

**Draft Progress Report**  
**to the**  
**San Francisco Bay Regional Water Quality Control**  
**Board**  
**On Development of a San Francisco Bay**  
**Mercury Risk Reduction Plan**  
**under**  
**Order No. R2-2007-0077**  
**NPDES No. CA0038849**

**Submitted to Bay Area Clean Water Agencies**  
**by**

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## Introduction

San Francisco Bay is listed as an impaired water body (under the federal Clean Water Act) due to contamination from certain classes of pollutants including methyl mercury and PCBs. The San Francisco Bay Mercury TMDL was finalized and a Basin Plan Amendment adopted on February 12, 2008. The TMDL Basin Plan amendment is the regulatory basis for reducing mercury loadings to the Bay from point and non-point sources (e.g. municipal, industrial, and storm water dischargers). The Mercury TMDL has a provision to develop a San Francisco Bay Risk Reduction Program to reduce mercury exposure from local sport fish consumption. In addition to the TMDL, the Bay also has an interim sport fish consumption advisory that is still in effect (<http://www.oehha.ca.gov/fish/general/sfbaydelta.html>). The interim advisory provides advice for safe consumption of San Francisco Bay sport fish.

As part of the San Francisco Bay municipal and industrial waste discharge permits, permittees are required to develop, or cause to be developed, a risk reduction program that targets consumers of San Francisco Bay caught fish. The Bay Area Clean Water Agencies (BACWA), industrial dischargers, and the Western States Petroleum Association (WSPA) are currently being asked by the San Francisco Bay Regional Water Quality Control Board (Water Board) to develop a risk reduction program. It is anticipated that the Bay Area Stormwater Management Agencies Association (BASMAA) will, upon renewal of the municipal regional stormwater permit, participate in the development and implementation of the Program.

This document is a progress report submitted to the Water Board on behalf of the municipal and industrial dischargers under Order No. R2-2007-0077, NPDES No. CA0038849. The submittee is San Francisco Estuary Institute (SFEI). Under the guidance of WSPA and BACWA, and BASMAA, SFEI has prepared this progress report. The Order requires that a progress report on the risk reduction efforts be submitted within one year of the effective date of the Order (March 1, 2008). This progress report summarizes the efforts, to date, on the development of a risk reduction program. The sections of Order No. R2-2007-0077, NPDES No. CA0038849 pertaining to the risk reduction program are included below in Exhibit A. There are three phases to this project. Phase I involves preliminary investigations of the various Program options. The culmination of Phase I is a progress report on the efforts to date. Phase II involves the detailed work of designing a risk reduction program. Phase III is the implementation of the program.

During the first phase, SFEI interviewed various interested parties including representatives from the Santa Clara Valley Urban Runoff Pollution Prevention Program (SCVURPP), Department of Public Health staff, and Andria Ventura from Clean Water Action. These interviews have helped shape the conceptual framework and have put in place potential next steps. If necessary, Phase I can continue on with additional interviews with other interested parties including community members. A summary of these interviews can be found in Appendix B.

## **I. Conceptual Framework**

A draft conceptual framework was developed based on the Phase I work. This framework may help guide the development of the risk reduction program (see Figure 1). The framework suggests a two-tiered approach for reducing contaminant exposure from consumption of locally caught fish as well as integrated messages on consumption of commercial fish. As mentioned previously, messages and materials should integrate consumption of both local sport fish and commercial fish. The United States Food and Drug Administration (FDA) has jurisdiction to develop and disseminate messages/materials on the safe consumption of commercial fish. Integration of advice is beneficial for complete and clear communication on contaminant exposure from consuming fish. OEHHA has integrated aspects of the FDA advice into their regional sport fish consumption advisories (see the Sacramento River and North Delta Advisory Guide [http://www.oehha.ca.gov/fish/so\\_cal/pdf\\_zip/SacramentoRiverNorthernDelta.pdf](http://www.oehha.ca.gov/fish/so_cal/pdf_zip/SacramentoRiverNorthernDelta.pdf)).

The two main tiers of outreach/education are:

High Consumers – subsistence fishers and high frequency fish consumers  
Sport & Recreational Anglers – medium frequency fish consumers

There is an additional tier representing the general population that could benefit from risk reduction messages and materials developed to target high/medium sport fish consumers. Integrated messages and materials (including risks/benefits of local sport and commercial fish consumption) distributed through existing pollution reduction outreach channels such as the public school programs and PSAs could expand current messages by providing a food-web component (linking sources to fate).

There are discrete populations within each tier that warrant different approaches for development of a risk reduction program. As an example, outreach efforts to target low literacy, high frequency fish consumers would not be appropriate for party boat, high frequency fish consumers. The framework therefore provides various communication modes that are designed to reach targeted groups. The main tiers, High Consumers and Sport/Recreational Anglers require a more targeted effort. General outreach such as Public Service Announcements and Press Releases may or may not reach these populations. Therefore, targeted approaches directly to these populations are more appropriate. Regardless of the target population, all risk reduction messages and materials should be developed with DPH oversight.

This framework is a draft that outlines potential next steps.

## **II. Next Steps**

The first phase of the risk reduction planning process is complete. During the first phase the following tasks were accomplished:

- 1) Identification of risk reduction program funding – BACWA, BASMAA, WSPA
- 2) Identification of agencies needed for participation in the development and implementation of the Program
- 3) Discussion with Agency, BASMAA, BACWA, WSPA staff on potential models for developing a San Francisco Bay risk reduction program
- 4) Identification of existing BASMAA and BACWA outreach/education efforts
- 5) Development of a conceptual framework for the program

With this framework in place, the project is poised to develop the details of the Program. There are two potential options for developing the Program. The following next steps outline both options recommended:

**Option 1:**

- 1) Identify Agent for coordinating development of the detailed risk reduction program (Timeframe – 2nd quarter 2009)
- 2) Identify existing risk reduction efforts that could be utilized for this program (3<sup>rd</sup> quarter 2009)
- 3) Identify process for involving public in the development of the program (3<sup>rd</sup> quarter 2009)
- 4) Convene a forum with pertinent agency staff and community members or identify another process to (4<sup>th</sup> quarter 2009 and 1<sup>st</sup> quarter 2010):
  - a. Identify target populations with an emphasis on populations at higher exposure risk i.e. high consumers
  - b. Identify appropriate mode(s) of communication (e.g. signage, dock walker education) to reach target population(s)
  - c. Identify the process for developing appropriate messages
    - i. Messages need to be culturally and linguistically appropriate
    - ii. DPH oversight of messages/materials
  - d. Identify how CBOs participate in risk communication (e.g. dock walker education, translation of messages/materials, community health clinic outreach)
  - e. Identify desired outcomes for various outreach/education efforts – this will be crucial for the development of an effective evaluation plan
  - f. Develop an evaluation plan and a plan for administering the evaluation, for each effort
  - g. Develop a public process for review of the program

**Option 2:**

- 1) Employ the California Department of Public Health to implement the risk reduction program. This program may be based on the Fish Mercury Project model (described in Appendix B below) or may also build on existing outreach efforts to at-risk communities.
  - a. Under the FMP model, DPH would work with community based groups (CBOs), via mini-grants, to develop and implement strategies for

informing at risk communities about the benefits and risks of fish consumption.

- b. DPH also has some experience with contaminant exposure outreach via community health clinics (see Comprehensive Perinatal Services Program below). This is another potential outreach option for reaching vulnerable populations.
- c. Explore other potential outreach options with DPH.

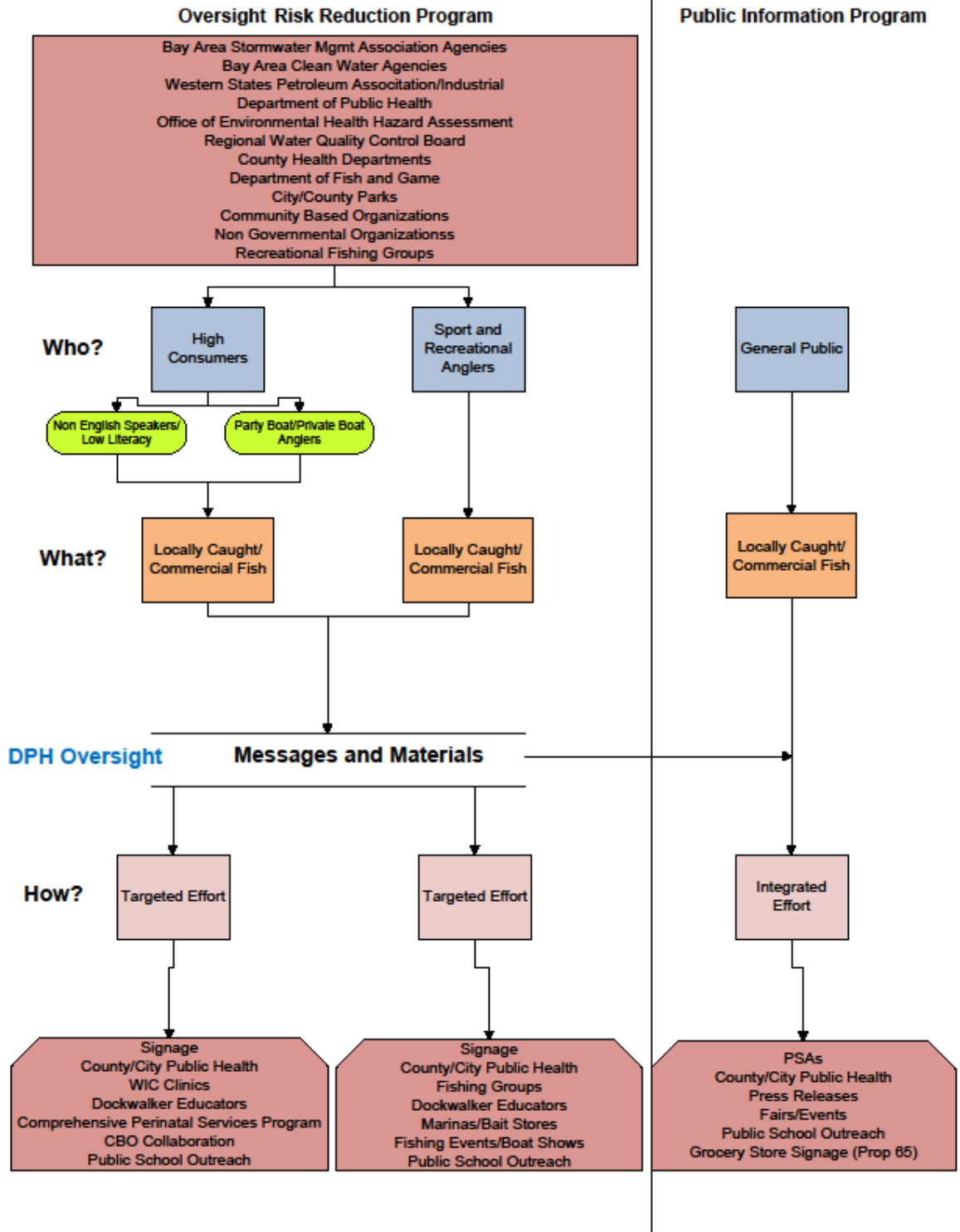


Figure 1. Draft conceptual framework

## APPENDIX A

### Excerpted from: **SF BAY MERCURY WATERSHED PERMIT MUNICIPAL AND INDUSTRIAL WASTEWATER DISCHARGERS ORDER No. R2-2007-0077 Adopted November 1, 2007**

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#### **4. Risk Reduction Programs**

The Dischargers shall develop and implement or participate in effective programs to reduce mercury-related risks to humans and quantify the resulting Risk reductions from these activities. The activities may be performed by a third party if the Dischargers wish to provide funding for this purpose. This requirement may be satisfied by a combination of related efforts through the Regional Monitoring Program or other similar collaborative efforts.

The Risk reduction activities shall include investigating ways to address public health impacts of mercury in San Francisco Bay/Delta fish, including activities that reduce actual and potential exposure of health impacts to those people and communities most likely to be affected by mercury in San Francisco Bay-caught fish, such as subsistence fishers and their families. Such strategies should include public participation in developing effective programs in order to ensure their effectiveness.

The Dischargers may include studies needed to establish effective exposure reduction activities and risk communication messages as part of their planning.

- Within 1 year of the effective date of this Order, the Dischargers shall submit, or cause to be submitted, a progress report describing their efforts in developing risk management and reduction programs, with community participation and input.
- Within 2 years of the effective date of this Order, the Dischargers shall submit, or cause to be submitted, a report describing the details of their risk management and reduction programs, the community participation process that was involved in developing such programs, any third parties involved in implementing the programs, and a plan for evaluating the programs' effectiveness. The report shall include an implementation schedule with implementation beginning within 3 years of the effective date of this Order. The Dischargers shall describe the progress of their efforts in the Annual Self-Monitoring Report required by IV.B.2.b. (or IV.C, Optional Group Compliance Reporting) in Attachment E of this Order.

#### **Special Provisions – Section F Page 20**

#### **4. Risk Reduction Programs**

The TMDL requires municipal and industrial wastewater Dischargers to “develop and

implement effective programs to reduce mercury-related risks to humans and wildlife and quantify Risk reductions resulting from these activities.” This provision is based on this requirement. We envision a multi-phase process to develop a regional risk management strategy. The Order requires Dischargers to include public participation in the development process as this could make the programs more effective. The first phase should focus on identifying specific risk-management needs, the appropriate measures to address those needs, and the associated costs and mechanisms to implement the measures. This could reasonably take one to two years to develop. Another year is a reasonable timeframe for municipal entities to secure resources and identify the appropriate mechanisms to start implementing the Risk reduction programs.

As indicated in the TMDL, in this effort, the Regional Water Board will work with the California Office of Environmental Health Hazard Assessment, the California Department of Public Health, and other organizations including Dischargers that pursue risk management as part of their mercury-related programs. For an effective and efficient regional program, the Order allows that the activities may be performed by a third party if the Dischargers wish to provide funding for this purpose. The Regional Monitoring Program is one such vehicle because it has an equitable and accepted cost allocation system already in place along with an established stakeholder overview and participation process.



## **APPENDIX B Summary of Project Progress**

### **August 2008**

In anticipation of developing a San Francisco Bay Risk Reduction Program, SFEI gave a presentation to the BACWA Executive Board on the Fish Mercury Project's (FMP) model of risk reduction. The FMP is a risk reduction project covering the Sacramento/San Joaquin River watershed. This three-year CALFED funded study monitored mercury levels in popular sport fish species, developed site appropriate sport fish consumption advisories, and developed messages and materials to convey the risks and benefits of consuming local sport fish to communities at risk. Project partners included the Office of Environmental Health Hazard Assessment (OEHHA) and the California Department of Public Health (DPH). Community-based organizations (CBOs) were provided mini-grants to work with DPH to develop culturally and linguistically appropriate messages for communicating the risks and benefits to exposed communities. The FMP model is one option under consideration for the development of a San Francisco Bay Risk Reduction Program.

### **September 2008**

BACWA contracted with SFEI in September of 2008 to begin the process of developing the risk reduction program. The goals of the original contract were to:

- 1) Build on the efforts conducted by the Clean Estuary Partnership in 2005/06, develop an initial annotated agenda in close coordination with the identified facilitator (including a "script" for the day, briefing materials needed, clearly stated desired outcomes for the meeting and anticipated follow-up needs, etc.) to be vetted with members of the BACWA and Regional Board staff.
- 2) Identify the list of invitees to the workshop that includes at minimum representative members of community-based organizations and environmental justice coalitions throughout the Bay Area, key staff members of the Regional Water Board and the Department of Public Health, and selected experts in communication and quantifying the effectiveness of risk reduction efforts.
- 3) Select and obtain a suitable meeting venue.
- 4) Produce a workshop summary that distills agreed-upon elements of a risk management and reduction strategy and can be used for developing the implementation and evaluation plan with likely costs scenarios.

Based upon their experience with the FMP, SFEI was selected to review previous San Francisco Bay risk reduction efforts, convene a meeting of interested parties to discuss developing the plan, and produce a summary report of the process.

### **October 2008**

An initial meeting was held with representatives from BACWA, BASMAA, and WSPA to discuss the planning process. The main outcome of this initial meeting was an

expressed need to talk with the Water Board about the requirements for the risk reduction program. A subsequent meeting was held with representatives from BACWA, BASMAA, and the Water Board to discuss the risk reduction program. Outcomes of this meeting included:

- 1) A request to further delve into the San Francisco Bay Sport Fish Consumption Report (<http://www.sfei.org/rmp/sfcindex.htm>) to gather information on populations most vulnerable to contaminant exposure via consuming local sport fish. (The review of the sport fish consumption report was completed and is shown in Appendix C).
- 2) Risk communication work by CBOs and others must target those at highest risk.
- 3) The project needs to consider the needs of urban recreational anglers.
- 4) There needs to be a strong emphasis put on evaluating of the effectiveness of the risk reduction program. In particular, there needs to be pre-and post-evaluation to measure if the message was received and/or behavior changed.
- 5) As public health experts, the DPH needs to be involved in the development of communication materials and messages for risk communication.
- 6) The DPH had previously suggested the importance of county health department involvement in disseminating messages and materials on the risks/benefits of consuming fish from the Bay. However, most county departments do not have money earmarked for this work.
- 7) Need to have community approval of this plan. Once the plan is developed it will undergo public review and comments. Perhaps involving Andria Ventura or the new executive director of Clean Water Action.
- 8) Need to determine the core message that needs to be communicated? Contaminant cleanup plans and actions need to be part of the message. It also should include a food web message that describes contaminant movement from sources to final destination in fish. Personal responsibility should also be a part of the message including education on trash reduction. A big part of the message needs to appeal to people being part of the solution.
- 9) After some discussion, it was decided to move forward using existing communication pathways already in place. Rather than going through community organizations the dischargers would like to do outreach to the public via schools. BASMAA has the Public Information and Participation (PIP) program that could work on disseminating this message. The POTW's also have outreach activities in place.
- 10) Develop a program for mercury exposure reduction but develop flexibility in the program so that other pollutants of concern can be integrated as required by the TMDLs.
- 11) Main items still to be decided include:
  - a. evaluate the educational options for relaying fish contamination message
  - b. identify the target audience
  - c. determine what the message will be

## **November 2008**

**The following information is a summary of meetings SFEI held with interested parties. These meetings are still in process and meetings with community groups are still needed.**

### **A) Meeting with SCVURPPP staff and Trish Mulvey**

SFEI met with Trish Mulvey, SFEI Board of Directors, and Vishakha Atre, a senior scientist at EOA which oversees the Santa Clara Valley Urban Runoff Pollution Prevention Program (SCVURPPP), to discuss existing outreach and education programs run by municipal agencies locally and through BASMAA and BACWA. Appendix D summarizes the outreach/education programs (provided by EOA) that provide support for BASMAA and BACWA pollution prevention efforts. This meeting provided insight into current BASMAA and BACWA outreach efforts and limitations of existing efforts to target certain populations, particularly non-English speakers and low literacy populations. A draft framework for developing a Project conceptual framework was a major outcome of this meeting (see Conceptual Framework section).

- The current BASMAA and BACWA outreach and education efforts are general in nature and mainly target the general public. BASMAA and BACWA have some experience with targeted outreach and education efforts, in particular working with the dental industry to reduce mercury, from dental amalgams, entering wastewater treatment plants. And targeting pesticide buyers through the BASMAA Store Partnership (or Our Water Our World) Program BASMAA also has worked to post fish consumption advisory signs at some fishing areas in Santa Clara Valley. BASMAA and BACWA have conducted general outreach on proper disposal of mercury containing materials (e.g., thermometers and fluorescent light bulbs) from the water pollution prevention angle.

Risk reduction efforts reaching consumers of Bay fish will probably need a more targeted approach. Many of the general approaches in place may not reach the desired populations, particularly non-English speakers and low literacy populations. In addition, outreach and education efforts need to integrate messages with information concerning commercial fish (fish bought from supermarkets or fish stores). A message solely based on local sport fish consumption may be considered an incomplete message since many local sport fish consumers may also be consuming commercial fish such as canned tuna. An integrated approach would be most protective since it would take into account contaminant exposure from both local and commercial sport fish.

### **B) Meeting with the DPH**

SFEI also held a conference call with Alyce Ujihara and Tivo Rojas from DPH. DPH was an integral member of the FMP and has the most experience with risk communication surrounding local sport fish consumption. At the beginning of this process, DPH was asked to submit a budget estimating costs for their participation in the risk reduction program. DPH estimated the following per year costs to participate in the program:

1 full time Health Educator (\$91,000)  
Mini grants to CBOs (\$80,000-\$200,000)  
Overhead (\$18,200)  
Direct costs (\$5000)  
Evaluation (\$10,000)

The above costs are based on an FMP approach to risk communication and include a program evaluation component.

DPH discussed some potential models for doing outreach and communication to various populations.

#### *Local Health Department Involvement*

DPH recommends involvement of local and county health/environmental health departments. Participation at this level is beneficial since there is a greater possibility of direct contact with local populations since local agencies are more knowledgeable of their communities. Funding is the main impediment to involvement of local agencies. Local health/environmental health departments are provided funding based on mandates and most local health agencies are not mandated to do risk communication on consuming local sport fish. Additional funding would be required for their participation.

#### *Palos Verdes Shelf Outreach Program*

DPH also discussed the success of a Southern California angler outreach program established as part of the Palos Verdes Shelf Superfund Site project (<http://www.pvsfish.org/education-Angler-Outreach.html>). This model involves 'pier walking' where volunteers talk with anglers about existing consumption advisories. Teams usually have one member that is fluent in a non-English language to facilitate communication with non-English speakers. There is also a Family and Community Outreach component (<http://www.pvsfish.org/education-Family-Community-Outreach.html>). More in-depth study of the Palos Verdes Shelf Program is needed to determine if this model would be appropriate for the San Francisco Bay Risk Reduction Program.

#### *Comprehensive Perinatal Services Program Study*

DPH has also done outreach/education with the Comprehensive Perinatal Services Program (CPSP) (<http://www.cdph.ca.gov/PROGRAMS/CPSP/Pages/default.aspx>). CPSP is a state run program that

'...provides a wide range of services to pregnant women, from conception through 60 days postpartum. Medi-Cal providers may apply to become a CPSP provider. In addition to standard obstetric services, women receive enhanced services in the areas of nutrition, psychosocial and health education. This approach has shown to reduce both low birth weight rates and health care costs in women and infants.'

The Sacramento Area clinic selected for the outreach efforts has a high percentage (~60%) of Southeast Asian women (a population with higher than average fish intake). The main objective of this effort was to assess fish intake of patients, measure blood mercury levels of pregnant women participating in this CPSP clinic, and train the clinic staff about the health risks and benefits of consuming fish and ways to reduce mercury exposure. The study results are in preparation.

### **C) Meeting with Andria Ventura from Clean Water Action**

Andria Ventura, of Clean Water Action, was instrumental in adding the risk reduction element to the municipal/industrial permit. The main intent for including the risk reduction element was to reduce mercury exposure to the most disadvantaged communities who rely on Bay fish for nutrition, particularly those populations that have high consumption rates. Ms Ventura believes that the provision was not intended to provide funding for risk reduction outreach to sport/recreational anglers. The development and implementation of a risk reduction program needs to have input from representatives from disadvantaged populations. In the next phase, community representatives need to be identified and involved in developing the plan. Groups may include Bayview Hunters Point Health and Environmental Assessment Program, Asian Pacific Environmental Network, and community groups in Richmond.

One idea that has recently been discussed with Karen Pierce, Coordinator of the Bayview Hunters Point Health and Environmental Assessment Program involves working with local community health clinics to do health screening and outreach on reducing mercury exposure. Community groups would do the outreach to their respective communities. This is similar to the pilot project that DPH completed under the CPSP.

Ms. Ventura believes that a process for deciding next steps needs to include community representatives and the community needs to be involved in the decision on selecting a coordinator for Phase II of the project (Phase II is designing the risk reduction program). Andria can provide names of community representatives for the next phase. One idea is to create a stakeholder work group that could select the planning coordinator or an agency (such as the Water Board) could fund a position to develop and implement the program.

As far as the conceptual framework, the oversight process seems agency heavy. Community members need to be involved in the oversight process since they have the most contact with their respective communities, know best how to reach them, and know the best venue for communicating risks.

## APPENDIX C

The following is a summary of a data mining effort with the San Francisco Bay Seafood Consumption Study report which was published in 2001, a joint effort between the Department of Public Health and San Francisco Estuary Institute. The full report can be found here (<http://www.sfei.org/rmp/sfcindex.htm>). There are also links to a Public Summary, General Information Fact Sheet, and Information for People Who Fish Fact Sheet (English and Spanish) on this web site. During a meeting with BACWA, BASMAA, and the Regional Board, a request was made to revisit the Consumption Report and summarize information on fishing pressure and identify ethnic groups vulnerable to high contaminant exposure through local sport fish consumption.

### **The below summary below may help with identification of target populations**

There were 1331 anglers interviewed during the survey. Of these 1331 anglers, 1152 were identified as consumers of Bay sport fish (179 were non-consumers). Of the 1152, 537 anglers had consumed Bay sport fish within the last four weeks (615 had not consumed fish in the previous four weeks). Pier, beach, bank, private boat, and party boat anglers were interviewed.

#### Target General angler population or most at-risk population?

- Majority of anglers interviewed were pier anglers while private boat anglers were the second-most interviewed group
- the consumption study derived sport fish consumption rate based on the average consumer and not the most at risk consumer (higher amounts of sport fish consumption)
- Caucasians and Asians were the most highly represented of all other ethnic groups in the study
- Caucasians used the mode of boat sampling more frequently than other ethnic groups while pier and bank angling was dominated by Asians
- nonwhites (as a total) were more than half of the angler population surveyed
- Filipinos were the dominant ethnic group of the Asian population surveyed
- as a generality, shore based fishing had a higher percentage of anglers with incomes less than 20,000 per year than did boat anglers and generally also had lower education levels
- Asian recent anglers (consumed Bay sport fish within the last four weeks) were dominated by Filipinos, then Vietnamese, other Asian, Chinese, and Pacific Islander
- 86% of anglers were male
- 59% of anglers fell into the 18 to 45 age range
- Caucasians and African-American anglers reported eating fish over the longer-term than other ethnic groups
- 46% of sport fish consumers reported that women of childbearing age ate San Francisco Bay caught sport fish and 13% reported that children younger than six years old ate Bay sport fish

**The following summarizes local sport fish consumption rates of surveyed anglers**

- 54% of consumers reported that a typical meal size was about 8 ounces while 13% reported a portion size greater than 8 ounces
- the average number of sport fish meals over a four-week period (adjusted for avidity) for consumers was 2.9 +/- 3.4. Minimum meals was one and maximum was 32
- Asians have the highest mean meal frequency (meals per day) than any other ethnic group with Filipinos having the highest meal frequency in the Asian subgroup. Chinese, Vietnamese, and Pacific Islanders average meal frequencies were all higher than Caucasians.
- Asian meal frequency was statistically higher than Caucasian meal frequency
- consumption rates (calculation of portion size multiplied by meal frequency and then converted to a grams per day rate) were highest in the "other angler" category at 27.5 g per day. This other category (n=7) includes Russian, middle eastern and other unidentified mixed ethnicity.
- African-Americans (17.8 g per day) had the highest consumption rates, by ethnic group, followed by Asian, Latino, then Caucasian
- When the Asian subgroup was broken down into individual Asian subpopulations - Pacific islanders (n=12) had the highest consumption rates (22.4 g per day) of all other ethnic groups and Filipinos were at the same consumption rate as African-Americans (17.8 g per day)

**The following summarizes data on highly exposed consumers**

- The study also identified anglers who consumed sport fish in amounts above advisory levels. 9% of consumers were identified as being above the two meal per month or 16 ounces per month advisory level with 41% of those above consuming two to four times the advisory limit.
- In the above advisory level group, 49% were Asian, 24% were Caucasian, 12% African-American, 10% Latino
- in the top five percentile of consumers above advisory levels, 53% were Asian, 28% Caucasian, 9% Latino, and 6% African-American
- Filipinos are probably the most highly exposed ethnic group; African-Americans probably the 2<sup>nd</sup> highest exposed group
- there is a potential bias in the study where more vulnerable populations i.e. recent immigrants with language barriers may not have been interviewed. Decliners (anglers who refused to participate in the survey) had a higher proportion of Asians than the angler population interviewed. Approximately one third of decliners had language barriers. The study concluded that decliners would not have significantly changed the consumption rate had they been interviewed.

**The following summarizes sport fish consumption advisory awareness by anglers**

- 60% of consumers are aware of the Bay advisory
- African-Americans and Caucasians are more likely to be aware of the advisory while Latino's and Asians are not as aware

- Awareness of the advisory increased with increases in income, education, and years of fishing
- 37% of consumers who had awareness of the advisory said they changed their consumption habits – of the 37% - 71% had reported a change in fish preparation and 16% reported they stopped eating fish
- Of all anglers surveyed (consumers and non-consumers) – the newspaper and television were identified as the media that they would like to receive advisory information. Only 4% said contact with an educator would be the best way to receive an advisory message.





## APPENDIX D

### **BASMAA**

Website: [www.basmaa.org](http://www.basmaa.org)

Main Contact: Geoff Brosseau

A consortium of the following eight San Francisco Bay Area municipal storm water programs:

- Alameda Countywide Clean Water Program.  
<http://www.cleanwaterprogram.org/indexHTML.htm>
- Contra Costa Clean Water Program.  
<http://www.cccleanwater.org/>
- Fairfield-Suisun Urban Runoff Management Program.  
<http://www.fssd.com/indexSub.cfm?page=912368>
- Marin County Stormwater Pollution Prevention Program.  
<http://mcstoppp.org/>
- San Mateo Countywide Stormwater Pollution Prevention Program.  
[www.flowstobay.org/](http://www.flowstobay.org/)
- Santa Clara Valley Urban Runoff Pollution Prevention Program.  
[www.scvurppp.org](http://www.scvurppp.org) and [www.MyWatershedWatch.org](http://www.MyWatershedWatch.org)
- Sonoma County Water Agency.  
[www.scwa.ca.gov/](http://www.scwa.ca.gov/)
- Vallejo Sanitation and Flood Control District.  
[www.vsfcd.com](http://www.vsfcd.com)

In addition to the members listed above, other agencies, such as the California Department of Transportation (Caltrans) and the City and County of San Francisco (combined sewer system), participate in some BASMAA activities. Together, these agencies represent more than 90 agencies, including 79 cities and 6 counties, and the bulk of the watershed immediately surrounding San Francisco Bay.

### BASMAA Pub Ed Committee

The BASMAA Pub Ed Committee stopped meeting about 7 or 8 years back. Activities are now conducted through the following three committees:

- 1) BASMAA IPM Partnership Committee – Coordinates IPM related activities, with a strong focus on the OWOW Program [www.ourwaterourworld.org](http://www.ourwaterourworld.org)
- 2) The BASMAA/BACWA Media Relations Committee – Uses “free” media, i.e., PSAs and press releases to obtain media coverage. They don’t have a separate website, all media directs residents to [www.baywise.org](http://www.baywise.org)
- 3) BASMAA Regional Ad Campaign Committee – Uses “paid” advertising to conduct outreach. Is currently developing an ad campaign focusing on litter/trash. No website yet. Will probably direct residents to the Baywise website.

### **BACWA**

Website: [www.bacwa.org](http://www.bacwa.org)

Main Contact: Michele Pla

BACWA members come from the nine Bay Area counties that surround the San Francisco Bay. BACWA is a joint public powers authority whose members include public utilities that collect and treat municipal wastewater. They have 3 membership categories – principal, associate and affiliate members. Bay Area Pollution Prevention Group is the outreach arm of BACWA with a specific focus to educate and inform about pollution prevention in commercial, health care and residential establishments.