

BASELINE

“Why do we Need to Establish a Baseline?”

- Serves as a frame of reference for the 20x2020 Program
- Allows the measurement of progress over time

What is GPCD?

- GPCD – Gallons per Capita per Day

Annual Water use (converted to gallons)

Population x 365

–Water Use = from point of diversion

- (although realize that some of data is probably point of use).

–Includes all commercial, industrial, and residential uses

- Including these is standard practice in GPCD calculations

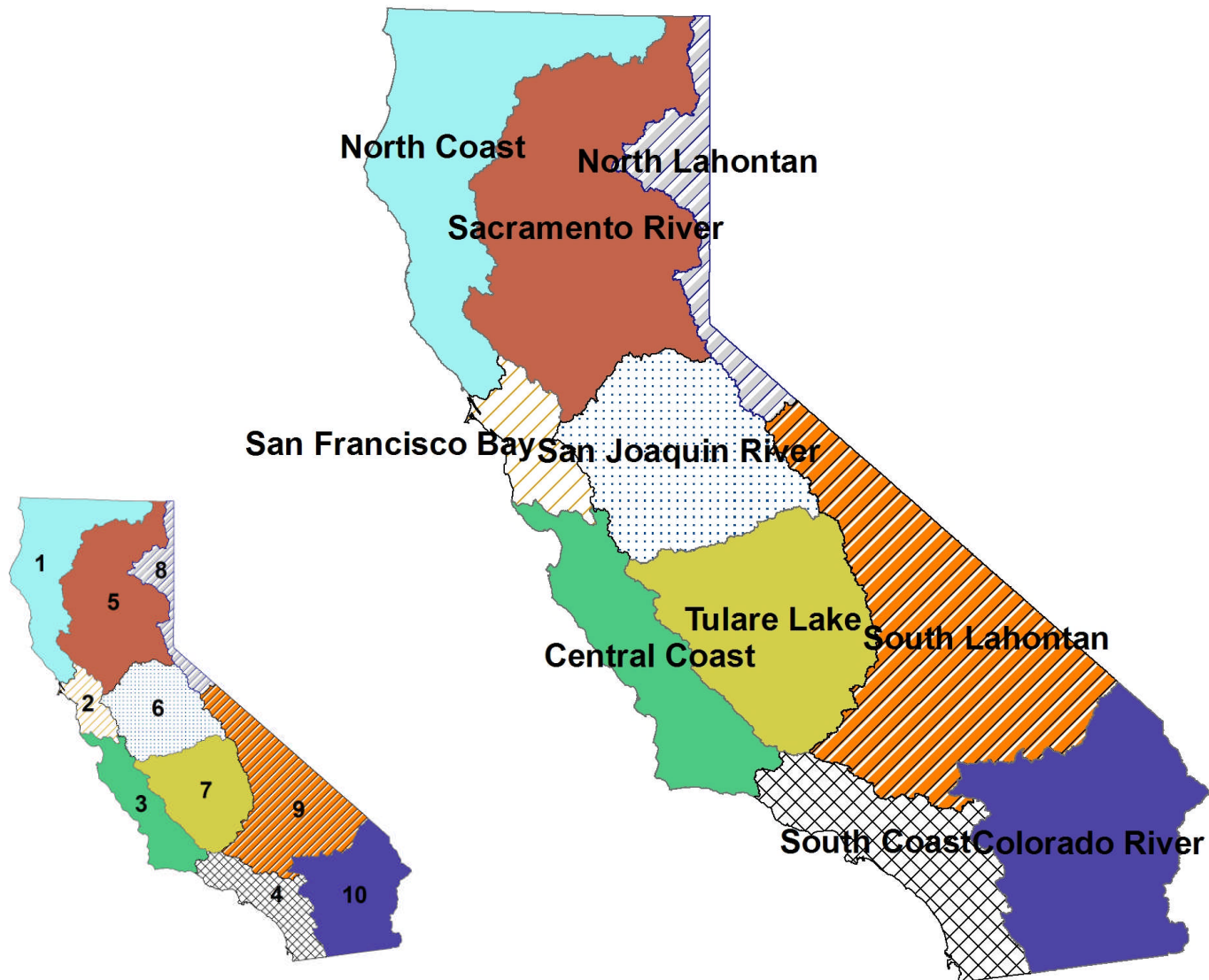
Scope of Study

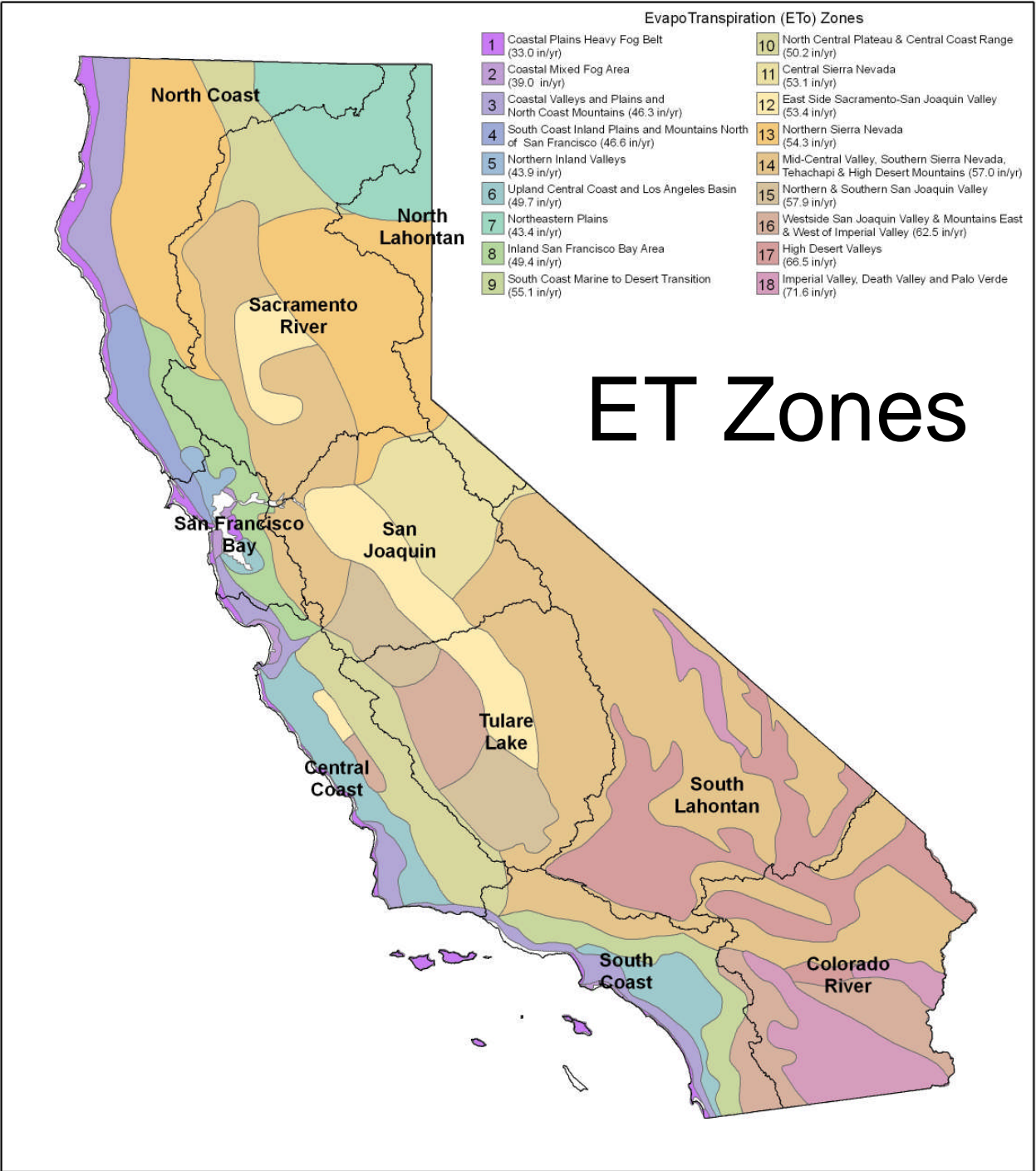
- Urban only
- Sectors within total
 - Single-Family Residential
 - Multi-Family Residential
 - Commercial
 - Industrial
 - Other, not reported
- Regional level rather than agency level
- Agricultural use needs to be addressed, but not here
- Recycled water is not included in the baseline calculation
 - Accounted for small proportion in database (<1% of total)
 - This will be one of the possible measures for reducing overall water used in the state

Statewide Approach

- Governor set a statewide goal of reducing water use by 20% by 2020
- So initially needed to look on a statewide level
- Agency team recognized there are regional variations
 - Evapotranspiration
 - Rainfall
 - Temperature
 - Other variations
- Mechanism for reviewing this already exists – these are the hydrologic regions

Hydrologic Regions

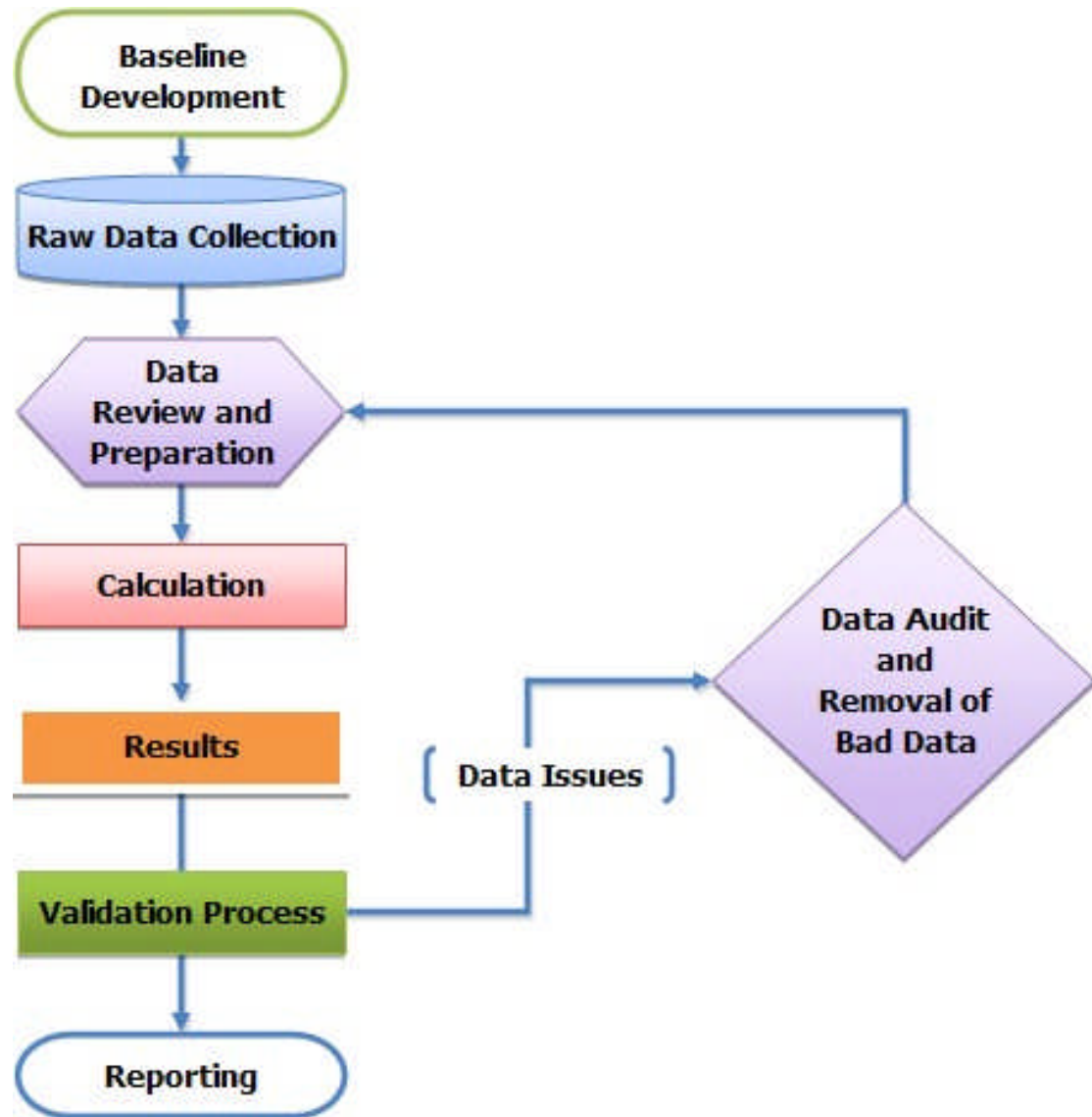




Limitations and Qualifications

- This is the first time that the State has compared datasets from DWR, CPUC, CUWCC, SWRCB and DPH
- The data needed significant review.
- Improvements needed for future analysis:
 - More data for Regions 8 and 9
 - Standard structure of data collection across the state
 - Data from all utilities to be provided
 - Measurement units standardized both at state and individual utility levels
- These data and analyses reported are the “best-available” analyses and need to be improved upon in future years.
- Water Suppliers may provide more rigorous data sets to revise/update those presented

Baseline Development Process



Methods

- Review of PWSS Database
 - This includes water supplier data
- Removal of obviously bad data
 - Very high and very low values where GPCD below 10 or above 2000
 - World Health Organization suggests a minimum of 40 litres per person per day (10 GPCD).
 - Upper boundary beyond limits of normal use
 - Where measurement units incorrect or incompatible
 - Where no data on population available
- Validated data used for calculations

Result - Base Year

(Composite of 1995 to 2005)

Base developed using data from Department of Water Resources (DWR) from 1995 through 2005.

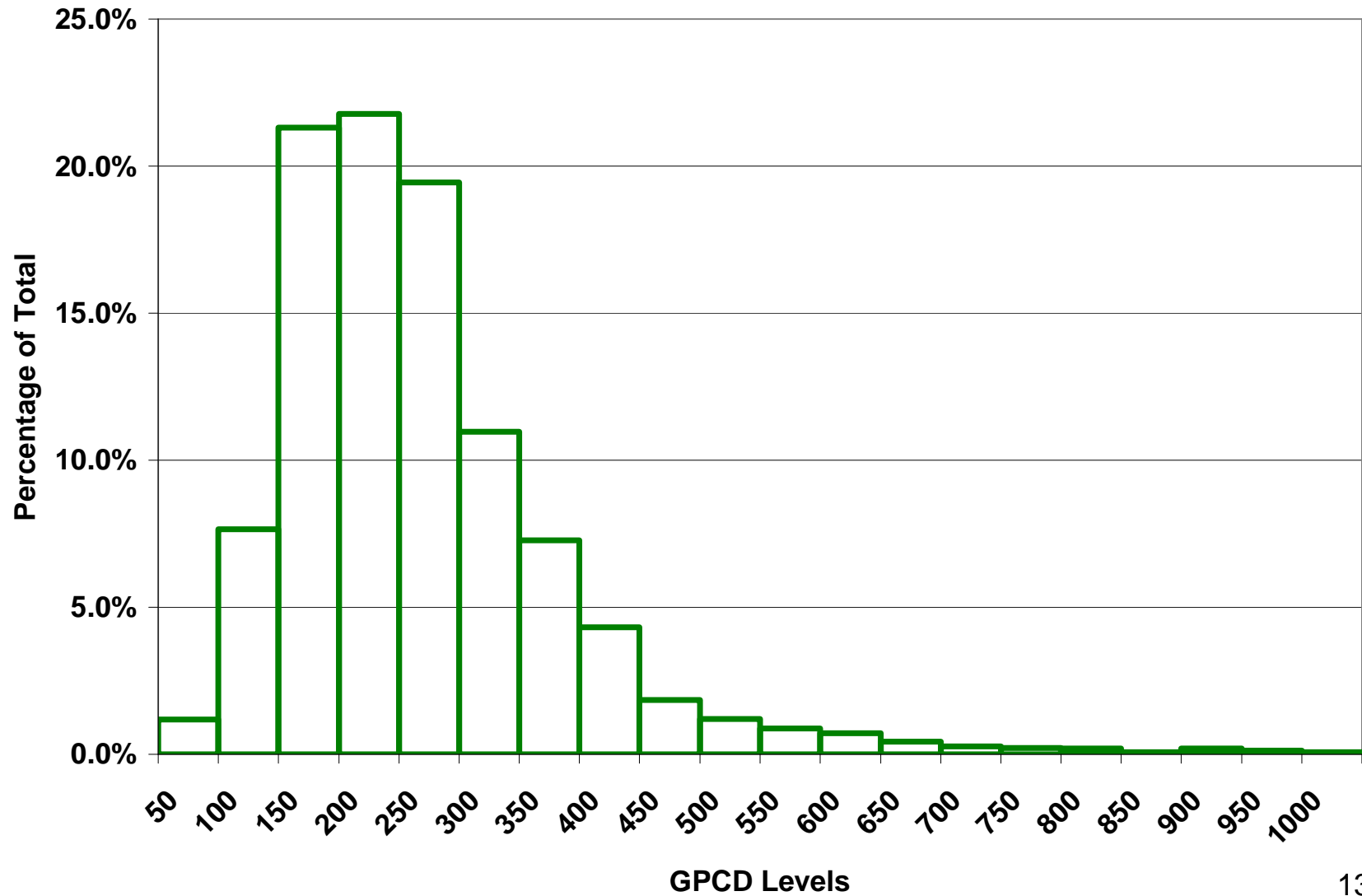
- Initially reviewed 2000 only as this was reported to be a good average precipitation year. However, not enough data for certain regions. 2005 also reviewed, but decision taken to include larger dataset
- Average GPCD from 1995 to 2005 from the DWR PWSS data showed no recognizable trend (i.e. GPCD has been level in this period with no trend either up or down).
- Therefore the GPCD weighted average value from all the data from 1995 to 2005 is assumed as being representative of an average year.
 - The gallons per capita weighted average is derived by adding all the water used by all the entities reporting in the validated database, and dividing this number by the sum of all the populations from the same entities.
 - Consistent so we are suggesting this is the best data.

Results – Base Use

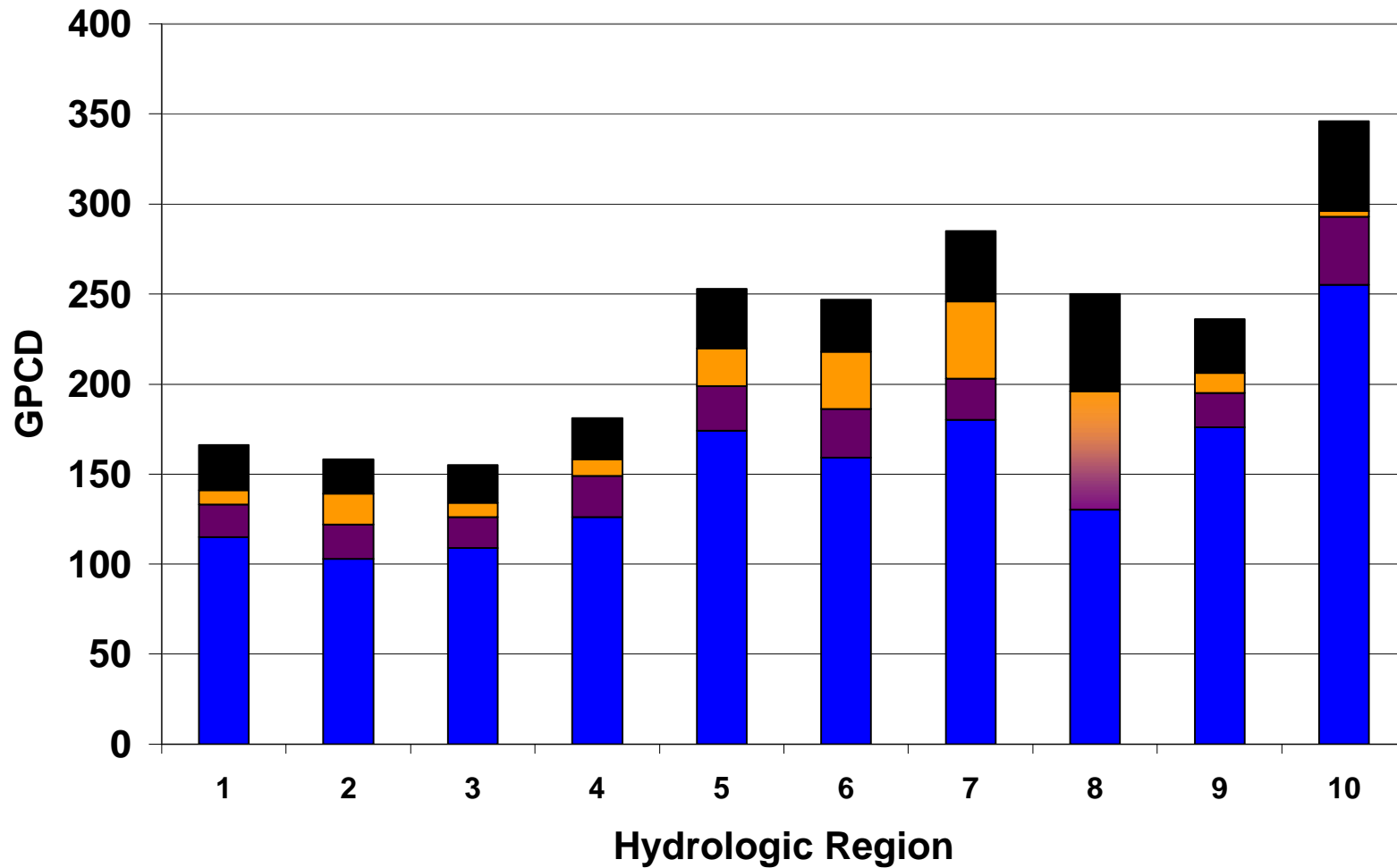
- Results developed at the state level and by region.
- Overall Statewide Baseline value

192 GPCD

Baseline Datasets – Average Values



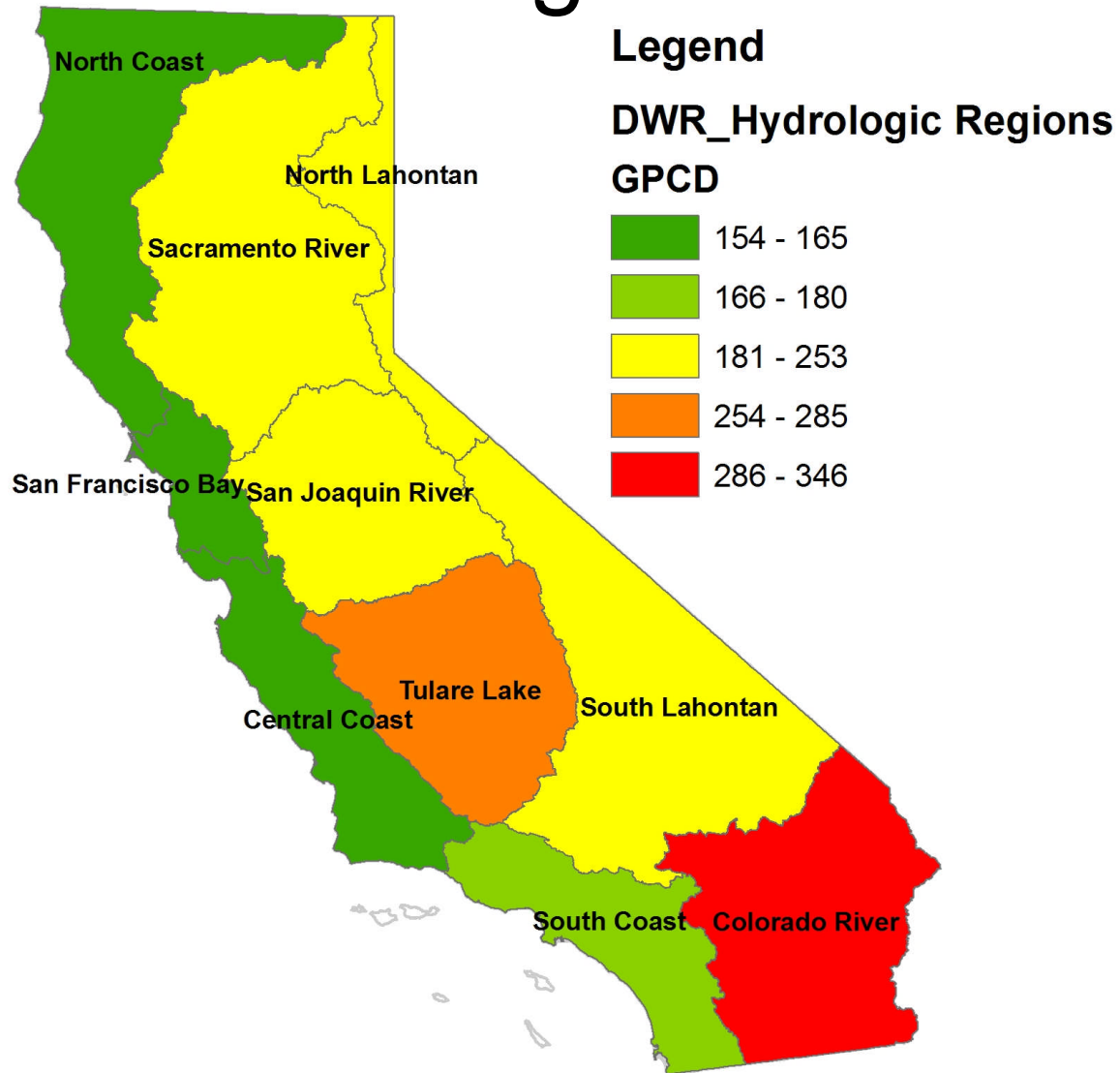
GPCD by Hydrologic Region and Sector



Hydrologic Region Weighted GPCD Averages and Range

REGION	Weighted 1995-2005	Range
1	165	141-170
2	157	149-173
3	154	141-177
4	180	171-198
5	253	237-272
6	248	236-250
7	285	242-341
8	248	242-385
9	237	221-286
10	346	272-387

Baseline Data by Hydrologic Regions



Final thoughts before Questions

- As the dataset improves, the calculations should be revisited using the same methodology.
- Further analysis will improve the baseline and the targets and are necessary and welcome.