Sediment Quality Objectives Update

Steven Bay

Commission Meeting: March 2, 2018

Background

- **CA adopted SQOs and assessment methods in 2008**
- **Next phase of SQO program nearing culmination**
- **Commission asked for briefing**

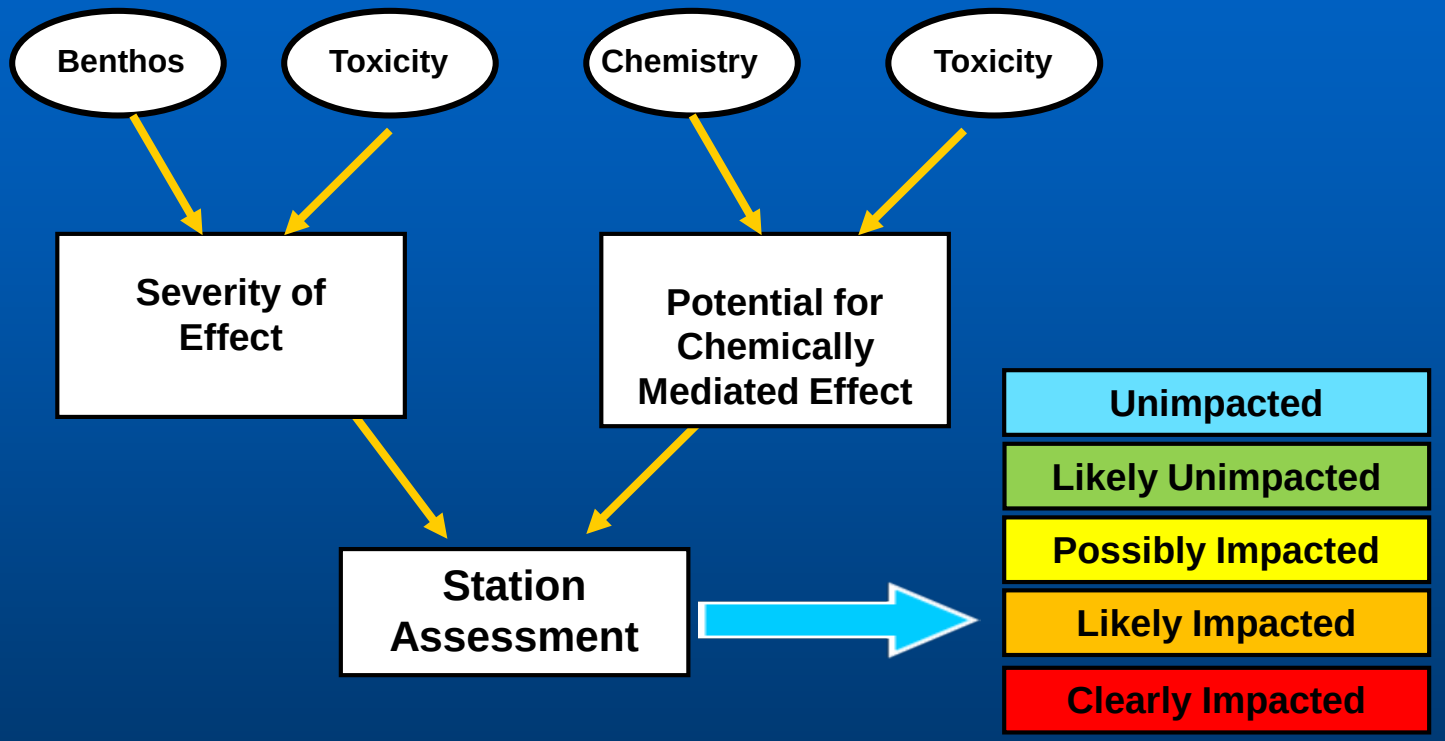
Roadmap

- **SQO background**
  - **Why are revisions to Plan needed?**
- **Technical foundation for proposed changes**
- **What does this mean to you?**

Narrative Objectives

- ***Aquatic Life SQO (direct effects)***
  - ***"Pollutants in sediments shall not be present in quantities that, alone or in combination, are toxic to benthic communities in bays and estuaries of California."***
- **Human Health SQO (indirect effects)**
  - ***"Pollutants shall not be present in sediments at levels that will bioaccumulate in aquatic life to levels that are harmful to human health in bays and estuaries of California. "***

Aquatic Life SQO Assessment (Benthic Community)

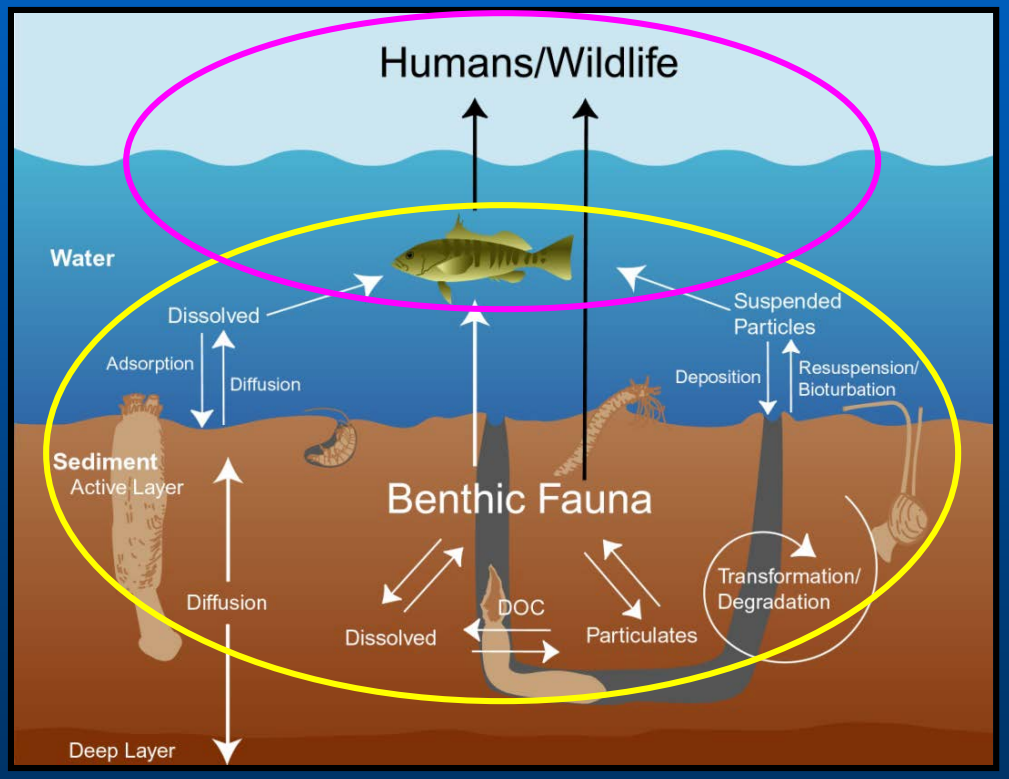


- Three lines of evidence (LOE) evaluated
- Multiple indices and thresholds for each LOE
- Standardized integration for assessing impact category

HH SQO Assessment Approach

Two key questions evaluated

- **Chemical exposure:** Does tissue contamination pose a risk to consumers?
- **Site linkage:** How strongly is site sediment contamination influencing tissue contamination?



Chemical Exposure Evaluation

- **Based on comparison specific indicator species to thresholds based on OEHHA guidelines**
  - **Fish contaminant goal (FCG)**
  - **Advisory tissue level (ATL) for 1, 2, 3 meals/week**

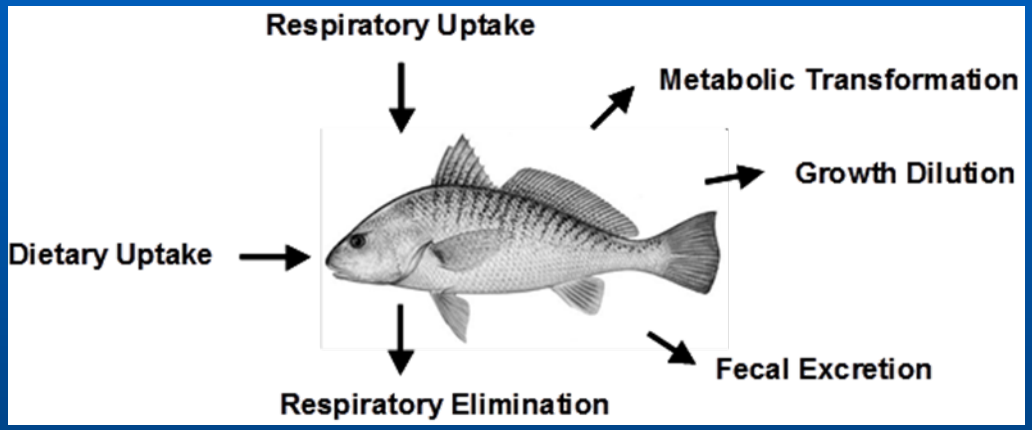
Parameter	Threshold	Outcome
Average	≤ FCG	Very Low
Average	≤ ATL3	Low
Average	≤ ATL2	Moderate
Average	≤ ATL1	High
Average	> ATL1	Very High

Site Linkage Evaluation

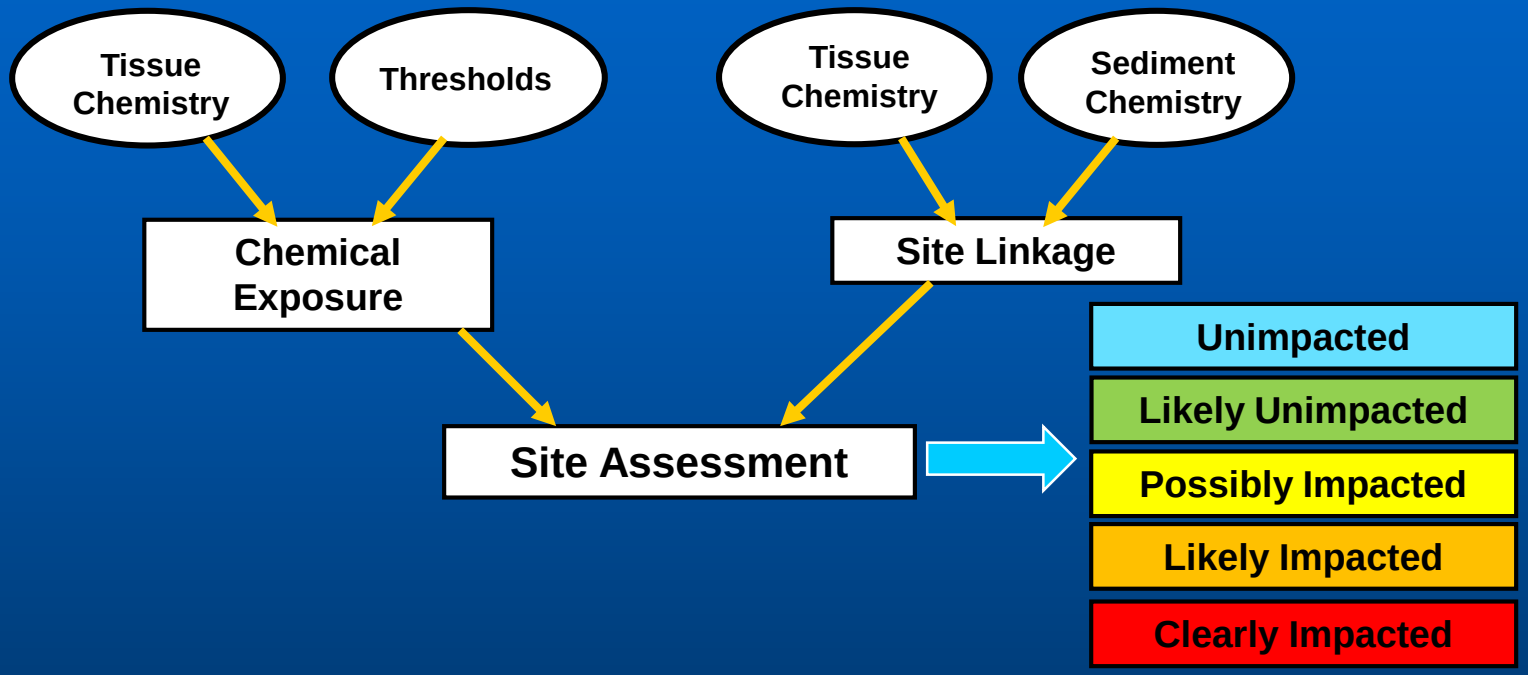
- **Evaluates proportion of fish tissue contamination due to sediment contamination within the site**
- **Linkage =**

  $$\frac{\text{estimated conc}}{\text{measured conc}}$$

- **Estimated concentration**
  - **Food web bioaccumulation model**
- **Measured concentration**
  - **Monitoring data**



Human Health SQO Assessment Framework



- Two data types required
- Bioaccumulation model used to evaluate site linkage
- Categorical outcome

Significance

- **Potential change in site assessment results**
- **Additional monitoring requirements**
- **Alternative approaches for clean up targets**

Assessment Results

- **New approach may conflict with existing site assessment conclusions**
  - **Human health SQO preliminary results**
  - **Aquatic life SQO assessment based on Bight'13**

Site	HH SQO		AL SQO
	DDTs	PCBs	
LA/LB Outer Harbor	pass	fail	fail
LA/LB Inner Harbor	pass	fail	fail
Lower Newport Bay	pass	pass	pass
Mission Bay	pass	pass	pass
North San Diego Bay	pass	fail	fail

Additional Monitoring Requirements

- **Sediment contamination and total organic carbon**
  - **PCBs, DDTs, chlordanes, dieldrin**
- **Tissue contamination (more effort)**
  - **Two fish species**
  - **Multiple composites for each species**
- **Dissolved contaminants in water column (new)**
  - **Passive sampling**

Clean Up Targets

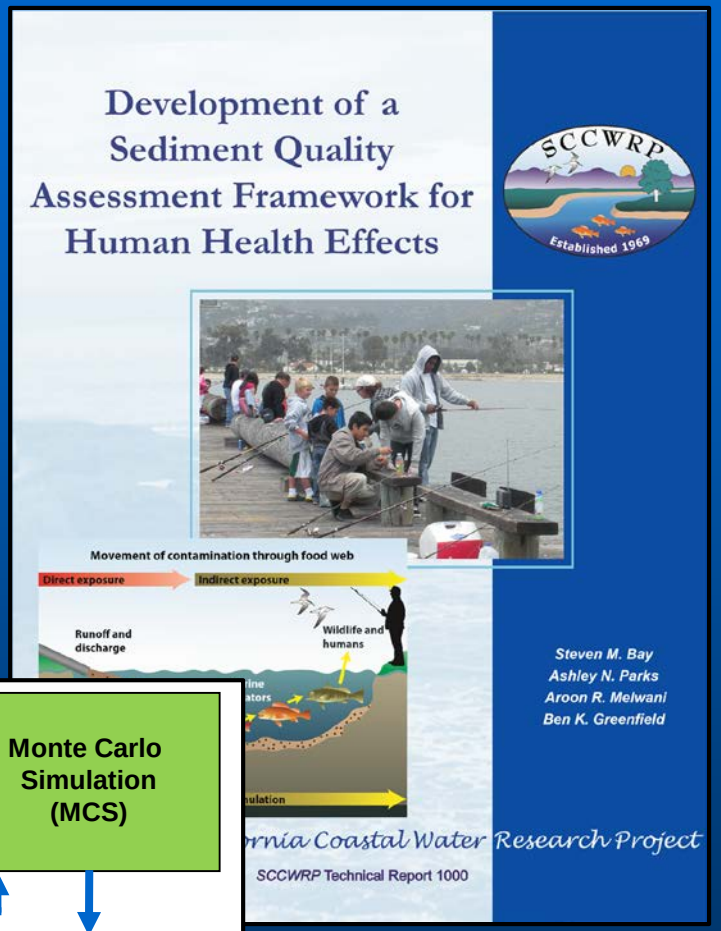
- **HH SQO assessment is chemical specific**
  - **No need for additional stressor identification**
- **Bioaccumulation model provides direct method to derive sediment targets**
- **Integrated assessment outcome provides alternative targets for evaluating TMDL compliance**

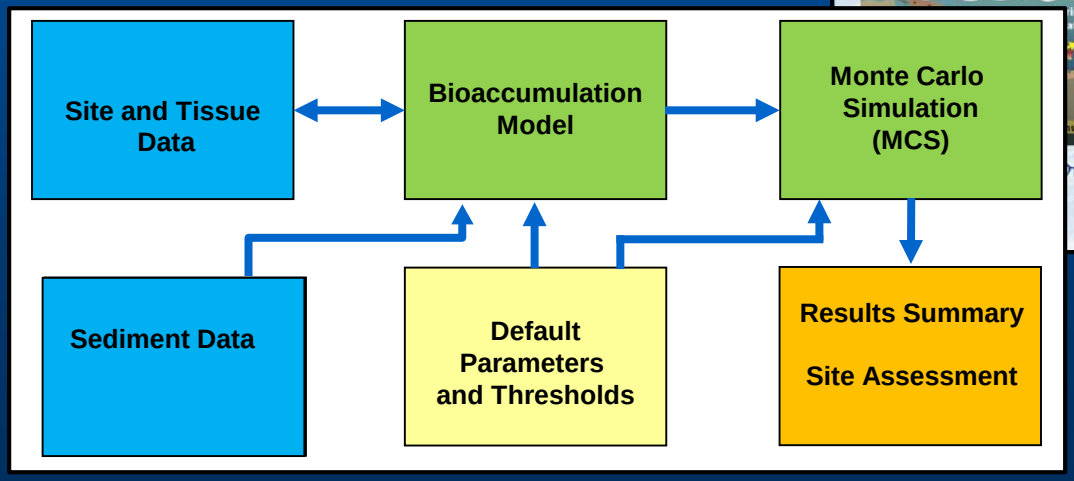
Where Are We in the Process?

- **Plan amendments and staff report released**
- **Workshop and public comment completed**
- **External scientific peer review underway**
- **Consideration by Water Board expected in June**
- **EPA review/approval required after Water Board approval**

Implementation Support

- **Technical report with supporting information and examples**
- **Decision Support Tool**
  - **Calculations and assessment summary**





Current Work

- **Impact of water column contaminants on bioaccumulation model and assessment framework**
  - **San Diego Bay**
  - **Passive sampling, sediment, tissue analyses**
- **Implementation support**
  - **Regional Board briefings**
  - **Training workshop (pending approval of new framework)**
  - **Updated SQO Technical Support Document**

Stakeholder Comments

- **Support proposed assessment framework and use of OEHHA-based tissue thresholds**
- **Opposed to grandfathering waterbodies with existing TMDLS from reassessment**
- **Recommend changing interpretation of Possibly Impacted category to be indicative of meeting SQO, rather than failing**