

American Shad (*Alosa sapidissima*)



"...the American shad related to Philadelphia as the cod did to Boston."

— John McPhee
The Founding Fish, 2002



This brochure was compiled by the
Delaware River Basin Commission
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Did You Know?

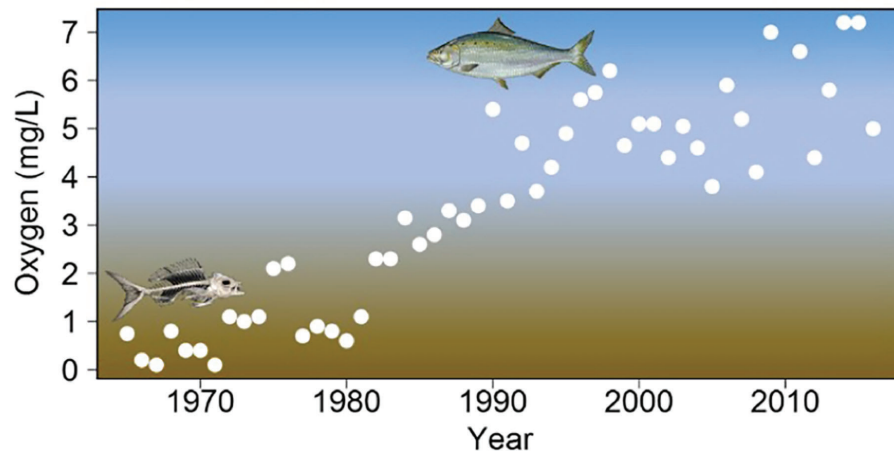
The lower Delaware was an open sewer at the height of World War II. Along some reaches, the pollution robbed the river of all its oxygen, making it impossible for shad and other fish to breathe. The American shad that hatched in the Delaware and migrated to the ocean to spend most of their lives tried to return to the river of their birth to spawn after reaching adulthood. Unfortunately, the "pollution block" in the Wilmington/Philadelphia/Camden vicinity – areas where there was not enough oxygen in the water for them to survive – severely interfered with the spawning run. The Lewis Fishery in Lambertville, N.J. caught 10,000 shad in 1896. By 1953, the total catch was zero.

A major goal during the 1960s and 1970s was to bring the river back to life.

Today, the cleanup of the Delaware is hailed as one of the world's top water quality success stories. The number of American shad in the Delaware River increased dramatically by the late 1980s and early 1990s due in large part to pollution control programs conducted by the Delaware River Basin Commission (DRBC) and other environmental agencies.

In recent years, however, American shad numbers have slipped in nearly all river systems along the Atlantic coast. Despite the water quality improvements and no dams on its main stem which obstruct spawning runs in other East Coast rivers, shad populations in the Delaware River have decreased to levels seen in the late 1970s. This is a perplexing situation to scientists searching for answers. Declines are possibly due to ocean-intercept fisheries, excessive predation by game fish such as striped bass, and various other threats to habitat in rivers, estuaries, and the Atlantic Ocean.

July Oxygen at Ben Franklin Bridge



The data in this graphic were generated from sampling during July on the Delaware River at the Ben Franklin Bridge, which connects Philadelphia, Pa. and Camden, N.J. It shows a steady improvement in dissolved oxygen levels since the mid-1960s. Graphic by DRBC.



The Lewis Fishery crew "Haul-Seining" the Delaware for shad in Lambertville, N.J.

Shad Facts

The American shad is the largest member of the herring family. Adults commonly reach four to eight pounds. The largest recorded shad caught in the Delaware River weighed eleven pounds, one ounce.

Shad are among the strongest and hardest-fighting of all fish found in freshwater.

After three-to-five years at sea, American shad will return in the spring to the river of their birth to spawn, or reproduce.

Fish that follow this migration pattern are called "anadromous." Fish, like eels, that live in rivers most of their lives and spawn in the ocean are "catadromous."

After living in the ocean, shad are adapted to eating larger saltwater plankton and they feed heavily there in preparation for spawning. They do not eat during their return to freshwater, relying on stored energy to sustain them. Unlike Pacific salmon, not all American shad die after spawning. However, it is believed that roughly half perish in the Delaware because the spawning run is a long, difficult journey and high energy is exerted.

If shad eat nothing on their spawning run, then why do they respond to anglers' lures? Although a popular theory is that they are expressing their irritation, no one really knows for sure.

Female shad are called "roes;" males "bucks." Often referred to as the "Poor Man's Salmon," the full-flavored meat of the shad is reflected in its Latin name, *sapidissima*, meaning "most savory." Shad roe, or eggs from the female, are considered a delicacy.

An American shad may migrate 12,000+ miles during an average life span.



Shad Migration Routes

American shad begin their lives in freshwater, like the Delaware River. After hatching in the spring, the young shad (called "fry") grow rapidly, feeding on freshwater plankton and aquatic insects. Decreasing water temperatures and cool fall rains trigger a mass downriver migration to the ocean. Once in the ocean, where they live most of their lives except to spawn, shad will migrate up and down the coast, from their winter range off the mid-Atlantic to their summer range in the Bay of Fundy, off Nova Scotia. (Base maps provided by the National Atlas of the U.S., <http://nationalatlas.gov>)

For more American shad information, please visit <https://www.nj.gov/drbc/basin/living/american-shad.html>



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