Eating properly cooked Chesapeake Bay striped bass poses no known health risk

Recent media reports describing an outbreak of a bacterial disease called mycobacteriosis in Chesapeake Bay striped bass have heightened public and industry concern about whether the disease organism(s) pose any threat to human health.

As scientists who have studied this disease since it was first observed in Chesapeake Bay stripers in 1997, we need to clarify what is currently known about this fish disease and to re-affirm that the consumption of properly cooked striped bass is wholesome and poses no known health risk to humans.

Mycobacteriosis is the generic term for a disease caused by a group of bacteria known as mycobacteria. These organisms are widespread in terrestrial, freshwater, and marine environments. Some fraction of the known species of mycobacteria can cause disease in animals and humans.

Mycobacteriosis in Chesapeake Bay striped bass was first reported by researchers at the Virginia Institute of Marine Science in 1997. The current outbreak is most commonly associated with two newly described bacterial species, *Mycobacterium shottsii* and *Mycobacterium pseudoshottsii*. Approximately 70% of the resident schooling striped bass in the Bay currently appear to be infected, with internal organs such as the spleen and kidneys being the primary infection sites. About 20-30% of the infected fish also exhibit unsightly skin ulcers. The external signs of disease are mainly observed during summer and fall.

There is no evidence that humans can contract mycobacteriosis by consumption of properly stored and cooked striped bass. Conventional cooking (baking, broiling, frying, or steaming) destroys mycobacteria. We recommend that striped bass not be used to prepare raw seafood dishes.

Fish exhibiting the unsightly skin ulcers are of greatest concern to anglers, because these lesions can contain viable mycobacteria. A small percentage of striped bass (~6%) are infected with *Mycobacterium marinum*, a species associated with a non-contagious infection of the skin or soft tissues in humans called "fish-handler's disease." It is also called "swimming pool granuloma" as infections have also been linked to swimming pools in addition to standing waters and aquaria.

Infection by *Mycobacterium marinum* requires a susceptible individual and a portal of entry such as a cut or skin abrasion and is generally restricted to the extremities (arms or legs). Thus, there may be a slight risk for infection when handling infected striped bass if you have open cuts or receive minor wounds. We have no information on the disease-causing ability of the two new species of mycobacteria found in striped bass but do not consider it likely that they pose a human health threat, given they do not grow well at body temperature.
To put this risk in perspective, consider recent data from Maryland (where, unlike Virginia, "fish-handler's disease" is reportable to the state health department). In Maryland, where saltwater anglers make about 500,000 angling trips per year for striped bass, 31 cases of fish handler's disease were reported in 2005 (the most recent year for which data are available). How many of these 31 cases are directly associated with fishing is not known.

To avoid infection anglers should abide by the following common-sense guidelines:

- wear gloves and minimize handling of striped bass with skin ulcers
- return fish with unsightly skin ulcers to the water
- take particular care if you have a cut, scrape, or abrasion on your hands or arms
- wash thoroughly with antibiotic soap and water after contacting fish with ulcers

Anyone who suspects they may have developed this infection should contact their physician and inform them of the nature of the exposure. Some symptoms of infection by *Mycobacterium marinum* are reddish hard nodules or sores that are swollen and do not heal, typically on the hands, elbows, or knees. Swelling of nearby lymph nodes may occur. We recommend that such infections be reported promptly to a physician.

Although the prevalence of mycobacteriosis associated with exposure to aquatic environments is very low, individuals whose immune system has been impaired by age, disease, or chemotherapy are at greater risk for serious illness because mycobacteria can spread throughout the body.

Research on the causes and consequences of mycobacteriosis in striped bass continues at the Virginia Institute of Marine Science and other state and federal agencies around the Bay. For additional information on this disease, visit the VIMS mycobacteriosis home page at [http://www.vims.edu/myco/](http://www.vims.edu/myco/)

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