

Sea-to-School: Serving Cape Shark for Lunch at Cape Hatteras Secondary School

Introduction

Sea-to-school programs attempt to connect schools and fishermen with the aim of providing local seafood to students while establishing new markets for fishermen. Despite active farm-to-school programs, sea-to-school programs have yet to be established in North Carolina. With funding from the N.C. Community Collaborative Research Grant Program, Cape Hatteras Secondary School in Dare County piloted the state's first sea-to-school program using cape shark.



Courtesy Cape Hatteras Secondary School

CHSS students created a fish taco recipe using locally caught cape shark in the state's first sea-to-school pilot program.

Bringing the Local Foods Movement to Schools

School foodservice programs are a largely untapped market for many farmers. Nationwide, with more than 31 million school lunches served each day in 2012, commodity purchases by school foodservice operations are in the billions of dollars.

Farm-to-school programs operate in all 50 states, including North Carolina, and connect schools and farmers in mutually beneficial relationships. Students gain access to local foods while farmers gain access to new markets. Farm-to-school efforts have the potential to strengthen economies, share local knowledge of cultural and environmental issues, and increase community health.

During the 2016–17 academic year, North Carolina schools purchased \$1.07 million of locally sourced fruits and vegetables through the N.C. Department of Agriculture and Consumer Services Farm to School Program. Apples, strawberries, sweet potatoes and watermelons were the highest-value products purchased.

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Making the Sea-to-School Connection

Sea-to-school programs exist but are less common and generally concentrated in New England. A desire to support the fishing industry of Hatteras Island on North Carolina's Outer Banks inspired an effort to pilot the state's first sea-to-school program at Cape Hatteras Secondary School (CHSS).

Dare County had more seafood landings than any other county in North Carolina in 2015, with fishermen landing more than 18 million pounds of seafood. Hatteras Island in Dare County, where CHSS is located, is one of the most active seafood ports in the state, with fishermen landing more than 5 million pounds in 2015.

North Carolina Sea-to-School Pilot Program

The CHSS sea-to-school pilot program focused solely on cape shark, *Squalus acanthias*, or spiny dogfish. The North Carolina commercial cape shark fishery occurs from December to April, when the shark is in greatest abundance in local waters. North Carolina's quota was 6.93 million pounds in 2015.

Considered an undervalued species in North Carolina, cape shark has near-target population levels, yet no in-state markets exist. Consumption of lesser-known species like cape shark could support the regional fishing industry as more popular finfish become inconsistently available due to harvest restrictions.

In fall 2016, CHSS foods teacher Evan Ferguson tasked students with creating cape shark recipes that would appeal to their peers and rely on ingredients already available in the school cafeteria. They decided on fish tacos using blackened, baked cape shark. Students used herbs and spices from the cafeteria to create a homemade blackening seasoning, as well as a mild, homemade salsa. They also used 8-inch, store-bought flour tortillas. At the project onset, students experimented with frozen cape shark from New Bedford, Massachusetts, because fresh North Carolina cape shark was not yet in season. After refining the recipe, the students conducted a sensory evaluation of the fish tacos among the school population using fresh cape shark supplied by Wanchese Fish Company.

Participants rated the flavor, texture, aroma and appearance of the tortilla, baked fish, salsa and assembled cape shark tacos. Approximately 97 percent of respondents rated the flavor and appearance of the baked fish as good or better. More than 90 percent of respondents rated the assembled fish taco as good or better for flavor, texture, aroma and appearance. All comments received about the overall tacos were positive.

Lessons Learned and Opportunities

The CHSS pilot highlights the need for schools and local processors to start a dialogue about custom-processing local seafood so that schools' specifications can be met profitably by local producers.

When North Carolina fishermen began harvesting cape shark, a Hatteras processor delivered fillets with the bloodline, or dark meat, intact. At a usable-meat yield of 20 percent, the processor could meet the school's maximum price point of \$2.12 per pound — \$0.53 per four, 1-ounce nuggets — of filleted fish. However, the meat in contact with the bloodline had a strong, "fishy" flavor. After trimming out the bloodline, the usable meat decreased to 10 to 15 percent, meaning the processor could not meet

the school's price ceiling for fresh product and still make a profit.

Another constraint on the Hatteras processor was the student chefs' preference for fresh over frozen North Carolina cape shark. The inconsistent availability of cape shark during winter 2017 proved an impediment to sourcing. Freezing is the only method of stocking a fish long-term, particularly when its presence in local waters is highly variable.

The availability of processed seafood is critical in high-volume foodservice environments like schools. Having access to processing facilities, freezing and storage will ensure local cape shark can be available year-round. Thus, the use of a seafood wholesaler is likely needed.

There was strong interest in eating local seafood, according to feedback from CHSS students and staff. Sensory-evaluation participants indicated excitement with being served fresh, local seafood and helping the local fishermen and economy. Direct outreach to students by their peers and teachers — and established relationships among local fishermen and CHSS staff — encouraged interest in and heightened awareness of the importance of eating local seafood.

Ultimately, to be successful, farm-to-school and sea-to-school programs must develop partnerships that benefit both the school and the local farmer or fisherman. Established programs involve motivated school foodservice directors who can balance cost, nutrition and student participation, as well as local farmers and fishermen with interests in serving new markets. Success in the sea-to-school arena in North Carolina is dependent especially on supply-chain innovations, including aggregation and distribution, as well as custom processing and packaging by processors. It also could require third-party food distributors to add value and accommodate school needs.

Finally, economic studies should be conducted to determine the types of seafood that school systems can afford, and the cost of value addition (such as processing, packaging and distribution) for a heat-and-serve cooking environment. North Carolina Sea Grant's expertise in marine education, economics, and seafood processing and safety is needed and available to guide development of North Carolina sea-to-school programs.

For the full report, visit go.ncsu.edu/STS_capes shark.

Jane Harrison, Ph.D. | Coastal Economics Specialist, North Carolina Sea Grant
jane_harrison@ncsu.edu | 919-513-0122 | @JaneatSea

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