommendations

For the Partnership Board

To address the lack of an accountability framework that would allow managers in the watershed to assess its progress toward its strategic goals, as described on page 14, we recommend it:

1. Continue to work with Ecology to finalize a cohesive, 30-year plan for the watershed. The plan should include strategies for funding, improving streamflow, monitoring and evaluation. Among the elements to address:
    - A monitoring plan for streamflow enhancements that includes performance measures and targets
    - A clear funding plan
    - A reporting schedule

For the Legislature

To address funding for infrastructure needed to support future critical water needs in the Walla Walla watershed, and the need for continued collaboration of stakeholders to do so, as described on page 21, we recommend it:

2. Allow the original 10-year pilot to sunset
3. Return oversight of the watershed to the Department of Ecology, while maintaining the benefits of the Partnership in the form of board members' participation on an advisory board. This is similar to the model used in the Yakima River Basin Water Enhancement Project

For the Governor

To address the need for greater cooperation between Washington and Oregon on water issues in the Walla Walla watershed, as described on page 23, we recommend the Governor:

4. Pursue an interstate compact with Oregon to cover watershed management in the Walla Walla watershed

Agency Response

Walla Walla Watershed Management Partnership

For Fish. For Farms. For Everyone.

The Honorable Pat McCarthy
Washington State Auditor
P.O. Box 40021
Olympia, WA 98504-0021

May 6, 2020

Formal Walla Walla Watershed Management Partnership Response to Performance Audit Report:

The Walla Walla Watershed Management Partnership (Partnership) appreciates the opportunity to provide a formal response to the performance report prepared in accordance with Second Substitute Senate Bill 5352 (2019) (SSSB 5352). Senate Bill 5352 directed the Partnership to:

> "Participate with the department to complete, by June 30, 2020, a performance audit conducted by the state auditor's office within existing resources, and a financial audit funded with existing department resources, to evaluate the Walla Walla pilot program since 2008 and to incorporate audit findings and recommendations into a thirty-year integrated water resource management strategy;"

While Partnership Board members, informed by our staff, the Water Resources Panel and the Policy Advisory Group have concerns and do not agree with some of the findings and recommendations in both the performance and financial audit reports submitted to the Legislature, all agree with the general conclusions that significant investments of public funds have not resulted in measurable improvements to the Partnership's primary objective of instream flow enhancement. At this stage, it is of greatest importance to focus on the future, learn from the audits, and set the stage to make the thirty-year integrated water resource management strategy process (Walla Walla Water 2050) a success.

The Partnership's focus is intended to help ensure the collaborative approach established to guide development of the Walla Walla Water 2050 process, takes full advantage of the early high level of engagement from the local community, the Confederated Tribes of the Umatilla Indian Reservation (CTUIR), and many other vital state and federal partners. The involvement from Oregon Water Resources Department is especially vital in our bi-state basin. The collaborative process, especially considering COVID 19 safety measures, will take effort but is vital to ensure we identify and integrate into the plan our unique local values, knowledge, and experiences. We also believe this focus will help the basin identify the best ways to support and build upon the good working relationships and collaboration between the CTUIR and the federal and state natural resource managers.

The Performance and Financial Audit reports are important forms of governance review for management of public funds and scarce water resources in an over-appropriated and stream flow deficient basin. The reports provide valuable information and lessons to inform the future of water management in the Walla Walla River Basin in emergent and collaborative processes like the WWW 2050 planning process. We look forward to updating the Legislature in November and would like to again express our appreciation for your continued support and guidance.

Sincerely,

Judith S. Johnson

Judith S. Johnson, Chair
Walla Walla Watershed Management Partnership

STATE OF WASHINGTON

May 7, 2020

Honorable Pat McCarthy
Washington State Auditor
P.O. Box 40021
Olympia, WA 98504-0021

Dear Auditor McCarthy:

Thank you for the opportunity to review and respond to the State Auditor's Office performance audit report, "Assessing Success of the Walla Walla Watershed Management Partnership Pilot." The Department of Ecology and Office of Financial Management worked together to provide this response.

We appreciate the information provided about the management of the watershed over the past 10 years by the volunteer partnership, as well as the recommendations by the State Auditor's Office for managing its future. The Walla Walla watershed is a coveted resource relied upon by many Washingtonians and other water users in the basin, including those in Oregon. As stewards of state resources, we must ensure the future health and sustainability of the watershed while being mindful of producing results with the public investment.

For the past two years, Ecology has actively collaborated in the 30-year strategic planning effort underway in the Walla Walla basin that will include integrated water resource strategies for improving streamflow, funding, monitoring and continuous improvement efforts in the watershed. We have renewed and broadened involvement from partners eager to find mutual solutions by resolving differences. This collaborative effort includes the Walla Walla Partnership, Confederated Tribes of the Umatilla Indian Reservation, Oregon Water Resources Department, local governments in both Washington and Oregon, irrigation interests, environmental representatives and local stakeholders.

Ecology's Office of Columbia River and Water Resources Program is well positioned to resume management of the watershed whether or not the Legislature accepts the State Auditor's recommendations. Ecology will continue to pursue and improve broad stakeholder involvement, including members of the partnership, to increase the health, accountability and long-term stability of the watershed. We agree that improving our collective efforts with the state of Oregon, formally and/or informally, will be mutually beneficial and we have already begun conversations about better managing the bi-state watershed. Over the next few months, Ecology and the Governor's Office will explore the SAO's recommendation to formalize an agreement with Oregon, and the best way to do so.

Please thank your staff for their work on this informative performance audit report.

Sincerely,

Laura Watson
Director
Department of Ecology

David Schumacher
Director
Office of Financial Management

cc: David Postman, Chief of Staff, Office of the Governor
Kelly Wicker, Deputy Chief of Staff, Office of the Governor
Drew Shirk, Executive Director of Legislative Affairs, Office of the Governor
Pat Lashway, Deputy Director, Office of Financial Management
Scott Merriman, Legislative Liaison, Office of Financial Management
Keith Phillips, Director of Policy, Office of the Governor
Tammy Firkins, Performance Audit Liaison, Results Washington, Office of the Governor
Scott Frank, Director of Performance Audit, Office of the Washington State Auditor

Appendix A: Initiative 900 and Auditing Standards

Initiative 900 requirements

Initiative 900, approved by Washington voters in 2005 and enacted into state law in 2006, authorized the State Auditor's Office to conduct independent, comprehensive performance audits of state and local governments.

Specifically, the law directs the Auditor's Office to "review and analyze the economy, efficiency, and effectiveness of the policies, management, fiscal affairs, and operations of state and local governments, agencies, programs, and accounts." Performance audits are to be conducted according to U.S. Government Accountability Office government auditing standards.

In addition, the law identifies nine elements that are to be considered within the scope of each performance audit. The State Auditor's Office evaluates the relevance of all nine elements to each audit. The table below indicates which elements are addressed in the audit. Specific issues are discussed in the Results and Recommendations sections of this report.

I-900 element	Addressed in the audit
1. Identify cost savings	**No.** The audit did not identify cost savings.
2. Identify services that can be reduced or eliminated	**No.** The audit identified areas where the Partnership has been successful and where it has been unsuccessful. The audit then made recommendations on how water management in the basin should be changed going forward.
3. Identify programs or services that can be transferred to the private sector	**No.** Water is a public resource whose management is overseen by the state.
4. Analyze gaps or overlaps in programs or services and provide recommendations to correct them	**Yes.** The audit identified gaps in the Partnership's strategic planning and monitoring efforts that prevented it from effectively identifying and implementing useful projects. The audit made recommendations for how the future water management body can more effectively make program decisions and monitor impact, revising approaches when needed.
5. Assess feasibility of pooling information technology systems within the department	**No.** The audit did not focus on the feasibility of pooling IT systems.

I-900 element	Addressed in the audit
6. Analyze departmental roles and functions, and provide recommendations to change or eliminate them	**Yes.** The audit analyzed the roles and functions of the Partnership and made recommendations for how they can be changed going forward.
7. Provide recommendations for statutory or regulatory changes that may be necessary for the department to properly carry out its functions	**Yes.** The Partnership will expire in 2021 unless the Legislature acts to extend it. The audit makes recommendations for how the Partnership should be changed going forward.
8. Analyze departmental performance data, performance measures and self-assessment systems	**Yes.** The audit evaluated the existence and effectiveness of the Partnership's performance measures and self-assessment.
9. Identify relevant best practices	**Yes.** The audit identified three other water management groups, engaging in similar activities, that serve as promising models for the future water management body to consider.

Compliance with generally accepted government auditing standards

We conducted this performance audit under the authority of state law (RCW 43.09.470), approved as Initiative 900 by Washington voters in 2005, and in accordance with generally accepted government auditing standards as published in Government Auditing Standards (December 2011 revision) issued by the U.S. Government Accountability Office. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objectives. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objectives.

The mission of the Office of the Washington State Auditor

To provide citizens with independent and transparent examinations of how state and local governments use public funds, and develop strategies that make government more efficient and effective.The results of our work are widely distributed through a variety of reports, which are available on our website and through our free, electronic subscription service. We take our role as partners in accountability seriously. We provide training and technical assistance to governments and have an extensive quality assurance program. For more information about the State Auditor's Office, visit www.sao.wa.gov.

In accordance with the Americans with Disabilities Act, this document will be made available in alternative formats. Please email *Webmaster@sao.wa.gov* for more information.

Appendix B: Scope, Objectives and Methodology

Scope

This audit evaluated the success of the Walla Walla Watershed Management Partnership over the course of its original 10-year pilot period from 2009 through 2019. The audit looked both at the pilot's compliance with statutory direction, as well as its accomplishments and challenges relative to its strategic goals. During the 2019 legislative session, the Partnership received a two-year extension, during which time it was to undergo this performance audit and a financial audit, and draft a 30-year integrated water management plan.

Objectives

The audit answers the following questions:

1. Did the Partnership meet the intent of the legislation that created it?
2. Did the Partnership achieve its strategic goals and meet its defined targets?
3. Are there opportunities for the Partnership to improve its chances for achieving its desired outcomes in the future?
4. Could the Partnership use statistical methods to determine the extent to which its strategies improve streamflow in Walla Walla River?

Methodology

To answer those questions, we conducted five primary activities.

1. Compared the Partnership's activities to requirements in RCW 90.92 to determine to what extent the pilot met all statutory obligations (Question 1)
2. Examined the Partnership's efforts related to the development of its strategic plan, including goals and targets, and evaluated the data and activities related to overall management of the watershed as it related to the strategic plan (Question 2)
3. Researched similar water management collaboratives in Washington and other states to see where they implemented successful practices that could potentially be used to fill the gaps identified in the audit (Question 3)

4. Developed a statistical model to determine whether it could be used to assess improvement in streamflow not related to typical non-Partnership kinds of activities, such as weather (Question 4)
5. Interviewed board members to gain their perspectives on the success of the Partnership pilot (Questions 1-4)

1. Compared the Partnership's activities to requirements in RCW 90.92 to determine to what extent the pilot met all statutory obligations

Auditors reviewed whether the Partnership met its legal requirements. To do this, auditors first evaluated the statute that established the 10-year pilot (RCW 90.92) and related state water law. When auditors were unsure of the meaning of legal requirements, we typically consulted with staff at the Department of Ecology to understand how the Partnership's authorities relate to and are different than the authorities granted to Ecology in state water law.

We drew on sources such as meeting minutes, interviews with staff, policies and procedures of the Partnership, and the approved local water plans to evaluate whether each legal requirement had been met, as well as what authorities had been exercised.

2. Examined the Partnership's efforts related to the development of its strategic plan, including goals and targets, and evaluated the data and activities related to overall management of the watershed as it related to the strategic plan

To understand whether the Partnership met leading practices in strategic planning, auditors considered guidelines from sources such as the Government Accountability Office and the Office of Financial Management, which have provided guidance to governments on how to draft strong strategic plans.

To understand whether the Partnership met leading practices in watershed management, auditors considered advisory documents from the U.S. Army Corps of Engineers, the Environmental Protection Agency, the American Water Resources Association, and the United Nations. Additionally, because leading practices in watershed management require the inclusion of the whole watershed in its management, the audit team researched interstate water management compacts to understand how they could be used to facilitate better management of the watershed. We also identified other collaborative water management organizations to determine how those organizations deal with core challenges that face the Partnership.

Auditors took a similar approach to the legal compliance aspect of the statute, to evaluate whether the leading practices in strategic planning and water management were applied by the Partnership. We evaluated board meeting minutes as well as the Partnership's policies, guidance and strategic plan, and conducted interviews with staff and board members.

3. Researched similar water management collaboratives in Washington and other states, seeking successful practices that might be used to fill the gaps identified in the audit

The audit team focused on three collaborative watershed management organizations that we believed were similar enough to the Walla Walla watershed and which offered positive examples in areas of our

criteria the Partnership did not fully meet: funding, staff/resources, and monitoring and evaluation. They are:

- Yakima River Basin Water Enhancement Project
- Oregon's Walla Walla Basin Watershed Council
- California's system of integrated regional water management

4. Developed a statistical model to determine whether such an approach could be used to assess improvement in streamflow

Because the Partnership stated in its 2018 report to the Legislature that the pilot's activities had not measurably improved streamflow, we looked for evidence that some analysis had been conducted to support this claim. Finding none, we created a statistical regression model to determine whether streamflow had improved from 2010 to 2018. While the model was not able to specifically determine whether any streamflow changes were the result of the Partnership's activities, it was designed to rule out the influence of key factors outside the Partnership's control, such as weather and variations in the amount of water entering Washington from Oregon.

The model estimates streamflow on the basis of the following variables:

- Weather, measured by the daily average temperature and rainfall at Walla Walla Regional Airport
- Climatic shifts, measured by the flow rate at a nearby river with few water preservation projects to control for climate variations
- Blue Mountain runoff caused by snowpack, measured by the far upstream flow of a key river (Mill Creek)
- Water reaching Washington users from the Walla Walla River's source in Oregon, measured by the flow rate of the Walla Walla River at the Oregon-Washington line, a site called Pepper Bridge
- A control variable to account for the month of June, when the flow overlaps the tendencies of high spring flows and low summer flows

More detailed technical information about the model itself is provided in Appendix D.

5. Interviewed board members to gain their perspectives on the success of the Partnership pilot

Auditors also sought to understand what board members expected to accomplish, and what they thought had been accomplished by the Partnership. Auditors used a standard interview questionnaire for all board members to guide discussion. To ensure board members felt they could speak freely about their experiences, auditors protected their identities in interview notes to preserve anonymity of specific comments.

Work on Internal Controls

We identified and evaluated the internal controls that were significant to the four audit objectives in the audit. They included:

- The effectiveness of the Partnership's strategic plan (its mission, goals, objectives and activities) in achieving its statutory obligations and desired outcomes.
- The effectiveness of the Partnership's monitoring and evaluation efforts related to achieving the pilot's intended outcomes. This included a review of the Partnership's monitoring and collection of streamflow data, how the Partnership used this data to assess whether it was moving towards its desired outcomes, and how it used this data to adjust its activities to better meet those outcomes.
- The effectiveness of the Partnership at using data and technology in water management efforts.
- Whether the Partnership considered uncertainties in its planning activities.

We identified weaknesses in each of these areas and the report includes recommendations to address them. Our control assessments were based on our review of the Partnership's strategic plan, performance measurements, and monitoring activities. Our control assessments were also based on comparing the above to what other agencies have in place and on interviews of Partnership staff and board members.

Appendix C: Statutory Requirements and Authorities of the Partnership

This appendix contains summaries of the statutory requirements and related Revised Code of Washington (RCW) reference. The statute can be viewed online at https://app.leg.wa.gov/RCW/default.aspx?cite=90.92

Creation of the Partnership Board of Directors

Summary of the statutory requirements	RCW reference
The department, in consultation with the initiating entities, may create a [water management] board if the initiating entities demonstrate … 1. Community support for the development of a local watershed management plan … 2. There is commitment on the part of the initiating entities and the affected community to enhance streamflows for fish 3. An adequate monitoring network is in place … And the department [of Ecology] determines that: 1. An instream flow rule for the WRIA … in the planning area has been adopted since 1998 2. The planning area is located within one of the sixteen fish-critical basins designated by the department … and demonstrates a significant history of severely impaired flows 3. The watershed planning unit has completed a watershed implementation plan … and salmon recovery implementation plan …	90.92.030
[The board] must be composed of the following members: 1. All affected federally recognized tribes within the planning area 2. Each county board of commissioners within the planning area 3. The city council of the largest Washington city in the planning area; and 4. … The entity or the person who uses the greatest quantity of water in the planning area 5. The conservation districts' board of supervisors in the planning area must jointly appoint one member 6. The [above] members … must appoint the remaining three members of the board … who must be residents of the planning area. One member must be a planning area water rights holder. One member must represent environmental interests in the planning area. One member must be a citizen at large.	90.92.040

Creation of the Partnership Board of Directors, *continued*

Summary of the statutory requirements	RCW reference
The board must create a policy advisory group and a water resource panel. 1. For the policy advisory group, the board must invite participation from the department and the department of fish and wildlife, other affected state agencies, and other interests as appropriate. The board may also appoint members from local government agencies, academia, watershed and salmon recovery entities, businesses, and agricultural and environmental organizations as the board deems appropriate. 2. The policy advisory group must … advise the board in … developing water resource-related programs, planning, and activities … including the … development of the board's strategic actions. 3. For the water resource panel, the board must appoint members to the … panel … who have expertise and understanding regarding surface … and groundwater monitoring and hydrological analysis, irrigation management and engineering, water rights, and fisheries habitat and economic development. The board must invite participation from [Ecology] and the department of fish and wildlife. 4. The water resource panel must provide technical assistance for … local water plans.	90.92.040 (3)

Duties of the Board

Summary of the statutory requirements	RCW reference
The board has the following authority, duties, and responsibilities: 1. Assume the duties, responsibilities, and all current activities of the watershed planning unit… 2. Develop strategic actions for the planning area by building on the watershed plan 3. Adopt and revise criteria, guidance, and processes to effectuate the purpose of this chapter 4. Administer the local water plan process 5. Oversee local water plan implementation 6. Manage banked water as authorized under this chapter 7. Acquire water rights by donation, purchase, or lease 8. Participate in…water planning initiatives and programs 9. Enter into agreements with water rights holders to not divert water that becomes available as a result of…programs and projects endorsed by the board and [Ecology] 10. Acquire, purchase, hold, lease…and sell …property, including water rights…and perform all necessary contracts, appoint and employ necessary agents and employees, including an executive director and fix their compensation, employ contractors including contracts for professional services, and do all lawful acts required and expedient to carry out…this chapter. 11. The board constitutes an independently funded entity, and may provide for its own funding… The board may solicit and accept grants, loans, and donations and may adopt fees for services it provides. The board may not impose taxes or acquire property… by the exercise of eminent domain. The board may distribute available funds as grants or loans to local water plans or other water initiatives and projects that will further the goals of the board.	90.92.050 (1)
The board… must provide a written report to the legislature by December 1, 2012, December 1, 2015, and December 1, 2018. The report must summarize the actions, funding, and accomplishments of the board in the previous three years, and submit recommendations for improvement of the local water plan process. The 2018 report must also contain recommendations on the future of the board.	90.92.060

Water Banking

Summary of the statutory requirements	RCW reference
The board may establish a mechanism to bank water for the holders of water rights … to voluntarily deposit them on a temporary or permanent basis … [and] has the following authority regarding banked water… 1. Accept a …water right…on a permanent or temporary basis … 2. On a temporary or permanent basis, the board may accept a water right… that will be made available under local water plans for streamflow enhancement … 3. …[Unless banked as mitigation for impairment to instream flows] the board must accept a water right temporarily banked for instream flow without conducting a review of the extent and validity of the water right … 4. The board may manage a water right that has been banked as mitigation for impairment to instream flows and other existing water rights. However, the water right may only be available for mitigation to the extent the department determines the water right is valid and use of the water right for mitigation will not cause detriment or injury to existing water rights.	90.92.070

Approving Local Water Plans

Summary of the statutory requirements	RCW reference
The board shall adopt guidelines…for filing, review, and approval of a local water plan. The board shall also develop a dispute resolution process that provides for water users, the board, and the department to resolve disputes regarding the implementation and enforcement of a local water plan.	90.92.080(1)
A local water plan must include: 1. A determination by the board of the baseline water use for all water rights involved… 2. A clearly defined set of practices that provide for flexibility of water use… 3. An estimate of the amount of water that would remain instream either long term or during critical flow periods for fish 4. Performance measures and options for achieving reductions in total water use from baseline 5. Performance measures for tracking improved streamflows either long term or during critical flow periods for fish 6. Measurement, tracking, and monitoring measures and procedures that ensure the implementation and enforcement of the measures for flexibility of water use, enhancement of the streamflows, and other elements… in the local water plan.	90.92.080(3)
To participate in a local water plan, water rights holders must: 1. Agree to allow a portion or all of their baseline water use to remain instream 2. Have existing operable water conveyance infrastructure in place and available for use 3. Agree that any water made available for streamflow enhancement may not be diverted … and used during the term of the local water plan, but instead must be deposited into the water bank or…transferred to the trust water rights program… 4. Measure and monitor their water use, streamflows upstream and downstream of the boundaries of the plan, and groundwater levels within the boundaries of the plan 5. Commit to staying in the program consistent with criteria established by the board	90.92.080(5)
To become effective, the local water plan must be approved by both the board and [Ecology]. A proposed local water plan must not be approved if the board and the department determine the local water plan will not substantially enhance instream flow conditions.	90.92.090 (2)
If an approved local water plan is not in compliance with its terms and conditions, the board shall… seek compliance. If the board revokes a local water plan due to noncompliance, the water users in the local water plan must… exercise the water rights only as the water rights were authorized… prior to the approval of the local water plan…	90.92.090 (4)
A local water plan expires by its terms, by withdrawal of one or more water users to the local water plan, or upon agreement by all parties to the contact. Upon the expiration of a local water plan that has been operating for five or more years, the water users may request that the board and [Ecology] make the elements of the local water plan… permanent… conditions for use of the water rights.	90.92.110

Appendix D: Technical Methodology for Our Statistical Model of Streamflow in the Walla Walla River

This appendix is intended for those with a background in statistics who wish to understand how our statistical model of streamflow in the Walla Walla River helped in our analysis. It describes in detail the decisions we made in developing the model, details involved in the final model, and our subsequent analysis. Water managers in Walla Walla can use these or similar methods to develop stronger performance measures for the watershed in the future.

Why we created this model

The Partnership said in its legislative report that streamflow had not improved, but neither the Department of Ecology nor the Partnership had evidently undertaken any work to establish a baseline for streamflow. Without a baseline, water managers cannot make assessments regarding the success or failure of Partnership strategies, because they cannot determine whether changes in streamflow represent a change in factors beyond the Partnership's control, such as climate change. In light of this, we sought to build a model that could assess changes in streamflow independent of several key factors that lie outside the Partnership's control.

Our approach

We conceived our approach based on earlier streamflow studies and watershed-specific considerations. Some models used weather and upstream flow readings to estimate flow at a downstream point. While no model considered dividing basins by arbitrary political divisions, such as a state line, it was necessary to do so in this case because of the geographical range of the Walla Walla River. By using upstream gauges, we could separate variables that affected the Oregon side of the watershed from those affecting Washington.

Water in the Walla Walla Rivers moves freely between the streambed and the shallow aquifer. This means that the streamflow impact of a specific water-management project could be miles downstream and indistinguishable from other stream impacts. For this reason, we built a model that could show whether streamflow at one downstream stress point had improved since the Partnership's inception. Our model allowed us to estimate daily streamflow and determine if flow was higher or lower than would be expected based solely on factors that were unrelated to the Partnership's activities. However, using this approach means we cannot say for certain that the Partnership's activities were the actual cause of those differences, as factors outside the model, such as water-saving measures by groups with no connection to the Partnership, could also affect streamflow. That being said, the model does verify there has been no improvement in streamflow since the Partnership began operating, after having accounted for variations due to climate, weather and changes in Oregon.

To ease interpretation and limit the difficulties of analzying wider fluctuations in winter streamflow, when the watershed tends to have plenty of water and sometimes experiences flood risk, we included only summer months when flow is at risk of being low. We included June through October for the years 2002 through 2018 in the model.

The model can be expressed as:

$$\text{Streamflow}_{WWR} = \beta_0 + \beta_1\,\text{stream}_{\text{Oregon}} + \beta_2\,\text{stream}_{\text{MillCreek}} + \beta_3\,\text{stream}_{\text{climate}} + \beta_4\,\text{rainfall}_{\text{WallaWalla}} + \beta_5\,\text{temperature}_{\text{WallaWalla}} + \beta_6\,\text{month}_{\text{June}} + \beta_7\,\text{years}_{\text{2010-18}} + E$$

In other words: *Streamflow value downstream on the Walla Walla River is equal to: intercept plus streamflow values upstream as water enters Washington from Oregon or leaves the mountains due to snowpack plus weather plus climate plus dummy variable for the period the Partnership was operating plus error.*

Model variables

In designing our model, we used daily stream gauge and weather data that are publicly available online. We used June 2002 through October 2018 data for each of the time series variables. Below is a description of the variables used in the model, and why they were selected.

Dependent variable:

Streamflow_{WWR} ***Streamflow at a stream gauge near the town of Touchet.*** The gauge lies significantly downstream on the Walla Walla River, below the confluence of the Walla Walla and Touchet rivers; it marks a collection point for all the rivers and streams in the watershed. It also tends to run dry, as does much of the area between the gauge and Pepper Bridge. This gauge represents the last of the high-stress points of the river, as water becomes relatively more plentiful downstream thanks to water entering the river from aquifers. If this gauge is completely dry (as it was on four days between 2002 and 2018), it indicates very severe river stress, and other points between the gauge and Pepper Bridge are likely to be dry as well.

Independent variables:

$\beta_1\,\text{stream}_{\text{Oregon}}$ ***Streamflow at the Pepper Bridge station on the Walla Walla River.*** This variable serves as an indicator of the amount of water that enters the watershed in Washington from Oregon.

$\beta_2\,\text{stream}_{\text{MillCreek}}$ ***Streamflow at the Mill Creek station.*** This variable indicates flow resulting from mountain runoff before it is heavily drawn upon by Washington water-rights holders. The variable is also an effective proxy for missing upstream Touchet River data. The Touchet River gauge (located upstream from Dayton) ceased to operate in 2012, but the two streams originate in similar mountain conditions, and the Mill Creek stream gauge was highly correlated to the Touchet River gauge in the past.

$\beta_3\,\text{stream}_{\text{climate}}$ ***Streamflow at the Tucannon River station.*** This stream gauge is located on a river within the region but outside the watershed, where few engineering or water conservation projects have been implemented. We used this variable to control for regular climate oscillations that may have occurred in the middle of the period of study. It was intended to capture regional snowpack variations and other climate-related factors that manifest in a stream in this part of the state without being subject to the policy interventions present in Walla Walla.

β_4 rainfall$_{WallaWalla}$ β_5 temperature$_{WallaWalla}$ ***Weather data at Walla Walla Regional Airport.*** We used both *daily average temperature* and *rainfall* as recorded at the Walla Walla airport because the station is at a relatively low elevation and data was more complete than in other locations. Walla Walla also represents the population center of the watershed.

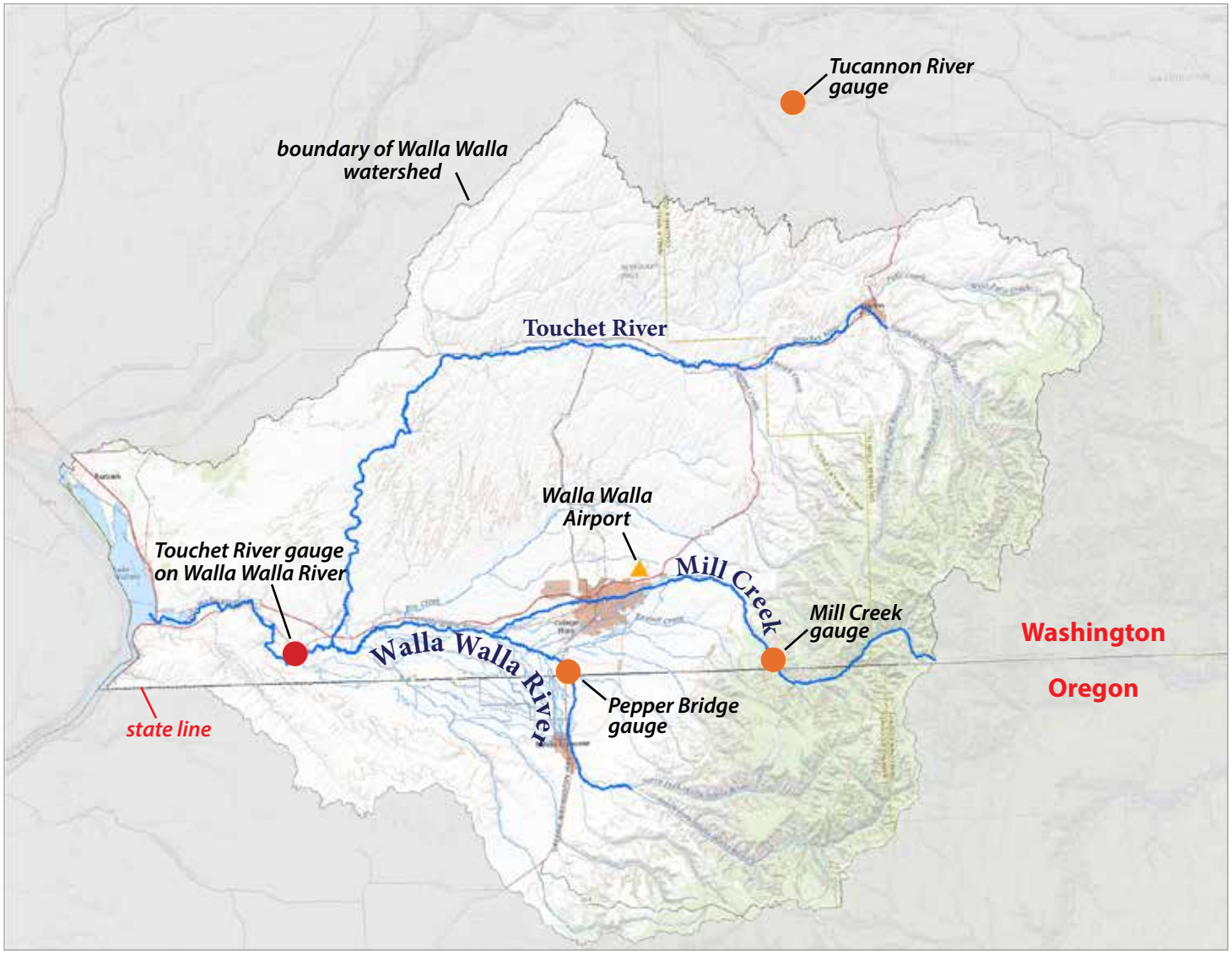
β_6 month$_{June}$ ***Dummy variable for June.*** We included a dummy variable for June to account for the fact that streamflow flow is naturally higher in June than in other summer months.

β_7 years $_{2010\text{-}18}$ ***Dummy variable for active years of the Partnership.*** This variable was used to evaluate whether streamflow had improved outside of the other factors. The use of a model to establish a baseline in the future would not need to include a dummy variable like this, but we needed it for evaluative purposes.

Figure 1 shows a map of the locations of these key variables.

Figure 1 – Map of key variables used in developing our statistical model

Key: Red dot = Touchet River stream gauge. Orange dots = Additional stream gauges used in the model. Orange triangle = Weather data source at Walla Walla Airport.



Challenges and model selection

This data did not fit to an ordinary least squares (OLS) regression model, as it violated many assumptions of that type of model, including linearity, independence of observations, normality of residuals, and homogeneity of residuals. Water managers seeking to develop a baseline of streamflow in Walla Walla will need an approach to deal with these issues. That could involve adopting our approach or using a nonparametric type of regression that is more robust to violations to normality and linearity assumptions than our model. Additionally, any model must address violations to the assumption of independence of observations, as this time-series data is inherently determined in part by the previous day's streamflow value.

To correct for violations to independence of observations, we opted to run a Prais-Winsten regression, which corrects for violations to the assumption of independent observations. This model type is common to time-series studies where one value is dependent largely on its value in the prior period. Prais-Winsten is a modification of OLS, so the other assumptions of OLS still apply.

To correct for nonlinearity of the model and a non-normal distribution of the residuals, we used a Box-Cox transformation to convert the data into a normal distribution. This did not entirely eliminate these problems, but it dramatically reduced them to our satisfaction for purposes of the audit. Applying a weight to the data helped. Nonlinearity and non-normality of residuals are severe risks with streamflow data that any model serving this purpose should be careful to address. Running a model type that is not dependent upon the assumptions of linearity and normality is an option that water managers establishing performance measurement tools should consider.

The weights in the data cause the estimates of the independent variables to be complicated to calculate, because associating the coefficients to an actual streamflow value requires unweighting the data.

The model also violated the assumption that residuals have a homogeneous distribution. In other words, at some ranges of the predicted value, the error was higher than in others. This risks falsely identifying the statistical significance of independent variables. We corrected for this by using a standard error procedure that is robust to violations of the assumption of homogeneity. This did not affect the significance of the variable of interest, the years 2010-2018 when the Partnership was operating.

Additionally, stream gauges in the watershed are managed by many different organizations that may have differences in data collection and monitoring practices. The model utilized gauges from two organizations, the Walla Walla Watershed Council and the United States Geological Survey. U. S. Geological Survey states that its gauges have a 5 percent margin of error. Other stream gauges in the watershed are owned and monitored by the Washington Department of Ecology and the Oregon Water Resources Department. Having four different entities responsible for monitoring creates concerns about the consistency of the data from the various organizations.

Appendix E: Evaluation Criteria for Meeting Strategic Goals and Targets

Figure 2 – Planning criteria

Guiding statements: Mission, vision and values	Goals and objectives	Action steps
Definitions		
Three statements guide the organization, its actions and its behavior in order to achieve common goals. The *vision* describes the ideal outcome that the organization wishes to achieve; the *mission* describes what the organization currently does to fulfill the vision; and *values* describe the organization's beliefs and behaviors.	Goals are general statements of what needs to be accomplished to implement a strategic vision. Objectives provide specific milestones with specific timelines for achieving a goal.	Action steps are statements of specific actions or activities that will be used to achieve a goal within the constraints of the objective.
Leading practices		
Organization develops a mission statement that describes the basic purpose of the organization, what it does, why it does what it does, and for whom. Organization develops a vision statement that is clear and concise, future-focused, abstract, aligned with the organization's values and matched to its measures of success. Organization develops a values statement that defines what the organization believes in and how the people in the organization are expected to behave. It guides decision making and establishes a standard for assessing actions.	**Organization creates goals that are:** • Understandable – stated simply and easy to understand • Suitable – help implement the vision • Acceptable – fit with the values of the organization and its members • Flexible – able to be adapted and changed as needed **Organization creates objectives that are:** • Measurable – identify what specifically will be achieved and when will it be achieved • Suitable – fit as measurements for achieving the goal • Feasible – possible to achieve **Organization defines and tracks outcomes** to determine whether goals (longer term) and objectives (shorter term) are being met.	Organization defines activities to achieve its objectives that identify: • Action or strategy • Person responsible • Resources required • Deadline Organization defines and tracks tangible outputs that result from the activities.

Sources: U.S. Government Accountability Office, Washington State Office of Financial Management, Journal of Academic Leadership, ProjectManager, Cascade Execute Strategy, Lumen, Community Toolbox.

Figure 3 – Monitoring and evaluation criteria

Performance measures	Monitoring	Adaptive management
Definitions		
Performance measures are quantifiable information that describes an organization's efforts and the results of those efforts. Measures reveal whether the organization is achieving its objectives and if progress is being made toward attaining its goals.	Monitoring involves periodic and regular review of performance measures to assess progress toward objectives and goals.	Adaptive management is a flexible decision-making process that allows strategies to be adjusted in the face of uncertainties as outcomes from management actions and other events become better understood.
Leading practices		
Organization develops performance indicators that: • Are selected using the SMART criteria: Specific, Measurable, Attainable, Relevant and Timely • Answer key questions such as: where are we now, where do we want to go, are we taking the right path to get there, and, finally, are we there yet • Are defined and analyzed as part of a logical framework of relationships between the goals, objectives, actions, and the intended outcomes and impacts	**Organization**: • Monitors progress by tracking changes in drivers and resource responses, so as to evaluate and improve management as information is accumulated • Uses monitoring and other data and information to improve understanding about the resource system and its responses to management	**Organization** • Includes strategies that can adapt to evolving needs and conditions • Employs data management and sharing • Conducts decision support (e.g., vulnerability analysis, risk assessment, scenario planning) for decision making under uncertainty • Engages in iterative decision-making that is informed at each time by a best management practice reflecting current understanding of resources and their responses to management policies, plans, and actions

Sources: U.S. Army Corps of Engineers, American Water Resources Association, Global Water Forum, Global Water Partnership.

Figure 4 – Water management criteria

Holism	Participatory decision-making	Sound science
Definitions		
Holism is a watershed perspective that considers the interconnections among local water issues and broader regional or watershed issues.	Decision makers collaboratively decide the goals of water management and co-ordinate the use of different instruments to achieve them.	Management of water involves sharing of data and technology while addressing the risks and uncertainties identified in the water resources planning process.
Leading practices		
• Organization identifies the entire relevant watershed associated with the problem or opportunity under consideration • Organization identifies all of the proponents, managers and other stakeholders who have interests or responsibilities for water and land management in the watershed	• Organization creates a partnership network • Organization includes diverse stakeholders in decision-making • Stakeholders plan, manage and evaluate strategies collaboratively • Parties coordinate and work together as common practice from the initial planning stages through the final evaluation phases	**Management of water:** • Includes specific actions with a clear causal relationship between actions taken and measurable improvements in meeting priority water issues • Employs technical methods of hydraulic monitoring • Includes consideration of potential risks and uncertainties in the water resources planning process • Involves planning, analyzing, organizing, implementing and monitoring efforts to control for the effects of uncertainty

Sources: U.S. Army Corps of Engineers, American Water Resources Association, Global Water Forum, Global Water Partnership.

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