

# Sustainable Water for Sonoma County

## “Water for the Present and the Future”

### Summary

Within the past year, great strides have been made toward managing water resources for sustainability—satisfying current needs without compromising the future. The Sonoma County Water Agency, in cooperation with affected stakeholders, completed a major study of the Santa Rosa Plain groundwater basin. Sonoma County adopted new regulations protecting riparian (adjacent to the river) exposures from pollution. An agreement was effected to reduce gravel mining from the Russian River. Print and film media drew attention to what is going on right here at home. And remarkably, because it has never happened before, the State of California amended its Water Code to require sustainable groundwater management and enforcement.

Some of the recent progress remains to be implemented. Governments, water districts, farmers, and others need to push for prompt, effective application of water sustainability guidelines. Some of the changes will be implemented through local Groundwater Sustainability Agencies (GSAs) which have yet to be formed, but need to be without further delay. The GSAs are responsible for improved monitoring of groundwater and pumping, studies and modeling of groundwater basins, and decisions about how to achieve sustainability goals. Sustainability may require balancing current values against important future benefits. Citizens need to be informed of the changes and how they are affected personally.

Although the new water law is already in place, many of the provisions follow a timeline that stretches out for ten years and longer. Sonoma County has already accomplished part of what needs to be done. We are in a good position to move ahead and stay ahead of the deadlines—and we should. Sustainable water management becomes more difficult every year that we disregard it. The 2014-2015 Sonoma County Civil Grand Jury (Grand Jury)

recommends that governments, organizations, and individuals within Sonoma County adopt sustainability practices with all deliberate speed.

### Background

In 2014, the California legislature passed sweeping changes in water law. The key is sustainability: using water and other resources at levels that can be sustained each year without causing an undesirable result. The emphasis is on managing groundwater: “Groundwater is one of California’s most ubiquitous, widely used resources that is unseen and misunderstood. We must manage groundwater wisely.”<sup>1</sup>

### Approach

The Grand Jury studied California’s new water law; investigated related interests through printed and digital documents; interviewed County officials in key departments including water and development; reviewed public media including local newspapers; and interviewed outside interests offering insights in economics and hydrology. The Grand Jury found widespread agreement that water issues need attention; there is substantial willingness to work cooperatively toward solutions, but a greater sense of urgency is needed for moving quickly.

### Discussion

*Excessive groundwater extraction can cause overdraft, failed wells, deteriorated water quality, environmental damage, and irreversible land subsidence that damages infrastructure and diminishes the capacity of aquifers to store water for the future.*<sup>2</sup>

Groundwater was plentiful at the beginning of the 20th century. Water in saturated soil beneath the surface of the earth could be easily pumped for use and its availability fostered urban and agricultural growth. As demand for groundwater increased, effective



management became critical to protecting the future availability and quality of the supply. This was accomplished primarily on the local level, because groundwater is a local resource used locally. Many well owners choose to think of their water use as having no impact on others, although it does. Demands for water from an ever increasing number of people, municipalities, farms, and industry gradually exceed the capacity of the aquifers, until they fail. Where there is no regulation on pumping, groundwater basins have often been overused. Groundwater in Sonoma County has not been impacted as strongly by overuse as it has in California's Central Valley, but there are problems here, and there is potential for worse.

Over the years there have been attempts to make California's groundwater laws more uniform, equitable, and effective. Piecemeal efforts have helped but fallen short of the needs. Finally, last year, new legislation was passed and signed into law, modifying the California Water Code in more fundamental ways.

### **Sustainable Water Management—the legal setting**

*Old water laws and their weaknesses*—The history of California is linked to the history of water rights. Whoever controls the water controls the wealth, and therefore it is a history of struggle in the legislature, in the courts, and in the field. The struggle continues each year, seeking balance between exclusive individual rights versus the need to preserve access to water for everyone.

Problems with weak, inconsistent water laws were not new when amid high hopes the legislature passed laws in 2001 to strengthen the California Environmental Quality Act (CEQA). CEQA, enacted in 1970, requires state and local agencies to identify the significant environmental impacts of their actions and to avoid or mitigate those impacts, if feasible. Among the provisions were requirements that municipalities approving a new development project would evaluate the water supply and forecast that it would be sufficient for 20 years. That is the process followed in 2004 when the City of Rohnert Park prepared a Water Supply Assessment and on the strength of it certified

a new development project for the city. A local environmental consortium headed by the O.W.L. Foundation pointed to deficiencies—which the City proceeded to address. However, after the courts sided with the City's original position, many observers concluded that a stronger law was needed. Apparently the legislature agreed.

*The new water law and its potential*—Legislation passed in 2014 is widely understood to provide the strongest groundwater management law that California has ever had. The new law:

- Adopts a goal that all groundwater use be sustainable,
- Establishes local agencies responsible for sustainable water use,
- Grants authority to the local agencies to enforce sustainable use, and
- Grants authority to fund the local agencies.

The local agencies are called Groundwater Sustainability Agencies. Each GSA is responsible for a careful analysis of an aquifer and how it is being used, in the form of a groundwater sustainability plan consistent with criteria established in the law. The GSA is responsible for preparing the plan and making it work on a sustainable yield basis. Initially, the mandates apply to the most critical aquifers, those with high and medium priorities for action, as assigned by the California Department of Water Resources (DWR).

It is unlikely that the new law will resolve all water concerns, or indeed that it will go unchallenged in the courts. But it provides a fresh framework with new powers around which the community can gather cooperatively to obtain more rational, equitable water management results than before. And while the law deals primarily with the management of groundwater resources, it is clearly tied to the management of surface waters as well.

### **Groundwater Resources in Sonoma County**

The County has been mapped into fourteen aquifer basins by the United States Geological Survey (USGS) and affirmed by the DWR. In Sonoma County, three of those basins have been singled out by DWR as medium priority basins selected for early attention,

for a combination of reasons that include the overlying population, its projected growth, irrigated acreage, reliance on groundwater, and impacts such as overdraft, subsidence, and saline intrusion. They are:

- Santa Rosa Plain sub-basin
- Petaluma Valley basin
- Sonoma Valley sub-basin

Figure 1 shows where the groundwater basins in Sonoma County are located.

can be managed. The first results of those efforts have been realized in two groundwater management plans:

- Sonoma Valley Groundwater Management Plan, December 2007.
- Santa Rosa Plain Groundwater Management Plan, October 2014.

Efforts are under way to develop a similar groundwater management plan for the Petaluma Valley basin.

An outstanding feature of these plans is

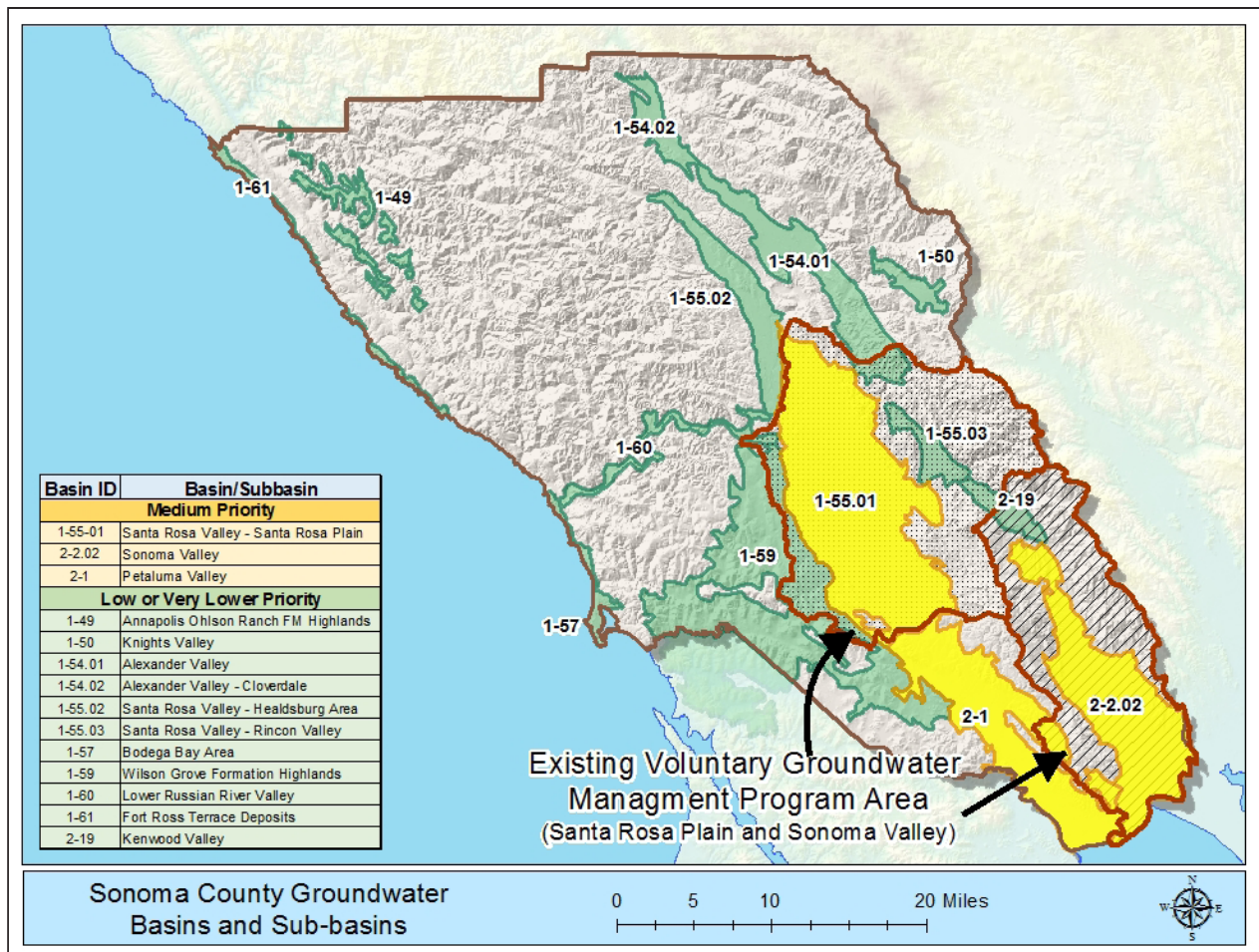


Figure 1 Groundwater Basins in Sonoma County - Courtesy of Sonoma County Water Agency

Sonoma County Water Agency (SCWA) is a wholesale supplier of water to about twenty cities and other agencies in Sonoma County.<sup>3</sup> During recent years, SCWA has been working with stakeholders (people with vested interests) throughout the County to identify how their interests within the groundwater basins

cooperative effort between SCWA and the USGS: “[E]ach ground-water basin will be studied and the hydrologic information will be added to a geographic-information system being developed by SCWA and Sonoma County.” The groundwater flow models will eventually be “unified into an optimization model for water supply”—in other words, an effective tool to help in managing the groundwater basins.<sup>4</sup>



That is an important step toward sustainability because there still isn't enough information to complete a good optimization model. Most well owners don't report basic information such as how much water they pump and what the water depth is. Existing groundwater management plans are voluntary agreements between stakeholders about collecting more such information. In the future, there will be more data. As information improves, groundwater models and management decisions will also improve.

### **Management of Groundwater Resources—planning**

*When properly managed, groundwater resources will help protect communities, farms, and the environment against prolonged dry periods and climate change, preserving water supplies for existing and potential beneficial use. Failure to manage groundwater to prevent long-term overdraft infringes on groundwater rights.<sup>5</sup>*

The groundwater sustainability plan mandated for each of Sonoma County's three medium-priority water basins will need extensive information to respond to all the criteria in the new law. A short list includes detailed basin description, measurable objectives, timeline for implementation, means for accomplishing the goals, monitoring provisions, and coordination with city and county general plans. A water sustainability plan needs to consider all factors that affect the balance of the water system, with conjunctive management of surface water and groundwater resources. While good data are available for water used by municipalities and water districts within the county, considerably less is known about water use in areas outside those limits – where most of the individual wells and most of the county's agriculture is located. Data collection and monitoring will need to be early goals of the new GSAs.

Sonoma County's two recent groundwater management plans provide much of the information required for the new groundwater sustainability plans, but important additions are needed. The existing groundwater management plans fall short of actually managing the basins on a sustainable basis. If compliant water use is

not achieved voluntarily, there will be additional provisions for enforcement.

The Petaluma Valley water basin underlies both Marin and Sonoma counties. The groundwater sustainability plan for that basin will call for further cooperation between agencies and stakeholders in both locations.

### **Cooperating to Get the Most Benefit Out of the New Law**

*Information on the amount of groundwater extraction, natural and artificial recharge, and groundwater evaluations are critical for effective management of groundwater.<sup>6</sup>*

Sharing the water in an underground aquifer can work well as long as everyone follows a "good neighbor" policy and cooperates. Some aquifers, however, serve thousands of neighbors and it isn't always easy to get the needed cooperation. The new groundwater sustainability law provides a structure for cooperation and a way to accomplish common goals.

*Getting started now with groundwater sustainability management—*The new groundwater sustainability law defines sustainable management as managing and using groundwater in a way that can be continued over a long period of time. Specifically, sustainable yield is defined as the amount of groundwater that can be withdrawn annually without:

- chronically lowering groundwater levels,
- causing seawater intrusion,
- degrading water quality,
- causing land subsidence, or
- depleting interconnected surface water (such as creeks, streams and rivers) in a manner that causes significant and adverse impacts.

What sets the new law apart from earlier legislation is that it establishes mandates, i.e. for sustainability, a timeline for implementation that stretches incrementally to 2025, and regulatory authority. Authority is vested in local agencies to interpret and apply the mandates as long as mandates are met; in default, the State will take over.

Some observers believe that actions should be taken timely, to preserve local control. In fact, there is a palpable advantage in moving ahead promptly well ahead of the deadlines; Sonoma County should be able to gain that advantage. Indeed, after January 1, 2015, new groundwater management plans and plan renewals for high and medium priority basins must include sustainability provisions. For example, delays in implementing these plans could impede updating city master plans. In addition, the general plans adopted by cities and county must coordinate with the new groundwater sustainability plans.

The first deadline for local action is June 30, 2017, by which time the GSA must be identified. Each distinct groundwater basin may have a separate GSA to address unique concerns, or a GSA may serve several basins. The law sets qualifications for which agencies may serve as GSAs but is unclear about how the GSAs are to be selected, and yet that process will determine how effective the GSAs are. A reasonable goal is that formation of the GSA will provide for representative governance by local stakeholders, such as:

- Rural residential property owners who rely on groundwater,
- Agricultural property owners,
- Municipal water agencies that rely in whole or in part on groundwater supplies,
- Mutual water companies that rely on groundwater supplies,
- Water quality/environment/wildlife representatives,
- Agencies that have land use authority within the groundwater basin, including cities and the County.

The law provides that those living in a specific groundwater area may form a GSA that allows them broad representation and independent governance. The default GSA for water basins in Sonoma County that are not otherwise included in a specific GSA is the County Board of Supervisors. The Supervisors also serve in a dual role as the Board of Directors of SCWA.

*Working with groundwater sustainability management*—Under the new water law, Groundwater Sustainability Agencies are

assigned one essential responsibility: attaining sustainability for their respective groundwater basin or basins. It will take time to achieve this goal. At best, it is likely to take several years to decide what a sustainable yield is for each basin, longer to establish a plan for sustainability, longer to implement the plan, and still longer to demonstrate that the adopted measures are working—that the groundwater basin is performing as expected to achieve long-term sustainability goals—without any of the adverse conditions identified above. It is this lead time that pointedly illustrates why it is important for Sonoma County to have operational GSAs, without delaying until the deadline—because permanent damage to groundwater basins can occur and there is reason to believe some damage may already be occurring. In the even more immediate future, a functioning GSA might be able to help with the current drought, including the Governor’s Executive Order mandating cutbacks in water consumption.

The new water law grants powers that the GSAs may need to carry out their responsibilities, notably obtaining information about the water basin and how much water is being extracted from it. The powers allow the GSA to fund its own operations and enforce its own rules. Which powers are enacted and how they are implemented become decisions of the local GSA based on local needs. One of the first things a new GSA is likely to do is gather as much information as possible about the aquifer and how the water in it is being used. Some data are already known through the work of USGS and the DWR, but more information will be needed. The GSA is likely to ask well owners for help in gathering information about well inventories, well characteristics, and well monitoring. Further attention will be given to approval of monitoring technology, groundwater basin monitoring, water demand projections, basin recharge rates, ground subsidence, basin carrying capacity, and limits on development and pumping.

Carrying capacity has to do with how many people can be supported indefinitely with the available resources and services. A study of carrying capacity is an opportunity to bring

many ideas and people together in search of balance and consensus. In the broadest sense, water is only one important part of that picture. For purposes of water management, carrying capacity includes available resources, population, and per capita consumption. A carrying capacity study should consider how an economic part, a social part, and an environmental part come together to make up community. Carrying capacity should be studied broadly across the entire county through an independent team representing resources, disciplines, stakeholders, and other interests.

Some of this may be difficult to accept after years of unregulated groundwater use, but easier to accept than a well going dry when a property owner is relying on it—or a whole water basin that is no longer available to anyone. Water is essential to life and our enjoyment of life. Groundwater sustainability management is an essential step in making sure water is available to us and to those who follow us.

## Findings

- F1. Recent changes in California water law establish requirements for managing groundwater as a long-term sustainable resource, administered by local Groundwater Sustainability Agencies.
- F2. Sonoma County is better served if Groundwater Sustainability Agencies are established in advance of state-mandated deadlines, using criteria that assure broad participation.
- F3. Water agencies within Sonoma County have yet to sufficiently educate groundwater users about their responsibilities for sharing water resources, potential limitations on water use, and the advantages of making sure, through sustainability, that water will be available in the future for their own use.
- F4. Most governmental entities in Sonoma County — departments, cities, and other agencies — have yet to adopt sustainability provisions in their mission statements, goals, and programs, or to

coordinate those efforts with other government entities.

- F5. The Sonoma County Water Agency has participated significantly in preparations for sustainable water management, and can continue to contribute in the transition to management through groundwater sustainability agencies.
- F6. Economic and environmental sustainability are interdependent; economic sustainability can be achieved only when critical resources such as water are also managed for sustainability.
- F7. There has been no cross-discipline study of carrying capacity in Sonoma County that projects what population the water and other resources in Sonoma County are capable of supporting.

## Recommendations

The Grand Jury recommends that the Board of Supervisors and Sonoma County Water Agency:

- R1. Establish goals that include sustainability and recognize water sustainability as a specific goal.
- R2. Assign a high priority to implementing the new water sustainability law.
- R3. Conduct a county-wide study of carrying capacity.
- R4. Use the existing groundwater management plans as foundations for issuing new groundwater sustainability plans for two of Sonoma County's major water basins.
- R5. Continue funding as appropriate for the Sonoma County Water Agency to support the formation of suitable groundwater sustainability agencies and their early operations.

## Required Responses

Pursuant to Penal Code section 933.05, the Grand Jury requests responses as follows:

- R1, R3, R5 - Sonoma County Board of Supervisors
- R1, R2, R3, R4, R5 - Sonoma County Water Agency

## Endnotes

- 1 “California’s groundwater problems and prospects,” UC Davis Center for Watershed Sciences, January 2013. <http://californiawaterblog.com/2013/01/30/californias-groundwater-problems-and-prospects/>
- 2 California Legislature finding in AB1739 (2014).
- 3 See <http://www.scwa.ca.gov/> and <http://www.scwa.ca.gov/water-system/>
- 4 “Water Resources Availability and Management in Sonoma County, CA” U.S. Geological Survey / California Water Science Center, 14 Jun 2011. [http://ca.water.usgs.gov/user\\_projects/sonoma/index.html](http://ca.water.usgs.gov/user_projects/sonoma/index.html)
- 5 California Legislature finding in AB1739 (2014)
- 6 California Legislature finding in AB1739 (2014)

## Glossary

“Groundwater sustainability agency”: One or more local agencies that implement the new sustainable groundwater management provisions of California’s water law.

“Groundwater sustainability plan”: A plan established by a groundwater sustainability agency to achieve sustainable groundwater management.

“Sustainable”: (1) meeting the needs of the present without compromising the ability of future generations to meet their own needs; (2) improving the quality of human life while living within the carrying capacity of the Earth’s supporting eco-systems.

“Sustainable groundwater management”: Management and use of groundwater in a way that can continue for a very long time without causing undesirable results.

## Suggested Reading

“Sustainable Development”, Water in the West, Stanford Woods Institute for the Environment, 2014. <https://woods.stanford.edu/research/centers-programs/water-west>

“Sustainable Groundwater Management Act,” Sonoma County Water Agency, 2015. <http://www.scwa.ca.gov/sgma/>

“Sustainable Groundwater Management Act in Sonoma County” [http://www.scwa.ca.gov/files/docs/water-resources/groundwater/sgma/SGMABOSBOD\\_3\\_17\\_15\\_FINAL\\_a.pdf](http://www.scwa.ca.gov/files/docs/water-resources/groundwater/sgma/SGMABOSBOD_3_17_15_FINAL_a.pdf)

Kevin M. O’Brien, Alice in Groundwater Land: Water Supply Assessments and Subsurface Water Supplies, 4 Golden Gate U. Envtl. L.J. (2010). pp.131-144 <http://digitalcommons.law.ggu.edu/gguelj/vol4/iss1/7>

“Groundwater Law” 2014. Water Education Foundation, Sacramento: Aquapedia. <http://www.watereducation.org/aquapedia-background/groundwater-law>

California 2014 water law revisions: SB 1168, SB 1319, and AB 1739

“Sonoma County General Plan 2020: Water Resources Element”, September 2008. <http://www.sonoma-county.org/prmd/gp2020/wre.pdf>

*Reports issued by the Grand Jury do not identify individuals interviewed. Penal Code section 929 requires that reports of the Grand Jury not contain the name of any person or facts leading to the identity of any person who provides information to the Grand Jury.*