

Tests show fish contaminated by oil

FAIRBANKS — Test results released recently confirm earlier findings of oil contamination in subsistence fish and shellfish collected from the path of the *Exxon Valdez* oil slick, according to the University of Alaska Fairbanks.

Scientists and health officials say, however, that contamination levels are considered safe.

"There is a very low risk of adverse health effects from human consumption of these seafood species," said Dr. John Middaugh, chief of epidemiology with the Alaska Department of Health and Social Services.

Scientists from the National Oceanic and Atmospheric Administration conducted the tests to determine the levels of aromatic hydrocarbons, chemicals found in oil, that may have found their way into the tissues of fish and shellfish harvested by Alaska's subsistence users. Some of the chemicals are known to cause cancer.

not expect the doses in Alaska fish and shellfish to cause human health problems.

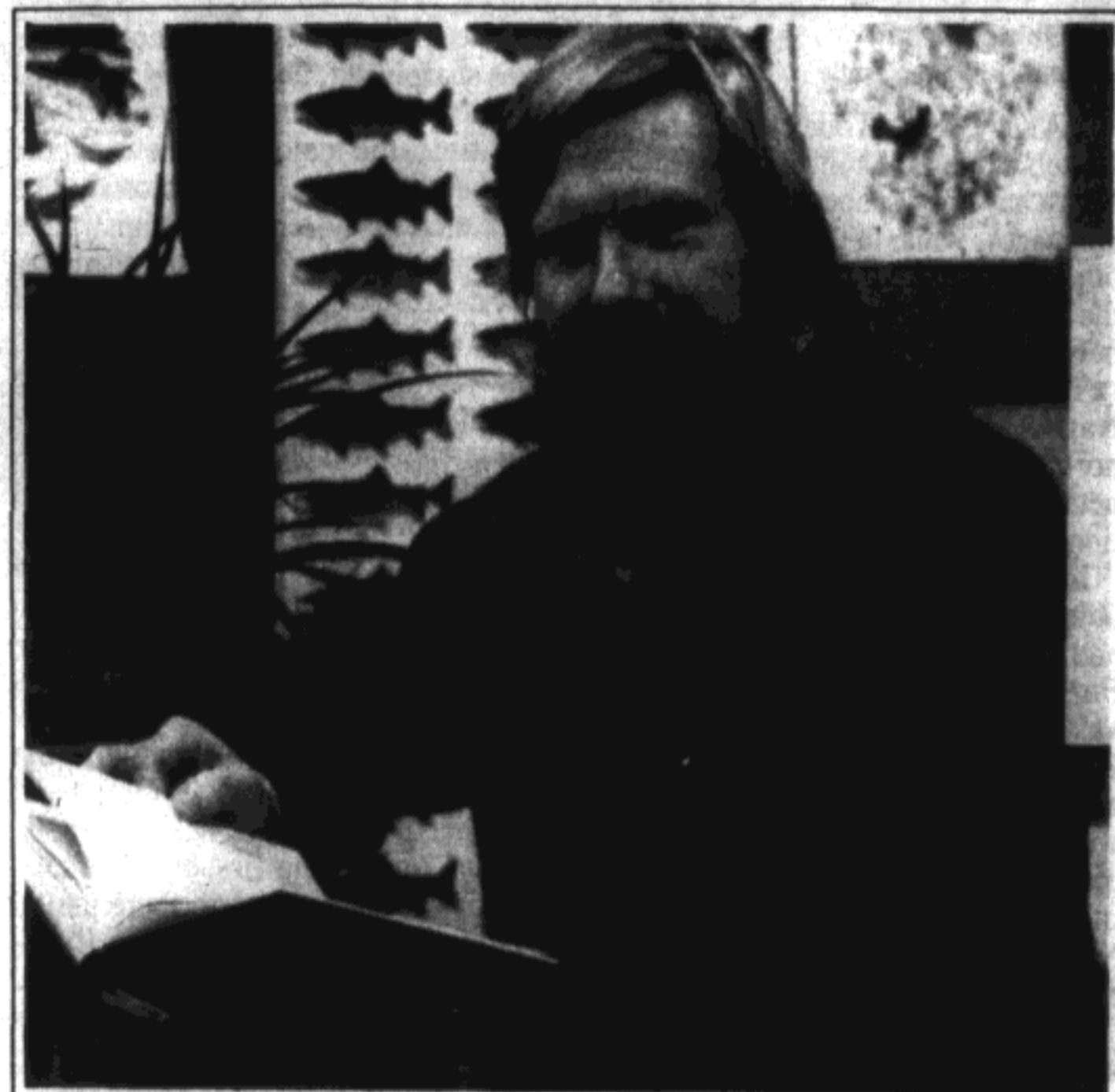
Indeed, fish samples from most of the test areas were contaminated at levels below the 50 parts per billion suggested by the FDA as unsafe.

Shellfish, on the other hand, contained considerably higher levels of aromatic hydrocarbons than did fish.

In Windy Bay, an area at the southern tip of the Kenai Peninsula hit hard by the oil spill, certain aromatic hydrocarbon levels ranged from 2,400 ppb to as high as 16,000 ppb in shellfish.

High levels of aromatic hydrocarbons in shellfish also were found in Old Harbor, a village on Kodiak Island, and Kodiak during the third round of tests.

Dr. John French, a seafood biochemist at the University of Alaska Fairbanks and member of an independent team of experts reviewing the



Kurt Byers photo courtesy Alaska Sea Grant College

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A list of oil's hydrocarbon ingredients reads like the back of a junk food package: Naphthalene, acenaphthylene, fluorene, phenanthrene, chrysene, and about 100 other chemical compounds.

Together these chemicals are called polycyclic aromatic hydrocarbons or PAH. The compounds are found in oil, but also in wood smoke, vehicle exhaust and the charcoal used to cook steak.

No one knows for certain at what levels these toxins can be hazardous. However, officials with the U.S. Food and Drug Administration have stated that levels exceeding 50 parts per billion of total aromatic hydrocarbons in living tissue may cause adverse health effects.

Alaska Seafood Considered Safe

Although aromatic hydrocarbon levels in some fish and shellfish exceed FDA allowances, scientists do

NOAA/Exxon study, offers some perspective to the study's findings by comparing the results to known aromatic hydrocarbon levels in other commonly eaten foods.

For example, many of the aromatic hydrocarbons found in crude oil are present in the wood smoke that wafts over and is absorbed into salmon flesh each year inside thousands of smokehouses throughout Alaska, French said.

According to a 1983 study published in the *Handbook of Polycyclic Aromatic Hydrocarbons*, other foods, such as smoked ham, salami, bacon, herring, and nori — a seaweed — were found to have as high or higher levels of aromatic hydrocarbons than oil-contaminated Alaska fish and shellfish.

Study Has Shortcomings

Although the results of the

NOAA/Exxon tests may calm fears within the fishing industry and absolve the oil industry of some charges of environmental destruction, scientists readily admit there are not enough samples to base conclusions on aromatic hydrocarbon's long-term environmental effects.

For example, in Akhiok, a village on Kodiak Island, only two pink salmon were tested.

In Windy Bay, where shellfish were hit hardest by oil contamination, no fish were tested.

"There could have been a more detailed study, but we needed to get some indication of the problem as quickly as possible," said Dr. Usha Varanasi, director of the NOAA Environmental Conservation Division that did the study.

"The sample size was not large, but it was the best we could do under the circumstances," he said.

Varanasi said weather hampered efforts to collect samples and that more shellfish samples should have been taken.

Other species that are depended upon by subsistence users and that may be affected by the oil spill, such as her-

ring, deer, birds and other animals, were not tested. Such tests may be part of future studies, Varanasi said.

State and federal seafood inspectors thus far have been successful in preventing oil-contaminated seafood harvested commercially from making it to market.

Winter Storms Likely to Increase Contamination

Winter storms now pounding coastal Alaska are expected to release a steady flow of beached oil into the water, said French, raising questions about the long-term environmental consequences.

In the short-term, winter storms may mix more aromatic hydrocarbon particles into the water, temporarily increasing contamination in fish and shellfish.

But as oil is diluted, fish, shellfish and other species will stop accumulating hydrocarbons and begin to cleanse themselves.

This article was produced by the University of Alaska Fairbanks School of Fisheries and Ocean Sciences. It was developed by the school's Alaska Sea Grant College Program.