

The Hidden Cost of Destructive Fishing Gear in North Carolina

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Chapter II: Gill Nets (entanglement nets)

The purpose of this article is to help North Carolina citizens understand gill nets and how they are used in our estuarine waters. It is our hope that visitors to this site will become better informed on the issues that affect our coastal marine resources and be motivated to get involved with advocating for more sustainable fishing techniques.

How gill nets work. There are a myriad of types, sizes, and configurations of gill nets, usually made of monofilament. Monofilament construction makes these nets virtually invisible in the water. The mesh squares of gill nets entangle and trap fish or any creature large enough to not swim through. When a fish pushes its nose through a gill net mesh square, the mesh stretches until the fish can no longer move forward, being stopped by the mid part of its body. As the fish tries to back out of the net, the strands of monofilament line catch its gills. Fish will often struggle until they die and any air-breathing animal, such as a turtle, will drown if not released fast enough.

The Fishery. North Carolina is the only state that allows any significant gill net fishery in its estuarine waters. In North Carolina, gill nets are classified as either “large mesh” or “small mesh”. The size is determined by stretching the mesh and measuring a stretched mesh square diagonally from corner to corner. In North Carolina, large mesh nets have stretched mesh squares that range in size from 4 to 5 3/4 inches across and small mesh nets have stretched squares that are less than 4 inches



across. This distinction is important primarily because of the target species and the non-target species (termed “bycatch”) that are accidentally caught. Any creature large enough to get tangled in the net can be captured and bycatch often includes fish that cannot be kept (including endangered Atlantic sturgeon), birds (especially diving birds), endangered sea turtles,

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and marine mammals such as dolphins and otters. In some cases, such as with red drum, a “bycatch” species cannot be targeted intentionally, but a small number can be sold, allowing commercial fishermen to profit from their “accidental catch”.



Large mesh gill nets. The primary target of large mesh gill nets is the Southern flounder. In North Carolina, commercial fishermen harvest 78% of the Southern flounder and gill nets are responsible for **about 2/3rds** of the commercial harvest. The balance of the commercial Southern flounder is harvested by more sustainable methods including gigs and pound nets. **The introduction of cheap imported monofilament gill nets to the U.S. in the late 1990’s resulted in an explosion of gill net fishing which has led to almost 2 decades of overfishing of Southern flounder.** The North Carolina Division of Marine Fisheries has classified the Southern flounder stock as “depleted”. In essence, gill nets and very poor

management have destroyed what was once a popular, sustainable, and lucrative recreational flounder fishery. Severe management changes that are aimed at rebuilding the Southern flounder stock are long overdue.



As mentioned above, red drum, the state fish of North Carolina, is a major non-targeted bycatch species for the Southern flounder gill net fishery. Targeting red drum is illegal, but a limited amount of fish can be kept if accidentally caught. The idea behind this bycatch market was to help limit the discard waste of fish killed by gill nets. The daily bycatch limit is presently 7 fish and there is an annual cap of 250,000 pounds. In the fall of 2013, commercial gill net fishermen illegally targeted red drum and exceeded their yearly

cap in less than 3 months, thereby requiring the State to stop the sale of red drum for the rest of the red drum management year (September 1-August 31). The closure of the commercial red drum bycatch fishery meant that any subsequent, accidentally caught fish had to be thrown back, whether dead or alive. Our heavily pressured red drum stock can little afford to be wasted like this. If this species was given “game fish” status, it could no longer be sold, and there would be no incentive for commercial fishermen to illegally target them. Economically, the recreational red drum fishery is worth about 100 times more than the commercial bycatch fishery. If conferring game fish status to red drum caused only a 10% increase in the recreational Red drum fishing, it would likely generate 10-fold more revenue than the value of

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the entire commercial red drum bycatch fishery. Sadly, our fish managers and legislators refuse to recognize this, preferring to allow the political ties of the commercial fishing industry to control the harvest of our North Carolina state fish.



In addition to the unacceptable waste of untargeted fish, other creatures including marine mammals, birds, and sea turtles also become entangled and die, leading to serious legal problems for the state of North Carolina. The indiscriminate killing by gill nets has necessitated that North Carolina apply for and receive Incidental Take Permits (ITPs) from the United States National Marine Fisheries Service. ITPs allow a small number of interactions with, and deaths of, endangered species. These permits are necessary for gill net fishing in order to stop daily violations of the Endangered Species Act due to the capture and/or death of sea turtles and Atlantic

sturgeon. In order to keep the large mesh gill net flounder fishery open, expensive observer programs are required and the state has spent millions of dollars subsidizing an unprofitable fishery while other states have wisely chosen instead to ban or severely restricted gill net use. Only the State of Georgia has an ITP (for Atlantic sturgeon) and that is for their very limited, short duration shad fishery. Economically, it costs more to operate the North Carolina large mesh gill net fishery with its costly observer program than it produces in income for the fishermen who participate in it, and that does not even consider what is lost financially in biological terms. To put it simply, the cost of operating the large mesh gill net fishery is just too great to allow it to continue.

A smaller low-value large mesh fishery for American shad exists but it also has a problem with overfishing of shad and with the bycatch of striped bass and endangered Atlantic sturgeon in the Albemarle Sound Management Area (ASMA). The ASMA commercial estuarine striped bass fishery is a bycatch only fishery, with daily trip limits and an annual cap. The estuarine striped bass fishery is in decline primarily due to overfishing by large mesh and small mesh gill nets fisheries.

Small mesh gill nets. Small mesh gill nets (less than 4 inch stretched mesh) are used for a variety of fish, including speckled trout, striped mullet, hickory shad, white perch, and catfish. These fisheries are all of low economic importance, yet they still do great damage on some species that are caught “accidentally”. It is likely that if “game fish” status were granted to estuarine striped bass, then the hickory shad, white perch and catfish fisheries would be

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unprofitable and cease to exist. Even more frustrating is the fact that striped bass must be 18 inches to be sold, and many, if not most of the fish caught in the small mesh nets are undersized. In some years, more than 50% of the juvenile striped bass “year class” are killed in small mesh nets. This, along with other factors, has resulted in a steady decline in their population over the last decade with neither the commercial or recreational sectors being able to come close to their Total Allowable Catch for many years.

Another important bycatch species in small mesh nets are river herring. River herring are so depleted that they recently were considered for classification as “endangered” by the United States Fish and Wildlife Service. Small mesh gill nets continue to kill this species even though they cannot be sold and very few are left.

Finally, the speckled trout small mesh gill net fishery is also highly problematic. During the winter, large breeder speckled trout are found in creeks bordering the Western Pamlico Sound. Recreational fishermen will target these fish but can only keep a daily limit of 4 fish. Unfortunately, when some commercial fishermen see a recreational fisherman catching speckled trout, they surround them with a small mesh gill net by quickly running their boat in a circle while the net feeds out of the back of the



boat. This allows an entire school of speckled trout to be removed in minutes and instantly ruins the recreational fishing. Such practices lead to localized depletion, and create unnecessary user conflicts. Speckled trout can also go far into the estuary and enter NC Wildlife Resources Commission (NCWRC) governed waters where netting is illegal. Netters sometimes are seen in those waters but arrests are rare because the NCWRC officers are understaffed and heavily involved in waterfowl enforcement at that time of year. This enforcement problem, along with the multitude of other problems discussed above, would be simply solved if gill nets were not permitted in our estuarine waters.

What can you do to help end this senseless destruction? Thank you for taking the time to become more informed and educated on the issues with destructive fishing gear in North Carolina’s estuarine waters. The time for action is here and CCA NC is leading a statewide effort seeking a ban on estuarine gill nets in North Carolina. The North Carolina Marine Fisheries Commission has the power and authority to take action on this issue, but it is unlikely that they will help given the political nature of this regulatory body. A gill net ban is more likely to be accomplished through the North Carolina Legislature. Time is running out for our representatives to answer, “Why is North Carolina the last state to address the destruction of

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estuarine gill net fishing?” CCA NC is asking for your help during our “Save NC Sounds” campaign:

- Get informed on the facts and be willing to contact your state legislators to tell them this issue is important to the future of our state’s coastal marine resources;
- Consider contributing to our campaign — [saveNCsounds.org](https://www.saveNCsounds.org) — to help us keep our legislative and public awareness efforts going;
- And by joining CCA NC — [ccanc.org/join](https://www.ccanc.org/join) — so you can be part of the team that helps restore our estuary to what it once was.