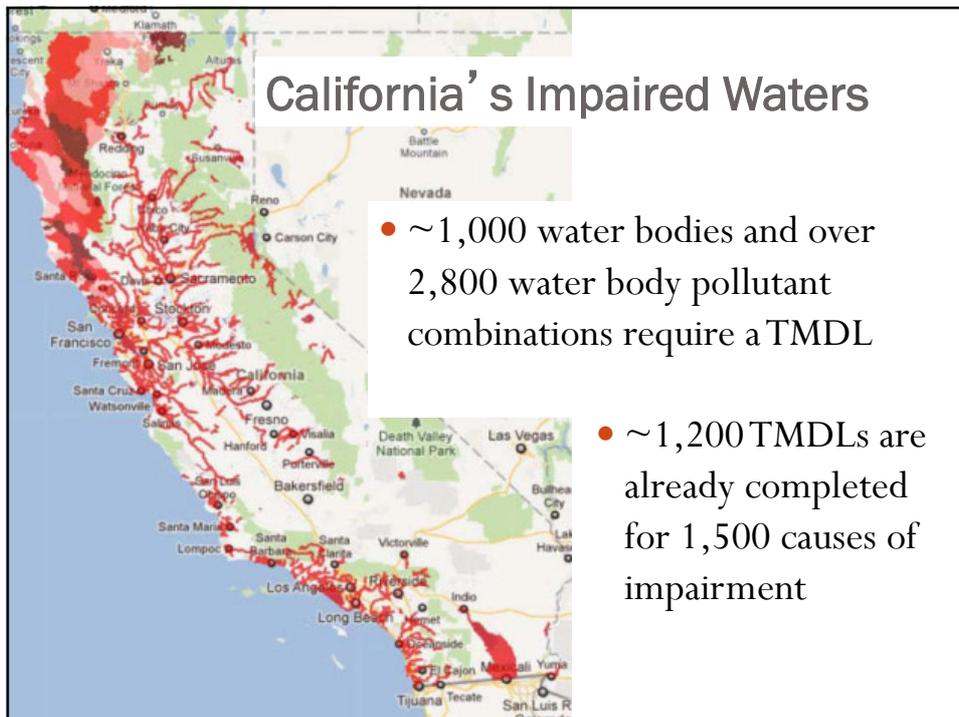


# Integrating Watershed Plans & Total Maximum Daily Loads

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## From Total Maximum Daily Loads to Watershed Restoration

- TMDLs are supposed to lay out the path towards water quality standards attainment
- NPS 319 funding is being targeted towards TMDL Implementation



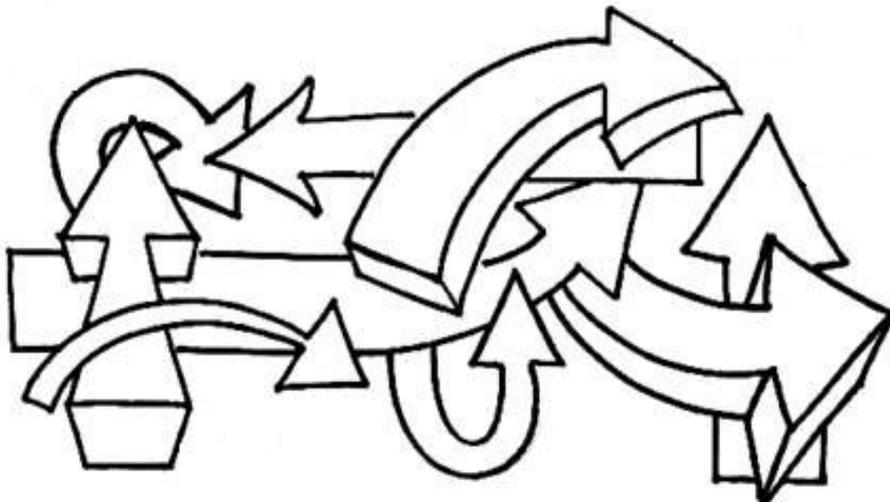
## Federally Required Elements of a TMDL

- Identification of Waterbody, Pollutant of Concern, Pollutant Sources, & Priority Ranking
- Applicable Water Quality Standards & Numeric Targets
- Loading Capacity
- Load Allocations (LAs), Wasteload Allocations (WLAs)
- Margin of Safety (MOS), Seasonal Variation
- Reasonable Assurances
- Public Participation
- Technical Analysis/Supporting Documentation

## 9 Elements of a Watershed Plan

- 1. Identify causes of impairments and pollutant sources
- 2. Estimate load reductions expected from management measures (MMs)
- 3. Describe MMs and critical areas for implementation
- 4. Estimate technical assistance needs, implementation costs, and who will implement plan
- 5. Identify stakeholders, develop education and outreach
- 6. Schedule for implementation
- 7. Interim measurable milestones
- 8. Criteria to determine whether load reductions and WQS are being achieved
- 9. Develop monitoring plan, measured against #7 above.

## TMDL vs 9 Elements



## What's missing ?

- 2. Estimate load reductions expected from management measures (MMs)
- 3. Describe MMs and critical areas for implementation
- 4. Estimate technical assistance needs, implementation costs, and who will implement plan
- 5. Develop education and outreach
- 6. Schedule for implementation
- 7. Interim measurable milestones for assessing implementation status



But California is  
unique!

California TMDLs have  
implementation plans and CEQA  
analysis

# Do California TMDLs meet all 9 Elements?



## Quick Survey of CA NPS Only TMDLs

- I looked at the following 10 (of 18) Projects:

	A	B	C	E	F
1					
2	State			Primary Pollutants	
3	Plan name			Land Uses	
4	Watershed(s)			Pollution Sources	
5	Date				
6	Author(s)				
7	Reviewer & Date of Review				
8					
9					
10					
11					
12	<b>Elements and Evaluation Criteria</b>		<b>Satisfied</b>	<b>Page Reference</b>	<b>Comments</b>
13	<b>A. Identification of Causes &amp; Sources of Impairment (overall)</b>		yes		
14	a. Sources of impairment are identified and described.		yes		
15	b. Specific sources of impairment are geographically identified (i.e. mapped)		yes		
16	c. Pollution loads are attributed to each source of impairment and quantified		yes		
17	d. Data sources are accurate and verifiable, assumptions can be reasonably justified		yes		
18	e. Watershed-level estimate of necessary pollution control is provided (i.e. overall load reduction goal)		yes		
19	<b>B. Expected Load Reductions (overall)</b>		yes		
20	a. Load reductions achieve environmental goal (e.g. TMDL allocation)		yes		
21	b. Desired load reductions are quantified for each source of impairment identified in Element A		yes		
22	c. Expected load reductions are estimated for each management measure identified in Element C		yes		
23					

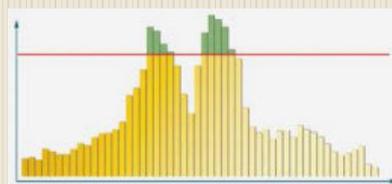
## Identification of Causes and Sources of Impairment

- Overall - 100%
- Pollutant loads were quantified for each source – 80%
- Specific sources were geographically identified - 50%



## Expected Load Reductions

- Overall – 100%
- Desired load reductions are quantified for each source of impairment - 80%
- Expected load reductions were estimated for each management measure - 15%



## Proposed Management Measures

- Overall – 80%
- Proposed management measures achieve load reduction goals – 50%
- Critical/Priority implementation areas have been identified – 40%
- extent of expected implementation is quantified – 70%
- Adaptive management process in place -100%



## Technical and Financial Assistance Needs

- Overall – 30%
- Cost estimates reflect all planning and implementation costs – 5%
- Cost estimates were provided for each management measure – 60%



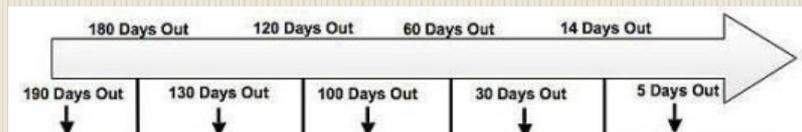
## Information, Education & Public Participation



- Overall – 85%
  - Stakeholder outreach strategy – 60%
  - All relevant stakeholders (i.e. State, Federal, Local, Private) are identified in outreach process – 100%
  - Public meetings and forums have been/are scheduled to be held – 100%
  - Educational/Outreach Materials will be/have been disseminated – 50%

## Schedule and Milestones

- Overall – 65%
  - Implementation schedule includes measureable milestones with specific dates and to evaluate progress – 60%



## Load Reduction Evaluation Criteria

- Overall – 45%
  - Criteria effectively measure progress – 60%
  - Criteria include both: quantitative measures and qualitative measures of overall program success (including public involvement and buy-in) - 10%
  - Interim water quality indicator milestones – 20%
  - An Adaptive Management approach is in place, with threshold criteria identified to trigger modifications – 80%

## Monitoring

- Overall – 95%
  - Monitoring plans effectively measure evaluation criteria – 85%



## In Conclusion...

- California TMDLs do better than most TMDLs nation-wide because they have implementation plans, MM recommendations, adaptive management and monitoring plans.
- However, improvements could be made in:
  - Describing what reductions can be expected from each MM
  - Prioritizing MMs and MM placement
  - Calculating overall MM suite needed and overall cost to attain water quality standards

## Next Up - Case Studies on the interface between TMDLs and Watershed Plans

- **Mike Napolitano, Napa River**
- **Stephen McCord, Mercury in the Delta and its Watershed**
- **Adrienne Harris, Morro Bay National Estuary Program**

