

# American Shad

*Alosa sapidissima*

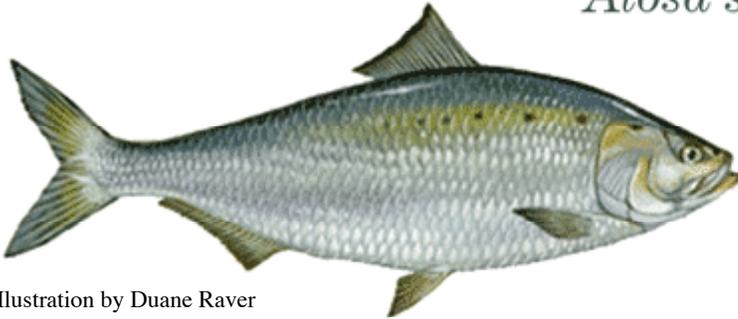


Illustration by Duane Raver

American shad have been called poor man's salmon and white shad. The exquisite taste of their meat is reflected in their Latin species name, *sapidissima*, meaning savory. They are the largest member of the herring family.

Native Americans harvested shad during the annual spring spawning runs and taught colonists how to catch shad in order to feed their families. Dried shad has been credited with saving George Washington's troops from starvation as they camped along the Schuylkill River at Valley Forge. By the 1800s fishermen caught shad by the ton. Even farmers took advantage of this seemingly endless supply of fish, using shad as fertilizer for their fields. People prized shad for their succulent meat and tasty roe (eggs). Everyone eagerly awaited the spring migration of shad.

One key to restoring shad: proper fishway design to open dams. Restoring proper flow of water through or around a dam using fishways and removing dams is the key to getting shad upstream to their spawning grounds once again.

## Life History

American shad are anadromous fish, meaning they spend most of their lives in saltwater but spawn in freshwater. Shad are found along the Atlantic seaboard from Labrador to Florida, and are an important food source for other fish in the Chesapeake Bay such as bluefish and striped bass.

Rising spring temperatures prompt shad to leave the ocean and return to the waters in which they were born. Biologists believe the fish find their natal streams through their uncanny sense of smell that lead back to them to their natal stream. Males arrive on the spawning grounds first, followed by egg-laden females. A female releases 100,000 to 600,000 eggs into the water to be fertilized by several males. Adult shad return to the ocean soon after spawning and can repeat this spawning migration multiple times during a lifetime.

The transparent fertilized eggs are carried along by the current. The larvae hatch in 4 to 12 days. Juvenile shad spend their first summer in freshwater. By autumn, the young shad gather in schools and

swim to the ocean. They will live in the ocean for three years, until mature then return to freshwater to complete their life cycle until about age six. This sustained a thriving shad population for centuries, but this changed as Americans began to prosper.

## Declining Populations

As human population increased so did the demand for shad. The Chesapeake Bay shad fishery was an important seasonal industry by the 1800s. Shad became one of the most commercially valuable fish in the District of Columbia, Maryland, Pennsylvania, and Virginia.

The Susquehanna River contains half of the Chesapeake Bay's American shad production potential, because of the vast amount of spawning habitat that extends upstream to New York State. The decline of the Susquehanna shad population began when the Pennsylvania canal system was built in the 1830s that required feeder dams in the lower 45 miles of the river. These early dams had significantly reduced the shad population in the river by the time other dams were built in the river. Finally, four hydroelectric dams in the lower river eliminated the entire shad run

in Pennsylvania. Dams were also built along all the major rivers of the Chesapeake Bay, impacting shad as well.

By the late 1800s, overfishing also took its toll on shad. This exploitation coupled with pollution and loss of spawning grounds began a downward spiral of shad populations in the Chesapeake Bay. Early attempts to put passage for shad into dams in the Susquehanna and Potomac rivers failed due to ineffective fishway designs. Fisheries managers attempted to restore shad populations in rivers by stocking hatchery-reared shad upstream of dams, but overfishing continued to reduce the population and too much of the spawning grounds remained blocked.

From an annual harvest of 17.5 million pounds at the turn of the century, Chesapeake shad harvests dwindled to less than 2 million pounds by the 1970s. In 1980s, Maryland placed a moratorium on shad harvests in the Chesapeake Bay. In Virginia, where shad were one of the most abundant fish, fishing for shad was banned in 1993. Today, a moratorium has stopped commercial fishing for American shad and restricts any taking of the species.

## **Restoring American Shad**

Today, one of the best American shad runs in the Chesapeake Bay occurs in the Potomac River thanks to a successful shad restoration program. The Little Falls Dam, which was built in 1954 to divert drinking water for Washington D.C., now has a working fishway that opens fish passage to the final 10 miles of prime spawning habitat for shad. Over 17 million shad fry were stocked upstream of the dam. Thanks to the partnership between many organizations involved with this restoration project, American shad have increased in number in the Potomac, making it a leading example of shad restoration and education in the Bay.

Shad restoration continues to be underway in most other river basins in the Chesapeake Bay and along the Atlantic coast. Success will depend upon improving water quality, preventing overfishing and reopening passage to historic spawning grounds. The goal is to achieve self-sustaining runs of shad and to reopen spawning habitat by removing barriers such as dams. Federal and state agencies and other natural resource organizations are working together to restore this essential fish habitat. The steps taken today to conserve migratory fish will sustain commercial and recreational fisheries now and for future generations.