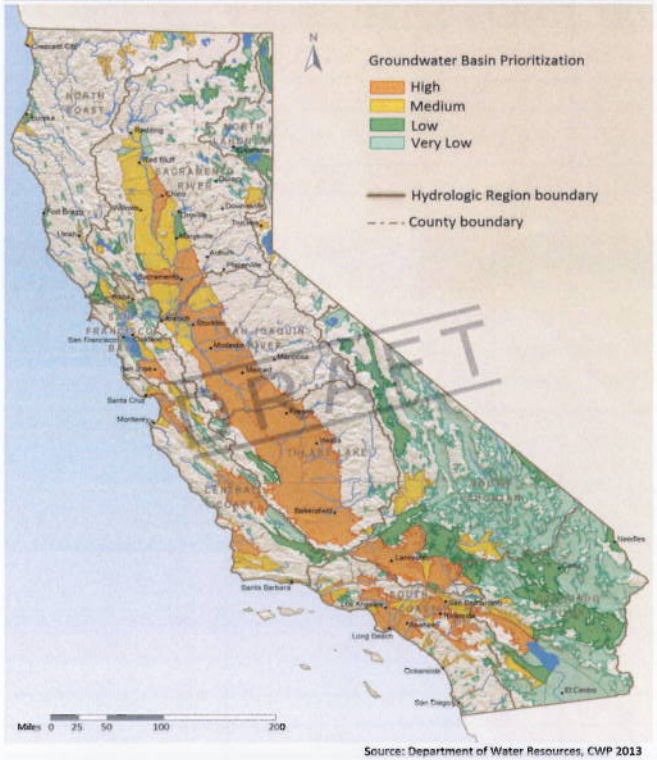
Summary

The CASGEM Groundwater Basin Prioritization Process (Basin Prioritization) was developed as a statewide ranking of groundwater basin importance, with a focus towards implementation of the CASGEM Program. Evaluation of groundwater basins at a statewide scale does not necessarily capture the local importance of the smaller size or lower-use groundwater basins.

Draft Basin Prioritization Map (as of December 1, 2013)



Source: Department of Water Resources, CWP 2013

Statistics (as of December 1, 2013)

- 126 High and Medium priority basins (46 High and 80 Medium)
- 58% of High and Medium priority basins are currently fully monitored under CASGEM
- An additional 8% of High and Medium priority groundwater basins are partially monitored under CASGEM

Challenges

Most of the datasets are not collected or stored at the groundwater basin scale. For example, groundwater use is generally reported in Detailed Analysis Units (DAUs). This required translation to groundwater basin area. See the maps below for comparison.

278 DAUs

515 Basins/Subbasins

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California Statewide Groundwater Elevation Monitoring Program

CASGEM Groundwater Basin Prioritization Process

The California Department of Water Resources (DWR) implemented the California Statewide Groundwater Elevation Monitoring (CASGEM) Program in response to legislation enacted in the California Water Code (CWC) as part of California's 2009 Comprehensive Water package.

The California Water Code (§10933 and §12924) requires DWR to prioritize California's groundwater basins and subbasins (as identified in DWR's Bulletin 118 update 2003) and conduct groundwater basin assessments. As such, DWR developed the CASGEM Groundwater Basin Prioritization Process.

For more information please visit the CASGEM Program website: www.water.ca.gov/groundwater/casgem

Department of Water Resources
California Natural Resources Agency
State of California

December 2013

CASGEM Groundwater Basin Prioritization Process

Criteria and Data Sources

The CWC (§10933) specifies the criteria listed below for prioritizing the groundwater basins. To address the prescribed criteria, DWR used available statewide data sets which are listed after the corresponding criteria.

1) Overlying population— Department of Finance (DOF) 2010 California census data
2) Projected growth of overlying population— DOF 2010 to 2030 population growth projections
3) Public Supply Wells— Department of Public Health Drinking Water Supply Database.
4) Total number of wells— DWR Well Master Database (WellMa)
5) Irrigated acreage overlying the basin— DWR 2005 land use data compiled by Detailed Analysis Unit (DAU)
6) Reliance on groundwater as the primary source of water— DWR 2005 land use data compiled by DAU
7) Impacts on the groundwater; including overdraft, subsidence, saline intrusion, and other water quality degradation— DWR staff review
8) Any other information determined to be relevant by DWR— DWR staff review

When appropriate, the spatial distribution of the data were normalized or reparsed to achieve better representation at the basin and subbasin scale. Inaccuracies associated with the spatial translation or rescaling of the data were minimized through multiple inspections of the data. The spatial scale and distribution of the data provided the level of accuracy necessary for a statewide evaluation and prioritization of California groundwater basins.

A complete description of the Basin Prioritization process is posted on the CASGEM program website:
www.water.ca.gov/groundwater/casgem

Ranking Method

The data distribution for each data component was evaluated and divided into six ranges, having a value of 0-5. The table below shows the range of values associated with each data component ranking.

Data Component Ranking	Data Component Ranking Value	Data Components and Ranking Ranges						
		Population		Public Supply Well Density	Total Well Density	Irrigated Acreage	Groundwater Reliance	
		Density	Projected Growth				GW Use	% of Total Supply
		per sq-mi	%	per sq-mi	per sq- mi	ac/sq-mi	ac-ft/acre	%
Very Low	0	< 7	< 0	< 0.01	< 0.01	< 0.1	< 0.3	< 0.1
Low	1	7 - 250	0 - 6.0	0.01 - 0.1	0.01 - 2.0	0.1 - 60	0.3 - 20	0.1 - 20
Moderately Low	2	251 - 1000	6.1 - 15	0.11 - 0.25	2.1 - 5.0	61 - 115	0.21 - 0.4	21 - 40
Medium	3	1001 - 2500	15.1 - 25	0.26 - 0.50	5.1 - 10.0	116 - 250	0.41 - 0.6	41 - 60
Moderately High	4	2501 - 4000	25.1 - 40	0.51 - 1.0	10.1 - 20	251 - 350	0.61 - 0.8	61 - 80
High	5	≥ 4000	≥ 40	≥ 1.0	> 20	> 350	> 0.8	> 80

Note: Population growth is percent growth from 2010 to 2030.

Draft Results (as of December 1, 2013)

The individual data component rankings for each basin were combined to establish the overall basin priority of Very Low, Low, Medium, and High. In addition to the rankings, the percent of total* for High and Medium ranked basins is summarized by Hydrologic Region (HR) below.

Hydrologic Region	CASGEM Groundwater Basin Priority by Ranking Range and Hydrologic Region				HR Basin Count	Percent of Total Groundwater Use and Overlying Population for High & Medium Ranked Basins	
	High priority	Medium priority	Low priority	Very Low priority			
	Ranking Range >19.7	Ranking Range 12.6 - 19.7	Ranking Range 5.5 - 12.5	Ranking Range <5.5		Groundwater Use *	Overlying Population *
North Coast	0	8	2	53	63	84%	74%
San Francisco	1	6	1	25	33	88%	63%
Central Coast	8	16	1	35	60	91%	96%
South Coast	14	22	5	32	73	96%	94%
Sacramento River	5	16	7	60	88	89%	97%
San Joaquin River	7	2	0	2	11	99%	99%
Tulare Lake	7	1	1	10	19	98%	98%
North Lahontan	0	2	2	23	27	9%	55%
South Lahontan	2	3	7	65	77	55%	94%
Colorado River	2	4	9	49	64	77%	65%
Statewide	46	80	35	354	515	92%	89%

Note: * Estimated percentages are based on total groundwater use and population overlying all alluvial groundwater basins in the hydrologic region.