September 2012

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CLEAN WATERSHEDS FOR A CLEAN BAY
Implementing the PCB and Mercury TMDLs

San Francisco Bay is one of the largest and most biologically diverse estuaries on the west coast of the United States. The Bay Area is world renowned for its scenic beauty, commercial and industrial enterprises, recreational opportunities, fisheries, and wildlife habitat. All of these features are vital to the health and economies of the local communities, where more than seven million people live and work in the highly developed watersheds that surround the Bay. The water quality of this precious resource is inextricably linked to historical and current human activities in these urban watersheds. Urban stormwater runoff is of particular concern as it conveys many types of pollutants from the urban landscape to the Bay and is very challenging to control.

Among these pollutants, water quality regulators currently consider PCBs and mercury as especially high priority. These pollutants are found in certain species of San Francisco Bay fish at levels thought to pose a health risk to people who catch and eat those fish. Local subsistence fishers and their families are of particular concern. In response, the State of California has issued an advisory on the consumption of Bay fish and developed comprehensive Total Maximum Daily Load (TMDL) water quality restoration programs addressing PCBs and mercury.[1] The general goals of the TMDLs are to identify pollutant sources to the Bay, implement actions to remove or control the sources, and restore water quality so that the fish consumption advisory can be removed at the earliest possible date.

Bay Area stormwater management agencies are helping to implement the PCB and mercury TMDLs in the watersheds surrounding the Bay, with a focus on old industrial areas that may discharge relatively large amounts of pollutants in urban runoff. The Bay Area Stormwater Management Agencies Association (BASMAA)[2] is performing much of this work through a grant-funded project called Clean Watersheds for a Clean Bay (CW4CB). The project is facilitated through a partnership among Bay Area cities[3] (Figure 1), Bay Area countywide municipal stormwater management programs,[4] and the California Department of Public Health. CW4CB is funded by a grant to BASMAA from the United States Environmental Protection Agency (EPA).

[1]The Office of Environmental Health Hazard Assessment issued the fish consumption advisory and the Regional Water Quality Control Board, San Francisco Bay Region, developed the TMDL water quality restoration programs.

[2]BASMAA is a 501(c)(3) non-profit organization that coordinates and facilitates regional activities of municipal stormwater programs in the San Francisco Bay Area. BASMAA represents 96 agencies, including 84 cities, 7 counties, and several special districts.

[3]CW4CB's municipal partners are the Cities of El Cerrito, Oakland, Richmond, San Carlos, San Jose and Vallejo.

[4]CW4CB's countywide stormwater management program partners are the Santa Clara Valley Urban Runoff Pollution Prevention Program (SCVURPPP), the Alameda Countywide Clean Water Program (ACCWP), the Contra Costa Clean Water Program (CCCWP), the San Mateo Countywide Water Pollution Prevention Program (SMCWPPP), the Fairfield-Suisun Urban Runoff Management Program (FSURMP), and the Vallejo Sanitation and Flood Control District (VSFCD).

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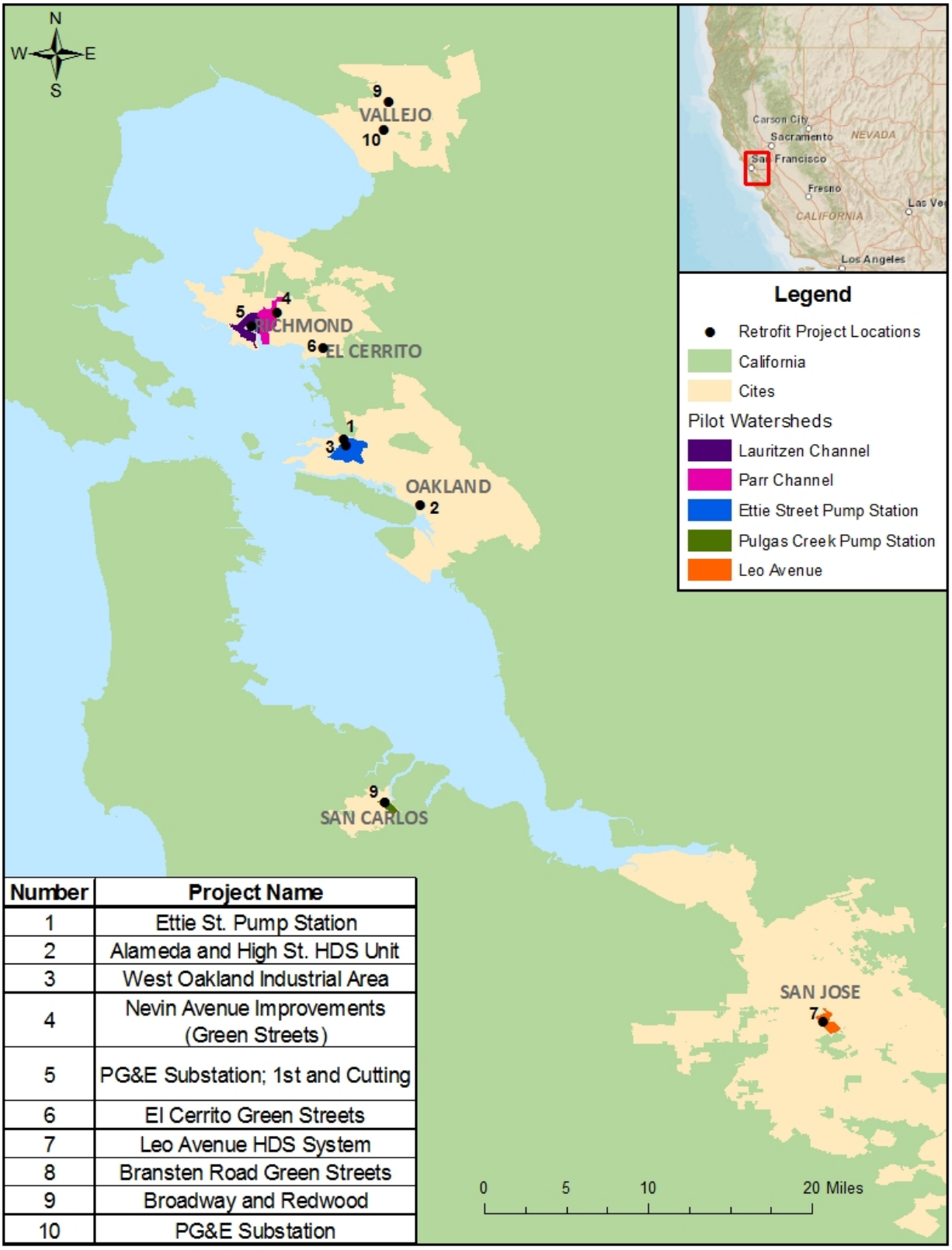

Number	Project Name
1	Ettie St. Pump Station
2	Alameda and High St. HDS Unit
3	West Oakland Industrial Area
4	Nevin Avenue Improvements (Green Streets)
5	PG&E Substation; 1st and Cutting
6	El Cerrito Green Streets
7	Leo Avenue HDS System
8	Bransten Road Green Streets
9	Broadway and Redwood
10	PG&E Substation

Figure 1. Project Location and Selected Features

The total project cost is about $7 million - $5 million from USEPA and about $2 million in matching funds from Bay Area countywide municipal stormwater management programs, municipal wastewater treatment agencies, and industrial dischargers.

CW4CB consists of four key tasks. Three of the tasks are major field studies to evaluate on a pilot-scale a variety of potential methods to reduce the amount of PCBs, mercury, and other pollutants conveyed to the Bay by urban stormwater runoff. The fourth task is an outreach program to educate the public about the health risks due to pollutants in Bay fish. CW4CB began in July 2010 and recently passed the halfway point of the four-year planned project period. The four project tasks and the status of each task are described below.

Identify Source Properties and Refer to Regulatory Agencies for Abatement

This task is the first of the three major field studies. It focuses on identifying PCB and mercury source properties within five "pilot watersheds" (Figure 1). The selected watersheds have old industrial land uses and elevated levels of pollutants in sediments collected from roadways and storm drains. The project has completed initial steps in each watershed, including a review of current and historical records, aerial imagery analysis, field reconnaissance, and inspection of priority facilities and properties thought to be potential source areas. The results are being used to inform the development of field monitoring programs that will test sediments and soils from each pilot watershed for PCBs and mercury to collect further evidence to identify potential source properties. The monitoring programs will commence in the fall of 2012, starting with the public right-of-way and then honing in on individual properties within the pilot watersheds. CW4CB will then refer properties with elevated PCB and/or mercury concentrations to regulatory agencies for additional investigation, cleanup and abatement.

Enhance Municipal Operation and Maintenance Activities

This task is the second of CW4CBs three major field studies and will evaluate methods to enhance the pollutant removal benefits of municipal operation and maintenance (O&M) activities that remove sediment from streets and storm drain system infrastructure. These methods takes advantage of the fact that PCBs and mercury are mainly found attached to sediments in the urban environment. These studies will occur in the five pilot watersheds and evaluate a variety of enhancements to municipal O&M practices selected from typical routine activities such as street sweeping and storm drain system cleaning and non-routine activities such as street and storm drain piping flushing.

An analysis currently underway will help plan the municipal O&M enhancement studies. The analysis is characterizing current O&M activities in the five pilot watersheds and how sediment and pollutants are transported through each watershed from source properties to roadways and storm drain piping and channels and then eventually to the Bay. It will help identify locations where sediments with pollutants can be intercepted by enhanced O&M activities. The analysis will be completed during the fall of 2012 and the O&M enhancement studies will be conducted beginning in spring of 2013.

Evaluate Urban Runoff Treatment Retrofits

The third of CW4CBs three major field studies will evaluate the effectiveness of urban runoff treatment structures for removing PCBs and mercury. These structures are being retrofitted into public right-of-ways, roadways and easements in 10 Bay Area locations with elevated PCBs and mercury, some within the five pilot watersheds (Figure 1). In general, the treatment retrofits will filter urban runoff during the rainy season to remove sediments and attached pollutants, including PCBs and mercury. Several treatment retrofits were funded solely via CW4CB whereas others were "piggybacked" on other municipal Capital Improvement Projects such as "green street" and trash capture device projects. Projects that have completed planning, design, permitting and construction by the end of 2012 will be monitored for PCBs and mercury removal effectiveness during the 2012/13 wet weather season. The remaining projects will be completed during 2013 and monitored during the 2013/14 rainy season.

Facilitate Risk Communication and Exposure Reduction

CW4CB is partnering with the California Department of Health Services to conduct the fourth major project task, a regional outreach and education program referred to as the San Francisco Bay Fish Project (SFBFP). The SFBFP is collaborating with community groups, local agencies, tribes, and others to raise public awareness of fish contamination issues in the Bay. The SFBFP is also supporting community-based projects encouraging people that eat fish from the Bay to reduce their exposure to PCBs, mercury, and other pollutants in the fish while other actions, such as those described above, are taken to eventually reduce contamination levels in the fish to safe levels.

The SFBFP has developed a broad communication framework that serves as the basis for planning future outreach and education. The framework addresses how to communicate information about fish contamination issues, including the current advisory, to fish-consuming communities, with an emphasis on those communities at greatest risk. One important component of the framework that is currently underway is a program of "mini-grants" to selected community groups to help overcome cultural and language educational barriers.

Further information about the SFBFP is available at the project web site located at http://sfei.org/sfbfp.