

Sediment Quality Objectives  
for California Enclosed Bays and Estuaries

# Technical Activities Update

*Steven Bay*

*Southern California Coastal Water Research Project*

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# Key Activities

- **Guidance and communication**
  - SCCWRP web page
  - Technical reports
- **Assessment framework application**
  - Benthic community SQO
  - Human health SQO
- **Bioaccumulation studies**

# SOUTHERN CALIFORNIA COASTAL WATER RESEARCH PROJECT

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## Sediment Contaminant Effects on Humans and Wildlife: Framework Support Documents

### Scientific Steering Committee Meeting Summaries

- [Summary of the July 1-2, 2008 SQO Scientific Steering Committee Meeting](#)
- [Summary of the July 23-24, 2009 SQO Scientific Steering Committee Meeting](#)
- [Summary of the July 14, 2010 SQO Scientific Steering Committee Meeting](#)
- [Summary of the March 11, 2011 SQO Scientific Steering Committee Meeting](#)

### Advisory Committee Meeting Summaries

- [Summary of the October 9, 2012 Advisory Committee Meeting](#)
- [Summary of the April 16, 2013 Advisory Committee Meeting](#)
- [Summary of the June 20, 2013 Advisory Committee Meeting](#)
- [Summary of the September 17, 2013 Advisory Committee Meeting](#)

### Technical Background

- [Dietary Guild Description](#). Appropriate species and dietary guilds for use in the SQO framework to assess sediment contaminant effects on humans. November 2010.
- [Foraging Range Parameters](#). Description of the home ranges that are incorporated into the Decision Support Tool (DST) to conduct Tier II assessments. February 2011.
- [Tier II Assessment Approach](#). Description of the Tier II assessment approach developed for the SQO framework to assess sediment contaminant effects on humans. February 2011.

### Data Analysis Tools

- [Tier I Assessment Description](#). This document contains information for conducting Tier I analysis using the excel file provided as example. October 2013.
- [Tier I Assessment Example](#). An excel workbook that shows how to conduct a Tier I analysis for the SQO framework to assess sediment contaminant effects on humans. September 2013.
- [Decision Support Tool User Guide](#). This guide contains information for conducting Tier II analysis using the Decision Support Tool. October 2013.
- [Decision Support Tool](#). An excel workbook that contains formulas to analyze sediment and tissue data for a Tier II assessment. October 2013.
- [YASAI User Manual](#). Document describing the YASAI add-in functions and features. January 2011.
- [YASAI Add-In](#). This file contains an add-in designed to conduct a Monte Carlo simulation using Microsoft Excel, it should be combined with the SQO Decision Support Tool to conduct Tier II analysis. January 2011.

For more information on Sediment Contaminant Effects on Humans and Wildlife: Framework Support Documents, contact Steve Bay at [steveb@scowrp.org](mailto:steveb@scowrp.org) (714) 755-3204.

**SCCWRP web page contains updated HH framework description and supporting documents**

# Benthic SQO Guidance

- Corrected clerical errors in chemistry section
- Updated benthic index calculation guidance

## SEDIMENT QUALITY ASSESSMENT TECHNICAL SUPPORT MANUAL



*Southern California Coastal Water*

Technical Report 777 – January 2014



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# Other Technical Reports

- **Human health assessment framework description**
  - Tier 1 and 2 description
  - Supporting information for bioaccumulation model
- **Stressor identification guidance**
  - SQO compliant methods
  - Study design
  - Data interpretation

# Benthic SQO Application

- Update of 2008 statewide assessment of benthic community SQO impacts
- 2005-2010 regional monitoring data
  - Bight'08
  - RMP 2008-10
  - NCA 2010
- Coordinated with 2010 National Coastal Condition Assessment

Evaluation of Sediment Condition  
Using California's Sediment Quality Objectives  
Assessment Framework

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*Southern California Coastal Water Research Project*

Technical Report 764 - July 2013

# HH SQO Application




- **LA and Long Beach Harbors TMDL**
  - Compliance issues
  - Technical studies
- **Statewide assessment**
  - 6 embayments (16 sites)
  - Tiers 1 and 2
  - Initial results under review

# Bioaccumulation Studies

- **2 major goals**
  - Assess regional exposure of birds to contaminants
  - Investigate food web relationships in selected sites
- **3 related studies**
  - Bight'13 regional survey
  - San Diego Bay bioaccumulation assessment
  - San Diego Bay seafood consumption



# Bioaccumulation Study Questions

- What is the extent and magnitude of bioaccumulation in bird eggs across the Bight?
  - By species and location
- How do pollutants transfer through trophic levels?
  - Sediment  Infauna/ Plankton  Fish  Birds
- What is the relationship between bioaccumulative chemicals in sediments and those observed in local species?
- What are the spatial and species-specific relationships of bioaccumulative compounds in invertebrates, fish, and plankton?

# Bird Nesting Sites



Cormorant



Caspian Tern



Western Gull



Least Tern



0 10 20 30 40 50 Miles

# Food Web Study

- **Sample key elements of water column and sediment exposure pathways**
- **Evaluate relative risks to wildlife receptors from different exposure pathways**
- **Identify regional or spatial differences**
  - San Diego Bay and Newport Bay
- **Compare contaminant concentrations and biomagnification to model predictions**

# Trophic Pathways

## Water Column

- Water
- Plankton
- Plankton-feeding fish

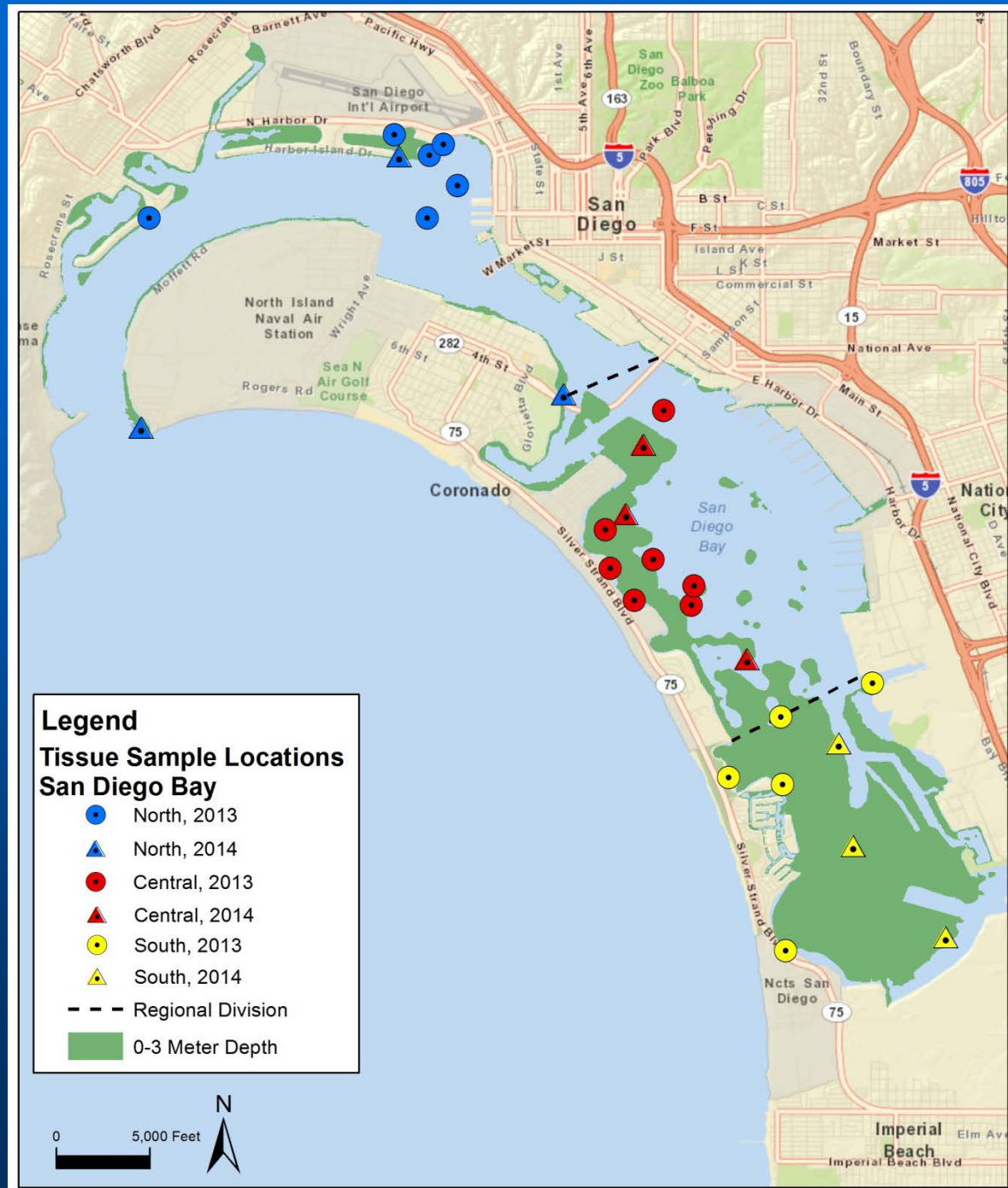
## Benthic

- Sediment
- Infauna
- Epifauna
- Bottom-feeding fish



# San Diego Bay Studies

- 3 regions
- Sediment grabs, trawls, seines, water samples
- Bight'13
- 2014 shallow water habitat study
- Limited sportfish collection



# San Diego Bay Seafood Consumption Study

- **Water Board contract to SCCWRP**
  - PI: Steve Steinberg
  - Technical Advisory Group being established
  - Workplan in development
- **Interview anglers in 2014-15**
  - Boats and shore locations
- **Document fishing and consumption patterns**
  - Species , amounts, preparation methods
  - Locations and ethnicities

# Next Steps

- **Prepare technical reports**
  - HH SQO framework description
  - Stressor identification
- **Complete statewide assessment**
  - Additional analyses
- **San Diego Bay studies**
  - Chemical analyses
  - Sportfish sampling
  - Consumption study work plan