SACRAMENTO CENTRAL GROUNDWATER AUTHORITY
REGULAR MEETING OF THE BOARD OF DIRECTORS

Wednesday, January 11, 2017; 9:00 am
10060 Goethe Road
Sacramento, CA 95827
(SRCSD/SASD Office Building South Community Meeting Room No. 1205–Valley Oak)

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Meeting facilities are accessible to persons with disabilities. Requests for interpreting services, assistive listening devices or other considerations should be through Ramon Roybal by calling (916) 874-6826 (voice) and CA Relay Services 711 (for the hearing impaired), no later than five working days prior to the meeting.

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The Board will discuss all items on this agenda, and may take action on any of those items. The Board may also discuss other items that do not appear on this agenda, but will not act on those items unless action is urgent, and a resolution is passed by a two-thirds (2/3) vote declaring that the need for action arose after posting of this agenda.

1. **CALL TO ORDER AND ROLL CALL – 9:00 A.M.**

2. **PUBLIC COMMENT:** Members of the audience may comment on any item of interest to the public within the subject matter jurisdiction of the Groundwater Authority. Each person will be allowed three minutes, or less if a large number of requests are received on a particular subject. No action may be taken on non-agendized items raised under "Public Comment" until the matter has been specifically included on an agenda as an action item. If a member of the public wants a response to a specific question, they are encouraged to contact any member of the Board or the Executive Director at any time. Members of the audience wishing to address a specific agendized item are encouraged to offer their public comment during consideration of that item.

3. **CONSENT CALENDAR**

   - Approve minutes of the December 14, 2016 Board meeting.

   Recommended Action: Approve Consent Calendar items.

4. **MEMORANDUM OF UNDERSTANDING FOR SGMA EFFORTS IN THE DELTA AREA OF THE SOUTH AMERICAN SUBBASIN**

   - MOU for coordinating SGMA related efforts within the Delta area of the South American Subbasin.

   Recommended Actions: Authorize the chair to execute the MOUs with Reclamation Districts 813 and 1002.

5. **SCGA COMMITMENT TO ADDRESS STAKEHOLDER CONCERNS IDENTIFIED IN ALTERNATIVE SUBMITTAL OUTREACH**

   - As part of the stakeholder outreach for the Alternative, issues were identified by interested stakeholders and a request made that a formal commitment on the part of SCGA be made to address these issues.

   Recommended Action: Informational item.

6. EXECUTIVE DIRECTOR'S REPORT

- Budget Subcommittee
- Statewide Alternative Submittal Statistics
- Bulletin 118 Interim Update 2016
- DWR CASGEM Update
- JPA Status Report
- Elk Grove Dry Well Project – Final TAC Meeting
- OHWD Off Season Irrigation Project
- Framework BMP
- Water Forum – GSA Resolution Process
- Current Board Vacancies
- California Water Bank Presentation – February 8, 2017
- Communication
    - FAQ – DWR, December 12, 2016
    - Sloughhouse RCD Letter to the Water Forum
    - Sloughhouse RCD Board Meeting – January 9, 2017

7. DIRECTOR'S COMMENTS

ADJOURNMENT

Upcoming meetings –
Next SCGA Board of Directors Meeting – Wednesday, February 8, 2017, 9:00 am; 10060 Goethe Road, SRCSD/SASD Office Conference Room No. 1212 (Sunset Maple).

AGENDA ITEM 3: CONSENT CALENDER

BACKGROUND:

The Board package includes draft minutes of the December 14, 2016 Board meeting.

STAFF RECOMMENDATION:

Action: Approve Consent Calendar items.

Sacramento Central Groundwater Authority (SCGA)
DRAFT Regular Meeting
Wednesday, December 14, 2016

1. CALL TO ORDER AND ROLL CALL

Chair Brett Ewart called the Sacramento Central Groundwater Authority meeting of Wednesday, December 14, 2016 to order at 9:02 a.m.

The following meeting participants were in attendance:

Board Members (Primary Rep):
Carl Werder – Agricultural-Residential
Tom Nelson – Elk Grove Water District/ Florin Resource Conservation District
Paul Schubert – Golden State Water Company
Christine Thompson – Public Agencies Self-Supplied
Dave Ocenosak – Sacramento Regional County Sanitation District

Board Members (Alternate Rep):
Charlotte Mitchell – Agricultural Interests
Brian Fragiao – City of Elk Grove
Todd Eising – City of Folsom
Allen Quynn – City of Rancho Cordova
Brett Ewart – City of Sacramento
Forrest Williams Jr. – County of Sacramento

Staff Members:
Darrell Eck – Executive Director
Sarah Britton – Legal Counsel
Stephanie Studdert – Deputy Clerk
Ramon Roybal
Ping Chen

Others in Attendance:
Jonathan Goetz – GEI
Rodney Fricke – GEI
Mark Madison – Florin Resource Conservation District/Elk Grove Water District
Bruce Kamilos – Florin Resource Conservation District/Elk Grove Water District
Tom Gohring – Water Forum
Bennett Brooks – Consensus Building Institute
Anona Dutton – Erler & Kalinowski Inc. (EKI)
Suzanne Pecci – Domestic Well Owner
Kerry Schmitz – SCWA

Jay Schneider – Sloughhouse Resource Conservation District (SRCD)
Mike Wackman – Omochumne-Hartnell Water District (OHWD)
Hanspeter Walter – SRCD
Amanda Watson – SRCD
Jim Blanke – RMC
Kristal Davis-Fadtke – California Department Fish and Wildlife
Mike Eaton – Cosumnes Coalition
Melinda Frost-Hurzel – Cosumnes Coalition
Lisa Dills – Southgate Recreation and Park
Sam Safi – Regional Sanitation

Member Agencies Absent
Commercial/Industrial Self-Supplied
Conservation Landowners
Rancho Murieta CSD
California American Water Company
Omochumne-Hartnell Water District
*(*Ronald Lowry was present on behalf of OHWD, however, pursuant to November 6, 2012, Sacramento County Board of Supervisors meeting Item No. 37 Resolution No. 2012-0796, Ronald Lowry's appointment expired November 6, 2016 and was not a an active member of Sacramento Central Groundwater Authority at the time of this meeting.)*

2. PUBLIC COMMENT

None

3. CONSENT ITEMS

Motion/Second/Carried - Director Carl Werder moved, seconded by Director Tom Nelson, the motion carried unanimously to approve the November 9, 2016 SCGA Board meeting and the November 9, 2016 Budget Subcommittee meeting with those members present. Director Christine Thompson was absent.

4. APPROVE SUBMISSION OF THE ALTERNATIVE SUBMITTAL FOR THE SOUTH AMERICAN SUBBASIN TO THE CALIFORNIA DEPARTMENT OF WATER RESOURCES; ENVIRONMENTAL DOCUMENT – EXEMPT (PLER CONTROL NO. 2016-00099)

Executive Director Darrell Eck provided background related to the Alternative Submittal and introduced Jon Goetz and Rodney Fricke of GEI Consultants who provided a presentation on the Alternative Submittal (*Note: The presentation given by Jon Goetz and Rodney Fricke may be viewed on the Authority's website for the December 14, 2016 meeting date.*)

Following the presentation, Director Charlotte Mitchell stated that her notes reflect five areas of concern, relative to the implementation of the Alternative, that the Board expressed as needing clarity:

1. Defacto Baseline
2. Governance challenges
3. Environmental concerns
4. Undesirable results
5. Need for more proactive focus

Regarding the potential to update the Groundwater Management Plan (GMP) Counsel Sarah Britton reported that she spoke to State DWR and it was still unclear as to whether it would be possible. She recalled that there was a provision of the Water Code that did not allow for any updates to GMPs after 2015 but that there was an exception to that provision that related to GMPs submitted as a part of an Alternative under SGMA. Counsel Sarah Britton stated that she had attempted to argue that SCGA's Alternative Submittal was so largely based on its GMP that it should be allowed to be updated under the exception but she had not yet received a definitive answer. Relative to the other issues raised by Director Mitchell, Counsel Sarah Britton stated that she and staff tried to provide clarification to or add language into the Alternative Submittal itself. Counsel Sarah Britton referred to the environmental determination regarding the Alternative Submittal that was on the agenda for the Board's consideration and then explained that governance relative to the Alternative's impact on GSA formation in the Subbasin was addressed.

Chair Brett Ewart stated that on December 13, 2016, he attended and presented at the Sacramento County Board of Supervisors meeting. Chair Ewart continued by stating that the item he presented on was the update on SGMA activities throughout the County, specifically the South American Subbasin.

Executive Director Darrell Eck stated that the SGMA legislation requires annual reporting and that historically SCGA staff has provided biannual reporting to the Board. However moving forward, staff will provide reports to State DWR for evaluation as well.

Chair Brett Ewart asked for clarification regarding the formation of a GSP in the Cosumnes Subbasin and provided a hypothetical scenario of issues between the Cosumnes Subbasin and the South American Subbasin. Counsel Sarah Britton stated that there are requirements in SGMA for both the Alternative and GSP paths providing that one basin cannot have an adverse impact on neighboring subbasins. She further stated that if the Alternative Submittal is approved by DWR and the Cosumnes Subbasin develops a GSP that shows something morbidly different then the assumptions and analysis of the Alternative and shows that the South American Subbasin is adversely affecting the Cosumnes Subbasin, then that would mean trouble for the South American Subbasins' next update of the Alternative. At that point, there is the option and opportunity for the two subbasins to enter into an Interbasin Coordination Agreement, which is the vehicle that DWR is looking at to fix those types of issues.

Director Forrest Williams stated that at the December 13, 2016 Board of Supervisors meeting, Supervisor Nottoli emphasized the importance for continued collaboration with Sloughhouse and the other entities in the Cosumnes River Subbasin. Director Williams further stated that even though there are differences of how the data is viewed, it will be important that the subbasins work together. Director Williams reported that Supervisor Nottoli also stated that he would defer the decision of

support of the Alternative Submittal to Mr. Williams, as his delegate and regular attendee of SCGA meetings, provided that the decision took into account how the Alternative would benefit both basins and all agencies moving forward.

Amanda Watson stated that she was expressing concerns on behalf of Sloughhouse RCD and the Cosumnes area. Amanda Watson's concerns were related to the Alternative Submittal, communication and collaboration, and the boundary line between the two subbasins.

Hanspeter Walter provided his concerns echoing Amanda Watson's statements. Hanspeter Walter further provided concerns regarding continued collaboration, communication and GSA overlaps. He further stated that Sloughhouse RCD requests that the Board not approve and not submit the plan.

Anona Dutton, a Hydro-Geologist registered in the State of California, Vice President of EKI, speaking on behalf of Sloughhouse RCD. Amanda Dutton stated that her comments were in addition to the fourteen page letter submitted on November 7, 2016 based on their review of the plan. Anona Dutton expressed her concerns relative to the functional equivalency and reliance on the 2006 GMP of the Alternative Submittal as well as the sustainability of the South American Subbasin.

Mike Wackman stated that he was speaking on behalf of the South Sacramento County Agriculture Water Company Authority. Mr. Wackman stated that in 2011 a GMP was developed and it showed that the basin was at equilibrium at that time. Mike Wackman discouraged negative comments relating to how one subbasin effects another and provided that the previous five years of drought skewed some of the numbers in the South basin because it does not have the surface water infrastructure to bring the surface water into that basin. Mr. Wackman encouraged collaboration.

Jay Schneider of SRCD echoed what Amanda Watson, Hanspeter Walter, and Anona Dutton stated. Mr. Schneider stated that he would like to work collaboratively on a GSP and expressed concerns relating to the boundary line adjustment and encouraged a collaborative effort to prepare a GMP for both basins. Mr. Schneider stated that the Alternative Submittal would be the only regulatory document in the history of Sacramento County that divided the Cosumnes River. Jay Schneider urged the Board not to move forward with the Alternative.

Mark Madison stated that the Alternative Submittal was very well prepared and that he disagreed with Anona Dutton a previous speaker. He further stated that he believes it to be the best way to move forward.

Director Paul Schubert asked Counsel Sarah Britton if the Alternative Submittal precludes the creation of a GSP in the future. Counsel Sarah Britton stated that it does not and if it is approved, it must be readdressed in five years. Counsel Britton stated that if SCGA cannot meet the criteria in five years, it then must develop a GSP.

Chair Brett Ewart asked Executive Director Darrell Eck what technical resources supporting the Alternative Submittal are available to other parties that would be incorporating it into their GSP process. Executive Director Darrell Eck stated that all of the information is available online.

Motion/Second/Carried - Director Carl Werder moved, seconded by Director Paul Schubert, the motion carried unanimously recognizing the exempt status of the Alternative Submittal pursuant to Section 15307 and 15308 (actions for protection of a natural resource and protection of the environment) of the California Environmental Review Act (CEQA) Guidelines (PLER Control No. 2016-00099).

Motion/Second/Carried – Director Paul Schubert moved, seconded by Director Carl Werder, the motion carried with Director *Ronald Lowry of Omochumne-Hartnell Water District opposed for the adoption of the resolution memorializing the consideration and recognition of the exempt status of the Alternative Submittal and approving its submission for the South American Subbasin to the California Department of Water Resources pursuant to California Water Code 10733.6.
*(*Ronald Lowry was present on behalf of OHWD, however, pursuant to November 6, 2012, Sacramento County Board of Supervisors meeting Item No. 37 Resolution No. 2012-0796, Ronald Lowry's appointment expired November 6, 2016 and was not a an active member of Sacramento Central Groundwater Authority at the time of this meeting.)*

5. REPORT ON EXISTING SCGA COMMITMENTS ADDRESSING STAKEHOLDER CONCERNS IDENTIFIED IN ALTERNATIVE SUBMITTAL OUTREACH

Executive Director Darrell Eck provided an overview of past commitments.

Director Charlotte Mitchell stated that there is a need to establish a plan of action so that SCGA can ensure that it works together with other entities. Director Forrest Williams suggested the establishment of a task force or committee in order to successfully execute a plan of action.
Chair Brett Ewart requested staff concentrate on the commitments stressed in Resolution No. 2016-02, and further requested a report back on this item be a standing item on the agenda.

Jay Schneider stated that collaboration is what he has been advocating from the beginning. He further stated that SRCD spent a lot of time and effort preparing a statement for the Water Forum outreach process and specifically asked that the letter be attached to the report to the Board. Mr. Schneider asked why the letter was not attached.

Hanspeter Walter stated that he echoed what Mr. Schneider said. Mr. Walter stated that Supervisor Nottoli seemed to encourage county funding for groundwater processes. Hanspeter Walter further stated that he would like to see the GSA overlap resolved by the middle of summer.

Mike Wackman stated he was speaking on behalf of OHWD. Mr. Wackman provided that OHWD Board approved to move forward on a test project for groundwater recharge. He stated that OHWD would install pipes and perform 'off season irrigation' in 50-60 acres of vineyards and evaluate what kind of infiltration they are going to get in that area. OHWD is hoping to add 500 acre feet into the ground within a month. Mike Wackman further stated that OHWD would appreciate any assistance and/or advice. OHWD is hoping to obtain a grant from DWR for close to a million dollars where they will retrofit some of the irrigation systems within the basin.

Director Todd Eising asked where the letter went that SRCD sent. Chair Brett Ewart requested that Tom Gohring, Darrell Eck and Amanda Watson work together on locating the letter.

Counsel Sarah Britton encouraged communications to be sent to the Executive Director so that if appropriate, they could be properly agendized for public discussion in accordance with the Brown Act. Director Tom Nelson requested a standing item on the agenda for Communication Received and Filed.

Tom Gohring provided that the Water Forum would assist with an outline structure for a task force or committee that was discussed for January 2017.

Chair Brett Ewart requested clarification regarding the recommended action as it appears to be an informational item but states for the Board to review and recognize. Executive Director Darrell Eck stated that the item was only informational. Chair Brett Ewart requested that the minutes reflect that the item was information and no action taken.

6. JPA FIRST AMENDMENT

Counsel Sarah Britton provided background regarding the JPA First Amendment. She stated that in June 2016, the amendment came to the Board and was stated as Amended and Restated. It was then discussed that it be an amendment and not a restatement of the document. Chair Brett Ewart asked if the amendment was simply a revised process for how board members are seated. Executive Director Darrell Eck confirmed Chair Brett Ewart's statement.

Motion/Second/Carried - Director Carl Werder moved, seconded by Director Christine Thompson, the motion carried unanimously to adopt the resolution recommending the governing bodies of the JPA signatories approve and execute a First Amendment to the Joint Powers Agreement to broaden the eligibility for SCGA Board appointments.

8. EXECUTIVE DIRECTOR'S REPORT

Executive Director Darrell Eck thanked Ronald Lowry of OHWD for his commitment and service to the SCGA Board of Directors and congratulated him on his retirement. Executive Director Darrell Eck provided information regarding the Sacramento Valley Subsidence Network Resurvey Project Spring 2017 and was encouraging SCGA to participate in that project.

Director Carl Werder asked if Executive Director Eck obtained an update on the status of Rancho Murieta. Executive Director Darrell Eck provided that Darlene Thiel of Rancho Murieta informed him that the Board was accepting of the proposed alternative. Rancho Murieta's funding discussion will be referred back to the Budget Subcommittee.

9. DIRECTOR'S COMMENTS

Director Forrest Williams reemphasized Supervisor Nottoli's comments regarding the Alternative and collaboration and Director Williams further stated that he wished to be involved in the task force.

Director Carl Werder requested an update of 2006 Groundwater Management Plan in the coming year.

Ronald Lowry provided that he is retiring and would like to see the County more involved in the South area.

Director Tom Nelson asked if there has been progress regarding obtaining a rate consultant. Executive Director Eck stated that staff has received recommendations.

ADJOURNMENT

Chair Brett Ewart adjourned the meeting at 11:40 a.m.

UPCOMING MEETINGS

Next SCGA Board of Directors Meeting – Wednesday, January 11, 2017 at 9:00 a.m. located at 10060 Goethe Road, South Conference Room no. 1205 (Valley Oak)

_____
Chair, of the Sacramento
Central Groundwater Authority Board

ATTEST:_____
Deputy Clerk, of the Sacramento
Central Groundwater Authority Board

AGENDA ITEM 4: MEMORANDUM OF UNDERSTANDING FOR SGMA EFFORTS IN THE DELTA AREA OF THE SOUTH AMERICAN SUBBASIN

BACKGROUND:

The Groundwater Authority Board adopted Resolution 2016-01 on April 20, 2016 which directed staff to negotiate agreements with other local agencies and stakeholders, as defined by SGMA, outside of SCGA's jurisdiction as may be required to support an Alternative Submittal for the South American Subbasin. On August 10, 2016 staff met with Delta interests to explore the possibility of developing MOUs between the various interests to convey the potential SGMA-related activities in the Delta, and to support the Alternative Submittal process being undertaken by SCGA. The attached MOUs are part of this effort and support the recently submitted Alternative.

Staff recommends the Board authorize the chair to execute the Memorandum Of Understanding And Agreement For Sustainable Groundwater Management Act Efforts In The Delta Area Of The South American Subbasin with Reclamation Districts 813 and 2111.

STAFF RECOMMENDATION:

Action: Authorize the chair to execute the MOUs with Reclamation Districts 813 and 1002.

MEMORANDUM OF UNDERSTANDING AND AGREEMENT FOR SUSTAINABLE GROUNDWATER MANAGEMENT ACT EFFORTS IN THE DELTA AREA OF THE SOUTH AMERICAN SUBBASIN

This Memorandum of Understanding and Agreement ("MOU") is dated and effective this 1 day of December, 2016 by and between the Sacramento Central Groundwater Authority, a joint powers authority formed under Government Code section 6500 et seq. ("SCGA"), and various Reclamation, Water and Drainage Districts, established pursuant to Water Code section 50000 et seq. and within the South American Sub-basin (Basin No. 5-21.65) as defined by the California Department of Water Resources Bulletin 118-03 ("RDs"). The parties to this MOU are individually referred to herein as "Party" and collectively referred to herein as "Parties."

RECITALS

WHEREAS, in 2014 the California Legislature signed the Sustainable Groundwater Management Act ("SGMA") into law;

WHEREAS, SGMA provides a framework for sustainable groundwater management by local agencies; and

WHEREAS, the Parties to this Agreement are each local agencies within the meaning of SGMA at Water Code section 10721; and

WHEREAS, the Parties are local agencies within the South American Sub-basin (Basin No. 5-21.65) as defined by the California Department of Water Resources ("DWR") Bulletin 118-03; and

WHEREAS, SGMA allows for flexibility in groundwater management, but requires outreach and coordination to and between local agencies and interested parties in the formation and development of groundwater governing entities and basin sustainability plans; and

WHEREAS, SGMA requires a Groundwater Sustainability Plan ("GSP") or alternative for each medium and high priority classified sub-basin by January 31, 2022; and

WHEREAS, an alternative to a GSP must be submitted to DWR no later than January 1, 2017; and

WHEREAS, SCGA was created for the primary purpose of maintaining the sustainable yield within the SCGA Groundwater Management Plan ("GMP") and has service area that overlies a portion of the South American Sub-basin, classified as a high priority sub-basin;

WHEREAS, SCGA has significant interest and investment in using its GMP; and sustainable management of its service area since its formation in 2006 to comply with SGMA and GSP requirements; and

WHEREAS, GSP regulations require an alternative submittal to apply to an entire basin; and

WHEREAS, SGMA requires an alternative submittal meet one of three categories, including an analysis of conditions that demonstrate the sub-basin has operated within its sustainable yield over a period of at least 10 years; and

WHEREAS, SCGA is developing an alternative submittal covering the entire South American Sub-basin to submit by January 1, 2017 for DWR's evaluation based on demonstrating sustainable operation of the sub-basin for more than 10 years; and

WHEREAS, the RDs are local agencies within the Delta area of the South American Sub-basin (depicted in Exhibit A, and hereinafter "Delta") that have groundwater management interests and experience; and

WHEREAS, the Parties have an interest in coordinating each other's SGMA-related efforts within the South American Sub-basin, including the submittal of a qualifying alternative to GSP no later than January 1, 2017;

NOW THEREFORE THE PARTIES AGREE AS FOLLOWS:

1. Recitals: The foregoing recitals are hereby incorporated by reference.

2. Term: This MOU shall be effective as of the date of signing and remain in effect until the subject matter contemplated herein is completed or this MOU is terminated pursuant to the terms of this MOU.

3. Membership: The Parties to this MOU shall be the entities which execute this MOU, or are added as Parties by way of amendment, and have not withdrawn in accordance with Section 12.

4. SCGA as Applicant for Alternative: SCGA intends to be the applicant and lead agency for an alternative submittal ("Alternative") pursuant to SGMA. SCGA's Alternative will encompass the whole of the South American Sub-basin and include the Delta.

5. Alternative Consultation: SCGA intends that the Alternative will represent the groundwater use and behavior in the Delta as different from the remaining area of the Sub-basin. SCGA will consult and coordinate with the other Parties for supporting information to include in the Alternative.

6. Delta CASGEM: SCGA intends to use and cite to existing funding and programs to support Delta monitoring and reporting of groundwater elevations for California Statewide Groundwater Elevation Monitoring ("CASGEM") compliance.

7. Delta GSAs: SCGA will support local agency interests in becoming Groundwater

Sustainability Agencies ("GSAs") within the Delta.

8. Delta GSP: SCGA acknowledges that DWR approval of an Alternative for the South American Sub-basin does not preclude Delta GSAs from subsequently developing a GSP, and that SCGA would work to coordinate the Alternative with any GSP developed within the South American Sub-Basin.

9. Delta BBM: SCGA is aware of the Parties' interest in future basin boundary modification to consolidate the legal Delta, as defined by DWR, into a single sub-basin ("Delta BBM"). SCGA acknowledges that approval of an Alternative for the South American Sub-basin does not preclude or oppose such Delta BBM. SCGA will work collaboratively, as requested, with the Parties and other Delta interests concerning such Delta BBM and its effects on the South American Sub-basin.

10. Party Communication: The Parties will consult and communicate on issues and matters to support the development of the Alternative. Each Party will bear its own expense for this consultation and communication support.

11. Termination: This MOU is terminated by withdrawal of a majority of the Parties, or upon completion of the subject matter contemplated herein.

12. Withdrawal: A Party may withdraw from this MOU effective upon forty-five (45) days notice to each other Party.

13. Amendment: Except as provided herein, no alteration, amendment, or variation of the terms of this MOU shall be valid unless made in writing and signed by all Parties.

14. Notice: Any notice or instrument delivered or given pursuant to this MOU shall be made by (a) depositing the same in any United States Post Office, postage prepaid, and shall be deemed to have been received at the expiration of 72 hours after its deposit in the United States Post Office; (b) transmission by facsimile copy to the addressee; (c) transmission by electronic mail; or (d) personal delivery, to the Party addresses as identified in Exhibit B.

15. Entire Agreement. This instrument constitutes the entire agreement and understanding between the Parties with respect to the subject matters hereof, and supersedes and replaces any prior agreements and understandings, whether oral or written, by and between them with respect to such matters.

16. Counterparts. This MOU may be executed in any number of counterparts, each of which shall be deemed to be an original instrument, but all of which together shall constitute one and the same instrument.

IN WITNESS WHEREOF, the parties hereto have entered into this instrument as of the date set forth above.

SACRAMENTO CENTRAL GROUNDWATER AUTHORITY

By: _____

Title: _____

Date: _____

RECLAMATION DISTRICT

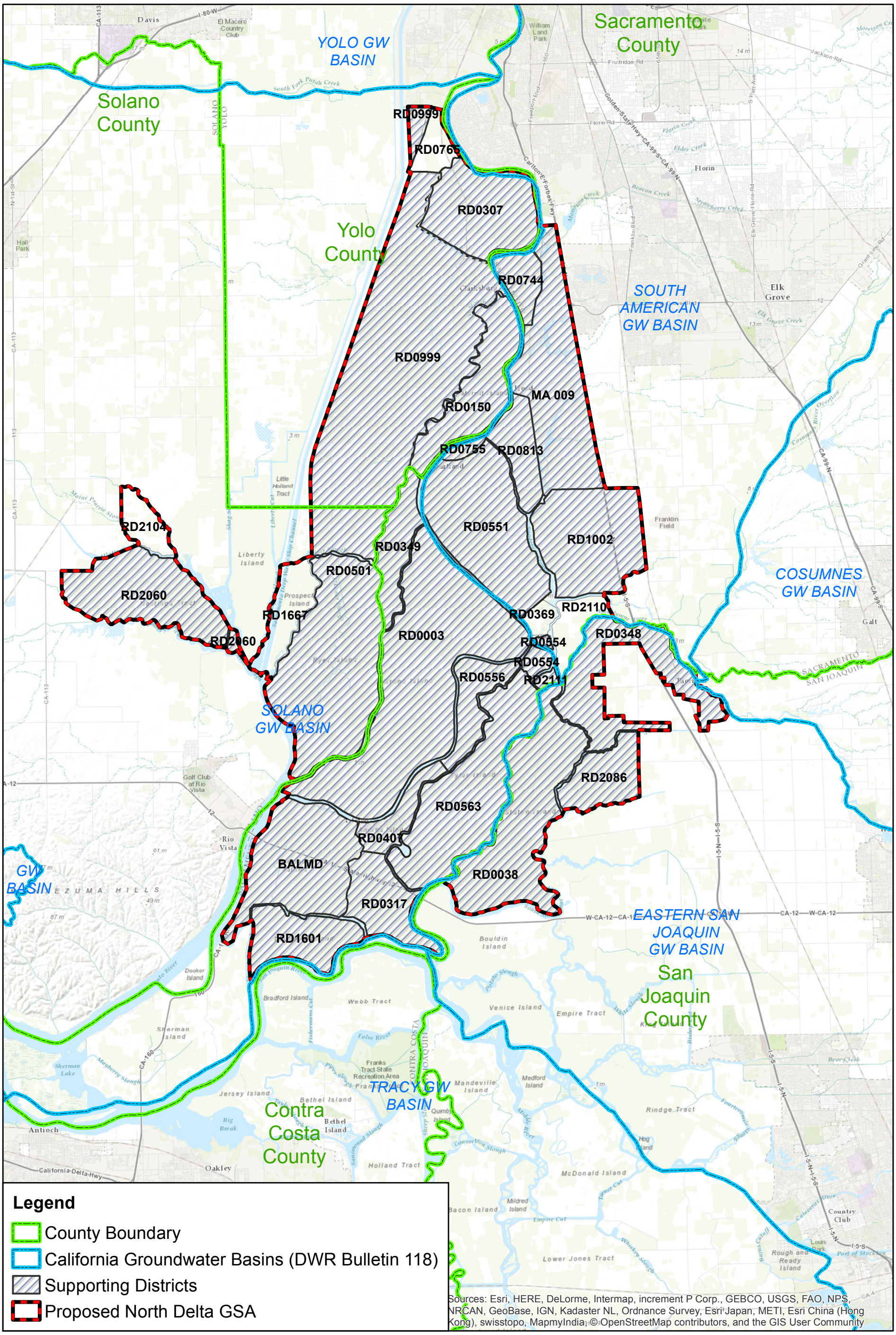
By: Robert Abercrombie

Title: Secretary RD 813

Date: 12/9/2016

Exhibit "A" – Reclamation Districts within the Delta area of the South American Sub-basin
Exhibit "B" – Party Addresses

EXHIBIT A


Sacramento County
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TRACY GW BASIN
Contra Costa County
San Joaquin County
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RD2060
RD0003
RD0369
RD2110
RD0554
RD0554
RD0556
RD2111
RD0348
RD2086
RD0563
RD0407
BALMD
RD0038
RD0317
RD1601
Legend
County Boundary
California Groundwater Basins (DWR Bulletin 118)
Supporting Districts
Proposed North Delta GSA
Sources: Esri, HERE, DeLorme, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, MapmyIndia, © OpenStreetMap contributors, and the GIS User Community
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Miles
BSK Associates Engineers & Laboratories
Proposed North Delta Groundwater Sustainability Agency

EXHIBIT B

PARTY ADDRESSES

Reclamation District #813
P.O. Box 557
Courtland, CA 95615-0557

Sacramento Central Groundwater Authority
827 7th Street Room 301
Sacramento, CA 95814

MEMORANDUM OF UNDERSTANDING AND AGREEMENT FOR SUSTAINABLE GROUNDWATER MANAGEMENT ACT EFFORTS IN THE DELTA AREA OF THE SOUTH AMERICAN SUBBASIN

This Memorandum of Understanding and Agreement ("MOU") is dated and effective this 9th day of December 2016 by and between the Sacramento Central Groundwater Authority, a joint powers authority formed under Government Code section 6500 et seq. ("SCGA"), and various Reclamation, Water and Drainage Districts, established pursuant to Water Code section 50000 et seq. and within the South American Sub-basin (Basin No. 5-21.65) as defined by the California Department of Water Resources Bulletin 118-03 ("RDs"). The parties to this MOU are individually referred to herein as "Party" and collectively referred to herein as "Parties."

RECITALS

WHEREAS, in 2014 the California Legislature signed the Sustainable Groundwater Management Act ("SGMA") into law;

WHEREAS, SGMA provides a framework for sustainable groundwater management by local agencies; and

WHEREAS, the Parties to this Agreement are each local agencies within the meaning of SGMA at Water Code section 10721; and

WHEREAS, the Parties are local agencies within the South American Sub-basin (Basin No. 5-21.65) as defined by the California Department of Water Resources ("DWR") Bulletin 118-03; and

WHEREAS, SGMA allows for flexibility in groundwater management, but requires outreach and coordination to and between local agencies and interested parties in the formation and development of groundwater governing entities and basin sustainability plans; and

WHEREAS, SGMA requires a Groundwater Sustainability Plan ("GSP") or alternative for each medium and high priority classified sub-basin by January 31, 2022; and

WHEREAS, an alternative to a GSP must be submitted to DWR no later than January 1, 2017; and

WHEREAS, SCGA was created for the primary purpose of maintaining the sustainable yield within the SCGA Groundwater Management Plan ("GMP") and has service area that overlies a portion of the South American Sub-basin, classified as a high priority sub-basin;

WHEREAS, SCGA has significant interest and investment in using its GMP; and sustainable management of its service area since its formation in 2006 to comply with SGMA and GSP requirements; and

WHEREAS, GSP regulations require an alternative submittal to apply to an entire basin; and

WHEREAS, SGMA requires an alternative submittal meet one of three categories, including an analysis of conditions that demonstrate the sub-basin has operated within its sustainable yield over a period of at least 10 years; and

WHEREAS, SCGA is developing an alternative submittal covering the entire South American Sub-basin to submit by January 1, 2017 for DWR's evaluation based on demonstrating sustainable operation of the sub-basin for more than 10 years; and

WHEREAS, the RDs are local agencies within the Delta area of the South American Sub-basin (depicted in Exhibit A, and hereinafter "Delta") that have groundwater management interests and experience; and

WHEREAS, the Parties have an interest in coordinating each other's SGMA-related efforts within the South American Sub-basin, including the submittal of a qualifying alternative to GSP no later than January 1, 2017;

NOW THEREFORE THE PARTIES AGREE AS FOLLOWS:

1. Recitals: The foregoing recitals are hereby incorporated by reference.

2. Term: This MOU shall be effective as of the date of signing and remain in effect until the subject matter contemplated herein is completed or this MOU is terminated pursuant to the terms of this MOU.

3. Membership: The Parties to this MOU shall be the entities which execute this MOU, or are added as Parties by way of amendment, and have not withdrawn in accordance with Section 12.

4. SCGA as Applicant for Alternative: SCGA intends to be the applicant and lead agency for an alternative submittal ("Alternative") pursuant to SGMA. SCGA's Alternative will encompass the whole of the South American Sub-basin and include the Delta.

5. Alternative Consultation: SCGA intends that the Alternative will represent the groundwater use and behavior in the Delta as different from the remaining area of the Sub-basin. SCGA will consult and coordinate with the other Parties for supporting information to include in the Alternative.

6. Delta CASGEM: SCGA intends to use and cite to existing funding and programs to support Delta monitoring and reporting of groundwater elevations for California Statewide Groundwater Elevation Monitoring ("CASGEM") compliance.

7. Delta GSAs: SCGA will support local agency interests in becoming Groundwater

Sustainability Agencies ("GSAs") within the Delta.

8. Delta GSP: SCGA acknowledges that DWR approval of an Alternative for the South American Sub-basin does not preclude Delta GSAs from subsequently developing a GSP, and that SCGA would work to coordinate the Alternative with any GSP developed within the South American Sub-Basin.

9. Delta BBM: SCGA is aware of the Parties' interest in future basin boundary modification to consolidate the legal Delta, as defined by DWR, into a single sub-basin ("Delta BBM"). SCGA acknowledges that approval of an Alternative for the South American Sub-basin does not preclude or oppose such Delta BBM. SCGA will work collaboratively, as requested, with the Parties and other Delta interests concerning such Delta BBM and its effects on the South American Sub-basin.

10. Party Communication: The Parties will consult and communicate on issues and matters to support the development of the Alternative. Each Party will bear its own expense for this consultation and communication support.

11. Termination: This MOU is terminated by withdrawal of a majority of the Parties, or upon completion of the subject matter contemplated herein.

12. Withdrawal: A Party may withdraw from this MOU effective upon forty-five (45) days notice to each other Party.

13. Amendment: Except as provided herein, no alteration, amendment, or variation of the terms of this MOU shall be valid unless made in writing and signed by all Parties.

14. Notice: Any notice or instrument delivered or given pursuant to this MOU shall be made by (a) depositing the same in any United States Post Office, postage prepaid, and shall be deemed to have been received at the expiration of 72 hours after its deposit in the United States Post Office; (b) transmission by facsimile copy to the addressee; (c) transmission by electronic mail; or (d) personal delivery, to the Party addresses as identified in Exhibit B.

15. Entire Agreement. This instrument constitutes the entire agreement and understanding between the Parties with respect to the subject matters hereof, and supersedes and replaces any prior agreements and understandings, whether oral or written, by and between them with respect to such matters.

16. Counterparts. This MOU may be executed in any number of counterparts, each of which shall be deemed to be an original instrument, but all of which together shall constitute one and the same instrument.

IN WITNESS WHEREOF, the parties hereto have entered into this instrument as of the date set forth above.

SACRAMENTO CENTRAL GROUNDWATER AUTHORITY

By: _____

Title: _____

Date: _____

RECLAMATION DISTRICT

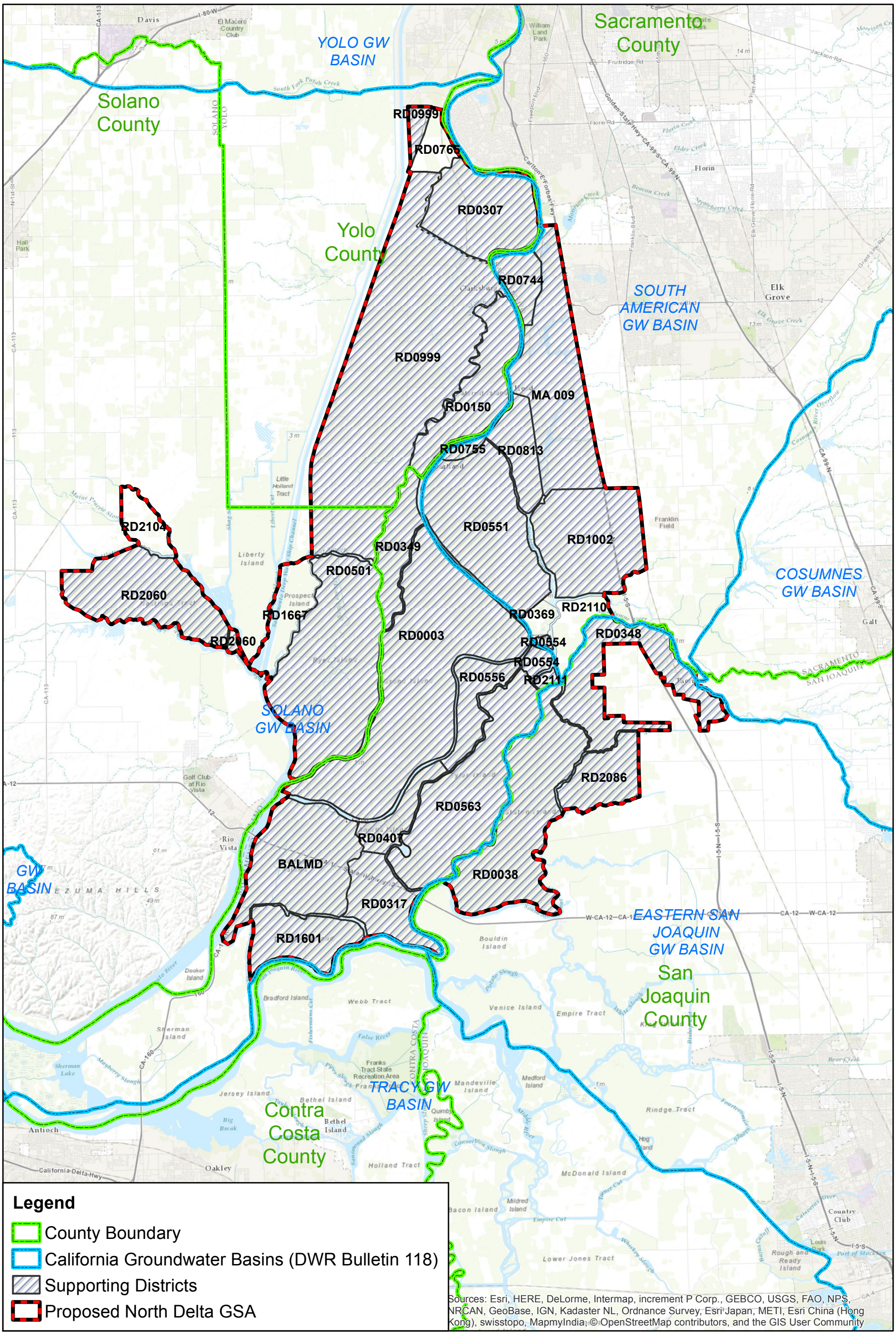
By: Robert Abercrombie

Title: President RD 1002

Date: 12/9/2016

Exhibit "A" – Reclamation Districts within the Delta area of the South American Sub-basin
Exhibit "B" – Party Addresses

EXHIBIT A


Sacramento County
YOLO GW BASIN
Solano County
Yolo County
SOUTH AMERICAN GW BASIN
COSUMNES GW BASIN
SOLANO GW BASIN
EASTERN SAN JOAQUIN GW BASIN
TRACY GW BASIN
Contra Costa County
San Joaquin County
RD0999
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MA 009
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RD2104
RD0551
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RD0349
RD0501
RD2060
RD1667
RD2060
RD0003
RD0369
RD2110
RD0554
RD0554
RD0556
RD2111
RD0348
RD2086
RD0563
RD0407
BALMD
RD0038
RD0317
RD1601
Legend
County Boundary
California Groundwater Basins (DWR Bulletin 118)
Supporting Districts
Proposed North Delta GSA
Sources: Esri, HERE, DeLorme, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, MapmyIndia, © OpenStreetMap contributors, and the GIS User Community
N
W
E
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1.75
3.5
7
Miles
BSK Associates Engineers & Laboratories
Proposed North Delta Groundwater Sustainability Agency

EXHIBIT B

PARTY ADDRESSES

Reclamation District #1002
962 Lambert Road
Courtland, CA 95615-9728

Sacramento Central Groundwater Authority
827 7th Street Room 301
Sacramento, CA 95814

AGENDA ITEM 5: SCGA COMMITMENTS ADDRESSING STAKEHOLDER CONCERNS IDENTIFIED IN ALTERNATIVE SUBMITTAL OUTREACH

BACKGROUND:

As described by the Water Forum at the November 9, 2016 Board meeting, SCGA received a number of requests from stakeholders participating in the bi-lateral meetings to address specific concerns that are outside the Alternative Submittal process. The Water Forum summarized these concerns as follows:

- Joint commitments to cross-basin coordination agreements
- Work towards mutual resolution of GSA overlaps
- Consideration of needed governance changes
- Support Cosumnes River pre-wetting and recharge
- A more proactive SCGA
- Improved outreach in all processes going forward

After discussion the Board directed staff to do the following:

1. Research previous meeting minutes and provide the Board with a compiled history of previous commitments and statements by the Board; and
2. Provide draft language for issues that have not been previously addressed or committed to.

At the December 14, 2016 Board meeting staff focused on researching previous meeting minutes and compiled and discussed commitments and statements made by the Board. This item continues this discussion by outlining activities that will further expand on Groundwater Authority activities discussed at the December Board meeting and by identifying ways that these concerns can be addressed going forward. Formal actions on these concerns would be taken by the Board as additional information is provided and through the course of on-going business.

STAFF RECOMMENDATION:

Action: Informational item.

AGENDA ITEM 6: EXECUTIVE DIRECTOR'S REPORT

- Budget Subcommittee
- Statewide Alternative Submittal Statistics
- Bulletin 118 Interim Update 2016
- DWR CASGEM Update
- JPA Status Report
- Elk Grove Dry Well Project – Final TAC Meeting
- OHWD Off Season Irrigation Project
- Framework BMP
- Water Forum – GSA Resolution Process
- Current Board Vacancies
- California Water Bank Presentation – February 8, 2017
- Communication
    - FAQ – DWR, December 12, 2016
    - Sloughhouse RCD Letter to the Water Forum
    - Sloughhouse RCD Board Meeting – January 9, 2017

AGENDA ITEM 6: EXECUTIVE DIRECTOR'S REPORT

Budget Subcommittee

(No additional materials)

AGENDA ITEM 6: EXECUTIVE DIRECTOR'S REPORT

Statewide Alternative Submittal Statistics

From:	SGMA System
To:	Eck. Darrell
Cc:	Steven.Springhorn@water.ca.gov; Trevor.Joseph@water.ca.gov; Roybal. Ramon; Bill.Brewster@water.ca.gov
Subject:	SGMA Alternative Submission
Date:	Friday, December 30, 2016 9:45:37 AM

An Alternative was submitted to the Department of Water Resources.

Summary of the Alternative:
Basin: 5-021.65 SACRAMENTO VALLEY SOUTH AMERICAN
Local Agency: Sacramento Central Groundwater Authority
Plan Manager: Darrell Eck (eckd@saccounty.net)

Please click http://sgma.water.ca.gov/portal/alternative/print/15 to view details on this submittal.
Please visit http://sgma.water.ca.gov/portal for more information on the submitted request.

SGM Program Implementation Team,
California Department of Water Resources

Alternative Submittals at DWR Portal

Sustainable Groundwater Management Act

A total of 16 agencies uploaded Alternative Submittals to the DWR portal for 22 basins, as shown on the location map. Five basins (5) are classified as high priority and 17 as medium priority. The South American Subbasin is high priority.

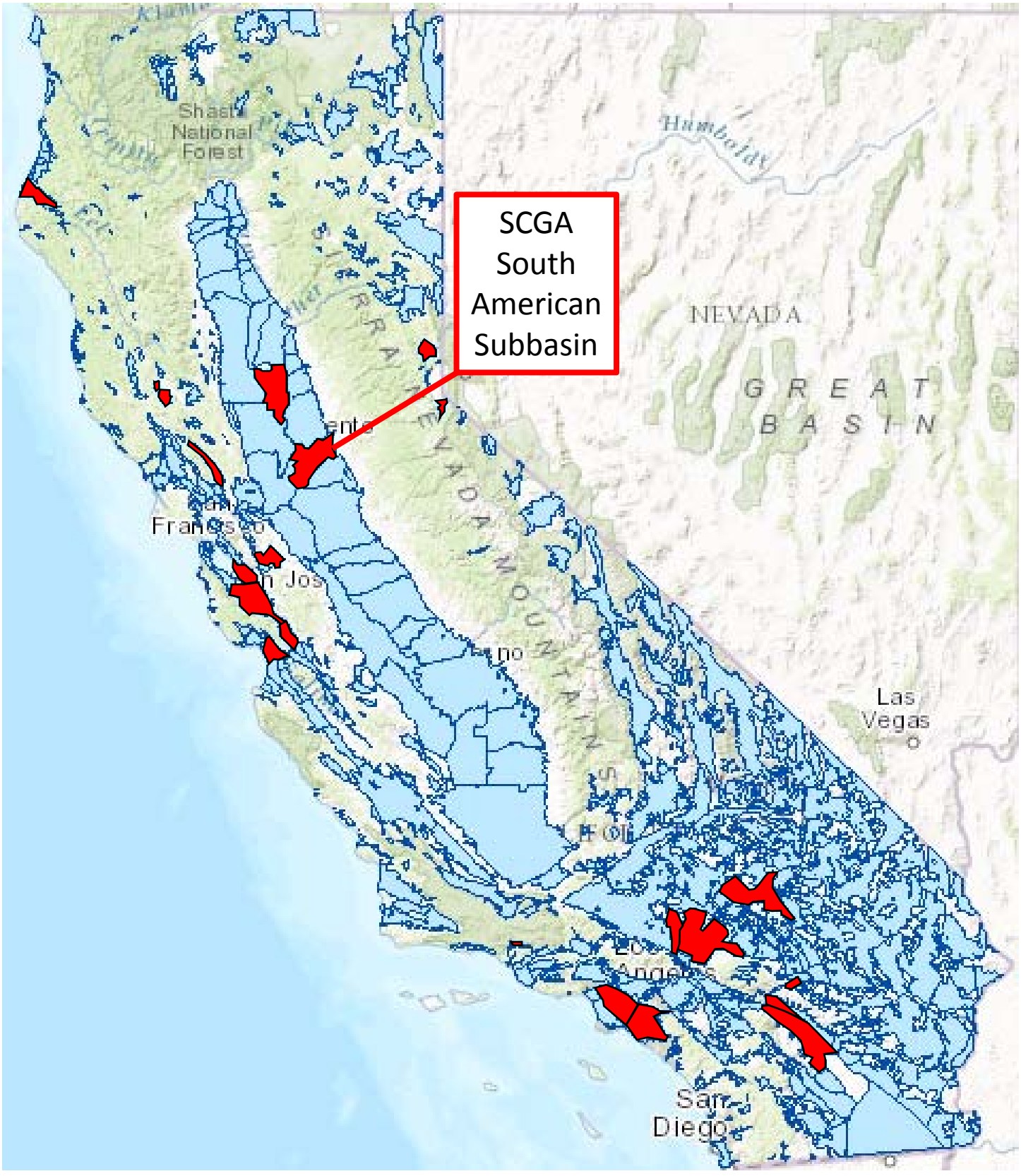
Nine of the submittals (9) were based on an analysis of the basin conditions and seven submittals (7) used existing management plans. Dual submittals were provided for two basins (2), relying on both an analysis and an existing plan. Four submittals (4) were based on an adjudication action. SCGA submitted an analysis of basin conditions.

For CEQA findings, 15 submittals used an exemption, including categorical, statutory, and/or general rule, or did not specify the exemption. The most common exemption (categorical – 7) was for the protection of natural resources. Two submittals (2) were based on existing environmental impact reports (EIR) and one submittal (1) utilized exemptions and an existing EIR. The four adjudication submittals (4) stated that an exemption would not be filed. SCGA utilized categorical exemptions 7 and 8 (protection of environment).

For functional equivalency, 12 submittals utilized the DWR spreadsheet while a separate document was prepared for four submittals (4). One submittal (1) attached 58 PDFs. Five submittals (5) utilized a document with links to files, including the SCGA Alternative that used as ZIP file of PDFs linked to a document.

See attached table and illustrations for the above characteristics.

Location Map of Basins with Alternative Submittals



Summary of Alternative Submittals in DWR Portal

03-Jan-17

	Count	
Agencies	16	
Basins	22	100%
Priority: High	5	23%
Priority: Medium	17	77%

Type of Submittal	**Count**	
Analysis of Basin Conditions	9	41%
Analysis & Plan	2	9%
Existing Plan	7	32%
Adjudication Action	4	18%
Total	22	100%

CEQA Findings	**Count**		
Exemption	15		
		9	**Categorical**
		8	**Statutory**
		2	**General Rule**
		4	**Not specified**
		23	**Total**
Environmental Impact Report - Existing	2		
None - Adjudication	4		
All Choices	1		
TOTAL	22		

Functional Equivalency	**Count**	**File Size, Mb**
DWR Form	12	0.04 - 4.6
Document	4	0.3 - 23
Files	1	724
Document with links to Files	5	0.3 - 460
Total	22	

Commentors	0
Comments	0

Listing of Alternative Submittals in DWR Portal

03-Jan-17

	Submitting Agency	Basin	Basin Priority	Alternative Type		CEQA Findings: Exemption: Categorical	Statutory	General Rule	Not specific	None	EIR	Comments	POC	Submitted Date	60-Day Public Comment Period	Commentors	Comments
1	Alameda County Water District	2-009.01 SANTA CLARA VALLEY NILES CONE	Medium	Analysis of Basin Conditions	Existing Plan	7	10728.6	X					Michelle Myers	12/31/2016	03/02/17		
2	Coachella Valley Water District	7-021.01 COACHELLA VALLEY INDIO	Medium	Existing Plan							X	Not specific	Patti Reyes	12/29/2016	02/28/17		
	Coachella Valley Water District	7-021.02 COACHELLA VALLEY MISSION CREEK	Medium	Existing Plan					X			Will not file NOE	Patti Reyes	12/29/2016	02/28/17		
3	Humboldt County Public Works Department	1-010 EEL RIVER VALLEY	Medium	Analysis of Basin Conditions					X			NOE filing on 03-Jan-17	Hank Seemann	12/30/2016	03/01/17		
4	Lake County Watershed Protection District	5-014 SCOTTS VALLEY	Medium	Existing Plan		7							Carolyn Ruttan	12/30/2016	03/01/17		
	Lake County Watershed Protection District	5-015 BIG VALLEY	Medium	Existing Plan		7							Carolyn Ruttan	12/30/2016	03/01/17		
5	Mojave Water Agency	6-040 LOWER MOJAVE RIVER VALLEY	Medium	Adjudication Action						X			Anna Garcia	12/30/2016	03/01/17		
	Mojave Water Agency	6-042 UPPER MOJAVE RIVER VALLEY	High	Adjudication Action						X		Letter to DWR (single sentence)	Anna Garcia	12/30/2016	03/01/17		
	Mojave Water Agency	6-043 EL MIRAGE VALLEY	Medium	Adjudication Action						X			Anna Garcia	12/30/2016	03/01/17		
	Mojave Water Agency	7-012 WARREN VALLEY	Medium	Adjudication Action						X			Anna Garcia	12/30/2016	03/01/17		
6	Napa County	2-002.01 NAPA-SONOMA VALLEY NAPA VALLEY	Medium	Analysis of Basin Conditions		6 & 7	X						Steven Lederer	12/16/2016	02/15/17		
7	Ojai Basin Groundwater Management Agency	4-002 OJAI VALLEY	Medium	Analysis of Basin Conditions					X			NOE filing on 01-Feb-17	John Mundy	12/27/2016	02/26/17		
8	Orange County Water District	8-001 COASTAL PLAIN OF ORANGE COUNTY	Medium	Analysis of Basin Conditions		6	X						Adam Hutchinson	12/22/2016	02/21/17		
9	Pajaro Valley Water Management Agency	3-002.01 CORRALITOS PAJARO VALLEY	High	Existing Plan							2014		Brian Lockwood	12/31/2016	03/02/17		
10	**Sacramento Central Groundwater Authority**	**5-021.65 SACRAMENTO VALLEY SOUTH AMERICAN**	**High**	**Analysis of Basin Conditions**		**7 & 8**							**Darrell Eck**	**12/30/2016**	**03/01/17**		
11	Santa Clara Valley Water District	2-009.02 SANTA CLARA VALLEY SANTA CLARA	Medium	Existing Plan			15262					Planning study	Vanessa De La Piedra	12/21/2016	02/20/17		
	Santa Clara Valley Water District	3-003.01 GILROY-HOLLISTER VALLEY LLAGAS AREA	High	Existing Plan			15262					Planning study	Vanessa De La Piedra	12/21/2016	02/20/17		
12	South Tahoe Public Utility District	6-005.01 TAHOE VALLEY TAHOE SOUTH	Medium	Analysis of Basin Conditions	Existing Plan	6, 7 & 8	10728.6						Ivo Bergsohn	12/29/2016	02/28/17		
13	Sutter County	5-021.62 SACRAMENTO VALLEY SUTTER	Medium	Analysis of Basin Conditions					X			NOE filing on 27-Dec-16	Danelle Stylos	12/27/2016	02/26/17		
14	Truckee Donner Public Utility District	6-067 MARTIS VALLEY	Medium	Analysis of Basin Conditions		7 & 8	X						Steven Poncelet	12/22/2016	02/21/17		
15	Zone 7 Water Agency	2-010 LIVERMORE VALLEY	Medium	Analysis of Basin Conditions				X					Jill Duerig	12/29/2016	02/28/17		
16	Water Replenishment District of Southern California	4-011.04 COASTAL PLAIN OF LOS ANGELES CENTRAL	High	Analysis of Basin Conditions		15162 15261 15273	21080(b)(8)				1979	& 1985 Initial Study	Brian Partington	12/16/2016	02/15/17		

6 Information collection

7 Action by regulatory agencies for protection of natural resources

8 Action by regulatory agencies for protection of environment

15262 Feasibility and planning studies are exempt from the requirements to prepare EIRs or Negative Declarations. These studies must still include consideration of environmental factors. The section also adds a necessary limitation on this exemption to show that if the adoption of a plan will have a legally binding effect on later activities, the adoption will be subject to CEQA.

15162 Subsequent EIRs and Negative Declarations

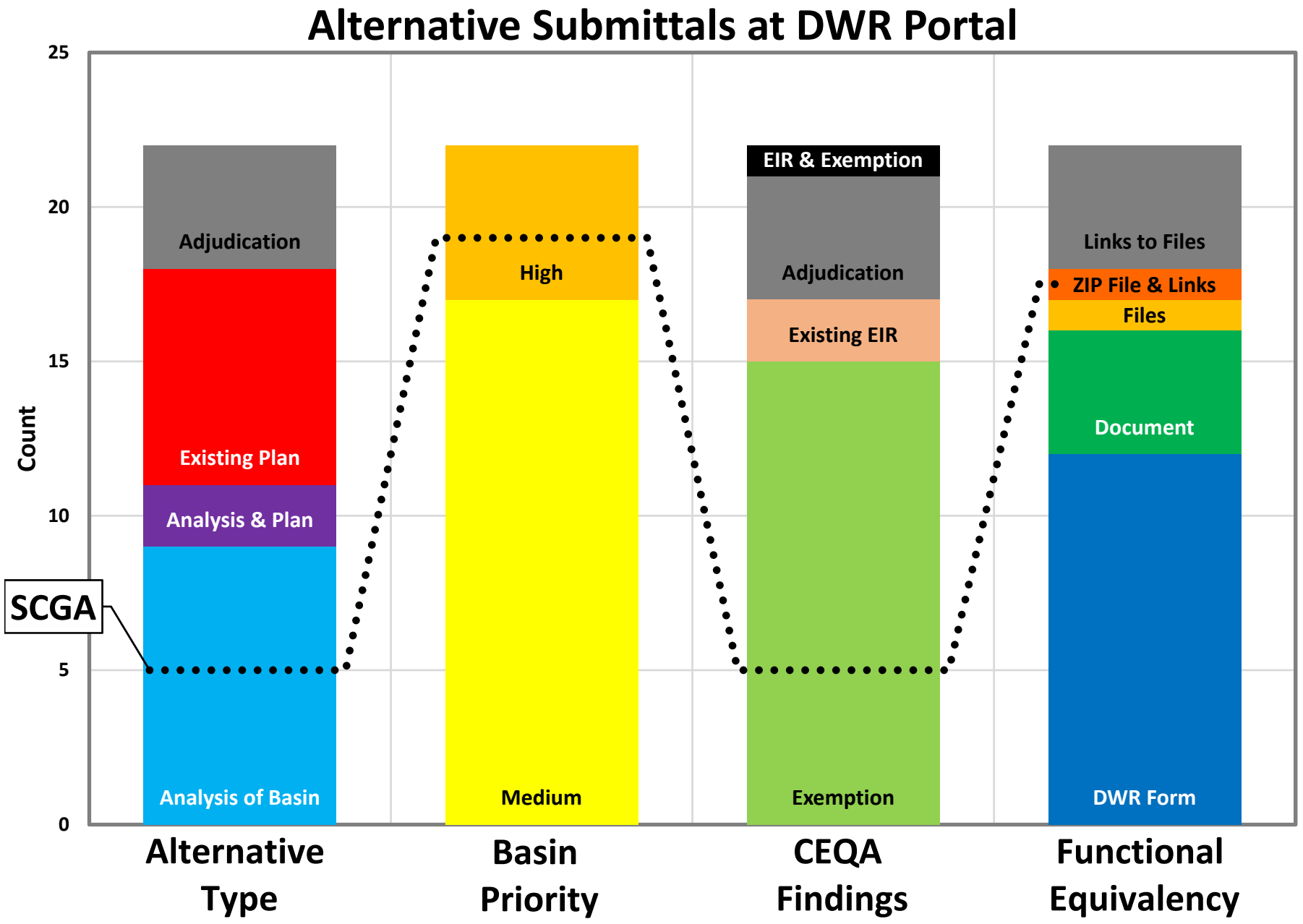
15261 Ongoing Project

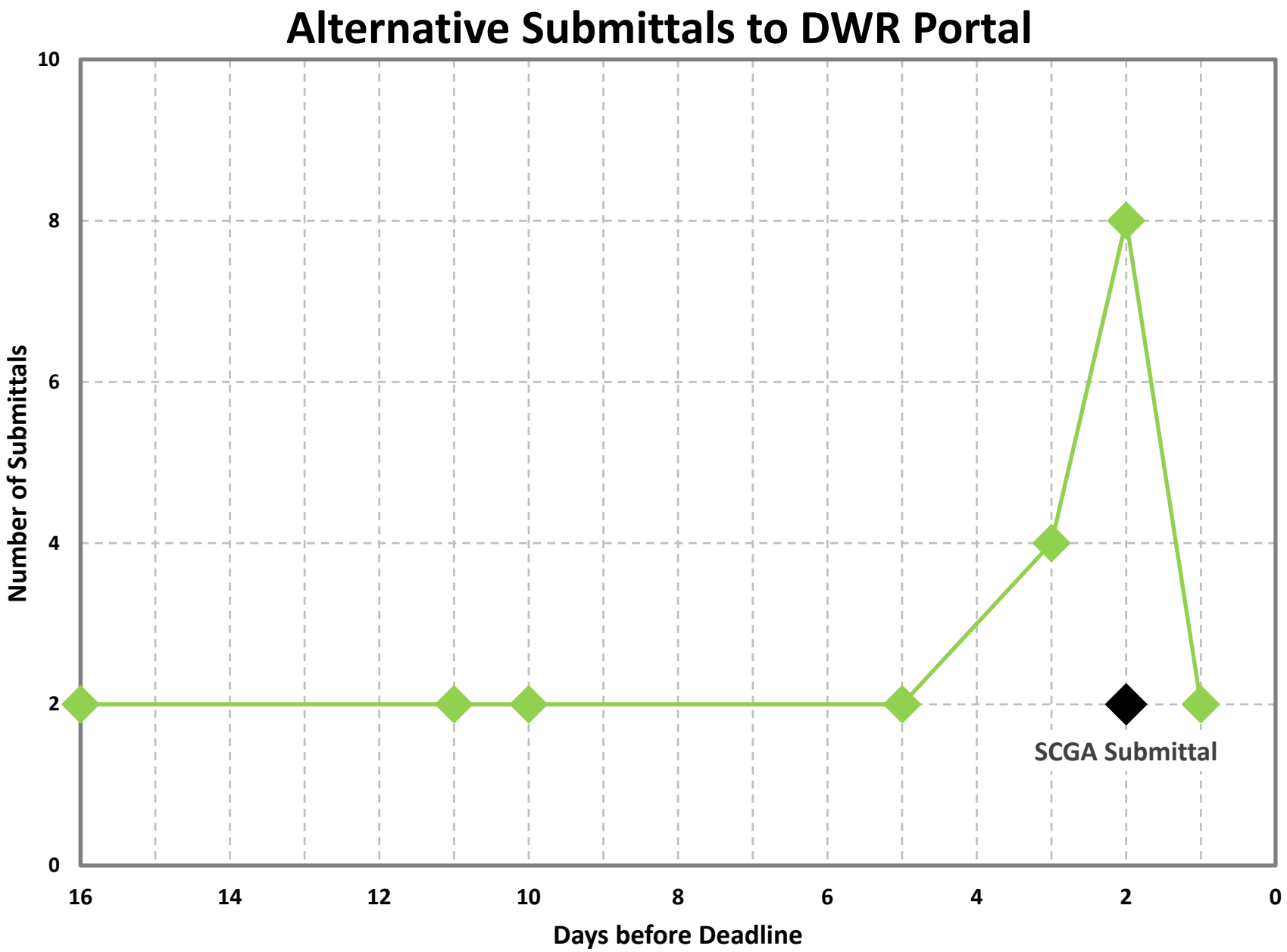
15273 Rates, Tolls, Fares, and Charges

21080 (b) This division does not apply to any of the following activities:

(8) The establishment, modification, structuring, restructuring, or approval of rates, tolls, fares, or other charges by public agencies which the public agency finds are for the purpose of (A) meeting operating expenses, including employee wage rates and fringe benefits, (B) purchasing or leasing supplies, equipment, or materials, (C) meeting financial reserve needs and requirements, (D) obtaining funds for capital projects necessary to maintain service within existing service areas, or (E) obtaining funds necessary to maintain those intracity transfers as are authorized by city charter. The public agency shall incorporate written findings in the record of any proceeding in which an exemption under this paragraph is claimed setting forth with specificity the basis for the claim of exemption.

15061 Review for Exemption


Alternative Submittals at DWR Portal
Count
25
20
15
10
5
0
SCGA
Adjudication
Existing Plan
Analysis & Plan
Analysis of Basin
High
Medium
EIR & Exemption
Adjudication
Existing EIR
Exemption
Links to Files
ZIP File & Links
Files
Document
DWR Form
Alternative Type
Basin Priority
CEQA Findings
Functional Equivalency


Alternative Submittals to DWR Portal
Number of Submittals
10
8
6
4
2
0
16
14
12
10
8
6
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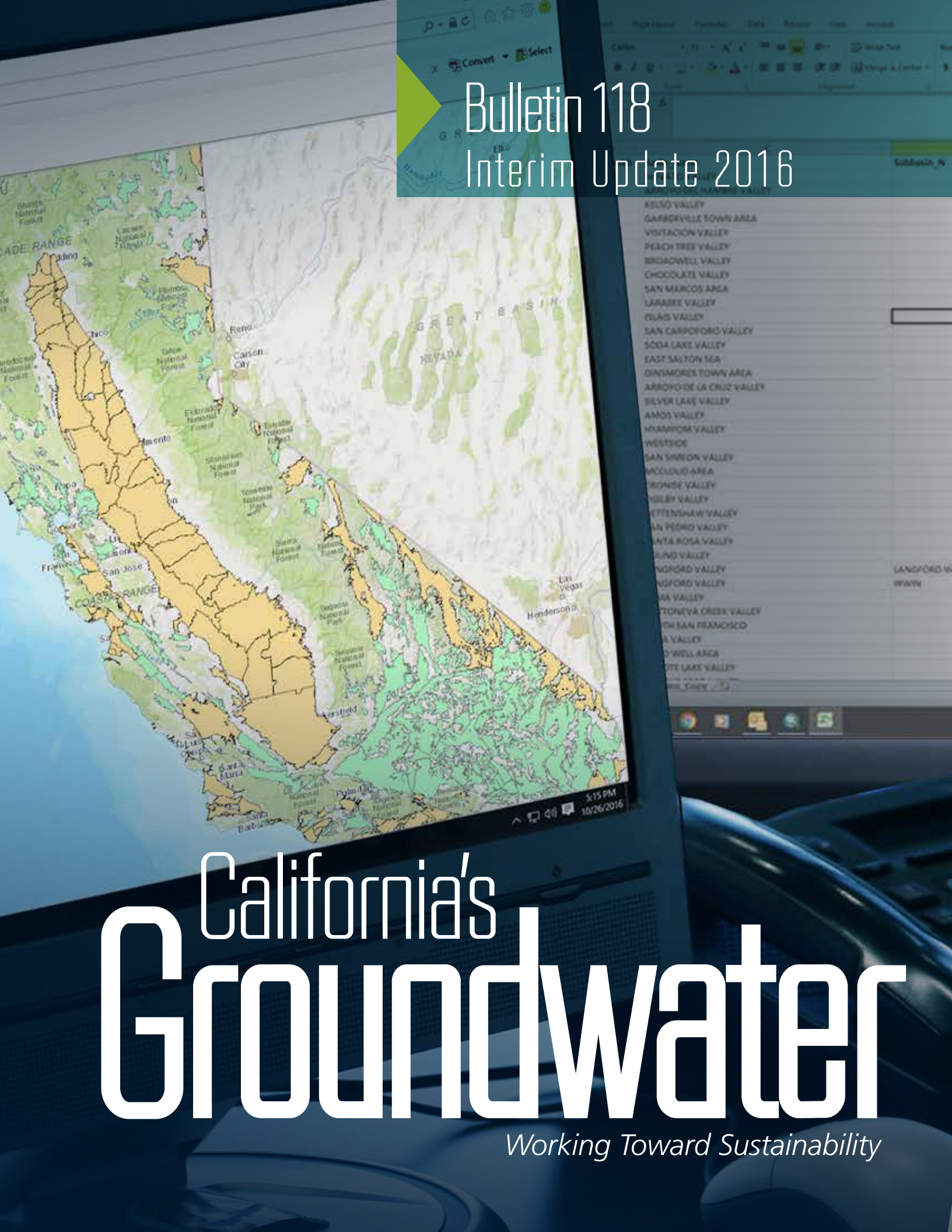
2
0
Days before Deadline
SCGA Submittal

AGENDA ITEM 6: EXECUTIVE DIRECTOR'S REPORT

Bulletin 118 Interim Update 2016


Bulletin 118
Interim Update 2016
California's
Groundwater
Working Toward Sustainability

This publication includes web-based content. It is possible that web addresses referenced in this publication will change with time and that printed copies will not reflect changes. If any difficulties are experienced accessing web-based content, please visit the on-line version of this publication at:

www.water.ca.gov/groundwater/bulletin118/index.cfm
or call (916) 653-5791 for assistance.

Bulletin 118 Interim Update 2016

California's Groundwater

Working Toward Sustainability

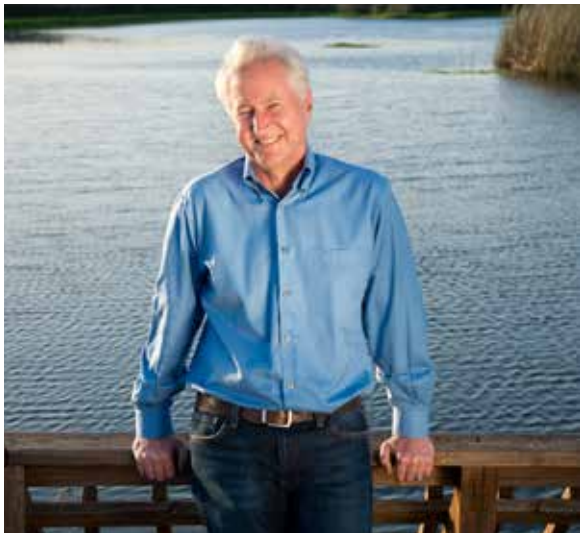
December 22, 2016

Acronyms and Abbreviations

BBAT	Basin Boundary Assessment Tool
BBMRS	Basin Boundary Modification Request System
CASGEM	California Statewide Groundwater Elevation Monitoring
DWR	California Department of Water Resources
GSA	Groundwater Sustainability Agency
GSP	Groundwater Sustainability Plan
SGMA	Sustainable Groundwater Management Act
Water Code	California Water Code

Foreword

The Department of Water Resources' (DWR) Bulletin 118 series, *California's Groundwater,* is the State's premier groundwater publication. It is the official compendium of information about the occurrence, characteristics, and management of groundwater in California.



California entered into a new era of water management in 2014 with the passage of the Sustainable Groundwater Management Act (SGMA). SGMA provides for the sustainable management of groundwater through the formation of locally organized groundwater sustainability agencies, and the development and implementation of groundwater sustainability plans based on groundwater basins identified, delineated, and characterized in Bulletin 118.

The various requirements and deadlines of SGMA necessitate that Bulletin 118 be updated now through this interim update, rather than the comprehensive update of Bulletin 118 scheduled for 2020. Information provided in this interim update—groundwater basins subject to critical conditions of overdraft, groundwater basin boundary modifications, and the prioritization of California's groundwater basins—is essential to the timely formation of groundwater sustainability agencies, and the development and implementation of groundwater sustainability plans.

This publication is yet another major achievement in fulfilling DWR's commitment to assist local agencies in managing groundwater sustainably. Other recent achievements include landmark regulations for the development of groundwater sustainability plans and regulations for groundwater basin boundary modification requests by local agencies. DWR will also release best management practices for the sustainable management of groundwater by year's end.

There are still many challenges ahead of us as we progress toward the sustainable management of groundwater throughout California. These challenges are significant, but I'm confident that local agencies, with continued support from DWR, will successfully implement SGMA and ensure that California's precious groundwater is sustained for generations to come.

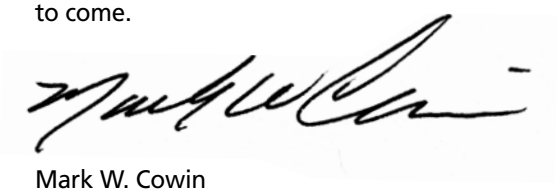


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Photo credits: DWR Photography Department
Chris Austin, Maven's Notebook, Pages 6, 13, 16, 20, and 23.
Los Angeles Department of Water and Power, Page 21
Matthew Zimmerman, Page 26

Table of Contents

Well drilling near Tule Lake

Introduction

Groundwater is a major part of California's water supply. During average hydrologic conditions, groundwater provides close to 40 percent of the water in California for urban, rural, and agricultural uses. This percentage increases during dry years when water in rivers, streams, and lakes is in short supply. For many areas of the state, groundwater is the only water supply available year-round.

A new era for California's groundwater began in September 2014 with the passage of the Sustainable Groundwater Management Act (SGMA). SGMA established a path for the sustainable management of groundwater through the formation of locally organized groundwater sustainability agencies and locally developed groundwater sustainability plans.

The purpose of this interim update is to provide up-to-date information on groundwater basins subject to critical conditions of overdraft, groundwater basin boundaries, and basin prioritization. That information is essential to the successful implementation of SGMA, including the timely formation of groundwater sustainability agencies and the development of groundwater sustainability plans.

This update is the latest in a series of Bulletin 118 publications that provide important information about California's groundwater. Together with previous updates of Bulletin 118, this update also builds on the body of information about California's groundwater provided by the following recent DWR publications:

- *California's Groundwater Update 2013: A Compilation of Enhanced Content for California Water Plan Update 2013* **(www.water.ca.gov/waterplan/topics/groundwater/index.cfm).**
- *Public Update for Drought Response: Groundwater Basins with Potential Water Shortages and Gaps in Groundwater Monitoring* (2014) **(www.water.ca.gov/waterconditions/publications.cfm).**

KEY FEATURES OF SGMA

- *Provides for the sustainable management of groundwater through the formation of groundwater sustainability agencies (GSAs), and the development and implementation of groundwater sustainability plans (GSPs).*
- *Requires GSAs and GSPs for all groundwater basins identified by the California Department of Water Resources (DWR) as high or medium priority.*
- *Authorizes the intervention of the State Water Resources Control Board in the event that no GSA, or equivalent local authority, is formed for a high- or medium-priority basin, or if an adequate GSP is not submitted for those basins.*
- *Establishes criteria for the sustainable management of groundwater and authorizes DWR to establish best management practices for groundwater.*

For more information about SGMA, visit: **www.water.ca.gov/groundwater/sgm.**

California Water Code Section 12924

(a) The department, in conjunction with other public agencies, shall conduct an investigation of the state's groundwater basins. The department shall identify the state's groundwater basins on the basis of geological and hydrological conditions and consideration of political boundary lines whenever practical. The department shall also investigate existing general patterns of groundwater extraction and groundwater recharge within those basins to the extent necessary to identify basins that are subject to critical conditions of overdraft.

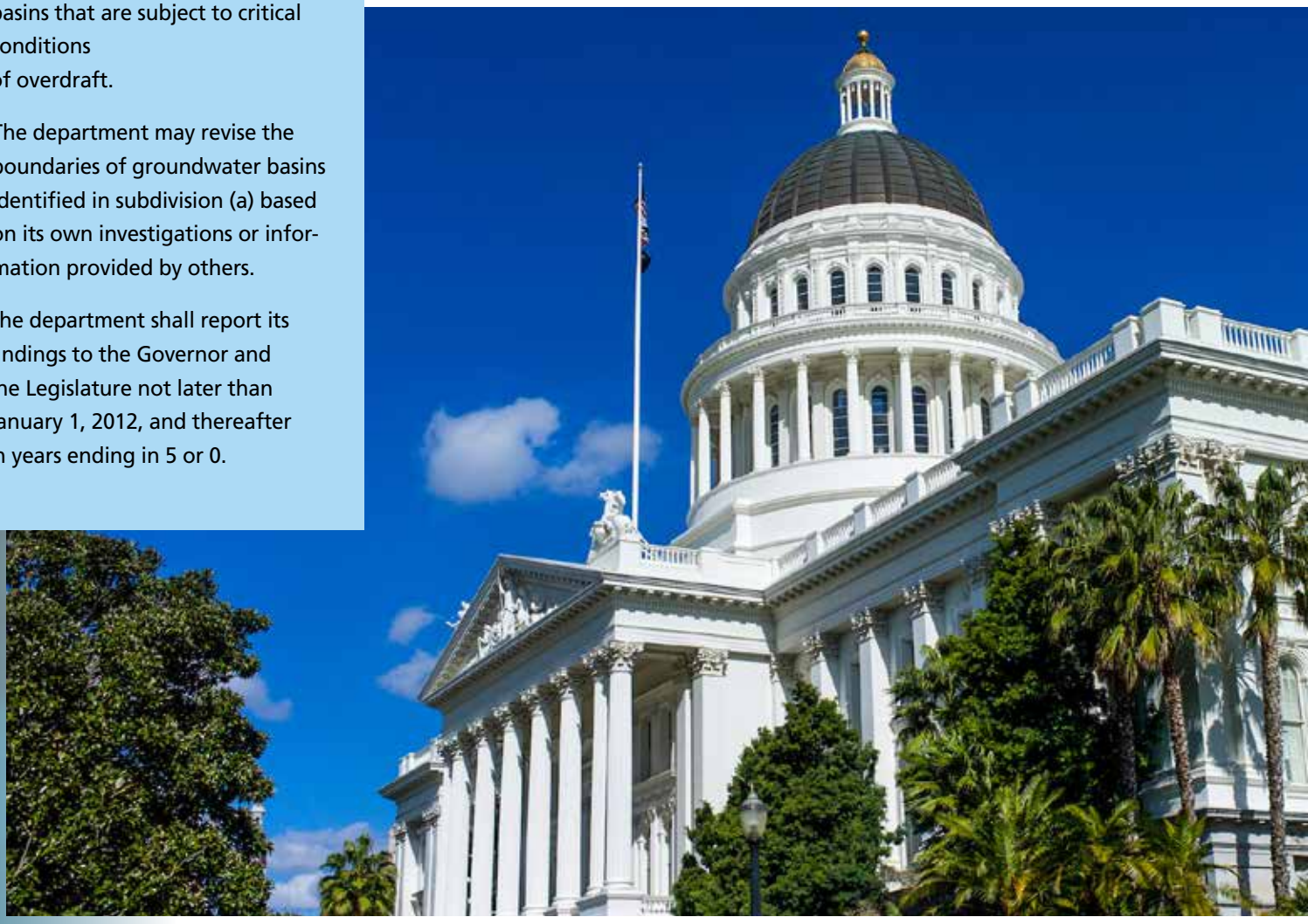
(b) The department may revise the boundaries of groundwater basins identified in subdivision (a) based on its own investigations or information provided by others.

(c) The department shall report its findings to the Governor and the Legislature not later than January 1, 2012, and thereafter in years ending in 5 or 0.

- *Public Update for Drought Response: Groundwater Basins with Potential Water Shortages, Gaps in Groundwater Monitoring, Monitoring of Land Subsidence, and Agricultural Land Fallowing* (2014) **(www.water.ca.gov/waterconditions/publications.cfm).**

A comprehensive update of Bulletin 118 is scheduled for 2020 in accordance with California Water Code Section 12924 and the California Water Action Plan **(www.resources.ca.gov/california_water_action_plan/).** The 2020 update will build on information provided by this interim update, the rest of the Bulletin 118 series, and the reports listed in the previous paragraph. It will also include an inventory and assessment of efforts by groundwater sustainability agencies and the State to implement SGMA, information on groundwater management successes and challenges, and recommendations for the future. More information about the 2020 update is provided in the final section of this interim update.

California State Capitol



Previous Bulletin 118 Publications

DWR has long recognized the need to provide information about California's groundwater to improve understanding about the resource and inform water management decisions. DWR's Bulletin 118 series serves as the State's official compendium of information about groundwater resources throughout California, including the definition, boundaries, and characteristics of the state's groundwater basins.

Three statewide versions of Bulletin 118, *California's Groundwater* were published prior to this interim update:

Bulletin 118, 1975

Bulletin 118, 1975 is the first publication of the Bulletin 118 series that is statewide in scope. It identifies more than 400 groundwater basins and subbasins in California and provides some summary information on basin and aquifer characteristics, groundwater use, and water quality concerns.

Bulletin 118, Update 1980

This update provides information on changes to some of the groundwater basin boundaries identified in Bulletin 118, 1975 along with summary information on basin characteristics, groundwater use, and other information. This update identifies 11 groundwater basins as subject to critical conditions of overdraft. Additional basins and areas are identified as being of "special concern."

Bulletin 118, Update 2003

Update 2003 includes online technical descriptions and geographic information system compatible maps for 515 alluvial groundwater basins and subbasins in California. Update 2003 also includes information about groundwater management in the state and provides recommendations for the future. The list of groundwater basins subject to critical conditions of overdraft, published in the 1980 update of Bulletin 118, was not reevaluated for Update 2003.

These three Bulletin 118 publications were preceded by *Water Quality Investigations Report No. 3, Ground Water Basins in California,* published in 1952 by the California Department of Public Works and Division of Water Resources (the predecessor to DWR). This report identifies alluvial basins and other areas believed to contain usable groundwater.

In addition to the statewide Bulletin 118 publications, several regional versions of Bulletin 118 were published in the past that focus on individual areas of the state. The regional versions of Bulletin 118 address the groundwater resources of Sonoma County, South San Francisco Bay Area, Livermore and Sunol valleys, Sacramento Valley, and Sacramento County.

The documents discussed above can be accessed at: **www.water.ca.gov/groundwater/bulletin118/publications.cfm.**

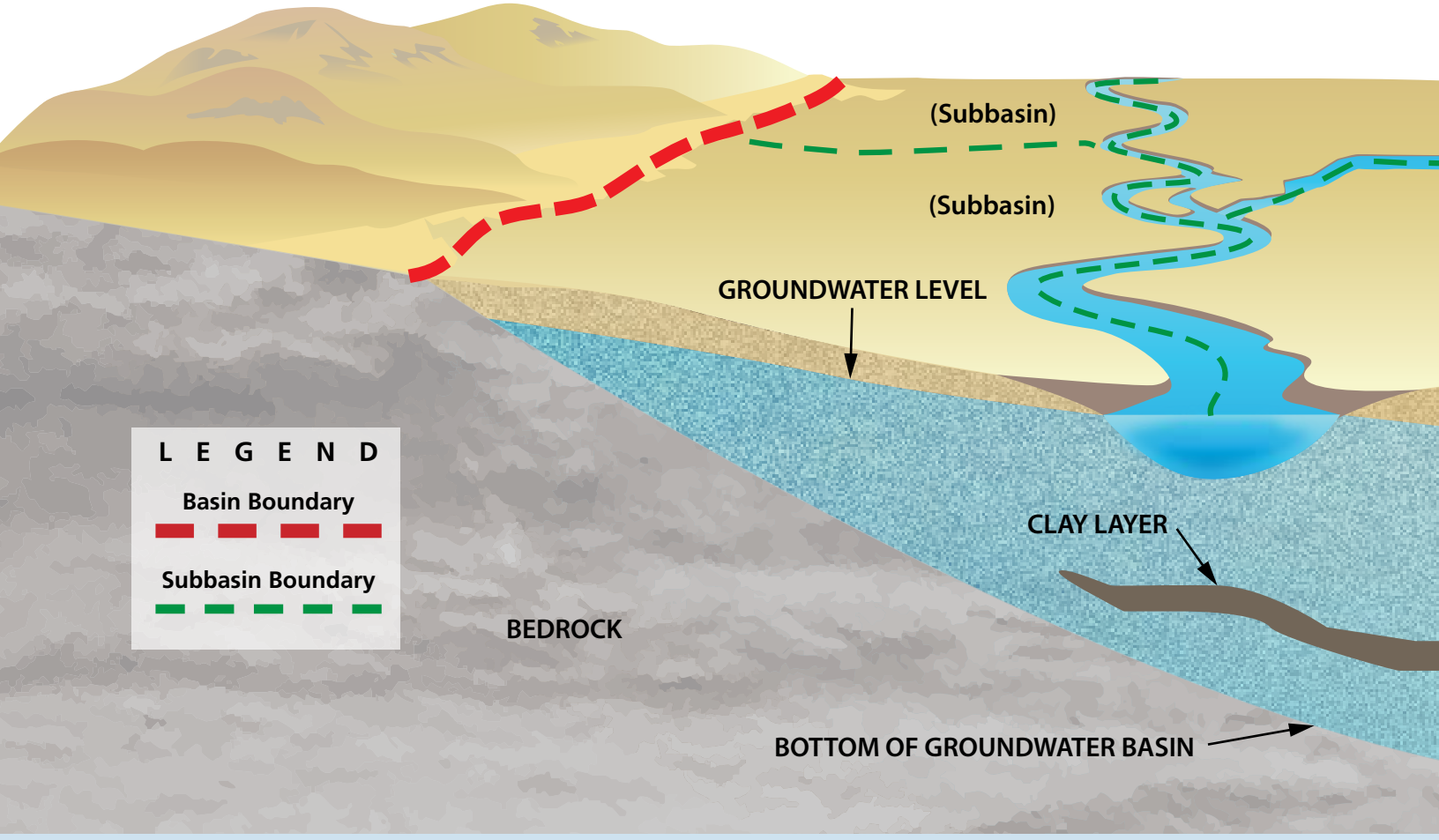
Agricultural well near Marysville

What is a groundwater basin[a]?

Title 23, Division 2, Chapter 1.5, Subchapter 1, Article 2, Section 341(g)(1) of the California Code of Regulations refers to a groundwater basin as an:

"...aquifer or stacked series of aquifers with reasonably well-defined boundaries in a lateral direction, based on features that significantly impede groundwater flow, and a definable bottom . . ."

The diagram below is an illustration of a groundwater basin in its most basic sense. The lateral boundaries of the illustrated basin are located where porous sediments deposited in the valley, such as sand, gravel, and silt, meet the bedrock that comprises the neighboring mountains. The physical bottom of the basin occurs where the porous valley deposits contact the underlying bedrock. For groundwater management purposes, the effective bottom of a groundwater basin is sometimes defined as the depth below which generally only unusable brackish or saline groundwater can be found[b].



The spaces between individual grains of the valley deposits hold water that has percolated down from the land surface. Accumulated groundwater can flow laterally to a well. Groundwater can also flow out into depressions in the land surface, such as a river channel, where the groundwater level is high. The layer of clay shown in the diagram separates the porous valley deposits into two aquifers.

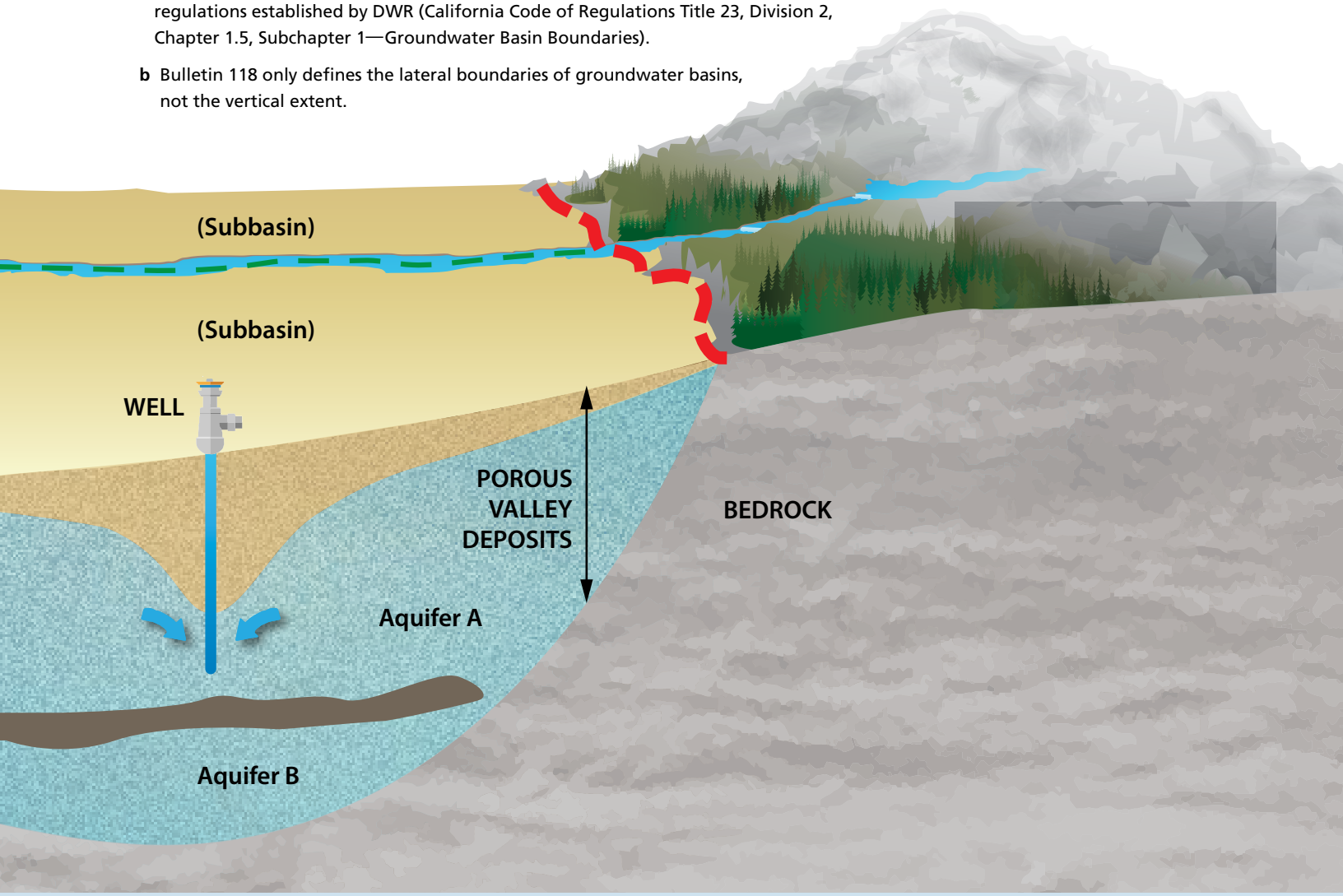
Numerous groundwater basins in California have been divided into smaller units, referred to as *subbasins.* The lateral boundaries of subbasins are established by DWR based on geologic factors, hydraulic considerations, or institutional boundaries.

Additional information on the various types of groundwater basins and subbasins, and their boundaries, is included in Bulletin 118, Update 2003 (pages 88 through 90), available at: **www.water.ca.gov/groundwater/bulletin118/publications.cfm.**

NOTES

a This information is for general understanding purposes only and does not supplant regulations established by DWR (California Code of Regulations Title 23, Division 2, Chapter 1.5, Subchapter 1—Groundwater Basin Boundaries).

b Bulletin 118 only defines the lateral boundaries of groundwater basins, not the vertical extent.



Agricultural well in the San Joaquin Valley

Groundwater Basins Subject to Critical Conditions of Overdraft

BACKGROUND

The first statewide version of Bulletin 118 was published in 1975. Bulletin 118,1975 includes information about groundwater basins in overdraft and the adverse effects that could occur from overdraft.

In 1978, the California Water Code (Water Code) was amended tasking DWR with investigating the State's groundwater basins, defining their boundaries, and identifying basins "subject to critical conditions of overdraft" (Section 12924). DWR released the first update of the statewide version of Bulletin 118 in 1980. That update defined the terms "overdraft" and "subject to critical conditions of overdraft," and listed 11 groundwater basins as being subject to critical conditions of overdraft. The next statewide update of Bulletin 118, in 2003, did not revise the 1980 list because no comprehensive assessment of groundwater overdraft conditions was performed.

APPROACH

DWR began a statewide assessment of groundwater basin overdraft conditions in 2015 to update the 1980 list of basins subject to critical conditions of overdraft. The assessment was based on readily available information on groundwater conditions and observed effects of overdraft.

Time Period Selection

The first step of the assessment effort was the selection of a suitable time period for evaluating groundwater basin conditions. After a review of past overdraft analyses by DWR, the following criteria were used for the selection of the time period for evaluating groundwater basin conditions:

- It should not include the current drought which began in 2012.
- It should be as recent as possible.
- Mean annual statewide precipitation over the time period should be equivalent to the long-term mean annual precipitation.

BASINS SUBJECT TO CRITICAL CONDITIONS OF OVERDRAFT AND SGMA

SGMA mandates that all groundwater basins identified by DWR as high or medium priority by January 31, 2015, must have ground-water sustainability agencies established by June 30, 2017. The Act also requires that all high- and medium-priority basins classified as subject to critical conditions of overdraft in Bulletin 118, as of January 1, 2017, be covered by groundwater sustainability plans, or their equivalent, by January 31, 2020. Groundwater sustainability plans, or their equivalent, must be established for all other high- and medium-priority basins by January 31, 2022.

For more information about SGMA, visit: **www.water.ca.gov/groundwater/sgm.**

What is *Groundwater Overdraft?*

Bulletin 118, Update 2003 describes *groundwater overdraft* as:

"…the condition of a groundwater basin or subbasin in which the amount of water withdrawn by pumping exceeds the amount of water that recharges the basin over a period of years, during which the water supply conditions approximate average conditions. Overdraft can be characterized by groundwater levels that decline over a period of years and never fully recover, even in wet years. If overdraft continues for a number of years, significant adverse impacts may occur, including increased extraction costs, costs of well deepening or replacement, land subsidence, water quality degradation, and environmental impacts." (Page 96)

What is a *Groundwater Basin Subject to Critical Conditions of Overdraft?*

Bulletin 118, Update 1980 defines a groundwater basin *subject to critical conditions of overdraft* as:

"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." (Page 3)

- The time period should be a minimum of 10 years in duration and include both wet and dry years.
- The net change in water in storage in the unsaturated zone over the entire time period should be minimal.

DWR evaluated statewide precipitation data obtained from the Western Regional Climate Center for Water Years 1895 through 2014 to determine a suitable time period for evaluating groundwater basin conditions. Figure 1 is a graph of the cumulative departure of annual statewide precipitation from the long-term mean annual statewide precipitation of 22.19 inches, from Water Years 1895 through 2014.

Following the time-period selection criteria listed in the preceding paragraph, it was determined that the time period for the assessment of critical conditions of overdraft would be Water Years 1989 through 2009. The selected assessment period:

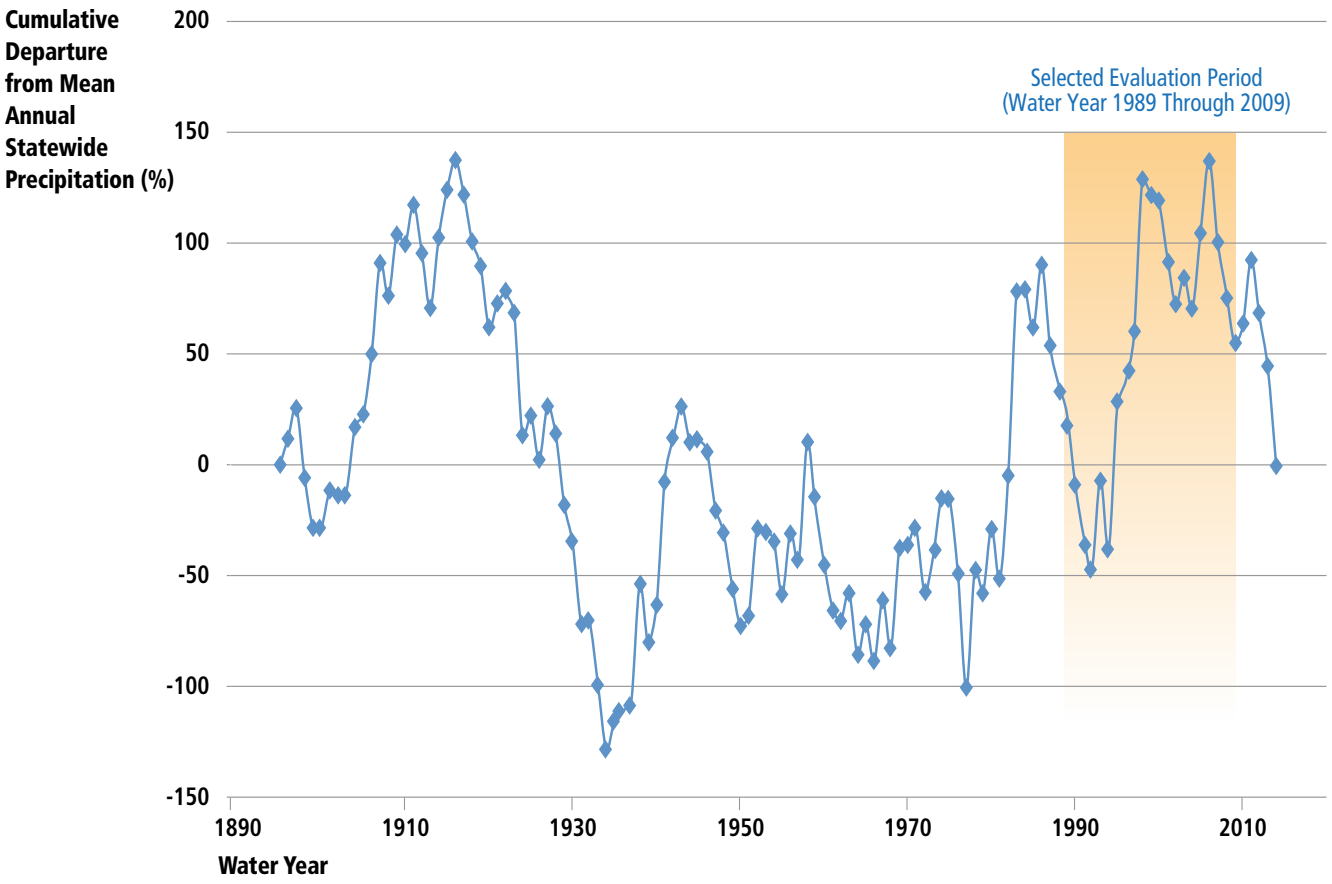


FIGURE 1 – Cumulative Departure of Annual Statewide Precipitation from the Long-Term Mean Annual Statewide Precipitation of 22.19 Inches from Water Years 1895–2014

- Does not include the current drought.
- Has a mean annual statewide precipitation of 22.39 inches (only about 1 percent more than the long-term mean).
- Includes two wet periods when annual statewide precipitation exceeded the long-term mean precipitation for multiple years; the first lasting four consecutive years and the second lasting two consecutive years.
- Includes three dry periods when annual statewide precipitation was less than the long-term mean precipitation for multiple years; the first, second, and third dry periods lasting three, four, and three consecutive years, respectively.
- Starts and ends after three consecutive years of below-average precipitation, thereby minimizing the impact of a possible net difference in unsaturated zone water content over the entire assessment period.

What is a water year?

A water year starts October 1 and ends September 30 of the following calendar year (*California Water Code Section 10721[aa]).* A water year is designated by the calendar year it ends on. For example, the water year that started on October 1, 2015, and ended September 30, 2016, is referred to as Water Year 2016.

Nested monitoring wells (multiple casings in a single borehole)

Groundwater-Level Trend Assessment

A groundwater-level trend assessment was performed using readily accessible data for groundwater basins delineated in Bulletin 118, Update 2003. Data were not available for all basins.

The trend assessment was performed to identify basins that experienced a consistent trend of declining groundwater levels through the entire assessment period. Groundwater level data after Water Year 2009 were also reviewed for any evidence that groundwater level declines and overdraft had ceased to continue after the assessment period. The overall goal of the groundwater level trend assessment was to help identify groundwater basins that might have experienced adverse impacts of overdraft during the assessment period. Adverse impacts of overdraft are described below.

The primary source of groundwater-level data for the trend assessment was DWR's Water Data Library **(www.water.ca.gov/waterdatalibrary/index.cfm).** DWR used additional sources of data, such as published reports where available, and data from the California Statewide Groundwater Elevation Monitoring (CASGEM) Program database **(www.water.ca.gov/groundwater/casgem/),** to supplement Water Data Library data.

Adverse Impacts of Overdraft

The deciding factor for the identification of groundwater basins subject to critical conditions of overdraft was the documented observation of one or more adverse impacts of overdraft, including:

- Land subsidence.
- Sea water intrusion into a coastal basin aquifer.
- Water of unusable quality being caused to migrate and make a groundwater supply unusable.
- Groundwater levels declining during a period of normal or above-normal water supply.

DWR collected readily available information on observed adverse impacts of overdraft in basins to determine where such impacts had been reported during the assessment period. This information was obtained from federal, State, and local agency publications, and from reports by private consultants. If adverse impacts of overdraft had been reported in a portion of a groundwater basin during the assessment period, then the adverse impact was assigned to the entire basin for classification purposes.

RESULTS

Preliminary Determination

After the groundwater basin overdraft assessment effort was completed, DWR developed a preliminary list of basins determined to be subject to critical conditions of overdraft. This list included all groundwater basins identified in Bulletin 118-1980 as subject to critical conditions of overdraft and additional basins newly identified as subject to critical conditions of overdraft.

During July 2015, DWR contacted counties and major water agencies associated with basins identified in the preliminary list and encouraged them to provide additional information that DWR could consider for the draft and final determinations of basin conditions. In response, several organizations provided additional information and entered into discussions with DWR. Changes were made to the preliminary list of groundwater basins subject to critical conditions of overdraft after the newly submitted information was considered by DWR.

DWR staff measuring the groundwater level in a monitoring well

Draft and Final Determinations

In August 2015, DWR released a draft list of 21 groundwater basins identified as subject to critical conditions of overdraft. The draft list was announced though a news release and through DWR's website. The list was also presented at a public meeting of the California Water Commission and at a DWR-hosted and webcast public meeting in the city of Clovis.

Public comments on the draft list were collected for more than 30 days. Fifteen sets of comments were submitted pertaining to eight of the 21 identified basins. Comments in favor and against the draft designations were received.

In January 2016, following the review of comments received for the draft list, DWR released the final list of groundwater basins subject to critical conditions of overdraft. No changes were made between the August 2015 draft list and the January 2016 final list. The January 2016 list of basins subject to critical conditions of overdraft is presented in Table 1.

Groundwater Basins Subject to Critical Conditions of Overdraft and Basin Boundary Modifications

In response to the requirements of SGMA, DWR developed emergency regulations in 2015, and instituted a process in early 2016, for local agencies to submit groundwater basin boundary modification requests to DWR. The basin boundary modification request submittal and review process was completed with the final approval of the basin boundary modifications by DWR on October 18, 2016. Boundary changes were made to correct known errors and inconsistencies in basin boundaries (referred to as "administrative adjustments") and to address jurisdictional, geologic, hydrologic, and other

considerations. The basin boundary modification regulations, process, and results are discussed in the following section.

Of the 21 groundwater basins identified in January 2016 as being subject to critical conditions of overdraft, six basins received major boundary modifications, 13 basins underwent relatively minor boundary changes, and the boundaries of two basins remained unchanged as the result of the boundary modification process. None of the modifications moved an area of a basin with adverse impacts of overdraft to a basin that is not identified as subject to critical conditions of overdraft.

Table 2 summarizes the relative scope of boundary modifications for each of the basins identified in January 2016 as being subject to critical conditions of overdraft. Table 3 provides summary descriptions of the boundary modifications for the six critically overdrafted basins that received major modifications. The locations of all groundwater basins subject to critical conditions of overdraft are shown in Figure 2.

TABLE 1 – Groundwater Basins Subject to Critical Conditions of Overdraft– January 2016

Basin Number[a]	Basin/Subbasin Name[a]
3-1	Soquel Valley
3-2	Pajaro Valley
3-4.01	180/400-Foot Aquifer
3-4.06	Paso Robles Area
3-8	Los Osos Valley
3-13	Cuyama Valley
4-4.02	Oxnard
4-6	Pleasant Valley
5-22.01	Eastern San Joaquin
5-22.04	Merced
5-22.05	Chowchilla
5-22.06	Madera
5-22.07	Delta-Mendota
5-22.08	Kings
5-22.09	Westside
5-22.11	Kaweah
5-22.12	Tulare Lake
5-22.13	Tule
5-22.14	Kern County
6-54	Indian Wells Valley
7-24	Borrego Valley

a As identified and delineated in Bulletin 118, *California's Groundwater,* Update 2003.

TABLE 2 – Relative Scope of Boundary Modifications for Each Groundwater Basin Identified as Subject to Critical Conditions of Overdraft

Basin Number[a]	Basin Number (2016)	Basin/Subbasin Name (2016)	Relative Scope of Changes[b]
3-1	3-001	Santa Cruz Mid-County[c]	Major
3-2	3-002.01	Pajaro Valley	Major
3-4.01	3-004.01	180/400-Foot Aquifer	Major
3-4.06	3-004.06	Paso Robles Area	Major
3-8	3-008	Los Osos Valley	Minor
3-13	3-013	Cuyama Valley	None
4-4.02	4-004.02	Oxnard	Minor
4-6	4-006	Pleasant Valley	Minor
5-22.01	5-022.01	Eastern San Joaquin	Minor
5-22.04	5-022.04	Merced	Minor
5-22.05	5-022.05	Chowchilla	Minor
5-22.06	5-022.06	Madera	Minor
5-22.07	5-022.07	Delta-Mendota	Minor
5-22.08	5-022.08	Kings	Minor
5-22.09	5-022.09	Westside	Minor
5-22.11	5-022.11	Kaweah	Minor
5-22.12	5-022.12	Tulare Lake	Minor
5-22.13	5-022.13	Tule	Minor
5-22.14	5-022.14	Kern County	Major
6-54	6-054	Indian Wells Valley	None
7-24	7-024.01	Borrego Springs[d]	Major

NOTES

a As identified in Bulletin 118, *California's Groundwater,* Update 2003.

b Major changes involved relatively large areas being added to, or removed from, a basin. Minor changes included small adjustments in the location of a basin boundary and relatively small areas being added to, or removed from, a basin.

c Formerly "Soquel Valley".

d Formerly "Borrego Valley".

Agriculture near Oxnard

TABLE 3 – Summary of Major Boundary Changes for Groundwater Basins Subject to Critical Conditions of Overdraft

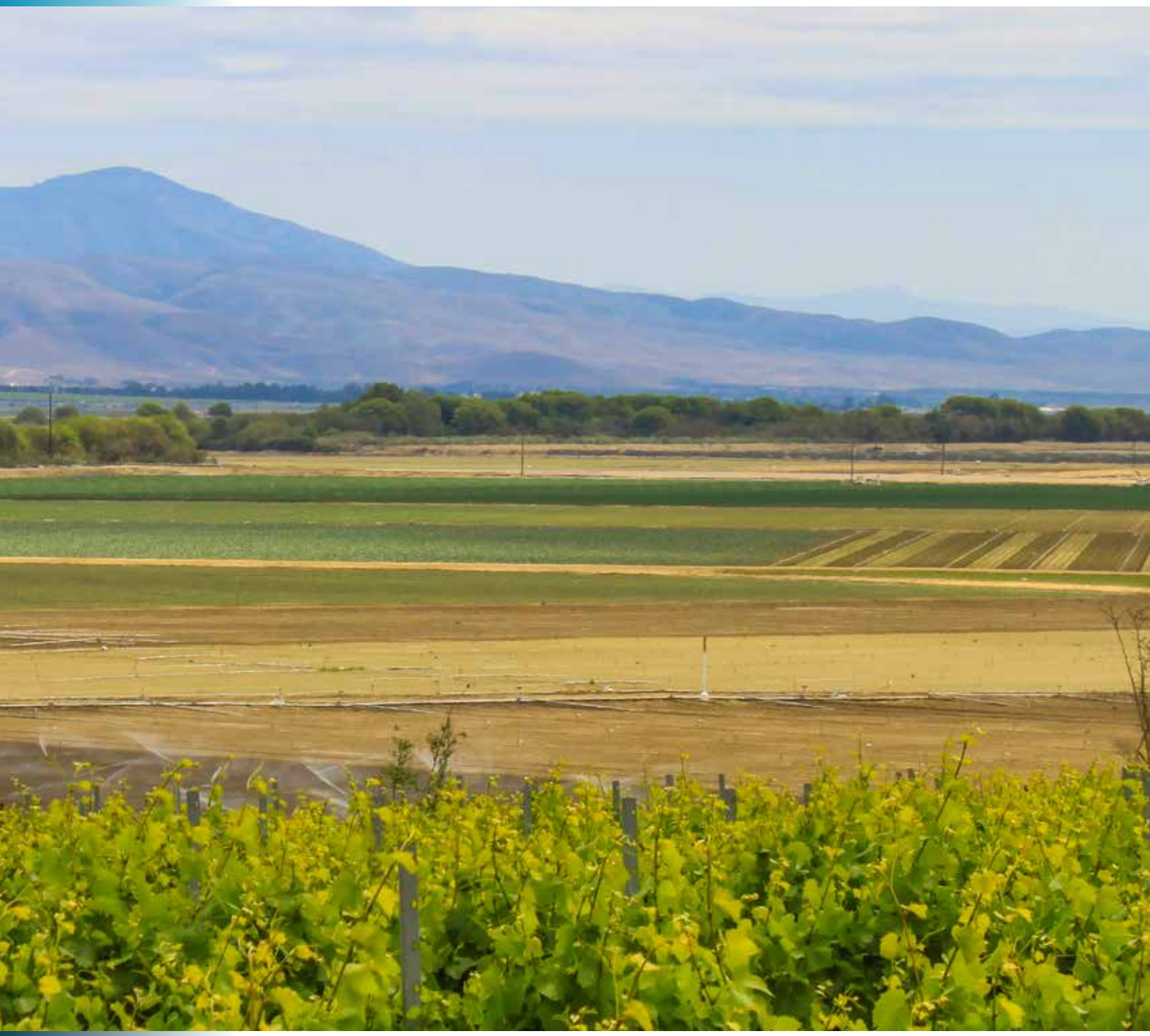
Basin Number (2016)	**Basin/Subbasin Name** (2016)	**Summary of Changes**
3-001	Santa Cruz Mid-County Basin	The former Soquel Valley Basin (3-1) was expanded to include portions of three adjacent basins— West Santa Cruz Terrace Basin (3-026), the former Santa Cruz Purisima Formation Basin (3-21), and the original Pajaro Valley Basin (3-2). The Soquel Valley Basin was then was renamed to be the Santa Cruz Mid-County Basin.
3-002.01	Pajaro Valley Subbasin	Various portions of the original Pajaro Valley Basin were moved to three adjacent subbasins/basins— 180/400 Foot Aquifer Subbasin (3-004.01), Langley Area Subbasin (3-004.09), and the newly formed Santa Cruz Mid-County (3-001) Basin. A portion of the former Santa Cruz Purisima Formation Basin (3-21) was added to this basin. The Pajaro Valley Basin was also reclassified as a subbasin.
3-004.01	180/400-Foot Aquifer Subbasin	A portion of the original 180/400-Foot Aquifer subbasin was moved to the Pajaro Valley Subbasin (3-002.01).
3-004.06	Paso Robles Area Subbasin	A new subbasin, "Atascadero Area" (3-004.11), was created from a portion of the original Paso Robles Area Subbasin. The Atascadero Area Subbasin is not subject to critical conditions of overdraft.
5-022.14	Kern County Subbasin	A new subbasin, "White Wolf" (5-022.18), was created from a portion of the original Kern County Subbasin. The White Wolf Subbasin is not subject to critical conditions of overdraft.
7-024.01	Borrego Springs Subbasin	The Borrego Valley Basin (7-24) was divided into 2 new subbasins; "Borrego Springs" (7-024.01) and "Ocotillo Wells" (7-024.02). The Borrego Springs Subbasin is subject to critical conditions of overdraft; the Ocotillo Wells Subbasin is not.

FIGURE 2 – Groundwater Basins Subject to Critical Conditions of Overdraft

Basin/Subbasin Number*	Basin/Subbasin Name
3-001	Santa Cruz Mid-County
3-002.01	Pajaro Valley
3-004.01	180/400-Foot Aquifer
3-004.06	Paso Robles Area
3-008	Los Osos Valley
3-013	Cuyama Valley
4-004.02	Oxnard
4-006	Pleasant Valley
5-022.01	Eastern San Joaquin
5-022.04	Merced
5-022.05	Chowchilla
5-022.06	Madera
5-022.07	Delta-Mendota
5-022.08	Kings
5-022.09	Westside
5-022.11	Kaweah
5-022.12	Tulare Lake
5-022.13	Tule
5-022.14	Kern County
6-054	Indian Wells Valley
7-024.01	Borrego Springs

** See Appendix B, Figure B-2 for an explanation of the California groundwater basin/subbasin numbering system.*

Map created from B-118 basin boundary data – updated by DWR on October 18, 2016. The list of basins with critical conditions of overdraft was finalized in 2016, after the revisions to the B-118 basin boundaries were finalized.



Agriculture in the Salinas Valley

Groundwater Basin Boundary Modifications

BACKGROUND

In 2014, with the passage of SGMA, Section 10722.2 was added to the Water Code allowing local agencies, or an entity directed by the court in an adjudication action, to request that DWR revise the boundaries of a groundwater basin, including the establishment of new subbasins. Section 10722.2 does not affect DWR's existing authority to revise basin boundaries under Water Code Section 12924.

Section 10722.2 requires that local agency basin boundary modification requests include information justifying and supporting requested modifications. Water Code Section 10722.2 also requires that, by January 1, 2016, DWR adopt emergency regulations for the submittal, processing, and consideration of modification requests.

Regulations Development

In 2015, DWR initiated efforts to develop emergency regulations for local agencies to request groundwater basin boundary modifications. A comprehensive, multi-phased public engagement process was followed during the development of the regulations. Outreach efforts included news releases, web announcements, advisory group meetings, public meetings, and multiple updates to the California Water Commission.

On October 21, 2015, DWR presented draft final groundwater basin boundary regulations to the California Water Commission for adoption. The regulations (California Code of Regulations Title 23, Division 2, Chapter 1.5, Subchapter 1) were adopted by the commission and became effective November 16, 2015, after being submitted to the State Office of Administrative Law. In general, the adopted regulations address:

- The types of groundwater basin boundary modification requests DWR will consider.
- Procedures for submitting boundary modification requests and related public input.
- Information necessary for supporting modification requests.
- Methods and criteria used by DWR to evaluate modification requests.
- DWR's procedures for finalizing boundary modifications.

Figure 3 provides an overview of two categories of groundwater basin modifications covered by the regulations—"scientific" and "jurisdictional." Another category,

referred to as "other," was included in the regulations to cover any basin boundary modifications not addressed by the aforementioned categories. Additional information about the basin boundary regulations and their development is available at: www.water.ca.gov/groundwater/sgm/bb_development.cfm.

APPROACH

Groundwater basin boundary modifications were conducted in two phases. The first phase consisted of "administrative adjustments" to basin boundaries to correct known inconsistencies and errors. During the second phase, local agency basin boundary modification requests were received and reviewed by DWR in accordance with the regulations discussed in the previous paragraphs. Boundary modifications were completed for all basins with approved modification requests.

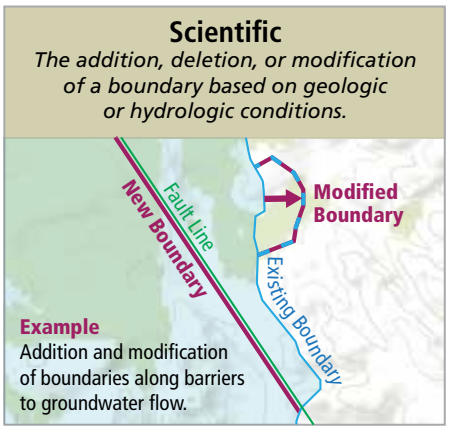
Administrative Adjustments

DWR made administrative adjustments to groundwater basin boundaries to address known inconsistencies and errors. The administrative adjustments were made to conform the graphical location and configuration of basin boundaries to the corresponding written basin boundary descriptions provided in Bulletin 118, Update 2003. Administrative adjustments were based on information from the following sources:

- Waterways: National Hydrography Dataset created by U.S. Geological Survey in cooperation with the U.S. Environmental Protection Agency, U.S. Department of Agriculture, Forest Service, and other federal, State, and local partners. (Version: NHDH_CA_931v220).
- County boundaries: CAL FIRE dataset created by the California Department of Forestry and Fire Protection. (File: cbty24k15_1, published November 2015).

FIGURE 3 – Overview of Scientific and Jurisdictionally Based Groundwater Basin Boundary Modifications

The illustrations to the right depict the general types of basin boundary modifications requested by local agencies. Additional information about the various types of basin boundary modifications can be found at www.water.ca.gov/groundwater/sgm/bb_development.cfm.



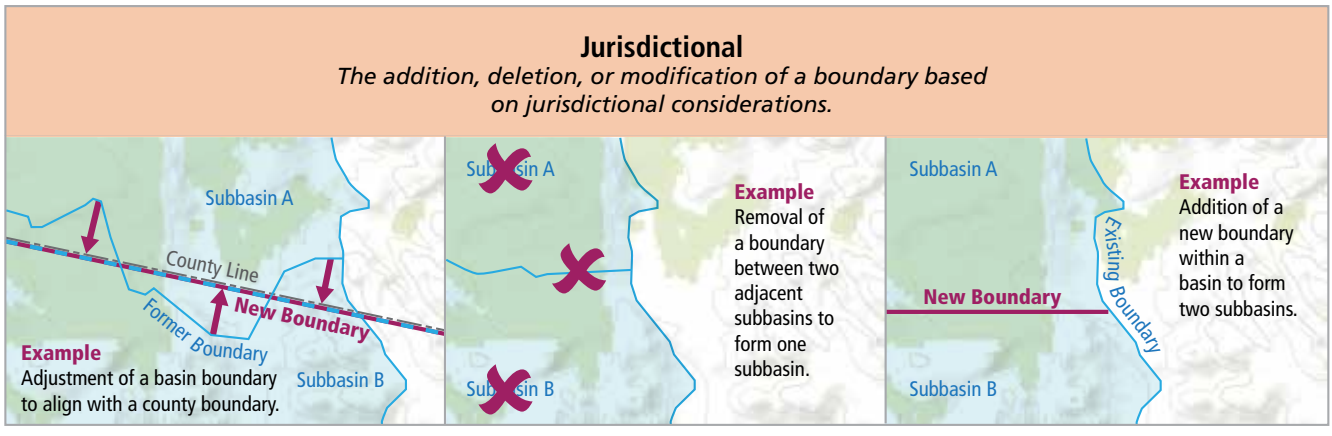
Hollywood looking toward downtown Los Angeles

- Geologic boundaries: California Geological Survey (CGS) 1:250,000 scale maps (CGS Regional Geologic Map Series and CGS Geologic Atlas of California). U.S. Geological Survey Maps published as of September 1, 2016.

The administrative adjustments were completed prior to the period established for the submission of local agency basin boundary modification requests. All administrative adjustments were posted on DWR's website and were discussed during public meetings held for the development of the basin boundary regulations.

Groundwater Basin Boundary Modification Requests

The time period established by DWR for the submission of local agency basin boundary modification requests, and related public comments,



was January 1, 2016, through March 31, 2016. The request submission period was followed by a 30-day public comment period.

In general, all modification requests were required to include information about:

- The requesting agency.
- The proposed modification and affected basin.
- Efforts to consult with affected agencies and affected systems, and input received.
- Public notices and meetings where the proposed modifications were discussed or considered.
- Public input that was received.

Scientifically based modification requests were also required to include technical information supporting the modification request. Jurisdictionally based modification requests were required to include information about groundwater management efforts and considerations, including how the proposed modification would promote sustainable groundwater management.

Agricultural well in the Salinas Valley

Process Support Tools

DWR established the Basin Boundary Modification Request System (BBMRS) to enable local agencies to submit groundwater basin boundary modification requests online, and for the public and other stakeholders to review those requests and provide comments. All of the basin boundary modification requests, supporting information, and public comments submitted during the 2016 boundary modification effort can be viewed using the BBMRS at: **sgma.water.ca.gov/basinmod/.**

DWR also established the Basin Boundary Assessment Tool (BBAT) to support local agencies during the 2016 basin boundary modification effort by providing online map-based information for the formulation of boundary modification requests. Information available from the BBAT included:

- Groundwater basin boundaries and descriptions published in Bulletin 118, Update 2003, along with all administrative adjustments.
- The locations and boundaries of adjudicated basins.
- Basin priority.
- Geology.
- Boundaries of counties, watersheds, water agencies, federal lands, and tribal lands.

Pacoima spreading grounds (groundwater recharge facility) — San Fernando Valley

Groundwater Basin Boundary Modification Request Review

Fifty-four basin boundary modification requests were received. Thirty-nine requests were approved, 12 were denied, and 3 were not accepted because they were incomplete. Appendix A lists the 39 basins where local agency-requested boundary modifications were approved, along with information about the type of modifications. The 15 basins where boundary modifications were received, but were denied or incomplete, are also listed.

Draft modifications for the approved requests were released to the public July 1, 2016, and were presented at a series of public meetings in mid-July 2016, together with information about the modification submittal and review process. The draft basin boundary modifications, along with comments received during the mid-July public meetings, were presented to the California Water Commission for comment on July 20, 2016.

RESULTS

DWR evaluated comments received for the draft groundwater basin boundary modifications and finalized the modifications on October 18, 2016. As a result of the basin boundary modification process, there are now 517 identified groundwater basins and subbasins in California. Current boundaries for California's groundwater basins and subbasins are shown in Appendix B. Scalable views and information about the basins and subbasins, including their descriptions, are available using the DWR Groundwater Information Center Interactive Map at: **www.water.ca.gov/groundwater/MAP_APP/index.cfm.**

Agriculture in San Luis Obispo County

Groundwater Basin Prioritization

BACKGROUND

In 2009, Senate Bill X7-6 added Part 2.11 to Division 6 of the Water Code (Section 10920 et seq.) establishing provisions and requirements for local agencies to conduct groundwater-level monitoring. Water Code Section 10933 requires DWR to identify the extent of groundwater-level monitoring within each of the groundwater basins identified by DWR and to prioritize those basins. The legislation directed DWR to consider all of the following criteria for basin prioritization:

1. Population overlying the basin.
2. Rate of current and projected growth of the population overlying the basin.
3. Number of public supply wells that draw from the basin.
4. Total number of wells that draw from the basin.
5. Irrigated acreage overlying the basin.
6. Degree to which persons overlying the basin rely on groundwater as their primary source of water.
7. Any documented impacts on the groundwater within the basin, including overdraft, subsidence, saline intrusion, and other water quality degradation.
8. Any other information determined to be relevant by the Department.

DWR prioritized the state's groundwater basins identified in Bulletin 118, Update 2003 into four categories: high, medium, low, and very low. DWR released the draft list in December 2013. The final list was published in June 2014 after public comments were received and considered. The June 2014 basin priority list, and information pertaining to the prioritization process completed in 2014, are available at: **www.water.ca.gov/groundwater/casgem/basin_prioritization.cfm.**

Vineyard in the Paso Robles area

Vineyard in Kern County

GROUNDWATER BASIN PRIORITY AND THE CALIFORNIA STATEWIDE GROUNDWATER ELEVATION MONITORING (CASGEM) PROGRAM

In 2009, Senate Bill X7-6 added provisions for groundwater monitoring to the California Water Code (Section 10920 et seq.). The bill authorized DWR to establish permanent, locally managed, groundwater-elevation monitoring and reporting for all groundwater basins identified in Bulletin 118.

DWR established the CASGEM online system in 2011 as the means for local agencies to submit groundwater elevation information and to provide for public access to that information. CASGEM Program participation is essentially required for high- and medium-priority basins under Executive Order B-29-15.

More information on the CASGEM Program can be found at: **www.water.ca.gov/groundwater/casgem/.**

Groundwater Basin Prioritization under the Sustainable Groundwater Management Act

In 2014, Water Code Section 10933(b)(8) was amended adding adverse impacts on local habitat and local streamflows to the list of factors to be used for the prioritization of California's groundwater basins.

SGMA requires that, by January 31, 2015, DWR establish an initial priority of the state's groundwater basins using the amended list of prioritization factors. The act further requires DWR to reassess the priority of the state's groundwater basins any time the boundaries of basins defined in Bulletin 118 are modified (Water Code Section 10722.4).

Initial Prioritization

DWR determined that information relating to adverse impacts on local habitat and streamflows from groundwater extractions was not readily available to allow the reprioritization of groundwater basins by January 31, 2015. As a result, the June 2014 basin prioritization was adopted by DWR as the initial basin priority for the purposes of SGMA.

APPROACH

Following the completion of the groundwater basin boundary modification effort on October 18, 2016, DWR began a reassessment of the prioritization of the state's groundwater basins in accordance with Water Code Section 10722.4.

NOTICE

The reassessment of the prioritization of California's groundwater basins was still underway when this interim update was published in 2016. This update will be amended in 2017 to include the approach for, and results of, the basin reprioritization upon completion of that effort.

The basin prioritization process will include public meetings and workshops to solicit input. Information about the reprioritization of California's groundwater basins is available at: **www.water.ca.gov/groundwater/sgm/SGM_BasinPriority.cfm.**

Windmill and storage tank in Cuyama Valley

Bulletin 118—Comprehensive Update 2020

The most recent comprehensive update of Bulletin 118 was published in 2003. Since that time, much has changed in relation to water management in California, including the ongoing drought which began in 2012, and passage of SGMA in 2014.

Water Code Section 12924 requires DWR to update Bulletin 118 in years ending in "5 and 0." The California Water Action Plan also directs DWR to update Bulletin 118 **(www.resources.ca.gov/california_water_action_plan/).** The next comprehensive update of Bulletin 118 is scheduled for 2020.

The 2020 comprehensive update will build on all previous Bulletin 118 updates and other DWR groundwater-related publications. Reports by various federal, State, and local agencies, including groundwater sustainability plans and related publications by groundwater sustainability agencies, will serve as an important source of information for the update. Table 4 provides a general summary of content planned for the 2020 update.

Efforts to develop the 2020 comprehensive update of Bulletin 118 are scheduled to begin in 2017. DWR will coordinate the development the 2020 update with other federal, State, and local agencies, and will hold a series of public workshops to provide information about the development effort and receive public input.

A vIneyard drip irrigation system supplied by groundwater

TABLE 4 – Summary of Planned Content for Bulletin 118, Update 2020

Updated information on the occurrence and characteristics of groundwater in California
√ Groundwater basin boundaries, including information provided in this interim update and any subsequent basin boundary modifications.
√ Hydrologic and geologic characteristics of the state's groundwater basins.
√ Information on groundwater quality conditions, including naturally occurring contaminants and impacts related to anthropogenic chemicals, sea water intrusion, and salinity accretion.
Updated Information on Groundwater Management and Related Topics
√ Status of Sustainable Groundwater Management Act (SGMA) implementation efforts and an assessment of progress toward achieving the sustainable management of groundwater, including case studies.
√ Status of groundwater management efforts for areas not covered by SGMA, such as adjudicated groundwater basins.
√ Groundwater use and managed recharge.
√ Groundwater level conditions, including impacts related to drought.
√ The occurrence and effects of groundwater overdraft, including updated information on land subsidence.
√ Interaction of groundwater and surface water and related impacts.
√ Groundwater dependent ecosystems.
√ Projected impacts of climate change on groundwater resources and related management considerations.
√ Groundwater monitoring efforts and data management systems.
√ Updated groundwater basin prioritization.
√ New groundwater laws and regulatory requirements.
Opportunities for the Future
√ Recommendations for eliminating knowledge and technology gaps that impede proper understanding and the sustainable management of California's groundwater.
√ Groundwater management recommendations, including legislation.
√ Recommendations for Bulletin 118, Update 2025.

"DWR will coordinate the development of the 2020 update with other federal, State and local agencies . . ."

Appendix A

Summary of 2016 Groundwater Basin Boundary Modification Requests

Table A–1 Summary of 2016 Groundwater Basin Boundary Modification Requests[a]

Basin/Subbasin (2003 Basin Numbers and Designations)	Requesting Agency	Requested Modification Type(s)	Decision[b]
1-2.01 Klamath River Valley – Tule Lake	Tulelake Irrigation District	Scientific	Approved
2-9.01 Santa Clara Valley – Niles Cone 2-9.04 Santa Clara Valley – East Bay Plain	Alameda County Water District	Jurisdictional	Approved
3-1 Soquel Valley 3-2 Pajaro Valley 3-21 Santa Cruz Purisima Formation 3-26 West Santa Cruz Terrace	Soquel-Aptos Groundwater Management Committee	Scientific & Jurisdictional	Approved
3-2 Pajaro Valley 3-4.01 Salinas Valley – 180/400-Foot Aquifer 3-4.09 Salinas Valley – Langley Area 3-21 Santa Cruz Purisima Formation	Pajaro Valley Water Management Agency	Jurisdictional	Approved
3-3.01 Gilroy-Hollister Valley–- Llagas Area	Santa Clara Valley Water District	Scientific	Approved
3-4.06 Salinas Valley – Paso Robles Area	Heritage Ranch Community Service District	Scientific	Denied
3-4.06 Salinas Valley – Paso Robles Area	Monterey County Water Resources Agency	Jurisdictional	Denied
3-4.06 Salinas Valley – Paso Robles Area	Templeton Community Services District	Scientific	Approved
3-4.10 Salinas Valley – Corral De Tierra Area 3-4.08 Salinas Valley – Seaside Area	Monterey Peninsula Water Management District	Scientific	Approved
3-8 Los Osos Valley	San Luis Obispo County	Scientific	Denied
3-13 Cuyama Valley	Santa Barbara County Water Agency	Scientific	Denied
3-14 San Antonio Creek Valley	Santa Barbara County Water Agency	Scientific & Jurisdictional	Approved
3-18 Carpinteria 3-49 Montecito	Carpinteria Valley Water District	Scientific	Denied
3-21 Santa Cruz Purisima Formation 3-27 Scotts Valley 3-50 Felton Area	Scotts Valley Water District	Scientific & Jurisdictional	Approved
3-53 Foothill	City of Santa Barbara	Scientific	Approved
4-2 Ojai Valley	Ojai Basin Groundwater Management Agency	Scientific	Approved
4-3.01 Ventura River Valley – Upper Ventura River	Ventura River Water District	Scientific	Approved
4-4.02 Santa Clara River Valley – Oxnard 4-6 Pleasant Valley 4-8 Las Posas Valley	Fox Canyon Groundwater Management Agency	Scientific & Jurisdictional	Approved
4-4.07 Santa Clara River Valley – Santa Clara River Valley East	Castaic Lake Water Agency	Scientific	Approved

Table A–1 Summary of 2016 Groundwater Basin Boundary Modification Requests[a] (continued)

Basin/Subbasin (2003 Basin Numbers and Designations)	Requesting Agency	Requested Modification Type(s)	Decision[b]
5-4 Big Valley	Lassen County	Scientific	Denied
5-21.51 Sacramento Valley – Corning 5-21.52 Sacramento Valley – Colusa	Tehama County Flood Control and Water Conservation District	Jurisdictional	Approved
5-21.52 Sacramento Valley – Colusa 5-21.66 Sacramento Valley – Solano 5-21.67 Sacramento Valley – Yolo 5-21.68 Sacramento Valley – Capay Valley	Yolo County Flood Control And Water Conservation District	Jurisdictional	Approved
5-21.60 Sacramento Valley – North Yuba	Yuba County Water Agency	Other	Approved
5-21.61 Sacramento Valley – South Yuba 5-21.64 Sacramento Valley – North American	Placer County	Jurisdictional	Approved
5-21.65 Sacramento Valley – South American 5-22.16 San Joaquin Valley – Cosumnes	Omochumne-Hartnell Water District	Scientific & Jurisdictional	Denied
5-22.01 San Joaquin Valley – Eastern San Joaquin 5-22.16 San Joaquin Valley – Cosumnes	Eastern San Joaquin County Groundwater Basin Authority	Jurisdictional	Approved
5-22.05 San Joaquin Valley – Chowchilla	Chowchilla Water District	Jurisdictional	Approved
5-22.05 San Joaquin Valley – Chowchilla 5-22.06 San Joaquin Valley – Madera	New Stone Water District	Jurisdictional	Approved
5-22.06 San Joaquin Valley – Madera 5-22.07 San Joaquin Valley – Delta-Mendota	Aliso Water District	Jurisdictional	Approved
5-22.06 San Joaquin Valley – Madera 5-22.07 San Joaquin Valley – Delta-Mendota 5-22.08 San Joaquin Valley – Kings 5-22.09 San Joaquin Valley - Westside 5-22.15 San Joaquin Valley - Tracy	San Luis and Delta-Mendota Water Authority	Jurisdictional	Approved
5-22.08 San Joaquin Valley – Kings	Kings River Conservation District	Jurisdictional	Approved
5-22.09 San Joaquin Valley - Westside	Westlands Water District	Jurisdictional	Approved
5-22.09 San Joaquin Valley – Westside 5-22.10 San Joaquin Valley – Pleasant Valley	Pleasant Valley Water District	Scientific & Jurisdictional	Approved
5-22.10 San Joaquin Valley – Pleasant Valley 5-22.14 San Joaquin Valley – Kern County	Devils Den Water District	Jurisdictional	Approved
5-22.11 San Joaquin Valley – Kaweah 5-22.12 San Joaquin Valley – Tulare Lake	Corcoran Irrigation District	Jurisdictional	Approved
5-22.12 San Joaquin Valley – Tulare Lake	Kings River Conservation District	Jurisdictional	Approved
5-22.12 San Joaquin Valley – Tulare Lake	Tulare Lake Basin Water Storage District	Jurisdictional	Approved
5-22.13 San Joaquin Valley – Tule 5-22.14 San Joaquin Valley – Kern County	Delano-Earlimart Irrigation District	Jurisdictional	Approved
5-22.14 San Joaquin Valley – Kern County	Olcese Water District	Scientific	Denied
5-22.14 San Joaquin Valley – Kern County	Tejon-Castac Water District	Scientific	Approved
5-22.15 San Joaquin Valley – Tracy	City of Brentwood	Scientific & Jurisdictional	Denied

Table A–1 Summary of 2016 Groundwater Basin Boundary Modification Requests[a] (continued)

Basin/Subbasin (2003 Basin Numbers and Designations)	Requesting Agency	Requested Modification Type(s)	Decision[b]
6-12 Owens Valley	Inyo County Water Department	Scientific	Denied
7-21.01 Coachella Valley – Indio	Mission Springs Water District	Scientific	Incomplete (denied)
7-24 Borrego Valley	Borrego Water District	Scientific	Approved
8-1 Coastal Plain of Orange County	City of La Habra	Scientific & Jurisdictional	Incomplete (denied)
8-1 Coastal Plain of Orange County	Orange County Water District	Scientific	Approved
8-2.01 Upper Santa Ana Valley – Chino	Inland Empire Utilities Agency	Scientific & Jurisdictional	Approved
8-2.03 Upper Santa Ana Valley – Riverside-Arlington	Western Municipal Water District of Riverside	Jurisdictional	Denied
8-2.03 Upper Santa Ana Valley – Riverside-Arlington 8-2.04 Upper Santa Ana Valley – Rialto-Colton 8-2.06 Upper Santa Ana Valley – Bunker Hill 8-2.07 Upper Santa Ana Valley – Yucaipa	San Bernardino Valley Municipal Water District	Jurisdictional	Approved
8-2.08 Upper Santa Ana Valley – San Timoteo	Yucaipa Valley Water District	Jurisdictional	Incomplete (denied)
8-2.09 Upper Santa Ana Valley – Temescal 8-4 Elsinore	City Of Corona	Scientific & Jurisdictional	Approved
8-5 San Jacinto	Eastern Municipal Water District	Scientific	Approved
9-7 San Luis Rey Valley	City of Oceanside	Scientific & Jurisdictional	Denied
9-17 Sweetwater Valley 9-18 Otay Valley 9-19 Tijuana Basin	City of San Diego	Scientific	Approved

NOTES

a Additional information about the boundary modification requests is available at: www.water.ca.gov/groundwater/sgm/basin_boundaries.cfm.

b Some requests were approved in part, or as amended/changed.

Appendix B

Groundwater Basins and Subbasins (2016)

FIGURE B–1 California Groundwater Basins/Subbasins and DWR Hydrologic Regions

FIGURE B–2 California Groundwater Basins/Subbasins Numbering System

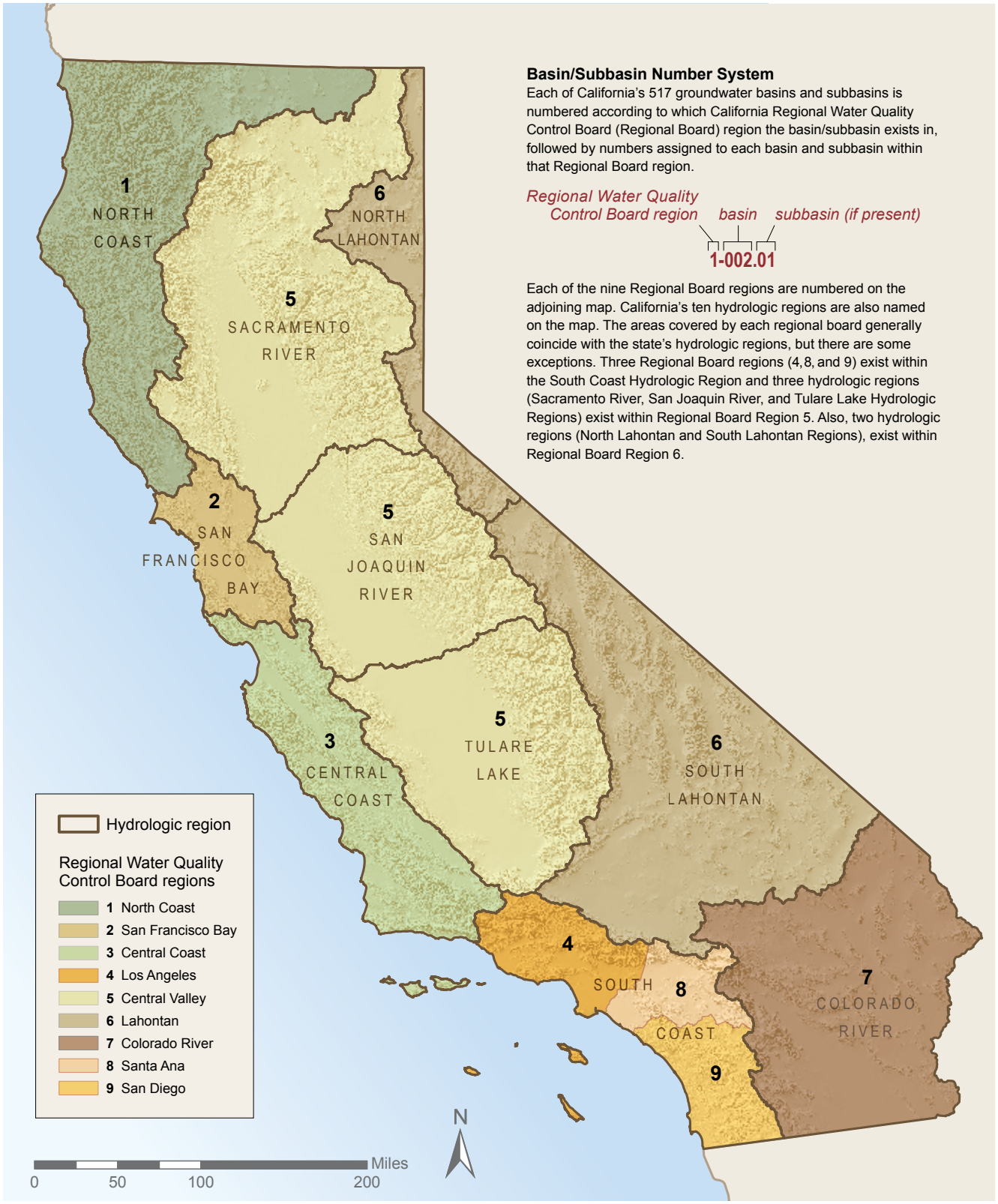


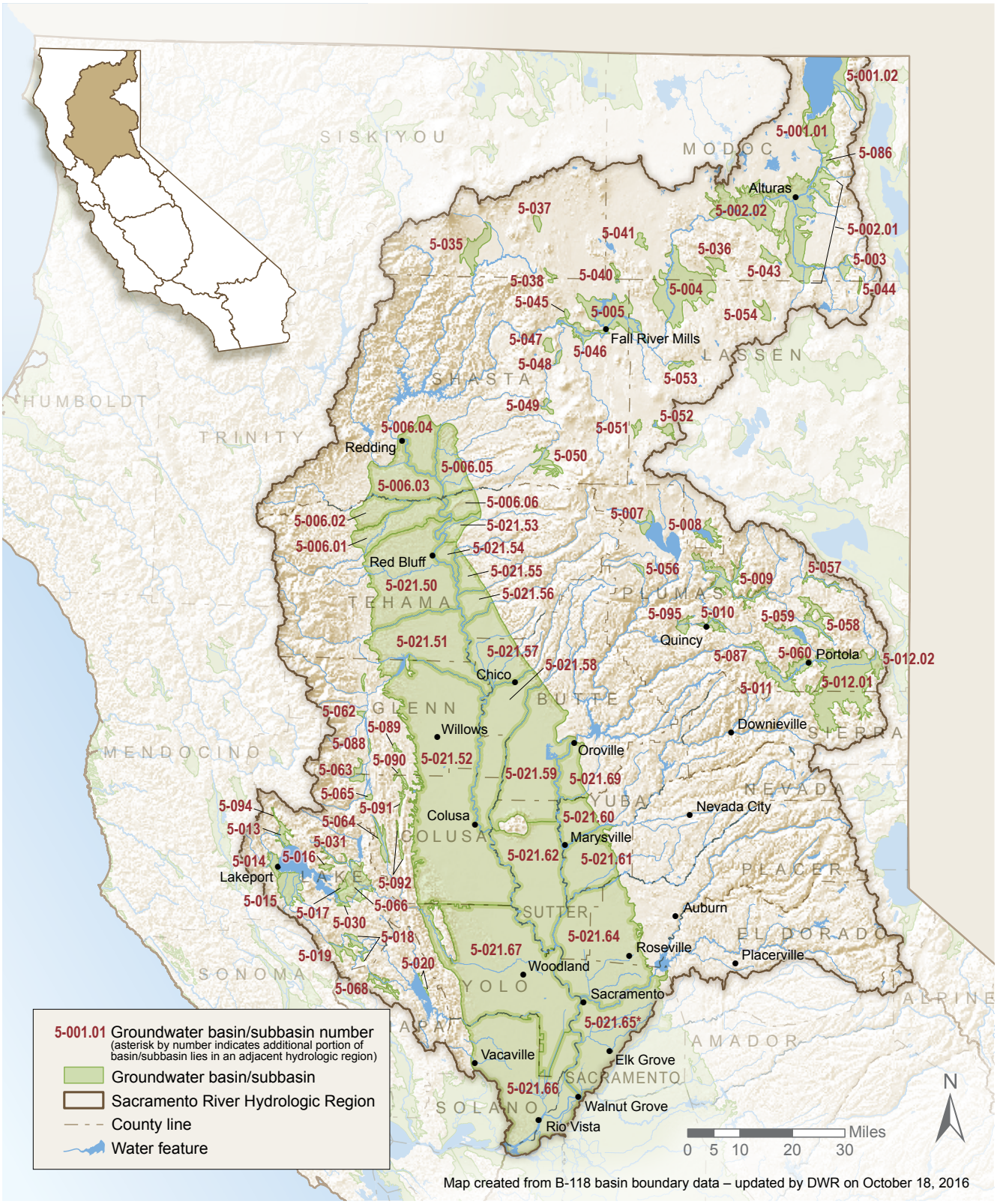
FIGURE B–3 Groundwater Basins and Subbasins within the North Coast Hydrologic Region

FIGURE B–4 Groundwater Basins and Subbasins within the San Francisco Bay Hydrologic Region

FIGURE B–5 Groundwater Basins and Subbasins within the Central Coast Hydrologic Region

FIGURE B–6 Groundwater Basins and Subbasins within the South Coast Hydrologic Region

FIGURE B–7 Groundwater Basins and Subbasins within the Sacramento River Hydrologic Region



Map created from B-118 basin boundary data – updated by DWR on October 18, 2016

FIGURE B–8 Groundwater Basins and Subbasins within the San Joaquin River Hydrologic Region

FIGURE B–9 Groundwater Basins and Subbasins within the Tulare Lake Hydrologic Region

FIGURE B–10 Groundwater Basins and Subbasins within the North Lahontan Hydrologic Region

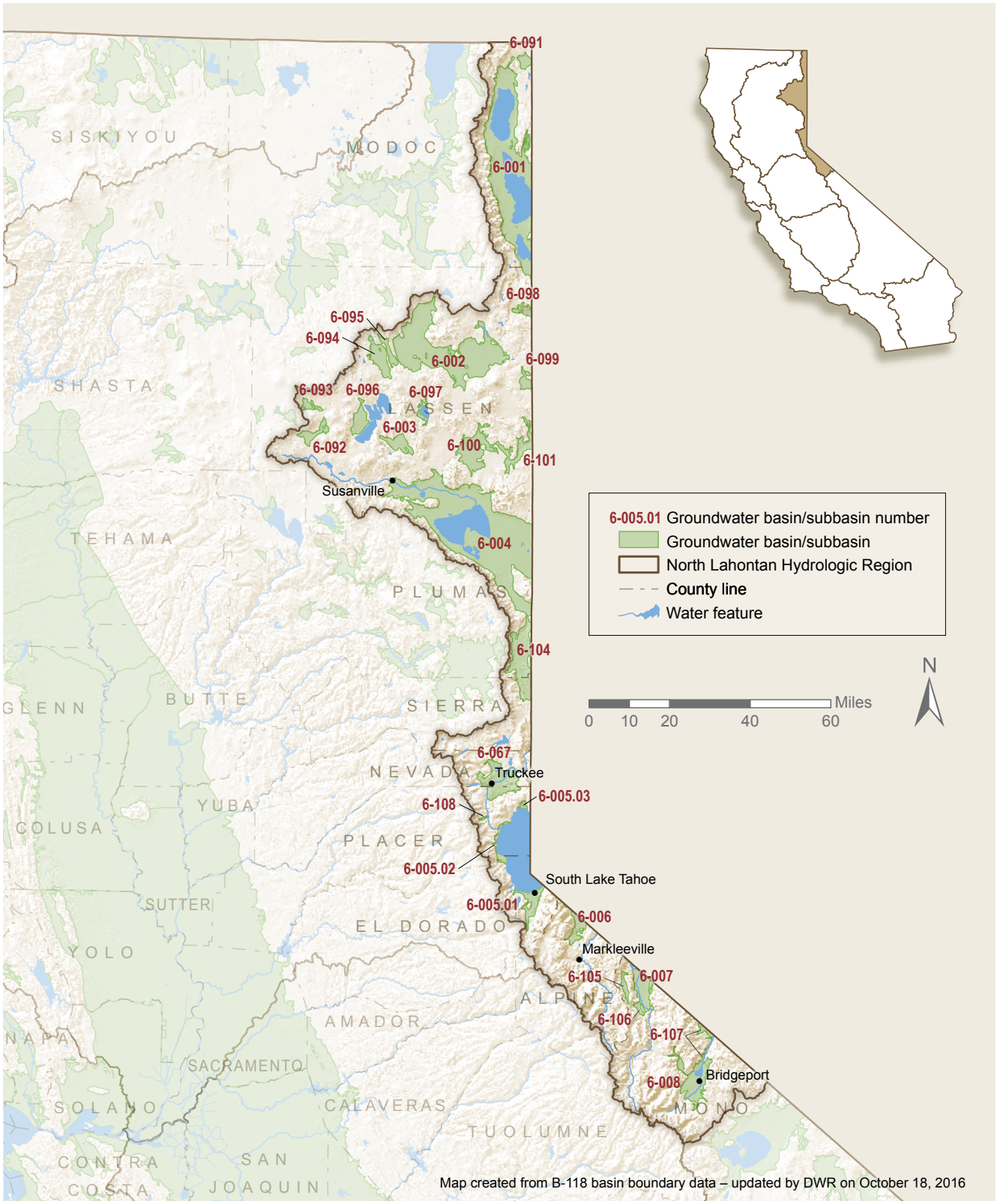


FIGURE B–11 Groundwater Basins and Subbasins within the South Lahontan Hydrologic Region

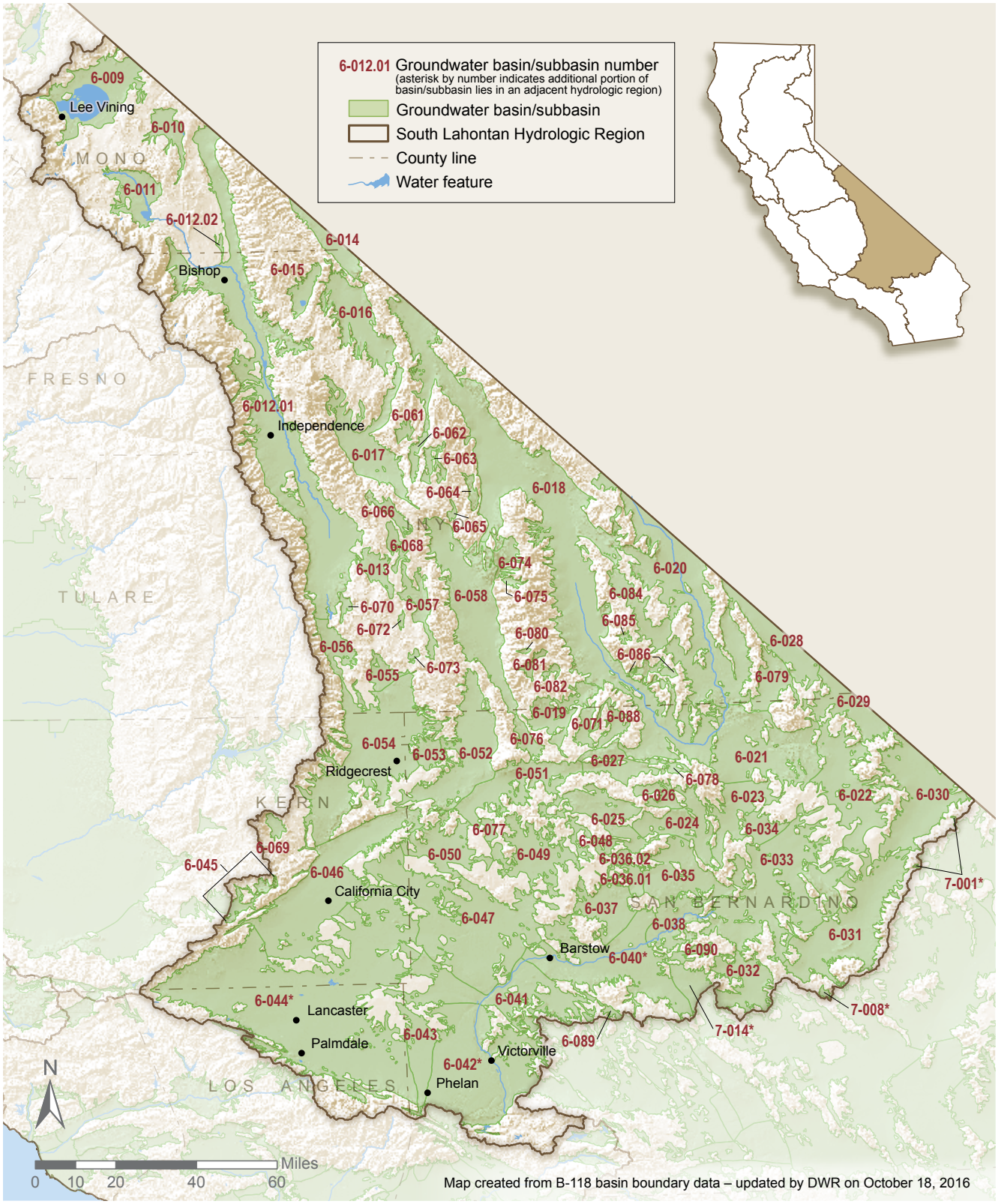


FIGURE B–12 Groundwater Basins and Subbasins within the Colorado River Hydrologic Region

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AGENDA ITEM 6: EXECUTIVE DIRECTOR'S REPORT

DWR CASGEM Update

(No additional materials)

AGENDA ITEM 6: EXECUTIVE DIRECTOR'S REPORT

JPA Status Report

(No additional materials)

AGENDA ITEM 6: EXECUTIVE DIRECTOR'S REPORT

Elk Grove Dry Well Project – Final TAC Meeting

(No additional materials)

AGENDA ITEM 6: EXECUTIVE DIRECTOR'S REPORT

OHWD Off Season Irrigation Project

Monitoring the Omochumne-Hartnell Water District Off-Season Irrigation Project

Dr. Amelia Vankeuren, Assistant Professor, Sacramento State
Geology Department; Institute for Water, Energy, Sustainability, and Technology

During the winter of 2017, the Omochumne-Hartnell Water District (OHWD) will conduct an off-season irrigation pilot test on dormant crop fields to increase groundwater recharge in the vicinity of the Cosumnes River and estimate the resulting increase in groundwater storage. During 2017, OHWD will work to expand the off-season irrigation to additional dormant crop fields and is committed to continuing off-season irrigation at identified locations for no less than 10 years. Increased groundwater storage could decrease the duration that the Cosumnes River is dry, and eventually provide a source of water for pre-wetting the river in order to allow fall-run Chinook Salmon passage up the river.

OHWD has funding to implement a groundwater banking project through a Proposition 84 Integrated Regional Water Management (IWRM) grant and is in the process of repurposing the grant for off-season irrigation; however, this grant provides limited funding for monitoring the impact of the off-season irrigation on local groundwater levels and storage. Sacramento State's Institute for Water, Energy, Sustainability, and Technology (iWEST) is looking for opportunities to advance local environmental sustainability, including groundwater resources, and has identified that designing and implementing a monitoring plan for OHWD's pilot project provides a unique opportunity to bring together several groundwater stakeholders in a collaborative effort, including OHWD, Sacramento Central Groundwater Authority (SCGA), Trout Unlimited/ Cosumnes Coalition, UC Davis researchers, and Sacramento State researchers. This integrated effort will serve as a test case for off-season irrigation for enhanced aquifer recharge and storage, and the efficacy of real-time groundwater measurements for adaptive groundwater management.

Monitoring Objectives

Dr. Vankeuren and a Sacramento State Geology graduate student will monitor the off-season irrigation project using wireless groundwater level monitoring technology. This monitoring effort will act as a proof of concept for the applicability of real-time, wireless groundwater level data to adaptive groundwater management. Typically, groundwater levels are monitored with pressure transducers that are periodically visited to download data. This means that groundwater level data are often not available until months after an action is taken. Wireless groundwater monitoring offers real-time feedback on groundwater levels, allowing users to adapt their groundwater management strategy (e.g., changing the rate of water application to fields, rate of pumping, etc.) and see changes in groundwater levels immediately. If this project is successful, more wireless groundwater monitoring stations may be installed throughout the Cosumnes Basin, and the greater Sacramento area. SCGA has expressed interest in this technology and the possibilities of groundwater management with real-time groundwater data collection.

The efficacy of enhanced aquifer recharge projects can be affected by chemical reactions resulting from mixing native and recharged water, and water-rock interactions including precipitation of secondary minerals or ion desorption from, or dissolution of, aquifer sediments. Therefore, in addition to groundwater levels, groundwater chemistry will be monitored to determine changes that occur during the infiltration process. Precipitation of secondary minerals, such as calcite ($CaCO_3$) could clog subsurface pore space and reduce aquifer permeability and groundwater flow, preventing further infiltration. Desorption or dissolution reactions due to the influx of water with different pH and oxidation-reduction (redox) potential, could release natural contaminants like arsenic or hexavalent chromium from aquifer sediments into the water.

Analysis of water chemistry for both irrigation water and groundwater will allow for geochemical modeling and the prediction of water mixing and water-rock reactions that could impact the long-term prospects for enhanced recharge through off-season irrigation.

Also, stable isotope ratios ($\delta^{18}O$ and $\delta^{2}H$) can be used to track the movement of recharged water in the aquifer. Stable isotopes in precipitation vary with evaporation, distance from the water source (the ocean), and elevation, so they may be used to differentiate between preexisting groundwater and the added off-season irrigation water (e.g., Davisson and Criss, 1995; Moran et al., 2004; Dawson et al., 2008).

Hypothesis

The off-season irrigation project will enhance aquifer recharge and increase local groundwater storage. This will be evidenced by raising the water table. The extent of the increase in local groundwater level will depend on the amount and rate of groundwater infiltration. The pilot project will utilize approximately 600 acres of agricultural land. At a maximum infiltration rate of 14 in/month (TNC) for the months of January and February, 600 acres could accommodate 1400 ac-ft/yr of recharge. While the ability of the project to reach this maximum infiltration rate will depend on soil characteristics and pump capacity, it is expected that the volume of water recharged will be sufficient to change the local water table. Over the course of 2017, OHWD plans to expand off-season irrigation to 2-4 other fields, reaching a total of 2,000 acres and target infiltration of 4,000 ac-ft/yr of water. The target recharge rate should have a measurable impact on lower Cosumnes Basin groundwater levels, particularly as the off-season irrigation is intended to continue for at least 10 years.

It is expected that recharged water will infiltrate down to the water table and then flow with the local groundwater gradient away from the off-season irrigation project. The groundwater flow direction along the stretch of the Cosumnes River between Hwy-16 and Hwy-99 is generally to the southwest, though water may also be pulled northwest toward the cone of depression near Elk Grove, or south toward the cone of depression near Galt (Blanke et al., 2015). The exact direction of groundwater flow will depend on the stratigraphy underlying the recharge project and the gradients of flow throughout the time of the project. The Cosumnes Basin is fluvial terrain, with ancient, highly permeable river channels interspersed with less permeable floodplain silt and clay layers. These silt/clay layers act as semi-confining layers that prevent groundwater flow, causing water to preferentially move in other directions. It is expected that the pressure pulse of recharged water will be measureable in wells in the immediate vicinity of the project, and with a sufficient volume of infiltration, throughout the regional aquifer.

Dissolved solute concentrations in water may change during the infiltration process. Carbon dioxide in soil can be up to 50 times higher than the atmospheric concentration due to plant respiration (Drever, 2005). Infiltration of water through soil will increase the dissolved inorganic carbon (DIC) concentration and lower the pH. The recharged water will then mix with local groundwater. Higher dissolved calcium in groundwater combined with higher DIC in recharged water could result in calcite precipitation and pore clogging within the aquifer.

Location

The targeted location for the off-season irrigation project is near Wilton, CA between the Cosumnes River and Deer Creek. The exact location of all fields for the off-season irrigation project has yet to be decided. Sites selected in 2016-2017 will depend on water access and infrastructure, crop suitability, soil permeability, and land owner coordination. It is expected that the pilot project in the winter of 2017 will be conducted on 600 acres of vineyards owned by John Kautz, an OHWD board member. Additional fields within the region have good recharge

potential with vine crops being the primary land use. Due to the uncertainty in recharge location, it is not possible to specify at this time which wells will be used for monitoring purposes. However, there is an extensive array of privately-owned water table wells installed along the Cosumnes River that have been manually monitored by UC Davis researchers in the past, and they would likely be available to install wireless groundwater level monitoring devices. If the existing wells are not sited appropriately for monitoring purposes, OHWD will install monitoring wells closer to the project site as the original IWRM grant included funding for drilling a few monitoring wells.

Six wells are proposed to be instrumented with pressure transducers to monitor groundwater response to the off-season irrigation pilot project. Four transducers will be placed in an array around the site and two more in wells down-gradient from the irrigation site in order to monitor groundwater migration and mounding due to recharge.

Methods

The response of groundwater levels to off-season irrigation will be monitored in real-time using wireless pressure transducers in local observation wells. These transducers will connect to a new Groundwater Observatory – a network of wireless pressure transducers in observation wells, beginning in the winter of 2017 in the Oneto-Denier Floodplain. The initial installation of the observatory will be managed by UC Davis Professor Graham Fogg and funded by the UC Water Security and Sustainability Research Initiative, with the goal of eventually expanding the physical range and participant list into other parts of southern Sacramento County. Each transducer will be equipped with a solar-powered wireless transmitting station to communicate with the Groundwater Observatory base station, initially housed at UC Davis. The data will be uploaded and stored on a digital platform where real-time groundwater level data will be made available for groundwater management and research. The Oneto-Denier floodplain is located downstream of the proposed off-season irrigation project, and groundwater levels there will provide valuable background data and information about regional groundwater behavior, as the area has had continuous groundwater level monitoring at 15 minute intervals since 2012. The wells used to monitor the off-season irrigation project will utilize the same pressure transducer technology and connect to the Groundwater Observatory base station and data repository.

Water samples will be collected from the water used for off-season irrigation once per month during January and February, and each monitoring well will be sampled four times: before off-season irrigation commences, after the first month and second month of irrigation, and one month after the conclusion of the project. At each sample location, basic groundwater parameters will be measured with a multi-meter (pH, temperature, electrical conductivity, redox, dissolved oxygen), and hydroxide, bicarbonate, and carbonate concentrations will be measured by alkalinity titration. Samples will be collected, filtered to <0.45μm, and analyzed on Sacramento State Geology Department instrumentation for major dissolved ions (Ca^{2+}, Mg^{2+}, K^{+}, Na^{+}, NH_4^{+}, Cl^{-}, Br^{-}, SO_4^{2-}, NO_3^{-}, PO_4^{3-}) via ion chromatography (Dionex Integrion, Thermo Fisher Scientific), dissolved inorganic and organic carbon via acidification, combustion, and coulometric detection (CM150, UIC, Inc.), and $\delta^{18}O$ and $\delta^{2}H$ via stable isotope analysis (Liquid Water Isotope Analyzer, Los Gatos Research).

Groundwater level and water chemistry data will be used to assess the impact of the off-season irrigation project on increasing groundwater levels and storage, identify potential impediments such as geochemical reactions that could block flow, and evaluate the prospect for continued success going forward. This project will also test the efficacy of real-time groundwater level monitoring for adaptive management of artificial recharge projects.

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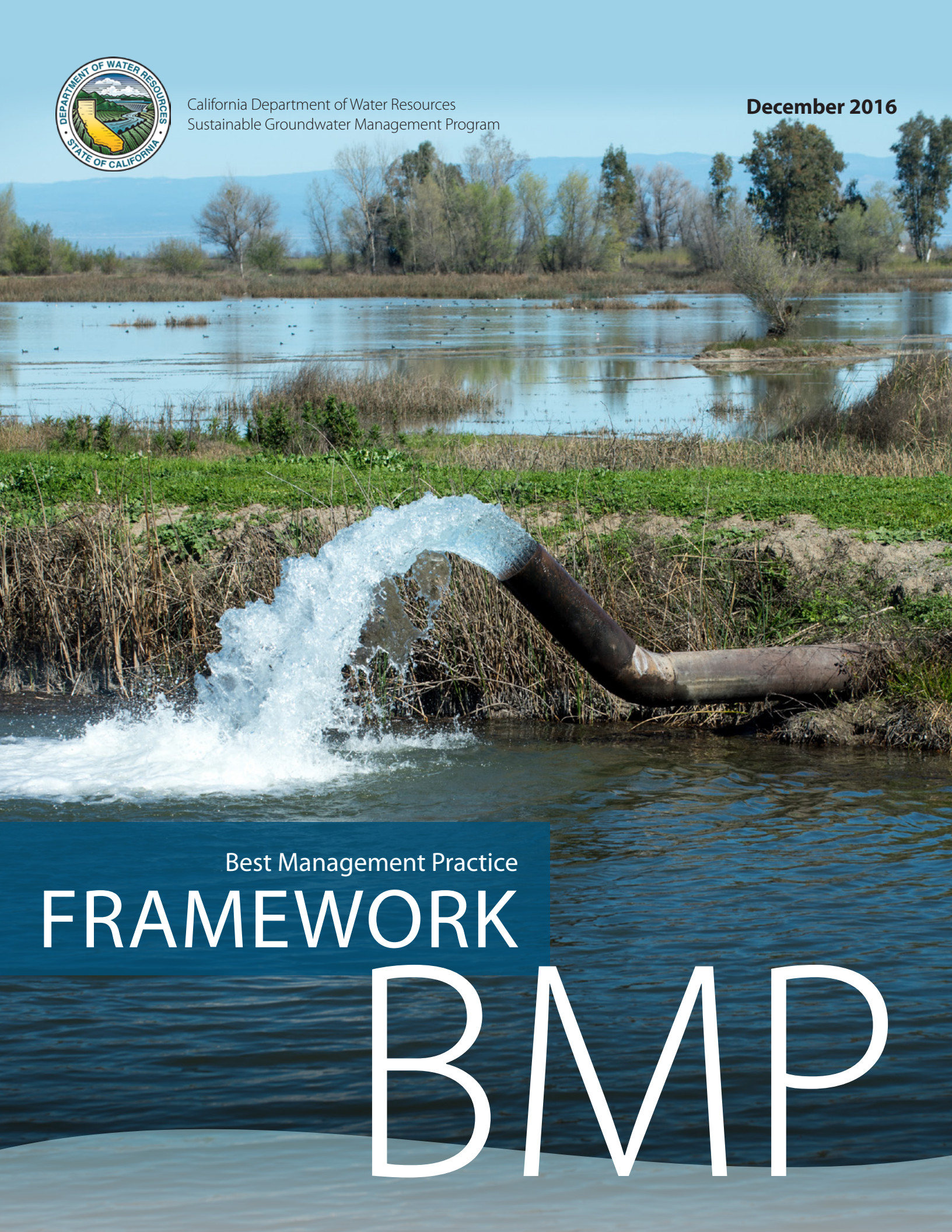
Budget

Description	Cost per	# of items	Cost
Materials and Supplies			
Solar, wireless pressure transducer	1828	6	10968
Water sample containers	11	40	440
Services			
Field measurements – multi-meter (temperature, pH, electrical conductivity, oxidation-reduction potential, dissolved oxygen)	15	40	600
Sample analyses - alkalinity titration (bicarbonate, carbonate, hydroxide)	18	40	720
Sample analyses - major ion chemistry (cations, anions)	55	40	2200
Sample analyses - dissolved carbon (inorganic and organic)	54	40	2160
Sample analyses - stable isotopes (^{18}O, ^{2}H)	12	40	480
Travel			
Travel to field site (60 mi roundtrip, $0.54/mi)	32.4	20	648
Salaries	**Hourly wage**	**# of hours**	
Dr. Amelia Vankeuren			
Additional employment Spring/Summer 2017	75	160	12000
Fringe benefits (12% of additional employment)			1440
10% reimbursed time Fall 2017	10% of salary	120	6748
Fringe benefits (56.7% of reimbursed time)			3826
Sacramento State Geology graduate student			
Employment 20 hrs/week for 52 weeks	20	1040	20800
Fringe benefits (10.5% of salary)			2184
Tuition reimbursement per semester	2667	2	5334
Total direct cost			70548
Modified total direct cost (not including tuition)			65214
Total indirect cost (41% of modified total direct cost)			26738
Total (total direct cost + total indirect cost)			**97286**

AGENDA ITEM 6: EXECUTIVE DIRECTOR'S REPORT

Framework BMP



California Department of Water Resources
Sustainable Groundwater Management Program

December 2016

Best Management Practice

FRAMEWORK BMP

Introduction to Best Management Practices

Chapter 7 of the Sustainable Groundwater Management Act (SGMA), in Water Code Section 10729(d), states that, "By January 1, 2017, the department shall publish on its internet Web site best management practices for the sustainable management of groundwater." Prior to the completion of a best management practices (BMPs) document, the Department of Water Resources (DWR) was required to adopt regulations for evaluating groundwater sustainability plans (GSPs), the implementation of GSPs, and coordination agreements by June 1, 2016 (GSP Regulations), and Alternatives.

"Best management practice" refers to a practice, or combination of practices, that are designed to achieve sustainable groundwater management and have been determined to be technologically and economically effective, practicable, and based on best available science.

–GSP Regulations §351(h)

The GSP Regulations adopted in May 2016 are part of the California Code of Regulations in Title 23, Division 2, Chapter 1.5, Subchapter 2. The GSP Regulations address BMPs in Section 352.2 (Monitoring Protocols) and Section 352.4 (Data and Reporting Standards). Other than BMPs addressing monitoring protocols and monitoring sites, SGMA and the GSP Regulations provide no direction or limitation with respect to what type of BMPs or additional guidance should be developed to assist groundwater sustainability agencies (GSAs) with making sustainable groundwater management decisions.

Best Management Practices Development Process

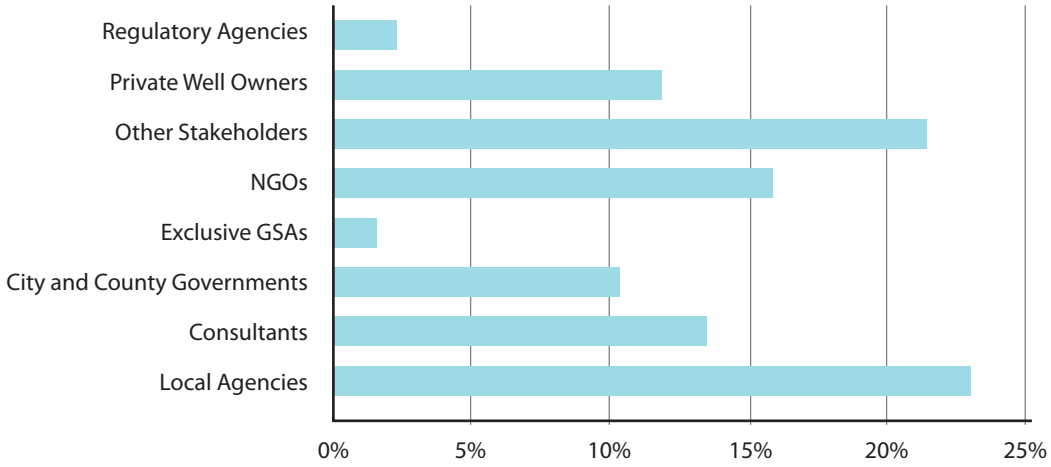
BMP Webpage

DWR established a BMP Webpage at http://water.ca.gov/groundwater/sgm/bmps.cfm where BMPs are posted and where Draft BMPs were accessible during the public comment period.

Topic Selection

DWR prepared a BMP survey (Survey) and invited the public and groundwater stakeholders to participate. The Survey was posted on the BMP Webpage. DWR compiled and reviewed the Survey results and considered this information in developing the list of BMPs and Guidance Documents for completion by January 1, 2017. **Figure 1** provides a record of relative survey participation.

Figure 1. BMP Survey Participants



Public Outreach

During the 30-day public comment period from October 28 to November 28, 2016, DWR conducted three (3) public meetings and participated in a California Water Commission meeting to present the draft BMPs and solicit feedback from the public and groundwater stakeholders.

The location and date of these meetings are listed below:

- Willows – November 14, 2016
- Sacramento and via webcast, California Water Commission – November 15, 2016
- Clovis – November 16, 2016
- Santa Ana – November 17, 2016

Tim Godwin presenting Monitoring Protocols, Standards, and Sites in Willows, CA, November 14, 2016.

DWR elected to publish two categories of information that can assist GSAs and stakeholders with SGMA implementation and preparation of GSPs – **BMPs** and **Guidance Documents**.

Best Management Practices (BMPs)

BMPs are intended to provide clarification, guidance, and examples to help GSAs develop the essential elements of a GSP. BMPs rely on technical information from other groundwater management efforts, existing standards, or other guidance or reference reports. The BMP categories include the following:

- **BMP 1:** Monitoring Protocols, Standards, and Sites
- **BMP 2:** Monitoring Networks and Identification of Data Gaps
- **BMP 3:** Hydrogeologic Conceptual Model
- **BMP 4:** Water Budget
- **BMP 5:** Modeling

Guidance Documents

Guidance Documents are prepared for topic areas unique to SGMA, for either topics where no established practices in the water management industry exist or to provide suggestions with supporting graphics to aid GSAs in developing certain GSP components. The Guidance Documents include the following:

- Preparation Checklist for GSP Submittal
- GSP Annotated Outline
- Establishing Sustainable Management Criteria (In Development)
- Engagement with Tribal Governments (In Development)
- Stakeholder Engagement and Communication (In Development)

How to Utilize BMPs and Guidance Documents

BMPs and Guidance Documents are organized to follow a logical progression of SGMA compliance activities. **Figure 2** illustrates the relationship between BMPs and Guidance Documents in the general progression of activities needed to manage the groundwater basin sustainability. **Figure 2** is provided for illustrative purposes only and DWR acknowledges that the need for and level of effort required to complete each step will vary widely among basins.

The BMPs and Guidance Documents are only intended to provide technical or general guidance to GSAs and other stakeholders. GSAs and other stakeholders have the option of using this material, but the content provided in these documents does not create any new requirements or obligations for the GSA or other stakeholders.

The BMPs and Guidance Documents do not serve as a substitute for the GSP Regulations or the provisions in SGMA. Those GSAs submitting a GSP are strongly encouraged to fully read the GSP Regulations and the text of SGMA. In addition, using these BMPs to develop a GSP does not equate to an approval determination by DWR.

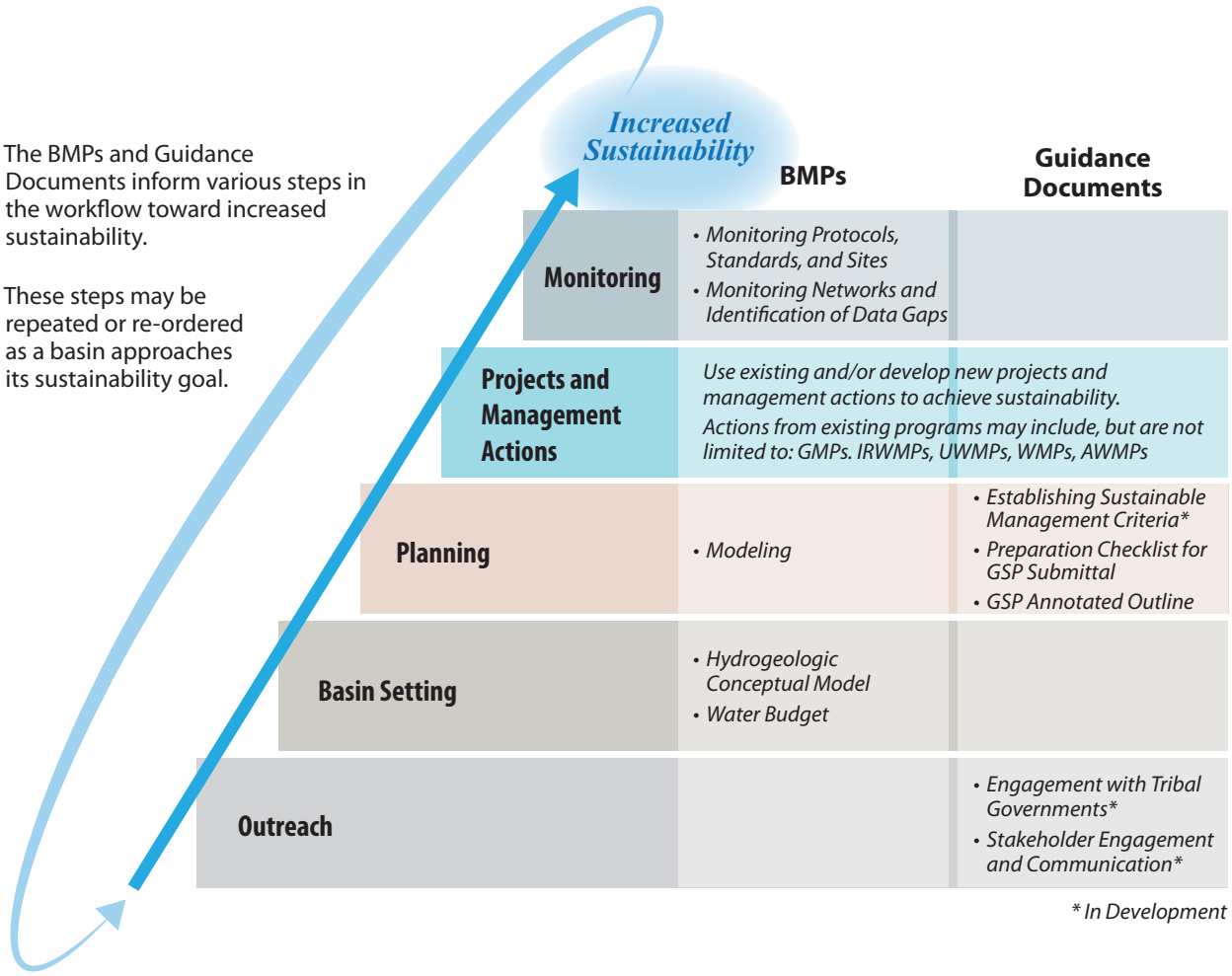


Figure 2. Logical Progression of Basin Activities Needed to Increase Basin Sustainability

AGENDA ITEM 6: EXECUTIVE DIRECTOR'S REPORT

Water Forum – GSA Resolution Process

(No additional materials)

AGENDA ITEM 6: EXECUTIVE DIRECTOR'S REPORT

Current Board Vacancies

(No additional materials)

AGENDA ITEM 6: EXECUTIVE DIRECTOR'S REPORT

California Water Bank Presentation – February 8, 2017

(No additional materials)

AGENDA ITEM 6: EXECUTIVE DIRECTOR'S REPORT

Communication

December 12, 2016

Frequently Asked Questions on Groundwater Sustainability Agencies
State Water Resources Control Board

The 2014 Sustainable Groundwater Management Act (SGMA) requires the formation of groundwater sustainability agencies (GSAs) in high- and medium-priority groundwater basins and subbasins (basins) by June 30, 2017. The following provides general guidance on some frequently asked questions about GSA formation, and will be updated as necessary. The FAQs provided here supplement additional frequently asked questions about GSAs that the Department of Water Resources (DWR) has responded to (available on DWR's Sustainable Groundwater Management website: http://www.water.ca.gov/groundwater/sgm/gsa.cfm).

1. Which local agencies are eligible to be GSAs?

Any local public agency that has water supply, water management, or land use responsibilities within a groundwater basin can decide to become a GSA. A single local agency can decide to become a GSA, or a combination of local agencies can decide to form a GSA by using a joint powers agreement, a memorandum of agreement (MOA), or other legal agreement. The State Water Board has sent several letters to entities who requested clarification on GSA eligibility; these letters are available on the State Water Board's website at http://www.waterboards.ca.gov/water_issues/programs/gmp/eligibility.shtml.
Wat. Code, §§ 10721, 10723, 10723.6, 10723.8, & 10726.8.

2. How can a water corporation regulated by the California Public Utilities Commission or a mutual water company participate in a GSA?

Only local public agencies can become or form a GSA. However, a water corporation regulated by the California Public Utilities Commission or a mutual water company may participate in a GSA through a MOA or other legal agreement. The structure of an agreement that allows participation by private water entities is up to the GSA to determine, but that agreement must be in compliance with applicable laws governing agreements between public and private entities. SGMA does not confer any additional powers to a nongovernmental agency.

Some mutual water companies have proposed to participate in a GSA by entering a joint powers agreement with other local agencies. Unlike water corporations, mutual water companies may enter into a joint powers agreement with one or more public agencies for the purpose of jointly exercising any power common to the contracting parties. (Gov. Code, § 6525.) However, only local public agencies are authorized by Water Code section 10723.6 to form a GSA using a joint powers agreement. Furthermore, an agency created by

a joint powers agreement holds only those powers that are common to its signatory members. Because a mutual water company does not have the independent authority to become a GSA, a JPA that includes a mutual water company as a signatory member also lacks the authority to become a GSA.

This does not foreclose a mutual water company from participating in a GSA that has been formed by a joint powers agreement. Although it cannot be a signatory member, a mutual water company may participate in the governance of a GSA if the members agree to grant it a seat on the governing board. An example of a joint powers authority that includes representatives of local mutual water companies on its governing board is the Sacramento Central Groundwater Authority, whose joint powers agreement is available here: http://www.scgah2o.org/documents/Sacramento%20Central%20JPA.pdf.

Note that groundwater extractors not located within a valid GSA as of July 1, 2017, are required to report extractions and pay fees to the State Water Board. *Wat. Code, §§ 5202, 10723 & 10723.6; Gov. Code, § 6525*.

3. What happens if the 90-day waiting period to become an exclusive GSA has not expired by June 30, 2017?

The State Water Board will not intervene in a basin in which the entire basin is within the management area of a GSA, even if the 90-day notice period for a GSA to become the exclusive GSA for that area has not expired by June 30, 2017. If another local agency files a notification of decision to become a GSA for all or a portion of the same area within a basin, such that neither decision to become a GSA will take effect after the 90-day notice period, the basin is subject to state intervention. *Wat. Code, §§ 10723.8, subd. (c) & 10735.2(a).*

Sloughhouse Resource Conservation District
8698 Elk Grove Blvd. Suite 1-207, Elk Grove, CA 95624
Phone: (916)612-5163 SloughhouseRCD@gmail.com

November 11th 2016

Tom Gohring
Water Forum
1330 21st Street, Ste. 103
Sacramento, CA 95811
tgohring@waterforum.org

Dear Mr. Gohring,

The Sloughhouse Resource Conservation District (SRCD) took the opportunity to comment on the Sacramento Central Groundwater Authority's (SCGA) Alternative Plan Submittal. Throughout the outreach process SRCD has stated concerns with the alternative plan. This letter represents SRCD's and other stakeholders concerns that have been mentioned throughout the outreach process.

As stated in the attached letter the SRCD has concerns in regards to this SCGA's Alternative Plan Submittal. The SRCD requests that the attached letter, and the concerns identified therin, are included in the written and verbal presentations to the SCGA Board regarding the outreach efforts and stakeholder concerns.

Sincerely,

Jay Schneider
Sloughhouse Resource Conservation District
Vice-Chairman

KRONICK
MOSKOVITZ TIEDEMANN & GIRARD

400 Capitol Mall, 27th Floor
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T | 916.321.4500
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Hanspeter Walter
hwalter@kmtg.com

November 10, 2016

Sacramento Central Groundwater Authority
Attn: Ramon Roybal
827 7th Street, Rm 301
Sacramento, CA 95814

Re: Public Comments on SCGA Draft Alternative Plan

To Whom It May Concern:

This law firm represents the Sloughhouse Resource Conservation District (District). On behalf of the District, I submit the following comments on the Sacramento Central Groundwater Authority's (Authority or SCGA) alternative plan public review draft, dated October 12, 2016 (Alternative Plan). The District has many concerns, detailed below, which generally relate to the following major issues:

(1) The Authority has not complied with the California Environmental Quality Act, Public Resources Code 21000 et seq. (CEQA), in its preparation and adoption of the Alternative Plan.

(2) The Alternative Plan contains numerous outdated, erroneous, or unexplained assumptions data, and methods, which substantially undermine its conclusions.

(3) The Alternative Plan fails to demonstrate the South American subbasin has or will be operated sustainably to avoid undesirable results, and it fails to demonstrate compliance with the Sustainable Groundwater Management Act's ("SGMA") purposes, intent, and the "functional equivalency" standard for alternatives.

(4) The Authority's Alternative Plan process has been plagued by lack of public outreach, stakeholder involvement, and transparency from the beginning.

For these reasons, the District strongly urges the Authority to rethink its current actions and abandon its apparent strategy of barreling forward with a hastily prepared, technically flawed, and insufficient Alternative Plan.

The Alternative Plan is Based on Inconsistent, Outdated, and Confusing Analyses and Data and Fails to Satisfy SGMA

The District commissioned the professional engineering and scientific firm Erler & Kalinowski, Inc. (EKI) to critically review the Alternative Plan. EKI's review revealed significant gaps and flaws in the Alternative Plan's discussion, explanation of its methods, and, more importantly, with the analyses and data presented to attempt to demonstrate sustainability and functional equivalency as required by SGMA and its regulations. EKI concluded the Alternative Plan does not satisfy functional equivalency and that SCGA has not demonstrated sustainable

management over the past 10 years. EKI's comments are attached as Exhibit 1 and hereby incorporated as part of the District's comments on the Alternative Plan.

The Alternative Plan is Subject to CEQA

The Authority's adoption and approval of the Alternative Plan for subsequent submittal to the California Department of Water Resources ("DWR") would be a discretionary action within CEQA's definition of a project, as would be any subsequent discretionary action by DWR related to the Alternative Plan. However, the Authority has not initiated any CEQA process in relation to the Alternative Plan or these contemplated discretionary actions by public agencies. Instead, it appears the Authority intends to claim that its adoption of the Alternative Plan is exempt from CEQA. The District disagrees and opposes the Authority's approval of the Alternative Plan (i.e., CEQA "project") until the Authority fully complies with the procedures of CEQA, rather than attempt to shirk its CEQA responsibilities by citing inapplicable exemptions or otherwise.

SGMA Expressly Exempts Groundwater Sustainability Plans from CEQA, but Not Alternative Plans

In SGMA, the Legislature expressly created a statutory exemption from CEQA for the preparation and adoption of Groundwater Sustainability Plans. (Water Code section 10728.6.) The Legislature did not, however, create any similar exemption for the preparation and adoption of alternative plans. The Legislature's enactment of a statutory exemption for preparation and adoption of GSPs demonstrates the Legislature's understanding and intent that absent such an exemption, preparation and adoption of alternative plans and other actions under SGMA would otherwise be subject to CEQA. Furthermore, the Legislature's distinction between GSPs and "alternative submittals," which it separately addressed in a different part of SGMA outside the chapter dealing with GSPs, is more evidence of an intent to distinguish GSPs from alternatives and to not grant alternative plans the same CEQA exemption granted to GSPs. This conclusion is supported by the fact that Chapter 6 of SGMA provides CEQA-like processes for public notice and participation, consultation with cities and counties, and a formal public hearing prior to GSP adoption. (See e.g., Water Code section 10727.8, 10728.4.) In contrast, SGMA provides no similar CEQA-like procedures for the preparation and adoption of alternative plans, and without CEQA review, no such process will be provided.

The Authority's Adoption and Implementation of the Alternative Plan Could Reasonably And Foreseeably Cause Significant Environmental Impacts

"CEQA is a comprehensive scheme designed to provide long-term protection to the environment." (*Mountain Lion Foundation v. Fish & Game Com.* (1997) 16 Cal.4th 105, 112.) "Its purposes are manifold, but chief among them is that of providing public agencies and the general public with detailed information about the effects of a proposed project on the environment." (*San Franciscans for Reasonable Growth v. City and County of San Francisco* (1984) 151 Cal.App.3d 61, 72.) Environmental protection is the guiding concept in interpreting CEQA. "The foremost principle under CEQA is that the Legislature intended the act 'to be interpreted in such manner as to afford the fullest possible protection to the environment within the reasonable scope of the statutory language.'" (*Laurel Heights Improvement Assn. v. Regents of University of California* (1988) 47 Cal.3d 376, 390 (*Laurel Heights*).) In *Laurel Heights Improvement Assn. v. Regents of the University of California* (1993) 6 Cal.4th 1112, the California Supreme Court reiterated that the purpose of an EIR is "'to inform the public and its

responsible officials of the environmental consequences of their decisions *before* they are made.'" (*Id.* at p. 1123 original italics.)

CEQA's concept of a "project" requiring an environmental study was aptly described in *Bozung v. Local Agency Formation Com.* (1975) 13 Cal.3d 263. *Bozung* was concerned with a Local Agency Formation Commission decision to approve an annexation proposal. The commission argued that although the development of the land following annexation might have an environmental effect, the mere approval of the proposal had no such effect. Similarly here, it appears SCGA's view may be that its adoption of the Alternative Plan is a paper exercise alone and without environmental impacts that would trigger CEQA review. Not so. As the Court in *Bozung* explained:

> The notion that the project itself must directly have such an effect was effectively scratched in *Friends of Mammoth.* v. *Board of Supervisors* (1972) 8 Cal.3d 247. The granting of a conditional use permit — a piece of paper — does not directly affect the environment any more than an annexation approval — another piece of paper. *Friends of Mammoth,* of course, said that the word "project" appears to emphasize activities *culminating* in physical changes to the environment, ..." (*Id.,* at p. 265. Italics added.)

The Court accordingly held in *Bozung* that approval of the annexation — a necessary step in a chain of events which would culminate in physical impact on the environment — required an environmental impact report.

Similarly here, SCGA's Alternative Plan establishes fixed markers and a blueprint for future activities involving groundwater that could significantly affect the environment. The Alternative Plan could reasonably and foreseeably cause environmental impacts that require careful consideration by SCGA and DWR before approving the Alternative Plan. These potential impacts also deserve to be disclosed and provided to the public for review and comment prior to project approval. While this point seems obvious, especially in the context of the SGMA compliance and implementation that SCGA proposes to accomplish through the Alternative Plan, SCGA's Alternative Plan essentially admits this is the case by linking future actions to the Alternative Plan. The Alternative Plan's relationship and link to additional future activities is also made plain by its statement that "[f]uture projects and actions may be discussed and approved at SCGA Board Meetings. The Board has the discretion to determine whether a proposed project will create undesirable results within the subbasin, and the level of financial or policy support by SCGA." (Alternative Plan FE-25.)

<u>Alternative Plan brings new areas under groundwater management for the first time</u>

For instance, the Alternative Plan states: "SCGA's JPA language defines the Authority's eastern boundary to be the El Dorado County line, which includes areas to the east of the GMP area boundary. SCGA will conduct management and funding actions consistent with the GMP in these "eastern fringe" areas." (Alternative Plan 3-1.) Thus, these fringe areas that currently are without any formal groundwater management regime will be brought under that regime through SCGA's adoption and implementation of the Alternative Plan.

Alternative Plan includes SCGA entering into an MOU with other local agencies defining management roles and actions for certain areas

The Alternative Plan also states that SCGA will enter into some form of discretionary contractual relationship with other local agencies in part of the South American subbasin, which will define management roles and responsibilities. (See e.g., Alternative Plan 3-2 ["The SCGA-Delta MOU (Appendix C) is provided for further confirmation of the level of cooperation and coordination that is occurring with Delta interests in the development and implementation of the Alternative, and the desire of these interests to achieve SGMA compliance."].) Execution of that MOU as part of the Alternative Plan is further evidence of the applicability and need for CEQA review. Furthermore, the MOU is not described and apparently left until later, perhaps even after adoption of the Alternative Plan, which is unlawful segmentation of a project under CEQA. The entire Alternative Plan project, including its MOU component, should be described and analyzed according to CEQA before either is adopted or executed.

Alternative Plan "locks-in" a numeric sustainable yield value for the basin that will affect management, land use, and other environmental variables throughout the area, including in neighboring basins

The Alternative Plan establishes and "locks-in" a sustainable yield value for the South American subbasin that will affect urban growth, land and water use, and the environment (including fish, wildlife, and plants). The Alternative Plan would create a situation where the approximate 273,000 af sustainable yield number it establishes will be used to manage water use in the South American subbasin. This means that development and growth that increases demands for water would be allowed so long as it fits within this sustainable yield limit. Indeed, the Alternative Plan's assumptions about recharge of groundwater and sustainability are critical building blocks of land use decisions such as development and other land uses, in addition to drivers of future groundwater management activities. The SCGA's own technical memorandum on groundwater recharge admits that "[t]his information can be used to support land use decisions and to manage surface and groundwater resources." (Exhibit 2, December 2015 Technical Memorandum, p. 47.) As explained here and in the attached EKI analysis, there is considerable uncertainty regarding the validity of the 273,000 af value and those issues should be publically discussed and alternative values evaluated under CEQA.

The Alternative Plan will also significantly affect groundwater use and SGMA compliance activities in neighboring basins such as the Cosumnes subbasin where the District is a GSA. SCGA's claim and action of "locking-in" the 273,000 af sustainability value for the South American basin will essentially require neighboring basins to conform their data and assumptions to the Alternative Plan's sustainable yield value and groundwater recharge assumptions for the South American subbasin. This will impact quantities of groundwater and recharge available to each basin from shared sources of recharge water. A prime example is the Cosumnes River, whose surface flows recharge groundwater and which serves as the boundary between the South American and Cosumnes subbasins.

Absent compelling scientific evidence to the contrary, the District believes it is reasonable to assume that the flows of the Cosumnes River likely divide somewhat equally between the two basins, so that half the recharge goes north to the South American subbasin and half goes south to the Cosumnes subbasin. However, this is not what SCGA's Alternative Plan and its current assumptions for management and development under it assume. Instead, a careful analysis of SCGA's assumptions reveals that the Alternative Plan and its numeric claims of

sustainability rely on a very disproportionate and uneven amount of recharge flowing into the South American subbasin.

How unequal is this groundwater recharge apportionment? Figure 2 of SCGA's 2015 Technical Memorandum shows that SCGA has assumed approximately 276,800 af of recharge from various components, essentially equaling the 273,000 af sustainable yield value fixed in the Alternative Plan. The pie chart in Figure 2 shows that 88,100 af is attributed to recharge from the Cosumnes River and Deer Creek. A closer look at the segments of the Cosumnes (from upstream to downstream) and the recharge values shows the following segments and splits:

Segment Stream Seepage (af)	Subsurface flow to Cosumnes subbasin	Seepage attributed to South American subbasin as recharge	Percent of seepage claimed by SCGA for South American subbasin	Percent of seepage assigned to Cosumnes subbasin as subsurface flow
1,000	0	0	0	0
21,200	2,800	18,400	87%	13%
32,100	9,300	22,800	71%	29%
17,600	7,800	9,800	56%	44%
10,300	0	10,300	100%	0%
2,500	0	2,500	100%	0%
Total = 84,700 af	**= 19,900 af**	**= 63,800 af**	**75.3%**	**23.5%**

As the table above shows, SCGA's assumptions for sustainability in the Alternative Plan require a very high and disproportionate amount of the flow of the Cosumnes River to serve as recharge for only the South American subbasin. <u>In fact, SCGA's Alternative Plan is claiming seventy-five percent of all recharge from the Cosumnes</u>! Furthermore, Figure 2 demonstrates that SCGA has claimed use to all the recharge of Deer Creek for the South American subbasin as well, amounting to another 5,400 af. These assumptions are not supported and obviously inaccurate. As part of its basin boundary modification application, the District submitted evidence that the area south of the Cosumnes is much more highly connected to the river than more distant areas in the South American subbasin. Locking in such an erroneous and lopsided assumption on groundwater recharge in the area will significantly impact the sustainable use and management of groundwater in the Cosumnes subbasin, and it has potential to significantly impact land use decisions such as development, farming, or aquaculture in the area, all of which must be based on the availability of water supplies such as groundwater.

<u>The Alternative Plan will affect the unique and sensitive groundwater contamination and fisheries issues in the basin, which have been recognized by the California Supreme Court</u>

The importance and sensitivity of proper management of the South American subbasin's groundwater was discussed by the California Supreme Court in *Vineyard Area Citizens for Responsible Growth, Inc. v. City of Rancho Cordova* (2007) 40 Cal4th 412. That case involved decertification of an EIR that inadequately addressed groundwater demands and proposed extractions for large-scale residential development in the South American subbasin. The opinion discussed the various assumptions for water in the area, including the Water Forum

documents that serve as one of the bases for the 273,000 af sustainable yield number that SCGA sets forth in its Alternative Plan. The opinion found that groundwater contamination and other effects were unique and serious problems in the South American subbasin and that continued groundwater pumping and its affect on salmon in surface streams like the Cosumnes River were inadequately analyzed. These same environmental effects are at issue here and could be exacerbated by the Alternative Plan.

Accordingly, if SCGA adopts the Alternative Plan and locks in its groundwater management efforts at the 273,000 af sustainable yield and recharge assumptions rather than perform a new and more accurate analysis within the context of SGMA and CEQA, there may be significant impacts to the Cosumnes River that will not be disclosed or assessed, and there will be no attempts to mitigate or avoid such impacts. The Cosumnes River is unique and unusual in that it is one of the only undammed (i.e., free-flowing) rivers remaining in California, and so offers rare recreational, fisheries, wildlife, scientific, and aesthetic values to all Californians, especially those in the region. Thus, SCGA should be very cautious in adopting an Alternative Plan that foreseeably will significantly affect resources on this river.

While the issue requires further study, there are many reports and assessments from biologists and environmental groups that the Cosumnes River has been and continues to be dewatered by groundwater pumping in the South American and Cosumnes subbasins. (See Exhibit 3, 2004 article on Managing Surface Water-Groundwater to Restore Fall Flows in the Cosumnes River) The SCGA's proposed Alternative Plan and its continued use of old and possibly incorrect data on recharge and sustainable yield, may impact the flows of the Cosumnes River by further draining it of surface flows. This would affect a host of environmental and human resources, including fish, wildlife, vegetation, recreation, aesthetics, and water quality, among others.

EKI's analysis and graphics show that wells in many parts of SCGA's Alternative Plan area are declining and are below thresholds levels, meaning that these cones of depression will lower groundwater levels and potentially draw more groundwater from the Cosumnes River. SCGA's own 2015 Technical Report appears to confirm that recharge and water will be drawn from the Cosumnes. Thus, the Alternative Plan and the current regime and assumptions it will lock into place will allow these impacts to the Cosumnes to occur and increase, creating significant environmental effects triggering CEQA.

<u>The Alternative Plan may worsen groundwater quality</u>

The Alternative Plan itself acknowledges significant groundwater contamination problems that were not considered in the Water Forum effort that developed the 273,000 af sustainable yield number. The continued expansion and impacts of groundwater pollution and the potential for it to spread, or for remediation efforts to remove more groundwater than assumed in the Alternative Plan, means that adoption of the Alternative Plan may exacerbate potential water quality impacts or remove more groundwater than is sustainable because SCGA will fail to adjust its groundwater management actions and expectations to accommodate the apparent increase in groundwater pumping required by current remediation efforts.

<u>The Alternative Plan will deprive the basin of the protections and sustainable management protocols provided by SGMA and the GSP process</u>

SCGA is clearly trying to avoid preparation of the GSP under SGMA. The District does not understand why. SGMA establishes a robust regulatory framework for management of the

South American Subbasin, which – absent adoption and approval of the Alternative Plan – would include preparation of a GSP by a local agency or agencies acting as GSAs or by the SWRCB. SGMA and the implementing regulations contain detailed directions and requirements for assessing and managing basins to achieve SGMA's overall sustainability goals and prevent undesirable results such as groundwater depletion, subsidence, reduction of interconnected surface waters to the detriment of fish and wildlife, and avoiding groundwater quality impacts. By adopting the Alternative Plan, however, the Authority would be removing the full protections and implementation of SGMA and GSP preparation from the South American subbasin, and depriving it of these additional environmental protections. Removal of the existing SGMA protection afforded by preparation and implementation of a properly prepared GSP for the Basin may reasonably have foreseeable impacts on the environment that should be addressed under CEQA. This fact alone eliminates the applicability of any categorical exemption under CEQA.

In sum, the Alternative Plan is a programmatic document that essentially establishes the management framework and goals for the region by setting forth a programmatic framework and goal for groundwater monitoring and regulation that includes and will require future actions that affect the environment.

Lack of Public Outreach and Involvement

The District strongly believes establishing the long-term groundwater management framework for the southern part of the County and the interface and coordination between the Cosumnes subbasin and the South American subbasin is not something that should be done in haste without full understanding and agreement among the neighboring stakeholders. Unfortunately, the Authority apparently has no qualms with moving at break-neck speed before any other stakeholders can understand its proposed Alternative Plan, and without fully assessing its potential environmental impacts as required by CEQA.
One casualty of SCGA's cavalier approach is the public and important stakeholders such as the District, its constituents, and others. SCGA has provided little true collaboration and involvement and no ability for a reassessment of the sustainable yield value of 273,00 af, even though we know that conditions today are not as they were assumed 15 years ago when that number was "negotiated" and it applies to a different geographic area (see EKI comment re: same). SCGA's rushed attempt to paper over this lack of outreach and true public review by enlisting the Water Forum to hold a bunch of last minute meetings is insufficient and provides no real opportunity for understanding the Alternative Plan or shaping or changing it in any way. If SCGA had performed CEQA review, at least the public would have been able to comment and SCGA would have been required to respond to comments, and if an EIR had been prepared alternatives and mitigation for the impacts identified above could have been explored.

Conclusion

In sum, why rush with something as monumental as implementation of the new Groundwater Act? Under the Act, a groundwater sustainability plan is not due for another 5 years, more than enough time to fully address all issues and stakeholders in an appropriate manner. Given the magnitude of the issue, the ad-hoc and essentially after-the-fact meetings that have recently occurred should be the beginning of a grand collaboration, not the end of a rushed unilateral process conducted in the shadows and without the light of CEQA. The District urges the Authority to abandon the Alternative Plan, and instead work collaboratively with the District and other stakeholders in the South American and Cosumnes subbasins to fully understand and address the complex issues and interaction between the two subbasins and environmental

factors. Unless this more reasonable and methodical path is taken, the District fears it will be forced to strongly oppose the Alternative Plan in whatever forums are available.
Very truly yours,

KRONICK, MOSKOVITZ, TIEDEMANN & GIRARD
A Professional Corporation

HANSPETER WALTER

HW/SR

Sloughhouse Resource Conservation District
8698 Elk Grove Blvd. Suite 1-207, Elk Grove, CA 95624
Phone: (916)612-5163
SloughhouseRCD@gmail.com

Special Board Meeting
Sloughhouse Resource Conservation District

When: Monday, January 9th, 2017
Where: Rancho Murieta Community Services District Office, 15160 Jackson Rd. Rancho Murieta, 95683
Time: 3:00pm – 5:00pm

AGENDA

1. Call to Order of special board meeting of the Board of Directors (Board) of the Sloughhouse Resource Conservation District (RCD or District).*
2. Approval of Agenda and Minutes*
3. Approval/Ratification of the Financial Report*
4. Public comment
5. Regular Reports
   a. Watershed Coordinator Report – Amanda Platt
   b. SRCD Secretary Report – Amanda Platt
   c. NRCS Report- Dwane Coffey
6. Old Business
   a. Sustainable Groundwater Management Act (SGMA) updates – SRCD Subcommittee Report
7. New Business
   a. Discussion regarding possible groundwater studies, including but not limited to, gravel flow soundings and isotopic studies.
8. Closed Session: Conference with Legal Counsel- Anticipated litigation (significant exposure to litigation pursuant to subdivision (d)(4) of Section 54956.9 of Government Code. Number of potential cases: one.
9. Adjourn

Notices:

1. The Board reserves the right to discuss or take action on all of the above agenda items.
2. Any person may make a request for a disability-related modification or accommodation needed for that person to be able to participate in the public meeting by telephoning (916)612-5163, or writing Sloughhouse Resource Conservation District at 8698 Elk Grove Blvd. Suite 1-207, Elk Grove, CA 95624. Requests must specify the nature of the disability and the type of accommodation requested. A telephone number or other contact information should be included. Persons requesting a disability-related accommodation should make the request with adequate time before the meeting for the RCD to provide the requested accommodation.
3. Pursuant to Government Code section 54957.5, non-exempt public records that relate to open session agenda items and are distributed to a majority of the Board less than seventy-two (72) hours prior to the meeting will be available for public inspection at the meeting or via email as requested. To be placed on the District's public email distribution list, please notify RCD Secretary at: SloughhouseRCD@gmail.com

*Action Items
Prepared by: Secretary, Amanda Platt
12/30/2016