



## San Francisco Bay Oil Spill Health Questions and Answers

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

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### **Background**

On November 7, 2007, the Cosco Busan container ship struck one of the towers of the San Francisco-Oakland Bay Bridge, causing a release of an estimated 58,000 gallons of fuel into San Francisco Bay. In response to the spill, Governor Schwarzenegger issued an Executive Order suspending all fishing for human consumption in the areas affected by the oil at least until December 1, 2007, or when state health officials determined that fishing could be reopened. The Executive Order directed the Office of Environmental Health Hazard Assessment (OEHHA), in consultation with the California Department of Public Health (CDPH), to “expeditiously review the available scientific information to determine whether a significant human health risk is posed by the human consumption of marine life caught in the area impacted by the oil spill.”

Governor Schwarzenegger announced on November 29, 2007, that fishing in the spill area could resume. This was based on an OEHHA evaluation concluding that the consumption of fish, crab and most mussels from the spill area would not pose a significant health risk. CDPH concurred with OEHHA’s findings.

OEHHA’s November 2007 evaluation found oil contaminants in mussels at the Berkeley Marina and Rodeo Beach (Marin County) that were high enough to potentially pose hazards to consumers. OEHHA issued a health advisory at that time that recommended against the consumption of mussels from these two locations. As discussed below, OEHHA is now rescinding its advisory because oil contaminants in mussels from these locations have decreased to insignificant levels.

### **What was the concern about the consumption of fish and shellfish following the oil spill?**

The concern was that toxic chemicals in the oil would accumulate to dangerous levels in fish and shellfish. The main toxins of concern in the oil that was released are a group of chemicals called polycyclic aromatic hydrocarbons (PAHs). In addition to being present in fuels, they are also formed by the burning of coal, gasoline, and vegetation. Humans are exposed to PAHs primarily through the diet. Cooking and curing processes can produce additional PAHs in foods. Smoked or barbecued meat and fish usually contain higher levels of PAHs compared to other foods. Long-term exposure to high levels of PAHs is associated with an increased risk of developing cancer.

### **How was the sampling and analysis conducted?**

A working group composed of several state agencies oversaw the sampling of fish and shellfish from the area impacted by the spill. Samples of herring, surfperch, mussels, rock crabs, and Dungeness crabs were collected from various locations in San Francisco Bay and along the coast

north and south of the Golden Gate by the California Department of Fish and Game. Samples of rock crabs and Dungeness crabs were also collected in Tomales Bay and Bodega Bay, located outside the spill area, to serve as comparisons. The fish and shellfish samples were analyzed for several kinds of PAHs.

### **What were the test results?**

Fish and crabs were found to have either non-detectable or very low levels of PAHs that could pose a health risk. Some mussels initially had higher levels. As part of its evaluation, OEHHA identified a level of PAHs, in the form of benzo[a]pyrene equivalent (BaPE) concentrations, in fish or shellfish tissue that, when consumed, will not pose a significant cancer risk to individuals eating one eight-ounce meal of the seafood with that PAH level each week for 30 years. The BaPEs measured in fish and crab samples were well below this level of health concern.

Mussels at the Berkeley Marina and Rodeo Beach (Marin County) were both above the limit of health concern. Mussels collected from other locations in the bay and on the coast contained low BaPE concentrations, below a level of health concern.

### **Are mussels from Berkeley Marina and Rodeo Beach still contaminated?**

Following the first evaluation and issuance of the report and advisory, additional collections of mussels from Berkeley Marina and Rodeo Beach were planned and carried out. Mussel samples from surrounding areas were also collected, including Albany and Emeryville in the East Bay, and Muir Beach in Marin County, to define the extent of contamination. The samples were analyzed for PAHs in the same manner as before. Results showed that BaPE levels had decreased in mussels from Berkeley Marina and Rodeo Beach, and that samples from these sites and adjacent areas were well below the health criterion. Therefore, the advisories for no consumption of mussels from Berkeley Marina and Rodeo Beach are no longer in effect. Mussels from these locations can be eaten. Mussels from other areas in the Bay (Hyde Street Pier and Angel Island) were also collected and analyzed at the same time and remained well below the health criterion.

### **What are the recommendations about eating fish and shellfish from San Francisco Bay and coast at this time?**

OEHHA, in consultation with CDPH found that eating fish and shellfish from the oil spill area does not pose a significant health risk from spill chemicals. OEHHA recommends that only the meat of crabs should be consumed – not their internal organs – because, in general, other chemical contaminants (such as pesticides and polychlorinated biphenyls [PCBs]) are more likely to accumulate there. Do not eat the soft “green stuff” (called “crab butter,” mustard, tomalley, liver, or hepatopancreas) that is found in the body section of crabs.

Although the tests found no increased risk due to PAHs from eating fish and crabs from the spill area, it is possible that some fish or crabs may come into contact with pockets of oil. As a common-sense precaution, consumers should avoid eating any fish or shellfish that have an oily smell or taste. People that eat fish from San Francisco Bay are also advised to follow the pre-spill health advisory based on mercury and PCBs for fish from San Francisco Bay. These health guidelines are shown below.

**Are some of the beaches still closed?**

Local officials reported that all beaches have been reopened. However, tar balls and oil may continue to resurface or wash onto shore for some time. Direct contact with oil or tar balls either in the water or on the beaches can cause skin irritation. Anyone coming in contact accidentally with oil should wash the oil off with soap and water. Washing hands is important before eating to avoid ingestion of oil. Use of harsh detergents or solvents such as paint thinner to remove oil is unnecessary and may cause additional skin irritation. Clothes contaminated by oil may be washed as usual.

**For more information:**

For more information on the oil spill and OEHHA's fish advisories, visit the OEHHA Web site at [www.oehha.ca.gov](http://www.oehha.ca.gov). Additional information on the spill can be found at [www.dfg.ca.gov](http://www.dfg.ca.gov)

**The Health Advisory recommending against consumption of mussels from Berkeley Marina and Rodeo Beach has been lifted. Mussels from these areas have been found to have low levels of PAHs that are safe for consumption.**

**Please continue to follow the pre-spill health advisory for San Francisco Bay.**

**Health Advisory for San Francisco Bay**

- **Women of childbearing age and children** should eat no more than one meal per month of San Francisco Bay sport fish, including sturgeon and striped bass caught in the delta. In addition, they should not eat any striped bass over 27 inches or any shark.
- **Women beyond their childbearing years and men** should eat no more than two meals per month of San Francisco Bay sport fish, including sturgeon and striped bass caught in the delta.
- **Women beyond their childbearing years and men** should not eat any striped bass over 35 inches.
- One meal for a 160-pound adult is about eight ounces before cooking.
- This advisory does not apply to salmon, anchovies, herring, and smelt caught in the bay; other sport fish caught in the delta or ocean; or commercial fish.

- In addition to the above advice, no one should eat any croakers, surfperches, bullheads, gobies or shellfish taken within the Richmond Harbor Channel area because of high levels of chemicals detected there.