

US EPA ARCHIVE DOCUMENT

Biological Criteria Program Update

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The Biological Condition Gradient: Biological Response to Increasing Levels of Stress

Levels of Biological Condition

Natural structural, functional, and taxonomic integrity is preserved.

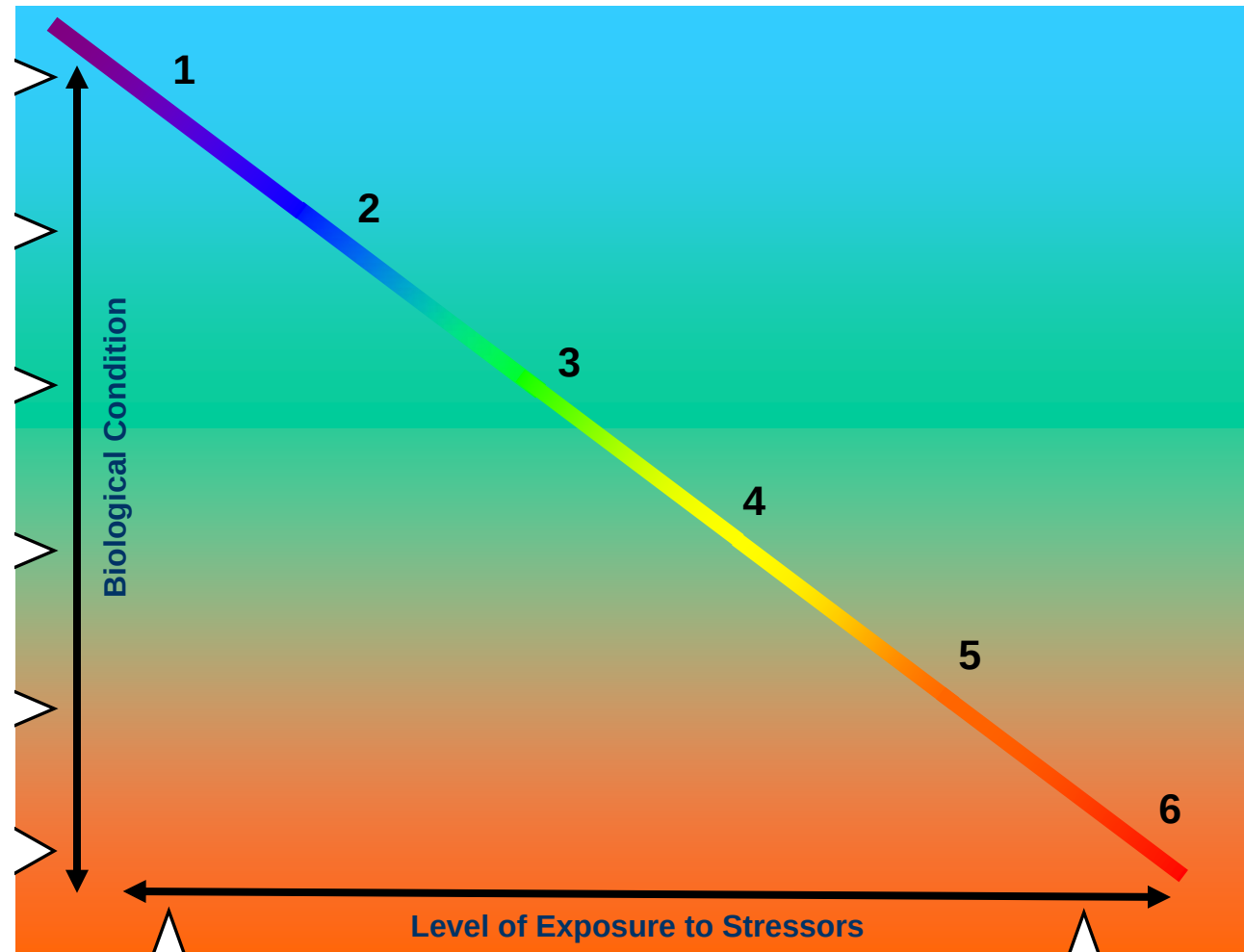
Structure & function similar to natural community with some additional taxa & biomass; ecosystem level functions are fully maintained.

Evident changes in structure due to loss of some rare native taxa; shifts in relative abundance; ecosystem level functions fully maintained.

Moderate changes in structure due to replacement of some sensitive ubiquitous taxa by more tolerant taxa; ecosystem functions largely maintained.

Sensitive taxa markedly diminished; conspicuously unbalanced distribution of major taxonomic groups; ecosystem function shows reduced complexity & redundancy.

Extreme changes in structure and ecosystem function; wholesale changes in taxonomic composition; extreme alterations from normal densities.



Watershed, habitat, flow regime and water chemistry as naturally occurs.

Chemistry, habitat, and/or flow regime severely altered from natural conditions.

The Biological Condition Gradient: Biological Response to Increasing Levels of Stress

Levels of Biological Condition

Natural state
taxonomic composition

Structure of
community
biomass;
fully maintained

Evidence of
some reduction
abundance
fully maintained

Moderate
replacement
taxa by more
functions

Sensitive
conspicuous
of major taxonomic
function severely
reduced

Extreme change
ecosystem function; wholesale changes
in taxonomic composition; extreme
alterations from normal densities.

2005 Draft Document:

Use of biological assessment information to more precisely define aquatic life uses and establish biological criteria in State and Tribal WQS

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Level of Exposure to Stressors

Watershed, habitat, flow regime
and water chemistry as naturally
occurs.

Chemistry, habitat, and/or flow
regime severely altered from
natural conditions.

OST Management Charge: “soup to nuts” treatment of implementation (Fall 2007)

Information for:

**permit writers to understand how their work
may be affected and know what they need
to do**

**monitoring coordinators and field crews to
know what information they need to
provide to the permit writer**

User Feedback ...

- Key Communication Need: management and technical
- Key Questions:
 - Why (core message on added value)?
 - How (what information do I need)?
 - How do I build on current programs?
 - How can I use this information in WQS? In WQM?

Practitioners Guide

- **Product: Use of biological assessment information to more precisely define aquatic life uses and establish biological criteria: Practitioners Guide**
 - **Online and Hard Copy (downloadable)**
 - **Technical Support Documents**
 - i. **Critical elements of a bioassessment program**
 - ii. **BCG model calibration**

Practitioners Guide Designed to ...

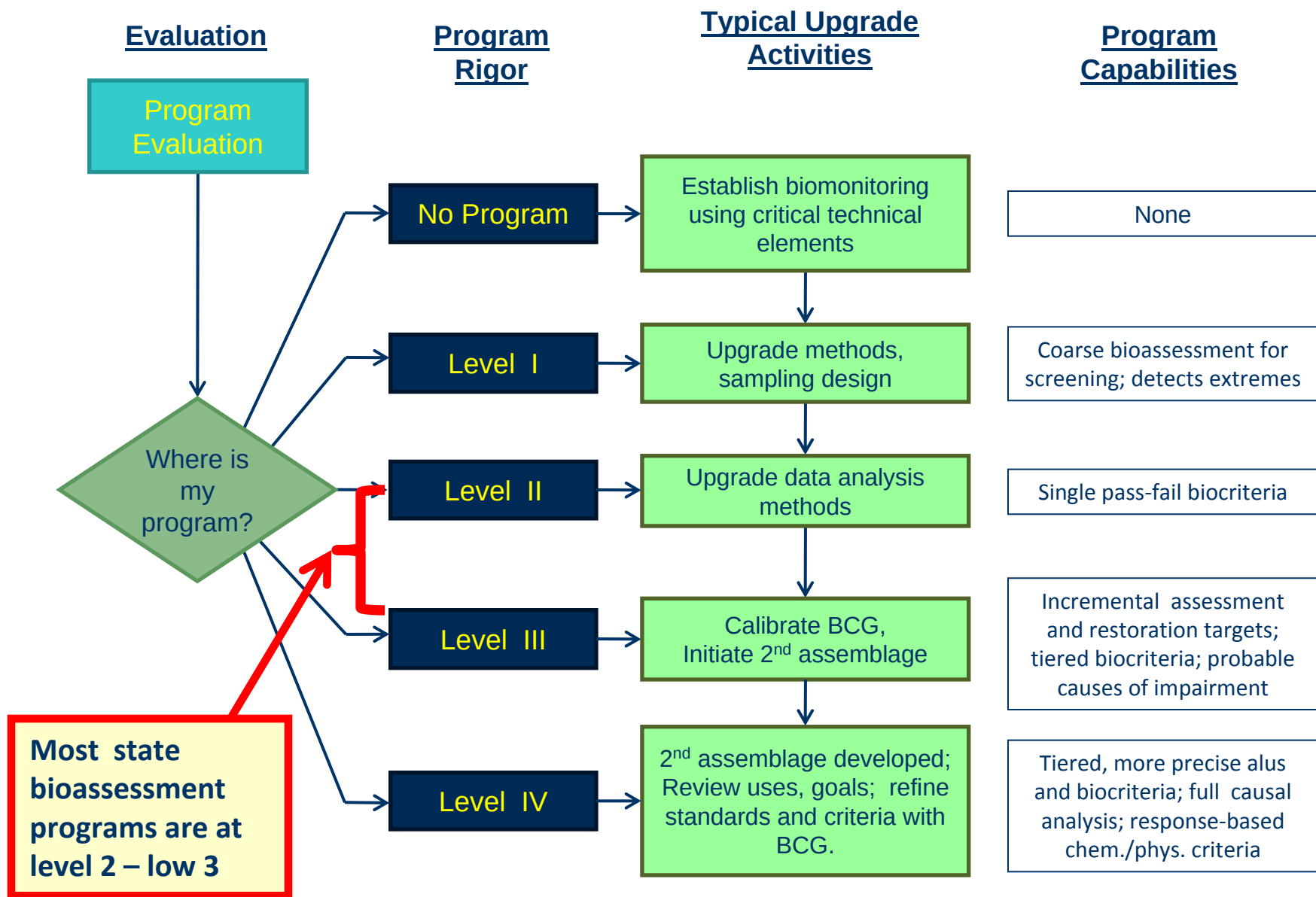
- Foster partnerships and communication, with regional/state partnerships a priority focus
- Build on current programs and existing working relationships
- Information targeted at multiple audiences; level of detail tailored for management and technical audiences, including field program
- Dynamic, problem solving, solutions

Proposed Schedule for completion

- **December 2008: Preliminary Draft**
- **April 2009: Draft for Review**
- **July - August 2009: Revisions**
- **September 2009: OST Management Review Draft**



Bioassessment Program: Technical Program Rigor and Management Program Support (2/3/09 draft)



Current Priorities:

- **Practitioner Guide Review, Roadtesting and Revisions (Spring 2009)**
- **Update State program status and identify current drivers and obstacles**
- **Address Climate Change: role of biological and refinements to technical program (Spring 2009)**
- **Tighten Coordination with HQ, Regional and State WQS Programs: program future direction, best management practices**