

SWAMP Information Management and Quality Assurance Center

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State Water Board

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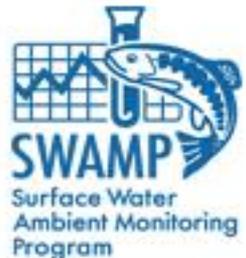
Surface Water Ambient Monitoring Program (SWAMP) Mission

...to provide resource managers, decision makers, and the public with timely, high quality information to evaluate the condition of surface waters throughout California.



SWAMP Strategic Priorities

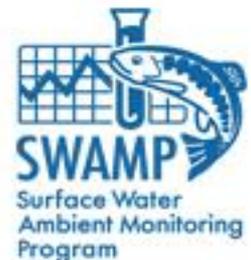
- **Coordination**
- **Monitoring, Assessment, and Reporting**
- **Infrastructure**
 - Quality Assurance
 - Information/Data Management
 - Documentation, Resources, Tools
 - Education & Training



Infrastructure Goal

To Support the Collection and Reporting
of Scientifically Defensible, Comparable,
and Useful Data.

To Help Protect
This - >



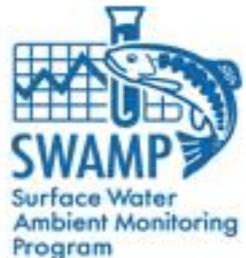
SWAMP Infrastructure History

The SWAMP Program originated in the early 2000's

Over a decade long partnership and contracts with
Moss Landing Marine Labs (MLML)

Due to State Contracting Review Changes

- Contracted Positions → Civil Service Positions



The Past Year

Phase 1. **SWAMP Infrastructure Transition**

1. Transfer SWAMP Resources to State Water Board Website
2. Install SWAMP Data Management Systems
3. Train Staff on Data Management Processes
4. SWAMP Processes “Hand-Off”

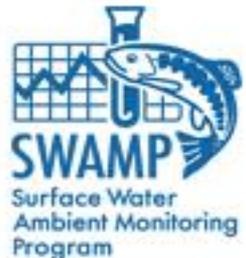
Status: **Completed May 2015**



Current

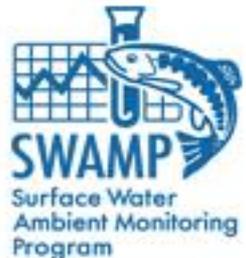
Phase 2. Continuity, Update, Improve

- Maintain Day-to-Day SWAMP Support
 - New Data, New SOPs, etc.
- Systematic Inventory, Review and Update.
- Identify Possible Areas for Further Development and Improvement.



New Vision

- ✓ Promote and Support Question Driven Monitoring
- ✓ Integrated “Whole Picture” Support – From Planning to Reporting
- ✓ Provide Specialized Data Type Support
- ✓ Improve Efficiency and Effectiveness



New Name

SWAMP Information Management &
Robust and Accessible Information
Functional Tool Development

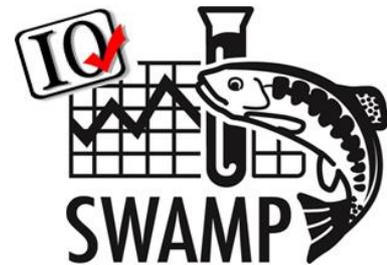
Quality Assurance

Scientifically Defensible Planning, Design ,
Collection, Analysis and Reporting

Center

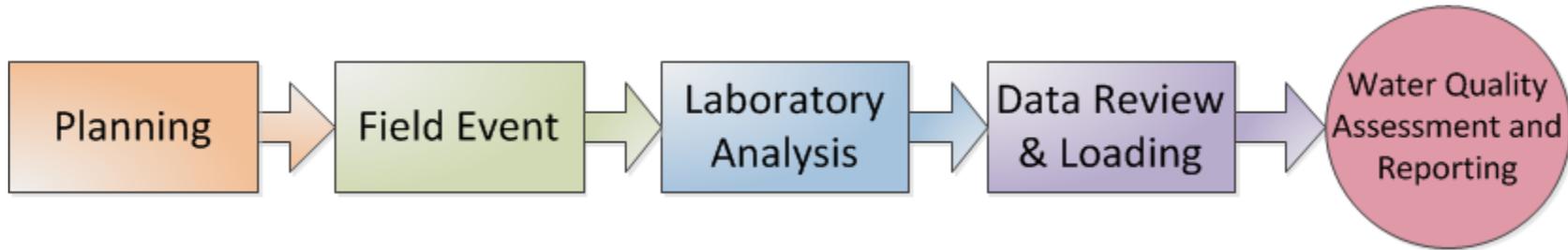
Centralized, Integrated, and Focused

"SWAMP IQ"

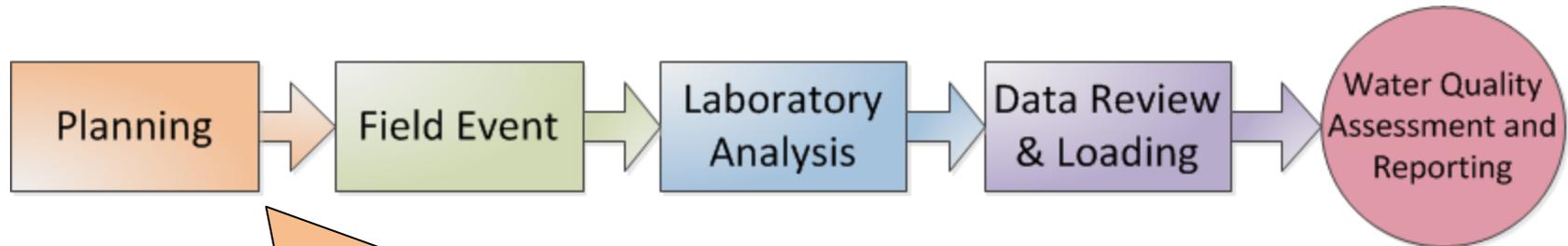


“Whole Picture” Monitoring Support

- ✓ Quality Assurance and Data Management Infrastructure Supports all Stages of Water Quality Monitoring.



“Whole Picture” Monitoring Support

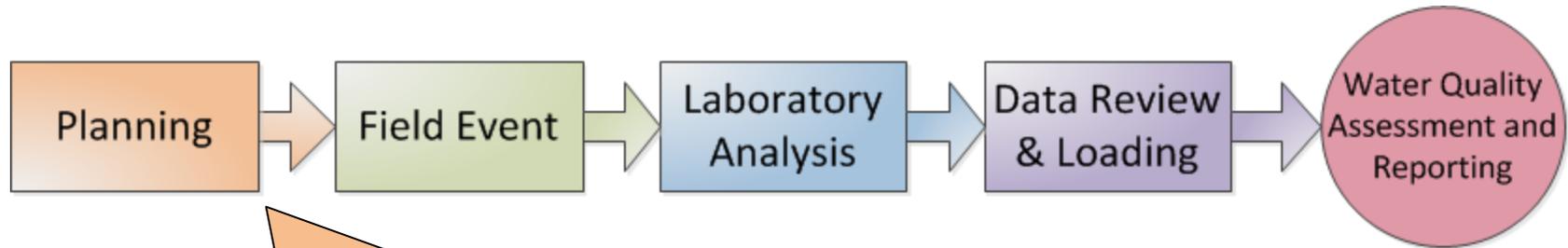


- ✓ Monitoring/Sampling Plans
- ✓ Quality Assurance Plans

New Vision:

★ Question Driven Monitoring
“Data Quality Objectives”

Question Driven Monitoring Support



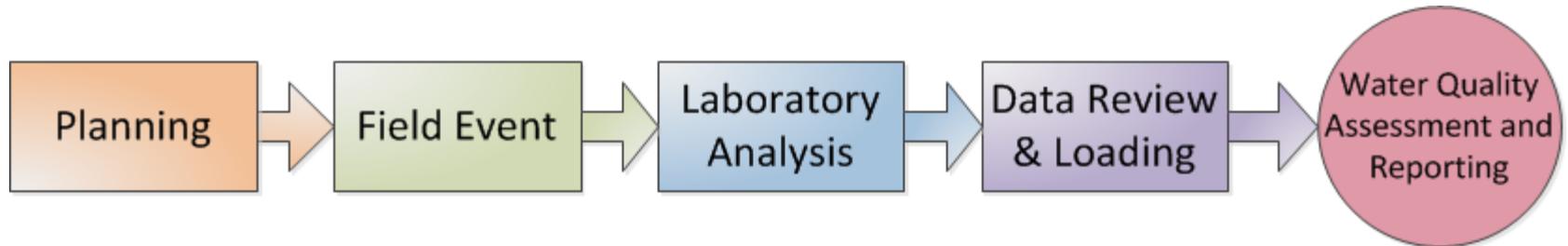
1. What question do you have?
2. What decision/s will be made?
3. What information/measurements are needed?
4. When and where should the data be collected?
5. How will the data be used to make the decision?
6. How much error is acceptable?
7. What is the most resource effective data collection design?



Integration of
EPA's Data
Quality Objective
Process
(EPA QA/G-4)

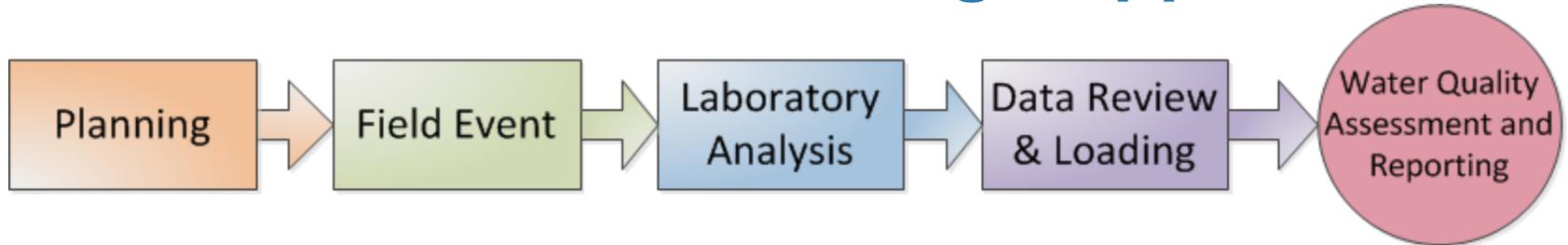


“Whole Picture” Monitoring Support



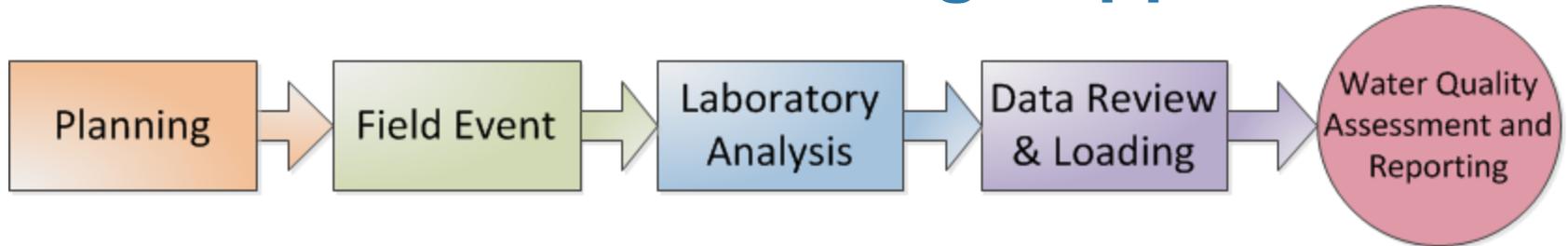
- ✓ Geospatial Accuracy ★
- ✓ Field Protocols & Site Documentation ★
- ✓ Equipment Calibration & Maintenance ★
- ✓ Sample Collection, Handling, Preservation, Holding Times and Field QC Samples ★

“Whole Picture” Monitoring Support



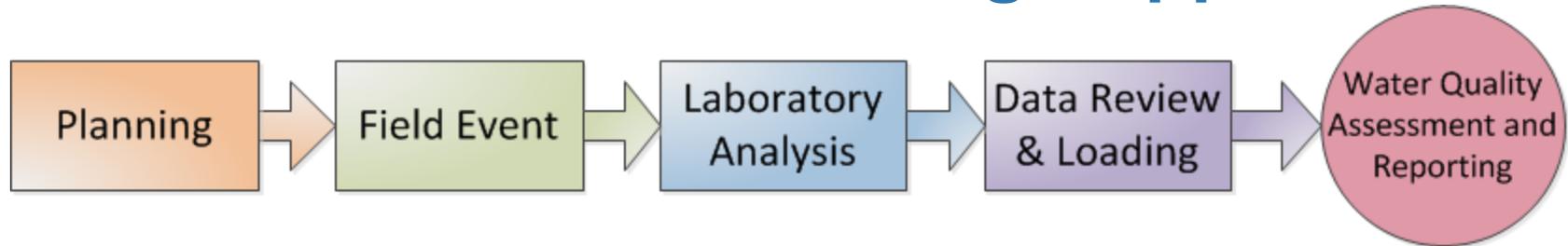
- ✓ Chain of Custody Forms ★
- ✓ Database Setup/Accessibility ★
- ✓ Measurement Quality Objectives ★
- ✓ Corrective Action - Implementation ★

“Whole Picture” Monitoring Support



- ✓ Data Processing and Review ★
- ✓ Data Flags and Comments ★
- ✓ Corrective Action - Follow Up ★
- ✓ Completeness ★

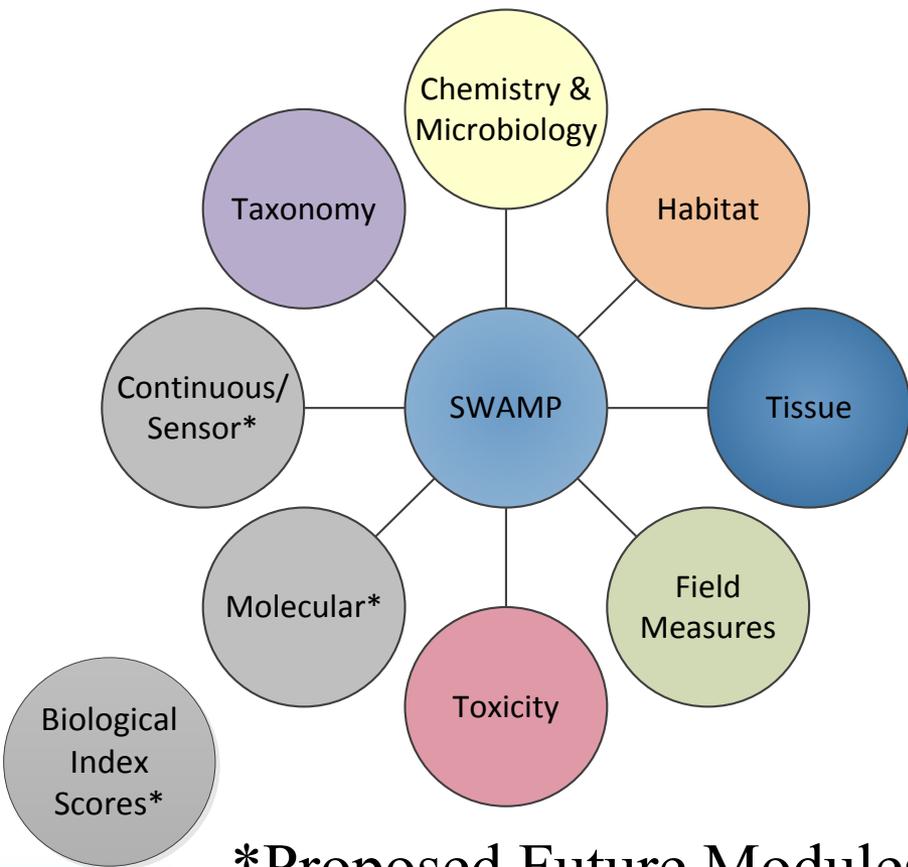
“Whole Picture” Monitoring Support



- ✓ Data Understanding ★
- ✓ Data Integrity & Confidence ★
- ✓ Acknowledge and Communicate Limitations and Measures of Error ★

Specialized Data Type Support

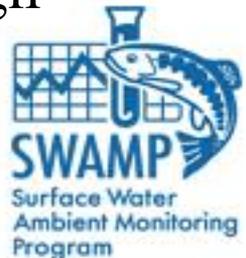
SWAMP Data System Modules



*Proposed Future Modules

Unique Needs:

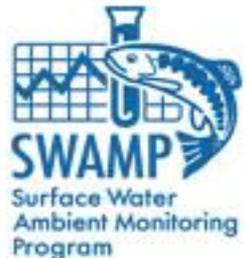
- ✓ Sample Handling
- ✓ Quality Controls
- ✓ Review Levels
- ✓ Use Constraints
- ✓ Data Templates
- ✓ Minimum Data Elements
- ✓ Data Storage Design
- ✓ Metadata



Integrated Support Approach

“Whole Picture”
+
Specialized Data Types
=

| SWAMP Information Management & Quality Assurance Center “SWAMP IQ” | | | | | |
|--|-----------|------------------------------|---------------------------------------|----------------------------------|--------------------------------|
| Field Measures, Sensor Data, Habitat, Geospatial | Chemistry | Toxicity, Bioaccumulation | Microbiology, Toxins, Molecular | Algae Taxonomy, Bioassessment | BMI Taxonomy, Bioassessment |
| Marc Petta | Kim Pham | Brian Ogg | Marisa Van Dyke | Candice Heinz | Toni Marshall |



Improve Efficiency and Effectiveness

<Both Inside and outside SWAMP>

- ✓ Process Changes and Documentation Updates



SWAMP Data Processing Change

From: 1)Load – 2)Review – 3)Release

To: 1)Review – 2)Load – 3)Release

- ✓ Matches projects submitting data to CEDEN
- ✓ Makes SWAMP resources more widely effective
- ✓ Real-time communication with SWAMP labs
- ✓ Data within database is ready for analysis and potential public release!



Improve Efficiency and Effectiveness

<Both Inside and outside SWAMP>

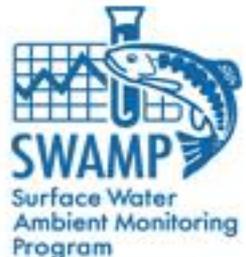
- ✓ Framework Development : 

Measurement Quality Objectives

Data Quality Objective Process

SWAMP Comparability

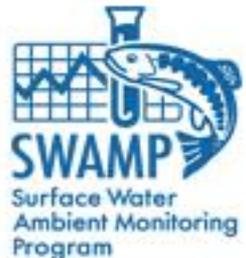
- ✓ Consistent and Complete MQO development by anyone and customizable to any project!
- ✓ SWAMP's Tiered MQOs (Screening, 303d, Compliance)
- ✓ Simplify the DQO process for all!
- ✓ Clear and consistent SWAMP comparability guidance.



Improve Efficiency and Effectiveness

<Both Inside and outside SWAMP>

- ✓ SWAMP Data and Tools Accessibility 
 - Consolidate Tools and Build User Interfaces**
 - Convert Desktop Tools to Web**
 - Streamline and Automate**
- ✓ Make tools easier to use and adaptable to a wider audience
- ✓ Improve access to data and the tools
- ✓ Improve resource utilization
- ✓ Keep up with software and system updates



Thank you. Questions?

General Questions and SWAMP Comparability
Assistance:

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