The 2014 Sustainable Groundwater Management Act:

Approach and Options for New Governance

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Approach and Options for New Groundwater Governance

Prior to passage of the SGMA, groundwater was largely unregulated in the state of California, especially compared to the comprehensive permit system for the state's surface water rights. California was the last state in the West to adopt a groundwater management law.

Historically there were four basic options for local groundwater management: management by local agencies under AB 3030, management by special act districts under special authority granted by state statute, city and county ordinances, or court adjudications.

Management by Local Agencies Under AB3030 and SB1938

In 1992 the state adopted AB 3030 (Water Code Section 10750-10756) so local agencies could voluntarily create a plan to manage groundwater and tackle issues such as sea water intrusion into drinking water wells, groundwater overdraft and contaminated groundwater. Better coordination of using surface water and groundwater supplies, known as conjunctive use, was another focus of some plans.

Subsequently, the Legislature passed SB 1938 in 2002 requiring public agencies seeking state funding for groundwater projects to submit a management plan to DWR with specified components. To date, 149 groundwater management plans have been developed. As of 2013 (under terms of AB 359) a copy of all plans are required to be submitted to the state for public information and use.

These laws encouraged local groundwater management planning, and some regions have made progress to improve management efforts. But the laws did not require the plans to achieve a sustainable management goal for the groundwater basin and did not provide local agencies the authorities needed to effectively manage a groundwater basin.

Management by Special Act Districts

Another form of local groundwater management is special act districts. These are created by the Legislature in response to specific concerns. Their powers are customized to the problems and solutions of a particular groundwater basin. For example, the Orange County Water District statute provided for the district to establish a groundwater replenishment assessment, commonly known as a pump tax. The Legislature granted the Santa Clara Valley Water District similar authorities. In addition, 12 other special groundwater management districts have been established through a special act of the Legislature with the specific authority to manage groundwater, although the authority of each agency varies. These special districts are: Desert Water Agency, Fox Canyon Groundwater Management Agency, Honey Lake Groundwater Management District, Long Valley Groundwater Management District, Mendocino City Community Services District, Mono County Tri-Valley Groundwater Management District, Monterey Peninsula Water Management District, Ojai Groundwater Management Agency, Pajaro Valley Water Management Agency, Sierra Valley Groundwater Management District, Willow Creek Groundwater Management Agency and, most recently, the Paso Robles Basin Management District authorized in 2014 by AB 2453.

Local Ordinances

Counties and cities have constitutional police power to regulate the use of groundwater. Virtually all local jurisdictions regulate well permitting. In the early 1990s some counties began to pass local groundwater ordinances primarily designed to discourage transferring groundwater from one county to a user in another county – a practice that became controversial during the 1987-1992 drought. More recently a few counties, such as San Luis Obispo, are using their authorities to manage groundwater use through limitations on well permits. According to DWR, 30 of the state's 58 counties have adopted groundwater ordinances.

The power of counties to regulate groundwater has been challenged, but in 1995 the California Supreme Court declined to review an appeal of a lower court decision, upholding the authority for such local ordinances through county's existing police powers.

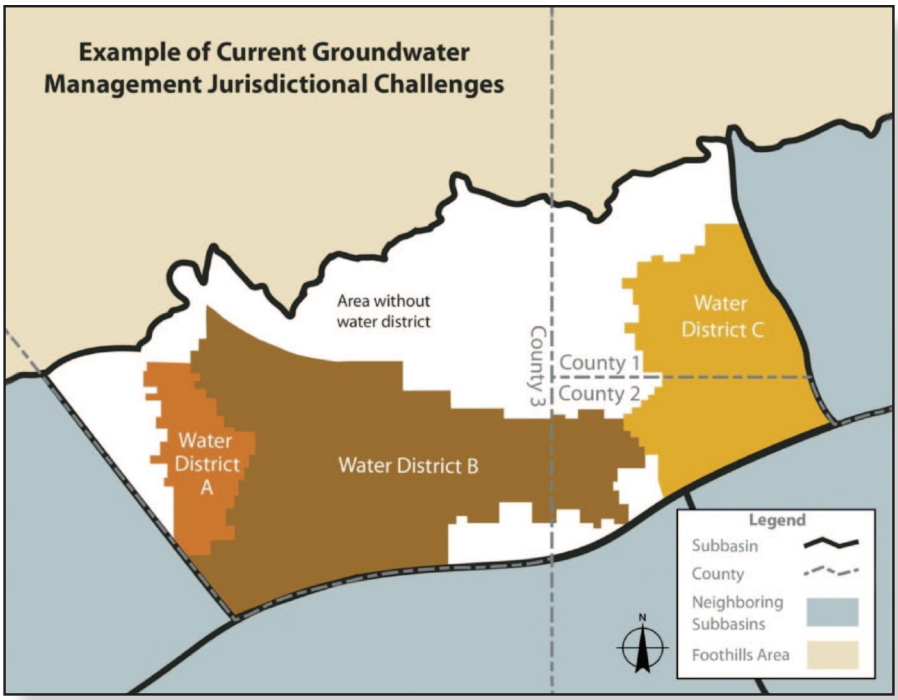
Groundwater Adjudication

When multiple parties withdraw water from the same aquifer, groundwater pumpers can ask the court to adjudicate, or hear arguments for and against, to better define the rights that various entities or individuals have to use the groundwater resources. Pumpers are assigned a designated share of the basin's water resources, and watermasters are typically appointed by the court to ensure that pumping conforms to the limits defined by the adjudication. Litigation, however, is time-consuming and costly, in part because of the multiple factual questions that must be addressed, including the identity of the pumpers, the respective amounts of historical production, the boundaries of the groundwater basin, and the history of the basin's hydrogeologic status to determine, among other things, when overdraft began. Many adjudications have taken decades to complete.

Adjudicated Basins

DWR recognizes 22 adjudicated basins. Most of the adjudications have been in Southern California, where development pressures – and groundwater overdraft – quickly overwhelmed limited aquifers. They are: Beaumont Basin (2004), Brite Basin (1970), Central Basin (1965), Chino Basin (1978), Cucamonga Basin (1978), Cummings Basin (1972), Goleta Basin (1989), Main San Gabriel Basin (1973), Mojave Basin Area (1996), Puente Basin (1985), Raymond Basin (1944), Santa Margarita River Watershed (1966), Santa Maria Valley Basin (2008), Santa Paula Basin (1996), Scott River System (1980), Seaside Basin (2006), Six Basins (1998), Tehachapi Basin (1973), Upper Los Angeles River Area (1979), Warren Valley Basin (1977), West Coast Basin (1961) and Western San Bernardino (1969).

The SGMA includes four other basins on its list of adjudicated basins. They are: Lytle Basin, Rialto-Colton Basin, Riverside Basin and San Jacinto Basin. Three other basins in which court processes are underway are also identified in the Act that they will be "treated as an adjudicated basin…if the superior court issues a final judgment, order or decree." They comprise the Antelope Valley cases, Inyo County Case No. 12908 and the Los Osos Groundwater Basin.



Groundwater management is not easy. The resource is out of sight, which can make it difficult to determine water levels, quality and other factors. Basin boundaries are impossible to see. And the boundaries of a basin don't neatly follow jurisdictional lines. In fact, most of the state's basins underlie more than one county or water agency. The basins are quite large in some areas of the state and often consist of subbasins. In addition, most aquifers are being tapped by multiple parties including water agencies or other entities that have systems distributing the groundwater. Individual landowners also are utilizing their right to pump and use the groundwater on their land – and they may reside outside of the boundaries of a water or irrigation district. In basins not managed or regulated by an adjudication, each party can pump as much as it wants and if the groundwater level drops, new and deeper wells can further impact other, neighboring wells. Some refer to such groundwater depletion as a "tragedy of the commons."

The groundwater basin boundaries in the SGMA are those as defined in DWR's Bulletin 118 report on groundwater, which was updated in 2003. There are currently 431 groundwater basins delineated. Of those, 24 basins are subdivided into 108 subbasins for a total of 515 distinct basins. According to Bulletin 118, the basin boundaries were derived primarily by identifying alluvial sediments on geologic maps, using the best available information. (See Basin map Bulletin 118.)

Overlapping jurisdictions exist in many of these basins and there is the potential for questions over which of several existing local agencies should be the designated as the GSA. The GSA allows for the sharing of basin governance through several means including memorandum of agreement, a joint powers agreement or other legal agreement. A basin can thus be managed by several separate GSAs, or just one.

Overall, communication and coordination among multiple stakeholders and governmental entities will be key to addressing these challenges and successfully implementing the SGMA.

Acronyms

AB	Assembly Bill
CASGEM	California Statewide Groundwater Elevation Monitoring
DWR	California Department of Water Resources
GSA	Groundwater Sustainability Agency
GSP	Groundwater Sustainability Plan
SB	Senate Bill
SGMA	Sustainable Groundwater Management Act of 2014
State Water Board	State Water Resources Control Board
Water Code	California Water Code

Groundwater Rights

Primarily, landowners in California are entitled to pump and use a reasonable amount of groundwater from a basin underlying their land to put it to a beneficial, nonwasteful use. When there is insufficient water to meet the demands of landowners, they are expected to reduce their use to bring extractions into the "safe yield" of the basin to prevent overdraft. Safe yield is the rate at which groundwater can be withdrawn without causing long-term decline of water levels or other undesirable effects such as subsidence.

Disputes stemming from overdraft and efforts to confine pumping to the basin's safe yield were the underlying factors of most of the court-adjudicated groundwater basins. Once the groundwater basin has been adjudicated, a court can assign specific pumping extractions to each groundwater user or group of users.

The SGMA is designed to address issues related to both overdraft and safe yield, but does not change existing groundwater rights. Specifically, Water Code section 10720.5(b) says that nothing in the legislation "determines or alters surface water rights or groundwater rights under common law or any provisions of law that determines or grants surface water rights."

While there is some concern the SGMA will undermine the authority of the local agencies or private property owners, the mandate of the Act is to first provide authority and control at the *local level* to develop and implement GSPs, and that only if local entities fail to do so would the state step in. Additionally, there was never an unfettered right for private property owners to pump as much water as one could – the Constitution has always mandated that it be put to beneficial use.

What is a GSA?

Any local agency or combination of local agencies overlying a groundwater basin may form a GSA for the basin. "Local agency" means a local public agency that has water supply, water management or land use responsibilities within a groundwater basin. The law requires that GSAs be formed by June 30, 2017.

The SGMA identified 43 groundwater basins as high-priority and 84 as medium-priority. These 127 basins must adopt groundwater management plans by 2020 or 2022, depending upon whether the basin is in critical overdraft. GSAs will have until 2040 or 2042 to achieve groundwater sustainability. These 127 basins account for approximately 96 percent of the groundwater used in the state. Most of these basins are in the Central Valley or along the Central and South Coast. Many are currently in overdraft.

The groundwater basins across the state were designated as high, medium, low or very low in the law based on data derived through DWR's California Statewide Groundwater Elevation Monitoring (CASGEM) program. (See map.) The CASGEM program was authorized in 2009 with passage of SB 6 X7, establishing a statewide groundwater elevation monitoring program, but not individual groundwater well extraction monitoring, to track seasonal and long-term trends in groundwater elevations in California's groundwater basins. In mid-December 2014, DWR concluded that the basin prioritization finalized in June 2014 under the CASGEM program will be the initial ranking for the SGMA. Local agencies can request that DWR revise the defined groundwater basin boundaries. DWR is required to adopt regulations by Jan. 1, 2016, for determining what information is necessary when filing such a request. Formation of a GSA and development of GSPs are encouraged – but not required – for those basins categorized in CASGEM as low or very low priority.

Adjudicated basins listed in the Act are not required to form a GSA or develop GSPs. They are required only to submit an annual report to DWR that contains much of the same information already required by the court.

A local agency can forego formation of a GSA and submit an alternative plan to DWR if it believes the alternative meets the objectives of the Act. If the agency believes an alternative will satisfy SGMA it has until Jan. 1, 2017 to submit the plan to DWR for review. In the SGMA such plans include existing local agency management that has been monitoring groundwater elevation since at least Jan. 1, 2010, any plans based on adjudication (the watermaster is required to submit the judgment to DWR by April 1, 2016), or an analysis that demonstrates the basin has operated within its sustainable yield for at least 10 years. DWR is required to assess the alternative to determine if it satisfies the objectives of the Act. If it does not, the local agency would be required to form a GSA and develop a GSP.

In most cases the SGMA does not delegate which local agency should be a GSA but instead leaves that decision to the local interests. The only exception is for special act districts formed through state law to manage groundwater in a local basin. The Act lists 15 special act districts that shall be the GSA in their service area boundaries, although those districts have the option to opt out if they choose.

If an area over a basin is not within the management area of a GSA, the local county will be presumed to be the GSA for that area unless it opts out. The county is required to notify DWR whether it will or will not be the GSA for the area.

What Does a GSA Do?

A GSA is the primary agency responsible for achieving groundwater sustainability. A GSA is required to develop and implement a GSP that considers the interests of all beneficial uses and users of groundwater for high- and medium-priority basins. The SGMA allows a basin to have one or multiple GSPs, but requires development of a coordination agreement between GSAs if there are multiple GSPs.

The plan must include measurable objectives for the basin to achieve sustainability in the 20-year timeframe. The GSP also must include a physical description of the basin, including groundwater levels, quality, subsidence and groundwater-surface water interaction. DWR will review the plans and will have the power to request changes to a submitted plan. DWR must adopt regulations for how it is going to evaluate GSPs by June 1, 2016. GSAs will have until 2020 or 2022 to adopt a GSP, depending on whether the basin is in critical overdraft.

What Basins are in Critical Overdraft?

Basins identified in Bulletin 118 as being "critically overdrafted" are supposed to adopt a management plan by 2020. Those that are not considered "critically overdrafted" have until 2022 to adopt a GSP.

When Bulletin 118 was first published in 1978 the definition for critical overdraft was: a basin is subject to critical conditions of overdraft when continuation of present water management practices would probably result in significant adverse overdraft-related environmental, social or economic impacts.

According to the 2003 update of Bulletin 118, "This update did not include similar direction from the Legislature, nor funding to undertake evaluation of the State's groundwater basins to determine whether they are in a state of overdraft." DWR officials are now evaluating how to determine overdraft in relation to the SGMA.

Meanwhile, the 11 basins originally identified in Bulletin 118 are: Chowchilla Basin, Cuyama Valley Basin, Eastern San Joaquin County Basin, Kaweah Basin, Kern County Basin, Kings Basin, Madera Basin, Pajaro Basin, Tulare Lake Basin, Tule Basin and Ventura Central Basin.

The SGMA gives GSAs numerous new tools and authorities to manage the groundwater and implement the objectives of the GSP. These include the authority to conduct investigations, determine the sustainable yield of a groundwater basin, measure and limit extraction, impose fees for groundwater management, and enforce the terms of a GSP. These authorities can be implemented by one or multiple GSAs. What authorities each GSA assumes will be one of the key decisions in forming a GSA.

The SGMA amends state planning and zoning law to require increased coordination between land use planning agencies and GSAs.

Options for Governance

Multiple entities. Multiple uses. Multiple concerns. Those are just three of the big challenges related to governing a groundwater basin and how to form a GSA. The physical size of a basin can be another major issue.

In general there are three different models of governance: centralized, distributed, or a combination of the two.

Centralized Governance

Under this model, one agency would assume all the responsibilities and authorities for the entire basin. However, it is likely that a centralized GSA would still need to coordinate with local land use and water agencies in the basin. These entities also would likely be members of the centralized GSA.

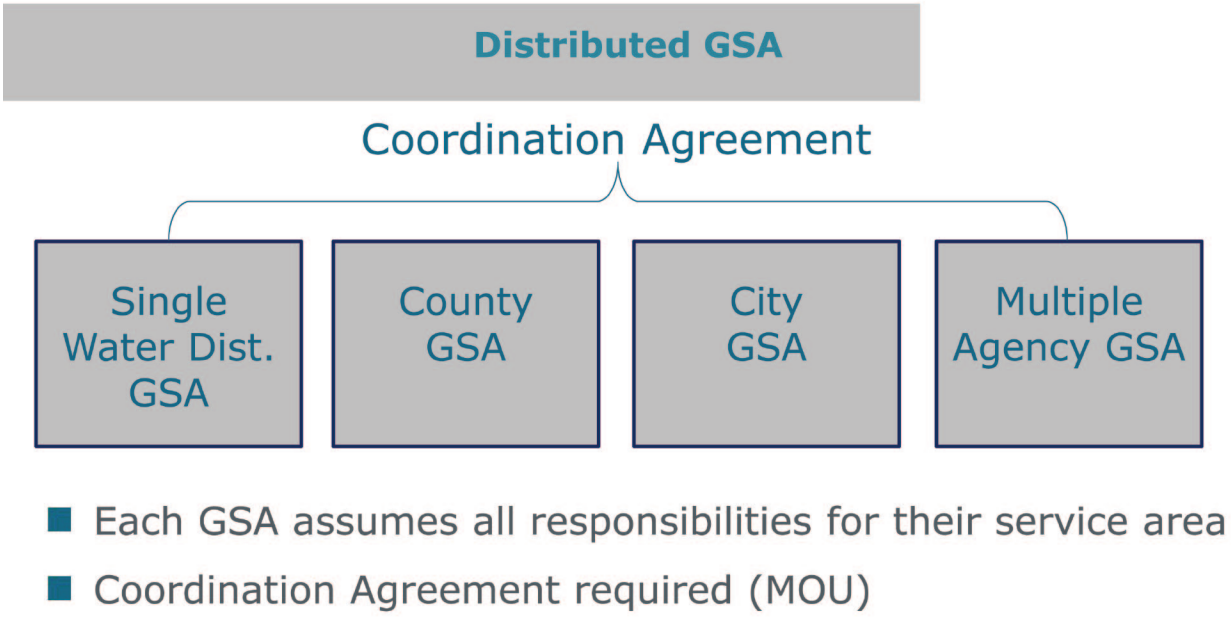
An existing local agency may assume this role or a new entity could be formed. As a centralized governing body, an existing agency (such as a water district) would likely need to modify current service area boundaries to cover the entire basin. A new centralized GSA could be formed through creation of a Joint Powers Agency or through new state legislation forming a special act district. A single, centralized GSA might be an efficient way to manage a basin and oversee the development

and management of a GSP. Data collection and management would fit within one model, relying on standard personnel and computer software.

However, there are downsides to a centralized agency model. Pursuing special legislation is time consuming and success is not predictable. Also existing agencies in many basins will be concerned about delegating all authority to one entity if it results in a local agency having less responsibility for groundwater management in its current service area. It also might be difficult for one agency to take on the task of developing a plan to manage a multi-use, multi-jurisdictional groundwater basin. Even if one agency were determined to be the GSA, it still would require collaboration among other agencies/ entities in the basin to create the GSP.

Distributed Governance

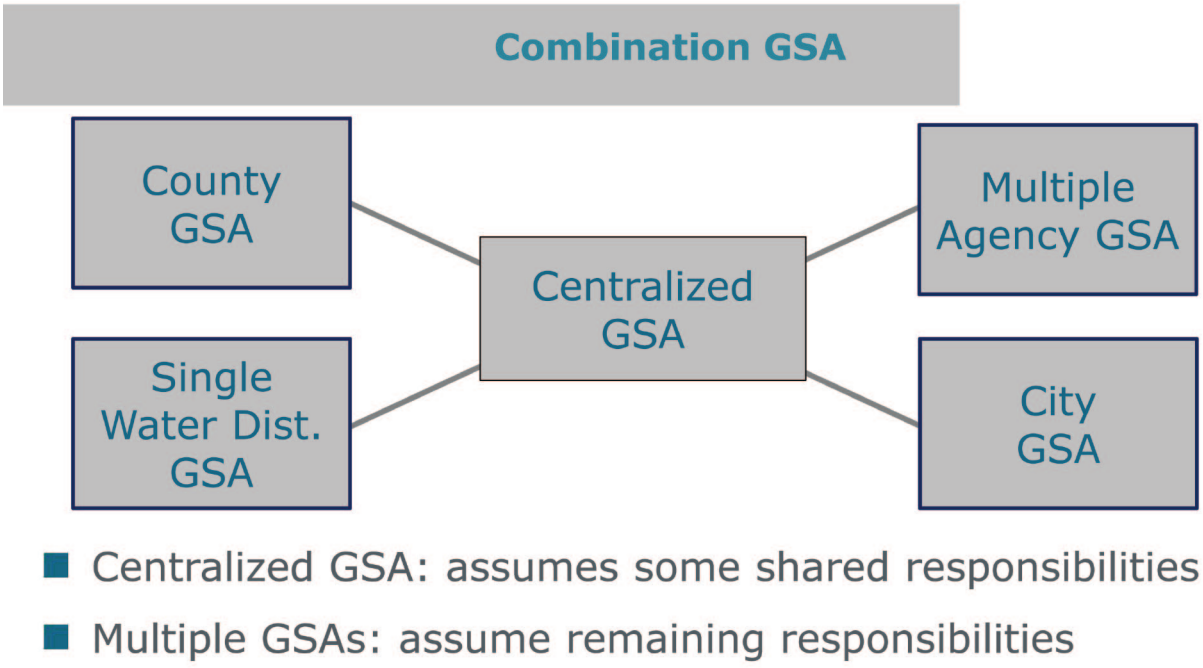
A distributed model would allow for the establishment of several GSAs covering the basin with the authorities for planning, implementation and monitoring all distributed among each GSA. This would allow many existing local agencies to retain existing authorities and assume new authorities for groundwater management in their existing service area and allow for more localized control. This option would require significant coordination among all the entities because each GSA would be developing its own GSP, implementing its GSP and monitoring its portion of the basin to ensure the basin as a whole meets the goal of sustainable yield. In the areas of the basin where a local agency does not assume the GSA responsibilities, the county would be the GSA, unless it opts out of this responsibility.



Combination of centralized and distributed

A combination model centralizes some authorities and tasks and distributes others among multiple agencies. For example, one approach could place general tasks related to planning, public outreach and coordination with the centralized GSA, and the management and enforcement tasks split among multiple GSAs. This model offers maximum flexibility for distributing the authorities and responsibilities.

This model provides options for centralizing those tasks that may require a high level of coordination and distributing other tasks that may be more effectively implemented by an existing agency or JPA in their jurisdiction.



Step-by-Step Process to Developing a GSA

The task of developing a governance structure to implement the SGMA responsibilities and authorities can be challenging for many regions. Here is a six-step process to consider:

1. Identify the basins
2. Identify and work with local agencies
3. Understand your basin and available resources
4. Identify and involve key stakeholders in your area
5. Evaluate tasks and authorities and who wants to do what
6. Evaluate and propose governance model

1) Identify what groundwater basins are in your region

A key first step is to determine if your groundwater basin(s) or subbasin(s) are subject to the SGMA.

The SGMA identified 127 groundwater basins that would be subject to its requirement (43 high-priority and 84 medium-priority). However, it exempted specific adjudicated basins (listed in the Act) from the formation of a GSA and development of a GSP. As a county or city agency you may have multiple groundwater basins in your jurisdiction and those basins are likely to overlap with neighboring counties.

If you are a water agency you may also overlap one or more basins and overlap with one or more counties. This initial mapping of boundaries will provide information that helps you assess whether your region may want to discuss changes to the current Bulletin 118 basin boundaries to support sustainable groundwater management.

You can find basin boundary, prioritization, and adjudication information at:
http://www.water.ca.gov/cagroundwater

2) Identify and work with the local agencies in the basin

The Act provides a definition of what agencies can be a GSA so it's important to identify all the agencies within a groundwater basin, and coordinate with them to determine their interests in groundwater management and what role they may want to have in future management and GSA formation, and their key concerns. Note that the SGMA gives certain special act districts priority for electing to be a local GSA in the basin.

Although discussion of new authorities and responsibilities can often push local agencies into new and possibly uncomfortable situations, the benefits of multiparty discussions may allow for creative opportunities. Each local agency can bring different and unique authorities, resources, interests, and expertise to groundwater management, potentially making the management solutions more attainable.

DWR is developing information that easily identifies the eligible local agencies for each basin. Other resources include a city or county public works department or water bills to obtain contact information. Private well owners can check with the county tax assessor to see if they are in the

boundaries of an existing water agency. They will most likely need their parcel number, sometimes called the Assessor's Parcel Number or APN.

Find information here:

http://www.water.ca.gov/cagroundwater

Find counties listed by hydrologic regions here: www.water.ca.gov/landwateruse/images/maps/California-County.pdf

Find local water districts by county here: www.acwa.com/content/locate-your-california-water-agency

3) Understand your basin conditions and resources in the region

Collect and share all existing information regarding the groundwater basin with the local agencies and interested stakeholders in your basin. This will help you establish the current level of expertise, information and resources available in the basin for groundwater management. Understanding the basin and the current level of groundwater use, the status of long term overdraft or other potential problems will be a key factor in deciding what type of GSA, and authorities and geographic boundaries can best address the problems.

Find out if groundwater management plans already exists. Many local agencies have already developed plans under the requirements of AB 3030 or SB 1938 that have information on basin conditions and current water management strategies.

Current plans are likely to form the foundation for many GSPs. And in some cases a local agency may determine its current plan meets the objective of the act and could be submitted as an alternative – potentially avoiding the creation of a GSA and new plan altogether.

Information is available on the DWR website:

http://www.water.ca.gov/cagroundwater

Local water agencies or other local entities may have groundwater models that can assist in understanding how the basin responds to various conditions of pumping and rainfall. The state can also assist in determining what resources exist in the basin. The DWR groundwater website: http://www.water.ca.gov/groundwater offers extensive information.

DWR also has regional offices, where one staff person is assigned as a groundwater contact point: http://www.water.ca.gov/groundwater/contacts.cfm

State or private universities in your region may offer experts on different aspects of water supply and water quality issues, hydrology, geology, engineering and other studies that relate to groundwater. One resource is the UC Cooperative Extension Groundwater Program at UC Davis: http://groundwater.ucdavis.edu

Nongovernmental agencies that could provide useful information include the

- Association of California Water Agencies www.acwa.com
- Groundwater Resources Association of California: http://www.grac.org

4) Identify and involve key stakeholders in the basin

In addition to the local agencies that are eligible to become a GSA, local stakeholders in a basin also will play a key role in GSA formation. Such stakeholders include individual landowners (agricultural and domestic) that have private wells, environmental users of groundwater, tribes, private water companies and disadvantaged communities. Nongovernmental organizations (NGOs) are not eligible to be on the actual governance board of a GSA or become a GSA, but it is important to engage them since they are affected by the governance decisions and future management of the basin, and may be key to final agreement of any GSA option.

The SGMA has specific requirements associated with engaging interested stakeholders. For example it requires a GSA to establish and maintain a list of all persons interested in groundwater issues including plan preparation, and other relevant documents. And as part of the final request to DWR for form a GSA, the local agency is required to include the list of interested parties and explain how those parties will participate in the development and operation of the GSA and the development and implementation of the GSP. Reach out to these groups via local farm bureaus, chambers of commerce, city council or county boards of supervisors meetings, local service clubs, other nongovernmental organizations and news media.

Many regions already have stakeholder groups that provide advice or input on regional water resource management such as county water advisory committees, technical advisory groups, or integrated regional water management planning groups. At a minimum, these existing advisory groups may be helpful initially as local agencies take the first step to gain input on GSA formation and identify processes for future stakeholder engagement.

5) Evaluate tasks and authorities of a GSA and who wants to do what

Becoming a GSA involves assuming a wide range of tasks and authorities. Those tasks and authorities can be shared and distributed among multiple GSAs or combined and centralized into one GSA. Before choosing a governance model, it is important to understand each of the responsibilities and evaluate which tasks may be best distributed and which may be best centralized. This understanding of the tasks will inform the eligible local agencies as to what role and level of engagement they may want to assume in the basin. The range of tasks and authorities for a GSA included the following:

- **Coordination** – Regardless of the governance model selected there will be a need to coordinate with other local agencies in the basin and with agencies in neighboring basins.
- **Public outreach and stakeholder engagement** – GSAs must maintain lists of interested stakeholders and engage those interested parties in GSP development and implementation
- **GSP development** – one or more GSPs are required for every basin. If multiple GSPs are developed a coordination agreement is also required.
- **Monitoring and reporting** – Additional monitoring of groundwater levels, subsidence or water quality will likely be needed to track progress in meeting the sustainable yield and basin impacts. Annual reports must be submitted to DWR on the status of the basin to allow DWR to determine the progress in meeting the sustainability goals and objectives identified in the GSP.

- **Implementation** – This includes the actions and strategies identified in the GSP to achieve sustainability and may include imposition of new fees on pumping, measurement of use at individual wells, investment in water management strategies such as water conservation, conjunctive use or new recharge facilities, or limits on new well permits issued by the county.
- **Enforcement** – A GSA will need to enforce the provisions adopted which may include payment of fees, reporting on water use, or limitations on pumping.

6) Determine which model of governance works best for your region

The SGMA allows local agencies choose their local governance structure. Local agencies can determine if a centralized, distributed or combination model works best for them. Meet with local agencies and discuss all the authorities and requirements under the SGMA and determine which fit best with existing agencies, or whether a new agency needs to be formed to handle all or portions of the GSA. There are multiple legal mechanisms available to coordinate among agencies or to form a GSA. A Memorandum of Agreement (MOU) can be used to support coordination among multiple GSAs. To assume the new authorities of a GSA, a region can form a Joint Powers Agency (JPA) involving some or all of the existing local agencies in the basin. Or a new special act district can be formed through state legislation. Finally existing agencies such as cities, counties, or water agencies can elect to be the GSA covering all or part of the basin.

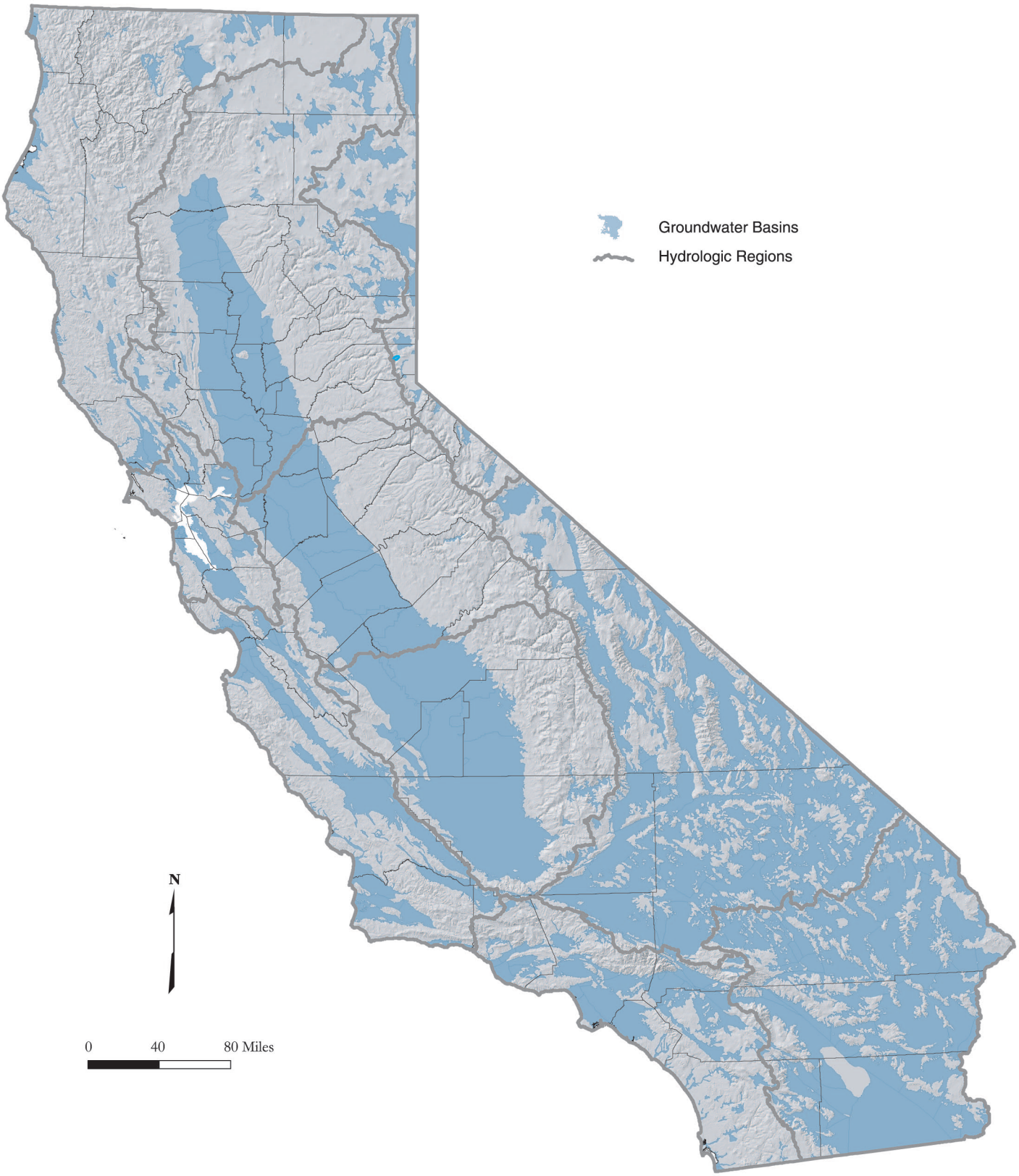
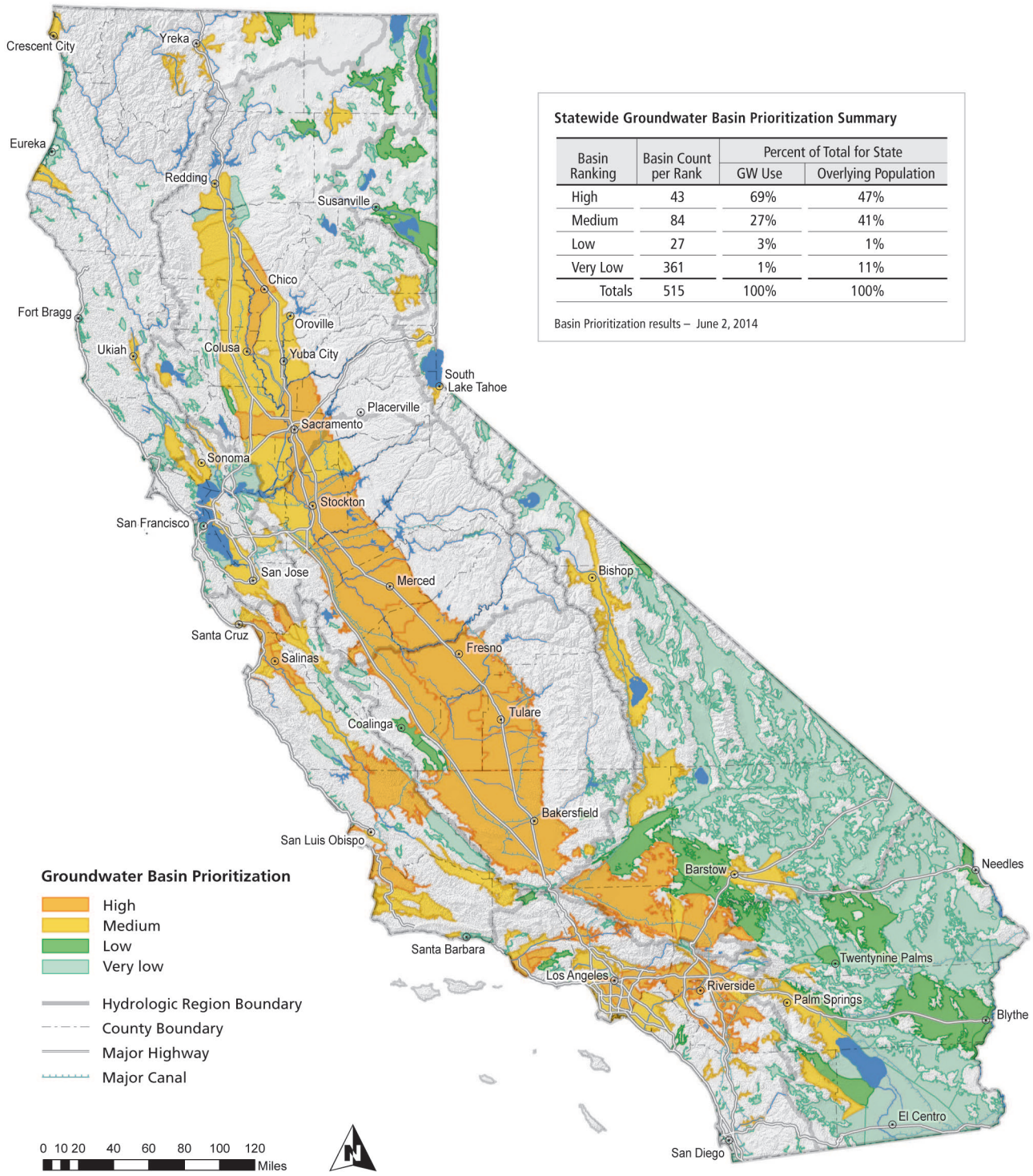


Figure 20 **Groundwater basins and subbasins**

CASGEM Basin Prioritization — June 2014



Statewide Groundwater Basin Prioritization Summary

Basin Ranking	Basin Count per Rank	Percent of Total for State	
		GW Use	Overlying Population
High	43	69%	47%
Medium	84	27%	41%
Low	27	3%	1%
Very Low	361	1%	11%
Totals	515	100%	100%

Basin Prioritization results – June 2, 2014