



SONOMA ECOLOGY CENTER

Protecting the beauty and biodiversity of Sonoma Valley

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As a representative of environmental issues on the Sonoma Valley Groundwater Sustainability Agency's Advisory Committee, I have two ambitious goals in mind. Both of these goals are on the minds of people across the state, and both face major scientific and political challenges. These goals are:

1. The goals, objectives, and thresholds in the Groundwater Sustainability Plan are set to achieve multiple, explicit, desired, water-related functions and benefits, not set to "sustain" conditions as they were at any particular time in the past. "Sustaining" conditions as they were in January, 2015, which is the minimum standard set in the SGMA law, will not achieve many functions or benefits, because that month was during a severe drought, and followed many years of over-draft.
2. The Groundwater Sustainability Plan, when implemented, provides sufficient water in surface and groundwater systems to support robust populations and communities of native plants and wildlife, to the extent that water-dependent species can be de-listed.

The scientific challenge with meeting these goals is that the precise relationship between amounts and timing of water availability, on the one hand, and the production of benefits—such as a successfully reproducing salmonid fishery, or sustainably reproducing valley oak savannah on the floodplains, or preventing intrusion of saline water into the southern part of Sonoma Valley's groundwater, or maintaining functionality of existing shallow residential wells, or supplying water to Kenwood Marsh—is not yet established.

To develop these relationships—similar to a dose-response relationship in medicine—it's critical that GSA's collect empirical data (meaning real-world biophysical measurements) from monitoring wells, flow gages in, near, and upstream of water-dependent ecosystems, to demonstrate how water behaves in the basin and how ecosystems respond. Limited monitoring done by my organization, Sonoma County Water Agency, Trout Unlimited, and soon the GSA—for example at <https://knowledge.sonomacreek.net/node/412> is enough to show that in Sonoma Valley groundwater and surface water are interacting along much of the valley floor and at the toe of the hills around the valley floor. Much more needs to be done.

Evolving science and guidance on these issues often uses the terms "groundwater dependent ecosystems" and "streamflow objectives". Good examples are:

- California's Groundwater Dependent Ecosystems, The Nature Conservancy:
<http://www.groundwatercalifornia.org/> and

<https://www.scienceforconservation.org/science-in-action/groundwater-dependent-ecosystems-story>

- Developing Tiered Environmental Flow Criteria Using a Functional Flows Approach for California Streams, Maven's Notebook: <https://mavensnotebook.com/2017/10/18/brown-bag-seminar-developing-tiered-environmental-flow-criteria-using-a-functional-flows-approach-for-california-streams/>

The political challenge with meeting these goals is the eternal one of balancing near-term economic uses of water against environmental and social needs. In Sonoma Valley, we have some resources for finding win-win-win solutions. Many of us on the GSA Board and Advisory Committee have worked together for a decade or more, through the pre-SGMA Sonoma Valley Groundwater Management Program (<http://www.scwa.ca.gov/svgroundwater/>), largely funded by Sonoma County Water Agency and DWR grants. Many of us, and the interest groups we represent, are also involved in Sustainable Sonoma (<https://www.sustainablesonoma.net/>), a newer forum for finding common ground between economic, environmental, and social justice interests, for the greater good of the whole community.