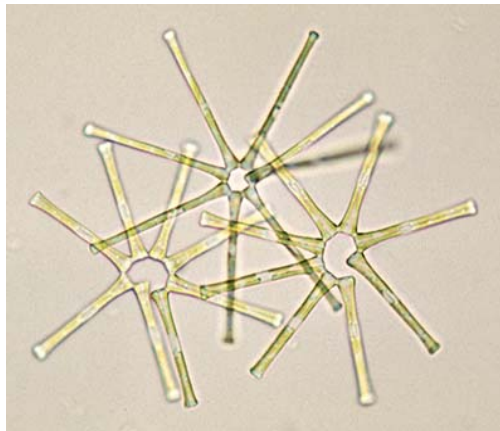


SWAMP Bioassessment FY 06-07 Workplan (and beyond)

Tom Suk, Lahontan RWQCB
Pete Ode, CDFG-ABL

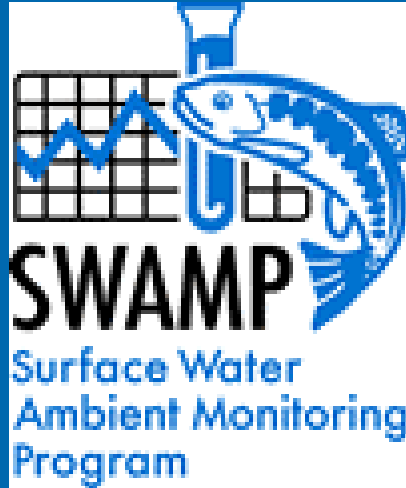


Outline

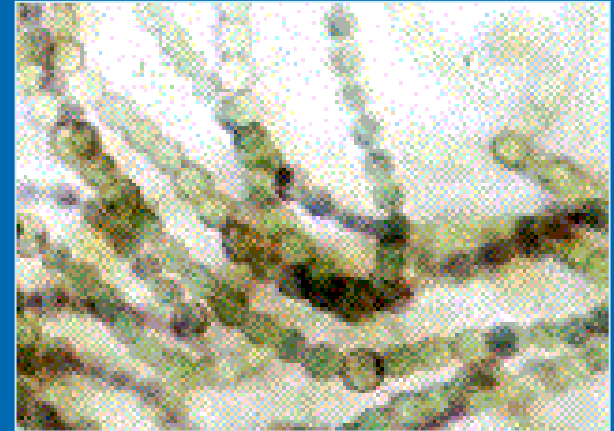
- Define SWAMP
- Intro to regulatory bioassessment
- FY 06-07 SWAMP workplan
- How it all fits together...

Surface Water Ambient Monitoring Program (SWAMP)

established 2000

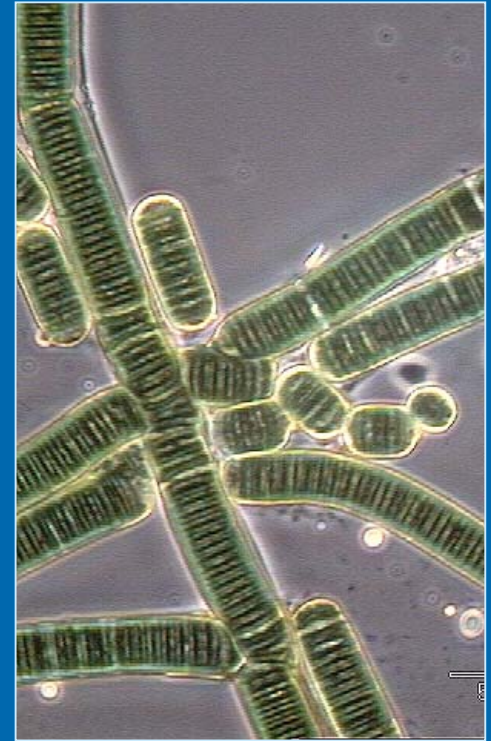


In the beginning...



Why bioassessment?

- direct measure of integrity of aquatic life uses
- integrates water quality over time

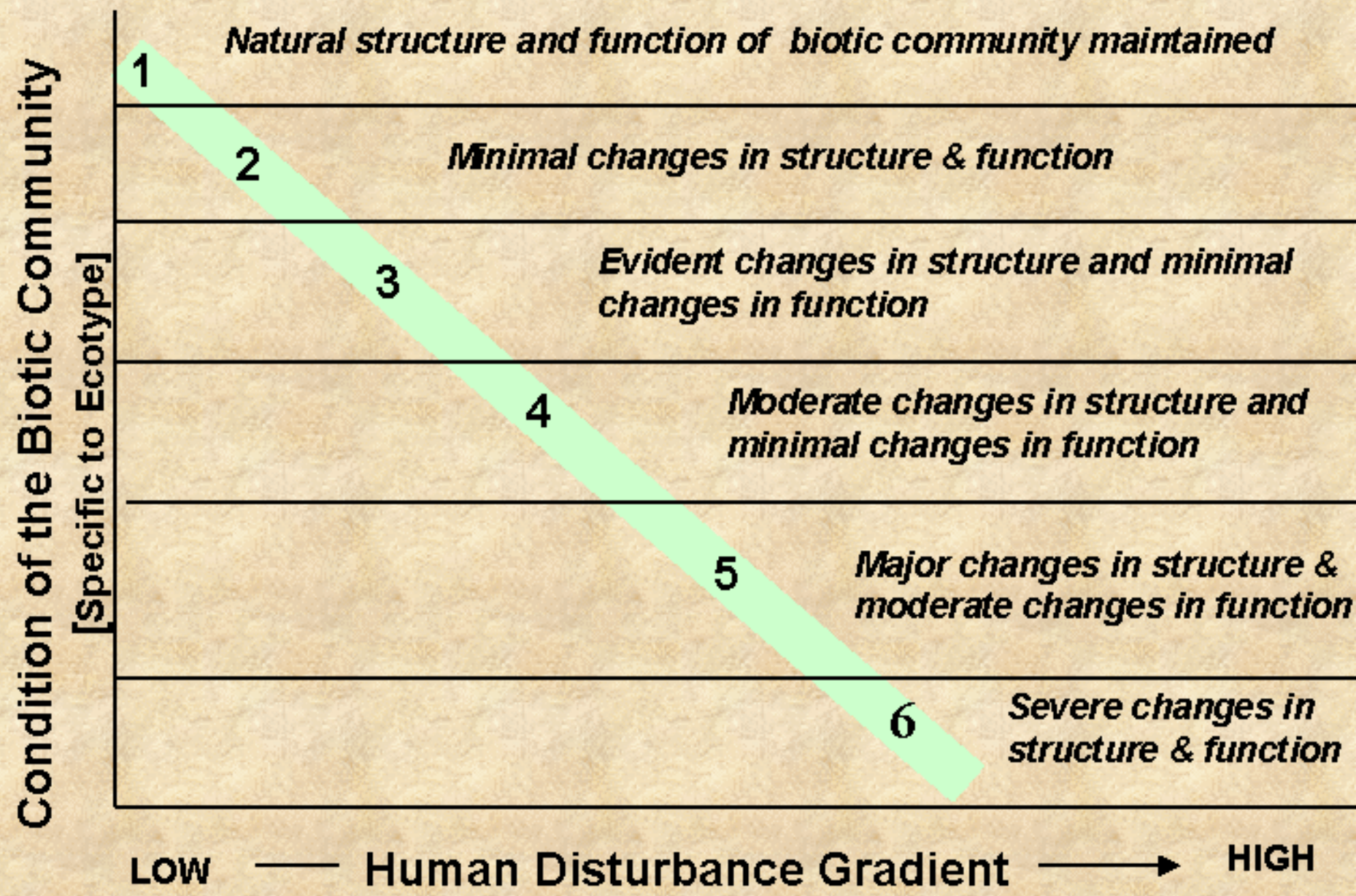


Why bioassessment?

- Clean Water Act, Section 101(a): *“...restore and maintain the chemical, physical and biological integrity of the nation’s waters...”*
- SWRCB’s Strategic Plan (1997): *“bioassessment monitoring program...”*
- USEPA’s CWA 106 funding
- “SWAMP Strategy” (2005)
- SPARC (2006)



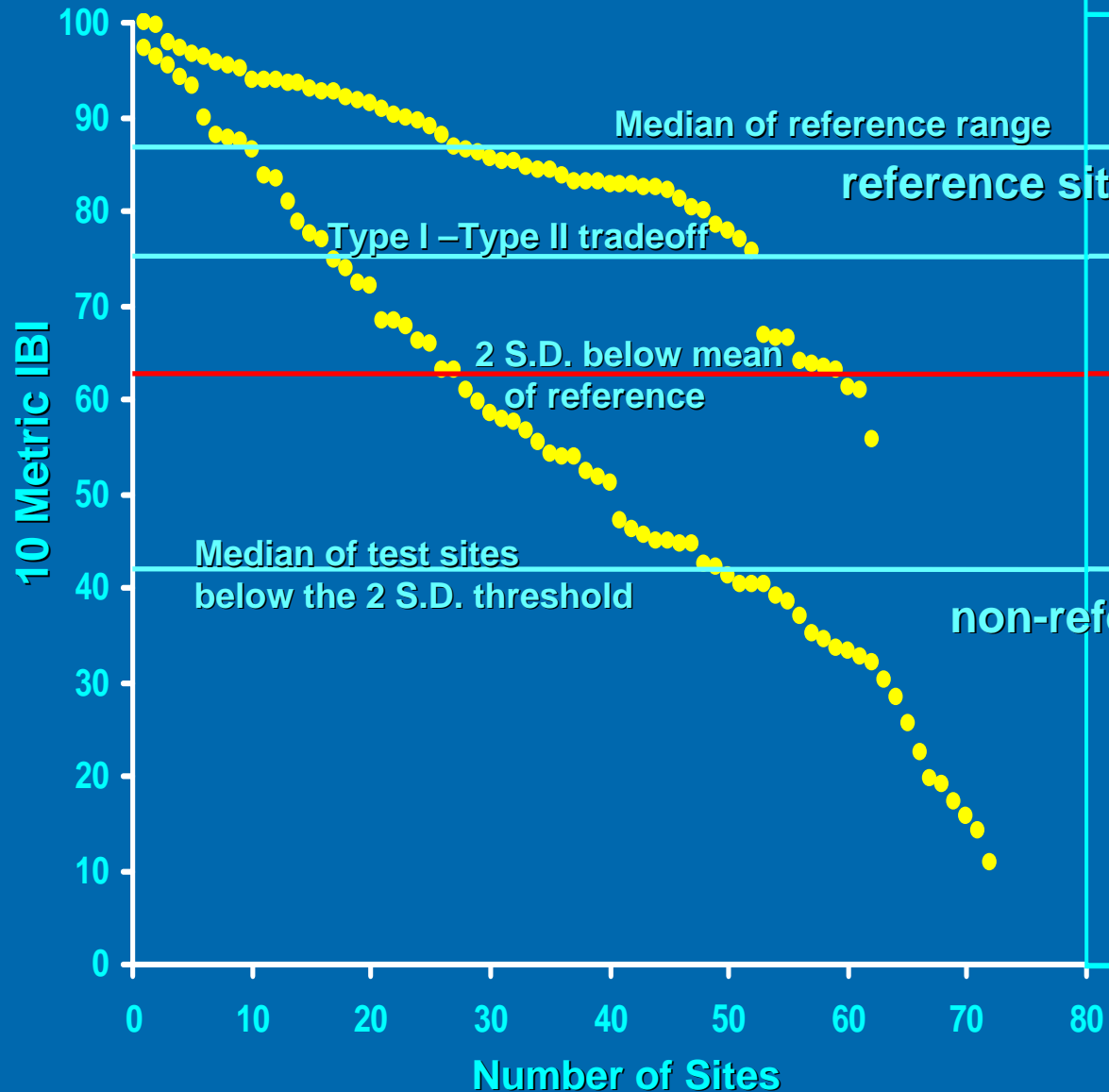
Tiered Aquatic Life Use Conceptual Model: Draft Biological Tiers -1



Key Points to Emphasize:

- #1: The framework is conceptual**
- #2: Number of tiers to be determined by State or Tribe**
- #3: “Best Fit” approach recommended**
- #4: The framework may be quantitatively defined by many possible methods**

10 Metric IBI



Tier	Report Card	Qualitative Description (5 classes)	Combined Qualitative Description (3 classes)
1	A	Very Good	Good
2	B	Good	
3	C	Fair	Fair
4	D	Poor	Poor
5	F	Very Poor	

Tier	Report Card	Potential Thresholds for defining boundaries between condition classes	Qualitative Description (5 classes)	Combined Qualitative Description (3 classes)	Compliance with biocriteria (for 305[b])	Compliance with biocriteria (for 303[d])
1	A	Median of reference range above type I / II balance	Very Good	Good	Supporting	Not Impaired
2	B	Balance of Type I and Type II statistical error	Good			
3	C	2 SD below mean of reference streams	Fair	Fair	Partially Supporting	Impaired
4	D	Median of test range below 2 SD reference threshold	Poor	Poor		
5	F	Below median of test sites below 2 SD reference threshold	Very Poor			

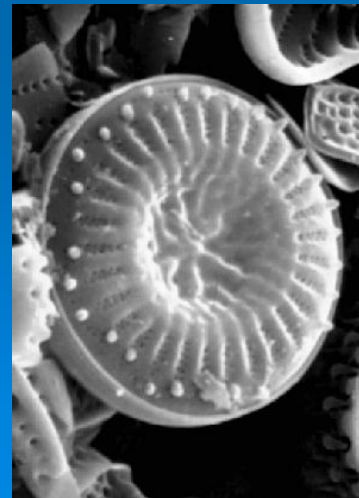
Brief History of SWAMP Bioassessment

- Focus group formed in 2001 – (contract for peer review)
- Peer review by Dr. M.Barbour & C.Hill (2002; final report Jan 2003)
<http://www.waterboards.ca.gov/swamp/reports.html>
- Response to peer review (2003 – ongoing; memo Feb 2004)
- SWAMP Strategy (2005)
<http://www.waterboards.ca.gov/swamp/docs/cw102swampcmas.pdf>
- SPARC Review (2005-06)
http://www.waterboards.ca.gov/swamp/docs/reports/sparc486_swampreview.pdf
- implement Strategy — incl. standardized protocols (2007 & beyond)

1. “Statewide” Bioassessment



Goal: To provide a statewide assessment of biological integrity, and (hopefully) to advance biocriteria



2. Reference Site Management Plan

Goal: A consistent, coordinated, defensible approach to reference site sampling & management

- Reference sites: *The backbone of bioassessment*
- Current selection criteria: *inconsistent, project-specific, ad hoc, often subjective, (SPARC!)*
- Current sampling: *project based, little assessment of spatial and temporal variation*

Outcomes/products: plan that lays out:

- Statewide strategy for consistent selection criteria
- Timing & frequency of sampling
- Roles & responsibilities
- Data management

3. Reference Site Selection Tool

Goal: To produce a consistent, objective, defensible process (and tool) for selecting reference sites

- *Identified as high priority by 2003 peer review*
- *Vision: GIS-based software application for managing stressor layers and threshold criteria*
- *Objective 5-step process, based on NHD+ (plus)*

Outcomes/products: GIS-based tool for selecting reference sites throughout California

4. Periphyton Methods & Plan

Goal: Develop plan for coordinated, consistent approach to periphyton bioassessment

Tasks include:

- *Convene key algal ecologists & regulators with experience/interest in periphyton-based bioassessment [responds to SPARC]*
- *Examine methods currently in use & determine best methods/approaches for California*
- *Define methods for field, lab, taxonomy*
- *Determine if methods comparison is needed*

Outcomes/products: A detailed plan for a coordinated and consistent approach to periphyton bioassessment.

5. Data Management & Reporting Tools

Goal: To provide infrastructure & tools for collecting and interpreting bioassessment and physical habitat data

Outcomes/products:

- SWAMP Database (e.g., infrastructure to house bioassessment and physical habitat data)
- Tools for interpreting bioassessment data (e.g., calculate metrics & IBI scores)
- Data entry forms for physical habitat (“p-hab”) data
- Tools for interpreting p-hab data (particle size distributions, D50 particle sizes, discharge, riparian vegetative condition, instream condition, human disturbance index, etc.)
- QA/QC data management applications (coordinate with SWAMP QA Team)
- SAFIT (update Tax Effort docs, conduct tax workshops, develop proposal for future years)

6. QA Field Days

Goal: Standardize collection of field data; improve inter-lab consistency; quantify “observer error”

- *Write plan for QA Field Days*
- *Organize first event*
- *Pay for facility, travel*
- *Analyze data; prepare report*

Outcomes/products: Field inter-calibration report; defensible QA program and consistent field data collection

7. Sediment Stressor Analysis Tools

Goal: Association of BMIs with fine sediment impairment:
1) improve separation of physical vs. WQ impairment;
2) identify impairment thresholds; 3) derive p-hab targets

- *Integrates: 1) field sampling; 2) stream mesocosm experiments; 3) lab microcosm experiments*
- *Joint effort between SWAMP and TMDL program*

Outcomes/products: 1) Ability to identify key physical stressor (i.e., sediment quantity); 2) Field- & lab-derived sediment tolerance values for BMIs; 3) cross-validations for ongoing data mining tolerance value studies

8. Bioassessment Coordinator Support

Goal: To facilitate a coordinated, modern bioassessment program for SWAMP

- *Need identified by peer review in 2003*

Outcomes/products:

A ship with a captain

