



BUILDING A FUTURE FOR WATER, WILDLIFE AND WORKING LANDS

YAKIMA RIVER BASIN INTEGRATED WATER RESOURCE MANAGEMENT PLAN

The Yakima Integrated Plan: Benefit/Cost Analysis - More Than Simply The Sum Of Its Parts

An Integrated Plan

The Yakima River Basin Integrated Water Resource Management Plan is the fruit of a protracted effort by the Yakama Nation; irrigators; federal, state, and local governments; conservationists; and community leaders to address current water supply problems and anticipated future climate change-related impacts. Decades of efforts to advance individual projects resulted in stalemate, tremendous financial and social costs from protracted litigation, and the certainty that this situation would continue absent the adoption of an integrated approach. The participants spent a number of years defining the basin's water resource and aquatic resource problems and needs, evaluating options for addressing those problems and needs, and selecting a suite of projects and actions that would collectively bring about a stable economic environment and restore watershed health.



The resulting projects and actions that comprise the Integrated Plan were never envisioned nor proposed to be stand-alone, individual efforts, but rather an interconnected package of projects and activities. The integrated nature of that package recognizes the synergistic effects of multiple projects and activities working in unison to improve the health and vitality of the Yakima Basin. The Integrated Plan exemplifies the old adage that "the whole is greater than the sum of the parts." The Bureau of Reclamation completed a "Four Accounts Analysis" of the benefits and costs of the Integrated Plan in 2012. Reclamation's analysis recognized the synergistic effects of the interconnected projects and activities and resulted in highly favorable composite benefit/cost ratios ranging from 1.4 to 3.2.

The variability in the benefit/cost ratios is driven by consideration of a range of Integrated Plan costs and benefits. The 1.4 benefit/cost ratio represents the pairing of the highest estimate of Integrated Plan project costs with the lowest level of estimated benefits. Conversely, the 3.2 benefit cost ratio is the combination of the lowest estimate of Integrated Plan project costs and the highest level of estimated project benefits.

A Social Contract

An example of the legislature's recognition of the interconnection of integrated Plan elements is the provision in SSSB 5367 that makes continued operation of the recently acquired Teanaway Valley Lands as the state's first Community Forest contingent on meeting water supply development milestones of the Integrated Plan.

The importance of the underlying social contract between the participants cannot be overstated. The Integrated Plan elements are integrated in both a physical manner as well as in a sociopolitical sense.

Aggregated and Disaggregated Analysis

Under a legislative proviso, Washington State University was directed to conduct a "disaggregated" benefit/cost analysis of the Yakima Integrated Plan. A disaggregated analysis divides the plan into individual components and evaluates the efficacy of those components in isolation. That approach is contrary to the essence of integrated planning, which seeks to capture the synergy of a comprehensive set interrelated set of projects and actions that are intended to operate in unison. The value of an integrated plan is derived by its interconnectedness. For example, to be effective, fish passage projects require adequate flows in the Yakima River and its tributaries year in and year out to push outmigrating juvenile salmon and steelhead to the Columbia River and sufficient flows in the same bodies of water to convey returning adult fish to the upstream passage facilities and spawning grounds. Thus, it makes little sense to evaluate a passage project or projects out of context with the water supply projects that are needed to ensure the availability of water necessary to make the fish passage facilities functional.



The disaggregated analysis concluded that when viewed in isolation, the larger water storage components of the plan do not yield positive cost benefit ratios. The 2012 Reclamation analysis drew the same conclusion, but recognized that operation of water storage facilities in the context of other projects and activities will yield different conclusions regarding the value of such storage facilities.

Similarly, the disaggregated analysis concludes that the largest share of Integrated Plan benefits come from resident and anadromous fish recovery. The same conclusion was documented in Reclamation's 2012 analysis and is understood by all parties involved in the development and implementation of the Integrated Plan. Considering that Yakima River annual salmon runs that historically numbered about 800,000 fish are now reduced to a few tens of thousands of fish, it is not surprising that substantial economic value can be attached to the fish flow, habitat, and passage improvements envisioned by the Integrated Plan. Fish biologists representing the Yakama Nation, Washington Department of Fish and Wildlife, U.S. Fish and Wildlife Service, and NOAA Fisheries who work in the Yakima Basin stand by the analysis and conclusions regarding fish restoration that were captured in the 2012 Reclamation Analysis.

Important Factors in Assessing Benefits and Costs – Knowledge of the Yakima Basin Matters

Yakima Basin stakeholders can draw on decades of experience in understanding the practical realities of conditions in the Yakima Basin. For example, the disaggregated analysis concludes that water markets/transfers can eliminate the need for developing water supply projects to meet the 450,000 acre-feet of unmet water needs in the basin. Actual experience during the 2005 drought, when most barriers to transfer of water were greatly reduced or eliminated, demonstrated that quantities of water generated from marketing approaches paled in comparison to actual water needs. For example, despite mounting an aggressive program to acquire and lease water in response to the 2005 drought, the Department of Ecology, Roza Irrigation District, and other irrigation districts were able to obtain less than 50,000 acre-feet of water through marketing efforts. A significant portion of that water was used to correct river flow imbalances created by emergency well use and point of diversion changes necessitated by the out-of-stream portions of the transfers.

Additionally, contrary to the findings of the disaggregated analysis, which concludes that water conservation projects have no value, actual experience in the Yakima Basin demonstrates that over 70,000 acre-feet of flow enhancements have been achieved in mainstem and tributary reaches that are critical to salmon and steelhead recovery. Such flow enhancements are having a positive effect on fish productivity.

To be valid, an assessment of benefits and costs of the Yakima Integrated Plan must consider such locally understood factors as:

- The value of satisfying the currently unmet tribal rights of the Yakama Nation
- The fact that improving salmon and steelhead populations in other parts of the Columbia Basin is not a suitable surrogate for restoring salmon and steelhead runs in the Yakima Basin under either treaty rights or the Endangered Species Act,
- The vulnerability of municipal ground water supplies to interruption because of the junior nature of those water rights, and
- The value of delisting of listed species under the Endangered Species Act.



Questions?

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