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**TO: MEMBERS, FORMATION COMMISSION**

**FROM: DAVID CHURCH, AICP, EXECUTIVE OFFICER** *(DC)*

**DATE: FEBRUARY 20, 2014**

**SUBJECT: WATER STATUS REPORT**

**Recommendation.** It is respectfully recommended that the Commission receive and file this report.

**STATE**

On March 11, 2014 the Assembly Water, Parks and Wildlife Committee conducted Joint Informational Hearing regarding the Management of California's Groundwater resources. Attached for the Commission information are the following documents:

- Agenda for the Informational Hearing in Sacramento
- Management of California's Groundwater Resources-Background Document
- Improving Management of State's Groundwater Resources
- California Water Action Plan – Sustainable Groundwater Management

**Exhibits**

**A:** Informational Hearing-  
Agenda - Background Paper-  
Improving Management of  
Groundwater Resources -  
California Water Action Plan

**B:** Water Agencies  
Information

The purpose of this hearing was to conduct an informational session about groundwater resources in California. California uses more groundwater than any other state. Groundwater use increases during drought conditions. Information about groundwater resources and the policy implications for state and local agencies is very valuable in making decisions. The presentations and discussion at this hearing in the State Legislature is very helpful in providing a broader context regarding the management of groundwater resources.

**Water Agencies Information.** Attached is a list of local agencies with authority to deliver water for beneficial uses and may have the authority to institute groundwater management programs. This list is from Bulletin 118 of the State Water Resources Agency. Also attached is a summary prepared by County Public Works. It lists the types of Districts that might be used to manage a groundwater basin and provides other information about those Districts.

## **Exhibit A:**

### Joint Assembly Committee Informational Hearing

- Agenda
- Background Paper
- Improving Management of Groundwater Resources
- California Water Action Plan-Sustainable Groundwater Management

# Assembly California Legislature

JOINT INFORMATIONAL HEARING:  
Assembly Water, Parks and Wildlife Committee  
Assembly Budget Subcommittee No. 3  
Tuesday, March 11, 2014  
State Capitol, Room 437  
9:00 a.m.

## MANAGEMENT OF CALIFORNIA'S GROUNDWATER RESOURCES

### A G E N D A

#### I. OPENING COMMENTS

#### II. WHERE ARE WE CURRENTLY?

*Houston, We Have A Problem – How bad is it?*

**Jay Famiglietti**, Professor and Director of Earth System Science, UC Irvine

*Current Management Authorities: Are they enough?*

**Anton Favorini-Csorba**, Fiscal & Policy Analyst, Legislative Analyst's Office

*The State Water Resources Control Board's Groundwater Workplan: We're from the Government and we're here to help?*

**Steve Moore**, Member, State Water Resources Control Board

#### III. WHAT ARE THE ELEMENTS OF SUCCESSFUL GROUNDWATER MANAGEMENT?

**Michael R. Markus**, P.E., General Manager, Orange County Water District

**Joan Maher**, Deputy Operating Officer, Santa Clara Valley Water District

#### IV. STAKEHOLDER PERSPECTIVES: WHERE SHOULD WE GO FROM HERE?

**Lester Snow**, Executive Director, California Water Foundation

**Laurel Firestone**, Co-Executive Director, Community Water Center

**John Sweigard**, General Manager, Merced Irrigation District

**Maurice Hall**, Science & Eng. Lead, CA Water Program, The Nature Conservancy

**Paul Gosselin**, Dept. of Water and Resource Conservation, Butte County

**Whitnie Wiley**, Sr. Legislative Advocate, Assoc. of California Water Agencies

#### V. PUBLIC COMMENT

\* Testimony may be subject to time limits \*

**JOINT OVERSIGHT HEARING:  
Assembly Water, Parks and Wildlife Committee  
Assembly Budget Subcommittee No. 3  
Tuesday, March 11, 2014 – 9:00 a.m.  
State Capitol, Room 437**

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**MANAGEMENT OF CALIFORNIA'S GROUNDWATER  
RESOURCES**

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**BACKGROUND**

The purpose of this hearing is to add to the growing and collaborative conversation about groundwater management in California – a conversation made more urgent by the Governor's declaration of a drought state of emergency. California uses more groundwater than any other State. And that usage increases in dry years. Yet groundwater is perhaps our most mysterious and least understood water source. Groundwater refers to water located beneath the surface in soil pore spaces and in the fractures of rock formations. It does not exist as one continuous homogenous bathtub-like water body, but can be almost like a layer cake with different levels of varying depths that extend to large areas or are confined to small disconnected pockets.

*Bulletin 118-03 – A Snapshot from the Past*

As far back as 1952, the predecessor agency to the Department of Water Resources (DWR), the State Department of Public Works, Division of Water Resources, published *Water Quality Investigations Report No. 3* detailing the "more important groundwater basins" as part of a mission to "investigate the condition of the quality of all waters within the State, including saline waters, coastal and inland, as related to all sources of pollution of whatever nature...." These ongoing investigations evolved into a series of reports known as Bulletin 118: *California's Groundwater*. The last update of Bulletin 118 was in 2003 (Bulletin 118-03).<sup>1</sup>

Bulletin 118-03 maps out, by name, and with a unique numerical identifier, all of the groundwater basins and subbasins in California. Even in 2003, it was recognized that 11 groundwater basins in California had reached a critical state of overdraft. Overdraft is defined as the condition where the amount of water withdrawn by pumping exceeds the amount of water that recharges the basin over a period of years under water supply conditions that are considered average. In some basins groundwater recharge occurs uniquely through natural surface water percolation. In other areas it is augmented by artificially constructed water spreading basins or by injecting water through wells.

In the opening foreword of Bulletin 118-03, Michael J. Spear, who was at that time the DWR Interim Director, concluded that "[e]ffective management of groundwater basins is essential because groundwater will play a key role in meeting California's water needs." That statement was true at the time and, in light of climate change and extreme weather events that will cause less snowpack and more rain, it is even more imperative today.

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<sup>1</sup> Bulletin 118 (2003) can be accessed at: <http://www.water.ca.gov/groundwater/bulletin118/update2003.cfm>

Over a decade ago, Bulletin 118-03 presented the following seven "Major Findings." Reviewing those Findings is a useful benchmark for assessing what has changed, or not changed, with regard to groundwater management efforts in California:

- 1. Groundwater provides about 30% of the State's water supply in an average year, yet in many basins the amount of groundwater extracted annually is not accurately known.**
  - In some regions, groundwater provides 60% or more of the supply during dry years.
  - Many small- to moderate-sized towns and cities are entirely dependent on groundwater for drinking water supplies.
  - 40% to 50% of Californians rely on groundwater for part of their water supply.
  - In many basins, groundwater use is indirectly estimated by assuming crop evapotranspiration demands and surveying the acreage of each crop type.
  
- 2. Opportunities for local agencies to manage their groundwater resources have increased significantly since the passage of Assembly Bill 3030 in 1992. (Water Code § 10750 et seq.). In the past several years more agencies have developed [groundwater] management programs [GWMPs] to facilitate conjunctive use, determine the extent of the resource, and protect water quality.**
  - The act provides the authority for many local agencies to manage groundwater.
  - The act has resulted in more than 200 local agencies adopting [GWMPs] to date.
  - The act encourages regional cooperation in basins and allows private water purveyors to participate in groundwater management through memoranda of understanding with public agencies.
  - Many local agencies are recognizing their responsibility and authority to better manage groundwater resources.
  
- 3. Agencies in some areas have not yet developed [GWMPs].**
  - Concerns about cooperative management, governance, and potential liabilities have kept some agencies from developing [GWMPs].
  - Development of management programs to maintain a sustainable groundwater supply for local use has not been accomplished throughout the State.
  
- 4. A comprehensive assessment of overdraft in the State's groundwater basins has not been conducted since Bulletin 118-80, but it is estimated that overdraft is between 1 million and 2 million acre-feet annually.**
  - Historical overdraft in many basins is evident in hydrographs that show a steady decline in groundwater levels for a number of years.
  - Other basins may be subject to overdraft in the future if current water management practices are continued.
  - Overdraft can result in increased water production costs, land subsidence, water quality impairment, and environmental degradation.
  - Few basins have detailed water budgets by which to estimate overdraft.
  - While the most extensively developed basins tend to have information, many basins have insufficient data for effective management or the data have not been evaluated.
  - The extent and impacts of overdraft must be fully evaluated to determine whether groundwater will provide a sustainable water supply.

- Modern computer hardware and software enable rapid manipulation of data to determine basin conditions such as groundwater storage changes or groundwater extraction, but a lack of essential data limits the ability to make such calculations.
- Adequate statewide land use data for making groundwater extraction estimates are not available in electronic format.

**5. Surface water and groundwater are connected and can be effectively managed as integrated resources.**

- Groundwater originates as surface water.
- Groundwater extraction can affect flow in streams.
- Changes in surface water flow can affect groundwater levels.
- Legal systems for surface water and groundwater rights can make coordinated management complex.

**6. Groundwater quality and groundwater quantity are interdependent and are increasingly being considered in an integrated manner.**

- Groundwater quantity and groundwater quality are inseparable.
- Groundwater in some aquifers may not be usable because of contamination with chemicals, either from natural or human sources.
- Unmanaged groundwater extraction may cause migration of poor quality water.
- Monitoring and evaluating groundwater quality provides managers with the necessary data to make sound decisions regarding storage of water in the groundwater basin.
- State agencies conduct several legislatively mandated programs to monitor different aspects of groundwater quality.
- DWR monitors general groundwater quality in many basins throughout the State for regional evaluation.

**7. Land use decisions affecting recharge areas can reduce the amount of groundwater in storage and degrade the quality of that groundwater.**

- In many basins, little is known about the location of recharge areas and their effectiveness.
- Protection and preservation of recharge areas are seldom considered in land use decisions.
- If recharge areas are altered by paving, channel lining, or other land use changes, available groundwater will be reduced.
- Potentially contaminating activities can degrade the quality of groundwater and require wellhead treatment or aquifer remediation before use.
- There is no coordinated effort to inform the public that recharge areas should be protected against contamination and preserved so that they function effectively.

*Where Are We Now? And What Should We Do Next?*

On January 17, 2014 Governor Brown declared a drought state of emergency in California. The Governor's declaration comes on the heels of three dry years in a row and is the second time in five years that a California Governor has declared a drought state of emergency. In December 2009, following the state's last prolonged drought, data from the National Aeronautics and Space Administration (NASA)/German Aerospace Center Gravity Recovery and Climate Experiment (GRACE) satellites revealed that between 2003 and 2009 the groundwater aquifers for the Central Valley and its major mountain water source, **the Sierra Nevadas, had lost almost 26**

**million acre-feet of water<sup>2</sup>** – which is nearly enough water combined to fill Lake Mead, America's largest reservoir. The findings reflected the effects of California's extended drought and the resulting increased rates of groundwater being pumped for human uses, such as irrigation.

Overdraft in California today is estimated to occur in parts of the Central Valley, especially the Tulare Lake Basin, but also in some coastal and southern California basins with limited surface water supplies and intensive agriculture. While some overdraft reverses temporarily during wet periods, DWR estimates that California is overdrafting its groundwater at a rate of 1.5 million acre-feet per year. **However, NASA estimates groundwater overdraft in California may be close to 4.4 million acre-feet per year statewide.**

### *Groundwater Management and Monitoring of Supply*

There are three basic methods available for managing groundwater resources in California: management by local agencies under authority granted in the California Water Code or other applicable State statutes; local government groundwater ordinances or joint powers agreements; and, court adjudications.

AB 3030 (Costa), the California Groundwater Management Act, was passed by the Legislature in 1992.<sup>3</sup> It was a significant addition to the groundwater management authorities granted under the Water Code in that it greatly increased the number of local agencies authorized to develop GWMPs and set forth a common framework for management by local agencies throughout California. Though adoption of a GWMP is encouraged under AB 3030 and not required, subsequent bond initiatives and statutes have made an adopted GWMP an eligibility criterion for receiving groundwater project and program funds. Since its passage, 149 agencies have adopted GWMPs in accordance with AB 3030. Other agencies have begun the process. As mentioned above, in some basins, groundwater is managed under other statutory or judicial authority.

The California Groundwater Management Act, as amended, provides a systematic procedure to develop a GWMP and requires the inclusion of certain minimum components. These include basin management objectives and monitoring and management of groundwater levels, inelastic surface subsidence, and changes in surface flow and surface quality that directly affect groundwater levels or quality or are caused by groundwater pumping. The Act also requires a description of how recharge areas identified in the plan substantially contribute to the replenishment of the groundwater basin. In addition, suggested optional components that might be relevant for a particular groundwater basin are listed.

In 2009 groundwater monitoring took a step forward in the historic five-bill package of water legislation adopted during the Seventh Extraordinary Session on water in 2009. That package included SBX7 6 (Steinberg).<sup>4</sup> SBX7 6 recognized that the statewide collection and evaluation of seasonal and long-term trends in groundwater elevations in California's groundwater basins is an important fundamental step toward improving management of California's groundwater

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<sup>2</sup> An acre-foot is a standard measurement of water volume. It is enough water to cover an acre of land a foot deep or about 325,900 gallons.

<sup>3</sup>Water Code §§ 10750 and sequence

<sup>4</sup> For a description of all of the bills in the package go to: <http://awpw.assembly.ca.gov/waterfaq>

resources. To achieve that goal, SBX7 6 incentivizes local monitoring entities to collect groundwater elevation data or mandates that it must be done by DWR. In accordance with SBX7 6, DWR developed the California Statewide Groundwater Elevation Monitoring (CASGEM) program. DWR states that the "intent of the CASGEM program is to establish a permanent, locally-managed program of regular and systematic monitoring in all of California's alluvial groundwater basins." DWR adds that the CASGEM program will rely and build on the many, established local long-term groundwater monitoring and management programs" and that its "role is to coordinate the CASGEM program, to work cooperatively with local entities, and to maintain the collected elevation data in a readily and widely available public database."

### *Groundwater Contamination*

Groundwater contamination is a widespread problem in California affecting many different types of communities from Maywood in southern California to Seville in the Central Valley. In 2000 the State Water Resources Control Board (State Water Board) created the Groundwater Ambient Monitoring and Assessment (GAMA) program to better understand California's groundwater quality issues. AB 599 (Lui, Chapter 522, Statutes of 2001), the Groundwater Quality Monitoring Act, expanded that program resulting in a publicly accepted plan to monitor and assess groundwater quality in basins that account for over 95% of the state's groundwater use. According to the State Water Board, "GAMA Program projects have analyzed thousands of water samples for hundreds of chemicals – many of the chemicals at ultra-low detection limits requiring state-of-the-art facilities and methods."

One effort under the GAMA Program is the Priority Basin Project. That Project focuses its assessments on the groundwater basins that account for over 95 percent of all groundwater used for public drinking. Monitoring and assessments under the Project are on a ten-year cycle, with trend monitoring every three years. Among those constituents tested are common contaminants regulated by the California Department of Public Health (CDPH) and unregulated chemicals such as pharmaceuticals, chemicals of emerging concern, isotopes, and others. As of June 2013 the U.S. Geological Survey (USGS), under the auspices of GAMA, had sampled over 2,300 public supply wells and "developed a statistically unbiased assessment of the quality of California's drinking water aquifers." GAMA states that starting in 2012 the Priority Basin Project also began to assess both deeper and shallow aquifers with the USGS as the project technical lead and analytical support from Lawrence Livermore National Laboratory.

In 2008 two pieces of legislation brought greater focus on groundwater contamination issues and efforts to find solutions. AB 2222 (Caballero, Chapter 670, Statutes of 2008) required the State Water Board to submit a report to the Legislature identifying California communities that rely on contaminated groundwater as a primary source of drinking water. The report was also required to set out principal contaminants and other constituents of concern and potential solutions and funding sources to clean up or treat groundwater or provide alternative water supplies.

The report required by AB 2222, *Communities That Rely on a Contaminated Source for Drinking Water*,<sup>5</sup> was issued January 2013. It found that many groundwater basins throughout California are contaminated with either naturally-occurring constituents, ones introduced by human activities, or both and, as a result, many community water systems in the state incur

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<sup>5</sup> The full report can be found at <http://www.waterboards.ca.gov/gama/ab2222/docs/ab2222.pdf>

significant costs to remove contaminants from groundwater before serving it to their customers as drinking water. While the report concluded that over 98 percent of Californians using a public water supply receive safe drinking water that meets all public health standards, even some of those groundwater sources may contain elevated concentrations of contaminants.

For small community water systems the picture was even worse. Since treatment of groundwater is costly, many small community water systems are vulnerable to contaminated water because they lack the infrastructure and economies of scale of larger water systems and may not be able to afford groundwater treatment or alternative supplies.

In addition, the report acknowledged there are gaps in our knowledge about groundwater contamination. Approximately 2 million people rely on groundwater from either private domestic wells or other groundwater-reliant systems and the quality of their groundwater may be unknown because they are not regulated by the state and the state does not require them to test their water quality.

The report concluded that contamination of the state's groundwater resources results in higher costs for ratepayers and consumers due to the necessity of additional treatment and can pose a threat to public health for community water systems that cannot afford the necessary treatment systems.

The second piece of groundwater contamination related legislation in 2008 was SB 1 (Perata, Chapter 1, Statutes of 2008 Second Extraordinary Session) (SBX2 1). SBX2 1 directed the State Water Board to develop pilot projects focusing on nitrate in groundwater in the Tulare Lake Basin and Salinas Valley and to submit a report to the Legislature on the scope and findings of the pilot projects, including recommendations, within two years of receiving funding. The purpose of the pilot projects was to improve understanding of the causes of groundwater contamination, identify potential remediation solutions and funding sources to recover state costs to clean up or treat groundwater, and ensure the provision of safe drinking water to all communities.

SBX2 1 focused on nitrate because it is one of the most frequently occurring groundwater contaminants from human activities. It can occur as dissolved nitrate, nitrite, or ammonia. Nitrate pollution can pose serious health risks to pregnant women and infants if consumed at concentrations above the Maximum Contaminant Level (MCL) of 45 milligrams per liter set by CDPH. Nitrate contaminated groundwater is a particularly significant problem in the Tulare Lake Basin and Salinas Valley areas, where about 2.6 million people, including many of the poorest communities in California, rely on groundwater for their drinking water. Many other areas of the State, however, also have nitrate contaminated groundwater making it the most frequently detected anthropogenic chemical above an MCL in drinking water sources.

On February 20, 2013 the State Water Board submitted *Recommendations Addressing Nitrate in Groundwater* to the Legislature. One of the State Water Board's first steps in developing that report was to contract with the University of California, Davis (UC Davis) in 2010 to conduct an independent study. Some of the findings of the UC Davis Nitrate Report were:

- Nitrate problems will likely worsen for decades. For more than half a century, nitrate from fertilizer and animal waste has infiltrated into Tulare Lake Basin and Salinas Valley

aquifers. Most nitrate detected in drinking water wells today was originally applied to the surface decades ago.

- Agricultural fertilizers and animal wastes applied to cropland are by far the largest regional sources of nitrate in groundwater. Other sources can be locally important.
- Nitrate loading reductions are possible, some at modest cost. Large reductions of nitrate loads to groundwater can have substantial economic cost.

The State Water Board/UC Davis reports raise many issues, including the need to adequately fund projects and programs to address the needs of communities with nitrate-contaminated groundwater, many of which are economically disadvantaged or severely economically disadvantaged.<sup>6</sup>

*State Water Resources Control Board Groundwater Workplan Concept Paper*

On October 4, 2013 the groundwater discussion in California took another major step forward with the State Water Board's release of a "Discussion Draft Groundwater Workplan Concept Paper." That paper called for five key elements "whether at the local, regional, or state level" to effectively manage groundwater. The five points are:

- 1. **Sustainable thresholds** for water level drawdown and water quality for impacted, vulnerable, and high-use basins;*
- 2. Water quality and water level **monitoring and assessment**, and data management systems, capable of determining if thresholds are being met and evaluating trends;*
- 3. **Governance** structures with the **management** mechanisms needed to prevent impacts before they occur, clean up contamination where it has occurred, provide adequate treatment of contaminated drinking water sources, and ensure that meeting groundwater level and quality thresholds are managed over the long term;*
- 4. **Funding** to support monitoring and governance/management actions; and*
- 5. **Oversight and enforcement** in basins where ongoing management efforts are not protecting groundwater.*

The Groundwater Workplan Concept Paper also advised that the Water Board would be focusing "attention and assistance on high-use basins where thresholds are being exceeded."

Following release of that Concept Paper the State Water Board engaged in stakeholder discussion to receive feedback and held a highly-attended all day public workshop on January 22, 2014 "to consider public input."<sup>7</sup>

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<sup>6</sup> The full State Water Board Report, which includes the UC Davis Report as an appendix, can be found at: [http://www.waterboards.ca.gov/water\\_issues/programs/nitrate\\_project/index.shtml](http://www.waterboards.ca.gov/water_issues/programs/nitrate_project/index.shtml)

<sup>7</sup> The Groundwater Workplan Concept Paper and information on that process can be found at: [http://www.waterboards.ca.gov/water\\_issues/programs/groundwater/workplan.shtml](http://www.waterboards.ca.gov/water_issues/programs/groundwater/workplan.shtml)

January 22, 2014 also saw the release of the final version of the Governor's California Water Action Plan.<sup>8</sup> Responding to "one of the driest winters on record," the Governor tasked the California Natural Resources Agency, the California Environmental Protection Agency, and the California Department of Food and Agriculture in late 2013 to work together on a plan that would guide state efforts to enhance water supply reliability, restore damaged and destroyed ecosystems, and improve the resilience of our infrastructure over the next five years. The Plan focuses on eight "challenges for managing California's water supplies," which are: uncertain water supplies; water scarcity/drought; declining groundwater supplies; poor water quality; declining native fish species and loss of wildlife habitat; floods; supply disruptions; and, population growth and climate change further increasing the severity of risks.

The Action Plan sets forth the following ten actions:

1. Make conservation a California way of life;
2. Increase regional self-reliance and integrated water management across all levels of government;
3. Achieve the co-equal goals for the Delta;
4. Protect and restore important ecosystems;
5. Manage and prepare for dry periods;
6. Expand water storage capacity and improve groundwater management;
7. Provide safe water for all communities;
8. Increase flood protection;
9. Increase operational and regulatory efficiency;
10. Identify sustainable and integrated financing opportunities.

Regarding declining groundwater supplies, the Action Plan acknowledges that some of California's groundwater basins are sustainably managed, but unfortunately, many are not. The report finds that "inconsistent and inadequate tools, resources and authorities make managing groundwater difficult in California and impede our ability to address problems such as overdraft, seawater intrusion, land subsidence, and water quality degradation." But it also acknowledged that, conversely, properly managed groundwater resources could "help protect communities, farms and the environment against the impacts of prolonged dry periods and climate change" and that the "strategies identified in this action plan will move California toward more sustainable management of our groundwater resources."

With respect to expanding water storage capacity and improving groundwater management, the Action Plan focuses on the increased flexibility that could be created in California's water management system if some increment of flows in high water years could be banked for later in surface water reservoirs and groundwater basins. The Action Plan also acknowledged the need to "better manage our groundwater basins to reverse alarming declines in groundwater levels" and that 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." Among the programs identified for support to achieve the Action

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<sup>8</sup> [http://resources.ca.gov/california\\_water\\_action\\_plan/docs/Final\\_California\\_Water\\_Action\\_Plan.pdf](http://resources.ca.gov/california_water_action_plan/docs/Final_California_Water_Action_Plan.pdf)

Plan goals were CASGEMS and GAMA. The Action Plan also called for an update of Bulletin 118 and efforts to improve sustainable groundwater management, support distributed groundwater storage, increase statewide groundwater recharge, and accelerate cleanup of contaminated groundwater and prevent future contamination.

Importantly, the Administration's commitment to improve sustainable groundwater management advised:

*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.*

(California Water Action Plan, pages 13-15.)

On January 9, 2014, the Governor proposed his 2014-15 budget, which includes \$619 million to advance the Action Plan. The budget takes bold steps on groundwater under the title "Expand Water Storage Capacity" by providing \$1.9 million to the State Water Board for "10 positions to act as a backstop when local or regional agencies are unable or unwilling to sustainably manage groundwater basins." The proposed budget advises that the State Water Board "will protect groundwater basins at risk of permanent damage until local or regional agencies are able to do so."

In addition to funds for the State Water Board groundwater management backstop, the budget included \$3 million for continued support of GAMA's priority basin project and \$2.9 million to DWR to continue CASGEM with an additional directive for "more effective and timely access to hydrogeologic and well construction data."

### *Emergency Drought Legislation*

By the beginning of February it became clear to the Governor and the Legislature that California was experiencing one of the driest twelve month periods since 1895 when records first started to be kept. As the State and Federal Water Projects reeled from zero percent allocations to many of their water agencies there was a growing consensus that actions under the Water Action Plan could not wait. As a result, on March 1, 2014 the Governor signed two bipartisan measures SB 103 and SB 104 that accelerated some funding in the budget as well as making new funding available for drought-related projects and programs. Included in that package are funds to aid in groundwater management across the state, including assistance to disadvantaged communities with groundwater contamination exacerbated by the drought. There is also \$1.2 million to the State Water Board for the GAMA program; \$1 million to DWR to improve groundwater



- What types of governance structures are most effective for managing groundwater locally, and should these models be encouraged?
- What specific data and information do local managers need to succeed? What should be done to help them obtain the data?
- What can be done to help local and regional agencies manage a basin or sub-basin that spans multiple jurisdictions?
- Are there improvements to the groundwater adjudication process that would make it more useful and cost-effective for local authorities?
- What role should groundwater management plans (GWMPs) play, and does their content need to change? For example, should GWMP's include:
  - local verification and implementation requirements
  - regular updates of GWMPs prepared for priority groundwater basins
  - specific information such as groundwater basin budgets, projections of future groundwater supply, performance measures and actions to be taken if performance measures are not met
  - requirements for annual reporting
- What incentives could local and regional agencies be given to improve groundwater management?
- Should local groundwater management planning be connected, through formal processes, to land use decisions, county general plans, or integrated regional water management plans? If so, what kind of formal processes?

**State Backstop Authority when Local Action Has Not Occurred or Has Been Insufficient**

The Administration is proposing to provide authority to the State Water Board to temporarily assume groundwater management responsibilities when local agency actions have been insufficient to achieve sustainable management. This authority will be available in those limited instances when local agencies have not acted, or their actions are insufficient to address this condition. How should this authority be structured, and what efforts should be taken to assist and encourage local authorities to act? For example:

- What metrics can be used to reflect sustainable management?
- What criteria or conditions should be present in determining whether a local groundwater management authority is unable to effectively manage the resource?
- What aspects of local groundwater management should the State Water Board assume responsibility for when taking over local groundwater management?
- What criteria, conditions and processes are needed for local agencies to resume responsibility of the GWMP?

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Feedback regarding the questions and ideas proposed in this document may be submitted to [groundwater@gov.ca.gov](mailto:groundwater@gov.ca.gov).

**Exhibit B:**  
Water Agencies Information

- Bulletin 118 Water Resources Agencies
- Public Works Information

## Local Water Agencies – Bulletin 118

Local agencies with authority to deliver water for beneficial uses, which may have authority to institute groundwater management

Local Agency	Authority	Number of Agencies-2003
Community Services District	Gov. Code § 61000 et seq.	313
County Sanitation District	Health & Safety Code § 4700 et seq.	91
County Service Area	Gov. Code § 25210.1 et seq.	897
County Water Authority	Water Code App. 45	30
County Water District	Water Code § 30000 et seq.	174
County Waterworks District	Water Code § 55000 et seq.	34
Flood Control & Water Conservation District	Water Code App. 38	39
Irrigation District	Water Code § 20500 et seq.	97
Metropolitan Water District	Water Code App. 109	1
Municipal Utility District	Pub. Util. Code § 11501 et seq.	5
Municipal Water District	Water Code § 71000 et seq.	40
Public Utility District	Pub. Util. Code § 15501 et seq.	54
Reclamation District	Water Code § 50000 et seq.	152
Recreation & Park District	Pub. Resources Code § 5780 et seq.	110
Resort Improvement District	Pub. Resources Code § 13000 et seq.	-
Resource Conservation District	Pub. Resources Code § 9001 et seq.	99
Water Conservation District	Water Code App. 34; Wat. Code § 74000 et seq.	13
California Water District	Water Code § 34000 et seq.	141
Water Replenishment District	Water Code § 60000 et seq.	1
Water Storage District	Water Code § 39000 et seq.	8

Sources: Bulletin 118 Water Resources Agency - State Controller's Office Special Districts Annual Report 49<sup>th</sup> Edition

## Attachment 1H – Governance Options Summary

- “Off-the-Shelf” Districts. There is no generic Groundwater Management District Act in the State Water Code authorizing the creation of groundwater management districts. However, approximately 20 types of local agencies are authorized by statute to provide water for various beneficial uses; and many of these agencies have statutory authority (to varying degrees) to institute some form of groundwater management. For example, Water Replenishment Districts (Water Code Section 60000 et seq.) are authorized to establish groundwater replenishment programs and collect fees for that service and Water Conservation Districts (Water Code Section 75500 et seq.) can levy groundwater extraction fees. The authority of these “off-the-shelf” districts is limited to the authority granted to them under the applicable act—they have no general police power.
- Districts Created by Special Legislation. The State legislature has created (through special legislation) approximately 13 local agencies or districts with greater authority to manage groundwater. Most of these agencies have the authority to limit export and to control some in-basin extraction upon evidence of overdraft or threat of overdraft.
- AB 3030. AB 3030 (Water Code Section 10750 et seq.) authorizes “local agencies” (local public agencies that provide water service) and other agencies that provide flood control, groundwater management or groundwater replenishment (but do not fall within the statutory definition of “local agency”) to adopt a Groundwater Management Plan and rules and regulations to enforce such a plan. With limited exception, an agency cannot engage in groundwater management planning pursuant to AB 3030 within the service area of another local agency. An agency that adopts a Groundwater Management Plan pursuant to AB 3030 has the authority of a water replenishment district and may impose equitable annual fees and assessments for groundwater management based on the amount of groundwater extracted from the groundwater basin within the area included in the plan. However, before a local agency may impose said fees and assessments, the local agency shall hold an election on the matter (a “majority of votes cast” must be in favor). An agency that adopts a Groundwater Management Plan pursuant to AB 3030 also has the authority to limit or suspend extractions if it is determined through study and investigation that the groundwater replenishment programs or other alternative sources of water supply have proved insufficient or infeasible to lessen the demand for groundwater. The San Luis Obispo County Flood Control and Water Conservation District adopted an AB 3030 plan (for areas outside of other service areas) in 2012.
- Groundwater Management Ordinances. At least 27 Counties have adopted groundwater management ordinances pursuant to their police powers.<sup>i</sup>

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<sup>i</sup> See [http://www.water.ca.gov/groundwater/gwmanagement/local\\_gw\\_ordinances.cfm](http://www.water.ca.gov/groundwater/gwmanagement/local_gw_ordinances.cfm).

Special District Comparison

	Fox Canyon Groundwater Management Agency*	Orange County Water Agency	Pajaro Valley Water Management Agency	Monterey County Water Resources Agency	Napa County
Location	Southern CA (Ventura County)	Southern CA	Santa Clara, Monterey, San Benito Counties	Central Coast	Northern CA
Enabling Legislation	1982 Special Legislation	1933 Special Legislation	1984 Special Legislation	1947 FC&WCDA** amended by 1990 Special Legislation	County Ordinance
Formation Process	Legislator Sponsorship	Legislator Sponsorship	Legislator Sponsorship	Legislator Sponsorship (amendment)	Public or County initiated resolution with approval by vote of the Board
Description and Purpose	Groundwater conservation through well <b>extraction management</b> ; Ordinance and Resolutions establishing programs/rules & regs for various basins within agency area	Purchase <b>supplemental water</b> for groundwater recharge; to construct, operate and maintain water production facilities; to acquire water rights and spreading facilities to replenish and protect the groundwater supply	Formed to efficiently and economically <b>manage existing and supplemental water supplies</b> in order to prevent further increase in, and continuing reduction of, long-term overdraft.	Manages, Protects, and <b>Enhances the Quantity</b> and Quality of Water and Provides Specified <b>Flood Control Services</b>	Five designated deficient Basins with additional provisions in the Napa County Groundwater Ordinance requiring permitting and metering of <b>certain new uses</b> and establishing "Fair Share" and "no net increase" <b>extraction limitation</b> standards
Monitoring	All extraction facilities registered, metered and reported on semi-annually	Extensively monitored and metered	Water Metering Program requires meters on all water extraction facilities pumping more than 10 afy. Presently, approx. 800 extraction facilities are metered.	Usage reporting required (authorized to fine for non compliance); no comprehensive metering program	Most new wells require metering
Demand Management	Extraction limitation and reduction schedule are calculated and established; Non- compliance: fees and/or petition court to prohibit use of well (injunction).	A basin production percentage is calculated for major producers (see annual Engineer's reports); equity assessments charged if exceeded; smaller (less than 25 AFY) exempt; Conservation programs	Conservation programs	None indicated online	Applications for a groundwater permit required to evaluate proposed use and determine requirements; For most new uses, there are extraction limitations; Penalty fines/civil action for violations; Permit issuance decisions can be appealed to the Board; Conservation programs
Projects	Limited to scientific/hydrogeological to manage basin; no major capital facilities/projects	Imported water, recharge, recycled water projects; reservoirs	Managed aquifer recharge and recovery facility; Recycled Water; Storage and Conveyance	Reservoirs managed for conjunctive use, recharge enhancement and flood management, river detention facilities for enhanced recharge, recycled water	Recycled water project being developed (voluntary-participation)
Normal Fees	\$4.00 per acre foot per well; no fee for permit	Combination of ad valorem taxes and water use assessments; replenishment assessment based on amount of overdraft (varies for each major producer)	Metered Users - Outside Delivered Water Zone \$170/AF, Inside Delivered Water Zone \$205/AF Unmetered Users (Rural Residential) \$164 (or \$97 annually per residence) Delivered Water Charge \$321	Assessment depends on what zone of benefit the property is in plus a base charge for all zones	Unknown
Governance	5 member Board: County rep, Farm rep, United Water Conservation District rep, one rep for the 5 cities, one rep for the 7 small water districts	10 member Board/divisions: 7 elected, 3 are appointed by the city councils of Anaheim, Fullerton and Santa Ana	Seven-member Board of Directors	9 members appointed by the County BOS; Regional advisory committee	County Board of Supervisors (5)
Link/Code	<a href="http://www.fcgma.org">www.fcgma.org</a> AB-2995 – FCGMA Act, Uncodified (Water Code Appendix) (not found online)	<a href="http://www.ocwd.com">www.ocwd.com</a> <a href="http://www.ocwd.com/Portals/0/Pdf/ocwd_district_act.pdf">http://www.ocwd.com/Portals/0/Pdf/ocwd_district_act.pdf</a>	<a href="http://www.pvwma.dst.ca.us/">http://www.pvwma.dst.ca.us/</a> <a href="http://www.pvwma.dst.ca.us/about-pvwma/assets/agency_act_assets/Agency%20Act%20-%202009_Act%20760.PVWMA.pdf">http://www.pvwma.dst.ca.us/about-pvwma/assets/agency_act_assets/Agency%20Act%20-%202009_Act%20760.PVWMA.pdf</a>	<a href="http://www.mcwra.co.monterey.ca.us/">http://www.mcwra.co.monterey.ca.us/</a> (see "About Us" for act)	<a href="http://www.countyofnapa.org/">http://www.countyofnapa.org/</a> (see County Info sidebar) Title 13, Chp 13.15

\*Has adopted emergency ordinances in the past to prohibit construction of new wells.

\*\*Flood Control and Water Conservation District

Special District Comparison

	California Water District	County Water District	Water Replenishment District <sup>1</sup>	SLOCFC&WCD Zone	Santa Maria Basin
Location	Various	Various	Various	San Luis Obispo County	San Luis Obispo/Santa Barbara Counties
Enabling Legislation	California Water District Law	County Water District Law	Water Replenishment District Act	SLOFC&WCD Act	Adjudication/Stipulated Judgment
Formation Process	1) Holders of title to a majority in area of land within boundaries of proposed district submit formation petition to LAFCO; 2) Holders within proposed boundary can seek exclusion and holders outside of but adjacent to proposed boundary can seek inclusion; 3) LAFCO holds hearing and enters order: establishing exterior boundaries, describing land to be excluded and naming the proposed district; 4) After entry of order, formation election proceeds based on one vote for each dollar's worth of land or based on one vote for each acre; 5) May be divided into divisions upon resolution of the board of directors or upon petition signed by a majority of eligible voters within the district (one director is elected from each division and must hold title to land in said division)	1) Assuming municipalities excluded, formation petition shall be signed by voters equal in number to at least 10 percent of the voters registered within the boundaries of the proposed district and submitted to LAFCO (must be a resident of the proposed district to be a "voter"); 2) Persons may seek inclusion of land adjacent to the proposed boundary; 3) LAFCO holds hearing to consider approving boundaries and whether to have formation vote; 4) Formation election proceeds based on one vote for each voter residing in district area.	1) Assuming municipalities excluded, formation petition shall be signed by voters residing within proposed boundaries equal in number to at least 10 percent of voters residing within proposed boundaries (must be a resident of the proposed district to be a "voter") and submitted to the Department or LAFCO; 2) Persons may seek inclusion of land adjacent to the proposed boundary; 3) Department or LAFCO holds hearing to consider approving boundaries 4) Board of Supervisors or LAFCO divides district into five divisions based on population; 5) Formation election proceeds based on one vote for each voter residing in district area.	1) Zones can be established by resolution of the Board of Supervisors or by a petition signed by at least 10 percent or more of the landowners and presented to the Board of Supervisors or LAFCO; 2) subject to majority protest by the owners of real property within the zone owning more than 50% of the total assessed value of the land or real property	Court proceedings/negotiated settlements resulted in the formation of 3 management areas with technical groups responsible for monitoring conditions in their areas.
Description and Purpose	Generally engaged in the purchase, treatment (if needed) and distribution of water	Appropriate, acquire and conserve water and water rights for any useful purpose; water conservation program to reduce water use and may require as a condition of new service that reasonable water-saving devices and water reclamation devices be installed; control, distribute, store, spread, sink, treat, purify, recapture and salvage any water, including sewage and storm waters, for the beneficial use or uses of the district or its inhabitants or the owners of rights to water therein	Buy and sell water; distribute water to persons in exchange for creating or reducing ground water extractions; Spread, sink and inject water into the underground; store, transport, recapture, recycle, purify, treat or otherwise manage and control water for the beneficial use of persons or property within the district	Buy and sell water; spread, sink and inject water into the underground; store, transport, recapture, recycle, purify, treat or otherwise manage and control water for the beneficial use of persons or property within the district	All management areas report annually to the Court; certain entities have specific extraction amounts defined
Monitoring	Generally for the purpose of managing water operations, accounting and charges	Generally for the purpose of managing water operations, accounting and charges	Generally for the purpose of managing water operations, accounting and charges and monitoring groundwater	Generally for the purpose of managing water operations, accounting and charges and groundwater/watershed conditions	For the purpose of monitoring basin uses and conditions; key well index
Demand Management	No express extraction limitation powers within the enabling legislation <sup>1</sup> . May be subject to Agricultural Water Management regulations (metering and conservation) depending on size (CWC § 10608).	No express extraction limitation powers within the enabling legislation <sup>1</sup> . May be subject to Water Management Regulations (metering and conservation) depending on size (CWC § 10608).	May levy a groundwater replenishment assessment upon the production of groundwater in order to fund groundwater replenishment programs; conservation programs	No express extraction limitation powers within the enabling legislation <sup>1</sup> ; conservation programs	Extraction limitations for certain entities are defined; potentially Severe Conditions triggers certain actions when levels or quality drops
Projects	Typically conveyance, storage, supplemental water	Typically conveyance, storage, supplemental water	Projects aimed at preserving and/or replenishing groundwater	Projects to conserve, procure, and reclaim water for present and future use within the district	Nipomo Mesa Management Area required to bring in supplemental water
Fees	Charges/standby charges allowed	Charges/standby charges (\$10/acre) allowed	Charges and replenishment assessments	Charges and assessments	Individual entities are responsible for covering costs on a cooperative basis
Governance	5-13 directors; divisions can be considered post formation	5 Directors; divisions can be considered post formation	5 Directors/5 Divisions	5 Board of Supervisors; zones have an advisory committee	A judge
Link	<a href="http://leginfo.legislature.ca.gov/faces/codes.xhtml">http://leginfo.legislature.ca.gov/faces/codes.xhtml</a> California Water Code Section 34000	<a href="http://leginfo.legislature.ca.gov/faces/codes.xhtml">http://leginfo.legislature.ca.gov/faces/codes.xhtml</a> California Water Code Section 30000	<a href="http://leginfo.legislature.ca.gov/faces/codes.xhtml">http://leginfo.legislature.ca.gov/faces/codes.xhtml</a> California Water Code Section 60000	Act 7205	<a href="http://www.sceffiling.org/cases/caschome.jsp?caseId=829">http://www.sceffiling.org/cases/caschome.jsp?caseId=829</a>

<sup>1</sup> A local agency that adopts a Groundwater Management Plan could possess the same authority of a water replenishment district; see Water Code Section 10750 et seq. for details