



## Who are the Invaders?

The natural world is dynamic, with plants and animals constantly on the move. Climate change and human activities have accelerated their spread. Humans have transported plants and animals from one region to another for thousands of years, changing environments as they go. Ships traversing the globe have introduced nonnative species to new places as seeds and larvae picked up in one port arrive in another, often traveling in the ballast water that stabilizes ships or sticking to hulls. A nonnative species is considered “invasive” when it begins to cause economic and environmental damage. There are more than 200 species of nonnative plants and animals in the Chesapeake Bay watershed.

The blue catfish is native to the Mississippi, Missouri and Ohio rivers. During the 1970s and 1980s, Virginia’s Department of Game and Inland Fisheries introduced them to several rivers for sport fishing. They have now spread to most Maryland and Virginia tributaries of the Chesapeake Bay, completely dominating the fish community in some areas. A Virginia biologist electrofishing (running electrical current through water to stun the fish) on the James River brought more than six thousand blue catfish to the surface in less than an hour. They can weigh more than 100 pounds, grow more than 5 feet long, and live for up to 20 years.



Northern snakeheads are native to many parts of Asia. They can breathe air and survive out of water for up to four days, traveling on land as much as a quarter mile by wriggling their bodies. Until the practice was banned, snakeheads were sold in pet shops and live fish food markets in the U.S. They have been found in eight states and in the waters off the SERC campus.

They can grow as long as 4 feet and weigh up to 15 pounds.



**Snakeheads  
can travel a  
quarter mile  
on land.**

## Understanding the dynamics of change

The Smithsonian Environmental Research Center studies the dynamics of coastal regions worldwide, both on land and in the water. Greg Ruiz heads the Marine Invasions Research Lab at SERC, one of the largest labs studying marine invasive species in the world. He seeks to understand the forces driving invasions and the changes they cause. Like other SERC scientists, Ruiz does not make policy recommendations. He provides assessments about what the science says about the likely outcome of particular actions resource managers and others might be considering. His lab’s National Ballast Information Clearinghouse, a joint program operated by SERC and the U.S. Coast Guard, monitors all commercial shipping arriving in U.S. ports—over 100,000 ships per year—to detect invaders.

## Finding fish in clouded waters

The waters of the Chesapeake Bay and its rivers are murky. To keep tabs on animals they often cannot see with their eyes, scientists use sonar and tracking devices implanted in live fish to discover the behavior of various aquatic life. Matt Ogburn, the scientist leading the canoe trip, will demonstrate some of these techniques. He specializes in understanding aquatic animal behavior and is interested in ways to work with fishermen, local communities and resource managers to design fisheries for invasive species like the blue catfish. He also studies blue crabs, which support the largest, most valuable fishery in the bay, and other fishery species. Blue crab numbers have dropped in recent years, obliging regulators to reduce the harvest.

## Compiled by Science and the Media

### Sources:

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