

SAN FRANCISCO BAY SEAFOOD CONSUMPTION STUDY

General Information

APRIL 2001

Q: Why was the San Francisco Bay Seafood Consumption Study done?

A: In 1994, the Regional Water Quality Control Board (RWQCB) conducted a pilot study of fish from the San Francisco Bay. The study found mercury, polychlorinated biphenyls (PCBs), and pesticides in fish at levels that could be harmful to human health if eaten often. Based on this study, the Office of Environmental Health Hazard Assessment (OEHHA) released a health advisory for the Bay, recommending limits on how much fish one can safely eat. To learn more about who is eating fish from the Bay, the San Francisco Estuary Institute's Regional Monitoring Program (RMP) funded the California Department of Health Services (CDHS) to conduct the San Francisco Bay Seafood Consumption Study in 1998.

The goals of the study were to:

- gather information on San Francisco Bay anglers and their fish consumption habits
- identify anglers who are at risk due to their fish consumption habits
- gather information to help develop educational programs about safe fish consumption from the Bay

Q: How was the San Francisco Bay Seafood Consumption Study done?

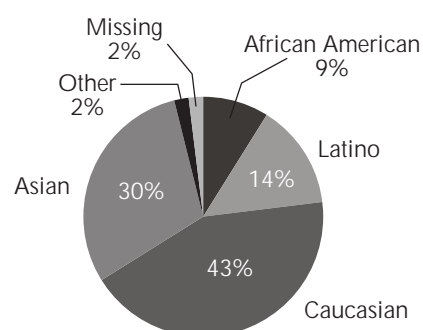
A: This study is the largest consumption study ever conducted in San Francisco Bay. Over 1,300 anglers were interviewed over a 12 month period in 1998 and 1999. CDHS interviewed people fishing on piers and shorelines, as well as people fishing from private and party

boats. Everyone over 18 years of age who was fishing was interviewed. The interview included questions about the angler's ethnicity, household income, education, amount and type of Bay fish consumed, parts of the fish eaten, and awareness of the health advisory for San Francisco Bay fish. Interviewers were able to speak English and at least one other language, including Spanish, Vietnamese, Cantonese, or Mandarin.

Q: Who is eating fish from the Bay?

A: Eighty-seven percent of anglers interviewed for the study ate fish from the Bay. As shown in Figure 1, Caucasians were the largest group of consumers of Bay fish, followed by Asians, Latinos, and African Americans. Many anglers reported that women of childbearing age (between 18 and 45 years of age) and young children in the household ate their catch as well.

Figure 1. Ethnicity of Consumers of Bay Fish



Q: How much fish from the Bay is safe to eat?

A: The health advisory recommends that adults limit their consumption of San Francisco Bay fish to **no more than two meals a month**. Adults also should not eat striped bass over 35 inches

in length because larger fish often contain more chemicals, and larger striped bass contains more mercury than most fish. Women who are pregnant, breastfeeding, or may become pregnant should not eat more than one meal per month. In addition, they should not eat any meals of striped bass over 27 inches, or shark over 24 inches. Children under the age of six should not eat more than one meal per month.

The advisory defines the size of a meal based on body weight, roughly one ounce of uncooked fish per 20 pounds of body weight. For example, a meal size for a person weighing 160 pounds is about 8 ounces, or half a pound. Therefore, an adult weighing 160 pounds can safely eat two half pound meals of fish a month, or a total of one pound a month. People who eat smaller portions of fish can safely eat more than two meals, as long as they don't eat more than the advisory recommends per month.

These limits only apply to fish caught in the San Francisco Bay, but do not include salmon, anchovies, herring, and smelt caught in the Bay.

The health advisory also recommends cooking and preparing fish in ways that reduce the amount of contaminants. These include eating only the fish fillet, and throwing away the guts, skin and fatty parts of the fish. Since chemicals build up in the fatty parts of the fish, cooking the fish in ways that allow the juices (which contain fat) to drain away and be discarded is also advised. Fishing in different places and eating a variety of fish are also recommended.

Q: How much fish are people eating from the Bay?

A: Interviewers asked anglers how much fish they ate from the Bay in the four weeks prior to the interview (last four weeks). Among anglers who ate Bay fish, 80% reported eating about one meal or less in the last four weeks, 10% ate about two meals, and another 10% ate more than two meals. African-Americans and Filipinos ate the most fish, and Caucasians ate the least. Asians and people with lower incomes and education, however, were more likely to eat white croaker, a fish also called kingfish that is more likely to contain chemicals. Asians were also more likely to eat the skin and other fatty parts of the fish where these chemicals build up.

Q: Who is eating more than is recommended?

A: Most anglers who had eaten fish did so within the advisory limits of two meals a month, or about one pound a month of advisory fish. However, one in ten ate more than what the advisory recommends. Anglers who ate more than the advisory

recommends came from all ethnic groups and backgrounds. Asians and African-Americans, however, were more likely to eat above the limit.

Q: Are anglers aware of the advisory for San Francisco Bay fish?

A: Sixty-one percent of anglers we interviewed were aware that there is a health advisory for San Francisco Bay. African-American and Caucasian anglers were more likely to be aware of the advisory than were Latinos and Asians. Awareness of the advisory also increased with both income and education.

Only 34% of the anglers we interviewed were aware of one or more of the recommendations in the health advisory, such as limiting how much fish they ate, or eating only the fillet (meat) of the fish.

Q: What is CDHS recommending?

A: CDHS and the RMP recommend that anglers consume fish within the advisory limits, and use fish preparation and cook-

ing methods that reduce the level of contaminants in fish. We also recommend that continued outreach and education efforts be directed to all anglers, informing them about the advisory and safer preparation and cooking methods. Warning signs should be posted in areas where anglers fish. Outreach activities should also be targeted toward anglers who eat more than the advisory recommends, or whose consumption habits place them at higher risk. Educational messages should be developed that are culturally appropriate, and should focus on consumption limits and safer practices. In addition, efforts should be made to include community-based organizations in the education efforts, and to provide funds to develop and produce educational materials. Although this study provided information on many aspects of fish consumption by people fishing in the Bay, further steps should be taken to characterize habits of other household members who consume Bay fish and to determine which educational messages are the most effective.

FOR MORE INFORMATION

For information about the study, or about education and outreach to anglers, contact:

Diana Lee, Alyce Ujihara, or Ian Walker
Environmental Health Investigations Branch
California Department of Health Services
1515 Clay Street, 17th Floor
Oakland, CA 94612
(510) 622-4500
www.dhs.ca.gov/ehib

For information about health advisories for the San Francisco Bay and other areas of California, contact:

Margy Gassel
Office of Environmental Health Hazard
Assessment
California Environmental Protection Agency
1515 Clay St., 16th Floor
Oakland, CA 94612
(510) 622-3166
www.oehha.ca.gov

For information about the data from the study and the Regional Monitoring Program, contact:

Rainer Hoenicke, RMP Manager
San Francisco Estuary Institute
180 Richmond Field Station
1325 South 46th Street
Richmond, CA 94804
(510) 231-9539
www.sfei.org

For information about clean-up measures in the Bay, contact:

Wil Bruhns
San Francisco Bay Regional Water Quality
Control Board
1515 Clay St., 15th Floor
Oakland, CA 94612
(510) 622-2327
www.swrcb.ca.gov/~rwqcb2