

Groundwater and the Delta Plan: A Report on the Status of the Delta Plan's Recommendations on Groundwater

Summary: Groundwater use above and below the Delta has implications for the health of the Delta and for statewide water supply reliability. A panel of representatives from the U.S. Geological Survey, the Department of Water Resources, the State Water Resources Control Board, Stanislaus County and the California Water Foundation will discuss the range of current challenges, opportunities, and policy initiatives related to California's groundwater management, particularly in California's Central Valley. Where applicable, they will address the activities their respective agencies are engaged in to implement the Delta Plan and the California Water Action Plan. In addition, on February 12, the Brown administration announced that they are seeking input from stakeholders regarding potential legislation that would improve local capacity to sustainably manage groundwater supplies.

Background

Groundwater is a significant portion of California's water supply portfolio, providing average supplies of 8 million acre-feet or 20 percent of California's urban and agricultural water use. In some regions, particularly in the Central Valley, groundwater can supply up to 60 percent of the region's water supply. Early in the 20th Century, Southern California's rapid urban, agricultural, and industrial growth required more water than could be supplied by the local sources and from the Colorado River. Farmers used groundwater to irrigate agriculture to supply the growing metropolis of Los Angeles and the surrounding area.

All too soon, groundwater use outpaced the natural recharge of the local basins. In fact, throughout the 20th century groundwater overdraft became a visible problem as the land overlying the groundwater basins began to irreversibly compact and subside as the water table was drawn down. In some concentrated areas, this subsidence lowered the surface elevation by almost 30 feet.

During the 1950's and 1960's, both the federal and the state governments embarked on ambitious projects to supply the farms of the Central Valley (west side) and the cities of the Southern California with water that originates in the mountains of northern California and is then exported through the Delta via a series of upstream dams and hydropower facilities, massive pumps in the southern Delta, and concrete canals bisecting the Central Valley. This water was intended to significantly decrease, and serve as a replacement for, the region's reliance on groundwater. For many years, the groundwater levels in the Central Valley stabilized as a result of these projects.

The continuing increase in water use due to population and industrial growth in Central and Southern California; the decreased elasticity of water demand in agriculture; and the decrease in in the average amount of water exported from the Delta due to, among other things, environmental protection, have all contributed to renewed overdraft of groundwater basins as once again water demand exceeds water supply.

The 2009 California Water Plan Update estimated that the state, on average, overdrafts its groundwater basins by about 1 to 2 million acre-feet per year and that the level of unsustainable groundwater pumping is increasing. The current drought has highlighted the frailty of groundwater supplies in some areas as urban users and agricultural users compete for the same resource. In these areas, the alternative to groundwater is to find a source of new surface, directly affecting either the water flowing into the Delta or the amount of water exported from the Delta through the water projects.

The Delta Plan and Groundwater

The Delta Plan includes a thorough discussion of California's groundwater, including addressing groundwater overdraft. The Plan states:

The continued existence of major California groundwater basins in a chronic condition of overdraft combined with key regions of the state that depend on water from the Delta watershed and have poor groundwater practices, including unsustainable groundwater pumping, water quality contamination, irreversible loss of groundwater storage, and no groundwater plan for addressing these problems, is a major impediment to the achievement of the coequal goals.

The Delta Plan identifies four specific recommendations that will affect groundwater management.

1. Update Bulletin 118, California's Groundwater Plan (Delta Plan Recommendation WR R9)

The California Department of Water Resources, in consultation with the Bureau of Reclamation, U.S. Geological Survey, the State Water Resources Control Board, and other agencies and stakeholders, should update Bulletin 118 information using field data, California Statewide Groundwater Elevation Monitoring (CASGEM), groundwater agency reports, satellite imagery, and other best available science by December 31, 2014, so that this information can be included in the next California Water Plan Update and be available for inclusion in 2015 urban water management plans and agricultural water management plans. The Bulletin 118 update should include a systematic evaluation of major groundwater basins to determine sustainable yield and overdraft status; a projection of California's groundwater resources in 20 years if current groundwater management trends remain unchanged; anticipated impacts of climate change on surface water and groundwater resources; and recommendations for State, federal, and local actions to improve groundwater

management. In addition, the Bulletin 118 update should identify groundwater basins that are in a critical condition of overdraft.

2. Implement Groundwater Management Plans in Areas that Receive Water from the Delta Watershed (*Delta Plan Recommendation WR R10*)

Water suppliers that receive water from the Delta watershed and that obtain a significant percentage of their long-term average water supplies from groundwater sources should develop and implement sustainable groundwater management plans that are consistent with both the required and recommended components of local groundwater management plans identified by the California Department of Water Resources Bulletin 118 (Update 2003) by December 31, 2014.

3. Recover and Manage Critically Overdrafted Groundwater Basins (*Delta Plan Recommendation WR R11*)

Local and regional agencies in groundwater basins that have been identified by the California Department of Water Resources as being in a critical condition of overdraft should develop and implement a sustainable groundwater management plan, consistent with both the required and recommended components of local groundwater management plans identified by the California Department of Water Resources Bulletin 118 (Update 2003), by December 31, 2014. If local or regional agencies fail to develop and implement these plans, the State Water Resources Control Board should take action to determine if the continued overuse of a groundwater basin constitutes a violation of the State's Constitution Article X, Section 2, prohibition on unreasonable use of water and whether a groundwater adjudication is necessary to prevent the destruction of or irreparable injury to the quality of the groundwater, consistent with Water Code sections 2100 and 2101.

4. Protect Groundwater Beneficial Uses (*Delta Plan Recommendation WQ R6*)

The State Water Resources Control Board should complete development of a Strategic Workplan for protection of groundwater beneficial uses, including groundwater use for drinking water, by December 31, 2012.

The California Water Action Plan and Groundwater

In addition to the Delta Plan, the unsustainable condition of California's groundwater is highlighted in the Governor's California Water Action Plan. This comprehensive plan is a result of the California Natural Resources Agency, the California Environmental Protection Agency, and the California Department of Food and Agriculture identifying key actions for the next one to five years that address urgent needs and provide the foundation for the sustainable management of California's water resources. The California Water Action Plan concludes:

“...we must better manage our groundwater basins to reverse alarming declines in groundwater levels. Continued declines in groundwater levels could lead to irreversible land subsidence, poor water quality, reduced surface flows, ecosystem impacts, and the permanent loss of capacity to store water as groundwater.”

The following actions are identified in the California Water Action Plan to improve groundwater management:

- **Provide Essential Data to Enable Sustainable Groundwater Management**
The administration will expand and fund the California Statewide Groundwater Elevation Monitoring Program, which provides essential data to characterize the state's groundwater basins, including identifying basins in decline. In coordination with federal, tribal, local and regional agencies, state agencies will conduct groundwater basin assessments and develop assessment reports.
- **Update Bulletin 118, California's Groundwater Plan**
The Department of Water Resources, in consultation with the U.S. Bureau of Reclamation, U.S. Geological Survey, the State Water Resources Control Board, and other agencies and stakeholders will update Bulletin 118 using field data, California Statewide Groundwater Elevation Monitoring, groundwater agency reports, satellite imagery, and other best available science, so that this information can be included in the next California Water Plan Update and be available for inclusion in future water management and land use plans. The Bulletin 118 update should include a systematic evaluation of major groundwater basins to determine sustainable yield and overdraft status; a projection of California's groundwater resources in 20 years if current groundwater management trends remain unchanged; anticipated impacts of climate change on surface water and groundwater resources; and recommendations for state, federal and local actions to improve groundwater management. In addition, the Bulletin 118 update should identify groundwater basins that are in a critical condition of overdraft.
- **Improve Sustainable Groundwater Management**
Groundwater is a critical buffer to the impacts of prolonged dry periods and climate change on our water system. The administration will work with the Legislature to ensure that local and regional agencies have the incentives, tools, authority and guidance to develop and enforce local and regional management plans that protect groundwater elevations, quality, and surface water-groundwater interactions. The administration will take steps, including sponsoring legislation, if necessary to define local and regional responsibilities and to give local and regional agencies the authority to manage groundwater sustainably and ensure no groundwater basin is in danger of being permanently damaged by over drafting. When a basin is at risk of permanent damage, and local and

regional entities have not made sufficient progress to correct the problem, the state should protect the basin and its users until an adequate local program is in place.

- **Support Distributed Groundwater Storage**

The administration will support a comprehensive approach to local and regional groundwater management by funding distributed groundwater storage projects that are identified in groundwater management plans and removing barriers to implementation.

- **Increase Statewide Groundwater Recharge**

The administration will work with the Legislature to discourage actions that cause groundwater basin overdraft and provide incentives that increase recharge. State agencies will work with tribes and federal, regional and local agencies on other actions related to promoting groundwater recharge and increasing storage, including improving interagency coordination, aligning land use planning with groundwater recharge, and identifying additional data and studies needed to evaluate opportunities, such as capturing and recharging stormwater flows and other water not used by other users or the environment.

Today's Briefing

At today's meeting the Council will hear from agencies who are working to implement the Delta Plan's recommendations on groundwater management. In addition, the Council will hear about current efforts to implement actions related to groundwater contained within the California Water Action Plan.

The panel members include:

- Michelle Sneed, the Council a hydrologist with the U.S. Geological Survey, will brief the Council on a recent report *Land Subsidence along the Delta-Mendota Canal in the Northern Part of the San Joaquin Valley, California, 2003-2010*. The report can be found at <http://pubs.usgs.gov/sir/2013/5142/>. Michelle last presented to the Council in 2011 and this presentation provides an update of the land subsidence conditions.
- Mary Scruggs, a Supervising Engineering Geologist with DWR will brief the Council on the status of Bulletin 118 and on the California Statewide Groundwater Elevation Monitoring Program (CASGEM).
- Eric Oppenheimer, a Director with SWRCB's Office of Research, Planning & Performance, will brief the Council on the status of developing SWRCB's Groundwater Workplan.
- Walt Ward, Stanislaus County's recently named Water Resources Manager, will brief the Council on current groundwater management in Stanislaus County.

- Andrew Fahlund, a Deputy Director at the California Water Foundation will brief the Council on the Foundation's effort to convene a diverse group of stakeholders to prepare policy recommendations on groundwater management reform. The result of the Foundation's effort will be a report to Governor Brown and the state legislature with recommendations for achieving sustainable groundwater management that prepares for future droughts, avoids and reverses harm, protects water quality and the environment, reduces conflict among water users, and enhances the use of groundwater as a valuable source of water storage.

During the panel's presentation or in follow up discussion, the Council may wish to consider these questions:

- Should the Council play a role in furthering the state's groundwater management goals beyond the recommendations in the Delta Plan?
- What role should the Delta Plan Implementation Committee play, if any, in coordinating agency actions to address groundwater management?
- What type of information is known and what more should be known for successful local or state groundwater management?

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