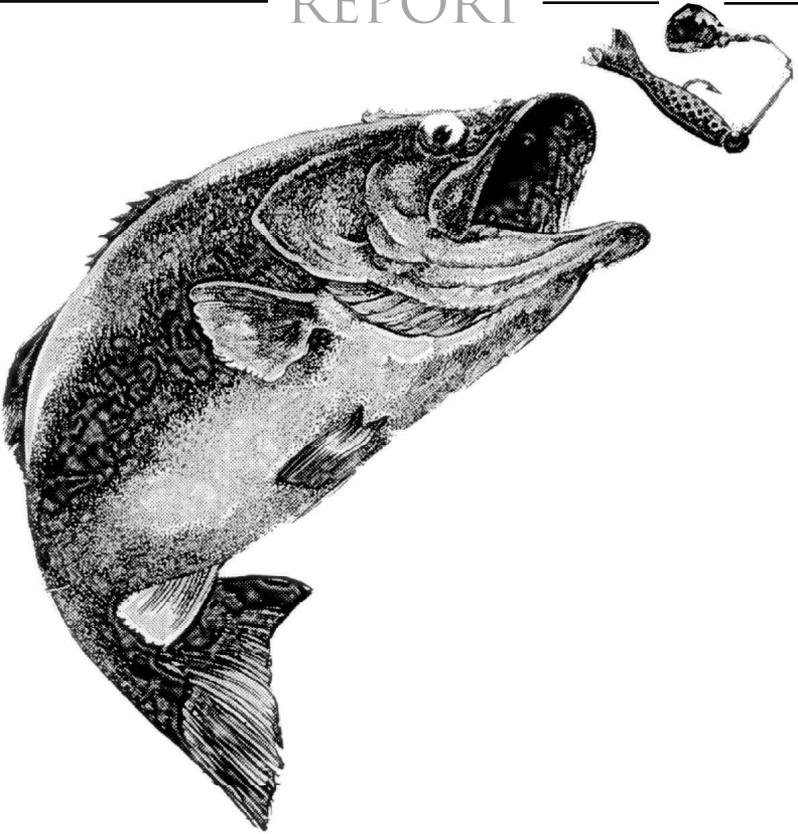


CONSUMPTION OF CONTAMINATED FISH

REPORT



PREPARED BY

THE PUBLIC AND ENVIRONMENTAL HEALTH ADVISORY BOARD

Consumption of Contaminated Fish

This is one in a series of reports prepared by the Public and Environmental Health Advisory Board (PEHAB) to inform the community about key environmental health issues in Contra Costa County.

PROBLEM STATEMENT

Thousands of people each year catch and eat fish from San Francisco Bay and surrounding waterways contaminated with chemicals and heavy metals that can be harmful to human health. High levels of pesticides (chlordane, the DDT group, dieldrin), dioxins, Polychlorinated Biphenyls (PCBs) and heavy metals (mercury) have been detected in Bay fish.

In particular, the levels of PCBs, and methylmercury (the organic form of mercury) pose the greatest health hazards, especially with long-term exposure. These levels of contamination may place subsistence fishers, who regularly eat the fish they catch, at greater risk than occasional sports fishers. In Contra Costa County, it appears that Southeast Asians and some African American communities are at greater risk.

TOXIC CHEMICALS IN FISH AND THEIR IMPACT ON HEALTH



Pesticides, other organochlorines and heavy metals can cause damage to the nervous, circulatory, digestive, and immune systems, as well as birth defects and cancer. Health effects vary depending on the chemical and the amount ingested.

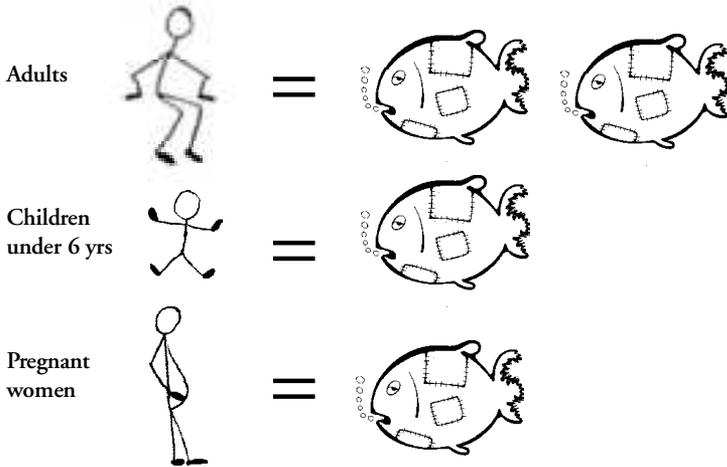
Some pesticides are “endocrine disruptors” which means they interfere with the body’s function of these hormones.

Dioxin and dioxin-like compounds have been shown to disrupt the endocrine system when present in even very small amounts. PCBs have been linked to developmental problems for children whose mothers ate contaminated fish from the Great Lakes. Mercury is particularly hazardous for fetuses and children as their nervous systems develop.

OEHHA Health Advisory

(Office of Environmental Health Hazard Assessment)

Consumption of Bay Area fish should be limited to:



= One fish represents one meal (8 ounces) per month
 This does not apply to salmon, anchovies, herring and smelt

SOURCES OF BAY CONTAMINATION

Many sources of pollution contribute to chemical contamination of San Francisco Bay and adjacent waterways. Some of these sources are wastewater discharges from industries or wastewater treatment plants, called point sources. Other sources of pollution-

such as agricultural pesticides and fertilizer, oils and other chemicals from automobiles, and pesticides used in homes and gardens- drain into the Bay in storm water. These are known as non-point sources. The pollutants for which Health Advisories have been issued are of particular concern because they last for a long time in the environment and build up in the food chain.

High levels of contaminants can be found at various locations throughout the waters and in the sediments on the floor of San Francisco Bay. Certain areas have become “hot spots” of pollution. These “hot spots” are usually areas where contaminants have built up to very high levels in the sediments of the Bay. These contaminants then get introduced into the food chain by organisms that feed off of the bottom of the Bay. Four areas in Contra Costa have been listed as high priority “hot spots.” These areas are Peyton Slough, Castro Cove, Stege Marsh, and Richmond Harbor.

LOCAL FISH STUDIES

In 1993 and 1995, the Save San Francisco Bay Association (Save the Bay) conducted surveys of people fishing at selected piers and shorelines. A similar survey was also conducted by the California Department of Health Services Environmental Health Investigations Branch in Richmond on South 8th Street. In 1994, the San Francisco Bay Regional Water Quality Control Board conducted fish tissue testing to determine the extent of chemical contamination in Bay fish. This study found persistent toxic chemicals in concentrations of concern to human health.

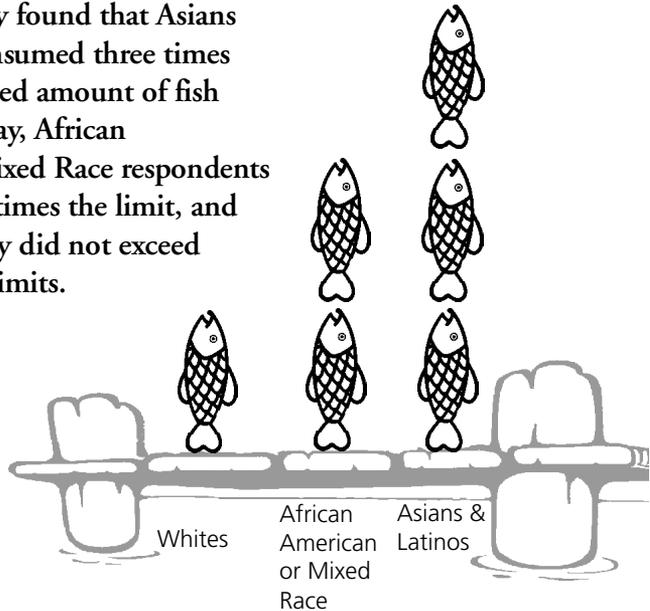
Jacksmelt, the preferred catch among fishers interviewed, was not caught in sufficient quantities during the 1994 fish tissue study to be tested. Of the eight species of fish tested for contaminants in 1994, three stood out as most often eaten by fishers: white croaker, striped bass, and perch. The San Francisco Bay Regional Water Quality Control Board conducted another study of fish tissue contamination in 1997 and the high levels of contaminants were reconfirmed.

WHO'S FISHING?

The consumption of contaminated fish in the Bay Area is a significant environmental justice issue. People of color, including many immigrants who are limited- or non-English speakers, comprise the majority of people fishing from piers and shorelines. Save the Bay found these fishers are more likely to eat what they catch, more likely to eat the highly contaminated guts and organs, and less likely to know about health warnings than their White counterparts. The Department of Health Services surveyed a small sample of people fishing at the South 8th Street Pier in Richmond and found 75% were African American, 25% were Laotian, and many had been fishing for more than ten years. Although 90% of them ate what they caught, only 58% of the people interviewed had heard about the health warnings.

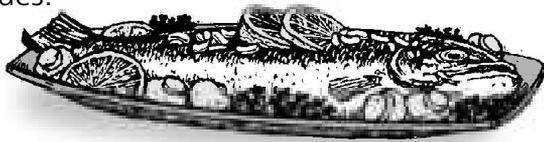
Of those interviewed by Save the Bay who knew about the existence of health advisories, only 28% changed their fishing behavior accordingly. Most people did not feel that they ate enough fish to be affected, yet only one person could repeat the actual advisory limits.

Save the Bay found that Asians and Latinos consumed three times the recommended amount of fish caught in the Bay, African American or Mixed Race respondents consumed two times the limit, and Whites generally did not exceed recommended limits.



REDUCING EXPOSURE

The level of most contaminants in fish can be reduced by proper preparation and cooking methods. Removing the fatty portions, skin, guts and organs of the fish before cooking, and allowing the juices to drain away while grilling or broiling can reduce most chemical contaminant levels. The SFEI study found that white croaker fillets without skin had 30 to 50 percent less pesticides, PCBs and dioxin-like compounds than those with skin. Only mercury, which binds to muscle tissue in the fillet itself, will not be reduced by such cooking techniques.



It should be noted that even after taking these precautions levels of contaminants may still be above levels of concern and the consumption advisory should still be followed.



EDUCATION EFFORTS

In May 1997, the East Bay Regional Park District posted signs with OEHHA's health advisory in six languages at favorite fishing spots along shorelines in East Bay Regional Parks. Unfortunately, signs at several locations keep being torn down. Other barriers to effective posting include a lack of organizational responsibility for

posting, lack of funding, and difficulty in condensing information onto small signs, especially given the need for multilingual posting.

Signs posted by the San Francisco Health Department had the San Francisco Poison Control Center phone number for people to call with questions in any of eight languages. Other counties, including Contra Costa, do not have the resources to staff such a phone line. Most fishers surveyed cited media (television and newspapers) as the best way to inform people about health warnings. Sign postings were considered by fishers to be the second best way. However, more fishers say they heard about the advisory by word of mouth than from the signs.

PREVENTING CONTAMINATION

In the last 30 years, most of the efforts to reduce the pollution of San Francisco Bay have focused on reducing point sources of pollution. While this effort has reduced the amount of many pollutants going into the Bay, most of the pollutants for which there are Health Advisories do not come from point sources. Some come from historic uses, such as DDT and mercury. Others, such as pesticides and PCBs come from non-point sources. Dioxins come from point sources, non-point sources, and settle out from the air. New strategies are being developed to reduce pollutants from non-point sources, even as the control of point sources continues.

The Bay Protection and Toxic Cleanup Program (BPTCP) was created in 1989 to identify and rank toxic hot spots and adopt a timeline for improving the quality of Bay sediment. However, additional efforts to reduce overall levels of contaminants in the Bay, since toxic hot spots do not cause 100 percent of the problem.

Another strategy implemented successfully over the last 10 years is pollution prevention. The goal of pollution prevention is to not create pollution in the first place so that subsequent efforts aren't required to contain or remove it.

Current and Ongoing Efforts



The San Francisco Health Department and East Bay Regional Park and District are coordinating ongoing sign-posting efforts.



The Fish Consumption Outreach and Education Task Force, convened by the State Department of Health Services (DHS), is working on assessing resources available and developing goals for outreach efforts.



Save San Francisco Bay Association, a local environmental group, has an active Seafood Consumption Information Program. It will be coordinating future outreach efforts with the DHS Task Force and will continue to work on policy issues.



DHS is creating a brochure for pregnant women and women of childbearing age.



DHS was recently awarded a grant to conduct an expanded study of fish consumption habits among San Francisco Bay fishers.



OEHHA is working on developing a final version of their health advisory.



The San Francisco Bay Regional Water Quality Control Board is monitoring levels of chemicals in the water, sediments and shellfish in the San Francisco Estuary Institute.



The California Department of Fish and Game includes OEHHA's health advisory in its California Sport Fishing Regulations booklet given to anglers 16 years and older when they purchase a fishing license. These booklets are only required to be distributed to those who get licenses to fish from public piers. Booklets are available in English only.

GROUPS WORKING ON THE ISSUE

(this is only a partial list)

Fish Consumption Outreach and Education Task Force, Environmental Health Investigations Branch, Department of Health Services (510) 622-4500

San Francisco Bay Water Quality Control Board (510) 622-2300

San Francisco Health Department
..... (415) 252-3942

Office of Environmental Health Hazard Assessment, CalEPA
..... (510) 622-3170

Save San Francisco Bay Association
..... (510) 452-9261

Asian Pacific Environmental Network
..... (510) 834-8920

East Bay Regional Park District
..... (510) 482-6030

Communities for a Better Environment,
S.A.F.E.R. (415) 243-8373

Actions Suggested by PEHAB

COMMUNITY RESIDENTS:

-  **Participate in pollution prevention** by reducing or eliminating use of pesticides and other toxic chemicals in and around your home.

-  **Contact local environmental organizations** to find out if they are working on this issue. Ask for linguistically appropriate information or for referrals to agencies that have information on fish consumption.

-  **Find out about the health warnings** produced by the Office of Environmental Health Hazard Assessment (OEHHA) and educate your families and friends who fish.

-  **Contact S.A.F.E.R.** at Communities for a Better Environment to find out if there is a community group in your area which is active on this issue, or to ask how you can start one.

-  **Improve your access to health and medical services** by finding out if you and your family qualify for **Medi-Cal**. If you would like to receive

information regarding Medi-Cal eligibility, call the Social Services office in your area: in West County, (510) 262-7700 (Richmond) and (510) 412-3000 (Hercules); in Central County, (925) 313-7987; and in East County, (925) 706-4980.

NON-PROFITS AND STATE AND COUNTY GOVERNMENT:

- ✓ **Conduct public education campaigns** in areas where people fish. Send multilingual educators to distribute information on piers on Saturdays and other popular fishing times.
- ✓ **Identify people who fish frequently and organize workshops** for these groups in their native languages. Contact Save San Francisco Bay Association to get information about the success of its Seafood Consumption Information Project.
- ✓ **Advocate for state legislation** addressing cleanup of Bay pollutants. Legislation may need to address run-off pollution as well as point source pollution.

CITY COUNCILS, MUNICIPAL ADVISORY COUNCILS AND RESIDENCE COUNCILS:

- ✓ **Hold community forums** regarding Bay pollution and fish contamination.
- ✓ **Create a poison control number** where people can call to get information about fish contamination and other exposures to toxic chemicals.

- ✓ **Post multilingual signs** which include health warnings and a phone number for information at city and county piers and other fishing sites.
- ✓ **Advocate for policies and educational campaigns** which educate citizens in pollution reduction such as the Central Sanitary District's "Don't Pour It Down the Drain" campaign.
- ✓ **Encourage low-income families to sign up for Medi-Cal.** Improving their access to health services lessens the harmful impact of contaminated fish consumption.

References

Environmental Health Investigations Branch, California Department of Health Services (1994) Fish Contamination in Richmond Harbor Channel. Berkeley, CA. 22 pp.

Nakatani, Keith (1997) Fishing for Food In San Francisco Bay: Part II. Save San Francisco Bay Association, Oakland, CA. 40 pp.

OEHHA (1995) PCBs in Sport Fish: Answers to Questions on Health Effects. CalEPA, Berkeley, CA. 7 pp.

OEHHA (1994) Methylmercury in Sport Fish: Answers to Questions on Health Effects. CalEPA, Berkeley, CA. 4 pp.

OEHHA (1995) Summary of the Chemicals of Concern Found in Fish: San Francisco Bay Pilot Study, 1994. CalEPA, Berkeley, CA. 5 pp.

San Francisco Estuary Institute (1997) Contaminant Concentrations in Fish from San Francisco Bay. Richmond, CA. 65 pp.

San Francisco Regional Water Quality Control Board (1995) Contaminant Levels in Fish Tissue from San Francisco Bay. California Department of Fish and Game, State Water Resources Control Board, Oakland, CA. 150 pp.

San Francisco Bay Regional Water Quality Control Board (1999). Regional Toxic Hot Spots Cleanup Plan. Oakland, CA. 130 pp.

PEHAB is a 19 member community Advisory Board appointed by the Board of Supervisors to advise Contra Costa Health Services on community health needs and recommend strategies to meet those needs. PEHAB's mission is to anticipate emerging public and environmental health issues, initiate prevention programs, focus public health intervention in communities with the greatest needs, and advocate for increased county action to improve community health.

For more information about health issues in Contra Costa please contact one of the groups listed under "Groups working on this issue" or

Michael Kent

Hazardous Materials Ombudsman

Contra Costa Health Services

20 Allen St.

Martinez, CA 94553

(925) 370-5020 or

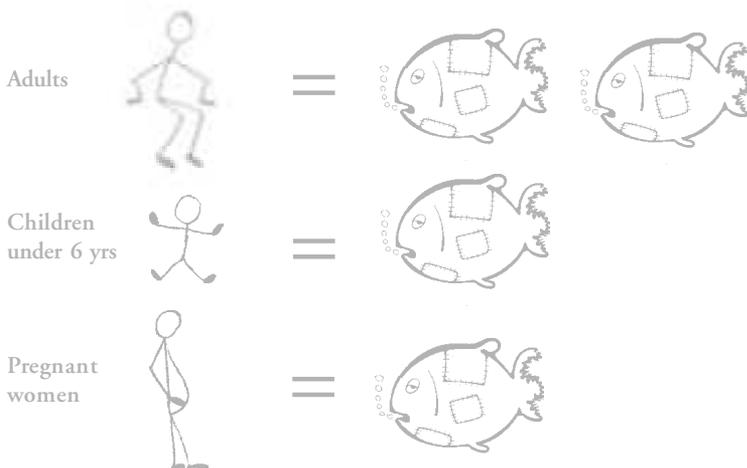
1-877-662-8376 (toll free)

Thousands of people each year catch and eat fish from San Francisco Bay and surrounding waterways contaminated with chemicals and heavy metals that can be harmful to human health.

OEHHA Health Advisory

(Office of Environmental Health Hazard Assessment)

Consumption of Bay Area fish should be limited to:



= One fish represents one meal (8 ounces) per month
This does not apply to salmon, anchovies, herring and smelt