

# *POD Synthesis Report*

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# Acknowledgments

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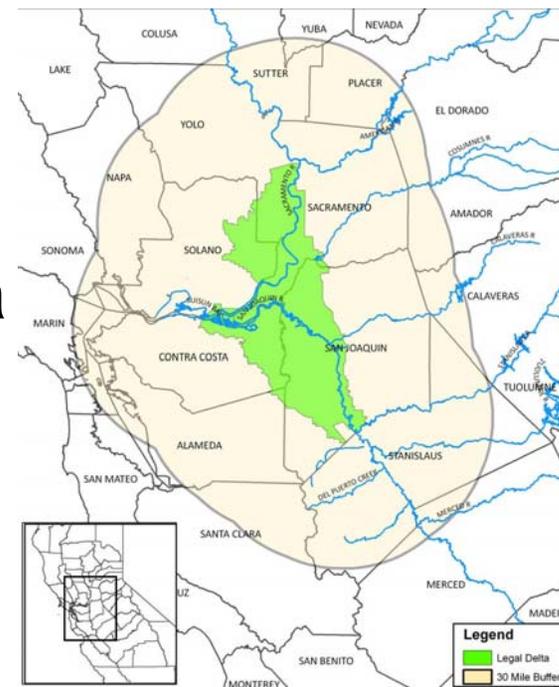
- Susan Anderson
- Debra Denton
- Jeff Miller
- Lisa Thompson



# Focus

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- Pre-POD era
- 2000-02 step decline period vs. 2003-08
- Delta +30 miles
- January – June
  - All species present in Delta
  - Early juvenile period



## Pre-POD Information

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- DFG fish kill reports
- Fox and Archibald (1997)
- BDAT, DPR water chemistry data



# Chemistry

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- Obtained data for every chemical (2000 – 2008)
- Data sources
  - TMDL
  - ILRP
  - BDAT
  - SWAMP
  - NPDES
  - USGS



## Common Issues

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- Removed data with
  - No reporting or detection limits
  - No identifiable analyte name
  - No identifiable sample site location
  - Units of measure inconsistent with analyte
- Kept data with no QA information (e.g., dups, blanks, matrix spikes, LCS)

# Toxicity

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- Few data in January – June period
- WWTP ambient data
- ILRP monitoring
- POD studies
- Delta pyrethroid studies
  - Werner
  - Weston



## Common Issues

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- No water quality data
- TIEs
- Spatial and temporal consistency
- Very little toxicity information available for POD species

# Histopathology

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- No primary data
  - No data bases to review
- Limited species coverage
- No pathologies common across studies
- Difficulty in assigning causation to lesions

## Results - Chemistry

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- Chemicals not found in higher concentrations in POD years compared to Pre-POD years
- Very few data exist to evaluate effects of chemicals in 2000-02
- Very few data exist in any year for January - June
- Review of chemical sensitivity of POD species relative to non-POD species suggest no differences
- Direct toxicity to POD species unlikely

## Results - Toxicity

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- As much or more toxicity in Pre-POD years compared to POD years
- No difference in the percentage of toxic samples in 2000-02 compared to 2003-2008
- In January-June period, percentage of toxic samples ranged from 0% - 7%
  - Restricted geographic coverage
- Sediment toxicity common but relevance is unknown
  - Geographic and trophic

# Results - Histopathology

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- Insufficient Pre-POD data to compare
  - Data from Ostrach reported effects of organochlorines on striped bass reproduction prior to POD
  - 1988-90 study found lesions in 30% of livers of striped bass larvae
- Insufficient data to compare 2000-02 to 2003-08
- No indication of major histopathologies in 2004-07
  - Some locations at some time periods had lesions suggestive of exposure to contaminants
- Full stomachs of Delta smelt in some studies suggest no starvation

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“The conclusion that can be drawn from these responses is that while contaminants are unlikely to be a major cause of the POD, they cannot be eliminated as a possible contributor to the decline.”

