Sustainable Groundwater Management Act (SGMA) - Basin Boundary Regulations -

Steven Springhorn, P.G.
California Department of Water Resources
GRACast – Basin Boundaries
March 18, 2015
Presentation Outline

• Groundwater Basin Overview
  – History
  – Definitions

• SGMA Requirements for Boundary Revisions

• Basin Boundary Regulations Process

• Local Agency Resources
Groundwater Basin Overview
CA Groundwater Basins

• Groundwater Basins Are Defined in Bulletin 118 Using the Best Available Data

• Revisions to Basin Boundaries Have Occurred During B-118 Updates. (Water Code 12924)
CA Groundwater Basins

- **History**

- Ground Water Basins in California 1952 - 223 (72) Basins/Subbasins, defined by unconsolidated, water-bearing alluvium

Data Used
- Geologic Maps
- Topographic Maps
CA Groundwater Basins

**History**

- **Ground Water Basins in California 1952**
  - 223 (72) Basins/Subbasins, defined by unconsolidated, water-bearing alluvium

- **B-118 - 1975**
  - 461 (18) Basins/Subbasins, defined by geological and hydrological conditions, except where defined by a court. *Alluvium, Marine Deposits, Volcanic Deposits*

Data Used
- Geologic Maps (1:750K Scale)
- Technical Reports
CA Groundwater Basins

**History**

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- **B-118 - 1980** — 447 (35), Basins/Subbasins, defined by geological and hydrological conditions and consideration of political boundaries whenever practical. Alluvium, Marine Deposits, Volcanic Deposits.

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- Geologic Maps (1:750K Scale)
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B-118 - 2003 — 515 (108), Basins/Subbasins, defined by geological and hydrological conditions and consideration of political boundaries whenever practical. Alluvial Aquifers.

- Volcanic and Marine Deposits classified as Groundwater Source Areas.

Data Used
- Geologic Maps (1:250K Scale)
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  - Volcanic and Marine Deposits classified as Groundwater Source Areas.

- **SGMA - 2015** — Unless modified, basin boundaries shall be as identified in Bulletin 118-2003

**Data Used**
- Geologic Maps (1:250K Scale)
- Technical Reports

**Legend**
- SGMA - 2015
- 515
Bulletin 118 Groundwater Basins

- **SGMA Definition (B-118-2003)**

- *Groundwater Basin* – An alluvial aquifer or a stacked series of alluvial aquifers with reasonably well-defined boundaries in a lateral direction and having a definable bottom.

Modified from Faunt, 2009
Bulletin 118 Groundwater Basins

- **SGMA Definition (B-118-2003)**

- **Groundwater Basin** – An alluvial aquifer or a stacked series of alluvial aquifers with reasonably well-defined boundaries in a lateral direction and having a definable bottom.

- **Groundwater Subbasin** – A subbasin is created by dividing a groundwater basin into smaller units using geologic and hydrologic barriers or institutional boundaries.
SGMA Requirements for Boundary Revisions
SGMA Requirements

- Emergency Regulations for Process to Request and Potentially Approve Bulletin 118 Basin Boundary Revisions
  - DWR shall adopt by January 1, 2016
  - Instructions to Local Agencies on submittal of:
    - Technical information
    - Consultation with interested parties
    - Other information DWR deems necessary to justify revision
SGMA Requirements

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• Methodology and Criteria on how to assess:
  • Likelihood proposed basin can be sustainably managed
  • Whether proposed basin would limit the SGM of adjacent basin
  • Whether there is a history of SGM of groundwater levels in the proposed basin
Basin Boundary Regulations Process
Basin Boundary and GSP/ALT Regulations Process

• Phases of Implementation

**Internal Project Scoping**
- Notify OAL
- Collection of Statewide Issues
- Coordinate with SWRCB

**Draft Principles for Regulations**
- Public Listening Sessions
- Input from Advisory Panels and Public

**Draft Emergency Regulations**
- Required Public Meetings
- Record and Evaluate Comments

**Adopt Emergency Regulations**
- CWC Approval
- Noticing and Submittal to OAL
Basin Boundary Regulations Process
Estimated Project Timeline

- Jan: DWR Project Scoping
- Feb: OAL Calendar
- March: Local Agency/ Stakeholder/ Ca. Water Commission (CWC) Discussions and Public Listening Session(s)
- April: DWR develops and posts proposed regulation content
- May: DWR Records and Evaluates Comments
- June: Public (30 day) comment periods and CWC, Statewide Public Presentations
- July: Noticing and Submittal to OAL
- Aug: DWR Adopts Emergency Regulations
Public Listening Sessions

• Present Draft Principles for the Boundary Regulations
• Enhance DWR’s Understanding of Specific Stakeholder Issues
Local Agency Resources
Local Agency Resources

- Water Management Planning Tool Demo
  http://gis.water.ca.gov/app/app/boundaries/
Local Agency Resources

• DWR Sustainable Groundwater Management (SGM)
  http://www.water.ca.gov/groundwater/sgm/index.cfm

• DWR Basin Boundary Regulation Website
  http://www.water.ca.gov/groundwater/sgm/basin_boundaries.cfm

• Subscribe to DWR SGM Email List
  http://www.water.ca.gov/groundwater/sgm/subscribe.cfm

• DWR Regional Office Contacts
  http://www.water.ca.gov/groundwater/gwinfo/contacts.cfm

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Some Considerations Regarding Basin and GSA Boundaries

Dan Wendell/The Nature Conservancy
March 18, 2015
Successful GW Management Agencies Typically Cover the Entire Physical Basin

- Management area viewed as a real “commons”
  - Threat is to the commons itself
  - Benefits accrue to locals overlying the commons
  - The same people who foot the bill for local supply projects.
    - Makes fees palatable
Successful GW Management Agencies Typically Cover the Entire Physical Basin

- **Challenges to implementing the SGMA:**
  - DWR basin boundaries are not always the full physical boundaries
    - The Central Valley presents many of challenges along these lines:
      - How will we handle cross boundary flow?
      - What if a basin’s recharge area is in a different basin?
      - What about conflicting and overlapping physical, basin, political, institutional boundaries?
        - Checkerboard of GSAs within some basins.
      - How do you share a stream recharge boundary?
      - What if basin extent is not the same as the alluvium?
      - How do we handle changes in bedrock and small watershed inflow related to well development in these areas located outside the basin?
      - What if adjudicated boundaries do not match Bulletin 118 boundaries?
Each of these basins must be managed to a sustainable yield.
Groundwater Flow Patterns

Central Valley Example

- Groundwater freely flows across these basin boundaries
- Shallow water table AQ
Groundwater Flow Patterns

Central Valley Example

- Groundwater freely flows across these basin boundaries
- Lower AQ
Interesting Challenge

• Subsurface flow crosses basin boundary
How Do We Handle Cross-Boundary Flow?

One basin’s gain...
How Do We Handle Cross-Boundary Flow?

*Is another basins loss...*
### Average Annual Interbasin Flow 1980-1993 (TAF/yr)

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Water Budget Estimates can Vary by Model
Interesting Challenges

- Non-coincident physical and political boundaries
- Basins isolated from their recharge areas
- Shared stream recharge boundaries
Interesting Challenges

• What about intra-basin GSA boundaries?
Challenges Not Limited to the Central Valley

• Example from the SF Bay Area
Discussion
Sustainable GW management Means a Balanced Water Budget

• This means controlling / stabilizing inflows and outflows
• Flow between basins will require mutual agreements
  • Similar agreement required where multiple GSAs are present within a single basin
• Sharing recharge / river boundaries will be a challenge
  • A key metric of GSA success is maximizing managed AQ recharge
  • Problem of potential “free riders”
• Different models that provide significantly different results will be a challenge
  • Especially problematic if it exists between multiple GSAs in a single basin
• Our existing models provide us with water budget data
  • We should use that to ID key issues and data gaps before doing new work
Crossing New Boundaries in California
Groundwater Management: Implementation of the SGMA

March 18, 2015 GRA Webinar

Presented By:
Jeremy Jungreis, Esq.
MAY YOU LIVE IN INTERESTING TIMES . . .

-Apocryphal Chinese Proverb/Curse
WHAT...ME WORRY?

WELL, YES, IF YOU: 1) PUMP GROUNDWATER FROM A BULLETIN 118 GROUNDWATER BASIN; 2) FALL OUTSIDE OF AN ADJUDICATED GROUNDWATER BASIN
BOUNDARY ISSUES UNDER THE SGMA: WHAT’S THE BIG DEAL

The GW Basin Next Door...

Legal Significance:

1. Affects who can be GSA (maybe)
2. Affects requirement to have a GSA/GSP all together
3. Affects water rights priority (maybe)
4. Potential for daisy chain adjudications in the absence of careful coordination
BOUNDARY ISSUES UNDER THE SGMA: WHAT’S THE BIG DEAL

• SGMA requires DWR to evaluate boundaries in forthcoming emergency rule if requested by local agency. (§10722.2(a))
  – DWR has until January 1, 2016 to do emergency rulemaking.

• Before SGMA, Bulletin 118 boundaries were of limited regulatory significance.
  – Water Code Section 12924 gave DWR discretion to change basins
    • Great discretion in DWR whether to recommend changing any boundaries.
    • Focus on basins of critical overdraft.
  – Boundaries indirectly addressed via AB 3030 and SB 1938 plans and individual court disputes
    • Inter-boundary considerations of SB 1938 (Water Code 10753.7 (a)) now mandatory elements of a GSP. (Water Code 10727.2)
BOUNDARY ISSUES UNDER THE SGMA: WHAT’S THE BIG DEAL

• Key uncertainty in Water Code Section 10723(a) will drive whether boundaries become big or small legal issues:
  – Can a “Local Agency” under SGMA manage outside of its LAFCO or statute sanctioned jurisdictional boundaries?
  – Water Code Sections 10723 (a) and 10721 definitions suggest yes.
  – Other parts of the SGMA support the opposition conclusion

• If, one GSA can manage the entire basin, less impetus, perhaps, to change basin boundaries
  – Unless you have a different GSA that doesn’t want to be “managed” under the authority of the first GSA . . .
  – Doesn’t help us solve the question of what happens when more than one GSA elects to be a GSA in the same Bulletin 118 Basin.
Red areas are outside District boundary but within Bulletin 118 boundary.

These areas are hydrologically connected to the main basin.
BOUNDARY ISSUES UNDER THE SGMA: WHAT’S THE BIG DEAL

• If local agencies cannot manage outside their jurisdictions, then either management by JPA or “Coordination Agreement” must occur if GSA is to be established.

• But what if multiple potential GSAs within one basin cannot agree, then boundary change requests are likely to be filed:
  – Water Code 10722.2 (c)(2) requires rulemaking to consider whether the boundary change would limit sustainable management in adjacent basins, and require consideration of history of sustainable management.
  – Thus, DWR regulations should presumably address those scenarios where potential GSAs are seeking boundary changes for reasons other than prudent management.

• Does a local agency seeking the boundary change have to be a GSA or intend to become a GSA? **NOPE**
ADDITIONAL KEY ISSUES UNDER ASSOCIATED WITH BOUNDARIES

1. Should DWR unilaterally initiate boundary changes and designation/redesignation of sub-basins where current boundaries do not describe actual behavior of groundwater within a basin, or should they only do so if a local agency initiates?

2. May one GSA manage an entire basin notwithstanding much of the overall Bulletin 118 Basin does not fall within its service area?
   - What if most, but not all, of a Bulletin 118 basin falls within one GSA’s service area, and nobody volunteers to take the rest of the basin?
   - Presumably may become a probationary basin if undesirable results present
ADDITIONAL KEY ISSUES UNDER ASSOCIATED WITH BOUNDARIES

3. How should DWR (and perhaps SWRCB) ensure cross-border coordination is meaningful and scientifically valid?
   • How do we ensure that GSA A (upstream) develops its plan in a manner that makes hydrologic sense with regard to GSA B when both agencies are part of the same Bulletin 118 Basin, and the GSP of one GSA will determine how much water is available in the other GSA?
   • Is periodic DWR review of GSPs adequate to address concern?
   • How about Water Code Section 10727.6?
4. How should boundaries between surface waters and percolating groundwaters that exist within the same Bulletin 118 groundwater basin be managed?

- Should SWRCB jurisdictional basins be in Bulletin 118 at all?
- How does the SWRCB integrate permits with GSA/GSP requirements?
QUESTIONS . . .

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