BAY PROTECTION AND TOXIC CLEANUP PROGRAM

List of Reports Completed and in Preparation

May 1999

STATE OF CALIFORNIA
STATE WATER RESOURCES CONTROL BOARD
DIVISION OF WATER QUALITY
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This document lists the Bay Protection and Toxic Cleanup Program (BPTCP) reports that have been completed or are in preparation. A list of the data collected through the BPTCP monitoring activities is presented in the appendix.

The BPTCP started the task of identifying toxic hot spots and planning for their cleanup in 1990. The reports listed include many of the documents developed while the program was just getting underway as well as reports on all of the monitoring data collected to date. The BPTCP has also completed many reports on tasks leading up to development of regional and consolidated toxic hot spot cleanup plans.

To date, the BPTCP has produced 55 scientific reports, currently under completion or finalized and 43 staff reports.

The Bracketed bold numbers at the end of each reference [No.] are BPTCP report index numbers. Any of the indexed reports are available for inspection. Reports that are not numbered are currently unavailable because they are in preparation, or out of print. Some reports are large and may require special printing arrangements to be made in order to make them available. Please make reference to the index number when ordering a specific report. To request a report please contact:

Bays and Estuaries Unit  
Division of Water Quality  
State Water Resources Control Board  
901 P Street  
Sacramento, CA 95814  
(916) 657-0671
SCIENTIFIC REPORTS


Foe, C. G. and B. Croyle. 1998. Mercury Concentration and Loads from the Sacramento River and from Cache Creek to the Sacramento - San Joaquin Delta Estuary. 81pp, 2 Appendices. [88]


Sanders, B. 1996. Biomarker Evaluations of Biological Effects in *Mytilus* Exposed to Multiple Stressors in San Diego Bay. Phase II. Progress Reports. Molecular Ecology Institute, California State University, Long Beach. [12H]


Stephenson, M. 1992. A report on bioaccumulation of trace metals and organics in bivalves in San Francisco Bay. California Department of Fish and Game. [43]

Stephenson, M., M. Puckett, N. Morgan, and M. Reid. 1994. Bay Protection and Toxic Cleanup Program Quality Assurance Project Plan. 12 Sections and 1 appendix. [18]


University of California, Santa Cruz. 1993. Report of Sediment Toxicity Test Results:
San Francisco Bay Regional Monitoring Program for Toxic Contaminants in the San Francisco Estuary. 32 pp. [46]

STAFF REPORTS


DWQ/SWRCB. 1990. Bay Protection and Toxic Cleanup Program: Proposed Authorization to Negotiate and Execute Contracts and Advice of Staff Action attached to Agenda Item. 11/9/90. [32]

DWQ/SWRCB. 1991a. Staff Report: Bay Protection and Toxic Cleanup Program Annual Fees Responses to Comments Received. Sacramento, CA. [33C]

DWQ/SWRCB. 1991b. Staff Report: Laboratory services interagency agreement to support the Bay Protection and Toxic Cleanup Program. Sacramento, CA. 12 pp. + 1 attachment. [34]

DWQ/SWRCB. 1992. Staff Report: Technical Services Interagency Agreement with Teale Data Center to support the Bay Protection and Toxic Cleanup Program Consolidated Database. Sacramento, CA. [35]


DWQ/SWRCB. 1994. Staff Report: Interagency agreement with the Department of Fish and Game to support the monitoring and research activities of the Bay Protection and Toxic Cleanup Program. Sacramento, CA. 18 pp. [37]


Regional Water Quality Control Board, San Francisco Bay Region; State Water Resources Control Board, California Department of Fish and Game. 1995. Contaminant levels in fish tissue from San Francisco Bay. Oakland, CA. 150 pp. [7A]

Scientific Planning and Review Committee. 1997. Recommendations on the Bay Protection and Toxic Cleanup Program Monitoring Activities. 23 pp. + 2 Appendices. [48C]


SWRCB. 1991a. Final Statement of Reasons Title 23, Division 3, Chapter 9, Article 6, Section 2236, California Code of Regulations: Bay Protection and Toxic Cleanup Annual Fees. [33A]

SWRCB. 1991c. Regulations to Implement the Bay Protection and Toxic Cleanup Program Annual Fees. Title 23, California Code of Regulations Section 2236. SWRCB Resolution No. 91-102. [33B]


SWRCB. 1995a. Appointment of the Advisory Committee for the Bay Protection and Toxic Cleanup Program. SWRCB Resolution No. 95-15. [38A]

SWRCB. 1995b. BPTCP Advisory Committee Operating Procedures. 4 pp. [38B]


SWRCB. 1997. Public Summary of the report titled Chemistry, Toxicity and Benthic Community Conditions in Sediments of the San Diego Bay Region. 5 pp. [47]

SWRCB. Water Quality Control Policy for Guidance on Development of Regional Toxic Hot Spot Cleanup plans. Plus SWRCB Resolution No. 98-090. [84]


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SWRCB, RWQCBs, and DFG. 1995. Scientific Planning and Review Committee Briefing Document for the Bay Protection and Toxic Cleanup Program. Sacramento, CA. 89 pp. [48A]

SWRCB, RWQCBs, and DFG. 1996. Scientific Planning and Review Committee Briefing Document for Recommendations on the Bay Protection and Toxic Cleanup Program Monitoring Activities. Sacramento, CA. 75 pp. [48B]


Draft Teaching/Outreach Documents: Organophosphates and Water Quality: More than just a problem of perception, Dormant Treatment Options, Best Management Practices for Organophosphate Dormant Sprays. [103]

TOXIC HOT SPOT CLEANUP PLAN DEVELOPMENT


LIST OF DATA COLLECTED AS PART OF THE BPTCP

NOAA Cooperative Assessment Project- Year 1 (Los Angeles Harbor)- Regions 4 & 8 [1A][1B]

Legs
1 through 4, plus 3 stations from Leg 5

Sampling dates and regions

Leg 1- 7/29/92 through 8/6/92 - Region 4
Leg 2- 8/18/92 through 8/19/92 - Region 4
Leg 3- 9/1/92 through 9/2/92 - Region 4
Leg 4- 9/15/92 through 9/16/92 - Regions 4 & 8
Leg 5- 10/14/92 - Region 8

Number
111 stations (37 sites with three replicates »100m apart)

Chemical analysis

Organic analysis on 66 stations (Groups 1 & 3)
Metal analysis on 66 stations (Groups 1 & 3)
Pore water metal analysis on 21 stations
TOC & grain size analysis on all 111 stations

Toxicity testing

Red abalone larvae development in pore water on all 111 stations
Amphipod survival in solid phase on all 111 stations
Benthic community

Analysis on all 111 stations

Products

- Data report for Legs 1-4 & 5 submitted to SWRCB 7/9/93; cruise reports; QA/QC reports for chemistry, toxicity, TOC, grain size, and benthic data
- Los Angeles Harbor Benthic Program Report - 9/93

BPTCP Screening - All regions statewide [2A][2B]

Legs

5 through 14

Sampling dates and regions

Leg 5- 10/13/92 through 10/14/92 - Region 9
Leg 6- 10/23/92 through 10/28/92 - Region 9
Leg 7- 11/8/92 through 11/11/92 - Region 9
Leg 8- 11/27/92 through 11/30/92 - Region 1
Leg 9- 12/8/92 through 12/11/92 - Region 8
Leg 10- 12/18/92 through 12/22/92 - Region 3
Leg 11- 1/12/93 through 1/14/93 - Region 4
Leg 12- 1/26/93 through 1/27/93 - Region 9
Leg 13- 2/9/93 through 2/11/93 - Regions 3 & 4
Leg 14- 2/23/93 through 2/26/93 - Region 1

Number

153 stations (no replicates)

Chemical analysis

Organic analysis on 72 stations (Groups 2, 4 & 5)
Metal analysis on 72 stations (Groups 2, 3 & 5)
TOC & grain size analysis on all 153 stations

Toxicity testing

Amphipod survival in solid phase on all 153 stations
Red abalone larvae development in subsurface water on 105 stations
Red abalone larvae development in pore water on 4 stations
Urchin fertilization in pore water on 121 stations
Urchin larvae development in pore water on 61 stations
Urchin embryo cytogenetics on 35 stations
Mussel larvae development in subsurface water on 39 stations
Mussel larvae development in pore water on 31 samples
Neanthes survival in solid phase on 45 stations
Neanthes weight change in solid phase on 45 stations

**Benthic community**
No analysis

**Products**
Data report for Legs 5-14 submitted to SWRCB 4/20/94; includes all analytical data, cruise reports; QA/QC reports for chemistry, toxicity, TOC, and grain size data

**NOAA Cooperative Assessment- Year 2 (San Diego Bay)- Region 9 & BPTCP Reference Stations** [3A][3B]

**Legs**
15 through 19

**Number**
108 total stations (no replicates)
83 stations were NOAA/EMAP random locations
25 stations were BPTCP reference site screening

**Sampling dates and regions**
Leg 15- 3/23/93 through 3/25/93 - Region 9
Leg 16- 4/6/93 through 4/7/93 - Region 9
Leg 17- 4/20/93 through 4/22/93 - Regions 9 & 8
Leg 18- 5/4/93 through 5/6/93 - Regions 9 & 8
Leg 19- 5/26/93 through 5/27/93 - Regions 9, 8 and 4

**Chemical analysis**
Organic analysis on 2 stations (Groups 5)
Organic analysis pending on 15 stations (Group 9)
Metal analysis on 2 stations (Groups 5)
Metal analysis pending on 15 stations (Group 9)
TOC & grain size analysis on all 108 stations

**Toxicity testing**
Amphipod survival in solid phase on all 108 stations
Red abalone larvae development in subsurface water on 8 stations
Urchin fertilization in pore water on all 108 stations
Urchin larvae development in pore water on 16 stations
Benthic community
No analysis

Products
Data report for Legs 15-23 submitted to SWRCB 4/20/94; includes all analytical data, cruise reports; QA/QC reports for chemistry, toxicity, TOC, and grain size data

**BPTCP Confirmation combined with NOAA Cooperative Assessment- Year 2 - Regions 9 & 4 (San Diego primarily; L.A. Region reference stations) [3A][3B][3C][3E]**

**Legs**
20 through 23

**Sampling dates and regions**
Leg 20- 6/15/93 through 6/17/93 - Region 9 & 4
Leg 21- 7/20/93 through 7/21/93 - Region 9
Leg 22- 8/3/93 through 8/5/93 - Regions 9 & 4
Leg 23- 8/17/93 through 8/19/93 - Regions 9 & 4

**Number**
107 total stations
91 analytical stations, 4 blind duplicates, 12 megamuds
41 stations were NOAA/EMAP random locations
20 stations were BPTCP confirmation (with 2 EMAP/NOAA for group of 3)
30 stations were BPTCP confirmation (10 sites with 3 reps)

**Chemical analysis**
Organic analysis on 94 stations (Group 6)
Metal analysis on 94 stations (Group 6)
TOC & grain size analysis on 95 stations

**Toxicity testing**
Amphipod survival in solid phase on all 107 stations
Red abalone larvae development in subsurface water on 6 stations
Urchin fertilization in pore water on all 107 stations
Urchin larvae development in pore water on 70 stations
Neanthes weight change in solid phase on 40 stations

**Benthic community**
Analysis on 90 stations
Products
Data report for Legs 15-23 submitted to SWRCB 4/20/94; includes all analytical data, cruise reports; QA/QC reports for chemistry, toxicity, TOC, grain size, and benthic data

BPTCP Confirmation- Regions 1, 3, 4, 8 & 9 [5A][5C][5D][5E]

Legs
24 through 30, 32 & 33

Sampling dates and regions
Leg 24- 1/18/94 through 1/20/94 - Region 9
Leg 25- 1/31/94 through 2/2/94 - Regions 4 & 8
Leg 26- 2/15/94 through 2/16/94 - Regions 4 & 8
Leg 27- 3/1/94 through 3/2/94 - Region 9
Leg 28- 3/15/94 through 3/16/94 - Region 9
Leg 29- 3/29/94 through 3/31/94 - Regions 9 & 8
Leg 30- 4/12/94 through 4/14/94 - Regions 4 & 8
Leg 32- 5/18/94 through 5/20/94 - Regions 1, 3, 4, & 8
Leg 33- 6/13/94 through 6/16/94 - Regions 1 & 3

Number
266 total stations
234 stations were BPTCP confirmation (78 sites with 3 reps »20m apart)
32 stations were reference site screening

Chemical analysis
Organic analysis completed on 162 stations (Groups 7 & 8)
Metal analysis completed on 162 stations (Groups 7 & 8)
TOC & grain size analysis completed on all 266 stations
No chemical analysis authorized for legs 30, 32 or 33 (n=90)

Toxicity testing
Amphipod survival in solid phase data completed on all stations authorized
Urchin fertilization in pore water data completed on all stations authorized
Urchin larvae development in pore water data completed on all stations authorized
Neanthes weight change and survival in solid phase data completed on all stations authorized

Benthic community
No analysis authorized
Products
Data report for Legs 24-33 submitted to SWRCB 3/22/95; includes all analytical data, cruise reports; QA/QC reports for chemistry, toxicity, TOC, and grain size data

Reference Site Study- San Francisco Bay [6A][6D][6E]

Legs
31, 35 and 37

Sampling dates and regions
Leg 31- 4/25/94 through 4/27/94 - Region 2
Leg 35- 9/6/94 through 9/8/94 - Region 2
Leg 37- 3/7/95 through 4/4/95 - Region 2

Number
46 stations

Chemical analysis
Organic analysis completed on 18 stations (Groups 11 & 15)
Metal analysis completed on 18 stations (Groups 11 & 15)
TOC & grain size analysis completed on all 46 stations

Toxicity testing
Amphipod survival in solid phase (Amphelisca, Eohaustorius) and pore water (Eohaustorius) completed on all 46 stations
Urchin larvae development in pore water completed on all 46 stations
Neanthes weight change and survival in solid phase completed on 13 stations
Amphipod survival at sediment/water interface completed on 26 stations
Nubella survival in solid phase completed on 18 stations
Bivalve development in pore water completed on all 46 stations

Benthic community
No analysis

Products
Data report for Legs 31, 35 & 37 submitted to SWRCB October 1995; includes all analytical data, cruise reports; QA/QC reports for chemistry, toxicity, TOC, and grain size data

Evaluation of sediment toxicity tests and reference sites in San Francisco Bay
Draft Report submitted to SWRCB 5/96
Development of toxicity identification evaluation guidelines for estuarine sediment Final Report submitted to SWRCB 6/96

Fish Tissue Contaminant Study- San Francisco Bay [7B][7C]

Sampling dates and regions
5/3/94 through 6/4/94 - Region 2

Number
66 composite samples from 13 stations

Chemical analysis
Organic analysis on all 66 composite samples
Metal analysis on all 66 composite samples
Dioxin/Furan analysis on 13 composite samples

Products
QA/QC evaluative reports for all analytical data

Contaminant levels in fish tissue from San Francisco Bay - Final Report - June, 1995

An assessment of contaminant levels in fish tissue from San Francisco Bay - scientific paper accepted for publication in peer-reviewed journal - 11/96

EMAP/NOAA/BPTCP Cooperative Pilot Study of Southern California Coastal Lagoons/Estuaries- Regions 8 & 9 [8D][8E]

Legs
34 and 36

Sampling dates and regions
Leg 34- 8/30/94 through 9/1/94 - Region 9
Leg 36- 9/19/94 through 9/21/94 - Region 8 & 9

Number
43 total stations
30 stations were NOAA/EMAP random locations
13 stations were targeted for possible hot spots

Chemical analysis
Organic analysis completed on all 43 stations
Metal analysis completed on all 43 stations
TOC & grain size analysis completed on all 43 stations

Toxicity testing
Amphipod (*Rheopoxynius*) survival test in solid phase completed on all 43 stations
Amphipod (*Ampelisca*) survival test in solid phase completed on 25 stations
Urchin larvae development in pore water test completed on all 43 stations

Benthic community
Benthic samples collected and analyzed from all 43 stations (3 replicates per station)

Products
Data report for Legs 34 & 36 submitted to SWRCB November 1995; includes all analytical data, cruise reports; QA/QC reports for chemistry, toxicity, TOC, grain size, and benthic data.

**BPTCP Region 2 Screening: San Francisco Bay** [9A][9B][9C]

Legs
38, 39, 40, and 41

Sampling dates and regions
Leg 38- 4/17/95 through 4/19/95 - Region 2
Leg 39- 5/1/95 through 5/2/95 - Region 2
Leg 40- 10/25/95 through 10/27/95 - Region 2
Leg 41- 12/5/95 through 12/7/95 - Region 2

Number
95 grab, 9 core stations for BPTCP screening (no replicates); 3 stations collected for TIE project

Chemical analysis
Organic analysis completed on 18 stations authorized; (*) data pending for 2 additional stations (full scan) and 4 additional stations (PCB sediment only)
Metal analysis completed on 18 stations authorized; TBT completed on 6 stations authorized; (*) data pending for 2 additional stations (full scan) and 8 additional stations (mercury in sediment only)
TOC & grain size analysis on all 95 stations

Toxicity testing
Amphipod survival in solid phase completed on all 95 stations
Urchin larvae development in pore water completed on all 95 stations
Urchin larvae development in sediment/water interface core completed on all 9 core samples (*)

**Benthic community**
No analysis

**Products**
Data report for Legs 38, 39, 40 and 41 submitted to SWRCB June 1996; includes all analytical data, cruise reports; QA/QC reports for chemistry, toxicity, TOC, and grain size data.

(*)Pending analytical data from Leg 44 (sediment water interface toxicity test and selected chemistry) to be submitted as part of data report from Legs 42-46.

**BPTCP Confirmation FY 95/96/Regions 1, 2, 3, 4, and 8 [54]**

**Legs**
42 through 46

**Sampling dates and regions**
Leg 42- 4/17/96 through 4/18/96 - Region 1 (Humboldt Bay)
Leg 43- 5/9/96 - Region 3 (Monterey Bay ports/harbors)
Leg 44- 6/10/96 through 6/11/96 - Region 2 (S.F. Bay)
Leg 45- 6/19/96 through 6/20/96 - Regions 4 & 8
Leg 46- 7/17/96 through 7/18/96 - Region 4 (Port of L.A.)

**Number**
Leg 42: 10 sediment samples; 10 resident organism tissue samples
Leg 43: 9 sediment samples; 1 water column sample
Leg 44: 10 sediment cores for sediment/water interface tests
Leg 45: 12 sediment samples
Leg 46: 15 sediment samples, including core samples

**Chemical analysis**
Organic analysis completed on 40 sediment & 8 pore water samples legs 42, 43, 45, and 46
Metal analysis completed on 37 sediment & 8 pore water samples legs 42, 43, 45, and 46; lead (only) completed on 4 stations leg 42; TBT (only) completed on 8 stations legs 43, 45; SEM-AVS analysis pending (expected by 4/97) for above legs 42, 43, 45, and 46
TOC & grain size analysis completed on 46 stations from above legs 42, 43, 45, and 46
Toxicity testing
Amphipod survival in solid phase completed on 41 stations from legs 42, 43, 45, and 46
Urchin larvae development in sediment/water interface completed on 16 stations from legs 42, 44, 46
Urchin larvae development in pore water completed on 12 stations
Bivalve development in water column completed on 1 station from leg 43

Benthic community
Benthic community analysis authorized on 32 samples; completion of final benthic community data set pending QA/QC evaluation of data

Products
Data Reports for legs 38-42 [54]
Toxicity Test QA/QC Reports for Legs 42-46 [54A]
Toxicity Data Report for legs 42-46 (task Order 1-5, 2-11, 3-5, 4-6, 4-7, 8-5) [54B]
QA/QC Pore water Trace metals and DOC Chemical Analysis for leg 45 [54C]

BPTCP Confirmation (All Regions Except Region 5) and Screening (Regions 5 and 3)

Legs 47 through 56

Sampling dates and regions link: fielddata.dbf
Leg 47- 12/37/96 through 12/16/96 - Region 1 (Bodega Bay) and Region 9
Leg 48- 2/4/97 through 2/6/97 - Region 4
Leg 49- 3/17/97 through 4/3/97 - Region 5 (Initial Screening)
Leg 50- 4/1/97 through 4/3/97- Region 2
Leg 51- 4/15/97 through 4/17/97 - Region 2
Leg 52- 5/7/97 through 5/15/97 - Region 3 (Tembladeros Slough Screening)
Leg 53- 5/12/97 through 5/15/97 - Region 4
Leg 54- 8/20/97 through 8/21/97 - Regions 4 & 8
Leg 55- 10/6/97 - Region 2
Leg 56- 12/3/97 - Region 2

Number - 115 sediment samples
Leg 47: 13 sediment samples (Region 9- 9; Region 1-4)
Leg 48: 23 sediment samples
Leg 49: 18 sediment samples; 18 water column samples
Leg 50: 15 sediment samples, 5 bioaccumulation samples
Leg 51: 13 sediment samples, 1 TIE sample, 2 bioaccumulation samples

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Leg 52: 7 sediment samples; 7 water column samples, 1 TIE sample
Leg 53-12 sediment samples; 7 fish tissue samples, 4 bioaccumulation samples
Leg 54- 7 sediment samples (Region 4- 2; Region 8- 5); 5 water column samples
Leg 55- 4 sediment samples; 3 bioaccumulation samples
Leg 56- 3 sediment samples

**Chemical analysis** link: Chm47_56.dbf
PAH, PCB and pesticide analyses -- 69 sediment samples; PCB only analyses -- 83 additional sediment samples.
Metal analysis -- 57 sediment samples
AVS/SEM analyses -- 53 sediment samples.
TOC & grain size analysis -- 103 sediment samples
Pore water metal analyses -- 2 pore water samples
PAH only analyses -- 2 pore water samples.
Fourteen metal analyses and 38 organic analyses -- tissue samples. Link: Tiss1_56.dbf

**Toxicity testing** link: Tox47_56.dbf
Amphipod survival in solid phase exposures -- 112 samples
Urchin larvae development in sediment/water interface core -- 79 core samples.
Daphnid survival in subsurface water -- 4 samples.
Daphnid survival in pore water -- 1 sample.
Daphnid survival in sediment/water interface cores -- 21 samples
Mysid survival in water -- one sample.

**Benthic community**
Analyses on 59 samples (3 replicates) completed link: Ben1_56.dbf

**Products**
- Hard copy data reports for Legs 47 through 56 submitted to SWRCB August 1998; includes all analytical data, cruise reports; qa/qc reports for chemistry, toxicity, toc, and grain size data.
Other BPTCP Data and Reports Completed to Date

QA/QC Tissue Metal Analysis - Humboldt Bay [55]

QA/QC Sediment Chemistry (Metals, AVS/SEM) San Francisco Bay, Santa Cruz Harbor, Monterey Harbor, and Southern California [56]

Environmental Chemistry Quality Assurance and Data report for Group 17a. Sediment, Tissue, and Water Analysis. [57]

Environmental Chemistry Quality Assurance and Data report for 1996 Group 17b. Sediments. [58]


QA/QC San Francisco Bay and Southern California (#19 and #20). [61]


QA/QC Report for San Francisco Bay (Batch 21 Mercury Analysis). [64]

Cruise reports for legs 42 43, 4, 45, 46, 47, 48, 49, 50, 51,52, 53, and 54 [65]


DFG Water Pollution Control Laboratory. 1996. Toxic Substance Monitoring Program. Trace Elements in Fish Data. [100]