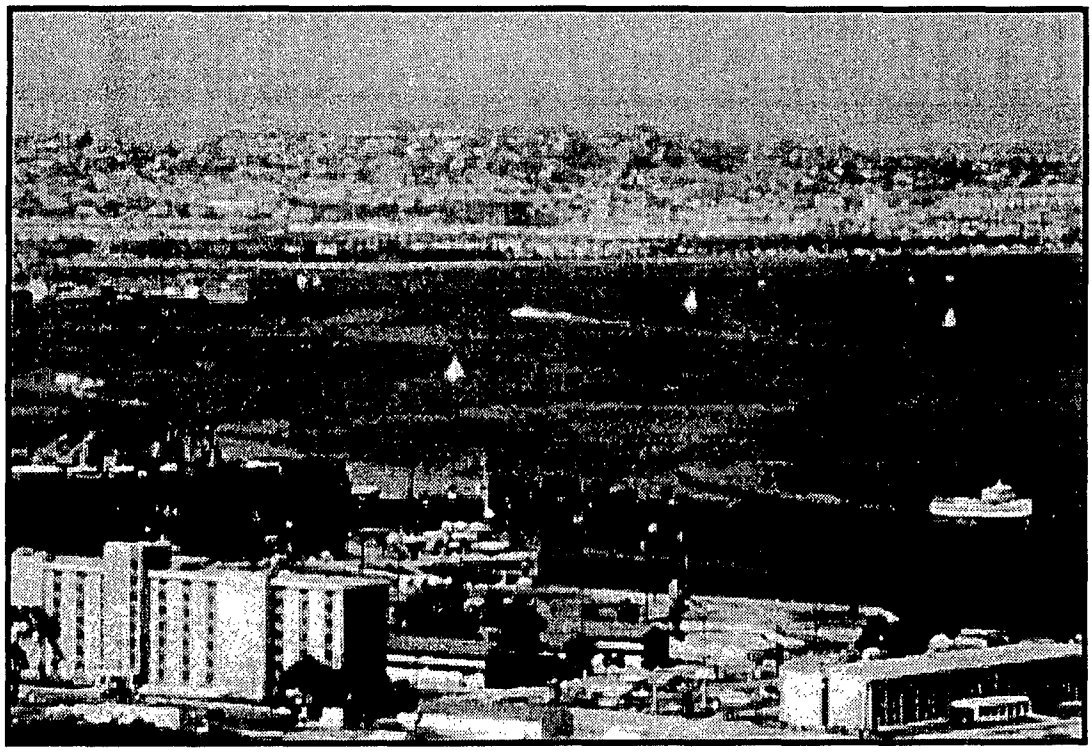

Draft Staff Report:

Status of the Bay Protection and Toxic Cleanup Program

OCTOBER 1995

STATE WATER RESOURCES CONTROL BOARD
CALIFORNIA ENVIRONMENTAL PROTECTION AGENCY

STATE OF CALIFORNIA
STATE WATER RESOURCES CONTROL BOARD

DRAFT STAFF REPORT
BY THE
DIVISION OF WATER QUALITY

STATUS OF THE
BAY PROTECTION AND TOXIC CLEANUP PROGRAM

OCTOBER 1995

PREFACE

The State Water Resources Control Board (SWRCB) will hold a public workshop on November 2, 1995 to consider options for the direction of the State of California's Bay Protection and Toxic Cleanup Program (BPTCP). The purpose of the workshop is to solicit comments from the public on the merits of the BPTCP and to receive suggestions for the direction of the Program in the future.

This document presents a brief summary of the BPTCP and the overall status of the BPTCP. Appendices to the staff report contain the description of the BPTCP in the California Water Code, a brief summary of the Functional Equivalent Document for implementation of the Program, and correspondence from the BPTCP Advisory Committee.

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BY THE
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STATUS OF THE BAY PROTECTION AND TOXIC CLEANUP PROGRAM

INTRODUCTION

The State Water Resources Control Board (SWRCB) is holding a public workshop to solicit comments on the Bay Protection and Toxic Cleanup Program (BPTCP) and to seek recommendations on the future direction of the Program. This staff report describes the current status of the BPTCP.

PROGRAM SUMMARY

California Water Code, Division 7, Chapter 5.6 (please refer to Appendix A) established a comprehensive program within the SWRCB to protect the existing and future beneficial uses of California's bays and estuaries. The BPTCP has provided a new focus on the SWRCB and the RWQCBs (Regional Water Quality Control Boards) efforts to control pollution of the State's bays and estuaries and to establish a program to identify toxic hot spots and plan for their cleanup.

Program Activities

The BPTCP has four major goals: (1) protect existing and future beneficial uses of bay and estuarine waters; (2) identify and characterize toxic hot spots; (3) plan for the prevention and control of further pollution at toxic hot spots; and (4) develop plans for remedial actions of existing toxic hot spots and prevent the creation of new hot spots.

The BPTCP is a comprehensive effort by the SWRCB and RWQCBs to programmatically link standards development, environmental monitoring, water quality control planning, and site cleanup planning. The program includes seven primary activities:

1. Development and amendment of the California Enclosed Bays and Estuaries Plan. This plan should contain the State's water quality objectives for enclosed bays and estuaries and contain the implementation measures for the objectives.

2. Development and implementation of regional monitoring programs designed to identify toxic hot spots. These monitoring programs include analysis for a variety of chemicals, the completion of a variety of toxicity tests, measurements of biological communities, and various special studies to support the program.

3. Development of a consolidated database that contains information pertinent to describing and managing toxic hot spots.

4. Development of narrative and numeric sediment quality objectives for the protection of California enclosed bays and estuaries.

5. Preparation of criteria to rank toxic hot spots that are based on the severity of water and sediment quality impacts.

6. Development of regional and statewide toxic hot spot cleanup plans that include identification and priority ranking of toxic hot spots, identification of pollutant sources, identification of actions already initiated, strategies for preventing formation of new toxic hot spots, and cost estimates for remedial action recommendations.

7. Implementation of a fee system to support all BPTCP activities.

Toxic Hot Spot Identification

The Water Code defines toxic hot spots as locations in enclosed bays, estuaries, or the ocean where pollutants have accumulated in the water or sediment to levels which (1) may pose a hazard to aquatic life, wildlife, fisheries, or human health, or (2) may impact beneficial uses or (3) exceed SWRCB or RWQCB-adopted water quality or sediment quality objectives.

To identify toxic hot spots, water bodies of interest have been assessed on both a regional and site-specific basis. Regional assessments require evaluating whether water quality objectives are attained and beneficial uses are supported throughout the waterbody. In the past, the State Mussel Watch program, independent RWQCB studies, and other studies were used extensively to evaluate beneficial use impacts in many California enclosed bays and estuaries. The BPTCP efforts continue this work by focussing on measures of effects (such as toxicity) and the association of pollutants with the effects measures.

Generally, where sites were not well characterized, regional monitoring programs have been implemented. This monitoring activity has been performed by the California Department of Fish and Game (DFG) under contract with the SWRCB. The consolidated statewide database required by the Water Code was planned to eventually include all data generated by the regional monitoring programs.

Ranking Criteria

The Water Code (Section 13393.5) requires the SWRCB to develop criteria for ranking toxic hot spots. The ranking criteria must consider the pertinent factors relating to public health and environmental quality. The factors include three considerations: (1) potential hazards to public health, (2) toxic hazards to fish, shellfish, and wildlife, and (3) the extent to which the deferral of a remedial action will result or is likely to result in a significant increase in environmental damage, health risks, or cleanup costs.

Sediment Quality Objectives

State law defines sediment quality objectives as "that level of a constituent in sediment which is established with an adequate margin of safety, for the reasonable protection of beneficial uses of water or prevention of nuisances" (Water Code Section 13391.5). Water Code Section 13393 further defines sediment quality objectives as: ". . . objectives . . . based on scientific information, including but not limited to chemical monitoring, bioassays or established modeling procedures." The Water Code requires "adequate protection for the most sensitive aquatic organisms." Sediment quality objectives can be either numerical values based on scientifically defensible methods or narrative descriptions implemented through toxicity testing or other methods.

Toxic Hot Spot Cleanup Plans

The Water Code requires that each RWQCB must complete a toxic hot spot cleanup plan and the SWRCB must prepare a Statewide consolidated toxic hot spot cleanup plan. To facilitate the development of these plans, the SWRCB began the development of a water quality control policy with guidance to the RWQCBs for consistent implementation of the BPTCP.

Each cleanup plan must include: (1) a priority listing of all known toxic hot spots covered by the plan; (2) a description of each toxic hot spot including a characterization of the pollutants present at the site; (3) an assessment of the most likely source or sources of pollutants; (4) an estimate of the total costs to implement the cleanup plan; (5) an estimate of the costs that can be recovered from parties responsible for the discharge of pollutants that have accumulated in sediments; (6) a preliminary assessment of the actions required to remedy or restore a toxic hot spot; and (7) a two-year expenditure schedule identifying State funds needed to implement the plan.

Within 120 days from the ranking of a toxic hot spot in a regional cleanup plan, each RWQCB is required to begin reevaluating waste discharge requirements for dischargers who

have contributed any or all of the pollutants which have caused the toxic hot spot. These reevaluations shall be used to revise water quality control plans and water quality control plan amendments wherever necessary; reevaluations shall be initiated according to the priority ranking established in cleanup plans.

Figure 1 is a flow chart that presents the relationships between many of the program activities. This flow chart was prepared with the assistance of the BPTCP Advisory Committee.

Program Organization

Three groups support or review the activities of the BPTCP. The committees are: (1) the Monitoring and Surveillance Task Force, (2) the Scientific Planning and Review Committee, and (3) the BPTCP Advisory Committee. The function of each of these groups follow:

1. *Monitoring and Surveillance Task Force*. This committee was established to promote standard approaches for monitoring and assessing the quality of California's enclosed bays and estuaries (Section 13392.5(a)(1) of the Water Code). While the primary focus of this committee has been on monitoring implementation, the committee has also developed and contributed to all other aspects of the Program including cleanup planning, ranking criteria and implementation of the annual fee program. The members of the task force are SWRCB and RWQCB staff, DFG and the Office of Environmental Health Hazard Assessment (OEHHA).

2. *Scientific Planning and Review Committee (SPARC)*. Although not legislatively mandated, SPARC brings together independent experts in the fields of toxicology, benthic ecology, organic and inorganic chemistry, program implementation and direction, experimental design, and statistics to review the approaches taken by the BPTCP. The committee has provided comments on the Program's monitoring approach(es), given input on the scientific merit of the approach(es) taken, and provided suggestions for monitoring improvement.

3. *BPTCP Advisory Committee*. This committee was established to assist the SWRCB in the implementation of the BPTCP (Section 13394.6(a) of the Water Code. The major purpose of the committee is to review the Program activities and provide its views on how the products of the BPTCP should be interpreted and used. The committee has members from (1) trade associations; (2) fee-paying dischargers; and (3) environmental, public interest, public health and wildlife conservation organizations.

BPTCP Annual Fees

The activities of the BPTCP are supported primarily through the assessment of annual fees on point and nonpoint source dischargers who directly discharge into enclosed bays, estuaries or the ocean. The Water Code (Section 13396.5) requires that the fees create incentives to reduce discharges. The SWRCB is limited by law from collecting more than $4 million per year and assessing any fee higher than $30,000.

Legislative Deadlines

California Water Code, Chapter 5.6 (Appendix A) established the BPTCP to protect the existing and future beneficial uses of California's bays and estuaries. SB 475 (1989), SB 1845 (1990), and AB 41 (1989) added Chapter 5.6 Bay Protection and Toxic Cleanup (Water Code Sections 13390-13396.5) to Division 7 of the Water Code. More recent legislation (SB 1084 (1993)) extended program funding through 1998, the deadline for the regional toxic hot spot cleanup plans to 1998 and the Statewide cleanup plan until 1999 (Table 1); excluded agricultural dischargers from paying fees; created the BPTCP Advisory Committee; and mandated completion of an epidemiology study (a health effects study of swimming near storm drains at southern California beaches). AB 385 (1993) allowed an exemption for certain types of dischargers that create habitat for wildlife.

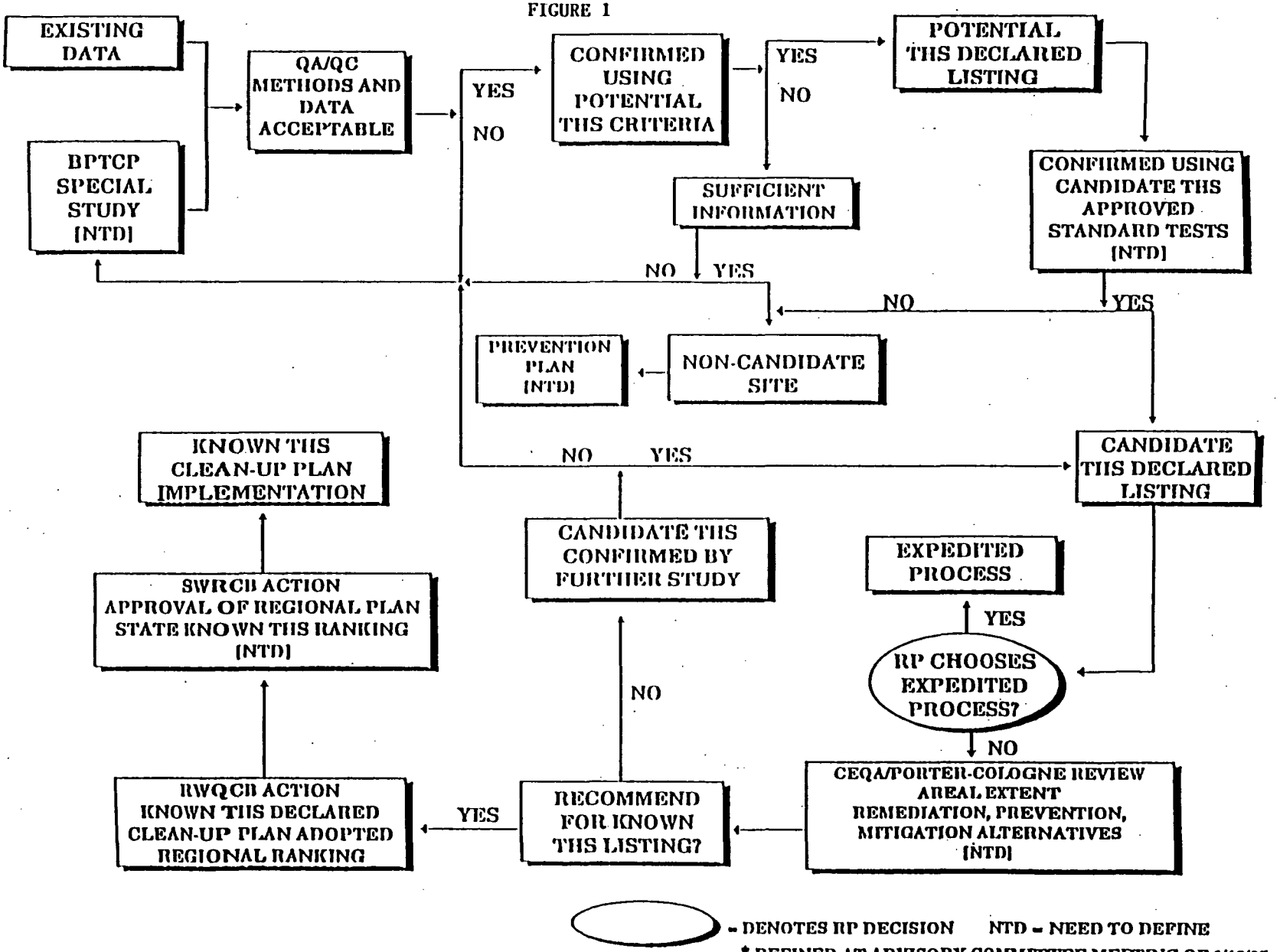
Table 1: Water Code-mandated deadlines for the BPTCP.

Activities	Deadline
Sediment Quality Objectives Workplan	7-1-91
Consolidated Database	1-30-94
Ranking Criteria	1-30-94[1]
Progress Report	1-1-96
Regional Cleanup Plans	1-1-98
Statewide Cleanup Plan	1-1-99

[1]This deadline was not met. The SWRCB requested an extension until February 28, 1995. The BPTCP completed a draft ranking criteria by the February deadline. However, the BPTCP Advisory Committee has requested that the deadline be further extended.

PROPOSED PROCESS TO DEVELOP REGIONAL TOXIC HOT SPOTS CLEAN-UP AND PREVENTION PLAN-FINAL* : 1/26/95

FIGURE 1



= DENOTES RP DECISION NTD = NEED TO DEFINE

* DEFINED AT ADVISORY COMMITTEE MEETING OF 1/10/95

PROGRAM STATUS

The BPTCP has been implemented by the SWRCB and RWQCBs since 1990. Progress has been made in a number of Program activities. This section of the Staff Report lists the accomplishments of the Program. The first three subsections briefly list all the Program accomplishments over the past five years. The remainder of the chapter focusses on recent accomplishments and findings or planned activities in the BPTCP's monitoring, cleanup planning, database and annual fee efforts.

Accomplishments in FY 1990-91 through 1993-94

1. The Monitoring and Surveillance Task Force was established in 1990.

2. Adoption and amendment of the California Enclosed Bays and Estuaries Plan in compliance with Water Code Section 13391 (SWRCB, 1991b; 1992a; 1992b). This Plan was rescinded by the SWRCB in September 1994 in response to a California Superior Court judgement.

3. Adoption of the Sediment Quality Objectives Workplan as required by Section 13392.6 of the Water Code (Lorenzato and Wilson, 1991; Lorenzato et al., 1991). Completion of a preliminary study on a biomarker (Anderson et al., 1993).

4. SWRCB implemented an interagency agreement with the Department of Fish and Game to identify toxic hot spots in all coastal regions of California. DFG used standard approaches for these monitoring efforts (DWQ/SWRCB, 1991b).

5. Regulations to implement the BPTCP annual fees were adopted by the SWRCB (DWQ/SWRCB, 1991a; SWRCB, 1991a; 1992c).

6. The BPTCP annual fee system was implemented and two billing cycles were completed.

7. San Francisco Bay RWQCB completed the pilot regional monitoring program related studies (Taberski et al., 1992; Stephenson, 1994; Flegal et al., 1994; Smith and Cheng, 1994).

8. Completion of planning, purchase and installation of the BPTCP data system and network (DWQ/SWRCB, 1992; DWQ/SWRCB and the Teale Data Center, 1992).

9. Draft Ranking Criteria for the priority ranking of toxic hot spots (DWQ/SWRCB, 1993).

10. OEHHA also developed a strategy for developing sediment quality objectives based on human health risk assessment (Brodberg et al., 1993).

11. Regional Boards compiled available information that can be used to identify toxic hot spots (SWRCB, 1993).

12. By the end of FY 1992-93, regional monitoring to identify toxic hot spots had been initiated in all Regions.

13. Regional monitoring and planning activities were augmented with four federal grants (one from the U.S. Environmental Protection Agency ($150,000) and three from the National Oceanic and Atmospheric Administration (a total of $525,000) (SWRCB and NOAA, 1991; 1992; 1993; SWRCB and EPA, 1994).

14. The BPTCP Advisory Committee was formed and several meetings were held.

Accomplishments in FY 1994-95

Program accomplishments in FY 1994-95 include the following:

1. Monthly meetings of the Monitoring and Surveillance Task Force and the BPTCP Advisory Committee.

2. The Scientific Planning and Review Committee (SPARC) was established and held a very successful meeting in April 1995 (SWRCB et al., 1995; SWRCB et al., in preparation).

3. Implementation of the Department of Fish and Game interagency agreement (DWQ/SWRCB, 1994). Work was initiated in Regions 1, 2, 5, 8 and 9.

4. Reports completed in FY 1994-95 include:

   A. Bay Protection and Toxic Cleanup Program Quality Assurance Project Plan (Stephenson et al., 1994).

   B. San Francisco Estuary Pilot Regional Monitoring Program: Sediment Studies (RWQCB et al., 1995).

   C. Draft Final Report on the Sediment Chemistry and Toxicity in the Vicinity of the Los Angeles-Long Beach Harbors (Sapudar et al., 1994).

   D. Draft Functional Equivalent Document for the Implementation of the Bay Protection and Toxic Cleanup Program (SWRCB, 1995b; Appendix B).

E. Briefing Document for the Scientific Planning and Review Committee (SWRCB et al., 1995).

F. Contaminant Levels in Fish Tissue from San Francisco Bay (RWQCB et al., 1995).

5. The draft ranking criteria were in review by the BPTCP Advisory Committee (DWQ/SWRCB, 1995).

6. Dischargers were invoiced for BPTCP annual fees in January 1995. RWQCB staff made a strong effort to collect past due fees (i.e., fees unpaid in prior years).

7. The epidemiology study for Santa Monica Bay was initiated.

8. The Board took an action formally appointing the BPTCP Advisory Committee Members (SWRCB, 1995a). Operating Procedures for the BPTCP Advisory Committee were approved (SWRCB, 1995b).

9. Geographical Information System data layers for all coastal and San Francisco Bay-Delta area counties were provided to RWQCB staff.

Accomplishments in FY 1995-96

Program accomplishments in FY 1995-96 include the following:

1. Monthly meetings of the Monitoring and Surveillance Task Force and the BPTCP Advisory Committee.

2. Completion of RWQCB and SWRCB training for FY 1995-96 fee collections.

3. Reports initiated or completed in FY 1995-96 include:

   A. Contaminant Levels in Sediments of San Diego Bay (DFG et al., in review).

   B. Measures of bioeffects associated with toxicants in small bays and estuaries of southern California (Pilot Study) (DFG et al., in preparation).

   C. A comparative evaluation of biomarker methods using fish captured from the Los Angeles Harbor area (Okihiro and Hinton, in review).

   D. Revised Bay Protection and Toxic Cleanup Program Quality Assurance Project Plan (Stephenson et al., in preparation).

E. Recommendations on the Bay Protection and Toxic Cleanup Program Monitoring Activities (SWRCB et al., in preparation).

F. Evaluation of sediment toxicity tests and reference sites in San Francisco Bay (Hunt, in preparation).

G. Development of toxicity identification evaluation guidelines for estuarine sediment (Hansen and Associates, in preparation).

H. Transport of suspended sediment and metals into the Sacramento-San Joaquin Delta Estuary during 1995 (Foe, in preparation).

I. Greens Landing metal sampling (Foe, 1995).

J. 1993-94 Sacramento-San Joaquin Delta Estuary Bioassay Monitoring Study, Annual Report (Deanovic et al., in preparation (a)).

K. 1994-95 Sacramento-San Joaquin Delta Estuary Bioassay Monitoring Study, Annual Report (Deanovic et al., in preparation (b)).

Monitoring

As part of the legislative mandates of the Program, the BPTCP has implemented regional monitoring programs to identify toxic hot spots (Water Code Section 13392.5). All BPTCP monitoring activities are being completed under a contract with DFG (DWQ/SWRCB, 1991b; 1994; SWRCB, 1993). Regional monitoring efforts are being implemented in all seven coastal Regions (SWRCB, 1993; SWRCB et al., 1995; in preparation). The BPTCP has completed a significant amount of monitoring since 1992 (Table 2).

San Diego Bay Report: A substantial amount of monitoring has been completed in San Diego Bay. Three-hundred and fifty stations have been sampled and data analyzed. The first internal draft of the report was completed by DFG on September 1, 1995 (DFG et al., in review).

In this study, San Diego Bay, Mission Bay and the Tijuana River Estuary were sampled. Two sampling designs were used: directed point sampling and stratified random sampling. Measurements of sediment toxicity, benthic community structure and chemicals present in the sediments were made. Three stations were found to satisfy the conditions listed in the definition of a toxic hot spot (DWQ/SWRCB, 1995). Eighty-four other stations were identified to be of moderate and low concern.

Table 2: Summary of analyses completed between 1992 and 1995 by the BPTCP.

Type of Analysis	Number Completed
Sediment samples collected	914
Pore water extractions	598
Toxicity tests	3,598
Benthic community analyses	233
Organic chemistry analyses	481
Metals analyses	5,559
Total organic carbon analyses	865
Grain size analyses	865
Fish tissue samples analyses	72
Toxicity identification evaluations	59

Small Bays and Estuaries Pilot Study: The NOAA/EMAP/SWRCB Small Bays and Estuaries pilot study was initiated in March 1995 (SWRCB et al., 1994). This study is a cooperative effort between the SWRCB, NOAA and the EPA Environmental Monitoring and Assessment Program. The draft report on this study is expected in December 1995 (DFG et al., in preparation).

The pilot study has seven objectives:

1. Estimate with known confidence the percent of degraded fine-grained sediment area in Southern California small bays and estuaries using several critical threshold values of toxicity, benthic community analysis, and chemistry.

2. Produce a map of the data collected for sediment toxicity, benthic community analysis and chemistry.

3. Identify a set of sites that should be revisited for confirmation as either toxic hot spots or reference sites.

4. Assess the effectiveness of locating toxic hot spots and reference points (sites) (for which prior knowledge of likely impacts exists) or random sampling throughout the set of water bodies.

5. Assess the concordance of two solid phase sediment toxicity tests over a range of substrate, salinity, and toxicant concentration conditions.

6. Develop a benthic index for interpretation of benthic data.

7. Identify which of the measured toxicants are most associated with toxic response.

Los Angeles and Long Beach Harbors Draft Report: This study characterized the magnitude and relative spatial extent of toxicant-associated bioeffects in Los Angeles and Long Beach Harbors, Anaheim Bay, and Huntington Harbour (Sapudar et al., 1994). Thirty-five sites were sampled (with three field-replicated stations per site) in the study area. Amphipod survival and abalone larval development toxicity tests were performed on the sediment samples and pore water. Significant amphipod mortality compared to laboratory controls was observed at the majority of sites in the Los Angeles and Long Beach inner harbors. Most of the outer harbor site sediments were not toxic to amphipods. Many of the sediments from sites in Huntington Harbour, Anaheim Bay and Alamitos Bay were toxic to amphipods. Several chemicals (e.g., acenanaphthene, phenanthrene, fluoranthene, copper, lead, zinc) or chemical groups (e.g., total PAHs) were significantly correlated with amphipod survival.

Staff prepared responses to comments received from the Ports of Los Angeles and Long Beach on the report. These comments covered certain aspects of project planning, design, conduct, analytical chemistry and toxicity testing methods, data analyses, and conclusions.

San Francisco Bay Fish Contaminant Study: The draft of this report was released for public review in December 1994. The final report was released at the end of June 1995 (RWQCB et al., 1995). The comprehensive human health risk analysis to be conducted by OEHHA using the study results is currently in-progress, and is expected to require several months. As a result of the data, OEHHA issued an interim health advisory for fish consumption in San Francisco Bay in December 1994.

This study (RWQCB et al., 1995) was conducted to measure contaminant levels in fish caught and consumed by anglers in San Francisco Bay. The main objectives of the study were to identify, to the maximum extent possible, the chemicals, species and geographical areas of concern in San Francisco Bay. This study was designed in a coordinated effort between OEHHA, DFG, the Department of Health Services, environmental groups and anglers. Thirteen fishing piers were sampled for fish with a small habitat range. Other regions of the Bay were sampled for fish that had a larger habitat range. The species of fish that were collected were white croaker (which was the highest priority fish based on its feeding behavior and lipid content), shiner surfperch, walleye surfperch, leopard sharks, brown smoothhound sharks, striped bass, sturgeon and halibut. Pilot Study Screening Values based on the consumption rate of 30 grams per day were used to screen the data for potential chemicals of concern. Results showed that:

1. The EPA guidance document, Guidance For Assessing Chemical Contaminant Data For Use In Fish Advisories- Volume 1- Fish Sampling And Analysis (EPA 823-R-93-002, 1993), was an effective tool for designing the pilot study and analyzing data collected from the San Francisco Bay study.

2. Based on EPA screening values six chemicals or chemical groups were identified as potential chemicals of concern in San Francisco Bay. They were PCBs, mercury, dieldrin, total DDT, total chlordane and the dioxin/furans.

3. High levels of the pesticides dieldrin, total DDT and total chlordane were most often found in fish from the North Bay.

4. Levels of PCBs, mercury and the dioxin/furans were found at concentrations exceeding EPA screening values throughout the Bay.

5. Fish with high lipid content (croaker and shiner surfperch) in their muscle tissue generally exhibited higher organic contaminant levels. Fish with low lipid levels (halibut and shark) generally exhibited lower organic contaminant levels.

6. Of the Bay fish collected, white croaker consistently exhibited the highest tissue lipid concentrations. Lipophilic PCBs and pesticides concentrated to the highest levels in the muscle tissue of these fish.

7. Mercury levels were found to be the highest in the two shark species collected; the leopard shark and the brown smoothhound shark. Both the sharks and white croaker exhibit increasing mercury concentration with increasing fish size indicating bioaccumulation of this metal in Bay area fish.

8. Vallejo-Mare Island was the sampling location from which fish most often exhibited high levels of chemical contaminants. Oakland Inner Harbor also exhibited a high incidence of tissue contamination.

San Francisco Estuary Pilot Regional Monitoring Program: Sediment Studies: The main objectives of this study (Taberski et al., 1992; Stephenson, 1992; Flegal et al., 1994) were to: (1) screen critical habitats (marshes and mudflats) near potential sources of contamination to identify potential toxic hot spots, (2) develop a baywide sediment monitoring program that would act as a pilot program to define ambient conditions and (3) evaluate the use of various sampling and testing methods to use in monitoring programs. To achieve the first objective sediment chemistry and toxicity was measured at 32 stations in critical habitats throughout the estuary. To achieve the second objective, sediment was collected at 15 stations that were thought to reflect ambient conditions. These samples were collected during wet and dry seasons and were geographically distributed throughout the Estuary. Sediment chemistry and toxicity were measured. This study provided the basis for the ongoing San Francisco Bay Regional Monitoring Program. In both the critical habitat study and the baywide study three toxicity tests were used: a solid phase 10 day amphipod test, the bivalve larvae development test using an elutriate and the Menidia growth and survival test using an elutriate. In the second baywide run the Menidia test was eliminated due to lack of sensitivity. For all of these samples the depositional layer was sampled which was characterized by brown, loose sediment lacking the smell of hydrogen sulfide. A reference site in Tomales Bay was used to compare sediment chemistry and toxicity with test sites.

To evaluate various sampling and testing methods a study was conducted on a sediment gradient that had been contaminated by a oil refinery. The main purpose of the gradient study was to:

(1) determine which toxicity tests or phases (solid phase, elutriate, or pore water) could best distinguish between highly contaminated, moderately contaminated and relatively uncontaminated sites, (2) evaluate the degree to which field replication increases the ability to distinguish between sites, (3) determine the effects of sample depth, (4) determine the relationship between toxicity and factors that may effect toxicity including the levels of chemical contaminants, total organic carbon, grain size, ammonia and sulfides and 5) determine the relationship between toxicity test results and benthic community analysis. Five field replicates were collected at each of four stations on the gradient. Samples of the depositional layer were collected, as well as, samples one foot deep for each of the field replicates. Tests included solid phase and pore water chemistry, the 10 day solid phase amphipod test, the bivalve development test using an elutriate and pore water and benthic community analysis. On a subset of samples biomarker measurements (exposing speckled sanddabs to sediment in a lab and analyzing for P450, EROD activity, stress proteins and histopathology), as well as, pore water tests that included sea urchin fertilization, development, cytologic and cytogenic effects, nematode broodsize and mutagenic effect, amphipod tests using intact cores and bacterial mutagenicity were conducted.

The results of the critical habitat and baywide studies showed that the depositional layer varied greatly between sites. This layer varied between 2 to over 20 cm. Nickel exceeded the ERM in all samples and seemed to be the result of geologic deposits. The Tomales Bay reference site, although removed from sources of contamination, was toxic approximately half of the time when compared to controls. Other stations along the coast that were evaluated to be used for reference sites because of the lack of contaminant sources also proved to be toxic in toxicity tests. The Menidia growth and survival test seemed to be the least sensitive of the three tests conducted in these studies.

In the gradient study, contaminants measured in the solid phase significantly correlated with each other and with related variables such as organic carbon and nitrogen. Concentrations of bulk aqua regia extractable metals were poor predictors of pore water metal concentrations. The amphipod test was significantly correlated with all of the contaminant and related variables, field variability was low and toxicity was higher in the deeper cores where chemical concentrations were higher. For the bivalve larvae tests, pore water tests were more toxic than elutriate tests, field variability was greater than laboratory variability, and toxicity was greater in the deeper cores. Benthic community analysis could not detect differences between stations along the gradient. Sea urchin development had a strong relation to bivalve larvae development but a poor relation to sea urchin development. In the pore water tests neither ammonia or sulfides seemed high enough to cause toxicity. The PAH content of the

sediment was significantly correlated with P-4501A content of the gills, hepatic EROD activity and gill histopathology. Although these were the major findings of the gradient study, analysis of this data is continuing through another Regional Board contract.

In addition to these results, this study provided the groundwork for a data management system currently being used by the BPTCP and the San Francisco Estuary Regional Monitoring Program.

Reference Site Study: The main purposes of the this study are to: (1) identify sediment reference sites in San Francisco Bay to use in toxicity tests, (2) recommend sediment toxicity test protocols to use in monitoring sediment toxicity in San Francisco Bay, (3) develop Sediment Toxicity Identification (TIE) protocols that can be used in San Francisco Bay and (4) identify the cause of toxicity at previously identified reference sites. This study is currently in progress but nearing completion. For this study five potential sediment reference sites were chosen. Two sites were in San Pablo Bay, one site was in the Central Bay and two sites were in the South Bay. Chemical analysis has been or will be conducted at all sites that do not show toxicity. Sediment samples from Tomales Bay and several contaminated sites were also collected. All potential reference sites had three field replicates. In addition, all potential reference sites, except those in the South Bay, were sampled three times during the year during different hydrographic conditions. Since the most likely locations to find reference sites were in San Pablo and the Central Bay, those sites were chosen first. Since these sites seemed to be good reference sites based on results from two sampling events, additional sites were chosen in the South Bay. Between seven to nine toxicity tests were performed on each sample. These tests were: (1) the 10 day solid phase amphipod test using Eohaustorius, (2) the 10 day solid phase amphipod test using Ampelisca, (3) the 10 day amphipod test using Eohaustorius in undisturbed cores, (4) the 10 day amphipod test using Eohaustorius in pore water, (5) the bivalve larvae development test in pore water, (6) the urchin larvae development test in pore water, (7) the urchin larvae development test using a sediment/water interface exposure, (8) the Neanthes growth and survival test and (9) a 10 day solid phase test using Nubelia. Toxicity tests were dropped out of the study based on the level of control survival, performance at reference sites and sensitivity to contaminated sites.

The first step in this project was to develop Sediment TIE protocols for the 10 day amphipod test, the bivalve larvae development test and the urchin larvae development test. When all laboratory tests were completed including pore water extraction experiments, testing the sensitivity of the various organisms to TIE manipulations and spiking experiments, the field portion of the study began. Samples were collected at the reference sites with enough field replication to try to determine

field variability and during different hydrographs to try to determine seasonal variability. By collecting the samples in this way we hope to identify reference sites, determine the variability at those sites for statistical purposes, and identify sediment toxicity tests that perform well at reference sites but are sensitive to contaminated sites. Once this study is over and reference sites are identified, testing of these sites will continue and data will be added to develop a "reference envelope" for these sites. In addition, we performed the amphipod test with undisturbed cores and the urchin test using a sediment/water interface to evaluate the environmental relevance of the standard amphipod and urchin tests. These tests could possibly be used in confirming toxic hot spots.

When samples were found to be toxic, a TIE was performed using the pore water test that showed the toxicity. The first two field TIEs were performed on sediment from Islais Creek, where the City of San Francisco has had their main outfall for decades, and on the Tomales Bay sediment. After removing ammonia and hydrogen sulfide from the Islais Creek sample, toxicity remained. After running TIEs on both samples results seemed to indicate that in both samples toxicity was being caused by a polar organic degradation product. Additional work has been performed to try to extract and identify the cause of this toxicity. Draft reports for this study are due September 1995.

San Francisco Bay Screening: The BPTCP is also initiating new monitoring to screen and confirm toxic hot spots in the San Francisco Bay. In the first phase of this study, 49 sites were screened for toxicity using the 10-day solid phase amphipod test and the urchin development test using pore water. Sediments from four reference sites identified in the San Francisco Bay reference site study were sampled concurrently. All test sediment was archived for future chemical analysis if required. Analysis of the amphipod solid phase test results indicated six toxic hits while the results of the urchin development test indicated 15 hits, three of which were concurrent with amphipod test hits. The four reference sites sampled as part of this phase had no significant toxicity.

The second phase of the screening study is scheduled to begin this fall when approximately 48 additional sites throughout the Region will be screened using the same tests. In addition, sediment chemistry analysis will be accomplished on the archived sediments from phase one that indicated toxicity in either or both of the toxicity tests.

Stockton Urban Stormwater Runoff (Region 5): The primary objective of the work is to identify pollutants present in Stockton wet weather urban runoff which cause toxicity in water samples collected from waterways located in the Southern Delta. Limited testing occurred last year at Stockton which confirmed

that runoff from the City was also toxic. Little work has been done on urban runoff linking the responsible pollutant(s) and the observed toxicity. The number of pollutants typically present in urban runoff is extensive and it is not possible to adequately assess toxicity with standard, concurrent chemical analyses. Bioassays and toxicity identification evaluations (TIEs) must be conducted to determine the responsible chemicals. In addition, the toxicity monitoring program at Stockton last year noted suppressed dissolved oxygen levels in water samples collected from Smith Canal, the Calaveras River and Five Mile Slough after the first rainfall event of the year. Board staff and local residents reported observing dead catfish, bass and carp in these waterways. Fish mortality from low oxygen levels would also have occurred in the bioassays had they not been continuously aerated. Continuous aeration is not a normal procedure in these tests. Apparently the dissolved oxygen problem occurs almost annually at Stockton and has repeatedly been reported to the Department of Fish and Game. It is not known whether the oxygen suppression results from biological or chemical oxygen demand nor how extensive (temporally and spatially) the problem is.

This study has two objectives: to identify the specific pollutants present in Stockton urban runoff causing toxicity in bioassays and to identify both spatially and temporally the extent of the oxygen sag. A secondary objective will be to identify whether the oxygen suppression is the result of elevated biological or chemical oxygen demand.

Cache Creek mercury mass loading study (Region 5): The Central Valley trace metal monitoring program element has three objectives: to define the extent of metal criteria exceedances throughout the Delta, to determine the extent of metal associated toxicity throughout the Delta; and to determine the metal (mostly mercury) loading patterns to the Delta. The latter emphasizes the importance of storm events. Two patterns have emerged after more than two years of study. First, no incidents of toxicity have been linked to metal exceedances. Some exceedances of criteria have occurred but generally appear to be limited to storm events. Second, large amounts of mercury (greater than 95 percent of the annual load) is transported into the Estuary during winter high flow periods. At this time the concentration of mercury exceeds the EPA recommended freshwater criteria of 12 ng/l. Normal dry weather mercury concentrations in the Sacramento River and Delta are between 2 and 4 ng/l. During wet weather water from the Sacramento Valley enters the Delta through both the Sacramento River and the Yolo Bypass (Prospect Slough). Wet weather high flow mercury levels in the Sacramento River ranged between 15 and 40 ng/l and in Prospect Slough between 30 and 600 ng/l. Concentrations as far downstream as the City of Martinez have been measured at 16 ng/l. The Prospect Slough data suggest a potentially significant source in the Bypass. Follow-up studies of the major inputs to the Bypass found that the Cache

Creek watershed was the probable source. Mercury concentrations in the Creek ranged between 600 and 2200 ng/l. High mercury levels were also detected in some other Coast Range creeks discharging to the Sacramento River upstream of the Feather River. All these sources are outside the Delta but are probably responsible for the mercury human health advisory for consumption of fish caught in the Sacramento-San Joaquin Delta Estuary. Follow-up work proposed this coming winter to confirm the mercury sources detected in winter 1995 and to begin evaluating the feasibility of mercury abatement projects. We propose concentrating on Cache Creek for an evaluation of how to proceed with mercury abatement work. If successful, we will use the information gained on Cache Creek to evaluate abatement work on other coastal creeks which contribute elevated mercury loads to the Estuary.

Database and Computer Network

The database and network (DWQ/SWRCB, 1992; DWQ/SWRCB and Teale Data Center, 1992) are operational and they have been used consistently by the SWRCB and RWQCB staff. A users guide for the BPTCP database and email was distributed to Regional and State BPTCP staff in January 1995 (Tappel et al., 1994a; 1994b). RWQCB and SWRCB Staff responded to several data requests from interested parties during the Fiscal Year.

The computer network allows the SWRCB and RWQCB staff, DFG, OEHHA, and others to communicate very effectively. The network allows for electronic mail, document transfer and Internet access. The system also provides Geographical Information System capabilities to the SWRCB and RWQCB staff.

Toxic Hot Spot Cleanup Plans

1. Toxic Hot Spot Cleanup Plan Guidance Document

   In January 1995, a draft Functional Equivalent Document (FED) for the development of a water quality control policy to implement the BPTCP was issued (DWQ/SWRCB, 1995; Appendix B). This document was developed by the RWQCB and SWRCB staff, DFG, and OEHHA. The water quality control policy that would result from the approval of the FED would serve as guidance for the RWQCBs on consistent program implementation. The review of the draft FED commenced at the February 14, 1995 meeting of the BPTCP Advisory Committee.

2. Specific Definition of a Toxic Hot Spot and Ranking Criteria

   The specific definition of a toxic hot spot and the ranking criteria (DWQ/SWRCB, 1995) have been redrafted several times in response to comments received from the BPTCP Advisory Committee and the Monitoring and Surveillance Task Force. The most recent draft of the ranking criteria is incorporated into the January 1995 version of the draft FED.

Annual Fees

The BPTCP has been supported by fees collected from dischargers since 1992. Regulations were adopted by the SWRCB in 1991 that established a fee schedule for point and nonpoint dischargers that discharge into the ocean, enclosed bays or estuaries of the State (SWRCB, 1992c). Figure 2 shows the program-wide collection totals (for all organizations) for fees invoiced, fees collected and the BPTCP expenditures. There has been a steady decrease in fees invoiced and fees collected since 1992. Expenditures, on average, have matched the revenue collected. The high level of expenditure in FY 1992-1993 was offset by the lower level of expenditure in FY 1991-1992 (Figure 2).

The relative amount of fees collected in each of the regions is presented in Figure 3. The San Francisco Bay RWQCB collects the most fee revenue and the Santa Ana RWQCB collects the lowest amount of fee revenue. Board-wide the overall trend has been fewer fees collected each year; but the rate collected does vary by RWQCB. Fee collection has decreased by at least $200,000 per year.

Decreases in revenue have occurred for the following reasons:

1. Changes in discharger Threat to Water Quality and Complexity ratings for permits.

2. Recision of permits and Waste Discharge Requirements.

3. Companies going out of business.

4. Changes in permitted cubic yards of dredge (mostly decreases).

5. Changes in Clean Water Act Section 303(d) assessments. The fee regulations call for discharges to water bodies designated a water quality limited segment to be assessed double the base fee. If these designations are changed fee revenue is decreased.

6. Agricultural discharges are now exempt from BPTCP fees (SB 1084 Calderon (1993)).

The Regional Boards are taking a more active role in convincing the delinquent fee-payers to pay the BPTCP fees.

Program Review and Implementation Plan

An independent review of the BPTCP was conducted at the request of the SWRCB (Kolb, 1995). In the review report twenty specific recommendations were made in eight program areas. The report was reviewed by the BPTCP Advisory Committee, Monitoring and Surveillance Task Force, the SPARC and the public. The letter on the program review from the BPTCP Advisory Committee is included in this report as Appendix C.

The SWRCB developed a plan to implement the review recommendations (SWRCB, 1995d). The implementation plan discussed changes in program organization, communication, monitoring design, data management, fee collection, and resource allocation. The implementation plan acknowledged the difficulty in meeting the legislatively mandated goals of the program with declining revenues. The plan concluded that the BPTCP, with declining resources, should be focussed on collecting scientifically defensible monitoring data to identify potential problem areas in the State's enclosed bays and estuaries.

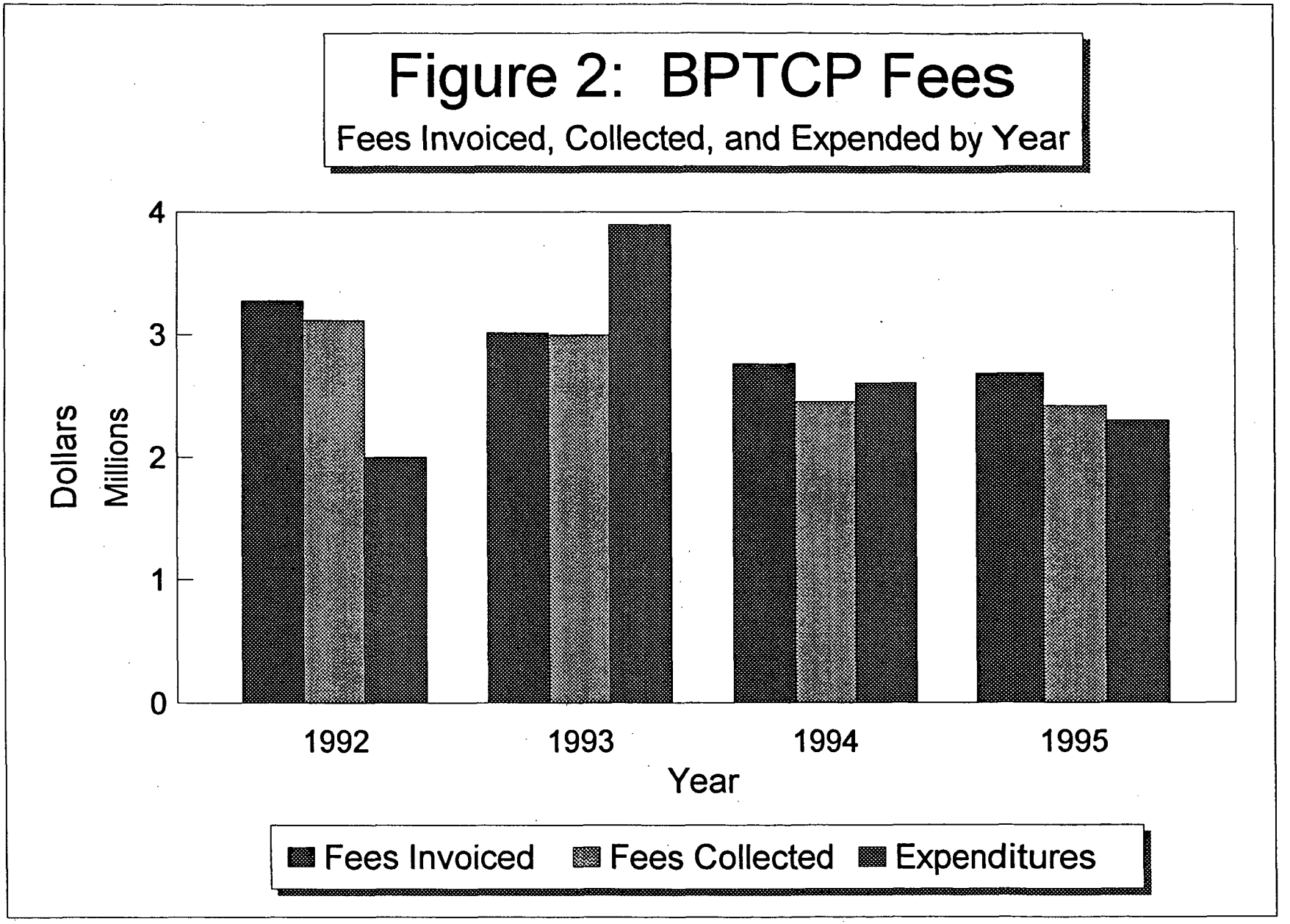


Figure 2: BPTCP Fees
Fees Invoiced, Collected, and Expended by Year
Dollars
Millions
4
3
2
1
0
1992
1993
1994
1995
Year
Fees Invoiced
Fees Collected
Expenditures

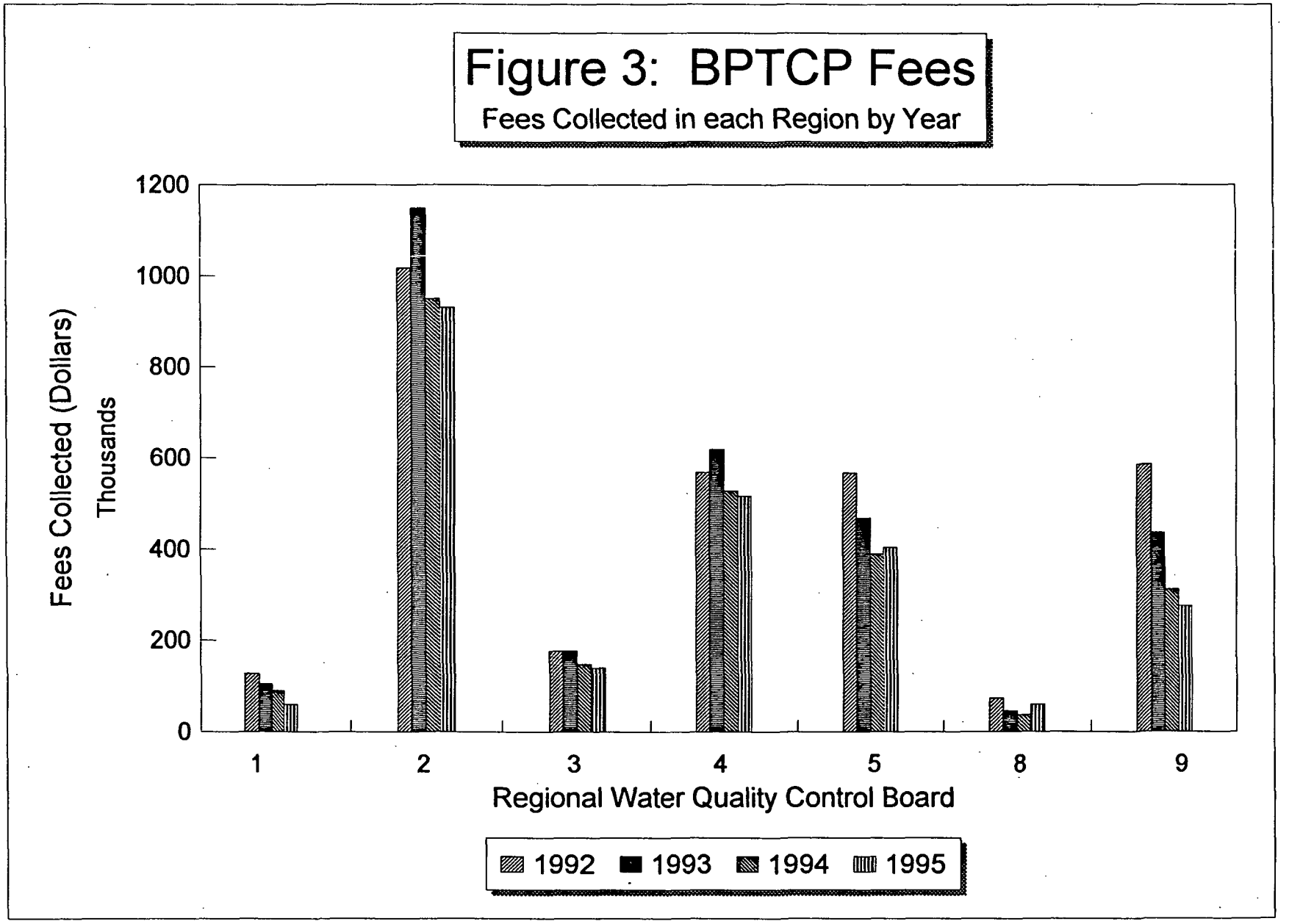


Figure 3: BPTCP Fees
Fees Collected in each Region by Year
Fees Collected (Dollars)
Thousands
1200
1000
800
600
400
200
0
1
2
3
4
5
8
9
Regional Water Quality Control Board
1992
1993
1994
1995

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A P P E N D I X A

Bay Protection and Toxic Cleanup Program

Chapter 5.6 of the Water Code
Section 13390 et seq.

CHAPTER 5.6. BAY PROTECTION AND TOXIC CLEANUP

§ 13390. Legislative intent.

It is the intent of the Legislature that the state board and the regional boards establish programs that provide maximum protection for existing and future beneficial uses of bay and estuarine waters, and that these programs include a plan for remedial action at toxic hot spots. It is also the intent of the Legislature that these programs further compliance with federal law pertaining to the identification of waters where the protection and propagation of shellfish, fish, and wildlife are threatened by toxic pollutants and contribute to the development of effective strategies to control these pollutants. It is also the intent of the Legislature that these programs be structured and maintained in a manner which allows the state board and the regional boards to make maximum use of any federal funds which may be available for any of the purposes specified in this chapter.

§ 13391. California Enclosed Bays and Estuaries Plan.

(a) The state board shall formulate and adopt a water quality control plan for enclosed bays and estuaries, which shall be known as the California Enclosed Bays and Estuaries Plan, in accordance with the procedures established by this division for adopting water quality control plans.

(b) As part of its formulation and adoption of the California Enclosed Bays and Estuaries Plan, the state board shall review and update the Water Quality Control Policy for Enclosed Bays and Estuaries of California, as adopted in 1974 pursuant to Article 3 (commencing with Section 13140) of Chapter 3, and incorporate the results of that review and update in the California Enclosed Bays and Estuaries Plan.

(c) State and regional offices, departments, boards and agencies shall fully implement the California Enclosed Bays and Estuaries Plan. Pending adoption of the California Enclosed Bays and Estuaries Plan by the state board, state and regional offices, departments, boards and agencies shall fully implement the Water Quality Control Policy for Enclosed Bays and Estuaries of California.

(d) Each regional board shall review and, if necessary, revise waste discharge requirements that are inconsistent with those policies and principles.

§ 13391.5. Definitions.

The definitions in this section govern the construction of this chapter.

(a) "Enclosed bays" means indentations along the coast which enclose an area of oceanic water within distinct headlands or harbor works. "Enclosed bays" include all bays where the narrowest distance between the headlands or outermost harbor works is less than 75 percent of the greatest dimension of the enclosed portion of the bay. "Enclosed bays" include, but are not limited to, Humboldt Bay, Bodega Harbor, Tomales Bay, Drake's Estero, San Francisco Bay, Morro Bay, Los Angeles-Long Beach Harbor, Upper and Lower Newport Bay, Mission Bay, and San Diego Bay. For the purposes of identifying, characterizing, and ranking toxic hot spots pursuant to this chapter, Monterey Bay and Santa Monica Bay shall also be considered to be enclosed bays.

(b) "Estuaries" means waters, including coastal lagoons, located at the mouths of streams which serve as mixing zones for fresh and ocean waters. Coastal lagoons and mouths of streams which are temporarily separated from the ocean by sandbars shall be considered as estuaries. Estuarine waters shall be considered to extend from a bay or the open ocean to a point upstream where there is no significant mixing of fresh water and sea water. Estuarine waters include, but are not limited to, the Sacramento-San Joaquin Delta, as defined in Section 12220, Suisun Bay, Carquinez Strait downstream to the Carquinez Bridge, and appropriate areas of the Smith, Mad, Eel, Noyo, Russian, Klamath, San Diego, and Otay Rivers.

(c) "Health risk assessment" means an analysis which evaluates and quantifies the potential human exposure to a pollutant that bioaccumulates or may bioaccumulate in edible fish, shellfish, or wildlife. "Health risk assessment" includes an analysis of both individual and population wide health risks associated with anticipated levels of human exposure, including potential synergistic effects of toxic pollutants and impacts on sensitive populations.

(d) "Sediment quality objective" means that level of a constituent in sediment which is established with an adequate margin of safety, for the reasonable protection of the beneficial uses of water or the prevention of nuisances.

(e) "Toxic hot spots" means locations in enclosed bays, estuaries, or any adjacent waters in the "contiguous zone" or the "ocean," as defined in Section 502 of the Clean Water Act (33 U.S.C. Sec. 1362), the pollution or contamination of which affects the interests of the state, and where hazardous substances have accumulated in the water or sediment to levels which (1) may pose a substantial present or potential hazard to aquatic life, wildlife, fisheries, or human health, or (2) may adversely affect the beneficial uses of the bay, estuary, or ocean waters as defined in water quality control plans, or (3) exceeds adopted water quality or sediment quality objectives.

(f) "Hazardous substances" has the same meaning as defined in subdivision (f) of Section 25281 of the Health and Safety Code.

§ 13392. "Toxic hot spots".

The state board and the regional boards, in consultation with the Office of Environmental Health Hazard Assessment and the Department of Fish and Game, shall develop and maintain a comprehensive program to (1) identify and characterize toxic hot spots, as defined in Section 13391.5, (2) plan for the cleanup or other appropriate remedial or mitigating actions at the sites, and (3) amend water quality control plans and policies to incorporate strategies to prevent the creation of new toxic hot spots and the further pollution of existing hot spots. As part of this program, the state board and regional boards shall, to the extent feasible, identify specific discharges or waste management practices which contribute to the creation of toxic hot spots, and shall develop appropriate prevention strategies, including, but not limited to, adoption of more stringent waste discharge requirements, onshore remedial actions, adoption of regulations to control source pollutants, and development of new programs to reduce urban and agricultural runoff.

§ 13392.5. Monitoring and surveillance.

(a) Each regional board that has regulatory authority for one or more enclosed bays or estuaries shall, on or before January 30, 1994, develop for each enclosed bay or estuary, a consolidated data base which identifies and describes all known and potential toxic hot spots. Each regional board shall, in consultation with the state board, also develop an ongoing monitoring and surveillance program that includes, but is not limited to, the following components:

(1) Establishment of a monitoring and surveillance task force that includes representation from agencies, including, but not limited to, the State Department of Health Services and the Department of Fish and Game, that routinely monitor water quality, sediment, and aquatic life.

(2) Suggested guidelines to promote standardized analytical methodologies and consistency in data reporting.

(3) Identification of additional monitoring and analyses that are needed to develop a complete toxic hot spot assessment for each enclosed bay and estuary.

(b) Each regional board shall make available to state and local agencies and the public all information contained in the consolidated data base, as well as the results of new monitoring and surveillance data.

§ 13392.6. Sediment policy objectives workplan.

(a) On or before July 1, 1991, the state board shall adopt and submit to the Legislature a workplan for the adoption of sediment quality objectives for toxic pollutants that have been identified in known or suspected toxic hot spots and for toxic pollutants that have been identified by the state board or a regional board as a pollutant of concern. The workplan shall include priorities and a schedule for development and adoption of sediment quality objectives, identification of additional resource needs, and identification of staff or funding needs. The state board is not prohibited from adopting

sediment quality objectives in the workplan for a constituent for which the workplan identifies additional research needs.

(b) In preparing the workplan pursuant to subdivision (a), the state board shall conduct public hearings and workshops and shall consult with persons associated with municipal discharges, industrial discharges, other public agencies, research scientists, commercial and sport fishing interests, marine interests, organizations for the protection of natural resources and the environment, and the general public.

§ 13393. Sediment policy objectives.

(a) The state board shall adopt sediment quality objectives pursuant to the workplan submitted pursuant to Section 13392.6.

(b) The state board shall adopt the sediment quality objectives pursuant to the procedures established by this division for adopting or amending water quality control plans. The sediment quality objectives shall be based on scientific information, including, but not limited to, chemical monitoring, bioassays, or established modeling procedures, and shall provide adequate protection for the most sensitive aquatic organisms. The state board shall base the sediment quality objectives on a health risk assessment if there is a potential for exposure of humans to pollutants through the food chain to edible fish, shellfish, or wildlife.

(c)(1) Notwithstanding subdivision (a), in adopting sediment quality objectives pursuant to this section, the state board shall consider the federal sediment criteria for toxic pollutants that are being prepared, or that have been adopted, by the Environmental Protection Agency pursuant to Section 1314 of Title 33 of the United States Code.

(2) If federal sediment criteria have been adopted, the state board shall review the federal sediment criteria and determine if the criteria meet the requirements of this section. If the state board determines that a federal sediment criterion meets the requirements of this section, the state board shall adopt the criterion as a sediment quality objective pursuant to this section. If the state board determines that a federal sediment criterion fails to meet the requirements of this section, the state board shall adopt a sediment quality objective that meets the requirements of this section.

§ 13393.5. Ranking of toxic hot spots.

On or before January 30, 1994, the state board, in consultation with the State Department of Health Services and the Department of Fish and Game, shall adopt general criteria for the assessment and priority ranking of toxic hot spots. The criteria shall take into account the pertinent factors relating to public health and environmental quality, including, but not limited to, potential hazards to public health, toxic hazards to fish, shellfish, and wildlife, and the extent to which the deferral of a remedial action will result, or is likely to result, in a significant increase in environmental damage, health risks, or cleanup costs.

§ 13394. Cleanup plan.

On or before January 1, 1998, each regional board shall complete and submit to the state board a toxic hot spots cleanup plan. On or before June 30, 1999, the state board shall submit to the Legislature a consolidated statewide toxic hot spots cleanup plan. The cleanup plan submitted by each regional board and the state board shall include, but not be limited to, the following information:

(a) A priority ranking of all hot spots, including the state board's recommendations for remedial action at each toxic hot spot site.

(b) A description of each hot spot site including a characterization of the pollutants present at the site.

(c) An estimate of the total costs to implement the plan.

(d) An assessment of the most likely source or sources of pollutants.

(e) An estimate of the costs that may be recoverable from parties responsible for the discharge of pollutants that have accumulated in sediment.

(f) A preliminary assessment of the actions required to remedy or restore a toxic hot spot.

(g) A two-year expenditure schedule identifying state funds needed to implement the plan.

(h) A summary of actions that have been initiated by the regional board to reduce the accumulation of pollutants at existing hot spot sites and to prevent the creation of new hot spots.

(i) The plan submitted by the state board shall include findings and recommendations concerning the need for establishment of a toxic hot spots cleanup program.

§ 13394.5. Expenditure plan.

The state board, as part of the annual budget process, shall prepare and submit to the Legislature a recommended annual expenditure plan for the implementation of this chapter.

§ 13394.6. Advisory committee.

(a) The state board shall establish an advisory committee to assist in the implementation of this chapter. The members of the advisory committee shall be appointed by the state board to represent all of the following interests:

(1) Trade associations whose members are businesses that use the bay, estuaries, and coastal waters of the state as a resource in their business activities.

(2) Dischargers required to pay fees pursuant to Section 13396.5.

(3) Environmental, public interest, public health, and wildlife conservation organizations.

(b) The members of the advisory committee shall select a member as the chairperson of the committee. The chairperson shall convene meetings of the committee every three months in any calendar year. The members of the advisory committee shall serve without compensation.

(c) The advisory committee shall have access to all information and

documents, except for internal communications, that are prepared to implement this chapter and may provide the state board with its views on how that information should be interpreted and used.

§ 13395. Reevaluation of discharge requirements.

Each regional board shall; within 120 days from the ranking of a toxic hot spot, initiate a reevaluation of waste discharge requirements for dischargers who, based on the determination of the regional board, have discharged all or part of the pollutants which have caused the toxic hot spot. These reevaluations shall be for the purpose of ensuring compliance with water quality control plans and water quality control plan amendments. These reevaluations shall be initiated according to the priority ranking established pursuant to subdivision (a) of Section 13394 and shall be scheduled so that, for each region, the first reevaluation shall be initiated within 120 days from, and the last shall be initiated within one year from, the ranking of the toxic hot spots. The regional board shall, consistent with the policies and principles set forth in Section 13391, revise waste discharge requirements to ensure compliance with water quality control plans and water quality control plan amendments adopted pursuant to Article 3 (commencing with Section 13240) of Chapter 4, including requirements to prevent the creation of new toxic hot spots and the maintenance or further pollution of existing toxic hot spots. The regional board may determine it is not necessary to revise a waste discharge requirement only if it finds that the toxic hot spot resulted from practices no longer being conducted by the discharger or permitted under the existing waste discharge requirement, or that the discharger's contribution to the creation or maintenance of the toxic hot spot is not significant.

§ 13395.5. Evaluation agreements.

The state board may enter into contracts and other agreements for the purpose of evaluating or demonstrating methods for the removal, treatment, or stabilization of contaminated bottom sediment. For the purpose of preparing health risk assessments pursuant to Section 13393, the state board shall enter into contracts or agreements with the Office of Environmental Health Hazard Assessment, or with other state or local agencies, subject to the approval of the office. The costs incurred for work conducted by other state agencies, including, but not limited to, the office and the Department of Fish and Game, pursuant to this chapter shall be reimbursed according to the terms of an interagency agreement between the state board and the agency.

§ 13396. Dredging certification.

No person shall dredge or otherwise disturb a toxic hot spot site that has been identified and ranked by a regional board without first obtaining certification pursuant to Section 401 of the Clean Water Act (33 U.S.C. Sec. 1341) or waste discharge requirements. The state board and any regional

board to which the state board has delegated authority to issue certification shall not waive certification for any discharge resulting from the dredging or disturbance unless waste discharge requirements have been issued. If the state board or a regional board does not issue waste discharge requirements or a certification within the period provided for certification under Section 401 of the Clean Water Act. The certification shall be deemed denied without prejudice. On or after January 1, 1993, the state and regional boards shall not grant approval for a dredging project that involves the removal or disturbance of sediment which contains pollutants at or above the sediment quality objectives established pursuant to Section 13393 unless the board determines all of the following:

(a) The polluted sediment will be removed in a manner that prevents or minimizes water quality degradation.

(b) Polluted dredge spoils will not be deposited in a location that may cause significant adverse effects to aquatic life, fish, shellfish, or wildlife or may harm the beneficial uses of the receiving waters, or does not create maximum benefit to the people of the state.

(c) The project or activity will not cause significant adverse impacts upon a federal sanctuary, recreational area, or other waters of significant national importance.

§ 13396.5. Fees.

(a) The state board shall establish fees applicable to all point and nonpoint dischargers who discharge into enclosed bays, estuaries, or any adjacent waters in the contiguous zone or the ocean as defined in Section 502 of the Federal Water Pollution Control Act (33 U.S.C. Sec. 1362), which shall be collected annually.

(b) The fees shall create incentives to reduce discharges to the ocean, bays, and estuaries and shall be based on the relative threat to water quality from point and nonpoint dischargers. The schedule of fees shall be set at an amount sufficient to fund the responsibilities and duties of the state board, the Office of Environmental Health Hazard Assessment, and the Department of Fish and Game established by this chapter. The total amount of fees collected pursuant to this section shall not exceed four million dollars ($4,000,000) per year. Nothing in this section limits or restricts the funding of activities required by this chapter from sources in addition to the fees established by this section.

(c) Fees collected pursuant to this section shall be deposited in the Bay Protection and Toxic Cleanup Fund which is hereby created, and shall be available for expenditure by the state board, upon appropriation by the Legislature, for the purposes of carrying out this chapter.

(d) Fees collected pursuant to this section shall be in addition to fees established pursuant to Section 13260 and shall not be subject to the maximum fee established in subdivision (d) of Section 13260, provided that the annual fee under this section shall not exceed the amount of thirty thousand dollars ($ 30,000) per discharger.

(e) Any person failing to pay a fee established under this section when so requested by the state board is guilty of a misdemeanor and may be liable civilly in accordance with subdivision (d) of Section 13261.

(f) On or before January 1, 1996, the state board shall report to the Legislature on the progress made toward meeting the requirements of this chapter and the adequacy of the fee levels established in subdivisions (b) and (d).

(g) No fee may be imposed pursuant to this section on any agricultural nonpoint source discharger.

(h) This section shall remain in effect only until January 1, 1998, and as of that date is repealed, unless a later enacted statute, which is enacted before January 1, 1998, deletes or extends that date.

§ 13396.6. Habitat for water-dependent wildlife.

No fees may be imposed pursuant to Section 13396.5 on dischargers who discharge into enclosed bays, estuaries, or adjacent waters in the contiguous zone or the ocean from lands managed solely to provide habitat for waterfowl and other water-dependent wildlife.

§ 13396.7 Recreational water quality standards.

(a) The state board, in consultation with the State Department of Health Services, shall contract with an independent contractor to conduct a study to determine the adverse health effects of urban runoff on swimmers at urban beaches. The contract shall include a provision that requires the study to be conducted as prescribed in the study proposal approved by the Santa Monica Bay Restoration Project. The study shall be paid for by using available resources or state funds appropriated in the annual Budget Act.

(b) It is the intent of the Legislature that the state board and the State Department of Health Services use the results of the study undertaken pursuant to subdivision (a) to establish recreational water quality standards.

A P P E N D I X B

Executive Summary of the Draft Functional Equivalent Document for the Implementation of the Bay Protection and Toxic Cleanup Program

STATE OF CALIFORNIA
STATE WATER RESOURCES CONTROL BOARD
DIVISION OF WATER QUALITY

FUNCTIONAL EQUIVALENT DOCUMENT:

DEVELOPMENT OF THE WATER QUALITY CONTROL POLICY FOR IMPLEMENTATION OF THE BAY PROTECTION AND TOXIC CLEANUP PROGRAM

DRAFT

JANUARY 1995

EXECUTIVE SUMMARY

The Staff of the State Water Resources Control Board (SWRCB) and the Regional Water Quality Control Boards (RWQCB) have prepared this draft Functional Equivalent Document for SWRCB consideration of a proposal to develop a new Statewide Water Quality Control Policy for implementation of the Bay Protection and Toxic Cleanup Program (BPTCP). A hearing is scheduled for _____, 1995.

This report documents the justification and recommended policy statements contained in the draft policy including:

1. Authority and Reference for Guidance Regarding Implementation of the BPTCP

2. A specific definition of a toxic hot spot

3. Narrative sediment quality objectives

4. Criteria to rank toxic hot spots

5. Monitoring procedures for toxic hot spot identification including selection of biological monitoring methods, selection of sampling strategy, and toxic hot spots data analysis

6. Development process for regional toxic hot spot cleanup plans

7. Mandatory requirements for regional and Statewide toxic hot spot cleanup plans

8. Process to remediate polluted sediment at toxic hot spots

9. Responsibility for suggesting methods for toxic hot spot cleanup

10. Development of cleanup levels for polluted sites

11. Remediation actions (with descriptions of both cleanup methods and costs)

12. Optional use of an expedited cleanup process

13. Toxic hot spot prevention strategies

14. Program of Implementation (including a schedule for completion of the cleanup plans).

A P P E N D I X C

Bay Protection and Toxic Cleanup Program
Advisory Committee

Letter Regarding the Review of the
Bay Protection and Toxic Cleanup Program
(Kolb, 1995)

BPTCP Advisory Committee

[redacted]

c/o Bay Protection and Toxic Cleanup Program
P.O. Box 944213, Sacramento, CA 94244-2130
(916) 657-0883
Fax: (916) 654-8375

May 9, 1995

Mr. Walt Pettit
Executive Director
State Water Resources Control Board
P.O. Box 100
Sacramento, CA 95812-0100

Dear Mr. Pettit:

The Bay Protection and Toxic Cleanup Program (BPTCP) Advisory Committee has reviewed the report prepared by Lawrence Kolb on the Review of the Bay Protection and Toxic Cleanup Program. The Advisory Committee commends the State Water Board and Mr. Kolb for completing this report and being so open with the results of the review. Your actions show us that you are committed to making the BPTCP a workable program. The Committee's position on each of the report recommendations is presented below.

1. Program Management Overview recommendations. The Committee supports these recommendations.

2. Technical and Policy Direction recommendations. The Committee supports these recommendations.

3. Data Acquisition: Roles and Responsibilities recommendations. The Committee has no position on these recommendations and deferred the topic for further discussion.

4. Data Acquisition--Budget/Level of Effort recommendations. The Committee supports these recommendations.

5. Fee Collections recommendations. The Committee has no position on these recommendations and deferred the topic for further discussion.

6. Database Management and Access recommendations. The lack of detailed understanding of internal and external database needs resulted in the committee not being able to make an informed endorsement of this recommendation.

7. Budget Implications of Changes recommendations. The Committee supports these recommendations.

If you have any questions on this matter, please call me at (510) 825-9388.

Sincerely,

Scott Folwarkow
Chair