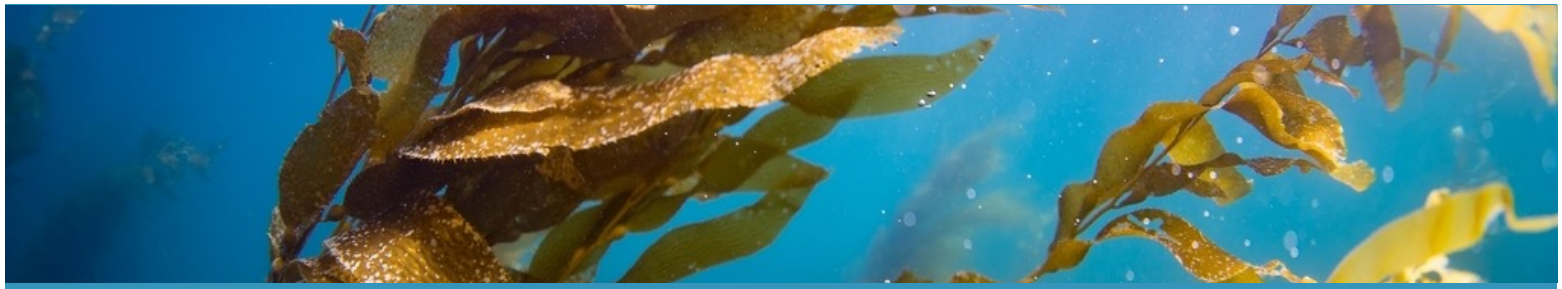

Species Sensitivity Screening in the San Francisco Bay Region

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BACWA Permits Committee

PACIFIC ECORISK | ENVIRONMENTAL CONSULTING & TESTING

Species Sensitivity Screening in Region 2

Regional Implementation of Toxicity Provisions

Objective

To identify the *single* most sensitive test species specific to a regulated discharge to serve as basis for future compliance testing

Macrocystis pyrifera
Giant Kelp

Mytilus sp.
Marine mussel

Atherinops affinis
Topsmelt

Requirements

Requirements found in Monitoring and Reporting Program (MRP) §5 and Appendix E-1

Must Prepare Species Sensitivity Screening Work Plan (Proposal)

Preparing a Species Screening Work Plan (Proposal)

- Test Schedule
- Test Method Selection
- Test Concentrations
- Identification of Most Sensitive Species

Test Schedule

Test Method Selection

Test Concentrations

Species Identification

- Conducted prior to ROWD submission or within 18 months of NPDES permit issuance or renewal
  - May use prior species screening in limited circumstances (not applicable to most Region 2 Permittees)
- Continuous Dischargers
  - 4 consecutive calendar quarters
- Non-Continuous Dischargers
  - Test in each quarter with at least 15 days of continuous discharge
  - Can use effluent not discharged to surface water if effluent is representative

Test Schedule

Test Method Selection

Test Concentrations

Species Identification

Step 1: Salinity Tolerance

Receiving Water Salinity	Test Method Classification
<1 ppt at least 95% of time	Freshwater
>1 ppt at least 95% of time	Marine
All other circumstances	Either

Test Schedule

Test Method Selection

Test Concentrations

Species Identification

Step 2: Tier Selection

Species	Scientific Name	Test Method	Tier
Green algae	*Selenastrum capricornutum*	Freshwater	I
Water Flea	*Ceriodaphnia dubia*	Freshwater	I
Fathead minnow	*Pimephales promelas*	Freshwater	I
Giant kelp	*Macrocystis pyrifera*	Marine	I
Red abalone	*Haliotis rufescens*	Marine	I
Mussel	*Mytilus sp.*	Marine	I
Purple urchin or Sand dollar	*Strongylocentrotus purpuratus* *Dendraster excentricus*	Marine	I
Mysid shrimp	*Americamysis bahia*	Marine	II
Topsmelt	*Atherinops affinis*	Marine	I
Silverside	*Menidia berylina*	Marine	II

Must select Tier I plant, invertebrate, and vertebrate test species

Test Schedule

Test Method Selection

Test Concentrations

Species Identification

Step 3: Consider Best Practice

1. Consider inherent test variability
2. Consider seasonality of organisms
3. Consider availability of organisms

Speak with your lab

Test Schedule

Test Method Selection

Test Concentrations

Species Identification

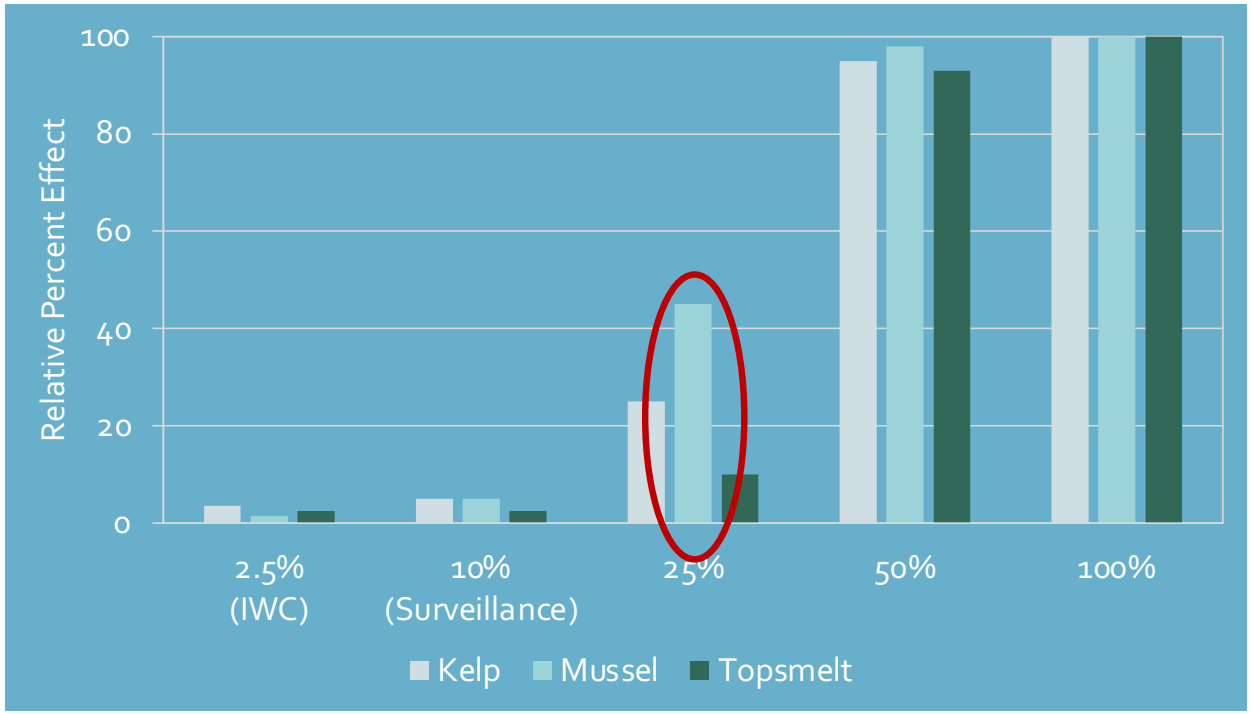
- Test at IWC or higher concentration
  - MRP Appendix E-1 may specify test concentration higher than IWC
- Consider likelihood of measuring distinguishing effects

Test Schedule

Test Method Selection

Test Concentrations

Species Identification



Test Schedule

Test Method Selection

Test Concentrations

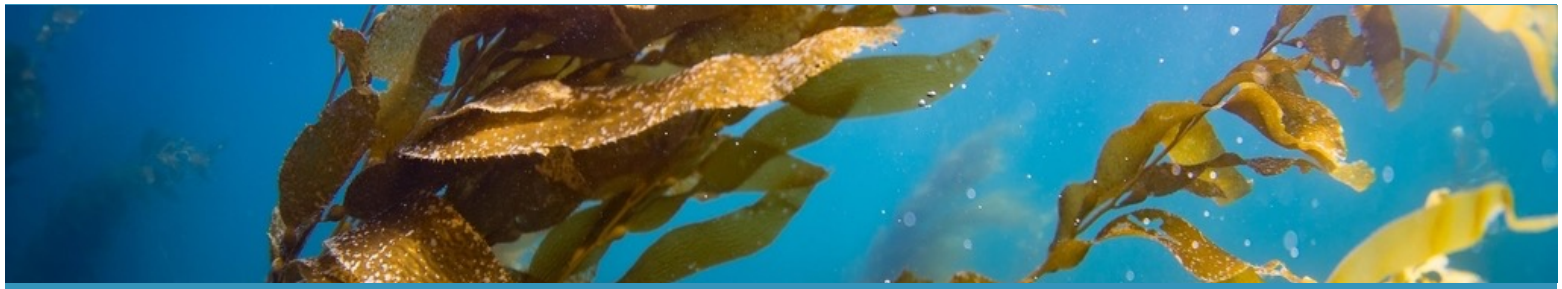
Species Identification

In a species sensitivity screening study, the most sensitive species is the species exhibiting the *single* highest percent effect at the test concentration of interest.

(Not the species that was most frequently sensitive)

$$Percent\ Effect = \left(\frac{Mean\ Control\ Response\ -\ Mean\ Treatment\ Response}{Mean\ Control\ Response}\right) \times 100$$

Note: The Regional Board may choose to use an alternative basis for selecting the most sensitive species, but must justify this basis in the Fact Sheet.



Questions

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