Biological Objectives for California Streams Scientific Advisory Committee

13 October 2011

Technical review of products

Project team needs to find the balance between technical documentation and development of new idea in manuscript for peer-reviewed journal

Scientific advisory group will:

- Review scientific content but not structure of documentation
- Identify supporting information needed to be documented for scientific purposes

Reference site document

Current document does not state objectives or contribution clearly

Document must include:

- Statement of objectives;
- Clear description of and rationales for approach and methods;
- Results that identify reference sites rather than potential reference sites; and
- Verification that reference pool is achieving goal

Scoring Tools

- Distinguish between indices (O/E and MMI) and how expectation is predicted for a site (value is modeled for a site versus value is set for a class of streams)
- Define strategy for developing and refining specific tools that identifies specific decision points to move out of exploratory analysis

Causal Assessment Workplan

- Goal should be building capacity
- Select one case study that is data poor
- Expect multiple stressors and multiple causes in many settings (e.g., urban)
- Close the loop: start compiling taxa-specific responses to stressors
- Identify available treatment options as this can guide causal assessment
- Include watershed-level assessment of stressors
- Consider triage approach where level of effort can be adjusted as necessary

Pilot Study

- Completed mission? Carry process for re-evaluating sites with uncertain assessment results through regulatory framework
- Identify approach for decisions despite uncertainty, uncertainty should not just lead to more monitoring
- Range of biological scores for reference sites is problematic
  - maximize approaches for reducing the effect of natural gradients
  - after developing scoring tools verify that there is minimal bias in scores of reference sites (e.g., xeric v. mountain sites)
- Scale up: build threshold model for So Cal xeric and apply to entire So Cal xeric region

Best Attainable Condition

- Focus on how to model limiting factors (e.g. shape of limit)
- Determine x-axis variable using policy/theory of "unrecoverable", data availability/quality and not predictive power
- X-axis value of "unrecoverable" should not be defined purely on statistical basis
- How many different factors (e.g., hardened, % impervious, % ag) can be used in practice for defining best attainable
- Independent verification of best attainable by sampling unrecoverable systems

Setting Thresholds

- Alternative thresholds are scientifically defensible
- Incorporate the consequences of both types of errors in regulatory framework
  - Step 1: set threshold that balance types of error
    - Declared Impaired, but Not Impaired (DINI, type 1);
    - Declared Not Impaired, but Impaired (DNII, type 2);
  - Step 2: add uncertainty bounds to define zones of clearly impaired, clearly unimpaired, and grey zone
  - Step 3: Follow up with additional study in grey zone (re-sample, streamlined causal assessment) to make determination of impairment/non-impairment
- Current low threshold requires accepting DNII errors

Other Threshold Options

- The development of new assessment based on traits could be beneficial but should not distract team from completing project
- Need for four alternatives