

Conserving and Recycling Water? Mind the Salts to Improve Sustainability!

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Water conservation and water recycling are critical components to ensuring an adequate water supply for California's future. Conservation tools assist water agencies in managing supply during critical times, but doing so can also increase the salts that are discharged to surface waters and wastewater treatment plants, and retained in the soils and groundwater basins. Recycled water, likewise, provides a drought-resistant source of water for many areas, but may also increase salinity levels in a region.

Those worried only about salts could argue against conserving or recycling water, but a broader, long-term solution is needed. The answer lies in integrating the issues of both water supply and water quality in order to yield the greatest benefit for a region.

To ensure this dual-approach to planning, the State Water Quality Control Board in January, 2009, adopted a Recycled Water Policy that gives local entities the power to address the needs of their region through collaborative measures.

Joint Board - Stakeholder Developed Policy

Early drafts of the Recycled Water Policy drew considerable stakeholder interest and concern. One of the biggest areas of concern was the management of salinity and nitrates in the regions where recycled water projects would be sited. The stakeholders, (many representing parties that will be mentioned in examples below), requested the State Board to allow them to draft a consensus document that addressed these issues.

The resulting policy, adopted by the board, states that "...local water and wastewater entities, together with salt/nutrient-contributing stakeholders, will fund locally driven and controlled collaborative processes open to all stakeholders to prepare salt/nutrient management plans for each groundwater basin/sub-basin in California."

Stakeholders are the Key

The policy sets the stage for the stakeholders in each region to develop salt and nutrient management plans which will update the region's basin plans to accommodate recycled water conservation and needed supply for a sustainable future.

This can only be accomplished through the engagement of the critical stakeholders in each region. The State Legislature, in AB (410), and the State Board both requested a funding priority from the Integrated Regional Water Management Planning funds in Proposition 84 to be applied to these plans. The State Board and regional boards do not have sufficient funding or staff to accomplish these efforts alone. Therefore, active, engaged stakeholders are key to the success of these programs.

Santa Ana Region Example

The Santa Ana Region has long understood the critical importance of salinity and water quality in managing the vital supply of water for this rapidly urbanizing region. Because the majority of the water for the watershed's more than 5 million residents comes from groundwater, significant management efforts have been undertaken over the last 50 years. The watershed agencies began planning together and, after many years of water rights litigation, settled in the late '60s with the adjudication of the river and initiation of what would become the Santa Ana Watershed Project Authority (SAWPA). This agency, comprised of the major water supply agencies in the area, understood how the watershed worked and focused its work on stretching water supplies for the betterment of future expansion of the region. This early planning effort led to a basin plan and projects that developed a brine line that assists local agencies in managing groundwater basin salts.

Because of this history, SAWPA was asked to lead a stakeholder effort to review the science and policy that formed the basin plan. As a result, beginning as early as the 1970s, the authority started reviewing the quality of the waterbodies of the Santa Ana Basin. Because water quality was critical to Orange County, the area largest in population but nearer the end of the river, the entire watershed worked to ensure water in the river met standards for beneficial uses along the entire length of the river.

In the 1990s, the Nitrogen TDS (Total Dissolved Solids) taskforce was formed with active participation of the Regional Board to fund and oversee the studies and review the policy used to update the Santa Ana Watershed Basin Plan. The original basin plan was completed more than 30 years ago with limited data and resources. The stakeholders believed that better science would allow for more efficient management of the groundwater basins for the future. They spent 10 years gathering data, scientific studies, and policy analysis to develop a complete understanding of the watershed and to document the process. This resulted in an amended Basin Plan, which had new TDS and nitrogen water quality objectives for groundwater, and an implementation plan the stakeholders helped construct. A triennial monitoring program ensures the program is working and a Salinity Guidance Document helps direct permitting and compliance.

When the Little Hoover Commission reviewed the Santa Ana Watershed Basin Plan process, it recommended that the State and all its regional water boards utilize the same type of process used in the Santa Ana Watershed to accomplish basin planning and objective setting.

Central Valley Implementation

Even before the recycled water policy, the Central Valley had been working on salinity and nitrates in a stakeholder process. Central Valley Salinity Alternatives for Long Term Sustainability (CV-SALTS) was initiated by the Regional Water Quality Control and State Water Resources Control Boards in 2006. From the beginning, it was a collaborative stakeholder program to develop and implement a salinity and nutrient management plan to be incorporated into Basin Plan Amendments for the Central Valley.

Salinity has been a critical concern for farmers and water managers in the Central Valley, particularly since the completion of the State Water Project. The issues of saline drainage are of more concern here than perhaps anywhere else in California.

Salinity is a problem that develops, worsens relatively slowly, and can eventually lead to disastrous results. More than 15.5 million tons of salt are brought into or mobilized in the waters of the Central Valley of California each year. Because there are few outlets for salt to move out of the Valley, they continue to build up in the soil and waters of the region. This imbalance cannot be sustained over the long-term, and it threatens the future of agriculture, food processing, and growth. A recent study by U.C. Davis found that, if nothing additional is done to address this imbalance, salinity will have a significant impact on the local economy. Researchers estimate that, comparing economic conditions in the year 2030 with 2005 levels, output from irrigated agriculture alone could decline by \$1.2 billion as a result of higher salinity levels. These lower levels of agricultural output could reduce aggregate employment and income across most parts of the Central Valley.

CV-SALTS Salinity and Nitrate Management

CV-SALTS stakeholder participants represent a broad and diverse group of users, managers, and interest groups focused on Central Valley waters. This group has developed a Work Plan Outline to guide the efforts needed to complete the scientific studies and establish policies that comply with the requirements of the Salt and Nutrient Management plans and satisfy the development of a Basin Plan amendment to implement the changes.

Because salinity is a large and complex issue, it will require substantial resources to determine the scope of the problem, to explore options for mitigating or removing salt from the Valley, and to develop a comprehensive long-term plan of action. Central Valley Water Board staff estimates that the total cost of collecting the data, conducting the necessary studies, vetting the analysis with stakeholders, and revising the basin plans will require as much as \$40 million over the next five years.

Under a recently approved Memorandum of Agreement, the State and Central Valley Regional Water Boards are working closely with the Central Valley Salinity Coalition. The non-profit coalition was formed in 2008 as the business and funding mechanism for CV-SALTS. The coalition seeks to develop funding for good science and baseline monitoring, to help mold and carry out basin plan implementation, streamline permitting, and reduce future compliance costs - especially for recycled water facilities. The State Water Board and Regional Board are contributing significant resources, in addition to the contributions from the stakeholders participating in the Central Valley Salinity Coalition.

Current Efforts

Recently, CV-SALTS completed the Salt and Nitrate Source Pilot Implementation Study which evaluated salt and nitrate sources and salt balance in the Yolo-Davis, Modesto and Tule River. (One area from each hydrological region of the Central Valley was studied.) The next steps are to review the beneficial uses and objectives for waterbodies and compile and review respective water management alternatives. Additionally, scoping and outreach meetings will be held to gather feedback from an even broader stakeholder community in April 2010.

More Information about Salinity and CV-SALTS

Water managers implementing water conservation or recycling programs, Integrated Regional Water Management regions and dischargers should be reaching out to those in their area to ensure they are included in these plans. Background information on salinity and CV-SALTS is posted on the website: www.waterboards.ca.gov/centralvalley/water_issues/salinity. To learn more about the salinity stakeholder coalition consult the CV-SALTS website: www.cvsalinity.org.

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Consider a call out box for the following (graphically located between the Santa Ana and CV Implementation:

Salt and Nutrient Management Plan Benefits to Local Agencies:

- Develops collaboration among agencies in watershed or region
- Enhances certainty in project-planning and investments
- Improves monitoring of surface water quality and groundwater quality
- Improves management of salt and nitrates in primary source water and groundwater
- Secures support and funding for water quality improvement projects
- Promotes a sustainable water supply supporting local and environmental needs