

Committee on Resources

Subcommittee on Fisheries Conservation, Wildlife & Oceans

Testimony

**Striped Bass Bycatch
in the Spiny Dogfish Directed Ocean Gillnet Fishery of
North Carolina
Testimony
Provided to
the House Subcommittee on
Fisheries Conservation, Wildlife and Oceans
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Background

Bycatch, defined by many but understood by few, has become a critical issue facing fisheries managers across the globe. Congress addresses this issue through provisions of the Marine Mammal Protection Act (MMPA), Endangered Species Act (ESA) and Magnuson-Stevens Fishery Conservation and Management Act (MSFCMA). The public's perception of wasteful discards of marine resources has led to scrutiny of commercial and recreational fisheries worldwide. Due to the recent comprehensive interest in bycatch and bycatch reduction, there have been many public meetings, workshops, and scientific conferences held in hopes of finding solutions. Ironically, each meeting seems to identify a new set of problems which adds to the growing list of questions that revolve around the bycatch issue. However, with the identification of each new problem we gain better understanding and move closer to the solutions to this multifaceted issue.

North Carolina has conducted bycatch research for many years, and has worked to identify and solve bycatch related problems in North Carolina since the early 1970's. In recent years we have concentrated our efforts on gear development, attempting to identify more efficient fishing gear and practices that reduce discards and bycatch. As we move into the 21st century we find ourselves drawn towards monitoring programs implemented to quantify discards and identify fishing gear and practices already employed by the industry to reduce discards.

In 1996, the North Carolina Division of Marine Fisheries (NCDMF) received a grant from the National Marine Fisheries Service (NMFS) under the Atlantic Coastal Fisheries Cooperative Management Act (ACFCMA) to implement an Interstate Fisheries Management Program in North Carolina. A primary component of this program is the documentation and reduction of bycatch in North Carolina fisheries. Three separate studies are currently being conducted under this grant one of which addresses the issue of striped bass (*Morone saxatilis*) discards in the ocean sink gillnet fishery spiny dogfish (*Squalus acanthias*).

The spiny dogfish fishery in North Carolina has grown exponentially over the last 10 years. In 1997 over 8 million pounds of spiny dogfish valued at over 1 million dollars were landed in North Carolina. In recent

years, fishermen have targeted this species in response to both increased market demand and regulations prohibiting the harvest of other species such as striped bass. For example, there is a limited directed gillnet fishery for Atlantic migratory striped bass in state waters that lasts little more than a few weeks each year during December or January. When the striped bass quota is reached and the season is closed striped bass may still be encountered while fishing for other species in state or federal waters. The potential for striped bass bycatch in non-directed fisheries and the expressed concerns about large numbers of striped bass potentially discarded from dogfish gillnets prompted research to document and quantify striped bass bycatch.

All ocean gillnet fisheries were investigated during the first year of our study. These included the gillnet fisheries for monkfish (*Lophius americanus*), bluefish (*Pomatomus saltatrix*), spiny dogfish, weakfish (*Cynoscion regalis*), and Atlantic croaker (*Micropogonias undulatus*). The monkfish directed fishery operates 10-20 miles offshore during February-April. Large mesh (12"-14" stretched) is employed in this fishery and nets are anchored and retrieved opportunistically. The bluefish fishery operates 1-30 miles offshore during November-March using mesh-sizes of 5.5" to 6" stretched. The gillnets are heavily weighted and fished without anchors. Fishermen locate fish with sonar and set nets into the schools of fish and start retrieving them after a short soak time (30min-4hrs). Sonar is used by fishermen to selectively identify and set on a specific species of fish. The weakfish and Atlantic croaker fisheries employ small mesh (3"-4.5" stretched) gillnets, are also set on schools of fish identified with sonar, and operate from November-April. The North Carolina spiny dogfish fishery employs both anchored and set nets. The fishery operates from the North Carolina-Virginia border south to Ocracoke, with primary fishing areas offshore Oregon Inlet early in the season (November-January) to areas just north of Cape Hatteras and south to Ocracoke Inlet during January-March. The dogfish fishery operates 1-20 miles offshore with most effort concentrated inside 5-miles. Vessels operating in these fisheries are equipped with hydraulically powered net reels, most vessels have two reels with different mesh size nets on each to facilitate fishing for two or three of these target species.

Methods

This study spans three years and began in January 1997. Observers were placed on commercial ocean gillnet vessels operating out of the ports of Wanchese, Hatteras, and Ocracoke during January-March 1997. This time frame was chosen because striped bass are found along the North Carolina coast during this time of year. Observers recorded individual lengths and aggregate weights by species. The total catch weight of both the target species and striped bass were recorded. Each striped bass discarded was assigned one of four conditions (excellent, good, poor, or dead) to obtain an estimate of instantaneous discard mortality. Effort information including set location, mesh size, twine size, net length, net depth, water temperature and soak times were also recorded.

Observers completed forty-seven trips from January 7, 1997-March 23, 1997. Dogfish directed trips were sought and if none could be found trips targeting other species were observed. This combined with the ability of fishermen to change target species at a moments notice contributed to the disproportional number of dogfish trips observed (Table 1).

Table 1. Number of North Carolina gillnet trips observed and trips with striped bass interactions by target species during Jan-Mar 1997.

| Target Species | Trips Observed | Trips w/ striped bass |
|----------------|----------------|-----------------------|
|----------------|----------------|-----------------------|

| | | |
|------------------|----|----|
| Monkfish | 6 | 0 |
| Dogfish | 27 | 12 |
| Bluefish | 5 | 0 |
| Weakfish/Croaker | 9 | 0 |

Results

Of 350 gillnet sets observed for all fisheries combined, 25 have interactions with striped bass (Figure 1). Many of these interactions occurred in the Exclusive Economic Zone (EEZ) and the majority occurred during February (Table 2). Instantaneous discard mortality was estimated to be 23.02% (Table 3). This was the most conservative estimate, which considered all fish that were not in excellent condition as mortalities. Striped bass discarded ranged from 26 to 44 inches (Figure 2).

Table 2. Number of striped bass observed in gillnet sets off North Carolina by month during 1997.

| January | February | March |
|---------|----------|-------|
| 5 | 138 | 0 |

Table 3. Number of striped bass by conditions upon discard for gillnet sets off North Carolina during 1997.

| Excellent | Good | Poor | Dead |
|-----------|------|------|------|
| 107 | 5 | 11 | 16 |

A preliminary estimate of total striped bass discards and discard mortalities was obtained by applying the proportion of positive trips (trips with striped bass interactions) observed for each month to the total dogfish trips for each month based on trip ticket data (Table 4). Based on the average weight of striped bass discarded (17.44 lbs), a total discard estimate for this time period is 8,387 fish weighing 146,244 lbs. When the 23.02% discard mortality is applied the total discard mortality is estimated as 1,930 fish weighing 33,665 lbs.

This is a rough estimate that ignores many factors such as area fished, fishing techniques (set or anchored gillnet), number of sets per trip (effort/trip) and other gear characteristics that may have an impact on total discards and discard mortality. This is preliminary data taken from the first year of our study. During the 1997-1998 season we began our study earlier and finished earlier in an effort to capture the entire season of striped bass interactions in this fishery. Only dogfish trips were observed in year two (97-98) and a total of 42 trips and 210 sets were observed from December 15 through March 15. However, these data are not yet available for analysis.

Table 4. Number of trips observed, positive trips observed, mean striped bass numbers per trip, total dogfish trips, estimated total positive dogfish trips and estimated total striped bass by month for spiny dogfish fish trips in North Carolina during January, February and March 1997.

| | January | February | March |
|----------------------------|---------|----------|-------|
| Total Trips Obs. | 4 | 13 | 10 |
| Total Positive Obs. | 4 | 8 | 0 |

| | | | |
|--------------------------------------|--------|---------|-----|
| % Positive | 100 | 61.5 | 0 |
| Mean # SB/Trip | 1.25 | 17.25 | 0 |
| Total Trips | 654 | 713 | 456 |
| Total Positive Trips | 654 | 439 | 0 |
| Total SB #s /Month | 818 | 7,569 | 0 |
| Total SB lbs/Month | 14,263 | 131,981 | 0 |
| Total SB #s Mortalities/Month | 188 | 1,742 | 0 |
| Total SB lbs | 3,283 | 30,382 | 0 |
| Mortalities/Month | | | |

Recommendations

The Mid-Atlantic and New England Fishery Management Councils are currently formulating a spiny dogfish Fishery Management Plan (FMP). Spiny dogfish have been determined to be overfished by the NMFS and measures to significantly reduce effort and fishing mortality are being considered. Any steps that reduce directed fishing for dogfish should also reduce the amount of striped bass bycatch.

Finally, Atlantic migratory striped bass were declared recovered by the Atlantic States Marine Fisheries Commission (ASMFC) on January 1, 1995. However, the EEZ has remained closed to striped bass harvest. Although area fished was not accounted for in the bycatch estimate given in this report, many of the interactions occurred in the EEZ. This suggests that opening the EEZ to allow limited harvest of striped bass taken as bycatch could reduce unnecessary regulatory discarding. Daily trip limits corresponding to discard mortality rates would prevent targeting of striped bass while allowing fishermen to land incidentally caught fish. This would prevent waste of the resource by providing an alternative for dogfishermen who must now discard all striped bass captured.

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