California's Surface Water Ambient Monitoring Program

SWAMP's Tools and Infrastructure for the State's Algae Program

November 9, 2011

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California Water Boards

SWAMP Surface Water Ambient Monitoring Program

Outline

- Introduction to SWAMP's Algae Program
- Tools and Infrastructure
- Current Products
- Future Focus and Funding Needs
- Next Steps

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Introduction to SWAMP's Algae Program

Objectives

1. Use Algae as a second indicator for biological conditions in addition to BMIs to strengthen the assessment through several lines of evidence

1. Add algae to Biological Objectives and Nutrient Numeric Endpoints (NNE) Policies

Detailed Roadmap on how to incorporate Algae into SWAMP's Bioassessment Program

→ Algae Plan (2008)

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SWAMP is building Tools and Infrastructure to Support Standard Use of Algae

in progress

Tools for Field Sampling
- training
- algae field SOP
- methods calibration study (*see Matt Cover*)

Sampling of Algae (species composition/ biomass)

QA/QC Program
- SOPs, MQOs, data flags

Tools for Lab Analysis
- training
- algae lab SOP
- taxonomic infrastructure
  -algal "SAFIT"
  - master taxa lists (STE)

Identification of Algae
Analysis of Algae Biomass

Data Management (SWAMP/CEDEN)
- data tables
- data input formats
- reporting module

Assessment of Biological Health (Metrics and Biomass)

Tools for Data Analysis
- development of metrics (algae IBI, O/E)
- causal assessment links

Regulatory Applications:
- Nutrient Numeric Endpoints
- Biological Objectives

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Where to Find Completed Products

- Algae Plan (SWAMP website)
- Algae Field SOP (Moss Landing Website)
- Trainings: Through Training Academy
- Taxonomy Workgroup Website: www.cad-twg.org

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Future Focus and Funding Needs

- Algae Lab SOP (with BMI group)
- Develop QA/QC documents (with BMI group)
- Online Resources and Training for Algae Taxonomy
- Reporting Module for Algae Data
- Update Historic Data (EMAP/CMAP)
- Development of Regional and Statewide Algae Metrics (IBIs, O/E)
- Causal assessment tools for algae

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Next Steps

- Finalize until the end of 2012:
  Tools for Lab Analysis
  QA/QC documents
  Support Tools for Algae Taxonomy
  Reporting Module

- Starting 2013 focus on:
  Regional and Statewide IBIs and O/E

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Questions?

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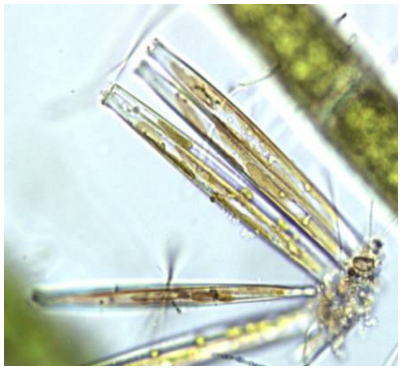

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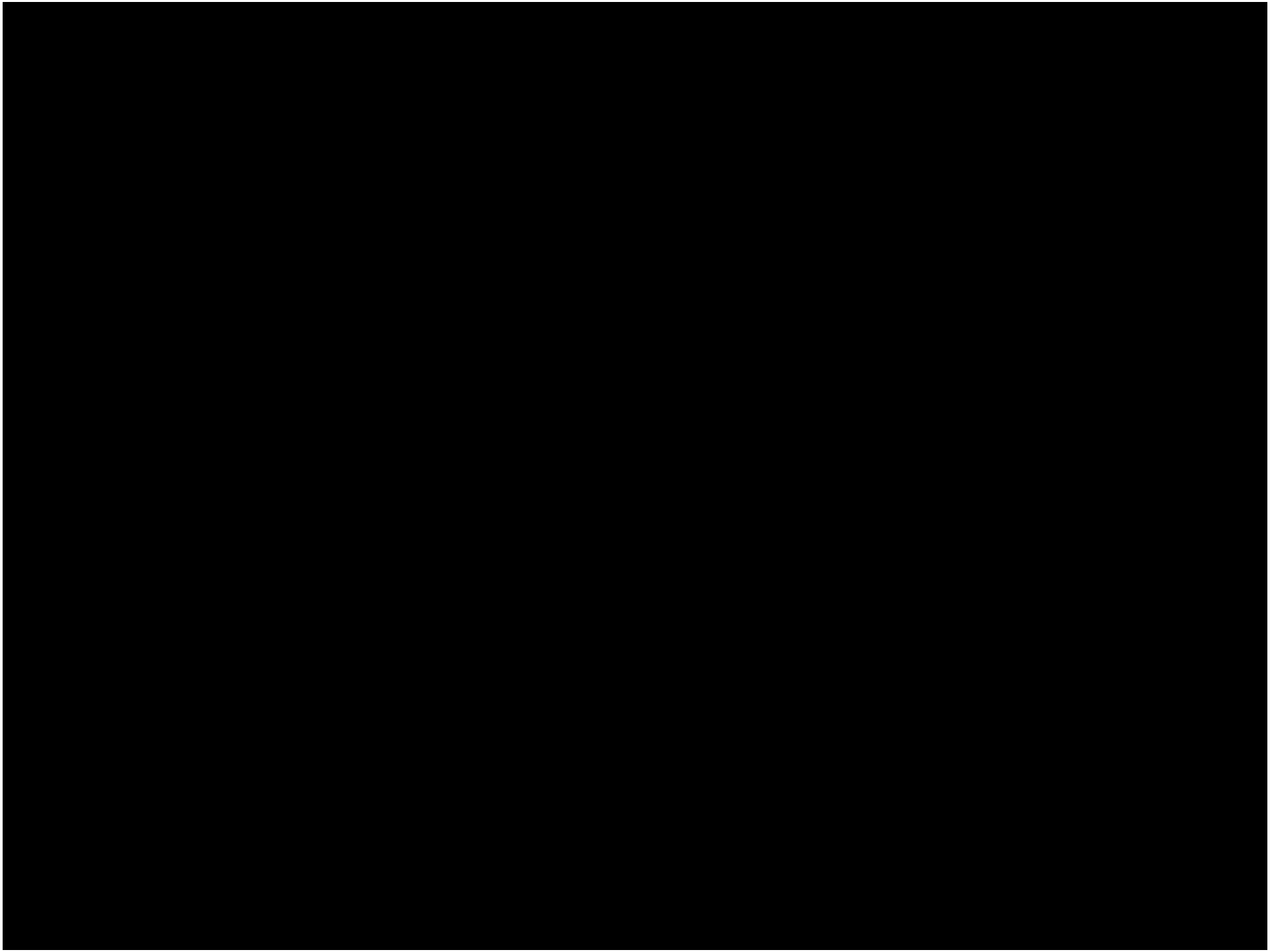

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Algae Bioassessments in a Regulatory Context

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Algae in Bioassessments

1. **Non-regulatory context:**
   Include algae in bioassessment (ambient assessments)

2. **Regulatory context:**
   Include algae in bioassessment in regulatory programs (e.g., MS4 stormwater permits), enforcement through new policies

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1. Non-regulatory Context

- Use when interested in overall biological integrity (together with BMIs) as **multiple lines of evidence**.

- Use when interested in **nutrient impairments**

Potential Issues:

→ why use two indicators in cases where the indicators tell the same story?

→ what to do when algae and BMIs tell different stories?

→ what to do in areas with no algae IBI?

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2. Regulatory Context

Algae bioassessments included into permits or other regulatory programs (e.g., San Diego MS4 stormwater permit)

→ How can the results be enforced? (currently there are no objectives that can/cannot be met)

→ *The goal is to include algae into two new policies*

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Biological Objectives

Biological Objectives for perennial streams based on BMIs, adoption planned for 2013.

→ The goal is to include algae in 3-5 years as an additional indicator to strengthen policy

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Nutrient Numeric Endpoints

- **Nutrient Numeric Endpoints** (NNE) for lakes and streams, adoption planned for 2013. Endpoints are dissolved oxygen, pH, and algal biomass.

  → After adoption of NNE, benthic chlorophyll standards can be enforced through NNE

  → Species composition included later in NNE?

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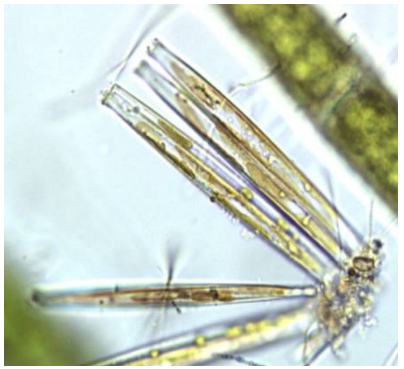

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