



AGENDA

SPECIAL MEETING

Thursday, April 21, 2016, 4:00 p.m.

NVTA Conference Room
625 Burnell Street, Napa CA 94559

Board of Directors

Susan Boswell
Tosha Comendant
Diane Dillon
Marita Dorenbecher
Jeri Gill
David Graves
Gary Kraus
Jason Lauritsen
Kenneth Leary
Gretchen Stranzl
McCann
Marc Pandone
Alfredo Pedroza
Jeff Reichel
Scott Sedgley
Pamela Smithers
Rita Steiner
Peter White

Alternates

Keith Caldwell
Paul Dohring
Richard Hall
Irais Lopez-Ortega
Mary Luros
Belia Ramos

Staff

Patrick Lowe,
Secretary
Natural Resources
Conservation Mgr.,
Public Works

Jeff Sharp,
Principal Planner,
Public Works

Robert C. Martin,
Legal Counsel
Deputy Counsel,
County Counsel's
Office

804 First Street,
Napa, CA
94559-2623

Tel: 707-259-8600

info@napawatersheds.org

1. **CALL TO ORDER & ROLL CALL** (Chair)

2. **APPROVAL OF ACTION MINUTES**
Meeting of January 28, 2016 (Chair) (2 min)

3. **PUBLIC COMMENT**

In this time period, anyone may comment to the Board regarding any subject over which the Board has jurisdiction, or request consideration to place an item on a future Agenda. No comments will be allowed involving any subject matter that is scheduled for discussion as part of this Agenda. Individuals will be limited to a **three-minute presentation**. No action will be taken by the Board as a result of any item presented at this time. (Chair)

4. **PRESENTATION AND DISCUSSION**

Napa County Groundwater Monitoring Program 2015 Annual Report, and Sustainable Groundwater Management Act (SGMA) Implementation Update (Patrick Lowe, Staff, Vicki Kretsinger, LSCE) (45 min)

5. **UPDATES, REPORTS AND DISCUSSION**

a) Update on WICC supported watershed education and outreach efforts and fisheries monitoring (Johnathan Kohler, Napa County RCD) (15 min)

b) Report on Redwood Middle School creation of water management infographics (Tosha Comendant, Conservation Biology Inst.) (5 min)

c) Update on the implementation of WICC website strategies and improvements to achieve Strategic Plan goals (Staff) (10 min)

(cont.)

- d) Report on WICC sponsorship and participation in Napa Earth Day Celebration on April 23rd at Oxbow Commons in Downtown Napa (2 min)
 - e) Update on WICC participation in North Bay Watershed Association Conference, April 22nd, Embassy Suites in Napa (Staff) (2 min)
 - f) Other reports and updates (Board/Staff) (5-10 min)
6. REVIEW, DISCUSSION AND RANKING
Review and ranking of the best student-created Water Conservation videos, “Every Drop Counts,” for use as public service announcements throughout Napa County. Winning videos will be announced at the Napa Earth Day Celebration (Pat Costello, Water Resources Analyst, City of Napa) (15 min)
7. INFORMATIONAL ANNOUNCEMENTS
Exchange of informational announcements and events (Staff/Board/Public) (5-10 min)
8. FUTURE AGENDA ITEMS
Discussion of possible items for future agendas (Board/Staff) (5 min)
9. NEXT MEETING (Chair)
Regularly Scheduled Board Meeting: **May 26, 2016** – 4:00 p.m.
10. ADJOURNMENT (Chair)

Note: If requested, the agenda and documents in the agenda packet shall be made available in appropriate alternative formats to persons with a disability. Please contact Jeff Sharp at 707-259-5936, 804 First St., Napa CA 94559-2623.





A Tradition of Stewardship
A Commitment to Service

Agenda Date: 4/5/2016
Agenda Placement: 9H
Set Time: 2:45 PM
Estimated Report Time: 1 hour

NAPA COUNTY BOARD OF SUPERVISORS Board Agenda Letter

TO: Board of Supervisors

FROM: Steven Lederer - Director of Public Works
Public Works

REPORT BY: Patrick Lowe, Natural Resources Conservation Mgr - 259-5937

SUBJECT: Napa County Comprehensive Groundwater Monitoring Program 2015 Annual Report and California Statewide Groundwater Elevation Monitoring (CASGEM) Update; and Sustainable Groundwater Management Act (SGMA) Implementation Update

RECOMMENDATION

Director of Public Works requests the following:

1. Receive staff report/presentations on the Napa County Comprehensive Groundwater Monitoring Program 2015 Annual Report, California Statewide Groundwater Elevation Monitoring (CASGEM) Update, and Sustainable Groundwater Management Act (SGMA) Implementation Update; and
2. Board Discussion and Possible Direction to staff regarding the Expanded Groundwater Sustainability/Monitoring Program, Groundwater Sustainability Plan(GSP) Alternative and GSP Development, and Groundwater Sustainability Agency (GSA) Formation.

EXECUTIVE SUMMARY

Groundwater Monitoring: This is the 2nd Annual Report – Napa County Comprehensive Groundwater Monitoring Program 2015 Annual Report and CASGEM Update. In addition to providing an update on groundwater level conditions and monitoring program modifications, this Report summarizes available background information in order to serve as a common reference for future annual reports. This is a technical report for Board review and acceptance.

SGMA Implementation: On January 1, 2015 the California Department of Water Resources (DWR) began implementation of the Sustainable Groundwater Management Act (SGMA or Act), legislation which provided a new structure for sustainable management of California's groundwater basins. Under the Act's timeline for implementation, DWR first prioritized the groundwater basins with the greatest need, developed Groundwater Sustainability Agency (GSA) formation guidelines, and then created draft Regulations for Groundwater

Sustainability Plans (GSP) and Alternatives. The regulations were out for public comment until April 1, 2016, with final adoption into regulations required by June 1, 2016. Depending upon the final form of the regulations, changes to our local implementation may be required, including the GSP-alternative (Basin Analysis Report) and possible Groundwater Sustainability Agency (GSA) formation. Staff have provided comments to DWR on the draft regulations to request clarifications and to address issues regarding consistency with the legislative language and intent.

PROCEDURAL REQUIREMENTS

1. Receive staff report
2. Public Comment
3. Motion, second, discussion
4. Accept report and provide direction to staff

FISCAL IMPACT

Is there a Fiscal Impact? No

ENVIRONMENTAL IMPACT

ENVIRONMENTAL DETERMINATION: The proposed action is not a project as defined by California Code of Regulations 15378 (State CEQA Guidelines) and therefore CEQA is not applicable.

BACKGROUND AND DISCUSSION

Groundwater Monitoring Program

The Napa County Groundwater Monitoring Plan 2013 (Plan) was prepared to formalize and augment groundwater monitoring efforts conducted as part of the Comprehensive Groundwater Monitoring Program. The Plan recommended annual reports on groundwater conditions and modifications to the countywide groundwater monitoring program as needed. Additionally, the Plan recommended a comprehensive triennial report.

This report is the 2nd Annual Report - Napa County Comprehensive Groundwater Monitoring Program 2015 Annual Report and CASGEM Update (*Attachment A – Annual Report*). In addition to providing an update on groundwater level conditions and monitoring program modifications, this Report summarizes available background information in order to serve as a common reference for future annual reports.

Groundwater and surface water are important natural resources in Napa County. Together, the County and other municipalities, water districts, commercial and industrial operations, the agricultural community, and the general public, are stewards of the available water resources. Everyone living and working in Napa County has a stake in protecting the County's groundwater resources, including groundwater supplies, quality, and associated watersheds (GRAC, 2014).

Long-term, systematic monitoring programs are essential to provide data that allow for improved evaluation of water resources conditions and to facilitate effective water resources planning. For this reason, Napa County embarked on a countywide project referred to as the "Comprehensive Groundwater Monitoring Program, Data Review, and Policy Recommendations for Napa County's Groundwater Resources" (Comprehensive Groundwater Monitoring Program) in 2009, to meet action items identified in

the 2008 General Plan update. The program emphasizes developing a sound understanding of groundwater conditions and implementing an expanded groundwater monitoring and data management program as a foundation for future coordinated, integrated water resources planning and dissemination of water resources information.

Sustainable Groundwater Management Act (SGMA) Update

On January 1, 2015 the California Department of Water Resources (DWR) began implementation of the Sustainable Groundwater Management Act (Act), legislation which provided a new structure for sustainable management of California's groundwater basins. Under the Act's timeline for implementation (*Attachment B-SGMA Implementation Timeline*), DWR first prioritized the groundwater basins with the greatest need. DWR determined that the current CASGEM basin prioritizations were sufficient for this purpose, which designated the Napa Valley Subbasin (essentially the valley floor) as a medium priority basin. Then DWR developed Groundwater Sustainability Agency (GSA) formation guidelines, followed by draft emergency regulations for groundwater sustainability plans (GSP) and alternatives.

DWR Regulations for Groundwater Sustainability Plans and Alternatives

On February 18th, DWR released the draft emergency regulations for groundwater sustainability plans and alternatives. The release of the draft regulations starts a public comment period that ended April 1st, with final adoption into regulation required by June 1, 2016. (*Attachment C - DWR Draft Regulations for GSPs and Alternatives*). Depending upon the final form of the regulations, they may result in changes to our local implementation, including the GSP-alternative (Basin Analysis Report) and possible Groundwater Sustainability Agency (GSA) formation. Staff have provided comments to DWR on the draft regulations to request clarifications and to address issues regarding consistency with the SGMA legislative language and intent.

Alternative Submittal - Sustainably Managed Basins- Groundwater basins that have ongoing successful groundwater management programs do not need to create a GSA or develop a new GSP. A local agency or a GSA may elect to submit an alternative report that demonstrates that the groundwater basin is being sustainably managed. Napa County, based on direction from the Board at its meeting on March 3, 2015, has been developing this alternative submittal option (Basin Analysis Report), which consists of an analysis of the basin prepared by a California-licensed Professional Engineer or Geologist demonstrating that the basin has operated within its sustainable yield for a period of at least 10 years. A local agency or GSA must provide an alternative submittal to DWR for review by January 1, 2017 and every five years thereafter. The current draft regulations now propose that GSP-alternative submittals include substantially the same information as a GSP, which differs from what was outlined in the SGMA legislation. If these requirements are included in the final regulations, the alternative submittal option would not be possible due to the additional technical/procedural requirements and the short timeframe remaining to meet the deadline. If this proves to be the case, then Napa County would shift its efforts towards the development of a GSP and the formation of a Groundwater Sustainability Agency (GSA).

Groundwater Sustainability Agencies

If the formation of a Groundwater Sustainability Agency (GSA) is required, there are a number of different options available. (*Attachment D - Guide to Forming GSAs*). A local agency or combination of local agencies overlying a groundwater basin may form a Groundwater Sustainability Agency (GSA) for the basin. A "local agency" is defined as "a local public agency that has water supply, water management, or land use responsibilities within a groundwater basin." A combination of local agencies may form a GSA by joint powers agreement or memorandum of agreement or other legal agreement. If more than one GSA is formed for a basin, they must have an agreement that provides for the coordination of their efforts. Local agencies in

high- and medium-priority basins, which includes Napa County, have until June 30, 2017 to form a GSA. An agency or agencies must notify DWR of the formation or establishment of a GSA within 30 days of final formation, and after 90 days the agency shall be the exclusive agency for that area of the basin provided no other agency notice was submitted. 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 the area unless it opts out. The county is required to notify DWR whether it will or will not be the GSA for the area.

A GSA must consider the interests of a variety of different stakeholders, including beneficial users of water, environmental interests, disadvantaged communities, tribes, and others. The agency must maintain a list of persons interested in receiving notices regarding plan preparation and other activities. GSAs may also exercise a broad array of new authorities, including determining the sustainable yield of a groundwater basin, conducting investigations, measuring/limiting extractions, imposing fees for groundwater management, and enforcing the terms of a GSP. However, nothing in a GSP supersedes the land use authority of cities and counties.

Other Groundwater Program Updates

Groundwater Model Update - The County is continuing to pursue grant funding opportunities as they become available to help fund groundwater modeling updates. The Board previously requested that staff look into updating the DHI groundwater model for use in the County's groundwater sustainability efforts. The model was originally developed as a part of the Baseline Data Report (BDR) in support of the 2008 General Plan Update. However, on-going model support was discontinued due to the recession. Initial work would involve updating the model to reflect current information (groundwater, land use, geology, etc.), development of reporting capabilities, decision support tools, and other high priority needs. Modeling would prove useful in preparing and defending a GSP and to inform future land use decisions.

WICC Groundwater Education-Outreach Support – The County provides support for public education and outreach on groundwater and watersheds through the Napa County Watershed Information and Conservation Council (WICC)(website: http://www.napawatersheds.org/app_pages/view/7339). This includes WICC updates and public workshops on SGMA local implementation, groundwater sustainability/monitoring program, and El Nino/drought conditions, and water conservation programs. An upcoming public workshop in April will provide interested property owners with monitoring options through easy to use sonic monitoring equipment available from the Natural Resources Conservation Division of Public Works. The County also supports watershed/groundwater education/outreach workshops through the Napa County Resource Conservation District (RCD).

Recommendations and Request for Board Direction:

A. Expanded Groundwater Sustainability/Monitoring Program

Napa County's current groundwater sustainability and monitoring program includes well monitoring network review and development (new wells), monitoring/reporting, database development/support, update of hydrogeology/conditions, education/outreach including WICC Board and website development, long-term integration with permit systems, and management/oversight of the program and consultant contracts. Monitoring efforts are proposed to be expanded in the upcoming year with the addition of water quality baseline conditions, as recommended by the Napa County Groundwater Monitoring Plan 2013 (Plan).

A Special Study Area northeast of the City of Napa and west of the Milliken, Sarco, and Tulucay (MST) is also proposed for Board consideration. In December 2015, County staff reviewed updated groundwater monitoring data and the Napa County Comprehensive Groundwater Monitoring Program

2014 Annual Report and CASGEM Update and identified this as an area of potential concern (*Attachment E - Memo to PBES, December 7, 2015*). The Memo highlights the historical groundwater level declines that had occurred in some wells, but have generally stabilized in recent years, recommended further investigation of factors leading to well replacements in the vicinity of Petra Drive, and additional studies in the area to better understand groundwater conditions. The objectives of these efforts include a determination of whether the area is in fact experiencing an extension of the MST groundwater conditions, as described in the 2014 Annual Report, and whether controls similar to those implemented in the MST are warranted.

The Planning, Building and Environmental Services (PBES) has also received permit applications for several proposed winery projects in the above-described area. Because of the potential concerns relating to continued groundwater development in the area, and due to the hydrogeologic setting which includes mapped faults and the Napa River in relative close proximity to the area of interest, staff recommends conducting this study to better understand groundwater conditions and potential factors relating to historical groundwater level declines in this area. This analysis includes evaluation of the potential effects from pumping in the overall Study Area, potential mutual well interference in the Petra Drive area, as well as potential streamflow effects. The estimated cost of this study would be approximately \$89,000 (*Attachment F - Study Area Draft Scope-Budget*).

Staff Recommendation: Discuss and provide direction to staff. Additional funding would be required to address the Special Study Area and meet Groundwater Monitoring Plan recommendations. This is included in the current budget proposal for 2016-17 and staff would bring back a final scope of work/budget for Board consideration/approval as part of the June budget.

B. Groundwater Sustainability Plan (GSP)-Alternative and GSP Development

Napa County began development of the GSP-alternative plan option (Basin Analysis Report) in 2015 in order to be able to meet the deadline for submittal to DWR by January 1, 2017 (per SGMA legislation). Under the current draft GSP regulations now proposed, GSP-alternative plans would be required to include substantially the same information as a GSP. If the final regulations maintain these requirements, then the GSP-alternative option would not be possible due to the additional technical/procedural requirements and the very short timeframe remaining to meet the deadline. Napa County would then need to shift its efforts towards the development of a GSP by January 31, 2022 and the formation of a Groundwater Sustainability Agency (GSA) by June 30, 2017.

Staff Recommendation: Discuss and provide direction to staff. If DWR's final GSP regulations preclude the current GSP-alternative option, then direct staff to update work plan/schedule to support development of a Groundwater Sustainability Plan (GSP) by January 31, 2022 and begin efforts to support formation of a GSA by June 30, 2017. This is included in the current budget proposal for 2016-17 and staff would bring back a scope of work and budget for Board consideration/approval as part of the June budget.

C. Groundwater Sustainability Agency(GSA) Formation

A Groundwater Sustainability Agency would be required to be formed by June 30, 2017, if the GSP-alternative proves to be infeasible under DWR's new GSP regulations. The SGMA does not mandate a single GSA approach, giving local agencies a variety of formation options. A GSA can be a single agency that covers the entire basin, or a combination of local agencies under a joint powers agreement, memorandum of agreement or other legal agreement. If more than one GSA is formed for a basin, they must have an agreement that provides for the coordination of their efforts. The formation of a GSA would require a public outreach effort with consultant support, and commitment

to the long term ongoing support for the agency, including likely addition of staff.

Staff Recommendation: Discuss and provide direction to staff. A decision on GSA formation is not required at this time, but Board input is welcome. This process would include a Board of Supervisors workshop, public outreach through the WICC, and other public outreach meetings. Consultant support would be needed to facilitate the public outreach process and agency formation. This is included in the current budget proposal for 2016-17 and staff would bring back a scope of work and budget for Board consideration/approval as part of the June budget.

SUPPORTING DOCUMENTS

- A . 2015 Annual Report
- B . SGMA Implementation Timeline
- C . DWR Draft Regulations for GSPs and Alternatives
- D . Guide to Forming GSAs
- E . Memo to PBES Dec. 7, 2015
- F . Study Area Draft Scope-Budget

CEO Recommendation: Approve

Reviewed By: Bret Prebula

Links to Supporting Documents and Resources

[Staff Report to Board of Supervisors](#) (Adobe PDF – 87 kb)

- A** [2015 Annual Report](#) (Adobe PDF - 32112 kb)
 - B** [SGMA Implementation Timeline](#) (Adobe PDF - 562 kb)
 - C** [DWR Draft Regulations for GSPs and Alternatives](#) (Adobe PDF - 528 kb)
 - D** [Guide to Forming GSAs](#) (Adobe PDF - 2398 kb)
 - E** [Memo to PBES Dec. 7, 2015](#) (Adobe PDF - 1631 kb)
 - F** [Study Area Draft Scope-Budget](#) (Adobe PDF - 427 kb)
 - G** [PowerPoint Presentation \(Added after meeting\)](#) (Adobe PDF - 3013 kb)
- [WICC Groundwater Information](#) (link to WICC website)

Napa County Comprehensive Groundwater Monitoring Program 2015 Annual Report and CASGEM Update

Prepared for
Napa County

Prepared by



March, 2016

EXECUTIVE SUMMARY

ES 1 INTRODUCTION

Groundwater and surface water are highly important natural resources in Napa County. Together, the County and other municipalities, water districts, commercial and industrial operations, the agricultural community, and the general public, are stewards of the available water resources. Everyone living and working in Napa County has a stake in protecting the county's groundwater resources, including groundwater supplies, groundwater quality, and associated watersheds (GRAC, 2014).

Long-term, systematic monitoring programs are essential to provide data that allow for improved evaluation of water resources conditions and to facilitate effective water resources planning. For this reason, Napa County embarked on a countywide project referred to as the "Comprehensive Groundwater Monitoring Program, Data Review, and Policy Recommendations for Napa County's Groundwater Resources" (Comprehensive Groundwater Monitoring Program) in 2009, to meet action items identified in the 2008 General Plan update. The program emphasizes developing a sound understanding of groundwater conditions and implementing an expanded groundwater monitoring and data management program as a foundation for future coordinated, integrated water resources planning and dissemination of water resources information.

The *Napa County Groundwater Monitoring Plan 2013* (Plan) was prepared to formalize and augment groundwater monitoring efforts conducted as part of the Comprehensive Groundwater Monitoring Program. The Plan recommended annual reports on groundwater conditions and modifications to the countywide groundwater monitoring program as needed. Additionally, the Plan recommended a comprehensive triennial report. This report is the second Annual Report – *Napa County Comprehensive Groundwater Monitoring Program 2015 Annual Report and CASGEM¹ Update* (Report).

In addition to providing an update on groundwater level conditions and monitoring program modifications, this Report summarizes recent groundwater quality data.

ES 2 GROUNDWATER MONITORING GOALS AND OBJECTIVES

The California Department of Water Resources (DWR) has identified the major groundwater basins and subbasins in and around Napa County. The basins include the Napa-Sonoma Valley (which in Napa County includes the Napa Valley and Napa-Sonoma Lowlands Subbasins), Berryessa Valley, Pope Valley, and a small part of the Suisun-Fairfield Valley Groundwater Basins (**Figure 2-1**). For purposes of local planning, understanding, and studies, the County has been subdivided into a series of groundwater subareas (**Figure 2-2**). These subareas were delineated based on the main watersheds, groundwater basins, and the County's environmental resource planning areas.

Water level and quality objectives established for the countywide Comprehensive Groundwater Monitoring Program are linked to 1) the County's General Plan goals and action items presented in **Section 3.1** of this Report, and 2) hydrogeologic conditions and potential areas of concern (LSCE, 2013a).

¹ CASGEM is the California Statewide Groundwater Elevation Monitoring program implemented under Water Code Part 2.11 Groundwater Monitoring and administered by DWR.

The focus of the countywide groundwater level monitoring includes the following objectives:

- Expand groundwater level monitoring in priority County subareas to improve the understanding of the occurrence and movement of groundwater; monitor local and regional groundwater levels including seasonal and long-term trends; and identify hydraulic connections in aquifer systems and aquifer-specific groundwater conditions, especially in areas where short- and long-term development of groundwater resources are planned;
- Detect the occurrence of, and factors attributable to, natural (e.g., direct infiltration of precipitation, surface water seepage to groundwater, groundwater discharge to streams) or induced factors (e.g., pumping, purposeful recharge operations) that affect groundwater levels and trends;
- Identify appropriate monitoring sites to further evaluate groundwater-surface water interaction and recharge/discharge mechanisms, including whether groundwater utilization is affecting surface water flows;
- Establish a monitoring network to aid in the assessment of changes in groundwater storage; and
- Generate data to better estimate groundwater basin conditions and assess local current and future water supply availability and reliability; update analyses as additional data become available.

Based on the analysis of existing groundwater data and conditions described in the report *Napa County Groundwater Conditions and Groundwater Monitoring Recommendations* (LSCE, 2011a) and with input received from the Groundwater Resources Advisory Committee (GRAC), the key objectives for future groundwater level monitoring for each subarea are summarized in LSCE (2013a) and **Section 3** of this Report.

ES 3 SUSTAINABLE GROUNDWATER MANAGEMENT ACT

In September 2014, the California Legislature passed the Sustainable Groundwater Management Act (Act). SGMA changes how groundwater is managed in the state. SGMA defines “sustainable groundwater management” as the management and use of groundwater in a manner that can be maintained during the planning and implementation horizon without causing undesirable results (Section 10721 (u)). Undesirable results, as defined by SGMA, means one or more effects caused by groundwater conditions occurring throughout the basin (Section 10721 (w)) (see **Section 6.2**).

As noted in **Section 2** of this Report, SGMA applies to basins or subbasins that DWR designates as medium- or high-priority basins. Previously under the California Statewide Groundwater Elevation Monitoring Program (CASGEM), DWR classified California’s groundwater basins and subbasins as either high, medium, low, or very low priority. The priority classifications are based on eight criteria that include the overlying population, the reliance on groundwater, and the number of wells in a basin or subbasin. In Napa County, the Napa Valley Subbasin was ranked medium priority. All other Napa County basins and subbasins were ranked as very low-priority (**Figure 2-1**).

For most basins designated by DWR as medium or high priority, SGMA requires the designation of groundwater sustainability agencies (GSA) and the adoption of groundwater sustainability plans (GSP); however, there is an alternative to a GSP, provided that the local entity (entities) can meet certain requirements. When required, GSPs must be developed to eliminate overdraft conditions in aquifers and to return them to a condition that assures their long-term sustainability within twenty years of GSP

implementation. SGMA does not require the development of a GSP for basins that DWR ranks as low- or very low-priority basins; GSPs are voluntary for these basins.

As applicable, SGMA requires that a GSA be identified for medium- and high-priority groundwater basins by June 30, 2017. Counties are presumed to be the GSA for unmanaged areas of medium and high priority basins (Section 10724). However, counties are not required to assume this responsibility. When no entity steps forward, this can lead to state intervention (Section 10735 *et seq.*).

In addition to imposing a number of new requirements on local agencies related to groundwater management, SGMA also provides for state intervention – a “backstop” – when local agencies are unwilling or unable to manage their groundwater basin (Section 10735 *et seq.*).

Under SGMA, Section 10733.6, a local entity (or entities) can pursue an Alternative to a GSP provided that certain sustainability objectives are met. An Alternative to a GSP may include:

(b) (3) “An analysis of basin conditions that demonstrates that the basin has operated within its sustainable yield over a period of at least 10 years. The submission of an alternative described by this paragraph shall include a report prepared by a registered professional engineer or geologist who is licensed by the state and submitted under that engineer’s or geologist’s seal.”

The County would need to submit the alternative plan no later than January 1, 2017, and every five years thereafter.

(d) The assessment required by subdivision (a) shall include an assessment of whether the alternative is within a basin that is in compliance with Part 2.11 (commencing with Section 10920). If the alternative is within a basin that is not in compliance with Part 2.11 (commencing with Section 10920), the department shall find the alternative does not satisfy the objectives of this part.

On February 18, 2016 DWR published draft regulations for the development of GSPs and GSP-alternatives. Napa County staff have met with DWR staff to discuss a possible approach for a GSP-alternative for the Napa Valley Subbasin. County staff have also provided comments to DWR on the draft regulations, which are required under SGMA to be finalized and adopted by June 1, 2016. County staff are currently seeking input from the Napa County Board of Supervisors and preparing for multiple paths forward pending direction from the Supervisors and the content of the final regulations with respect to the requirements for GSP-alternatives.

ES 4 GROUNDWATER MONITORING NETWORK DESIGN AND DEVELOPMENT

Groundwater level monitoring was conducted at a total of 113 sites across Napa County in 2015 (**Table ES-1**). The overall number and distribution of monitored sites remained consistent with the monitoring conducted in 2014 and was increased relative to the 87 sites reported in the 2011(LSCE, 2013a) (**Table ES-1**).

Out of the total 113 sites monitored in 2015, 100 were monitored by Napa County. Four sites were monitored by DWR. The remaining nine sites were regulated facilities with data reported as part of the State Water Resources Control Board (SWRCB) Geotracker Program.

Minor changes in the sites monitored by Napa County between 2014 and 2015 occurred due to a combination of well-owner requests and decisions by the Napa County Department of Public Works. In the latter case, three wells were discontinued by the County where other nearby monitored wells were

determined to be sufficient to meet the monitoring objectives. Three additional wells were added to the County's monitoring networks during 2015 based on requests by well owners for monitoring by the County in areas where additional monitoring sites were needed. As recommended in the 2014 Annual Report, the County also began monthly monitoring of a subset of eight wells in order to provide greater temporal resolution in areas where semi-annual measurements may not accurately reflect the peak groundwater levels.

ES 4.1 Local Groundwater Assistance Grant Program Monitoring

Funding from the DWR 2012 Local Groundwater Assistance Grant Program enabled Napa County to construct ten monitoring wells at five sites in Napa Valley in September 2014. These wells comprise the groundwater monitoring facilities for the Napa County Surface Water-Groundwater Monitoring Project.

Table ES-1 Current Groundwater Level Monitoring Sites in Napa County by Groundwater Subarea

Groundwater Subarea	Number of Monitored Sites Through 2011	Number of Monitored Sites, Fall 2014	Number of Monitored Sites, Fall 2015
Napa Valley Floor-Calistoga	6	10	9
Napa Valley Floor-MST	29	27	27
Napa Valley Floor-Napa	18	21	20
Napa Valley Floor-St. Helena	12	14	14
Napa Valley Floor-Yountville	9	12	14
Carneros	5	12	12
Jameson/American Canyon	1	1	1
Napa River Marshes	1	1	-
Angwin	-	5	5
Berryessa	3	2	3
Central Interior Valleys	1	1	2
Eastern Mountains	-	3	4
Knoxville	1	-	-
Livermore Ranch	-	-	-
Pope Valley	1	1	1
Southern Interior Valleys	-	-	-
Western Mountains	-	2	1
Unknown ¹	-	3	-
Total Sites	87	115	113
¹ In 2014 three sites in the Geotracker regulated groundwater monitoring network were reporting groundwater level data, but had not yet reported location information for the monitored wells.			

Water level data collected at the five sites are presented in **Section 5.5**. Data from Sites 1, 3, and 4 show that groundwater levels were above or very near the riverbed at these sites, indicating connectivity between groundwater and surface water. Data from Site 1 indicates that little to no flow occurred between groundwater and the river at that location. Data from Sites 3 and 4 showed variability in the

nature of groundwater-surface water connection during 2015, ranging from groundwater flow into the river to the opposite. At both Site 2 and Site 5 the direction of groundwater flow was away from the streambed. At Site 5 water level data indicate that the river was hydraulically connected to groundwater during the first half of the year, until flows in the river ceased in July, and again in December 2015 as storms generated runoff leading to renewed flow in the river. At Site 2, located along Dry Creek, groundwater levels were consistently below the streambed elevation in 2015, indicating that groundwater was disconnected from the stream, although recharge to the groundwater system was likely occurring when water flowed in the creek.

ES 5 SUMMARY OF CONDITIONS AND RECOMMENDATIONS

Groundwater level monitoring was conducted at a total of 113 sites across Napa County in 2015 (**Table ES-1**). The overall number and distribution of monitored sites remained consistent with the monitoring conducted in 2014 and was increased relative to the 87 sites reported in the 2011(LSCE, 2013a).

Groundwater level trends in the Napa Valley Subbasin of the Napa-Sonoma Valley Groundwater Basin are stable in the majority of wells with long-term groundwater level records. While many wells have shown at least some degree of response to recent drought conditions, the water levels observed in recent years are generally higher than groundwater levels in the same wells during the 1976 to 1977 drought. Elsewhere in the County long-term groundwater level records are limited, with the exception of the Milliken-Sarco-Tulucay (MST) Subarea.

Although designated as a groundwater subarea for local planning purposes, the majority of the MST is not part of a groundwater basin as mapped by DWR. Groundwater level declines observed in the MST Subarea as early as the 1960s and 1970s have stabilized since about 2008. Groundwater level responses differ within the MST Subarea and even within the north, central, and southern sections of this subarea, indicating that localized conditions, whether geologic or anthropogenic in nature, might be the primary influence on groundwater conditions in the subarea.

While the majority of wells with long-term groundwater level records exhibit stable trends, periods of year to year declines in groundwater levels have been observed in a few wells. These wells are located near the Napa Valley margin in the northeastern Napa Subarea (NapaCounty-75 and Napa County-76), southwestern Yountville Subarea (NapaCounty-135) and southeastern St. Helena Subarea (NapaCounty-132). These locations are characterized in part by relatively thin alluvial deposits, which may contribute to more groundwater being withdrawn from the underlying semi-consolidated deposits.

Water levels in northeastern Napa Subarea wells NapaCounty-75 and Napa County-76, east of the Napa River, have stabilized since 2009, though declines were observed over roughly the prior decade. Despite the recent stability, given the potential for a hydraulic connection between the aquifer units in the vicinity of these wells and the aquifer units of the MST Subarea and an apparent increase in the number of new well permits in the area over the past 10 years², further study in this area is recommended.

Water levels at NapaCounty-135 and NapaCounty-132 declined most distinctly between 2013 and 2014. The increased monitoring frequency at these wells through the end of 2015 has shown groundwater levels already recovering to levels comparable to or higher than those of spring 2013. Groundwater level

² In a Memorandum to David Morrison, Director of Planning, Building, and Environmental Services, dated December 7, 2015 regarding groundwater conditions in the northeastern corner of the Napa Subarea Steven Lederer, Director of Public Works, noted that "12 of the approximately 30 homes on Petra Drive have applied for new well permits in the past 10 years."

declines in these wells observed in 2014 could have one or more contributing factors, including variations in groundwater recharge due to changes in the timing and intensity of precipitation and changes in the level of pumping at the monitored well or in the vicinity of the monitored well. Continuation of the increased monitoring frequency through 2016 is recommended to assist with interpretation of conditions at these wells in the future.

Groundwater quality data show stable conditions between 2009 and 2015 compared to the conditions reported previously with data through 2008 (LSCE, 2011a). Water quality standard exceedances in the Napa Valley Floor subareas and Napa Valley Subbasin were limited to the naturally-occurring constituent arsenic, with 4 of 26 sites showing maximum concentrations above the MCL of 10 µg/L. Water quality standard exceedances in the Napa-Sonoma Lowlands Subbasin, including portions of the Carneros and Jameson/American Canyon Subareas, occurred for arsenic (three wells), nitrate (one well), TDS (five wells).

Wells with long-term water quality data show stable TDS and Nitrate concentrations, with the exception of one well (06N04W27L002M) which had a peak of 7.7 mg/L NO₃-N (nitrate as nitrogen) in 2007 compared to initial concentrations of 3.4 mg/L NO₃-N and 4.0 mg/L NO₃-N in 1982 and 1972, respectively. In the Napa-Sonoma Lowlands Subbasin, nitrate concentrations have been stable to decreasing in all five wells with long-term records in the Napa-Sonoma Lowlands Subbasin. Two wells have shown increasing TDS trends, though all four wells with long-term trends were initially at or above the secondary MCL.

The following recommendations have been developed based on the findings presented in this report.

ES 5.1 Northeast Napa Subarea Special Study

Previously observed groundwater level declines in the northeast Napa Subarea, east of the Napa River in the vicinity of NapaCounty-75 and NapaCounty-76, along with reports of increased well replacement activity along Petra Drive have raised questions about the cumulative impacts of existing and potential future groundwater use in this area. In addition to completing the standard project-level planning review of the proposed projects, a focused study of hydrogeologic conditions affecting groundwater availability is advisable for this area. The investigation should be designed to address existing and future water use in the area, sources of groundwater recharge, and the geologic setting in order to address the potential for cumulative impacts of future development. The investigation would also seek to address the influence of previously documented groundwater cones of depression in the MST subarea on both the study area east of the Napa River and the Napa Subarea west of the Napa River.

ES 5.2 Data Gap Refinement

Groundwater levels in two monitored wells located near to the Napa Valley margin showed year to year declines in groundwater levels. Additional information is needed in order to consider the full range of possible causes for these declines and more accurately determine if the present emerging trends. Recommended actions include a review of land use data in these areas and continuation of the increased frequency of data collection at a subset of wells. More frequent data collection could be accomplished, pending agreement with the well owner, by monthly manual groundwater level measurements.

For wells added to the County's monitoring networks in recent years without a record of key well construction details, continued efforts to locate construction information and link those data with aquifer units is recommended. In cases where a well owner does not have a record of the construction, a review of Well Completion Reports is recommended.

Once final Groundwater Sustainability Plan regulations are published by DWR later in 2016, there may be a need to add one or more wells to the CASGEM network near the southern boundary of the Napa Valley Subbasin. A well or wells in this area would be used to monitor groundwater gradients at the basin boundary where subsurface outflow occurs into the Napa-Sonoma Lowlands Subbasin. This data will be a component of the subbasin water budget that will be a key feature of the quantitative approach to groundwater management described in SGMA. For similar reasons, the County may benefit from updating reference point elevation data for some monitored wells with surveyed values in order more accurately monitor groundwater level gradients and any potential future seawater intrusion.

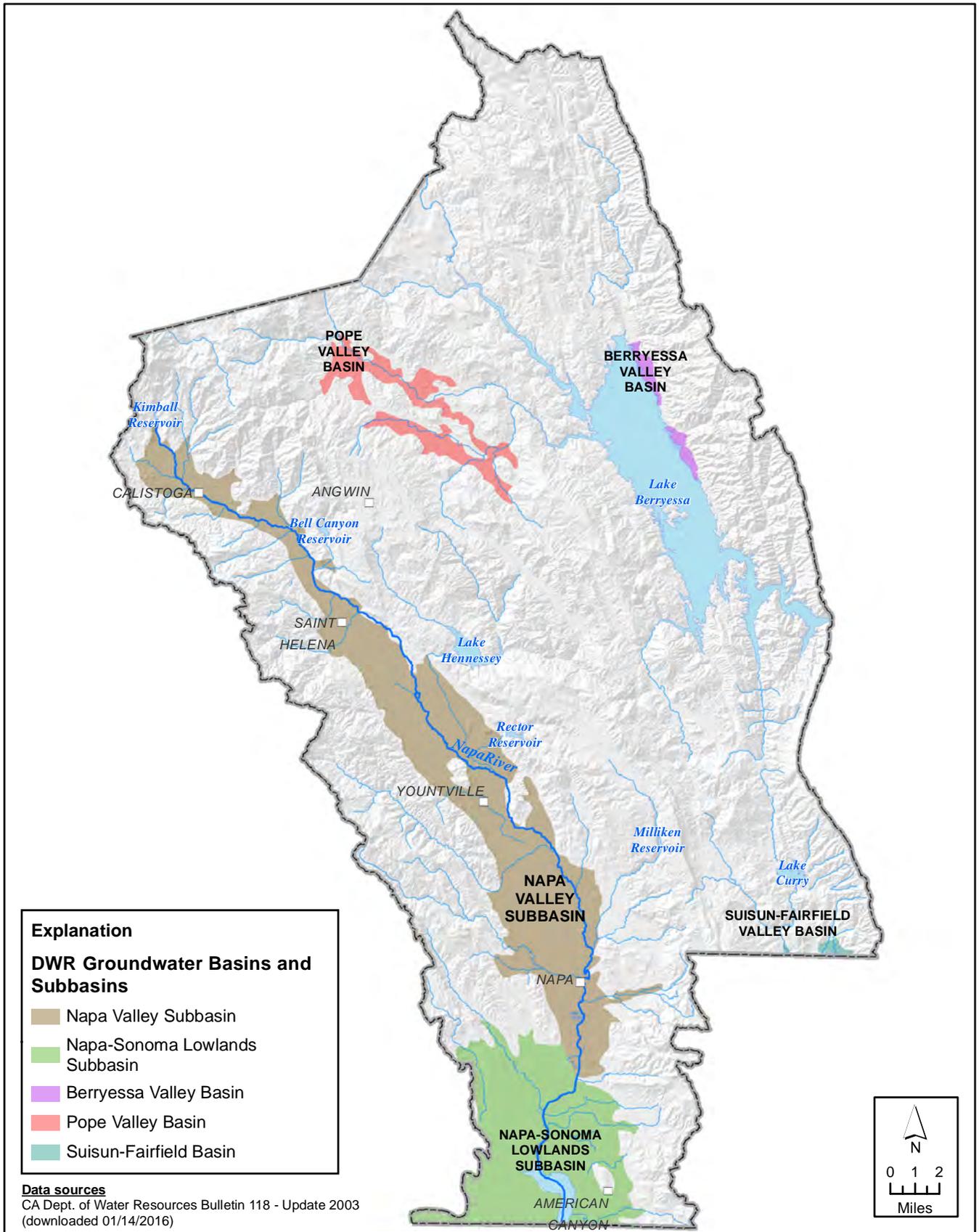
ES 5.3 Baseline Water Quality Sampling

The groundwater quality monitoring objectives contained in the *Napa County Groundwater Monitoring Plan 2013* (Plan) included the investigating of variations in water quality at different points within the groundwater subareas and at different aquifer units within a given subarea (LSCE, 2013a). The Plan recommended baseline sampling in wells at each of 18 Areas of Interest for additional monitoring and at the then proposed dedicated surface water-groundwater monitoring wells. It is recommended that wells added to the County monitoring networks in these areas be reviewed for suitability in light of the groundwater quality monitoring objectives, with baseline sampling conducted for those wells with sufficient well construction records to enable interpretation of the results for specific aquifer units.

A second round of baseline water quality sampling is also recommended for the five dual-completion monitoring wells constructed in 2014 at surface water-groundwater monitoring sites, as described in the Plan. An initial round of sampling and analysis was completed in June 2015 with a combination of County matching funds, DWR grant funds, and DWR in-kind support. Sampling these wells again in 2016 will provide a more robust baseline dataset that would be used to characterize any inter-annual variability at each well and provide a basis for interpreting future groundwater quality data.

ES 5.4 Coordination with Other Monitoring Efforts

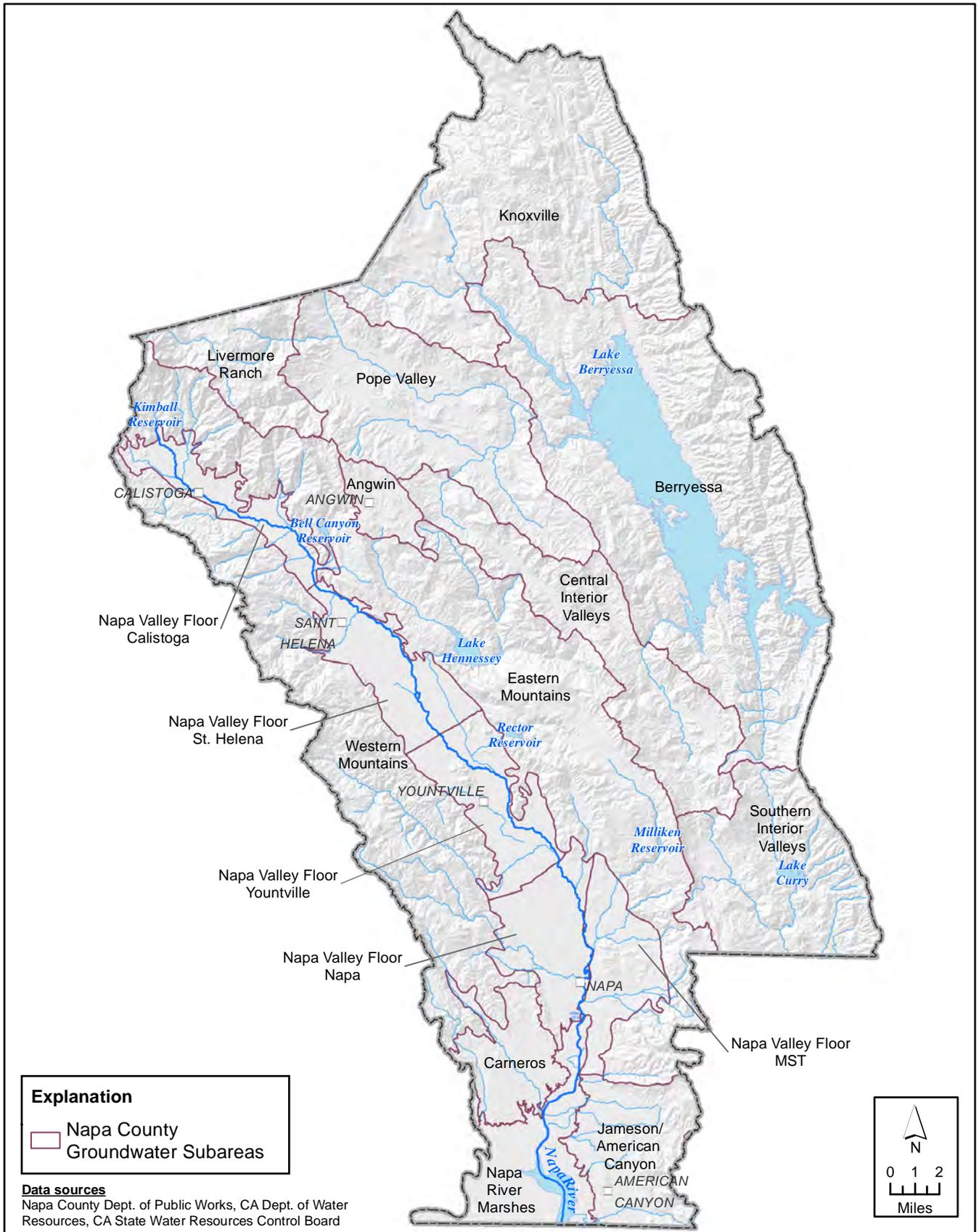
Coordination with other county departments and other agencies that monitor groundwater data or receive groundwater data could provide an additional source of data in places where data are limited. Several local agencies, including Town of Yountville, City of St. Helena, City of Napa, already monitor groundwater levels at locations around the County.



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FIGURE 2-1
Groundwater Basins and Subbasins in Napa County, CA



X:\2014 Job Files\14-108\GIS\Mapfiles\Annual Report\Napa GW Subareas.mxd



FIGURE 2-2
Napa County Groundwater Subareas

Middle School - Water Info-Graphics

Flint Water Crisis

Where?

The crisis is happening in Flint, Michigan on the Flint River where lead in their pipes contaminated the water.

Why did they switch to the Flint River?

Flint was in a huge financial crisis. The government decided to switch to a cheaper water source. They used the Flint River water because it was cheaper than Lake St. Clair water. They also thought it was better for the environment.

What was happening to the water in Flint?

The water in Flint was contaminated with lead. This was because of the old pipes in the city. The water was also contaminated with other chemicals.

Lead (per billion)

In almost every single glass of water that you have in Flint, there are about 100 lead particles per billion in your water, which is a lot.

Health Effects

The lead-contaminated water in Flint has affected a lot of people. The water in Flint has caused 100,000 lead particles to be in the water. 40% of the people have not been affected, but 40% of the people have been affected.

When?

The Flint water crisis started in April, 2014 when the mayor of Flint switched to Flint River water. The water was contaminated with lead and other chemicals. The water was also contaminated with other chemicals.

Who?

The residents of Flint, Michigan are affected by the water crisis. They are the ones who are drinking the contaminated water. They are the ones who are getting sick.

Lead poisoning

Lead poisoning is a serious health problem. It can cause brain damage, learning disabilities, and other health problems. It can also cause death.

Flint River

Flint only has 45% of the fresh water that the rest of Michigan has. This is because of the water crisis. The water is contaminated with lead and other chemicals.

What would it cost to replace all the lead pipes?

It would cost \$2.5 billion to replace all the lead pipes in Flint. This is a huge amount of money. It would cost \$2.5 billion to replace all the lead pipes in Flint.

How much fresh water does Flint have?

Flint only has 45% of the fresh water that the rest of Michigan has. This is because of the water crisis. The water is contaminated with lead and other chemicals.

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Water Bottles and the Environment

How do water bottles affect the drought?

Did you know that water bottles can cause the drought to be worse because people like to increase the amount of water that goes to the market, which takes up 1.6 liters of water for every package.

Where do water bottles take the freshwater from?

Water bottles affecting the drought

- Some countries use drought (20%)
- Water bottles causing drought (45%)
- Water-saving technology (15%)
- Global water (20%)
- Rainy water (5%)
- Waste (15%)

The Damage to the environment and the animal being injured by water bottle

How are water bottles causing animals to die?

Plastic like us are throwing our water bottles to the ground which they don't even think about how the plastic bottle can be recycled for water. The plastic bottle can easily be recycled for water. The plastic bottle can easily be recycled for water. The plastic bottle can easily be recycled for water.

Animal killed by plastic water bottle

where do people litter or recycle

- The ocean (50%)
- Recycling the water bottle (20%)
- In the woods (20%)
- Waste management and better (20%)
- Recycling the water (20%)
- Animal dropping water (20%)

WHAT ARE THE WATER BOTTLE DOING WITH OUR HEALTH!

Disposing of plastic water bottles is bad for the environment. Many animals are dying in the sea eating plastic bags and water bottles are thrown away which is a problem because animals are eating plastic bottles and they are getting sick.

Three main water we have today

- Water covering Earth (70%)
- Drinking Water (1%)
- Animal death from 1000 water (20%)
- Threat Water (10%)
- Talk Water (10%)
- Polluted Water (10%)

Thank you for listening!

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Fracking

Who?

Fracking is done by oil companies to get oil. These companies know, but don't care what fracking might do to the groundwater. In the process they extract natural gases to use as oil. Companies like Chevron and Exxon both use oil and the natural gas that comes from the fracking.

Why?

Fracking is a process that involves injecting water, sand, and chemicals into the ground to create fractures in the rock. This allows oil and natural gas to flow more easily to the surface. Fracking is used to extract oil and natural gas from shale rock.

What?

Fracking steps:

- Drill a well into the ground at a ninety degree angle.
- Mix water, chemicals, and sand with a power pump and pump into the ground.
- Natural gas comes out of the head of the well.
- Waste water comes to the top and then you are done with fracking.

When?

Fracking has been done for the past 60 years. Fracking has just become 'famous' in recent years. Fracking started in 1948, (or around that time), and people are just now realizing the negative effects we've been causing for the past 60 years.

Where?

Fracking is happening all over the U.S. It happens a lot in CA and North Dakota. Fracking has been proposed in the UK. There are at least 5000 fracking wells in the U.S.

Pros

- We get fuel powers everything
- More jobs
- Lower energy cost

Cons

- This can contaminate groundwater
- May cause earthquakes
- Possibly uses toxic chemicals
- Can cause collateral environmental damage

Conclusion

In conclusion, fracking is really bad for the environment. Fracking uses up to 5 million gallons of water for one fracking job and also contaminates groundwater. The companies that frack consistently deny that fracking is bad for the water that we drink, even though some residents who live near fracking wells can light their water on fire because of the methane gas in the groundwater.

How much less you save about fracking?

How much less you save about fracking?

- More oil (40%)
- More jobs (30%)
- More energy (30%)
- More water (10%)

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WHAT IS DESALINATION?

Desalination is the process of removing the salt from ocean water so that it will be drinkable.

This is a very expensive process that requires a lot of energy. They have to be cooled on the coast so they can pump back up sea water.

THE PROCESS OF DESALINATION:

- Step 1: Water is drawn into the plant by intake tubes under the surface (the exact amount depends on plant).
- Step 2: Water is screened to remove solids, oil, sand, silt, bacteria, and dissolved organic matter.
- Step 3: Water is sent through filtration to remove any rocks and other ocean debris that may have come in with the water.
- Step 4: A process called reverse osmosis is administered to remove salt and other impurities from the water.
- Step 5: The now desalinated seawater undergoes treatment to get it to drinking water standards.
- Step 6: The water that is now ready to drink and use is transported to the town or city for human use.
- Step 7: The salt and other things that were removed from the water discharged back into the ocean.

WHAT WILL DESALINATION HELP WITH?

The blue in this chart represents the 2% of saline water on the planet that is drinking and freshwater.

The orange circle that represents the 98% of saline water on the planet that is not drinking and freshwater.

Pros

- It provides drinkable water for places that don't have water.
- Could be the answer to future droughts.
- Plants are safety critical.
- It can stop water crisis.

Cons

- Can hurt small plant life.
- Plants are expensive to build.
- Bine can have a dramatic environmental impact.
- It contributes to green house.
- If not careful, plant could break down, causing dramatic environmental impact.
- plants use massive amounts of energy.

THANKS FOR WATCHING!!

The California Drought and Water Waste Evolution

History of the CA Drought

2011

2011 was the year before the drought started. In 2011 there was plenty of clean water to go around to everyone. This was also the year of more snow pack than normal.

2012

In 2012 the drought had just begun. There was still water but less than there had been before. In 2012 the snow pack was at 30% of the normal percentage.

2013

In 2013 the drought had gotten bad enough where it had reached the point that it had been noticed. We had reached: **Severe Drought**

2014

In 2014 the drought had gotten a lot worse. It was almost impossible for the drought to go unnoticed. This was the point of: **Extreme Drought**

2015

In 2015 the drought had gotten really bad. We had reached: **Exceptional Drought**

Present

At this point the drought has gotten out of control. If we don't start fixing this problem fast it could end up being too late.

2016

In the year 2016 we have received some rain, but their has not been quite enough rain to affect or/and help with the drought.

2016 - 2025

The chances of the drought getting better all depend on whether or not we decide to stop wasting water.

2016 - 2025

The big question for the future is, how severe would the drought be in the future if it continued the way that it is now?

How can we help with the drought?

Our hope is that between now and in the future, people will of stopped wasting water and the drought will not be as bad and hopefully even gone.

Water Waste

One thing that lead to the drought was water waste. Some way, that we can help with water waste are turning off the water when brushing our teeth, taking short showers instead of baths, not watering your grass, not washing your car, and keep a pitcher of drinking water instead of running the tap water. A way that people are already helping is by letting farmers only have 5% of lake water. You can find more ways to conserve water at: <http://wateruseitwisely.com/100-ways-to-conserve/>

Global Warming

Another thing that lead to the drought was global warming. Global warming affected the drought because global warming warms up the Earth and if the Earth gets too warm, a lot of extra water evaporates. When too much water evaporates, it leads to water shortage AKA drought. Although, there are some things that you could do to help with global warming. Some ways are driving a battery powered car, recycling and even just some things as simple as covering you pots while cooking. For more ways on how you can help with global warming you can visit: <http://globalwarming-facts.info/50-tips/2/>

FLINT WATER

Flint is in trouble! Their water is full of lead!

The Flint Mayor has changed their water source to save money. Once they moved to the new source, the Flint River, the new water mixed with the lead pipes and resulted in poisonous water.

LEAD

Effects of Lead on Cats

- Weight Loss (10%)
- Loss of Appetite (15%)
- Reduced Blood Cell Count (20%)
- Reduced Blood Platelets (25%)
- Reduced Blood Protein (30%)
- Reduced Blood Urea Nitrogen (35%)
- Reduced Blood Creatinine (40%)
- Reduced Blood Glucose (45%)
- Reduced Blood Calcium (50%)
- Reduced Blood Phosphorus (55%)
- Reduced Blood Potassium (60%)
- Reduced Blood Magnesium (65%)
- Reduced Blood Sodium (70%)
- Reduced Blood Chloride (75%)
- Reduced Blood Bicarbonate (80%)
- Reduced Blood Lactate (85%)
- Reduced Blood Ammonia (90%)
- Reduced Blood Uric Acid (95%)
- Reduced Blood Creatinine (100%)
- Reduced Blood Urea Nitrogen (105%)
- Reduced Blood Glucose (110%)
- Reduced Blood Calcium (115%)
- Reduced Blood Phosphorus (120%)
- Reduced Blood Potassium (125%)
- Reduced Blood Magnesium (130%)
- Reduced Blood Sodium (135%)
- Reduced Blood Chloride (140%)
- Reduced Blood Bicarbonate (145%)
- Reduced Blood Lactate (150%)
- Reduced Blood Ammonia (155%)
- Reduced Blood Uric Acid (160%)
- Reduced Blood Creatinine (165%)
- Reduced Blood Urea Nitrogen (170%)
- Reduced Blood Glucose (175%)
- Reduced Blood Calcium (180%)
- Reduced Blood Phosphorus (185%)
- Reduced Blood Potassium (190%)
- Reduced Blood Magnesium (195%)
- Reduced Blood Sodium (200%)
- Reduced Blood Chloride (205%)
- Reduced Blood Bicarbonate (210%)
- Reduced Blood Lactate (215%)
- Reduced Blood Ammonia (220%)
- Reduced Blood Uric Acid (225%)
- Reduced Blood Creatinine (230%)
- Reduced Blood Urea Nitrogen (235%)
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- Reduced Blood Phosphorus (250%)
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- Reduced Blood Magnesium (260%)
- Reduced Blood Sodium (265%)
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- Reduced Blood Uric Acid (355%)
- Reduced Blood Creatinine (360%)
- Reduced Blood Urea Nitrogen (365%)
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- Reduced Blood Calcium (375%)
- Reduced Blood Phosphorus (380%)
- Reduced Blood Potassium (385%)
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- Reduced Blood Sodium (395%)
- Reduced Blood Chloride (400%)
- Reduced Blood Bicarbonate (405%)
- Reduced Blood Lactate (410%)
- Reduced Blood Ammonia (415%)
- Reduced Blood Uric Acid (420%)
- Reduced Blood Creatinine (425%)
- Reduced Blood Urea Nitrogen (430%)
- Reduced Blood Glucose (435%)
- Reduced Blood Calcium (440%)
- Reduced Blood Phosphorus (445%)
- Reduced Blood Potassium (450%)
- Reduced Blood Magnesium (455%)
- Reduced Blood Sodium (460%)
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- Reduced Blood Bicarbonate (470%)
- Reduced Blood Lactate (475%)
- Reduced Blood Ammonia (480%)
- Reduced Blood Uric Acid (485%)
- Reduced Blood Creatinine (490%)
- Reduced Blood Urea Nitrogen (495%)
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- Reduced Blood Phosphorus (510%)
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- Reduced Blood Magnesium (520%)
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- Reduced Blood Urea Nitrogen (755%)
- Reduced Blood Glucose (760%)
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- Reduced Blood Phosphorus (770%)
- Reduced Blood Potassium (775%)
- Reduced Blood Magnesium (780%)
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- Reduced Blood Uric Acid (810%)
- Reduced Blood Creatinine (815%)
- Reduced Blood Urea Nitrogen (820%)
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- Reduced Blood Urea Nitrogen (1015%)
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- Reduced Blood Phosphorus (1030%)
- Reduced Blood Potassium (1035%)
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- Reduced Blood Uric Acid (1070%)
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Please Join Us
for the
North Bay Watershed Association
2016 Conference

REGISTER BY
APRIL 15th

The Future of Water is Now: Innovation, Integration, Adaptation

Friday, April 22, 2016

Embassy Suites

1075 California Boulevard
Napa, CA 94559

8:00AM to 4:30 PM

8:00AM Registration
9:00AM Opening Presentation
12:30PM Lunch
3:30PM Networking and wine
tasting provided by
Saintsbury

Conference Objective:

The conference will bring together key participants from around the North Bay to focus on how we can work together to manage our water resources.

Who Will Attend?

Public officials, leaders in environmental organizations, science and business.

Keynote Speakers

Lois Wolk State Senator, 3rd District
Marc Levine, Assemblymember, 10th District

Register Now : www.NBWA2016.brownpapertickets.com

Early Bird rate through January 31, 2016: \$85 per person
Regular rate begins February 1, 2016: \$95 per person

Sponsor Opportunities are available!

Contact

Event Coordinator:
Frances Knapczyk at (707) 252-4188 x116
or Frances@naparcd.org



NORTH BAY
WATERSHED ASSOCIATION

see page 2 for program details

2016

The Future of Water is Now: Innovation, Integration, Adaptation

PROGRAM

- 8:00 am** **REGISTRATION, CONTINENTAL BREAKFAST AND NETWORKING**
- 9:00 am** **WELCOME**
Jack Gibson Chair, NBWA; Director, Marin Municipal Water District
- 9:05 am** **KEYNOTE SPEAKER: California State Senator Lois Wolk**
- 9:30 am** **PANEL: INTEGRATED PROJECTS - LARGE AND SMALL SCALE**
Amy Hutzel California Coastal Conservancy - Bay Area Integrated Projects
Norma Camacho Santa Clara Valley Water District - Integrating Flood Protection, Habitat Enhancement, and Groundwater Recharge in an Urbanized Watershed
David Rabbitt North Bay Water Reuse Authority - Recycling - Habitat and Ag (Vineyard) Use
Ellie Cohen Point Blue - STRAW small scale restoration and climate change
- 11:00 am** **BREAK**
- 11:15 am** **PANEL: BARRIERS AND BRIDGES - RECYCLING, DIRECT POTABLE REUSE, GROUNDWATER SUSTAINABILITY**
Mike Myatt California Water Foundation - Water Supply Sustainability (Sonoma pilot)
Paula Kehoe San Francisco Public Utilities Commission - Recycling
Phillippe Daniel HDR Inc. - Direct Potable Reuse
Dave Gutierrez California Department of Water Resources - Groundwater Sustainability
- 12:30 pm** **LUNCH**
- 1:00 pm** **KEYNOTE SPEAKER: Marc Levine** Assemblymember, 10th District
- 1:30 pm** **BREAK**
- 1:45 pm** **KEYNOTE SPEAKER: Mike Dillabough** San Francisco District, US Army Corps of Engineers
- 2:10 pm** **PANEL: CLIMATE ADAPTATION - EXTREME WEATHER EVENTS**
Claire Jahns California Resources Agency - California Climate Adaptation
Dr. Rob Cifelli NOAA - Bay Area Advanced Quantitative Precipitation Information System
Jeremy Lowe San Francisco Estuary Institute - Shoreline Resiliency
- 3:30 pm** **WINE TASTING AND NETWORKING**
- 4:30 pm** **THANK YOU FOR COMING!**



NORTH BAY
WATERSHED ASSOCIATION



CELEBRATE!

EarthDay

Saturday, April 23
11am-4pm

OXBOW COMMONS IN DOWNTOWN NAPA

HOSTED BY



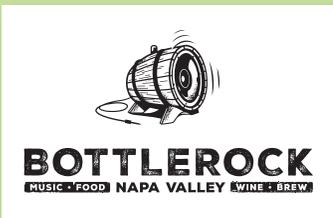
ACTIVITIES FOR ALL AGES
LIVE ENTERTAINMENT
FOOD, WINE & BEER



WATER BAR
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No bottled water for sale



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