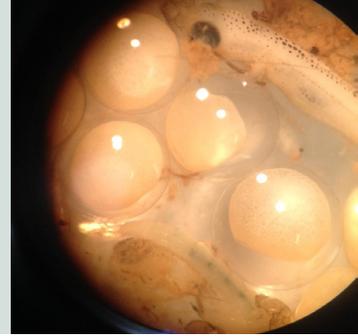




# Assessing Spawning Activity of Anadromous Species in the Cape Fear River

May 2016



American Shad eggs

The N.C. Wildlife Resources Commission (NCWRC) is conducting an early life history survey on the Cape Fear River to gain a better understanding of Striped Bass and American Shad spawning activity at Lock and Dams 1, 2, and 3.

Each year Striped Bass and American Shad migrate upstream into the Cape Fear River to reproduce. Spawning habitat for these species has been altered and fragmented from three Lock and Dams constructed in the early 1900s. Efforts to facilitate upstream migration have been made where the U.S. Army Corps of Engineers performs locking specifically designed for migrating fish. Lock and Dam 1 also was modified in 2012 into a rock arch ramp to allow fish to navigate over the dam.

Genetic evaluations of the Striped Bass population in the Cape Fear River indicate it is entirely dependent on stocking efforts by the NCWRC. Exploring all aspects of Striped Bass early life history with this survey will be extremely useful in understanding why no natural reproduction is occurring.

## Project Objectives:

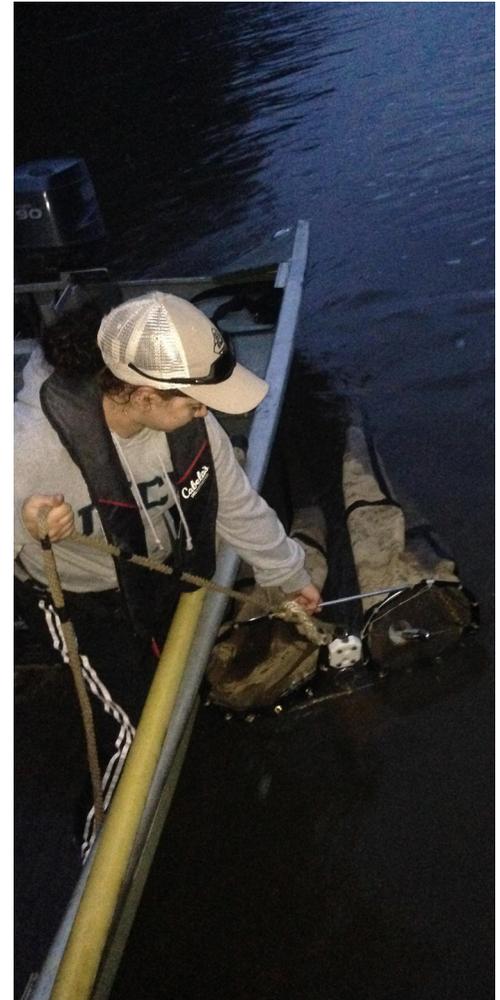
- Document spawning activity of Striped Bass and American Shad at each Lock and Dam in the Cape Fear River.
- Compare spawning activity with information collected before the rock arch ramp was constructed (pre-2012).

## Methods:

- Eggs are collected at dusk when both species are actively spawning using extremely fine mesh nets.
- Nets are placed in the current and lowered to the bottom, then retrieved slowly for a 15-minute sample.
- All contents in the nets are flushed down to a collection jar where they are kept to be sorted and identified later in a lab.



Striped Bass and American Shad Spawning Activity in the Cape Fear River



NCWRC Fisheries Technician Madison Polera deploys a net to collect American Shad and Striped Bass eggs on the Cape Fear River.



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## What has been found so far?

- The NCWRC has collected eggs and larval American Shad from all three lock and dams since March 2016. The field component will be suspended when all spawning activity ceases as indicated by a lack of eggs in samples and when water temperatures exceed spawning temperatures (75F). Following the field component of this survey, we will analyze all data collected from 2016 and determine spawning locations and activity levels for both species.

## What is next?

- Determine survival of fertilized eggs by sampling for larval Striped Bass and American Shad. Larval light traps will be used to collect larval fish in areas downstream of spawning areas.
- Sample for juvenile anadromous species to assess summertime survival. Both American Shad and Striped Bass spawn in the springtime and the offspring migrate down into the lower river and estuary by fall. Focused efforts in these reaches of the river will help understand survival of juvenile fish.
- Determine amount and location of spawning upstream of Lock and Dam 3. Sporadic sampling above Lock and Dam 3 has resulted in the collection of eggs but exact spawning locations and intensity need to be further explored.
- For further information contact:  
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District 4 Fisheries Biologist Clint Morgeson retrieving the bongo nets after a 15-minute tow. Samples are taken 30 minutes after sunset when American Shad and Striped Bass spawn.



View of American Shad eggs and larvae (top) under a microscope. Eggs are around 2 mm in diameter. Did you know, it would take 9,731 American Shad eggs to achieve the size of a golf ball?

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## How You Can Help

Your purchase of fishing tackle, fishing licenses and motorboat fuel helps support fisheries work conducted by N.C. Wildlife Resources Commission fisheries biologists through the Sport Fish Restoration Program administered by the U.S. Fish and Wildlife Service.

