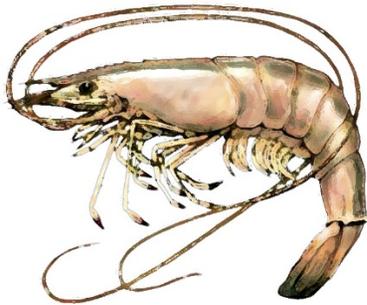


SHRIMP, *Farfantepenaeus aztecus* *Farfantepenaeus duorarum* *Litopenaeus setiferus*



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Life History

There are three shrimp species that make up the shrimp fishery in North Carolina. They are the brown shrimp, *Farfantepenaeus aztecus*, pink shrimp, *F. duorarum* and white shrimp, *Litopenaeus setiferus*. The lifecycle of these three species are similar in that the adults spawn offshore and eggs are hatched into free-swimming larvae. These larvae develop through several stages into post-larvae. Once post-larval shrimp enter the estuaries, growth is rapid and is dependent on salinity and temperature. As the shrimp increase in size, they migrate from the upper reaches of small

creeks to deeper saltier rivers and sounds. By late summer and fall, they return to the ocean to spawn. The maximum life span of shrimp can range from 16 to 24 months and may reach a size of 7 to 11 inches.

Fisheries

Shrimp are harvested throughout the state by otter trawls, skimmer trawls, channel nets, seine nets, cast nets, shrimp pots and pounds. The majority of the harvest is taken by commercial otter trawls. In 2016, the commercial fishery harvested 13.2 million pounds of shrimp; increasing 45 percent from 2015 to 2016 (Figure 1). The 10 year average landings (2007 to 2016) for the commercial fishery is 7.3 million pounds. The majority of the harvest occurs in estuarine waters, with the remainder occurring in the Atlantic Ocean (less than 3 miles from shore). In 2016, landings in the ocean increased 225 percent (Figure 2). Recreational fishermen can purchase a Recreational Commercial Gear License to use limited amounts of commercial gear to harvest seafood for personal consumption. Shrimp harvested under this license cannot be sold and fishermen are limited to 48 quarts of head-on (32 quarts of head-off) shrimp per day. Based on historical survey data, shrimp landed by recreational gear licence holders was estimated to be less than 1 percent of the total commercial shrimp harvest from 2002 to 2008; the survey was terminated in 2008 due to budget constraints. Recreational fishermen using cast nets to harvest shrimp for consumption and bait are further limited to a 4-quart limit (heads on) in closed areas. Current recreational landings of shrimp are unknown.

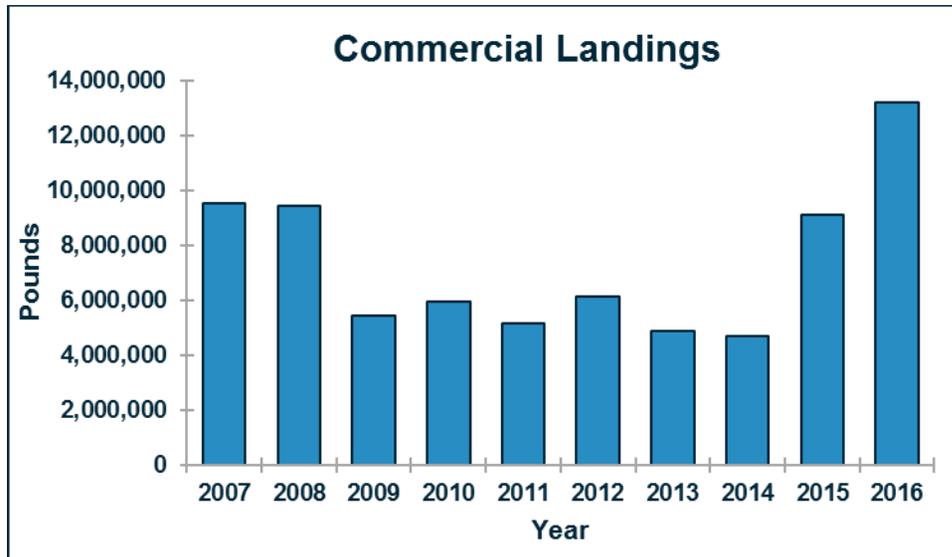


Figure 1. Annual commercial landings of shrimp (all three species) in North Carolina, 2007-2016.

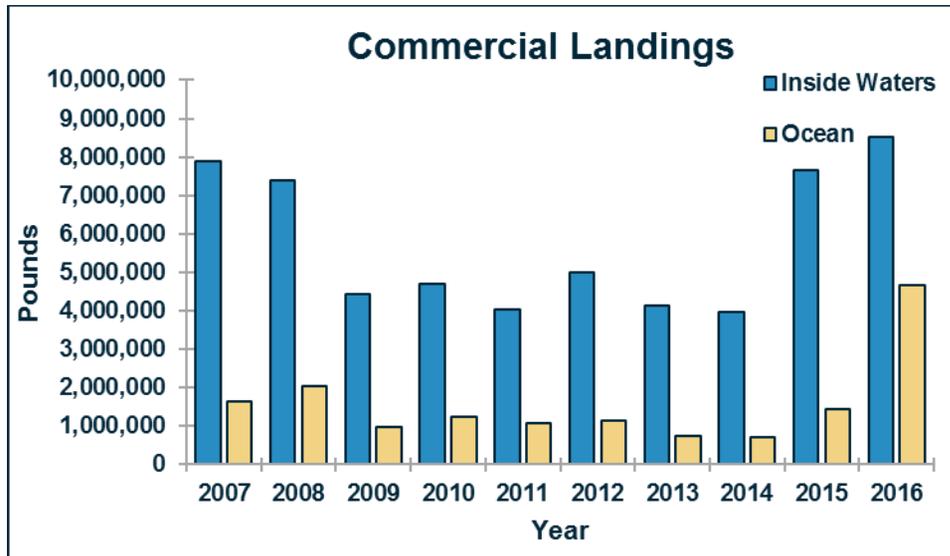


Figure 2. Annual commercial landings of shrimp (all three species) in North Carolina by waterbody, 2007-2016.

Management

A state fishery management plan was approved in April 2006 by the North Carolina Marine Fisheries Commission. The plan included a 90 foot headrope limit in most internal waters, allowed skimmer trawls as a Recreational Commercial Gear License gear and made recommendations on the minimum shrimp size at which some water bodies open to trawling. The plan also closed some areas in the state to protect habitats and juvenile finfish and established a 48 quart limit on shrimp captured by individuals possessing a Recreational Commercial Gear License. A restriction on the use of shrimp trawls above the Highway 172 Bridge over New River took effect in 2010. Amendment 1 was adopted in February 2015 and recommended a wider range of certified bycatch reduction devices to choose from, required two bycatch reduction devices in shrimp trawls and skimmer trawls, and increased the daily harvest limit for cast nets in closed areas. An industry workgroup is currently working to test gear modifications to reduce bycatch to the maximum extent practicable with a 40 percent target reduction in the shrimp trawl fishery. Also as part of Amendment 1, the commission established a permitted live bait shrimp fishery to allow live bait fishermen to fish until noon on Saturdays, effective May 1, 2017.

Stock Status Overview

The status of shrimp in North Carolina is viable. The stock of shrimp is considered an annual crop that consists of three species: brown, pink, and white shrimp. State management of shrimp includes its fisheries in all coastal fishing waters of North Carolina, which includes the Atlantic Ocean out to 3 miles. The population size is determined mainly by recruitment (the number of fish entering the population) and environmental conditions. While fishing reduces the population size over the season, fishing is not believed to have a major impact on subsequent year class strength. Because of their high reproductive output (fecundity) and migratory behavior, shrimp are capable of rebounding from a very low population size in one year to a large population size the next year if the environmental conditions are favorable. The annual juvenile abundance index is calculated as the average number of brown shrimp per site and then averaged across all sites within that year. It gives a relative measure of the juvenile population of brown shrimp. The juvenile abundance index has been variable from year to year, showing a general decline since 2008. In 2015, the highest catch per unit effort (number of brown shrimp per tow) of the 10 year time series occurred (Figure 3). The 2016 brown shrimp juvenile abundance index was the second lowest of the time series. Currently, there are no juvenile indices for white and pink shrimp in North Carolina. Annual landings of these species, as well as brown shrimp, is thought to be indicative of relative abundance.

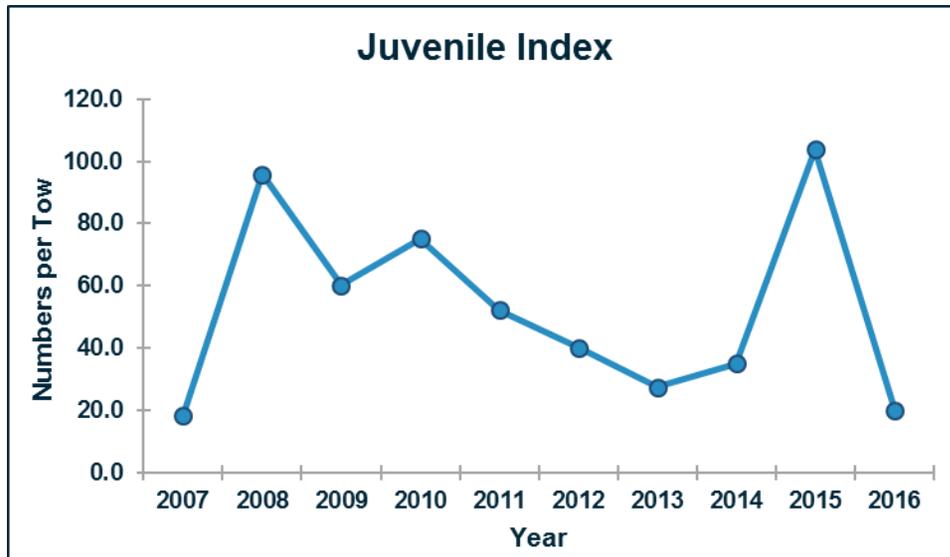


Figure 3. Annual index of relative juvenile abundance of brown shrimp in the North Carolina Division of Marine Fisheries Estuarine Trawl Survey, 2007-2016.

Research Needs

Research needs include: continued bycatch characterization work, development of bycatch reduction devices, development of methods to reduce interactions with protected species; continuing to define and quantify trawling effort in North Carolina estuaries; improving accuracy of license gear survey data; determining how re-suspended sediment, siltation and non-point source pollution impacts shrimp abundance and habitat degradation; and encouraging research and education to improve the understanding of new bycatch reduction devices and turtle excluder devices.

Links

Management Agencies

[North Carolina Division of Marine Fisheries](#)

Fishery Management Plans, Amendments, Revisions, & Supplements

[North Carolina Fishery Management Plan](#)

Contacts

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