



## **Draft Report and Health Advisory for Fish and Shellfish from Clear Lake, Cache Creek, and Bear Creek (Lake, Yolo, and Colusa Counties)**

a fact sheet by the  
Office of Environmental Health Hazard Assessment  
California Environmental Protection Agency

May 2004

### **Why has OEHHA developed a new health advisory for fish from the Clear Lake and Cache Creek watersheds?**

A fish consumption advisory was issued for Clear Lake in 1987. Since that time, many more samples of fish have been collected as part of studies on mercury contamination in the Clear Lake and Cache Creek watersheds. The Office of Environmental Health Hazard Assessment (OEHHA) used the information from these studies to update the advisory for Clear Lake. New guidelines for consumption were developed that are consistent with current science. Also, fish were tested for mercury from nearby Cache Creek and Bear Creek. These results were used by OEHHA to develop guidelines for sport fish consumption from these water bodies as well.

One set of guidelines applies to women of childbearing age and children age 17 years and younger, who are particularly sensitive to methylmercury (the most prevalent form of mercury in fish). A second set applies to women beyond their childbearing years and men.

### **Why is mercury found in fish from this region?**

The Clear Lake area is rich in mineral deposits, including cinnabar. Prospecting for mercury and other ores has been an important activity in the area since the mid-1800s. Mercury from natural weathering and mercury-containing waste from the mines can contaminate nearby water bodies. Also, geothermal springs venting directly into Clear Lake or draining into Cache Creek and Bear Creek can carry mercury. Once mercury accumulates in bottom sediments, bacteria convert the inorganic form of mercury into a more toxic, organic form known as methylmercury, which fish take in from their diet. Methylmercury can build up in fish to concentrations many thousands of times greater than mercury levels in the surrounding water. Because methylmercury accumulates in fish slowly over time, larger fish of a species usually have higher concentrations of methylmercury than smaller fish from the same water body. Predatory fish, such as bass, generally contain more methylmercury than non-predatory fish, such as trout.

**Because methylmercury affects the developing nervous system, women of childbearing age and children age 17 years and younger should carefully follow guidelines for eating these fish.**

### **What are the human health effects of methylmercury found in these fish?**

Developing fetuses and children are especially sensitive to methylmercury. Pregnant women and nursing mothers can pass on methylmercury to their fetuses or infants through the placenta and through breast milk. Excess exposure to methylmercury can cause harm to the nervous system in children, leading to subtle decreases in learning ability, language skills, attention, and memory. These effects may occur through

adolescence as the nervous system continues to develop. For this reason, a more conservative set of guidelines applies to women of childbearing age and children up to and including age 17.

In adults, the most subtle symptoms of methylmercury toxicity are numbness and tingling sensations in the hands and feet or around the mouth. Other symptoms at higher levels of exposure could include loss of coordination and vision problems.

The levels of methylmercury found in fish from these lakes and rivers should not result in the health effects described above if the proposed guidelines are followed.

### **Would it be better if I stop eating all fish from this region?**

No. Fish are a nutritious part of your diet when eaten in moderate amounts. By following OEHHA's guidelines for eating fish from this region, you can reduce your risk of health effects from exposure to methylmercury. This fact sheet provides proposed guidelines to help you determine how much fish you should eat.

In addition, because almost all ocean and freshwater fish contain some level of methylmercury, you should consider your total fish consumption when making choices about how much fish to eat. OEHHA recommends that women of childbearing age and children aged 17 years and younger do not eat shark, swordfish, king mackerel, or tilefish. This advice is consistent with recent national advice. In addition, women of childbearing age and children can safely eat up to two meals a week of a variety of commercial fish, but only if they do not eat sport fish from local water bodies in the same time period. If you also eat fish caught from other water bodies in California, check whether OEHHA has issued an advisory for that location. If there is no advisory for a specific water body, women of childbearing age and children should limit their consumption of sport fish from that water body to one meal a week.

### **What are the next steps in OEHHA's evaluation?**

OEHHA is seeking public comment on the draft report and advisory guidelines. Written comments can be sent to Dr. Margy Gassel at the address provided below until June 16. OEHHA will review all comments before issuing a revised report and advisory. OEHHA will also make brief presentations and take questions and comments on May 26 at the Cache Creek Watershed Forum committee retreat at 10 a.m. at the Guinda Grange Hall, 16787 Forrest Ave, Guinda.

### **Where can I get more information or send comments?**

Dr. Margy Gassel  
Office of Environmental Health Hazard Assessment (OEHHA)  
1515 Clay Street, 16<sup>th</sup> Floor  
Oakland, California 94612  
Telephone (510) 622-3166 FAX (510) 622-3218 e-mail [mgassel@oehha.ca.gov](mailto:mgassel@oehha.ca.gov)  
Or visit the OEHHA Web site at: <http://www.oehha.ca.gov> (Click on "Fish")

For information on mercury in commercial fish, contact:

U.S. Food and Drug Administration  
Center for Food Safety and Applied Nutrition  
1 (888) SAFEFOOD or <http://www.cfsan.fda.gov/~dms/admehg3.html>

## HEALTH ADVISORY: FISH AND SHELLFISH CONSUMPTION GUIDELINES FOR CLEAR LAKE AND CACHE CREEK

Fish are nutritious, providing a good source of protein and other nutrients, and are recommended as part of a healthy, balanced diet. As with many other kinds of food, however, it is prudent to eat fish in moderation and to make informed choices about which fish are safe to eat. OEHHA provides this consumption advice so that people can continue to eat fish without putting their health at risk.

<b>Women of childbearing age and children 17 years and younger may eat:</b>	
<b>ONCE A MONTH</b>	Largemouth bass, smallmouth bass, channel catfish, white catfish, brown bullhead, green sunfish, black crappie, white crappie, Sacramento blackfish, Sacramento pikeminnow, hardhead, or Sacramento sucker <b>OR:</b>
<b>ONCE A WEEK</b>	Bluegill, hitch, carp, trout, or crayfish
<b>Women beyond childbearing age and men may eat:</b>	
<b>ONCE A WEEK</b>	Largemouth bass, smallmouth bass, channel catfish, white catfish, brown bullhead, green sunfish, black crappie, white crappie, Sacramento blackfish, Sacramento pikeminnow, hardhead, or Sacramento sucker <b>OR:</b>
<b>3 TIMES A WEEK</b>	Bluegill, hitch, carp, trout, or crayfish
<p><b>EAT SMALLER FISH OF LEGAL SIZE.</b> Fish accumulate mercury as they grow.</p> <p><b>DO NOT COMBINE FISH CONSUMPTION ADVICE.</b> If you eat multiple species or catch fish from more than one area, the recommended guidelines for different species and locations should not be combined. For example, if you eat a meal of fish from the one meal per month category, you should not eat another fish species containing mercury for at least one month.</p> <p><b>Meal size is assumed to be eight ounces for a 150-pound adult.</b> If you weigh more or less than 150 pounds, add or subtract one ounce to your meal size, respectively, for each 20-pound difference.</p>	

**CONSIDER YOUR TOTAL FISH CONSUMPTION:** Fish from many sources (including stores and restaurants) can contain elevated levels of mercury and other contaminants. If you eat fish with lower contaminant levels (including commercial fish) you can safely eat more fish. The American Heart Association recommends that healthy adults eat at least two servings of fish per week. Shrimp, king crab, scallops, farmed catfish, wild salmon, oysters, tilapia, flounder, and sole generally contain some of the lowest levels of mercury.

### FISH AND SHELLFISH CONSUMPTION GUIDELINES FOR BEAR CREEK

<b>DO NOT EAT</b>	No one should eat any fish or shellfish from Bear Creek
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