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Report: Toxins found in whales bode ill for humans

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AGADIR, Morocco – Sperm whales feeding even in the most remote reaches of Earth's oceans have built up stunningly high levels of toxic and heavy metals, according to American scientists who say the findings spell danger not only for marine life but for the millions of humans who depend on seafood.

A report released Thursday noted high levels of cadmium, aluminum, chromium, lead, silver, mercury and titanium in tissue samples taken by dart gun from nearly 1,000 whales over five years. From polar areas to equatorial waters, the whales ingested pollutants that may have been produced by humans thousands of miles away, the researchers said.

"These contaminants, I think, are threatening the human food supply. They certainly are threatening the whales and the other animals that live in the ocean," said biologist Roger Payne, founder and president of Ocean Alliance, the research and conservation group that produced the report.

The researchers found mercury as high as 16 parts per million in the whales. Fish high in mercury such as shark and swordfish — the types health experts warn children and pregnant women to avoid — typically have levels of about 1 part per million.

The whales studied averaged 2.4 parts of mercury per million, but the report's authors said their internal organs probably had much higher levels than the skin samples contained.

"The entire ocean life is just loaded with a series of contaminants, most of which have been released by human beings," Payne said in an interview on the sidelines of the International Whaling Commission's annual meeting.

Payne said sperm whales, which occupy the top of the food chain, absorb the contaminants and pass them on to the next generation when a female nurses her calf. "What she's actually doing is dumping her lifetime accumulation of that fat-soluble stuff into her baby," he said, and each generation passes on more to the next.

Ultimately, he said, the contaminants could jeopardize seafood, a primary source of animal

protein for 1 billion people.

"You could make a fairly tight argument to say that it is the single greatest health threat that has ever faced the human species. I suspect this will shorten lives, if it turns out that this is what's going on," he said.

Payne called his group's $5 million project the most comprehensive report ever done on ocean pollutants.

U.S. Whaling Commissioner Monica Medina informed the 88 member nations of the whaling commission of the report and urged the commission to conduct further research.

The report "is right on target" for raising issues critical to humans as well as whales, Medina told The Associated Press. "We need to know much more about these problems."

Payne, 75, is best known for his 1968 discovery and recordings of songs by humpback whales, and for finding that some whale species can communicate with each other over thousands of miles.

The 93-foot Odyssey, a sail-and-motor ketch, set out in March 2000 from San Diego to document the oceans' health, collecting pencil-eraser-sized samples using a dart gun that barely made the whales flinch.

After more than five years and 87,000 miles, samples had been taken from 955 whales. The samples were sent for analysis to marine toxicologist John Wise at the University of Southern Maine. DNA was compared to ensure the animals were not tested more than once.

Payne said the original objective of the voyage was to measure chemicals known as persistent organic pollutants, and the study of metals was an afterthought.

The researchers were stunned with the results. "That's where the shocking, sort of jaw-dropping concentrations exist," Payne said.

Though it was impossible to know where the whales had been, Payne said the contamination was embedded in the blubber of males formed in the frigid polar regions, indicating that the animals had ingested the metals far from where they were emitted.

"When you're working with a synthetic chemical which never existed in nature before and you find it in a whale which came from the Arctic or Antarctic, it tells you that was made by people and it got into the whale," he said.

How that happened is unclear, but the contaminants likely were carried by wind or ocean

currents, or were eaten by the sperm whales' prey.

Sperm whales are toothed whales that eat all kinds of fish, even sharks. Dozens have been taken by whaling ships in the past decade. Most of the whales hunted by the whaling countries of Japan, Norway and Iceland are minke whales, which are baleen whales that feed largely on tiny krill.

Chromium, an industrial pollutant that causes cancer in humans, was found in all but two of the 361 sperm whale samples that were tested for it. Those findings were published last year in the scientific journal Chemosphere.

"The biggest surprise was chromium," Payne said. "That's an absolute shocker. Nobody was even looking for it."

The corrosion-resistant metal is used in stainless steel, paints, dyes and the tanning of leather. It can cause lung cancer in people who work in industries where it is commonly used, and was the focus of the California environmental lawsuit that gained fame in the movie "Erin Brockovich."

It was impossible to say from the samples whether any of the whales suffered diseases, but Wise found that the concentration of chromium found in whales was several times higher than the level required to kill healthy cells in a Petri dish, Payne said.

He said another surprise was the high concentrations of aluminum, which is used in packaging, cooking pots and water treatment. Its effects are unknown.

The consequences of the metals could be horrific for both whale and man, he said.

"I don't see any future for whale species except extinction," Payne said. "This is not on anybody's radar, no government's radar anywhere, and I think it should be."

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