

Clean Estuary Partnership



# FY 04/05 Annual Report

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*Prepared by:*

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## 1.0 Executive Summary

The mission of the Clean Estuary Partnership (CEP) is to use sound science, adaptive management, and public collaboration to develop and implement technically valid and cost-effective strategies including TMDLs that result in identifiable, sustainable water quality improvements for San Francisco Bay. In Fiscal Year 04/05 (FY 04/05) program participants consisted of the Bay Area Stormwater Management Agencies Association (BASMAA), the Bay Area Clean Water Agencies (BACWA), and the San Francisco Bay Regional Water Quality Control Board (Water Board). In addition, the Western States Petroleum Association (WSPA) is a financial participant in the Program but not a signatory to the Memorandum of Understanding (MOU) establishing the CEP. This report presents a summary of the activities undertaken during FY 04/05, the fourth year of the Clean Estuary Partnership (CEP). The Fiscal Year commenced on July 1, 2004 and ended June 30, 2005.

Highlights for the year included:

### **Management and Coordination (Executive Management Board)**

- Prepared and adopted FY 04/05 Work Plan
- Prepared revision to the Multi-Year Plan
- Planned and held a joint TC/TRC technical studies meeting
- Held a PCB TMDL Stakeholder Roundtable
- Initiated the establishment of a Risk Reduction Work Team

### **Technical Studies (Technical Committee)**

- Initiated seven (7) technical projects or activities
- Continued work on eighteen (18) technical projects or activities commenced in previous fiscal years
- Completed eight (8) technical projects
- Identified two (2) additional technical projects for funding and implementation which were deferred until FY 05/06

### **Program Administration (Administrative Committee)**

- Developed, adopted, and modified a FY 04/05 budget to support Program needs and direction.
- Prepared and adopted a FY 03/04 annual report
- Developed and adopted a FY 05/06 budget
- Assisted BACWA contract through ABAG to support TMDL Public Communication and Outreach positions and a TMDL Basin Planning position at the Regional Water Quality Control Board
- Assisted BACWA contract with the Rose Foundation for Communities and the Environment to support the Environmental-NGO Technical Representative position to the CEP.
- Compiled a CEP Policies and Procedures Document
- Developed a CEP Membership and Participation Policy
- Streamlined routine administrative reporting requirements and minor budget appropriations for low-cost project amendments

### **Program Annual Finances (Cash Basis)**

- Total actual revenues received from CEP participants and other sources in FY 04/05 were \$995,618
- FY 04/05 available funds were \$1,149,424, including carryover from FY 03/04
- Total Program expenditures within the fiscal year (utilizing FY 02/03, FY 03/04 and FY 04/05 funds) were \$1,052,541
- Accounts receivable of \$127,385 from participant contributions that were not received within the FY were forwarded to FY 05/06

- \$243,829 in unspent and unencumbered funds were transferred forward to the FY 05/06 budget

#### **Public Participation & Outreach (P&O Committee)**

- Strengthened ties with the environmental/environmental justice community
- Initiated contacts with Pacific Gas and Electric Company and General Electric Company regarding financial support for the CEP
- Further established and expanded the Environmental-NGO Technical Representative Position
- Continued development and improvement of the CEP Website and Consolidated Stakeholder Database
- Provided support for a series of facilitated stakeholder meetings to review the draft Basin Plan Amendment language for the Mercury TMDL
- Provided support and guidance for the Initial Roundtable Discussion on the PCB TMDL
- Analyzed and disseminated results of stakeholder outreach evaluation effort
- Prepared a Mercury TMDL Information Sheet
- Prepared a Mercury TMDL media pitch
- Initiated planning for a CEP Technical Symposium

#### **Information Management**

- The CEP Website was maintained and operational all year and continued to be a key tool in disseminating Program information
- Added a quickly accessible CEP publications section to the CEP website for interested parties to access
- Added an FTP site to the website to support TC and work group review of draft reports and documents

## **2.0 Introduction**

The development of Total Maximum Daily Loads (TMDLs) for certain pollutants in San Francisco Bay is required because the Bay and its tributaries have been designated as impaired water bodies under Section 303(d) of the federal Clean Water Act [303(d) list]. The San Francisco Bay Regional Water Quality Control Board (RWQCB), the Bay Area Clean Water Agencies (BACWA), and the Bay Area Stormwater Management Agencies Association (BASMAA) have signed a Memorandum of Understanding (MOU) reflecting their belief that a collaborative approach for developing TMDLs will be the most effective method for achieving sustainable water quality benefits for the Bay. The Clean Estuary Partnership (CEP) has been formed to implement the intent of this Memorandum of Understanding.

The mission of the CEP is to use sound science, adaptive management, and public collaboration to develop and implement technically valid and cost-effective strategies including TMDLs that result in identifiable, sustainable water quality improvements for San Francisco Bay. The CEP is comprised of four program elements: Coordination, Administration, Participation and Outreach, and Technical Projects. For additional information about the CEP, visit [www.cleanestuary.org](http://www.cleanestuary.org).

## **3.0 Committee and Program Participants**

### **3.1 Executive Management Board**

**Voting Members:** Bruce Wolfe, Chairperson (RWQCB); Donald P. Freitas (BASMAA); Jim Kelly (BACWA). Alternate Representatives: Jim Scanlin (BASMAA); Michael Carlin (BACWA); Tom Mumley and Dyan White (RWQCB).

**Active Participants:** Larry Bahr (Fairfield-Suisun Sewer District), Geoff Brosseau (BASMAA), Rebecca Bryson (CONCUR/CEP), Kevin Buchan (WSPA), Dan Cloak (CEP Environmental Technical Representative), Mike Connor (SFEI), Andy Gunther (AMS/CEP Program Coordinator), Robert Hale (BASMAA), Richard Looker (RWQCB), Karen McDonough (City of San Jose), Tom Mumley

(RWQCB), Adam Olivieri (BASMAA), Michele Plá (BACWA), Jim Scanlin (BASMAA), Randy Shipes (City of San Jose), Laura Speare (RWQCB), Andria Ventura (Clean Water Action), Dyan Whyte (RWQCB).

### 3.2 Technical Committee

**Voting Members:** David Tucker, Chairperson (BACWA); Tom Mumley (RWQCB); Arleen Feng (BASMAA). Alternate Representatives: Jim Kelley and Ben Horenstein (BACWA); Richard Looker (RWQCB); Chris Sommers (BASMAA).

**Active Participants (attended five or more meetings):** Diana Acevedo (CH2M Hill), Bryan Bemis (AMS/Committee Coordinator, 3/05-6/05), Dan Cloak (Environmental-NGO Technical Representative), Mike Connor (San Francisco Estuary Institute), Jay Davis (San Francisco Estuary Institute), Jessie Denver (City of San Jose), Karen Didriksen (City of Palo Alto), Eric Dunlavey (City of San Jose), Andy Gunther (AMS/CEP Program Coordinator), Dane Hardin (AMS/Committee Coordinator, 7/04-2/05), Fred Hetzel (RWQCB), Richard Looker (RWQCB), Armand Ruby (CEP), Paul Salop (AMS/CEP), Susan Schwartz (Friends of Five Creeks), Chris Sommers (EOA, Inc., representing the Santa Clara Valley Urban Runoff Pollution Prevention Program).

### 3.3 Administrative Committee

**Voting Members:** Donald P. Freitas, Committee Chairperson (EMB); ~~Chuck Weir~~ (BACWA); Robert Davidson (BASMAA); Dyan Whyte (RWQCB). Alternate representatives: Tom Mumley (RWQCB); Michele Plá (BACWA).

**Active Participants:** Andy Gunther (AMS/CEP Program Coordinator), Jay Johnson (AMS/Committee Coordinator), Michele Plá (BACWA).

### 3.4 Participation & Outreach Committee (P&O)

**Voting Members:** Chuck Weir, Committee Chairperson (BACWA); Laura Speare (RWQCB); Geoff Brosseau (BASMAA). Alternate representatives: Dyan Whyte (RWQCB); Michele Plá (BACWA).

**Active Participants:** Marcie Adams (Public Affairs Management), Larry Barr (BACWA), Rebecca Bryson (Committee Coordinator, CONCUR), Sejal Choksi (San Francisco Baykeeper), Julia Fishman (O'Rourke, Inc.), Andy Gunther (AMS/CEP Program Coordinator), Russell Hoyle (RWQCB), Sherri Norris (International Indian Treaty Council), Michele Plá (BACWA), Sheila Tucker (Tucker Environmental Consulting), Andria Ventura (Clean Water Action).

Minutes of Committee meetings for FY 04/05 can be found in Appendix 5.3 and on the CEP website at [www.cleanestuary.org](http://www.cleanestuary.org).

## 4.0 Program Accomplishments

### 4.1 Program Management & Coordination

#### 4.1.1 Program Planning Key Accomplishments

##### Multi-Year Work Plan

The EMB initiated a process to update the Multi-Year Work Plan (MYP) by both (1) streamlining it for use as an outreach tool and (2) using this updating process as an opportunity to discuss and reach agreement on some of the issues identified in the Mid-Course review, such as adaptive implementation and long term financial commitments. This approach was proposed by the Technical Committee as a way to engage the CEP earlier in the process of developing implementation options for upcoming TMDLs.

The approach involves developing an ad hoc Work Team with representation drawn from each of the CEP member organizations and the NGO community. This Work Team would identify and prioritize potential implementation options for further evaluation, assessment and early adoption, where appropriate.

The EMB approved a draft MYP section for selenium in June, which was then turned into a draft Project Definition. The EMB then requested that the Program Coordinator move forward with (1) convening a meeting of interested stakeholders to review the draft Project Definition, and (2) developing a draft project plan for selenium.

### FY 05/06 Budget

In June, the EMB adopted the FY 05/06 budget and draft technical work plan. The Technical Committee requested additional time to develop a more detailed studies and projects plan for the next Fiscal Year. As part of their initial solicitation of CEP work groups and Committees, several unsolicited proposals were received and included in the joint TRC/TC meeting discussion list. Based upon feedback received from supporting work groups, neither of these projects was included in the initial FY 05/06 budget.

### Joint TC/TRC Meeting

The Program Coordinator organized a joint meeting of the CEP TC and the Regional Monitoring Program's Technical Review Committee (TRC) that was held in May. The goals of the joint meeting were to: (1) provide coordination between RMP and CEP projects; and (2) provide an opportunity to discuss how the two technical programs might work jointly to promote greater efficiency in regional technical investigations. From this meeting, the Program Coordinator distributed a revised "Joint Studies Plan Proposal" containing six technical studies goals and associated project concepts. After receiving comments on this document (including additional project concepts), the next step was to request TC/TRC members to prioritize the concepts under each goal for use as a guide in developing annual work plans for the two programs.

## **4.1.2 Program Management Key Accomplishments**

### Executive Management Board Actions

The CEP is governed by the EMB, which is comprised of representatives of the MOU signatories, and is managed by a Program Coordinator. (A competitive solicitation was conducted after execution of the MOU to hire a Program Coordinator. A consulting team, headed by Applied Marine Sciences, Inc. (AMS; [www.amarine.com](http://www.amarine.com)) was contracted to provide these services.) Three standing committees (Technical, Administrative, and Participation and Outreach) and several technical work groups report to the EMB. Additional technical work groups may be established in the future as the CEP technical program expands to address additional pollutants.

### *CEP Policies and Procedures Compilation*

- CEP staff compiled all known CEP policies and procedures into a single document, and updated the text to reflect current practice. CEP committees continued to review the document at the end of the FY, with the goal of forwarding it to the EMB for review and adoption in early FY 05/06.
- In April, the EMB requested that all CEP committees adopt policies that require a vote when consensus could not be reached, with the results of the vote and the issues reported to the EMB for resolution.
- CEP representatives and staff developed requirements for membership in the CEP and for active participants and financial contributors. The policy is provided in detail in Section 4.3.1. The EMB adopted this membership and participation policy in April.

### *Risk Reduction Work Team*

To develop and manage the CEP's activities with regard to risk reduction, the Program Coordinator formed a Risk Reduction Work Team (RRWT) that reports directly to the EMB, and includes members of BACWA, BASMAA, RWQCB, Department of Health Services (DHS), Office of Environmental Health and Hazard Assessment (OEHHA), the environmental and environmental justice community, and the CEP Environmental-NGO Technical Representative. The primary focus is to identify, prioritize, and support California State actions, where practicable, to reduce risks to vulnerable populations that consume fish caught from San Francisco Bay.

The RRWT presented a written report to the EMB that recommended two concepts for CEP action: (1) convening a technical panel to provide advice on identifying at-risk populations and methods to address the risks, and (2) funding grants to Community Based Organizations (CBOs) to support work in at-risk communities. There was strong support for convening a technical panel to identify ways to better

characterize affected populations, as well as identify and evaluate ways to address the risks of at-risk populations. The EMB then requested that the RRWT to develop a detailed Scope of Work and series of questions/issues for the technical panel to address as the Work Team’s next step.

*PCB TMDL Stakeholder Roundtable*

The EMB established a new Task 3.07 (PCB TMDL Facilitation) to facilitate a PCB TMDL Stakeholder Roundtable.

*Role of TC in TMDL Implementation*

The EMB determined that the CEP has a role to play in TMDL Implementation, as evidenced in the CEP Multi-Year Plan. Thus, the TC is correct to ask the EMB to assist with implementation issues, and the CEP should be used to have discussions about these issues before drafting Basin Plan amendments whenever possible.

Collaborative Activities

In FY 03/04, the EMB initiated a new role for the CEP as a forum for facilitating discussions among stakeholders regarding emerging water quality management decisions. This new role was applied at the end of FY03/04 to plan a series of discussions on the Mercury TMDL, which were held in early FY04-05.

Other

- The EMB approved the addition of polybrominated diphenyl ethers (PBDEs) to the CEP’s list of pollutants of concern in August.
- In May, the EMB determined that new projects (e.g., Selenium, Legacy Pesticides, and Diazinon/Pesticide-Related Toxicity in the Bay) will start with development of a project definition to be reviewed by interested stakeholders in a workshop setting. The project definition will describe both the “nature of the problem” and the “nature of the solution” to indicate possible implementation activities required to achieve water quality standards. In addition, the EMB agreed to review and approve detailed Scopes of Work on future QAS projects.
- The EMB conducted a performance review of the CEP Program Coordinator. The EMB concluded that Dr. Gunther's performance was meeting expectations and provided him with recommendations for enhancing his performance in the coming year.

**4.2 Technical Studies**

**4.2.1 Key Accomplishments**

There were 28 active projects in FY 04/05 (Table 1).

**Table 1: Active FY 04/05 Projects**

<b>Pollutant</b>	<b>Project #</b>	<b>Project Title</b>
Mercury	4.02	Small Tributary Loads: Guadalupe River Assessment; Yrs 1 and 2
	4.12	Feasibility Assessment: Options and Expected Benefits from Urban Stormwater Implementation Actions
	4.24	Refine Mercury Conceptual Model
PCBs	4.10a	Existing Data on PCB Concentrations of Nearshore Sediments and Assessment of Data Quality
	4.10b	Existing Data on PCB Concentrations of Sediments in Trapping Zones



<b>Pollutant</b>	<b>Project #</b>	<b>Project Title</b>
	4.25	Refine PCB Conceptual Model
	4.26	Develop Multi-Box Model
	4.27	Complete Food Web Model for Human Health and Wildlife Protection and Refine Sediment Targets
	4.28	Refine PCB Implementation Scheme
Copper and Nickel	4.11	Impairment Assessment for Cu/Ni North of Dumbarton Bridge
Diazinon / Toxicity (urban creeks)	4.13	Develop Stream Monitoring Program for Pesticides and Toxicity
	4.39	Supplemental Monitoring for Diazinon/Pesticide-Related Toxicity in Urban Creeks
Diazinon / Toxicity (Bay)	4.30	Conceptual Model and Impairment Assessment Report for the Diazinon/Pesticide-Related Toxicity in San Francisco Bay
	4.40	Prepare Water Quality Attainment Strategy for Diazinon/Pesticide-Related Toxicity in the Bay
Legacy Pesticides	4.29	Conceptual Model and Impairment Assessment for Legacy Pesticides
	4.43	Prepare Water Quality Attainment Strategy for Legacy Pesticides
	4.44	Developing and Evaluating Options for Addressing Risks of Public Health Impacts Due to Pollutants in Fish
Dioxins	4.31	Conceptual Model and Impairment Assessment for Dioxins
Selenium	4.32	Conceptual Model and Impairment Assessment for Selenium
	4.42	Prepare Water Quality Attainment Strategy for Selenium
Multiple Pollutants	4.07	Assess Future TMDL Modeling Needs
	4.18	Project Management
	4.19	Peer Review
	4.33	Basin Plan Amendment Assistance to RWQCB for Cyanide, PCBs, and Cu/Ni
	4.34	Facilitated Meetings with EPA and Partners
	4.36	Meeting Support for CEP Tasks Associated with Legacy Pesticides, Dioxin, Diazinon, and Selenium in SF Bay
Special Technical Projects	4.41	Design of Adaptive Implementation Process/Strategy for Regulatory Projects in San Francisco Bay
	4.45	Conceptual Model and Impairment Assessment for PBDEs

### Implemented Technical Projects

Seven new or expanded projects were developed and funded by the CEP in FY 04/05 in support of one or more pollutants of concern. These included two projects for PCBs (4.26 and 4.28), one for selenium (4.42), one for legacy pesticides (4.43), two for diazinon/pesticide-related toxicity (4.39 and 4.40), and one for Special Technical Projects (4.45).

### Ongoing Projects

Nineteen (19) projects originally initiated and funded in FY 02/03 and FY 03/04, in support of one or more pollutants of concern, were continued in FY 04/05. These included three projects for mercury (4.02, 4.12, and 4.24), four for PCBs (4.10a, 4.10b, 4.25, and 4.27), one for copper/nickel (4.11), one for legacy pesticides (4.29), two for diazinon/pesticide-related toxicity (4.13 and 4.30), one for dioxins (4.31), one for selenium (4.32), and six for multiple pollutants (4.07, 4.18, 4.19, 4.33, 4.34 and 4.36).

### Completed Projects

Of the 19 ongoing projects identified above, eight were completed in FY 04/05, including projects for PCBs (4.10b), legacy pesticides (4.29), diazinon/pesticide-related toxicity (4.13 and 4.30), dioxins (4.31), and multiple pollutants (4.07, 4.33 and 4.34).

### Identified Technical Projects

Two projects were identified in the FY 04/05 work plan and allocated funding, but moved into FY 05/06 for further consideration and work initiation. These two projects, both multiple contaminant technical projects, were 4.44 (*Evaluate Effects of Listed Pollutants on Community Health*), and 4.41 (*Design of Adaptive Implementation Process/Strategy for Regulatory Projects in San Francisco Bay*).

### CEP Project Relationships Table

The TC developed a document to clarify the relationships among CEP projects. This document was reviewed in June and revised in FY 05/06. The completed document (Appendix 5.1) lists CEP technical projects by pollutant, and indicates start and end dates, task description, objectives, findings, URL links to completed reports on the CEP website, and an explanation of how each project supports TMDL development and implementation.

### Other

At the request of the TC and to better track the status of technical projects, CEP staff began to include a multi-part Staff Report in each agenda package after October. This regularly updated report consisted of the following documents: (1) existing project status; (2) status of Committee actions taken at the last meeting; (3) FY 04/05 technical studies Work Plan budget; (4) technical Work Group reports; (5) schedule for FY 04/05 conceptual and detailed Scopes of Work; and (6) technical project deliverable tracking. The Committee also began to use revised templates for conceptual SOW, detailed SOW, and contractor progress reports at this time.

## **4.2.2 TMDL & Water Quality Attainment Efforts**

### Mercury

San Francisco Bay is considered impaired by mercury because fish tissue collected from the Bay often contains relatively high concentrations of mercury. OEHHA has issued fish consumption advisories warning people to limit their consumption of San Francisco Bay fish. In addition, studies have shown that birds consuming fish and other organisms from San Francisco Bay pass mercury to their eggs, potentially contributing to reproductive failures. Sources of mercury include runoff from inactive mines, urban runoff, wastewater discharges, atmospheric deposition, and resuspension of historic deposits of mercury-laden sediment already in San Francisco Bay.

The RWQCB issued the Preliminary Mercury TMDL Project Report in June 2000, prior to the formation of the CEP. The Final Mercury TMDL Project Report was released in June 2003. In April 2004, the RWQCB issued a draft Basin Plan Amendment and Staff Report, the formal steps for adopting the TMDL. In March 2005, the State Board decided to table consideration of the San Francisco Bay Mercury TMDL. The key concern of the State was to address EPA's comment that the Mercury TMDL will not result in attainment of the water quality objective for mercury contained in the Basin Plan. The RWQCB expected to amend the Basin Plan to address this issue, and hoped to have a draft amendment for public review by September 2005. This is incomplete It needs to include "the rest of the story" – approval of a BPA by the Regional Water Board, remand by the State Water Board and what the issues were.

*Work Group*

Work Group members included: Paul Salop (CEP Staff), Ben Horenstein (EBMUD), Bill Johnson (RWQCB), Carrie Austin (RWQCB), Chris Sommers (EOA/SCVURPPP/BASMAA), Dan Cloak (Environmental-NGO Technical Representative), Dave Drury (SCVWD), Dave Tucker (City of San Jose), Geoff Brosseau (BASMAA), James Ervin (City of San Jose), James Downing (City of San Jose), Kevin Buchan (WSPA), Larry Bahr (FSSD/BACWA), Rich Sandman (BSPA), Richard Looker (RWQCB), and Trish Mulvey (Clean South Bay).

*Implemented Projects*

No new mercury projects were implemented in FY 04/05.

*Continued Projects*

The following projects (initiated in FY 02/03 and FY 03/04) were continued in FY 04/05.

<b>Pollutants</b> <i>(Work Group)</i>	<b>Management Questions</b>	<b>Project #</b>	<b>Project Title &amp; Information</b>
Mercury & PCBs <i>(Mercury)</i>	1) What is the pollutant load from small tributaries to the Bay? 2) What is the Guadalupe River load to the Bay in light of sediment removal in the lower watershed and the uncertainty with this number?	4.02	<i>Guadalupe River Loads Assessment (Year 1 &amp; Year 2):</i> This project monitored mercury and other pollutant loads into the depositional zone of the Guadalupe River. The two primary pollutants of concern are mercury and PCBs.
Mercury <i>(Mercury)</i>	How much of the urban stormwater mercury load may be avoided through current and planned stormwater program activities?	4.12	<i>Feasibility Assessment: Options and Expected Benefits from Urban Stormwater Implementation Actions:</i> This project will produce a report summarizing the strategies available to urban runoff programs for reducing mercury loads, including an assessment of their costs and load reduction benefits. The assessment will describe how site specific factors, such as location, geography, climate, and land use affect the costs and benefits of each strategy. The report will describe the extent to which these strategies are currently utilized throughout the Bay Area, and estimate the total mercury load avoided through current implementation of the strategies. The report will conclude by forecasting how loads avoided can be increased through expansion of current strategies and / or development of new strategies, and what new costs are associated with those expansions.
Mercury <i>(Mercury)</i>	1) What is the relative bioavailability of mercury from different sources to San Francisco Bay? 2) At what locations are current methylation rates and methylmercury flux the highest? 3) Can existing wetlands be managed or new wetlands be designed to minimize net methylation rates, or limit exposure to methylmercury that is produced? 4) Given various scenarios for management actions, when will we likely see improvements in sediment and tissue concentrations? 5) How should we best monitor to detect changes in mercury concentrations in sediment and tissue (i.e., on what time and spatial scale should we expect results, and what indicators should we monitor)?	4.24	<i>Refine Mercury Conceptual Model:</i> Using references identified by the work group and other sources, this project develops/refines the conceptual model using the format and approach developed by the Technical Committee.

**PCBs**

In 1994, the State issued a sport fish consumption advisory cautioning people to limit their consumption of fish caught in San Francisco Bay. This advisory is due in part to concerns about high concentrations of polychlorinated biphenyls (PCBs) found in sampled fish. PCBs were manufactured in the United States and used widely from the late 1920s through the 1970s. They are of particular concern because they are toxic, persist in the environment, and accumulate in the tissue of fish, wildlife, and humans.

Addressing the PCBs problem illustrates the challenges of dealing with "legacy" pollutants. A significant proportion of PCBs pollution in San Francisco Bay happened decades ago, before the potential health effects of PCBs were widely known. Because PCBs degrade very slowly in the environment, their toxic effects are still with us today, and removing large quantities of PCB-contaminated sediment from San Francisco Bay for disposal in hazardous waste facilities will be very costly. The Preliminary PCB TMDL Project Report was issued by the RWQCB in February 2004.

*Work Group*

Work group members included: Paul Salop (CEP Staff), Andy Jahn (Port of Oakland), Ben Greenfield (SFEI), Ben Horenstein (EBMUD), Betsy Elzufon (LWA), Dan Cloak (Environmental-NGO Technical Representative), Dave Tucker (City of San Jose/BACWA), Derek Edge (BBL), Eric Dunlavey (City of San Jose), Fred Hetzel (RWQCB), Jay Davis (SFEI), John Prall (Port of Oakland), Jon Konnan (EOA/SMCSTOPP/BASMAA), Kelly Moran (TDC), Ken Jenkins (BBL), Kevin Buchan (WSPA), Peter Mangarella (Geosyntec), and Tom Grieb (TetraTech).

*Implemented Projects*

The following projects were implemented or expanded for FY 04/05.

<b>Pollutants (Work Group)</b>	<b>Management Questions</b>	<b>Project #</b>	<b>Project Title &amp; Information</b>
PCBs (PCBs)	1) How much will concentrations of a pollutant in the sediment and water column change in response to a given percentage reduction in inflowing load? 2) How will beneficial uses (related to concentrations in biota) be affected by changes in the sediment and water column concentration? 3) Are there differences in the effectiveness of alternative loading reduction strategies? 4) How long will it take for the responses to become apparent?	4.26	<i>Develop Multi-box Model of San Francisco Bay with Bathymetric Analysis of South Bay</i>
PCB's (PCB)	How should implementation be prioritized in order to achieve the targets?	4.28	<i>Refine PCB Implementation Scheme; Development of a Detailed Scope of Work.</i>

*Continued Projects*

The following projects (initiated in FY 02/03 and FY 03/04) were continued in FY 04/05.

<b>Pollutants (Work Group)</b>	<b>Management Questions</b>	<b>Project #</b>	<b>Project Title &amp; Information</b>
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<b>Pollutants (Work Group)</b>	<b>Management Questions</b>	<b>Project #</b>	<b>Project Title &amp; Information</b>
PCBs & Mercury (Mercury)	1) What is the pollutant load from small tributaries to the Bay? 2) What is the Guadalupe River load to the Bay in light of sediment removal in the lower watershed and the uncertainty with this number?	4.02	<i>Small Tributary Loads: Guadalupe River Assessment (Year 1 &amp; Year 2):</i> (This project also involved mercury as a potential pollutant. See the discussion for Project 4.02 under Mercury above).
PCBs (PCB)	How should implementation be prioritized in order to achieve the targets?	4.10a	<i>Existing Data on PCB Concentrations of Nearshore Sediments and Assessment of Data Quality:</i> This project focused on one of two data gaps identified during development of the TMDL project report for PCBs in San Francisco Bay. This first data gap was the concentrations of PCBs in surface sediments of the nearshore environment, which will help further characterize PCB concentrations in the Bay and may help select interim numeric targets for PCBs in sediments. This project attempted to fill this data gap may by compiling and summarizing existing data and assessing whether additional sampling and analysis were needed if existing data were not sufficient.
PCBs (PCB)	1) Can sources within and to conveyance systems be determined? 2) Have discharges from these conveyance systems contributed to small, localized problem areas?	4.10b	<i>Existing Data on PCB Concentrations of Sediments in Trapping Zones:</i> A second data gap was the availability of information on PCB concentrations in surface and subsurface sediments downstream of known PCB spill sites. Collecting this information was a first step in assessing the feasibility of remedial activities as PCB TMDL implementation alternatives. This project was completed in FY 04/05.
PCBs (PCB)	How should implementation be prioritized in order to achieve the targets?	4.12	<i>Feasibility Assessment: Options and Expected Benefits from Urban Stormwater:</i> (This project also involved mercury as a potential pollutant. See the discussion for Project 4.12 under Mercury above).
PCBs (PCB)	Is there evidence of impairment of beneficial uses of the Bay?	4.25	<i>Conceptual Model and Impairment Assessment:</i> Using references identified by the work group and other sources, this project will develop/refine the conceptual model using the format and approach developed by the Technical Committee.
PCBs (PCB)	What is the sediment target for PCBs that is protective of the beneficial uses of the Bay?	4.27	<i>Complete Food Web Model for Human Health and Wildlife Protection and Refine Sediment Targets:</i> This project expanded the existing Bay food web model so that it includes sensitive wildlife species as endpoints (as required by USFWS for TMDL development).

### Cu/Ni

San Francisco Bay was placed on the 1998 303(d) list for copper and nickel because ambient concentrations of these metals exceeded existing water quality standards established to ensure protection of sensitive species of aquatic life. The concern was that observed concentrations of copper and nickel in San Francisco Bay may adversely affect the Bay ecosystem and associated beneficial uses. Sources of copper and nickel to San Francisco Bay include in-Bay sediment sources, urban runoff, and treated wastewater discharges.

Investigations of copper and nickel toxicity in San Francisco Bay have indicated that adopted water quality standards over-predict the toxic effects of these metals in the estuary. Given that the beneficial use is currently protected (e.g., no toxicity apparent) at copper and nickel concentrations slightly above existing objectives, the State has selected the development of site-specific objectives (SSOs) as the appropriate strategy to attain water quality standards for these pollutants in San Francisco Bay. This process is being completed in two phases for San Francisco Bay, with the first phase addressing the Bay south of the Dumbarton Bridge, and the second phase addressing the rest of the Bay.

*Work Group*

Work group members included: Paul Salop (CEP Staff), Arleen Feng (ACCWP), Arleen Navarret (SFPU), Ben Horenstein (EBMUD), Betsy Elzufon (LWA), Dan Cloak (Environmental-NGO Technical Representative), Dave Tucker (City of San Jose), Geoff Brosseau (BASMAA), Kacey Karmendy (City of San Mateo), Karen McDonough (City of San Jose), Kelly Moran (TDC), Kevin Buchan (WSPA), Kristine Corneillie (LWA), Larry Bahr (FSSD/BACWA), Michelle Plá (BACWA), Peter Schafer (City of San Jose), Ray Arnold (CDA), Richard Looker (RWQCB), Steve Moore (RWQCB), Steve Overman (WSPA), Tom Grovhoug (LWA), Tom Hall (EOA), and Trish Mulvey (Clean South Bay).

*Implemented Projects*

Although no new tasks were identified in FY 04/05, a new sub-task was added to Task 4.11 to assist with development of the stormwater sections of the Copper Management Strategy (CMS). The CMS is expected to define a Bay-wide approach for monitoring copper and identifying trigger points and management measures to ensure that copper does not become identified as an impairment for the Bay in the future. Six potential sources of copper to the Bay were identified through previous CEP-supported work under Task 4.11. This new subtask developed: (1) a reporting template for expert write-ups; and (2) a write-up for the first element of the proposed CMS, architectural copper. Work on this sub-task is expected to continue into FY 05/06.

*Continued Projects*

The following project (initiated in FY 02/03) was continued in FY 04/05.

<b>Pollutants</b> <i>(Work Group)</i>	<b>Management Questions</b>	<b>Project #</b>	<b>Project Title &amp; Information</b>
Copper /Nickel <i>(Cu/Ni)</i>	1) What information beyond that already compiled for the 2002 303(d) listing process and the Lower South Bay (LSB) Impairment Assessment Report is needed to make a determination of whether or not there is impairment North of Dumbarton for copper and nickel? 2) How are we going to monitor and interpret data to assess condition? 3) What are appropriate pollution prevention strategies, both baseline and more stringent ones to be triggered by specific conditions measured through monitoring program? 4) Based on the Water Effects Ratio report information, what are appropriate Site-Specific Objectives (SSOs)? 5) To what extent can the LSB SSO Basin Plan amendment “package” be used as a template for the North of	4.11	<i>Impairment Assessment for Cu/Ni North of Dumbarton Bridge:</i> The overall project objective is to develop and provide the necessary technical and administrative documentation to support adoption of site-specific saltwater aquatic life-based water quality objectives for copper and nickel in San Francisco Bay north of the Dumbarton Bridge. A key implementation objective is to conduct the project as efficiently and expeditiously as possible by making maximum use of work already conducted on copper and nickel in San Francisco Bay.

<b>Pollutants</b> <i>(Work Group)</i>	<b>Management Questions</b>	<b>Project #</b>	<b>Project Title &amp; Information</b>
	Dumbarton SSO Basin Plan Amendment package?		

### Selenium

The Bay is listed for selenium because of potential reproductive impacts to diving ducks and other wildlife in the estuary. In addition, OEHHA issued a human health advisory regarding consumption of two species of ducks by hunters. The Department of Fish and Game measured selenium in scoter and scaup at concentrations above those known to cause reproductive harm in other bird species. The accumulation of selenium in fish and birds appears to have been exacerbated by the introduction of the Asian Clam (*Potamocorbula amurensis*), because its prodigious filter-feeding and large populations have moved considerable mass of selenium into the benthic food web and thus to diving ducks and large fishes such as sturgeon.

### Work Group

The Technical Committee served as the work group for Selenium.

### Implemented Projects

The following project was implemented in FY 04/05.

<b>Pollutants</b> <i>(Work Group)</i>	<b>Management Questions</b>	<b>Project #</b>	<b>Project Title &amp; Information</b>
Selenium <i>(TC)</i>	1) Based upon the current state of knowledge, what are the known or potential management actions that are needed to resolve the impairment or potentially reduce the degree of the impairment? 2) What are the technical feasibility and economic implications for each of these actions? 3) What regulatory mechanisms may be used to implement the management actions, and what is the relative ease or difficulty of their use? 4) Are there key gaps in our understanding of the impairment or related ecosystem processes that limit our ability to make an informed decision on management actions? 5) Which knowledge gaps need to be resolved in the short-term in order to guide early implementation actions, and which can be addressed on a longer time frame?	4.42	<i>Prepare Water Quality Attainment Strategy for Selenium:</i> This project develops a package of potential implementation actions for selenium. The project builds off of the Conceptual Model / Impairment Assessment report for selenium in San Francisco Bay.

*Continued Projects*

The following project (initiated in FY 03/04) was continued in FY 04/05.

<b>Pollutants (Work Group)</b>	<b>Management Questions</b>	<b>Project #</b>	<b>Project Title &amp; Information</b>
Selenium (TC)	What do we know about sources, pathways, and loads of selenium in San Francisco Bay?	4.32	<i>Develop Conceptual Model and Impairment Assessment for Selenium:</i> Using references identified by the work group and other sources, this project developed/refined the conceptual model using the format and approach developed by the Technical Committee. This project was completed in FY 04/05.

Diazinon Toxicity

Diazinon and unknown pesticide-related toxicity have been identified as causing impairment in both urban creeks and in the Bay. These two areas are addressed separately in the CEP process. CEP projects addressing each area were identified for implementation in FY 03/04 and FY 04/05.

*Urban Creeks.* San Francisco Bay Area urban creeks exceed water quality standards for aquatic toxicity, primarily due to runoff of the common insecticide diazinon. Diazinon is a common insecticide used throughout the Bay Area to manage a broad spectrum of pests, such as ants and grubs. Although only a small fraction of the diazinon applied outdoors reaches surface water, that fraction is sufficient to result in diazinon concentrations that are toxic to test organisms. The RWQCB issued the Preliminary Project Report for Diazinon and Pesticide-related Toxicity in Urban Creeks in September 2002. Thus, implementation actions will mainly involve monitoring the decline of diazinon concentrations and determining of aquatic toxicity declines as well.

*San Francisco Bay.* San Francisco Bay was listed as impaired for diazinon in 1998 due to concern that toxicity observed in the Bay was caused by diazinon draining from agricultural and urban lands in runoff. Pulses of diazinon have been documented traveling down the San Joaquin River and entering the estuary, and episodes of toxicity in the north Bay (Napa east to Antioch) and in sloughs draining urbanized watersheds have been documented by the Regional Monitoring Program. The listing recognizes that other pesticides could be contributing to the toxicity. There has been no work completed on the TMDL for Diazinon/Toxicity in San Francisco Bay as of June 2003. Given that recent data show significant declines in diazinon concentrations in the Bay and the cessation of episodes of toxicity, it may be that the project to be completed will be de-listing rather than a TMDL.

*Work Group*

Work group members included: Armand Ruby (CEP Staff), Arleen Feng (ACCWP), Bhupinder Dhaliwal (Central Contra Costa Sanitary District/BACWA), Bill Johnson (RWQCB), Cathy Johnson (US Fish & Wildlife Service), Chris Sommers (SCVURPPP), Dan Cloak (Environmental-NGO Technical Representative), Daniel Oros (SFEI), Dave Tucker (City of San Jose), Geoff Brosseau (BASMAA), Jack Betourne (Vallejo Sanitary and Flood Control District), Janet O'Hara (RWQCB), Jessie Denver (City of San Jose), Jim Scanlin (ACCWP), Kelly Moran (TDC, UP3 Project), Nan Singhasemanon (Department of Pesticide Regulation), Pete Schafer (City of San Jose), Scott Ogle (Pacific Eco-Risk), Steven Osborn (City of San Jose), and Tom Mumley (RWQCB).



*Implemented Projects*

The following projects were initiated in FY 04/05.

<b>Pollutants (Work Group)</b>	<b>Management Questions</b>	<b>Project #</b>	<b>Project Title &amp; Information</b>
Diazinon / Toxicity (Urban Creeks) (Diazinon/ Toxicity)	<ol style="list-style-type: none"> <li>1) Are the diazinon concentration targets met?</li> <li>2) Are the toxicity targets met?</li> <li>3) If not, is pesticide-related toxicity still a problem in urban creeks (i.e., is the toxicity caused by a pesticide or something else)?</li> <li>4) If the toxicity target is not met because of a pesticide (other than diazinon), how do the toxicity and the concentrations of the toxic pesticide vary in time and magnitude across urban watersheds?</li> </ol>	4.39	<p><i>Supplemental Monitoring for Diazinon/Pesticide-Related Toxicity in Urban Creeks</i></p> <p>This project assures that sufficient funding will be available during 2004-05 to provide the monitoring specified in the Monitoring Plan prepared by CEP Project #4.13. The funding for supplemental urban creeks monitoring will complement the relevant monitoring activities of Bay Area stormwater agencies and other regional and local monitoring efforts, for which funding has already been designated independently for the 2004-05 wet season. This project involves collaboration with various stormwater NPDES permittees.</p>
Diazinon / Toxicity (Bay) (Diazinon/ Toxicity)	<ol style="list-style-type: none"> <li>1) What management actions should be implemented to maintain concentrations of diazinon in San Francisco Bay below toxicity threshold levels?</li> <li>2) What additional measures should be implemented to prevent the occurrence of toxic effects from pesticides within San Francisco Bay?</li> <li>3) What are the expected costs of the recommended management actions?</li> <li>4) What mechanisms should be used to implement the recommended management actions?</li> <li>5) What additional information should be obtained to assess whether the recommended management actions have been implemented, and whether the implemented management actions have been effective?</li> </ol>	4.40	<p><i>Prepare Water Quality Attainment Strategy for Diazinon/Pesticide-Related Toxicity in the Bay</i></p> <p>This project develops a package of potential implementation actions for diazinon/toxicity. The project builds off of the Conceptual Model / Impairment Assessment report for diazinon/toxicity in San Francisco Bay.</p>

*Continued Projects*

The following projects (initiated in FY 03/04) were continued in FY 04/05.

<b>Pollutants (Work Group)</b>	<b>Management Questions</b>	<b>Project #</b>	<b>Project Title &amp; Information</b>
Diazinon / Toxicity (urban creeks) (Diazinon/ Toxicity)	1) Is the federally-mandated diazinon phase-out resulting in reduced concentrations of this pesticide in urban creeks? 2) Is there still a toxicity problem if, as expected, diazinon concentrations decline?	4.13	<i>Develop Stream Monitoring Program for Pesticides and Toxicity:</i> The purpose of this project is to design a monitoring program to address the two key management questions for the Diazinon/Pesticide-Related Toxicity in Urban Creeks TMDL Implementation Plan. In addition, the development of a water quality monitoring approach to address these questions is a critical element of the Diazinon/Pesticide-Related Toxicity in Urban Creeks TMDL Implementation Plan. This project was completed in FY 04/05.
Diazinon / Toxicity (Bay) (Diazinon/ Toxicity)	What do we know about sources pathways, and loads of Diazinon toxicity in San Francisco Bay?	4.30	<i>Conceptual Model / Impairment Assessment Report for the Diazinon/Pesticide-Related Toxicity in San Francisco Bay:</i> Using references identified by the work group and other sources, develop/refine the conceptual model using the format and approach developed by the Technical Committee. This project was completed in FY 04/05.

### Dioxin/Furans

In 1998, the US EPA added “dioxin-like compounds” to California’s 303(d) list due to EPA’s analysis of available data that indicated potential human health risk from eating fish contaminated with these pollutants. EPA concluded that the fish consumption beneficial use of San Francisco Bay is being impaired, and that narrative standards that prohibit the discharge of toxic pollutants in amounts that adversely affect beneficial uses are not being met. Because the State had already included dioxin-like PCBs in its submittal to EPA, the practical effect of EPA’s decision was to add dioxins and furans to the list. The specific compounds included are 2,3,7,8-TCDD, 1,2,3,7,8-PeCDD, 1,2,3,4,7,8-HxCDD, 1,2,3,6,7,8-HxCDD, 1,2,3,7,8,9-HxCDD, 1,2,3,4,6,7,8-HpCDD, and OCDD. There is significant uncertainty regarding future regulatory action for these compounds. The RWQCB is not planning to prepare a TMDL for dioxin/furans.

#### *Work Group*

The Technical Committee served as the work group for Dioxins/Furans.

#### *Implemented Projects*

No new dioxin/furans projects were implemented in FY 04/05.

#### *Continued Projects*

The following project (initiated in FY 03/04) was continued in FY 04/05.

<b>Pollutants (Work Group)</b>	<b>Management Questions</b>	<b>Project #</b>	<b>Project Title &amp; Information</b>
Dioxin (TC)	What do we know about sources pathways, and loads of Dioxin in San	4.31	<i>Develop a Conceptual Model and Impairment Assessment for Dioxins:</i> Using references identified by the work group and other sources, this project developed/refined

<b>Pollutants</b> <i>(Work Group)</i>	<b>Management Questions</b>	<b>Project #</b>	<b>Project Title &amp; Information</b>
	Francisco Bay?		the conceptual model using the format and approach developed by the Technical Committee. This project was completed in FY 04/05.

Legacy Pesticides

Legacy pesticides refer to the organochlorine pesticides DDT, dieldrin, and chlordane, that (in most applications) are no longer legal to use. Like PCBs, these substances are resistant to degradation and accumulate in biota, and the concentration of these substances in some sport fish samples from San Francisco Bay exceed human health screening values. The Bay was listed as impaired for these substances in 1998 by the USEPA due to concern about human health impacts from eating contaminated fish from the Bay.

*Work Group*

The Technical Committee served as the work group for Legacy Pesticides.

*Implemented Projects*

The following project was implemented in FY 04/05.

<b>Pollutants</b> <i>(Work Groups)</i>	<b>Management Questions</b>	<b>Project #</b>	<b>Project Title &amp; Information</b>
DDTs, chlordanes and dieldrin <i>(TC)</i>	1) Based upon the current state of knowledge, what are the known or potential management actions that are needed to resolve the impairment? 2) What are the technical feasibility and economic implications for each of these actions? 3) What regulatory mechanisms may be used to implement the management actions, and what is the relative ease or difficulty of their use? 4) Are there key gaps in our understanding of the impairment or related ecosystem processes that limit our ability to make an informed decision on management actions? 5) Which knowledge gaps need to be resolved in the short-term in order to guide early implementation actions, and which can be addressed on a longer time frame?	4.43	<i>Prepare Water Quality Attainment Strategy for Legacy Pesticides:</i> This project develops a package of potential implementation actions for legacy pesticides. The project builds off of the Conceptual Model/Impairment Assessment report for legacy pesticides in San Francisco Bay.

*Continued Projects*

The following project (initiated in FY 03/04) was continued in FY 04/05.

<b>Pollutants</b> <i>(Work Groups)</i>	<b>Management Questions</b>	<b>Project #</b>	<b>Project Title &amp; Information</b>
DDTs, chlordanes and dieldrin <i>(TC)</i>	What do we know about sources pathways, and loads of Legacy Pesticides toxicity in San Francisco Bay?	4.29	<i>Develop Conceptual Model and Impairment Assessment for Legacy Pesticides:</i> Using references identified by the work group and other sources, this project developed/refined the conceptual model using the format and approach developed by the Technical Committee. This project was completed in FY 04/05.

### Cyanide

The 1995 Basin Plan set the San Francisco Bay saltwater cyanide (acute) objective at 5 mg/L, even though the U.S. Environmental Protection Agency (EPA) had established a saltwater chronic criterion of 1.0 mg/L in 1984. The U.S. EPA reestablished the 1.0 mg/L cyanide criterion for San Francisco Bay when it promulgated the California Toxics Rule (CTR) in May of 2000. This more stringent criterion may not be appropriate for San Francisco Bay for a number of reasons, and recent work in Puget Sound led the State of Washington to develop and adopt a site-specific chronic cyanide criterion of 2.8 mg/L for parts of Puget Sound.

Since the four species tested in Puget Sound are also resident to San Francisco Bay, RWQCB staff has tentatively reviewed and recommended a cyanide site-specific chronic objective of 2.9 mg/L for San Francisco Bay. A substantial body of technical work has been produced in support of SSOs for cyanide in the Bay, and submitted to RWQCB staff.

### *Work Group*

The Technical Committee served as the work group for Cyanide.

### *Implemented Projects*

In FY 03/04, Project 4.33 entitled “*Cyanide Basin Plan Amendment Technical Assistance*” was renamed *Basin Plan Amendment Assistance to RWQCB for cyanide, PCBs, and Cu/Ni*, since several pollutants of concern were in need of Basin Plan amendment support. With the title change it was formally tracked as a Multi-pollutant project and additional funding was provided to fund the part-time staff person at the RWQCB through the end of the fiscal year.

<b>Pollutants (Work Groups)</b>	<b>Management Questions</b>	<b>Project #</b>	<b>Project Title &amp; Information</b>
Cyanide (TC)	-	4.33	<i>Cyanide Basin Plan Amendment Technical Assistance: RENAMED: Basin Plan Amendment Assistance to RWQCB for Cyanide, PCBs, and Cu/Ni.</i> The CEP, through ABAG, funded and provided a part-time position to the RWQCB to assist them in preparing the necessary documents, assembling the regulatory file and issuing the necessary public notifications for the TMDLs for cyanide, PCBs and copper/nickel. This project was completed in FY 04/05.

### Multi-Pollutant Projects & Special Studies

From time to time projects are required that may pertain to more than one pollutant or may be designed to examine processes that affect numerous pollutants.

### *Work Group*

Depending on the principal water quality parameter of concern, any of the standing work groups may propose or oversee a multiple pollutant project. In addition, the TC may act as the work group for the project.

*Implemented Projects*

The following projects were implemented in FY 04/05.

<b>Pollutants (Work Group)</b>	<b>Management Questions</b>	<b>Project #</b>	<b>Project Title &amp; Information</b>
PBDEs (TC)	1) How do existing and forecast concentrations of PBDEs in San Francisco Bay compare to potential regulatory guidelines for PBDEs? 2) What are the important sources and loadings of PBDEs to the estuary? 3) What is known about the sources, distribution, fates, and effects of PBDEs in the estuary ecosystem that would help us decide what, if any, portions of the Bay are impaired, and which sources of PBDEs are the most amenable to control?	4.45	<i>Develop Conceptual Model and Impairment Assessment for PBDEs:</i> This project develops a Conceptual Model / Impairment Assessment for PBDEs in San Francisco Bay. A limited amount of targeted environmental sampling may be conducted to clarify environmental pathways in San Francisco Bay. This project involves collaboration with, and partial funding by, the RMP.

*Continued Projects*

The following projects (initiated in FY 02/03) were continued in FY 04/05.

<b>Pollutants (Work Group)</b>	<b>Management Questions</b>	<b>Project #</b>	<b>Project Title &amp; Information</b>
Multi-Pollutant (TC)	How can numerical models be used in an efficient and cost-effective fashion to guide TMDL development and implementation?	4.07	<i>Assess Future Modeling Needs:</i> This project was designed to provide technical guidance and management assistance for the development and application of numerical models in the preparation and implementation of TMDLs. Technical support was provided to help the CEP evaluate the efficacy of alternative modeling approaches, and to plan, manage, and evaluate individual modeling projects. This project was completed in FY 04/05.
Multi-Pollutant (TC)		4.18	<i>Project Management</i>
Multi-Pollutant (TC)		4.19	<i>Peer Review</i>
Multi-Pollutant (TC)		4.34	<i>Facilitated Meetings with EPA and Partners:</i> This project was completed in FY 04/05.
Multi-Pollutant (TC)		4.36	<i>Meeting Support for CEP Tasks Associated with Legacy Pesticides, Dioxin, Diazinon, and Selenium in SF Bay</i>

## 4.3 Administration

### 4.3.1 Key Accomplishments

#### CEP Support of Basin Plan Amendments

CEP authorized additional funding and extended a contract with the Association of Bay Area Governments (ABAG) to provide manpower assistance till the end of the Fiscal Year for a half-time position to support RWQCB in preparing Basin Plan Amendments.

#### FY 03/04 Annual Report

An Annual Report for FY 03/04 was prepared and adopted, summarizing the accomplishments, actions, and financial activities that occurred during the fiscal year.

#### FY 04/05 Budget

The FY 04/05 Budget was established prior to July 1 and revised in October 2004. The October revision was prepared to reflect final technical program task allocations and revised funding projections. The Committee further established and appropriated funds to a Technical Studies Contingency fund (Task 4.46) to provide the Technical Committee with needed discretionary funds to use for small project allocations (less than \$5,000). These funds were needed to provide additional funding to approved projects for minor project scope changes and add-on tasks. The Committee further determined that the Technical Committee did not require Administrative Committee approval of these additional appropriations. The Committee requested that that they be kept apprised of any such appropriations.

#### Contractors Roster

The Committee, after evaluation and assessment of the potential FY 05/06 technical studies plan, decided that a full re-opening of the Contractor's Roster in early FY 05/06 was not necessary. The Committee further decided to allow current contractors on the roster to remain on the roster and to open the roster to new companies who wished to be considered as CEP contractors.

#### Third-Party Financial Auditing

The Committee determined that there was no apparent need, under the current program system of financial reporting and checks and balances, for a third-party audit of the CEP financial records maintained by AMS. The Committee decided that the additional auditing beyond the current third-party annual auditing of BACWA's financial records, which included their review of AMS' invoices and BACWA's directly funded CEP tasks, in combination with the monthly financial records and reporting provided by AMS to the Committee, would provide no benefit or additional fiscal protection.

#### CEP Membership and Participation Policy

At the request of the EMB, the Committee developed a policy for CEP Membership. Specifically, the policy reads:

*There are three types of participation in the CEP:*

- *Signatories to the MOU (federal, state or local government organizations or groups representing governmental organizations)*
- *Supporting Participants (non-signatories who provide funds for CEP)*
- *Interested Participants (all other participating stakeholders)*

*All CEP participants acknowledge and accept that the collaborative process, as pursued by the CEP, is the most efficient and effective way to develop TMDLs/WQASs for San Francisco Bay. Furthermore they commit to:*

- *Respecting the personal integrity, values and legitimacy of the interests of each participant.*
- *Participating regularly and in person (if possible) and to being well informed on the issues under discussion*
- *Honoring any commitments or agreements made and to not use delay as a tactic to avoid an undesired result*
- *Working in a cost effective and timely fashion to develop sound scientific products*

**Reduction in Routine Monthly Reporting**

In an effort to reduce the time and expense expended in preparing multiple routine administrative reports for the EMB and other Committees, the Committee directed CEP staff to consolidate into one general administrative “Coordinator’s Report” all monthly activities by CEP staff and to use this single report for all contractual and required CEP activity reports.

**Other**

Administrative Committee meetings continued to be held by teleconference. The Committee met a total of nine times in FY 04/05 with no meetings held in August-04, December-04 and February-05. The use of teleconferences resulted in reduced meeting costs to the Program and saved invaluable time for Committee members by eliminating any need to travel.

**4.3.2 FY 04/05 Financial Analysis**

**Revenues & Budget**

In FY 04/05, the total new revenues received, on a cash basis, by CEP from participants and bank interest was \$995,618. This total included \$889,300 in new participant contributions, \$11,318 in interest and \$95,000 in late FY 03/04 participant contributions. In addition, \$153,806 in unspent FY 03/04 funds were moved forward into FY 04/05 and \$127,385 in accounts receivable (FY 04/05 contributions pledged but not received by the close of the FY) were moved into FY 05/06. Although the FY 04/05 budget was established in June 2004 at \$1,142,685 by the EMB, the actual FY 04/05 revenue base (actual funds available for expenditure) was \$1,149,424 (Table 2).

**Table 2: Clean Estuary Partnership Revenues for FY 04/05**

Carryover Funds from FY 01/02	\$153,806
FY 04/05 Participant Contributions	\$889,300
FY 03/04 Participant Contributions received in FY 04/05	\$95,000
Interest Earned	\$11,318
Total FY Revenues	\$1,149,424
CEP FY 04/05 Accounts Receivable	\$127,385

**Expenditures**

Fiscal Year 04/05 expenditures totaled \$1,052,541 and were paid out to Applied Marine Sciences, Inc. (AMS), Bay Area Clean Water Agencies (BACWA) management and administration contractors, the East Bay Municipal Utility District (EBMUD), the Rose Foundation for Communities and the Environment and the Association of Bay Area Governments (ABAG), in support of CEP activities. The monies used to cover these expenditures consisted of both FY 04/05 revenues and encumbered FY 02/03 and FY 03/04 funds. Of the FY 04/05 funding, a total of \$947,527 was either directly expended or encumbered for projects or activities approved by the EMB during the fiscal year. Some of these projects were still actively working on project deliverables in accordance with the project schedule at the end of the Fiscal Year and will continue in FY 05/06. Following the year-end reconciliation, \$243,828.70 was moved forward into the FY 05/06 budget, as unspent and un-encumbered funds. In addition, the \$127,385 in accounts receivable were also moved forward into the FY 05/06 budget.

Since FY 01/02, the CEP has expended \$3,208,363 to facilitate the development of TMDLs for targeted pollutants. This includes more than 32 technical studies and scientific efforts, at a cost of \$1.7 million, directly targeting specific pollutants of concern (Table 3).

**Table 3: CEP Expenditures for Each TMDL Pollutant of Interest**

<i>Pollutant</i>	<i># Technical Studies</i>	<i>Expenditures \$</i>
Mercury	5	\$292,379
PCBs	8	\$599,904
Copper/Nickel	2	\$236,499
Legacy Pesticides	3	\$45,834
Diazinon/Toxicity	3	\$190,780
Dioxin	1	\$35,000
Selenium	2	\$79,953
Multiple Pollutants	2	\$21,518
Other	6	\$208,275
<i>TOTAL</i>	32*	\$1,710,142

\* Many of the technical studies involve more than one pollutant.

**Contracting**

AMS entered into or maintained sub-contracts with seventeen companies or individuals in order to execute authorized studies, projects or tasks (Table 4). In addition, BACWA, on behalf of the CEP, entered into contracts with the Association of Bay Area Governments (ABAG) and the Rose Foundation for Communities and the Environment, to provide needed on-site technical support to the RWQCB and to provide the Environmental-NGO Technical Representative to the CEP, respectively. Table 4 provides an alphabetic listing of the organizations and individuals who were contracted to conduct work for the CEP in FY 04/05.

**Table 4: Organizations contracted to conduct work for the CEP in FY 04/05.**

Association of Bay Area Governments (ABAG)	Dr. Thomas E. McKone
Concur, Inc.	Rose Foundation for Communities and the Environment
Center for Ecosystem Management & Restoration	Pacific EcoRisk (PER)
CRG Laboratories	Public Affairs Management (PAM)
EOA, Inc.	San Francisco Estuary Institute (SFEI)
Dr. Roger Green	Dr. Donald Stevens
Dr. Frank Gobas	TDC Environmental, LLP
GeoSyntec Consultants	TEG Oceanographic Services, Inc.
Dr. Bill Warren-Hicks	Tetra Tech, Inc.
Hydroconsult Engineers	Dr. John Toll
Larry Walker Associates (LWA)	United States Geological Survey (USGS)
Levine Fricke Recon (LFR), Inc.	Dr. Jack Word

**4.3.3 New Administrative Procedures & Guidelines**

The CEP Membership and Participation Policy presented above was adopted by the Administrative Committee and approved by the EMB. In addition, an administrative procedure concerning the establishment of a Technical Studies Contingency Fund (Task 4.46) and the appropriation of monies from that fund by the Technical Committee is also presented above.



## **4.4 Participation & Outreach**

### **4.4.1 Key Accomplishments**

#### Risk Reduction Work Team

To develop and manage the CEP's activities with regard to risk management, the Program Coordinator formed a Risk Management Work Team (RRWT) that reports to the EMB and includes members from BACWA, BASMAA, RWQCB, DHS, OEHHA, the environmental and environmental justice community and the CEP Environmental-NGO Technical Representative. The primary focus of this group is to identify, prioritize, and support California State actions, where practicable, in order to reduce risks to vulnerable populations that consume fish caught from San Francisco Bay.

The formation and support of the work group was facilitated through the P&O Committee.

#### Sought Expanded Funding for the Environmental-NGO Technical Representative

The Committee determined that the Environmental-NGO Technical Representative position required between 35-40 hours/month of effort, in contrast to the previously allocated 18-20 hours/month, to effectively meet CEP Committee and work group support expectations. The Committee discussed with the environmental community representatives whether their organizations would be willing to contribute funds to support this position. Following these discussions, the Committee requested an additional \$25,000 to fund the Environmental-NGO Technical Representative position for the FY.

### **4.4.2 Coordination of Outreach to Key Stakeholders**

#### CEP Technical Symposium Planning

The P&O Committee developed a draft query letter to stakeholders to determine potential interest and attendance at a proposed one-day Technical Symposium to be held in late 2005 or early 2006. The Technical Committee, P&O Committee, and EMB reviewed the draft document before it was distributed to stakeholders. The purpose of the Symposium would be to present how the CEP's work is being used to develop and implement TMDLs in the San Francisco Bay and how these activities fit into larger regulatory efforts to address water quality issues in the Bay. The discussion at the Symposium would also help to inform attendees on future projects and priorities of the CEP. The primary audience is the representatives of CEP member organizations and other affiliated organizations who are interested in TMDL issues and who may be responsible for implementation.

### **4.4.3 Development of Public Outreach Materials**

#### Preparation of Outreach Material

The Committee designed and prepared a Mercury TMDL Information Sheet to provide background information for members of the media and the public at the mercury TMDL adoption hearing. The document will not be formally printed (as with the CEP fact sheets), since it is expected the content will change slightly as the mercury TMDL moves through the administrative process. The Committee also prepared a potential Mercury Media Pitch and discussed the preparation of a PCB TMDL Fact Sheet.

### **4.4.4 Support for RWQCB Stakeholder Meetings and Related Activities**

#### Public Meetings for the PCB TMDL

The P&O Committee provided support to the RWQCB in facilitating/recording the February 10, 2005 PCBs TMDL Workshop, including media outreach. Also, the Committee designed, developed, and analyzed results from the stakeholder evaluation forms for PCB and other future TMDLs.

### PCB TMDL Stakeholder Roundtable Discussions

The P&O Committee provided guidance for the preparation, facilitation, and follow-up related to the PCB TMDL Roundtable Discussion on October 25, 2004. There were a series of interviews of key stakeholders prior to the meeting and several documents were developed, which summarized and categorized key stakeholder concerns both prior to and following the Roundtable Discussion.

### Public Meetings for the Mercury TMDL

The P&O Committee assisted with a series of one-on-one meetings with different stakeholder groups in July and August regarding stakeholders' comments on the Basin Plan Amendment (BPA) language for the Mercury TMDL. The objective had been to discuss and move toward general agreement in concept on the key issues raised by stakeholders pursuant to the June Board Hearing, and then translate those agreements into specific proposed text changes in the BPA language. The Committee also assisted in preparations for the RWQCB hearing and compiling the administrative record.

### RWQCB Request for Feedback on Stakeholder Outreach Efforts

The Committee prepared a survey to provide feedback on the RWQCB's stakeholder participation efforts as part of its annual report to ABAG.

## **4.4.5 New Participation and Outreach Procedures**

### Review of Proposed Revisions to the CEP Website

The P&O Committee reviewed revisions to the CEP website proposed in order to help users more easily locate final CEP documents and link to the contractor roster.

### Other

- The Committee continued to hold all of its meetings by teleconference to reduce program costs and member travel time.
- The Committee determined that, although previous P&O Work Plans had been structured around activities, it may be more effective to organize the FY 05/06 Work Plan and Budget around activities by pollutant. It was also agreed to build the P&O Work Plan based on the current RWQCB schedule, but then be flexible as the situation changes.

## **5.0 Appendices**

### **5.1 Table of Relationships Among CEP Technical Projects**

### **5.2 Coordinator's Reports**

### **5.3 Committee Meeting Minutes**

#### **5.3.1 Executive Management Board**

#### **5.3.2 Technical Committee**

#### **5.3.3 Administrative Committee**

#### **5.3.4 Participation & Outreach Committee**

## Appendix 5.1

### Description of CEP Projects (Completed or in Process) and Their Relationship to TMDL Development/Implementation

Pollutant	Task #	Title	Start Date	End Date	Description, Objectives, and Findings	How Project Supports TMDL Development & Implementation
Mercury (also PCBs, legacy pesticides)	4.02	Small Tributary Loads: Guadalupe River	9/02	8/05	<p><b>Description:</b> This project combines monitoring of flow and suspended load with discreet grab samples for chemical analysis to assess pollutant loads from a significant tributary that is impacted by both legacy mining and urban industrial uses. This project involves collaboration with and partial funding by the RMP.</p> <p><b>Objectives:</b> Use a direct measurement approach to reduce uncertainties associated with watershed load estimates derived using the "Simple Method," which relies on land-use specific estimates of runoff and rainfall, and to model pollutant loads.</p> <p><b>Findings:</b> The project details concentrations and loads of mercury, PCBs, and OC pesticides during water years 2003-2004. The project also makes hypotheses about the possible physical processes of release and transport of total mercury in the watershed in both space and time (including those related to climatic forcing), which are important issues for the design of programs to reduce loads. Future years of sampling (to be funded outside the CEP) will provide further information on source, release, and transport processes for pollutants of concern (including PBDEs and methyl mercury).</p> <p><b>Report URLs:</b>  <a href="http://www.cleanestuary.com/publications/files/Task%204%2E02%20Yr%201%2Epdf">http://www.cleanestuary.com/publications/files/Task%204%2E02%20Yr%201%2Epdf</a>  <a href="http://www.cleanestuary.com/publications/files/Task4%2E02%2DGuadalupeRiverYr2%2Epdf">http://www.cleanestuary.com/publications/files/Task4%2E02%2DGuadalupeRiverYr2%2Epdf</a></p>	The information for mercury, PCB, and organochlorine pesticide loads from the Guadalupe River Watershed is essential for the source analysis contained (or to be contained) in the TMDLs for these pollutants. This project also demonstrates a feasible and accurate method for estimating loads, and provides a data set that can be used to determine our ability to detect change. The dataset will also be a valuable baseline for assessing future changes in loading in the watershed.

Pollutant	Task #	Title	Start Date	End Date	Description, Objectives, and Findings	How Project Supports TMDL Development & Implementation
Mercury	4.05	Refine Mercury TMDL Implementation Scheme	8/02	12/04	<p><b>Description:</b> This project develops implementation information for each category of mercury source.</p> <p><b>Objectives:</b> Define foreseeable actions needed to attain proposed numeric targets in the Bay, expected outcomes of those actions, associated uncertainties, and approaches to reduce those uncertainties.</p> <p><b>Findings:</b> Seven individual project reports provide detailed recommendations on the feasibility of potential management strategies for mercury dischargers from different source categories.</p> <p><b>Report URLs:</b>  <a href="http://www.cleanestuary.com/publications/files/Task4%2E05%2DWetlandImpl%2Epdf">http://www.cleanestuary.com/publications/files/Task4%2E05%2DWetlandImpl%2Epdf</a>  <a href="http://www.cleanestuary.com/publications/files/Task4%2E05%2DURbRunoffImpl%2Epdf">http://www.cleanestuary.com/publications/files/Task4%2E05%2DURbRunoffImpl%2Epdf</a>  <a href="http://www.cleanestuary.com/publications/files/Task4%2E05%2DInactiveMinesImpl%2Epdf">http://www.cleanestuary.com/publications/files/Task4%2E05%2DInactiveMinesImpl%2Epdf</a>  <a href="http://www.cleanestuary.com/publications/files/Task4%2E05%2DToxCleanupSites%2Epdf">http://www.cleanestuary.com/publications/files/Task4%2E05%2DToxCleanupSites%2Epdf</a>  <a href="http://www.cleanestuary.com/publications/files/Task4%2E05%2DDraftAirborneDep%2Epdf">http://www.cleanestuary.com/publications/files/Task4%2E05%2DDraftAirborneDep%2Epdf</a>  <a href="http://www.cleanestuary.com/publications/files/Task4%2E05%2DDraftWastewaterImpl%2Epdf">http://www.cleanestuary.com/publications/files/Task4%2E05%2DDraftWastewaterImpl%2Epdf</a></p>	<p>Individual reports were prepared for wastewater, urban runoff, atmospheric deposition, wetlands, toxic cleanup sites, the Guadalupe River, and inactive local mines. These were used by RWQCB staff during preparation of the Mercury TMDL basin plan amendment, and are cited in the associated staff report.</p>

Pollutant	Task #	Title	Start Date	End Date	Description, Objectives, and Findings	How Project Supports TMDL Development & Implementation
Mercury (also PCBs, legacy pesticides)	4.12	Feasibility Assessment: Options and Expected Benefits from Urban Storm Water Implementation Actions	12/03	TBD	<p><b>Description:</b> This project performs a literature review and conducts modeling to assess the feasibility and expected benefits of possible implementation actions to control pollutant discharge in urban runoff. This project was envisioned as a starting point for this issue, with more advanced analysis to be provided by a project initiated in 2005 at SFEI (funded by a Prop 13 grant).</p> <p><b>Objectives:</b> (1) Describe how site specific factors, such as location, geography, climate, and land use affect feasibility and benefits; (2) Estimate the total mercury load avoided through current implementation of the strategies; (3) Forecast how loads can be decreased through expansion of current strategies and/or development of new strategies, and what new costs are associated with those expansions.</p> <p><b>Findings:</b> <i>Project in progress</i></p>	The mercury TMDL (and likely the PCB TMDL) call for major reductions in pollutant loading from urban runoff, but it is not clear how these reductions can be achieved. An assessment of the feasibility and expected benefits from various TMDL implementation actions for urban runoff will be essential for identifying how load reductions can be achieved.
Mercury	4.24	Refine Mercury Conceptual Model	12/03	TBD	<p><b>Description:</b> This project expands on a draft conceptual model developed and revised in FY02-03 according to comments submitted by the mercury Work Group.</p> <p><b>Objectives:</b> Answer 5 key management questions: (1) What is the relative bioavailability of mercury from different sources to San Francisco Bay? (2) At what locations are current methylation rates and methylmercury flux the highest? (3) Can existing wetlands be managed or new wetlands be designed to minimize net methylation rates, or limit exposure to methylmercury that is produced? (4) Given various scenarios for management actions, when will we likely see improvements in sediment and tissue concentrations? (5) How should we best monitor to detect changes in mercury concentrations in sediment and tissue (i.e., on what time and spatial scale should we expect results, and what indicators should we monitor)?</p> <p><b>Findings:</b> <i>Project in progress</i></p>	By describing the technical projects that could be implemented to answer the management questions, this project will help identify the steps to be taken as part of adaptive implementation of the mercury TMDL. The results of studies identified in this report are expected to be influential when the RWQCB reconsiders the mercury TMDL in future years.

Pollutant	Task #	Title	Start Date	End Date	Description, Objectives, and Findings	How Project Supports TMDL Development & Implementation
PCBs	4.10a	Existing Data on PCB Concentrations of Nearshore Sediments and Assessment of Data Quality	11/02	11/05	<p><b>Description:</b> This project helps to quantify PCB concentrations in San Francisco Bay.</p> <p><b>Objectives:</b> (1) Determine whether existing data are sufficient to quantify PCB concentrations in the sediment of the nearshore environment of central and south San Francisco Bay; (2) Collect additional monitoring data, if necessary, to quantify PCB concentrations in the nearshore sediments of central and south San Francisco Bay.</p> <p><b>Findings:</b> Existing data are sufficient to quantify PCB concentrations in the sediment of the nearshore environment of central and south San Francisco Bay, but complex spatial patterns related to discharge and advection from onshore sources make it extremely difficult to assign a single concentration to describe nearshore background PCBs.</p> <p><b>Report URL:</b>  <a href="http://www.cleanestuary.com/publications/files/4%2E10a%20Final%20Report%2Epdf">http://www.cleanestuary.com/publications/files/4%2E10a%20Final%20Report%2Epdf</a></p>	This project was valuable to characterize PCB concentrations in the nearshore portions of the Bay that are normally the first regions to receive contaminated discharge. The project was originally conceived to support selection of interim numeric targets for PCBs in sediments as part of the TMDL. The results from this work contributed to the RWQCB's decision to use a tissue concentration as the numeric target for the PCB TMDL.
PCBs	4.10b	Existing Data on PCB Concentrations of Sediments in Trapping Zones	11/02	12/04	<p><b>Description:</b> This project helps to characterize PCB concentrations in Bay margin trapping zones.</p> <p><b>Objectives:</b> (1) Identify areas along the Bay margins that may act as traps for PCB-polluted sediments discharged from upland spills; (2) Estimate the mass of PCBs in identified or suspected Bay margin trapping zones.</p> <p><b>Findings:</b> The project does not find Bay deposits with substantial concentrations (i.e., 100 ppm or greater) of PCBs in relatively small areas, despite a sampling plan that was geared toward sites that might have been expected to exhibit high concentrations.</p> <p><b>Report URL:</b>  <a href="http://www.cleanestuary.com/publications/files/CEP%5F4%2E10B%5Freport%2Epdf">http://www.cleanestuary.com/publications/files/CEP%5F4%2E10B%5Freport%2Epdf</a></p>	This project is a first step in assessing the feasibility of strategic dredging as a PCB TMDL implementation alternative. Removal or isolation of PCB hot spots could have resulted in significant, cost-effective improvements to the recovery rate of San Francisco Bay.

Pollutant	Task #	Title	Start Date	End Date	Description, Objectives, and Findings	How Project Supports TMDL Development & Implementation
PCBs	4.25	Refine PCB Conceptual Model	1/04	TBD	<p><b>Description:</b> This project complements the technical information contained in the TMDL Project Report for PCBs in San Francisco Bay.</p> <p><b>Objectives:</b> Prepare: (1) an “executive summary” of issues for a nontechnical audience; (2) an overview for a more technical audience of important concepts related to PCBs in the Bay; and (3) a “state-of-the-science” discussion of technical uncertainties, priorities among them, and means of addressing them.</p> <p><b>Findings:</b> <i>Project in progress</i></p>	This project will provide (1) an accessible summary for interested parties of the existing knowledge regarding PCBs in San Francisco Bay, including information on sources, concentrations in biota, and the role of key ecological processes in the fate of PCBs in the Bay, and (2) develop consensus regarding key assumptions and uncertainties that must be tested as part of adaptive implementation of the TMDL.

Pollutant	Task #	Title	Start Date	End Date	Description, Objectives, and Findings	How Project Supports TMDL Development & Implementation
PCBs (also mercury, legacy pesticides)	4.26	Develop Multi-Box Model	2/05	TBD	<p><b>Description:</b> This project is a multi-year program that builds on model development efforts already underway to construct a basic mechanistic model to: (1) advance our understanding of pollutant behavior in the Estuary; and (2) provide a new predictive tool for water quality management. This project involves collaboration with and partial funding by the RMP, and is based upon work conducted previously by the RMP and the USGS.</p> <p><b>Objectives:</b> (1) Develop a better tool for predicting future pollutant concentrations and testing potential management actions; (2) Clarify uncertainty of existing model predictions; (3) Identify key areas where field work can be done to reduce the uncertainties; (4) Conduct key field work; (5) Develop unambiguous documentation regarding the model for future professionals working on these issues as part of adaptive implementation.</p> <p><b>Findings:</b> Independent testing of the model has been completed and includes the following recommendations: (1) review and modify input data sets to address incomplete historical data; (2) evaluate possible impacts of sea level rise at the Golden Gate on PCB flushing from the Bay; (3) analyze effects on PCB transport of the model's overestimation of suspended solids concentrations in the Lower South Bay; (4) evaluate the effects of model spin-up period on PCB transport; (5) evaluate the model's tendency to over-predict the amount of PCBs measured in the Bay's water and sediment; and (6) evaluate the appropriateness of simulating a single PCB congener in the model.</p> <p><b>Report URL:</b>  <a href="http://www.cleanestuary.com/publications/files/Testing%5Fof%5FSEI%20modelv3%2Epdf">http://www.cleanestuary.com/publications/files/Testing%5Fof%5FSEI%20modelv3%2Epdf</a></p>	The multi-box model integrates our knowledge of the physical and chemical processes that affect the fate, transport and residence times of pollutants in the Estuary in five major geographic segments (Extreme South Bay, Lower South Bay, Central Bay, San Pablo Bay, and Suisun Bay). The construction of this multi-box model will provide the opportunity to perturb the system, evaluate the response, and gauge uncertainty associated with predicted outcomes. A critical set of perturbations to study will be proposed management actions, as with a validated and credible model, stakeholders will have the opportunity to gauge the response of the Estuary to proposed long-term management strategies.



Pollutant	Task #	Title	Start Date	End Date	Description, Objectives, and Findings	How Project Supports TMDL Development & Implementation
PCBs (also legacy pesticides)	4.27	Complete Food Web Model for Human Health and Wildlife Protection and Refine Sediment Targets	12/03	9/05	<p><b>Description:</b> This project expands the existing Bay food web model so that it includes sensitive wildlife species as endpoints.</p> <p><b>Objectives:</b> Expand the capability of the model to predict the maximum concentration of PCBs in sediments that will result in safe levels of PCBs in Bay wildlife (beyond its present capability to predict safe levels of PCBs in edible fish tissue for human consumption).</p> <p><b>Findings:</b> The model-predicted PCB concentration distributions show that there is a substantial probability that various human health and ecological risk criteria are currently exceeded in the Bay.</p> <p><b>Report URL:</b>  <a href="http://www.cleanestuary.com/publications/files/Task4%2E27%2DFoodWebModel%2Epdf">http://www.cleanestuary.com/publications/files/Task4%2E27%2DFoodWebModel%2Epdf</a></p>	The model produced by this project will allow the RWQCB to produce a TMDL containing load reductions that are predicted to address both the impairment of sport fish and the potential impairment of wildlife. US Fish and Wildlife Service have stated their expectation that the TMDL will evaluate the potential effects of PCBs on wildlife. USEPA is unlikely to approve a Bay PCBs TMDL that does not address wildlife species, as it will eventually need to obtain a biological opinion from USFWS on the TMDL prior to approval. Using the model, the RWQCB can link changes in sediment PCB concentrations caused by load reductions to changes in tissue concentrations.
PCBs	4.28	Refine PCB Implementation Scheme	12/04	TBD	<p><b>Description:</b> This project drafts a strategy for mitigating PCB "hot spots."</p> <p><b>Objectives:</b> (1) Draft a strategy detailing the technical and regulatory framework for evaluating and implementing remedial actions at PCBs "hot spots"; (2) Evaluate other actions to mitigate for past PCBs discharges to the Bay where clean up is not feasible; (3) Promote a public agency/private sector cooperative process for addressing "hot spots" in stormdrains, watershed sites, and the Bay margin.</p> <p><b>Findings:</b> <i>Project in progress</i></p>	This project will begin to develop the technical and regulatory strategy under which mitigation of "hot spots" can occur in a timely manner. Such a strategy will also result in greater certainty and detail for a key part of the TMDL implementation plan.

Pollutant	Task #	Title	Start Date	End Date	Description, Objectives, and Findings	How Project Supports TMDL Development & Implementation
Copper-Nickel	4.11	Impairment Assessment for Cu/Ni North of Dumbarton Bridge	5/03	TBD	<p><b>Description:</b> This project assists adoption of site-specific water quality objectives for copper and nickel in San Francisco Bay north of the Dumbarton Bridge by providing necessary documentation to the RWQCB. This work is in conjunction with ongoing work to develop Action Plans for prevention of unacceptable changes in copper and nickel concentrations in the Bay. For purposes of efficiency, the project is conducted as a focused “extension” of the South Bay impairment assessment work, using the documents prepared for the South Bay as a foundation. This project continues work funded previously by BACWA and BASMAA.</p> <p><b>Objectives:</b> (1) Prepare and provide to the RWQCB documentation necessary for adopting site-specific saltwater aquatic life-based water quality objectives for copper and nickel in San Francisco Bay north of the Dumbarton Bridge. (2) Support the development and adoption of strategies to attain water quality standards for copper and nickel in San Francisco Bay.</p> <p><i>Continued next page</i></p>	<p>This project has delivered technical reports on water quality translators, Site Specific Objective (SSO) derivation, SSO justification pursuant to the State Implementation Program (SIP), and a conceptual model/impairment assessment, all of which are being used by the RWQCB to prepare a Basin Plan amendment and staff report. The project has also prepared other technical information that will be used to develop a long-term copper management strategy.</p>

Pollutant	Task #	Title	Start Date	End Date	Description, Objectives, and Findings	How Project Supports TMDL Development & Implementation
Copper-Nickel	4.11 (cont.)	Impairment Assessment for Cu/Ni North of Dumbarton Bridge	5/03	TBD	<p><b>Findings:</b> Aquatic life impairment due to water column levels of dissolved copper and nickel in San Francisco Bay is unlikely. The dominant source of loadings of copper and nickel to the Bay is benthic remobilization from sediments, with riverine loadings next most important. Choosing copper and nickel translators for the Bay north of Dumbarton Bridge (to convert dissolved criteria into total recoverable effluent limits) needs to be addressed on a regional basis by dischargers, permit writers, Basin Plan staff, and TMDL staff. A number of municipal and industrial dischargers operating secondary or advanced secondary treatment plants will suffer compliance problems based on existing water quality objectives for copper in the Bay, and industrial plants may suffer compliance problems relating to nickel. Action to consider and adopt science-based site-specific copper and nickel saltwater objectives for San Francisco Bay north of Dumbarton Bridge is warranted and complies with requirements of the State Implementation Policy and other regulatory requirements.</p> <p><b>Report URLs:</b>  <a href="http://www.cleanestuary.com/publications/files/Fish%20olfaction%20SJESD%2Epdf">http://www.cleanestuary.com/publications/files/Fish%20olfaction%20SJESD%2Epdf</a>  <a href="http://www.cleanestuary.com/publications/files/CuSourcesReportCEP%2DT%2D4Ver2%2Epdf">http://www.cleanestuary.com/publications/files/CuSourcesReportCEP%2DT%2D4Ver2%2Epdf</a>  <a href="http://www.cleanestuary.com/publications/files/CEP%20SIP%20Justification%20030705%2Epdf">http://www.cleanestuary.com/publications/files/CEP%20SIP%20Justification%20030705%2Epdf</a>  <a href="http://www.cleanestuary.com/publications/files/CEP%20CMIA%2Epdf">http://www.cleanestuary.com/publications/files/CEP%20CMIA%2Epdf</a>  <a href="http://www.cleanestuary.com/publications/files/CEP%20SSO%20Derivation%20030705%2Epdf">http://www.cleanestuary.com/publications/files/CEP%20SSO%20Derivation%20030705%2Epdf</a>  <a href="http://www.cleanestuary.com/publications/files/CEP%205FTranslators%20030705%2Epdf">http://www.cleanestuary.com/publications/files/CEP%205FTranslators%20030705%2Epdf</a></p>	See previous page
Legacy Pesticides	4.20	DDT Analysis of Previously Collected Sediment Samples	1/03	5/03	<p><b>Description:</b> This project supports analysis of DDTs in a set of sediment samples during calibration of the food web model.</p> <p><b>Objectives:</b> Analyze DDTs in sediment samples collected by SFEI to calibrate the food web model for use in the legacy pesticides TMDL.</p> <p><b>Findings:</b> Results of chemical analyses delivered to SFEI (Contact Jay Davis for more information).</p>	These data will be used to calibrate the food web model for DDTs, allowing a demonstration of how water quality standards will be achieved when the legacy pesticides TMDL is developed.

Pollutant	Task #	Title	Start Date	End Date	Description, Objectives, and Findings	How Project Supports TMDL Development & Implementation
Legacy Pesticides	4.29	Develop Conceptual Model and Impairment Assessment for Legacy Pesticides	11/03	1/05	<p><b>Description:</b> This project develops a Conceptual Model / Impairment Assessment for legacy pesticides in San Francisco Bay.</p> <p><b>Objectives:</b> (1) Develop a conceptual model for legacy pesticides in San Francisco Bay to integrate existing knowledge regarding the sources of these substances, the loads to the Bay, and the ecological processes that link loads with impacts on beneficial uses. (2) Develop an assessment of the impairment to San Francisco Bay caused by legacy pesticides, highlighting key assumptions or uncertainties that are relevant to management alternatives.</p> <p><b>Findings:</b> Water and fish data indicate continued impairment of the use of the Bay for fishing and fish consumption, although long-trends indicate declining pesticide concentrations in the Bay. There is less evidence of impairment of other uses of the Bay (preservation of rare and endangered species, fish spawning, or wildlife and estuarine habitat). Runoff from the Central Valley and the local watershed introduce the largest loads of legacy pesticides to the Bay.</p> <p><b>Report URL:</b>  <a href="http://www.cleanestuary.com/publications/files/Legacy%20Pesticides%20Final%2Epdf">http://www.cleanestuary.com/publications/files/Legacy%20Pesticides%20Final%2Epdf</a></p>	The report produced by this project establishes the scientific foundation for a water quality attainment strategy for legacy pesticides in San Francisco Bay.
Legacy Pesticides	4.43	Prepare Water Quality Attainment Strategy for Legacy Pesticides	4/05	TBD	<p><b>Description:</b> This project develops a package of potential implementation actions for legacy pesticides. The project builds off of the Conceptual Model/Impairment Assessment report for legacy pesticides in San Francisco Bay.</p> <p><b>Objectives:</b> Develop actions that could be taken to protect/restore beneficial uses currently impaired, potentially including: (1) monitoring status and trends of impairment; (2) confirming effectiveness of practices or technologies; (3) continuing public education and outreach; and (4) promoting preventive or corrective regulatory actions.</p> <p><b>Findings:</b> <i>Project in progress</i></p>	By incorporating key components of the CMIA report along with potential implementation actions into a document, this project will provide a unified and technically-justified description of the potential scenarios for addressing the listing. It will form the basis of the regulatory project implemented by the RWQCB to address to the listing of the Bay for legacy pesticides.

Pollutant	Task #	Title	Start Date	End Date	Description, Objectives, and Findings	How Project Supports TMDL Development & Implementation
<b>Diazinon-Toxicity</b>	4.13	Develop Stream Monitoring Program for Pesticides and Toxicity	11/03	12/04	<p><b>Description:</b> This project designs a monitoring plan to provide support for adaptive implementation of the Diazinon and Pesticide-Related Toxicity in Urban Creeks Water Quality Attainment Strategy and Total Maximum Daily Load (“the WQAS”).</p> <p><b>Objectives:</b> Develop a monitoring program to support adaptive management of diazinon/pesticide-related toxicity in Bay Area urban creeks in accordance with the WQAS. Address the proposed WQAS implementation requirements regarding program design, watershed characterization, site selection / sample collection, and analytical tests.</p> <p><b>Findings:</b> The developed monitoring plan establishes a process through which monitoring data can be used effectively in adaptive management, by directly addressing the following sequential management questions delineated in the WQAS: (1) Are the diazinon concentration targets met? (2) Are the toxicity targets met? (3) If not, is pesticide-related toxicity still a problem in urban creeks (i.e., is the toxicity caused by a pesticide or something else)? (4) If the toxicity target is not met because of a pesticide (other than diazinon), how do the toxicity and the concentrations of the toxic pesticide vary in time and magnitude across urban watersheds? Adaptive development of the urban creeks monitoring program involves coordinating the monitoring planned by agencies for 2004-05, supplemented by funding available from the CEP (Project #4.39), and using the 2004-05 data as a screening tool to plan for monitoring in subsequent years. Also during 2004-05, a set of representative monitoring locations are selected for Bay Area urban creeks, and provisions made for standardized monitoring at the selected sites in 2005-06 and subsequent years.</p> <p><b>Report URL:</b>  <a href="http://www.cleanestuary.com/publications/files/Task%204%2E13%20Urban%20Creek%20Monitoring%2Epdf">http://www.cleanestuary.com/publications/files/Task%204%2E13%20Urban%20Creek%20Monitoring%2Epdf</a></p>	Developing and conducting this monitoring program will be a key component of implementation for the Diazinon in Urban Creeks TMDL and the Water Quality Attainment Strategy for pesticide-related toxicity.

Pollutant	Task #	Title	Start Date	End Date	Description, Objectives, and Findings	How Project Supports TMDL Development & Implementation
Diazinon-Toxicity	4.30	Develop Conceptual Model and Impairment Assessment Report for the Diazinon/Pesticide-Related Toxicity in San Francisco Bay	6/03	2/05	<p><b>Description:</b> This project develops a Conceptual Model / Impairment Assessment for diazinon/pesticide-related toxicity in San Francisco Bay.</p> <p><b>Objectives:</b> (1) Develop a conceptual model for diazinon/pesticide-related toxicity in San Francisco Bay to integrate existing knowledge regarding the sources of these substances, the loads to the Bay, and the ecological processes that link loads with impacts on beneficial uses. (2) Develop an assessment of the impairment to San Francisco Bay caused by diazinon/pesticide-related toxicity, highlighting key assumptions or uncertainties that are relevant to management alternatives.</p> <p><b>Findings:</b> Impairment of San Francisco Bay by diazinon is unlikely. Based on observed decreased applications of diazinon in Bay watersheds, decreased concentrations and toxicity in upstream tributary waters of the Bay, and apparent disappearance of previously-documented ambient water toxicity in the Bay, it appears that the water quality objectives of maintaining the Bay's water free of toxic substances in toxic concentrations are being met. However, use of replacement pesticides for diazinon (particular pyrethroids) may be causing toxicity in sediments. Surface runoff from agricultural pesticide use in the Sacramento River and San Joaquin River watersheds is the major source of diazinon (and most other current-use pesticides) in the Bay.</p> <p><b>Report URL:</b>  <a href="http://www.cleanestuary.com/publications/files/TASK%204%2E30%29%2D%20DIAZINON%20CMIA%2EPDF">http://www.cleanestuary.com/publications/files/TASK%204%2E30%29%2D%20DIAZINON%20CMIA%2EPDF</a></p>	This project evaluated data in light of listing/delisting criteria to assist the RWQCB design a regulatory project to address the listing. The results of this project contributed to a decision by the State Board to propose de-listing of the Bay for diazinon in October 2005.

Pollutant	Task #	Title	Start Date	End Date	Description, Objectives, and Findings	How Project Supports TMDL Development & Implementation
<b>Diazinon-Toxicity</b>	4.39	Supplemental Monitoring for Diazinon/Pesticide-Related Toxicity in Urban Creeks	11/04	TBD	<p><b>Description:</b> This project assures that sufficient funding will be available during 2004-05 to provide the monitoring specified in the Monitoring Plan prepared by CEP Project #4.13. The funding for supplemental urban creeks monitoring will complement the relevant monitoring activities of Bay Area stormwater agencies and other regional and local monitoring efforts, for which funding has already been designated independently for the 2004-05 wet season. This project involves collaboration with various stormwater NPDES permittees.</p> <p><b>Objectives:</b> Provide: (1) measurements of water, sediment and/or tissue chemistry; (2) results of water and/or sediment toxicity tests; (3) results of TIEs; and (4) assessment and reporting of monitoring data.</p> <p><b>Findings:</b> <i>Project in progress</i></p>	The results of the supplemental monitoring will be important for adapting existing stream monitoring programs and guiding implementation of the urban creeks diazinon TMDL and the water quality attainment strategy for pesticide-related toxicity in urban creeks.
<b>Diazinon-Toxicity</b>	4.40	Prepare Water Quality Attainment Strategy for Diazinon/Pesticide-Related Toxicity in the Bay	4/05	TBD	<p><b>Description:</b> This project develops a package of potential implementation actions for diazinon/pesticide-related toxicity. The project builds off of the Conceptual Model / Impairment Assessment report for diazinon/pesticide-related toxicity in San Francisco Bay.</p> <p><b>Objectives:</b> Develop actions that could be taken to protect/restore beneficial uses currently impaired, potentially including: (1) monitoring status and trends of impairment; (2) confirming effectiveness of practices or technologies; (3) continuing public education and outreach; and (4) promoting preventive or corrective regulatory actions.</p> <p><b>Findings:</b> <i>Project in progress</i></p>	By incorporating key components of the CMIA report along with potential implementation actions into a document, this project will provide a unified and technically-justified description of the potential scenarios for addressing the listing. It will form the basis of the regulatory project implemented by the RWQCB to address the listing of the Bay for diazinon, and the concomitant development of a Water Quality Attainment Strategy to address the ongoing impact of pesticides being used as replacements for diazinon.

Pollutant	Task #	Title	Start Date	End Date	Description, Objectives, and Findings	How Project Supports TMDL Development & Implementation
Dioxins	4.31	Develop Conceptual Model and Impairment Assessment for Dioxins	8/03	2/05	<p><b>Description:</b> This project develops a Conceptual Model / Impairment Assessment for dioxins/furans in San Francisco Bay.</p> <p><b>Objectives:</b> (1) Develop a conceptual model for dioxins/furans in San Francisco Bay to integrate existing knowledge regarding the sources of these substances, the loads to the Bay, and the ecological processes that link loads with impacts on beneficial uses. (2) Develop an assessment of the impairment to San Francisco Bay caused by dioxins/furans, highlighting key assumptions or uncertainties that are relevant to management alternatives.</p> <p><b>Findings:</b> Available fish and water data indicate a possible impairment of the Bay for sport fishing. Because there is so little information, there is virtually no evidence of impairment of other beneficial uses. Model estimates of the degradation and transport rates for dioxins suggest that current inputs of dioxins to the Bay may be sufficient to continue the current level of impairment.</p> <p><b>Report URL:</b>  <a href="http://www.cleanestuary.com/publications/files/Task%204%2E31%2DDioxins%20Final%20CMIA%2Epdf">http://www.cleanestuary.com/publications/files/Task%204%2E31%2DDioxins%20Final%20CMIA%2Epdf</a></p>	This report could be used as the scientific foundation for a water quality attainment strategy for dioxin/furans in San Francisco Bay.



Pollutant	Task #	Title	Start Date	End Date	Description, Objectives, and Findings	How Project Supports TMDL Development & Implementation
Selenium	4.32	Develop Conceptual Model and Impairment Assessment for Selenium	10/03	8/05	<p><b>Description:</b> This project develops a Conceptual Model / Impairment Assessment for selenium in San Francisco Bay.</p> <p><b>Objectives:</b> (1) Develop a conceptual model for selenium in San Francisco Bay to integrate existing knowledge regarding the sources of these substances, the loads to the Bay, and the ecological processes that link loads with impacts on beneficial uses; (2) Develop an assessment of the impairment to San Francisco Bay caused by selenium, highlighting key assumptions or uncertainties that are relevant to management alternatives.</p> <p><b>Findings:</b> There is possible impairment of the Bay by selenium, as evidenced by a continued health advisory against the consumption of diving ducks (one of the beneficial uses of the Bay). There is no impairment of Bay Protection Toxic Cleanup Program (BPTCP) sites by selenium, and a de-listing of these sites is warranted. The major sources of selenium to the North Bay are the Sacramento River, San Joaquin River, and discharges from oil refineries, whereas the major sources to the South Bay are POTWs.</p> <p><b>Report URL:</b>  <a href="http://www.cleanestuary.com/publications/files/Final%5FSelenium%5FCMIA%2Epdf">http://www.cleanestuary.com/publications/files/Final%5FSelenium%5FCMIA%2Epdf</a></p>	This report will establish the scientific foundation for a water quality attainment strategy for selenium in San Francisco Bay.
Selenium	4.42	Prepare Water Quality Attainment Strategy for Selenium	4/05	TBD	<p><b>Description:</b> This project develops a package of potential implementation actions for selenium. The project builds off of the Conceptual Model / Impairment Assessment report for selenium in San Francisco Bay.</p> <p><b>Objectives:</b> Develop actions that could be taken to protect/restore beneficial uses currently impaired, potentially including: (1) monitoring status and trends of impairment; (2) confirming effectiveness of practices or technologies; (3) continuing public education and outreach; and (4) promoting preventive or corrective regulatory actions.</p> <p><b>Findings:</b> <i>Project in progress</i></p>	By incorporating key components of the CMIA report along with potential implementation actions into a document, this project will provide a unified and technically-justified description of the potential scenarios for addressing the listing. It will provide valuable input to the RWQCB as it develops its regulatory project relative to the listing of the Bay.

Pollutant	Task #	Title	Start Date	End Date	Description, Objectives, and Findings	How Project Supports TMDL Development & Implementation
Multiple Contaminant Projects	4.07	Assess Future TMDL Modeling Needs	5/03	12/04	<p><b>Description:</b> This project provides information necessary to evaluate modeling approaches in the development and implementation of TMDLs.</p> <p><b>Objectives:</b> Provide the information necessary to evaluate the efficacy of alternative modeling approaches, using both: (1) a review of existing approaches applied in the Bay (especially Cu/Ni in the South Bay and PCBs for the entire bay); and (2) interaction with national experts brought in to review existing Bay models and suggest how existing or alternative models might be used to best address key management questions in a cost-effective manner.</p> <p><b>Findings:</b> The project report provides a detailed analysis of the application of models to the TMDL process in San Francisco Bay, including the role of conceptual and numerical models, modeling issues and definitions, potentially applicable models, and model evaluation criteria.</p> <p><b>Report URL:</b>  <a href="http://www.cleanestuary.com/publications/files/Use%20of%20Numerical%20Models%20in%20the%20San%20Francisco%20Bay.pdf">http://www.cleanestuary.com/publications/files/Use%20of%20Numerical%20Models%20in%20the%20San%20Francisco%20Bay.pdf</a></p>	The project provided essential background information on the role of numerical models in the development and implementation of TMDLs, and allowed for the design of a project to develop a multi-box model of the Bay. The project also assisted with the peer review of the revised food web model, a key part of the PCB TMDL.
Multiple Contaminant Projects	4.44	Developing and Evaluating Options for Addressing Risks of Public Health Impacts Due to Pollutants in Fish	TBD	TBD	<p><b>Description:</b> This project, still in the conceptual stage, will convene a multi-disciplinary panel to help identify, on a regional basis, actions that can be taken to reduce the health risk posed by the consumption of contaminated fish from the Bay. The project will focus in particular on impacts of consumption in the most exposed and vulnerable communities.</p> <p><b>Objectives:</b> <i>This project has yet to be implemented</i></p> <p><b>Findings:</b> <i>Project in progress</i></p>	<i>This project has yet to be implemented</i>

Pollutant	Task #	Title	Start Date	End Date	Description, Objectives, and Findings	How Project Supports TMDL Development & Implementation
Cyanide	4.33	Cyanide Basin Plan Amendment Technical Assistance	9/03	6/05	<p><b>Description:</b> This project provides support for RWQCB staff in developing the draft Basin Plan amendment for cyanide in San Francisco Bay.</p> <p><b>Objectives:</b> Support RWQCB staff in developing CEQA-equivalent documentation and conducting necessary environmental and economic analysis in support of a Basin Plan amendment for a site-specific water quality objective for cyanide in San Francisco Bay.</p> <p><b>Findings:</b> The draft basin plan amendment and associated staff report regarding a site-specific objective for cyanide is expected to be released by the RWQCB in November 2005.</p>	This project accelerated the production of the draft Basin Plan amendment for cyanide, and tested a model for how the CEP can provide technical assistance to the RWQCB for preparation of Basin Plan amendments.
Special Technical Projects	4.45	Develop Conceptual Model and Impairment Assessment for PBDEs	12/04	TBD	<p><b>Description:</b> This project develops a Conceptual Model / Impairment Assessment for PBDEs in San Francisco Bay. A limited amount of targeted environmental sampling may be conducted to clarify environmental pathways in San Francisco Bay. This project involves collaboration with and partial funding by the RMP.</p> <p><b>Objectives:</b> (1) Develop a conceptual model for PBDEs in San Francisco Bay to integrate existing knowledge regarding the identification of sources of these substances, transport pathways to the Bay, load contributions from sources, and the ecological processes that link loads with suspected impacts on beneficial uses. (2) Develop an assessment of the impairment to San Francisco Bay caused by PBDEs, highlighting key assumptions or uncertainties that are relevant to management alternatives.</p> <p><b>Findings:</b> <i>Project in progress</i></p>	Through creation of the conceptual model based on new monitoring being undertaken by the RMP, stakeholders will work together to clarify the facts regarding PBDEs in San Francisco Bay, and identify important uncertainties in the existing knowledge. The model will establish the scientific foundation for a potential water quality attainment strategy for PBDEs in San Francisco Bay, which many expect will be necessary soon.