

To: Andria Ventura, Clean Water Action  
From: Dan Cloak  
Environmental Technical Representative to the Clean Estuary Program  
Subject: **Update on Environmental Technical Representative Activities**  
Date: 22 July 2004

**Background Notes: Fallout from the Mercury Basin Plan Amendment**

The Water Board issued the Mercury TMDL and Basin Plan Amendment on 30 April 2004. The Water Board's report—and reactions from dischargers—have affected the tone of discussions in the Technical Committee.

The Mercury TMDL and BPA is the first of many regulatory actions to be supported by CEP-funded projects. It is not surprising that the BPA is disputed, nor is it surprising that tensions arising from the dispute are being felt during discussions of other technical projects not directly related to mercury.

However, two aspects of the Water Board's Mercury TMDL and BPA are particularly notable. First, the document did not incorporate much of the technical work previously done by dischargers or by Water Board staff. It adopted key assumptions that are at odds with various parties' understanding of mercury sources, fate, and transport in San Francisco Bay. Second, Water Board staff did not consult with the dischargers before making changes (from the 2003 draft report) to add new restrictions on POTW discharges. The POTWs perceive the manner in which these new discharge limits were first presented to the dischargers and the public to be "process violations." As a result, some Discharger representatives have openly questioned whether they are obtaining benefits by funding the CEP.

The CEP's mission includes fostering dialogue and educating stakeholders about what is known—and about what is uncertain—about pollutant sources, fate, transport, and effects. The ongoing Mercury TMDL and BPA dispute is highlighting gaps in the CEP's ability to articulate and communicate this understanding. It is also showing that the CEP has not yet articulated a strategy for organizing and prioritizing technical investigations. Neither the CEP nor the Water Board has adequately outlined the process by which the CEP's technical investigations and summaries should be used in crafting proposed regulatory actions.

Closing these gaps is critical to the interests of the environmental and environmental justice communities. The potential benefit of the TMDL process, and the CEP's contributions to that process, rest on the

potential to achieve consensus support for additional pollutant controls and other measures that can reduce the impacts of pollutants on human health and on wildlife. It is not yet clear how the CEP's technical activities will help achieve that consensus support.

### **Fiscal Year 2004-2005 CEP Technical Budget and Workplan**

During May and June, CEP staff requested Technical Committee members to submit candidate projects for FY 2004-2005. I submitted the two projects developed previously in response to review of the Conceptual Model/Impairment Assessment reports:

- “Evaluate and respond to potential for new pesticides to cause toxicity.”
- “Evaluate effects of listed pollutants on community health.”

At the June 30 Technical Committee meeting, it was decided that the CEP partners and the ETR would assign their own “High,” “Medium,” or “Low” priority to each project as a first step toward selecting projects to recommend for implementation using FY 2004-2005 funds.

CEP staff reported that \$600,000 is available for FY 2004-2004 Technical Projects, which is higher than the \$175,000-\$225,000 previously reported. I don't know if the difference represents different ways of classifying projects or reflects the request of the CEP's Executive Management Board to shift funds from administrative services to technical work.

The compilation of project summaries is attached, as is my submittal of project priorities. Discussion and resolution of the project priorities will continue at the August Technical Committee meeting.

Notes on specific projects:

- The Technical Committee already recommended funding the project to assist with development of site-specific objectives for copper and nickel north of the Dumbarton Bridge, so priority for this project is moot.
- The one “big ticket” item in the mix is \$200,000 as a down payment toward a multi-box model of the Bay. The Water Board and the stormwater and wastewater dischargers seem to agree that this project is needed to develop better wasteload allocations. My own prediction is that, in the end, the expensive and protracted effort to develop a more refined multi-box model will not significantly affect wasteload allocations. The allocations are based on Bay-wide averages, and the shape or duration of “recovery curves” won't really affect how additional controls are implemented.
- Through the Basin Plan Amendment Technical Assistance Project, the Water Board is reaching into CEP funds to supplement its own staffing requirements. CEP partners have expressed concern about whether this position is dedicated solely to CEP-related activities, or ends up just supporting general Water Board staff work.

- The Water Board is proposing the development of Water Quality Attainment Strategies for diazinon (in the Bay), selenium, and legacy pesticides. Tom Mumley would like to develop regulatory actions based on existing available information (summarized in the Conceptual Model/Impairment Assessment reports) for each of these pollutants. These WQASs are perceived as “low-hanging fruit,” since evidence suggests trends toward improving water quality (reduced impairment) will result in attainment of standards for these pollutants in a few decades at most. The POTWs do not, at this point, see the WQASs as a priority.

### **Objectives for Conceptual Model/Impairment Assessment Reports**

Back in April, the Technical Committee reviewed four Conceptual Model/Impairment Assessment (CM/IA) reports: for Legacy Pesticides, Dioxins, Selenium, and Diazinon in San Francisco Bay.

CM/IA reports for Mercury, Copper/Nickel, and PCBs are funded and in preparation. The Technical Committee was asked to review a proposed outline of the CM/IA for PCBs. Because the outline seemed to duplicate much of what was in the 8 January 2004 Water Board PCB TMDL staff report—and because the outline differed from an agreed-upon outline for all CM/IA reports that the Technical Committee developed in August 2003—I asked that the TC review and discuss the outline at its 30 June 2004 meeting and consider, in general, what were its objectives in producing CM/IA reports in general and the PCB report in particular.

I noted two principal concerns regarding development of CM/IA reports. First, the reports should “begin with the end in mind” and present the available technical information in a way that supports decisions on actions that might reduce the effect of pollutants on human health and wildlife. That is, the reports should not limit their narrative to Bay-wide mass balances and regulatory criteria.

Second, the presentation of the technical material should be clear and rigorous. In particular, the previous CM/IAs contain graphics that purport to show pollutant sources, fate, and transport, but are in fact mere illustrations that relate neither to the narrative nor to a tabulation of pollutant inputs and outputs. The CM/IAs—and the Water Board staff reports that borrow from them—do not describe clearly enough a basic understanding of pollutant sources, fate, transport, and effects. This criticism can’t be answered by using less-technical language, by breaking up the text with illustrations, or by “dumbing down” the explanations. It requires, instead, a more rigorous and organized development of the narratives and the supporting tables and graphics.

Achieving consensus regarding pollutants—and achieving consensus regarding what can and will be done to address pollutant problems—will require better technical analysis as well as better communication of that analysis.

Discussion of these points at the 30 June 2004 meeting was helpful but did not resolve any of the issues I raised. I expect this will continue to be a subject of future discussions in the Technical Committee.

### **Some Projects Related to PCBs**

In addition to the CM/IA report and the multi-box model, a number of other projects are in progress which relate to a future PCB Basin Plan Amendment.

- Applied Marine Sciences (AMS) issued a draft report, “Analysis of Pollutants in Sediment Cores Near Storm Water Inputs”. The report aims to address whether remediation of “hot spots” near stormwater outfalls could be a useful implementation action for the TMDL. The principal results of AMS’ investigation are: (1) Stege Marsh is unique in having extremely high PCB concentrations in sediment samples, and no concentrations of this magnitude were found at other suspected “hot spots.” (2) Remediation of “hot spots” would not change the total mass of PCBs in the Bay by much, but could have a positive effect on the local area.
- AMS compared multi-year sediment data collected by the Regional Monitoring Program for Trace Substances (RMP) with data collected by the National Oceanographic and Atmospheric Administration Environmental Monitoring and Assessment Program (EMAP). The analysis was able to demonstrate that, although the two projects used different analytical techniques and reported PCB congeners differently, the data can be resolved so that the two data sets can be combined.
- The CEP’s PCB Workgroup received a report, “San Francisco Bay PCB Food-Web Model” and requested that it have expert peer review funded through the CEP.
- A “Feasibility Assessment for Managing Urban Stormwater Loads of Mercury, PCBs, and Organochlorine Pesticides,” which is being managed by LFR, Inc., has run into project delays. I reviewed the scope in April and commented that the methodology seemed to offer few advantages over the stormwater loads assessment conducted by Woodward Clyde in 1992 and the *Metals Control Measures Plan* prepared by Woodward Clyde and EOA, Inc. in 1996. In summary, the problem is to obtain a better estimate of urban runoff pollutant loads and of the potential effectiveness, on a watershed scale, of urban runoff best management practices. Although there is a little doubt that individual best management practices—including source controls such as housekeeping and treatment controls such as swales or soil filters—do have the potential to reduce pollutants in runoff, their effectiveness on a watershed scale has proved practically impossible to demonstrate. This is largely because of the inherent impossibility of obtaining statistically representative samples of rare and extremely variable events (i.e., rainstorms).
- The CEP Technical Committee approved a conceptual scope of work for a “PCB Implementation Scheme Refinement” project, which was subsequently also awarded to LFR, Inc. The company will begin by producing a detailed scope of work for a study of options for remediating PCBs in the Bay.

### **Copper and Nickel North of Dumbarton Bridge**

TDC Environmental's (Kelly Moran's) *Copper Sources in Urban Runoff Report* (draft, March 2004) updates the early-1990s Woodward-Clyde estimates (see above). Water Board staff says the report will be used to develop items in the Copper Action Plan and Nickel Action Plan for North of the Dumbarton Bridge.

After some lengthy email exchanges and couple of meetings, a Work Group agreed on a scope to develop a Basin Plan Amendment for Copper and Nickel North of Dumbarton Bridge. This work is being done by EOA and LWA based on the CM/IA report and on previous derivation of site-specific objectives using an EPA methodology—similar to what was done in southern South San Francisco Bay in 1998.

Development of a Basin Plan Amendment is scheduled for 2005, concurrent with and following development of a Bay-wide Copper Action Plan and Nickel Action Plan.

### **Legacy Pesticides CM/IA**

The second draft of the Legacy Pesticides CM/IA—this is one of the four first reviewed in April—did not a key comment I made on the first draft: “The CMIA should note that addressing "hot spots" may relate directly to the impacts of the consumption of sport fish on human health, and should also note that the location of "hot spots" in urban industrial areas may disproportionately affect those who may depend on subsistence fishing as a food source.” I reiterated the comment.

### **Diazinon/Toxicity in Urban Creeks**

LWA's July 2 draft technical memorandum on a monitoring plan design for pesticides and toxicity in urban creeks states: “Power analysis reveals that the numbers of additional samples required to demonstrate a statistically-significant trend are likely to be prohibitive.” This means that it is not feasible to demonstrate, via future sampling, that ambient diazinon concentrations in urban streams will continue to decline. Nonetheless, urban runoff programs will continue to sample for diazinon. The question remains whether CEP funds will be dedicated for additional sampling to supplement the sampling by urban runoff programs.

### **Summary**

The CEP continues to produce a heavy flow of technical memoranda, reports, and scopes of work. CEP partner representatives and technical contractors continue to be fairly receptive to my input and suggestions.

However, there is only slow progress in shifting the CEP's emphasis from providing technical support for *pro forma* Water Board regulatory actions to creating implementation plans that help protect human health and the environment. Among the factors hindering progress is the lack of leadership within the CEP. Ultimately, this leadership must come from Water Board staff.

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| <p><b>Project Title</b><br/>Mercury Science Coordination</p>  |
| <p><b>Relevant Management Questions:</b></p> <ol style="list-style-type: none"> <li>1. What is the relative bioavailability of mercury from different sources to San Francisco Bay?</li> <li>2. At what locations are current methylation rates and methylmercury flux the highest?</li> <li>3. Can existing wetlands be managed or new wetlands be designed to minimize net methylation rates, or limit exposure to methylmercury that is produced?</li> <li>4. What programs outside the CEP can provide either information or funding to answer the key management questions?</li> </ol>   |
| <p><b>Project Description:</b> The CEP Mercury Workgroup raised the possibility of setting up an ongoing mercury science coordination/dissemination function for San Francisco Bay area mercury investigations. This topic recently has been raised at various fora (e.g., Hamilton-related mercury science meeting, Cargill restoration meeting), and there is general acceptance of the need for such a function in light of the large amount of mercury-related research taking place in San Francisco Bay and its margins. The CEP could serve as a catalyst for this function in order to get the ball rolling, but is likely not the appropriate long-term vehicle for this function. Ideally, this function would be the vehicle to collect/distribute all the mercury TMDL implementation information for San Francisco Bay, and it would greatly pave the way for a fruitful adaptive implementation forum with broad stakeholder participation.</p> <p>The Workgroup will work to identify a contractor with interest and qualifications to perform in this capacity. A conceptual scope will be developed by the identified contractor with input from the Workgroup. The SOW will include preparation of a list of relevant mercury projects that are ongoing or starting, which ones are most important in terms of addressing/answering management questions, which ones are most malleable to receiving input/direction from the CEP. The SOW will also include coordination between the contractor and the workgroup to identify a path to get the coordination function established.</p> |
| <p><b>How the results of the project will be used to address the management questions:</b> The project is intended to serve as a catalyst to get the mercury coordinating function initiated, and to guide the goals of the newly-established entity to best ensure that the management questions of interest to the CEP are addressed.</p>   |
| <p><b>Relationship of Project to Ongoing or Existing Work:</b> This project would be coordinated with several existing projects and proposals. These include the CALFED Mercury Science Project, a special study of bioavailability likely to be conducted by the City of San Jose, concept proposals for Prop-13 funding regarding wetlands management guidance for mercury and on the linkage between dissolved oxygen and mercury methylation. The U.S. Army Corps of Engineers Waterways and Environment Station has proposed a study to evaluate the effect of wetland vegetation type on mercury methylation.</p>   |
| <p><b>Estimated Project Duration:</b> 12 months</p>   |
| <p><b>Estimated Time of Implementation:</b> August 2004 - July 2005</p>   |
| <p><b>Estimated FY03-04 Project Budget:</b> \$20,000</p>  |
| <p><b>Basis for budget estimate:</b> WG recommendation</p>  |

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**Expected funding in future FYs?** Yes. The coordination task of this project is a way for the CEP to support the continuous planning process for mercury, and therefore should be considered a standing item in the long-term plan for the CEP. Technical studies required to address the stated management questions will require significant funding, very likely beyond the means of the CEP, but perhaps able to be accomplished collaboratively. Future year allocation of CEP funds and seeking of external funds for adaptive implementation projects should be determined by the EMB.

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| <p><b>Project Title</b><br/>Develop multi-box model of Bay and multi-year sediment sampling strategy</p>   |
| <p><b>Relevant Management Question</b><br/>What are the recovery times of the Bay under various management scenarios?<br/>How can we improve our predictions for Bay recovery for particulate-associated contaminants?</p>   |
| <p><b>Project Description</b><br/>This project will develop a mass-balance model of the Bay that divides the Bay into give compartments or “boxes.” The current SFEI model treats the entire Bay as one compartment, which fails to incorporate documented differences between embayments for characteristics such as particle residence time, pollutant inputs, and mixing properties. The project will develop a long-term plan for collecting cores and other data needed to calibrate the model. Due to expected cost and scope of the project, it will require several years to complete.</p>                       |
| <p><b>How the results of the project will be used to address the management question</b><br/>A multi-box model of the Bay will allow development of refined “recovery curves” that relate PCB concentrations in the Bay to reductions in loads. Sediment cores will be collected that will allow a the model to be calibrated to represent erosion of sediments over time, including deeper contaminated layers.</p>   |
| <p><b>Relationship of Project to Ongoing or Existing Work</b><br/>This will expand upon the single box model the San Francisco Estuary Institute has developed. It will be based upon the work conducted by the U.S. Geological Survey on multi-box representations of San Francisco Bay. USGS has delivered a basic multi-box model to SFEI, and SFEI is the process of adapting it to represent the 5 major Bay segments and including contaminants in the model.</p> <p>A draft conceptual scope of work for this project is a deliverable under FY03-04 project #4.07 (<i>Assessment of TMDL Modeling Needs</i>)</p> |
| <p><b>Estimated Project Duration</b><br/>4-5 years</p>   |
| <p><b>Estimated Time of Implementation</b></p>   |
| <p><b>Estimated FY04-05 Project Budget</b><br/>\$200k</p>  |
| <p><b>Expected funding in future FYs?</b><br/>Yes</p>  |

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| <b>Project Title</b><br>Cu and Ni Site-Specific Objectives: San Francisco Bay North of the Dumbarton Bridge  |
| <b>Relevant Management Questions</b><br>1) What information beyond that already compiled for the 2002 303(d) list 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 Cu and Ni?<br>2) How are we going to monitor and interpret data to assess condition?<br>3) What are appropriate baseline pollution prevention strategies (currently in place and more stringent ones) to be triggered by specific conditions measured through monitoring?<br>4) Based on the Water Effects Ratio report information, what are appropriate Site-Specific Objectives (SSOs)?<br>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?  |
| <b>Project Description</b><br>Under this project a formal request will be delivered to the Regional Board, (pursuant to the Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California, to develop site-specific objectives for copper and nickel north of the Dumbarton Bridge. An <i>Impairment Assessment Report</i> will be prepared that makes findings regarding whether beneficial uses are impaired, whether development of SSOs are appropriate, and ranges of potential SSOs. Suggested site-specific objectives for Cu and Ni will be developed following USEPA methodologies, consistent with the approaches used in South Bay. Finally, information developed by the project will be delivered to Regional Board staff to assist in development of a draft Basin Plan Amendment and the associated staff report. |
| <b>How the results of the project will be used to address the management questions?</b><br>The proposed work is designed to develop and provide necessary documentation for adoption of site-specific saltwater aquatic life-based water quality objectives for copper and nickel in San Francisco Bay north of the Dumbarton Bridge. In conjunction with ongoing work being performed under separate contract to develop Action Plans for prevention of unacceptable changes in copper and nickel concentrations in the Bay, this proposed work will complete the development and adoption of strategies to attain water quality standards for copper and nickel in San Francisco Bay. This work will be closely coordinated with ongoing efforts in the Lower South Bay to make maximum use of work already conducted on copper and nickel in San Francisco Bay.                     |

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### **Relationship of Project to Ongoing or Existing Work**

A Basin Plan amendment to establish site-specific water quality objectives for copper and nickel was formally adopted by the Regional Board for South San Francisco Bay, south of the Dumbarton Bridge on May 22, 2002. This project is intended to be prepared as a focused “extension” of the South Bay impairment assessment work, using the documents prepared for the South Bay as a foundation. Elements of this work include: linkage between the indicators used in the South Bay and information generated in North Bay, characterization of sources and loadings, extension of the conceptual model for South Bay to the rest of the Bay, identification of primary remaining uncertainties (phytoplankton toxicity and sediment toxicity) and coordinated Bay-wide studies to track/address these issues.

During FY03-04 this project prepared three draft deliverables that are currently under review by the Cu/Ni Work Group: (1) *North of Dumbarton Bridge Copper and Nickel Development and Selection of Final Translators*, (2) *North of Dumbarton Bridge Copper and Nickel Site Specific Objective (SSO) Derivation*, and (3) *Copper and Nickel Site-Specific Objectives North of the Dumbarton Bridge: State Implementation Plan SSO Justification Report*.

The work in FY04-05 will focus upon finalizing these documents and implementing the final Task of the workplan (Task #4: Basin Plan Amendment Technical Assistance). A scope of work for the final task is being developed by the Copper/Nickel Work Group

### **Estimated Project Duration**

18 months from July 1, 2003 start

### **Estimated Time of Implementation**

### **Estimated FY04-05 Project Budget**

\$50,000 estimated in for FY04-05

### **Expected funding in future FYs?**

No

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| <p><b>Project Title</b><br/>Evaluate and respond to potential for new pesticides to cause toxicity.</p>   |
| <p><b>Relevant Management Question</b><br/>How can we address the possibility that new or more widely used pesticides will cause toxicity in Bay water and sediments?</p>   |
| <p><b>Project Description</b><br/>Through this project, CEP partners will facilitate:</p> <ul style="list-style-type: none"> <li>▪ Tracking of agriculture and urban pesticide use to identify new pesticides on the market and changes in the amount or type of use of previously approved pesticides.</li> <li>▪ Analysis of the potential effects on Bay water quality caused by these changes. At the initial “screening” level, this might be a desktop analysis based on available information about pesticide uses, fate and transport (e.g., partitioning, lability, tendency to bioaccumulate, persistence), and toxicity to test species.</li> <li>▪ Assistance and coordination with groups pursuing regulatory and legislative strategies to control use of pesticides that may be of concern to Bay water quality.</li> </ul> <p>First year tasks might include:</p> <ul style="list-style-type: none"> <li>▪ Identifying current resources and ongoing efforts by others to track changes in pesticide application and use.</li> <li>▪ Developing a general methodology or protocol for desktop analysis of potential effects on Bay water quality.</li> <li>▪ Identification of potential partners to pursue regulatory and legislative strategies, initial contact, and discussion of needs and resources.</li> </ul> |
| <p><b>How the results of the project will be used to address the management question</b><br/>The project is a practical means to ensure that regulation of new or more widely used pesticides addresses potential water-quality effects in San Francisco Bay.</p>   |
| <p><b>Relationship of Project to Ongoing or Existing Work</b><br/>This project builds on the CEP partners’ experience addressing potential impairment of creeks and the Bay by Diazinon. Urban and agricultural uses of Diazinon were legal and heavily promoted. The effectiveness of outreach and pollution prevention to reduce impacts of these uses is unknown. Recent reductions in Diazinon concentrations and diazinon-related toxicity are likely related to new regulations on use.</p>   |
| <p><b>Estimated Project Duration</b><br/>This could start as a 2-3 year pilot project; if successful, implementation may be ongoing.</p>  |
| <p><b>Estimated Time of Implementation</b></p>  |
| <p><b>Estimated FY04-05 Project Budget</b><br/>\$30,000</p>   |
| <p><b>Expected funding in future FYs?</b></p>   |

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| <p><b>Project Title</b><br/>Supplemental Urban Creeks Monitoring in Support of Diazinon and Pesticide-Related Toxicity WQAS</p>   |
| <p><b>Relevant Management Question.</b><br/>Are the diazinon WQAS concentration targets met?<br/>Are the toxicity WQAS targets met?<br/>If not, is pesticide-related toxicity still a problem in urban creeks (i.e., is the toxicity caused by a pesticide or something else)?<br/>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?</p>  |
| <p><b>Project Description</b><br/>The supplemental monitoring will provide some or all of the following generally-described deliverables:</p> <ul style="list-style-type: none"> <li>• Results of water, sediment and/or tissue chemical analysis</li> <li>• Results of water and/or sediment toxicity tests</li> <li>• Results of TIEs</li> <li>• Assessment and reporting of monitoring data</li> </ul>   |
| <p><b>How the results of the project will be used to address the management question</b><br/>Data analysis of results will allow answers to be developed for management questions</p>   |
| <p><b>Relationship of Project to Ongoing or Existing Work</b><br/>This project is meant to assure that sufficient funding will be available during 2004-05 to provide the monitoring specified in the <i>Monitoring Plan Design for the Diazinon and Pesticide-Related Toxicity in Urban Creeks TMDL/WQAS</i>. The Monitoring Plan is being prepared during the summer of 2004 (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.</p> |
| <p><b>Estimated Project Duration</b><br/>12 months</p>  |
| <p><b>Estimated Time of Implementation</b></p>  |
| <p><b>Estimated FY04-05 Project Budget</b><br/>\$60,000 (the supplemental monitoring required to provide the full range of monitoring activity and information specified in the Monitoring Plan is estimated to cost from \$25,000 - \$100,000). CEP funds would be in addition to funds already budgeted by state and local agencies for relevant monitoring.]</p>   |
| <p><b>Expected funding in future FYs?</b><br/>Possible support to develop multi-year database.</p>  |

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| <p><b>Project Title</b><br/>Prepare water quality attainment strategy for impairment of San Francisco Bay due to legacy pesticides</p>  |
| <p><b>Relevant Management Question</b><br/>What are the potential scenarios that could be pursued to address the listing of San Francisco Bay as impaired by legacy pesticides?</p>   |
| <p><b>Project Description</b><br/>Building off of the Conceptual Model/Impairment Assessment report for legacy pesticides in San Francisco Bay, this project will develop a package of potential actions that could be taken to protect/restore beneficial uses currently impaired. These actions could include (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>How the results of the project will be used to address the management question</b><br/>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.</p>   |
| <p><b>Relationship of Project to Ongoing or Existing Work</b><br/>This project will build directly from the Conceptual Model/Impairment Assessment Report prepared in FY03-04. It will provide valuable input to the Regional Water Board as it develops its regulatory project relative to the listing of the Bay.</p>   |
| <p><b>Estimated Project Duration</b><br/>8 months</p>   |
| <p><b>Estimated Time of Implementation</b><br/>Fall 2004</p>  |
| <p><b>Estimated FY04-05 Project Budget</b><br/>\$30,000</p>   |
| <p><b>Expected funding in future FYs?</b><br/>Possible support for Basin Plan Amendment or technical materials for regulatory projects.</p>   |

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| <p><b>Project Title</b><br/>Toward Design of Adaptive Implementation for Regulatory Projects in San Francisco Bay</p>  |
| <p><b>Relevant Management Questions:</b></p> <ol style="list-style-type: none"> <li>1. What is the process / mechanism by which Adaptive Implementation (AI) happens?</li> <li>2. What is the time scale for the AI cycle?</li> <li>3. How can the process be established / documented to operate in the long term (survive staff turnover)?</li> <li>4. AI isn't new – what are the pros / cons we have from existing experience?</li> <li>5. How do we gauge / assess progress / improvement?</li> <li>6. How do we measure effectiveness of runoff control actions in order to make AI evaluations?</li> <li>7. Do we have enough money to take big enough “baby steps” to make a difference?</li> <li>8. Is there enough flexibility in the regulatory system to operate an AI process?</li> <li>9. How does AI relate to use attainability analysis?</li> <li>10. How do you ensure appropriate info is being collected to support AI review cycle?</li> </ol>  |
| <p><b>Project Description:</b> The Hg Workgroup has to-date identified three distinct types of information needs that need to be pursued as part of adaptive implementation: 1) information on implementation of control actions and their cost and effectiveness, 2) information on remaining technical data gaps/uncertainties related to key management questions, 3) monitoring information to track progress toward TMDL goals. CEP partners want to know how all of this information is going to be gathered and in what way will it be considered to arrive at the outcomes pertaining to whether or not to adapt the TMDL, as well as the pace at which it will proceed. This project will focus upon refinement and articulation of how the generic AI process will work, with the goal of developing a transparent, repeatable process that can be applied to multiple pollutants. The Workgroup listed the ten questions above to serve as a basis for articulating the AI mechanism.</p> <p>A conceptual scope to address the relevant management questions will be prepared by the mercury workgroup with the assistance of CEP staff for approval by the TC. It is envisioned that the contractor selected will work with the mercury Workgroup (or other oversight entity as appropriate) to develop a set of findings and recommendations for consideration by the TC.</p> |
| <p><b>How the results of the project will be used to address the management questions:</b> The focus of the SOW is to answer above management questions, as well as identifying and addressing any remaining gaps that may arise during project development.</p>   |
| <p><b>Relationship of Project to Ongoing or Existing Work:</b> This project would provide information that could be adapted to implementation plans for existing and future regulatory projects.</p>   |
| <p><b>Estimated Project Duration:</b> 6 months</p>   |
| <p><b>Estimated Time of Implementation:</b> August 2004 – January 2005</p>   |
| <p><b>Estimated FY03-04 Project Budget:</b> \$30,000</p>   |
| <p><b>Basis for budget estimate:</b> CEP staff estimate</p>  |
| <p><b>Expected funding in future FYs?</b> No</p>   |

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| <p><b>Project Title</b><br/>Evaluate effects of listed pollutants on community health.</p>   |
| <p><b>Relevant Management Question</b><br/>Given that the Bay will be impaired by multiple pollutants for many years to come, what reasonable measures can be taken to limit the effects of these pollutants on human health and the environment?</p>  |
| <p><b>Project Description</b><br/>This project will assess the potential human health effects of mercury, PCBs, legacy pesticides, and dioxins in San Francisco Bay in the context of overall environmental factors affecting the health of the most exposed and vulnerable communities.</p> <p>A comprehensive assessment of environmental factors affecting community health may not be feasible or warranted. As a first step, the project would evaluate methods and available information for estimating the range of potential impacts from listed pollutants and for ranking impacts by severity and by potential for mitigation. Of particular interest is the availability of information or methods that would help determine if definable subpopulations have differentially elevated blood or tissue levels of any of the listed pollutants.</p> |
| <p><b>How the results of the project will be used to address the management question</b><br/>This assessment is a first necessary step toward determining actions which could reduce or offset the health impacts of these pollutants.</p>   |
| <p><b>Relationship of Project to Ongoing or Existing Work</b><br/>Previous studies of fish consumption and concentrations of pollutants in fish tissue may be useful in estimating the relative degree of pollutant exposure by that route.</p>  |
| <p><b>Estimated Project Duration</b></p>   |
| <p><b>Estimated Time of Implementation</b></p>   |
| <p><b>Estimated FY04-05 Project Budget</b><br/>\$75,000</p>  |
| <p><b>Expected funding in future FYs?</b></p>  |

## Clean Estuary Partnership DRAFT FY 04-05 Workplan

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| <b>Project Title</b>   |
| Mathematical hydrodynamic and water quality modeling of San Francisco Bay  |
| <b>Relevant Management Question</b>  |
| How do different source inputs affect short-term (hourly) and longer-term (daily or monthly) water column concentrations in San Francisco Bay?   |
| <b>Project Description</b>   |
| This project includes the use of an existing mathematical model of San Francisco Bay to assess the effect of various source loading scenarios for multiple pollutants on ambient water quality and sediment conditions in the Bay. The model divides the Bay into multiple polygons and is calibrated to water depth, velocity and mass transport. The model operates on a short (i.e. 15 minute) time step and provides high resolution on temporal and spatial scales.   |
| <b>How the results of the project will be used to address the management question</b>  |
| For a given pollutant, the model can be used to examine the sensitivity of Bay water quality to existing source inputs and changes to those inputs. Once the model is set up for a given source condition, manipulation of various source magnitudes will yield different modeled outputs (e.g. water column concentrations).  |
| <b>Relationship of Project to Ongoing or Existing Work</b>   |
| The use of the model will provide immediate benefits to Regional Board staff in the development of information for use in anti-degradation analyses and alternative analyses for the copper, nickel and cyanide site-specific objectives. The model could also be used to support development of refined mass balance information and/or refined TMDL linkage analyses for most or all of the TMDLs in progress in the Bay area. The model can also be used to assist in the resolution of ongoing debate over the long term effect mass loads of copper and nickel to the Bay on sediment concentrations and water column concentrations. |
| <b>Estimated Project Duration</b>  |
| Initial use of the model to address pertinent questions pertaining to the effect of adopting copper and nickel site-specific objectives would take approximately four to six months.   |
| <b>Estimated Time of Implementation</b>  |
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| <b>Estimated FY04-05 Project Budget</b>  |
| Budget for the initial work described above is approximately \$50,000. Use of the model for other pollutants and other management scenarios would be of similar magnitude.   |
| <b>Expected funding in future FYs?</b>   |
| If use of the model becomes accepted practice, annual modeling effort to support various elements of water quality attainment strategies under the CEP could run from \$50,000 to much higher totals (multiple hundreds of thousands of dollars).  |

## Clean Estuary Partnership DRAFT FY 04-05 Workplan

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| <p><b>Project Title</b><br/>Integrate current knowledge of PBDEs in the Bay into a conceptual model</p>  |
| <p><b>Relevant Management Question</b><br/>What do we know about sources, pathways, and loads of PBDEs in San Francisco Bay?</p>   |
| <p><b>Project Description</b><br/>A conceptual model for PBDEs in San Francisco Bay will be developed 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. A limited amount of targeted environmental sampling may be conducted to clarify environmental pathways in San Francisco Bay.</p>  |
| <p><b>How the results of the project will be used to address the management question</b><br/>Through creation of the conceptual model, 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 water quality attainment strategy for PBDEs in San Francisco Bay. PBDEs are currently on the Regional Board's 303(d) Watch List.</p>  |
| <p><b>Relationship of Project to Ongoing or Existing Work</b><br/>This project will integrate existing knowledge regarding PBDEs in San Francisco Bay, and help guide discussions to identify what work needs to be conducted in the future. In 2002, the Regional Monitoring Program for Trace Substances (RMP) collected its first year of PBDE field data. PBDE distributions and concentrations in the Bay are now known for water, sediments, and transplanted bivalves. The RMP will continue to monitor for PBDEs as part of its contaminant-monitoring program. The RMP's monitoring data along with peer-reviewed published information from other relevant Bay Area studies, which have identified PBDEs in harbor seals, fish, and POTW wastewater effluents, will be integrated into the conceptual model.</p> |
| <p><b>Estimated Project Duration</b><br/>Eight months</p>  |
| <p><b>Estimated FY04-05 Project Budget</b><br/>\$40,000</p>  |
| <p><b>Expected funding in future FYs?</b><br/>No</p>   |

## Clean Estuary Partnership DRAFT FY 04-05 Workplan

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| <p><b>Project Title</b><br/>Basin Plan Amendment Technical Assistance</p>  |
| <p><b>Relevant Management Questions:</b> How can the CEP effectively support the Regional Water Board to develop and process basin plan amendments expeditiously?</p>  |
| <p><b>Project Description:</b> This is a continuation of the FY03-04 project to support for Regional Board staff in developing CEQA documentation and conducting necessary environmental and economic analysis in support of a Basin Plan amendment for cyanide. This additional funding will allow the current staff member to work half-time through the end of FY04-05.</p> |
| <p><b>How the results of the project will be used to address the management questions:</b><br/>Executing this project will accelerate the production and adoption of a Basin Plan amendment for cyanide, and provide a model for how the CEP can provide technical assistance to the Regional Board preparation of Basin Plan amendments.</p>                                  |
| <p><b>Relationship of Project to Ongoing or Existing Work:</b> Basin plan amendments for copper and nickel are also in the transitional phase between scientific findings and policy statements.</p>   |
| <p><b>Estimated Project Duration:</b> 12 Months (half-time)</p>  |
| <p><b>Estimated Time of Implementation:</b> March 2004 – March 2005</p>  |
| <p><b>Estimated FY03-04 Project Budget:</b> \$12,000</p>   |
| <p><b>Basis for budget estimate:</b> Placeholder based on maintaining position for one calendar year.</p>  |
| <p><b>Expected funding in future FYs?</b> Yes, if position considered a success</p>  |

## Clean Estuary Partnership DRAFT FY 04-05 Workplan

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| <p><b>Project Title</b><br/>         Prepare water quality attainment strategy for impairment of San Francisco Bay due to Diazinon and unidentified toxicity</p>   |
| <p><b>Relevant Management Question</b><br/>         What are the potential scenarios that could be pursued to address the listing of San Francisco Bay as impaired by diazinon and unidentified toxicity in the Bay?</p>   |
| <p><b>Project Description</b><br/>         Building off of the Conceptual Model/Impairment Assessment report for diazinon/toxicity in San Francisco Bay, this project will develop a package of potential actions that could be taken to protect/restore beneficial uses currently impaired. These actions could include (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>How the results of the project will be used to address the management question</b><br/>         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.</p>   |
| <p><b>Relationship of Project to Ongoing or Existing Work</b><br/>         This project will build directly from the Conceptual Model/Impairment Assessment Report prepared in FY03-04. It will provide valuable input to the Regional Water Board as it develops its regulatory project relative to the listing of the Bay.</p>   |
| <p><b>Estimated Project Duration</b><br/>         8 months</p>   |
| <p><b>Estimated Time of Implementation</b><br/>         Fall 2004</p>  |
| <p><b>Estimated FY04-05 Project Budget</b><br/>         \$30,000</p>   |
| <p><b>Expected funding in future FYs?</b><br/>         Possible support for Basin Plan Amendment or technical materials for de-listing.</p>  |

## Clean Estuary Partnership DRAFT FY 04-05 Workplan

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| <p><b>Project Title</b><br/>Prepare water quality attainment strategy for impairment of San Francisco Bay due to selenium</p>  |
| <p><b>Relevant Management Question</b><br/>What are the potential scenarios that could be pursued to address the listing of San Francisco Bay as impaired by selenium?</p>   |
| <p><b>Project Description</b><br/>Building off of the Conceptual Model/Impairment Assessment report for selenium in San Francisco Bay, this project will develop a package of potential actions that could be taken to protect/restore beneficial uses currently impaired. These actions could include (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>How the results of the project will be used to address the management question</b><br/>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.</p>  |
| <p><b>Relationship of Project to Ongoing or Existing Work</b><br/>This project will build directly from the Conceptual Model/Impairment Assessment Report prepared in FY03-04. It will provide valuable input to the Regional Water Board as it develops its regulatory project relative to the listing of the Bay.</p>  |
| <p><b>Estimated Project Duration</b><br/>8 months</p>  |
| <p><b>Estimated Time of Implementation</b><br/>Fall 2004</p>   |
| <p><b>Estimated FY04-05 Project Budget</b><br/>\$30,000</p>  |
| <p><b>Expected funding in future FYs?</b><br/>Possible support for Basin Plan Amendment or technical materials for regulatory projects.</p>  |

| Project Title   | Assigned Priority<br>(High, Medium, Low) | Reason for assigning this priority   | Comments (if any)   |
|---|--|--|---|
| Mercury Science Coordination  | LOW                                      | What are the work products? Who is the audience?   | We need a strategy for resolving issues related to the proposed Basin Plan Amendment and a better grasp of adaptive management before we can figure out what this is for or whether it would be useful.   |
| Develop multi-box model of Bay and multi-year sediment sampling strategy            | MEDIUM                                   | Dischargers and Water Board staff alike consider that this model is necessary to understand loadings. On the other hand, it's unclear how the model results will further regulatory decision-making. | We've known for over a decade that sediments are the main driver for the concentration of legacy pollutants in the water column. We're still figuring out what this means for vis-a-vis WQ standards and the standards-to-permits process. The problem we need to solve is how to make the regulatory process conform to the reality of pollutant dynamics in the Bay. Will a more sophisticated model of those dynamics help achieve that?                                     |
| Copper and Nickel Site Specific Objectives for SF Bay North of the Dumbarton Bridge | N/A                                      |  |   |
| Evaluate and respond to potential for new pesticides to cause toxicity              | HIGH                                     | This is a proposed element of an implementation plan that would be crafted to make the WQAS for diazinon acceptable to all interested parties.   | Kelly Moran says that many of the elements in this scope are already underway, but haven't been coordinated and reported. The CEP should help close the critical link, which is to determine how knowledge of new pesticide uses that threaten SF Bay area water-quality—evaluation of which is being done by others—can be used in the CEP partners' legislative advocacy. Suggest reducing budget to \$10K and focusing the scope on policy analysis to answer this question. |

| Project Title   | Assigned Priority (High, Medium, Low) | Reason for assigning this priority  | Comments (if any)   |
|---|---------------------------------------|---|---|
| Supplemental Urban Creeks Monitoring in Support of Diazinon and Pesticide-Related Toxicity WQAS | LOW                                   | The most recent technical memo from Armand Ruby to the CEP Urban Creeks Work Group seems to make a “powerful” case that additional monitoring effort will not produce statistical certainty regarding diazinon trends. Anyway, urban runoff programs are already being required to monitor.   | Can the WQAS move forward based on weight of existing evidence?   |
| Prepare Water Quality Attainment Strategy for Legacy Pesticides                                 | HIGH                                  | Opportunity for the CEP to get a win by moving pollutant off the 303(d) list.   | Full \$30K may not be needed. Consider reducing budget if overall funding is a constraint. Note that the key for success is to craft a suitable package of implementation measures.   |
| Toward Design of Adaptive Implementation for Regulatory Projects in San Francisco Bay           | MEDIUM                                | Adaptive implementation will be an essential component of all TMDLs and WQASs. However, this project won’t help much unless the CEP participants have, beforehand, a strong grasp of what adaptive implementation means and how it works, an organizational structure to implement it over the long term, and commitment from interested parties. | I support adaptive implementation, but I see “danger” written all over the project summary. We’ve been down this “process design” road before. That road is paved with good intentions.   |
| Evaluate effects of listed pollutants on community health                                       | HIGH                                  | This is a proposed element to be included in implementation plans that would be crafted to make WQASs or TMDLs for legacy pesticides (and/or other pollutants) acceptable to all interested parties.  | Since there is no foreseeable strategy for cleaning up most listed pollutants, we have to shift our focus to understanding and mitigating the effects these pollutants have on human health and wildlife. The CEP partners shouldn’t just stick their heads in the sand and say that is some other agency’s responsibility. |
| Mathematical Hydrodynamic and Water Quality Modeling of San Francisco Bay                       | LOW                                   | Existing understanding of short-term variability in water-column concentrations was sufficient for site-specific Cu/Ni SSOs in the South Bay.   |   |

| Project Title  | Assigned Priority<br>(High, Medium, Low) | Reason for assigning this priority  | Comments (if any)   |
|--|--|---|---|
| Conceptual Model/Impairment Assessment for PBDEs                           | MEDIUM                                   | We can get out in front of the listing on this one. On the other hand, we should consider the extent to which the phase-out constitutes an already existing control strategy. |   |
| Basin Plan Amendment Assistance  | HIGH                                     | BPAs are why we're doing all this, right? If the Water Board needs this help, it needs it.  | I share the concern that CEP funding for this position go exclusively to this purpose.  |
| Prepare Water Quality Attainment Strategy for Diazinon/Toxicity in the Bay | HIGH                                     | Opportunity for the CEP to get a win by moving pollutant off the 303(d) list.   | Full \$30K may not be needed. Consider reducing budget if overall funding is a constraint. Note that the key for success is to craft a suitable package of implementation measures. |
| Prepare Water Quality Attainment Strategy for Selenium                     | HIGH                                     | Opportunity for the CEP to get a win by moving pollutant off the 303(d) list.   |   |