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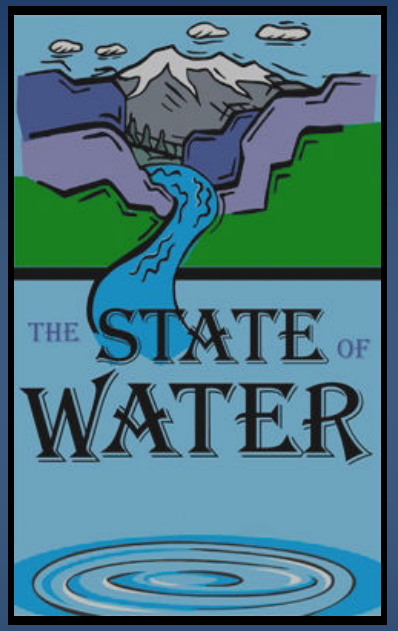
Water Use Efficiency in California: Governor Schwarzenegger's Call for "20 by 2020"

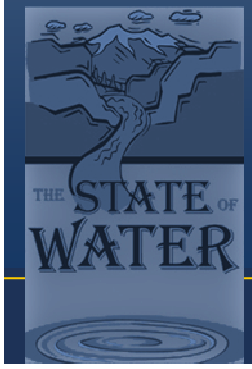


Mary Lou Cotton

Dan Sander

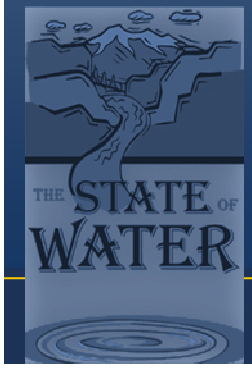
History

- 1991 MOU Regarding Urban Water Conservation in California
- Instituted Best Management Practices (BMPs)
- Water suppliers implement on a voluntary basis



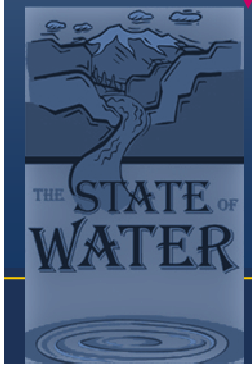
History – 1991 MOU

- California Urban Water Conservation Council :
  - water suppliers,
  - environmental/public interest groups,
  - consulting firms,
  - other interested parties



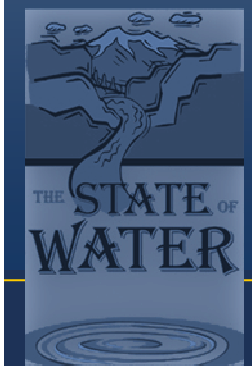
Observed Trends

- BMPs have worked well for 18 years,
- Many conservation programs have relied heavily (or only) on public outreach and school education
- Conservation technologies have diversified
- Technologies are appropriate for some geographic areas and not for others (diversity)



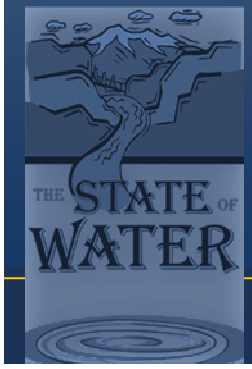
Observed Trends (Cont.)

- CUWCC recently (late 2008) revised the MOU and BMPs in response to these various drivers
- Emphasis on increased flexibility for water agencies to design "savings-based" conservation programs, rather than the proscriptive "widget counting" approach used since 1991

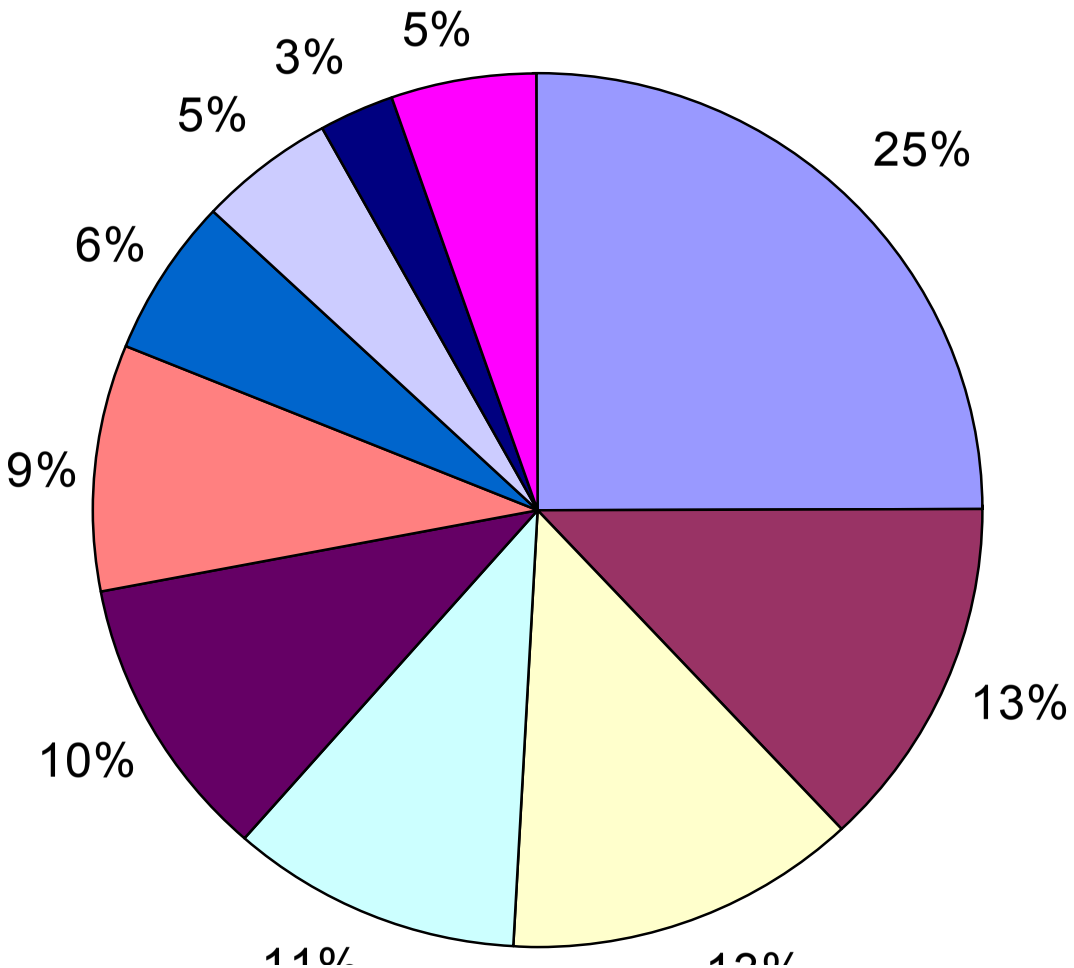


Observed Trends (Cont.)

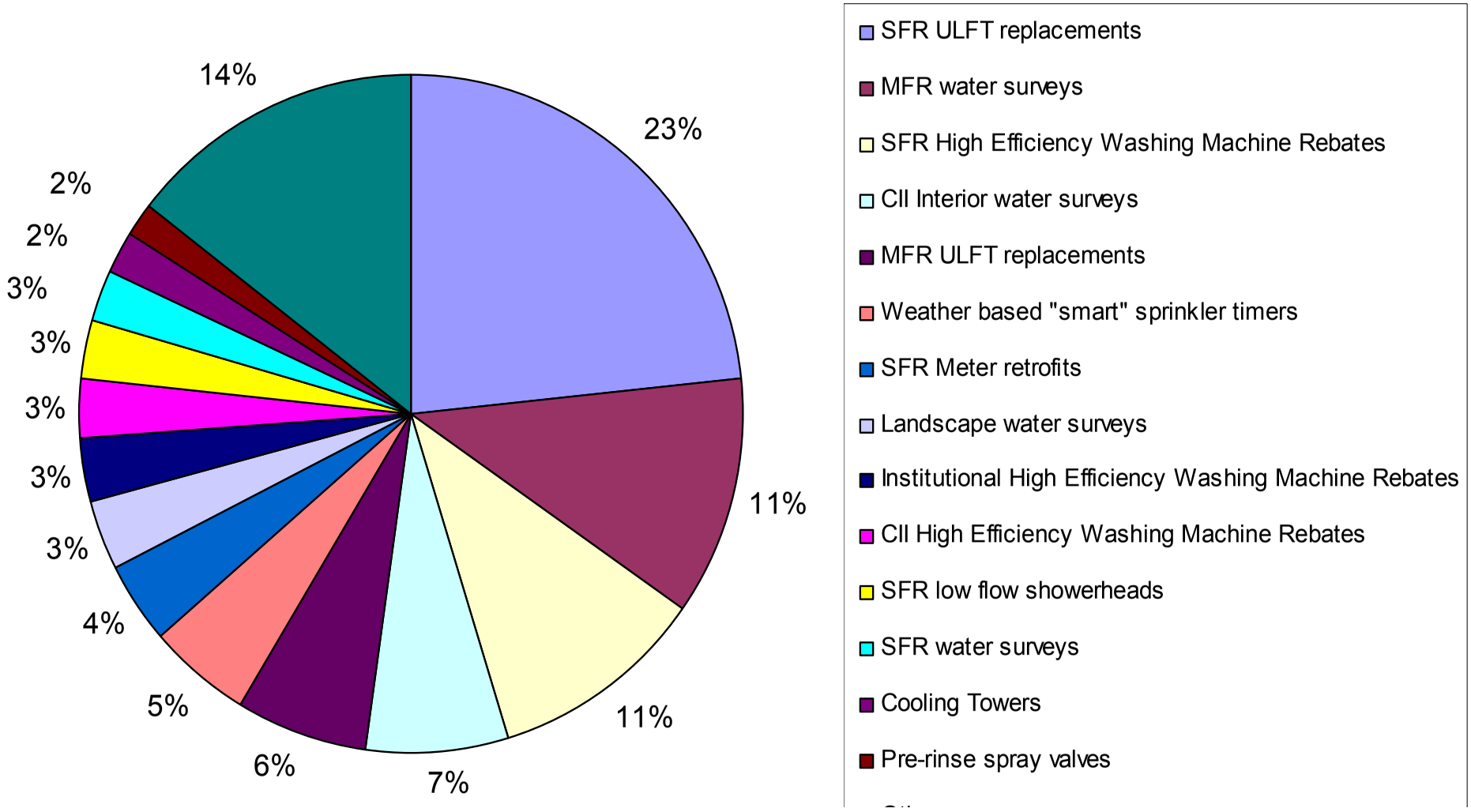
- Systems have placed heavy focus on residential indoor devices.
- Landscape / CII programs have not yet matched these efforts, but are increasing
- Programs like ULFT replacements are nearing saturation, plus passive savings from changes to State plumbing code have started to accumulate.



1991 Water Savings by Program



2006 Water Savings by Program



Overview/Drivers

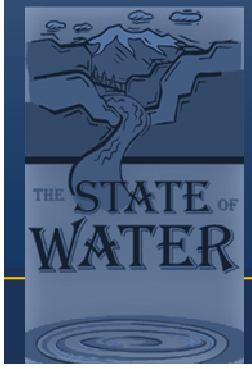
- California faces constant water shortages
  - Natural/Hydrologic: global warming-related (Colorado River, Sierra Nevada)
  - Regulatory/Legal:
    - Endangered Species Act,
    - Court Decisions

Overview/Drivers

- Increasing demands on infrastructure
  - State Water Project (major M&I supplier) nearly 50 years old, serves a larger population than expected
  - Continuing energy crisis

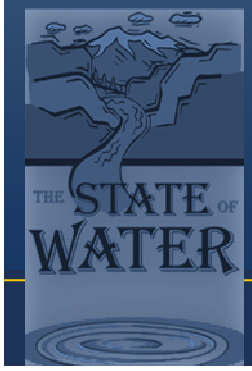
Overview/Drivers

- Increasing legislative focus on conservation
  - State Urban Water Management Planning Act: requirements for description of progress in conservation activities now required to qualify for State grant funding



Overview/Drivers (Cont.)

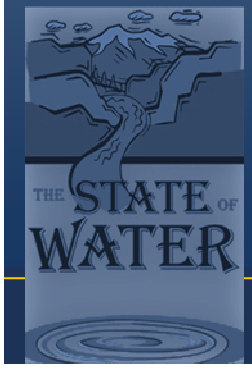
- Water conservation (water use efficiency) policies, planning, technologies and practices are evolving rapidly
- Moving from a voluntary to a “near-mandatory” model due to recent State legislation



Overview/Drivers (Cont.)

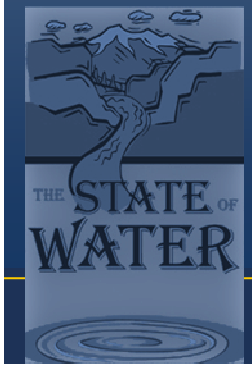
In early 2008, Governor Schwarzenegger set out an ambitious plan for water reform

<u>number one action centered on water conservation</u>



Overview/Drivers (Cont.)

"Conservation is one of the key ways to provide water for Californians…A number of efforts are already underway to expand conservation programs, but I plan to direct state agencies to develop this more aggressive plan and implement it to the extent permitted by current law. I would welcome legislation to incorporate this goal into statute." Governor Schwarzenegger



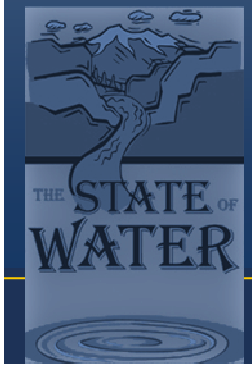
Overview/Drivers (Cont.)

Governor's Directive:

A plan to achieve a 20 percent reduction in per capita water use statewide by 2020

Overview/Drivers (Cont.)

- How much water is 20% ?
  - Current Use = 8.7 million ac-ft/yr.
  - 20% reduction = 1.74 million ac-ft/yr.
  - Enough water to serve more than 2 million families



Overview/Drivers (Cont.)

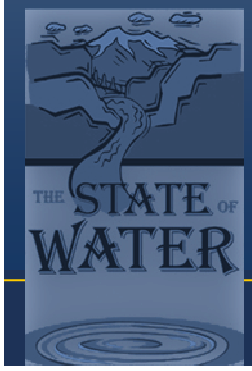
- Directed State Department of Water Resources (DWR) to analyze savings potential, and mechanisms to achieve that potential
- As agencies worked on technical issues, legislation was drafted to attempt to codify actions to achieve the goal

DWR analysis and assumptions

- Approach
  - Establish baseline information
  - Quantify conservation targets
  - Estimate Savings
    - Current efforts
    - New Actions
  - Implementation Plans
  - Performance Metrics

DWR analysis and assumptions

- GPCD = $\frac{\text{Annual Water Use (gallons)}}{\text{Population x 365}}$
  - Includes all use “from point of diversion”
  - Includes Residential uses Commercial, Industrial, Institutional and all landscape uses



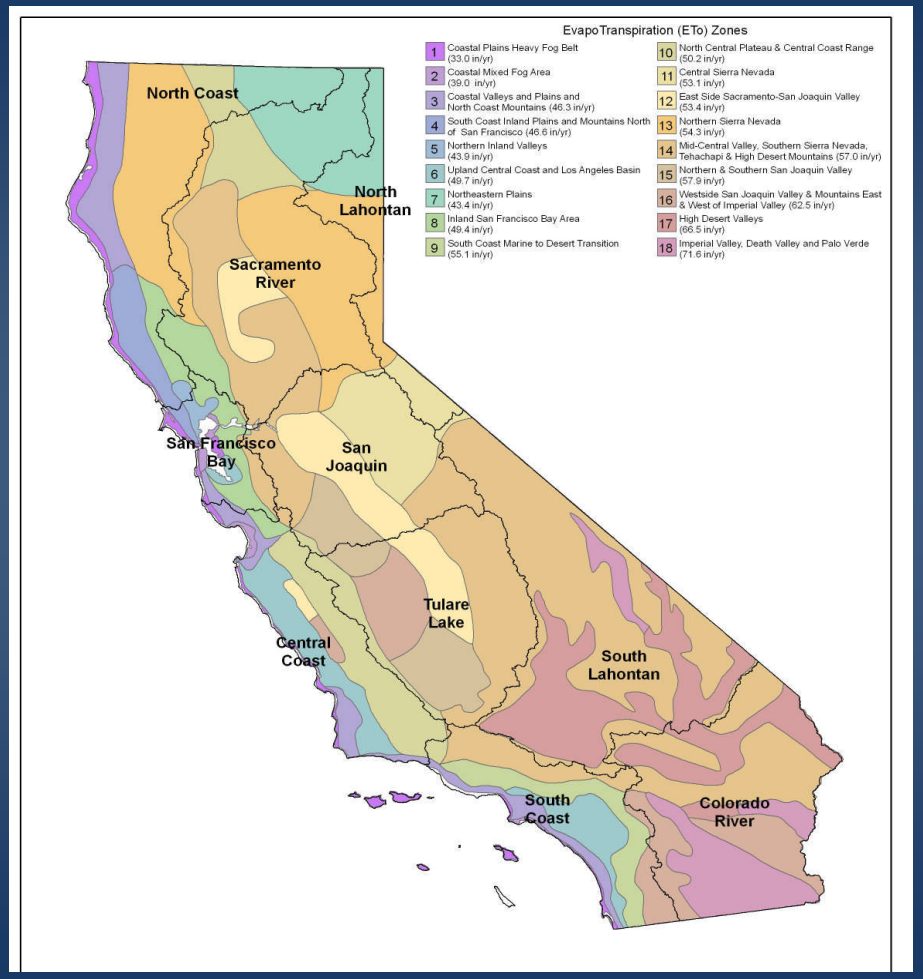
DWR analysis and assumptions

- GPCD
  - Urban only (Agriculture to be addressed later)
  - Did not include recycled water (<1% of total)

DWR analysis and assumptions

- Took a regional approach due to California's varied geography:
  - Temperature
  - Evapotranspiration rates
  - Rainfall
  - Population and economic makeup
  - Many other factors

California ET Zones



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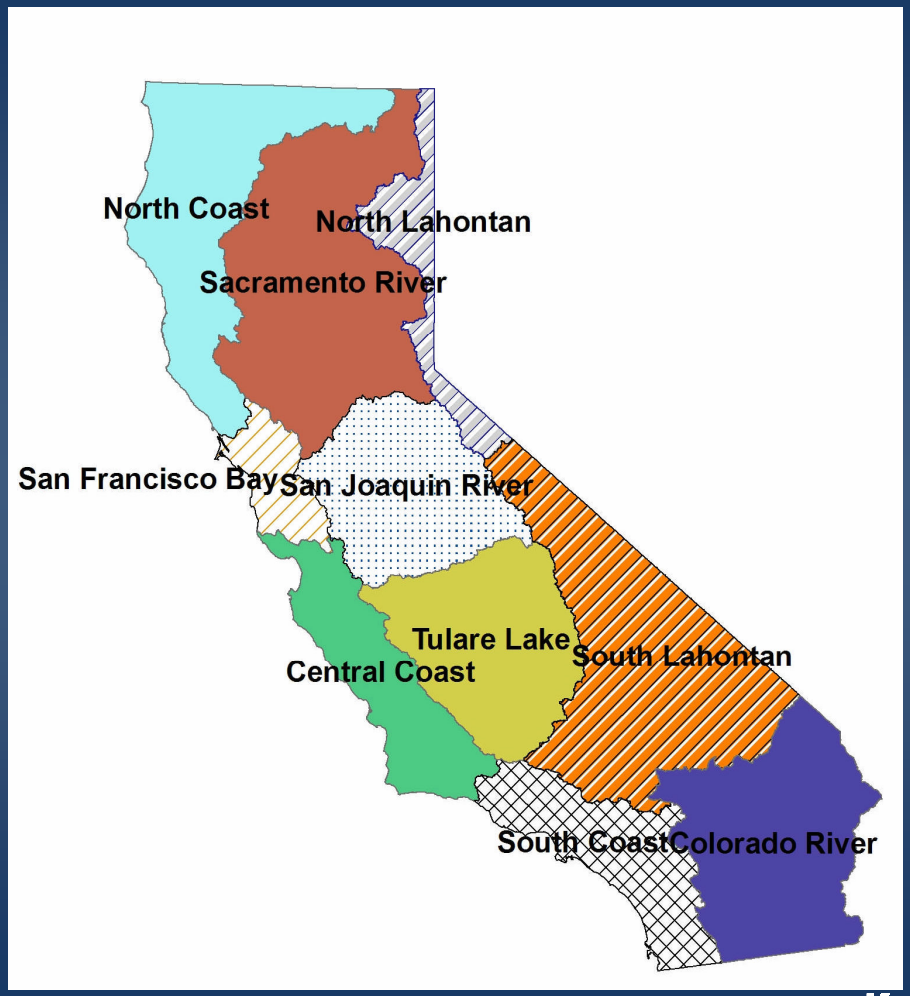
California Hydrologic Regions



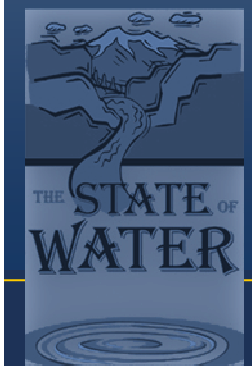
THE STATE OF WATER

DWR analysis and assumptions

- Utilized a weighted base year of 1995-2005
- Derived weighted GPCD by adding all reported water use in all regions, divided by summed population
- Result = 192 GPCD Statewide Baseline

DWR analysis and assumptions

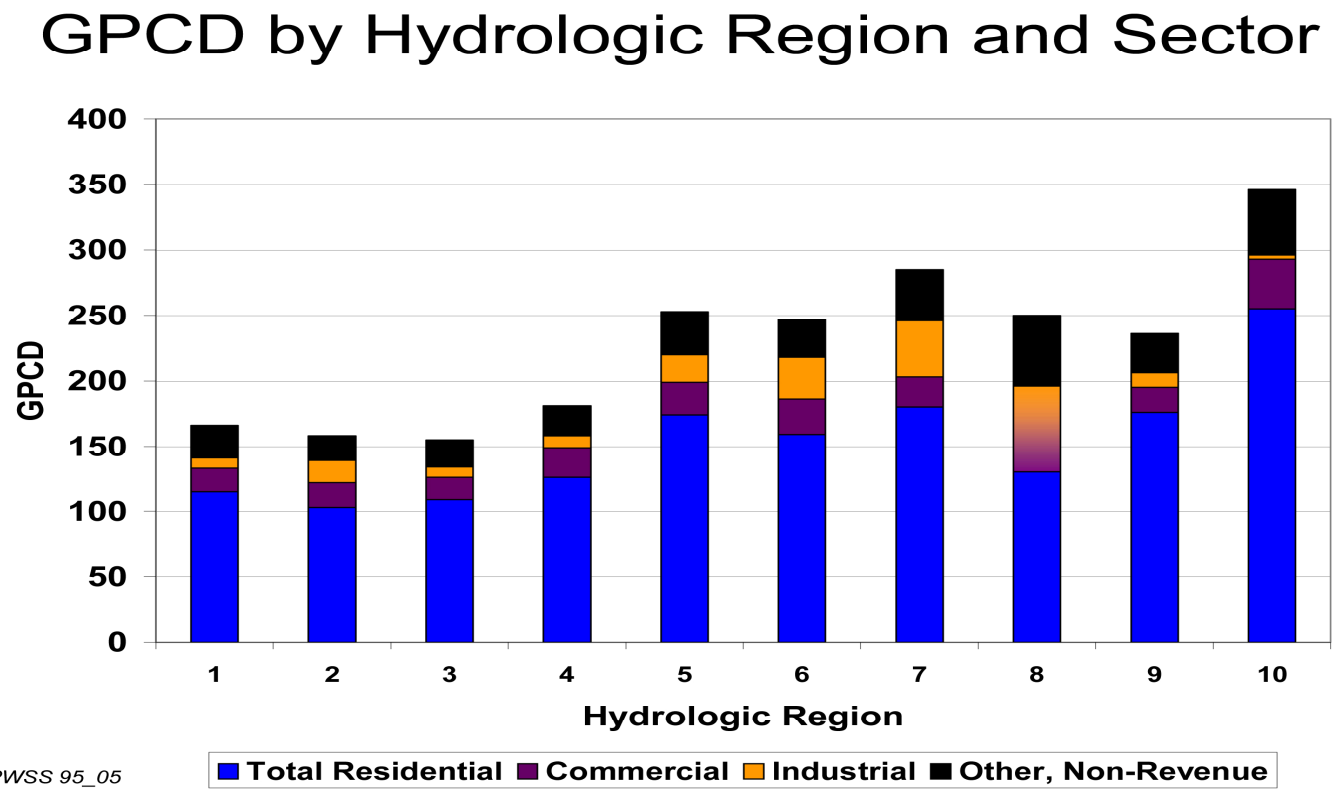
- Some regions (warmer, inland) have much higher reduction targets than others (coastal, cooler)
- Some regions (commercial, industrial) have much more complex water use patterns than others (mainly residential)



DWR analysis and assumptions

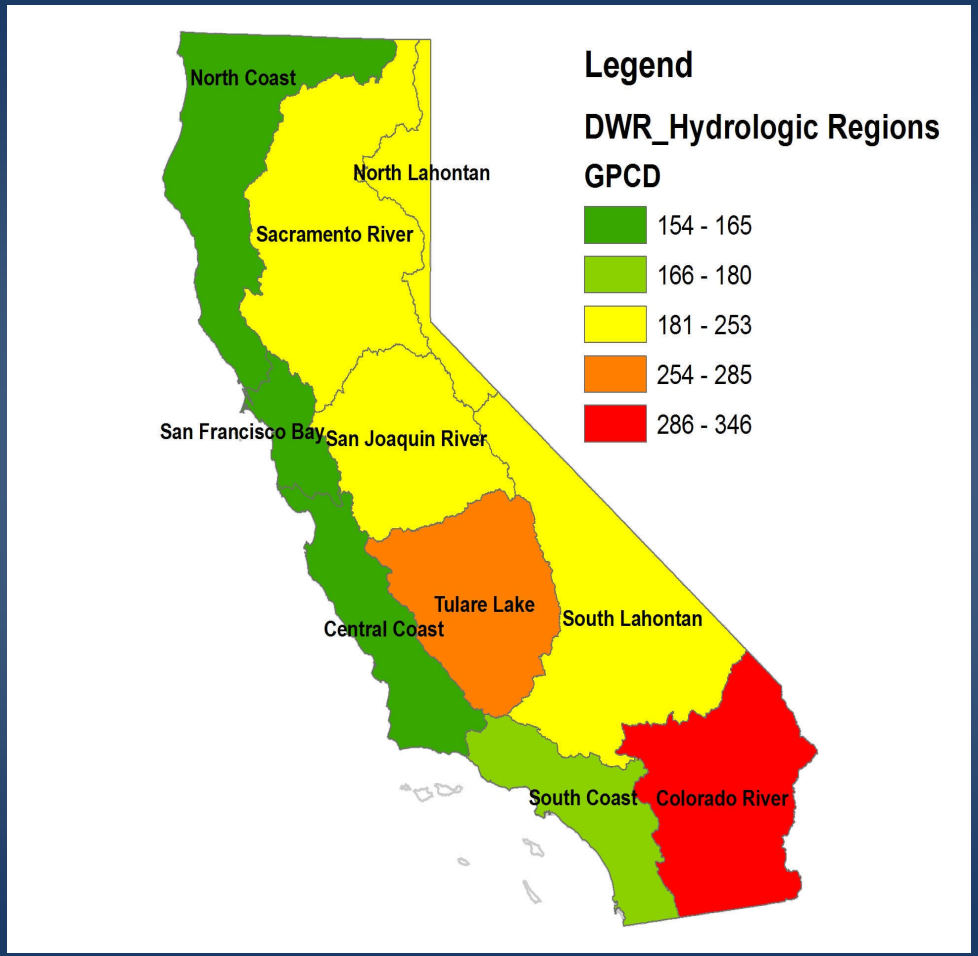
- Examples of complexity:
  - "Orange County/Disneyland" vs. "Single Family Residential Suburb" (what is "population?")
  - Commercial and industrial use became an issue

GPCD by Region and Use



DWR PWSS 95_05

Baseline Data By Hydrologic Regions



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Overall Statewide Savings Target

Statewide Current GPCD = 192

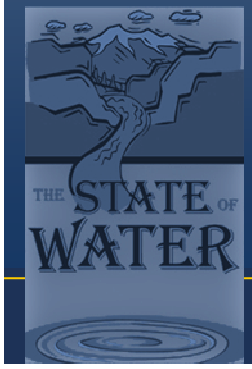
Interim 10% reduction by 2015 = 173

20% reduction by 2020

= **154 GPCD**

Regional Targets

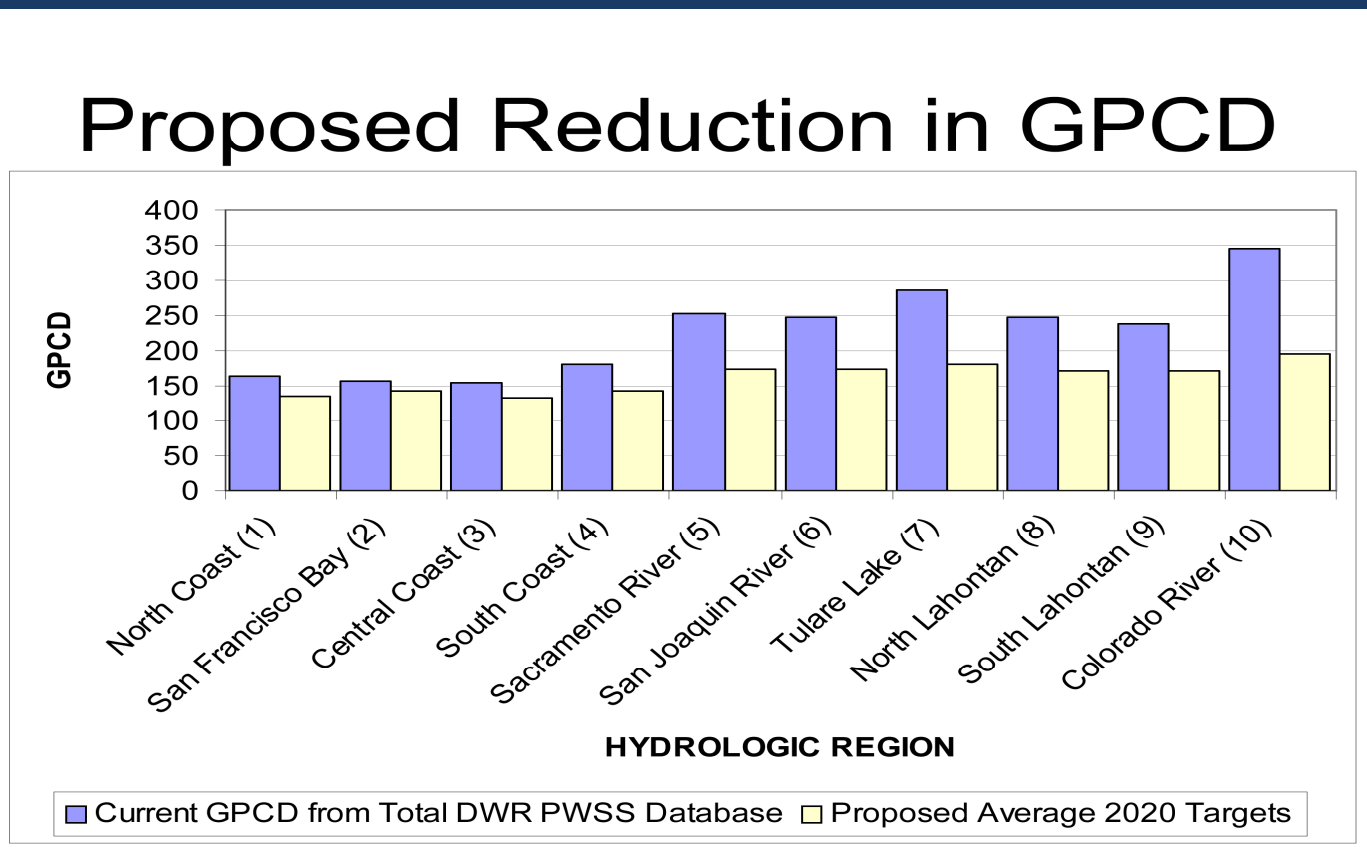
- Goals to strive for
- Interim Target to assess progress and to determine if adjustments are needed
- "Know when you have arrived"



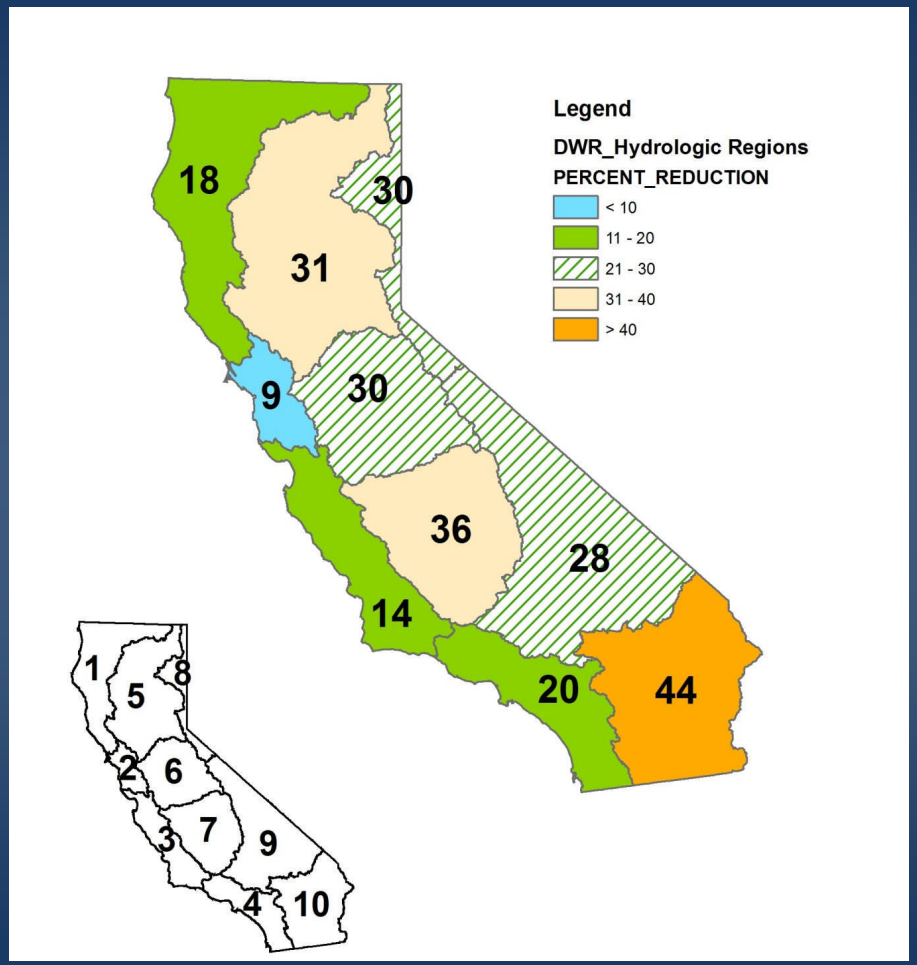
Regional Targets

- Show:
  - Differences across state
  - Recognize the efficiencies that have already been achieved in some regions

Proposed GPCD Reduction



Proposed Regional Targets



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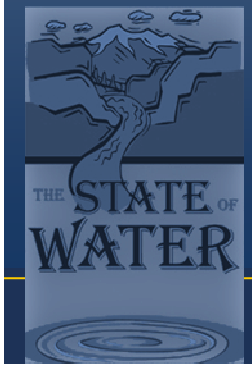
Legislative Approach

- Bill sponsor: Natural Resources Defense Council
- Required “all water suppliers to increase the efficiency of use” (included urban and agricultural suppliers)



Legislative Approach

- Required reporting on “measurable outcomes related to water use or efficiency”
- Established a framework to “meet state targets…called for by the Governor”
- Set interim targets in five-year increments

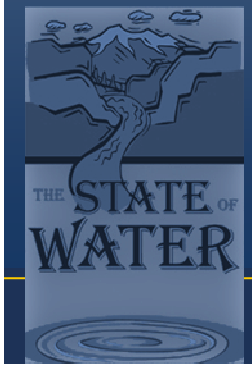
Legislative Approach

- Legislative approach (cont.)
  - Systems with less than 110 GPCD were exempted (but their GPCD could not increase)
  - Systems with more than 110 GPCD to reduce by minimum of 5%, and set sliding scale based on standard for regional location, up to 20% reduction

Legislative Approach

- Allowed disaggregating of residential from CII use
- Bill had many amendments
- Final version contained specific direction about CII use reductions
- This version passed Legislature and was sent to Governor for signature

RESULT:



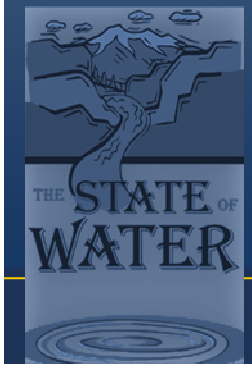
Legislative Approach

VETOED!

- CII sector (Chamber of Commerce, industry organizations, food processors) opposed bill citing economic impacts

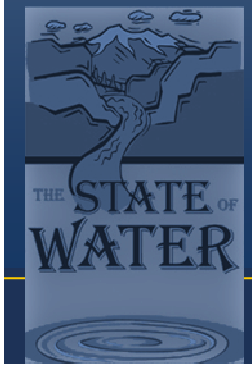
Legislative Approach

- Legislature starting over in 2009, at least three placeholder “20 x 2020” water conservation bills in progress, some sponsored by water agencies
- Stay tuned!



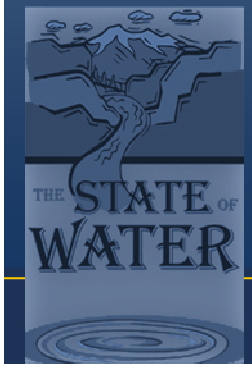
Impacts on Utilities of 20 by 2020

- Water conservation is changing from "behavior-based" to "hardware-based"



Impacts on Utilities of 20 by 2020

- Hardware-based" measures require more sophisticated technical analysis
  - Cost-effectiveness
  - Rate structure/pricing evaluations
  - Service area/customer sector saturation levels analysis
  - Landscape conservation techniques/equipment
  - Industrial process evaluation

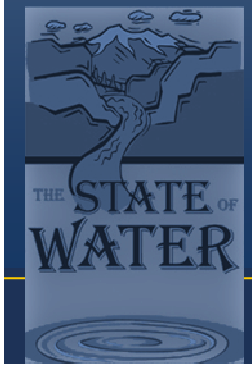


Summary

- As water supplies in the West become more limited, more and more water systems will be looking for conservation potential in all sectors

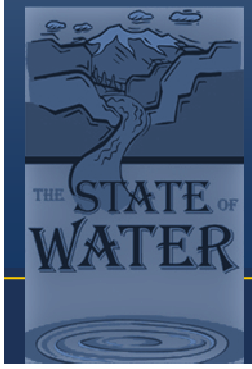
Summary

- "Low-hanging fruit" programs, especially those associated with plumbing code changes and device standards, are those that should be implemented first: <u>least cost for highest savings</u>



Summary

- Flexibility in program components is needed to reflect differences in service area characteristics



Summary

- Greatest savings:
  - Rate structure evaluation
  - Landscape sector
  - Commercial/ industrial processes and uses
  - Cooling tower retrofits

Summary

Will require more rigorous analysis and increased utility commitments

Questions?

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