



Bulletin No. 16  
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Oil Spill Public Health Advice - Report No. 3

## Seafood and Subsistence Safety

Since our last bulletin about the oil spill (No. 8, July 14, 1989), many individuals, organizations, and agencies have concentrated their energies to answer the following question:

### **Are Alaskan seafoods and other subsistence foods safe for human consumption?**

Activities have included extensive review of scientific publications; consultation with scientists with expertise on the toxicity of crude oil from industry, state and federal agencies; evaluation of results of laboratory tests on samples of seafood collected from areas affected by the spill; and widespread discussion of all available information by the Alaskan Oil Spill Health Task Force. A special meeting also was held in Seattle on September 14 with a panel of experts who were asked to review all available information related to the potential impact of the oil spill on food safety.

During the past four months, thousands of finfish and dozens of other seafoods have been tested for evidence of contamination with crude oil.

- . more than 5000 commercial finfish were tested organoleptically (inspection, smell, and taste) by Alaska Department of Environmental Conservation (ADEC) -- None have been positive for external contamination.
- . more than 900 halibut were tested for aromatic hydrocarbons in bile and tissue by NOAA-NMF - Aromatic hydrocarbons and alkanes were not detected in any samples of edible flesh. (Report available)
- . 10 samples of subsistence foods (7 fish, 2 shellfish, 1 octopus) were tested by the Food and Drug Administration (FDA) for the Alaska Department of Fish and Game pilot subsistence study. Finfish had low levels of aromatic hydrocarbons comparable to literature values for uncontaminated fish. Levels in shellfish samples were slightly higher than concentrations usually encountered in areas not contaminated with oil. (Report available)
- . 16 samples of fish bile and 48 samples of edible flesh from fish and shellfish were tested by NOAA-NMF from the Exxon Dames & Moore Subsistence Study, Cycle 1. Contaminants related to petroleum were not detected in most of the samples analyzed. Clear evidence of oil exposure was found with high levels of aromatic hydrocarbons in mollusks from Windy Bay, a heavily oiled beach, and from Near Island by Kodiak City harbor. Cycles 2 and 3 are being analyzed and results will be reported soon. (Report of Cycle 1 findings available; Reports from Cycles 2 and 3 will be when tests are finished)

Results of studies to date, combined with available scientific knowledge, provide powerful evidence that Alaskan finfish are and will continue to be safe to eat. Levels of aromatic hydrocarbons found to date in finfish are very low and are similar to levels in uncontaminated fish.

Because only a small number of crustaceans (crabs) and mollusks (clams and mussels) have been tested, our recommendations about their safety are more tentative and cautious. Specimens of mollusks taken from heavily oil-contaminated beaches have shown high levels of aromatic hydrocarbons. Shellfish tested from "clean beaches" have shown the presence of aromatic hydrocarbons in higher concentrations than found in uncontaminated areas but at levels that do not represent a serious health hazard. If mollusks are consumed, they should not be collected from areas that are obviously contaminated with oil.

Note: The Alaska Division of Public Health and ADEC for many years have advised that bivalve mollusks should not be collected from Alaskan beaches because of the dangers from paralytic shellfish poisoning (PSP). PSP represents the greatest danger from eating bivalve mollusks. Commercially collected clams and mussels are routinely tested for PSP and are safe for consumption.

Marine mammals not obviously contaminated with oil are probably also safe for consumption, but no tests on marine mammals have been done to date. Specimens have been collected, and definitive recommendations will be made when results of tests have been reviewed.

Toxicity to humans from exposure to crude oil, especially weathered crude oil is very low. There are many components, comprised of thousands of different chemicals, in crude oil. Human health concerns have focused most intensely on one chemical family, aromatic hydrocarbons, because some of the chemicals in this family are known to cause cancer after long-term exposure to high levels, and the levels of aromatic hydrocarbons can be measured accurately at very low levels (parts per billion). Testing for aromatic hydrocarbons is a reliable way to detect evidence of oil contamination in seafood and other subsistence foods.

Risk from exposure to aromatic hydrocarbons due to the oil spill in food cannot be said to be zero, but the contribution to levels of aromatic hydrocarbons in food not obviously contaminated with oil as a result of the oil spill are so low as to constitute no basis for public health concern.

The oil will be biodegraded eventually; but pockets of oil in various stages of weathering will exist throughout the affected area. Continued monitoring of finfish, crustaceans, and mollusks is necessary to determine if oil contamination increases during the winter and to document the eventual decline of levels to background.