Informational Public Meeting

Managing Groundwater in the Indian Wells Valley

Introductions

Dale Schafer, Facilitator

Welcome

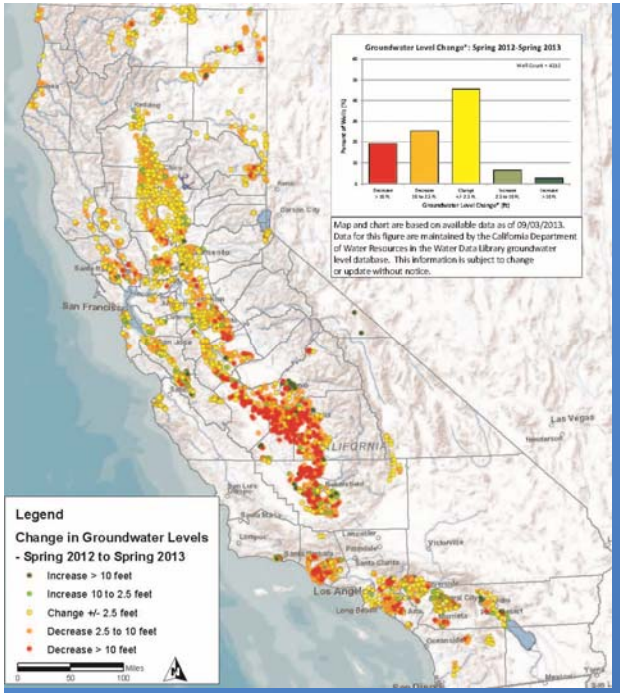
Peggy Breeden, Mayor

Mick Gleason, County Supervisor

Presentation

David Gutierrez

Executive Program Director for Groundwater
CA Department of Water Resources



Indian Wells Valley Groundwater Management Public Informational Meeting

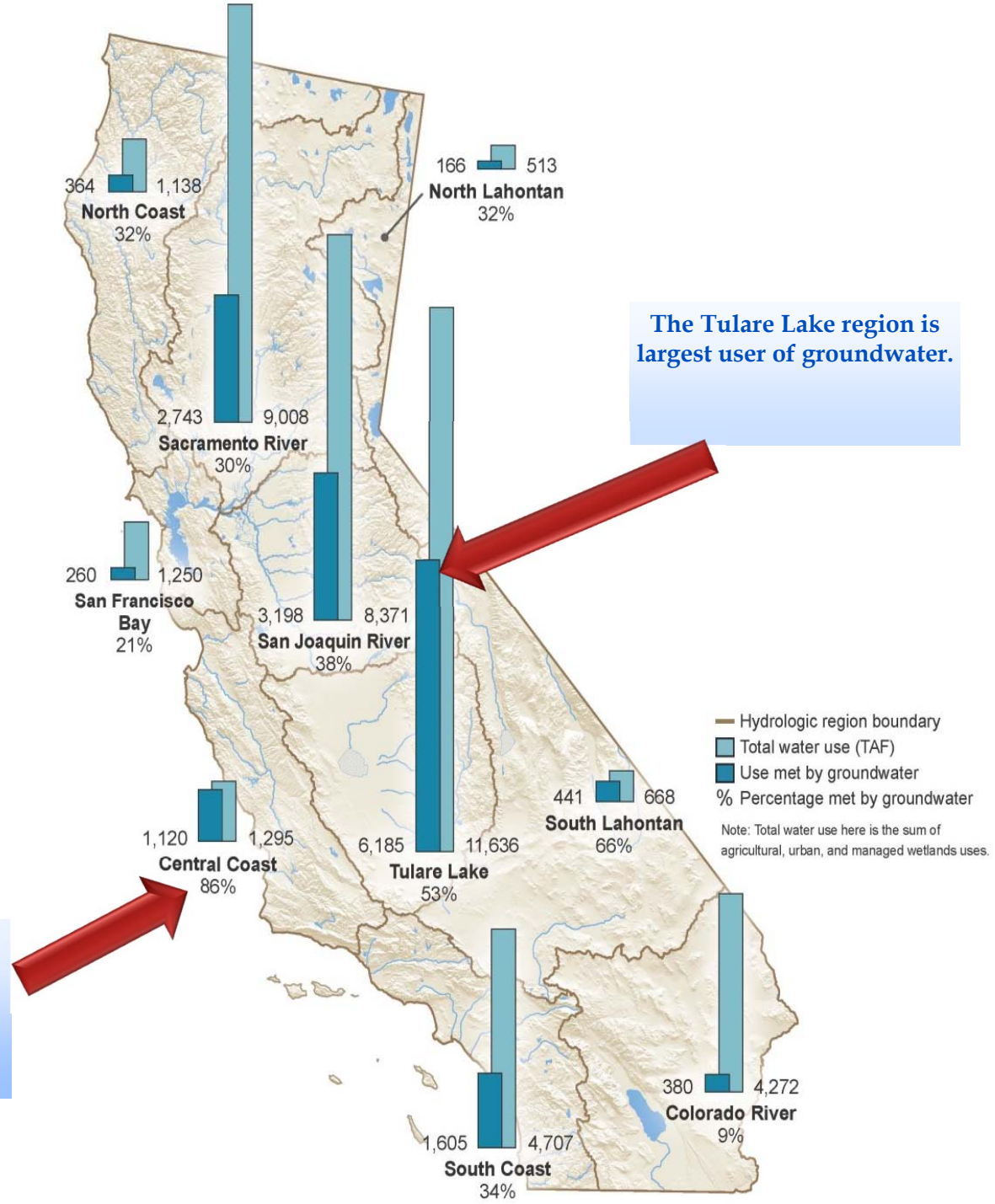
The Sustainable Groundwater Management Act

October 23, 2015

David Gutierrez and Tim Ross
CA Department of Water Resources

Ground-water Supply in California

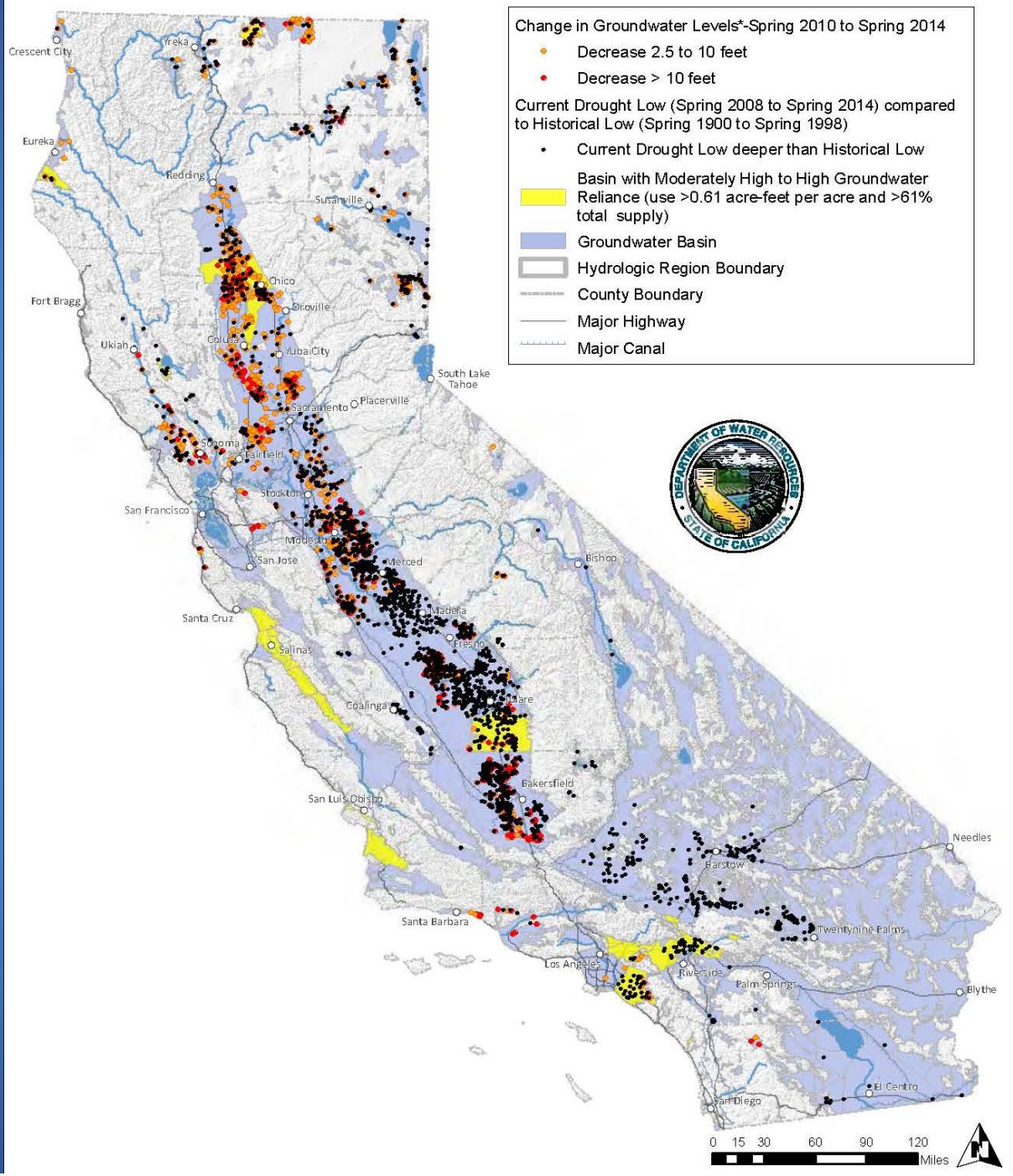
2005-10 Average



The Tulare Lake region is largest user of groundwater.

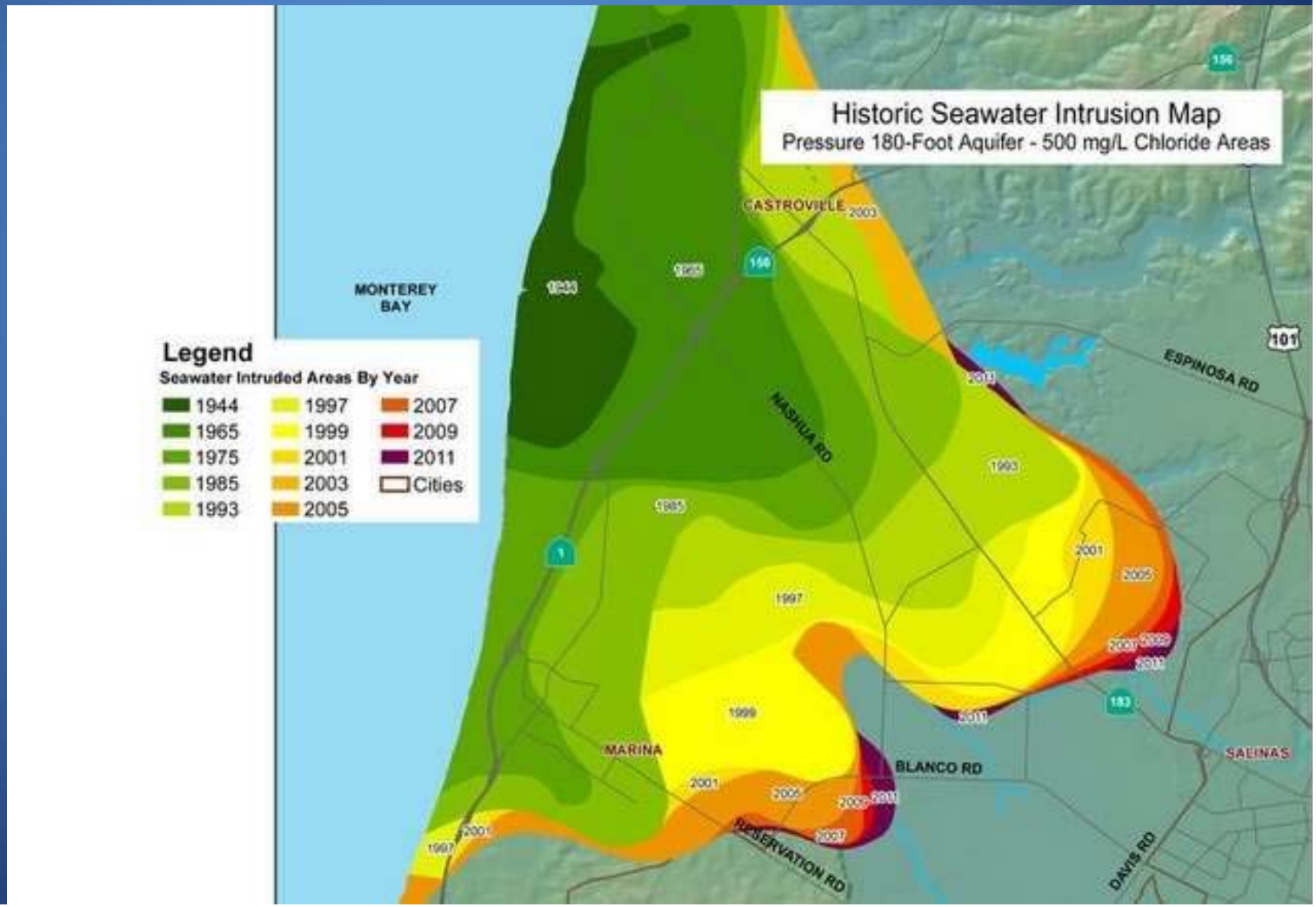
The Central Coast region is the most groundwater dependent.

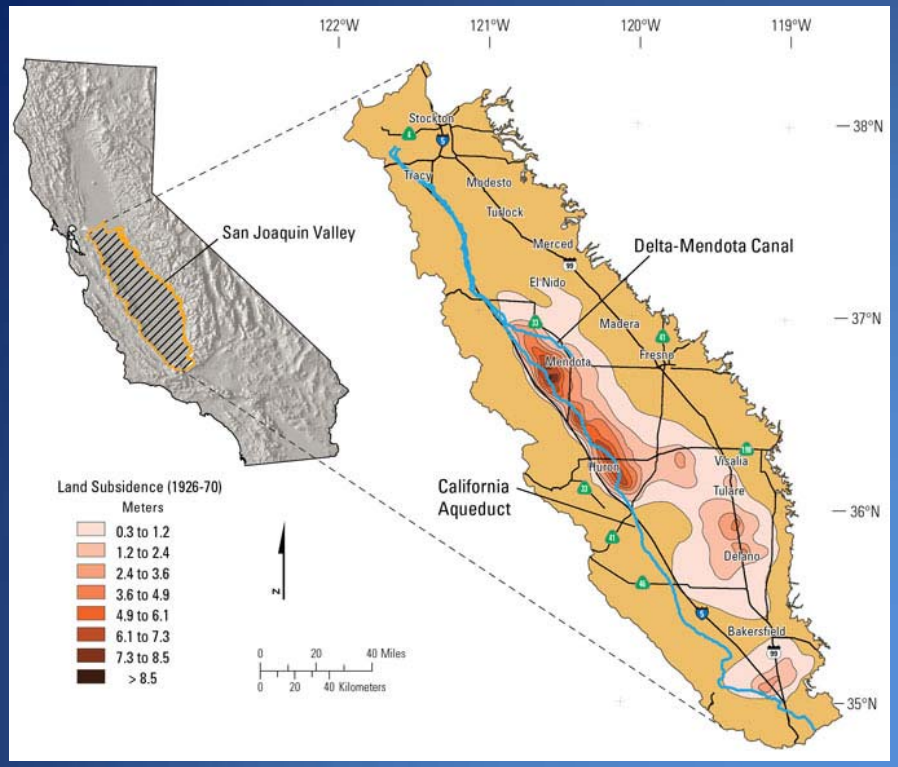
Black Dots = Groundwater Level at Lowest Recorded



Water Quality

- Seawater intrusion in coastal areas



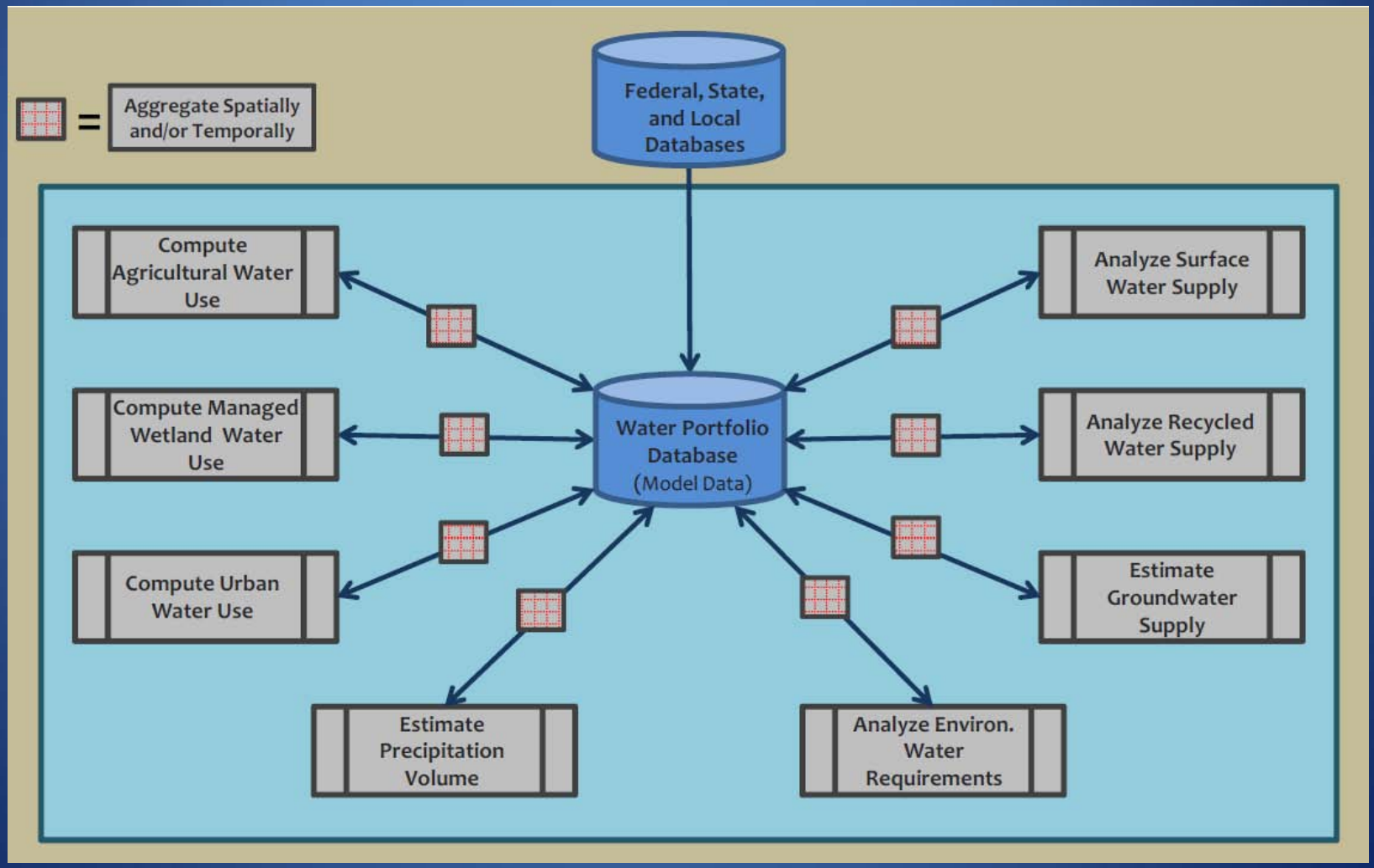


Subsidence

- Permanent loss of water storage
- Damage to infrastructure and water delivery systems

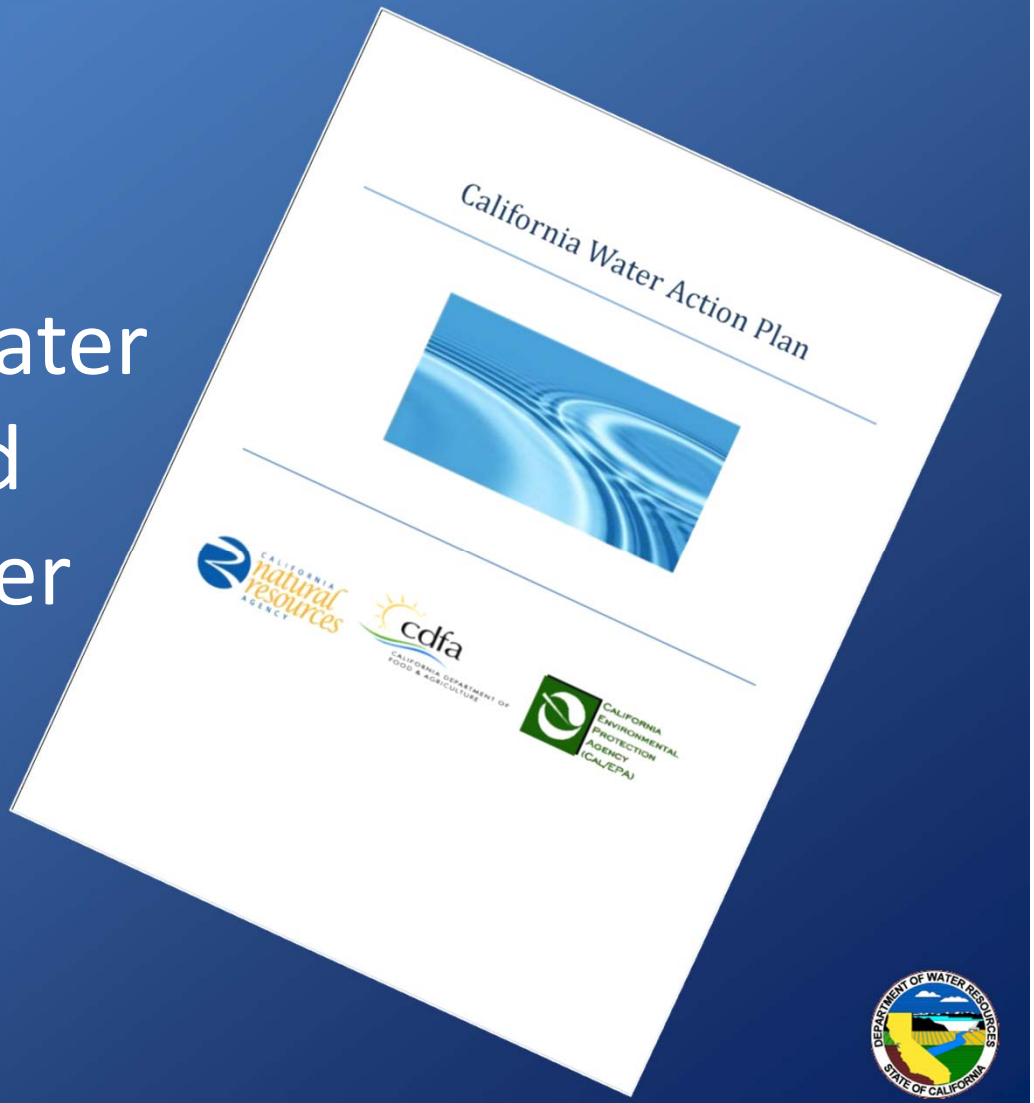
Ecosystem Impacts

Water Balance
is essential for sustainability

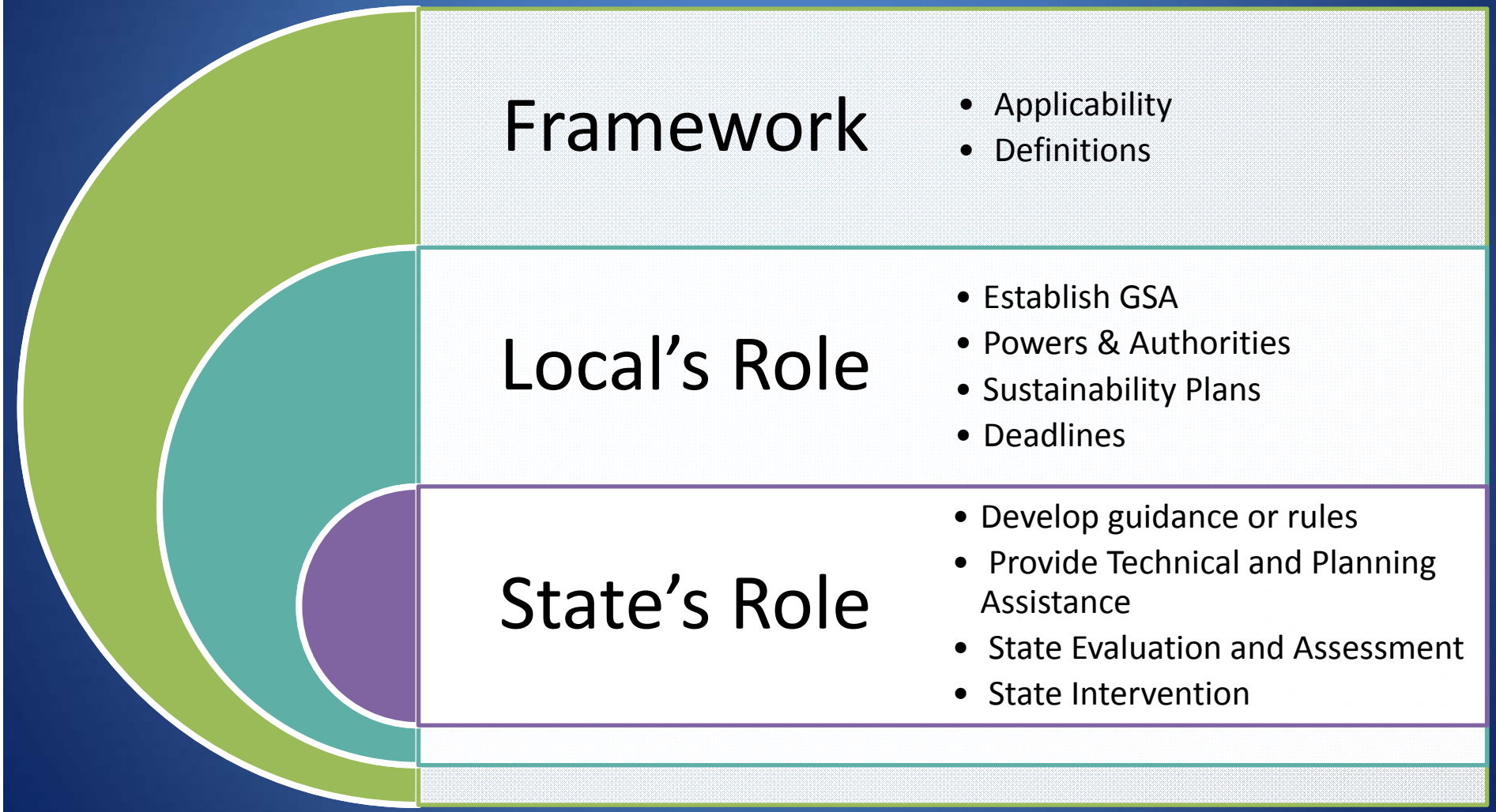


California Water Action Plan

Action 6: Expand water storage capacity and improve groundwater management



Sustainable Groundwater Management Act of 2014



SGMA Milestones for Success

Groundwater Sustainability Agencies

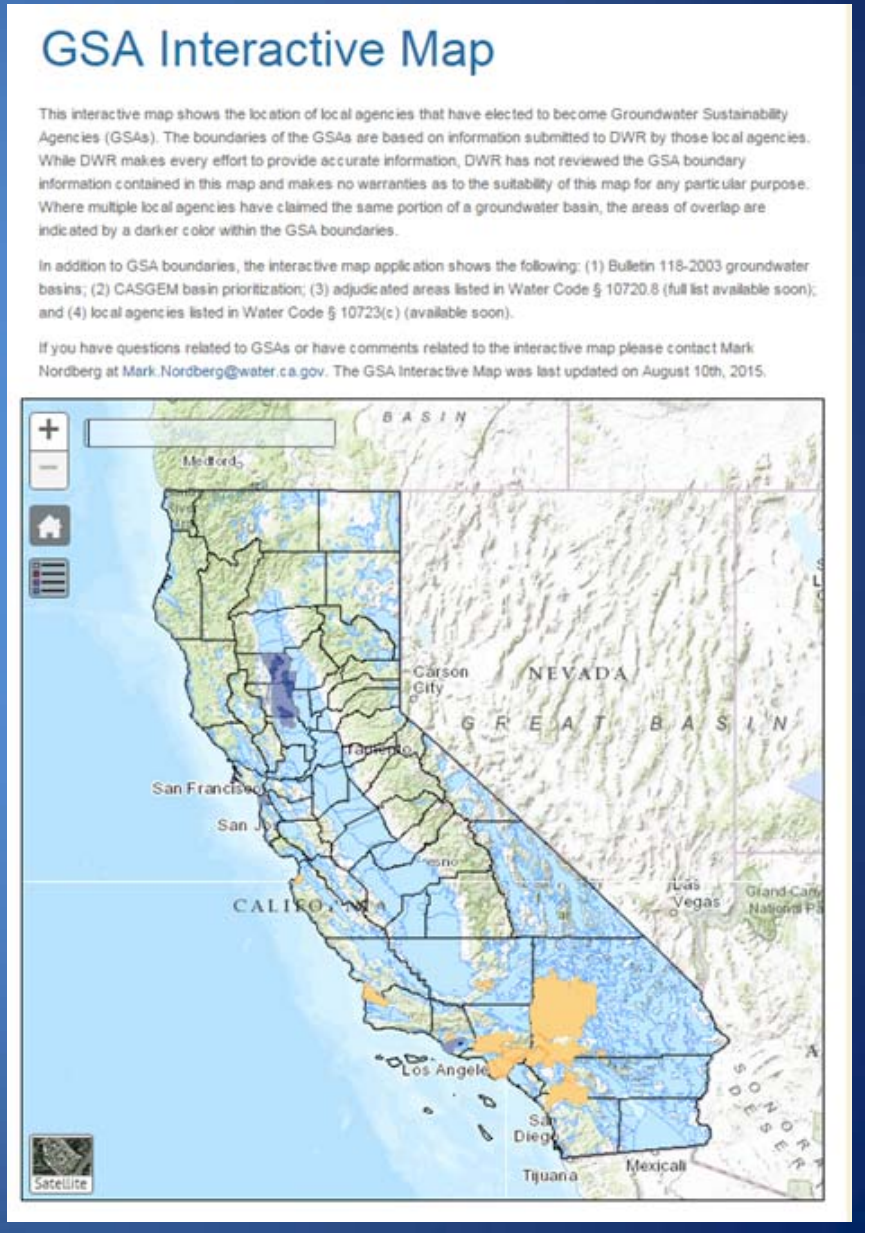
- Formation by June 30, 2017
- Only local agencies can be GSAs

Groundwater Sustainability Plans

- January 31, 2020 for critically overdrafted basins
- January 31, 2022 for all other high and medium priority basins
- Multiple GSPs in a basin must coordinate

Groundwater Sustainability

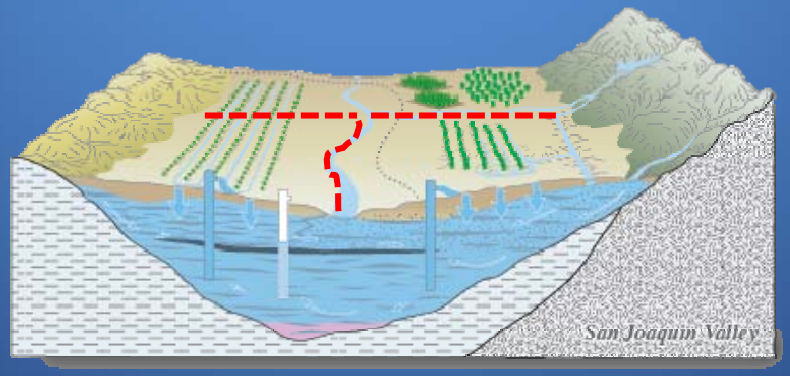
- 20-year implementation period
- 50-year planning horizon



Groundwater Basins and Subbasins

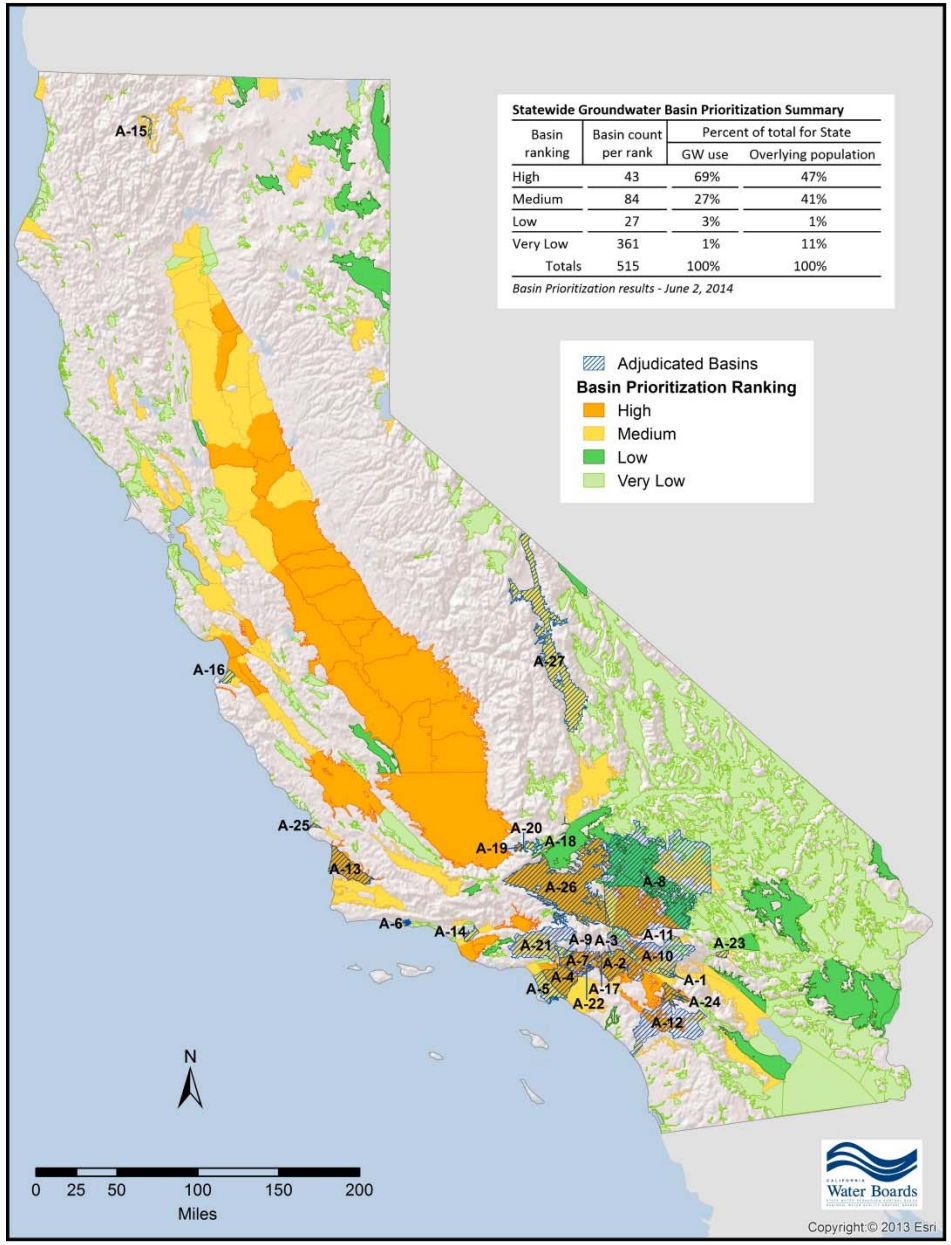
Scientific

Jurisdictional



Basin Prioritization

- Requires GW sustainability plans in high- and medium-priority basins
- Does not require adjudicated basins



Groundwater Sustainability

Undesirable Results:
Significant and unreasonable…

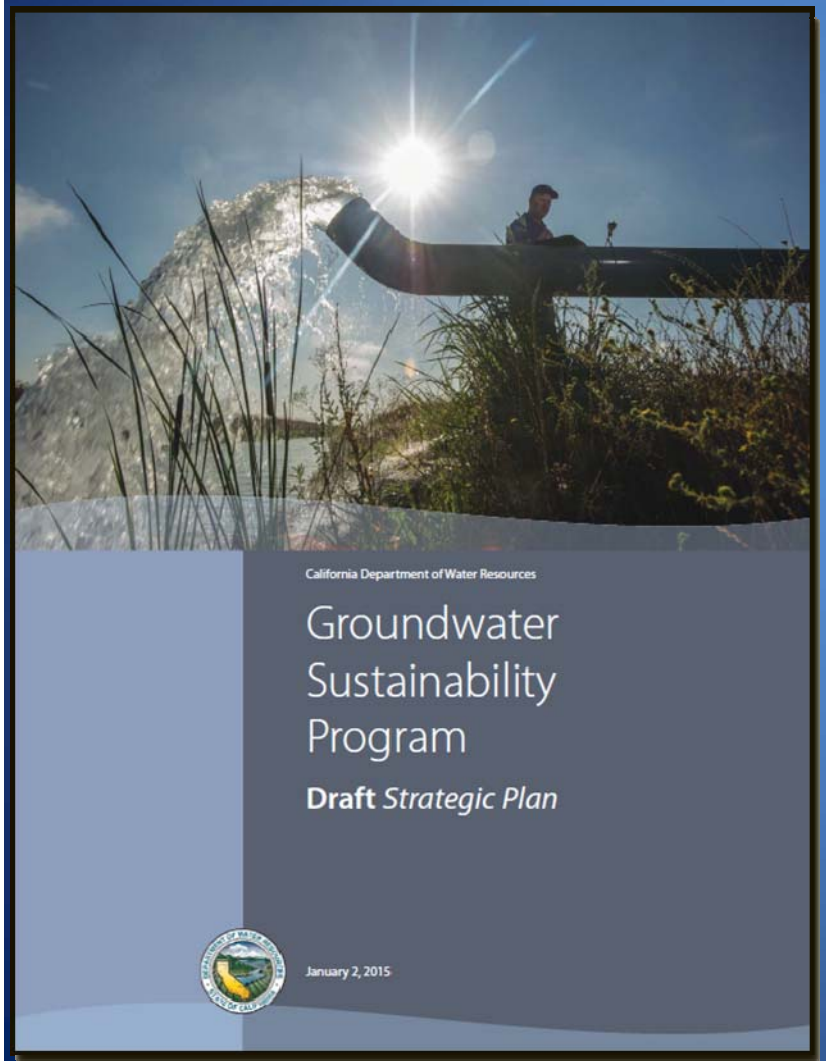
Lowering of Groundwater Levels	Reduction of Groundwater Storage	Seawater Intrusion
Water Quality Degradation	Land Subsidence	Depletions of Surface Water

Key Principles

- Groundwater is best managed at the local or regional level, and local agencies should have the tools they need to sustainably manage their resources
- When local or regional agencies cannot or will no manage their groundwater sustainably, the State will intervene until the local agencies develop and implement sustainable groundwater management plans

DWR's Sustainable Groundwater Management Program

DWR's Implementation of SGMA

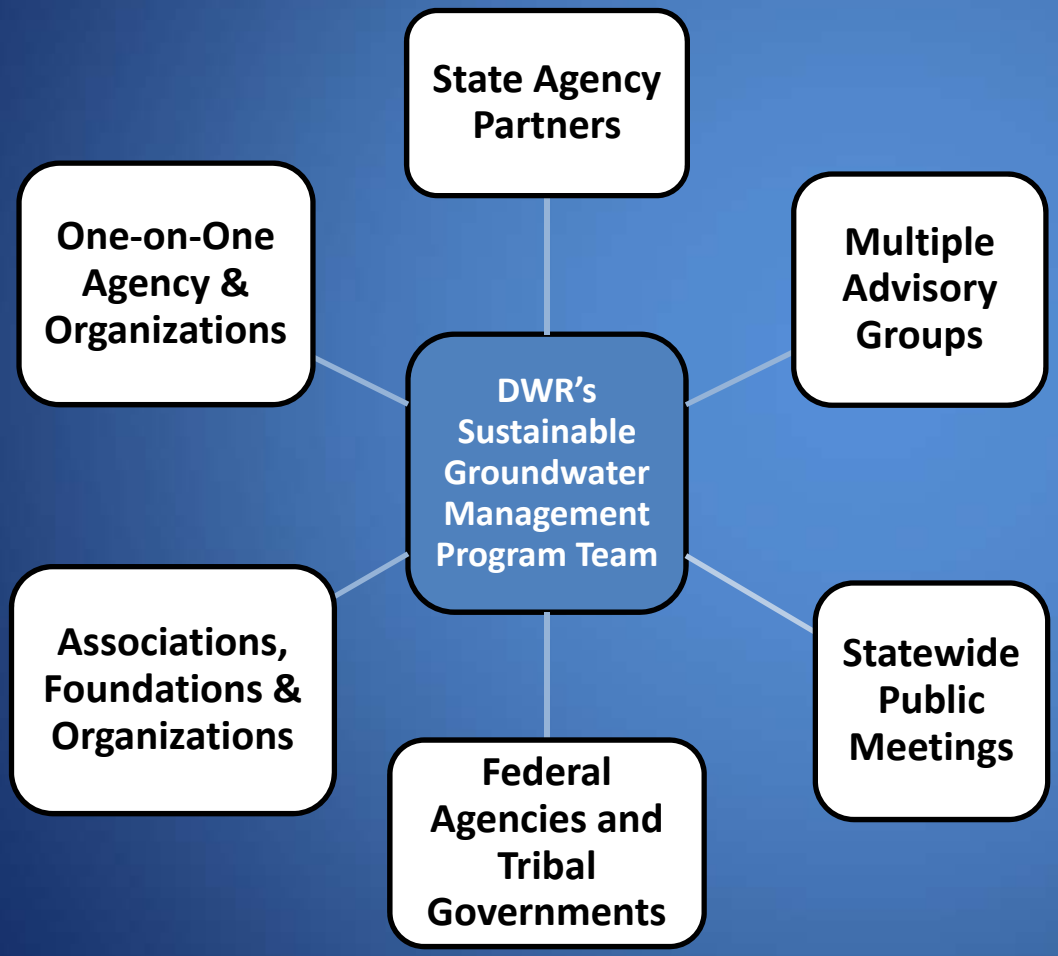


SUSTAINABLE GROUNDWATER MANAGEMENT (SGM) PROGRAM

- Describes DWR's roles and responsibilities
- Outlines actions from the California Water Action Plan
- Presents DWR's groundwater sustainability goals, objectives, and actions

http://water.ca.gov/groundwater/sgm/index.cfm

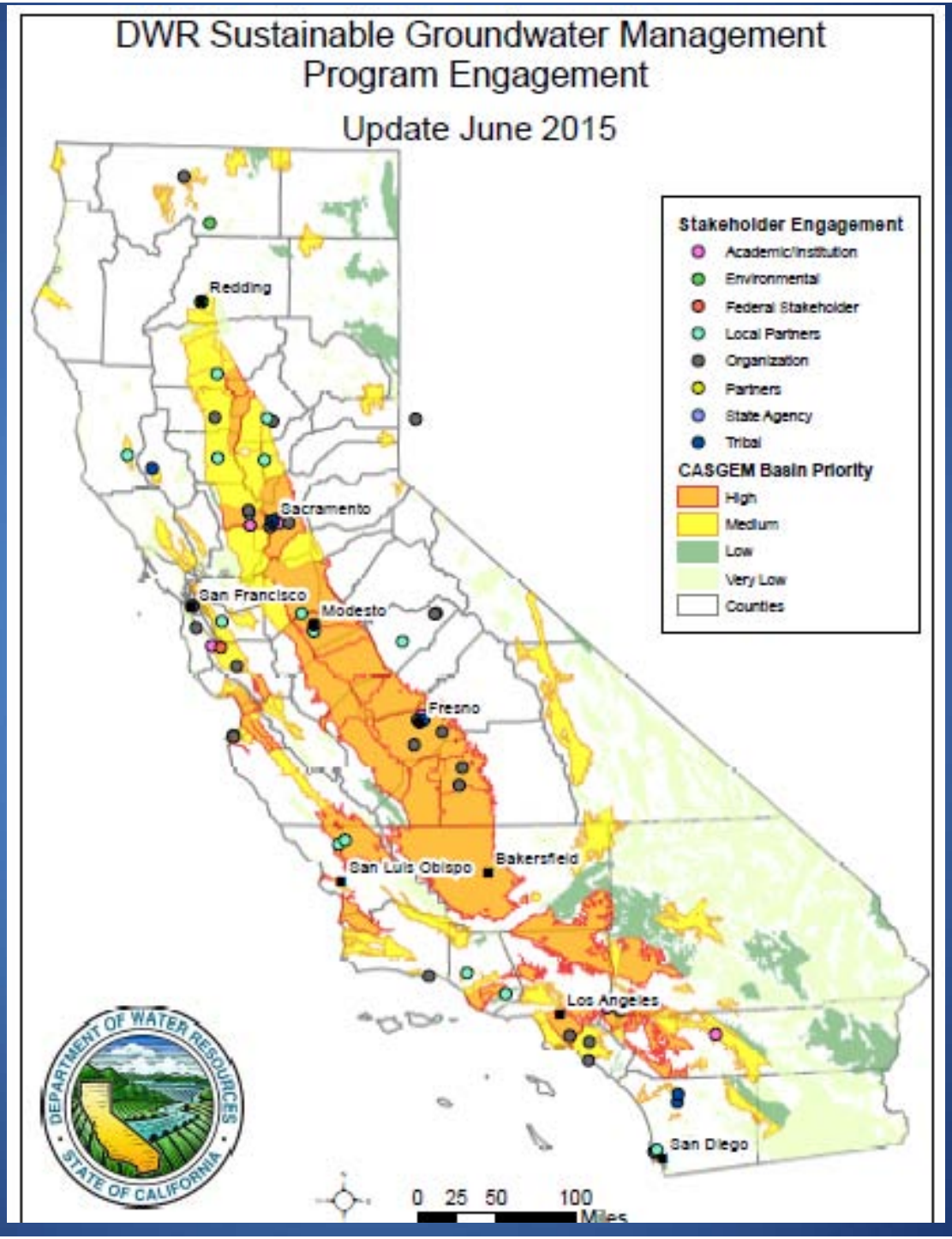
SGM Communication and Outreach



ADVISORY GROUPS

- Practitioners Advisory Panel
- Tribal Advisory Group
- Non-Governmental Organizations
- Association of California Water Agencies
- Northern California Water Association
- San Joaquin Tributaries Authority
- San Luis & Delta Mendota Water Authority
- Central Coast Area
- RCRC & CSAC
- Agricultural Community
- Tulare Lake Hydrologic Group

More than
100 events



SGMA 101

Communication & Outreach Tools

Interagency Website
DWR Website
SWRCB Website

SGM Immediate Actions

Develop Emergency Regulations - Basin Boundary Revisions

Draft Regulations Posted (July 17, 2015)

Public Comments Closed (Sept 4, 2015)

Final Regulations Due - January 2016

Identify Basins Subject to Critical Conditions of Overdraft

Draft list posted (Aug 19, 2015)

Public Comments Closed (Sept 25, 2015)

Develop Emergency Regulations - (GSPs)

Working with advisory groups /public meetings

Draft Regulations Tentative (Dec '15/Jan '16)

Final Regulations Due - June 2016

Update Basin Prioritization

Used existing - January 2015

Re-prioritization following basin boundary revisions in 2017

Groundwater Sustainability Agency Formation

26 as of September 28, 2015

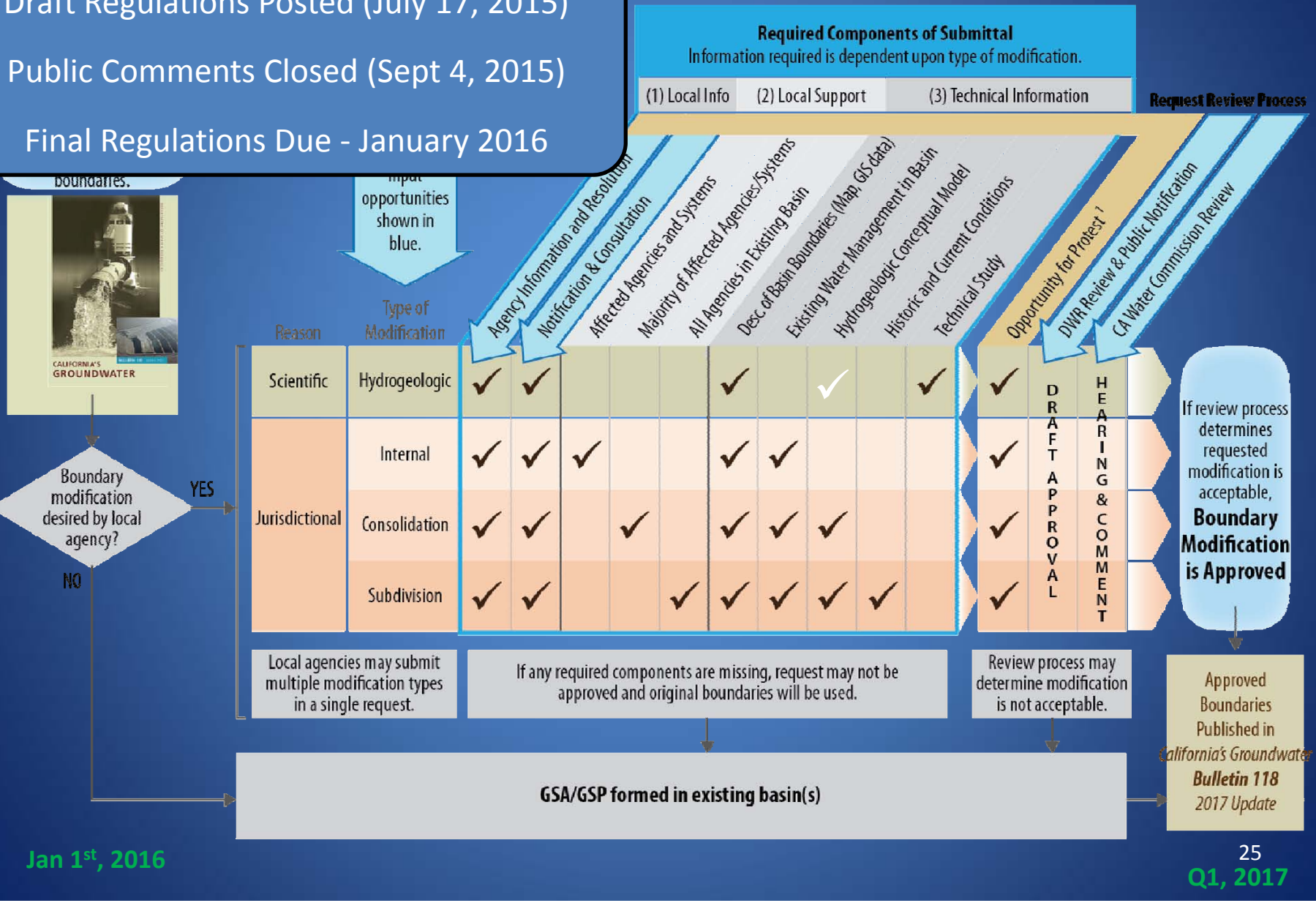
Senate Bill 13 – Requires Complete Notifications and No Overlapping GSAs

Develop Emergency Regulations - Basin Boundary Revisions

Draft Regulations Posted (July 17, 2015)

Public Comments Closed (Sept 4, 2015)

Final Regulations Due - January 2016



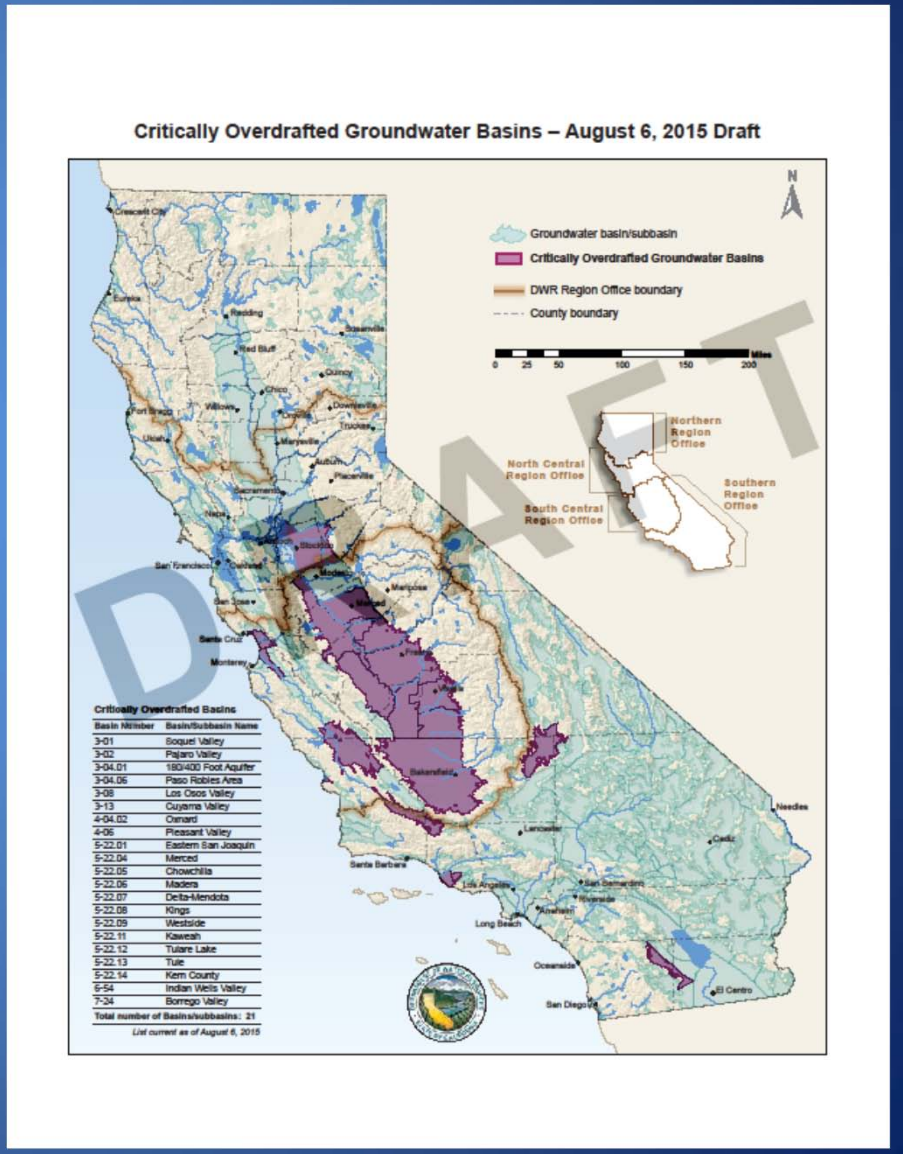
Critically Overdrafted Basins

- GSPs required by 2020

Identify Basins Subject to Critical Conditions of Overdraft

Draft list posted (Aug 19, 2015)

Public Comments Closed (Sept 25, 2015)



SGMA Basin Prioritization

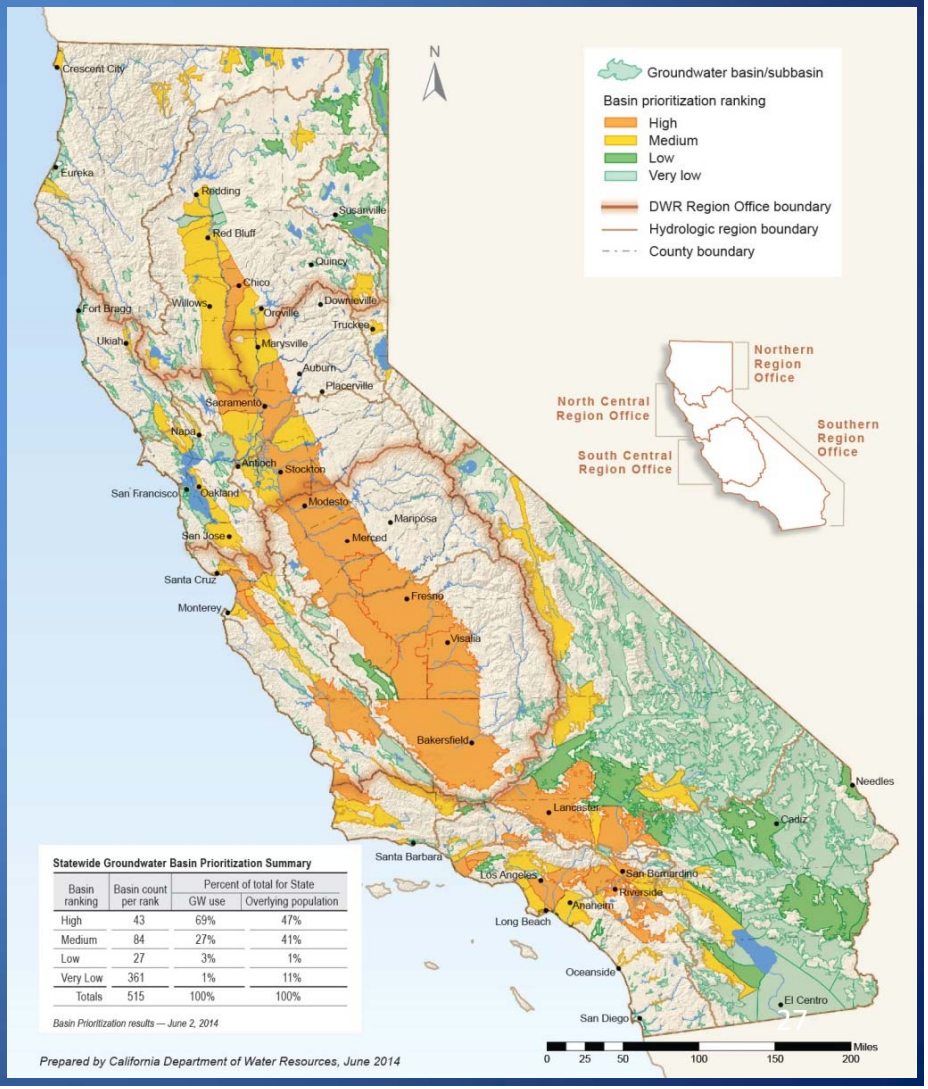
Update Basin Prioritization

Used existing - January 2015

Re-prioritization following basin boundary revisions in 2017

BASIN RANKING	BASIN COUNT	PERCENT OF TOTAL	
		GW USE	POPULATION
High	43	69%	47%
Medium	84	27%	41%
Low	27	3%	1%
Very Low	361	1%	11%
Totals	515	100%	100%

Basin Prioritization Results – June 2, 2014



Groundwater Sustainability Plans (GSPs) and Alternatives

Develop Emergency Regulations - (GSPs)

Working with advisory groups /public meetings

Draft Regulations Tentative (Dec '15/Jan '16)

Final Regulations Due - June 2016

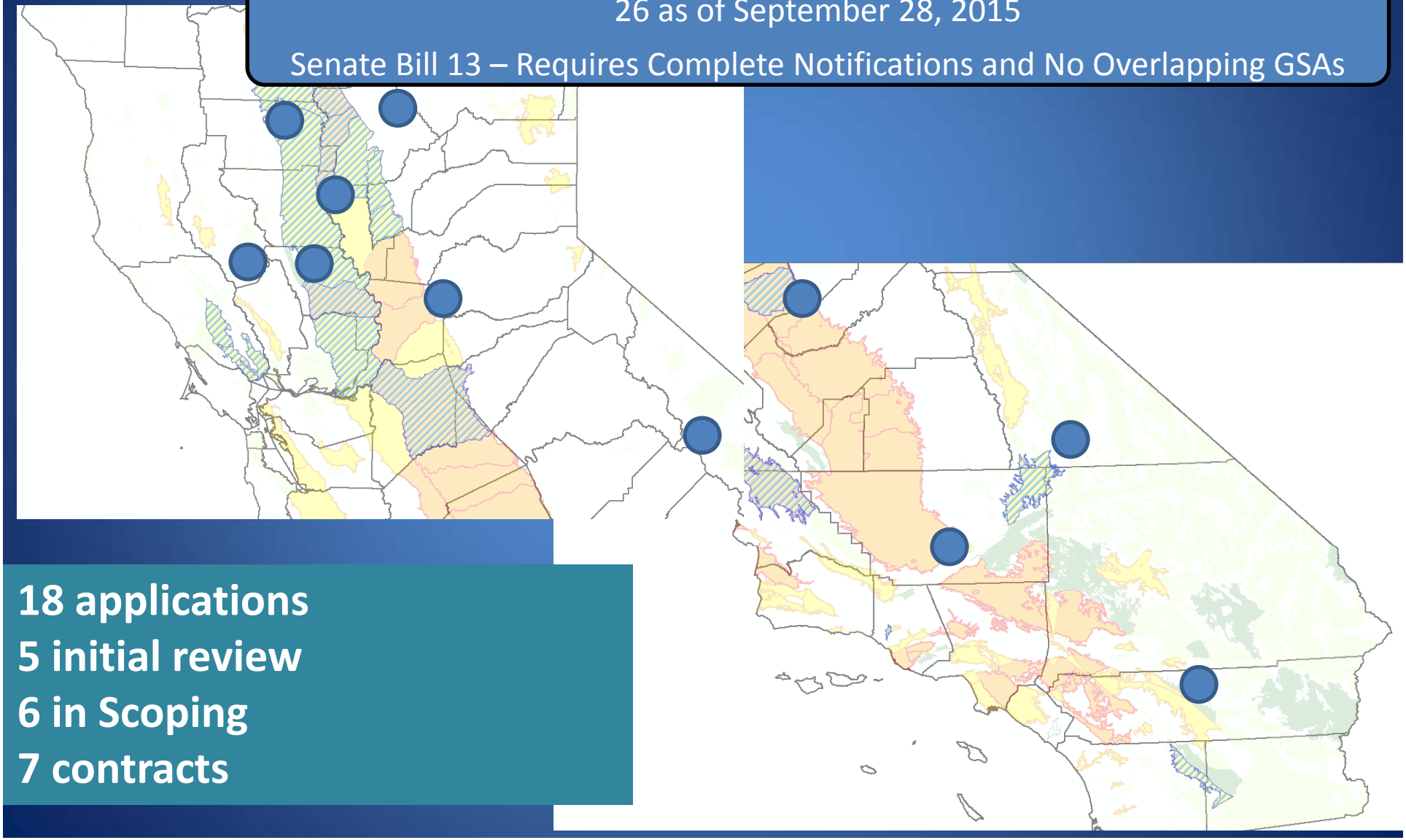
Assistance to Locals

Facilitation Support Service

Groundwater Sustainability Agency Formation

26 as of September 28, 2015

Senate Bill 13 – Requires Complete Notifications and No Overlapping GSAs



18 applications
5 initial review
6 in Scoping
7 contracts

The “Backstop” State Board Intervention

After	Intervention Trigger
June 30, 2017	Areas without a GSA begin reporting well locations and extraction data to SWRCB; can begin probationary basin designation 180 days later.
Jan. 31, 2020	Can begin probationary basin designation in critically overdrafted basins with no GSP or where DWR finds the GSP is inadequate
Jan. 31, 2022	Can begin probationary basin designation in other high/medium priority basins without a GSP or where DWR finds the GSP is inadequate
Jan. 31, 2025	Probationary basin designations where DWR finds GSP is inadequate and significant depletions of interconnected surface waters

In all triggering events, intervention is the result of failure by locals to create a GSA or adopt and implement a GSP

State Board Can Act as a Basin Manager

State Intervention Approach

- The State is required to recover costs incurred in administering the state backstop (§ 1529.5)
- The state can require technical or monitoring reports from groundwater pumpers (§10736.6); can require metering (§5203)
- The State can adopt an interim plan identifying actions that must be taken to correct conditions of long-term overdraft or significant depletions of surface water (§10735.8)

State Intervention is Not The Final Step

- State intervention is temporary, and basin water users would still be required to develop their own plan for their basin.
- State intervention would focus on “demand management” with limited options for solving overdraft problems.
- After reimbursing the state, basin water users would still be required to fund their own solution for managing the basin.
- A basin adjudication after January 1, 2015 would still be required to comply with all the requirements of SGMA.

Update Critically Overdrafted Basins

Per 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."

-Results are published in Bulletin 118

Bulletin 118-80 Critical Conditions of Overdraft

"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."

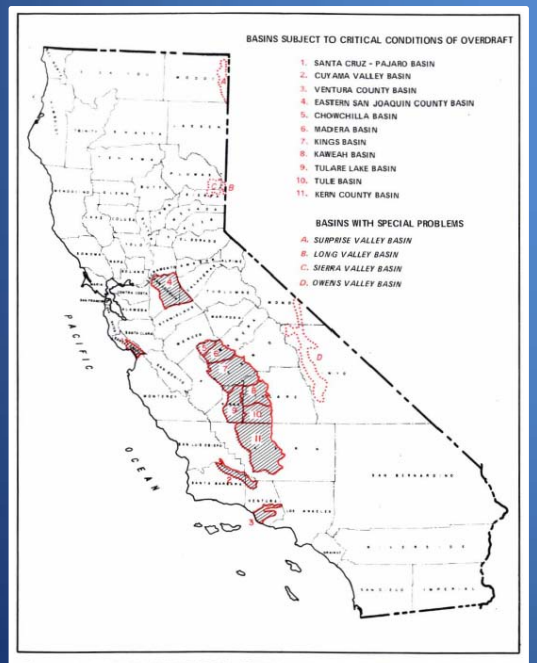


Figure 2. BASINS SUBJECT TO CRITICAL CONDITIONS OF OVERDRAFT OR WITH SPECIAL PROBLEMS

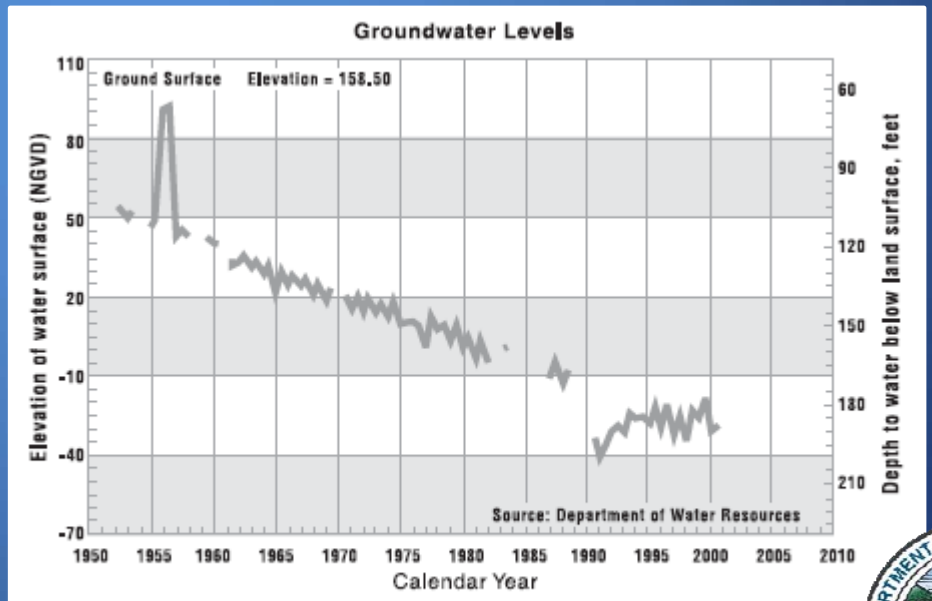


Figure 18 Hydrograph Indicating Overdraft

Obvious Adverse Impacts

- Chronic Lowering of Groundwater Levels
- Reduction of Groundwater Storage
- Seawater Intrusion
- Water Quality Degradation
- Land Subsidence
- Depletion of Surface Water

Groundwater Budget

$$\mathbf{Water}_{in} - \mathbf{Water}_{out} = \Delta_{storage}$$

Recharge

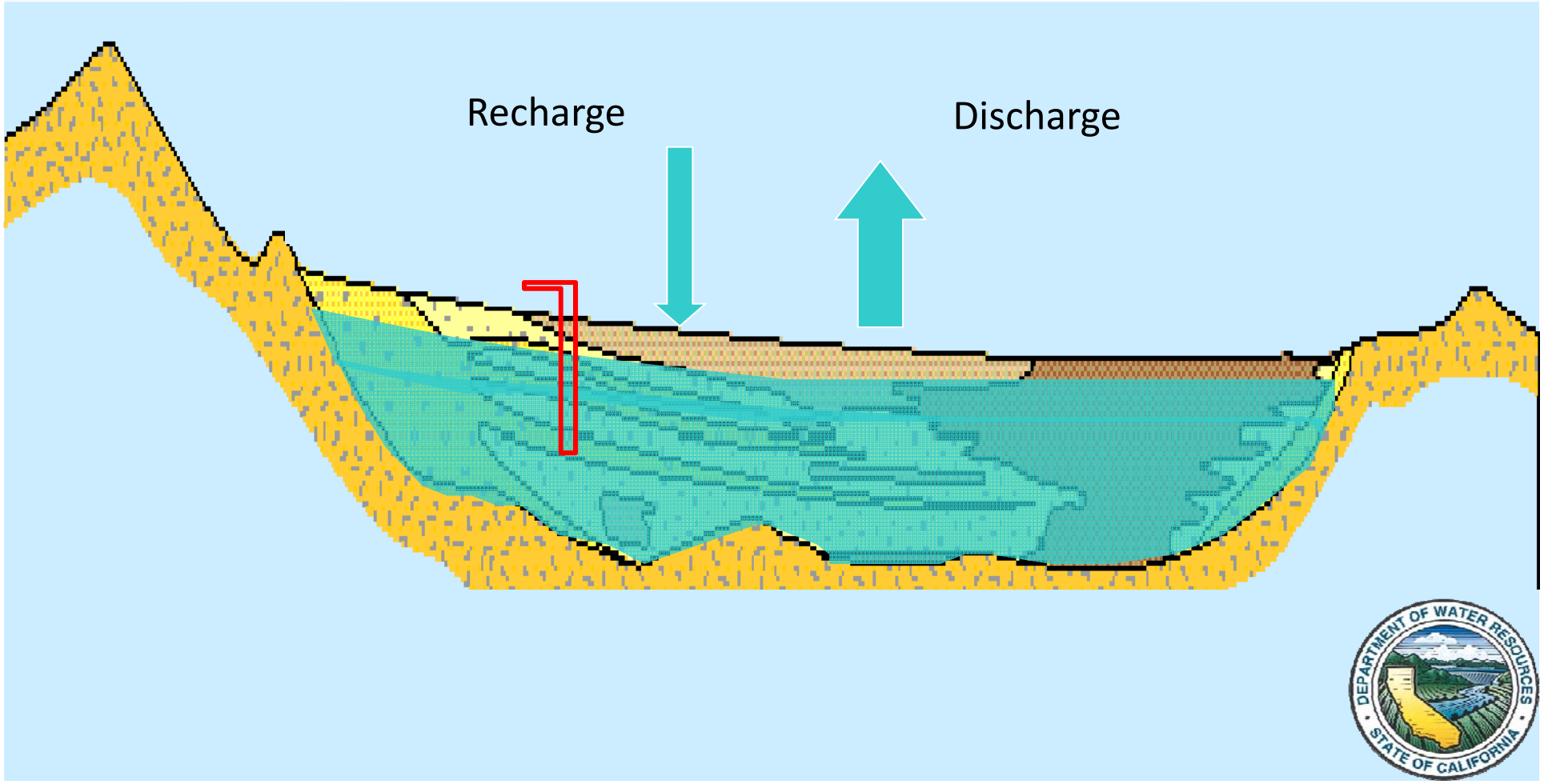
Precipitation
Surface Water In
Subsurface Water In
Recharge
Return Flow

Discharge

Surface Water Out
Subsurface Water Out
Pumping
Evapotranspiration

Groundwater System

Desert Groundwater Basin

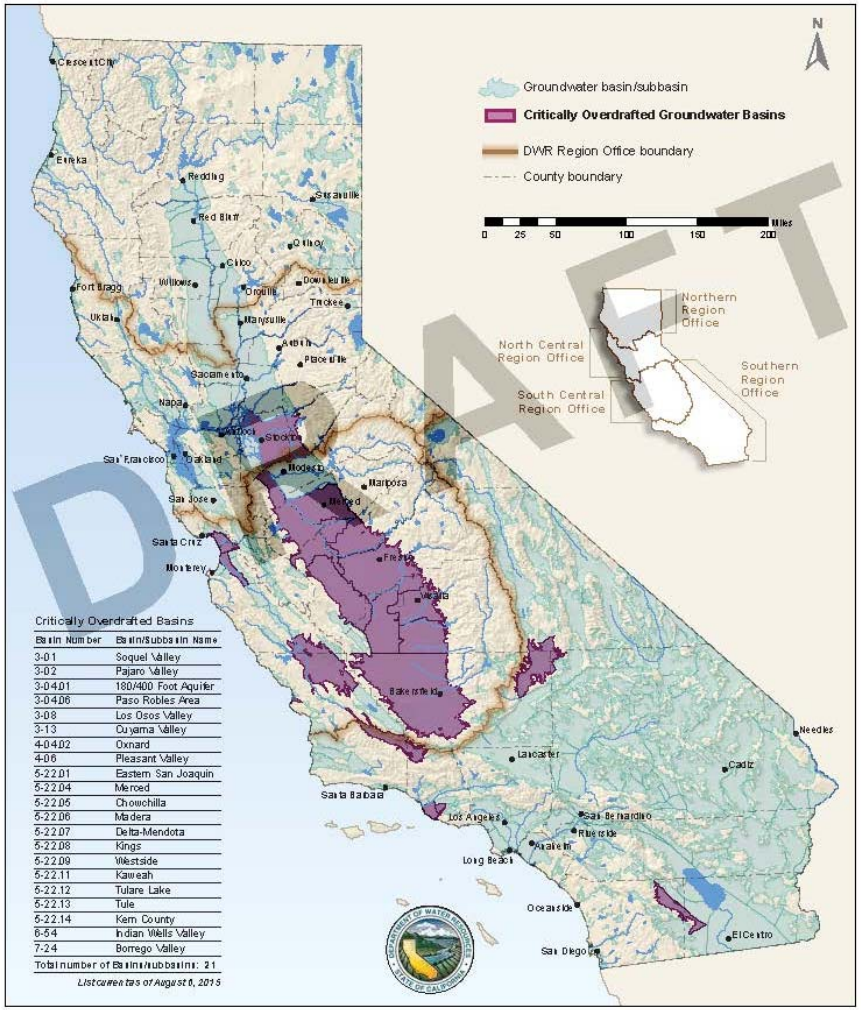


Evaluation of Groundwater Basins

- Include all Bulletin 118-80 and Update 2003 critically overdrafted basins onto the 2015 preliminary list.
- Determined Base Period to be 1989-2009
- Conducted review of DWR reports, investigations, published reports, USGS reports, and local agency reports such as GWMPs and EIRs to identify basins with obvious evidence of adverse impacts.
- Invited local agencies to provide data and information to DWR to reevaluate and assist identification of additional basins or removal of basins.

Draft Results

Critically Overdrafted Groundwater Basins – August 6, 2015 Draft



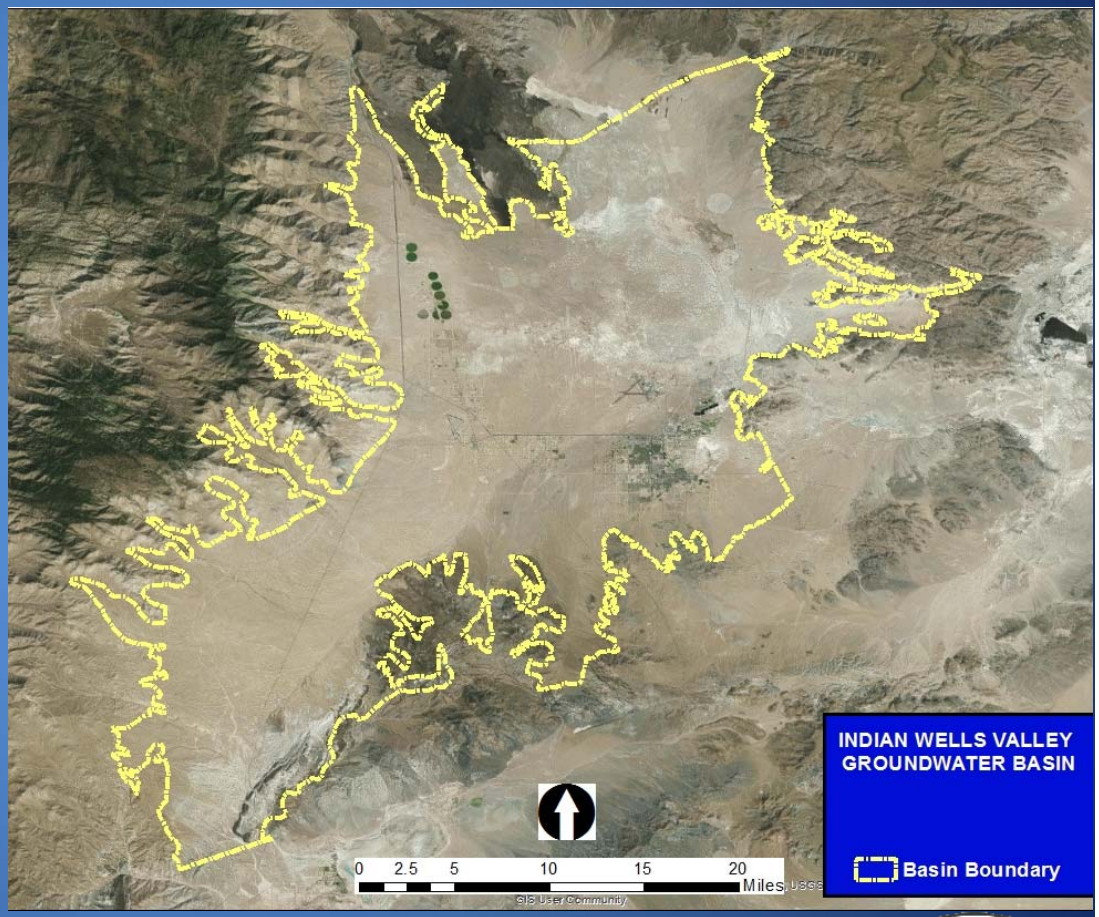
Critically Overdrafted Basins

Basin Number	Basin/Subbasin Name
3-01	Soquel Valley
3-02	Pajaro Valley
3-04.01	180/400 Foot Aquifer
3-04.06	Paso Robles Area
3-08	Los Osos Valley
3-13	Cuyama Valley
4-04.02	Oxnard
4-06	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
Total number of Basins/subbasins: 21	

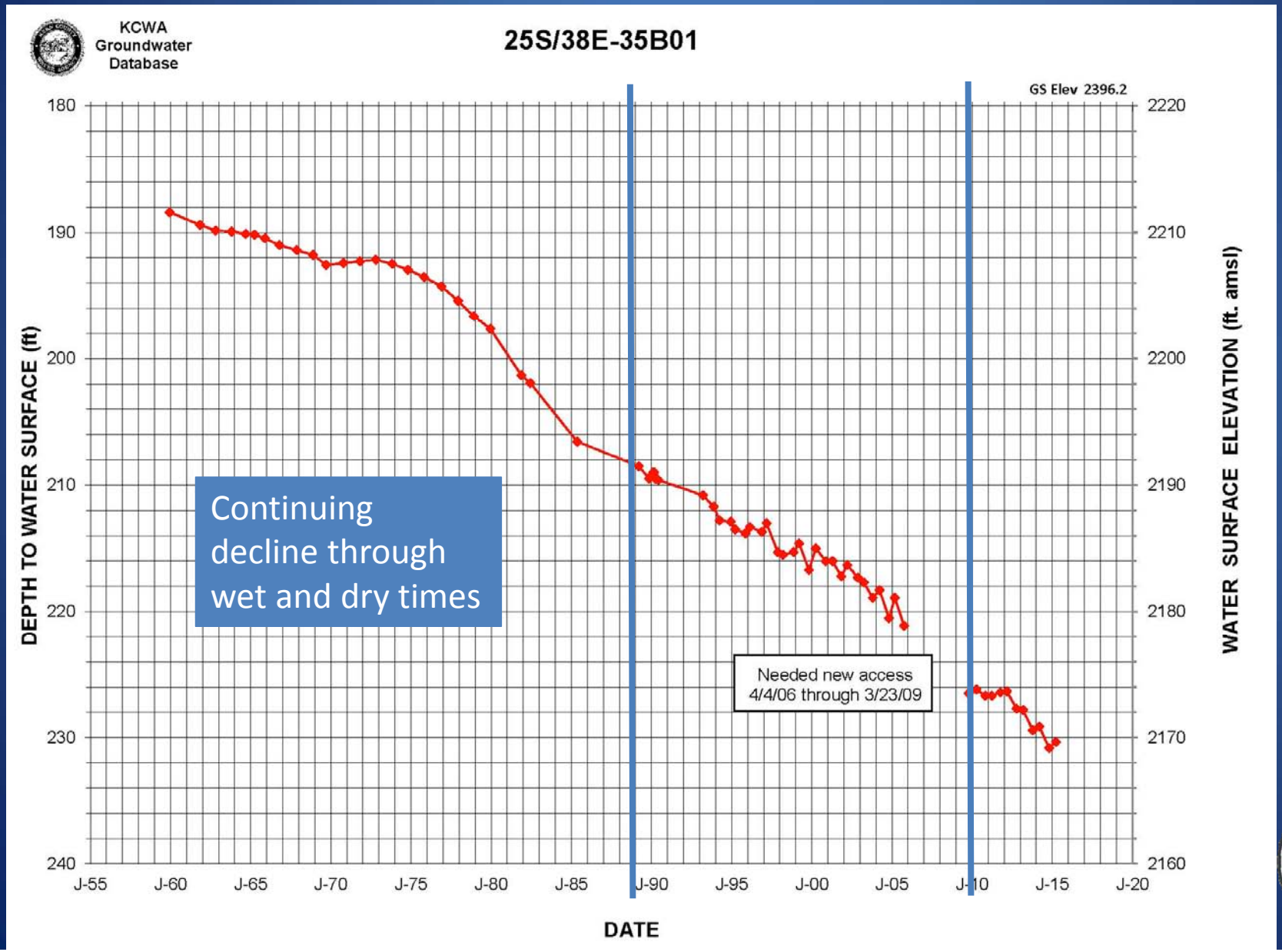
List current as of August 6, 2015

Indian Wells Valley

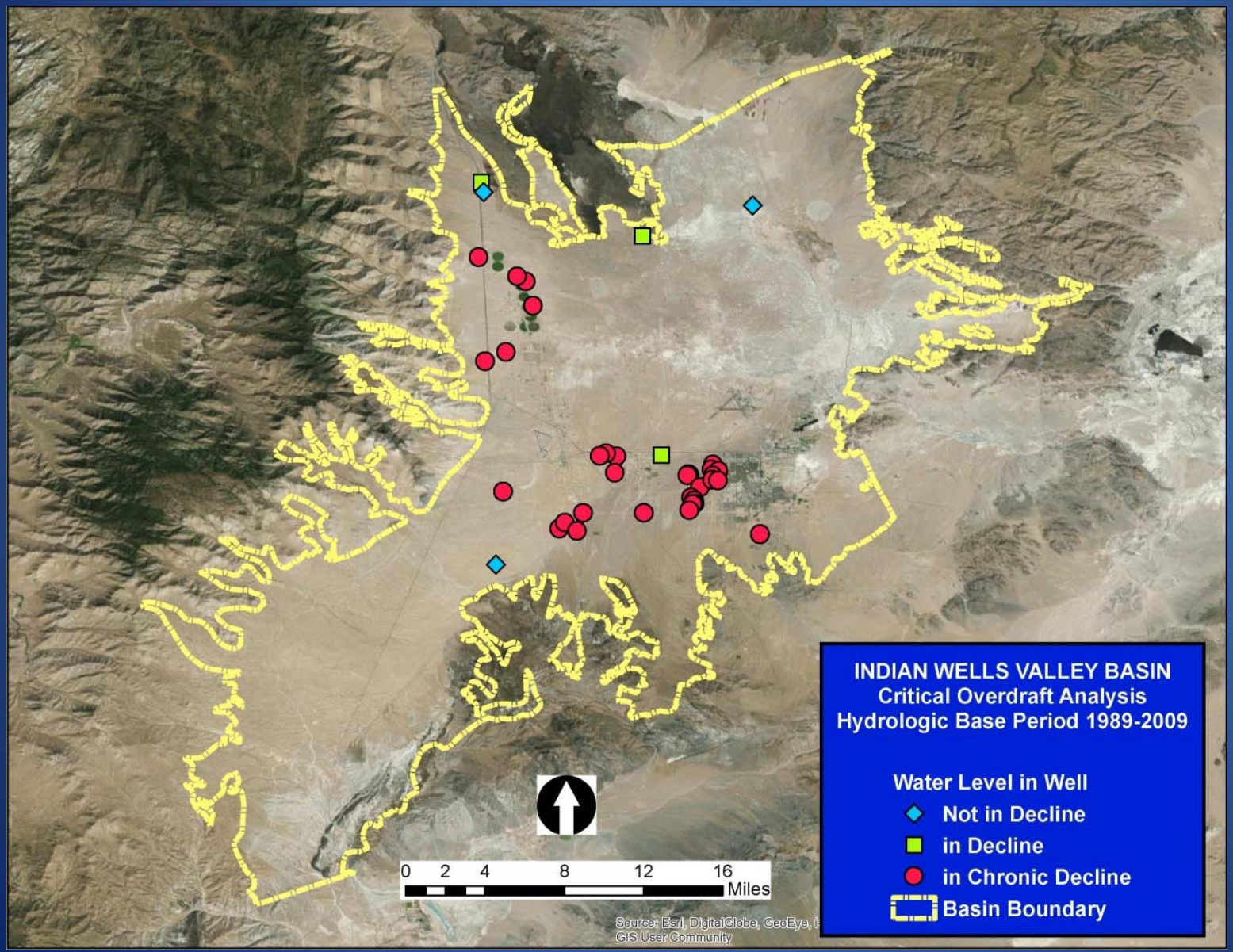
- **Groundwater Level Hydrographs**
  - More than 30 hydrographs
  - Evaluate for Chronic Decline
- **Technical Reports**
  - Reviewed >20 technical reports
  - Evaluate for chronic reduction of storage
  - Evaluate for Water Quality Degradation

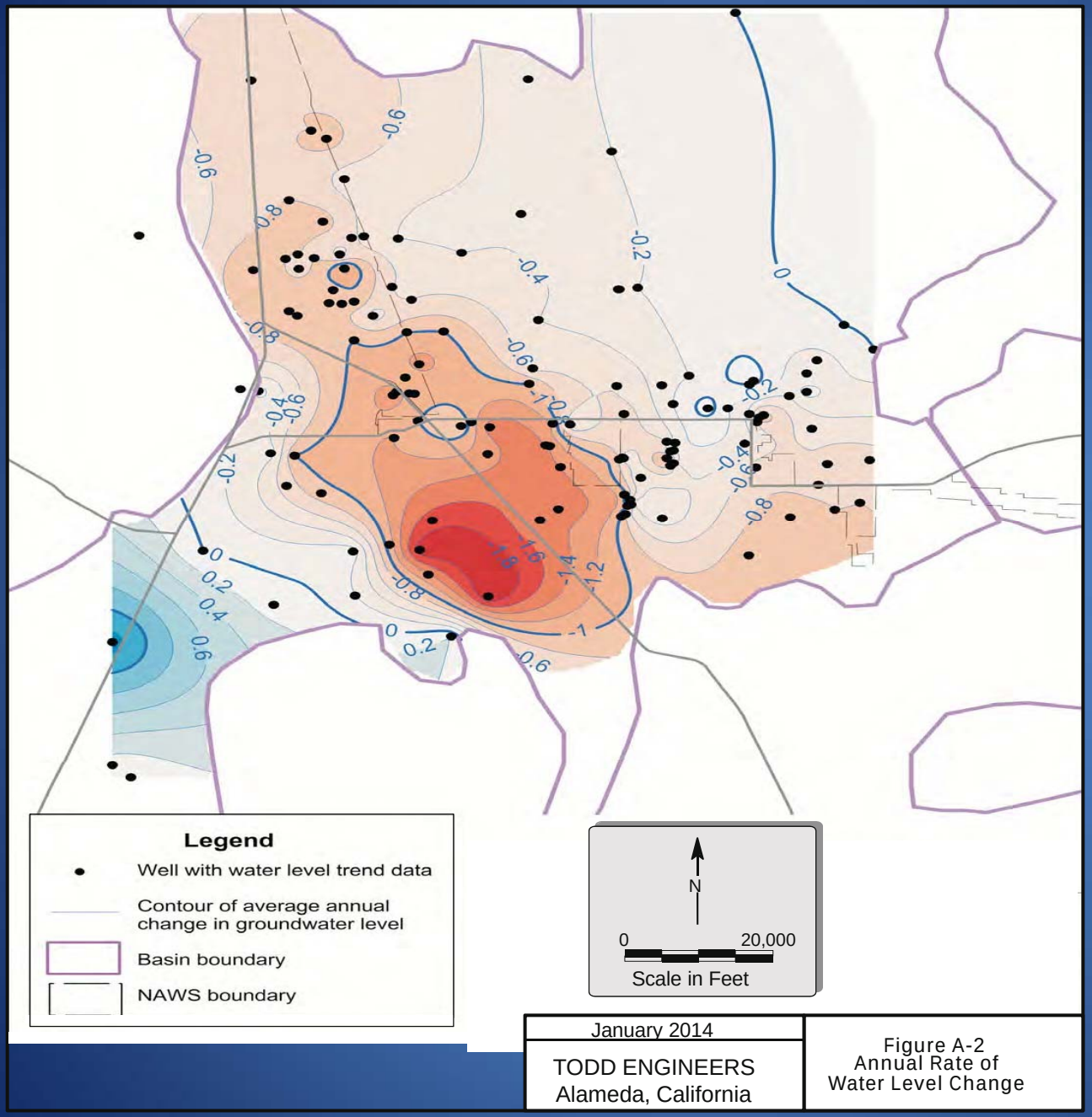


Well Showing Chronic Decline in Water Levels



Wells in Chronic Decline





January 2014

TODD ENGINEERS
Alameda, California

Figure A-2
Annual Rate of
Water Level Change

References reviewed:

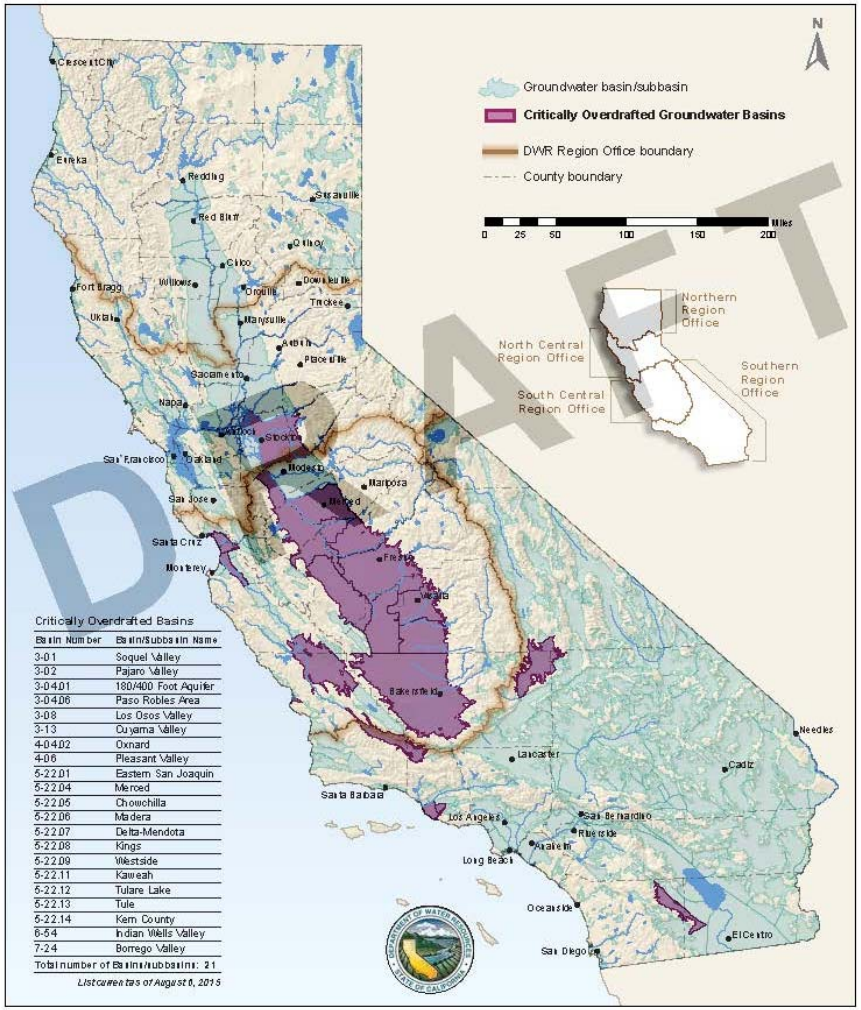
Overdraft, Water Level Declines

- 2015 – Kern County Draft EIR
- 2014 – Todd Engineers
- 2009 – Brown and Caldwell
- 2008 –Geochemical Technologies Corporation
- 2003 – Houghton HydroGeo-logic
- 2001 – Tetra Tech
- 1995 – Houghton (MS Thesis)
- 1994 – Berenbrock and Schroeder
- 1993 – US Bureau of Reclamation
- 1991 – Berenbrock and Martin
- 1989 – Bean
- 1989 – Lofgren
- 1987 – Berenbrock
- 1986 – St. Amand
- 1979 – Mallory
- 1974 – Banta
- 1973 – Banta
- 1969 – Kunkel and Chase
- 1963 – DWR Bulletin 91-9

Not Overdraft

- 1999 – Thyne, Gillespie, and Ostdick
- 11989 – Erskine
- 1989 – Whelan, Baskin, and Katzenstein
- 1988 – Austin

Indian Wells Valley Groundwater Basin

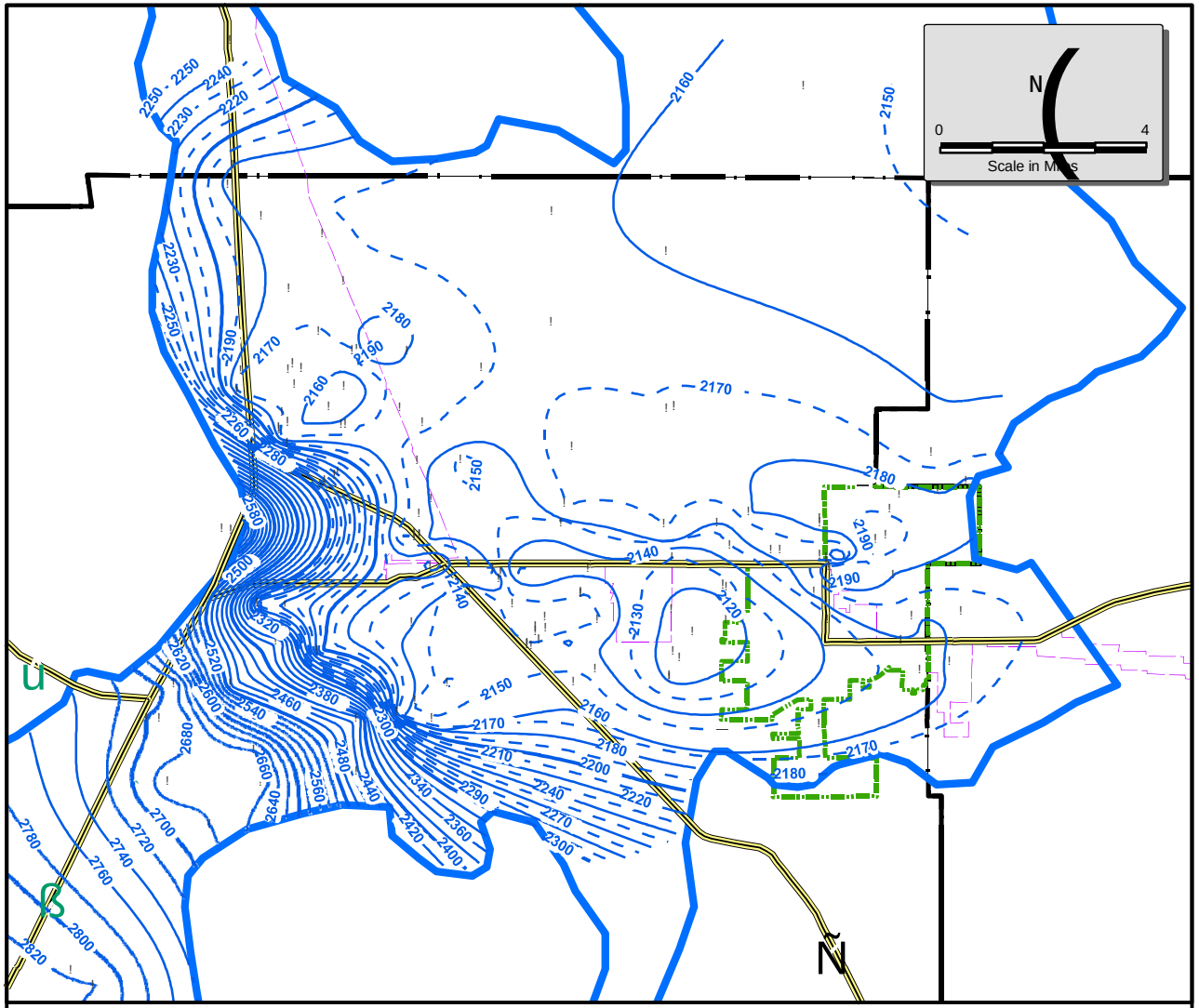


Critical Overdraft Based on:

Chronic Decline of Groundwater Levels
- Prior to Base Period
- During Base Period
- Post Base Period

Reduction of Groundwater Storage
- Prior to Base Period
- During Base Period
- Post Base Period

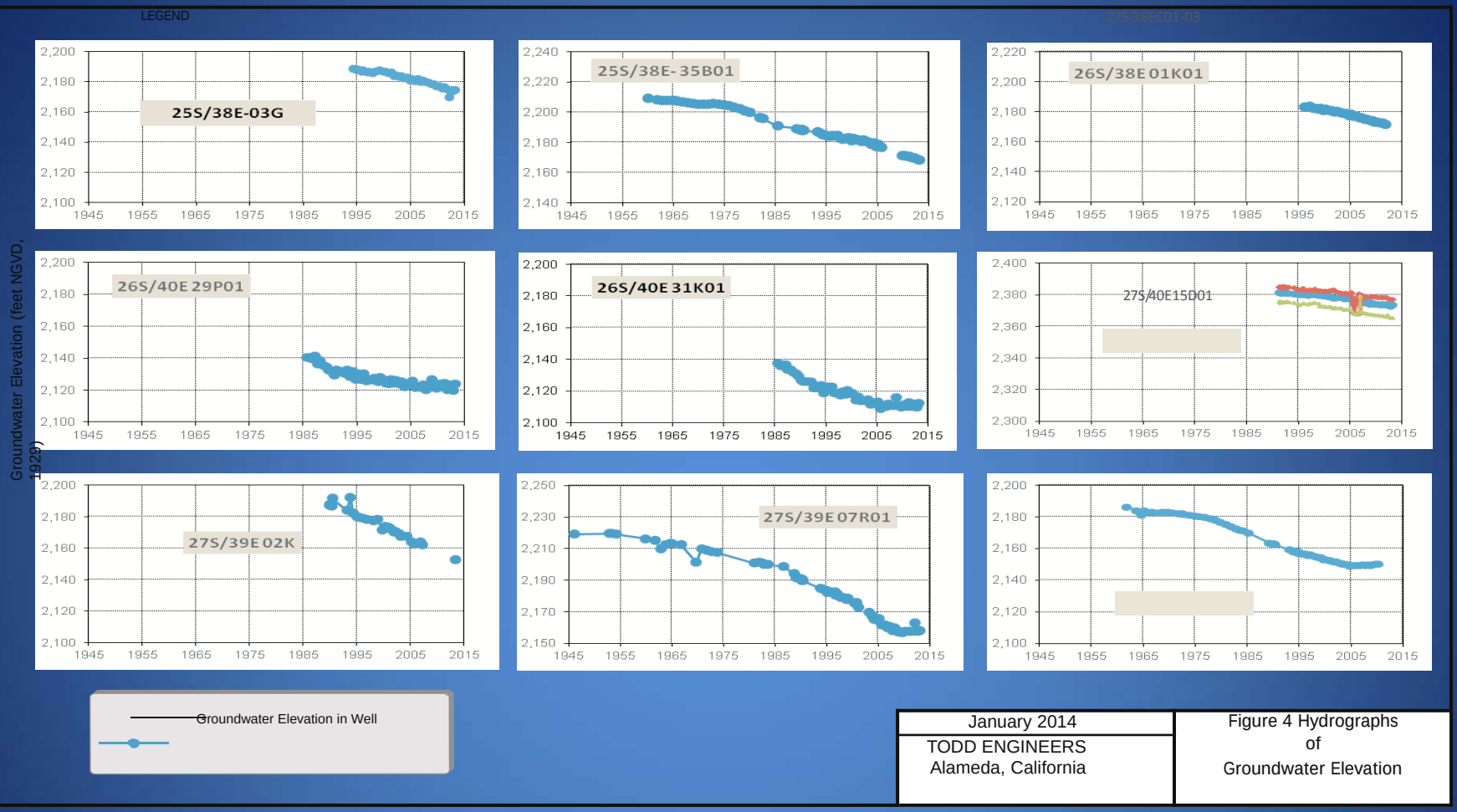
Water Quality Degradation



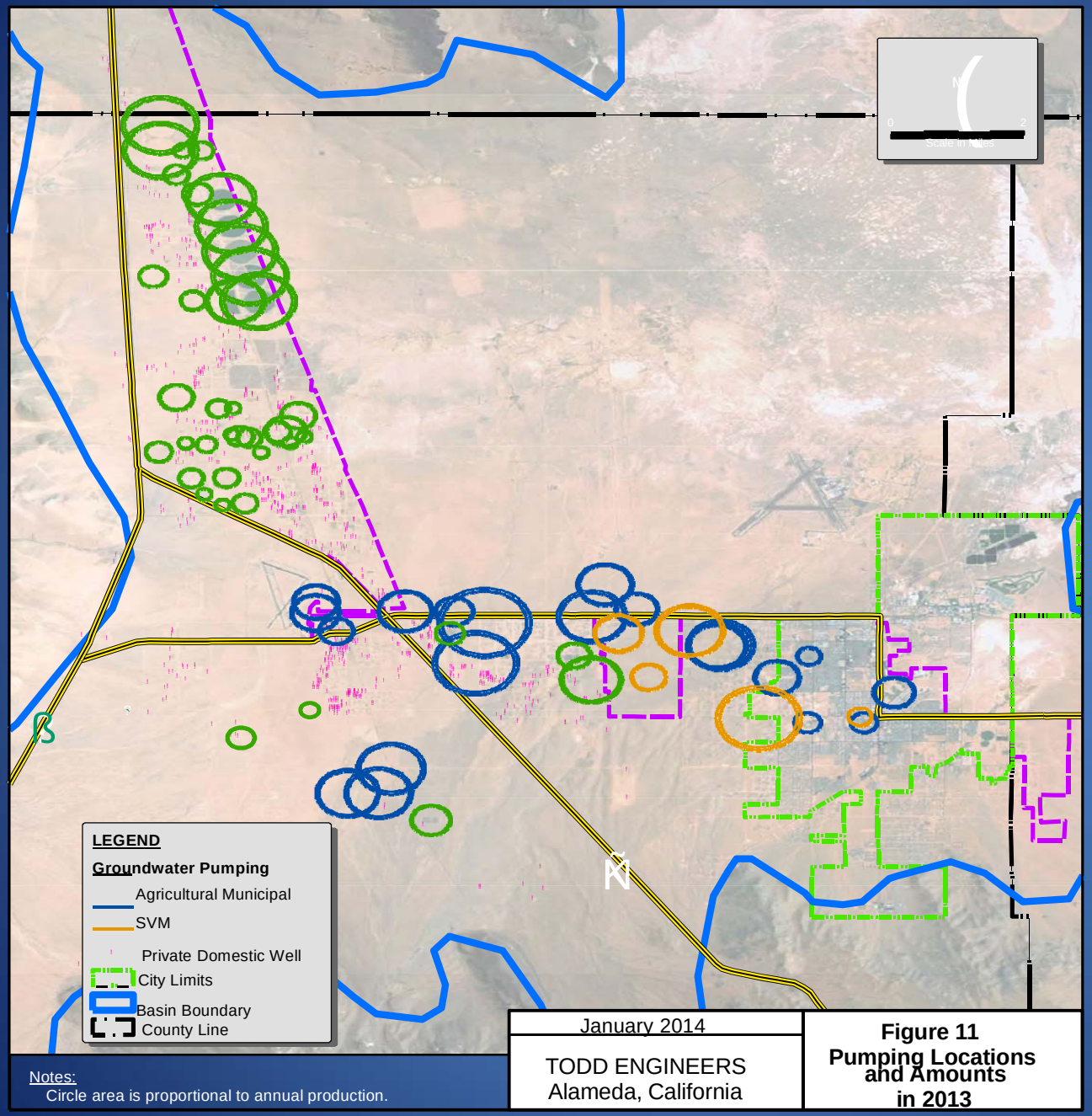
January 2014

TODD ENGINEERS
Alameda, California

Figure 3
Contours of Groundwater Elevation in Spring 2013



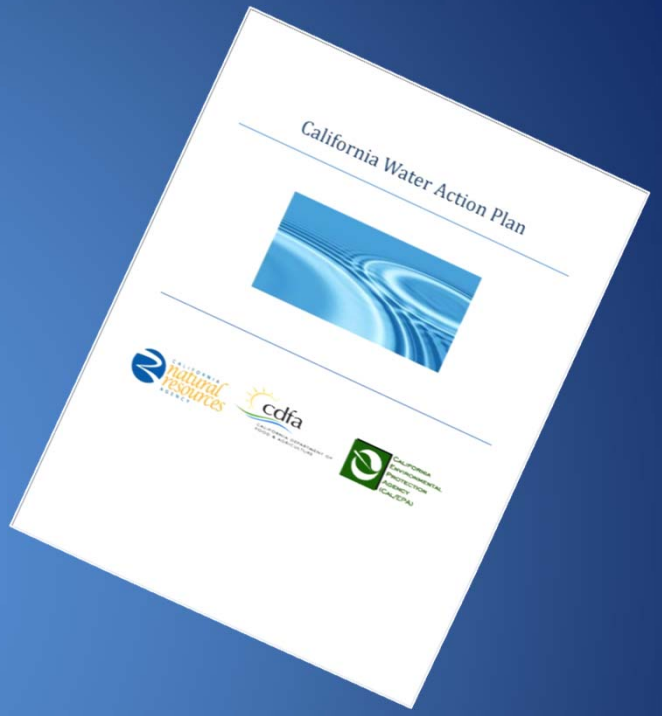
January 2014 TODD ENGINEERS Alameda, California	Figure 4 Hydrographs of Groundwater Elevation


LEGEND
Groundwater Pumping
Agricultural Municipal
SVM
Private Domestic Well
City Limits
Basin Boundary
County Line
Notes:
Circle area is proportional to annual production.
January 2014
TODD ENGINEERS
Alameda, California
Figure 11
Pumping Locations and Amounts in 2013

Questions

When properly managed, groundwater resources will help protect communities, farms, and the environment against the impacts of prolonged dry periods and climate change.

California Water Action Plan 2014



State: http://groundwater.ca.gov

DWR: http://www.water.ca.gov/groundwater/

SWRCB: http://www.waterboards.ca.gov/water_issues/programs/gmp/

Groundwater Sustainability Agency Formation

Plans and Next Steps

Supervisor Mick Gleason

SGMA Steps to Groundwater Sustainability

- DWR may grant up to two, five-year extensions on Implementation upon showing good cause and progress

GSA-Eligible Agencies in Indian Wells Valley

- City of Ridgecrest
- County of Kern
- County of Inyo
- County of San Bernardino
- Indian Wells Valley Water District
- Inyokern Community Services District

Federal Agencies and Tribes

- Naval Air Weapons Station
- Bureau of Land Management
- Tribes

May participate voluntarily in GSA/GSP

Additional Private Interests

May join a GSA under a separate legal agreement:

- PUC regulated private water companies
  - Searles Minerals
- Mutual Water Companies
  - Many in the IWV

Note: These entities may not form a GSA

Possible GSA Governance Options

- **One GSA with one Plan per Basin**
  - Most direct, simplest form or representation
  - Possible funding competition between basins
  - Less efficient administration & regional issues
- **Centralized: One countywide GSA**
  - Coordinate regional issues (e.g., land use, well permitting, data)
  - Maximize administration efficiencies; reduce competition between basins
  - Possibly cumbersome GSA board representation
- **Multiple GSAs per Basin**
- **Some Combination of the Above Options**

Note: SGMA allows for multiple GSAs and/or multiple GSPs for each basin, but requires DWR buy-in and "coordination and agreements"

Outreach and Input

"GSA shall consider interests of all beneficial uses and users of groundwater" including:

- Agriculture users
- Domestic users
- Public & private water systems
- Local land use planning agencies
- Federal government
- Tribes
- Environmental users
- Disadvantaged communities
- Surface water users

- Additional GSA-eligible agencies meetings
- Develop framework of principles for formation and start discussions on policies
- Hold GSA-Notification Public Meeting in the coming months
- Prepare and sign legal documents entering into GSA


Questions?

Back Up Slides

New Management Authorities Under SGMA

Groundwater Sustainability Agencies have authority to:

- Conduct studies
- Register & monitor wells
- Set well spacing requirement
- Require extraction reporting
- Implement capital projects
- Manage groundwater demand
- Assess fees to cover costs

Some exemptions for smaller private well owners

Proposed Skeleton Structure
Indian Wells Valley GSA & GSP

***GSA-eligible agencies include:**

- City of Ridgecrest
- County of Kern
- County of Inyo
- County of San Bernardino
- Indian Wells Valley Water District
- Inyokern Community Services District

***Other GSA interests include:**

Federal/Sovereign

- Naval Air Weapons Station
- Bureau of Land Management
- Tribes

Private

- PUC-Regulated private water companies
- Mutual Water Companies

Coordination Efforts Required

- Data framework/management system
- Basin boundary adjustments
- Funding requests to external entities (such as the state)
- Any activities that impact the adjacent basin
- Communication with state and federal agencies (not always required, but often)

Other Potential Coordination Activities

- Projects that cross basin boundaries
- Regulation development: information sharing and attention to jurisdictions
- Public outreach and stakeholder engagement
- Monitoring protocols and coordination with adjacent basins (timing, consistency of data collection, etc.)
- Well permitting
- Contracts with consultants, facilitators, etc.