Response of American Shad And Striped Bass to Removal Of Quaker Neck Dam

Were American shad and striped bass ever abundant in the Neuse River?

Yes! Historical records show that North Carolina had a number of large commercial fishing operations for anadromous species, which are fish that live in the ocean as adults but spawn in freshwater streams and rivers. Anadromous fish in the Neuse River include the American shad (also known as white shad), striped bass or rockfish, sturgeon, herring and hickory shad. These commercial fisheries produced salted fish that were exported to southern Europe and the northeastern U.S. Unfortunately, landings of American shad and striped bass in the Neuse River have declined significantly for the last 50 years.

What do dams have to do with it?

One factor thought to have impacted many anadromous fish runs is habitat loss due to dam construction. For anadromous fishes, spawning success depends on their ability to reach good quality habitat.

A considerable amount of Neuse River spawning habitat was lost in 1952 due to the construction of the Quaker Neck Dam. This low dam, located at river mile 140 near Goldsboro, was built by Carolina Power and Light (CP&L, now Progress Energy). For many years, the dam provided cooling water for a coal-fired electric plant. Despite the presence of a fish ladder, results of several studies established that the dam was restricting the migration of American shad and striped bass. An engineering solution, voluntarily implemented by CP&L, eliminated the need for the dam. The company has received well deserved environmental awards for its actions. The dam was removed in 1998 by the NC Department of Water Resources in partnership with the US Fish and Wildlife Service and the Environmental Protection Agency.

Upstream fish migration currently ends at Milburnie Dam, 218 miles from the river's mouth. Fisheries studies were done before and after the dam was removed in order to evaluate the benefits of the restored habitat.

Neuse River at the site of the former Quaker Neck Dam, before and after its removal.

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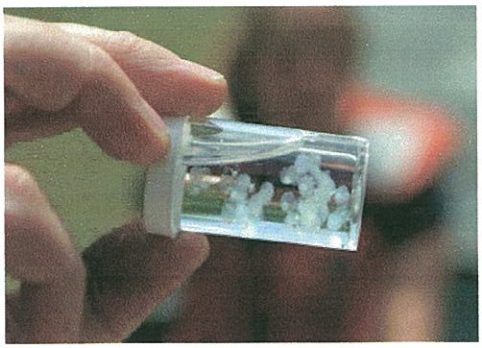
How do biologists know where American shad and striped bass spawn?

American shad and striped bass broadcast their eggs on evenings and on dark afternoons. American shad release over 25,000 eggs and striped bass release more than 200,000 eggs during their time in the river. These eggs drift downstream for several days before they hatch.

When fished from a bridge or boat, these small-mesh plankton nets collect eggs and larvae that can be used to identify the river segments where most striped bass and American shad spawn.



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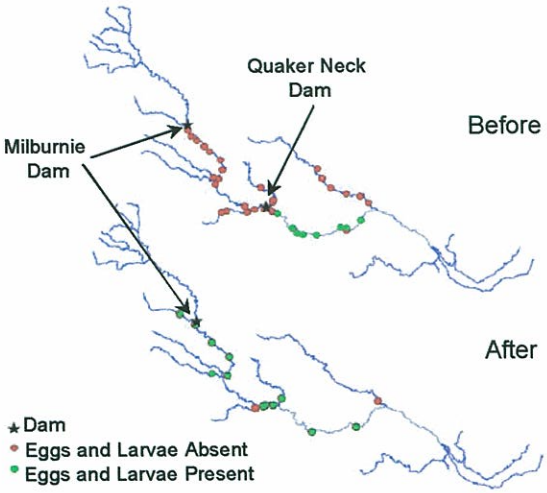
Eggs such as these striped bass eggs are collected from the river and used to map out the location of spawning activity.

Was the removal of Quaker Neck Dam a success?

Yes! Surveys in the 1970s showed that American shad eggs and larvae were scarce and striped bass eggs and larvae were not found upstream of the Quaker Neck Dam. After the removal of the dam, eggs and larvae of both species have been found all the way upstream to Milburnie Dam near Raleigh. When spring flows are adequate, spawning is concentrated in the upper basin well above the former dam site.

Striped Bass Spawning Locations



Before Quaker Neck Dam was removed, striped bass spawned only in the lower river. After the removal of the dam, they spawned at mainstem sites as far upstream as Milburnie Dam in Raleigh.

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