San Francisco Bay Fish Project
Final Report

Submitted on October 29, 2012, to the Aquatic Science Center by the California Department of Public Health

I. Introduction and Background

This report summarizes the activities conducted by the California Department of Public Health (CDPH) under the San Francisco Bay Fish Project (SFBFP). The goal of the SFBFP is to encourage fish consuming populations to reduce their exposure to mercury and polychlorinated biphenyls (PCBs) from consumption of fish in San Francisco Bay. In implementing these activities, CDPH has successfully completed the tasks and provided the deliverables described in the Memorandum of Agreement (MOA) between CDPH and the Aquatic Science Center. The MOA contains four tasks:

Task 1: Conduct needs assessments
Task 2: Create and convene Stakeholder Advisory Group (SAG)
Task 3: Conduct risk communication and exposure reduction activities
(a) Risk communication and exposure reduction framework
(b) Project subcontracts (grant program)
(c) Advisory brochure and kiosk flyer
(d) Identify future activities
Task 4: Program evaluation and coordination

This report is organized into the following sections:

Section I: Introduction and background
Section II: Stakeholder Advisory Group (SAG) and SAG evaluation
Section III: Educational materials including advisory brochure and kiosk flyer
Section IV: SFBFP grant program and evaluation
Section V: Recommendations

Note that evaluation activities (Task 4) are included within Section II and IV. This report does not describe the needs assessments (Task 1) that CDPH conducted in 2010 and the risk communication framework (Task 3(a)) that was discussed at the February and May 2011 SAG meetings. These tasks were already described in CDPH Quarterly Reports #1, #2 and #3. In addition, CDPH discussed future project activities (Task 3(d)) with the SAG at two meetings and provided a summary of our findings in Quarterly Report #7. Since we did not receive any further feedback from the SAG on our summary of future activities, we did not update that summary in this report. However, we have included some of the future activities summary in the Recommendations section of this report.

CDPH circulated a draft version of this report to staff from the Aquatic Science Center, project funders, San Francisco Bay Regional Water Quality Control Board, Office of Environmental Health Hazard Assessment, and the groups receiving funding under the grant program (hereafter referred to as the "funded groups"). The comments received from these groups were incorporated into this final report.

II. Stakeholder Advisory Group (SAG) and SAG Evaluation (Task 2)

CDPH created a Stakeholder Advisory Group (SAG) to collaborate with interested community groups and agencies, and receive their input on the SFBFP activities, including the SFBFP grant program, educational messages and materials, and possible future activities. CDPH kept SAG members informed and updated on project activities and promoted collaboration among SAG members to address project goals. CDPH invited over 100 groups and agencies to the initial SAG meeting in December 2010 as was described in Quarterly Report #1. In addition, with SAG guidance, CDPH developed a SAG charter that described the purpose, need, membership, and responsibilities of the SAG (See Quarterly Report #2).

CDPH convened the SAG for seven meetings between Dec. 2010 and June 2012. Table 1 summarizes the meeting dates, number of attendees, and primary meeting topics. Organizations that attended at least one SAG meeting are shown in Attachment A. Meeting agendas and meeting summaries (which include a list of attendees) were also provided in the Quarterly Reports.

CDPH conducted a brief written evaluation of each SAG meeting. The meeting evaluation asked SAG attendees for input on what was useful, what the attendee would change about the meeting, and whether the attendees thought the presentations were interesting and relevant. See Attachment B for a summary of these evaluations. In addition, CDPH conducted a more in-depth evaluation at the end of each year (in Sept. 2011 and June 2012). The year-end evaluations asked SAG attendees whether we met our objectives for the SAG and whether we achieved the project "hopes and expectations" that were identified at early SAG meetings. The year-end evaluation also explored some of the reasons that SAG members participated. The first year-end evaluation (2011) also asked for input on possible future meeting topics. See summary in Attachment C. All SAG meeting evaluations were also provided in the Quarterly Reports.

In general, the meeting evaluations were very positive. We also were able to implement some of the ideas and actions suggested from the evaluations such as allowing time at the SAG meeting to hear announcements from SAG members, and inviting speakers to present on topics SAG members indicated were important. In the year end evaluation in 2012, a large majority of attendees indicated that we had met our program objectives. The one area that could be improved was the area of collaboration where some respondents indicated a need for promoting more collaboration among SAG members.

III. Summary of Educational Materials (Task 3(c))

Under the project, CDPH developed several new educational materials. These included a four-panel brochure, a kiosk flyer, a coloring book for kids, a warning sign, and an educational video. In addition, CDPH organized media activities around the posting of the signs. These materials and activities are described below.

1. Four-Panel Advisory Brochure

The four-panel brochure summarizes the advisory for San Francisco Bay that was updated by the Office of Environmental Health Hazard Evaluation in 2011. CDPH produced two versions of the brochure with different covers but the same content. One brochure cover had a picture of a leopard shark for distribution to anglers. The other brochure cover had a drawing of a fish and was designed to be used in settings that included community workshops and clinics ("clinic" cover). The brochures were produced in English plus 10 different languages and have been posted on the project website: http://www.sfei.org/content/educational-materials (a copy of the Japanese brochure is provided in Attachment D; the other languages have already been submitted in the Quarterly Reports). CDPH also printed 26,000 copies of some of the languages (see Table 2). Tongan, Laotian, and Japanese language brochures, which were not printed, are available for download. These printed copies were made available to the funded groups. Also, an order form for obtaining the printed materials was distributed to the SAG and posted on the project website.

2. Kiosk Flyer

CDPH produced a kiosk flyer which contains nearly all the same information as the brochure in a format suitable for posting at a kiosk or on a bulletin board. The kiosk flyer was completed in 4 languages and posted on the project website. The kiosk flyers for the remaining 7 languages are still being finalized and will be posted on the website when completed.

CDPH printed 200 copies of the kiosk version in English on a rigid, PVC plastic material. These printed copies were distributed to groups posting the warning signs (described below) and were intended for posting at kiosks or bulletin boards near where the warning signs are posted.

3. Coloring Book for Kids

At the request of APA Family Support Services (one of the funded groups), CDPH developed a kids coloring book. The coloring book includes pictures of Bay fish and games (e.g., word search, mazes, etc.), along with simple messages about fish contamination in San Francisco Bay. All of the funded groups were able to utilize the coloring book in their activities.

4. Warning Sign

In our early meetings with the SAG, the group indicated that the development of a warning sign for the Bay was an important priority for the SFBFP. CDPH discussed the design and content of a warning sign with the SAG at several meetings and with a SAG signage subcommittee. One of our primary goals was to develop a sign where the main message could be understood through visual images. These visual images would be supported by minimal text. We also sought to develop a simple, positive, and action-oriented message for the sign. We did not attempt to summarize the entire advisory on the sign as had been done on the previous warning sign for San Francisco Bay that CDPH developed in 2003.

Suggestions from the SAG that we incorporated into the sign included:

- Using a circle-slash symbol that included a fork. Without the fork, the group thought the sign would be interpreted as “do not fish here”.
- Listing an easy to remember website for more information rather than a government website. We purchased the domain name www.sfbayfish.org rather than using www.oehha.gov/fish.html or the project website.
- Including three languages on the sign (English, Spanish, and Chinese) with supplemental information.
- Increase the sign size to accommodate those languages. The final sign size was 14” by 22”.
- Allowing for the inclusion of local contact information. This was done by placing a stick on the lower left-hand corner of the sign.

CDPH conducted field testing of some of the images on the sign to help ensure the sign could be understood by people with limited English skills. We also field tested several headings and phrases to help ensure that they were easy to understand and interpreted correctly. Several versions of the signs were developed and modified after 4 field tests at fishing locations.

The signs contain a “QR code” which, when scanned by a smart phone, links to a unique website. That website, www.sfbayfish.org, also appears directly on the signs, along with OEHHA’s phone number. Currently, the sign website contains links to the educational brochures in all 11 languages. CDPH hopes to further develop this website in the future.

County staff also requested that the supplemental information be available in other languages (than English, Spanish, and Chinese). CDPH agreed to provide alternative languages on the sign by covering one of the three languages with a sticker that has the new language. However, to date, no counties or other groups have requested signs that are customized with other languages.

The final “Fish Smart” sign, approved by the SAG at the Dec. 2011 meeting, was posted on the project website and provided in Quarterly Report #5. CDPH produced 319 signs.

Beginning in May 2012, the signs were distributed to county health departments (to co-ordinate posting within their counties). In addition, CDPH has provided signs to East Bay Regional Park District, the City of Berkeley, the City of San Jose, and the US Fish and Wildlife Service. CDPH asked all posting organizations to fill out a sign tracking form and take photographs of the signs. To date, CDPH has identified 146 fishing locations in San Francisco Bay, including shoreline, piers, and marinas, and signs have been posted at 50 locations (about one third of the locations).

In July and August 2012, CDPH conducted an evaluation of sign posting by interviewing 37 anglers at 10 fishing sites in five counties where signs had been posted for at least one week. CDPH found that, in general, most anglers noticed the signs and understood the main messages. However, only one in three anglers reported that the signs were likely to influence their future decisions.

CDPH would like to acknowledge that many counties and other organizations have been very supportive of the sign posting activities and have done an excellent job in posting signs at locations under their jurisdiction. However, CDPH has also identified a number of posting challenges:

- Many locations have not yet been posted. A few counties have very limited staff resources to post signs.
- Some of the tracking forms have not yet been turned in, and some forms contain information that is incomplete or incorrect. As a result, CDPH summary information may not be complete.
- Some signs were posted at ineffective or suboptimal locations at a site. Therefore, CDPH would like to have additional signs posted in more prominent locations at these sites.
- In some locations, old signs need to be removed in locations where new signs are posted.

CDPH will continue to work with the counties and others groups to post signs and track posting activities. However, considerably more effort will be needed to complete posting activities.

5. Educational Video

CDPH developed a 90 second video that highlights fish contamination in the Bay. The video shows staff from the four funded groups describing key messages of the advisory. The video is available on the project website: http://www.sfei.org/content/sf-bay-fish-video-images. It has been made available for use by our partners.

6. Media

CDPH worked with the SAG to plan media activities around the posting of the signs and to highlight the funded group projects. CDPH issued a press release about the signs on July 31st (Attachment E). The press release was emailed to reporters and media

outlets, and sent to CDPH Twitter and Facebook followers. These activities resulted in the following media coverage on the sign posting activities:

- Ian Walker of CDPH was interviewed by KCBS-AM and KGO-AM.
- A short segment by KTVU-TV

CDPH had planned to invite SAG members and media to a media availability event at Muni Pier in San Francisco in August. Unfortunately, SAG member involvement was canceled due to last minute changes made by CDPH management.

7. Conclusions

In the development of educational materials, CDPH exceeded the requirements of our MOA in several ways. For example, we produced the advisory brochure in 11 languages (while the MOA required only three languages), developed the educational video, and implemented media activities. We were also able to develop and post warning signs in San Francisco Bay which was an important priority for the SAG although posting activities are still ongoing.

IV. SFBFP Grant Program and Evaluation (Task 3(b) Project Subcontracts)

One of the primary goals of the SFBFP was to support community-based organizations and local agencies in implementing outreach, education, and exposure reduction projects. This section describes the four projects conducted by community groups that were funded under the SFBFP grant program, including activities to evaluate these projects.

1. Background

With extensive input from the SAG, CDPH developed a Request for Proposals (RFP) that was announced in Feb. 2011. The RFP described the goals and expectations of the grant program, the application procedures, and selection process (see Quarterly Report #2). CDPH awarded $95,000 to four community groups in May 2011(see Table 3 below). In Oct. 2011, additional funding of $5,000 ($1250 for each group) was made available to the groups to support supplemental activities within their projects.

Before project implementation began, CDPH developed a memorandum of agreement (MOA) with each group that described the core activities they planned to implement with their grant including specific targets for the number of participants and their evaluation methods. The MOAs also describe the expectations for the groups that included: participation in CDPH trainings and site visits, attendance at SAG meetings, and documentation and reporting of results. In addition, the MOAs described CDPH's role and how CDPH would support the projects. (See Quarterly Report #3 for copies of the MOAs). One of the funded groups, CIEA, made substantive changes to their project that resulted in an addendum to their MOA (see Quarterly Report #6).

2. Funded Group Activities

The funded groups' core activities, the population served by their projects, and their project collaborators are summarized in Table 4. Additional information about each project can be found in their final reports (Attachments F-I), and in previous documentation that includes their MOAs, mid-term reports (Quarterly Report #5), and presentations each group made to the SAG at the June 14 (posted on the project website).

3. Funded Group Evaluation

CDPH required the funded groups to conduct both process evaluation (also called output evaluation) and outcome evaluation of their projects. Process evaluation is used to document program implementation and whether activities were implemented as planned and whether the expected outputs were produced. Outcome evaluation documents what was produced or changed as a result of the project. CDPH provided training for the groups on evaluation and had the groups fill out an evaluation workbook to help them plan and develop their specific evaluation activities. We also developed a set of evaluation tools to assist the groups in conducting their evaluation activities (tools were provided in Quarterly Report #4 and posted on the project website. The tools included:

- Population Screening Tool (PST)
- Pre Test and Post Test
- Retrospective Post Test (RPT) (a long and short version)

CDPH also developed several spreadsheets ("activity sheets" and "reporting forms") to compile and summarize data collected from the tools. The evaluation tools were also translated into several languages with assistance from APA.

a. Process Evaluation

CDPH developed the Population Screening Tool (PST) to help the funded groups to document their activities, track the number of participants, determine whether participants were consumers of San Francisco Bay (SFB) fish, and determine whether participants were considered to be at risk. The four funded groups' projects reached over 8,000 participants of which 5,726 were consumers of SFB fish and 4,741 were considered to be at risk (see Table 5). The participants also identified over 17,000 other members of their household who ate SFB fish. The actual number of SFB fish consumers, at risk consumers, and other household members is likely to be larger than the numbers reported in Table 5 because some of the funded groups did not obtain this information from all of its participants.

b. Outcome Evaluation

The purpose of the outcome evaluation was to measure changes in awareness, knowledge, or intent to change behavior among participants in these projects. The outcome evaluation tools included a six-question pre/post test and a retrospective post test in a long and short format. The number of participants with outcome evaluation and the evaluation methods used are summarized in Table 5. While all groups used the evaluation tools, all made some modifications to the tools which included changes in question format, wording, or response choices, or the inclusion of additional questions. Additionally, there were also differences in the ways that the groups collected, aggregated, and presented their outcome evaluation data. Due to these differences, CDPH could not aggregate outcome evaluation data across groups. However, in summarizing the outcome evaluation findings for each group (describe below), we present finding in a similar format and highlight some of the differences in methods used by the groups.

i. APA Family Support Services

APA is a San Francisco-based organization that provides family support services and advocates for culturally competent services for Asian and Pacific Islanders (APIs). APA and their partner organizations conducted 36 workshops with 2137 participants from different API groups. They used the six question pre/post test to evaluate changes in knowledge about fish contamination and the advisory (APA did not make any modifications to CDPH's pre/post test). A summary of the average pre-test and post-test scores for these workshop participants and the average change in test scores are shown in Table 6. APA reported an average increase in test score of over two points among participants as a result of attending a workshop.

In addition to the workshops, APA conducted a long-term assessment over a two-month period with 57 at risk participants drawn from several different API groups. For the long-term assessment, participants were surveyed, attended a workshop, and received one-on-one support over the two-month period. For the evaluation, participants were asked to fill out the RPT three separate times and rate their level of agreement with the statements on the test. APA's RPT is shown Attachment J. Findings for several RPT questions are summarized in Table 7. For questions 1 and 2, participants rated their level agreement before and after their participation in the activities or workshops. We compared the participant's rating before the first activity (survey) to the respondent's rating after the final follow up that occurred 2 months later. Table 7 also shows results from four questions (A-D) that were designed by APA (not part of the CDPH evaluation tools). The long-term assessment of participants' responses to questions 1, 2, A, B, and D showed positive changes over the two-month period. Also, for most of the participants who reported no change, the participants agreed with the statement on the RPT before and after the two-month follow up. Very few respondents showed a negative change. (Results for other questions on the RPT are not shown because the data were not available in this format).

ii. California Indian Environmental Alliance (CIEA)

Berkeley-based CIEA aims to protect and restore indigenous peoples' culture, traditions, and environmental health. For their project, CIEA collaborated with the Native American Health Center, Women, Infants, and Children (WIC) clinic in Oakland. CIEA's project involved two primary activities, (1) waiting room interviews and education and (2) a class on fish contamination. The waiting room interviews explored the respondent's fish intake (commercial and sport fish). Respondents were also counseled about fish consumption. When SFB fish consumers were identified, they were asked to fill out the retrospective post test (short version). Results for the 47 SFB fish consumers who filled out the RPT are summarized in Table 8 (a copy of the retrospective post test for CIEA's waiting room survey can be found in Attachment K). Overall, CIEA found high levels of agreement among respondents with evaluation statements about increased knowledge/information of the SFB advisory (93% agreed) and whether the respondents would share the advisory information with family/friends (96% agreed). A lower proportion of respondents (but still well above a majority) indicated they would follow specific parts of the advisory. For example, 74% reported that they were likely to avoid eating surfperch from San Francisco Bay.

CIEA used a variety of approaches to evaluate the 810 WIC clients who attended the "Making Healthy Fish Choices" classes during the period from April to June 2012 (an additional 540 WIC clients attended the class during July and August, beyond the period when CIEA could evaluate the outcomes). All class participants were asked to fill out and sign a "pledge" which included the following statement, "I eat fish caught in San Francisco Bay, I promise to follow the advisory guidelines for women and children (below)" (the advisory guidelines were listed on the pledge; the pledge also included statements and information about commercial fish). While the clinic staff were not able to collect pledges from all class attendees, CIEA was able to obtain 170 pledge forms from attendee who indicated they eat SFB fish and would follow the advisory. CIEA also obtained retrospective post tests from a small number of class attendees who were San Francisco Bay fish consumers (n=11) (these results are not reported). Finally, CIEA and CDPH conducted three focus groups with 20 class attendees to solicit feedback on the usefulness of the class and ways that the class could be improved. Overall, the class was very positively received by the participants and clinic staff.

iii. Greenaction for Health and Environmental Justice

The mission of San Francisco-based Greenaction is to mobilize community power to protect health and promote environmental justice. Greenaction interviewed and provided education to anglers at fishing locations, conducted education at community meetings, and held workshops at clinics with women of childbearing age. Outcome evaluation results for anglers, community members, and women at clinics who participated in Greenaction activities are summarized in Table 9. Greenaction conducted additional evaluation in their Tongan/Samoan workshops using the RPT and in the general community using a show of hands; these are not included in this report. Greenaction used the RPT survey shown in Attachment L for all three activities shown in Table 9. In questions 1 and 2 in the RPT survey, participants rated their level of

agreement with the statements using a four-point scale. For questions 3-7b, participants indicated how likely they were to take any of the steps listed, again using a four- point scale. Greenaction collapsed the responses for each questions into two categories, agree or disagree (questions 1 and 2), or will change or will not change (questions 3-7b), in addition to "don't know" and "not applicable" responses.

Overall, Greenaction found a high level of agreement or willingness to change among their participants. For example, 88% of respondents said their knowledge of the Bay fish advisory had improved and 83% said they planned to follow the advisory recommendations. Anglers consistently showed lower levels of agreement or willingness to change, particularly for question 3 (about surfperch) and question 4 (about removing skin) when compared to community members and women at clinics.

iv. Kids for the Bay (KftB)

KftB's mission is to collaborate with teachers to inspire environmental consciousness in children. They are based in Berkeley. For this project, KftB gave a series of lessons to elementary school students in 6 different classes (grades three to six) at schools in Oakland, San Pablo, and Richmond. In addition, the students interviewed and gave presentations to their parent and guardians, and interviewed anglers at fishing locations. The KftB lessons incorporated information about Bay fish contamination. KftB conducted outcome evaluation of the student presentations by asking the students' parents or guardians to fill out a retrospective post test after they attended the presentations. The retrospective post test utilized a 5 point scale that included a "neutral" response and is provided in Attachment M. Table 10 summarizes the evaluation results for 65 parents who turned in their evaluation form. Outcome evaluation results from student interviews of anglers are not included. Overall, KftB found that the majority of parents reported positive changes or agreement with evaluation statements. For example, 69% of parents/guardians reported a positive change in their understanding of the advisory when they compared what they knew before the student presentations with what they now know. Also, 91% of parents/guardians said they planned to follow the advisory recommendations.

4. Other Activities by Funded Groups and Sustainability

In addition to their core activities, each of the funded groups conducted other activities during their projects. All groups helped CDPH develop the 90 second educational video by appearing in the video and talking about the advisory. As SAG members, funded groups helped to guide SAG activities, determine the languages needed for the advisory brochures and kiosk flyers, develop the warning sign, and plan media activities. Some of the other activities from the funded groups are highlighted below.

APA Family Support Services

- Worked with CDPH to translate the advisory brochure into 9 API languages.
- Developed several fish themed games and activities for kids.

- Arranged for training (by CDPH) and ongoing support to APA partner organizations that increased these organizations capacity to provide fish information in the communities they serve.
- Farmmary Saephan of APA was interviewed for a radio story called "Fishermen harvest dinner in the Bay at their own risk" that was aired on KALW, a San Francisco public radio station.

California Indian Environmental Alliance

- Developed the “Making Health Fish Choices” curriculum and supporting materials that can be used in future projects.
- Organized a training (with CDPH) for the WIC clinic staff which increased their capacity to provide fish information to WIC clients
- CIEA distributed educational information at several community events include the Alameda Farmer’s Market, Running is My High (5K or 10K walk/run), and World Wide Breastfeeding Week.

Greenaction

- Developed a trifold brochure in English, Spanish, and Vietnamese about Bay fish contamination that was used in their outreach efforts.
- Developed factsheets in Tongan to support presentations in the Tongan community.
- Developed and circulated locally several fact sheets, newsletter, and newspaper articles that described the advisory or their project.

Kids for the Bay

- Developed the Safe Bay Fish Consumption Project curriculum and supporting program materials which can be used in future projects.
- The KftB project was described in a short Bay Nature Magazine article (April-June 2012) called "Safe Fishing with Kids for the Bay".
- On KPFA public radio in June 2012, KftB Executive Director Mandi Billinge spoke about their work with students to educate families about safely consuming San Francisco Bay fish.

Some of the ways the project activities will be sustained beyond the funded period are described below.

APA will continue to distribute advisory brochures and the leftover incentive materials (water bottles and card holder with project logo and website) at events and activities. They plan to continue using the coloring book. They and their partner organizations will continue to integrate the fish information in their ongoing programs such as health workshops and parenting classes.

CIEA received a $3,000 grant from the Center for Environmental Health in July 2012

that will allow them to implement the “Making Healthy Fish Choices” curriculum at other locations. CIEA will also continue to distribute fish consumption information in its on-going work. CIEA’s project partner, the NAHC WIC clinic, plans to continue providing fish information as part of its regular nutritional counseling.

Greenaction plans to have website links and their project materials on their website (under development). They will continue to be a resource for their community and provide information about the safe consumption practices and the advisory.

KftB will continue to implement the Safe Bay Food Consumption Project curriculum into four classes this fall as part of their Watershed Action Program, including support for teachers implementing the curriculum.

5. CDPH support and evaluation of funded groups

CDPH conducted a variety of activities to support the funded groups and their projects. We conducted several trainings for funded groups beginning with a full day of training in June of 2011. OEHHA staff assisted in all of these training activities by presenting information about the advisory. These trainings are summarized in Table 11.

We provided technical assistance throughout the project that included:

- Translation of educational materials, curriculum, surveys, evaluation tools, into Spanish and Asian languages.
- Printing of surveys, educational materials (posters), and evaluation tools.
- Providing a bilingual interviewer to support survey activities.
- Development of reporting templates for the mid-term and final reports.
- Planning and implementing three focus groups with WIC participants.

CDPH conducted site visits with each of the four groups to observe them implementing at least one activity.

In June 2012, we met individually with staff from the funded groups to conduct exit interviews. We developed a list of questions that were asked at each interview. The list of interview questions was circulated to BACWA, BASMAA, USEPA, and the water board for input prior to the interviews. The final list of exit interview questions can be found in Quarterly Report #7. CDPH tape recorded these interviews to supplement our written notes and produced a summary of themes (Attachment N).

6. Conclusions

All groups successfully implemented their projects and easily met or exceeded their goals for the numbers of participants. The outcome evaluation results for the funded groups demonstrated positive changes in terms of increases in knowledge and access to information after participation in the funded group activities. Participants also demonstrated a willingness to share the information with others and an intention to change behavior in ways that reduce exposure to chemicals from Bay fish.

V. Recommendations

This section highlights some of the recommendations for improving the overall project including the SAG and grant program. These recommendations are drawn from several sources including the funded groups' exit interviews and final reports; the future activities discussion with the SAG; SAG evaluations; and general observations by CDPH.

A. Recommendations for the SAG.

- Increase and broaden SAG attendance.
- Provide presentation power points ahead of time, if possible.
- Explore ways to increase collaboration among groups.
- Explore ways to shorten SAG meetings.

B. Recommendations for educational activities

- Integrate fish contamination information into mercury reduction programs.
- Develop a tip card for anglers similar to the card that was developed in Southern California.
- Develop a sticker for anglers that combines consumption advice with a ruler for measuring fish.
- Develop educational videos, audio messages, and social media projects.
- Develop a fish education curriculum that can be used by SAG and other project partners. Explore options for presenting the curriculum online.
- Conduct more evaluation on the effectiveness of messages and activities.
- Develop the www.sfbayfish.org website (the website and QR code that appears on the signs).

C. Recommendations for the grant program

- Continue to target women ages 18-45, children (including students), families, fish consumers, anglers.
- Increase opportunities for collaboration among funded groups to share ideas and resources. Consider making some of these activities mandatory.
- Improve timeliness of developing educational materials and improve schedule, timing, and coordination of activities. [Note: These points were mentioned because delays in completing the advisory brochure translations and evaluation tools were a problem for the funded group].

- Provide more evaluation support. Seek increased consistency in reporting practices among groups.
- Develop more in-depth training for funded groups to increase their technical knowledge and their ability to teach others.
- Revise and update evaluation reporting forms for consistency and clarity.
- Continue to provide funding for community based organizations to provide outreach and education in their communities.
- Seek to incorporate more interactive and activity centered components within training activities.
- Explore ways to incorporate longer-term follow up activities within funded group projects in order to document behavior change. This might require a longer time frame for the overall projects (e.g., 18 months rather than 12 months).

D. Recommendations for the overall project

- SAG members strongly supported continuing the current project activities (SAG, educational activities/materials, grant program, training/technical support).
- Explore research projects to document and characterize subsistence fishing and high risk exposures.
- Collaborate with Delta Exposure Reduction program activities.

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List of Tables, Attachments, and Quarterly Reports

List of Tables

List of Attachments

List of Quarterly Reports

- Quarterly Report #1 Nov 2010-Jan 2011
- Quarterly Report #2 Feb 2011 - April 2011
- Quarterly Report #3 May 2011-July 2011
- Quarterly Report #4 Aug 2011-Oct 2011
- Quarterly Report #5 Nov 2011-Jan 2012
- Quarterly Report #6 Feb 2012-Mar 2012
- Quarterly Report #7 April 2012-June 2012

Table 1. Summary of Stakeholder Advisory Group (SAG) Meetings

	Meeting Date	No. of Attendees*	Primary SAG Meeting Topics
1	Dec. 7th, 2010	30	• SFBFP Introduction • SAG Expectations • SAG Process • Discussion on funding for grant program
2	Feb 14th, 2011	24	• SAG Hopes/Expectations and Project Framework • Presentation on fishing populations in San Francisco Bay • Evolution of fish educational materials and signs • Discussion on upcoming RFP for San Francisco Bay Fish Project grants
3	May 24th, 2011	15	• Introduce funded projects • Presentation on new advisory for San Francisco Bay • Discussion of key messages for the San Francisco Bay advisory • Discuss educational materials and language needs • Explore future media activities
4	Sep. 8th, 2011	15	• Social Marketing Workshop: Lessons Learned • Presentation on outreach and signage under the Palos Verdes Shelf project (Los Angeles and Orange County) • Report back from signage subcommittee and discussion on new San Francisco Bay sign • Discussion: What have we learned from the SAG? How do we want to shape the SAG for the coming year? • SAG year-end evaluation
5	Dec. 6th, 2011	15	• Presentation and discussion on fish monitoring for San Francisco Bay • Updates from the funded group • San Francisco Bay sign update
6	March 12th, 2012	14	• Updates from the funded groups • Presentation on the mercury and PCB TMDLs for San Francisco Bay • Discussion about possible future activities for the SFBFP • Update on SFB signs and discussion of media activities
7	June 14th 2012	14	• Presentation on Biomonitoring California • Final presentations by funded groups • Update on SFB sign posting and media activities • Review accomplishments to date, report back on possible future activities, discuss next steps for the project • SAG year-end evaluation

*excluding CDPH staff

Table 2. Brochure Languages and Copies Produced

Languages	Number of copies (Shark Cover)	Number of copies (Clinic Cover)	Available digitally (Shark and Clinic Covers)
English	2000	9000	X
Spanish	1000	3000	X
Chinese	2000	3000	X
Vietnamese	0	2000	X
Cambodian	0	1000	X
Samoan	0	1000	X
Tagalog	0	1000	X
Korean	0	1000	X
Tongan	0	0	X
Laotian	0	0	X
Japanese	0	0	X
TOTAL	5,000	21,000	

Table 3. Funding for the Four Groups

Funded Groups	Original award	Supplemental funding	Total award
APA Family Support Services (APA)	$25,000	$1,250	$26,250
California Indian Environmental Alliance (CIEA)	$25,000	$1,250	$26,250
Greenaction for Health and Environmental Justice	$25,000	$1,250	$26,250
Kids for the Bay (KftB)	$20,000	$1,250	$21,250
Total	**$95,000**	**$5,000**	**$100,000**

Table 4. Funded Group Activities, Population Served, Project Collaborators

Funded Group	Primary Activities	Primary Population Served by Project	Project Collaborators
APA	--Interviews and education with anglers and at community events --Interviews and education with youth and families at Family Resource Centers --Educational workshops	Asian/pacific Islanders immigrants with limited or no English skills. API groups included Chinese, Vietnamese, Korean, Samoan, Filipino, Laotian, Cambodian, and Japanese.	APA partner organizations including Nihonmachi Little Friends, Lao Seri Association, Vietnamese Family Services, Pilipino Senior Resource Center, WestBay Multi Services Center, Korean Center, Richmond Area Multi-Services, Soul'd Out Productions, Resource Center for Children, Youth and Families, Samoan Community Development Center
CIEA	--Surveys and education in WIC waiting room; --"Making Healthy Fish Choices" classes --Training WIC clinic staff and increasing their capacity to provide fish information to their clients	Low-ncome women at WIC clinic in Fruitvale (Oakland). WIC serves women who are pregnant or breastfeeding, and families with children ages 0-5. Participants were primarily Latino, Vietnamese, Native American, and African American.	Native American Health Center WIC clinic
Greenaction	--Angler interviews and education --Education at community meetings/events and with women at clinics	Anglers, community members, and women at health clinics who reside in Bayview Hunters Point and southeast San Francisco, a community that is primarily low-income people of color who are disproportionately impacted by pollution exposure from many sources.	Several churches, soup kitchens/shelters, community centers, hospitals/clinics in the BVHP and southeast SF community
KftB	--Lessons for 6 elementary school classes --Student presentations and interviews of parents --Teacher training --Angler interviews and education	Students in 3rd-6th grade classes and their families within low-income elementary schools in Alameda and Contra Costa Counties. Anglers at piers in Berkeley and Richmond.	Garfield Elementary, Franklin Elementary, Montalvin Manor Elementary, Cox Academy, King Elementary

Table 5. Funded Group Project Participants

Activity	Major Activities	Participants	SFB Fish Consumers[a]	At Risk[b] SFB Consumers	Completed Outcome Evaluation	Outcome Evaluation Method	Other Household Members Who Eat SFB Fish
APA Family Support Services							
1	Survey of API community and workshops	4,380	3,927	3,810	2137	Pre/post test (6 questions)	15,098
2	Long Term Assessment	57[c]	57[c]	57[c]	57[c]	Retrospective post test + 4 additional questions	N/A
	APA Total	**4,380**	**3,927**	**3,810**	**2,137**		**15,098**
California Indian Environmental Alliance							
1	Waiting room survey and educational session	769	49	38	47	Retrospective post test	130
2	"Making Healthy Fish Choices" Classes	1,350[d]	170[e]	N/A[f]	170	Pledge	N/A
			13[e]		11	Retrospective post test	91[g]
	CIEA Total	**2,119[h]**	**232[h]**	**38**	**228[h]**		**221[h]**
Greenaction for Health and Environmental Justice							
1	Angler survey/education	374	315	182	259	Retrospective post test	398[i]
2	Community presentations (in-depth)	469	431[j]	425	469[j]	Retrospective post test	1,242[k]
3	Workshops for at risk (women of childbearing age)	107	106	106	106	Retrospective post test	487
4	Tongan/Samoan community presentation	25	20	12	24	Retrospective post test	189
5	Community presentations (general)[l]	575	471[l]	N/A	512[m]	Show of hands	N/A
	Greenaction Total	**1,550**	**1,343**	**725**	**1,370**		**2,316**

Kids for the Bay							
1	Students attending “Safe Bay Food Consumption” lessons (6 classes)	183	N/A	N/A	N/A		N/A
2	Parents/guardians of students attending “Safe Bay Food Consumption” lessons	183[n]	N/A	N/A	N/A		N/A
3	Population screening	121[o]	203	168	N/A		N/A
4	Parent/guardian interviews	92[p]	N/A	N/A	N/A		N/A
5	Student presentations to parents	65[q]	N/A	N/A	65	Retrospective post test	N/A
6	Angler interviews/education	21	21	N/A	19	Retrospective post test	N/A
7	Teacher training	7	N/A	N/A	N/A		N/A
	Kids for the Bay Total	**211**	**224**	**168**	**84**		**N/A**
	Grand Total (all groups)	**8,260**	**5,726**	**4,741**	**3,819**		**17,635**

SFB = San Francisco Bay
N/A = not applicable. This information was not collected or an accurate number could not be estimated.
PST = Population Screening Tool (a tool for tracking the total number of participants, SFB fish consumers, at risk consumers, and other household members who consume SFB fish).
RPT = Retrospective Post Test (tools for tracking outcome evaluation measures such as changes in knowledge, awareness, and intent to change behavior; CDPH developed a short (simplified) and long version of the RPT).

Notes:

a. Participants were identified as consumers of SFB fish based on the PST, unless otherwise indicated.
b. Consumers of SFB fish were identified as “at risk” if they met at least one of the following criteria: (1) they ate ≥2 meals/week of SFB fish; (2) they ate surfperch or white croaker, or (3) they were a member of a high risk population (women 18-45 or children 1-17).
c. The 57 participants in the long term assessment are a subset of the survey and workshop participants (listed in the row above) so they are not included in the total for APA.
d. The WIC clinic implemented the class for a 5 month period (April-August 2012). There were 810 class attendees for the first three months (April-June 2012). While CIEA’s project officially ended in June, the clinic continued to conduct the class during July and August, and CIEA estimated that an additional 540 people attended the class during these two months. The total number of class participants (1350) includes all attendees during the entire five month period.
e. These numbers underestimate the actual number of SFB fish consumers because CIEA was only able to collect evaluation information from a subset of class participants. Of the 810 class participants during the first three months of implementation (see footnote (d), above), only 387 provided a copy of the pledge and of these, 170 indicated that they were SFB fish consumers on the pledge (they did not fill out the PST). Also, 101 of the 810 class participants filled out the PST, which identified 13 SFB fish consumers.
f. The number of class participants who were at risk could not be estimated. While the vast majority of class participants were women of childbearing age (and thus met the criteria for “at risk”), information about gender and age was not recorded for most participants.

g. This number underestimates the actual number and is only based on information from the subset of 101 of the 810 class participants who filled out the PST.
h. There may be overlap between the waiting room survey participants and the class participants, and between the class participants who filled out the pledge and the class participants who filled out the retrospective post test. The potential overlap among participants was not tracked and could not be estimated.
i. Due to likely double counting this figure was adjusted downward 50% based on an estimate from Greenaction staff. The double counting occurred when members of the same household were interviewed and those members each provided an estimate the number of people in their household who eat Bay fish.
j. The number of SFB consumers is smaller than the number with outcome evaluation because some participants answered the evaluation questions but did not fill out the PST.
k. Due to likely double counting this figure was adjusted downward by 33% based on an estimate from Greenaction staff (see footnote (i) above).
l. These participants did not fill out the Population Screening Tool or the Retrospective Post Test. Instead they answered three questions that were tallied by counting the number of people who raised their hands. One of the questions asked whether the participants were consumers of SFB fish.
m. These participants were asked only a single outcome evaluation question: "After talking with me today, your knowledge of the Bay fish advisory has improved and did you find the information useful?" Participant responses were determined by a show of hands. More participants answered affirmatively to this question than the number who indicated they were SFB fish consumers (512 vs. 471), thus this number (512) is likely to include some participant who were not consumer of SFB fish.
n. This number is likely to underestimate the actual number. KftB assumed that one parent/guardian received materials from their student or participated in a project activity (interviews or presentations by students), but if there were more than one parent/guardian per student, the actual number would be higher.
o. This number represents 121 households (not individuals) that returned the population screening survey (KftB revised the PST so it could capture household, rather than individual, information). The 121 households are also a subset of the 183 students/parents so they are not included in the total.
p. This number represents a subset of the 183 students/parents so it is not included in the total; 46 students returned the interview forms to KftB (from interviews of 46 parents) but it is likely that the actual number of students/parents participating in the interviews was higher.
q. This number underestimates the actual number of parents who attended the student presentations; only 65 parents turned in their post test survey forms to KftB. Also, the 65 parents represent a subset of the 183 student/parent participants and thus are not included in the total.

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Table 6. Summary of Pre/Post Test Scores from APA Workshops

	Attendees who completed both pre and post test	Ave pre test score*	Ave post test score*	Ave change in score
Workshops	**2137**	2.6	4.9	+2.3

*Based on a six-question test. The same six questions were asked before and after the workshops.

Table 7. APA Long Term Assessment

	No. of participants	1. I have an understanding of the fish consumption advisory for San Francisco Bay.				2. I have the information I need to reduce my exposure to chemicals from eating San Francisco Bay Fish.				A. I will continue to eat fish because some fish are good for me and my health.				B. Mercury, PCB and other contaminants is not something you can see, smell or taste. That's why it's important to know which fish are safer than others to eat.				C. I will continue to eat fish regardless of the advisory because of cultural, economic (financial) or personal reasons.				D. I am interested in finding out which chemicals, if any, is in my body and how much.			
		+change	no change	-change	%+change	+change	no change	-change	%+change	+change	no change	-change	%+change	+change	no change	-change	%+change	+change	no change	-change	%+change	+change	no change	-change	%+change
Vietnamese	**7**	2	5	0	29%	7	0	0	100%	0	6	1	0%	7	0	0	100%	0	7	0	0%	6	0	1	86%
Chinese	**7**	7	0	0	100%	7	0	0	100%	6	1	0	86%	6	1	0	86%	2	5	0	29%	6	1	0	86%
Laotian	**7**	7	0	0	100%	7	0	0	100%	6	1	0	86%	7	0	0	100%	0	7	0	0%	7	0	0	100%
Cambodian	**7**	7	0	0	100%	7	0	0	100%	6	1	0	86%	0	7	0	0%	0	7	0	0%	6	1	0	86%
Filipino	**7**	5	2	0	71%	5	2	0	71%	7	0	0	100%	7	0	0	100%	0	7	0	0%	7	0	0	100%
API1	**8**	7	0	0	88%	8	0	0	100%	7	1	0	88%	7	1	0	88%	1	7	0	13%	6	2	0	75%
API2	**7**	5	2	0	71%	7	0	0	100%	5	2	0	71%	5	1	1	71%	2	5	0	29%	7	0	0	100%
Samoan	**7**	7	0	0	100%	7	0	0	100%	6	1	0	86%	7	0	0	100%	0	7	0	0%	7	0	0	100%
Total	57	48	9	0	82%	55	2	0	96%	43	13	1	75%	46	10	1	81%	5	52	0	9%	52	4	1	92%

Note: We compared the participant's rating before the first activity (survey) to the respondent's rating after the final follow up that occurred 2 months later. The "+change" column shows the number of participant's whose rating went from "highly disagree", "disagree", or "don't know" to "agree" or "highly agree" over the 2 month period. The "no change" column shows the number of participants whose level of agreement with the statement did not change. The "-change" column shows the number of participant's whose rating went from "highly agree" or "agree" to "DK" or "disagree" or "highly disagree". No distinctions was made between "highly agree" and "agree" responses, nor were distinctions made between "highly disagree" and "disagree" responses.

Table 8. CIEA Outcome Evaluation Summary of Waiting Room Survey[a]

	1. Has talking with me today increased your knowledge of the consumption advisory for San Francisco Bay?				2. Do you have the information you need to reduce your exposure to chemicals from eating San Francisco Bay fish?				3. Do you think you are likely to avoid eating surfperches from the San Francisco Bay?					4. Do you think you will share the advisory information with other family members or friends?				5. Do you think you will follow the advisory recommendations for eating fish from the San Francisco Bay?					7. [men 18+ & women 46+] Do you think you will limit the amount of white croaker, sharks, and sturgeon that you eat from the San Francisco Bay to no more than one serving per week?					9. [women 18-45 & children 1-17] Do you think you will stop eating striped bass, sharks, and sturgeon from the San Francisco Bay?				
	Yes	No	Don't Know	% Yes[b]	Yes	No	Don't Know	% Yes[b]	Yes	No	Don't Know	N/A (don't eat surfperches now)	% Yes[c]	Yes	No	Don't Know	% Yes[b]	Yes	No	Don't Know	N/A (already follow advisory)	% Yes[c]	Yes	No	Don't Know	N/A (don't eat these fish now)	% Yes[c]	Yes	No	Don't Know	N/A (don't eat these fish now)	% Yes[c]
Client Interviews	43	0	3	93%	42	2	3	89%	17	2	4	24	74%	43	0	2	96%	35	1	9	2	78%	16	1	7	11	67%	16	2	8	9	62%

n=47

a. There was no question 6 (it was inadvertently omitted); Questions 8 and 10 were open-ended questions that asked for other steps the respondent planned to take.

b. These percentages include "don't know" in the denominator; missing response are excluded.

c. These percentages include "don't know" in the denominator but missing and N/A responses are excluded.

Table 9. Greenaction Outcome Evaluation Summary

	no. of participants	1. After talking with me today, your knowledge of the Bay fish advisory has improved.				2. The information I provided you with today is useful to you.				3. I plan to stop eating surfperches from San Francisco Bay.				4. I plan to remove the skin before cooking & eating fish from San Francisco Bay.				5. I plan to share this information with family & friends.				6. I plan to follow the advisory recommendations & eat less toxic kinds of fish from SFB.				7a. [men 18+ & women 46+] I plan to limit the amount of white croaker, sharks, and sturgeon I eat from SFB to no more than one serving per				7b. [women 18-45 & children 1-17] I plan to stop eating striped bass, sharks, and sturgeon from San Francisco Bay.			
		agree	disagree	Don't Know	% agree*	agree	disagree	Don't Know	% agree*	will change	will not change	N/A	% will change**	will change	will not change	N/A	% will change**	will change	will not change	N/A	% will change**	will change	will not change	N/A	% will change**	will change	will not change	N/A	% will change**	will change	will not change	N/A	% will change**
Angler interviews	260	165	60	35	63%	187	34	39	72%	16	95	149	14%	75	118	67	39%	237	9	14	96%	199	10	51	95%	121	34	83	78%	6	8	8	43%
Community presentations	469	467	0	2	100%	462	1	6	99%	333	133	3	71%	301	161	7	65%	464	3	2	99%	338	117	14	74%	204	65	7	76%	155	35	3	82%
At-Risk women in clinics	106	103	1	2	97%	102	0	4	96%	86	7	13	92%	81	9	16	90%	105	0	1	100%	91	0	15	100%	0	0	0	0%	79	1	26	99%
Total	835	735	61	39	88%	751	35	49	90%	435	235	436	65%	457	288	90	61%	806	12	17	99%	628	127	80	83%	325	99	90	77%	240	44	37	85%

***These percentages include "don't know" in the denominator; missing response are excluded.**

****These percentages exclude missing and N/A responses from the denominator ("don't know" was not a response choice).**

Note: In Questions 1 and 2, participants were asked their level of agreement with the statement. Participants who said "agree" or "highly agree" are summed under "agree". Participants who said "disagree" or "highly disagree" are summed under "disagree". For the remaining questions, participants were asked how likely the were to take the steps listed. Participants who reported "definitely will change" or "probably will change" are summed under "will change". Participants who reported "definitely will not change" or "probably will not change" are summed under "will not change".

Table 10. Kids for the Bay Outcome Evaluation of Student Presentations

		1. (I had/I now have) an understanding of the fish consumption advisory (the "Guide") for the San Francisco Bay.*				2.(I had/I now have) the information I need to reduce my exposure to chemical from eating San Francisco Bay Fish.*				3. I plan to stop eating surfperches from San Francisco Bay.				4. I plan to remove the skin before cooking & eating fish from San Francisco Bay.				5. I plan to share this information with other family members and friends.				6. I plan to follow the advisory recommendations (the "Guide") for eating fish from the San Francisco Bay.				7. [men 18+ & women 46+] I plan to limit the amount of white croaker, sharks, and sturgeon I eat from the San Francisco Bay to no more than one serving per wk.				9. [women 18-45] I plan to stop eating striped bass, sharks, and sturgeon from the San Francisco Bay.			
	Total Participants	# +change	# same	# -change	% +change	# +change	# same	# -change	% +change	# agree	# neutral	# disagree	% agree	# agree	# neutral	# disagree	% agree	# agree	# neutral	# disagree	% agree	# agree	# neutral	# disagree	% agree	# agree	# neutral	# disagree	% agree	# agree	# neutral	# disagree	% agree
Student presentations to parents	**65**	44	18	2	69%	39	20	4	62%	45	9	6	75%	53	3	5	87%	57	2	3	92%	48	3	2	91%	31	3	3	84%	39	8	3	78%

Note: For Questions 1 and 2, the parents/guardians were asked to think about what they knew before the student presentation and what they now know after the student presentation. The responses show the number of parents/guardians who reported a positive change ("+change"), stayed the same, or reported a negative change ("-change") when comparing their responses before and after the presentations. For the remaining questions, the parents/guardians were asked to indicate the response that best reflects their feeling about the each statement. Participants who indicated "strongly agree" or "agree" are summed under "agree". Participants who indicated "strongly disagree" and "disagree" are summed under "disagree".

Table 11. Training for Funded Groups and Their Partners

Date	Training Topics	Attendees
6/13/11	Fish contamination topics and evaluation	All funded groups+one APA partner organization
8/2/11	Fish contamination topics and evaluation	Greenaction (new staff person)
2/6/12	Fish contamination topics	APA partner organizations
2/29/12	Fish contamination topics and implementation of the WIC fish curriculum [training conducted collaboratively with CIEA staff]	Native American Health Center WIC clinic staff

Attachment A
SAG Meeting Attendees Dec. 2010 to June 2011

Community Groups:
People for Children's Health & Environmental Justice
First Generation Environmental Health and Economic Development
Whole Education Environmental Project
All Positives Possible
The Watershed Project
California Indian Environmental Alliance
Ma'at Youth Academy
Kids for the Bay
APA Family Support Services
Greenaction for Health and Environmental Justice
Fish Revolution!

Local Agencies:
Contra Costa Health Services
Contra Costa Environmental Health
Alameda County Department of Environmental Health
San Mateo County Environmental Health
San Francisco Department of Public Health
Alameda County Public Health Dept.
City of Berkeley, Shorebird Park Nature Center
City of Berkeley, Environmental Health
City of San Jose
City of Richmond, Stormwater Program
East Bay Regional Park District
Bay Area Clean Water Agencies
Bay Area Stormwater Management Agencies Association

State Agencies
California Department of Fish and Game
San Francisco Bay Regional Water Quality Control Board
Central Valley Regional Water Quality Control Board
Office of Environmental Health Hazard Assessment
University of California Cooperative Extension
State Water Resources Control Board

Federal Agencies
US Food and Drug Administration
US Environmental Protection Agency

Other Groups
Larry Walker Associates
Partnership for Sound Science in Environmental Policy
San Francisco Estuary Institute
McCord Environmental, Inc.

Attachment B
SAG Meeting Evaluation Summary

This summary compiles SAG meeting evaluation results from 6 SAG meetings in Dec. 2010, Feb. 2011, May 2011, Dec. 2011, Mar. 2012, and June 2012. A 7th SAG meeting that was held in September 2011 is not included in this summary because only the year-end evaluation was conducted at that meeting (see SAG meeting year-end evaluation summary). Also, the evaluation questions changed over time so not all the same questions were asked at each meeting. In general, the feedback we received from these evaluations was very positive. We highlight some of the evaluation findings below.

1. ***How productive was today's meeting?***

	Poor	Fair	Good	Very Good	Excellent
December 2010	0	2	6	11	2
February 2011	0	1	6	9	0
May 2011	0	0	5	7	0

(Question not asked at the December 2011, March 2012, or June 2012 meetings)

2. ***How strongly do you agree or disagree with the following statement? Members were given a chance to speak and input was respected and valued by CDPH facilitators.***

	Strongly Disagree	Disagree	Undecided	Agree	Strongly Agree
December 2010	1	0	1	6	13
February 2011	1	2	1	6	6
December 2011	0	0	0	1	9
May 2011	1	0	1	3	7

(Question not asked at the March 2012 or June 2012 meetings)

3. ***Have you been able to contact or interact with another SAG member or SAG group since your last SAG meeting?***

	Yes	No	n/a
February 2011	5	5	0
May 2011	7	3	2
December 2011	5	1	3
March 2012	5	3	2
June 2012	5	3	3

(Question not asked at the December 2010 meeting)

CDPH comment: CDPH has encouraged SAG members to share knowledge and collaborate outside of SAG meetings. Some SAG members have networked with other SAG members outside of SAG meetings.

4. ***Has your participation in the SAG contributed to new activities in your organization? (or contributed to change and/or improvement of current activities) If yes, please describe:***

	Yes	No	n/a
February 2011	1	6	2
May 2011	6	4	2
December 2011	9	1	0
March 2012	5	1	4
June 2012	8	0	4

(Question not asked at the December 2010 the September 2011 meetings)

CDPH comment: In February 2011 the majority of SAG members indicated that their participation in SAG did not contribute new activities in their organization. However, new activities as a result of SAG participation increased at later meetings. For example, one SAG member said: "I am working on implementing the project and info into educational programs and feel more prepared to do so after each meeting…"

Attachment C. SAG Meeting Year-End Evaluation Summary

Sept. 2011: no. of respondents = 15
June 2012: no. of respondents = 12

1. **SAG Charter Objectives**

Objective	Year	Achieved	Somewhat Achieved	Did Not Achieve	Don't know/ unsure
Objective A. Provide guidance on program funding for community-based groups and local agencies to implement risk communication and exposure reduction projects	2011	10	3	0	2
	2012	6	1	0	2
Objective B. Provide input on the development of educational messages, materials, and activities, including the risk communication and exposure reduction framework that will guide the overall project	2011	11	2	0	1
	2012	8	0	0	1
Objective C. Provide a forum for SAG members to increase their knowledge of fish contamination and related issues through training and other activities	2011	9	5	0	1
	2012	5	1	0	3
Objective D. Promote collaboration and new activities with SAG members to address project goals	2011	6	8	0	1
	2012	3	3	0	3

Themes:

- "To some extent, "somewhat achieved" is because many key components of the project overseen by SAG are still being developed."
- Objective C: "Could have been more detailed presentations on scientific studies or research projects."
- Objective D: More collaboration with SAG members desired

2. **SAG Hopes/Expectations**

SAG members were asked to comment on whether we fulfilled the top five "hopes and expectations" that the SAG identified during the early SAG meetings. The results in the table below are from June 2012 (in 2011, we only ask for comments, not for an assessment of whether we achieve these hopes and expectations).

Hope/Expectation (2012)	Did Not Achieve	Somewhat Achieved	Achieved	Don't know/ unsure
Good clear messages that reach people	0	2	8	0
Development of warning/advisory signs for groups and counties	0	1	9	0
Information out to all communities	1	5	1	2
Showing positive results from the project activities	1	1	7	0
Data on how many people fish from the bay for sustenance	3	3	1	3

The comments from the 2011 evaluation indicated that SAG members think the project is actively "progressing" (e.g., "The process has evolved over the years. We are not at the end point but are so much further along the process"). For 2012, the comments indicated a desire to further expand community outreach (e.g., "Need to reach even more people," and "Total number of people communicated to was <1,000 vs. 7 million bay area residents").

3. Why is participating in SAG important to your organization?

	Year	Respondents who indicate this applies to their organization
We are invested in guiding the risk communication and exposure reduction projects	2011	9
	2012	8
We are interested in collaborating with other organizations on fish topics	2011	11
	2012	7
We are committed to having a voice in projects that affect San Francisco Bay	2011	8
	2012	8
Participating in the SAG is <u>not</u> important to my organization	2011	0
	2012	0

男性（17歳以上）女性（45歳以上）用

サンフランシスコ湾で取れる魚介類ガイド


シマスズキ


シシャモ


カリフォルニアヒラメ


カニ


メバル


キングサーモン ♥


ホワイトクローカー


サメ


チョウザメ


コバンアジ

♥ = 高レベルオメガ3脂肪酸

週に2食分を食べても安全な魚介類

メバル又はカニは週に5食分まで食べてもよい

シャケ〔サーモン〕は週に7食分まで食べてもよい

又は

週に一食分を食べても 安全な魚介類

食べてはいけない魚介類

インナーリッチモンドのローリツゼン湾で取れた魚介類は決して口にしないこと

女性(18-45歳)子供(1-17歳)用

メバル

カニ

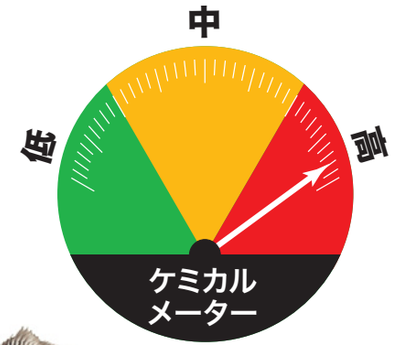
シシャモ

キングサーモン ♥

♥ = 高レベルオメガ3脂肪酸

カリフォルニアヒラメ

ホワイトクローカー



コバンアジ

シマスズキ

サメ

チョウザメ

スメルト写真提供:カーク　ロンバード　　カリフォルニアカレイ写真提供:ジョン　シェルトン

週に2食分を食べても安全な魚介類

又は

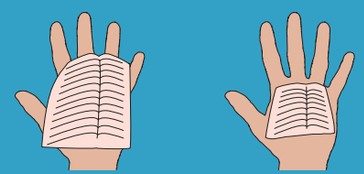
週に一食分を食べても安全な魚介類

食べてはいけない魚介類

インナーリッチモンドのローリツゼン湾で取れた魚介類は決して口にしないこと

- **PCBは魚の脂肪と皮に 多く含まれてい るので、皮をとった切 り身だけを調理する。**
- ホワイトクローカーの皮は剥ぎ、すてること 。
- しっかり火を通し、余分な水分をとる。
- カニは、身の部分だけを食べるようにする。

一食分とはどのくらか?



大人の一食分　　子供の一食分

大人一食分の魚の大きさは、手のひらの大きさと厚みを目安にして計ることができる。子供には、大人分より小ない量を一食分として与える。

魚介類摂取における注意点

いくつかの魚は、水銀やPCBが多く含まれている。PCBは、がんを発生させる可能性があり、水銀は胎児の脳発達に悪影響を及ぼす可能性がある。そこで、特に妊娠、又は授乳中の女性は、ガイドラインに沿って、魚介類を摂取する必要がある。

なぜ、魚を食べるのか?

魚は、大変健康によい食料である。魚は、心臓病のリスクを軽減するだけでなく、胎児や子供の、脳の発達にも大変役立つ栄養成分、オメガ脂肪酸3を大量に含んでい。

News Release

CALIFORNIA DEPARTMENT OF PUBLIC HEALTH

FOR IMMEDIATE RELEASE
July 31, 2012
PH12-033

CONTACT: Matt Conens
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CDPH Warns Bay Area Residents about Unsafe Fish Consumption

SACRAMENTO – San Francisco Bay Area residents need to choose wisely when it comes to eating fish caught in the Bay, warns Dr. Ron Chapman, director of the California Department of Public Health (CDPH) and state public health officer.

CDPH, in collaboration with state and local health agencies and community groups, has been posting warning signs this summer at popular fishing locations throughout the San Francisco Bay. The signs are a reminder that some fish may contain harmful chemicals including mercury, which can negatively affect how the brain develops in unborn babies and children, and polychlorinated biphenyls (PCBs), a probable carcinogen.

“Eating fish is an important part of a nutritious, healthy diet,” said Dr. Chapman. “We want to remind people that when it comes to eating fish caught in the San Francisco Bay, all fish are not the same.”

The new signs depict the recent advisory by the Office of Environmental Health Hazard Assessment (OEHHA) that outlines which species are safe to eat.

The new advisory applies only to fish caught in the San Francisco Bay. Under the new guidelines, children between the ages of one and 17 years, and women between the ages of 18 and 45 should:

- Not eat any types of shark, surfperch, striped bass, or white sturgeon from the San Francisco Bay
- Eat no more than one serving per week of white croaker (kingfish) or California halibut, **or**
- Eat up to two servings per week of Chinook (king) salmon, red rock crab, jacksmelt or brown rockfish from the Bay.

(more)

Men over 17 years of age and women over 45 years are less susceptible to harm from mercury and PCBs, and can safely eat greater amounts of fish from the San Francisco Bay. They should:

- Not eat any types of surfperch
- Eat no more than one serving per week of any type of shark, white croaker (kingfish), or sturgeon, **or**
- Eat up to two servings per week of striped bass, jacksmelt, or California halibut, **or**
- Eat up to five servings per week of brown rockfish, or red rock crab, **or**
- Eat up to seven servings per week of Chinook (king) salmon.

The San Francisco Bay Fish Project was created in partnership with the Office of Environmental Health Hazard Assessment, the U.S. Environmental Protection Agency, the San Francisco Bay Regional Water Quality Control Board, Bay Area Clean Water Agencies, Western States Petroleum Association, Bay Area Stormwater Management Agencies Association, and the Aquatic Science Center.

www.cdph.ca.gov

San Francisco Bay Fish Project Grant Program
Final Report

Due Date: Monday, July 2nd, 2012

Project name: API SF Bay Fish Outreach and Education Project

Organization: APA Family Support Services/APIFRN

Author of this report: Farmmary Saephan

Date: July 29, 2012 revised.

1. **Project Activities** –

The goal of our API SF Bay Fish Outreach and Education Project was to increase awareness and understanding of fish contamination issues and reduce chemical exposure from eating SF Bay Fish through research, outreach, and education within our API population. We have conducted a series of bilingual workshops for Asian and Pacific Islanders (API) communities with high fish consumption, including pregnant women and children, and informed them about the new fish consumption advisories and encouraged healthy fish consumption practices.

RESEARCH:

We conducted population screening research to identify the most at risk ethnic group or groups with high SF Bay Fish consumption through our API Family Resources Network. Asian Pacific Islander Family Resources Network (APIFRN) is a family-responsive, community based, linguistically appropriate and geographically dispersed system of care for API families citywide. APIFRN is comprised of 22 public and private agencies in San Francisco. It is a network of linguistically and culturally competent family resource centers serving eight Asian Pacific Islander ethnic groups: Cambodian, Chinese, Filipino, Japanese, Korean, Laotian, Samoan and Vietnamese. We surveyed our staff, API families/clients, and as well as the fish consumption community. We reached over 4,000 individuals directly through our surveys. We surveyed (1,014) youth, (1,958) women, and (1,408) men from different age groups, ethnic backgrounds, and from both side of the bays (those eating/fishing from San Francisco and across in the East Bay). *(See appendix A1 for Demographic Summary from Population Screening Research).* These participants reported they have 2-5 other family members who also consumed San Francisco Bay's fish in the past year. Participants also indicated to surveyors that they would share the "Guide to Eating Fish and Shellfish from San Francisco Bay" information with their family. *(See appendix A2 for Population Screening Reporting Form.)*

OUTREACH:

We had surveyed the community through various community events, such as Nihonmachi Street Festival, Autumn Moon Festival, Pistahan Festival, Chinese, Lao and Vietnamese New Year, and Thai/Lao Food Festival. We also surveyed fishermen at various piers and fishing hot spots, such as Pier 7, Berkeley Marina, Crissy Field, and SF Muni Pier. We worked with middle and high school students to survey their peers in schools. We also provided community outreach

utilizing bilingual, low literacy materials and oral presentations at churches, temples, markets, restaurants, bait shops, community gatherings and recreational centers.

WORKSHOP:

We reached our target of outreaching and educating over 2,000 APIs clients/communities through our bilingual workshops; *(See appendix B for pre/post test reporting form).* The 2,142 APIs were selected from the population screening survey because of participants' self-interest and that they would benefit from our Fishing for Health, Dish a Bay Fish, Fish for API Thoughts, and our other themed Fish workshops that we integrate into our existing Family Resource Center services such as support groups, nutrition workshops and other festival activities. The workshops are from an hour to three hours, depending on if these workshops are stand-alone workshops or an integration of information into other program services. Stand alone workshop ranges from one to two hours, but integrated workshops can be up to three hours. All these workshops are one-time workshops versus a series of session-workshops. However, there were multiple workshops organized during the time period which consisted of 10-50 different participants per workshop. The appendix B pre/post test reporting form reflected outcome from participants where we had received pre-test and post-test. There were additional 100 participants estimated that had sit-in during the workshops but did not signed-in or returned pre/post tests to the workshop facilitators, therefore we didn't include in the reporting form.

Workshops are designed to target certain age or ethnic groups and or by "fish" interests. For example, Fishing for Health workshops was designed for youths focus on health education and fish smarts. Dish a Bay Fish workshop was designed to provide head of households/the cooks in the family to rethink and create healthy bay fish meal options for their family. Dish a Bay Fish workshop emphasize the "Guide to Eating Fish and Shellfish from San Francisco Bay" information on how prepare and serve safe to eat, bay fish for the whole family. Fish for API Thoughts was designed to not one educate consumers on chemical levels of different bay fish species; but also allow participants to discuss fishes and other (cultural) food's risks and benefits to one's health and development. Support groups are a series of eight to ten meeting sessions. For fish workshops integrated in support groups, one of the meeting session (one hour to two hours) was used to share the "the Guide to Eating Fish and Shellfish from San Francisco Bay" information with participants and have a discussion about the relevance and impact of the issues to participants. For cultural festivals, fish workshops are integrated through multiple, speedy one on one or small group consultations and interactive games and prizes for participating. Through an effective outreach approach of engaging and adapting a culturally model of discussing, educating and empathizing with each ethnic group or each individual on the meaning of fish, fishing, and healthy fish consumption practices to them, we were able to gain insight on "where they are coming from" and get the message/information through to them.

After our research, outreach and workshops, the participants provided positive, verbal feedback by agreeing to "continue to eat fish because fish are good to him/her and his/her health." Participants also indicated a clear understanding that "Mercury, PCBs, and other contaminants are not something you can see, smell, or taste. That's why it's important to know which fish are safer than others to eat." The indication from the project activities shows a clear understanding from participants on how gender, age and serving proportion can influence how some fish are safer than others to eat.

LONG-TERM ASSESSMENT:

We selected 57 workshop participants who indicated in our survey that they are at a likely level "to continue to eat fish regardless of the advisory because of cultural, economic (financial), or personal reasons." The criteria in selecting participants were: 1) Participants and their family will benefit from taking part in our follow-up assessment services. 2) Participants had the ability to commit time to do at least three follow-ups about a month apart. 3) Participants are at-risk or high risk consumers because they consume fish species high in chemical and or consume fish in large servings per week. In return, after completing the long term assessment project, participants had received supermarket gift cards. The 57 participants agree to participate in a long term assessment study to see if after the workshop and one on one ongoing support to explore healthy fish consumption practices would impact their fish consumption behavior over time. *(See appendix C for Retrospective Reporting Form).*

Participants are initially interviewed, to ensure they meet the criteria and surveyed with the Population Screening tool and the Retrospective questionnaire. Next they are asked to attend a workshop, complete pre and post test as well as a follow-up with another Retrospective questionnaire. After another month since the workshop, participants are surveyed with the Retrospective questionnaire to find if the participants' are being consistent in making healthy fish/food choice and or had they improved, etc.

Through this assessment, we learned what works and what doesn't in our workshops' delivery, what information may be confusing or need more details, what participants' take-away from the workshops. We learned more about participants' needs and reasons for being at-risk or high risk. For example, one of the participants had reported he was fishing and eating whatever he catches as well as accepting free fish from friends regardless of what type of fish it was. After the second follow-up assessment, we discover the participant had been laid off two months before he attended our workshop and any type of food will help his family. He was embarrassed about his situation. He didn't qualify for EDD, so we had helped him applied for the CalFresh Program and CalWorks, but during the meantime he was linked to various food pantries to give him and his family more options for making healthy fish/food choices. Although he still fish and eat fish from the bay, he knows, he has the choice and knowledge to consume healthier fish/food. Every participant has their own story, but with our follow-ups and linkages to connect participants to other support services, the outcomes are very similar. Participants learn about various community resources including food pantry, health education information, other fish advisories, free and government aid, and our family resource center services such as workshop, community events, counseling and application assistances.

We find from this study that the participants' behavior did change and the participants were selecting healthier bay fish such as salmon because of Omega 3s and avoiding higher contaminated fishes. Participants also indicated their other steps they plan to take include selecting farm-raised fish species such as Tilapias instead of contaminated fish from the bay. The participants with minimal changes indicated although they have minimal to no changes but are more aware and cautious in the amount and type of fish they consuming. These participants also indicated interests in finding out which chemicals, if any, is in their body.

2. **Education Materials, Articles, or Products**-

Through our surveys, we find that the educational "fish consumption advisory" message is most effective through a culturally appropriate approach and tangible incentive or tools. We

worked with CDPH to translate the Fish Advisory Brochure into Chinese, Japanese, Korean, Laotian, Samoan, Tongan, Tagalog, Vietnamese, and Cambodian languages. We also work with Julia Scott on a Crosscurrent radio KALW 91.7FM broadcast story, "Fishermen harvest dinner in the Bay-at their own risk."

We surveyed fishing and fish consumption community members on what we could do or provide to make a greater impact of what we are trying to do. We incorporated the feedbacks and took into consideration the limited fund to produce the educational materials that we can use as teaching tool, incentives to give-away, and to direct people to the project's advisory and consumption information website. We collaborate with San Jose State University to help us with consulting and developing community-based, social marketing tools. The students worked on identifying the barriers and benefits to continue consumption of Bay Fish at a safe level and promote the benefit from healthy nutrition available in fish. The benefit is there are adequate information, data and resources available to effectively outreach and engage targeted audience to change fish consumption behavior for long term. APIs are willing and interested in learning how to protect and preserve their health. The barriers include developing an effective message that works with a multiethnic, multilingual and diverse API community. The priority for API's to be supported, educated and included in the planning and discussion of the issues. Certain API populations are more at risk than other groups for fish contamination and exposure to PCB and Mercury. (*See appendix A1 for Demographic Summary from Population Screening Research).*

It is important to have up-to-date, linguistically and culturally appropriate materials, and low literacy materials and message relevant to the multiethnic API population. The API community we worked with is mostly immigrants with limited to no English literacy. There are some APIs who cannot read in English but are able to read in their own native language. However, we also have surveyed and worked with families who cannot read in both English and their native language. As a result, when we are doing research, outreach or workshops, the staff or volunteers would have to orally translate all the materials and then to further interpret the information into simpler terms so that it could be understood by those who lack formal education and literacy. During our population screening research, surveyors and workshop facilitators reported participant's literacy levels created time-consuming challenges in sharing and collecting participants' information.

They developed tools (message and materials) so the API community will be receptive to participating, learning and changing their behavior for long term. For example, the theme or message of "Dish a Bay Fish" and "Fish for API Thoughts" were emphasized in workshops to engage APIs who cook, to share the dish they would usually make for their family using bay fish as the main ingredient to open up discussion on health issues. A banner was also developed incorporating SF Bay Fish Project logo and our agency's logo into a banner that carry the message of the kiosk and promote the community to access more information from http://www.sfei.org/sfbfp. The banner was used in outreach activity. (Please see appendix D for picture of banner.)

The students also designed and provided inputs to produce sports bottle, clipper card holder and brochure holders with the supplemental fund. The supplemental fund enhanced our project because providing FREE incentive had help attract larger crowd, and therefore bring greater awareness about making healthy bay fish consumption choices during our outreach activity. They were used as raffle prizes for workshops to engage participants, link APA/APIFRN to the Fish Project and reinforce the San Francisco Bay Fish Guide. Participants

can use the card/brochure holder for their clipper card, ids, fishing license, etc; but like the sports bottle, the card/brochure holder have the imprint of the fish project logo and website. As a result, the community can return to their daily routine and keep the message in sight. (Please see appendix D for pictures of materials.) We also purchase stickers, fortune fish and other fish theme items from Oriental Trading to give-away. We purchase and designed various all-age appropriate games including Duck fishing, Fish plinko and 123 Fish Servings Bucket. (Please see appendix D for pictures of games). We received wonderful feedbacks from the community.

3. **Evaluation Activities** –

We used the population screening tool to identify the API population/ community group or groups most at risk of fish contamination and exposure to PCB and mercury. However, in our research we wanted to gather more demographic information to help us better understands and engages API fish consumers. Therefore, we included questions of language/literacy, ethnicity and zip code. *(See appendix A1 for Demographic Summary from Population Screening Research).* We increased and strengthen our informational materials, increased our staff's and our community's awareness about Bay Fish. The community members themselves are taking the initiative to ask restaurants and markets where their fish comes from and what types of fish they are consuming daily. We also added two questions to the Population Screening Tool about the respondents prior knowledge SFB fish advisory and only 50% of those we surveyed responded yes. However, when we ask them since they know about the advisory, would they be interested in letting us know which fish is high in chemicals, to receive a prize? We found they could not tell us because they didn't know there's an updated advisory, or know of such advisory exists, or they confused the advisory with the fish and game regulation. Therefore, the estimated number of respondent who know about the advisory is about 15%. The total number of respondent who answered no on the first question and or yes, but changed to no; only about 83% had responded they were interested in receiving more information about the advisory.

We used outreach log and sign-in sheets to reach over 4,000 individuals. For bilingual educational workshops, we used the pre and post tests that we translated into Chinese, Japanese, Korean, Vietnamese, Laotian, Cambodian, Samoan and Tagalog. Although not all of our trainers or workshop facilitators participated in the training provided by CDPH, the people that got trained help trained other staff in their agencies. I also helped provide one-on-one training to staff and also provided group training to the youths who help gather surveys for the population screening research and also with the outreach. We also modified the retrospective post test and utilized it for our long term assessment evaluation. The retrospective test was used to capture change or intent to change fish consumption practices. We included questions regarding participants' awareness to eat fish because they have health benefits. Age, gender and serving portions, are factors that need to be considered when eating certain fish species from San Francisco's Bay because of the health risks. We also included a question on participant's interests in learning about biomonitoring. (Please see appendix E for the population screening form, pre/post test form, and the retrospective post test forms.)

From our project we found there were positive outcomes, changes in knowledge, access to information, or intent to change behavior resulted from our activities. (Please see Project Activity section on outcome results from activities.) The unanticipated finding/challenge is that many people we surveyed, outreached or participated in our workshops had confusion between the SF Bay Fish Consumption Advisory Guide and the Fish and Game Regulations Guide. We

also found that many people are unaware of the advisory or health benefits/risks of eating fishes from the bay because they are low-income, illiterate, multigenerational fishing families, or fish play a cultural significance in their history and bringing the family together. We gained a greater understanding of other social issues impacting our community such as illiteracy and accessibility to information and services, community needs, and health concerns they have such as Diabetes, Hepatitis B and Cancer.

In conclusion, our participation in the project validated our concern and the risk for our low-income, mostly illiterate API families who consume fish daily without awareness of where their fish originates and what is the recommended servings and types of fish that is safe to eat. Through our long-term assessment study, we find the intent of behavior (fish consumption) change is influenced by individual's knowledge of the fish advisory and health factors affects fish consumption practices. Henry David Thoreau said "Many men go fishing all of their lives without knowing that it is not fish they are after." We gained perspective on whom and why people fish or eat fishes. We gained perspective on why individuals and certain API groups are more at risk than other groups. "In teaching others, we teach ourselves." We learned with the community, that the nutritional benefits outweigh the potential health risks as long as individuals follow advice for the number of servings and species individuals can safely eat.

4. **Successes –**

We were able to educate our community about San Francisco's Bay Fish Consumption Advisory Guide through cultural and linguistically appropriate resources and information to making healthy consumption practices, whether they fish the fish or buy the fish. We gained insights about our API community needs and we will continue to advocate addressing their concerns on other social issues and looking for resources to support the needs identified through this project. We were also able to work with different collaborative groups, using different outreach medium, and developing resources to support our work.

We promoted San Francisco Bay Fish Consumption Advisory and provided visibility to our agency, our project and the collaborative Bay Fish project. We successfully met our project goals and objectives through our accomplishments and findings as mentioned in the previous sections. We not only reached our projected goals and number of participants, but we exceeded the numbers. (See Table A and attached Appendices.) We exceeded our expectation considering the small amount of funding received, and yet we did so much with what we have in resources and the delays due to the turnaround in translating materials.

5. **In-Kind or Leveraged Resources**

We have 10 youth volunteers throughout the project to help with outreach, workshops and processing the evaluation materials, such as pre/post tests and population screening surveys. In-kind staff from our API Family Resource Network collaborative also spent time to provide outreach and run workshops. We also incorporated the fish project information into our other funded organizational activities to maximize in getting the information out to the community. We also depended on copy and printing equipments and supplies that we didn't anticipated or budgeted because we needed the

translated materials to do our outreach and workshops, due to the lateness in getting translated materials.

6. **Sustainability** –

We will continue to provide and distribute fish advisory guide brochures as well as the leftover incentive materials during outreach events and activities. We plan to incorporate the information in our Health, Parent Informational and Nutritional Workshops as well as Parenting Class and Support Groups. We plan to utilize the coloring book to educate children and youths in an ongoing project to teach children and youth about "Fish Smarts, Bay Smarts and Healthy Starts." This Fish project extend our work and provides an additional section into our Health education curriculum that includes nutrition, oral health & hygiene, personal and community safety, environmental health and the balance between physical and mental health. Therefore, each of our partnering agency, who is involved in this fish project is committed to integrate the Fish project into their ongoing program and services.

7. **Recommendations** –

The recommendations we have to improve the overall grant program is to increase the grant funding amount, providing translated materials before the start of the project activities and having more opportunity to work with the other funded grantees.

8. **Budget** (see Table B) Describe how the funding you received has been expended using the Table B below. Please include in your budget the supplemental funds ($1250). If applicable, briefly describe changes made to your original budget and why these changes were necessary.

Table A - Project Activities

Description of the Activity (please include location and population)	Number of Participants	Number of SF Bay consumers	Number of at risk consumers	Number of consumers with outcome evaluation
1. Research At-Risk API Populations (*Location:* SF Bay Area Piers, Community Events, Neighborhoods, Schools, Markets, Bait and Tackle shops and Community Partnering Agencies. *Population*: SF's API Communities)	4380	3927	3810	
2. Outreach SF Bay Area (*Location:* SF Bay Area Piers, Community Events, Neighborhoods, Schools, Markets, Bait and Tackle shops and Community Partnering Agencies. *Population:* SF's API Communities)	3927	3927	3810	
3. Bilingual Fish Advisory Education Workshops (*Location:* Community Gatherings/ Events, Piers, Family Resource Centers, Churches, Temples, Libraries, Festivals, Neighborhoods, Schools, Community Partnering Agencies. *Population:* At-Risks SF's API Communities)	2142	2142	2142	2137
4. Long-Term (follow-up) Assessment (*Location:* Community Gatherings/ Events, Family Resource Centers, Home Visits, Community Partnering Agencies. *Population:* High-Risk Bay Fish Consumers)	57	57	57	57

Table B - Budget Table

	Expenditures to date
Personnel:	
Salaries & wages (include benefits and taxes)	
Consultant & contract services	$18,000.00
Total Personnel	$18,000.00
Operating Expenses	
Supplies/Materials/Printing	$3,000.00
Equipment	
Travel	$250.00
Other (describe): Supplemental Funding	$1250.00
Total Operating Expenses	$4,500.00
Indirect Costs	$3,750.00
Total	$26,250.00

APPENDICES

APPENDIX A1 (Demographic Summary from Population Screening Research)
See attached file.
APPENDIX A2 (Population Screening Reporting Form)
See attached file.
APPENDIX B (Pre/Post Test Reporting Form)
See attached file.
APPENDIX C (Retrospective Reporting Form)
See attached file.
APPENDIX D (Copies of Evaluation Tools Used)
See attached file.

APPENDIX E Educational Materials And Resources Developed.

See attached file.

Ω Pre/Post Test Questionnaire **Survey # _____**

Activity
Date
Location

Pre-Test Questions: Circle the best answers.
(answers are in bold)

1. Women ages 18-45 and children 1-17 can eat 2 serving per week of what type of fish?

    a. White croaker
    b. Jacksmelt
    c. Shark
    d. Striped bass
    e. Don't know

2. True or false, the developing fetus is sensitive to the harmful effects of mercury and PCBs.

    a. True
    b. False
    c. Don't know

3. How much striped bass, jacksmelt, or California halibut can women over 45 and men over 17 safely eat from San Francisco Bay?

    a. None
    b. 2 servings/week
    c. 5 serving/week
    d. 7 servings/week
    e. Don't know

4. What type of San Francisco Bay fish has low levels of contaminants, high levels of omega-3s, and can be eaten 2 times per week by sensitive populations?

    a. Chinook (king) salmon
    b. White croaker
    c. Shark
    d. Sturgeon
    e. Don't know

5. Which type or types of San Francisco Bay fish should not be eaten by anyone?

    a. Brown rockfish
    b. Jacksmelt
    c. Surfperches
    d. Halibut
    e. Don't know

6. How can you prepare fish to reduce the amount of PCBs?

    a. Soak fillet in milk overnight before cooking
    b. Remove and discard the skin
    c. Cook a high temperature (>400°F)
    d. Don't know

Post-Test Questions: Circle the best answers. **Survey # _____**

1. Women ages 18-45 and children 1-17 can eat 2 serving per week of what type of fish?

    a. White croaker
    b. Jacksmelt
    c. Shark
    d. Striped bass
    e. Don't know

2. True or false, the developing fetus is sensitive to the harmful effects of mercury and PCBs.

    a. **True**
    b. False
    c. Don't know

3. How much striped bass, jacksmelt, or California halibut can women over 45 and men over 17 safely eat from San Francisco Bay?

    a. None
    b. 2 servings/week
    c. 5 serving/week
    d. 7 servings/week
    e. Don't know

4. What type of San Francisco Bay fish has low levels of contaminants, high levels of omega-3s, and can be eaten 2 times per week by sensitive populations?

    a. Chinook (king) salmon
    b. White croaker
    c. Shark
    d. Sturgeon
    e. Don't know

5. Which type or types of San Francisco Bay fish should not be eaten by anyone?

    a. Brown rockfish
    b. Jacksmelt
    c. **Surfperches**
    d. Halibut
    e. Don't know

6. How can you prepare fish to reduce the amount of PCBs?

    a. Soak fillet in milk overnight before cooking
    b. Remove and discard the skin
    c. Cook a high temperature (>400°F)
    d. Don't know

San Francisco Bay Advisory Fish Species

Surfperches

shiner perch

walleye surfperch

striped seaperch

black perch

and other surfperches

White Croaker

Leopard shark (and other sharks)

Sturgeon

Striped Bass

Jacksmelt

Chinook (King) Salmon

Brown Rockfish

California Halibut

Δ Retrospective Questionnaire **Activity:** **Survey #:**

Location: **Date:**

Instructions for questions 1 through 6:

Please circle a number to rate your level of agreement with the two statements below. On a scale of 1-4 circle a number to the left to rate your level of agreement with the statements below **before** the activity. Using the same scale, circle a number to the right to rate your level of agreement with the statements **after** you participated in the activity. You may circle DK to indicate "I do not know".

Highly Disagree	Disagree	Agree	Highly Agree
1	2	3	4

Before Activity Before Workshop	Statement	After Activity After Workshop
1 2 3 4 DK	1. I have an understanding of the fish consumption advisory for San Francisco Bay.	1 2 3 4 DK
1 2 3 4 DK	2. I have the information I need to reduce my exposure to chemicals from eating San Francisco Bay fish.	1 2 3 4 DK
1 2 3 4 DK	A. I will continue to eat fish because some fish are good for me and my health.	1 2 3 4 DK
1 2 3 4 DK	B. Mercury, PCB and other contaminants is not something you can see, smell or taste. That's why it's important to know which fish are safer than others to eat.	1 2 3 4 DK
1 2 3 4 DK	C. I will continue to eat fish regardless of the advisory because of cultural, economic (financial) or personal reasons.	1 2 3 4 DK
1 2 3 4 DK	D. I am interested in finding out which chemicals, if any, is in my body and how much.	1 2 3 4 DK

Instructions for question 3-7 and question 9:

On a scale of 1 to 4, please rate how likely are you to take any of the steps listed below. "N/A" indicates that the question does not apply to you (e.g. Question 9, answer "N/A" if you already do not at surfperch).

Scale

Definitely Will Not Change	Probably Will Not Change	Probably Will Change	Definitely Will Change
1	2	3	4

3. I plan to stop eating surfperches from San Francisco Bay **1 2 3 4 N/A**
4. I plan to remove and discard the skin before eating fish from San Francisco Bay **1 2 3 4 N/A**
5. I plan to share the information I learned with other family members and friends. **1 2 3 4 N/A**
6. I plan to follow the advisory recommendations for eating fish from San Francisco Bay **1 2 3 4 N/A**

The next two questions are only for men ages 18+ and women ages 46+

7. I plan to limit the amount of white croaker, sharks, and sturgeon I eat from San Francisco Bay to no more than one serving per week. **1 2 3 4 N/A**

8. Are there other steps you plan to take?

If yes, explain:_____

The next two questions are only for women 18-45 years of age and children 1-17 years of age

9. I plan to stop eating striped bass, sharks, and sturgeon from San Francisco Bay **1 2 3 4 N/A**

10. Are there other steps you plan to take?

If yes, explain:_____

San Francisco Bay Advisory Fish Species

Surfperches

shiner perch

walleye surfperch

striped seaperch

black perch

and other surfperches

White Croaker

Leopard shark (and other sharks)

Sturgeon

Striped Bass

Jacksmelt

Chinook (King) Salmon

Brown Rockfish

California Halibut

San Francisco Bay Fish Project Grant Program
Final Report

Due Date: June 30th, 2012

Project name: San Francisco Bay Mercury Tribal Health Project

Organization: California Indian Environmental Alliance and Native American Health Center, WIC Program

Author of this report: Angela Berry-Philip, Project Manager, CIEA

Date: July 15, 2012 (revised Oct. 12, 2012)

1. **Project Activities**

Goals and Objectives

The purpose of the CIEA and NAHC WIC San Francisco Bay Mercury Tribal Health Partnership project was to empower low-income families to eat fish while avoiding mercury and PCBs.

Goals:

This was done by providing education to those most at-risk about the health risks of these chemicals, the benefits of fish consumption, and the SF Bay advisory. NAHC WIC staff capacity to better identify at-risk patients, provide SF Bay Advisory and fish consumption advice, track client knowledge/behavior changes, and put policies and procedures in place to institute these changes was increased.

Objectives:

1) Complete 1,000 waiting room surveys and educational interventions with NAHC WIC clients to be completed per MOA, number adjusted to 775 per conversations with CDPH research scientist Alyce Ujihara.
2) Hire and conduct trainings for 4 CIEA staff/interns (2 bilingual) to give waiting room interviews and educational interviews
3) Conduct training for approximately 15 NAHC staff to help them identify at-risk clients, conduct follow-up questions, provide advice to clients on how to eat fish safely, and teach project developed GC 30 curriculum
4) Develop and pilot curriculum for WIC clients about safe fish consumption, including sources of mercury and PCB contamination in the San Francisco Bay, understanding national and local (SF Bay) fish advisories, and the benefits of eating fish. GC 30 class was to be taught approximately 6 times per week for a 3 month course cycle, with an average course size of 10 participants.

Description of Activities

CIEA/NAHC WIC project activities were conducted by both CIEA and NAHC WIC staff, with technical assistance and translation services provided by CDPH staff, and occurred in multiple locations. Native American Health Center was established in 1972 in San Francisco to meet the health care needs of one of the largest populations of American Indians in the country. In 2008, the Seven Directions clinic opened in the Fruitvale neighborhood of Oakland, down the street from the original Oakland clinic that opened in the 1980s, where the Women, Infants, and Children Program is now located. Native American Health Center assists American Indians and Alaska Natives to improve and maintain their physical, mental, emotional, social and spiritual well-being with respect for cultural traditions and to advocate for the needs of all Indian people, especially the most vulnerable members of our community. WIC is a federal food assistance program for low income women that provides nutritional education, checks, and support services to pregnant women, mothers, infants, and children up to the age of five. WIC clients who consume wild-caught fish in large amounts, very frequently, or that are unsafe for sensitive populations are at risk for mercury or PCB exposure because WIC serves an at risk population by definition. Wild caught ocean and freshwater fish are an important subsistence staple in California Native traditional diets and are fundamental to the spiritual, ceremonial, and cultural identity of California's Indigenous peoples. CIEA and NAHC WIC partnered on this project to ensure that the most at risk population within NAHC had staff properly trained to provide information and intervention, we could assess the extent of exposure, and develop a sustainable program of fish consumption education that would lead to exposure reduction among WIC clientele.

The NAHC WIC client demographics are:

Ethnicity:

- 66% Hispanic, 44% Non-Hispanic

Race:

- 48% American Indian/Alaskan Native
- 14% Asian
- 14% African-American/Black
- 11% Multi-Racial
- 11% White/Caucasian
- 2%Native Hawaiian/Other Pacific Islander

Waiting Room Survey

CIEA staff adapted and expanded the CDPH "Population Screening Tool" for use to interview WIC clients who were waiting for appointments. We field tested a version of this tool with 33 respondents, who were clients of various WIC agencies across Alameda County and the members of the general public, at the Worldwide Breastfeeding Week event in Frank Ogawa Plaza, Downtown Oakland, August 4, 2011, and adjusted it based on our initial results.

CIEA also developed, with support from CDPH, an educational intervention tool that was used to provide one-on-one nutritional counseling about the benefits of fish consumption, commercial fish advisories, wild-caught fish advisories, and the SF Bay fish advisory based on the information provided by the client during the interview.

The survey and educational intervention were given over a four month period from Feb. 2 to May 31, 2012, to a total of 769 respondents at the NAHC WIC clinic, NAHC 7 Directions Medical Clinic, and community events. Each survey took approximately 2 to 10 minutes to complete and was given in either English or Spanish by CIEA staff and interns, or CDPH staff. 91% of survey respondents reported eating fish (705), 24% of the total eating wild caught fish (185), 8% from the Delta, and 6% from the SF Bay (49.) Those that ate fish also frequently indicated members of their households consumed fish. For the 702 clients who said that they ate fish, respondents indicated they lived with an additional 903 children ages 1-17, 447 women ages 18-45, 601 men ages 18 or older and 171 women ages 46 or older, totaling a potential 2122 additional people impacted by project activities. SF Bay fishers reported household information of an additional 44 children ages 1-17, 30 women ages 18-45, 44 men ages 18 or over, and 12 women ages 46 or older, totaling a potential 130 additional SF Bay fish consumers impacted or reached. Often entire families were present when interviews and counseling were given.

In order to complete this portion of the project, CIEA held 5 half-day training workshops for staff members and interns on eating fish safely, mercury and PCBs, national/local fish advisories, and proper interviewing techniques. When in the clinic, all interns were required to be accompanied by a CIEA staff person except for CDPH fellow Olga Martinez.

CIEA and NAHC WIC successfully exceeded our goal with the completion of 33 field tested surveys collected at the World Wide Breastfeeding event and 769 surveys collected at NAHC WIC, 7 Directions Clinic and Running is My High event, for a total of 798 surveys collected.

Community Events

CIEA and NAHC WIC staff participated in several community events over the grant period.

CIEA staff tabled **Alameda Farmer's Market** with NAHC WIC staff on 06/25/2011 at NAHC WIC booth. CIEA staff conducted an initial survey asking WIC clients and community members if they ate fish, if they ate from the SF Bay, and if they were aware of the new advisory. Education was then provided if participants were interested or at risk. 18 CIEA "Eating Fish Safely" brochures were distributed. We did not have copies of the SF Bay advisory brochure at this time, so SF Bay education was given based on the draft kiosk sign to 2 people.

Early in the project, 8/4/2011, CIEA staff and interns went to the **World Wide Breastfeeding Week** event in Downtown Oakland to field test our survey for future use in the WIC clinic. CIEA tabled the event to provide outreach and education about safe fish consumption and the SF Bay Advisory to women of childbearing age and breastfeeding mothers. Of the approximately 100 event attendees, 33 filled out the survey. Every respondent reported eating fish, either from the market or fish that they caught themselves. 12 reported fishing from the SF Bay. CIEA provided food, water, and ran a raffle to encourage survey participation. CIEA distributed 50 "Eating Fish Safely" brochures and 35 SF Bay Advisory Brochures.

CIEA staff and interns conducted over 100 surveys and educational interventions at NAHC's annual "**Running is My High**" 5k/10K event around Lake Merritt in Oakland on 3/10/12. Our table included a prominent display board with information about the SF Bay advisory and we distributed over 100 "Eating Fish Safely" brochures and SF Bay Advisory Brochures. Participants included members of the general public, patients of NAHC Oakland and San Francisco, UC Berkeley Native American Recruitment and Retention Center and Inter-Tribal Friendship House Oakland and San Francisco.

On June 1st, 2012, CIEA staff also participated in "**Give Love, Give Life,**" a performance and community event at the Women's Building in San Francisco with Native poet John Trudell to raise awareness about women's reproductive cancers. CIEA was specifically asked to attend and provide information about safe fish consumption and the impacts to women's health from mercury and PCBs.

CIEA Staff/Intern Training

To best serve NAHC WIC's large Spanish speaking population, CIEA hired, two part-time bilingual Spanish/English interviewers for the waiting room survey portion of the project. CIEA staff successfully trained 2 new staff, along with 6 UC Berkeley and 1 CDPH fellow.

WIC Staff Training/Capacity Building

CIEA and WIC staff began the project with series of 3 lunches in May and June 2011 to discuss project implementation and familiarize the entire staff with the grant. CIEA ED Sherri Norris and Project Manager Angela Berry were present at all lunches and NAHC WIC staff attendance rotated in smaller groups. CIEA staff conducted focus group interviews with staff to asses training needs and brainstorm ideas for achieving client participation in the project. Every staff member indicated a need for increased education regarding safe fish consumption and local advisories.

After staff turnover at NAHC WIC, we were able to identify an on-site Project Lead, Nutritional Assistant Yadira Oseguera in December 2011 and train her on all relevant SF Bay Fish Project materials necessary to move ahead with curriculum development.

In February, 2012, CDPH and CIEA conducted an online needs assessment of the WIC staff who would be participating in a training held by CIEA, CDPH and OEHHA at NAHC

WIC. Staff indicated that was a need for increased education on their part. One respondent said “The problem is that our WIC questionnaire doesn't go into detail about what kind of fish their (sic) eating, doesn't ask about shellfish. So, often we don't talk about it.” Of the 8 respondents, 75% indicated that “Where mercury and PCBs come from” and ”Why are they a problem in fish” was of high importance to learn during a training session. 50% rated their topic knowledge prior to training medium and 50% rated it low. 88% of respondents indicated that the topic “Advisories on fish from stores and restaurants” was of high importance for the training. 88% rated their knowledge low.

On February 29, 2012, we held the training for 10 NAHC WIC staff members. At this time, the clinic only had 12 active employees and two had the day off. Topics covered included sources of mercury and PCBs, the SF Bay Fish Advisory, training on the new curriculum, and how to communicate fish consumption advice role playing scenarios. 90% of participants said that they were either “satisfied” or “very” satisfied with the content of the training and 80% said that they were “very satisfied” with the knowledge of the trainers.

Staff participants said that this was “useful information for our participants” and “I learned a lot and probably need to make changes at home where it comes to eating fish and seafood.” WIC staff took pre and post tests during the training and saw an average increase in their test scores of 4.4 points (out of 13 questions).

WIC GC 30 Making Healthy Fish Choices Class

NAHC WIC NA Yadira Oseguera and CIEA PM Angela Berry-Philip developed the “Making Healthy Fish Choices” GC 30 curriculum to empower WIC clients to eat commercial and SF Bay Fish while avoiding mercury and PCBs (See Appendix A for a copy of the curriculum). This course was designed for clients with children ages 1-5, as is indicated by the internal WIC “GC 30” coding, and was supposed to run from April 1st to June 30, 2012. The response in the clinic from clients and staff was so positive that WIC Registered Dieticians responsible for scheduling the course extended the curriculum for an additional two months, meaning that the course has now run for 5 months (through August 31, 2012).

The course was offered in English, Spanish, and Vietnamese on average 27 times per month, to 10 participants each time, with over 800 WIC clients attending the class during the project period. This number does not include clients who took the class between July 1 and August 31, which would add approximately 540 more participants. The course lasted about 45 minutes, during which clients learned how mercury and PCBs get into the environment, the benefits of fish consumption, national/local/SF Bay Fish Advisories, proper preparation methods to reduce PCB exposure, and play games to reinforce course material. At the end of the course, clients were invited to take a pledge that indicated if they ate commercial or SF Bay fish and if they would follow safe consumption advisories. Options to check on the pledge were:

□ Fish is good for my health. I promise to eat 8 ounces of seafood each week, especially fish high in omega-3s like salmon, sardines, trout, herring, and anchovies.

□ I eat fish from stores and restaurants. I promise not to eat fish high in mercury like shark, swordfish, king mackerel, and tilefish.

□ I eat fish caught in the San Francisco Bay. I promise to follow the advisory guidelines for women and children. *(See Appendix B)*

Of the 387 course participants that signed the pledge, 44% (170) indicated that they ate SF Bay fish and would follow the advisory. The pledge was translated into Spanish and Vietnamese and printed on carbon copy paper so that clients could take a copy home with them.

CIEA and CDPH conducted focus groups to evaluate the efficacy of the "Making Healthy Fish Choices" curriculum and get feedback from WIC clients about the services they are receiving. The response to the course content, materials and games was extremely positive. Participants indicated they liked learning how mercury and PCBs got into the environment and which fish they should eat and which they should avoid. They also enjoyed the interactive aspects of the class, such as sharing recipes and the "Go Fish" game where participants use a magnetic pole to fish for a picture of a fish and then compare it to their advisory brochure and then decide if it is safe to eat or not. One suggestion we received was to build more participation from the children attending the class into the game. Participants also indicated that they would now be more careful when eating SF Bay fish. One attendee indicated that she had stopped fishing in SF Bay because she was concerned about contaminants and now actually drove up to Clear Lake because she nd asked why signs are not posted.

Changes to MOA

The major change to our MOA has been the shift away from using surveys to identify at risk clients to recruit them to voluntary community education meetings. NAHC WIC thought mandatory education was a more effective strategy with their clients and thought it was safer. NAHC WIC was unaware that there was an advisory for mercury and proposed the GC 30 (fish class) option. Also, NAHC WIC did not want the waiting room survey to contain identifying information other than a phone number, which would present logistical problems when trying to conduct follow up phone calls as originally proposed in the MOA. NAHC WIC also did not feel a pre/post test would work in the GC 30 (fish class) format.

CIEA and NAHC WIC are extremely happy with the success of this curriculum and are glad that this project ended up evolving in this direction. This course format is used throughout the state, making it replicable in other WIC settings.

2. **Education Materials and Articles**

<u>Making Healthy Fish Choices Curriculum</u>

NAHC WIC and CIEA staff developed this course with technical assistance from CDPH staff to be used in the WIC clinic. Course topics include:

- Health benefits of fish consumption and serving sizes for women and children.
- Sources of mercury and PCBs contamination and how these chemicals can be harmful to individuals' health and to children's health.
- Information, including posters and brochures, about commercial fish advisories and about the SF Bay fish advisory. The course reviews types of fish that are healthy options because they are lower in chemicals and those that are high in mercury and PCBs and should be avoided.
- Lower mercury "WIC CAN BUY" options. Information from WIC on canned fish that can be purchased with WIC vouchers.
- Preparation methods to reduce PCBs in wild-caught fish.
- "Making Healthy Fish Choices" Pledge.

See Appendix A for a copy of the curriculum.

During this course, participants also received copies of the SF Bay Advisory Brochure, the CDPH low literacy brochure, and the "Making Healthy Fish Choices" pledge.

Waiting Room Survey and Educational Intervention

CIEA developed the waiting room survey (adapted from the CDPH population screening tool) and educational intervention that was used during our interviews with NAHC WIC clients and at community events. For further discussion, see Project Activities section. *See Appendix C for a copy of the educational intervention.*

3. **Evaluation Activities**

All of CIEA's project activities contained some form of evaluation. We wanted to ensure that this project was replicable and sustainable beyond the grant period and that we could demonstrate the efficacy of the project activities to other WIC programs in the area that serve similarly impacted clientele.

Staff Training

Staff were given evaluations to rate their level of satisfaction with the training given by CDPH and also the pre/post test to rate their knowledge gained. WIC staff took pre and post tests during the training and saw an average increase in their test scores of 4.4 points. Staff indicated that they would change behavior both professionally and personally. Participants indicated that "The handouts, poster, and fish model were great. These will be great for when we do counseling or do classes" and "The brochures are very helpful as a tool to teach as well. The powerpoint presentations were very helpful."

Waiting Room Survey

When we first met with WIC staff, a common perception was that their clients did not really much eat fish. CIEA thought it was important to survey their clients to find out what general and SF Bay fish consumption rates within the clinic population looked like so that we could get staff to understand the need for this type of project. What the data showed is that WIC clients are eating store-bought fish (91%) and wild caught fish, both from the SF Bay and the Delta. Clients that indicated they ate fish from the SF Bay were then given the retrospective post-test. 93% of respondents indicated that the educational intervention increased their knowledge of the SF Bay Advisory and 96% indicated that they would share the information that they learned with family and friends.

Making Healthy Fish Choices GC 30 Course

Course participants were invited to sign the "Making Healthier Fish Choices Pledge" to indicate if they ate commercial fish and/or SF Bay Fish and intended to follow safe consumption guidelines (see Appendix B). Of the 810 course participants, 387 signed the pledge and 170 (44%) of pledge signers were SF Bay fish consumers who intend to follow the advisory.

We also distributed the population screening tool and retrospective post-test to 101 GC 30 course participants, 51 more than was required by the MOA. Of these, 13 respondents (13%) were SF Bay Fish consumers and all respondents who provided gender and age information were at risk (n=7, or 7%) (this information was missing for the remaining six respondents so we could not determine whether they were at-risk). However, many of the respondents did not indicate which species they were consuming.

One of the challenges of conducting this survey in this type of setting was that a lot of women reported not knowing where the fish they were eating was coming from or what species it was because their husbands were the ones actually going out and doing the fishing. In the future, we would send all interviewers with a picture map of the "SF Bay" as there was confusion as to what constitutes the actual location.

We also conducted focus groups in Spanish, English, and Vietnamese with assistance from CDPH staff. 20 WIC clients participated in the focus groups. WIC clients spoke very highly of course teachers and curriculum and reported learning important information. One participant even recommended extending the length of the class so that more information could be included. CIEA and NAHC WIC are proud to see the class so successfully implemented and hear that this project is meeting client needs.

CIEA and NAHC WIC successfully met the project goals and objectives as outlined in the MOA and through discussions with CDPH staff.

- All 10 WIC staff on-duty successfully completed training on Feb. 29, 2012.
- CIEA completed 769 waiting room surveys and an additional 33 field test surveys for a total of 801 surveys, exceeding our 775 goal.
- GC 30 curriculum was completed and ran for 5 months, reaching 810 participants during project period and 540 after the project period, conducted evaluation with 101 clients, exceeding our 50 participant goal.

- 349 SF fish consumers reached, including pledge signers and survey totals with household information included

CIEA did not ask GC 30 class attendees if they had also taken the survey, so it is possible that there is some overlap between the survey respondents and the course attendee numbers. However, over 300 of the surveys were given to patients of the NAHC 7 Directions and to the general public at the NAHC annual Running is My High 5k/10k event, so it is not possible to quantify the overlap.

Conclusions and implications

Clients at NAHC WIC eat fish, both from the store and fish that they, or family members, catch themselves. It can be challenging conducting "angler" surveys in a location where people are not actually fishing, but the educational component of the one-on-one counseling was beneficial to the WIC clients. More education needs to happen in WIC settings with women who are often responsible for preparing food for their families, but might not know what fish they are cooking, where it is coming from, or if there is an advisory where it was caught.

4. **In-Kind or Leveraged Resources**

CIEA and NAHC WIC would like to thank CDPH for their technical support in the development and printing of materials. CDPH bilingual fellow Olga Martinez also assisted during the Waiting Room Interview portion of the project conducting surveys. CIEA requested, and was granted, donations of food, children's toys, and convertible car seats worth approximately $750 to use in raffles to encourage survey participation.

5. **Sustainability**

This is part of CIEA's regular program work, so we plan to continue to distribute materials about safe fish consumption and local fish advisories. We also present to health clinics on these topics. CIEA has limited funding to explore expanding this project into another WIC clinic, with the goal of bringing it to one in Contra Costa County and one in Alameda County in 2013.

CIEA received a $3000 grant from the Center for Environmental Health that will allow us to seek curriculum partners in other WIC clinics in California and begin implementation of additional "Making Healthy Fish Choices" programs. CIEA has already started conducting outreach with several Tribal health clinics in northern California about this project.

CIEA staff conducted exit interviews with NAHC WIC staff and is thrilled to report that 100% reported that this information is now a part of their regular nutritional counseling when they meet with a client.

6. **Recommendations**

The collaboration between CIEA, NAHC WIC, and CDPH was key to the success of this project. In the future, projects that emphasize collaboration and strong evaluation should be encouraged. Also, we noticed that many clients were fishing in both the SF Bay and the Delta. It makes sense to integrate the funding for both of these programs to better serve impacted communities.

7. **Budget** (see Table B).

Table A - Project Activities

Description of the Activity (please include location and population)	Number of Participants	Number of SF Bay consumers	Number of at risk consumers	Number of consumers with outcome evaluation
1. Field test survey Location: World Wide Breastfeeding Week, Frank Ogawa Plaza, Downtown Oakland Population: Women of Childbearing Age/Breastfeeding Mothers	33	12	12	0
2. Waiting Room Survey Location: WIC & 7D Waiting Room/RIMH event Population: Primarily NAHC clients, some general public at RIMH, 79% female	769	49 individual, 130 Household, 179 total	28 individual	47
3. NAHC WIC Staff Training Location: NAHC WIC Office, Oakland Population: WIC staff	10	N/A	N/A	10
4. GC 30 Making Healthy Fish Choices Course Location: NAHC WIC Office, Oakland Population: low-income women, pregnant women, breastfeeding mother, infants, children age five and under	810	Pledges- 170 Eval- 13	Pledges- N/A Eval- 7	101
Totals- did not control class/survey for overlap in numbers				

Table B- Budget

Personnel:	
Salaries & wages (include benefits and taxes)	18,935.00
Consultant & contract services	2,703.00
Total Personnel	$ 21,638.00
Operating Expenses	
Supplies/Materials/Printing	698.00
Equipment	-
Travel	695.00
Meeting Incentives	600.00
Other (food for meetings)	304.00
Total Operating Expenses	$ 2,297.00
Indirect Costs	$ 2,315.00
Total	26,250.00
Total	**26,250.00**

Appendicies

A. Making Healthy Fish Choices (GC 30 fish curriculum)
B. Pledge for Making Healthy Fish Choices curriculum
C. Educational intervention tool for waiting room survey
D. Waiting room survey tool
E. Retrospective post test for waiting room survey
F. Retrospective post test for GC 30 fish curriculum

Making Healthy Fish Choices

WHO:

For WIC participants who have children age one to five years' old and for participants who might be interested in the subject. This class will be offered in Spanish, English, Vietnamese and possibly other languages, per agency. The class will be taught by trained WNA's, RD's or DN's, and will have 10-15 slots open. The times and dates may vary depending on the master calendar.

WHY:

The consumption of fish is an important part of a healthy and balanced diet. Fish contain polyunsaturated omega-3 fatty acids that may help reduce chronic diseases and aid brain development. However, some fish may be contaminated with chemicals such as mercury and PCBs. These chemicals can be present in fish due to industrial pollution and mining activities from the California Gold Rush.

Populations who depend on fish for economic and cultural reasons can be more at risk, such as those served by the WIC clinics. Unfortunately, mercury can be found in some fish bought from stores and restaurants. Mercury and PCBs are found in certain fish caught in local Bay Area waterbodies, including San Francisco Bay.

This class will provide educational material to educate and inform participants about mercury and PCBs in fish. By having the appropriate knowledge and context, participants will be able to make healthier and safer choices when consuming fish.

SO THAT:

WIC participants can better understand the importance of and be able to take action in following local and national fish advisories. Participants should leave better prepared to make educated and informed decisions when buying fish or fishing in San Francisco Bay.

WHEN:

This class will be 30-45 minutes; times and dates may vary per agency. This class will substitute a secondary education contact like a GA contact.

WHERE:

The class will be offered in a WIC setting.

WHAT:

This class will present educational material, allowing participants to identify fish low in chemicals versus fish high in chemicals. In addition, this class will present healthier alternatives, including the types of fish high in omega 3s, local fish advisories, recommend portion sizes for adults and children, and provide cooking and preparation recommendations.

WHAT FOR:

By the end of this class, participants will have created, practiced and applied new information to already known information about mercury/PCBs in fish. Participants will leave with relevant information, allowing them to make healthier choices, thus avoiding fish high in mercury/PCBs and increasing their consumption of fish high in omega 3s.

HOW:

ANCHOR:

Turn to your partner and share; do you eat fish? What kind of fish do you normally eat? Where does this fish come from (grocery store or San Francisco Ba, or other area)?

APPLY 1:

Explain health benefits of fish consumption and define Omega-3 fatty acids. Show participants chart with health benefits at different life stages-unborn babies, children, adults. Discuss USDA recommendations for adults of 8 oz. or more ounces per week of a variety of lower mercury seafood. Using models/other visual aids, demonstrate 6 oz. cooked adult portion size and adjustments for young children, starting with 1.5 oz. cooked portion.

Materials Used: Omega-3 benefits chart, CDPH fish portion models

APPLY 2:

Define mercury and PCBs. With the help of posters, show participants sources of mercury and PCBs in the environment and how they bioaccumulate up the food chain. Discuss how these chemicals can be harmful to individuals' health and to children's health.

Materials Used: USGS Mine Map of CA, Bioaccumulation Poster TBD

APPLY 3:

Commercial: With the help of posters, show participants the types of fish that are highest in Omega-3s and lowest in mercury and highlight WIC CAN BUY foods. Present EPA/FDA joint advisory information fish that women of childbearing age and young children should never eat, shark, swordfish, king mackerel, and tilefish. Present brochures that show images with safe fish to eat and those to avoid.

SF BAY: With the help of posters, show participants the types of fish caught in San Francisco Bay that are high in mercury and PCBs. Present brochures that show images of fish that are safe to eat and those that should be avoided from San Francisco Bay. If applicable for audience, point out that the advisories are more restrictive for women 18-45 and children (compared to men and older women) because they are sensitive to harm from the chemicals. Also, note that for the fish that are safe to eat, there still are limits on the number of serving per week.

Materials Used: CDPH low-literacy poster, CDPH low-literacy brochure, SF Bay Fish Advisory

APPLY 4:

Identify the fish that clients already eat and compare these fish to national and local fish advisories. Explain and practice proper way of cleaning and preparing fish that will reduce some chemicals like PCBs in fish from San Francisco Bay. Have participants practice on cloth fish model.

Materials Used: Cloth Fish Model

AWAY:

Discuss national and local fish advisories and, if participants feel comfortable, have them share as a group how this information will help them improve their eating habits, subsequently avoiding fish high in mercury/PCB's and choosing fish high in omega 3s. Review "Making Health Fish Choices Pledge" and have participants sign.

Materials Used: "Making Healthy Fish Choices Pledge"

Making Healthy Fish Choices

Who

WIC participants who have children age one to five years old. This class will be offered in Spanish, English, Vietnamese and possibly other languages, per agency.

WIC facilitator – The class will be taught by trained WNA's, RD's or DN's about mercury and PCBs in fish bought from stores and restaurants and fish caught in San Francisco Bay, and will have 10-15 slots open. The times and dates may vary depending on the master calendar.

Why

The consumption of fish is an important part of a healthy and balanced diet. Fish contains polyunsaturated omega-3 fatty acids that may help reduce chronic diseases and aid brain development. However, some fish may be contaminated with chemicals such as mercury and PCBs.

Populations who depend on fish for economic and cultural reasons can be more at risk, such as those served by the WIC clinics. Unfortunately, mercury can be found in some fish bought from stores and restaurants. Mercury and PCBs can be found in local Bay Area waterbodies, including San Francisco Bay.

This class will provide the necessary educational material to educate and inform participants about mercury and PCBs in fish. By having the appropriate knowledge and context, participants will be able to make healthier and safer choices when consuming fish.

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Time

This class will be 30-45 minutes; times and dates may vary per agency. This class will substitute a secondary education contact like a GA contact.

Set-Up

Chairs set up in a circle or semi-circle. WIC facilitator will sit in the circle with participants after presenting educational material.

Objectives

By the end of this session, participants will have:

- Learned about the health benefits of consuming fish
- Learned what mercury and PCBs are, where they come from, and how they might harm you and your children.
- Identified fish that should be eaten because they are high in omega-3 fatty acids
- Identified fish that should be avoided because they are high in mercury/PCBs
- Learned about recommended serving sizes for women and children.
- Learned about local and national advisories for fish bought in stores and restaurants, and fish caught in San Francisco Bay
- Learned how to clean, prepare, and cook fish properly to reduce amount of chemicals in fish caught in San Francisco Bay
- Used the Shopping Guide to learn about **CAN BUY** fish (if applicable)
- Practiced shopping for fish using WIC checks (if applicable)

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Lesson Overview

1. **Welcome, Introduction and Warm Up**

   3 minutes

2. **Explain health benefits of fish consumption, recommended serving sizes for women and children, and define Omega-3 fatty acids.**

   7 minutes

3. **Define mercury and PCBs and identify sources of environmental contamination. Explain bioaccumulation up food chain with use of educational materials**. Discuss how these chemicals can be harmful to individuals' health and to children's health.

   5 minutes

4. **Present information, including posters and brochures, about commercial fish advisories. Review types of fish, focusing information on high Omega-3/low in mercury options, WIC CAN BUY options, identifying "do not eat" fish for women and children, and recommended serving sizes for women and children.**

Present information, including posters and brochures, about SF Bay fish advisory. Review types of fish that are healthy options because they are lower in chemicals and those that are high in mercury and PCBs and should be avoided.

7 minutes

5. **Have participants identify fish they consume from stores and restaurants. Compare these fish to the national advisory. Review health benefits and risks, and reasons for following the advisory. Discuss options for choosing healthier alternatives (fish low in chemicals and high in omega 3s).**

Have participants identify fish they already consume from San Francisco Bay. Compare these fish to the San Francisco Bay advisory. Review health risks and benefits for following the advisory. Discuss options for choosing

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healthier alternatives (fish low in chemicals and high in omega 3s). Remind participant to follow only one advisory at a time.

Review cleaning/trimming/preparation methods that will reduce the amount of some chemicals in fish caught in San Francisco Bay (remove skin and guts, eat only the skin fillet, steam or grill fish so that the cooking juices drain away). Practice preparation methods as a group with cloth fish model.

12 minutes

6. **Using the Shopping Guide: cover CAN BUY fish (if appropriate)**

3 minutes

7. **Closing and invitation to take "Making Healthier Fish Choices Pledge"**

3 minutes

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Activities

1.

Welcome and warm up

3 minutes

Introduction:
Example:

"Good morning/afternoon, my name is _____.

"Today we will be talking about making healthier fish choices and the health benefits of consuming fish. We will also talk about two chemicals called mercury and PCBs that are found in some fish."

"You might be asking yourself, what are mercury and PCBs? Today you will learn that mercury and PCBs are chemicals found in some fish. You will also learn about the health benefits of consuming fish."

Refer to the overview of the class.

Warm-Up:

"Please turn to your partner and share: do you eat fish? What kind of fish do you normally eat? Where does this fish come from (grocery store, San Francisco Bay or other waterbodies)"

Invite participants to share as a group their responses, if they feel comfortable sharing.

2.

Benefits of eating fish

7 minutes

Fish is an important and healthy part of our diet. The purpose of this class is to educate and present you with healthy fish options. Fish contains omega 3 fatty acids, vitamins (D and B2), and minerals.

Omega-3 fatty acids, are "essential." This means that the body needs them to function properly, but does not produce them. Therefore, you must consume through food sources. Omega-3s are found in fish, some plant sources and nut oils and can:

- *Help maintain a healthy heart by lowering blood pressure and reducing the risk of sudden death, heart attack, abnormal heart rhythms, and strokes.*
- *Aid healthy brain function and development of vision and nerves in your baby during pregnancy, including*

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higher maternal fish intake during pregnancy linked to higher test scores in children

- *May decrease the risk of depression, ADHD, Alzheimer's disease, dementia, and diabetes.*
- *May prevent inflammation and reduce the risk of arthritis.*

"Most people don't eat enough seafood. It is especially important for pregnant and breastfeeding women to eat fish high in omega-3 fatty acids and low in mercury. The health benefits are much greater when we consume fish high in omega-3 fatty acids and low in mercury." Women of childbearing age should eat 8 to 12 oz of fish per week. Young children should eat smaller servings of 4 to 6 oz. per week.

Materials Used: Omega-3 benefits chart, CDPH fish portion models

3. Present educational material about Mercury and PCB's

5 minutes

"Let's start by defining some terms:
By a show of hands, Does anyone know what mercury or PCBs are?
Wait a few seconds, if no hands proceed. If someone raises their hand ask *"would anyone like to share what you know about mercury or PCBs?"* Acknowledge participant's answer if they share.

Thank you for sharing (if anyone shares*). Mercury is a naturally-occurring element which is released into the environment by natural sources like rock, soil, air and volcanoes, as well as manmade processes like mining and burning coal for energy, among others. Mercury can build up in large, long-lived, predatory-type fish like sharks and swordfish (and also include tilefish and king mackerel). These fish have high mercury anywhere they are caught including fish you buy in stores and restaurants.*
In California, mercury was used to extract gold in Sierra Nevada. This substance was released in many lakes and rivers during the California Gold Rush. These waterbodies are connected to San Francisco Bay so some fish in all these areas are contaminated with mercury.
Please refer to the poster representing Gold Mines and Mercury Mines to demonstrate where mercury is found.
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Pause for a few seconds; *ask if participants have any further questions about mercury.* If no questions, please proceed.

"Let's now define PCBs, PCB stands for Polychlorinated biphenyls. PCBs are manmade chemicals, used widely in many industrial applications, like electrical transformers, capacitors among others. They were banned in 1976 because they are harmful to your health. They also don't break down easily and stay in the environment for a long time. This substance entered in the environment through improper disposal, spills and leaks. PCBs enter the soil and water, contaminating fatty parts of fish. Some PCB-containing equipment still is used today."

These chemicals accumulate as you move up the food chain. Refer to Bioaccumulation graphic and explain bioaccumulation process. *Larger, predatory fish that are at the top of the food chain, like shark and swordfish are high mercury.*

Materials Used: USGS Mine Map of CA, Bioaccumulation Poster TBD

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4. Present Information

5 minutes

Provide CDPH low-literacy Fish Advisory brochure to all the participants.

"I am going pass out some brochures, these brochures are for you to take home to share with your family. Please open the brochure; we will go over this brochure as a group." Refer to poster version of CDPH low-literacy brochure.

National Advisories for fish from stores and restaurants (review key messages):

- **It's good that you're eating fish**. Fish is good for your health and your baby, and it's a good alternative to other kinds of meat.
- **Some fish you buy can have mercury**. Too much of this chemical in your body could harm your health and your children's health.

- **You and your children should never eat shark, swordfish, tilefish, or king mackerel**. These fish are always high in mercury.

- **For fish that you buy, try to eat it 2 times a week**. Some good choices are salmon, sardines, anchovies, and trout. These fish are low in mercury and high in omega 3s.

- **A serving is about the size and thickness of your hand.** Children should be given smaller servings.

"Does anyone have any questions about fish that you buy from the store?"

Provide San Francisco Bay Advisory Brochure to all the participants.

"Next we are going to talk about fish that you can catch from the San Francisco Bay. Due the exposure of mercury and PCBs in San Francisco Bay, there are advisories to help you and your family make healthier choices when eating fish. Fish is an important and healthy part of our diet that's why it is important to make the right choice."

Local Advisory for San Francisco Bay
[review key messages:]

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- **There is a health advisory for fish caught from San Francisco Bay.** Some fish have mercury and PCBs.

- **The safest fish to eat from SF Bay are salmon, brown rockfish, jacksmelt, and red rock crab**. Eat up to 2 meals a week of these fish.

- **Women of childbearing age (18-45) and children 1-17 should not eat any surfperch, sharks, striped bass, or white sturgeon from the SF Bay.** These fish have high levels of mercury and PCBs

Local advisories for other places

"If you catch and eat fish from other local lakes and rivers, make sure to find the appropriate advisory. Here are some places where these advisories are listed: [refer to OEHHA website or DFG fishing regulations booklet]." "If you eat fish you catch form different places, or you eat fish you catch AND from stores and restaurants, be sure to follow only one advisory at a time. Now that you guys are familiar with the brochures and have a better understanding of local and national advisories, let's do a little activity:"

Materials Used: CDPH low-literacy poster, CDPH low-literacy brochure, SF Bay Fish Advisory

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5.

Group activity and preparation demo
10-15 minutes

Activity:

"Please look very closely at the brochure (individually*) compare an already consumed fish to local and national fish advisories. By looking at the brochure how would you make a healthier choice? If you don't already consume the type of fish in the advisory, that's okay, try selecting a healthier fish that you might want to try."*

Give them a few seconds to look over the brochure individually.

"Now please turn to your partner and share your answers." Allow them a few minutes to share with their partner. Ask if anyone would like to share their answer, make them feel safe and comfortable by sitting with them in the circle.

"Having the tools that you now have, selecting the healthier type of fish for you and your family can be much easier. WIC recommends eating fish; it's an important part of a healthy diet. However, we want you to make a healthy choice, obviously by selecting what's most accessible to your family. "

"Let's now practice how to properly clean, trim and prepare fish. Preparing and cooking method can lower some chemicals in fish caught in San Francisco Bay, that's why it is important to follow appropriate recommendations. " Using cloth fish model, demonstrate the proper preparation methods. If they are comfortable, have the participants practice using the model too.
While you are practicing ask participants to share*, Which recipe might you make at home?"*

Materials Used: Cloth Fish Model

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6.
Using WIC shopping Guide

3 minutes

If appropriate; using the shopping guide: cover **CAN BUY** fish, page #20. ONLY breastfeeding participants receive canned fish. Their options are chunk light tuna, pink salmon and sardines. Please encourage participants to buy pink salmon and sardines, since these fish are the healthiest; low in chemicals and high in omega 3s.

Materials Used: WIC Shopping Guide and Examples of Canned Fish

7.
Closing and pledge to eat healthier fish

3 minutes

"Today we looked at mercury/PCBs in fish and advisories. But, most importantly the health benefits of consuming fish high in omega-3 and low in mercury. We hope that this information will help you and your families make healthier choices."

"Let's look at your handout which has a pledge. Let's take a pledge to keep our children and ourselves healthy."

Review pledge and invite participants to sign the pledge and take it home.

"What fish will you and your family eat from now on? Remember to eat healthy fish! Thank you for participating in our discussion today!"

Materials Used: ""Making Healthy Fish Choices" Pledge

MY PLEDGE FOR MAKING HEALTHY FISH CHOICES

Please mark the statements that apply to you:

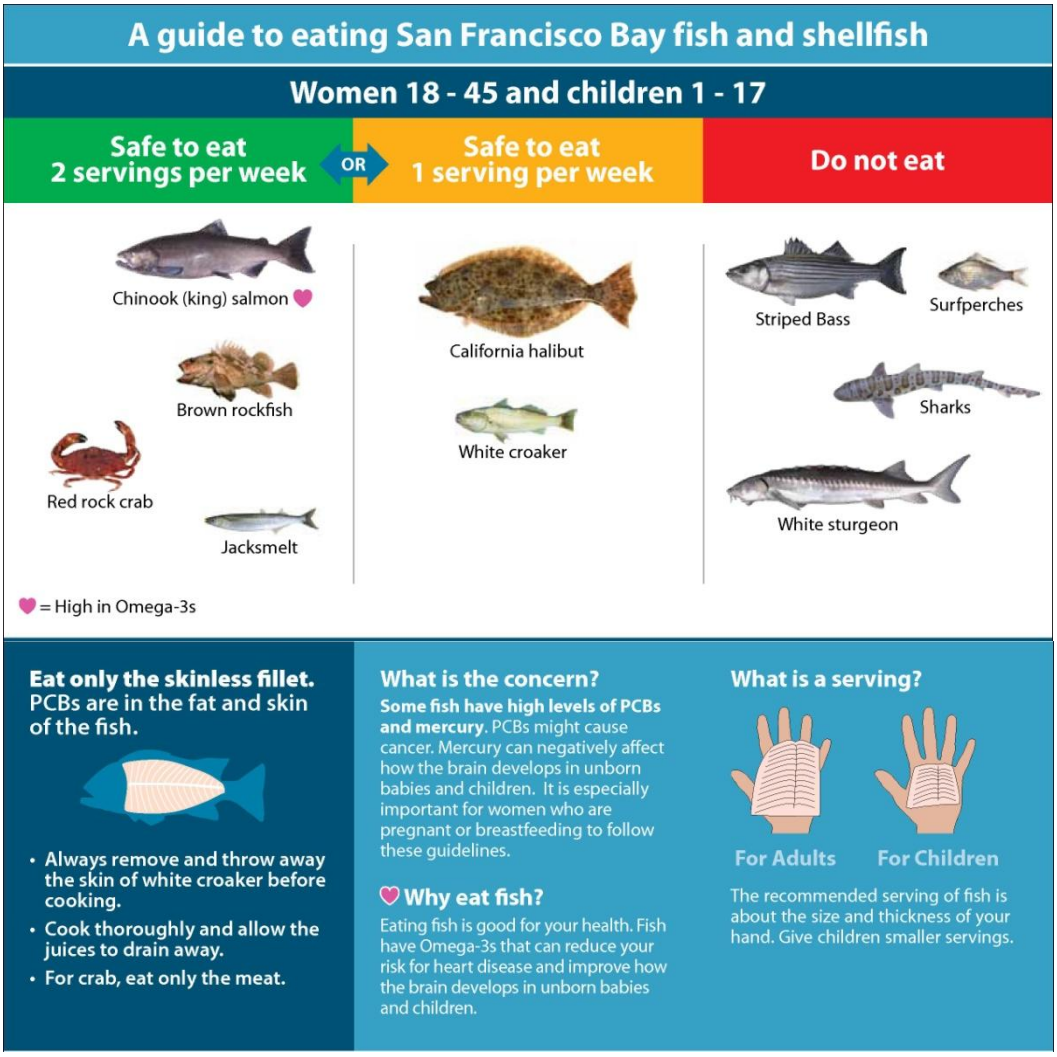
I eat fish from stores or restaurants.

☐ Because fish is good for my health, I promise to eat 8 ounces of seafood each week, especially fish high in omega-3s like salmon, sardines, trout, herring, and anchovies.

☐ I promise not to eat fish high in mercury like shark, swordfish, king mackerel, and tilefish.

I eat fish caught in the San Francisco Bay.

☐ I promise to follow the advisory guidelines for women and children (below).



Signed by: _____ **Date:** _____

☐ Client eats fish:

- **It's good that you're eating fish**. Fish is good for your health and your baby, and it's a good alternative to other kinds of meat. (Hand out CIEA brochure and discuss safe eating guidelines)

- **Some fish can have mercury and PCBs**. Too much of these chemicals in your body could harm your baby's brain and growth.

- **You and your children should never eat shark, swordfish, tilefish, or king mackerel**. They have the highest mercury. Children should not eat these fish either. (Hand out joint EPA/FDA advisory)

☐ Client eats commercial fish:

- **For fish that you buy, try to eat it 2 times a week**. Some good choices are salmon, sardines, anchovies, and trout. Remember, a serving is about the size and thickness of your hand and children should be given smaller servings.

- **Try to eat a variety of different fish**, instead of only one kind of fish. These are some low-mercury fish to choose. (Show fish in green section of CIEA "Eating Fish Safely" brochure.)

☐ Client eats sport fish (caught by self, friends, family)

- **Make sure you know where your fish comes from**. Check the advisory for that place, before you eat any fish. (Hand out SF Bay Advisory Brochure, show OEHHA website/phone number on SF Bay brochure)

☐ Client eats sport fish from SF Bay (caught by self, friends, family)

- **There is a health advisory for fish caught from San Francisco Bay.** Some fish have mercury and PCBs.

- **The safest fish to eat from SF Bay are salmon, brown rockfish, jacksmelt, and red rock crab**. Eat up to 2 meals a week of these fish. Remember, a serving is about the size and thickness of your hand and children should be given smaller servings.

- **Women of childbearing age (18-45) and children 1-17 should not eat any surfperch, sharks, striped bass, or white sturgeon from the SF Bay.** These fish have high levels of mercury and PCBs.

Appendix D – Waiting Room Survey

San Francisco Bay Mercury Tribal Health Project Fish Survey

California Indian Environmental Alliance and NAHC WIC are helping families eat fish safely, understand the San Francisco Bay fish consumption advisories and learn how to avoid eating fish high in toxins. Your information will assist efforts to protect women and children's health and cleanup the San Francisco Bay. All survey participants will be entered into a raffle to win a convertible car seat. CIEA would like to thanks all participants for their help!

Please note that all demographic questions are optional.

1. Phone/email: 2. Date:

3. Are you male or female?

4. How old are you?

   Under 18 18-45 46 or older

5. Do you eat fish?

   Yes or No

6. **Not including you**, how many people in your household for each of the following groups eat fish?

   Women 18-45 _____ Women 46 and over _____

   Children 1-17 _____ Men 18 and over _____

7. Do you eat fish that you buy from a store, market, or restaurant?

   Yes or No

7b. What types of fish do you eat?

Tilapia Shrimp Salmon Cod Canned Tuna (chunk light) Canned Tuna (Albacore) Trout Snapper Catfish Tuna (Steak) Swordfish Tilefish King Mackerel Canned Salmon Other _____

8. Do you or your family go fishing and eat what you catch?

   Yes or No

8b. Where do you go or your family members go fishing?

8c. What types of fish do you eat?

Catfish Trout Salmon Striped Bass Pikeminnow Sunfish
Bluegill Sturgeon Largemouth Bass Crayfish Sucker

Other _____

8d. How often do you eat what you or your family members catch?

_____number of times per Day Week Month Other_____

Less than once a month

If you fish out of San Francisco Bay, please take a minute to fill out our SF Bay survey.

Can we contact you for follow up questions via phone or email?

Yes or No

SF Bay Survey

1. Do you eat fish caught from San Francisco Bay?

   ☐ Yes ☐ No

2. In a typical week, how many servings of **any** fish or crab from San Francisco Bay do you eat?

   ☐ Less than 1 serving per week ☐ 1 serving per week

   ☐ 2 or more servings per week (How many servings per week?_____)

3. Do you eat any of the following fish from San Francisco Bay?

☐ Surfperches (includes shiner perch, walleye surfperch, striped seaperch, black perch, and other surfperches)

☐ White Croaker

☐ Leopard shark (and other sharks)

☐ Sturgeon

☐ Striped Bass

4. **Not including you**, how many people in your household for each of the following groups eat fish from San Francisco Bay?

Women 18-45 _____ Woman 46 and over _____

Children 1-17 _____ Men 18 and over _____

◊ Retrospective Post-Test Questionnaire for Waiting Room Interviews (Appendix E)

1. Has talking with me today increased your knowledge of the consumption advisory for San Francisco Bay?

☐ Yes ☐ No ☐ Don't know/Not sure

2. Do you have the information you need to reduce your exposure to chemicals from eating San Francisco Bay fish?

☐ Yes ☐ No ☐ Don't know/Not sure

Now that you have heard about the advisory…:

3. Do you think you are likely to avoid eating surfperches from San Francisco Bay?

☐ Yes ☐No ☐ Don't know/Not sure ☐ N/A (doesn't eat surfperches now)

4. Do you think you will share the advisory information with other family members or friends?

☐ Yes ☐ No ☐ Don't know/Not sure

5. Do you think you will follow the advisory recommendations for eating fish from San Francisco Bay?

☐ Yes ☐ No ☐ Don't know/Not sure ☐ N/A (already follows advisory)

The next two questions are only for men ages 18+ and women ages 46+

7. Do you think you will limit the amount of white croaker, sharks, and sturgeon that you eat from San Francisco Bay to no more than one serving per week?

☐ Yes ☐ No ☐ Don't know/Not sure ☐ N/A (doesn't eat these fish now)

8. Are there other steps you plan to take?
If yes, explain:_____

The next two questions are only for women 18-45 years of age and children 1-17 years of age

9. Do you think you will stop eating striped bass, sharks, and sturgeon from San Francisco Bay?

☐ Yes ☐ No ☐ Don't know/Not sure ☐ N/A (doesn't eat these fish now)

10. Are there other steps you plan to take?
If yes, Explain:_____

◊ Retrospective Post-Test Questionnaire for GC 30 Curriculum (Appendix F)

1. Has this class increased your knowledge of the consumption advisory for San Francisco Bay?

☐ Yes ☐ No ☐ Don't know/Not sure

2. Do you have the information you need to reduce your exposure to chemicals from eating San Francisco Bay fish?

☐ Yes ☐ No ☐ Don't know/Not sure

Now that you have heard about the advisory…:

3. Do you think you are likely to avoid eating surfperches from San Francisco Bay?

☐ Yes ☐No ☐ Don't know/Not sure ☐ N/A (don't eat surfperches now)

4. Do you think you will share the advisory information with other family members or friends?

☐ Yes ☐ No ☐ Don't know/Not sure

5. Do you think you will follow the advisory recommendations for eating fish from San Francisco Bay?

☐ Yes ☐ No ☐ Don't know/Not sure ☐ N/A (already follow advisory)

The next two questions are only for men ages 18+ and women ages 46+

7. Do you think you will limit the amount of white croaker, sharks, and sturgeon that you eat from San Francisco Bay to no more than one serving per week?

☐ Yes ☐ No ☐ Don't know/Not sure ☐ N/A (don't eat these fish now)

8. Are there other steps you plan to take?
If yes, explain:_____

The next two questions are only for women 18-45 years of age and children 1-17 years of age

9. Do you think you will stop eating striped bass, sharks, and sturgeon from San Francisco Bay?

☐ Yes ☐ No ☐ Don't know/Not sure ☐ N/A (don't eat these fish now)

10. Are there other steps you plan to take?
If yes, Explain:_____

San Francisco Bay Fish Project Grant Program
Final Report

Due Date: Monday, July 2nd, 2012
Project name: San Francisco Bay Fish Environmental Health and Justice Project
Organization: Greenaction for Health and Environmental Justice
Author of this report: Rose Chan, Bradley Angel, Naomi Onaga
Date: 7/2/2012

Project Purpose:
Greenaction for Health and Environmental Justice developed a three-pronged plan involving direct outreach to fishers, community presentations to the general public, and special presentations to at-risk mothers and young women ages 18-45 in Bayview-Hunters Point and southeast San Francisco with the goals of:
1) increasing awareness and understanding of the new Fish Advisory information, contamination issues and benefits associated with consuming fish from San Francisco Bay, and
2) reducing exposure to PCBs and mercury linked to consuming contaminated Bay fish. Our program primarily served low-income people of color living in Bayview-Hunters Point and southeast San Francisco and who are disproportionately affected by ill health problems arising from a multitude of pollution exposures including eating contaminated fish.

Process Objectives:
1. By the end of July 2011, Greenaction will track and map the locations of current popular fishing locations in Bayview-Hunters Point and southeast San Francisco.
2. By the end of May 2012, Greenaction will assess the % of the fishers and at-risk mothers in Bayview-Hunter's Point and southeast San Francisco that are at risk for exposure to PCBs and mercury contamination due to their current consumption patterns and fishing practices.
3. By the end of May 2012, 200 fishers (via outreach), 1000 Bayview Hunters Point residents (via 12 presentations), and 100 at-risk women and mothers (via presentations) will be informed of the new Bay Fish Advisory, safer consumption practices, and benefits and harms associated with Bay fish consumption.
4. By the end of January, 2012, 2 newsletters and 1 newspaper article submitted to the Bayview newspaper will be written and distributed to the community.
5. By the end of July 2011, at least 1 community friendly factsheet will be created, translated into 4 languages (Vietnamese, Tagolic, Samoan, Spanish), and distributed to the community.

Impact/Outcome Objectives:
6. By the end of May 2012, 10% of surveyed Bayview-Hunters Point residents, fishers, and at-risk women and mothers will modify their attitudes about potential health impacts of mercury and PCBs and benefits of Omega-3s/healthy fish on their personal health and the health of their family.
7. By the end of May 2012, 10% of surveyed fishers, Bayview-Hunters Point residents, and at-risk women and mothers will improve their knowledge about the Fish Advisory, mercury and PCBs in fish, health benefits of fish and safer fishing and fish consumption habits.
8. By the end of May 2012, 5% of surveyed fishers, Bayview-Hunters Point residents, and at-risk women and mothers will intend to change or modify their fishing practices or consumption habits towards safer consumption-fish catching and safer preparation methods.
9. By the end of May 2012, 5% of all surveyed fishers, Bayview-Hunters Point residents, and at-risk mothers will change or modify their fishing practices or consumption habits towards safer consumption-fish catching and safer preparation methods.

Project Activities: (please see Table A)
During our preliminary work, Greenaction project members attended all trainings on the Fish Advisory held by OEHHA and the Department of Public Health. Additionally, we researched subsistence and low-income fishing communities and health effects of PCBs and mercury on the health of pregnant women and women 18-45 and children to enhance our ability to communicate messages that fit the Bay Fish Advisory May 2011 information. We used data provided to us by OEHHA, CDPH, and peer-reviewed journals and matched them to our organization's best practices to fit our targeted populations in southeast San Francisco. The project's goals and objectives, outreach plan, training material, outreach messages, and presentation plan, evaluation plan were then developed. In order to determine the popular fishing locations for our outreach strategy, we first took the locations provided to us by CDPH and did spot assessments in the last week of June and mid-July of 2011. For more information, please see attached: Informal Fishing Assessment. We found that most of these spots were active, except for Warm Cove, Herons Head possibly due to PG&E construction, and one spot in Candlestick Point off Hunters Point Road to Aurelius Walker Way. The most active sites for our outreach worker were Candlestick Park area, Pier 30, and Aqua Vista Pier. During the course of the project, we also talked to fishers and other stakeholders to gather more information about fishing preferences amongst different fishing subgroups. This information was used to modify and inform the outreach strategy and tailored it to meet our goals and train our outreach worker.

Greenaction hired and trained a fluent bilingual Chinese-English outreach worker, Winnie Seto, to conduct 13 weeks of outreach to fishers in southeast San Francisco using the information provided to us by the Office of Health Hazard Assessment and California Department of Public Health (CDPH) and multilingual factsheets we developed for use in the field. These locations included: 3rd Street Bridge near Evans Street, Heron's Head Park, Warm Cove, Candlestick Point and Pier, Brisbane Lagoon and shore, Islais Creek, Pier 30, India Basin, Aqua Vista Pier, Pier 32, and AT&T Park. Outreach was conducted at various times, including mornings, evenings, and weekends. Pier and fishing spot outreach commenced on August 18, 2011 and ended on March 28, 2012. Our outreach worker approached fishers at the pier and at fishing locations, talked with them about the Office of Environmental Health Hazard Assessment's May 2011 Fish Advisory main messages, and told them about the Bay Fish Project. She provided them with a copy of the Fish Advisory and a community friendly trifold, and collected population at-risk and retrospective post-test survey data. Our outreach worker also tracked the number of fishers at each location when they were present as collected informal anecdotes and qualitative data. The survey data was handed in weekly at meetings with the Project Manager. All surveys were filed weekly, coded by a volunteer and entered into logs.

At the end of 13 weeks, a total of 374 fishers were interviewed and took Population Screening surveys and 260 fishers responded to the Retrospective Post Test surveys (exceeding our objective of 200 fishers). According to our Population Screening data, 84.22% of fishers consumed the fish they caught. Fishers were mostly males over the age of 18 (293 of 374 or 78.34%). Children 1-17 represented 10.16%, women 18-45 represented 7.22% and women 46 and over 4.28% of those fishers interviewed. Of the men, 122 out of 293 were at risk (41.64%), mostly due to eating surfperches. Of the children, 92.10% were at risk (35/38). Among the women, half of those over 46 were at risk (8/16) and among those 18-46, 62.96% were at risk (17/27). Again, one of the main reasons they fell into the at-risk category was that they ate surfperches. Some fishers ate more than one unsafe species, for example, women 18-45 eating both perch and striped bass. Most fishers said they ate fish from the Bay once a week or once a week or less, yet still fell into the at-risk groups because of the types of fish they were catching and eating rather than frequency (or portion) of eating fish. Additionally, 797 people lived with those fishers interviewed, 212 children, 232 women 18-45, 134 women over 46, and 219 men over 18. It should be noted that in some cases, the data collected may have been duplicated. For example, when encountering a family out fishing, each may have listed their other family members, thereby artificially inflating these numbers. Even so, it appears that many of the fishers that were interviewed had family at home that ate the fish they caught and that included women and children in the at-risk categories.

The second branch of the plan began August 15, 2011 and continued until the third week of June 2012. This part of the program included two population groups in Bayview-Hunters Point and southeast San Francisco: 1) at-risk

mothers, pregnant women, and women 18-45 and 2) general community members (500 of these were to be surveyed and 500 were to be assessed by hand-counts). The Project Manager Marie Harrison completed her work in the third week of June 2012, working a minimum of 12 hours a week, giving presentations that lasted between 20 minutes and an hour at several locations and surveying the community. Locations for general population presentations were chosen based on Greenaction's extensive contacts and knowledge within the community. Marie Harrison contacted community churches, community meetings and groups, the YMCA, the Oakdale plaza, clinics and hospitals and used surveys and large poster boards as a visual tools. She visited Mother Brown shelter, Family Mosaic, St. John's church and kitchen, South Church, the Community Campaign at the Southeast Campus at Oakdale, Keith Street Clinic, San Francisco General Hospital, Our Lady of Lords, Silver Clinic, San Bruno Clinic, and Hunter's View public housing. Marie Harrison survyed general community members at St. Johns church, over 250 people at Kchoe Park church picnic, 130 members of the Church of Islam, 30 people at Potrero Hill, and tabled at Queseda Gardens block party, using the 3-Question (3-Q) format At Kchoe Park a small number of surveys were also given to collect process (population screening tool) and outcome (Retrospective Post-test) data on fish consumption and behavior change. Our goal for general population members was to survey 500 participants and to do a 3-question for another 500 participants. We exceeded the 3-question goal by 75 people. Presentations were given at local churches, soup kitchens, community centers, in hospitals, at plazas and during community gatherings such as block parties or events. Our goal for this group was 500, which we did not reach but came fairly close to meeting.

Of those members of the general community that were surveyed in Bayview Hunters Point and southeast San Francisco with the Population Screening Tool (430 surveyed) and Retrospective Post-test (469 surveyed), all but one ate fish from the Bay and all but 5 were at risk (425/430). Of those surveyed 1 child was at risk, 139 women 18-45 (32.3% of those surveyed), 91 women over 46 (21.2% of those surveyed), and 166 men 18 and over (38.6% of those surveyed). For men and women 46 and older, eating perch was the main reason they were at risk. For women 18-45, eating perch, bass, and sturgeon placed them in the at-risk category. Additionally, 1853 people lived with those surveyed, 921 children, 325 women 18-45, 290 women 46+, and 317 men over 18. As noted before, these numbers are probably inflated but still show that most of those that were surveyed had family at home that likely ate contaminated fish.

A small-group approach was used for the last group, at-risk women 18-45 and pregnant women in Bayview Hunters Point and southeast San Francisco. At-risk groups were chosen via clinic networks within the community. When it became apparent that there were not enough attendees at any given time at the clinics, San Francisco General Hospital was also used as a site to access at-risk mothers, children, and pregnant women 18-45. These women were given surveys while at clinics and hospitals. Due to the sensitive nature of the setting, large groups were not used at clinics. Marie Harrison also found that it was easier to gather correct data when the number of people at one time was limited to less than 25 (as originally intended). We made our target goal for this group, exceeding it by six. Of those at-risk surveyed, 106 were consumers of Bay fish and all 106 were at risk (100%). The most commonly eaten fish were surfperch, sturgeon, and bass [in that order]. At home, these women lived with 218 children, 102 women 18-45, 77 women 46 and older, and 90 men over 18 (417 additional consumers). Again, these numbers may be inflated due to people in the same family marking off one another on each survey. Of the 106 that took the Retrospective Post-Test, 97.1% improved their knowledge and 96.2% found the information useful, 81.1% indicated they would think about or stop eating surfperches, 76.4% said they would think about or remove the skin before cooking and eating fish, 99.1% said they would think about or share information with family and friends, 85.9% said they would follow the advisory recommendations, and 74.5% said they would think about or limit the amount of croakers, sharks, and sturgeon they ate.

In January 2012, Greenaction was awarded additional funding to increase our outreach to at-risk Tongan community members in nearby Lakeview community. We employed a team of 2 Greenaction health educators, one of them a Tongan native and community member, to run a one-hour workshop on fishing in the San Francisco Bay for 30 Tongan people on January 28, 2012. This presentation was strategically created to be both culturally appropriate and informative. Materials were translated into Tongan language and the presentation delivered in Tongan by a Tongan native and local community member. This subproject was so successful that the group of Tongan elders asked Greenaction to come back to present again, this time specifically to their youth. With a small

amount of funding left, we received the go-ahead to use the remainder to fund this second presentation. The project lead, Marie Harrison and Rose Chan, a volunteer and health educator, came back to the group and presented again June 2, 2012, this time tailoring the material for youth. Approximately 10 youth were in attendance, ages varying from 8-17. The California Department of Public Health also came to this presentation and videotaped clips of the presentation. We developed an educational, interactive bingo game that helped reinforce the main points from the Fish Advisory and made our learning experience fun. For more information, please see attached: Supplemental Project Summary.

Educational Materials, Articles, or Products

Greenaction developed an multilingual outreach trifold with input and feedback from the California Department of Public Health (CDPH) and the project stakeholders and used during outreaching at the piers and during community presentations. This trifold format and was used in all presentations and outreach to fishers along with the Bay Fish Advisory. Over 200 trifolds were produced and distributed at the piers. Spanish translations and Vietnamese translations became available in the last half of the project cycle (please see attached: GA trifold). Greenaction also developed factsheets for the Tongan presentations, including information about Omega-3s, methyl-mercury and PCBs in San Francisco Bay including information about bioaccumulation. Parts of the Fish Advisory kiosk version were translated into Tongan language. As noted previously, Greenaction also created an interactive Bingo game for use with youth. Along with the CDPH and other stakeholders, Greenaction gave feedback during stakeholder meetings on survey content and survey methodology, and decided on final survey format modified for use in the field (please see Retrospective Post-test survey and Participant At Risk survey, attached).

As part of Greenaction's media strategy, Greenaction printed its own newsletter specifically for Bayview Hunters Point area and southeast San Francisco entitled *Bayview Hunters Point Environmental Justice News*; Bay Fish Advisory and Bay Fish Project information was printed in the Fall 2011 and Summer 2012 newsletters and reached at least 1000 residents in District 10. This article briefly mentioned some of the main points of the Bay Fish Advisory, contact information for the Office of Environmental Health Hazard Assessment (OEHHA), as well as Greenaction's role in the community to spread the word about the project and Fish Advisory messages. The Bay Fish Project was also mentioned in Greenaction's Summer 2011 and 2012 and Winter 2011/2012 newsletters entitled *Frontlines of Environmental Justice*, which was distributed to 1000 of Greenaction's supporters throughout San Francisco, Berkeley, and beyond. The *Frontlines* articles focused on Greenaction's role in the Bay Fish Project, outlining the main project goals and populations we are reaching through Greenaction's work. Project Manager Marie Harrison also wrote an article and submitted it for publication in the Bayview newsletter. In addition, Greenaction also participated in the filming of material for a 2 minute Public Safety Announcement (PSA) with the DPH in May 2012 as part of their communication and media strategy. Please see factsheets and materials in appendix, which include the version of the Population At-Risk and Retrospective Post-Test survey that we used during our activities, copies of our newsletters and the story that was sent to the Bayview and Bay Guardian newspapers.

Outcome evaluation – Results narrative (please see: Evaluation Summary Table)

Fisher interviews -

Through outreach to fishers on the piers and at fishing locations in southeast San Francisco, Greenaction reached 374 fishers (315 consumers) with the Population At-risk survey and 260 fishers through the Retrospective Post Test survey. From our tracking information, these fishers come from a broad cross-section of the community in southeast San Francisco, consisting of every race and ethnicity present in the larger population of the area. The main fishing groups included Chinese, Vietnamese, Spanish-speaking Hispanics and Mexicans, whites, African Americans, and Filipinos. Samoans, Tongans, Hmong, and Cambodian fishers were also found fishing in the area. According to the Population At-Risk Survey, we found that most fishers were predominantly males over the age of 18 (78%). Eighty-four percent of local fishers surveyed ate fish from the SF Bay. Of those 182 consumers, 57.8% fit the at-risk criteria. Most fishers ate fish less than once a week (88%, 277/315), 5.4% at fish once a week and another 5.4% ate fish twice per week (17/315). Of those fishers at risk that Winnie interviewed, most fishers were at risk due to their intake of surfperches. In cases where fishers ate fish more than twice a week, perch was frequently listed as the fish that they ate. The most commonly eaten Bay Fish of concern were, in order, bass, perch, and sturgeon. At home, there were 218 children, 102 women 18-45, 77 women over 46, and 90 males over

18 that ate Bay fish (487 additional Bay fish consumers). It should be noted that in some cases, the data was likely duplicated; for example when a family group was interviewed at the same time, family member data would overlap if each member listed the other during their individual interview. During the last half of the program, our outreach worker asked if people ate herrings, sardines, or anchovies. We did find that people were eating these fish, although infrequently, with herrings being the most popular of those three.

Of the 260 fishers that took the Retrospective Post-Test survey, 63.5% indicated that they had learned something about the Bay Fish Advisory and 71.9% found the information useful. On the other hand, 57.3% of surveyed fishers indicated that they did not want to answer, were not sure, or did not know how to answer Question 3 about cessation of eating surfperch. Of those that did answer, 36.5% chose 'probably not' or 'will not change,' and 6.2% chose 'probably will change' or 'definitely will change.' This persisted even if the question order was changed. For question 4, 'I plan on removing the skin before cooking or eating,' 45.4% chose 'probably not' or 'will not change, 25.8% chose not to answer the question and 28.8% answered 'probably' or 'will change.' Family was an important theme that came up many times during outreach, with fishers showing interest in passing the information on to their friends and family as noted by their answer to Question 5. Ninety-one percent of fishers answered that they planned to share this information with family and friends. Over three-fourths of fishers surveyed indicated they 'probably' or 'definitely planned on' following the fish advisory information (76.5%). For question 7a, which accounted for over 90% of the total surveyed fishers, 34.9% chose 'no answer,' 14.3% chose' probably not' or 'would not change,' and 50.8% chose that they would or probably would change their behavior. In 7b, 36.4% of the surveyed women or children 1-17 did not want to answer the question, 36.4% indicated that they would not change, and 27.3% said that they would or probably would change their behavior regarding limiting intake of bass, sharks, or sturgeon from the San Francisco Bay.

Community Presentations -
Through presentations in the community, Greenaction has reached over 575 members of the general population in Bayview Hunters Point. Due to the large audience size of some of these presentations, a hand count method was used to draw data from large groups. Of the 575 community members assessed by hand-raise 3-Question (3-Q) format, the following answered:
1. Do you eat fish caught from San Francisco Bay? 471 said 'yes' (82%), 82 said 'no' (some did not answer)
2. How often in a typical week, do you eat fish or crab from San Francisco Bay? 495 said '1/wk' (86%), 6 said '2 or more times a week.'
3. After talking with me today, your knowledge of the Bay fish advisory has improved and did you find the information useful? 512 said 'yes,' (89%).

Additionally, 432 general population members were surveyed using the Population Screening Tool and 469 using the Retrospective Post Test Questionnaire. All but one person surveyed were Bay fish consumers and 425 were at risk (98.8%). The most commonly eaten fish were perch, bass, and sturgeon (in that order). Most people in this group ate fish once a week (70.8%, 306/432) and 18.3% ate fish twice a week (79/432). Women 18-45 and women over 46 were more likely to eat sardines from the bay than sharks (22% of women 46+ ate sharks while 47.6% ate sardines; 13.3% of women 18-45 ate sharks while 39.2% ate sardines). Thirty-eight percent of men also ate sardines. Anchovies and herrings were also eaten, but to a lesser extent than other fish on the survey. These individuals indicted that at home, 921 children, 325 women 18-45, 290 women 46 and older, and 317 men over 18 also ate Bay fish (1853 additional consumers of Bay fish). Of those general population members given the Retrospective Posttest survey, 99.6% improved their knowledge of the Bay Fish advisory and 98.5% found the information useful to them. Seventy-one percent of the general population surveyed indicated that they would think about or stop eating surfperches, 64.2% indicated they would think about or remove the skin before cooking and eating, 72.1% would think about or follow the advisory recommendations and 98.9% would share the information with family and friends. Seventy-three percent of men over 18 and women over 46 and 80.7% of women 18-45 planned to limit bass sharks and sturgeon from SF Bay.

One hundred and seven at-risk mothers, pregnant women, and women 18-45 and four children 1-18 (who were also mothers or expecting) were given the Population At-Risk and 102 were given the Retrospective Post-Test surveys. Of those at-risk surveyed, 106 were consumers of Bay fish and all 106 were at risk (100%). The most

commonly eaten fish were surfperch, sturgeon, and bass [in that order]. Most of these women ate fish once a week (62.3%, 66/106) and 28.3% ate fish twice a week (30/106). At home, these women lived with 218 children, 102 women 18-45, 77 women 46 and older, and 90 men over 18 (417 additional consumers). Again, these numbers may be inflated due to people in the same family marking off one another on each survey. Of the 106 that took the Retrospective Post-Test, 97.1% improved their knowledge and 96.2% found the information useful, 81.1% indicated they would think about or stop eating surfperches, 76.4% said they would think about or remove the skin before cooking and eating fish, 99.1% said they would think about or share information with family and friends, 85.9% said they would follow the advisory recommendations, and 74.5% said they would think about or limit the amount of croakers, sharks, and sturgeon they ate.

Unlike other fishing groups surveyed, the 25 Tongan people surveyed during a separate presentation were at-risk mostly due to the frequency of the fish they ate rather than the species. Twelve of those present ate fish twice or more a week, one of them saying that they ate fish 10 times in one week. Five people ate, but sardines and anchovies were very popular.

Conclusion and Discussion

Almost all of the general community members and at-risk mothers and 84% of fishers at piers and fishing locations in Bayview Hunters Point and southeast San Francisco ate the fish they caught from the Bay. Nearly 100% of general community members and at-risk mothers and 57.8% of fishers were at risk. Most of the fishers and people in the community that we interviewed were at risk due to the type of fish that they ate compared to the frequency of intake, but those that ate fish twice a week or more were also very likely to eat contaminated species. For example, 28.3% of women 18-45 that ate fish from our Bay may be at additional risk due to eating multiple species of contaminated fish (perch, sturgeon, and bass) with a possible frequency of up to twice a week. Fishers in the non-risk groups (males 18+ and women 46+) may have been less personally motivated to change their own behavior, perceiving that they were not at risk from harm (even though their intake of perch placed them at risk). Even so, there was general interest in passing the advisory information onto others and to protect their own family members and friends.

Messages that included a focus on family safety as part of the framing resonated more strongly than those messages that focused on individual behavior change alone. This may be important if the non-risk group family members are the ones that fish for the meal and bring it to be prepared at the house as well as if they prepare and cook the fish. Children and youth learn by observation and learn cultural knowledge from elders (modeling), such as cooking styles and food preferences. Perception of risk was also important with at-risk mothers and their family groups. At-risk mothers who were pregnant expressed the idea that they would cease eating contaminated species while pregnant. It was challenging to impress the concept of long-term risk and bioaccumulation from eating contaminated fish both before and after pregnancy. Partners of women that were pregnant were concerned about possible harm to their child or future children, as well as potential benefits that they might be missing from eating fish.

Evaluation Summary Table

Core Activity	Evaluation	Result	Method/Tool
Outreach to 200 Fishers	**Formative:**		Map, informal interviews, visual observations, outreach log
	What are the popular fishing locations in southeast SF	Candlestick Pier 30 Aqua Vista	
	Process:		Population Screening Tool=374
	# fishers interviewed (PAR)	374	
	# consumers	315/374=84.2%	
	# consumers at risk	182/315=57.8%	
	Outcome:		Retrospective Post-Test =260
	Increase of knowledge/understanding of advisory?	Q1=63.5% yes Q2=71.9% yes	
	Did participants indicate intention to change behavior?	Q3=6.2% yes Q4=28.8% yes Q6=76.5% yes Q7a=50.8% yes Q7b=27.3% yes	
Outreach to 500 BVHP Residents (in depth)	**Process:**		Population screening=432
	# attendees	432=100%	
	# consumers	431/432=99.7%	
	# at risk	425/431=98.6%	
	Outcome:		Retrospective Post-Test=469
	Increase of knowledge/understanding of the advisory?	Q1=99.6 %yes Q2=98.5% yes	
	Did participants indicate intention to change behavior?	Q3=71.0% yes Q4=64.2% yes Q6=72.1% yes Q7a=73.9% yes Q7b=80.3% yes	
Outreach to 500 residents (3-Q)	**Process:**		3-Q hand-raise=575
	# attendees	575/500=85%	
	# consumers	495/575=86%	
	Increase in knowledge of fish advisory?	512/575=89%	
Outreach to 100 at-risk mothers	**Process:**		Population Screening Tool=107
	# attendees	107	
	# consumers	106/107=99.1%	
	# at risk	106/106=100%	
	Outcome:		Retrospective Post-Test=106
	Increase of knowledge/understanding of the advisory?	Q1=97.1% yes Q2=96.2% yes	
	Did participants indicate intention to change behavior?	Q3=81.1% yes Q4=76.4% yes Q6=85.9% yes Q7b=74.5% yes	
Fact Sheet	**Process:**		2 out of the 4 languages
	# of copies made/distributed	200+	
	Languages	English Spanish Vietnamese	
	Where/how distributed	Outreach to fishers and during presentations	
Media Outreach	**Process:**		1000 of Greenaction's supporters throughout San Francisco, Berkeley, and beyond
	Which newspapers submitted to	Bayview newspaper	
	Which newsletters	-Frontlines of Environmental Justice -Summer 2011 + 12 -Winter 2011/2012	

Successes
Project implementation and outcomes for Greenaction's project are overall successful on almost all of our impact objectives. In taking our most challenging evaluation question (Q3) as a baseline to meet our project outcome objectives, (I plan to stop eating surf perch), fishers answering 'yes I intend to change' was 1.6% and 4.6% said they probably would stop eating surfperch. Together this accounts for 6.2%, which met our goal for changing behavior intention for fishers (5% intent to change). General community members answering 'yes I intend to change' was 23.0% and 48.0%% they probably would stop eating surfperch. Together this accounts for 71% %, which exceeded our goal for changing behavior intention for that group (5% intent to change). All other objectives were met at much higher rates than expected. Bayview Hunters-point residents, fishers and at-risk mothers increased their knowledge about the fish advisory, dangers mercury, and PCBs and benefits associated with eating healthy species, improved knowledge of safer eating habits. Measured over several indicators by the Retrospective Post- test survey, these objectives were met at far higher rate than 10% (please see Evaluation Summary table).

Our project was extremely successful on meeting our process objectives, exceeding most of them. Greenaction tracked the locations of current popular fishing locations in southeast San Francisco. We assessed that 99% of all women 18-45 were at risk from exposure to mercury and PCBs through eating contaminated species and found that 58% of fishers who consumed fish from the San Francisco Bay were at risk through the types of fish that they caught and ate. We exceeded the total number of fishers in our objective by 60 fishers (260 fishers took the Retrospective Post-test; 374 took the Participant At-risk survey). We exceeded our number of at-risk mothers by 6. We exceeded or objective for general community meetings by hand-raise by 75. We wrote three articles for our newsletters and wrote an article for the Bayview newspaper (which was not published). We created our own community friendly trifold and it was translated into two of the four languages we originally decided during our program planning (Vietnamese and Spanish). Out of our objective of 500 surveyed general members of Bayview Hunters Point and southeast San Francisco, we surveyed 432 with the Population at Risk survey and 469 with the Retrospective Post Test questionnaire.

In-Kind or Leveraged Resources
Staff time, both full time and volunteer, were the largest in-kind resource leveraged for our project. Extra hours from the project manager helped coordinate activities and she also gave extra presentations Likewise, intern and volunteers aided the project manager, helping to translate materials, do extra outreach and research, form the program plan, and write the evaluation plan during the preparatory phase of the project. Volunteers were instrumental during the maintenance phase of the project as well, helping to manage and compile project data, create data management systems, and write interim and final reports. Volunteers also attended the stakeholder meetings and helped set up presentations through their shared community networks.

Sustainability
Greenaction would like to remain connected with the Department of Public Health and the Office of Environmental Health Hazard Assessment regarding new information and developments. Greenaction expects to utilize and recommend the Fish Advisory information to those who seek information about safe eating practices and also to keep web links and materials on our website when it is completed. Those trained by the Department will remain health resources and work to keep links active and alive with those communities that we have built a relationship with, such as the Tongan community. We intend to continue to provide accurate information as needed in the areas we work in and with; we will also post this information onto our website, which should be up by the end of this year.

Recommendations
The project lead (Marie Harrison) and her assistant (Rose Chan) gave extensive recommendations during their exit interview with Ian Walker from the CDPH. One of the main recommendations is to improve project synchronization throughout the entire project cycle. For example, the Department of Public Health and Office of Environmental Health Hazard Assessment (along with other governmental stakeholders) began the project a year before funded groups were added into the two-year project timeline. By the time the funded groups were incorporated into the development of materials and messages, funded groups were expected soon after to

develop their own timeline, project plan, and evaluation measures. However, by this point, materials had yet to be developed. There was not an adequate development stage that allowed the funded groups and the other stakeholders to develop materials in advance of them initiating their projects as planned. For Greenaction, this meant that we were ready to begin implementation before we had materials that allowed us to fully implement our project as planned. This bottleneck continued to be a problem as time went on; our project pacing was not as smooth as it could have been if we knew in advance that some of the materials (such as translated Fish Advisories) were going to be made at a later date (some of them not until the very end of the project). Of course, there were delays that were unexpected, yet some of the timing issues may have been resolved with a different phasing of the overall two-year project cycle. For example, incorporating potential funded CBO groups before the funded group grant cycle and release of the RFP (with stipends built in for time) in an informational meeting may have led to the necessary groundwork information needed for the departmental stakeholders that would enable some basic decision making (for example, about what types of information and materials would probably be suitable). After the grants were awarded, further developments and checks during the development phase would ensure these needs resonated with reality.

To improve overall project flow, once funded groups were chosen, the timeline between projects and the departments should have been synched together to the most realistic and feasible projection possible and updated throughout the cycle. This might allow different groups to change their future timelines and adjust activities as necessary, depending on changes that occur during the project cycle. Additionally, the synergy built between the different types of stakeholders may have gelled sooner. It takes time to successfully collaborate and for everyone's input to be carefully considered. This was something that the Department of Public Health did with extreme success – all the input we gave felt valued and considered - but decision-making and development took longer than they expected and may have been limited to pacing alongside the grant cycle. Phasing the project with an incorporated development and collaboration-building period may have increased synergy between groups and stakeholders. In the end, Greenaction operated fairly solitarily; as time progressed, opportunities for collaborations became fewer as our schedules filled up. As a last thought, adding in a communication strategy at the end of the project cycle proved frustrating for our group. While it was explained that the California Department of Public Health was capitalizing on new energy surrounding health messaging and marketing, it was still ill timed for us as a funded group - our planned activities were already completed, but luckily we had to reschedule an activity from our supplemental plan and that allowed the DPH to capture some of our work on film. Hopefully, in the future, message mapping and development and communications strategies can be something that funded groups or interested CBOs can participate in before implementation of the project, so that everyone has a similar set of messages for the designated target groups, tailored to meet the needs of each community.

Data reporting forms and spreadsheets combined categories. In doing so, some of the data was lost to amalgamation. For example, people who ate perch or croaker were also put together with those people that ate fish more than twice a week. If we just relied on the data reporting forms, this data misrepresented what was primarily putting people at risk (eating perch) and also hid the fact that some people were exposed to multiple species of contaminated fish for their at-risk group (ie, women 18-45 eating perch, bass, and sturgeon, plus eating other fish more frequently than recommended). The situation becomes even more severe when combining the route of exposure with increased frequency. The way that the data form was set up minimizes the real impact. The data reporting form also did not differentiate between ages of men, hiding intergenerational effect on learning and behavior change. Elders in our communities may hold a special place within different cultures, passing on traditions and modeling gender roles, including cooking skills, eating habits, fishing and preferences for certain types of fish. Compressing the data for men might lose the distinction between younger and older men when it came to willingness to change behavior. In the future, we recommend these categories be separated, so that the data collected can be viewed in multiple ways. As a final thought on future messages, Greenaction recommends adding in a 'family wellbeing' framed message. Based on our findings, we observed a general interest in protecting family members and close friends, regardless of age, ethnicity, or gender of the person being questioned. Only financial need seemed to impose a more critical limitation on this theme; people were still likely to eat contaminated fish and feed it to others if that is what they could catch and they did not have any safety net to allow them to facilitate a behavior change. As we interviewed many Bayview Hunters Point and District 10 residents and guest fishers and found many fishers had family that ate the fish they caught or knew someone who

shared fish with them, it may be an important way to connect non-at risk groups to those at risk by giving those giving them active roles in facilitating healthy behavior changes for those they care about (please see exit interview for more recommendations).

Budget (see Table B)
Our total project budget (including supplemental funding) was 26,250.00. In our original budget, we included 500.00 for supplies, anticipating that we would need to do outside printing. However, during the year, our office got a new printer and therefore we were able to keep our outside printing costs low and also the total cost of our printing lower than expected. Similarly, we budgeted 200.00 for translation services before we became aware of the fact that the CDPH was attempting to have things translated into different languages. By the end of the project, we came in under budget by 442.97, almost half of our anticipated printing budget total and our 200.00 translation funding. We request a final budget modification to allocate these remaining funds for Marie Harrison's additional time spent on the media and other programmatic activities throughout the course of the project period.

Table A - Project Activities

Description of the Activity (please include location and population)	Number of Participants	Number of SF Bay consumers	Number of at risk consumers	Number of consumers with outcome evaluation
1. Fishers in southeast San Francisco	374	315	182	259
2. At-risk mothers in southeast San Francisco (District 10)	107	106	106	106
3. General Community members in southeast San Francisco (District 10)	432	431	425	469
4. Tongan community	25	20	12	24
Totals	**938**	**872**	**725**	**858**
5. General Community 3-Q	575	471	n/a	0

Table B - Budget Table	Actual Expenditures	Anticipated Budget
Personnel:		
Salaries & wages (include benefits and taxes)	20,800.00	20,800.00
Stipends (two health educators)	700.00	700.00
Childcare	0.00	25.00
Translator	0.00	200.00
Total Personnel	**21,500.00**	**21,725.00**
Operating Expenses		
Supplies/Materials/Printing	285.60	575.00
Travel	500.00	550.00
Other (describe): Food/drinks for workshops	321.43	200.00
Total Operating Expenses	**1,107.03**	**1,325.00**
Indirect Costs	**3,200.00**	**3,200.00**
Totals:	**Actual Budget: 25,807.03 Remainder: +442.97**	**Total Budget: $26,250.00**

Δ Retrospective Post-Test Questionnaire **Activity:**

Location: **Date:**

Instructions for questions 1 and 2:
Please circle a number to rate your level of agreement with the statements below. On a scale of 1-4 circle a number to the left to rate your level of agreement with the statements below. You may circle DK to indicate "I do not know."

Instructions for question 3-6 On a scale of 1 to 4, please rate how likely are you to take any of the steps listed below. "N/A" indicates that the question does not apply to you.

Instructions for question 7: Answer 7a if you are male **or** 7b if you are either a woman 18-45 or under 18.

Highly Disagree	Disagree	Agree	Highly Agree
1	2	3	4

Statement

1. **After talking with me today, your knowledge of the Bay Fish Advisory has improved.** **1 2 3 4 DK**
2. **The information I provided you with today is useful to you.** **1 2 3 4 DK**

Definitely Will Not Change	Probably Will Not Change	Probably Will Change	Definitely Will Change
1	2	3	4

3. **I plan to stop eating surfperches from San Francisco Bay** **1 2 3 4 N/A**
4. **I plan to remove the skin before cooking & eating fish from San Francisco Bay** **1 2 3 4 N/A**
5. I plan to share this information with family & friends. **1 2 3 4 N/A**
6. **I plan to follow the advisory recommendations & eat less toxic kinds of fish from SF Bay.** **1 2 3 4 N/A**

Men ages 18+ & women ages 46+:

7a. I plan to limit the amount of white croaker, sharks, and sturgeon I eat from San Francisco Bay to no more than one serving per week. **1 2 3 4 N/A**

Women 18-45 years of age & children 1-17 years of age:

7b. I plan to stop eating striped bass, sharks, and sturgeon from San Francisco Bay **1 2 3 4 N/A**

Other comments/questions or future change plans now that you have talked with me:

KIDS for the BAY
Environmental education through action

A Project of **Earth Island Institute**

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Tel: (510) 985-1602 • Fax: (510) 547-4259
info@kidsforthebay.org • www.kidsforthebay.org

Mandi Billinge, Executive Director/Founder

July 27, 2012

Aida Negrón
Health Educator
California Department of Public Health
850 Marina Bay Parkway, Building P, 3rd floor
Richmond, CA 94804

Dear Aida,

Please find enclosed the final report and deliverables for KIDS for the BAY's Safe Bay Food Consumption Project (SBFCP). I have also enclosed:

- Photographs of our students in action (Please note these photographs are for internal use only, as some families have requested their child's picture not be released to the general public)
- Student work samples from project
- Samples of completed evaluation tools; and
- KIDS for the BAY's Spring 2012 Newsletter

The SBFCP was successfully completed this school year. KIDS for the BAY provided the SBFCP to six classes in Alameda and Contra Costa Counties reaching students, families, anglers and teachers. The final report highlights how the SBFCP has inspired students, their families and teachers to protect their health by following the current health advisory for eating fish caught in the San Francisco Bay.

I am excited to share with you that on Friday, June 15, KIDS for the BAY was featured on KPFA 94.1 FM's "Terra Verde" radio show. I had the opportunity to describe how KIDS for the BAY incorporates environmental action and environmental justice into our programs and I discussed how our students are taking action to educate their families and communities about safely consuming Bay fish. I hope you had an opportunity to listen to the show by following the KPFA website link that we emailed to you!

KIDS for the BAY is looking forward to celebrating our **20 Year Anniversary in October 2012**. We are currently working towards reaching our goals of **60,000 Inspired Environmentalists** and **2,650 Teachers** who have graduated from KIDS for the BAY programs by fall 2012. Thank you for your support for our work. If you have any questions about the enclosed report or deliverables, please feel free to contact me.

It has been a privilege to be part of the San Francisco Bay Fish Project and I look forward to any opportunities to work together in the future.

Sincerely,

Mandi J. Billinge

Mandi Billinge
Executive Director

KIDS for the BAY

San Francisco Bay Fish Project
2011-12 Final Report

1) Project Activities

The purpose of KIDS for the BAY's Safe Bay Food Consumption Project (SBFCP) was to educate students about the benefits and risks of consuming fish caught in the San Francisco Bay, train them to become environmental health educators, and teach their families and anglers how to reduce their exposure to mercury and polychlorinated biphenyls (PCBs) when consuming Bay fish. Classroom teachers learned how to teach the Safe Bay Food Consumption Curriculum to future classes of students, therefore the project will become an integrated component of their school year curriculum.

The goals of the project were:

1) 180 students learn about the San Francisco Bay watershed and the pollutants impacting bay health and human health
2) 180 students become environmental health educators and teach their families how to reduce intake of toxins, including mercury and PCBs, from consumption of Bay fish
3) 180 students educate people fishing on Bay piers about pollution in the Bay and how to reduce intake of toxins from consumption of bay fish
4) 6 teachers learn to teach the KIDS for the BAY (KftB) Safe Bay Food Consumption Curriculum and Watershed Action Program to future classes of students. The program becomes an integrated component of the grade-level school curriculum with the support of the school principal.

The SBFCP was completed within KftB's Watershed Action Program (WAP). The WAP is a comprehensive, in-depth environmental education and action program. Please refer to KftB's San Francisco Bay Fish Project Grant Program Application for a description of WAP activities. SBFCP activities included:

- Identifying target schools which we presumed had relatively high numbers of students whose families fish from the Bay, and outreaching to classroom teachers at these schools
- Administering take-home surveys (population screening tool) to each student in selected classes to determine percentages of student's families who fish and/or consume fish from the Bay/Delta
- Selecting six classes to participate in the SBFCP which, based on the population screening tool, contained at least 20% of students whose families fish from the Bay/Delta
- Updating and revising the SBFCP curriculum and program materials, and purchasing equipment
- Leading workshops to train KftB staff on pollution in the Bay and the potential health effects from eating Bay fish, the new Bay fish advisory information and the SBFCP curriculum

- Conducting WAP classroom lessons at schools to provide a framework for students' understanding of SBFCP related issues
- Assisting students to conduct angler interviews on fishing piers on field trips to the San Francisco Bay shoreline
- Leading a demonstration Safe Bay Food Consumption presentation for each class to train students for their student-led presentations to family members
- Assisting classes during the student-led Safe Bay Fish Consumption presentations to family members
- Assigning take-home interviews to students and administering post-presentation surveys to adult family members to collect evaluation data from students' families

The in-class components of the SBFCP, including the classroom lessons and presentations, took place in the classrooms of the six participating classes. Angler interviews were conducted on fishing piers at either the Berkeley Marina in Berkeley or Miller/Knox Regional Shoreline in Richmond. All participating schools are located in low-income areas and the classes contained an ethnically diverse student body. Each of the six participating classes contained at least 20% of students whose families were Bay fish consumers.

The following changes to the Memorandum of Agreement (MOA) were approved by the SFBFP:

- The final report, including evaluation information, was submitted by July 27, 2012. Previously the MOA stated that the final report was due by June 30, 2012. This change was necessary because the bulk of activities for the SBFCP took place towards the end of the school year, in late May, and the additional time allowed KftB staff to gather information from staff, process evaluation materials, and complete the final report.
- Field trip site options were expanded to include the Berkeley Marina, Martinez Regional Shoreline, Richmond Marina, and/or Point Pinole. Students conducted interviews on the fishing piers during their field trips. Previously the MOA stated that the field trips would occur at the Berkeley Marina only. This change was necessary because KftB aims to conduct field trips in a location that is near to the community in which we are teaching.
- Previously the MOA stated that each class would reach ten to twenty anglers, but due to various factors (tide, time of day, weather, etc.) the actual number of anglers was less than ten during the time of the field trips. Students documented the total number of anglers present, the number of anglers reached and number and type of materials distributed during their pier interviews. Students attempted to interview as many anglers as possible within the time period allotted for the activity and documented each interview.

2) Education Materials and Articles

KftB developed many educational materials for the SBFCP. We revised our SBFCP curriculum and materials; developed a take-home interview for students to complete with their families, along with invitations for the student-led presentations; created interview and recording sheets for angler interviews; and made large colorful posters to use as visual aides during presentations Many materials were translated into Spanish by Aida Negrón, Health Educator with the California Department of Health.

Bay Nature Magazine featured KftB and our work educating students about local environmental issues, including Bay fish consumption, in their spring 2012 publication. Our Executive Director, Mandi Billinge, discussed the SBFCP during a radio interview on KPFA 94.1 FM's "Terra Verde" radio show. See below form more details about each of the items above. Copies of the materials and article are included as appendices in this report.

SBFCP Curriculum

The SBFCP curriculum was used by KftB Instructors during the demonstration presentation, and a set of scripts was developed to allow students to practice the presentation in small groups. Along with the curriculum, KftB made a note-taking sheet to help students retain important content while a KftB Instructor taught during the demonstration presentation.

Take-Home Interview

The take-home interviews were assigned to students after the demonstration presentation. Each student took an interview home with a "Guide to Eating Fish and Shellfish from the San Francisco Bay" in the appropriate language for family members. Students explained the guide to their family, and completed the interview with an adult family member.

Invitation Sheets

Personalized invitation sheets were sent home with students to encourage (and remind) their families to attend the student presentations. The invitations contained the details (date, time, etc.) of the presentation, and explained that there would be food and a raffle for a $50 gift card to the store Bed, Bath & Beyond.

Angler Interviews

Students used the angler interview materials during their field trip. Each class divided into smaller groups of four or five students and, with an adult chaperone, each group approached anglers fishing on the pier. They had rehearsed how to complete the interviews, and students took turns asking the questions. One student in each group recorded the responses from the interviewees on a recording sheet.

Presentation Posters

Posters were created to correspond with updates in the curriculum, and included eye-catching, easily-to-understand graphics and words.

Project Publicity

Bay Nature Magazine, the leading magazine for natural science in the San Francisco Bay Area, wrote an exciting and informative article about the Safe Bay Food Consumption Project. The article was published in their April-June 2012 issue in the "Conservation in Action" section. A copy of the article is included in the report appendices.

On Friday, June 15, 2012 KftB was featured on KPFA 94.1 FM's "Terra Verde" radio show. Mandi Billinge, KftB's Executive Director, had the opportunity to describe how KIDS for the BAY incorporates environmental action and environmental justice into our programs and discussed how our students are taking action to educate their families and communities about

safely consuming Bay fish. The program can be accessed through the following link: http://cts.vresp.com/c/?KIDSfortheBAY/cb40c8c39d/20cab74596/628664b47e

3) Evaluation Activities

Population Screening Tool to Assess Percentage of Bay Fish Consumers

KftB administered a Population Screening Tool in fall 2011 to select six classes of students that had at least 20% of students who live in households that consume fish from the San Francisco Bay and/or Delta. KftB created two Population Screening Tools: one survey included items that collected data on Bay fish consumption only, and one survey collected data on both Bay and Delta fish consumption. Both surveys were available in English and Spanish.

KftB identified target schools to participate in the SBFCP based on the likelihood that each school's community had a relatively high percentage of families who fish from the San Francisco Bay. Ten classes completed the Population Screening Tool. Of these ten classes, at least six classes met or exceeded the requirement of 20% of students whose households consume fish from the Bay and/or Delta. In total for the six classes participating in the SBFCP, the screening tool revealed 203 Bay/Delta fish consumers, 168 (83%) of whom are considered at-risk consumers.

Evaluation data and results from the Population Screening Tool were included in KftB's Mid-Term Report to the SFBFP.

Take-Home Interviews of Parents by Students

Each of the students in the seven participating classes, 183 in total, took home a "Guide to Eating Fish and Shellfish from the San Francisco Bay" and a Parent Interview & Presentation Invitation. Students were assigned the interview as homework, with the expectation that they will return the completed interview to their classroom teachers. KftB received forty-six completed interviews from our participating students, though it is very likely that many more interviews were completed by students and their parents. The interview served as a way for students to introduce the Guide to their families and to have a discussion about pollution in the San Francisco Bay and the advisory information. The interview sheet also served as an invitation for families to attend the students' Safe Bay Food Consumption Presentation at their school. The interviews were not formally analyzed, as it did not include any outcome evaluation information.

Student-Led Presentations and Parent Post-Test

Parents and family members of students participating in the SBFCP were invited to attend each class' Safe Bay Food Consumption Presentation. At the end of the presentation, parents were asked to complete a post-test to assess any changes in knowledge and intent to change behavior. KftB collected sixty-five post-tests from parents attending the six student-led presentations. There were more parents and family members who attended the presentations, but who did not complete the post-test. Each adult family member who attended the presentations was given the "Guide to Eating Fish and Shellfish from the San Francisco Bay".

Results from the post-test were extremely positive. 71% of parents who completed the post-test increased their understanding of the "Guide" after attending the student-led presentations. 66%

of parents reported that as a result of the presentation they now have the information they need to reduce their exposure to chemicals from eating Bay fish.

The post-test also revealed the following results which indicate an intent to change behavior:

- 69% plan to stop eating surfperches from the San Francisco Bay.
- 82% plan to remove and throw away the skin before eating fish from the San Francisco Bay.
- 88% plan to share the information learned through the presentation with other family members and friends.
- 74% plan to follow the advisory recommendations for eating fish from the San Francisco Bay.

These outcome evaluation results were supplemented by comments written on the post-test in response to the question "*Is there anything else you plan to do after coming to the presentation today?*":

> "Go over the new information with my daughter."
> "Watch for the kinds of fish my family eats."
> "Adding fish omega-3 to regular diet to reduce heart disease."
> "Not eat the skin (of fish)."
> "Check the chemical level (of fish)."
> "Pay more attention to the pollution in our bay waters."
> "Evitar comer lo que ahora se no debe consumirise y limitar las porciones o cantidades de pescado para mi familia."

Angler Interviews by Students

Students also interviewed anglers on Bay fishing piers during their WAP field trip. As students interviewed anglers, they handed out the "Guide to Eating Fish and Shellfish from the San Francisco Bay" and reviewed how to interpret the advisory information within the Guide. They also collected information from each angler, such as the types of fish they caught; where they go to fish in the San Francisco Bay; and if they have increased their knowledge and intend to change their behavior after learning the information within the Guide. Twenty-one anglers were interviewed on Bay fishing piers. Seventeen of the twenty-one anglers interviewed were given the Guide in English, Spanish, or Chinese. Two anglers spoke only Mien and so were not interviewed. The students did give these two anglers the Guide in English.

The evaluation results from the angler interviews were very positive. After talking with the students and reviewing the Guide:

- 79% of anglers felt they increased their knowledge about the San Francisco Bay fish consumption advisory.
- 74% of anglers felt that they now have the information they need to lower their exposure to chemicals from eating San Francisco Bay fish.
- 68% reported that they will no longer eat surfperches from the Bay.

- 63% reported that they will now remove and throw away the skin before eating fish from the Bay.
- 79% thought they would share the advisory information with family and/or friends.
- 79% expressed that they intend to follow the guidelines for eating fish from the Bay.

Evaluation Conclusions

Based on our evaluation results, KftB has concluded that the various methods of disseminating the San Francisco Bay fish consumption advisory information were effective. In our SBFCP, KftB staff and participating students reached a significant number of students' family members and anglers fishing on Bay piers. Because students approached their families with the fish advisory information in several different ways—the Population Screening Tool, Take-Home Interview, and Student-Led Presentation—we can be very confident that the information was received and internalized by students and their families. Cox Academy teacher Ms. Schramm explained, "After our action project, two of my students informed me of how they had told family members who were pregnant about the dangers of eating certain kinds of Bay fish. Their reaction and awareness is a sign to me that the lessons were effective."

4) Successes

KftB successfully completed the SBFCP during the 2011-12 school year. We taught the complete project in six classes, reaching 162 students, six teachers, hundreds of family members, and 21 anglers. An additional class completed the WAP and the SBFCP student-led presentation. In total 183 students and seven teachers received the program. The following section shares successes and highlights and how we met project goals.

First goal: 180 students learned about the San Francisco Bay watershed and the pollutants impacting bay health and human health

Second goal: 180 students became environmental health educators and taught their families how to reduce intake of toxins, including mercury and PCBs, from consumption of Bay fish

WAP Classroom Lessons

During the WAP classroom lessons students were introduced to key vocabulary and conducted exciting activities which provided them with the framework to understand concepts needed to successfully implement the SBFCP, including how pollution can travel through aquatic food chains and harm humans. Activities completed during the classroom lessons included: trash clean-ups in the school's neighborhood, bay organism studies, and an educational game that illustrated the process of biomagification of pollution. Students learned how pollution can travel through a watershed, studied food chains and learned how pollution biomagnifies and can collect in the bodies of top predators, including humans, and cause health problems. The students played the Food Chain Game, a kinetic learning experience which illustrated this concept. After the activity, a fifth grader named Randy shared, "I learned that pollution is bad for our bodies, and pollution can get into fish that we eat." Another student, Fatima, said, "If pollution gets into the water then it can hurt us if we eat fish with pollution in it."

Student-Led Presentations

In the spring, students gave a presentation to their family members to teach them about mercury and PCBs and how to safely consume fish from the San Francisco Bay. These presentations allowed students to become environmental health educators for their family members.

First, KftB Instructors gave a demonstration presentation to classes to help them prepare for their student-led presentations. At King Elementary School, KftB Instructor Bhavana Mody stated to the third graders, "You all have a very important job today: to learn how to prepare and cook a fish from the Bay, and then educate your families about what you learn." The demonstrations began by reviewing types of pollution and how they enter into and travel through Bay food chains, which students learned about during the WAP classroom lessons. The third graders at King Elementary recited the term "biomagnification" and one student, Juan, shared, "It means that the pollution gets bigger and bigger and bigger!" KftB Instructors described two pollutants of concern, mercury and PCBs, and explained how they can negatively impact human health. One student, Hector, asked, "Can we see the pollution when we eat the fish?" Ms. Mody explained that the toxins are not visible in the fish's body.

The KftB Instructors explained how to prepare a Bay fish for cooking and showed students a real rockfish, which would be cooked and served during the presentation. Students helped to prepare the fish and make a sauce for the dish. Two students at Franklin Elementary School, Moon and Erik, were especially excited to try the cooked fish since both of them often fish with their families in the Bay. "My dad and I usually catch stripers in the Bay. I don't think I have ever tried rockfish before, I can't wait," commented Moon. While the fish cooked, the KftB Instructors explained to students that grilling, baking on a rack, and steaming were the best cooking methods for Bay fish because the toxins stored in the fat drain away from the fish. The classes studied a poster of the "Guide to Eating Fish and Shellfish from the San Francisco Bay", made by the California Office of Environmental Health Hazard Assessment (OEHHA). Because the advisory is different for various ages and genders of Bay fish consumers, the Instructors gave the students a variety of scenarios, and asked them to figure out the recommended amounts of Bay fish to eat per week based on age and gender.

Students and teachers worked tirelessly to produce quality presentations for their families. The student-led presentations took place during the school's Open House or a similar school event which drew parents to the school. Students brought invitations for the presentations home, and to encourage attendance KftB used SFBFP supplemental funds to provide dinner or breakfast foods and a $50 gift card to Bed Bath & Beyond as a raffle prize. Parents and families of the students were very enthusiastic about the presentations. The students had rehearsed what they would say in small groups and demonstrated a lot of skill as they shared information. During the presentation the students recited their lines expertly, often with expressive inflection and additional flourishes of their own. At Cox Academy one student, Kenyon, explained, "Pollution in fish can make you sick," as he doubled over, his hand on his stomach. Another student,
Fatima, explained, "Two types of pollution in the San Francisco Bay are mercury and PCBs," and added, "PCBs are polychlorinated biphenyls," pronouncing the complicated family of chemicals perfectly.

At Montalvin Manor Elementary School the families listened intently as sixth graders Shania and Anissa provided an excellent overview of PCBs and mercury. "Mercury is in the bay today mostly because of the California Gold Rush that happened over 100 years ago," said Shania. A student at King Elementary, Keara, explained to families how a food chain works and how pollution travels through the food chain. Students in all classes explained to families how to read the "Guide to Eating Fish and Shellfish from the San Francisco Bay" brochure and explained how different fish have different levels of toxicity in their bodies. In the guide, species of fish are in a "Green", "Yellow", or "Red" category which corresponds to the amount of servings per week people should eat. "It's okay to eat *these* fish because they are in the green," shared third grader Elijah, "but *these* fish are in the red so it's not good to eat those." Many parents had questions about eating fish from the Bay and the students happily answered their questions.

Preparing for and giving the presentation was an exciting and empowering experience for the students. "Students were both nervous and excited to give their presentation, though afterwards they felt proud of all the work they put into it," explained Cox Academy teacher Ms. Schramm. Franklin Elementary teacher Ms. Yang commented numerous times on how much the students enjoyed cooking the fish and being able to present information to their families. "The action project was fun and very informative. The students were excited to be part of the project and presentation. I appreciate how *all parts* of the program are hands-on," she said. King Elementary teacher Ms. Greenspan noted, "Students loved learning about how to prepare fish safely. They enjoyed taking over the preparation of the lesson and teaching their parents about the hazards of toxins and eating fish from the Bay. The idea and support for our fish presentation at Open House was tremendous. We had an incredible turn-out."

Both students and family members learned a lot of new information through the presentations. At Franklin Elementary one student Yi ying wrote, "There are many things that I have learned from the program. I learned what fish you can eat and what fish has too much pollution." Another student, Sabrena, commented, "I learned that you do not eat skin from fish that are caught from the Bay." Finally a student, Sovannarith, wrote, "I learned that pollution can get into our bodies from the fish we eat. I learned about PCBs and other types of pollution." One parent commented, "I have a good friend that fishes in the Bay. I am going to make sure to share this information with him." Garfield Elementary School teacher Mr. Pollmann expressed great satisfaction with the presentation. "It was good because so many of these families eat fish from the Bay, and they need to be educated about how to do it safely," he said. Cox Academy teacher Ms. Schramm explained, "My students' parents came to our expo (Open House) with limited information about safety regulations for different types of fish caught in the San Francisco Bay but left with knowledge that will help to keep themselves and their families safe."

<u>Take-Home Interviews</u>

Students shared what they learned with their families at home by completing take-home interviews. The interviews were assigned to students after the KftB Staff-led SBFCP presentation so students were familiar with the material that they would be teaching their family members during the interview. Each student brought the interview and a "Guide to Eating Fish and Shellfish from the San Francisco Bay" home. Students asked an adult family member questions about fishing for and consuming Bay fish, explained the guide to them, and followed up with questions about the guide. KftB collected the completed interviews

Third goal: 180 students educated people fishing on Bay piers about pollution in the Bay and how to reduce intake of toxins from consumption of bay fish

Angler Interviews

Interviewing anglers during a field trip to the Bay shoreline was a highlight of the SBFCP for students, and allowed students to use the knowledge they gained during the SBFCP. Students divided into pre-arranged small groups, and with an adult chaperone each group approached anglers and interviewed them. Students confidently introduced themselves to anglers, asking if they could give the anglers information about eating Bay fish. The students showed the anglers the "Guide to Eating Fish and Shellfish from San Francisco Bay" pamphlet, explained the advisory to them, and asked to interview them. Most anglers were very gracious and listened intently to the students' questions, then offered their responses, which the students recorded. In total, students reached twenty-one anglers and interviewed a total of nineteen anglers. Cox Academy teacher Ms. Rebecca Schramm shared the impact of the angler interview experience on her students, saying, "By explaining fishing safety to the fishermen, students' understanding of the lesson was clearer. As a result of this trip, my students were much more interested in making sure that their own families were following safety guidelines."

Fourth goal: Six teachers learned to teach the KftB Safe Bay Food Consumption Curriculum and Watershed Action Program to future classes of students. The program became an integrated component of the grade-level school curriculum with the support of the school principal.

Follow-Up Program

In fall 2012 a KftB Instructor will contact teachers to prepare them to teach the SBFCP and the WAP through the Follow-Up Program, which occurs during the second year of participation in the WAP. Teachers will receive access to an equipment kit and support from KftB Instructors to continue teaching the program to their new classes of students. KftB Instructors will also help teachers plan for the program, and discuss ways to integrate it into their school-year curriculum. The school principals have signed a program contract indicating their support for the program. After successfully completing the first year of the SBFCP and the WAP, teachers are looking forward to teaching the program to their next class of students. Ms. Schramm, third grade teacher at Cox Academy explained, "I feel the project was a great success and I would love to take part in it again next year."

5) In-Kind or Leveraged Resources

The SBFCP is within KftB's Watershed Action Program (WAP). The WAP is a comprehensive, in-depth environmental education and action program. It includes five two-hour classroom lessons, a day-long field trip, and many other components for each participating class. Because the SBFCP was within the WAP, KftB was able to provide in-kind resources that were not directly funded by the SFBFP including staff time, transportation for field trips, program equipment and materials, and financial support from foundations, local government agencies, and corporations. In addition, East Bay Regional Park District delivered their Mobile Fish Exhibit to one of the participating schools, which supported the SBFCP curricula.

6) Sustainability

KftB will continue to provide the SBFCP in the upcoming school year, and beyond. During the 2012-13 school year we aim to work with four more elementary school classes at the fifth grade level, and help them to teach their families about the benefits and risks of consuming Bay fish. Because KftB will continue to teach the WAP we are able to continue to incorporate the SBFCP into the WAP curriculum for a selected number of classes. We are beginning to plan for the upcoming school year, and are identifying classes that would be good candidates to receive the SFBFP.

KftB will also continue to support teachers and prepare them to teach the SBFCP and WAP through the Follow-Up Program, which occurs during the second year of participation in the WAP. Teachers will receive access to an equipment kit and support from KftB Instructors to continue teaching the program to their new classes of students. KftB Instructors will also help teachers plan for the program, and discuss ways to integrate it into their school-year curriculum. Our teacher-training model ensures continuation of the project, which reaches more people each year.

7) Recommendations

The SFBFP grant program was very well-run, and KftB was proud to be involved in the project. The Request for Proposals was clear and simple to follow, and trainings and technical assistance from CDPH were sufficient. We greatly appreciated the prompt and thorough communication with SFBFP staff and the assistance in translating our materials into Spanish.

We have the following recommendations to the SFBFP:

1) Provide opportunities for funded groups to share information and collaborate on projects. Each funded group developed unique and innovative projects. If the groups are in touch during the process of developing and implementing their project then they could learn from and support each other- possibly sharing strategies, materials, and ideas that would improve and strengthen each individual project.
2) Provide on-going funding for project and grantees. We had many successes this year implementing the SFBFP. We made progress on our goal of educating the Bay fish consuming community about the benefits and risks of consuming Bay fish, and learned many lessons along the way. Continued funding would allow this work to continue to make a real and lasting impact in the community.

8) Budget (see Table B)

Table A - Project Activities

Description of the Activity (please include location and population)	Number of Participants	Number of SF Bay consumers	Number of at risk consumers	Number of consumers with outcome evaluation
1. Population Screening (to verify at least 20% Bay fish consumers) Location: Target schools in Alameda and Contra Costa Counties Population: 3rd-5th grade classes of students and their families within low-income elementary schools	121 Households	203	168	n/a
2. Take-Home Interview of Parents by Students Location: Students' homes Population: 3-5th grade students and their parents and/or adult family members	At least 46 parents and 46 students	n/a	n/a	n/a
3. Angler Interviews by Students Location: Bay fishing piers in Berkeley and Richmond Population: Men and women fishing on Bay fishing piers	21 (19 Interviews)	21	Not Verified during Interviews	19
4. Student-Led Presentations to Family Members Location: Students' school classroom Population: 3-5th grade students, their parents, and their siblings	At least 65 parents	n/a	n/a	65
5. Teacher Training on the Safe Bay Food Consumption Project Location: Teachers' classrooms and outdoor field trip sites Population: 3rd-5th grade classroom teachers in low-income elementary schools	7	n/a	n/a	7
Totals	At least 260	224	At least 168	91

Table B - Budget Table

Personnel:	**Expenditures to date**
Salaries & wages (include benefits and taxes)	$15,186
Consultant & contract services	N/A
Total Personnel	**$15,186**
Operating Expenses:	
Supplies/Materials/Printing	$447.00
Equipment	$857.00
Travel	$900.00
Total Operating Expenses	**$17,390.00**
Indirect Costs @ 15%	$2,610.00
*Supplemental Funds	$826.71
**Remaining Supplemental Funds (applied towards Operating	$423.29
Total	**$21,250.00**

* Supplemental funds were used to purchase items to increase incentive for families to attend the Safe Bay Food Consumption Presentations. Items included food, utensils and one $50.00 gift card to the store Bed Bath & Beyond for each of the six participating classes.

** Remaining funds ($423.29) from the Supplemental Funds were applied towards Operating Expenses including supplies/materials/printing and equipment.

KIDS for the BAY

Fish Cooking Student Presentation Post-Survey

Dear Parent/Guardian: Thank you for coming to the Fish Cooking Presentation! We hope you learned a lot about the San Francisco Bay and how to stay healthy when eating bay fish. **Please complete this survey to help us understand what you have learned from this presentation.** Each person that turns in a completed survey will be entered into a raffle to **win a $50 gift card from the store "Bed, Bath, & Beyond"!**

Think about what you knew **BEFORE** coming to the presentation today…

Respond to each statement by checking the response that best reflects your feelings:

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
BEFORE the presentation, I had an understanding of the fish consumption advisory (the "Guide") for the San Francisco Bay.					
BEFORE the presentation, I had the information I needed to reduce my exposure to chemicals from eating San Francisco Bay fish.					

Think about what you now know **AFTER** the presentation today…

Respond to each statement by checking the response that best reflects your feelings:

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
AFTER the presentation, I now have an understanding of the fish consumption advisory (the "Guide") for the San Francisco Bay.					
AFTER the presentation, I now have the information I need to reduce my exposure to chemicals from eating San Francisco Bay fish.					

(continued on back page)

Respond to each statement by checking the response that best reflects your feelings:

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Not Applicable (Please explain WHY)
I plan to stop eating surfperches from the San Francisco Bay.						WHY:
I plan to remove and throw away the skin before eating fish from the San Francisco Bay.						WHY:
I plan to share the information I learned today with other family members and friends.						WHY:
I plan to follow the advisory recommendations (the "Guide") for eating fish from the San Francisco Bay.						WHY:

If you are a **man 18 years old or older**, or a **woman 46 years old or older**…

Respond to each statement by checking the response that best reflects your feelings:

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Not Applicable (Please explain WHY)
I plan to limit the amount of white croaker, sharks, and sturgeon I eat from the San Francisco Bay to no more than one serving per week.						WHY:
Is there anything else you plan to do after coming to the presentation today?	ANSWER:					

(continued on next page)

If you are a **woman 18 - 45 years old**…

Respond to each statement by checking the response that best reflects your feelings:

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Not Applicable (Please explain WHY)
I plan to stop eating striped bass, sharks, and sturgeon from the San Francisco Bay.						WHY:
Is there anything else you plan to do after coming to the presentation today?	ANSWER:					

Thank you for completing this survey!
Please complete the form below and turn the survey in to be entered into the raffle.

_____

RAFFLE INFORMATION

Your Name: _____

Your Phone Number: _____

Your Email: _____

Good Luck! The raffle winner will be notified soon.

KIDS for the BAY

San Francisco Bay Angler Interviews

GROUP MEMBERS: _____ DATE: _____

TIME: _____ LOCATION: _____

DIRECTIONS:

1) In your group, choose one person to be the Recorder. The rest of the group will be Interviewers who will take turns talking to the Anglers and asking them questions.
2) With your group and an adult chaperone, walk up to an Angler (a person fishing in the San Francisco Bay).
3) Interviewers should take turns talking to the Angler and asking the Angler questions. Interviewers should not write the Angler's answers down, only the Recorder should write the Angler's answers down on ONE Recording Sheet.
4) When you are finished talking to one Angler, the Recorder should use a new Recording Sheet to write the next Angler's answers down. The Interviewers can use their same Interview Sheet to ask the next Angler questions.

RECORDING SHEET

(write down the Angler's answers on this sheet)

1) What types of fish do you catch from the San Francisco Bay?

_____

2) Where else do you go to fish from the San Francisco Bay?

_____

3) After talking with us today, do you feel you know more about what Bay fish are healthiest to eat and what Bay fish to try not to eat?

Answer:

☐YES ☐NO ☐"I DON'T KNOW"

4) Do you have the information you need to lower your exposure to mercury and PCBs from eating San Francisco Bay fish?

Answer:

☐YES ☐NO ☐"I DON'T KNOW"

(turn over for more questions)

5) Do you think you will STOP eating surfperches from the Bay now?

Answer:

☐YES ☐NO ☐"I DON'T KNOW" ☐"I DON'T EAT SURFPERCHES"

6) Do you think you will take off and throw away the skin before eating fish from the Bay now?"

Answer:

☐YES ☐NO ☐"I DON'T KNOW" ☐"I ALREADY THROW AWAY THE SKIN"

7) Do you think you will share this Guide with your family or friends?"

Answer:

☐YES ☐NO ☐"I DON'T KNOW"

8) Do you think you will follow what the Guide says for eating Bay fish now?"

Answer:

☐YES ☐NO ☐"I DON'T KNOW" ☐"I ALREADY FOLLOW THE GUIDE"

9) Is there anything else you plan to do to stay healthy when eating Bay fish?"

_____

_____

END

Great Job!

Recorder: Use a new Recording Sheet to write down answers for the next Angler.

Interviewers: Use the same Interview Sheets to interview the next Angler.

Δ Retrospective Questionnaire **Activity:** **Survey #:**

Location: **Date:**

Instructions for questions 1 through 6:

Please circle a number to rate your level of agreement with the two statements below. On a scale of 1-4 circle a number to the left to rate your level of agreement with the statements below **before** the activity. Using the same scale, circle a number to the right to rate your level of agreement with the statements **after** you participated in the activity. You may circle DK to indicate "I do not know".

Highly Disagree	Disagree	Agree	Highly Agree
1	2	3	4

Before Activity Before Workshop	Statement	After Activity After Workshop
1 2 3 4 DK	1. I have an understanding of the fish consumption advisory for San Francisco Bay.	1 2 3 4 DK
1 2 3 4 DK	2. I have the information I need to reduce my exposure to chemicals from eating San Francisco Bay fish.	1 2 3 4 DK
1 2 3 4 DK	A. I will continue to eat fish because some fish are good for me and my health.	1 2 3 4 DK
1 2 3 4 DK	B. Mercury, PCB and other contaminants is not something you can see, smell or taste. That's why it's important to know which fish are safer than others to eat.	1 2 3 4 DK
1 2 3 4 DK	C. I will continue to eat fish regardless of the advisory because of cultural, economic (financial) or personal reasons.	1 2 3 4 DK
1 2 3 4 DK	D. I am interested in finding out which chemicals, if any, is in my body and how much.	1 2 3 4 DK

Instructions for question 3-7 and question 9:

On a scale of 1 to 4, please rate how likely are you to take any of the steps listed below. "N/A" indicates that the question does not apply to you (e.g. Question 9, answer "N/A" if you already do not at surfperch).

Scale

Definitely Will Not Change	Probably Will Not Change	Probably Will Change	Definitely Will Change
1	2	3	4

3. I plan to stop eating surfperches from San Francisco Bay **1 2 3 4 N/A**
4. I plan to remove and discard the skin before eating fish from San Francisco Bay **1 2 3 4 N/A**
5. I plan to share the information I learned with other family members and friends. **1 2 3 4 N/A**
6. I plan to follow the advisory recommendations for eating fish from San Francisco Bay **1 2 3 4 N/A**

The next two questions are only for men ages 18+ and women ages 46+

7. I plan to limit the amount of white croaker, sharks, and sturgeon I eat from San Francisco Bay to no more than one serving per week. **1 2 3 4 N/A**

8. Are there other steps you plan to take?

If yes, explain:_____

The next two questions are only for women 18-45 years of age and children 1-17 years of age

9. I plan to stop eating striped bass, sharks, and sturgeon from San Francisco Bay **1 2 3 4 N/A**

10. Are there other steps you plan to take?

If yes, explain:_____

San Francisco Bay Advisory Fish Species

Surfperches

shiner perch

walleye surfperch

striped seaperch

black perch

and other surfperches

White Croaker

Leopard shark (and other sharks)

Sturgeon

Striped Bass

Jacksmelt

Chinook (King) Salmon

Brown Rockfish

California Halibut

◊ CIEA Retrospective Post-Test Questionnaire for Waiting Room Interviews (Attachment K)

1. Has talking with me today increased your knowledge of the consumption advisory for San Francisco Bay?

☐ Yes ☐ No ☐ Don't know/Not sure

2. Do you have the information you need to reduce your exposure to chemicals from eating San Francisco Bay fish?

☐ Yes ☐ No ☐ Don't know/Not sure

Now that you have heard about the advisory…:

3. Do you think you are likely to avoid eating surfperches from San Francisco Bay?

☐ Yes ☐No ☐ Don't know/Not sure ☐ N/A (doesn't eat surfperches now)

4. Do you think you will share the advisory information with other family members or friends?

☐ Yes ☐ No ☐ Don't know/Not sure

5. Do you think you will follow the advisory recommendations for eating fish from San Francisco Bay?

☐ Yes ☐ No ☐ Don't know/Not sure ☐ N/A (already follows advisory)

The next two questions are only for men ages 18+ and women ages 46+

7. Do you think you will limit the amount of white croaker, sharks, and sturgeon that you eat from San Francisco Bay to no more than one serving per week?

☐ Yes ☐ No ☐ Don't know/Not sure ☐ N/A (doesn't eat these fish now)

8. Are there other steps you plan to take?
If yes, explain:_____

The next two questions are only for women 18-45 years of age and children 1-17 years of age

9. Do you think you will stop eating striped bass, sharks, and sturgeon from San Francisco Bay?

☐ Yes ☐ No ☐ Don't know/Not sure ☐ N/A (doesn't eat these fish now)

10. Are there other steps you plan to take?
If yes, Explain:_____

Greenaction (Attachment L)
∆ Retrospective Post-Test Questionnaire **Activity:**
Location: **Date:**

Instructions for questions 1 and 2:
Please circle a number to rate your level of agreement with the statements below. On a scale of 1-4 circle a number to the left to rate your level of agreement with the statements below.
You may circle DK to indicate "I do not know."
Instructions for question 3-6 On a scale of 1 to 4, please rate how likely are you to take any of the steps listed below. "N/A" indicates that the question does not apply to you.

Highly Disagree	Disagree	Agree	Highly Agree
1	2	3	4

Statement

1. **After talking with me today, your knowledge of the Bay Fish Advisory has improved.** **1 2 3 4 DK**
2. **The information I provided you with today is useful to you.** **1 2 3 4 DK**

Instructions for question 7: Answer 7a if you are male **or** 7b if you are either a woman 18-45 or under 18.

Definitely Will Not Change	Probably Will Not Change	Probably Will Change	Definitely Will Change
1	2	3	4

3. **I plan to stop eating surfperches from San Francisco Bay** **1 2 3 4 N/A**
4. **I plan to remove the skin before cooking & eating fish from San Francisco Bay** **1 2 3 4 N/A**
5. I plan to share this information with family & friends. **1 2 3 4 N/A**
6. **I plan to follow the advisory recommendations & eat less toxic kinds of fish from SF Bay.** **1 2 3 4 N/A**

Men ages 18+ & women ages 46+:

7a. I plan to limit the amount of white croaker, sharks, and sturgeon I eat from San Francisco Bay to no more than one serving per week. **1 2 3 4 N/A**

Women 18-45 years of age & children 1-17 years of age:

7b. I plan to stop eating striped bass, sharks, and sturgeon from San Francisco Bay **1 2 3 4 N/A**

Other comments/questions or future change plans now that you have talked with me:

San Francisco Bay fish consumers and populations at risk

Date:_____ Location: _____

1. Do you eat fish caught from San Francisco Bay? ☐ Yes ☐ No
2. Are you male or female? ☐ Male ☐ Female
3. How old are you? ☐ Under 18 ☐ 18-45 ☐ 46 or older
4. In a typical week, how many servings of fish or crab from San Francisco Bay do you eat?

   ☐ Less than 1 serving per week ☐ 1 serving per week

   ☐ 2 or more servings per week (How many servings per week?_____)

5. Do you eat any of the following fish from San Francisco Bay?

 ☐ Surfperches (includes shiner perch, walleye surfperch, striped seaperch, black perch, and other surfperches)	 ☐ White Croaker
 ☐ Sharks	 ☐ Striped Bass
 ☐ Sturgeon	 ☐ Northern Anchovy
 ☐ Pacific Sardine	 ☐ Pacific Herring

6. Excluding yourself, how many people in your household for each of the following groups eat fish from San Francisco Bay?

Women 18-45 _____ Woman 46+ _____

Children 1-17 _____ Men 18+ _____

Comments/Questions:

KIDS for the BAY

Fish Cooking Student Presentation Post-Survey

Dear Parent/Guardian: Thank you for coming to the Fish Cooking Presentation! We hope you learned a lot about the San Francisco Bay and how to stay healthy when eating bay fish. **Please complete this survey to help us understand what you have learned from this presentation.** Each person that turns in a completed survey will be entered into a raffle to **win a $50 gift card from the store "Bed, Bath, & Beyond"!**

Think about what you knew **BEFORE** coming to the presentation today…

Respond to each statement by checking the response that best reflects your feelings:

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
BEFORE the presentation, I had an understanding of the fish consumption advisory (the "Guide") for the San Francisco Bay.					
BEFORE the presentation, I had the information I needed to reduce my exposure to chemicals from eating San Francisco Bay fish.					

Think about what you now know **AFTER** the presentation today…

Respond to each statement by checking the response that best reflects your feelings:

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
AFTER the presentation, I now have an understanding of the fish consumption advisory (the "Guide") for the San Francisco Bay.					
AFTER the presentation, I now have the information I need to reduce my exposure to chemicals from eating San Francisco Bay fish.					

(continued on back page)

Respond to each statement by checking the response that best reflects your feelings:

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Not Applicable (Please explain WHY)
I plan to stop eating surfperches from the San Francisco Bay.						WHY:
I plan to remove and throw away the skin before eating fish from the San Francisco Bay.						WHY:
I plan to share the information I learned today with other family members and friends.						WHY:
I plan to follow the advisory recommendations (the "Guide") for eating fish from the San Francisco Bay.						WHY:

If you are a **man 18 years old or older**, or a **woman 46 years old or older**…

Respond to each statement by checking the response that best reflects your feelings:

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Not Applicable (Please explain WHY)
I plan to limit the amount of white croaker, sharks, and sturgeon I eat from the San Francisco Bay to no more than one serving per week.						WHY:
Is there anything else you plan to do after coming to the presentation today?	ANSWER:					

(continued on next page)

If you are a **woman 18 - 45 years old**…

Respond to each statement by checking the response that best reflects your feelings:

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Not Applicable (Please explain WHY)
I plan to stop eating striped bass, sharks, and sturgeon from the San Francisco Bay.						WHY:
Is there anything else you plan to do after coming to the presentation today?	ANSWER:					

Thank you for completing this survey!
Please complete the form below and turn the survey in to be entered into the raffle.

_____

RAFFLE INFORMATION

Your Name: _____

Your Phone Number: _____

Your Email: _____

Good Luck! The raffle winner will be notified soon.

Attachment N

Summary of Themes from Exit Interviews of Funded Groups
San Francisco Bay Fish Project

Introduction

CDPH staff conducted in-person exit interviews with staff from the four funded groups. The purpose of the interviews was to characterize the funded group's experience in the SFBFP grant program, including challenges and lessons learned. Grantees were also asked about the feasibility of behavior change in their projects. Finally, the interviews provided an opportunity for groups to suggest ways that CDPH can better support their projects (or similar projects in the future). The interviews lasted 45 minutes to one hour and 45 minutes. CDPH staff took notes during the interviews and also recorded the interviews to supplement the notes. This summary describes the main themes of the four interviews and highlights potential next steps for future projects.

Themes from Exit Interviews

1. **Communicating Technical information**
   Two of the funded groups felt that it was challenging to communicate technical information on fish contamination to their audience. They were able to modify and make simplifications to the information to better be able to communicate it with their audiences. One group suggested that CDPH teach technical information in a more efficient manner such as by developing an online training module specifically for WIC clinics.

   Two of the funded groups said their staff did not feel they had in-depth answers to the technical questions asked by target populations or weren't completely confident in the information, particularly when teaching or educating others. One group suggested that CDPH assess groups' comfort in teaching technical fish contamination information to others. This assessment could help determine if additional training and/or support is needed.

2. **Outreach**
   Two of the grantees had difficulty reaching their goal in terms of how many people they planned to survey. For example, the target population wasn't always available during standard work hours or grantees encountered some of the same participants they had already surveyed.

   Two of the funded groups found it challenging to get their target audience to talk to them when their staff was projecting a business-like, professional image. They had to adapt their approach, e.g., wear plain clothes to appear less formal and therefore, less threatening.

Two of the grantees observed an opportunity for outreach through targeting families, particularly heads of households. While individuals were less likely to consider behavior change for themselves, they were more likely to encourage changes among other family members. These groups felt that outreach focused on the family (rather than on anglers or individuals) would be more effective because people are more willing to makes changes that protect their families. One grantee suggested that, in the future, a message to certain populations should be focused on, "what to do to protect their family's health."

Two of the funded groups mentioned this grant process allowed them to get to know their communities better. These two funded groups also had the opportunity to learn about other pressing issues facing their community was facing.

Two of the funded groups mentioned angler outreach. One viewed anglers as a key target population, because they are fishing and eating from the SF Bay. The other group indicated anglers might be resistant to making changes in their consumption practices because they could be fishing to sell the catch.

3. **CDPH Training on Fish Contamination (in June 2011)**
   Three of the funded groups indicated a need for more technical information in the training sessions. One suggested including information on fish sampling activities that are used to support the advisory, as an example.

   Two of the funded groups indicated they used the CDPH training to train other staff members in their organization or project partners. One group indicated they wish their entire staff had been able to attend the CDPH training.

   Two of the funded groups thought the training was mentally fatiguing and they would have liked more breaks. One group said there were too many PowerPoint's and as a whole the training needed to be more interactive.

   Two of the funded groups stated interest in supplemental training. One group suggested the topic of best practices on how to conduct outreach or recommendations for increasing participation among their target population. Another group mentioned working with organizations that had expertise in messaging information to the specific audiences.

4. **CDPH support/flexibility**
   All grantees indicated that they appreciated all of the support from CDPH staff. Three of the funded groups stated the CDPH's flexibility and

willingness to allow them to make changes to their activities was critical to implementing their project.

5. **Translated Materials**
   Three of the funded groups indicated that the translated materials were a key component of their project. Two of the grantees said the translated materials were critical to their project's implementation. Two of the funded groups said that CDPH's ability to provide printed copies of materials was an essential part of the project.

   Two of the funded groups indicated that the translated materials needed to be available earlier, during the initial outreach phase.

6. **Behavior Change**
   Two of the funded groups thought short-term behavior change, i.e., follow up at 1-6 months, could potentially be measured in their projects. One of these groups noted that their project already measured short-term behavior change (i.e., APA's long term assessment). The other group said with more resources they could do follow up to measure short-term behavior change.

   Two of the funded groups did not think behavior change could be measured, only behavioral intent. One group said that this could be changed with a lot of resources and money, but would be beyond the scope of a small non-profit and would have to be done by a University. In their opinion, this would result in losing the expertise of an organization that actually works in the community.

7. **Sustainability**
   Two of the funded groups plan to continue their projects and are actively looking for funding to make their current SF Bay fish projects sustainable. Two of the funded groups will use the curriculum they produced through their projects to continue outreach and education. One of them will have a dedicated section on their website to address the fish contamination issue.

8. **#1 Important Action**
   Three of the funded groups indicated the single most important action or activity to reduce consumption of SF Bay fish was increasing educational awareness and outreach. Two of the grantees thought this should be done via networking with heads of households or community leaders to disperse information.

9. **Capacity Building**
   All of the grantees felt the grant process resulted in new skills, or capacity building, within their organizations. Two of the funded groups said evaluation activities and access to translated materials (so they could

reach more diverse audiences) were key capacity builders.

10. **Collaboration**
    All of the funded groups were able to collaborate with organizations, outside of the funded groups, as a result of implementing their projects.

    All of the funded groups indicated a need for more collaboration among the funded groups. They stated there were not enough opportunities to collaborate at SAG meetings. They would have liked to work together to utilize each other's materials and tools (e.g., the educational games that APA developed). All of the funded groups wanted the CDPH to institute mandatory collaboration meetings or activities among the grantees.

    Three of the funded groups had an interest in meeting outside of SAG meetings. Ideas for outside activities included a shared event, outing, social media news event, and curriculum development.

11. **Evaluation**
    Three of the funded groups listed evaluation as a skill that they further developed through the grant process.

12. **More Funding, Longer Funding Cycle, Incorporating Longer-Term Follow-Up**
    Two of the funded groups thought longer-term funding (i.e., having a two year funding cycle rather than one year), larger awards, and incorporating longer-term follow up (i.e., one to six months) in the evaluation could improve the grant program. One group thought that implementing these steps could also help show behavior change.

13. **Advisories at Other Water Bodies**
    Two of the funded groups indicated their target populations wanted advisory information and support for outreach at other nearby bodies of water (i.e. Delta, Clear Lake)

14. **Overall Experience Ratings**
    Of the six people from the four groups who participated in the exit interviews, five people rated their overall experience in the grant program as "excellent" and one rated her experience as "good", for an average or 4.8 on a 5 point scale.

<u>Potential Next Steps (for future projects):</u>

- Messaging
    - Explore developing educational messages that focus on a family's health and/or protecting other family members such as children.

- Training
    - Incorporate more in-depth technical curriculum for grantees—may require expanding the training from one day to two days.
    - Integrate more interactive educational sessions with fewer Power Point presentations and more games and fun activities.
    - Revise training resource binder.
    - Develop tools, including electronic tools, to assess curriculum knowledge to improve competency of staff after training.
    - Institute supplemental trainings on applicable best practices for implementing projects (e.g., how to approach and engage angler when interviewing them).

- Collaboration
    - Implement mandatory meetings to promote grantee collaboration. Be clear about expectations for these meeting. These collaboration meetings could be built into the grant structure as supplemental trainings, curriculum development workshops, events, etc.
    - Explore developing relationships with professional messaging organizations that work with communities.

- Longer Grant Cycle
    - Consider extending the grant cycle to two-years to allow adequate time for assessing longer-term behavior change results.