California's Surface Water Ambient Monitoring Program

Beginning a Citizen Monitoring Program

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Erick Burres

Citizen Monitoring Coordinator

SWRCB-Clean Water Team

eburres@waterboards.ca.gov

(213) 576-6788

CLEAN WATER TEAM

California Water Boards

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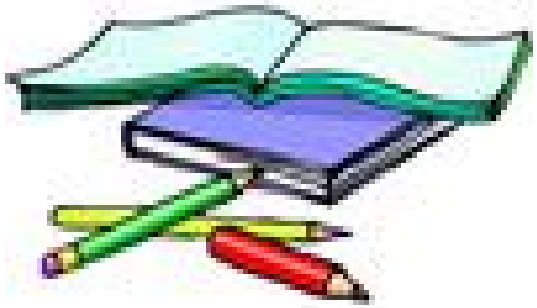
Basic Elements to a Citizen Monitoring Program

- Monitoring Plan
- Quality Assurance Project Plan (QAPP)
- Data Base
- Field/Training Manual
- Safety Plan
- Aquatic Invasive Species Hazard Analysis Critical Control Point Plan (AIS-HACCPP)
- Permits (i.e. Scientific Collection Permit)
- Access Permission(s)



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Attributes of a Well Designed Monitoring Program

- Up-front stakeholder buy-in
- Clear objectives
- Scientifically sound design
- Uses available information
- Comparable methods
- Indicates environmental condition
- Timely data evaluation
- Regular program evaluation and refinement
- Regular reporting

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Monitoring Plan

Develop Monitoring Objectives

- Problem description
- Watershed description
- Summary of existing data
- Summary of ongoing monitoring efforts

Monitoring Objectives- Examples

- Identify changes in water quality
- Identify water quality problems
- Gather information on pollution prevention

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Monitoring Objectives

Examples of Questions

- Did the project reduce nutrient loads to the waterbody?
- Did the project reduce sedimentation?
- What are the baseline water quality conditions?

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Potential Data Users

- Citizens
- Legislators

- Regulators
- Resource Managers
- Local Government

- Environmental Groups
- Scientists

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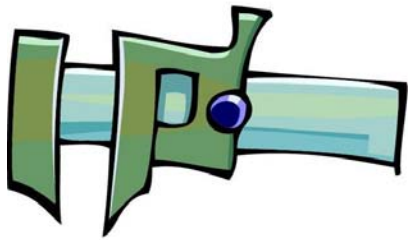
Designing a Monitoring Plan



- Where will monitoring occur?
- What parameters or conditions will be measured?
- How will the parameters be measured?
- When will the monitoring occur?
- How will the samples be collected?

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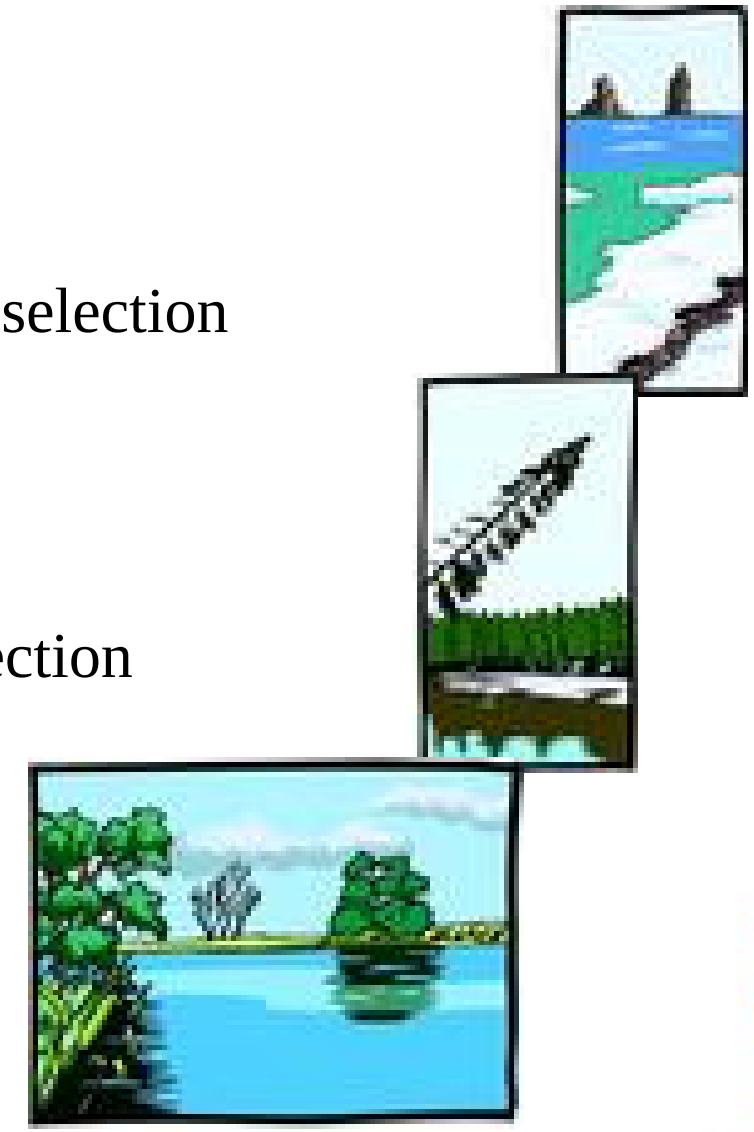
Site Selection

- Census
- Probabilistic site selection
  - Random
  - Stratified
- Targeted site selection



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Approaches and Assessments & Indicators

Approaches to Water Quality Assessment

- Toxicity
- Chemistry
- Biological Assessments

Indicator Selection

1. Scientific validity
2. Practicality
3. Program considerations

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What are Indicators?

"….A measurable feature that provides managerially and scientifically useful evidence of environmental and ecosystem quality or reliable evidence of trends in quality."

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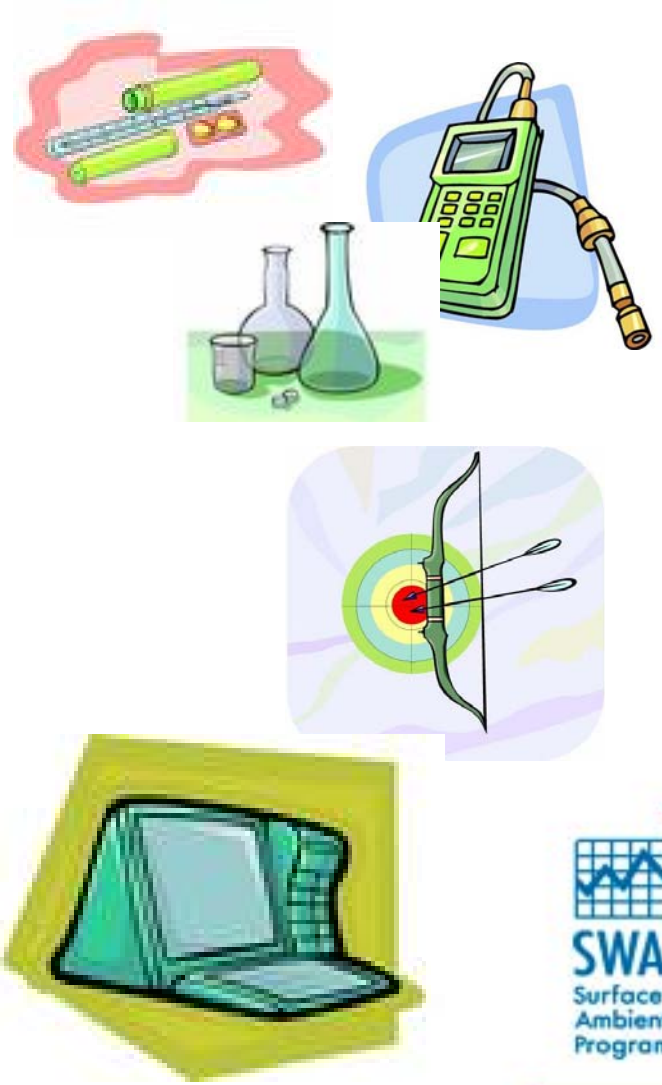
Quality Assurance

- Methods
- Data Quality Objectives
- Performance Audits
- Corrective Action
- Data Validation



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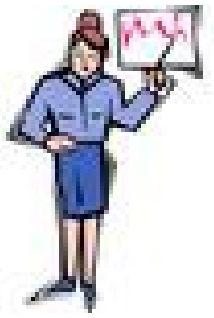
Data Management & Reporting



- Who will use the data?
- How will the data be used?
- How will the data be managed?
- How will the data be summarized/analyzed?
- How and to whom will the data be reported?

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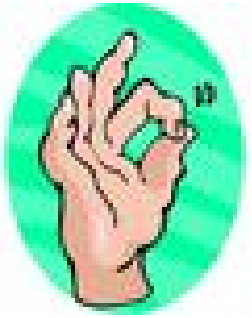
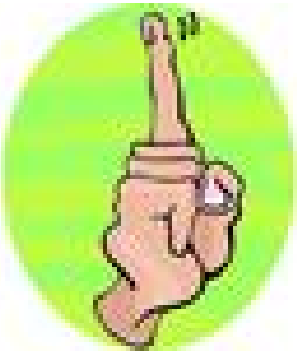
Data Assessment

- **Are the data credible?**
  - QA
  - Technical review



- **What do the results mean?**
  - Were the questions answered?
  - Does the program need adjustment



- **Are we done?**
  - Does the monitoring plan need revision?
  - Does the QAPP need revision?

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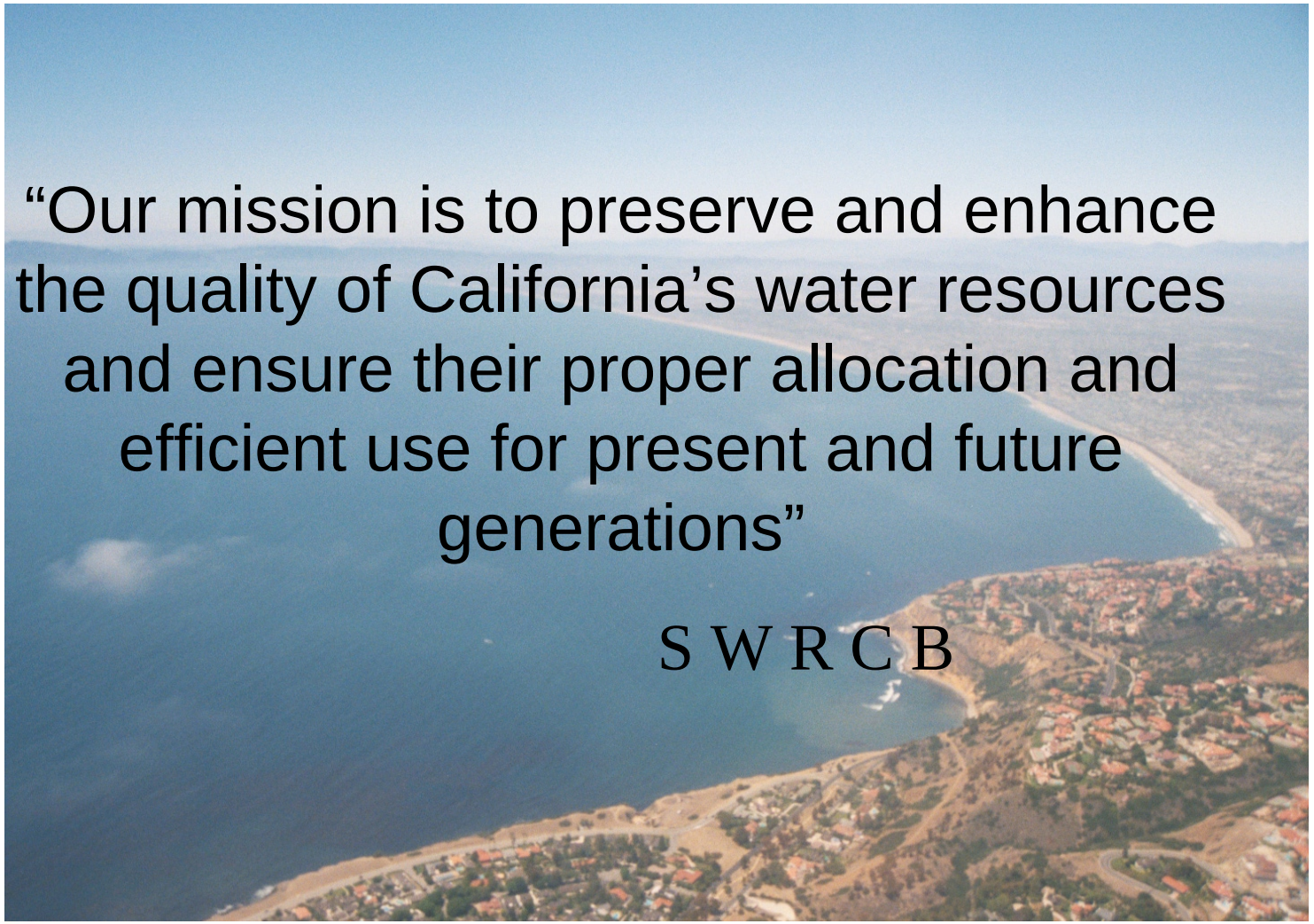
THANK YOU



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