

## Anadromous Fish from the Penobscot River



Photo Credit: ATSDR Staff

### Penobscot Indian Nation, Maine (Revised January 2021)

This fact sheet summarizes the Agency for Toxic Substances and Disease Registry's (ATSDR) health consultation report on the possible risks associated with eating certain kinds of fish from the Penobscot River.

### ATSDR Findings

**Please note:** the fish species evaluated in the Health Consultation have levels of dioxin that represent a health hazard for PIN members of any age groups. Tribal members should not eat any of the anadromous fish specified in this report. The presentation of contaminant-specific recommendations have been provided for comparative purposes only. Those recommendations would only apply if the contaminant presented was the only contaminant in the fish tissue.

Tribal members who eat anadromous fish from the Penobscot River for a year or more may be exposed to harmful levels of dioxins, furans, and polychlorinated biphenyls (PCBs).

- Tribal members are at risk of developing liver cancer.
- Boys who eat anadromous fish could experience reproductive problems later in life.
- Pregnant women who eat anadromous fish could have complications during their pregnancy and may expose the fetus to dioxins that could cause developmental problems in newborns and young infants.
- The fish species ATSDR evaluated have levels of dioxin that are dangerous for all age groups.
- Eating 5 to 10 ounces of anadromous fish daily could increase cancer risk and cause harmful non-cancer health effects such as a decrease in their immune system.

- Eating anadromous fish daily could weaken the immune system, damage the eyes, and change toes and fingernails.

Some anadromous fish (rainbow smelt, striped bass, or sea lamprey) have methylmercury levels that are a health concern for children. One species (sea lamprey) has levels that are a concern for adult women who are or might become pregnant.

- Children and fetuses are most at risk from exposure to methylmercury. It can interfere with a child's ability to learn and process information.
- Children, pregnant and breastfeeding women, and women of child-bearing age should limit their consumption of anadromous fish.

ATSDR detected perfluorooctane sulfonic acid (PFOS) in four species of anadromous fish: American shad roe, blueback herring, striped bass, and sea lamprey. Children and adults who eat these fish may increase their risk of



non-cancer harmful health effects. PFOS is one kind of per-and polyfluoroalkyl substances (PFAS). Many studies have examined PFAS levels in blood and adverse health effects in people. However, not all studies involved the same groups of people, the same type of exposure, or the same PFAS, resulting in a variety of observed health outcomes. Research in humans suggests that high levels of certain PFAS in the blood may lead to:

- increased cholesterol levels;
- changes in liver enzymes;
- decreased vaccine response in children;
- increased risk of high blood pressure or pre-eclampsia in pregnant women;
- increased risk of kidney or testicular cancer;
- small decreases in infant birth weight.

Human and animal studies suggest PFOS might cause cancer. However, the risk is uncertain. This report evaluates PFAS exposure from only one source: eating anadromous fish. The dose cannot account for PFAS exposure from other sources.

## ATSDR Recommendation

Because of the health consultation findings, ATSDR recommends the following for the Penobscot Indian Nation:

- Tribal members should not eat any of the anadromous fish specified in this report. They contain dioxin levels which could cause harmful effects, including a significantly increased risk of liver cancer.

## More Information

- If you have questions about the health consultation, contact Gary Perlman by email at [gap6@cdc.gov](mailto:gap6@cdc.gov) or phone at (617) 918-1492.
- To read the full report online, visit <https://www.atsdr.cdc.gov/HAC/PHA/HCPHA.asp?State=ME> or visit the following locations.
- For more information about ATSDR, visit [www.atsdr.cdc.gov](http://www.atsdr.cdc.gov).



ATSDR released the report and this fact sheet previously on October 28, 2020. To help improve its quality, accepted your comments during the public comment period until December 1, 2020 by email ([ATSDRRecordsCenter@cdc.gov](mailto:ATSDRRecordsCenter@cdc.gov)) and mail: ATSDR Records Center, 4770 Buford Highway, NE, Mailstop: S102-2, Chamblee, GA 30341.