FY 06/07 Annual Report

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Prepared by:

APPLIED amarine SCIENCES

4749 Bennett Drive, Suite L
Livermore, CA 94551
www.amarine.com

Table of Contents

Table of Contents ____ *i*

1.0 Executive Summary ____ *1*

2.0 Introduction ____ *2*

3.0 Committee and Program Participants ____ *2*

3.1 Executive Management Board ____ **2**

3.2 Technical Committee ____ **2**

3.3 Administrative Committee ____ **2**

3.4 Participation & Outreach Committee (P&O) ____ **3**

4.0 Program Accomplishments ____ *3*

4.1 Program Management & Coordination ____ **3**

4.1.1 Program Planning Key Accomplishments ____ 3

CEP Redesign ____ 3

FY 07/08 Budget ____ 4

4.1.2 Program Management Key Accomplishments ____ 4

Executive Management Board Actions ____ 4

Risk Reduction Work Team ____ 4

Support for Basin Plan Amendments ____ 5

4.2 Technical Studies ____ **6**

4.2.1 Key Accomplishments ____ 6

New Technical Projects in FY 06/07 ____ 7

Ongoing Projects ____ 7

CEP Project Relationships Table ____ 7

4.2.2 TMDL & Water Quality Attainment Efforts ____ 7

Mercury ____ 7

PCBs ____ 8

Cu/Ni ____ 9

Selenium ____ 11

Diazinon Toxicity ____ 12

Dioxin/Furans ____ 13

Legacy Pesticides ____ 14

Cyanide ____ 15

Multi-Pollutant Projects & Special Studies ____ 16

4.3 Administration ____ **17**

4.3.1 Key Accomplishments ____ 17

CEP Support of Basin Plan Amendments ____ 17

FY 05/06 Annual Report ____ 17

FY 06/07 Budget ____ 17

4.3.2 FY 06/07 Financial Analysis ____ 17

Revenues & Budget ____ 17

Expenditures ____ 17

Contracting ____ 18

4.4 Participation & Outreach ____ **18**

5.0 Appendices ____ *19*

5.1 Table of Relationships Among CEP Technical Projects _____ 19

5.2 Coordinator's Reports_____ 19

5.3 Committee Meeting Minutes_____ 19

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 (FY) 06/07, 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). This report presents a summary of the activities undertaken during FY 06/07, the sixth year of the CEP. The Fiscal Year commenced on July 1, 2006 and ended June 30, 2007.

Key activities for the year included:

Management and Coordination (Executive Management Board)

- Evaluated the continuing need for CEP funded and managed scientific support and facilitation of a collaborative program for remaining Bay Region TMDL contaminants. After careful consideration of several redesign approaches a final decision was made to phase-out the CEP over the next fiscal year (FY 07/08) during which all outstanding CEP projects would be completed. CEP partners further agreed that any technical support required for the remaining Bay Area TMDL contaminants would be the individual responsibility of the key stakeholders;
- Continued financing a position through the Association of Bay Area Governments (ABAG) to provide basin planning staff support for the Water Board until June 30, 2008;
- Continued work and support of the Risk Reduction Workgroup's efforts.

Technical Studies (Technical Committee)

- The Technical Committee did not meet nor hold any meetings during the fiscal year. The EMB acted as the Technical Committee in approving new technical projects and accepting existing project deliverables. Partner representatives to the Technical Committee did review final reports from two (2) projects (Tasks 4.11 and 4.48) to ensure completeness with project goals and expectations and acceptance by the CEP of a project deliverable;
- Initiated two (2) new technical projects or activities (Tasks 4.49 and 4.50);
- Continued work on seven (7) technical projects or activities (Tasks 4.11, 4.12, 4.26, 4.40, 4.43, 4.47, 4.48) initiated in previous fiscal years; and
- Completed or brought to closure six (6) technical projects (Tasks 4.11, 4.12, 4.40, 4.42, 4.43, 4.48).

Program Administration (Administrative Committee)

- The Administrative Committee did not meet nor hold any meetings during the fiscal year. The EMB acted as the Administrative Committee in approving the FY 06/07 budget revisions, the FY 07/08 annual budget, and any new or additional funding for technical tasks.

Program Annual Finances (Cash Basis)

- Total new revenues posted to the CEP in FY 06/07 were $130,901.34 from Partner contributions and interest;
- Total available funds in FY 06/07 totaled $630,409.14;
- Total Program expenditures within the fiscal year (utilizing FY 02/03 through FY 06/07 funds) were $ 338,179.12.
- $ 408,016.50 in unspent and unencumbered funds were transferred forward to the FY 07/08 budget.

Public Participation & Outreach (P&O Committee)

- No P&O Committee meetings, nor public outreach activities, were conducted by the CEP in FY 06/07 (with exception of risk management activities conducted through Risk Management Work Team and Task #4.44 discussed below).

Information Management

- The CEP Website was maintained and operational all year.
- CEP Staff worked with Water Board staff to address their continuing need to issue public notices and to assist them in transitioning information contained in the CEP Contact Manager database to State servers and notification programs.

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 (Water Board), 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.

3.0 Committee and Program Participants

3.1 Executive Management Board

Voting Members: Bruce Wolfe, Chairperson (Water Board); Donald P. Freitas (BASMAA); Jim Kelly (BACWA). Alternate Representatives: Jim Scanlin (BASMAA); Ben Horenstein (BACWA); Tom Mumley and Dyan Whyte (Water Board).
Active Participants: Geoff Brosseau (BASMAA), Kevin Buchan (WSPA), Mike Connor (SFEI), Andy Gunther (AMS/CEP Program Coordinator), Ben Horenstein (EBMUD), Bill Keaney (SFPUC), Richard Looker (Water Board), Tom Mumley (Water Board), Adam Olivieri (EOA, SCVURPPP), Michele Plá (BACWA), Paul Salop (AMS/CEP Staff), Jim Scanlin (BASMAA), David Tucker (City of San Jose), Andria Ventura (Clean Water Action), Chuck Weir (EBDA), Dyan Whyte (Water Board).

3.2 Technical Committee

Voting Members: David Tucker, Chairperson (BACWA); Tom Mumley (Water Board); Arleen Feng (BASMAA). Alternate Representatives: Ben Horenstein (BACWA); Richard Looker (Water Board); Chris Sommers (EOA, Inc., representing BASMAA).

3.3 Administrative Committee

Voting Members: Donald P. Freitas, Committee Chairperson (EMB, BASMAA); Chuck Weir (BACWA); Dyan Whyte (Water Board). Alternate representatives: Tom Mumley (Water Board); Michele Plá (BACWA).

3.4 Participation & Outreach Committee (P&O)

Voting Members: Chuck Weir, Committee Chairperson (BACWA); Janet Cox (Water Board); Geoff Brosseau (BASMAA). Alternate representatives: Dyan Whyte (Water Board); Michele Plá (BACWA).

Minutes of Committee meetings for FY 06/07 can be found on the CEP website at www.cleanestuary.org.

4.0 Program Accomplishments

4.1 Program Management & Coordination

4.1.1 Program Planning Key Accomplishments

CEP Redesign

Throughout the fiscal year, the EMB discussed the value and need to continue the CEP and if they did so, what redesigned form would it take. In November a special redesign meeting was held at which the Partners identified common themes for both effective and ineffective efforts of the CEP. More specifically, the CEP was effective in the:

- production of useful technical products;
- improvement of the working relationships between Partners; and
- realization that adoption of TMDLs is not purely a technical process.

What the program was ineffective at was:

- the focus on decision-making by consensus of all stakeholders was inefficient;
- it was difficult to identify specific activities that facilitated adoption of TMDLs;
- there was a lack of emphasis on implementation issues; and
- the partners did not understand EPA and NGOs perspective early enough in the process.

The participants went further in identifying what requirements would need to be included in any CEP redesign. Specifically, they determined that:

- Goals for the CEP should be clearly articulated and agreed upon;
- Implementation issues must be addressed;
- The needs of EPA and the NGO community need to be brought forth early in the TMDL development process;
- The redesigned CEP needs to be more efficient / cost-effective than operating without the CEP; and
- The redesigned CEP should follow a project management-based strategy.

Attendees then reviewed generic structural alternatives that could form the basis for a redesigned CEP. Two concepts initially held most interest for meeting participants, one in which the MOU was renewed and the CEP continued without a Program Coordinator and support staff, and one in which the existing CEP structure was replaced by a Non Profit Organization with an expanded Executive Board and a strong program manager. Extensive discussions then focused upon the renewed MOU option, and meeting participants identified several areas of uncertainty associated with any structural alternative that would need to be resolved prior to settling on an actual redesign (e.g., How would projects be funded and what guarantee is there for continued collaboration? What types of cost and time savings could be achieved? Who would do the work of the CEP and how would it be managed?). Meeting attendees agreed to table to discussion for the time being. Partner representatives (Michele Pla, Geoff Brosseau, and Tom Mumley) agreed to form a special task force and work offline to develop concepts and materials for the next redesign discussion.

Discussions concerning CEP redesign continued throughout the year during regular EMB meetings. In May, the CEP Partners reviewed a list of projects prepared by the Water Board that were potential CEP projects that could be conducted over the near term. After reviewing and discussing the list, the Partners acknowledged that there were few, if any, projects that would likely be of equal interest to all funding Partners. The EMB therefore determined there was no longer a common agenda for continuing the formal Partnership, and that steps should be taken to discontinue CEP activities.

In order to provide an orderly and efficient cessation of CEP activities, the EMB agreed to maintain funding for existing projects through to their conclusion. In addition, minimal funding would be provided for administration of the CEP through the next fiscal year, at the end of which all existing projects and activities, with possible exception of the Multi-box Model (Task 4.26), should be completed.

Partners recognized that risk reduction is where they have the strongest common interest, but not necessarily for proceeding in the same framework. As a result, the EMB decided to have the project Consultant complete all requested tasks and prepare a final summary report. No future Risk Reduction activities would be funded by the CEP.

Finally, although it was determined that the CEP was no longer needed as a tool to supporting TMDL development in the Bay, the Partners recognized that they still have many common interests that will require continued collaboration in the future, but in a less formal manner.

FY 07/08 Budget

In June, the EMB adopted a caretaker budget for FY 07/08. This budget provided minimal funds to the Program Coordinator to continue oversight and management of existing projects, provide monthly financial accounting of CEP funds, provide a final annual report at the close of the fiscal year, and assist the EMB in facilitating any unanticipated tasks they should require assistance with.

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) was contracted to provide these services.) Three standing committees (Technical, Administrative, and Participation and Outreach) as well as several technical work groups report to the EMB.

Risk Reduction Work Team

In previous fiscal years this work team was established by the CEP to develop and manage the CEP's activities with regard to risk reduction. This team reports directly to the EMB, and previously included members of BACWA, BASMAA, Water Board, Department of Health Services (DHS), Office of Environmental Health and Hazard Assessment (OEHHA), and the environmental and environmental justice community. The primary focus of the RRWT 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.

In FY 05/06 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 develop a detailed Scope of Work and series of questions/issues for the technical panel to address as the Work Team's next step. To support the additional work of the RRTW, the CEP funded Task 4.44, entitled "Developing and Evaluating Options for Addressing Risks of Public Health Impacts Due to Pollutants in Fish".

On December 19th, 2006, the CEP facilitated a meeting of representatives of nine community-based organizations (CBOs) and various local, regional, and State agencies involved in the field of assessing and managing risk posed by environmental pollutants to consumers of Bay fish. Attendees received two technical presentations describing current understanding of pollutants of concern in Bay waters and biota, and what is known about the risks to human health posed by these pollutants. Meeting participants spent the remainder of the meeting detailing the experiences of the communities they represent related to consumption of Bay food-fishes, and offering suggestions for ways in which potential risks might be mitigated. The CEP Risk Management Work Group, a subset of the RRWT composed of CEP Partner representatives, used this feedback to formulate a plan of possible short- and long-term activities for consideration of CEP Partners.

At the May 2007 EMB meeting, the EMB reviewed and provided feedback on the Risk Management Work Group's concept document. Most of their comments related to the mechanisms by which the CEP would support CBO work, with there being no consensus of how this should function. Possible options included initiating an open mini-grant solicitation, funding pilot projects to targeted CBOs, and funding a program that would be managed by a public health organization. Finally, EMB members agreed it was important to not take responsibility requiring public health expertise, as this is not the mission or mandate of the CEP Partners. In June, as part of the CEP cessation of activities, the EMB decided to complete all currently authorized work concerning Risk Reduction and to prepare a final report documenting the group's efforts.

Support for Basin Plan Amendments

In FY 05/06, the EMB acknowledged that one of the primary objectives for the CEP for was to finalize several of the TMDLs/SSOs that were nearing completion, in order to show progress to constituent organizations. It was noted that while the basin plan amendment (BPA) processes for several pollutants seemed to be near the final stages of completion, there were many steps at the end of the regulatory process that required significant amounts of time and staff resources. These included conducting public scoping sessions, considering stakeholder comments, finalizing proposed BPAs and staff reports, obtaining official peer review, formally responding to peer review comments, scheduling Board hearings, preparing a Board package, considering and responding to public comments, preparing a final version for Board vote and completing the administrative record for delivery to the State Board. All of these steps must be completed in a manner consistent with the State of California's official Administrative Procedures.

It was agreed that one of the most useful activities that the CEP could fund was a full-time Project Manager position to support the Water Board Basin Planning Unit with the administrative component of the regulatory process. This person would manage the preparation and review of all documents associated with the adoption of BPAs for those regulatory projects that are furthest along: cyanide, copper/nickel, PCBs and potentially mercury. It was agreed that this would need to be a full time position in order to

successfully move along each of these basin plan amendment processes in a timely manner and attract qualified professional staff.

In March, the EMB agreed to extend its contract with ABAG to continue providing funding for this position through June 30, 2008. The position's scope of work for FY 07/08 was to include: (1) cyanide administrative process; (2) copper administrative process, (3) PCBs administrative process, and (4) miscellaneous tasks. The miscellaneous tasks scope item was specifically for work in support of nickel, dioxins, and bacteria regulatory projects.

4.2 Technical Studies

4.2.1 Key Accomplishments

There were twelve (12) active projects at the beginning of FY 06/07 (Table 1).

Table 1: Active FY 06/07 Projects

Pollutant	Project #	Project Title
Mercury	4.12	Feasibility Assessment: Options and Expected Benefits from Urban Stormwater Implementation Actions
PCBs	4.26	Develop Multi-Box Model
Copper and Nickel	4.11	Impairment Assessment for Cu/Ni North of Dumbarton Bridge
	4.48	Copper Management Actions for Urban Runoff and Marine Coatings (Expert Write-ups)
Diazinon / Toxicity (urban creeks)		
Diazinon / Toxicity (Bay)	4.40	Prepare Water Quality Attainment Strategy for Diazinon Toxicity in the Bay
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		
Selenium	4.42	Prepare Water Quality Attainment Strategy for Selenium
Multiple Pollutants	4.18	Project Management
	4.19	Peer Review

Pollutant	Project #	Project Title
Special Technical Projects	4.45	Conceptual Model and Impairment Assessment for PBDEs
	4.47	Basin Plan Amendment Assistance to the Water Board (ABAG Contract)

Of these projects, six (6) were completed or future work discontinued in FY 06/07. These were Tasks 4.11, 4.12, 4.40, 4.42, 4.43, and 4.48. In addition, technical support tasks (Tasks 4.18 and 4.19) were closed at the end of the fiscal year. Appendix 5.1 lists all of these projects, along with summary findings and Internet links to project final reports on the CEP website.

New Technical Projects in FY 06/07

Two new technical projects were initiated by the CEP in FY 06/07. These were Task 4.49 "Assistance to the Water Board to prepare a Project Plan for Legacy Pesticides" and Task 4.50 "Assistance for the PCBs-related Portion of 'Taking Action for Clean Water".

Ongoing Projects

Twelve (12) projects originally initiated and funded in FY 02/03 through FY 05/06, in support of one or more pollutants of concern, were continued in FY 06/07. These included one project for mercury (4.12), two for PCBs (4.12, and 4.26), one for copper/nickel (4.11), one for legacy pesticides (4.43), one for diazinon/pesticide-related toxicity (4.40), one for selenium (4.42), and five for multiple pollutants (4.18, 4.19, 4.44, 4.45, and 4.47).

CEP Project Relationships Table

In FY 04/05, the TC developed a document to clarify the relationships among CEP projects. This document was maintained throughout FY 06/07. 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.

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 Water Board 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 Water Board 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 Water Board amended the Basin Plan to address this issue, and adopted the BPA in August 2006 and forwarded it on to the State Board for review. State review was not completed by the end of FY06/07.

Work Group
The Mercury Work Group did not meet in FY 06/07.

Implemented Projects
No new mercury projects were implemented in FY 06/07.

Continued Projects
The following projects were continued in FY 06/07 with Task 4.12 being completed by the end of the FY.

Pollutants *(Work Group)*	**Management Questions**	**Project #**	**Project Title & Information**
Mercury *(Mercury)*	How much of the urban stormwater mercury load may be avoided through current and planned stormwater program activities?	4.12	*Feasibility Assessment: Options and Expected Benefits from Urban Stormwater Implementation Actions*: 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.

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 Water Board issued the Preliminary PCB TMDL Project Report in February 2004. In June 2007, Water Board Staff released a

proposed Basin Plan amendment and supporting staff report incorporating a TMDL for PCBs in all segments of San Francisco Bay.

Work Group

The PCBs Work Group did not meet in FY 06/07.

Implemented Projects

The following new project was implemented in FY 06/07

Pollutants *(Work Group)*	**Management Questions**	**Project #**	**Project Title & Information**
PCBs *(PCB)*	How should implementation actions by stormwater programs be prioritized in order to address the PCBs TMDL? targets?	4.50	Assistance for the PCB-related Portion of "Taking Action for Clean Water"

Continued Projects

The following projects (initiated in FY 02/03 through FY 05/06) were continued in FY 06/07 with Task 4.12 being completed by the end of the FY. Task 4.26 is continuing on in FY 07/08.

Pollutants *(Work Group)*	**Management Questions**	**Project #**	**Project Title & Information**
PCBs *(PCB)*	How should implementation be prioritized in order to achieve the targets?	4.12	*Feasibility Assessment: Options and Expected Benefits from Urban Stormwater:* (This project also involved mercury as a potential pollutant. See the discussion for Project 4.12 under Mercury above).
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	*Develop Multi-box Model of San Francisco Bay with Bathymetric Analysis of South Bay*

<u>Cu/Ni</u>

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. In June 2007, the Water Board issued a draft staff report and proposed BPA for review of the State Board.

Work Group

The Cu/Ni Work Group did not meet in FY 06/07.

Implemented Projects

No new projects were initiated in FY 06/07.

Continued Projects

The following projects (initiated in FY 02/03 through FY 05/06) were continued in FY 06/07 with both Tasks (4.11 and 4.48) being completed by the end of the FY.

Pollutants *(Work Group)*	**Management Questions**	**Project #**	**Project Title & Information**
Copper /Nickel *(Cu/Ni)*	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 Dumbarton SSO Basin Plan Amendment package?	4.11	*Impairment Assessment for Cu/Ni North of Dumbarton Bridge:* 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.
Copper /Nickel *(Cu/Ni)*	1. What management actions could be implemented by stormwater programs in reference to identified priority	4.48	*Copper Management Actions for Urban Runoff and Marine Coatings (Expert Write-ups).*

Pollutants *(Work Group)*	Management Questions	Project #	Project Title & Information
	sources, to maintain concentrations of copper in SF Bay below the SSO's? 2. What management actions could be implemented by managers or regulators of shoreline activities in reference to marine antifouling coatings, to maintain concentrations of copper in SF Bay below the SSO's? 3. What sequencing and reporting metrics for these management actions could ensure cost-effective and protective implementation by stormwater programs and shoreline managers?		

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. No meetings were held in FY 6/07.

Implemented Projects

No new selenium projects were implemented in FY 06/07.

Continued Projects

Task 4.42 was brought forward into FY 06/07 as a continuing project even though in late FY 05/06, the EMB placed all further work on this project on hold, pending additional progress on TMDL issuance on other more advanced TMDL contaminants. By mid-fiscal year, the EMB determined that no further work needed to be performed on this project by the CEP and closed the project.

Pollutants *(Work Group)*	Management Questions	Project #	Project Title & Information
Selenium *(TC)*	1) Based upon the current state of knowledge, what are the known or potential management actions that	4.42	*Prepare Water Quality Attainment Strategy for Selenium:* This project develops a package of potential implementation actions for selenium. The project builds off of the Conceptual Model / Impairment Assessment report for

Pollutants *(Work Group)*	**Management Questions**	**Project #**	**Project Title & Information**
	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?		selenium in San Francisco Bay.

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 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 Water Board issued the Preliminary Project Report for Diazinon and Pesticide-related Toxicity in Urban Creeks in September 2002. The BPA incorporating a TMDL and water quality attainment strategy for Diazinon and pesticide-related toxicity in the Bay Area's urban creeks has been incorporated into the Basin Plan. The amendment was adopted by the Water Board in November 2005, and approved by the State Board in November 2006. Actions will mainly involve monitoring the decline of diazinon concentrations and determining if 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. 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 a de-listing rather than a TMDL, with possible follow-on actions to address possible impairment from replacement pesticides. The CEP facilitated a public workshop in October 2005 to review the current state of knowledge and discuss options for moving forward with a potential regulatory project.

Work Group

The Diazinon / Toxicity Work Group did not meet in FY 06/07.

Implemented Projects

No new Diazinon projects were implemented in FY 06/07.

Continued Projects

Like Task #4.42 for Selenium, this project was brought forward into FY 06/07 as a continuing project, even though the EMB placed any further work on this Task on-hold, pending additional progress on TMDL issuance on other TMDL contaminants in late FY 05/06. Later in the FY, the EMB decided that any additional CEP work on this Task was not necessary and closed the Task.

Pollutants *(Work Group)*	**Management Questions**	**Project #**	**Project Title & Information**
Diazinon / Toxicity (Bay) *(Diazinon/ Toxicity)*	1) What management actions should be implemented to maintain concentrations of diazinon in San Francisco Bay below toxicity threshold levels? 2) What additional measures should be implemented to prevent the occurrence of toxic effects from pesticides within San Francisco Bay? 3) What are the expected costs of the recommended management actions? 4) What mechanisms should be used to implement the recommended management actions? 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?	4.40	*Prepare Water Quality Attainment Strategy for Diazinon/Pesticide-Related Toxicity in the Bay* 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.

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 Water Board is currently not planning to prepare a TMDL for dioxin/furans.

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

Continued & Implemented Projects
There were no existing or new projects for dioxins/furans in FY 06/07.

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. The CEP facilitated a public workshop in January 2006 to review the current state of knowledge and discuss options for moving forward with a potential regulatory project.

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

Implemented Projects
The following new project was implemented in FY 06/07

Pollutants *(Work Group)*	**Management Questions**	**Project #**	**Project Title & Information**
Legacy Pesticides (TC)	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?	4.49	Assist the Water Board to Prepare a Project Plan for Legacy Pesticides

Continued Projects

Like Task #4.42 for Selenium and Task #4.40 for Diazinon / Toxicity in the Bay, this project was brought forward into FY 06/07 as a continuing project, even though the EMB placed any further work on this Task on-hold, pending additional progress on TMDL issuance on other TMDL contaminants in late FY 05/06. Later in the FY, the EMB decided that any additional CEP work on this Task was not necessary and closed the Task.

Pollutants *(Work Groups)*	**Management Questions**	**Project #**	**Project Title & Information**
DDTs, chlordanes and dieldrin *(TC)*	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	*Prepare Water Quality Attainment Strategy for Legacy Pesticides:* 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.

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, Water Board 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 Water Board staff. In December 2006, the Water Board approved a proposed BPA and supporting staff report detailing the proposed SSO for cyanide in San Francisco Bay.

Work Group

The Technical Committee, which served as the work group for Cyanide did not meet in FY 06/07.

Continued & Implemented Projects
No existing or new projects for Cyanide were conducted in FY 06/07.

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. In FY 06/07 the EMB acted as the workgroup for any Multi-pollutant or Special Projects.

Implemented Projects
No new projects were implemented in FY 06/07.

Continued Projects
The following projects (initiated in FY 02/03 through FY 05/06) were continued in FY 06/07. Tasks 4.18 and 4.19 are regular ongoing annual tasks. Tasks 4.44, 4.45 and 4.47 were all continued into FY 07/08.

Pollutants *(Work Group)*	**Management Questions**	**Project #**	**Project Title & Information**
Multi-Pollutant *(TC)*		4.18	*Project Management*
Multi-Pollutant *(TC)*		4.19	*Peer Review*
Multi-Pollutant *(TC)*	What effective programs can be developed and implemented to control and reduce contaminant-related risks to humans and wildlife.	4.44	*Developing and Evaluating Options for Addressing Risks of Public Health Impacts Due to Pollutants in Fish.*
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	*Develop Conceptual Model and Impairment Assessment for PBDEs:* 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.
Multi-Pollutant *(TC)*		4.47	*Basin Plan Amendment Assistance to WATER BOARD (ABAG Contract).*

4.3 Administration

The Administrative Committee did not formally meet in FY 06/07. As indicated earlier, the EMB acted as the Administrative Committee.

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 continue providing manpower assistance in the form of one full-time position to support the Water Board in preparing Basin Plan Amendments. This position was funded through June 30, 2008.

FY 05/06 Annual Report

An Annual Report for FY 05/06 was prepared and adopted, summarizing the accomplishments, actions, and financial activities that occurred during the fiscal year.

FY 06/07 Budget

The FY 06/07 Budget was established prior to July 1 and revised, as needed throughout the Fiscal Year.

4.3.2 FY 06/07 Financial Analysis

Revenues & Budget

In FY 06/07, the total new revenues received, on a cash basis, by CEP from Partners, interested parties, and bank interest was $113,164.34. This total included $32,000 in new participant contributions, $49,164.34 in interest and $32,000 in late FY 03/04 participant contributions. In addition, $531,507.80 in unspent FY 05/06 funds were moved forward into FY 06/07. Table 2 provides detail on FY 06/07 revenues and their sources.

Table 2: Clean Estuary Partnership Revenues for FY 06/07

Actual Carryover Funds from FY 05/06	$499,507.80
FY 04/05 Partner Contributions (Accounts Receivable)	$64,000
Interest Earned	$66,901.34
Total FY Revenues/Funds	$630,409.14

Expenditures

Fiscal Year 06/07 expenditures totaled $338,179.12 and were paid out to Applied Marine Sciences, Inc. (AMS) and its seventeen subcontractors, the Bay Area Clean Water Agencies (BACWA) management and administration contractors, the East Bay Municipal Utility District (EBMUD), The Rose Foundation, and the Association of Bay Area Governments (ABAG), in support of CEP activities. The monies used to cover these expenditures consisted of both FY 06/07 revenues and encumbered FY 02/03 through FY 05/06 funds. Following the year-end reconciliation, $408,016.50 was moved forward into FY 07/08 budget, as unspent and un-encumbered funds.

Since FY 01/02, the CEP has expended or committed approximately $4.1 million to facilitate the development of TMDLs for targeted pollutants. This includes more than 34 technical studies and scientific efforts, at a cost of $2.4 million, directly targeting specific pollutants of concern (Table 3).

Table 3: CEP Expenditures for Each TMDL Pollutant of Interest

Pollutant	*# Technical Studies*	*Expenditures $*
Mercury	4	$466,781
PCBs	5	$639,314
Copper/Nickel	2	$262,003
Legacy Pesticides	5	$99,763
Diazinon/Toxicity	3	$113,871
Dioxin	1	$35,000
Selenium	2	$33,289
Multiple Pollutants	11	$749,458
PBDEs	1	$32,940
TOTAL	*34**	*$2,432,418*

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

Contracting

The CEP, through AMS, entered into or maintained contracts with seventeen companies or individuals in FY 06/07 in order to execute authorized studies, projects or tasks (Table 4). In addition, BACWA, on behalf of the CEP, continued contracting with the Association of Bay Area Governments (ABAG) to provide needed on-site technical support to the Water Board and contracted with the USGS for work on the Multi-box model. Table 4 provides an alphabetic listing of the organizations and individuals who were contracted to conduct work for the CEP in FY 06/07.

Table 4: Organizations contracted to conduct work for the CEP in FY 06/07.

Association of Bay Area Governments (ABAG)	Levine Fricke Recon (LFR), Inc
Dr Elizabeth Watson	Pacific EcoRisk (PER)
Amy Kyle	Dr. Armand Ruby
CRG Laboratories	San Francisco Estuary Institute (SFEI)
EOA, Inc.	Ross & Associates
Formula Design	TDC Environmental, LLP
East Bay Municipal Water District (EBMUD)	Tetra Tech, Inc.
Moss Landing Marine Laboratory	United States Geological Survey (USGS)
Dr. Amy Kyle	Ms. Christine Werme
Larry Walker Associates (LWA)	

4.4 Participation & Outreach

No Participation & Outreach activities were undertaken by the CEP in FY 06/07.

5.0 Appendices

5.1 Table of Relationships Among CEP Technical Projects

5.2 Coordinator's Reports

(located on-line at www.cleanestuary.org)

5.3 Committee Meeting Minutes

(located on-line at www.cleanestuary.org)

Appendix 5.1
Summary of FY 06-07 CEP Projects

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	2/26/07	**Description:** 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. **Objectives:** (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. ***Continued next page***	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.

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	2/26/07	**Findings:** 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. **Report URLs:** http://www.cleanestuary.com/publications/files/Fish%20olfaction%20SJESD%2Epdf http://www.cleanestuary.com/publications/files/CuSourcesReportCEP%2DT%2D4Ver2%2Epdf http://www.cleanestuary.com/publications/files/CEP%20SIP%20Justification%20030705%2Epdf http://www.cleanestuary.com/publications/files/CEP%20CMIA%2Epdf http://www.cleanestuary.com/publications/files/CEP%20SSO%20Derivation%20030705%2Epdf http://www.cleanestuary.com/publications/files/CEP%5FTranslators%5F030705%2Epdf	***See previous page***

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	11/30/06	**Description:** 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). **Objectives:** (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.	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.
Diazinon-Toxicity	4.40	Prepare Water Quality Attainment Strategy for Diazinon/Pesticide-Related Toxicity in the Bay	4/05	3/26/07	**Description:** 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. **Objectives:** 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. **Findings:** *Project put on hold, then cancelled by EMB*	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
Selenium	4.42	Prepare Water Quality Attainment Strategy for Selenium	4/05	3/26/07	**Description:** 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. **Objectives:** 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. **Findings:** *Project put on hold, then cancelled by EMB*	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.
Legacy Pesticides	4.43	Prepare Water Quality Attainment Strategy for Legacy Pesticides	4/05	3/26/07	**Description:** 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. **Objectives:** 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. **Findings:** *Project put on hold, then cancelled by EMB*	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
Copper-Nickel	4.48	Copper Management Actions for Urban Runoff and Marine Coatings	1/06	9/30/06	**Description:** This project supports development of the stormwater related sections of the Copper Management Strategy (CMS) in support of the Copper and Nickel Site-Specific Objective Basin Plan Amendment. **Objectives:** Support development of the stormwater related sections of the Copper Management Strategy (CMS). **Findings:** Identifies possible management strategies for consideration to address important sources of copper, including architectural copper, pesticides, brake pads, and antifouling coatings. **Report URL:** http://www.cleanestuary.com/publications/files/cms%5Ffinal%5F093006%2Epdf	For each priority source area, identified specific management actions that could be considered to maintain in-Bay concentrations of copper below SSOs, and specific metrics that could be used to monitor implementation of them.

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	**Description:** 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. **Objectives:** (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. **Findings:** 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. **Report URL:** http://www.cleanestuary.com/publications/files/Testing%5Fof%5FSFEI%20modelv3%2Epdf	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
Multiple Contami-nant Projects	4.44	Developing and Evaluating Options for Addressing Risks of Public Health Impacts Due to Pollutants in Fish	11/05	11/07	**Description:** This project convenes 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. **Objectives:** (1) Define the audience that the CEP is seeking to serve and the scope of efforts that would be considered appropriate in developing a plan for ongoing actions to address issues related to the health risk from consumption of contaminated fish from San Francisco Bay; (2) design and implement a process to develop a set of recommendations for ongoing risk reduction activities. **Findings:** *Project in progress*	

Pollutant	Task #	Title	Start Date	End Date	Description, Objectives, and Findings	How Project Supports TMDL Development & Implementation
PCBs	4.50	Assistance for the PCBs-related Portion of the Taking Action for Clean Water Grant	05/06	TBD	**Description:** CEP Task 4.50 is a companion task to an existing ACCWP funded project supporting initial development of a draft technical memorandum outlining major issues that need to be resolved and to guide development of a sampling and analysis plan to be implemented through an existing Prop 50 project, Taking Action for Clean Water **Objectives:** The goals of CEP Task 4.50 are to: (1) further develop the ACCWP technical memorandum; (2) outline a sampling and analysis strategy to guide implementation of non-CEP tasks to be conducted through the Prop 50 grant; and (3) convene workgroup and facilitate stakeholder review and comment on technical memorandum and sampling/analysis strategy. **Findings:** Based on a literature search, recommended limiting usages to be investigated through the Prop 50 Grant Project to th**o**se of: (1) caulking and sealants; and (2) paint and coatings, with the category of caulking and sealants being the higher priority of the two, and focusing on buildings constructed during the period 1957-77. Recommended consideration of XRF technology as a screening tool with confirmation by standard analytical methods. **Report URL:** http://www.cleanestuary.com/publications/files/PCB%5FSAP%5Fmemo%5F071607%2Epdf	Supports implementation of a Prop 50 project that will develop Bay Area-specific best management practices (BMPs) to prevent release of PCBs from building materials into urban runoff.

Pollutant	Task #	Title	Start Date	End Date	Description, Objectives, and Findings	How Project Supports TMDL Development & Implementation
Special Technical Projects	4.45	Develop Conceptual Model and Impairment Assessment for PBDEs	12/04	9/6/07	**Description:** 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. **Objectives:** (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. **Findings:** (1) Levels of PBDEs in sport fish and wildlife from San Francisco Bay are clearly elevated and suggest possible impairment; (2) elevated levels of PBDEs suggest that there may be impairment, but the uncertainties preclude making a definitive judgment. **Report URL:** http://www.cleanestuary.com/publications/files/Final%20PBDE%20CMIA%5Freduced%2Epdf	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.

Table 2. CEP technical projects added during FY 06-07 (7/1/06 to 6/30/07).

Pollutant	Task #	Title	Start Date	End Date	Description, Objectives, and Findings	How Project Supports TMDL Development & Implementation
Multiple Contami-nant Projects	4.47	Basin Plan Amendment Assistance to Water Board (ABAG Contract)	3/22/07	6/08	**Description:** Establishes a position through the Association of Bay Area Governments (ABAG) to provide basin planning staff support for the Water Board **Objectives:** Continue previous FY support for position potentially through end of FY06-07. Activities supported are envisioned in four main areas: (1) cyanide administrative process; (2) copper administrative process; (3) PCBs administrative process; and (4) miscellaneous tasks. The miscellaneous tasks identify work in support of nickel, dioxins, and bacteria regulatory projects.	Supports development and adoption of multiple BPAs.
Legacy Pesticides	4.49	Assist the Water Board to Prepare a Project Plan to address §303(d) listing for Legacy Pesticides	12/06	9/07	**Description:** This project supports development of a Project Plan to address the §303(d) listing of San Francisco Bay for Legacy Pesticides. **Objectives:** Develop draft language for anticipated regulatory documents. **Findings:** *Project put on hold, then cancelled by EMB*	Identifies steps in the regulatory process required to complete TMDL process for legacy pesticides. Also provides draft language for TMDL project report, updated CMIA, and BPA.

Table 3. CEP technical projects active at the end of FY 06-07 (6/30/07).

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	**Description:** 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. **Objectives:** (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. **Findings:** 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. **Report URL:** http://www.cleanestuary.com/publications/files/Testing%5Fof%5FSFEI%20modelv3%2Epdf	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
Multiple Contami-nant Projects	4.44	Developing and Evaluating Options for Addressing Risks of Public Health Impacts Due to Pollutants in Fish	11/05	11/07	**Description:** This project convenes 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. **Objectives:** (1) Define the audience that the CEP is seeking to serve and the scope of efforts that would be considered appropriate in developing a plan for ongoing actions to address issues related to the health risk from consumption of contaminated fish from San Francisco Bay; (2) design and implement a process to develop a set of recommendations for ongoing risk reduction activities. **Findings:** *Project in progress*	

Pollutant	Task #	Title	Start Date	End Date	Description, Objectives, and Findings	How Project Supports TMDL Development & Implementation
Special Technical Projects	4.45	Develop Conceptual Model and Impairment Assessment for PBDEs	12/04	9/6/07	**Description:** 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. **Objectives:** (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. **Findings:** (1) Levels of PBDEs in sport fish and wildlife from San Francisco Bay are clearly elevated and suggest possible impairment; (2) elevated levels of PBDEs suggest that there may be impairment, but the uncertainties preclude making a definitive judgment. **Report URL:** http://www.cleanestuary.com/publications/files/Final%20PBDE%20CMIA%5Freduced%2Epdf	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.

Pollutant	Task #	Title	Start Date	End Date	Description, Objectives, and Findings	How Project Supports TMDL Development & Implementation
PCBs	4.50	Assistance for the PCBs-related Portion of the Taking Action for Clean Water Grant	05/06	TBD	**Description:** CEP Task 4.50 is a companion task to an existing ACCWP funded project supporting initial development of a draft technical memorandum outlining major issues that need to be resolved and to guide development of a sampling and analysis plan to be implemented through an existing Prop 50 project, Taking Action for Clean Water. **Objectives:** The goals of CEP Task 4.50 are to: (1) further develop the ACCWP technical memorandum; (2) outline a sampling and analysis strategy to guide implementation of non-CEP tasks to be conducted through the Prop 50 grant; and (3) convene workgroup and facilitate stakeholder review and comment on technical memorandum and sampling/analysis strategy. **Findings:** Based on a literature search, recommended limiting usages to be investigated through the Prop 50 Grant Project to those of: (1) caulking and sealants; and (2) paint and coatings, with the category of caulking and sealants being the higher priority of the two, and focusing on buildings constructed during the period 1957-77. Recommended consideration of XRF technology as a screening tool with confirmation by standard analytical methods. **Report URL:** http://www.cleanestuary.com/publications/files/PCB%5FSAP%5Fmemo%5F071607%2Epdf	Supports implementation of a Prop 50 project that will develop Bay Area-specific best management practices (BMPs) to prevent release of PCBs from building materials into urban runoff.