

New model predicts hot spots for mercury in fish

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Mercury levels in fish are prompting widespread consumption advisories and uncertainty among consumers over which species are safe to eat. Now researchers at North Carolina State University have developed a model that will help scientists and regulators around the country predict which areas are likely to have fish with high mercury levels – a breakthrough that should help officials address public uncertainty by developing health advisories for specific water bodies and fish species.

The NC State researchers have created a statistical model that can incorporate data on the variety of factors that influence mercury levels in fish tissue – such as the pH of the water and the size and species of the fish – to identify those aquatic ecosystems that are likely to have fish with high mercury levels.

"We want to be predictive," says NC State's Dr. Derek Aday, "rather than reacting to events after they've happened." Aday, an assistant professor of biology at NC State who is part of the research team, says the model can be used "to develop specific health advisories for water bodies and species rather than sweeping advisories." Current advisories tend to restrict consumption of certain species for an entire state or region out of concern that mercury levels in the fish could adversely affect human health.

While the NC State effort has so far focused on North Carolina, Aday says, "The goal is to create a template that could be used in systems throughout the country. Specific variables may change, but the approach

would be the same." In fact, Aday says, "we've identified a suite of variables that we believe will be consistent in driving mercury dynamics across many aquatic systems." The new model is a synthesis of a number of smaller statistical models that allows researchers to examine the combination of factors that can drive contaminants in aquatic systems.

In order to collect data for use in the new model, the researchers synthesized water quality, fish tissue mercury and environmental data that had been collected by North Carolina agencies since 1990. That database was then used to construct the statistical model.

Source: North Carolina State University

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