

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: 24 September 2004

Background: Mercury Fallout Intensifies

The Water Board held an initial hearing on the proposed Mercury TMDL and Basin Plan Amendment (BPA) on June 16. The Board adopted the TMDL and BPA on September 15. In the interim, people involved in the CEP—staff from the Water Board, stormwater and wastewater dischargers, Clean Estuary Program (CEP), and environmental advocates—prepared comments, responded to comments, and met to discuss changes to the proposed BPA.

Progress slowed on projects and issues related to other pollutants.

Now, as the mercury TMDL/BPA moves on to the State Water Resources Control Board (and possibly the courts), the CEP participants are considering: How much, and how effectively, did the CEP contribute to the process? What worked, and what didn't? How might the CEP do a better job with the forthcoming TMDLs for PCBs and for diazinon and pesticide-related toxicity in urban creeks?

For environmental and environmental justice advocates, the meetings and comments did produce some gains—but not enough to overcome disappointment over what was, in the end, a missed opportunity.

The gains were:

- Future wastewater and urban runoff NPDES permits will include actions to reduce mercury-related risks to human health and wildlife.
- Bay area petroleum refineries will investigate the environmental fate of mercury in crude oil.
- If local air sources are found to contribute substantially to atmospheric deposition of mercury, the Water Board will consider assigning allocations and load reductions to individual air sources.

Water Board staff missed the opportunity to develop a detailed and realistic implementation plan before taking the BPA to the Board.

In the technical part of the TMDL—the analysis of sources, loadings, transport, and fate of mercury—the unknowns far outweigh what is known. To predict when and how the Bay will attain water-quality standards for mercury, Water Board staff made a series of guesses and assumptions. The BPA's vague plan for “adaptive implementation”

assumes that additional monitoring and studies will reveal whether progress is being made. However, sediment movement, rainfall, and other natural events are inherently variable. Attempts to quantify loadings and to evaluate progress toward attainment will encounter, 10 or 20 years hence, many of the same uncertainties that exist today.

The precautionary principle calls on decision-makers, when faced with uncertainties, to choose the option that presents the minimum danger to health and to the environment. To make that choice wisely, a broad range of options must be considered. The most promising options must be examined for feasibility, cost, and possible unintended consequences.

In the future, the CEP could be a forum, as well as a source of funds, for examining those options. For now, the CEP is focused on supporting the technical portion of TMDLs rather than on developing feasible implementation measures. To make the change, the CEP would need strong leadership, continuing financial support, and improved direction and management of technical projects.

The CEP must also maintain a spirit of trust and cooperation among the participants. The process leading to adoption of the mercury TMDL and BPA has diminished that spirit somewhat, at least for the present.

Activities Related to the Mercury TMDL and Basin Plan Amendment

Environmental Technical Representative activities included:

- Advising Baykeeper and Clean Water Action on technical issues and researching Baykeeper questions regarding the efficacy of control measures described in the proposed BPA—including remediation of abandoned mines and control of *in situ* methylation rates in wetlands and the Bay.
- Attending meetings called by Water Board staff.
- Suggesting edits to the draft Basin Plan Amendment.
- Assisting Baykeeper and Clean Water Action to review and suggest edits to a draft “fact sheet” produced by the Clean Estuary Project in connection with the Basin Plan Amendment hearing. The original draft “fact sheet” understated the uncertainty in the TMDL’s estimates of pollutant loads, potential effectiveness of control measures, and recovery times. The original draft also overstated stakeholder support for the TMDL report. Not all suggested edits were accepted. The final fact sheet is at http://www.swrcb.ca.gov/rwqcb2/TMDL/SFBayMercury/sfbaymercurytmdl_info_sheet.pdf

“Project Management Update”

At the 1 September 2004 Technical Committee meeting, CEP partners noted recurring questions and concerns about the progress of current projects. Soon after, CEP staff prepared a “Project Management Update” (Attachment 1, dated 20 September 2004). The update summarizes the status of current CEP projects.

The list of current projects illustrates the CEP’s focus on the technical portion of TMDLs. Of 15 current projects, only two (Project 4.12,

“Options and Expected Benefits from Urban Stormwater Implementation Actions” and Project 4.28, “Refine PCB Implementation Scheme”) relate to planning implementation of pollutant controls. In addition, Project 4.11, “Copper and Nickel Site Specific Objectives for San Francisco Bay North of the Dumbarton Bridge” includes assistance with development of a Copper Action Plan and Nickel Action Plan.

The remaining 12 of the 15 current projects either assess the degree to which pollutants are causing impairment of beneficial uses, or support models to calculate loading allocations, or both.

Lessons Learned from Studying BMP “Effectiveness”

The study methodology planned for Project 4.12, *Options and Expected Benefits from Urban Stormwater Implementation Actions*, (also titled “Feasibility Assessment for Managing Urban Stormwater Loads of Mercury, PCBs, and Organochlorine Pesticides”) offered few advantages over previous assessments of loads and potential control measures. The resulting report provides little new information that could be used to select stormwater controls or determine the extent to which they should be implemented.

Some of the same investigators are working on a related project, funded by Proposition 13, to assess the potential effectiveness of urban stormwater treatment facilities. The Technical Committee asked what “lessons learned” from Project 4.12 might apply to that project. The Environmental Technical Representative response noted:

- Estimates of pollutant loads from individual sites—or loading reductions achieved in individual facilities—cannot be accurately extrapolated to watershed-scale calculations. There are too many intervening variables.
- “Removal efficiency” (i.e., pollutant load out vs. pollutant load in) is a poor criterion for judging performance. The reason: Facilities with high influent loads will appear more “efficient” and those with low influent loads less “efficient.”
- It is difficult, and often impossible, to determine “average” stormwater pollutant concentrations or loads, because those characteristics are inherently variable. Typically, this problem cannot be overcome by changing the sampling design or by increasing the sampling frequency.
- Quantification of loading and load reductions provides neither valid criteria for selecting BMPs nor valid criteria for determining the extent to which they should be implemented.

So far, the net effect of these quantification exercises has been to generate recommendations for more studies along the same lines. It is high time dischargers and regulators alike shifted their focus to implementing more and better controls on pollutants, rather than continuing to worry: “How much is enough?”

Keeping It Simple

As noted in the previous report (22 July 2004), the CEP's technical reports would benefit from more rigorous and organized narratives and better coordination with supporting tables and graphics. The analyses in the CEP's reports will later be incorporated into Water Board staff's TMDL analyses and proposed allocations.

For example, the mercury TMDL project report used a "1-box model," but muddled the conceptual distinction between deep sediments (considered a "source" of mercury) and shallow Bay sediments (considered an "active layer" that absorbs and releases mercury in equilibrium with the water column).

The "1-box model" is also used, and the distinction similarly obscured, in the draft Conceptual Model/Impairment Assessment Report for legacy pesticides (Project 4.29). I suggested this report include a simple diagram showing inputs and outputs, accompanied by a table with the estimated number for each input and output. To make this suggestion clear, I provided to the Technical Committee and the CEP's contractor a sample diagram and tabular format (Attachment 2).

ETR-Proposed CEP Projects for Fiscal Year 2004-2005

At its August and September meetings, the CEP Technical Committee considered candidate projects for FY 2004-2005. As Environmental Technical Representative, I proposed two project concepts.

The first project concept, *Development of a Strategy for Local Government Legislative and Regulatory Advocacy to Protect San Francisco Bay from Pesticide-Related Toxicity* (Attachment 3) was refined—with assistance from Dr. Kelly Moran of TDC Environmental—from a previous proposal, "Evaluate and Respond to Potential for New Pesticides to Cause Toxicity."

At the September meeting, the Bay Area Clean Water Agencies (BACWA, the consortium of POTWs) representative said BACWA couldn't support CEP funding for the project because of the appearance that funds BACWA members had designated for technical projects would be used for lobbying. The project was removed from consideration for CEP funding. However, I followed up the idea through discussions with the BACWA representative and in the Technical Committee's Diazinon and Toxicity Work Group. There is consensus that it would be worthwhile to pursue a meeting among environmental advocates, municipal wastewater and stormwater representatives, legislative advocates for the League of California Cities, and perhaps others to discuss ways to achieve more timely and effective regulation of new pesticides that may cause toxicity in waters of the Bay region.

The second project concept, *Options for Mitigating Risks of Public Health Impacts Due to Pollutants in Fish* (Attachment 4) was refined from a previous proposal, "Evaluate Effects of Listed Pollutants on Community Health." At the September Technical Committee meeting, this proposal received support from BACWA, the Bay Area Stormwater Agencies Association, and Water Board staff. The Technical Committee will include this in its proposed project list and budget for FY 04-05. (The budget must be reviewed by the CEP's Administrative Committee and must be

approved by its Executive Management Board.) \$20,000 is budgeted for initial work in FY 04-05, to be followed by \$80,000 more in FY 05-06.

The Technical Committee endorsed circulating the proposal—accompanied by a request for ideas and recommendations for assembling a project team—to persons who provide public health services and primary care to disadvantaged communities.

The project may be further refined to coordinate with related work by the California Department of Health Services, the California Office of Environmental Health Hazard Assessment, San Francisco Estuary Institute, and others. There may be opportunity to influence these efforts by emphasizing a link to local provision of primary health care services.

Other Projects Proposed for FY 04-05

Here are some highlights from the Technical Committee's review other proposed FY 04-05 projects:

- The representative for the Western States Petroleum Association said that the project, "Development of a Water Quality Attainment Strategy for Selenium," is a "must-do" for his organization's continued participation in the CEP. The reason is that an NPDES permit expiration will expose one of WSPA's members to potential noncompliance if a WQAS is not in place.
- A Conceptual Model/Impairment Assessment for PBDEs will be coordinated with similar work by the Regional Monitoring Program for Trace Substances. The CEP recently added PBDEs to their list of "pollutants of concern."
- A "multi-box model" of the Bay will be the most expensive project pursued by the CEP, by far. (\$100,000 is proposed for FY 04-05 and twice as much for FY 05-06.) The project is strongly supported by Water Board staff and both wastewater and stormwater dischargers. The Environmental Technical Representative's comments were: (1) the CEP will likely find that natural variation in the model input parameters (e.g., rainstorms and watershed loading) are a major and irreducible source of uncertainty, and this will limit the benefit of a more precise and detailed model; (2) For practical and political reasons, the Water Board may find it impossible to translate a more complex understanding of Bay processes into regulatory actions. In the end, allocations and implementation plans may end up using simplifying assumptions anyway.

Summary

Debate over the TMDL and BPA for mercury demonstrated that stakeholders—dischargers and advocates alike—care most about implementation language. (The implementation language in the BPA guides future permit provisions.)

The technical portion of a TMDL can provide some guidance to equity and effectiveness, but stakeholders also need an evaluation of the cost and feasibility of control measures and implementation actions to be included in the BPA. Without that evaluation, requirements to reduce

loads (or to reduce the risk presented by pollutants) appear as fearful unknowns. Dischargers cannot envision a route to compliance, and advocates have little assurance that much will really be accomplished. The result is that the proposed BPA is criticized by both sides.

Water Board staff suggests criticism of the mercury BPA by both advocates and dischargers indicated a “balance” between opposing interests. However, the criticism also reflects a common, community-wide dissatisfaction with the quality of the BPA and the process used to produce it.

Some Water Board staff and discharger staff acknowledge the need to develop technical and policy consensus around an implementation plan before future BPAs are presented to the Water Board. Will the CEP play a role in establishing that consensus for future TMDLs—by facilitating discussions and by conducting technical investigations to develop and define potential actions? We must wait to see if any of the CEP partners choose to lead the organization in that direction.

In the meantime, there are opportunities to initiate, through the Technical Committee, projects that help address the effects of listed pollutants on human health and wildlife.

September 20, 2004

TO: CEP Technical Committee

FR: CEP Staff

RE: Existing project status

We would like to take this opportunity to synthesize the progress and plans for existing CEP projects. Although the Committee receives regular progress reports prepared by CEP contractors, the following supplemental report provides TC members with some additional management information for each project beyond what is provided by the Principal Investigators in their monthly reports.

The Table below lists the currently active projects, and the text that follows summarizes the status of each project, current problems, and management action underway to address the problems.

Project #	Project Title	Subcontractor
4.02	Guadalupe River Loads Assessment	SFEI
4.07	Assessment and Support of TMDL Modeling Needs	Tetra Tech, Inc.
4.10	Existing Data on PCB Concentrations of Nearshore Sediments and Assessment of Data Quality	AMS
4.11	Copper and Nickel Site Specific Objectives for SF Bay North of the Dumbarton Bridge	EOA/Larry Walker
4.12	Options and Expected Benefits from Urban Stormwater Implementation Actions	LFR
4.13	Monitoring Plan for Diazinon/Toxicity in Urban Creeks	Dr. Armand Ruby
4.24	Refine Mercury Conceptual Model	Tetra Tech, Inc
4.25	PCB Conceptual Model	SFEI
4.27	Food Web Model	Dr. Frank Gobas
4.28	Refine PCB Implementation Scheme	LFR
4.29	Legacy Pesticides CMIA	SFEI
4.30	Diazinon in San Francisco Bay CMIA	Pacific Eco-Risk
4.31	Dioxins in San Francisco Bay CMIA	SFEI
4.32	Selenium CMIA	Larry Walker /Pacific Eco-Risk
4.33	Cyanide Basin Plan Amendment Assistance	ABAG

Project #4.02 (Year2), Guadalupe River Loads Assessment

Project Status: This project has finished its second year of sampling and is completing its final report. Year 1 sampling is complete with the final report submitted to CEP.

Problems: The Contractor has requested a one-month extension for delivering the final report for Year 2, which is not considered a major problem. A larger concern is that with only two year's of data the project will not reduce uncertainty regarding loads and watershed processes as much as it could with additional monitoring years. The CEP decided not to fund the project in FY04-05.

Actions being taken to resolve problems: No CEP action necessary at present. We heard at the September TC meeting that the Santa Clara Valley Water District will provide funding for Year 3.

Project #4.07, Assess and Support TMDL Modeling Needs

Project Status: Initial project objectives to produce modeling white paper and begin coordination of modeling efforts have been achieved.

Problems: Progress on other project objectives is lagging. This is especially true with respect to the food web model review, analysis of URS model for use in copper/nickel project, and development of the conceptual scope of work for the multi-box model. Contractor is uniquely qualified to perform this work, but has not been expeditious in executing tasks.

Actions being taken to resolve problems: Program Coordinator has requested more prompt and continuous performance on the job from the Contractor on two separate occasions. These requests have been well received and understood, but the Contractor's response has not been very satisfactory. Despite the fact that performance has been slower than desired, the Program Coordinator believes it is in the CEP's interest to continue to work with the Contractor due to their unique qualifications.

Project #4.10a, Existing Data on PCB Concentrations of Nearshore Sediments and Assessment of Data Quality

Project Status: Four sources of data on sediment PCBs were evaluated and several draft reports were produced. The latest draft report was submitted to the PCB Workgroup on August 3, 2004, for review and minor comments were received from one member. Dr. Bob Smith, an expert statistician, is reviewing the report and his comments are anticipated shortly.

Problems: Completion of the project was delayed because repeated analyses were required as opinions regarding the most suitable sources of data changed with time. An

important source of data, NOAA and EMAP samples collected from random locations in 2002 and 2001, were originally thought to be unavailable and unsuitable for this project (not all congeners were analyzed and a strongly worded disclaimer was attached to the data regarding their preliminary nature). Consequently, early draft reports were based on the other sources of data that were evaluated, which were not from randomly distributed sample locations. When we became aware that the NOAA/EMAP data were available in late 2003, additional work by SFEI determined that a highly significant correlation existed between the subset of congeners measured in the NOAA/EMAP samples and those measured in RMP samples. This correlation enabled new work to estimate nearshore sediment PCB concentrations with the NOAA/EMAP data.

Actions being taken to resolve problems: No problems remain to be resolved. When comments are received from Dr. Smith, they will be addressed and the final report will be forwarded to the TC for approval.

Project #4.11, Copper and nickel Site-Specific Objectives: San Francisco Bay North of the Dumbarton Bridge

Project Status: Project has developed draft reports, these documents have been reviewed, and final drafts are being prepared (CM/IA, SSO Derivation, SSO Justification). A scope of work for the final task (Assist Water Board develop Basin Plan amendment package) has been developed, approved, and implementation is underway.

Problems: This project is highly complex, with many stakeholders having diverse interests, and this has slowed execution. In addition, there is a desire to integrate Cu/Ni actions (especially Action Plan development) north and south of the Dumbarton, and this has required updating of source materials and expanding the number of stakeholders to be considered. Finally, the ultimate usefulness of the products (and thus necessary modifications/revisions) is based on the judgment of Water Board staff, and the outcome of this process cannot be predicted when drafting materials (this is not a criticism of the Water Board, but just an observation of fact). The Water Board cannot make the judgments required of it by law without first reviewing the products of the project, and so there are iteration/revision steps that take time.

Actions being taken to resolve problems: CEP staff continue to work closely with the subcontractor and Cu/Ni stakeholders to clarify outstanding issues and facilitate their resolution. CEP has provided targeted funds to address certain questions (e.g., updating copper sources report (TDC Environmental) to assist CAP development.

Project #4.12, Options and Expected Benefits from Urban Stormwater Implementation Actions

Project Status: Draft report has been completed by the Contractor, although this was delayed several weeks due to a combination of late delivery of data to the Contractor and

longer than expected analysis time. The Contractor is required by the scope of work to respond to comments from CEP representatives and submit a revised report.

Problems: This project has suffered from (1) communication problems between the Contractor and CEP project participants, (2) a lack of flexibility on the part of the Contractor when implementing the scope of work, and (3) a project objective that some felt would not be achieved with satisfactory technical rigor given the inadequacy of the existing database.

Actions being taken to resolve problems: Comments on the report are being prepared and delivered to CEP staff, and BASMAA representatives have agreed to provide extensive editorial suggestions to produce background/context that was not included in the draft report. CEP staff have made it clear to the Contractor that despite the project having expended most of its budget, a revised report is still expected as described in the scope of work, and the Contractor has indicated that this is understood.

Projects #4.13, Pesticide Monitoring Plan Design For the Diazinon/Pesticide-Related Toxicity in Urban Creeks TMDL

Project Status: This project has provided the deliverables as per the contract. Production of the draft report was delayed a month at the request of the Work Group due to work load associated with the mercury TMDL basin plan amendment. Contractor has indicated the draft monitoring plan will be completed by October 15.

Problems: Dr. Armand Ruby left Larry Walker & Associates (LWA) during the execution of this project. Further work on the contract with LWA was stopped without any problems, and a new contract established with Dr. Ruby as an independent consultant. Work continues to be performed on the project and Dr. Ruby is working diligently to keep the project on schedule.

Actions being taken to resolve problems: No actions necessary.

Project #4.24, Refine Mercury Conceptual Model

Project Status: This project is underway, and the Contractor was scheduled to provide the first deliverable (related to methylmercury) on September 16.

Problems: This project fell slightly behind schedule, for no reason other than the Contractor has been slow to execute the scope of work. However, work is underway, although the September 16 deliverable date was not met.

Actions being taken to resolve problems: While the project has moved slower than anticipated, this has not been perceived as an important problem given the focus of the CEP partners on the mercury TMDL basin plan amendment. The discussions about the

basin plan amendment have helped clarify important issues to be investigated with the conceptual model, and led to the Contractor's suggestion to provide the methylmercury section of the conceptual model report first to get comments and feedback from the mercury work group. This recommended action by the Contractor demonstrates their clear understanding of the issues, and despite the slippage in the schedule the Program Coordinator feels the CEP is best served by continuing to work with this Contractor.

Project #4.25, Refine PCBs Conceptual model

Project Status: This project is on schedule, with a draft report to be delivered in September 2004.

Problems: None after the Technical Committee provided additional direction to the Principal Investigator regarding project objectives.

Actions being taken to resolve problems: No action necessary.

Project #4.27, Complete food web model for human health and wildlife protection and refine sediment targets

Project Status: The draft report for this project has been delivered, and will be going out for peer review in September 2004. Peer review is being managed by Dr. Thomas Grieb of Tetra Tech, who has expertise in mathematical modeling.

Problems: There have been some delays obtaining comments from the PCB Work Group members due to the complexity of the report, but Dr. Grieb now has comments from all members who are going to deliver them. He is arranging to deliver the report to Drs. Baker and McKone, who were the peer reviewers of the project proposal and are well-suited to assess the quality of the draft report. The Program Coordinator has approved the use of a third reviewer at Dr. Grieb's discretion.

Actions being taken to resolve problems: No action required at this time.

Project #4.28, Refine PCB allocation and implementation scheme.

Project Status: A draft scope of work, the first deliverable for this project, has been provided by the Contractor. Comments on this document are being prepared by CEP participants and delivered to CEP staff for compilation. Compiled comments will be provided to the Contractor for incorporation into a final scope of work. This is the final deliverable for the task order provided to the Contractor

Problems: Due to the problems with Project 4.12, and issues with the deliverable for Project 4.28, questions have been raised as to whether the existing Contractor for Project

4.28 (LFR) is the appropriate entity to execute the scope of work for this project when it is finalized.

Actions being taken to resolve problems: Once comments have been compiled, CEP staff will work with TC members to determine if LFR will be offered the work or if another Contractor should be sought.

Project #4.29, Conceptual Model/Impairment Assessment Report for Legacy Pesticides in San Francisco Bay

Project Status: The project has been completed, except for preparation of a final figure that has required additional funding to SFEI as it was outside the original scope of work.

Problems: The Contractor ended up having to deal with a third round of review that was not part of the original scope. As the first CMIA, review of the legacy pesticides report helped the TC clarify what it would like to see in these documents, and the results of those deliberations are reflected in this third round of review.

Actions being taken to resolve problems: The TC and the Program Coordinator have authorized the expenditure of an additional \$1,400 to allow SFEI to complete the final revisions, including the preparation of a graphical illustration of the conceptual model.

Project #4.30, Conceptual Model/Impairment Assessment Report for Diazinon/Pesticide-Related Toxicity in San Francisco Bay

Project Status: The Contractor has considered the comments provided by the Work Group and TC and has just delivered the revised report. Comments on the revised document are due by October 13.

Problems: Preparation of the revised report was delayed while the Contractor considered newly developed information that suggested a revision of the applicable water quality objectives might be forthcoming. This issue has been resolved.

Actions being taken to resolve problems: No action necessary.

Project #4.31, Conceptual model and impairment assessment for dioxins/furans in the Bay.

Project Status: A draft report has been prepared, and CEP participants are preparing comments.

Problems: In part due to the focus of so much effort by CEP participants on the mercury TMDL, it has taken a long time to develop comments, so the project has slipped behind schedule.

Actions being taken to resolve problems: CEP staff are compiling available comments and reminding participants of the need to provide comments so that the Contractor can complete revisions to the document.

Project #4.32, Conceptual model and impairment assessment report for Selenium in San Francisco Bay.

Project Status: A draft report was prepared by the Contractor (Applied Marine Sciences) and delivered to the TC for review. Comments have been received and compiled.

Problems: The author of the report (Dr. Khalil Abu-Saba) changed employers earlier this year. A revised report has not been prepared. In addition, reviewers have requested an additional figure in the report, which is outside the scope and will require additional funding.

Actions being taken to resolve problems: Contractual arrangements were made for Dr. Abu-Saba to complete the work through LWA in April of this year. Although many of the requested revisions were made, the revised final report was not being completed, despite numerous inquiries and requests. In July, Dr. Abu-Saba finally recommended that we seek another Contractor (Dr. Scott Ogle of Pacific Eco-Risk) to complete the project. With the concurrence of TC members, contractual arrangements with Dr. Ogle were made to complete the report, which will now be co-authored by Abu-Saba and Ogle. The contract with LWA for this work was cancelled. The revised report is due on September 17, 2004.

In addition, the Program Coordinator has authorized the expenditure of an additional \$500 for the Contractor to prepare the additional figure.

Project #4.33, Cyanide Basin Plan Amendment Assistance

Project Status: In March 2004 Patrycja Bossak was hired part-time through ABAG to implement this project. She is working under the direction of Mr. Steve Moore at the Water Board, and is making excellent progress. A schedule for the cyanide basin plan amendment has been developed, a draft staff report and basin plan amendment are nearing completion, draft instructions for peer reviewers and the CEQA checklist have been completed, and preparation of the administration record is continuing. She is assisting Mr. Moore work with shallow water dischargers to update policy elements of NPDES permits relative to cyanide.

In addition, as called for in the Scope of Work, Ms. Bossak is assisting with other TMDL-related projects, including diazinon/pesticide-related toxicity and PCBs. She has

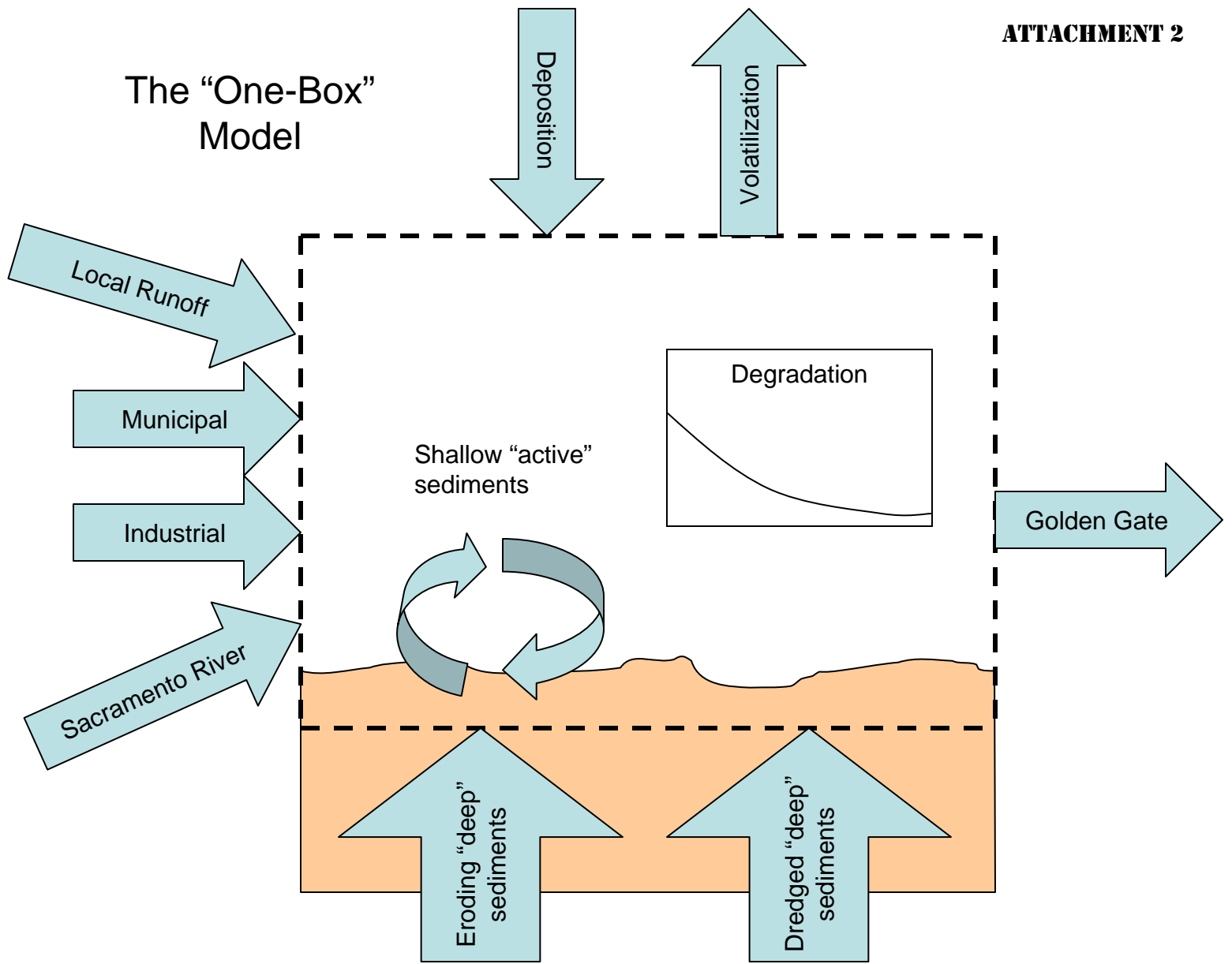
also created templates for water board staff, based upon State Board administrative procedures, to make development of basin plan amendments more efficient.

The Program Coordinator participated in Ms. Bossak's six-month performance review on September 10, 2004. The Coordinator was favorably impressed by Ms. Bossak's professional approach, enthusiastic attitude, and personal commitment to her work.

Problems: At present the Water Board is still waiting for the delivery of some data from LWA, which will need to be reviewed by Water Board technical staff before the staff report and basin plan amendment can be finalized. The part-time nature of Ms. Bossak's position limits her ability to work with multiple Water Board staff members on multiple projects. These issues will also make the scheduled completion of the CN basin plan amendment by June 2005 difficult, especially if there are delays in the peer review process.

Actions being taken to resolve problems: The Program Coordinator has contacted LWA to inquire regarding the outstanding technical materials. Some additional funding for Ms. Bossak's position is presently included in the FY04-05 work plan to maintain her position as half-time through the end of the fiscal year. This level of funding will not be sufficient to allow her to assist with other TMDL-related basin plan amendments, especially given the recently identified need to accelerate development of a selenium TMDL. The Program Coordinator will work with Water Board staff to develop a proposed scope of work for a full-time position for consideration by the Technical Committee as part of the FY04-05 work plan.

The "One-Box" Model



Estimated Current Fluxes			
Pathway	DDTs	Chordanes	Dieldrin
Sacramento River			
Local Runoff			
Municipal			
Industrial			
Air Deposition			
Volatilization			
Erosion of deep deposits			
Dredging with Bay disposal			
Estimated soil/water half-lives			

Draft Scope of Work

Development of a Strategy for Local Government Legislative and Regulatory Advocacy to Protect San Francisco Bay from Pesticide-Related Toxicity

Background

The San Francisco Bay Regional Water Quality Control Board (Water Board) listed San Francisco Bay as impaired due to pesticides in 1998. USEPA later specified the 303(d) listing to specify diazinon, an organophosphate pesticide, as the source of the toxicity. Thirty-seven Bay area creeks are also listed as impaired by pesticide-related toxicity caused by diazinon. The Water Board has prepared a Water Quality Attainment Strategy/TMDL Project Report for Pesticide-Related Toxicity in Bay Area Urban Creeks (Johnson, 2004), and the Clean Estuary Partnership has sponsored preparation of a Conceptual Model/Impairment Assessment report to support a future Water Board TMDL or Water Quality Attainment Strategy for Diazinon in San Francisco Bay.

These listings have resulted in substantial costs to Bay Area local government. In particular, stormwater NPDES permits issued to most Bay area municipalities have mandated substantial expenditures for public outreach in an effort to reduce pesticide use by residents and businesses.

The effectiveness of these outreach efforts is difficult to measure. It has been noted that public expenditures to advocate reduced use of toxic pesticides were largely offset by the very effective promotion of these same products by their manufacturers.

Findings by USEPA that organophosphate pesticides may harm the health of children exposed to the pesticides have led to a negotiated phase-out of diazinon and chlorpyrifos.

The phase-out of diazinon and chlorpyrifos is leading to increased use of substitute pesticides, including pyrethroid pesticides (cyfluthrin, bifenthrin, esfenvalerate, and others) (Ogle 2004). Urban uses of these pesticides have the potential to adversely affect aquatic ecosystems in urban streams (Moran, 2003). Unlike diazinon and chlorpyrifos, pyrethroid pesticides are hydrophobic and tend to sorb to sediments. Pyrethroid pesticides have been shown to cause toxicity in Central Valley water bodies influenced by agricultural drainage (Weston, et al., in publication).

The State Water Resources Control Board has awarded a grant to the San Francisco Estuary Project to implement an Urban Pesticide Pollution Prevention (UP3) project. The UP3 project includes the following activities:

1. Foster effective outreach and education.
2. Integrate the latest science and pesticide use information into California urban pesticide mitigation activities.
3. Improve existing regulatory processes to prevent water-quality impairment.

The second activity includes tracking urban pesticide uses and communicating new scientific information to municipal NPDES permittees and other agencies working to prevent water quality problems. The third activity includes facilitating involvement of water quality agencies in state and Federal regulatory decision-making processes (TDC Environmental, 2004).

Project Objective

Past legal uses of pesticides have caused significant impacts to human health and wildlife in Bay Area communities. Bay Area local governments have borne a disproportionate cost to monitor and mitigate pesticides. Because they represent “downstream” communities, Bay Area local governments have a significant stake in achieving more effective statewide regulation of future use of urban and agricultural pesticides.

This project—Development of a Strategy for Local Government Legislative and Regulatory Advocacy to Protect San Francisco Bay from Pesticide-Related Toxicity—will identify ways to leverage existing local government advocacy resources to achieve more effective pesticide regulation.

Project Tasks

Task 1. Coordinate with the UP3 project. Review existing reports and project plans, and confer with the UP3 project manager and technical consultant. Understand UP3 project resources and limitations.

Task 2. Coordinate with local government legislative and regulatory advocates. Confer and discuss options with some or all of the following:

- Association of Bay Area Governments
- California State Association of Counties
- California League of Cities (Bay Area chapters)
- Legislative Advocates for individual Bay area local governments

Task 3. Recommendations. In a succinct memorandum, outline a strategy for engaging local government legislative and regulatory advocates in more effective advocacy for pesticide regulation. The memorandum should include the following topics:

- Outline and overview of legislative and regulatory advocacy for pesticide regulation, including key Assembly and Senate Committees and regulatory decision-making bodies.
- Assessment of recent and current local government advocacy for pesticide regulation, including examples.
- Assessment of political and other factors that may affect local government advocates’ ability to contribute to more effective pesticide regulation.
- Recommended strategy to achieve and sustain more effective advocacy by local government.
- Recommended next steps.
- Opportunities to make presentations, contribute to publications, or conduct other outreach to convey information to local government advocates.
- List of key contacts.

Project Budget

\$10,000-\$20,000

Recommended Contractor:

This project should be implemented by a Sacramento-based firm with knowledge of environmental policy and experience as a legislative and regulatory advocate for Bay area municipalities. CEP local government partners may be able to suggest candidate firms.

References

- Johnson, Bill. 2004. *Diazinon and Pesticide-Related Toxicity in Bay Area Urban Creeks. Water Quality Attainment Strategy and Total Maximum Daily Load (TMDL) Final Project Report*. California Regional Water Quality Control Board, San Francisco Bay Region. March 2004. 110 pp.
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Draft Project Concept**Options for Mitigating Risks of Public Health Impacts Due to Pollutants in Fish****Background**

Elevated concentrations of mercury, PCBs, dioxins, and legacy pesticides in San Francisco Bay fish impair beneficial use of the Bay for sport fishing (Water Board, 2002). Although no regulatory criteria have yet been established for PBDEs, the presence of these pollutants in fish is an additional cause for concern.

A fish consumption study (California Department of Health Services and San Francisco Estuary Institute, 2001) indicates that because of different consumption rates, species consumed, and methods of preparation, anglers from particular ethnic groups (including African-Americans, Filipinos, and Pacific Islanders) are disproportionately exposed to pollutants in fish. About 40% of anglers reported that women of childbearing age in their households consumed some of their catch. Anglers fishing from piers were more likely to share their catch with household members than those who fish from boats.

The study found that differences in income, education, or fishing mode did not significantly correlate with the amount of fish consumed. However, environmental advocates and environmental justice advocates have expressed concern that a combination of factors that affect specific subpopulations—dependence on Bay fish as a food source, location in areas where Bay waters, sediments, and fish are more polluted than in the Bay as a whole, differences in methods of fish preparation, and a higher likelihood of consumption by children and women of childbearing age—could be multiplicative, resulting in relatively high exposure to multiple pollutants.

The health consequences of such exposure are well-documented. The most significant consequence of exposure to elevated levels of pollutants—and of mercury and PCBs in particular—is an increased likelihood of neurodevelopmental disorders in children. Neurodevelopmental disorders include attention-deficit hyperactivity disorder (ADHD) and mental retardation. Incidence of such disorders is closely correlated with poverty (USEPA, 2003).

The San Francisco Bay Regional Water Control Board's TMDL reports for mercury (Johnson and Looker, 2004) and PCBs (Water Board, 2004) indicate that impairment of Bay waters will persist for generations to come, regardless of control measures.

Project Objectives

There is considerable uncertainty regarding the public health impacts of mercury, PCBs, and other Bay pollutants. Given such uncertainty, the precautionary principle calls for (1) consideration of options that might reduce the risk of impacts and (2) selection of feasible options that will minimize the risk to public health.

To date, advisories to limit fish consumption (including posting signs) have been the only option implemented.

The purpose of this project is to develop and examine other options that may reduce risk, with particular focus on subpopulations believed to be most at risk. In particular, the following risk-reduction options should be considered:

- Screening of at-risk persons for habitual consumption of Bay fish (by interview), for exposure to pollutants of concern (e.g., by hair samples), and for neurological effects.

Screening may be conducted in conjunction with provision of perinatal, pediatric, and/or primary care.

- Examination of dietary attitudes and options among at-risk consumers of Bay fish and evaluation of potential consumer acceptance of alternative food sources. This examination could be conducted by survey or focus group or both.
- Potential actions that might offset or mitigate specific health risks by improving the health status of persons and communities most likely to be affected by pollutants. Options may include reducing other pathways of exposure to environmental contaminants or mitigation of other factors linked to neurological and other health effects.

Project Phases

The project will be implemented in three phases:

Phase 1. Convene and organize a project team. It is suggested that the project team include participants and advisors with the following experience and expertise:

- Epidemiology, including experience with health disparities
- Public health outreach, community organizing, and program management
- Neurology and diagnosis of neurological disorders, especially among children
- Provision of family health care to low-income and disadvantaged persons and communities
- Toxicology
- Dietary science, including experience with cultural dietary preferences

Phase 2. Develop, assess, and select potential risk-reduction options. Document the process used and describe how the selected options could be implemented.

Phase 3. Implement, on a pilot basis, one or more options. The extent of the pilot will be limited by current project funding. It is anticipated that startup of a successful pilot may create a basis for attracting future funding from the CEP and from other sources for ongoing mitigation of health risks associated with pollutants in fish.

Project Budget

Phases 1 and 2: \$20,000

Phase 3 (initial pilot): \$80,000

Recommended Contractor:

It is suggested that the conceptual project plan be circulated to persons who provide public health services and primary care to disadvantaged communities with a request for recommendations. The resulting list might be used to distribute a request for qualifications or request for proposals.

References

- California Department of Health Services and San Francisco Estuary Institute. 2001. *Public Summary of the San Francisco Bay Seafood Consumption Study*. 13 pp. www.sfei.org.
- Johnson, Bill and Richard Looker. 2004. *Mercury in San Francisco Bay: Total Maximum Daily Load (TMDL) Proposed Basin Plan Amendment and Staff Report*. April 30, 2004. 118 pp. + app. www.swrcb.ca.gov/rwqcb2
- USEPA. 2003. *America's Children and the Environment: Measures of Contaminants, Body Burdens, and Illnesses*. EPA 240-R-03-001. February 2003. 181 pp. <http://www.epa.gov/envirohealth/children/report/index.htm>
- Water Board. 2002. California Regional Water Quality Control Board for the San Francisco Bay Region. Clean Water Act 303(d) List of Water Quality Limited Segments. Approved by USEPA July 2003. www.swrcb.ca.gov/rwqcb2
- Water Board. 2004. *PCBs in San Francisco Bay: Total Maximum Daily Load Project Report*. January 8, 2004. 73 pp. www.swrcb.ca.gov/rwqcb2