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The Status of North Carolina Marine Fisheries: A Conservative Viewpoint

An article entitled “What is the Health of North Carolina Fish Stocks?” was published earlier this year in the North Carolina Fisheries Association journal *Tradewinds*. The article raises many questions regarding the current status of marine fisheries stocks important to the economy of North Carolina and our coastal ecosystem but suggests that stock status is improving and that negative trends are due to natural cycles in abundance. Based on our review of the current condition of fish stocks in North Carolina, we see things differently.

The article suggests that North Carolina is a prime recreational fishing destination. However, the statements used to back up this claim are simply the number of trips made and number of fish caught. The quality of the angling experience and satisfaction of the anglers has not been surveyed. Further, the size of many fishes harvested is declining based on biological sampling data from NC DMF. We argue, based on the catches per angler and the size of the fishes harvested, angler satisfaction is likely low.

Additionally, the article suggests that natural cycles may explain the status of fish stocks in North Carolina and on the east coast. While fish stock dynamics, e.g., recruitment and abundance, are impacted by environmental variables, to suggest that cycles are the cause of the declines in stock size, spawning stock biomass, and age structure in many of our coastal fisheries is unfounded and misleading. Cycles and annual variability cannot explain why many species that live to 10-12 years of age are only represented by a fraction of that age structure based on biological age samples. For example, southern flounder live to age 9 or 10, yet mostly immature fish, age 1 and 2, make up greater than 80% of the catch based on DMF data. Compared to the U.S. human population, this would be equal to few people living past the age of 20. Ideally, members of all age classes would be present in a healthy fishery. Unfortunately, this situation is rare in North Carolina fisheries.

We disagree that North Carolina fisheries management has been proactive. For example, North Carolina has had ample opportunity to address overfishing in arguably the most sought after commercial and recreational species in state waters, southern flounder. Thirteen years ago the original Southern Flounder FMP in 2005 was enacted. Data from multiple stock assessments and biological sampling indicate the persistence of significant problems and the most recent 2017

stock assessment indicates we are still overfishing on an overfished stock. The southern flounder stock was required, by law, to be rebuilt in 2015. We aren't even close.

Actually, North Carolina is the least restrictive state on commercial fisheries in this country. No other state allows the amount and types of destructive fishing gear and practices that are commonplace in North Carolina. Shrimp trawling in estuarine waters, a devastating practice that kills more juvenile fishes as waste than are harvested by the entire fishery each year, is unique to North Carolina. And, despite claims of being proactive in terms of bycatch reduction devices, the benefits of those devices cannot be determined for species most susceptible. One can argue that bycatch reduction devices are simply trawl efficiency devices that have shown little, if any, measurable reduction in actual fish mortality.

Likewise North Carolina is very permissive on the use of numerous gear types, many of which degrade the habitats that support various fishes. North Carolina permits large scale gill net operations year-round, bottom disturbing clam kicking, indiscriminate haul seining, extensive oyster dredging, and the list goes on. Specific examples of proactive management that outweigh the devastating allowances afforded our fisheries in North Carolina is missing from the Tradewinds argument.

The article cites the NC DMF stock status report as being a quantitative analysis of fish stock dynamics in North Carolina. Problems exist with using stock assessments to evaluate stock dynamics. The stock status reports and definitions employed within them have changed numerous times in its history. Comparisons need to be made among consistent criteria with an understanding of how conservative or appropriate specific rebuilding targets are set. In many cases in North Carolina fisheries, the targets have been set at low levels to avoid additional regulations. Consequently, just because a fishery is deemed to be not overfished or that overfishing is not occurring does not mean the fishery is healthy or sustainable. The bar has been set too low for too long. The article's review of the NC DMF stock status reports attempts to paint a rosy picture but is misleading.

The author states that *“Annual Stock Status reports from the DMF **do not** indicate failed fisheries management policies based on fish population status assessments. In a report to the North Carolina General Assembly in April 2016 the DMF reported that the numbers of fish and shellfish populations that were classified as “viable” had been trending upward since 2011”*.

A review of the number of viable stocks, the bell weather for the article, reveals some interesting observations. Of the 14 viable stocks, 11 (78%) are managed by a federal Council or the Atlantic States Marine Fisheries Commission. The remaining three (3) viable stocks, shrimp, kingfishes, and striped mullet, are managed by North Carolina.

- 1) **Shrimp** are an unassessed complex of three species of shrimp. Their status is wholly dependent on annual recruitment and success or failure cannot be attributable to any management actions taken to protect shrimp.

- 2) **Kingfishes** are an unassessed complex of three species whose stock status is primarily dependent on landings, an unaccepted measure of stock health.
- 3) **Striped mullet** were last assessed in 2013 and landings in 2015 were the lowest since 1994. Declining trends in landings and population indicators raise concerns. Increased effort in this fishery and its primary target on the egg-laden (roe) females raise significant concerns for this fishery, yet the status is viable?

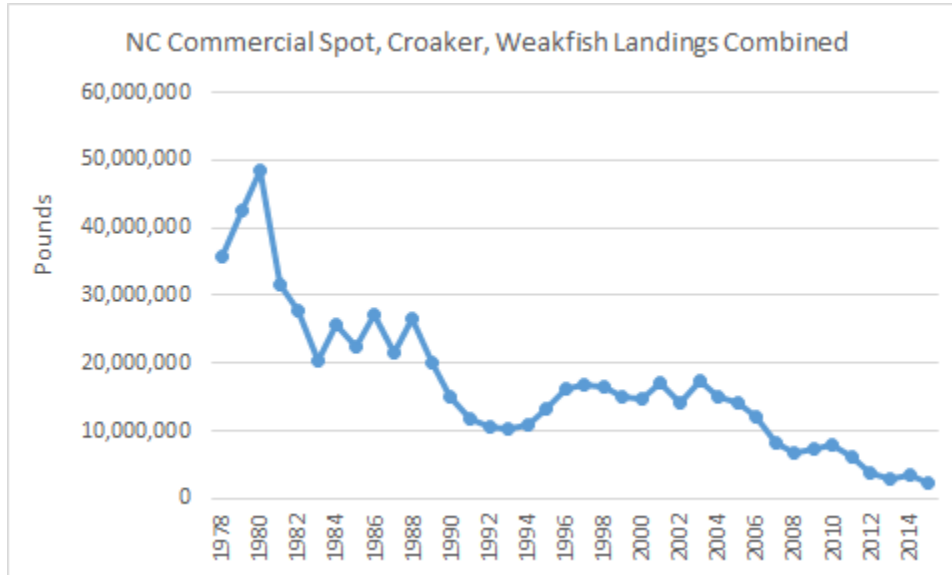
Taking any conservation credit for the viable status of these three stocks is unwarranted and is certainly not the result of any management action, proactive or otherwise, by the State

The article states that only four (4) of the species assessed in the Stock Status Report are solely managed by North Carolina. The three (3) species mentioned above (shrimp, kingfishes, and striped mullet) are managed by the state. In addition, however, the state is also solely responsible for the management decisions affecting Central/Southern striped bass (**Concern**), southern flounder (**Concern**-now depleted based on a peer-reviewed stock assessment), sheepshead (**Unknown**), clams (**Unknown**), blue crab (**Concern**-with declining landings—recently surpassed by shrimp as the most valuable fishery in the state), oysters (**Concern**), Bay scallops (**Concern**-yet no harvestable numbers for nearly 10 years). By our count, that is 10 stocks, not 4, and the status of those stocks is either Unknown or Concern.

Further, 4 stocks were designated as depleted in 2016 versus 5 stocks in 1998, the beginning of the new regulations under the FRA 1997. In 1998, black sea bass north of Cape Hatteras, oysters, sharks, scup, and river herring were designated as depleted (overfished). Today, black sea bass and sharks are recovering or concern and scup have been rebuilt, all under federal management. Oysters and river herring, primarily under North Carolina control remain concern or depleted. In 2016, river herring remain depleted and under a harvest moratorium. Atlantic sturgeon are now listed as Endangered, and it appears that southern flounder have joined the depleted ranks. Not much positive to report in 20 years.

Yet, the article indicates that *“a total of 99% of the species or species complexes in NC whose population status can be estimated are not experiencing overfishing (fished at too high a rate)”*. Yet, blue crab are crashing. River herring have a harvest moratorium. Southern flounder are overfished with the majority of harvest comprising juvenile fish. Bay scallops have not had an open season for years. Weakfish languish at very low levels with the blame being diverted from bycatch and overfishing to some mythical source of unknown natural mortality. Spot and croaker, the mainstay of the commercial small mesh gill net and recreational beach/bank, small boat, and pier fisheries are declining, and still unassessed with accurate estimates of shrimp trawl bycatch. Atlantic sturgeon are now on the Endangered Species list. Yet, the author claims 99% of populations are fine? It is semantics. Note that the article says *“”whose population status can be estimated”*. That eliminates many of the stocks whose numbers are dropping, from consideration in this thesis.

A simple review of the graph below (there are numerous examples in other fisheries) should convince most that the current conditions in North Carolina are far from rosy.



Since the implementation of the Fisheries Reform Act in 1997, total commercial landings of finfish and shellfish have declined from **228 million pounds** to **60 million pounds** in 2016. One might expect, with no overfishing and cycles of abundance as suggested in the article, that such a precipitous decline would be unexpected. Some point to the loss of the industrial Atlantic menhaden fishery to explain this decline. Since the Fisheries Reform Act of 1997 was implemented, however, commercial landings, **excluding menhaden**, have dropped from 131 million pounds in 1997 to 59 million pounds in 2016, a 45% decline.

Consequently, if commercial landings have declined simply because of a reduction in effort or interest, uncaught fish might be available to the recreational fishery and their landings would improve. One might also expect that with a reduction in commercial effort and catch, the effort in the recreational would be increasing if satisfaction is so high. Total effort in the recreational fishery has changed little since 1997.

A review of the recreational statistics data reveals some concerning trends. Summer flounder catches have declined 94% since 1997. Spot catches are down 80% and average size has dropped. Southern flounder catches have dropped from 539,941 pounds as recently as 2010, to 267,811 pounds in 2016 with an increasing trend in discards and subsequent discard mortality. Atlantic croaker landings have declined by more than 50% since 1997. These species make up a large percentage of the most popular North Carolina recreational species. Speckled trout and red

drum appear to be holding their own since drastic reductions in harvest and increased size limits were put into place. Such restrictions have been too little or too late for the others.

The article indicates that *“The people and groups that claim North Carolina’s fisheries are overall in a state of decline point to the number of species classified as “Concern” and/or “Depleted” in the annual Stock Status reports produced by the North Carolina Division of Marine Fisheries (DMF) as proof of failed conservation policies”*. Not us. We point to our observation that we have yet to experience a single rebuilt stock that has maintained abundance and afforded more opportunities to our fishermen since passage of the Fisheries Reform Act in 1997. We also point to our observation that many of our fish stocks are not adequately assessed and declining. Age structure has been reduced in most stocks to the point that the majority of the annual mortality is on juvenile fishes that never spawned, there are too many people pursuing too few fish, habitat protection has languished, water quality remains a key concern and North Carolina is a text book example of the Tragedy of the Commons. Finally, we point to our observations that the distrust and vitriol between the primary user groups in our fishery make any meaningful reform unlikely under the current rules, statutes, and processes. Sugar coating the stock status report based on cherry picked data is a disservice to the citizens of our State and those who depend on her marine resources for their livelihoods or recreation.