



*To advance the economic, social and environmental sustainability of Northern California
by enhancing and preserving the water rights, supplies and water quality.*

Water Conservation and Efficiency in the Sacramento Valley: Active Water Resources Management in a Flow-Through System

**State Water Resources Control Board
Agricultural Water Use Efficiency Workshop
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The Northern California Water Association (NCWA) and water resources managers throughout the Sacramento Valley are committed to advance the economic, social, and environmental sustainability of the Sacramento Valley by enhancing and preserving its water rights, supplies, and water quality. These water resources managers are actively managing the region's precious water resources to support the rich mosaic of inter-dependent farmlands, refuges and managed wetlands, meandering rivers that support fisheries and wildlife, and the cities and rural communities sprinkled throughout the region.

Our overarching goal is to continually improve water management as a means of achieving regional sustainability with respect to water resources. Importantly, the ongoing sustainability initiative in the Sacramento Valley advances the new state policy "to improve regional self-reliance for water through investment in water use efficiency, water recycling, advanced water technologies, local and regional water supply projects and improved regional coordination of local and regional water supply efforts." (Water Code §85021.)

To facilitate and coordinate these efforts in the Sacramento Valley, NCWA has convened a Water Management Task Force to bring leaders throughout the region together to think about new water management opportunities and to engage thought-leaders from throughout the state to assist in this process.

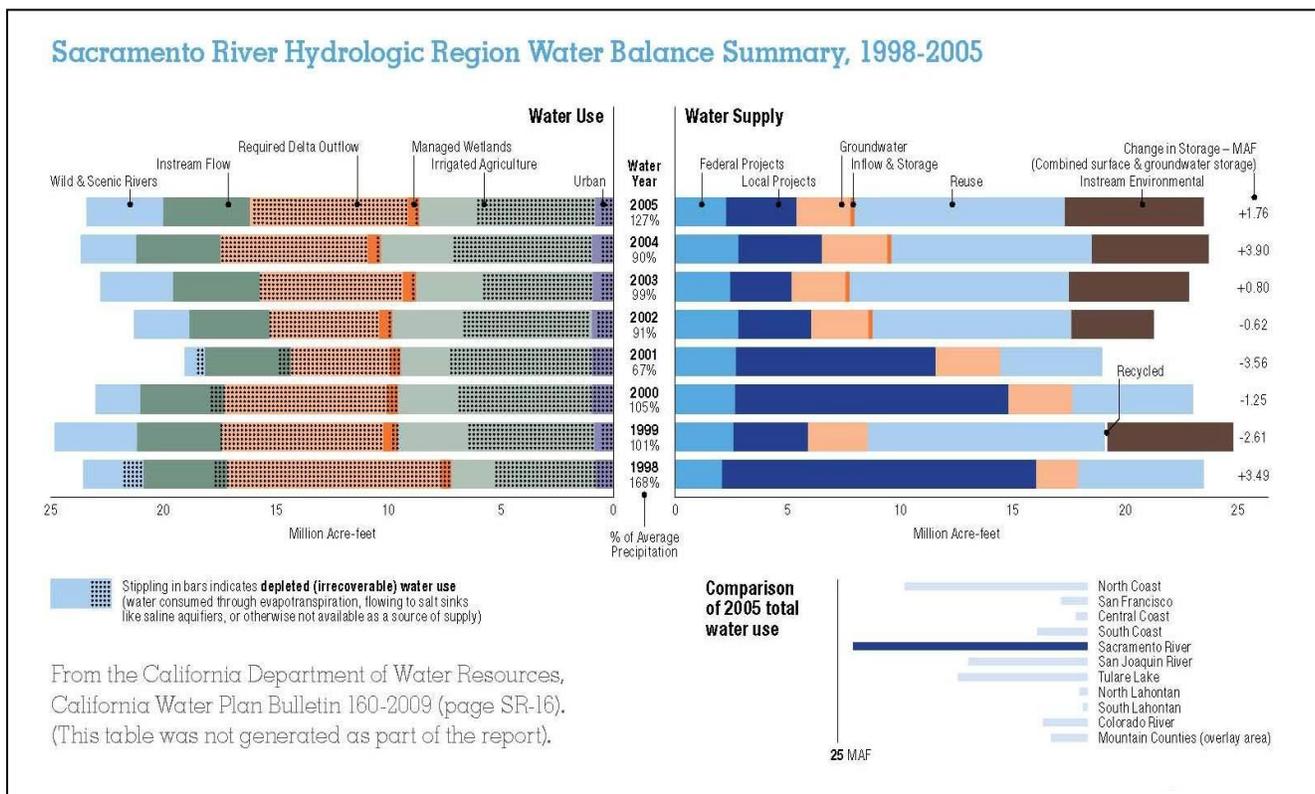
As the State Water Resources Control Board (SWRCB) and other agencies consider water management (including conservation and efficiency), we offer the following to help provide the context in which water resources managers are actively making water management decisions in the Sacramento Valley. We specifically encourage a full understanding of the hydrologic setting in the Sacramento Valley (a flow-through system) and the concerted efforts that are underway by water resources managers to continually improve efficient water management in the region.

A. Understanding the Hydrologic Setting

The Sacramento Valley is a classic flow-through system in the parlance of water management. The Valley essentially functions as a funnel, where the various uses are all sequential as water flows through the region. All water that is not consumptively used in the watershed returns to the hydrologic system and funnels through the Sacramento River--just west of the City of Sacramento. Importantly, all public policy discussions should both understand and reflect the hydrologic nature of this unique system and how it differs from other water systems in California. We recommend the following reports to provide a foundation to better understand water efficiency in the Sacramento Valley.

I. Sacramento River Water Balance

The Department of Water Resources (DWR), as an ongoing part of the California Water Plan, prepares a water balance for the Sacramento River hydrologic region. Significantly, the region is in balance and the following graph is the water balance from Bulletin 160-2009. The water balance shows that significant water resources are dedicated to all aspects of the mosaic of beneficial uses in the Sacramento Valley, with a considerable part of the water resources dedicated to various instream flows and a smaller part to farms and ranches, refuges and managed wetlands, and cities and rural communities.



To better understand and manage water resources for all these beneficial uses, water resources managers are continuing to work with DWR in refining its water balance and further developing and refining more specific water balances at the sub-basin and district/company level throughout the region.

II. Efficient Water Management for Regional Sustainability in the Sacramento Valley

To better understand and portray the Sacramento River watershed—the Water Management Task Force commissioned a technical report articulating *Efficient Water Management for Regional Sustainability in the Sacramento Valley*. The technical report, which brought together water management experts, provides a sophisticated foundation to initiate the process to evaluate improved water management opportunities in the Sacramento Valley and the trade-offs that will need to be considered in making future management decisions in this region. The report articulates a framework for addressing water use efficiency in the Sacramento Valley (given the Valley’s unique hydrologic characteristics and existing condition), establishes a basis for assessing and identifying water use efficiency improvements, and provides a basis for constructive dialogue. The report builds upon decades of continually improving water use efficiency in the Sacramento Valley at the farm, refuge, district, and basin level. Importantly, the report is styled as a “draft” as part of our ongoing effort to seek broad input and rigorous discourse on water management in the Sacramento Valley and to continually improve our understanding and efforts to actively manage water resources in the region.

In sum, the report concludes that although opportunities to increase outflow from the Sacramento Valley are modest, opportunities to achieve environmental restoration and enhancement in the Sacramento Valley through increased water use efficiency are appreciable. The report also recognizes that increased efficiency, if not carefully considered, can negatively affect important environmental habitat in the region. A summary of the report is attached as Appendix A. The full report is available at <http://www.norcalwater.org/>. We would welcome any comments or discussion on this report with the SWRCB or others.

III. Agricultural Water Stewardship

The California Roundtable on Water and Food Supply recently issued its report on *Agricultural Water Stewardship*. We highly recommend this report to policy-makers, as it was formulated in a very thoughtful way by a broad cross-section of California water leaders. It recommends water stewardship as a both a lens for sound water policy and management and “as a more useful concept to guide thinking and decision-making for agricultural use within California.” The report defines agricultural water stewardship “as the use of water in a manner that optimizes agricultural water use while addressing the co-benefits of water for food production, the environment, and human health. Agricultural water stewardship is premised on the notion that water management decisions cannot be made independent of ecological, social, and economic contexts.” This concept supports water resources management for various beneficial uses as we see in the Sacramento Valley. The full report can be found at http://aginnovations.org/images/uploads/CRWFS_Water_Stewardship_Recs_electronic.pdf.

IV. Public Policy Institute Reports

The flow-through system described earlier has been understood and articulated by the Public Policy Institute (PPIC) over the last several years. First, in *California Water Myths* Number 4 (Appendix B) the PPIC articulated the important distinction between gross and net water use. “Only net water savings provide more water. In agriculture, achieving significant net water savings generally requires switching to crops that consume less water or reducing irrigated land

area (crop-shifting or fallowing).” It went on to add that “not distinguishing between net and gross water savings in public discussions can create unrealistically high expectations for water conservation and inaccurate evaluations of the benefits of specific conservation measures.”

Second, in the recent *Managing California’s Water: From Conflict to Reconciliation*, the PPIC builds on its earlier work by finding that “agricultural water use in California continues to become more efficient, primarily through increases in crop yields.” (p. 171; Appendix C.) “Irrigation technology has less potential to create net water savings, because it generally does not reduce net agricultural use.” In fact, “irrigation improvements can actually increase net water use by crops.” As such, this report recognizes the important distinction between a flow-through system and other hydrologic systems in California by finding that “net water savings are more likely in areas where drainage water cannot be reused, such as where fields drain to brackish or saline aquifers or water bodies,” e.g., the Imperial Valley. In other words, water efficiency in the Sacramento Valley (as a flow-through system) will not generally lead to net water savings. As a result, water resources managers approach efficiency measures in a different way that focuses on achieving environmental restoration and enhancement objectives through changes in flow timing and magnitude and water quality improvement.

B. The Legal and Institutional Setting for Sustainable Water Management

I. California Constitution

California Constitution Article X, section 2 provides the legal framework for active water management in California.

It is hereby declared that because of the conditions prevailing in this State the general welfare requires that the water resources of the State be put to beneficial use to the fullest extent of which they are capable, and that the waste or unreasonable use or unreasonable method of use of water be prevented, and that the conservation of such waters is to be exercised with a view to the reasonable and beneficial use thereof in the interest of the people and for the public welfare. The right to water or to the use or flow of water in or from any natural stream or water course in this State is and shall be limited to such water as shall be reasonably required for the beneficial use to be served, and such right does not and shall not extend to the waste or unreasonable use or unreasonable method of use or unreasonable method of diversion of water (emphasis added).

Importantly, the Constitution first and foremost requires and encourages water resources managers to put water resources to beneficial uses to the fullest extent of which they are capable. Second, the right to use water does not extend to the waste or unreasonable use or unreasonable method of use or unreasonable diversion of water. Water resources managers, working with their respective Boards of Trustees, take the responsibility of water management embodied in this provision very seriously.

Unfortunately, many commentators have recently suggested this provision requires more efficient management from a purely formulaic measure. As the reports cited above all reveal, sustainable water management requires a different--more sophisticated--approach, particularly in

a flow through-system such as the Sacramento Valley where water serves the mosaic of inter-dependent beneficial uses. Significantly, courts interpreting the California Constitution have found that determinations of reasonable or unreasonable use of water depend upon this broader context in which the water is being managed and used. “There is nothing in Article X, Section 2 which refers to, much less mandates, the most efficient use of water resources. The Constitution refers to the beneficial use of water and to the reasonable use and diversion of water, and it is obvious that the most efficient use of water is not necessarily its most beneficial or reasonable use.” (Big Bear Municipal Water District v. Bear Valley Mutual Water Company (1989) 207 Cal.App.3d 363, 377-378.) In other words, the law requires water resources managers to make decisions in the broader context of sustainable water management for beneficial uses--or agricultural water stewardship as called for by the California Roundtable on Water and Food Supply.

II. State Policy for Regional Sustainability

As previously mentioned, the Water Code contains a new state policy on regional sustainability. Importantly, this policy recognizes the differences in regions throughout California and calls for regions in the Bay-Delta watershed, such as the Sacramento River watershed, “to improve regional self-reliance for water through investment in water use efficiency, water recycling, advanced water technologies, local and regional water supply projects and improved regional coordination of local and regional water supply efforts.” Regional sustainability as the cornerstone for water management is also embodied in the SWRCB’s Strategic Plan, the California Water Plan (Bulletin 160-2009), and Water Code §§10608.50, 10608, 10608.4, and 10801.

III. The SWRCB’s Natomas Order

With respect to the Sacramento Valley, the SWRCB has spoken in Order WR 99-012 (Order) involving the Natomas Mutual Water Company. Here, the SWRCB acknowledged water management in a flow-through system and found that Natomas conserved water under Water Code §1011, but it found that such conserved water did not result in a consumptive use savings, thus it did not add new water to the system that could be transferred out of the hydrologic region. Thus, Natomas preserved its water right to the conserved water under Water Code §1011, but it limited Natomas ability to transfer water out of the hydrologic region. To be clear, this Order clearly limited market opportunities and incentives for water conservation in the Sacramento Valley by precluding the transfer of conserved water in this fashion.

Contrast this Order to the SWRCB’s actions involving the Imperial Valley, where conserved water was otherwise irrecoverable and would have been lost to the hydrologic system and to further freshwater use. The SWRCB in the Imperial Valley found that conserved water could be transferred to the urban agencies in Southern California. As such, the Natomas Order highlights the unique nature of the flow-through system in the Sacramento Valley and frames the context for water resources management decisions in the Sacramento Valley.

We welcome input on the reports described above and look forward to future discussions on water management in the Sacramento Valley.