

Researchers to study chemical contamination of US waters

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University of Rhode Island and Harvard University professors are collaborating through a new research center to study chemicals that have contaminated water at sites nationwide.

The chemicals, called perfluorinated chemicals, have been linked to cancer and other illnesses but aren't federally regulated in drinking water. Water has been contaminated near sites of industrial facilities and U.S. military bases.

URI announced Tuesday that it received a five-year, \$8 million grant from the National Institute of Environmental Health Sciences to establish a center focused on gaining a better understanding of how these chemicals make their way into water, through the food chain, and affect people and animals.

They will work with communities in Cape Cod, Massachusetts, where contamination has been an issue. They also want to develop new detection tools.

They chemicals are found in many household products and in firefighting foam used by the U.S. military.

The U.S. Environmental Protection Agency issued stricter guidelines last year regarding human exposure to perfluorooctane sulfonate and perfluorooctanoic acid, or PFOS and PFOA, which are not currently federally regulated in drinking water.

"So frustratingly little has been done on the regulatory side, I thought a center like this could help," said professor Rainer Lohmann of the URI Graduate School of Oceanography.

Lohmann, an environmental chemist, said he wants to give regulators the information they need to help communities dealing with contamination. He's trying to devise a better way to sample and measure water for perfluorinated chemicals.

Lohmann applied for the funding to start the research center with his URI colleagues, experts at Harvard and at the nonprofit Silent Spring Institute in Massachusetts.

Philippe Grandjean, who leads a research group at Harvard's School of Public Health, has done studies suggesting that breast milk is a major source of exposure during infancy and that these chemicals may adversely affect immune system development, thereby reducing the effectiveness of vaccines in children. Grandjean will contribute research to the center.

Many of his studies are focused on the Faroe Islands, a country between Norway and Iceland, where the homogeneous population makes it easier to measure the effects of chemical exposure from marine food contaminants.

Elsie Sunderland, who teaches at Harvard's School of Engineering and Applied Sciences, is trying to understand how the geochemistry of an area affects how far the chemicals will travel and enter into drinking water. She's also figuring out how to better discern the source of the chemicals and how fish respond once exposed to contaminated water.

"For the compounds we've already released into the environment, we have to figure out how to assess risk from their exposure and where

action needs to be taken," she said. "More broadly, we want to raise awareness about these compounds so we don't make any more mistakes about their release or use in ways that have unanticipated health effects down the line. The effects we're seeing are alarming."

Sunderland is looking at sites around Cape Cod, Massachusetts. Elevated levels of perfluorinated chemicals have been found near Joint Base Cape Cod. Firefighting foam containing these compounds was used during training exercises at the base, she said.

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