California's Surface Water Ambient Monitoring Program

"SWAMP" Comparable Program Guidance

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SWAMP Surface Water Ambient Monitoring Program

Comparability Overview (3 sessions)

- Today: why, what, SWAMP, resources
- QA Comparability: what and how, and presents tools – July 2nd
- Data Management Comparability: what and how, and presents tools – July 23rd

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Outline

- Why is Comparability Important?
- The Comparability Challenge
- The Surface Water Ambient Monitoring Program
- Building Comparability
- How Do I Become SWAMP Comparable?
- Conclusions

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Comparability

- Goal: Monitor, Assess and Report in a consistent way that allows monitoring information to be shared or combined with other monitoring information.

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Only surface water!

- SWAMP comparability only applies to surface water data. Ground water data is handled by the GAMA (groundwater ambient monitoring and assessment) Program.
- SWAMP comparability does NOT include effluent data – just receiving water.

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Comparability Benefits Everyone

- Leveraging data
  - Better informed decisions
  - Historical data
  - Data from a broader geographical area
- Utilizing established systems
  - Saves time and money
  - Access to outside expertise
  - Access to cutting-edge science
- Known confidence in the data

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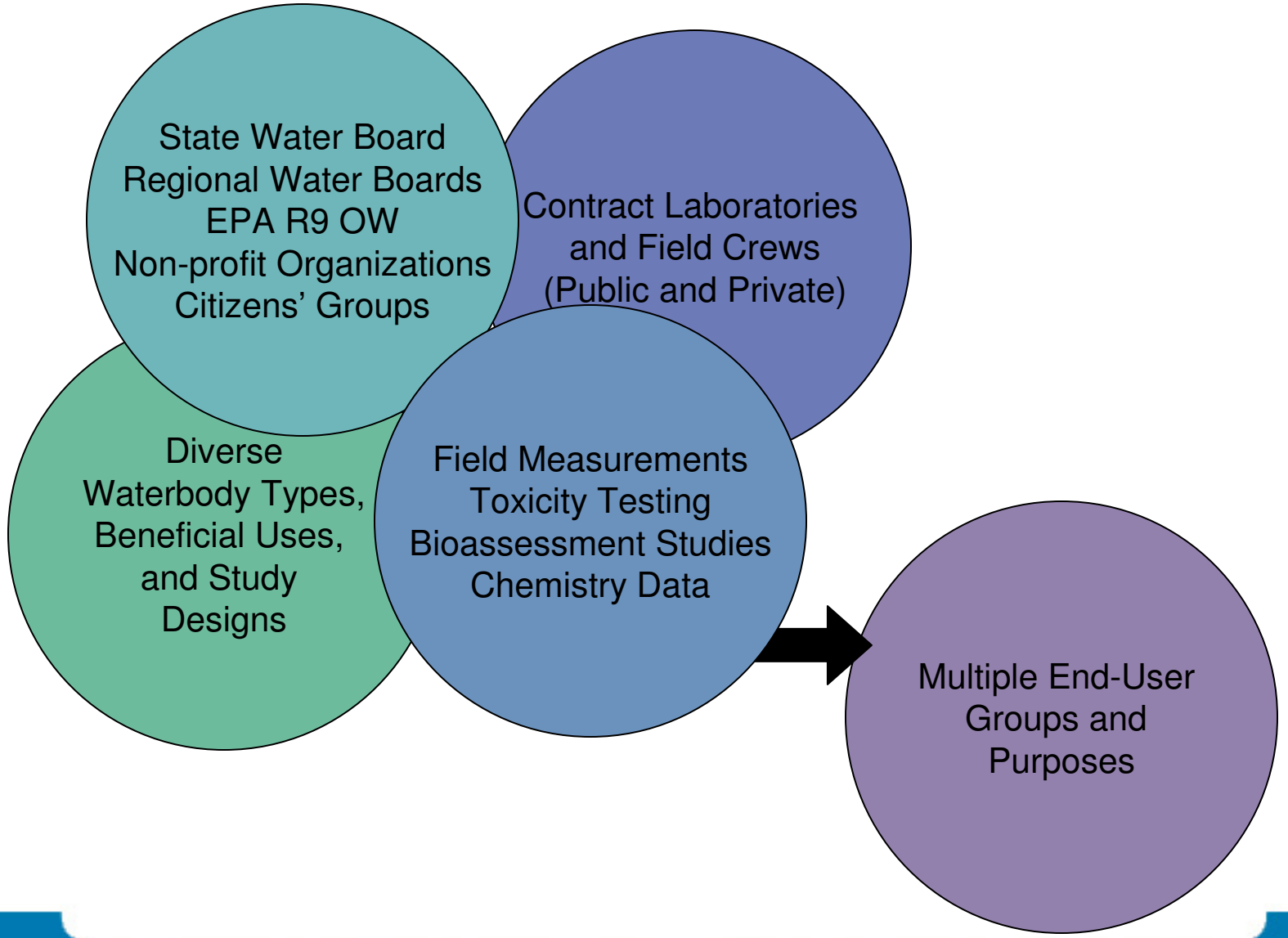
The Comparability Challenge



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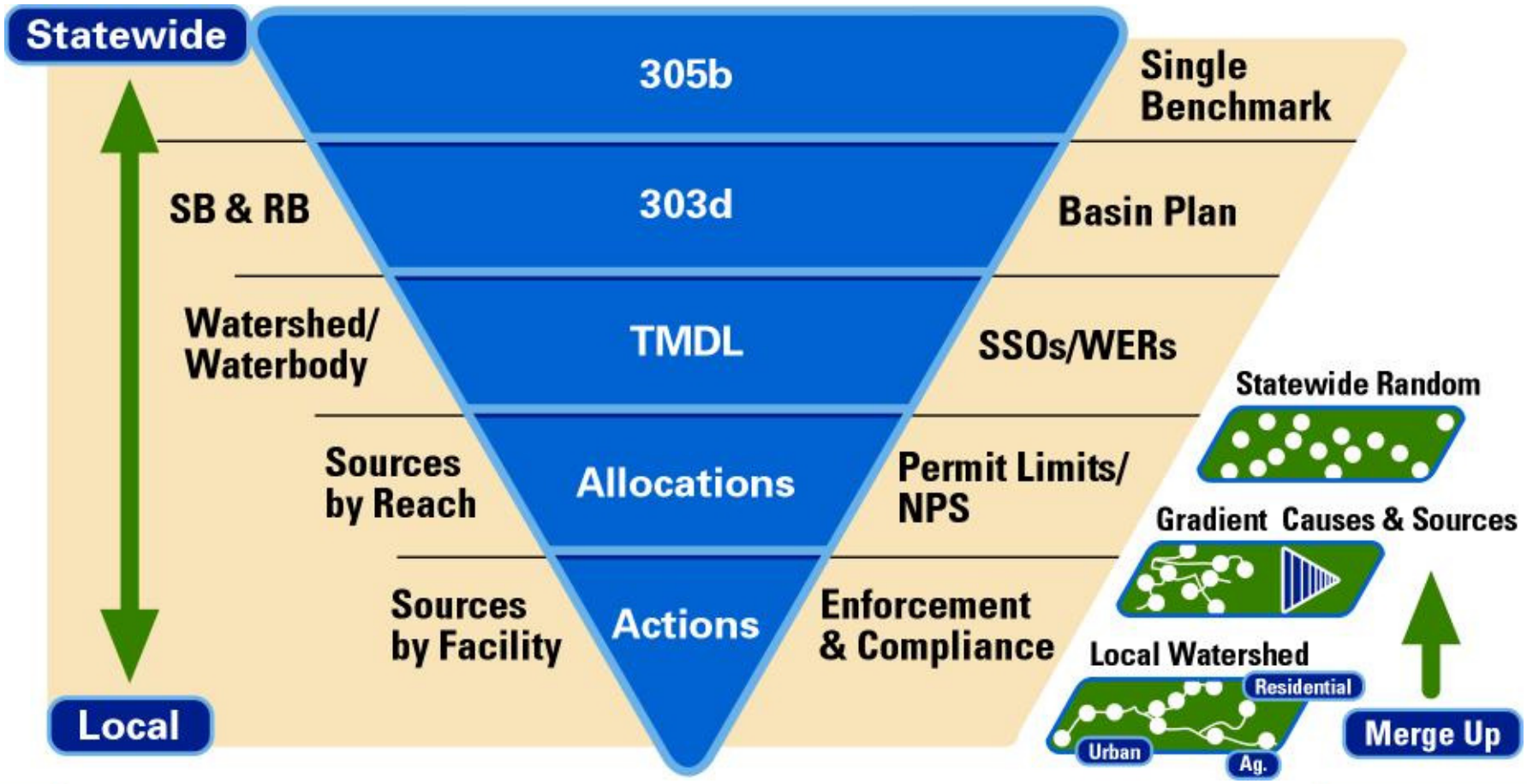
Data Comparability:
The challenge w program integration



The Surface Water Ambient Monitoring Program

- SWAMP is a state framework for coordinating consistent and scientifically defensible methods and strategies for improving water quality monitoring, assessment, and reporting.

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Building Comparability

- Common Indicators
- Application Appropriate Methods
- Quality Assurance Program
- Database w/ metadata
- Information Exchange Network
- Tool Box and Training

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Why is Comparability Important?

- Comparability benefits everyone

- Assembly Bill 982, AB1747
  - Comprehensive program for surface waters
  - Comparable data of known and documented quality
  - Accessible to the general public
  - Re-affirmed by External Program review and Board workshop

- Can't afford not to!

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The SWAMP Answer

- Create systems that integrate objectives from multiple end-user groups
- Test systems on small scales, refine, and implement at program scale
- Re-assess annually; iterative process
- Ensure the DQO and DQA processes are used in planning and data reporting

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Main components of SWAMP

- State-wide monitoring projects
- Biological Objectives
- Regional monitoring programs
- State-wide “umbrella” (Comparability)

Building "Comparability"

- SWAMP is a state framework to coordinate consistent and scientifically defensible methods and strategies for improving water quality monitoring, assessment, and reporting.

- Common Indicators
- Comparable Methods
- Quality Assurance Program
- Database w/ metadata
- Information Exchange Network
- Tool Box and Training

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SWAMP QA and IM Comparability

- "When Measurement Quality Objectives (MQOs) for your project are equivalent to or better than SWAMP MQOs and your data is formatted to match database requirements of the SWAMP Information Management System (IMS)."

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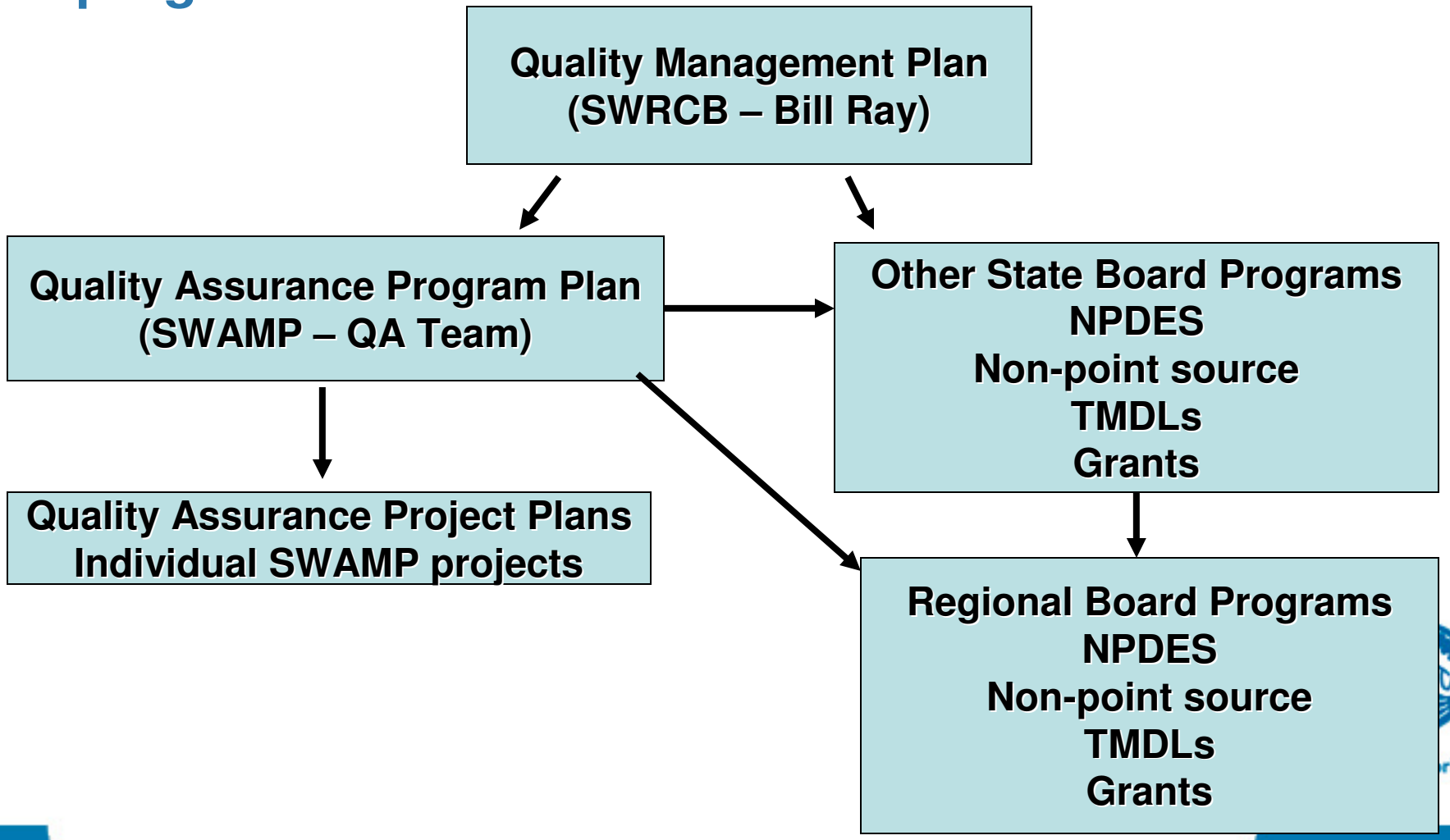
Framework for ensuring comparability for Ambient Data collected by SWAMP and other programs



Method Selection

- Several method options for many analytes
  - NEMI
  - EPA
  - ASTM
  - Standard Methods
- Standardized methods based on consensus
  - Field methods
  - Bioassessment methods
- Alternate Methods - Performance Based System
  - Analytical chemistry analyses
- All selected methods support SWAMP MQOs

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Quality Assurance Program

- Build comparability through QA/QC Tools and Systems
- Select tools based on scope of project
- SWAMP Tools
  - QAPP Template and Checklist
  - Standard Operating Procedures
  - Verification/Validation Procedures
- Encourage programs to use SWAMP MQOs
  - Developed through expert focus panels
  - Ground tested through SWAMP

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Quality Assurance Project Plans

- The SWAMP QAPrP serves as the umbrella QAPP
- QAPPs have to be approved prior to sampling initiation
- Project Managers can write an abbreviated QAPP that references the SWAMP QAPrP and highlights the differences between their project MQOs and the SWAMP MQOs

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QA Expert System

- SWAMP Advisor
- Produces a SWAMP-Comparable QAPP
- Leads users through complex decision making--provides expert advice
- User learns **why** information is needed
- User learns **how** to implement

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SWAMP Data Comparability

- Standard formats
  - Field datasheets
  - Laboratory submissions
- Centralized Database
  - Business rules
  - Look-up lists
- Documentation & Training
  - Manuals
  - Regular trainings

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Data Integration & Accessibility

- Integrated data management
- Public access
- Shared information, costs and applications
- WQDE of Methods Board (Metadata)

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SWAMP Training Track

- Introductory Monitoring Design
- Advanced Monitoring Design
- SWAMP Field Methods (CD rom)
- Introductory Quality Assurance
- SWAMP Advisor
- SWAMP Data Management
- SWAMP Collaboration Workshop
- Annual Meeting - CA Bioassessment Workgroup
- SWAMP for Agriculture Coalitions
- Monitoring Grant Project Effectiveness

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How Do I Become SWAMP Comparable?

Project Planning

- Follow the guidance in the SWAMP QAPrP
- Establish MQOs that are equal to or better than those in the SWAMP QAPrP
- Generate a QAPP that follows the SWAMP format
- Get your QAPP approved by a Water Board QA Officer before you start

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How Do I Become SWAMP Comparable?

Data Management

- Participate in data entry training to learn about the recommended forms
- During the implementation and reporting stages use:
  - All recommended data fields
  - SWAMP standardized field datasheets
  - The Stations Template (for site background information)
  - Specified reporting units (mg/L, µg/L, etc.)
  - The SWAMP data submission format

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Conclusions

- Comparability is our most powerful tool for improving water quality
- The SWAMP program has an established infrastructure with multiple tools that are available to the public
- Leveraging saves time and money
- When your project is SWAMP comparable, you are contributing to the bigger picture; you are helping others make better-informed environmental decisions

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Current Program Support

- Each program has unique needs:
  - DFA: SWAMP comparability as grant requirement
  - Ag. Waiver: (Water Board comparability required)
    - R3, R4 and R5 already comparable
  - 401/Wetlands: (multi agency comparability approach)
    - Wetland Tracker for data management
    - CRAM as an indicator
  - NPS: (comparability and statewide monitoring)
    - Grant requirement for comparability
    - Ecological Assessment as an indicator
    - Monitor Program (effectiveness)

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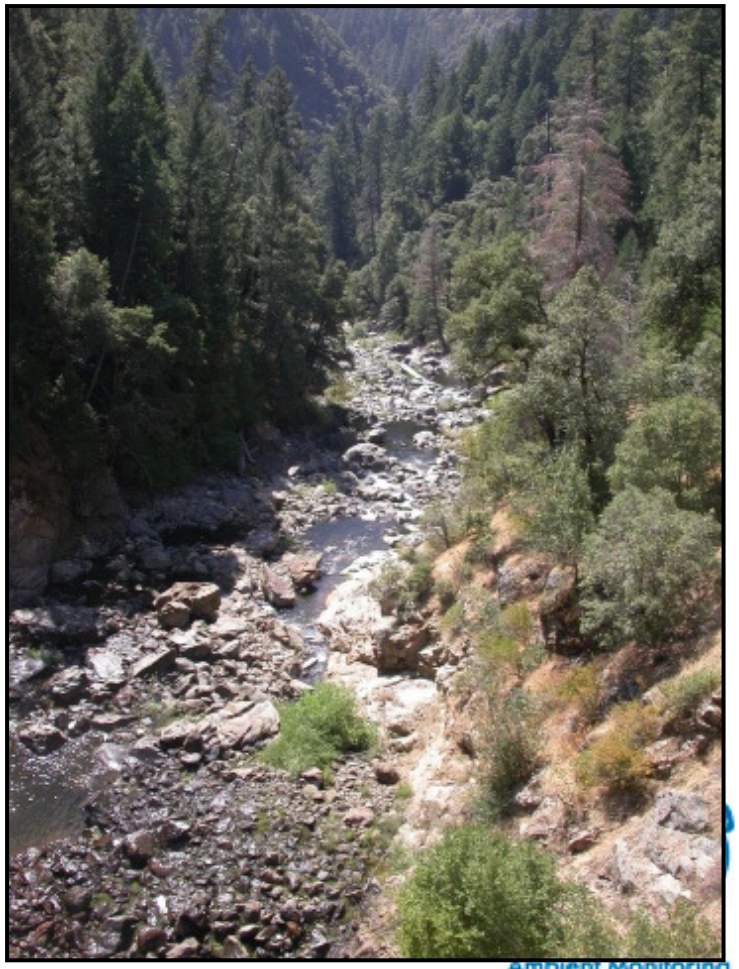
A probability design for NPS questions

NPS 6 Questions :

1. What is the **state of water quality** in California?
2. Is water quality **getting better or worse**?
3. What is the **extent of impairments** associated with NPS?
4. **Which NPS** categories pose **the biggest threats** to WQ?
5. Is the California NPS Program **investing resources consistent with** WQ **problems**?
6. Are **NPS investments effective** in protecting and restoring water quality?



This information is critical for:

- assessing the effectiveness of the NPS program in achieving water quality improvements
- appropriate allocation of limited monitoring funds

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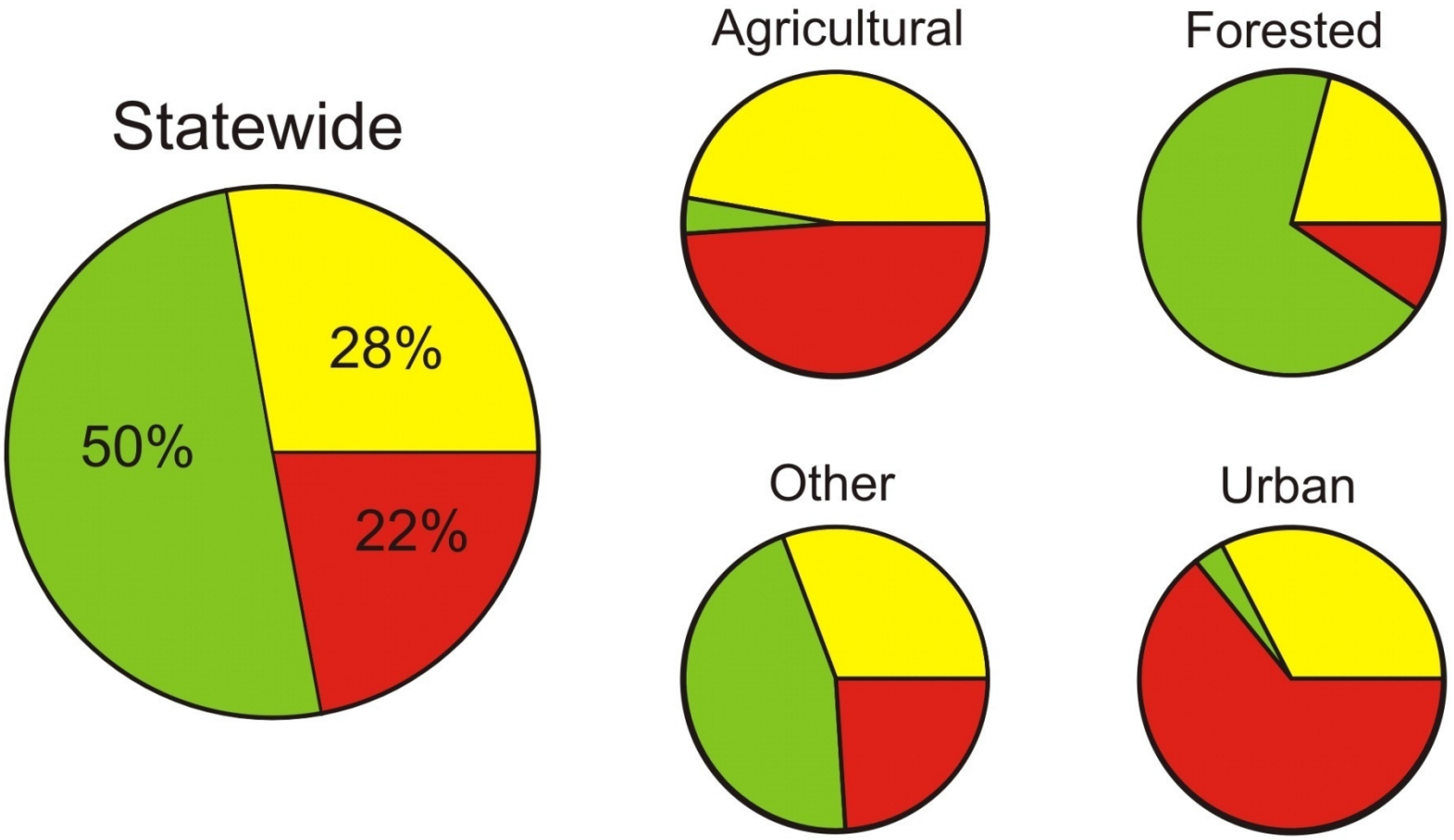
Proportion of stream length in good, degraded and very degraded condition by landuse



These could also be presented with ?s

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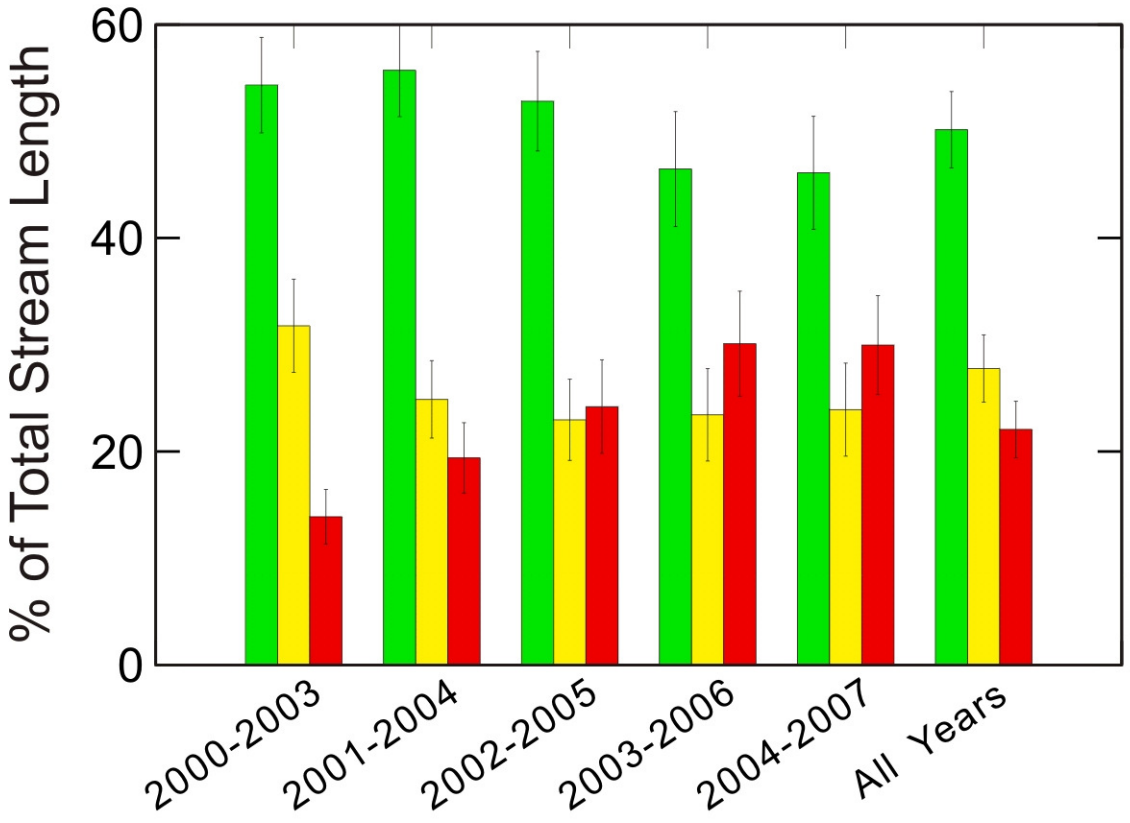
Condition Estimates: 4 year rolling averages



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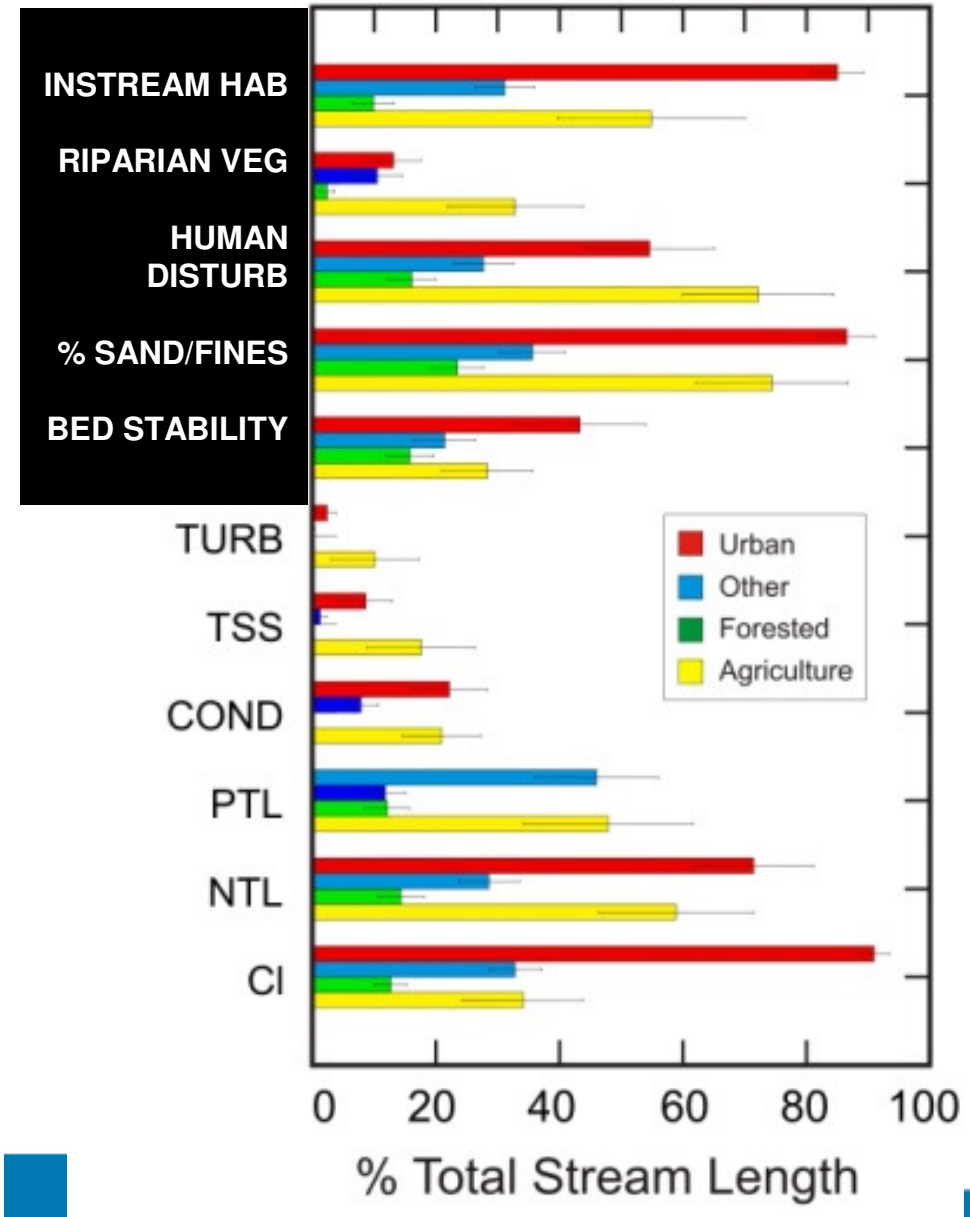
Stressor Extent x NPS Class (6 year)



Instream habitat/ sediment degradation widespread in both urban and agricultural streams, both more common than riparian degradation

N and Cl stressors were common in urban streams, Cl less so in agricultural streams

relative risk estimates by NPS class not yet available

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Developing Program Support

- Stormwater
  - Coordinating with Stormwater Monitoring Coalition in R4, R8 and R9
  - Drafting a Stormwater Quality Assurance Program Plan – surface water only
- NPDES Regional Monitoring
  - Assisting R5 with Delta RMP

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