

# PCBs may threaten killer whale populations for 30-60 years

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Exposure to toxic PCBs poses a long-term threat to orcas, also known as killer whales. Credit: Courtesy of National Oceanic & Atmospheric Administration

Orcas or killer whales may continue to suffer the effects of contamination with polychlorinated biphenyls (PCBs) for the next 30 – 60 years, despite 1970s-era regulations that have reduced overall PCB concentrations in the environment, researchers in Canada report.

Their study, which calls for better standards to protect these rare marine mammals, is scheduled for the Sept. 15 issue of ACS' *Environmental Science & Technology*.

In the study, Brendan Hickie and Peter S. Ross and colleagues point out that orcas face a daunting array of threats to survival, including ship

traffic, reduced abundance of prey and environmental contamination. Orcas, which reach a length exceeding 25 feet and weights of 4-5 tons, already are the most PCB-contaminated creatures on Earth. Scientists are trying to determine how current declines in PCBs in the environment may affect orcas throughout an exceptionally long life expectancy, which ranges up to 90 years for females and 50 years for males.

The new study used mathematical models and measurements of PCBs in salmon (orcas' favorite food) and ocean floor cores to recreate a PCB exposure history to estimate PCB concentrations in killer whales over time. It concluded that the “threatened” northern population of 230 animals will likely face health risks until at least 2030, while the endangered southern population of 85 orcas may face such risks until at least 2063. PCBs make whales more vulnerable to infectious disease, impair reproduction, and impede normal growth and development, the researchers say.

“The findings provide conservationists, regulators, and managers with benchmarks against which the effectiveness of mitigative steps can be measured and tissue residue guidelines can be evaluated,” the study reported. “The results of our study on PCBs may paint an ominous picture for risks associated with emerging chemicals, as the concentrations of structurally-related PBDEs are doubling every 4 years in marine mammals,” researchers added.

Source: American Chemical Society

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