



**MARYLAND DEPARTMENT OF THE ENVIRONMENT**

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Fellow Marylanders:

Part of the Department of the Environment's far-reaching mission is to provide information that will allow Marylanders to make informed decisions about matters that affect their health. For recreational fishermen, that means knowing about the level of contaminants found in fish and shellfish caught in the Chesapeake Bay and its tributaries. In this issue of **EnviroMatters**, we look at the science behind the information we provide – how we gather data and how we report safe consumption levels.

I hope you find this issue of **EnviroMatters** useful. As always, your comments and feedback are welcome.

Sincerely,

Kendl P. Philbrick  
Secretary

## The Science of Fish Consumption Advisories

For over two decades, the Maryland Department of the Environment has been collecting data on contaminants (such as polychlorinated biphenyls, or PCBs, mercury and pesticides) in fish and shellfish caught in the Chesapeake Bay and its tributaries. That data, especially as it has been refined in recent years, is used to advise the public about safe consumption levels.

On one level, the science of measuring contaminants is straightforward. We collect fish, crabs and oysters from various locations, especially in areas where we know or suspect that contaminants might be present, and take samples of the edible portion. The samples are treated with a solvent, which separates the contaminants from the sample; analysis with a gas chromatograph or atomic absorption instrumentation gives us precise data on types and levels of organic chemical and heavy metal contamination. That data, in turn, influences the locus of future sampling.

We pay special attention to fish that are bottom feeders like catfish and carp because contaminants accumulate on the bottom. We also focus on fatty fish like eels (PCBs accumulate in fat) and predators that absorb the contaminants in other fish.

The science behind the information we provide to recreational fishermen and those who eat fish, crabs and oysters caught in Maryland waters comes from a steady accumulation of knowledge and careful testing, and the information, usually in the form of advisories, reflects the best scientific judgment of experts. We draw information from a variety of sources. For example, we use Maryland data from the U.S. census to estimate how long the average Marylander lives in one location, and thus the possible exposure to contaminants from a local waterbody. We also factor in changes in national trends for health endpoints, such as the fact that the average American has gained weight as well as the Environmental Protection Agency's conclusion that nationally, levels of fish consumption are higher than previously thought.

From these calculations come easily understood recommendations for people who catch and eat fish. For example, and to illustrate a point, fishermen who might catch white perch on the Eastern Shore between the Chester River and the Maryland-Virginia line can safely eat up to 8 meals a month. Fish caught north of the Chester and Bush rivers (like the Elk River and C&D Canal) might be more likely to contain higher levels of contaminants; the safe limit is up to 11 meals a year. With this knowledge, recreational fishermen could make informed decisions about how much fish they can safely consume.